

ROMANIAN ECONOMIC AND BUSINESS REVIEW

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SMART PUBLIC POLICIES FOR STARTUP GROWTH IN ROMANIA

Ion-Matei Dumitrescu*

Abstract

Romania lags behind its Central and Eastern European (CEE) peers in developing a vibrant startup ecosystem. Venture investment in Romania remains very low – around 0.05% of GDP in 2022, compared to about 0.22% in Poland. Consequently, Romania has seen fewer scale-up success stories and ranks only 42nd globally (and 25th in Europe) in startup ecosystem development. This paper examines how smart public policies fostered startup growth in two CEE countries, Poland and Estonia, during the early 2020s, and draws lessons for Romania. We review key policy interventions – from Poland’s state-backed co-investment funds and tax incentives to Estonia’s startup visa program, grants, and zero-tax on reinvested profits – and analyze their impact on venture funding and startup outcomes. Using a simple regression model on a dataset of startups in Poland and Estonia, we test the effect of policy adoption on startup exits and funding. While the regression results are not statistically significant (given the small sample size), the positive coefficients on policy variables align with qualitative evidence of policy benefits. Based on the comparative analysis, we propose targeted recommendations for Romania across education, funding, and regulatory domains. A coordinated strategy combining these measures could accelerate Romania’s startup ecosystem growth.

Keywords: startups, public policy, venture capital, Central and Eastern Europe, Romania, Poland, Estonia

JEL Classification: L26; M13; O38

1. Introduction

Over the past decade, CEE countries have increasingly turned to startups and innovation as engines of economic growth. However, Romania’s startup ecosystem has underperformed relative to regional leaders like Poland and Estonia. Venture capital investment in Romania is among the lowest in the EU (approximately 0.05% of GDP in 2022), vastly trailing Poland’s ~0.21%. Romania currently ranks around 42nd globally (Startup Genome, 2023) in startup ecosystem strength, reflecting a widening gap even versus some neighbors. The country is classified as an “Emerging Innovator” in European innovation rankings, with an innovation performance about one-third of the EU average. Key challenges include chronic underfunding (especially at later growth stages) and a limited pool of venture-backed firms. Romania’s entrepreneurial activity has often been confined to outsourcing services or small domestic markets, and the country has produced few high-value startup exits aside from recent successes

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like UiPath. In short, despite isolated triumphs, Romania has yet to experience a startup boom comparable to its peers.

The objective of this study is to identify smart public policies that have catalyzed startup ecosystem growth in other CEE countries and explore how Romania can adapt those approaches. We focus on two instructive cases: Poland – a larger emerging market that launched extensive state-backed funding programs – and Estonia – a smaller economy that became known as Europe’s “startup nation” through innovative policy measures. Both countries introduced targeted interventions in the late 2010s and early 2020s, which corresponded with notable increases in startup funding and exits. For example, Estonia now produces several times more startups per capita than the European average (Atomico, 2020), and Poland has seen steady growth in venture deals after establishing a public fund-of-funds in 2017.

We proceed as follows. Section 2 reviews relevant literature on government involvement in startup ecosystems. Section 3 outlines our methodology, including a regression framework to quantitatively assess policy impacts. Section 4 examines the policy measures implemented in Poland and Estonia from roughly 2017–2024 and the outcomes achieved, serving as case studies for analysis. Section 5 then discusses policy implications and recommendations for Romania, drawing on the comparative findings and Romania’s specific needs. Finally, Section 6 concludes that while context matters, Romania can accelerate its startup ecosystem by adopting evidence-backed public policies similar to those of Poland and Estonia.

2. Literature Review

There is a rich literature on the role of public policy in fostering entrepreneurial ecosystems. A common rationale for government intervention is to address market failures in early-stage financing and coordination (Isenberg, 2010). Traditional publicly-run venture funds have often struggled due to design flaws and the crowding-out of private investors (Lerner, 2010). However, more recent evidence suggests that hybrid models—where the government acts as a co-investor or catalyst alongside private venture capital—can yield positive outcomes. For instance, Brander, Du, and Hellmann (2015) analyze international data and find that enterprises funded by government-sponsored venture capital (GVC) achieve better exit rates when GVC investments are made in tandem with private VCs rather than by government alone. This aligns with the approach of public co-investment funds, which aim to “crowd in” private capital and expertise (Colombo et al., 2016). Such schemes have been reported to improve innovation outputs and IPO likelihood compared to purely state-led financing (Brander et al., 2015).

Another stream of research emphasizes the importance of a supportive business environment and human capital for startup success. Tax incentives for

R&D and startup investment are widely used policy tools (e.g. R&D tax credits, “patent box” regimes) and have been associated with increased private investment in innovation (Czarnitzki & Lopes-Bento, 2014). In Poland’s case, the introduction of generous tax deductions for angel and venture investments was intended to stimulate local capital participation (Groszkowska, 2024). Talent attraction programs like startup visas represent a newer policy lever aimed at bringing in high-potential foreign founders and skilled workers. While this concept is relatively recent and rigorous evaluations are limited, early evidence from programs such as Estonia’s Startup Visa indicates significant uptake by international entrepreneurs (Invest in Estonia, 2021a). The OECD (2022) notes that many countries view startup visa programs as a way to boost innovation, while also highlighting the need for better evaluation of their long-term impact.

Overall, the literature suggests that no single policy is a panacea. Successful startup ecosystems typically result from complementary measures – facilitating access to capital, attracting talent, nurturing entrepreneurial skills, and ensuring business-friendly regulations (Mason & Brown, 2014). The experiences of Poland and Estonia illustrate how different policy tools can work in concert. In the following sections, we examine how these two countries implemented various measures in practice and what outcomes they achieved, as a basis for drawing lessons for Romania.

3. Methodology

To assess the impact of startup support policies, we employ a comparative case analysis combined with a simple quantitative exercise. We compiled a dataset of startups in Poland and Estonia that raised at least \$1 million in funding and achieved a successful exit (through acquisition or IPO). This yielded 28 startup cases, which we split into “pre-policy” and “post-policy” cohorts for each country. The pre-policy group consists of companies that were founded and exited *before* major policy interventions (prior to roughly 2017), while the post-policy group covers companies that grew and exited *after* the key policies were introduced (2017 onward). In Poland, for example, the pre-2017 cohort includes earlier successes (such as Allegro, founded 1999, IPO 2020; CD Projekt, IPO 2010), whereas the post-2017 cohort contains a new wave of startups that benefitted from programs launched under the PFR Ventures era (e.g. Vodeno, Nethone, Grupa Pracuj – all of which exited after receiving late-2010s funding). In Estonia, the pre-policy cohort is very small (only a few notable exits like Fortumo or GrabCAD from the early 2010s), while the post-2017 group encompasses a surge of companies that scaled up during or after the introduction of the Startup Visa and related measures (e.g. Bolt, Pipedrive, Starship Technologies).

Using this sample, we constructed a simple regression model to test whether the presence of a supportive policy environment correlates with improved startup outcomes. The model can be summarized as:

$$Y_{c,t} = \alpha + \beta \cdot PolicyPresence_{c,t} + \gamma X_{c,t} + \epsilon_{c,t},$$

where the unit of observation is country c in year t . The outcome variable $Y_{c,t}$ represents startup ecosystem performance; we examined two metrics as dependent variables in separate specifications: (1) the number of startup exits in country c during year t , and (2) the total amount of venture capital funding raised by startups in country c during year t . The key explanatory variable $PolicyPresence_{c,t}$ is a dummy equal to 1 if a major pro-startup policy (such as a public co-investment fund or a startup visa program) was in effect in that country-year, and 0 if not. We included basic controls $X_{c,t}$ for macroeconomic factors (GDP, population) and year fixed effects to account for general trends over time. In this setup, the coefficient β captures the average difference in startup outcomes associated with having the policy in place, holding other factors constant.

Given the very limited sample (two countries over a ~15-year period), this regression is an exploratory exercise. We ran a pooled panel OLS regression on annual data from 2010 through 2024 for Poland and Estonia. The results showed a positive but statistically insignificant effect of policy presence on startup outcomes. For example, in the exit-count regression, having the co-investment fund or visa program active was associated with roughly +0.5 additional startup exits per year, on average, but this estimate was not significant at conventional confidence levels ($p > 0.25$). Similarly, the coefficient for policy impact on total VC funding was positive (on the order of €10–15 million extra investment per year when the policy was in place) but came with high standard errors. These weak statistical signals are unsurprising given the tiny sample and myriad unobserved factors influencing startup success.

Nonetheless, the consistently positive direction of the estimates aligns with expectations that the policies contributed beneficially. Moreover, simple before-and-after comparisons support the regression's implications. In Poland, annual VC investment jumped from virtually zero in the early 2010s to hundreds of millions of euros per year after 2017, and the number of Polish startups achieving significant exits increased modestly in the post-policy period. Estonia's trajectory is even more striking: the count of >\$1M funding exits in our data leapt from only 3 (before the Startup Visa) to 10 after 2017, and total startup funding in Estonia surged to record levels following the policy introductions. While we cannot attribute these outcomes solely to the policy changes, the timing suggests the interventions played an enabling role. In summary, the quantitative analysis – though limited in rigor – is consistent with the view that Poland's and Estonia's policy measures had a positive influence on their startup ecosystems. This combination of data and case evidence provides a basis for formulating tailored recommendations for Romania.

4. Case Studies on Poland and Estonia (2021–2024)

Both Poland and Estonia pursued multifaceted strategies to support startups, involving public funding, fiscal incentives, grants, and talent-focused programs. Table 1 (below) provides a high-level summary of key policy interventions in each country during the late 2010s and early 2020s. In the subsections that follow, we discuss these measures in detail and compare the two cases.

Table 1. Key Policy Interventions in Poland and Estonia (2017–2024)

Policy Area	Poland (2017–2024)	Estonia (2017–2024)
Public VC CoInvestment	PFR Ventures fund-of-funds coinvesting with private VCs;	Tulevikufond (€400M “Future Fund” for VC co-investment,
	by 2023, backed 32 VC funds, ~PLN 1.6B (~€320M) deployed.	launched 2021 under Enterprise Estonia).
Tax Incentives	50% tax deduction for individual startup investments (2021);	0% corporate tax on reinvested profits (continuous);
	“IP Box” 5% tax on IP-derived income; 200% R&D deduction.	flat 20% income tax; stock options tax exempt until sale.
Grants & Accelerators	Startup Booster (2018–2026): grants (€30–100k) + mentorship via regional accelerators (PARP).	Prototron (since 2012): grants for prototypes (€1.4M awarded by 2021, >€85M follow-on raised). National hackathons and incubator programs via Startup Estonia.
Talent Attraction	Poland Business Harbor program (since 2020) to attract IT talent from Eastern Europe; intra-EU talent mobility.	Startup Visa (since 2017) for non-EU founders/employees; ~547 visas issued in 2020, ~20% of startups founded by visa holders. Programs to lure diaspora and retain STEM grads.
Regulatory Environment	Streamlined online business registration (ongoing improvements); Business Angels Law (2015) with minor tax exemptions (plans to enhance).	World-leading e-government and ease of doing business (e-Residency since 2014 enables foreign-founded companies; ~1day fully online company registration).

Sources: PFR Ventures (2023); Invest in Estonia (2021) ; Tax Foundation (2021); PARP and Startup Estonia program reports.

4.1. Public Co-Investment Funds

Poland. A cornerstone of Poland’s policy efforts was the launch of a major public venture capital initiative. In 2017, the Polish Development Fund (PFR) established PFR Ventures, a fund-of-funds program investing public money alongside private investors in VC funds and startups. By 2023, PFR Ventures had partnered with 32 venture funds and deployed approximately PLN 1.6 billion (about €320 million) into 380 startups. This model, financed largely by EU structural funds under the Smart Growth Operational Programme, matches government money with private capital across several sub-funds (e.g. the Starter fund for early-stage, Biznest for business angels, etc.). The co-investment approach helped jumpstart Poland’s once-dormant VC market. Notably, by 2023 roughly one quarter of all VC deals in Poland had some PFR Ventures participation, indicating that public funding became a significant catalyst for private investment.

Estonia. Estonia, being much smaller, took a similar co-investment principle on a different scale. In 2021, the Estonian government set up Tulevikufond (the “Future Fund”), a €400 million sovereign venture fund under Enterprise Estonia. The aim of Tulevikufond is to invest in domestic startups and local VC funds to ensure growth-stage financing is available when private VC inflows slow down. While the scale is different, the intent mirrors Poland’s effort: use public capital to fill financing gaps and “crowd in” private investors. By anchoring larger funding rounds and new VC funds, Estonia’s Future Fund sought to secure a pipeline of growth funding for Estonian startups in the 2020s. Both the Polish and Estonian experiences highlight the value of targeted public capital: Poland’s VC ecosystem grew markedly after 2017, and Estonia managed to sustain funding for local scale-ups even as its small domestic market might have otherwise deterred big investors.

4.2. Tax Incentives

Poland. Poland introduced an array of tax incentives to stimulate startup investment and innovation. A flagship measure was the Investor Tax Relief enacted in 2021, which allows individual investors – such as angel investors or limited partners in venture funds – to deduct 50% of the amount invested in qualifying startups from their personal taxable income (PFR Ventures, 2021). This unusually generous relief (part of Poland’s broader “Polish Deal” economic package) is designed to encourage high-networth individuals and corporations to back innovative startups by dramatically reducing the after-tax cost of such investments. In addition, Poland implemented an “IP Box” regime that taxes income from intellectual property at only 5%, and since 2016 has offered super-deductions for R&D expenditures (up to 200% of eligible costs can be deducted) to incentivize research and development activities. These fiscal

measures have made Poland's tax environment progressively more friendly for startups and investors, aiming to unlock local capital and spur innovation.

Estonia. Estonia's tax policy has long been distinctive, centered on a simple rule: 0% corporate tax on reinvested profits. For over two decades, Estonian companies (including startups) have paid no corporate income tax as long as they reinvest profits back into the business; tax (20%) is due only when profits are distributed as dividends (Tax Foundation, 2021). This effectively allows startups in Estonia to plow earnings back into growth without any tax penalty, a policy widely credited with encouraging reinvestment (Invest in Estonia, 2021). In 2018 Estonia introduced a slight adjustment, taxing regular dividends at 14% in some cases, but retained the 0% rate on retained earnings (Invest in Estonia, 2021). Beyond corporate tax, Estonia also has a flat 20% personal income tax and offers tax exemptions or deferrals to encourage startup employees' equity ownership (e.g. stock options in Estonian startups are typically not taxed until exercise or sale, and even then at favorable rates). These policies have consistently placed Estonia at or near the top of international rankings for tax competitiveness (Tax Foundation, 2021). By contrast, Romania only recently improved its stock option tax rules and still lacks such a reinvested-profit tax incentive – underlining a competitive gap in the fiscal environment for startups.

4.3. Grants and Accelerator Programs

Poland. In addition to equity financing initiatives, Poland rolled out direct support programs for earlystage startups. A notable example is Startup Booster Poland (launched 2018, running through 2026), which provides non-dilutive grants and mentorship via a network of regional accelerators. Managed by the Polish Agency for Enterprise Development (PARP), this program establishes accelerator hubs outside of the capital Warsaw and co-finances startups' product development in exchange for their participation in training and mentorship programs. Typical grants range from roughly €30,000 to €100,000, giving nascent startups a runway to develop prototypes or MVPs without giving up equity.

Estonia. Estonia's grant-based support is smaller in absolute scale but has been impactful. A signature initiative is Prototron, an accelerator-grant fund established in 2012 through public-private collaboration (including Swedbank and Tallinn University). Prototron offers grants for prototype development – essentially pre-seed grants to transform ideas into viable products. By 2021, Prototron had awarded a cumulative €1.4 million in grants, and startups that received these grants went on to raise over €85 million in follow-on venture funding. Beyond Prototron, Estonia leverages EU funds and national programs (via Startup Estonia and Enterprise Estonia) to run hackathons, "startup weekends," and incubators that cultivate early-stage companies. These initiatives, though modest in funding, play a crucial role in very early-stage ecosystem development, complementing the larger-scale equity financing

available at later stages in both Estonia and Poland. For Romania, such grant and accelerator schemes illustrate how to fill the gaps at the start of the startup pipeline, especially in regions or sectors that private investors may overlook.

4.4. Talent Attraction and Visas

Poland. Poland's talent initiatives have been less singularly focused than Estonia's, but the country benefits from its size and EU membership to attract regional talent. While Poland does not have a dedicated startup visa program for non-EU founders, it launched the Poland Business Harbour program in 2020 to fast-track visas and support for IT professionals and entrepreneurs from neighboring Eastern countries (initially aimed at Belarus and later extended to Ukraine, Georgia, and others). This program, alongside general EU freedom of movement, has brought an influx of tech workers and some founders into Poland's growing startup hubs. Poland has also made efforts to engage its diaspora and encourage experienced Polish professionals abroad to return and start ventures at home, though these efforts are relatively nascent.

Estonia. Estonia, by contrast, has been a pioneer in proactive talent attraction. It introduced the Startup Visa in 2017, allowing non-EU entrepreneurs to relocate to Estonia to found startups, as well as permitting local startups to hire non-EU talent more easily. The program has been remarkably successful: by 2020, Estonia was issuing over 500 startup visas per year, and about 20% of Estonian startups have at least one foreign founder who entered via the Startup Visa (Invest in Estonia, 2021). The influx of international founders and employees has significantly internationalized the ecosystem – as of the early 2020s, roughly one in four employees in Estonian startups is a foreigner. This global talent pool has helped tiny Estonia produce startups with worldwide reach. In addition to the visa scheme, Estonia's well-known e-Residency program (launched in 2014) enables anyone in the world to digitally establish and run a company registered in Estonia, which indirectly boosts the startup scene by simplifying company formation for foreigners. Poland's experience suggests that general immigration and repatriation programs have some effect, but Estonia's example shows a direct startup visa can dramatically expand an ecosystem's human capital. For Romania – which often sees its top tech talent emigrating to larger markets – a similar startup visa or talent return program could be highly impactful (OECD, 2022).

4.5. Outcomes and Ecosystem Trajectories

By the mid-2020s, both Poland and Estonia have achieved noticeable improvements in startup ecosystem metrics following these policy interventions, though at different scales. Poland has seen its annual VC investment volumes soar: from negligible levels a decade ago to over €2.3 billion in 2024, an all-time high for the country. This financing boom has begun translating into high-profile

startup successes – Poland has started to mint “unicorns” (startups valued over \$1 billion), with recent examples including DocPlanner (health-tech) and ElevenLabs (AI), which each achieved \$1B+ valuations. The number of startup exits in Poland has also been rising gradually, indicating a maturing ecosystem. Estonia’s outcomes are even more striking on a per-capita basis. Despite a population of only 1.3 million, Estonia has birthed at least 10 unicorns (such as fintech company Wise and ride-hailing firm Bolt) and continues to see strong deal flow. In Q1 2025 alone, Estonian startups raised around €93 million in venture funding. Startup density in Estonia – measured as startups per capita – is estimated to be about 4–5 times the European average (Atomico, 2020), and the startup sector directly employs over 1% of the country’s workforce. Poland’s startup density is lower, given its larger population and later start, but it has been climbing quickly since the launch of PFR Ventures and related programs .

In summary, Poland and Estonia followed different mixes of policies but toward the common goal of enabling more startups to launch, get funded, and succeed globally. Poland’s strategy leaned on mobilizing capital (through co-investment funds and tax breaks) and seeding regional ecosystems, while Estonia placed relatively more emphasis on talent attraction and a lean business environment – yet both countries employed a blend of interventions including grants, accelerators, and supportive regulations. These interventions addressed the specific bottlenecks in each country: Poland overcame a scarcity of domestic venture funds, and Estonia compensated for its small domestic market by attracting global talent and capital. The experiences of both suggest that well-designed public policies, implemented in coordination, can significantly accelerate startup ecosystem growth. The next section discusses how Romania can apply these lessons.

5. Policy Implications for Romania

Romania can significantly accelerate the development of its startup ecosystem by adopting a cohesive strategy that integrates education, funding, and legal/regulatory reforms. Many of the building blocks for a vibrant ecosystem are already evident in the Polish and Estonian cases discussed above. We recommend the following priority actions, which draw on those models but are tailored to Romania’s context and current gaps.

5.1. Education and Talent Development

Embed Entrepreneurship in Education. Romania should introduce or expand entrepreneurship education at multiple levels – from university programs (e.g. tech entrepreneurship minors, startup bootcamps) to vocational and even high school curricula that teach innovation and business skills. Both Poland and Estonia have benefited from a strong base of technical talent; however, a commonly noted gap in Romania is the entrepreneurial mindset and know-how among graduates (Vestbee,

2024). Encouraging universities to spin out startups (as Poland has begun doing through new incubators) and supporting student startup competitions can foster a new generation of founders. The government can facilitate this by funding “entrepreneurship centers of excellence” at major universities in tech hubs like Bucharest, Cluj, Timișoara, and Iași. These centers could provide training, mentorship, and perhaps seed grants to student-founded ventures.

Support Accelerators & Incubators Nationwide. We recommend establishing a national network of startup accelerators and incubators, possibly via public-private partnerships. Poland’s use of regional accelerators under the Startup Booster program and Estonia’s network of startup hubs (often backed by Startup Estonia) have been critical in nurturing early-stage companies outside the capital cities. Likewise, Romania should ensure that every major region has at least one well-resourced accelerator that provides mentorship, workspace, and small seed grants to local startups. Public funding (e.g. through EU structural funds or national innovation budgets) can co-finance these programs, alongside industry sponsors. Involving experienced entrepreneurs and investors as mentors is key to impart practical knowledge. Such a network would directly address talent and knowledge gaps by coupling first-time founders with guidance and early funding opportunities close to home.

Founder Development Programs. In addition to educating young potential entrepreneurs, Romania can invest in upskilling its current and aspiring startup founders. Short-form training on topics like product development, fundraising, or scaling a company could be offered regularly (for instance, intensive workshops or evening courses). Furthermore, exchange programs that expose Romanian founders to more mature ecosystems would be highly valuable. Poland and Estonia have leveraged international linkages for their startups – for example, Estonia’s accelerators often connect startups to mentors and investors in Nordic countries, and Poland’s agency PARP has organized programs to help local startups explore foreign markets. Romania could partner with European initiatives (such as EIT Digital or the *Erasmus for Young Entrepreneurs* program) to send founders abroad for limited periods or bring in foreign mentors. The goal is to build human capital and global mindset among Romanian startup founders so they can drive the ecosystem’s growth from within.

5.2. Funding and Investment

Launch a Public-Private Co-Investment Fund. A centerpiece recommendation is for Romania to create a fund-of-funds program similar to Poland’s PFR Ventures. This Romanian public-private fund would deploy public money alongside private venture capital funds and angel investor groups, targeting gaps in seed and Series A financing. The fund should be professionally managed and operate transparently, with clear metrics (e.g. number of startups funded, private capital mobilized) and periodic external evaluations. Romania

has access to substantial EU recovery and cohesion funds which could be channeled into such a program. By structuring it as matching funds – for example, a 1:1 match where for each leu of private investment the fund invests one leu – the program can attract both domestic and international VC firms to invest in Romanian startups. Poland’s experience demonstrates that a well-designed co-investment fund can jump-start a dormant VC market by reducing risk and encouraging private players to participate (Brander et al., 2015; PFR Ventures, 2023). If implemented, this fund of funds could dramatically increase the availability of early-stage capital in Romania within a few years.

Incentivize Local Investors (Pensions & Angels). Unlocking domestic capital is crucial. One major opportunity lies in pension fund reform. Romania’s large private pension funds currently allocate virtually nothing to venture capital or private equity. The government, together with financial regulators, could allow or encourage a small percentage of pension assets to be invested in VC funds that back Romanian innovation (with appropriate safeguards for risk). Countries like Canada and Israel have successfully directed portions of pension money into tech startups, significantly boosting available capital. In parallel, Romania can introduce tax incentives for individual investors akin to Poland’s 50% deduction. For example, offering a personal income tax credit or deduction for accredited angel investments or for individuals investing in approved startup funds would encourage high-net-worth Romanians (and members of the diaspora) to become angel investors. The Business Angels Law of 2015 in Romania provides some tax exemptions on dividends for angel investors, but it is underutilized and could be much more generous. A revised law could include automatic qualification for incentives when an investment is made (to remove red tape) and higher deduction limits. Simplifying the process for angels to syndicate or co-invest (perhaps via an online platform or an “angel co-investment fund” model) would further reduce barriers. Overall, the goal is to stimulate a vibrant local investor base to support Romanian startups at early stages.

Simplify VC Fund Formation and Operations. Romania should also strive to attract more venture fund managers and facilitate the creation of local VC funds. Currently, setting up a venture capital fund or management company in Romania can be administratively cumbersome and time-consuming. The government should streamline regulations in this area—for instance, by introducing a straightforward limited partnership structure for investment funds (aligned with EU norms), reducing minimum capital requirements for management companies, and fast-tracking the licensing process for funds focusing on innovation. Estonia’s lean business climate has already drawn some foreign investors to base operations there (even via e-Residency in some cases). Romania could aim to become a similarly attractive base for funds. This might include clarifying the tax treatment of carried interest (the profit share for fund managers) to be competitive – ideally taxing it as capital gains rather than

ordinary income – and ensuring fund management fees and activities are not overregulated. By removing friction in establishing and running funds, Romania can organically increase the pool of venture financing available to local startups. In essence, we want to make it just as easy for a new VC fund to set up in Bucharest or Cluj as it is in Berlin or London.

5.3. Legal and Regulatory Framework

Update the Business Angels Law. As noted, Romania’s existing legislation for angel investors (Law 120/2015) offers limited incentives – primarily an exemption on tax for dividends earned from startups, up to a small cap, and some conditions for shares held. This law has seen low uptake. We recommend a substantial update to offer more meaningful benefits to angel investors. This could include allowing angels to deduct a portion of their investment (e.g. 30–50%) from taxable income, as seen in Poland’s scheme and in the UK’s SEIS/EIS programs, and raising the maximum investment amount that qualifies. More fundamentally, the process should be automatic: any individual investing in a certified startup (or approved fund) should receive the tax benefit without needing complex approvals. By significantly sweetening and simplifying the incentive, Romania can stimulate the emergence of a larger domestic angel community, which is vital for funding very early-stage startups.

Introduce Clear ESOP Legislation. One glaring gap in Romania’s startup ecosystem is the lack of a clear, favorable legal framework for employee stock options (ESOPs) and other forms of employee equity participation. In leading startup hubs (from Silicon Valley to Tallinn), stock options are a critical tool that startups use to attract and retain talent when they cannot match corporate salaries. Currently, Romanian startups face ambiguity and potentially high taxes when offering stock options to employees – often such gains could be taxed as regular income at the time of grant or vesting, which is punitive and impractical. We propose that Romania enact legislation defining startup stock option plans and deferring any taxation to the point of sale (when the employee actually realizes monetary gains), and even then taxing those gains at capital gains rates (which are lower) rather than income tax rates. This approach would mirror best practices in other jurisdictions and remove a major disadvantage Romanian startups face in hiring. By enabling employees to share in the upside of growth with minimal upfront tax consequences, Romanian startups could better compete for skilled workers against global tech companies.

Simplify Company Formation and Compliance. Despite improvements in recent years, red tape remains a frequent complaint among Romanian entrepreneurs. It can still take multiple weeks to fully register a new company, often requiring unnecessary steps like notarized documents or newspaper publication of firm registration. Building on the Estonian model (where establishing a company can be done online in a day or two using digital IDs) and even Poland’s recent moves to

enable online filings, Romania should move toward fully online, one-day business registration. This means digitizing all required filings, eliminating archaic requirements (e.g. physical stamps or paid-in capital proofs for small startups), and providing default incorporation documents to streamline the process. Furthermore, ongoing compliance such as tax filing, social contributions, and other reporting should be simplified for startups – perhaps through a single online dashboard. As a benchmark, Estonian companies spend on average only ~5 hours per year on corporate tax compliance, versus over 50 hours in Romania (Invest in Estonia, 2021b). Reducing administrative burden not only saves entrepreneurs time and money, but also sends a signal that “Romania is open for business”. The government could set a public goal to significantly improve Romania’s ranking on the World Bank’s Ease of Doing Business indicators (particularly the “Starting a Business” and “Paying Taxes” metrics) within a couple of years, as a way to focus efforts on deregulation and digitization.

Strengthen Intellectual Property (IP) and Insolvency Regimes. Finally, Romania should ensure that its legal framework is supportive of the high-risk, innovation-driven nature of startups. On the IP front, this means streamlining patent and trademark registration processes (perhaps offering expedited review for patents in emerging tech fields), and ensuring that intellectual property developed within research institutions can be easily licensed or spun off to startup companies (so that university or institute researchers can commercialize their innovations without undue hurdles). Additionally, Romania’s insolvency laws should be examined and adjusted to be more “failure-friendly.” In places like the US or Estonia, failing fast and trying again is accepted and facilitated by law – entrepreneurs can go through bankruptcy without lifelong stigma or debt traps. Poland and Estonia have both modernized their insolvency frameworks in recent years to allow quicker restructuring or discharge of debts for failed startups, thereby encouraging risk-taking. Romania could introduce a special fast-track bankruptcy process for startups (with straightforward liquidation or reorganization options and protections for honest entrepreneurs) to give founders a second chance. Consulting with startup community members and legal experts can identify the most onerous legal hurdles currently and prioritize their removal.

By pursuing these recommendations in concert, Romania can create a virtuous cycle like those in Poland and Estonia: educated entrepreneurs launching startups; ample funding options to scale those ventures; and a legal system that makes it easy to start a business, grow it, and, if necessary, exit or even fail without dire consequences. It is crucial that these levers be deployed as part of a coordinated national startup strategy rather than as piecemeal measures. Poland’s success was partly due to having PFR Ventures act as a central node for startup financing, and Estonia’s due to a clear vision of becoming a “startup nation.” Romania should similarly designate a lead agency or task force (perhaps under the Ministry of Economy or Ministry of Research, Innovation and Digitalization)

to drive the startup strategy and ensure cross-ministerial cooperation – aligning efforts in education, finance, and justice ministries under common goals.

6. Conclusion

Poland and Estonia demonstrate that smart, well-designed public policies can indeed catalyze startup ecosystem growth. In both countries, significant surges in startup funding, new company formation, and successful exits closely followed the implementation of targeted policy interventions. Of course, each nation's context differs – Poland leveraged large EU funds and a sizeable internal market, while Estonia capitalized on its digital infrastructure and global openness. Yet the core insight is that government can be an effective facilitator of entrepreneurship when it steps in to fill market gaps (such as early-stage capital shortages or talent deficits) and to remove obstacles (such as bureaucratic hurdles or misaligned incentives).

Romania, now at a similar crossroads, has the opportunity to leapfrog by learning from these models. The recommendations outlined in this paper – from education reforms and startup visas to coinvestment funds and legal tweaks – are not isolated ideas, but components of an integrated approach to jump-start innovation-driven growth. Implementing such changes will require political will and close collaboration between the public and private sectors. The potential payoff, however, is substantial: a more vibrant economy, new high-skilled jobs, and Romania's emergence as a regional hub for tech startups. With its strong technical talent pool and entrepreneurial spirit (as evidenced by many successful Romanian-founded startups abroad), Romania has significant untapped potential that smart policy can help unlock.

In closing, building a thriving startup ecosystem is a long-term journey, but it can be accelerated through data-driven policymaking and openness to learning from peers. By studying what worked in Warsaw and Tallinn and thoughtfully adapting those ideas in Bucharest and Cluj, Romania can avoid reinventing the wheel and instead fast-track its progress. The experiences of Poland and Estonia show that with the right mix of policies, startup success will follow. The time is ripe for Romanian policymakers to act boldly and strategically – if the lessons from these case studies are heeded, Romania could very well become CEE's next startup success story.

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AUTOMATING BUSINESS PROCESSES USING THE n8n PLATFORM: OPPORTUNITIES AND CHALLENGES

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Abstract

In the context of accelerated digitization and the proliferation of software platforms used in the organizational environment, integrated process automation is becoming a decisive strategic factor for increasing efficiency and competitiveness. This study rigorously examines the open-source, low-code n8n automation platform, analyzing its potential to optimize business processes by integrating CRM (Customer Relationship Management) systems and orchestrating data flows. The research focuses on n8n's technical architecture, its operational advantages in enterprise scenarios, and the economic implications of adopting it, emphasizing cost models and return on investment (ROI) assessment. Through a case study dedicated to CRM process automation, the article highlights how n8n contributes to improving data quality, accelerating the lead management cycle, and strengthening customer relationships through intelligent and scalable flows. The results suggest that implementing n8n can significantly increase operational efficiency and inform performance-based investment decisions, thereby demonstrating the strategic value of automation in complex digital ecosystems.

Keywords: leads, marketing, form, n8n, AI.

JEL Classification: O30.

1. Introduction

This article presents a comprehensive and rigorous analysis of the n8n platform, examining its applicability in the fields of business, e-commerce, and digital marketing. The paper explores in depth the technical architecture of the platform, the differences between the operational models – the managed cloud version and the self-hosted variant—as well as their implications for scalability, security, and operating costs.

The study also integrates economic assessments by analyzing cost models, return on investment (ROI), and the impact of automation on organizational efficiency. It includes case studies and scenarios applied in e-commerce (such as order flow automation, customer segmentation, and inventory synchronization)

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and marketing strategies (including lead scoring, campaign personalization, and CRM platform integration).

The article highlights best practices for implementing n8n in organizational contexts, analyzes the associated risks—technical, operational, and ethical—and proposes a methodological framework for assessing the impact of n8n on the productivity and efficiency of business processes. By integrating real and up-to-date bibliographic sources, the paper offers a well-founded and relevant perspective for researchers, professionals, and organizations interested in optimizing processes through low-code automation.

2. Using n8n in business

The n8n platform is emerging as one of the most flexible contemporary solutions for business process automation, thanks to its modular architecture and availability in two distinct operating models. The first model, self-hosted and based on the open-source and fair-code paradigm, allows organizations to implement n8n on their own infrastructure, whether on-premise or in a private cloud. This implementation offers a high level of control over the technical environment, predictable scalability, and extensive customization capabilities. However, it requires a significant degree of technological maturity, as well as complete responsibility for security, maintenance, and backup management. In contrast, the managed cloud model (n8n Cloud) operates as a SaaS service, facilitating rapid adoption and substantially reducing the need for operational resources. Its limitations are mainly manifested in variable costs, which depend on the number of workflow executions, and in a lower level of flexibility compared to the self-hosted option.

The technical architecture of the platform is built around an intuitive visual editor, a distributed execution engine, and databases dedicated to the management of process status and history. These components are complemented by an extensive ecosystem of integration nodes that enable connection to hundreds of third-party applications and services. Support for various authentication methods (API keys, OAuth, and proprietary mechanisms) and the ability to interact with artificial intelligence APIs generate a robust framework for building advanced semantic processing flows, content generation, and analysis assisted by large language models.

In the business environment, n8n is widely used for automating operations, integrating data, and consolidating IT decisions. Automation flows enable dynamic inventory synchronization between e-commerce platforms, ERP systems, and logistics providers, reducing processing times and operational errors. From an analytical perspective, n8n can function as a central link in ETL ecosystems by extracting, transforming, and loading data from heterogeneous sources into analytical warehouses or business intelligence dashboards. This feature is particularly useful in marketing, where up-to-date reports and real-time

visibility of campaign performance are essential for optimizing managerial decisions.

In e-commerce, the platform has proven its effectiveness in scenarios such as real-time inventory updates, fulfillment process automation, automatic post-purchase campaign generation, and proactive competitive price monitoring. Public case studies, such as that of Border, highlight that n8n can facilitate accelerated scaling of operations without requiring proportional staff expansion, suggesting a direct impact on the performance and sustainability of the operational model.

In marketing and growth, n8n functions as an orchestral mechanism that interconnects the processes of lead capture, validation, data enrichment, CRM integration, and nurturing campaign execution. This synergy enables coherent coordination between email marketing, SMS campaigns, and digital advertising, increasing the relevance of the conveyed message and optimizing the customer experience. In addition, the automation of daily reporting on indicators such as customer acquisition cost (CAC), lifetime value (LTV), and conversion rates contributes to data-driven strategic decision-making.

The return on investment (ROI) in implementing n8n is assessed by comparing implementation and operating costs with the time savings generated and the reduction in administrative errors. The calculation model includes manual hours saved, associated salary costs, potential increase in conversions, and infrastructure or licensing costs. Literature and comparative analyses indicate that the self-hosted model is significantly more cost-effective for organizations with high execution volumes.

In terms of competitive advantages, n8n stands out for its high flexibility, advanced customization options, and extensive ecosystem of integrations. However, there are also limitations, such as the need for technical skills for implementation and additional security responsibilities in self-hosted variants. Also, the cloud model can generate significant long-term costs as the volume of automation increases.

Ethical and compliance risks cannot be ignored in the context of decision-making automation. The automatic generation of personalized messages, algorithmic processing of customer data, or orchestration of integrations between sensitive systems must be managed in strict compliance with GDPR regulations and the principles of transparency and auditability. In this regard, the implementation of logging, version control, and permission management mechanisms is mandatory for ensuring proper governance.

Looking ahead, n8n is positioned to become a pivotal platform in intelligent business ecosystems, unifying classic automations, AI pipelines, and enterprise integration processes. Recent developments suggest that the market is moving towards preconfigured templates for specific verticals, such as e-commerce, finance, or retail, which will facilitate rapid adoption and reduce technical

barriers. At the same time, hybrid models are expected to emerge, in which organizations will combine the advantages of on-premise infrastructure with the flexibility of managed cloud services.

3. The methodology used in the application

The objective that we wish to achieve is to devise a methodology that would facilitate the automated aggregation of data concerning prospective customers from a marketing agency. Consequently, through a designated form, consumers have the capacity to input pertinent identification information, specify the desired investment amount, delineate their respective areas of interest, and indicate the preferred timeframe for communication on their behalf. The decision regarding whether or not to initiate email correspondence for the purpose of further discussion is made on the basis of a calculated score.

The methodology for conducting this study is as follows:

Step 1. The initial stage of the process involves the analysis of the problem and the acquisition of the relevant information.

Step 2. The process of engineering the automation functionality in n8n entails a systematic and methodical approach.

Step 3. The previously developed automation is to be executed.

Step 4. This will facilitate the identification of potential improvements to the automation system.

4. The application's design process utilizes the n8n framework.

The implementation of this automation will be executed within the n8n program, encompassing a total of nine nodes, as illustrated in Figure 1. The sequence of primary actions constituting the algorithm can be outlined as follows:

- lead generation form
- calculate lead score
- store all leads
- check leads score
- get available slots in calendar
- format email data
- send email to high score leads.

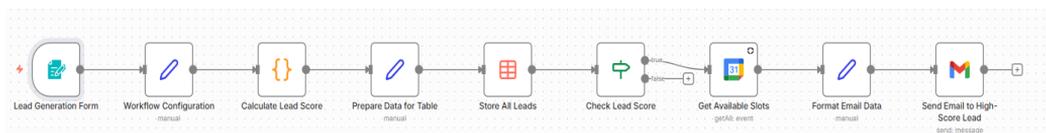
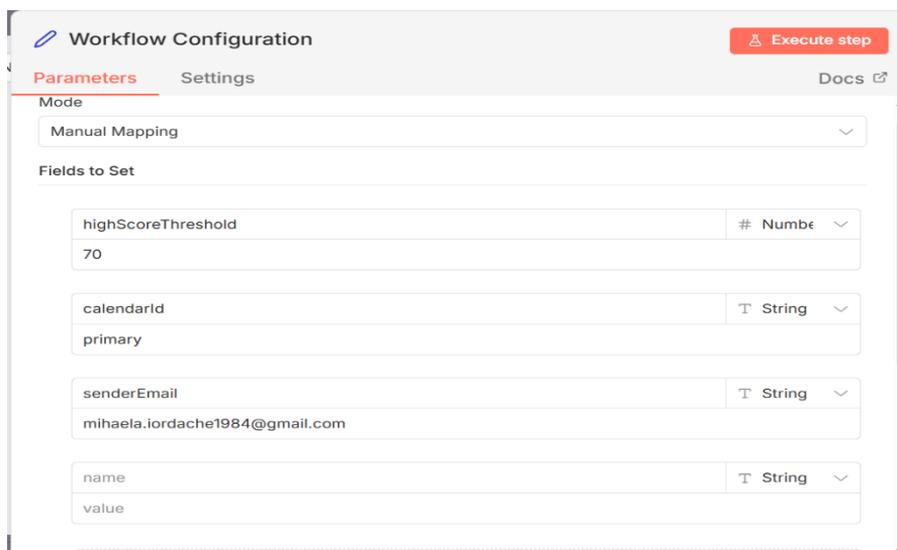


Figure 1. The application of automation in n8n

Data from potential customers is collected via a designated form, known as a lead generation form. This collected data is subsequently configured for data

flow, which is governed by workflow configuration. Subsequently, the values entered by the customer are assigned, and a score is calculated based on these values (calculated lead score). The data, along with its associated score value, will be stored in a table created in n8n (store all leads). The availability of customers with the highest scores will be checked in the calendar (i.e., the system will identify available timeslots), and subsequently, an email will be sent to each of them (i.e., the system will send an email to high-score leads).

In the present section, a thorough exposition of the primary codifications executed will be delineated. The following data collection fields were utilized for the form: The textbox is to be used for the entry of the following information: name, email address, company name, phone number, and potential customer's area of interest. The combo box is to be used for the selection of the budget level set for a potential negotiation with the company and for expressing willingness to be contacted. At the final stage of the form, a button was incorporated for the purpose of transmitting the data for processing.



Field Name	Value	Type
highScoreThreshold	70	# Number
calendarId	primary	String
senderEmail	mihaela.iordache1984@gmail.com	String
name	value	String

Figure 2. Workflow Configuration

The threshold value that determines whether potential customers will be contacted, as well as the email address from which the confirmation email will be sent, will be configured within the Workflow Configuration node (see Figure 2). Consequently, in our application, we have selected a minimum level of 70 as a benchmark for initiating communication with prospective customers.

The arithmetic mean between the score assigned to the time option and the score allocated to the budget option is calculated for each potential customer, thus producing a score for each customer. The numerical values assigned to each score are enumerated in Table 1.

Table 1. Scores awarded according to the option chosen

Budget Score		Time Score	
Option	Value	Option	Value
Under \$5k	20	Immediate (within 1 month)	100
\$5k-\$20k	40	Short-term (1-3 months)	70
\$20k-\$50k	70	Medium-term (3-6 months)	40
\$50k+	100	Long-term (6+ months)	20

The sequence of instructions that define the aforementioned processing operations is delineated as follows::

Calculate lead-score:

/ Get form data from previous node

```
const budgetRange = $input.item.json['Budget Range'];
```

```
const timeline = $input.item.json.Timeline;
```

```
// Budget scoring logic
```

```
let budgetScore = 0;
```

```
if (budgetRange === 'Under $5k') {
```

```
  budgetScore = 20;
```

```
  } else if (budgetRange === '$5k-$20k') {
```

```
    budgetScore = 40;
```

```
  } else if (budgetRange === '$20k-$50k') {
```

```
    budgetScore = 70;
```

```
  } else if (budgetRange === '$50k+') {
```

```
    budgetScore = 100;
```

```
  }
```

```
// Timeline scoring logic
```

```
let timelineScore = 0;
```

```
if (timeline === 'Immediate (within 1 month)') {
```

```
  timelineScore = 100;
```

```
  } else if (timeline === 'Short-term (1-3 months)') {
```

```
    timelineScore = 70;
```

```
  } else if (timeline === 'Medium-term (3-6 months)') {
```

```
    timelineScore = 40;
```

```
  } else if (timeline === 'Long-term (6+ months)') {
```

```
    timelineScore = 20;
```

```
  }
```

```

// Calculate average lead score
const leadScore = Math.round((budgetScore + timelineScore) / 2);

// Generate qualification notes
const qualificationNotes = `Lead scored ${leadScore}/100. Budget range:
${budgetRange} (${budgetScore} points), Timeline: ${timeline}
(${timelineScore} points). ${leadScore >= 70 ? 'High-priority lead with strong
budget and timeline.' : leadScore >= 50 ? 'Medium-priority lead with moderate
potential.' : 'Lower-priority lead requiring nurturing.'}`;

// Determine suggested action based on score
const suggestedAction = leadScore >= 70 ? 'Schedule call' : 'Follow up via
email';

// Return the enriched data
return {
  ...($input.item.json),
  leadScore,
  qualificationNotes,
  suggestedAction
};

```

Additionally, by invoking the functions in JSon, the information will be stored in a table designated as "Leads." The functions in JSon for each field of the database are illustrated in Figure 3.

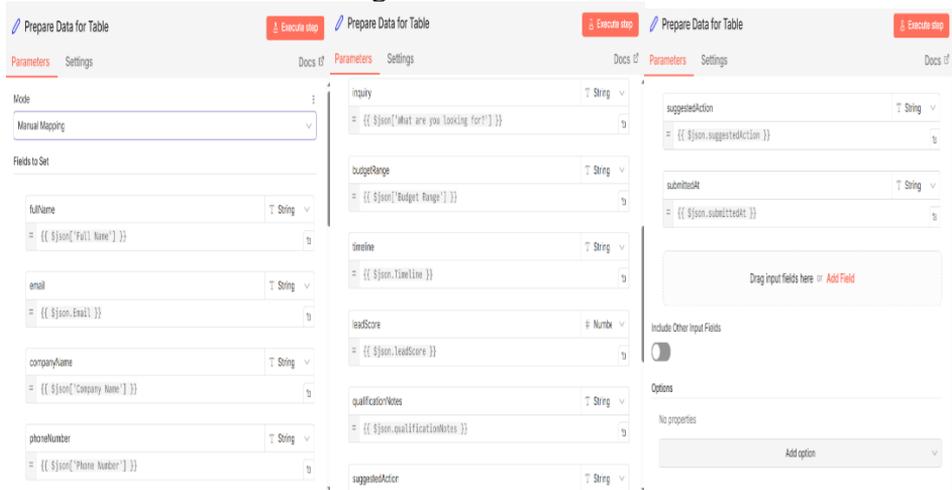


Figure 3. Importing data from the form into the table via Json

The Check Lead Score node is responsible for verifying whether the score obtained through the established algorithm is higher than the initial score that was set at the onset of the automation process.

fx	{{ \$json.leadScore }}	# is greater than or
fx	{{ \$('Workflow Configuration').first().json.highScoreThreshold }}	

If the score exceeds the threshold established in the Workflow Configuration node, the process progresses to the verification of availability in the calendar and the subsequent transmission of a confirmation email (see Figure 4). If the score falls below the specified threshold, no subsequent action is taken. Specifically, the system does not initiate an inquiry into the potential customer, nor is an email transmitted.

The screenshot displays the configuration for a 'Format Email Data' step. On the left, the 'Fields to Set' section is visible, showing three fields: 'availableSlots' (String) with a conditional value, 'emailSubject' (String) with the value 'Great News! Let's Schedule Your 15-Minute Call', and 'emailBody' (String) with a personalized message template. The right pane shows the rendered email content, which includes a thank you message and a call to action, with a 'Drag input fields here' area and 'Include Other Input Fields' toggle.

Figure 4 Defining a template for a personalized email with the data entered in the form

In the next section, we will present a detailed demonstration of the previously created automation, utilizing concrete data for illustrative purposes.

5. The mode of operation of automation and how it can be improved

The automation algorithm comprises the following sequence of actions: first, accessing the form and entering the data into it; then, clicking the submit button; and finally, depending on the parameters entered, receiving an email to schedule a future meeting.

Get in Touch - Let's Discuss Your Needs

Fill out this form and we'll get back to you shortly

Full Name *

Email *

Company Name *

Phone Number

What are you looking for? *

Budget Range *

Select an option ...

Timeline *

Select an option ...

Submit

Form Submitted

Thank you! We've received your information and will be in touch soon.

Figure 5. Data entry form

The user is prompted to enter identification information, the amount they wish to invest, and their availability for preliminary contact regarding the transaction. Subsequently, they are instructed to click the Submit button (see Figure 5). A confirmation message will be sent to the recipients to verify the successful transmission of the data.

Id	T_fullName	T_email	T_companyName	T_phoneNumber	T_inquiry	T_budgetRange	T_timeline
1	lordache Ana	lordachem2013@yahoo.com	dfff	0724655235	fff	Under \$5k	Short-term (1-3 months)
2	lordache Ana	mihaiela.lordache@rau.com	ghghg	0724655235	ghghg	\$50k+	Immediate (within 1 month)
3	lordache Ana	lordachem2013@yahoo.com	fgfg	0724655235	fff	\$50k+	Immediate (within 1 month)
4	lordache Ana	mihaiela.lordache@rau.ro	dtdg	0724655235	dsdd	\$50k+	Immediate (within 1 month)
5	lordache Ana	lordachem2013@yahoo.com	fyghgh	0724655235	vhjhkhk	\$50k+	Immediate (within 1 month)
6	lordache Ana	lordachem2013@yahoo.com	ghgh	0724655235	hhhh	\$50k+	Immediate (within 1 month)
7	lordache Ana	lordachem2013@yahoo.com	fgfg	0724655235	fff	\$50k+	Immediate (within 1 month)
8	lordache Ana	lordachem2013@yahoo.com	sss	0724655235	sssss	Under \$5k	Long-term (6+ months)
9	lordache Ana	lordachem2013@yahoo.com	sfdsfdf	0724655235	dpgpgr	\$50k+	Immediate (within 1 month)
10	lordache Ana	lordachem2013@yahoo.com	sdids	0724655235	sdssdd	\$50k+	Immediate (within 1 month)
11	lordache Ana	lordachem2013@yahoo.com	Company 2	0724655235	dtgf	\$50k+	Immediate (within 1 month)

#	leadScore	T_qualificationNotes	T_suggestedAction	T_submittedAt	createdAt	updatedAt
45	Lead scored 45/100. Budget range: Un	Follow up via email		2025-12-01T19:02:39.388+02:00	2025-12-01T19:02:41.105+02:00	2025-12-01T19:02:41.105+02:00
100	Lead scored 100/100. Budget range: \$5	Schedule call		2025-12-01T19:04:16.992+02:00	2025-12-01T19:04:18.597+02:00	2025-12-01T19:04:18.597+02:00
100	Lead scored 100/100. Budget range: \$5	Schedule call		2025-12-01T19:06:49.432+02:00	2025-12-01T19:06:51.139+02:00	2025-12-01T19:06:51.139+02:00
100	Lead scored 100/100. Budget range: \$5	Schedule call		2025-12-01T19:08:09.204+02:00	2025-12-01T19:08:10.933+02:00	2025-12-01T19:08:10.933+02:00
100	Lead scored 100/100. Budget range: \$5	Schedule call		2025-12-01T19:13:00.425+02:00	2025-12-01T19:13:02.076+02:00	2025-12-01T19:13:02.076+02:00
100	Lead scored 100/100. Budget range: \$5	Schedule call		2025-12-01T19:13:52.434+02:00	2025-12-01T19:13:54.104+02:00	2025-12-01T19:13:54.104+02:00
100	Lead scored 100/100. Budget range: \$5	Schedule call		2025-12-01T19:15:07.423+02:00	2025-12-01T19:15:09.037+02:00	2025-12-01T19:15:09.037+02:00
Null	Null	Null	Null	2025-12-03T20:32:11.405+02:00	2025-12-03T20:32:13.164+02:00	2025-12-03T20:32:13.164+02:00
Null	Null	Null	Null	2025-12-03T20:32:58.261+02:00	2025-12-03T20:32:59.916+02:00	2025-12-03T20:32:59.916+02:00
Null	Null	Null	Null	2025-12-03T20:33:37.182+02:00	2025-12-03T20:33:38.853+02:00	2025-12-03T20:33:38.853+02:00
100	Lead scored 100/100. Budget range: \$5	Schedule call		2025-12-04T10:47:59.551+02:00	2025-12-04T10:48:01.388+02:00	2025-12-04T10:48:01.388+02:00

Figure 6. The table that stores potential customer data

The data collected via the form is subsequently stored in a table (Leads) and can be accessed through n8n. The management of records within this table is facilitated through the execution of filtering, deleting, or adding operations. This table also stores information about each customer's score, whether they qualify to be contacted, and when the email was sent (Figure 6).

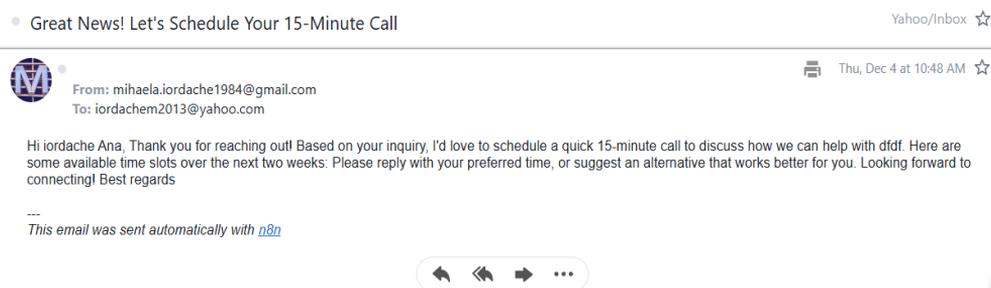


Figure 7. The email received by the customer who meets the conditions to be contacted

If the customer attains a score that exceeds the initial value established by the algorithm, they will receive an email notification prompting them to schedule an appointment (see Figure 7).

The efficacy of automation can be enhanced by replacing the existing data collection form with an intelligent agent. This agent would be tasked with gathering data about potential customers from social media networks. The agent would then be capable of sending messages directly to customers, and the history of these interactions would be stored. There are other methods for improving automation. One such method is the implementation of an intelligent agent to calculate a score. Another method involves the storage of data regarding potential customers in a Google 365 table.

6. Conclusion

In the domain of e-commerce and customer relationship management (CRM), it is imperative to identify the most efficacious methods that offer a favorable cost-benefit ratio. The identification of potential customers, the understanding of their business intentions, and the agility of a company's responses to them are indispensable for the enhancement of sales and, consequently, profitability. By automating repetitive tasks, adopting customer relationship management (CRM) solutions, and utilizing intelligent agents in their work, companies are becoming increasingly competitive.

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THE IMPORTANCE AND DEVELOPMENT STRATEGIES OF SPA TOURISM

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Abstrac

Spa tourism represents one of the main forms of tourism practiced worldwide. The development of spa tourism has led to the establishment of a large number of resorts that vary in size, location, altitude, architecture, and level of facilities. The selection of territorial areas is made based on the existence of natural conditions suitable for the resort's specific profile.

Keywords: development, strategy, marketing, management, tourism.

JEL Classification: Z30.

Introduction

Spa tourism is one of the oldest forms of organized tourism, owing to the beneficial effects of mineral and thermal waters on human health. In Romania, this form of tourism has developed continuously, with the country ranking among the leading spa destinations at the European level.

At present, spa tourism has gained strategic importance in the context of increasing life expectancy, the rising incidence of chronic diseases, and the growing interest in prevention and rehabilitation. Beyond its medical benefits, spa tourism stimulates local and regional economic development and contributes to the diversification of the tourism offer.

1. Spa tourism – conceptual delimitations and particularities

Spa tourism is defined as the set of tourism activities carried out in resorts that benefit from natural therapeutic factors, which are used for preventive, curative, and rehabilitative purposes under medical¹ supervision. These factors include mineral and thermal waters, therapeutic mud, natural gases, and specific climatic conditions.

Unlike wellness tourism, which focuses primarily on relaxation and prevention, spa tourism requires the existence of specialized treatment facilities

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¹ Minciú, R. (2004). *Economia turismului*, București: Editura Uranus, p.87.

and qualified² medical staff. Consequently, spa tourism represents an intersection between medical practice and tourism activity, generating complex effects on public health as well as on the local economy.

2. The importance of spa tourism

Spa tourism stimulates the economic development of regions by creating jobs, attracting investments, and encouraging related activities such as transportation, food services, and commerce³. Spa resorts contribute to the revitalization of less industrialized areas and help reduce regional disparities. Investments in spa infrastructure, both public and private, enhance local attractiveness and facilitate the arrival of additional investors, while the steady flow of tourists generates a multiplier effect on the economy. Spa tourism has a significant economic impact on the regions where it is practiced, generating stable and diversified employment opportunities, both in the tourism sector and in related activities such as transportation, food services, commerce, and recreational services. Spa resorts attract public and private investments, contributing to the modernization of infrastructure and increasing local economic competitiveness. The continuous influx of tourists stimulates local businesses, generates additional revenue for the community, and produces multiplier effects on the regional economy. The development of spa tourism supports the revitalization of less industrialized areas and reduces economic disparities between regions. Modern infrastructure and diversified tourist services attract international visitors, thereby increasing tourism revenues and strengthening Romania's image as a health destination. Moreover, spa tourism can foster the development of local entrepreneurship through initiatives such as boutique spas, specialized treatment centers, or innovative recreational facilities. Consequently, this sector becomes an important economic driver, capable of supporting the sustainable growth of the regions where it is present.

Spa tourism also has significant effects on the health and well-being of the population. Spa treatments are intended for the prevention and treatment of rheumatic, neurological, respiratory, and cardiovascular conditions, thereby contributing to improved quality of life and reduced costs within the public healthcare system. Additionally, spa resorts provide opportunities for socialization and recreation, promoting social inclusion and relaxation in a natural setting. Socially, spa resorts facilitate interaction among people of different ages and physical abilities, offering opportunities for socializing, recreation, and inclusion. Recreational, cultural, artistic, and sports activities integrated into spa programs support the harmonious development of visitors and encourage a healthy lifestyle. Furthermore, spa tourism can indirectly reduce

² Ciangă, N. (2007). *Turismul balnear din România*, Cluj-Napoca: Presa Universitară Clujeană, p.56.

³ Neacșu, N. (2006). *Turismul și dezvoltarea durabilă* (p. 42). București: Editura Expert, p.42.

pressure on the public healthcare system through disease prevention and the rapid recovery of patients. Local communities also benefit from the positive effects of spa tourism on quality of life and social cohesion. Thus, this type of tourism is not merely a recreational activity but also an essential factor for public health and social well-being.

Spa tourism contributes to the diversification of the tourism offer and helps reduce seasonality, as it can be practiced throughout the year⁴. Integration with cultural and leisure tourism, through visits to historical sites, themed events, or recreational activities, increases the attractiveness of destinations and provides complex tourist experiences. Spa tourism plays an important role in the development of the tourism offer by diversifying available activities and attracting a wide range of visitors, which helps mitigate the seasonality characteristic of other forms of tourism. Spa resorts provide integrated experiences, combining medical treatments with relaxation, recreation, cultural activities, and nature excursions, making them appealing to families, young people, and seniors alike. This diversity increases the length of tourists' stays and enhances their satisfaction, fostering loyalty and promotion through recommendations. Spa tourism supports the development of local infrastructure and stimulates other economic sectors such as transportation, food services, and commerce, generating positive effects within host communities. Additionally, integrating spa tourism with cultural or leisure tourism can transform resorts into complex destinations competitive at an international level. Promoting spa resorts as destinations for health and relaxation contributes to Romania's image in the global tourism market. Thus, the importance of spa tourism extends beyond strictly medical considerations, having a significant impact on the tourism and economic development of the regions where it is practiced.

3. Strategies for the development of spa tourism

The development of spa tourism requires an integrated approach, which includes the modernization of infrastructure, diversification of services, professionalization of management, effective promotion and marketing, all while adhering to the principles of sustainable development.

Modernization of infrastructure

Modernizing infrastructure is an essential condition for increasing the attractiveness of spa⁵ resorts. This involves rehabilitating treatment facilities, renovating accommodation units, improving access infrastructure, and utilizing modern technologies for service management. European funds and private investments contribute to the competitiveness of the resorts.

⁴ Surugiu, C. (2009). *Impactul turismului asupra economiei regionale*. Revista Română de Geografie, 53(2), p. 145.

⁵ Ciangă, N. (2007), p. 78.

Diversification and innovation of services

Diversifying tourist services allows spa tourism to adapt to market demands. Integrating wellness tourism, SPA, fitness, and recreational activities attracts tourists from various⁶ segments. Creating tourist packages that combine spa treatments with recreational, cultural, and educational activities increases the length of stay and fosters visitor loyalty.

Professionalization of management

Effective management requires continuous training of personnel, application of quality standards, and the use of modern tourism⁷ management tools. Public–private partnerships can support the efficient administration of resorts and maximize the returns on investments made.

Tourism promotion and marketing

Coherent promotion through tourism branding, digital marketing, and participation in international fairs enhances the visibility of spa⁸ resorts. Establishing a consolidated national brand can position Romania as a leading destination for spa tourism.

Sustainable development

The development of spa tourism must respect the principles of sustainability by protecting natural resources, monitoring the consumption of thermal water, reducing environmental impact, and educating tourists⁹. Urban planning and biodiversity protection contribute to the long-term conservation of natural and therapeutic values.

4. Case study

Băile Felix Resort is located in Bihor County, just 9 km from the city of Oradea, which provides it with a strategic geographical position and easy access for tourists. Its proximity to the Hungarian border facilitates the attraction of visitors from neighboring countries and Central Europe. Road access is well developed, with modernized roads and direct connections to the main transport arteries in the region. In addition, the resort is served by local and regional public transport, allowing visitors to move easily between accommodation units, treatment facilities, and tourist attractions. Oradea International Airport, approximately 15 minutes away, provides rapid connections to major European cities. The combination of a location with attractive natural landscapes and

⁶ Minciu, R. (2004), p. 92.

⁷ Stănciulescu, G. (2011). *Managementul destinațiilor turistice*, București: Editura ASE, p.102.

⁸ Cocean, P. (2010), p. 130.

⁹ Neacșu, N., & Baron, P. (2013). *Turism durabil și protecția mediului*. *Revista de Turism*, 15, p. 5–12.

efficient access infrastructure increases the resort's appeal to all categories of tourists. Thus, location and accessibility are key factors in the success and development of spa tourism at the resort.

Spa potential and therapeutic resources

The resort has oligomineral, bicarbonate thermal waters with temperatures ranging from 20°C to 49°C, used for rheumatic, neurological, and gynecological treatments. Therapeutic muds and natural gases in the area complement the effectiveness of treatments, offering solutions for physical rehabilitation and relief from chronic pain. The diversity of resources allows the organization of individualized spa treatments tailored to the needs of different categories of patients, from the elderly to young people or individuals with chronic conditions. The high quality and constant temperature of the thermal waters make their use possible throughout the year, supporting year-round tourism and mitigating seasonality. Additionally, combining natural factors with modern treatment and recreational facilities enhances the resort's attractiveness. This richness of spa resources positions Băile Felix as one of Romania's most important health tourism destinations. By responsibly leveraging these resources, the resort can provide both therapeutic benefits and complex, sustainable, high-quality tourist experiences.

Technical infrastructure and tourist demand

Băile Felix features modern hotels (Lotus, International, President, etc.), treatment centers, SPA facilities, and recreational amenities. Tourist demand includes visitors seeking treatment as well as those interested in relaxation and wellness. The accommodation and service network is complemented by restaurants, cafés, shops, and public recreational spaces, contributing to an integrated experience for tourists. Tourist demand is diverse, with visitors arriving for medical treatments and spa cures, as well as for relaxation, wellness, or recreational and cultural activities. The resort attracts a steady flow of tourists from Romania and abroad due to the combination of high-quality services, natural resources, and excellent accessibility. Moreover, the development of customized tourist packages and the integration of additional activities, such as fitness programs, relaxation therapies, and local excursions, increase visitor satisfaction and loyalty. Demand is also stimulated by the opportunity to benefit from long-term treatments tailored to individual needs, in a pleasant and relaxing natural setting. This infrastructure and well-defined demand give the resort significant potential for sustainable development and competitiveness in the spa tourism market.

Development strategies

Priority strategies for the development of the resort include modernizing infrastructure, diversifying services, effective promotion, and protecting natural resources. This involves renovating treatment facilities and accommodation units, improving accessibility, introducing modern technologies, and creating recreational spaces. Additionally, developing wellness services, organizing cultural and recreational events, creating customized tourist packages, and integrating leisure tourism contribute to visitor loyalty and reduce seasonality. Protecting thermal water resources and the natural environment, along with educating tourists and training staff, ensures long-term sustainability. Coherent promotion through branding and digital marketing complements these sustainable development strategies.

Conclusions

Spa tourism is a strategic sector of Romanian tourism, with economic, social, and medical impacts. Romania possesses valuable spa potential that can be leveraged through coherent strategies, including infrastructure modernization, service diversification, effective promotion, and adherence to the principles of sustainable development. The Băile Felix case study illustrates how these strategies can be implemented to enhance the long-term attractiveness and competitiveness of the resort. Moreover, spa tourism contributes to strengthening Romania's image as a destination for health and relaxation, attracting visitors from various countries and promoting cultural exchanges. Implementing sustainable development strategies allows for maintaining a balance between the use of natural resources and the economic demands of tourism.

Through infrastructure modernization and service diversification, spa resorts can more effectively meet the needs of contemporary tourists, offering integrated experiences of treatment, recreation, and culture. Education and engagement of the local community play a crucial role in the long-term success of these destinations. In this context, strategic planning and collaboration between authorities, investors, and tourism operators become decisive factors in enhancing competitiveness and improving the standard of living. Spa tourism not only supports public health but also generates significant social and economic benefits. Its development represents a model for promoting tourism at both the national and international levels.

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ANALYSIS OF FOOD WASTE MITIGATION STRATEGIES IN ROMANIAN RESTAURANTS

Gina Gilet (Sztruten, Lefter) Dobrotă*

Abstract

Food waste in restaurants (the HoReCa sector or hospitality industry) is a significant component of the global problem, with major economic and operational implications. At the European Union level, restaurants and food services generate approximately 12-16% of the total food waste.

Food waste systems from several sources, such as overproduction, poor inventory management, oversized portions, and food left uneaten by customers. This issue impacts the economy, the environment, and society, and restaurants can contribute to the solution through efficient resource management and by redistributing surplus food.

Similar to households, the food service sector is targeted by global sustainability goals. For example, the European Union has committed to reducing food waste per capita in retail, restaurants, and households by 30% by 2030. In this context, it is necessary to analyze the restaurant market, including the steps taken by Romanian restaurants in this area and the solutions found to mitigate this phenomenon.

Keywords: food waste, restaurants, HoReCa (Hotels, Restaurants, Catering), hospitality industry, mitigation strategies

JEL: Q180, Z310.

Sources of waste in restaurants are multiple, and the consequences are visible in the medium and long term, from the micro to the macro level. These can stem from cooking larger quantities of food than necessary, especially if the surplus cannot be redistributed, from the mismanagement of stocks, which leads to the expiration or spoilage of ingredients before they are used, or from the generous size of portions which can lead to unconsumed food on the plate, and the incomplete consumption of correctly cooked dishes generates leftovers that end up in the trash.

The concern of all parties involved in diminishing food waste is increasingly emphasized due to its impact both in the short and medium term, but also in the long term. Thus, regardless of the time horizon, we encounter several forms of impact in the market:

Economic impact through the wasting of food, which involves financial losses for restaurants and for the entire supply chain.

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Environmental impact through the production of wasted food that consumes resources such as water and energy, and its storage in landfills, contributes to pollution.

Social impact through the production of wasted food, while there are millions of people on the planet who do not have access to food. Reducing food waste could help redistribute the surplus to those in need.

According to a study by Edenred, HORA (The Employers' Association of Hotels and Restaurants in Romania), and Mastercard, conducted in 2022, 70% of food waste is associated with ingredients in the categories of fruits, vegetables, and meat, and prepared dishes represent 30%. 50% of food items that are about to expire are thrown in the trash, and over half of the restaurants in Romania have implemented measures to combat food waste, such as food donation, partnerships with platforms through which they sell remaining food at half price, or streamlining the management of raw resources.

Other specialists consider that the two major categories of food waste faced by restaurants are waste caused by food that did not end up being consumed because it expired or was the subject of human errors (the chef cooked a well-done steak for a customer who ordered one medium-rare) and waste caused by food left on the plate by the customer (estimates say this happens with 17% of a portion).

In the context of current unprecedented crises, with continuously rising inflation and an entire world under the sign of unpredictability, the most important is temperance. Not only from an economic perspective, but also from an ecological one, waste makes no sense. For the growth of a healthy business in public catering, it is essential to address the issue of waste, both from the perspective of education and the change of mentality. For the success of these endeavors, the support of the authorities is also needed to identify ways in which HoReCa operators (hospitality industry operators), instead of throwing food away, can redirect it to NGOs. For many operators, the food surplus represents an extra expense, but also a risk of infection if it is not destroyed properly.

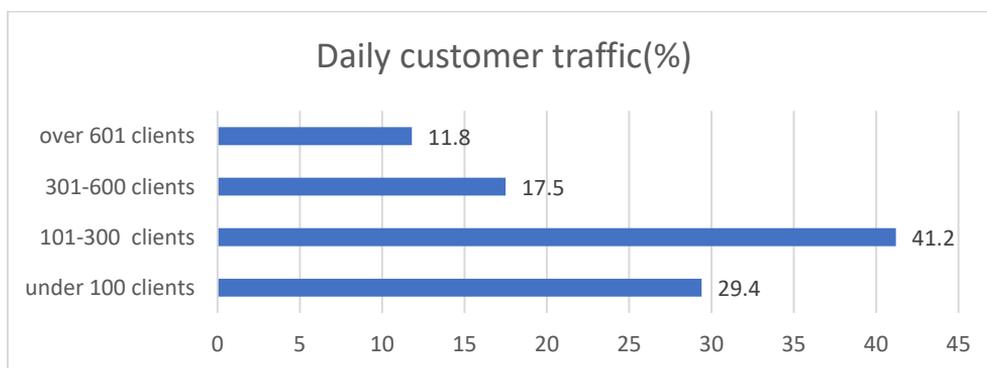
Food waste is one of the greatest challenges for restaurants. This represents a source of loss for businesses, as well as for the personal budget, and affects even the national economy. However, addressed correctly, both from the point of view of operator management and at the legislative level, food waste can be transformed, from a major vulnerability, into a standardized circuit, with multiple beneficiaries. One of the most frequently used methods of reducing food waste is the correct reporting between product demand and the purchase of raw materials. In other words, restaurants take into account the flow of customers in certain periods, to calculate the necessary raw material, so as to avoid the surplus that leads, most often, to a larger quantity of discarded food.

Starting from these analyses, a study was conducted on a sample of 72 public catering units. The field research was carried out with the help of a

questionnaire, in the online environment, by distributing it to the staff of public catering units in Romania, located in different positions, from entry level to top management. The units were of the type of classic restaurants (82.3%), fast food type (5.9%), but also of the cafe or teahouse type (5.9%), and catering units with deliveries (5.9%). Regarding the form of organization of the unit, 64.7% were responses from units operating in hotels, and the remaining 35.3% from independent units.

For the most accurate radiography of the sample, the study identified that 58.8% of those interviewed carried out their activity in units with over 5 years of activity in the HoReCa field, 17.5% of the businesses had between 3 and 5 years of activity, 17.7% under 3 years of activity, and only 5.9% had over 10 years of activity.

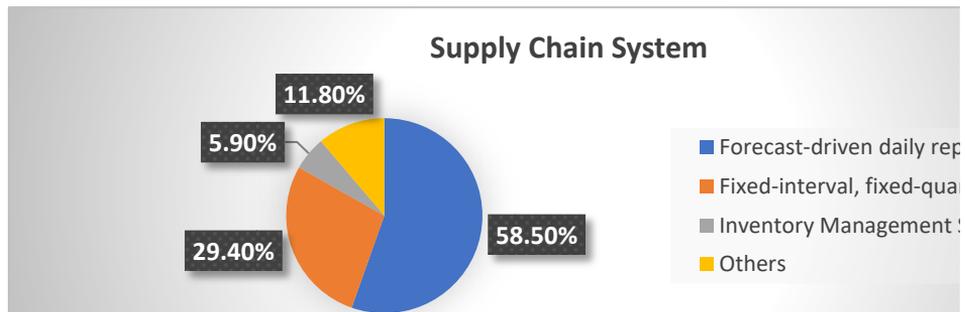
Regarding the volume of the business, at the question concerning the number of customers per day, the answers indicated in the highest weight small and medium-sized businesses, 41.2% having between 100 and 300 customers per day and 29.4% receiving up to 100 customers daily, while 17.6% responded that between 300 and 600 customers enter the restaurant door, and only 11.8% have large-scale businesses with over 600 daily customers.



Source: Elaborated by the author (based on the survey results)

The study indicated that in approximately half of the units, the average budgets spent by a customer in the restaurant fall within the range of 101–150 RON (52.9%), and only in 11.8% of them do customers spend over 151 RON per meal, while in 35% (in total), customers consume less than 100 RON. In delivery-based catering units and fast-food outlets, expenditures are also below 75 RON per order (17.7%).

58.8% of the restaurants participating in the interview are positioned in the urban center or even the historical center, whereas only 17.6% are located on the urban periphery.



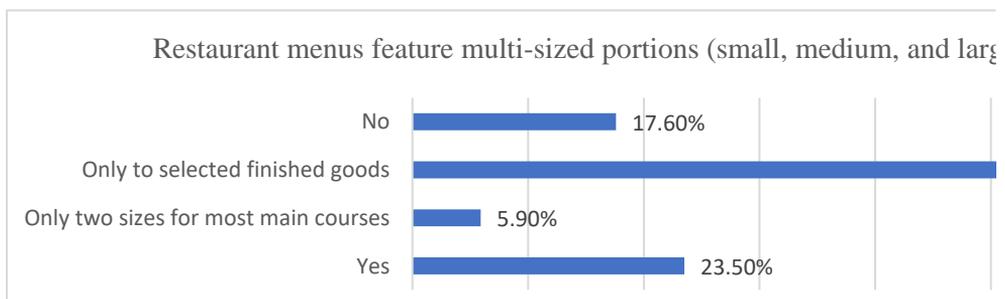
Source: Elaborated by the author (based on the survey results)

Regardless of the restaurant's profile, to the question regarding the regular verification of stocks to avoid product expiration, all respondents (100%) answered affirmatively, which indicates an intense concern regarding food safety. The FIFO (First In, First Out) method in inventory management ensures that the oldest stock is sold or utilized first, which minimizes obsolescence and waste, especially for perishable goods [13]. Throughout the study, it was identified that the FIFO (First In, First Out) principle is regularly used during storage for all raw materials by 88.2%, while 11.8% responded that they do not apply it to all products.

To the question regarding collaboration with local suppliers to reduce large quantities of packaging and diminish losses, 64.7% answered "yes" and 25.3% answered that they resort to this only for certain raw materials.

Regarding the adaptation of the menu to efficiently use ingredients (for example, the same ingredient in multiple dishes), 52.9% responded "yes," 41.2% responded "partially," and 5.9% responded negatively.

Following the present study, it emerged that Romanian restaurants also use the technique of including different portion sizes in the menu (small/normal/large, or at least, normal and large) to reduce food waste.



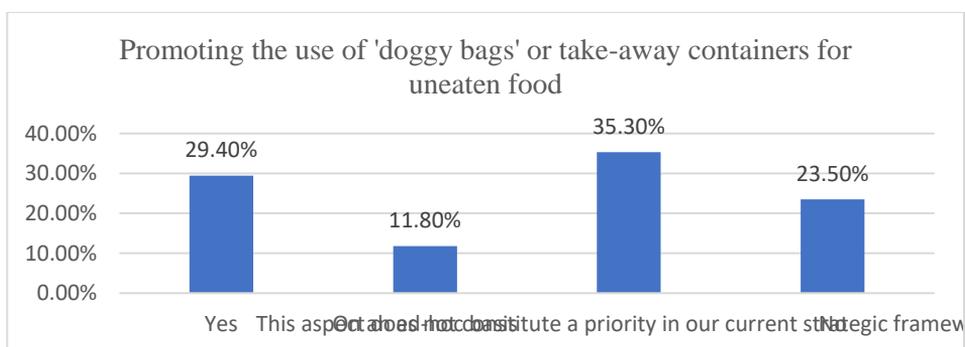
Source: Elaborated by the author (based on the survey results)

Another method for diminishing food waste is the technique of creatively reusing safe surplus ingredients (e.g., soups, sauces, special menus). Thus, the

restaurants were asked if they utilize these practices, and the responses were largely positive: 52.9% answered "yes," 29.5% stated they use this technique but only occasionally, and 17% do not utilize it.

Portion control systems in the kitchen are a procedure implemented in the vast majority of restaurants worldwide. In the case of the surveyed restaurants, 82.4% of these units have fully implemented this system, while only 17.6% have partially implemented it.

As the consumerist era wanes and the era of responsibility and conservation becomes apparent, restaurants encourage customers to take remaining food to go as an alternative for diminishing food waste.



Source: Elaborated by the author (based on the survey results)

Responses regarding the promotion and encouragement of customers to take home unconsumed food from the restaurant indicate a lack of concern among Romanian establishments in this regard, as only 29.4% propose this to customers. Furthermore, 23.5% do not recommend it, and 35.5% state that it is not a strategic priority. This suggests that restaurants may prefer to generate more waste from unconsumed food rather than encouraging customers to take it home. This fact may be attributed to the additional expenses incurred by restaurants, specifically for containers, bags, and other take-away equipment.

Another procedure, practiced by 47.1% of the interviewed units, consists of informing restaurant customers about portioning options to avoid food waste. At the same time, 35.3% do not engage in this practice. Monitoring the amount of food returned from the dining area to adjust the menu or portions is a known operational procedure practiced by 58.8% of the restaurants participating in the study. In contrast, 17.6% do so only occasionally, and 23.5% do not monitor it at all.

Worldwide, gastronomy—both on a large and small scale—is adapting to the trend of doing business in the spirit of sustainability and waste elimination. Waste, specifically elements that cannot constitute a dish on their own, is slowly but surely becoming raw material. This trend is not only visible in gastronomy;

an extremely important aspect is that if restaurants focus on reducing waste within their own units, they can contribute to solving the global problem of food waste. In this way, restaurants will gain significant points with customers who are interested in these issues and social responsibility [11]. In this context, 70.6% of the respondents in the present study measure the quantities of food waste generated over a period of time (weekly/monthly).

The global recycling target for packaging waste will increase to 70% by 2030, and by June 2026, 26 new recycling plants are expected to be constructed [10]. Encouraging customers to recycle is another modern method of waste reduction. Customers are thus rewarded for recycling, a method increasingly adopted by coffee shop and restaurant owners in Romania. Consequently, many customers have begun purchasing their favorite coffee, lunch, or dinner in containers brought from home, thereby reducing not only packaging waste but also expenditures. For example, for a coffee purchased directly in one's own thermos, customers may receive a price reduction of 1 RON. In restaurants, customers most often bring small buckets, glass containers, or cardboard containers. Modern customers seek to minimize packaging consumption.

To maintain a responsible environmental attitude, many restaurants utilize food waste separation systems. Romania, as part of the European Union, already applies waste sorting norms in HoReCa activities. Nevertheless, only 82.4% of those interviewed apply them fully, while 17.6% admit to applying them partially. The fact that only 23.5% of units donate safe food products to charitable organizations and 52.9% do not do so may indicate either a legislative gap regarding distribution and food safety responsibilities or additional expenses related to human resources and transport logistics for these donations.

Periodic training and education of staff in food waste management are major concerns for HoReCa investors as well. According to the present study, 70.6% of restaurants have implemented food waste management and train their employees accordingly, while in 11.8% of units, it is in the process of implementation. Regarding a position specifically dedicated to a food waste monitoring officer, the situation differs; only 47.1% of units allocate budgets for such a post. In 52.9% of units, they are either in the process of appointing an officer or do not have this position.

Regarding quality, environmental, and food safety management certifications, 82.4% of the units hold various certifications. Regarding the application of legislative regulations on reducing food waste according to Law no. 217/2016, 41.2% responded unequivocally that they apply it, and the same percentage responded that they are in the process of application; thus, the majority (82.4%) of the Romanian HoReCa industry complies with the legislation and aligns with European regulations, indicating responsibility and professionalism.

Based on the present qualitative and quantitative analysis, the following measures can be deduced for implementation to diminish food waste in Romanian restaurants:

- Avoiding large stocks – achieved by weekly quantitative and qualitative verification of fresh ingredients and adjusting procurement lists based on this inventory.
- Correct food storage – using the FIFO (first in, first out) method when storing food in refrigerators or room-temperature storage ensures that older stock is at the front and used before it spoils.
- Focusing on seasonal ingredients – while a constantly changing menu may seem harder to manage initially, it is worth attempting for its long-term results.
- Regularly rethinking the menu – identifying unpopular dishes and replacing them with creations made from ingredients more appreciated by customers. This ensures a higher turnover and, consequently, less waste. The era of bulky and extremely diverse menus has passed.
- Utilizing weekly menus and special offers – challenging the kitchen team to a creative exercise (for example, by using ingredients with a shorter shelf life). Vegetables that have lost their vitality can become excellent purees or cream soups, and older bread can be used for French toast: one of the most beloved childhood desserts.
- Adjusting portion sizes – as customers tend to order more than they can eat, either due to miscalculating their hunger or a desire to taste as many dishes as possible. Chefs can assist by balancing portions, perhaps consulting a nutrition technician. Thus, guests can enjoy an appetizer, a main course, and maybe a dessert.
- Installing a reservation system – helping restaurants know the number of guests in advance, which assists in correct stock management and loss avoidance.
- Offering take-away packaging – although many customers are embarrassed to ask, they may appreciate the initiative if offered at the end of the meal. This is a win-win situation, as restaurants reduce waste and customers leave with a fresh snack for later.
- Organizing staff training – leading to responsible employee behavior. Annual training on food waste and recycling (the reduction of single-use plastic is also an inexhaustible topic) can encourage employees to take responsibility and propose better ideas for stock management or creating zero-waste plates.
- Donating remaining meals – which can be achieved with increasing success, as even with the best inventory and reservation management, restaurants will still have cooked food left at the end of the day. Fortunately, mobile applications have begun to appear in Romania, such as bonapp [4], which allows for listing remaining food at half price. Although Romania has had legislation

regarding the reduction of food waste since 2016, the application norms do not provide a clear procedure through which restaurants can donate cooked food to social NGO beneficiaries [12].

Conclusions

In conclusion, food waste represents a form of environmental aggression, and its mitigation can improve human quality of life, targeting involvement in responsible development, well-being, and the progress of local communities. The present research highlights that the Romanian HoReCa sector is in an advanced process of aligning with European sustainability standards; however, this process is marked by an asymmetry between internal operational efficiency and external social responsibility. The collected data reveal remarkable discipline in resource management at the kitchen level: the universal use of stock verification systems (100%) and the quasi-generalized adoption of the FIFO principle (88.2%) indicate that economic operators perceive waste reduction primarily as a strategy for cost optimization and food safety assurance.

The study underscores, however, the existence of structural barriers in the post-preparation stage. Although 82.4% of units apply portion control systems, a reluctance is observed in interacting with the final consumer: only 29.4% of restaurants actively encourage taking unconsumed food to go, with the remainder citing strategic barriers or additional logistical costs. This fracture in the waste-combating chain is compounded by a low rate of donations to charitable organizations (23.5%), suggesting the need for legislative interventions to simplify the procedures for redistributing food surplus that is safe for consumption.

From an academic perspective, the results indicate that sustainability in the Romanian hospitality industry is evolving from a voluntary action toward a strategic necessity imposed by inflation and regulations (such as Law no. 217/2016). Transforming food waste from an economic vulnerability into a competitive advantage depends on the capacity of managers to integrate staff education (already implemented in 70.6% of units) with innovative circular economy solutions, such as the creative reuse of ingredients or the digitalization of waste monitoring. Ultimately, the success of these endeavors is conditioned by a functional public-private partnership capable of transforming food surplus from a logistical expense into a valuable social resource.

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MARKET SEGMENTATION STRATEGIES IN THE GLOBAL HOTEL INDUSTRY

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Abstract

The global hospitality industry is undergoing a continuous transformation process driven by major changes in consumer behavior in recent years, the growing need for service personalization, and the massive introduction of digital innovations. Against this background of accelerated change, market segmentation has become a fundamental strategic component for major hotel groups, compelling them to adapt their offerings to increasingly diverse market demands. The segmentation strategy requires identifying distinct customer categories (leisure, transient, and business travelers), as well as the methods through which hotels can truly integrate market-oriented service adaptation into their operations – not only through the consistency of services suited to different client types, but also through price and rate optimization and the streamlining of loyalty programs. By adopting a multi-brand segmentation approach, hotel groups can enhance greater customer satisfaction, maximize profitability, and strengthen their position in an increasingly competitive global market. This article aims to highlight the role of segmentation as a key tool in commercial strategies, by analyzing, on the one hand, the structural models of hotel offerings used by the world’s leading international hotel groups, and on the other, the ways in which segmentation responds to the need for competitive differentiation and reinforces market positioning on a global scale. The paper also emphasizes emerging demand trends among contemporary guests – represented by new consumer segments such as Generation Z, “bleisure” travelers, and experience-seeking tourists – that are reshaping hotel segmentation strategies. In conclusion, the article argues that segmentation strategies represent not merely a marketing process, but a comprehensive philosophy of market positioning for hotel groups.

Keywords: hotel groups and chains, market segmentation strategy, commercial strategy, multi-brand, corporate soft brands, consumer segments.

JEL Classification: M31, L83, D12.

1. Introduction

The evolution of the hospitality industry has been largely driven by major hotel corporations operating at a global scale through brand-based expansion strategies and standardized service offerings. Over time, these companies have extended their operations worldwide, with a particular focus on emerging markets, where investments by international hotel groups have contributed to tourism development by channeling travel flows toward new destinations (Dodu, 2021)

In recent years, profound shifts in consumer behavior, together with the rapid advancement of digital technologies, have compelled the hospitality

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industry to undergo continuous strategic adaptation. Increasingly sophisticated guest expectations regarding experience personalization, combined with intensified competition and demand fragmentation, have reduced the effectiveness of traditional approaches based solely on standardization, accommodation capacity, or formal classification systems. Consequently, hotels are increasingly required to adopt customer-oriented strategies that emphasize experiential value creation and authenticity. Despite the extensive literature on market segmentation and branding in hospitality, existing studies often address these dimensions in isolation, with limited attention to their strategic integration within multi-brand hotel group architectures. In particular, the role of soft brands and corporate soft brands as consumer-oriented segmentation and positioning mechanisms remains underexplored in a unified conceptual framework.

This paper contributes to the hospitality and tourism literature by providing an integrative conceptual analysis of market segmentation strategies in the global hotel industry, with a particular focus on consumer-oriented and experience-driven approaches. Specifically, the study systematizes traditional and contemporary segmentation frameworks, highlights the strategic role of multi-brand architectures, and advances the understanding of soft brands and corporate soft brands as positioning mechanisms in response to changing consumer behaviors and emerging demand trends.

2. Market Segmentation Strategies in the Global Hotel Industry – Theoretical Foundations

Market segmentation represents one of the central pillars of strategic marketing in the hotel industry, particularly in the context of intensified competition among hotel brands and the expansion of the globalization of hotel brands. In the specialized literature, market segmentation is defined as the process of dividing the total market into homogeneous groups of consumers who exhibit similar needs, behaviors, and responses to marketing stimuli (Kotler, Bowen & Makens, 2017). Consequently, segmentation enables the adaptation of tourism products to changes in demand structures and facilitates the targeting of market segments with growth potential, while ensuring efficient resource allocation and competitive market positioning (Ispas & Candrea, 2016).

Unlike the market for tangible goods, hotel services are consumed simultaneously with their production. As a result, the perception of service quality is strongly influenced by the interaction between the guest and the service provider. From this perspective, market segmentation cannot be limited to the mere identification of customer categories, but requires a deeper understanding of how different segments perceive value, satisfaction, and the overall hotel experience. Accordingly, segmentation becomes an essential instrument for tailoring services to the specific expectations of consumers. From a strategic perspective, this evolution suggests that market segmentation in hospitality

increasingly transcends its traditional marketing function, becoming a core element of value creation and competitive positioning.

2.1. Key Types of Segmentation Used in the Hotel Industry

In the hospitality and tourism literature, hotel market segmentation is widely recognized as a fundamental marketing instrument, playing a key role in understanding demand diversity and in adapting hotel offerings to consumer expectations. Traditional segmentation approaches, primarily based on demographic criteria (such as age, income, and education level) or geographic variables, have demonstrated limited effectiveness in explaining actual hotel consumer behavior. Numerous studies indicate that tourists with similar demographic profiles may exhibit different consumption behaviors, while consumers belonging to distinct demographic groups may display convergent expectations and motivations. In this context, recent literature emphasizes the need for a stronger orientation toward segmentation based on behavior, motivations, and experience.

Returning to traditional segmentation typologies applicable to the hotel industry, these approaches should not be excluded from research, as they remain relevant for major market segments. As noted by Feng (2022), “market segmentation is a helpful tool to divide the market into different groups in terms of similar characteristics, attitudes, and needs for products or services.” Demographic and geographic segmentation constituted, for a long period, the foundation of hotel strategies, due to the accessibility and ease of use of the corresponding data. Geographic segmentation is particularly employed by international hotel chains, which adapt their offerings according to source markets and the cultural characteristics of tourists (Bowie, Buttle, Brookes & Mariussen, 2016). Demographic segmentation (income, age) remains relevant, especially for determining price levels and comfort categories, but is increasingly combined with other forms of segmentation. Nevertheless, these criteria provide a limited perspective on consumers’ underlying motivations and do not adequately explain differences in the perception of the hotel experience. As a result, they are currently used more as complementary tools rather than as the primary pillars of segmentation strategies.

Recent literature places growing emphasis on psychographic and behavioral segmentation, which are considered essential for an in-depth understanding of the hotel market. Psychographic segmentation focuses on variables such as lifestyle, values, motivations, and attitudes of tourists, while behavioral segmentation relies on variables directly related to hotel service consumption, including frequency of stays, travel purpose, price sensitivity, booking patterns, and brand loyalty. Research shows that tourists with similar demographic profiles may exhibit different preferences and behaviors, which justifies the need to combine demographic variables with psychographic and behavioral factors to

generate more homogeneous and strategically relevant segments (Soni et al., 2022). Numerous studies conducted in recent years demonstrate that, through detailed analysis of purchasing behavior, hotels can more effectively anticipate customer needs and adapt their offerings to deliver personalized guest experiences. Moreover, both psychographic and behavioral segmentation underpin the development of modern hotel concepts tailored to new generations of consumers, such as lifestyle hotels, where emphasis is placed on design, social interaction, authenticity, and integration into local urban life (Heo & Hyun, 2015).

At the same time, the specialized literature highlights the transition of the hotel industry toward data-oriented segmentation models, supported by advanced analytical technologies. Data-driven segmentation, based on the analysis of large volumes of operational and behavioral data, enables the identification of dynamic segments that can be updated in real time. According to van Leeuwen and Koole (2022), data-driven segmentation allows hotels to anticipate customer needs more effectively, personalize offerings, and optimize marketing and loyalty strategies, thereby strengthening competitive advantage in an environment characterized by intense competition.

3. Consumer-Oriented Segmentation in the Strategies of International Hotel Groups

In the context of an increasingly competitive environment, international hotel companies are progressively adopting consumer-oriented segmentation strategies as a response to the diversification of needs and consumption behaviours. Hoteliers have recognized that, under conditions of intensified international tourism mobility, customer categories can no longer be treated as rigid segments, as hotel consumer behaviour has become increasingly fluid and situational. Recent empirical research demonstrates that benefit-based segmentation enables a more nuanced differentiation of hotel guests based on ethical, experiential, and sustainability-related preferences, particularly in upscale and luxury hospitality contexts (Mele, Dubosson & Schegg, 2024).

3.1. Adapting Hotel Offerings to Consumer Segments

A central element of consumer-oriented segmentation is the adaptation of hotel offerings to the specific characteristics of each identified segment. This adaptation is reflected not only in the structure of the services provided, but also in the architecture of the hotel product, marketing communication, and how the hotel experience is delivered.

Major international hotel groups employ differentiated strategies to respond to the expectations of diverse consumer segments. For example, hotels targeting the business segment emphasize efficiency, digital connectivity, flexibility of workspaces, and loyalty programmes tailored to travel frequency. By contrast,

hotels designed for leisure or experience-oriented segments prioritize elements such as design, sustainability, integration of local culture, wellness services, and personalized experiences.

Service personalization represents a key determinant of customer satisfaction and loyalty, particularly for experience-oriented segments (Kotler, Bowen & Makens, 2017), aiming not only to attract customers but also to build long-term relationships based on relevance and perceived value. Research indicates that consumer loyalty in the hotel industry is increasingly shaped by the quality of the experience delivered and by perceived service quality, rather than by simple affiliation with a brand, these factors being essential to effective customer retention (Górska-Warsewicz & Kulykovets, 2020).

3.2. The Multi-Brand Strategy as a Segmentation Instrument

Hotel brand-based segmentation began to take shape in the 1980s, when hoteliers started to recognize the importance of delivering services tailored to customers' needs and preferences. In the following decades, this orientation evolved toward the development of hotels designed for specific customer categories.

A brand represents more than a name, a logo, a sign displayed on a hotel façade, or the respectable uniform of a concierge employee; rather, it embodies a set of values and promised quality standards. The primary objective of a hotel company's marketing strategy should therefore be to raise awareness among current and potential customers of the brand, particularly in the contemporary context of shifts in demand structures and major innovations in hospitality driven by the rapid development of the hotel industry (Dodu, 2021).

The multi-brand strategy constitutes a complex approach to implementing market segmentation within the global hotel industry, enabling major hotel groups to respond simultaneously to demand diversity and the volatility of consumer behaviour. By developing a diversified brand portfolio, hotel companies can target distinct market segments differentiated according to comfort level, lifestyle, travel motivations, and experiential expectations, without compromising the overall strategic coherence of the group (Kapferer, 2012).

From a strategic perspective, the multi-brand approach makes it possible to overcome the limitations of a single-brand strategy, which cannot effectively address the full spectrum of consumer needs and preferences. Accordingly, each brand within the portfolio is clearly positioned toward a specific target segment, with a distinct value proposition, proprietary operational standards, and a differentiated identity. This differentiation reduces the risk of cannibalization among hotels belonging to the same group and operating within the same geographic area, while also facilitating rapid adaptation to changes in demand. In practice, the multi-brand strategy thus becomes a mechanism through which hotels translate consumer behaviours and motivations into distinct hotel

concepts. Moreover, this approach supports international expansion strategies by enabling brands to adapt to the cultural and economic specificities of different markets, while maintaining access to global distribution systems, loyalty programmes, and managerial know-how.

In this regard, hotel groups such as Marriott International, Accor, and Hilton have developed complex brand portfolios covering a wide range of segments, offering consumers the opportunity to make choices not solely on the basis of brand name or price, but rather according to the type of experience promised: luxury experiences, urban lifestyle concepts, active leisure stays, extended-stay accommodation, or locally authentic experiences. For example, Marriott International employs distinct brands for different consumer segments, each with a clearly defined conceptual proposition tailored to the expectations of its target segment. Each market niche has its own specific characteristics and is addressed through categories such as Luxury, Premium & Lifestyle, Select & Midscale, Longer Stays, and Soft / Boutique / Regional brands, with each level differentiated by the services, facilities, pricing, and quality offered.

3.3. “Soft Brands” and “Corporate Soft Brands” in the Context of Hotel Segmentation Strategies

While, in the initial stages of international expansion, the development of brand portfolios primarily aimed to cover the classical market tiers (economy, midscale, upscale, and luxury), this strategy has gradually evolved toward more flexible forms, adapted to the expectations of consumers oriented toward experience, authenticity, and individualisation. The increasing dynamism of the hotel market and the ongoing focus on identifying “the right hotel for the right customer” have led to the emergence of new hybrid hotel concepts, such as soft brands and corporate soft brands.

“Soft brands” represent a collection of independent hotels that affiliate with a brand platform while retaining their own name and individual brand identity. Soft brands do not constitute an entirely new concept in the market; rather, they represent a contemporary reinterpretation of voluntary hotel consortia through new brand structures adapted to the requirements of high-refinement services and distinctive, unique properties, such as *Small Luxury Hotels of the World*, *Epoque Hotels*, or *Relais & Châteaux* (Dodu, 2021). By contrast, corporate soft brands refer to hotel brands developed by major international chains, which allow the integration of independent hotels into a global portfolio while preserving local identity and operational flexibility (CBRE, 2018). In practice, corporate soft brands function as a strategic bridge between the need for operational standardisation and consumers’ desire for unique, locally authentic experiences. Consequently, corporate soft brands may be interpreted as an advanced segmentation instrument through which hotel groups strengthen their positioning within lifestyle, boutique, and experiential segments, without diluting their global

brand identity. Recent empirical research supports this strategic role of soft-brand affiliations, suggesting that such arrangements may enhance hotel performance while allowing properties to retain distinctive local identities within broader brand portfolios (Chan et al., 2022). Among the established brands within the corporate soft brand category are *Autograph Collection*, *Tribute Portfolio*, and *Design Hotels* (Marriott International), *Curio Collection* and *Tapestry Collection* (Hilton), as well as *Voco* (IHG).

With regard to hotels focused on delivering experiential accommodation, Rauch (CEO of RAR Hospitality) emphasizes, in reference to soft brands, that “It’s one where the customer does not know the name of that brand; they only know the name of the hotel,” highlighting the importance of the individual property’s identity in the consumer decision-making process (Hotels Management, 2019). As illustrated in Figure 1, the distinction between soft brands and corporate soft brands reflects two complementary approaches to market segmentation in the hotel industry. While traditional soft brands emphasize the preservation of independent hotel identity and symbolic prestige, corporate soft brands integrate locally distinctive properties within global hotel group platforms, combining experiential uniqueness with standardized operational support.



Figure 1. Soft brands and corporate soft brands as strategic segmentation models in the hotel industry. Source: adapted from Hotel Revenue Insights (2019).

In conclusion, strategies based on soft brands and corporate soft brands reflect two distinct models of consumer-oriented segmentation. While traditional soft brands rely on exclusivity, authenticity, and symbolic prestige, corporate soft brands seek to integrate local experiences within a global operational framework, offering consumers a balance between uniqueness and security. From the perspective of major hotel groups, these brands represent essential instruments for addressing experiential and lifestyle segments without diluting the identity of

core brands. This evolution confirms that the multi-brand strategy no longer aims solely at diversifying the offer, but is increasingly transformed into a strategic mechanism for adapting to emerging demand trends and to the dynamics of the contemporary hotel market.

4. Emerging Trends in Hotel Demand Segmentation

Recent literature on hotel demand segmentation highlights a clear shift from traditional, predominantly demographic criteria toward approaches centred on consumer generations, purchasing behaviours, and experiential motivations. This transformation is closely linked to profound changes in contemporary tourist behaviour, influenced by digitalisation, increased mobility, and the redefinition of the relationship between work, leisure, and experience (Górska-Warsewicz & Kulykovets, 2020).

From the perspective of the hotel industry, the analysis of tourist behaviour across generations no longer focuses exclusively on estimating demand volumes, but directly influences hotel product design, service personalisation, brand positioning, and distribution strategies. In this context, studies dedicated to the Millennial and Generation Z cohorts provide relevant insights not only for understanding current consumption attitudes, but also for shaping the strategic directions of hotel groups and the future configuration of the global hospitality sector.

Research on generational segmentation identifies significant differences between Generation Z, Millennials, and earlier generations regarding information sources, accommodation selection criteria, and attitudes toward brands. Generation Z demonstrates strong preferences for authentic experiences, authentic digital content (UGC) (European Travel Commission, 2020), peer-to-peer reviews, and social media recommendations, to the detriment of traditional information channels. This reality is reshaping the ways in which hotels must communicate and position themselves in the near future.

Another factor driving the reorientation of hotel products concerns the redefinition of consumer loyalty within the hospitality industry. As noted by Górska-Warsewicz and Kulykovets (2020), “loyalty in the hotel industry is increasingly linked to the perceived quality of the experience delivered rather than to simple brand affiliation.” Consequently, a growing body of evidence suggests that customer loyalty in hospitality is shifting toward experience-based loyalty. For Millennial and Generation Z consumers, loyalty is no longer determined exclusively by membership in loyalty programmes or by recognition of a global brand, but rather by the quality of interactions, the relevance of the experience offered, and the hotel’s ability to respond in a personalised manner to individual expectations (Górska-Warsewicz & Kulykovets, 2020). In this context, loyalty becomes a dynamic process, built through memorable and authentic experiences, and requires hotel groups to strategically orient

themselves toward concepts such as lifestyle, design, green hotels, soft brands, and corporate soft brands. These concepts allow for the cultivation of more personal relationships with guests without the constraints of rigid standardisation, thereby redefining the foundations of loyalty in the hospitality of the future.

Recent observations of Generation Z travel behaviour indicate significant changes in the decision-making process compared to previous generations, including Millennials, despite similarities related to technology use and interest in cultural experiences. Popşa (2024) shows that, unlike Millennials, for whom brand value and reputation remain important selection criteria, Generation Z places greater emphasis on authenticity, social and environmental responsibility, and brands' ability to interact coherently with tourists across both digital and offline environments. Recent empirical research further supports the relevance of value- and attitude-based segmentation approaches in hospitality. Attitudinal segmentation reveals distinct traveler segments based on sustainability orientation, which significantly influences hotel value perceptions and the effectiveness of segmentation strategies, particularly in upscale and luxury hotel contexts (Loedphacharakamon & Choibamroong, 2025). In this context, purchase decisions are strongly influenced by the use of travel applications and social media throughout the entire travel journey, from planning and booking to experience documentation. The preference for unique and non-repetitive experiences compels hoteliers to adapt their segmentation and positioning strategies toward experiential and value-oriented concepts. This observation explains why new hotel concepts increasingly seek to translate declared values related to sustainability and social responsibility into tangible signals – such as certifications, visible operational practices, or local offerings – that can be easily communicated and verified by consumers (Minazzi, 2025).

The bleisure phenomenon, defined as the fusion of business and leisure travel, has emerged as a significant driver of demand in recent years, requiring hoteliers to adapt their service offerings to hybrid concepts (in-room workspaces, multifunctional lobbies, and flexible service packages). An increasing number of business travellers now incorporate leisure components into their travel arrangements, with growth trends reported by numerous companies in 2025. According to statements from Marriott International, the average length of stay for business travel is approximately 20% longer compared to 2019, while American Airlines identifies bleisure as the fastest-growing segment within its passenger portfolio (Navan, 2026). Furthermore, according to estimates by Allied Market Research, the global bleisure travel market was valued at approximately USD 315.3 billion in 2022 and is projected to reach USD 731.4 billion by 2032, with a compound annual growth rate (CAGR) of 8.9%, confirming the role of this phenomenon as a structural factor in the transformation of tourism and hotel demand.

These dynamics have fuelled the development of modern hotel concepts – such as lifestyle and boutique hotels, as well as soft-brand and corporate soft brand structures – as strategic responses to changing purchasing behaviours. Corporate soft brands enable major hotel groups to integrate independent properties with strong local identities into their portfolios while simultaneously offering global distribution and access to loyalty programmes, without imposing rigid standardisation. Complementarily, independent hotels increasingly join voluntary chains or boutique collections to enhance digital visibility and address consumers seeking authentic experiences (CBRE, 2018).

According to the American Express Global Travel Trends Report 2025, travel decision-making among Millennials and Generation Z is increasingly less focused exclusively on destination choice and more on the overall travel experience, with 70% of respondents stating that the enjoyment of the journey is as important as the destination itself. This evolution confirms the relevance of segmentation based on motivations, values, and lifestyles, to the detriment of traditional socio-demographic criteria. The report also highlights pronounced differentiation in demand based on consumers' relationship with technology, with over 80% of Millennials and Generation Z using digital applications and social platforms in travel planning and booking processes, and a similar proportion valuing the usefulness of artificial intelligence solutions for experience personalisation. In parallel, the orientation toward experiences with personal and emotional significance is reflected in a growing interest in authenticity, with over 80% of respondents seeking experiences that enable the construction of a personal narrative, and more than half stating that they choose destinations for access to local specificity. These findings support the view that hotel demand segmentation has become a strategic positioning instrument through which hotels can develop differentiated offerings anchored in local identity and experiential promises (American Express, 2025).

Accordingly, leading consultancy reports emphasise that experience – defined as the sum of relevant interactions, digital habits, and local engagement – is becoming the primary driver of loyalty, in some contexts more influential than affiliation with a traditional brand. This reinforces the rationale for multi-brand strategies and for the use of soft brands as consumer-oriented segmentation instruments (McKinsey).

Recent developments in the hospitality industry indicate that market segmentation can no longer be approached exclusively as an operational marketing tool, but must instead be understood as a philosophy of strategic positioning that fundamentally structures hotel offerings. In the current environment, characterised by demand fragmentation and intensified competition, hotels that treat segmentation as an integrated process – influencing product design, experience delivery, and brand communication – are more likely

to build clearer and more relevant market positions (Kotler, Bowen & Makens, 2017; Dolnicar, 2018).

Conclusion

Market segmentation represents a central pillar of competitive strategies in the global hotel industry, particularly in the context of profound transformations in consumer behavior and intensified international competition. The shift from traditional segmentation criteria—predominantly demographic and geographic—toward approaches focused on behaviors, motivations, and experiences reflects the need for a more nuanced understanding of demand and of how value is perceived and constructed within the hospitality industry. From this perspective, segmentation is no longer a descriptive exercise, but rather a strategic instrument that directly influences the structure of hotel offerings, brand positioning, and the relationship with consumers.

Looking ahead, the growing importance of multi-brand strategies and the development of innovative hotel concepts adapted to demand fragmentation and consumers' increasing orientation toward personalized, authentic, and value-relevant experiences becomes evident. Major hotel groups employ these instruments to address distinct market segments, reduce the risks associated with rigid standardization, and integrate local identity within a global operational framework. In this sense, the multi-brand strategy functions as a mechanism through which consumer behaviors and expectations are translated into differentiated hotel concepts capable of supporting international expansion and long-term economic performance.

At the same time, the emerging trends analyzed—particularly those associated with Millennials and Generation Z—indicate a redefinition of the concept of loyalty in the hospitality industry, shifting from brand attachment toward experience-based loyalty. The integration of digital, experiential, and value-related dimensions into segmentation strategies confirms that segmentation must be approached as a positioning philosophy rather than merely as an operational marketing tool. In this context, hotels' ability to design coherent, personalized, and meaningful experiences becomes essential for maintaining relevance and for creating sustainable value within a dynamic competitive environment.

Accordingly, market segmentation increasingly emerges as a philosophy of strategic positioning in the contemporary hospitality industry, influencing both the multi-brand strategies of major hotel groups and the capacity of individual hotels to remain relevant in a highly competitive and dynamic environment. Within this logic, segmentation becomes a continuous strategic process oriented toward adaptation, differentiation, and the creation of sustainable value for both consumers and organizations.

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TOURISM LABOUR MARKET OF TOMORROW

Catrinel Raluca Dridea*

Abstract

Tourism represents one of the most dynamic industries, creating positive effects worldwide. The economic impact of tourism showcases the importance of tourism, especially considering the number of direct and indirect employment it generates. This paper tries to investigate the labour market in tourism, the challenges and opportunities it faces and the future trends. With a particular set of characteristics, employment in tourism experiences difficulties, as many changes have occurred over the last decade. The Covid 19 pandemic, world economic crisis, political instability etc. have had a significant impact on tourism and consequently on tourism employment. Therefore, the question that arises is “What is the labour market of tomorrow and what issues need to be tackled?”.

Keywords: tourism, human capital, labour market, challenges, digitalization.

JEL Classification: Z30.

1. Introduction

As tourism has grown its importance worldwide, the labour market has widely extended, with a diversity of jobs across the sector. The need for employees in tourism constitutes an ongoing demand, given that many destinations are exhibiting an increase in the tourism sector.

Statistics show an expansion of employment to approximately 371 million in 2025¹, World Travel and Tourism Council estimating an increase by 2034, reaching 449 million.²

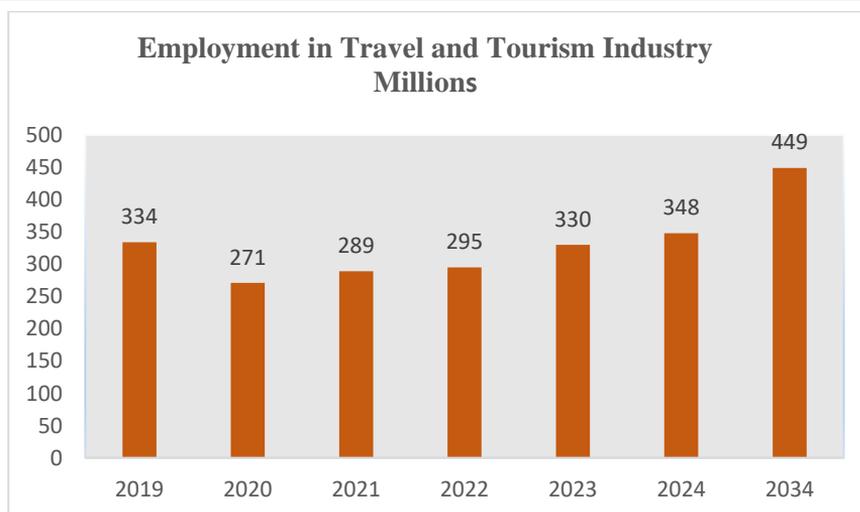
Glancing over the forecasting prediction it can be observed that the figures from 2024 (348 million) and the estimations for 2034, in terms of employees activating in the travel and tourism industry (449 million) are surpassing the values registered in 2019.

Although the figures are presenting an upward trend, there are aspects to be considered such as solving the skill shortages, high turnover, the impact of digitalization and AI practices etc.

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¹ <https://www.statista.com/statistics/1268465/number-of-travel-and-tourism-jobs-worldwide/>

² <https://hospitalityinsights.ehl.edu/hospitality-industry-statistics#:~:text=tourism%20grew%20to%201,during%20the%20same%20period>



Source: https://reports.weforum.org/docs/WEF_Future_of_Travel_and_Tourism_2025.pdf, Statista, WTTC. (June 2024). Number of travel and tourism jobs worldwide from 2019 to 2023, with a forecast for 2024 and 2034.

<https://www.statista.com/statistics/1268465/number-of-travel-and-tourism-jobs-worldwide/>

Studies regarding the future of jobs for the accommodations, food and leisure industry have identified 4 main areas to evaluate, for 2025-2030³:

- *Labour market churn* – 24% compared to 22% globally. The changes will account for 24% in the period analyzed, taking into consideration the structure of labour market.
- *Skill disruption* – 42% as compared to a global 39%. For 2025-2030, only 42% of skills are to remain the same, with more than half – 58% new skills are required to be learn and developed, according to respondents.
- *Organization with DEI priorities* – 80%, the global value is expected to be 83%. The estimated percentage shows that only 20% of companies will include diversity, equity and inclusion in their lists of priorities.
- *AI exposure* – 77% versus 88% globally. The high percentage of 77 indicates the employers' insight over the implication of AI for the near future.

The report⁴ offers a significant image of employment in tourism for 2030, with an emphasis on digitalization, AI, talent acquisition and the flexibility of jobs. 51% of the companies surveyed consider digitalization to be of major importance, but less than other industries. In relation to the technological factor 43% of working activities are expected to consist in human touch and 59% of employees believe they will face challenges in attracting talented employees.

³ https://reports.weforum.org/docs/WEF_Future_of_Jobs_Report_2025.pdf

⁴ idem

2. Particularities of labour market in tourism

Over the years tourism has gained popularity, becoming one of the most dynamic sectors in the world. Mass tourism has consolidated this image of industry, the contribution of tourism to GDP being a strong indicator of its importance. Along with other industries, tourism is generating major benefits for economies, especially for the countries where it represents one of the main activities. More countries are investing in their brand image as well-known tourist destinations, creating master plans for the advancement and modernization of tourism infrastructure and services.

Increasingly, destinations are developing the tourism industry with focus on proper employment. With such a variety of jobs in this sector, and considering the nature of tourism activities, companies are confronted with many challenges.

Seasonality determines the need for employees during a specific period or periods of time, which can be translated into temporary jobs, usually with lack of investment in their training. Many of these jobs are solicited by students, foreigners and part-time workers with or without the intent of returning to the same employers for the next season. The non-stop activity in tourism can also be impediment for those who are reluctant to work during the weekend or the holidays.

Another aspect to consider refers to the poor image of tourism as an employer, many jobs are regarded as low paid with lack of promotion opportunities, generating high turnover, and retention difficulties. This is the case for entry level jobs, rather than middle or top management, with an emphasis on the particularities of this industry. Many job roles rely on tips to enhance the salaries, but the uncompetitive pay, long hours and the poor working conditions still represent major concerns for employees that tend to migrate to other fields.

Companies are taking important measures to ensure the well-being of employees, supporting also their carrier development, providing opportunities for upskills and finding better roles. Taking this into account as well as the fact that many concerns rather apply to the entry level jobs, tourism stands to offer a great perspective for employees, from personal and professional development, dynamic jobs, carrier development at international level and so on.

The table below shows a comprehensive image of the main characteristics of tourism employment, with examples of selected industries as well as air transport, accommodation, travel agency/tour operator segments.

1.1 Main characteristics of labour market in tourism EU 2023

Percentage %	Selected tourism industries	Air transport	Accommodation	Travel agency/Tour operator
Woman employed	57.6	41.1	59.3	62.7

Part-time employed	21.3	16.7	22.0	21.5
Young people (15-24) employed	11.0	8.0	12.4	6.7
Low education persons employed	20.2	6.5	25.1	6.5
Temporary contract employed	20.8	7.5	24.7	12.9
Foreign persons employed	15.9	10.0	17.9	10.4
Workers employed for less than a year	23.1	14.0	25.8	17.1

Source: adaptation from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Tourism_industries_-_employment#In_2021.2C_the_tourism_industries_employed_over_11.2million_people_in_the_EU

Gender difference is noticeable in the tourism labour market, women exhibit a greater proportion than men, 58% in the tourism industry, with a higher value in the field of travel agencies and tour operators (63%) and accommodation sector (60%). This can be explained by the large diversity of jobs, working flexibility, soft skills inclined, service focused approached and so on.

The *part-time employees, temporary employees, employees with low education and foreign* ones hold a larger share in the accommodation sector, as shown in the table above, compared to the others. The highest numbers, 25.1 %, representing the low education employees and 25.8 % representing workers employed for less than a year, are mainly due to the entry level jobs, seasonal work, flexibility and accessibility of different jobs. Unfortunately, the high level of part-time or seasonal workers determines a *high turnover* as well.

Other aspects of labour market in tourism can be represented by⁵:

- Seasonality and the diversity of tourism activities determine a wide range of jobs within this sector.
- Different skills needed for jobs with the same title

⁵ Dr. Darren Lee-Ross, Dr. Josephine Pryce, Human Resources and Tourism: Skills, Culture and Industry, Channel View Publications, 2010

- Unclear relationship between the skills required, the job and the remuneration
- Different types of employment and job positions
- The tourism market is represented by large multinational companies and small independent ones.

Since human touch is the major approach for all tourism organizations, the emphasis is placed on talent management. Companies are taking important measures regarding their employees such as⁶: planning, recruitment, on-boarding, performance management, training and performance support, succession planning, compensation and benefits and critical talent management.

Many initiatives are centered on the personal and professional needs of employees, managing a work-life balance, offering proper training in terms of skills and market requirements and adapting to the needs of modern and experienced customers.

3. The challenges of digitalization, AI and the labour market in tourism

The future of tourism industry is related to technology and digitalization. Smart technologies will redefine the image of tourism, adding important value to all its sectors. Digitalization initiatives have already been implemented across the industry with beneficial effects in terms of efficiency, optimization, customers' experience, innovation and development and others.

The figures showcase the relevance of digitalization in the tourism industry:⁷

- The *Online Travel Agency* is expected to reach USD 391,394 million in 2027, from 269,509 million in 2021, 41% choosing online booking;
- *Social media* has a substantial influence on the travel decision, type of travel, attractions, activities, length of stay and others. Almost 89% of travelers are considering social media in the decision-making progress; travel influencers play an important part in shaping travelers' choice – 80% are considering their advice. 92% of travelers are inclined to follow social media recommendations from friends and family rather than other forms of advertising;⁸

⁶ Bryan Christiansen, Elle Lily O'Keeffe, Muhammad Abdul Aziz, *Global Practices on Effective Talent Acquisition and Retention*, IGI Global, 2024

⁷ <https://www.mypos.com/en-gb/blog/business-guide/digital-transformation-in-the-travel-industry-facts-and-stats?srsItd=AfmBOop2lqi-ji6ggfE-gSYykZD4Y299N-8pFo2bn7kHJfp6InjNxPjK>

⁸ <https://www.winsavvy.com/social-media-and-tourism-key-statistics/#:~:text=for%20Travel%20Inspiration%3F-,89%25%20of%20Travelers%20Use%20Social%20Media%20for%20Travel%20Inspiration,-2.%20How%20Do>

- *Mobile applications* are on the rise in terms of searching and booking holidays, with a figure of 1.25 billion USD in 2023, with a huge evolution during the last five years⁹;
- *AI and personalization* are creating a new experience of travel, gaining more and more importance; *Big Data and IoT* are used to identify travel trends, to enhance customers' experience etc.; Big Data market value is considered to have reached 222,154 USD million in 2024¹⁰;etc.

Digitalization in the tourism industry generates changes in the labor market. As companies are integrating this technology on a larger scale, it is mandatory that employees shift towards the new challenges. The enhancement of digital tourism, with a significant impact of the initiatives of Covid 19 pandemic, are redefining the tourism settings across the world. New technological implications are creating new experiences and modifying the consumers' behaviour in tourism. Therefore, the inevitable change towards digitalization requires constant adjustment, for all the people engaged in the tourism industry.

So, what are the main issues that employees in tourism are facing? From digital platforms, mobile applications, Big Data and IoT, Virtual reality, digital check in and many more, companies are rethinking their strategies regarding human capital. As some types of job have become obsolete, new jobs are on the rise and new skills are needed. Since human interaction still represents the core of tourism services, it is a false assumption that digitalization will be the replacement, but employees must develop skills for both traditional and digital work. The use of digitalization must be seen as an important asset for providing better products and services in the tourism industry.

The ability to properly integrate the digitalization in tourism companies is strongly related to managers' level of knowledge and skills, many of which have trouble addressing the matter. Managers are lacking the skills for:¹¹

- Understanding digitalization and the importance of integrated solutions specific to the business circumstances;
- Understanding the role and importance of digital systems to improve business performance and adjust to customers' preferences;
- Awareness of the benefits of the use of digitalization, the return of digital investments and upskilling of workers; etc.

⁹ <https://www.statista.com/topics/10685/mobile-travel-trends/#topicOverview>

¹⁰ [https://www.cognitivemarketresearch.com/big-data-analytics-in-tourism-market-report#:~:text=According%20to%20Cognitive%20Market%20Research%2C%20the%20global%20big%20data%20analytics%20in%20tourism%20market%20size%20is%20USD%20222154.2%20million%20in%202024%20and%20will%20expand%20at%20a%20compound%20annual%20growth%20rate%20\(CAGR\)%20of%208.20%25%20from%202024%20to%202031.](https://www.cognitivemarketresearch.com/big-data-analytics-in-tourism-market-report#:~:text=According%20to%20Cognitive%20Market%20Research%2C%20the%20global%20big%20data%20analytics%20in%20tourism%20market%20size%20is%20USD%20222154.2%20million%20in%202024%20and%20will%20expand%20at%20a%20compound%20annual%20growth%20rate%20(CAGR)%20of%208.20%25%20from%202024%20to%202031.)

¹¹ https://www.oecd.org/content/dam/oecd/en/publications/reports/2021/06/preparing-the-tourism-workforce-for-the-digital-future_06211c0f9258d999-en.pdf

Therefore, managers are expected to be aware of the importance of digitalization for increasing productivity and competitiveness of the company and the implications for their employees. As many different jobs in tourism, especially entry-level ones, routine jobs, or jobs that don't require high skills and knowledge are changing or disappearing, managers should emphasize the crucial role of upskilling or reskilling of employees. Having needed soft and digital skills, many workers are prone to additional pressure and stress. Even though many concerns address these aspects, digitalization offers a new perspective on working in tourism. Learning new digital skills translates to the development of professional life, increases the chances of finding more complex and creative jobs, with new career opportunities.

4. Conclusion:

The tourism labour market of tomorrow will still face skill shortages, attracting and maintaining talented employees and high turnover. If applied correctly, digital transformation can represent a solution for the employment issues the industry is confronting with. Embracing the trend of digitalization in all economic areas, and especially tourism, will make the difference between being and not being successful. Digital strategy will generate beneficial effects on all processes of human resource management as well as provide the opportunity for individual growth and development.

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THE INTERDEPENDENCE BETWEEN SUSTAINABLE PERFORMANCE AND ORGANIZATIONAL INNOVATION: A CONCEPTUAL ANALYSIS

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Lucian Constantin Gabriel Budacia**

Abstract

In recent decades, the notion of performance has gained increasing importance in the management and organizational sciences literature, and numerous schools of thought have focused on its definition, classification, and optimization. Performance is not a one-dimensional concept – it is, by its very nature, complex and multifaceted. Sustainable performance refers to an organization's ability to achieve favorable long-term outcomes while integrating economic, social, and environmental dimensions. To support sustainable performance, organizations need to develop sustainable performance management systems that not only measure and report performance, but also actively manage it, integrating sustainability objectives. Numerous studies have demonstrated a positive relationship between organizational innovation and sustainable performance.

Keywords: sustainable performance, organizational innovation, performance management.

JEL Classification: M20.

1. Introduction

In recent decades, the notion of performance has gained increasing importance in the management and organizational sciences literature, and numerous schools of thought have focused on its definition, classification, and optimization. In the framework of modern organizational management, the concepts of value and performance are inseparable: measuring performance is equivalent to appreciating the value created by the organization, and understanding the causes of value involves decoding performance into operational and strategic components.

From this perspective, performance requires the adoption of an integrated vision, a holistic approach to the interdependencies between internal and external parameters: between quantitative and qualitative, technical and human, financial and non-financial. In addition, high-performing organizations are not limited to

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production or consumption processes – they interact with the social and ecological environment, generating sustainable value (Bogdan, 2018).

Contemporary customer orientation and competition in globalized markets can only be achieved by providing real performance: organizing resources in an efficient, balanced and innovative way is the surest way to strengthen competitiveness. However, performance can only be achieved within a framework of high-performance management that ensures economic and financial stability in the medium and long term.

Performance is not a one-dimensional concept – it is, by its nature, complex and multifaceted. Among its manifestations are technical, technological, economic, financial, legal, social performance, etc. (Gruian, 2004). In essence, performance reflects the organization's capacity to reach a level of efficiency and effectiveness that ensures its sustainability and competitiveness over time.

The ultimate objective of high-performance management is to generate progress, efficiency, effectiveness, prosperity and satisfaction for stakeholders. However, the defining feature of performance is that it usually causes positive transformations. In this paradigm, performance must become the philosophy of the modern organization and the foundation of managerial culture.

1. Sustainable performance: success, balance and responsibility

Sustainable performance refers to the ability of an organization to achieve favorable long-term results, while integrating economic, social and ecological dimensions. Thus, success is not measured only by financial indicators, but by the balance between profitability, social responsibility and environmental protection.

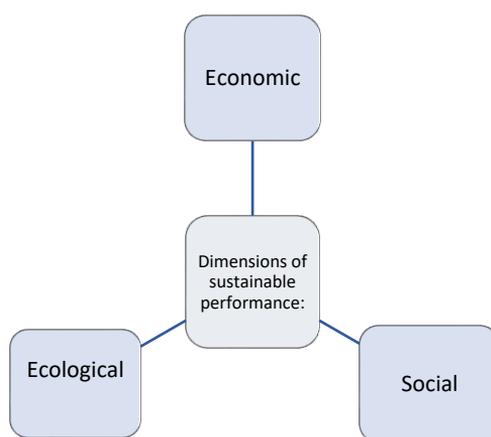


Fig. no. 1 The dimensions of the sustainable performance

According to the IGI Global dictionary, “sustainable organizational performance” is an integrated approach to corporate responsibility, learning and

development, which aims to maximize long-term well-being, prosperity and protection of the planet. Sustainable performance is also defined as performance that manages to achieve long-term objectives, maintaining a balance between internal factors and external pressures, so as not to compromise future resources. (Farchi, Touzi, Mousrij, & others, 2021).

Thus, a series of distinctive characteristics of sustainable performance emerge:

Extended time horizon:	sustainable performance is not only about immediate results, but also about medium and long-term viability.
Multidimensionality:	encompasses economic, social and ecological dimensions (e.g., reducing environmental impact, social well-being, ethical governance).
Interdependencies:	complex relationships between variables – what is environmentally friendly can affect economic performance; what affects social equity can influence reputation and human resources.
Adaptability and resilience:	the ability to respond to crises or external changes, maintaining balance and returning to an efficient operational state (resilient organization)
Innovation and continuous learning:	adopting innovative practices, green technologies and continuously adjusting processes to meet emerging challenges.

2. Performance Management in the Context of Sustainability

To support sustainable performance, organizations need to develop sustainable performance management systems, not just to measure and report performance, but to actively manage it, integrating sustainability objectives. The term “Sustainability Performance Management” (SPM) describes a continuous process of defining the sustainability strategy, setting clear objectives, monitoring and adjusting, so that the organization achieves its sustainability goals in a coherent way. A recent paper proposes a sustainable performance management framework that links the organizational culture of sustainability, strategy, implemented practices and expected results (Kantabutra, 2024). In practice, an SPM system needs to be holistic, iterative and transversal, involving all functions of the organization, not just the “green department”.

2.1. Major components of a sustainable performance management system

a) Strategy and alignment

The organization must identify areas where sustainability is material (materiality analysis) and align the business strategy with sustainable objectives (e.g., the Sustainable Development Goals – SDGs).

b) Objectives and performance indicators (sustainable KPIs)

In addition to traditional financial indicators, the organization adopts non-financial indicators: carbon emissions, energy consumption, diversity, social equity, recycling, stakeholder satisfaction. These must be relevant, measurable and comparable.

c) Implementation and operational practices

Internal management practices – governance, HR (Green HRM), green technologies, energy efficiency, supply chain management – must be integrated so that operational decisions support sustainability.

d) Monitoring, review and feedback

Internal and external reporting systems allow for monitoring progress, identifying deviations and adjusting strategies.

e) Learning and continuous improvement

The organizational culture of sustainability must support innovation, adaptation and learning from feedback. Organizations must be able to evolve and respond to changes in the external environment.

2.2. Main challenges of sustainable performance management

a) The role of accounting is crucial in sustainable performance management, as accountants have an essential role in collecting, validating and reporting sustainable data, contributing to strategic decisions.

b) The quality and availability of non-financial data (e.g. environmental) is often limited; the organization must invest in data collection, monitoring and integration systems.

c) Sometimes, short-term financial optimization can conflict with the necessary investments in sustainable practices (e.g. emission reduction).

d) Implementing an SPM system involves organizational change, culture and managerial involvement. Without leadership and real ownership, sustainability projects can remain fragmented.

e) Sustainability involves, in equal measure, technical, social, ethical and organizational aspects.

3. Organizational innovation – dimensions, determinants and impact on sustainable performance

In an economic environment characterized by volatility, globalization and intense competitive pressure, organizational innovation has become an essential condition for survival and sustainable development. Contemporary organizations

can no longer compete only by optimizing existing processes, but must generate new forms of value, through structural, cultural and strategic transformation (OECD, 2018). Thus, organizational innovation is not limited to products or technologies, but includes changes in structure, processes, management, business models, culture and stakeholder relations, becoming an integrative element of sustainable performance.

The Organization for Economic Cooperation and Development (OECD, 2018), through the Oslo Manual, defines organizational innovation as the implementation of a new organizational method in business practices, workplace organization or external relations of the firm. This definition emphasizes the processual and systemic nature of innovation, seen not just as an outcome (e.g. a new product), but as a continuous transformation process that changes the way the organization creates and delivers value.

According to Damanpour (2014), organizational innovation is the intentional adoption of an idea, processes, products or behaviors that are new to the organization, with the aim of improving performance or adaptability. Crossan and Apaydin (2010) also define innovation as a multilevel process – individual, organizational and interorganizational – of creating and implementing new ideas capable of generating economic and social value.

The specialized literature identifies several forms of innovation, depending on the nature and area of applicability:

a) Product innovation – development of new or improved goods or services (Tidd & Bessant, 2021).

b) Process innovation – introduction of new methods of production, distribution or logistics, aimed at increasing efficiency.

c) Organizational innovation – changes in the hierarchical structure, organizational culture, management systems or interpersonal relationships.

d) Marketing innovation – new ways of promotion, distribution or positioning on the market.

e) Social innovation – new solutions to societal problems, often achieved through collaboration between organizations, public institutions and communities.

f) Sustainable innovation (eco-innovation) – integration of environmental objectives and social responsibility into technological and organizational innovations (Carrillo-Hermosilla et al., 2010).

These forms are not independent, but interdependent: for example, a technological innovation often involves organizational (structure, communication flows) and cultural (attitude towards risk and experimentation) changes.

Organizational innovation is influenced by a series of internal and external factors.

A. Internal factors

- **Organizational culture:** an open culture, based on learning and risk-taking, stimulates creativity and experimentation (Schein, 2017).
- **Transformational leadership:** leaders who inspire, support autonomy and promote innovative vision, which determines a climate conducive to innovation (Bass & Riggio, 2006).
- **Human resources and collective knowledge:** team skills, diversity and motivation are major factors of innovative success (Nonaka & Takeuchi, 1995).
- **Organizational structure:** flat and flexible structures facilitate the exchange of ideas and rapid adaptation (Burns & Stalker, 1961).
- **Information technology and digitalization:** the integration of digital tools favors collaborative processes and data analysis for innovation (Nambisan et al., 2017).

B. External factors

- **Competitive pressure:** innovative organizations are more common in dynamic and competitive sectors (Porter, 1985).
- **Regulations and public policies:** tax incentives, R&D grants, and innovation policies support the adoption of change.
- **Collaborative networks:** partnerships between firms, universities, and clusters stimulate knowledge transfer and open innovation (Chesbrough, 2003).

Conclusions

Numerous research has demonstrated the existence of a positive relationship between organizational innovation and sustainable performance (Damanpour & Aravind, 2012; Bogdan, 2018). Organizations that invest in structural and managerial innovation have the ability to:

- improve operational efficiency and cost reduction,
- increase adaptability to environmental changes,
- stimulate collective creativity and employee satisfaction,
- develop reputation and social responsibility,
- generate sustainable competitive advantage.

In the current context, organizational innovation is closely linked to digital transformation and sustainability. Recent studies (Kantabutra, 2024; Sciarelli et al., 2020) show that companies that integrate innovation into their governance model and organizational culture have greater resilience and superior long-term financial results.

Organizational innovation is today a driver of sustainable performance and a condition for global competitiveness. It involves a combination of visionary leadership, open culture, knowledge management and adaptive capacity.

Organizations that treat innovation as a continuous learning strategy and not just as a one-time project significantly increase their ability to create long-term value and contribute to the sustainable development of society.

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MULTICULTURALISM AND MULTINATIONAL TEAMS IN THE ROMANIAN HOSPITALITY INDUSTRY

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Gina Gilet (Sztruten, Lefter) Dobrotă²

Abstract

In an increasingly digitized and interconnected global economy, the Romanian hospitality industry, as an integral part of the travel and tourism sector, is currently challenged by a major human resource deficit, a problem shared across Europe. Romanian hotels have opened their doors to recruiting and hiring external labor from Eastern countries, the Middle East, the Far East, Asia, and the Pacific, as well as from African and South American nations. Following the model of other industries that already have long-standing experience in this regard, the process of integrating this workforce into the hotel industry has been achieved with small but steady steps. With the assimilation of international staff, hospitality entrepreneurs quickly realized they were facing the challenges of multiculturalism. These issues are related to direct or indirect communication and address, language barriers, preconceptions, and differing approaches to the concepts of hierarchy and authority. In this context, the present research aims, on the one hand, to highlight the multitude of these situational confrontations, and on the other hand, to identify solutions for resolving them, as multiculturalism and multinational work teams are becoming a normality in the Romanian hospitality industry.

Keywords: multiculturalism, tourism, hotel industry.

JEL: Z310, Z320.

I. The Nature of the Hospitality Industry

The inherent nature of the hospitality industry, coupled with the increased accessibility of international tourism, implies that a significant portion of this sector's clientele possesses diverse cultural backgrounds, experiences, and histories. The same can be observed regarding the workforce. In today's interconnected world, workplaces are becoming increasingly diverse and multicultural.

Culture is fundamental in shaping an individual's identity and the manner in which they interpret and react to various situations. By recognizing and leveraging the differences between the clients and employees of the tourism industry, a safe, culturally rich, and welcoming environment can be established for all stakeholders.

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II. Strategic Advantages of Multicultural Work Environments

For the hospitality industry, where serving a global clientele is the norm, multicultural work environments yield significant benefits. These environments not only enhance creativity and innovation but also foster personal development and expand career opportunities.

One of the most notable advantages of multicultural environments is their capacity to stimulate creativity and innovation. In hospitality workplaces, where addressing the unique needs of guests and providing exceptional experiences are paramount, diverse perspectives are invaluable. When individuals from different cultural backgrounds collaborate, they bring unique ideas and approaches to problem-solving. This diversity encourages brainstorming and innovative thinking, leading to solutions that might not emerge within more homogeneous teams.

Multicultural teams can create guest experiences that are more inclusive and engaging. For instance, incorporating cultural elements from the backgrounds of team members into hotel décor, menus, or events can resonate with a global clientele[6]. Furthermore, working in a multicultural environment helps refine the ability to communicate across cultures.

On the other hand, multicultural workplaces expose employees to various languages and communication styles, improving their ability to manage and overcome linguistic barriers. Different cultures have unique norms for non-verbal communication. By working in a diverse environment, tourism employees develop a profound awareness of these signals, enhancing their capacity to communicate effectively. Hospitality professionals often interact with guests from around the world. Intercultural communication skills enable them to connect with a multitude of clients, improving the guest experience and bolstering their career prospects.

Another significant advantage of working in a multicultural environment is the broadening of horizons, rendering industry employees more adaptable and empathetic. Hospitality workplaces require professionals to handle diverse situations with grace. These multicultural settings help staff develop empathy, facilitating connections with colleagues and guests from diverse backgrounds. Exposure to different traditions and viewpoints fosters an open-minded mentality. Understanding the practices and beliefs of others enriches both professional and personal life.

Experience in a multicultural workplace is a major asset for anyone seeking to pursue a global career in hospitality. Employers in the global hospitality industry seek candidates who can work seamlessly within diverse teams. Multicultural experience demonstrates their ability to adapt and thrive in international environments. Whether managing a hotel abroad or hosting international guests, the skills acquired in a multicultural workplace prepare them for the complexities of working in global markets. Collaborating with colleagues from around the world expands their professional network. These connections

can lead to exciting professional opportunities and insights into different hospitality markets. Thus, multicultural environments are naturally inclusive, bringing together people with diverse experiences and perspectives.

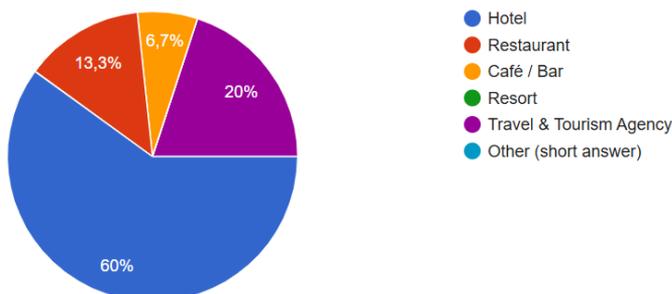
Workplaces in multicultural settings encourage collaboration by valuing each individual's contribution, creating a sense of belonging and mutual respect among team members [7]. Inclusivity fosters a positive work culture in which employees feel valued and respected, leading to higher rates of satisfaction and retention. For hospitality employers, fostering a multicultural workplace is not only about inclusion but is a strategic business advantage.

Multicultural workplaces attract top talent from around the world, enriching the organization with diverse skills and perspectives. Studies show that diverse teams make better decisions by considering a wider range of ideas and viewpoints. A multicultural team is better equipped to understand and meet the needs of an international clientele, thereby increasing guest satisfaction and loyalty.

III. Managing Cultural Diversity: A Study on Employee Perception and Operational Efficiency

Based on these analyses, a study was conducted on a sample of 64 individuals. The field research was carried out via an online questionnaire, distributed to professionals working within multicultural environments in the Romanian tourism industry, across various organizational levels ranging from entry-level to top management. Over half of the sample consists of respondents aged between 21 and 30 (43.8%) and 31 and 40 (25%), with 62.5% of the total being female. Regarding their professional roles, 40% of the respondents hold top management positions (management and supervisory), while 20% are employed in hotel front-office departments. In terms of their specific sector of activity, 60% of the respondents work in the hotel industry, 13.3% in the food and beverage sector (restaurants), and 20% in travel agencies.

Type of Hospitality Establishment

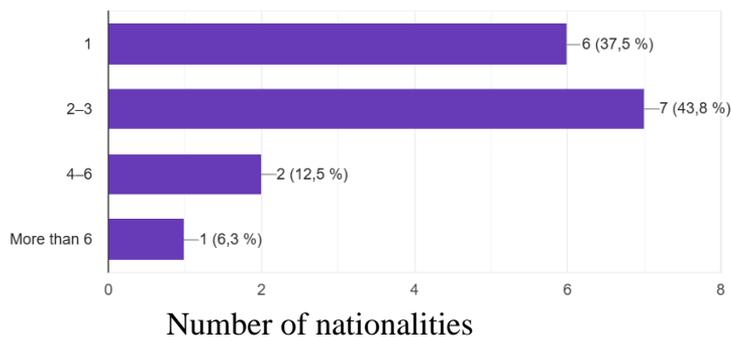


Source: Elaborated by the author (based on the survey results)

Continuing with the profile of the respondents, it was observed that a plurality, 37.5%, possess a moderate professional tenure of between one and three years. Conversely, 50% of the sample is situated at the extremes of the spectrum: 25% have less than one year of experience, while another 25% possess over eight years of seniority.

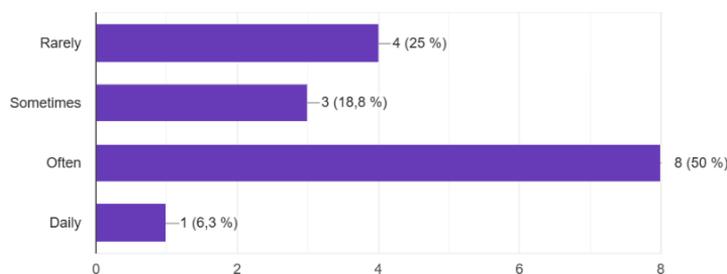
Regarding the nationalities of the participants, the vast majority are Romanian citizens working within multicultural environments; however, responses were also recorded from employees originating from countries such as Pakistan, Macedonia, and Peru.

In assessing the perceived diversity of their multicultural workplaces, 50% of respondents characterized their environment as "moderately diverse," while 12.5% described it as "slightly diverse." This suggests that tourism industry work environments in Romania remain predominantly composed of domestic employees. Nevertheless, 43.8% of respondents indicated having colleagues from two to three different countries, 12.5% from four to six countries, and only 6.3% reported working with individuals from more than six different nations. Consequently, this leads to the conclusion that, for the surveyed group, a "moderately diverse" multicultural environment typically denotes the presence of two to three nationalities.



Source: Elaborated by the author (based on the survey results)

To evaluate the extent of communication within these multicultural work environments, the question "How often do you interact with colleagues from other cultures?" was posed. Half of the participants (50%) responded "often," suggesting that the 40% of employees in top management and supervisory roles do not have direct colleagues of other nationalities but frequently engage with them during their shifts. Furthermore, the fact that only 6.3% interact with colleagues from different cultures on a daily basis indicates that such frequent interaction is characteristic primarily of those in entry- and mid-level positions.



Frecvența interacțiunii la serviciu cu colegii de alta cultura
Source: Elaborated by the author (based on the survey results)

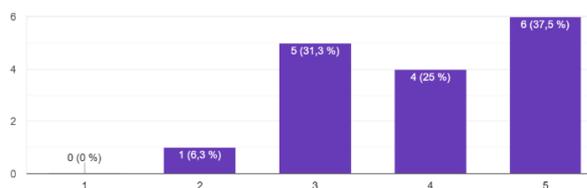
Regarding the communication challenges encountered within multicultural work environments, 43.8% of respondents perceive no difficulty, while 31.3% characterize it as slightly difficult; notably, no respondent considered communication to be very difficult.

In terms of the primary medium of professional interaction, 50% of the participants indicated that English serves as the principal language of communication in the workplace.

When assessing the operational impact of multilingual communication barriers, the vast majority of respondents (75.1%) reported that their daily activities are not adversely affected by multicultural communication. Furthermore, 93.8% of those surveyed expressed respect for the cultural differences of their colleagues, and 100% agreed that multicultural teams foster enhanced problem-solving and creativity.

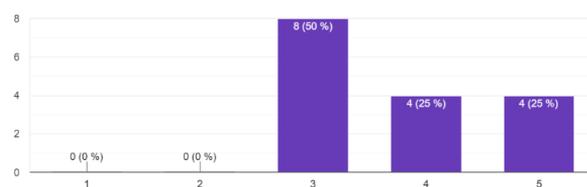
Team members respect cultural differences.

1 = Strongly Disagree, 5 = Strongly Agree



Multicultural teams encourage creativity and problem-solving.

1 = Strongly Disagree, 5 = Strongly Agree

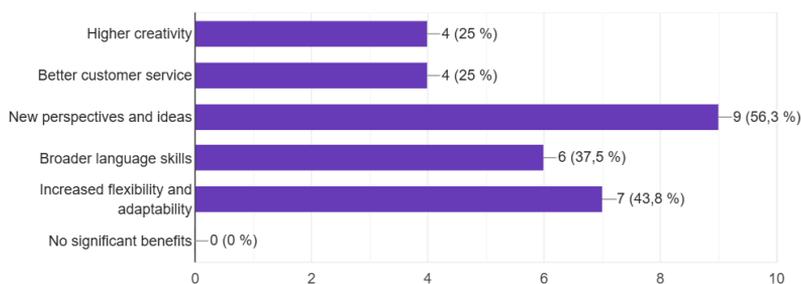


Source: Elaborated by the author (based on the survey results)

Only 25% of the respondents consider that linguistic and cultural barriers may generate "slight" conflicts within the workplace. Given that all tourism companies operating with a multicultural workforce organize "working in culturally diverse conditions" training sessions, the vast majority of respondents in the present study (87.6%) perceive these courses as either useful or very useful.

Among the most frequently identified challenges of working in a multicultural environment, respondents highlighted the following probabilities: linguistic barriers (37.5%), differences in work styles (12.5%), and the misinterpretation of colleagues' gestures or vocal tones (18.8%). These findings were further corroborated by the responses to the question, "How often do misunderstandings arise due to cultural differences?", to which all interviewees responded "rarely" (37.5%) or "very rarely" (62.5%).

The research indicates that employees perceive significantly more benefits from multicultural work environments than problems or negative effects. This observation is reflected in the data below, where 50% of respondents believe that multiculturalism provides new ideas and perspectives. Furthermore, it is seen to broaden linguistic competencies (37.5%), develop workplace flexibility and adaptability (43.8%), enhance creativity (25%), and improve customer engagement methods (25%). These results convey a highly positive and receptive attitude toward multicultural environments, with 75% of respondents affirming that multiculturalism in tourism definitively enhances the guest experience within the hospitality industry



The benefits of multicultural teams

Source: Elaborated by the author (based on the survey results)

Among the linguistic barriers exemplified and addressed by the interviewees were: "Research about these things on the internet," "Getting help from my colleagues," "By more actively trying to understand different cultures," and "I ask the client to write it down on a paper."

The solutions recommended by the participants to enhance collaboration within multicultural teams included: understanding the cultural backgrounds of colleagues, learning the local language, leading with empathy and flexibility,

fostering acceptance and open communication, and building solid professional relationships.

These proposed solutions align with strategies identified by experts in multicultural workplace dynamics, such as:

- Encouraging team members to share their cultural narratives and values to establish human connections.
- Acquiring proficiency in the local language, as even basic knowledge can dismantle barriers and demonstrate respect for the community in which the team operates.
- Empathetic leadership—leaders must remain flexible and recognize that employee motivations and reactions may vary according to their cultural context.
- Avoiding jargon and idiomatic expressions that may lead to misinterpretations in communication.
- Utilizing visual aids—when linguistic barriers arise, documenting ideas in writing to confirm mutual understanding.
- Attending to non-verbal cues (such as eye contact or gestures) to prevent actions that might be perceived as disrespectful.
- Acknowledging that errors (such as those made during order-taking) are often the result of linguistic barriers rather than a lack of professional intent.
- Training staff in problem-solving techniques tailored to the cultural sensitivities of both colleagues and guests.
- Providing information regarding cultural taboos or specific etiquette rules (e.g., the rigorous protocols of politeness in Japanese culture).
- Cultivating a mentorship culture where experienced employees assist new hires in navigating cultural differences.

Nevertheless, cultural disparities regarding work methodologies and communication styles represent some of the most frequent challenges within an international professional environment. In Western cultures, such as those of the Netherlands or Germany, there is a profound emphasis on employee autonomy and independent decision-making. Employees from these nations are accustomed to assuming individual responsibility and making decisions without the necessity of frequent approval from superiors.

In contrast, within Eastern European cultures [3], there is a more pronounced tendency toward collaboration and mutual assistance. Employees from these backgrounds may maintain different expectations concerning guidance and support from colleagues or management. Furthermore, they may anticipate a more defined hierarchy and a directive leadership style, wherein leaders provide precise instructions and closely monitor team progress.

To mitigate these differences, it is essential for team leaders and managers to develop clear communication strategies that account for these cultural particularities. An effective approach involves organizing workshops and

intercultural training sessions designed to assist employees in understanding and mutually accepting their respective work styles.

Conclusions

In conclusion, the effective integration of employees from diverse cultures within an international work environment requires understanding, empathy, and a strategic approach to managing diversity. Intercultural training, mentorship, and an openness to diversity are key elements in building resilient and well-integrated teams. Companies that employ individuals from various countries must adapt their management, communication, and integration strategies accordingly.

Success within a multicultural environment is predicated on two fundamental pillars: acceptance and communication. A cohesive team will consistently find methods to transform challenges into positive experiences, both in terms of client interactions and internal team dynamics.

While multicultural teams offer numerous benefits—including innovation, diverse perspectives, and greater flexibility in problem-solving—a lack of effective integration can lead to conflict, misunderstandings, and a reduction in organizational efficiency.

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SUPPLY CHAINS UNDER PRESSURE: U.S. TARIFF MEASURES AND MEXICO'S AUTOMOTIVE INDUSTRY

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María Guadalupe Arredondo-Hidalgo***
Eva Conraud-Koellner****

Abstract

This study analyzes the impact of U.S. tariff measures on the Mexican automotive industry during the second Trump administration (2024–2025), focusing on supply chain vulnerabilities and adaptive responses. Using monthly data from INEGI's Registro Administrativo de la Industria Automotriz de Vehículos Ligeros (RAIAVL) and Vehículos Pesados (RAIAPV), the research applies time-series comparisons, event-study techniques, and a Difference-in-Differences (DiD) framework. Five hypotheses (H1–H5) were tested, covering deviations from projected export trends, pre- vs post-shock averages, heterogeneity across models, short-run recovery, and the buffering role of domestic sales. Results indicate that April 2025 was the clearest tariff shock point, with both light and heavy vehicle exports falling below projections. Light vehicles rebounded by May–July, while heavy vehicles remained depressed. Heterogeneity was evident: USMCA-compliant mass-market models adapted more effectively than duty-paid or premium models. Contrary to expectations, domestic sales contracted more than exports, revealing internal market fragility. The DiD analysis confirmed a positive relative effect for light vehicles (+3,434 units), highlighting greater resilience compared to heavy vehicles. The findings underscore the asymmetric effects of U.S. tariff policy and the importance of differentiated strategies to safeguard Mexico's long-term competitiveness in the North American automotive supply chain..

Keywords: U.S. tariffs; Mexican automotive industry; light vehicles; heavy vehicles; supply chain resilience; USMCA; trade policy

JEL Classification: F13, L62, F14

1. Introduction

The Mexican automotive industry occupies a central role in North American trade, serving as both a production hub and an export platform under the United States–Mexico–Canada Agreement (USMCA). Its integration into global value

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chains has made it highly sensitive to shifts in U.S. trade policy. During the second Trump administration (2024–2025), renewed tariff threats and policy uncertainty once again placed Mexico’s automotive exports at the center of bilateral tensions.

The automotive sector accounts for a significant share of Mexico’s manufacturing output, employment, and foreign exchange earnings. Tariff announcements, even when not fully implemented, can alter investment decisions, raise compliance costs, and disrupt supply chains [INEGI, 2025; USTR, 2024]. While light vehicles (LV) dominate export flows and must meet USMCA’s regional value content rules, heavy vehicles (HV) face different regulatory and market dynamics, making them a useful counterpoint for comparative analysis.

This paper evaluates the short-term impact of tariff threats in 2025 using monthly data on production, exports, and sales from INEGI’s RAI AVL and RAI AVP datasets. Five hypotheses are tested regarding deviations from expected trends, pre- versus post-threat performance, heterogeneity across models, recovery dynamics, and the buffering role of the domestic market. By combining time-series analysis with an event-study design and Difference-in-Differences framework, the study highlights asymmetric responses between LV and HV.

The findings provide empirical evidence on how tariff measures influence Mexico’s automotive supply chains, revealing both the adaptability of mass-market LV exporters and the persistent vulnerabilities of HV producers.

2. Review of Literature

2.1. Mexico’s Role in the North American Automotive Supply Chain

Mexico’s automotive industry has emerged as a cornerstone of North American manufacturing integration, a transformation accelerated by the North American Free Trade Agreement (NAFTA) and reinforced—though in more complex ways—by its successor, the United States–Mexico–Canada Agreement (USMCA). Understanding this role is essential because it highlights both Mexico’s strengths in cost-efficient production and its vulnerabilities to U.S. tariff measures.

Deep Integration through Global Value Chains

Scholars of global value chains (GVCs) emphasize that Mexico participates in the automotive sector primarily through backward linkages—the use of foreign inputs in its exports—rather than forward linkages [OECD, 2024]. This means that while Mexican factories assemble and export millions of vehicles, they rely heavily on imported engines, electronics, and other components, especially from the United States and Asia. Ivanov and Dolgui [2025] describe this as a “ripple effect” structure: disruptions in upstream suppliers reverberate quickly into

Mexican production lines, amplifying vulnerabilities when trade frictions or tariffs emerge.

Data confirm this integration. By 2024, Mexico ranked as the 7th largest global vehicle producer, manufacturing 3.8 million vehicles and exporting 87% of them, primarily to the U.S. [INA, 2025]. Auto parts exports mirror this dependence, with around 87% of production destined abroad, mostly to support North American supply chains [INA, 2025]. The Mexican Automotive Industry Association (AMIA) reports that the sector accounts for 4.7% of GDP and nearly 22% of manufacturing GDP, underscoring its macroeconomic importance [AMIA, 2025].

NAFTA to USMCA: From Integration to Conditionality

NAFTA facilitated nearly seamless cross-border flows: by the late 2010s, more than 99% of Mexican and Canadian vehicles entered the U.S. duty-free under the 62.5% regional value content (RVC) rule [USITC, 2025]. The USMCA, implemented in 2020, altered this equilibrium. The RVC threshold increased to 75%, new rules mandated that 40–45% of a vehicle's content be produced by workers earning at least \$16/hour, and 70% of steel and aluminum inputs must be sourced regionally [USTR, 2024]. These provisions, described by Miller, Jin, and Ortega [2025] as “conditional integration,” create compliance burdens that function as implicit tariffs if not met.

While intended to shift more value-added production back to the U.S., these rules have a dual effect. On the one hand, they force greater regional content sourcing, potentially creating opportunities for Mexican suppliers. On the other, they raise costs and complexity, sometimes making firms prefer paying the 2.5% most-favored-nation tariff rather than restructuring supply chains [Zeitgeist, 2024].

Geographic and Product Specialization

Mexico's integration is also evident in its geographic distribution of production. Plants cluster in northern and central states—Nuevo Leon, Coahuila, Guanajuato, Puebla—leveraging proximity to U.S. markets and established infrastructure [Mazaroki, and Melnyk, 2025]. Product specialization has evolved toward SUVs and pickup trucks, which now constitute around 80% of exports [AMIA, 2025]. This concentration, while profitable, also increases vulnerability: U.S. MFN tariffs on light trucks are 25%, meaning any compliance failures or policy shocks disproportionately affect Mexico's main export categories [Contractor, 2025].

Structural Vulnerabilities in Supply Chains

Scholars highlight that Mexico's integration creates a paradox: it is indispensable yet vulnerable. Contractor [2025] shows that tariff policies often impose costs that far exceed their intended benefits, particularly when applied to

highly integrated industries. For Mexico, the cost of tariffs is magnified by just-in-time logistics: U.S. and Mexican plants exchange components multiple times, so even small frictions can halt production. Ivanov and Dolgui [2025] frame this as “systemic fragility,” where supply chain turbulence arises not only from enacted tariffs but also from policy uncertainty.

In practice, the 2019 threat by President Trump to impose escalating tariffs on all Mexican imports revealed how fragile this system is. U.S. plants were projected to run out of critical Mexican components within days [Wilson Center, 2019]. Such episodes illustrate how Mexico’s role as a hub of North American production is also a source of risk exposure.

Opportunities from Nearshoring

Despite these vulnerabilities, Mexico also stands at the center of nearshoring trends. UNCTAD [2024] and OECD [2024] estimate that Mexico could capture nearly 40% of Latin America’s \$78 billion nearshoring opportunity, particularly as U.S. firms reduce reliance on China. The comparative advantage lies not only in costs but in geographic proximity and trade certainty under USMCA. As Mazaroki and Melnyk [2025] note, firms increasingly value resilience and regional integration over wage differentials alone, suggesting Mexico’s embeddedness in the U.S. orbit may outweigh rising compliance costs.

2.2. Impacts of U.S. Tariff Threats and Measures on Mexico’s Automotive Industry

This second dimension of the literature review focuses on how U.S. tariff measures and threats—primarily under the Trump administration—affected Mexico’s automotive industry in terms of production, exports, costs, and investment. Evidence from academic studies, policy reports, and industry analyses demonstrates that these measures generated a climate of uncertainty that disrupted investment decisions, raised compliance costs, and exposed systemic vulnerabilities in North America’s integrated supply chains.

Tariff Threats as an Uncertainty Shock

The Trump administration consistently used tariff threats as leverage, beginning even before the 2017 inauguration. Public statements targeted automakers investing in Mexico, with calls for tariffs of up to 35% on Mexican-built vehicles. Ford’s 2017 cancellation of a \$1.6 billion plant in San Luis Potosi is widely seen as an early example of “policy-induced deterrence,” where corporate investment decisions were influenced less by market fundamentals than by anticipated U.S. political costs [Guardian, 2017].

Contractor [2025] explains that the costs of tariff uncertainty extend beyond direct duties, including transactional frictions, delayed investments, and lost opportunities. Similarly, Ivanov and Dolgui [2025] characterize tariff threats as

“deep uncertainty” events that propagate across networks, causing firms to hold excess inventory, slow expansion, and hedge against multiple scenarios. For Mexico, this meant that between 2017 and 2019, several major projects were postponed or scaled back, and the peso currency depreciated, reflecting heightened risk perceptions [Wilson Center, 2019].

The most dramatic threat occurred in May 2019, when the U.S. president announced escalating tariffs on all Mexican imports, starting at 5% and rising to 25%. Though never implemented, this episode revealed the fragility of supply chains. U.S. plants projected production stoppages within days if tariffs were enacted, and Mexican exports faced the possibility of losing tens of billions of dollars annually [Wilson Center, 2019]. Gantz [2025] concludes that these periodic tariff threats inflicted lasting harm on investor confidence in Mexico's manufacturing base.

Tariffs on Inputs: Steel and Aluminum

While broad automotive tariffs were not enacted, U.S. Section 232 tariffs on steel (25%) and aluminum (10%) applied to Mexico from June 2018 to May 2019 before their suspension. These tariffs had measurable effects on the auto parts industry. Mexico, as a major steel exporter to the U.S., saw costs rise for both domestic suppliers and exporters of intermediate goods [USITC, 2025].

Academic studies show that tariffs on key inputs propagate cost shocks across supply chains. Miller, Jin, and Ortega [2025] argue that tariffs on raw materials generate multiplier effects in industries like automotive, where steel and aluminum comprise a significant portion of vehicle costs. For Mexico, the result was a decline in competitiveness during that year: producers faced higher prices for inputs sourced from the U.S., while simultaneously losing some export volume. Although the tariffs were lifted in 2019, the episode underscored the industry's vulnerability to collateral protectionist measures.

USMCA Rules as Implicit Tariffs

The United States–Mexico–Canada Agreement (USMCA) itself introduced new compliance requirements that function as implicit tariff barriers. Vehicles not meeting the 75% regional value content or labor value content thresholds are subject to a 2.5% U.S. most-favored-nation (MFN) tariff. Surprisingly, USTR's 2024 report showed that 8.2% of vehicle imports from Mexico and Canada entered the U.S. with duties paid—a sharp increase from near-zero under NAFTA [USTR, 2024].

Academic literature explains this phenomenon through cost–benefit analysis. Some firms calculate that restructuring supply chains to meet USMCA requirements is more expensive than simply paying the 2.5% tariff, especially for niche or luxury models with high profit margins [Contractor, 2025]. Contractor [2025] supports this interpretation, noting that multinationals often choose “tariff absorption” when compliance costs outweigh duty liabilities.

In effect, USMCA rules have created a two-tier system: high-volume products like SUVs and pickups comply to avoid tariffs, while certain models deliberately accept the duty. For Mexico, this represents both a loss of preferential advantage and a potential drag on competitiveness if the share of duty-paid exports grows.

Quantitative Impacts on Production and Exports

The cumulative effect of tariff threats and measures is evident in production and export statistics. INEGI [2025] data show that vehicle production in 2019 declined by around 4% relative to 2018, breaking a growth trend and coinciding with tariff threats and trade uncertainty. Wilson Center [2019] simulations estimated potential export losses of \$26–42 billion for Mexico’s auto, electronics, and textile sectors if tariffs had been implemented.

By 2025, partial impacts were already measurable: INA [2025] reported a 6.3% drop in vehicle exports in the first five months of 2025 compared to the prior year, attributing it partly to weaker U.S. demand but significantly to the cost pressures of new U.S. tariffs on non-compliant vehicles and inputs. Banxico’s data confirm that these declines affected trade balances and contributed to peso volatility.

Gantz [2025] and Zeitgeist [2024] both emphasize that the mere possibility of tariffs led firms to adopt defensive behaviors: delaying hiring, reducing investment, and rerouting some production to the U.S. Even when tariffs were not enacted, the uncertainty itself constrained Mexico’s automotive sector growth.

Policy Uncertainty as a Systemic Disruption

Several academic contributions frame tariff threats not as isolated policies but as systemic disruptions. Ivanov and Dolgui [2025] classify them as “ripple effect generators,” where the expectation of a tariff can be as damaging as its enforcement. Similarly, Mazaroki and Melnyk [2025] findings on global trade disruptions demonstrate that uncertainty reduces firms’ willingness to commit capital to export-oriented industries.

Empirical studies reinforce this view. A dissertation by Zorola Gonzalez [2024] analyzing Mexican automotive exports under Trump’s trade policy finds that announced threats correlated with short-term declines in output and FDI, even when tariffs were suspended. Guerrero-Sánchez et al. [2025] supports this by showing that volatility in trade policy increases costs of capital and forces firms into less efficient risk-hedging behaviors.

Yoganandham [2025] proposes a theoretical framework that distinguishes three categories of costs associated with tariffs: adjustment costs, arising from restructuring supply chains and reallocating resources; transaction costs, stemming from renegotiations, compliance, and administrative burdens; and timing costs, generated when firms misalign investments or inventories in response to unpredictable policy changes. This framework helps explain why tariffs often create

disruptions that extend far beyond their nominal rates, amplifying uncertainty and producing ripple effects across global and regional value chains.

Thus, the literature converges on the conclusion that U.S. tariff measures—whether enacted or threatened—created persistent uncertainty that weakened Mexico's production trajectory, raised compliance and input costs, and undermined confidence in Mexico as a stable manufacturing hub.

2.3 Response Strategies of Mexican and Multinational Firms

The literature consistently shows that the automotive industry in Mexico has not been a passive victim of U.S. tariff pressures. Instead, firms—ranging from small suppliers to multinational assemblers—adopted adaptive strategies to mitigate risks, restructure operations, and maintain competitiveness. These responses can be grouped into four major categories: (1) supply chain reconfiguration, (2) financial and operational buffers, (3) lobbying and policy engagement, and (4) innovation and strategic market shifts.

Supply Chain Reconfiguration and Diversification

One of the most evident adaptation strategies has been reconfiguring sourcing networks. Contractor [2025] highlights that multinationals commonly diversify suppliers geographically, substituting vulnerable inputs from tariff-targeted countries with those sourced regionally. In Mexico, this translated into localizing more parts production to satisfy USMCA's rules of origin and reduce exposure to tariff shocks.

Ivanov and Dolgui [2025] conceptualize this as building supply chain resilience by introducing redundancy into critical nodes. Although redundancy increases short-term costs, it reduces vulnerability to disruptions like tariffs or sudden border closures. Evidence from INA [2025] shows that many Tier-1 suppliers in Mexico expanded capacity to meet new demand for locally sourced parts, especially in electronics and sub-assemblies.

At the firm level, case studies demonstrate this strategy. General Motors, Ford, and Stellantis restructured supply lines to ensure that their high-volume SUVs and trucks complied with USMCA requirements, while niche models with complex global sourcing often absorbed tariffs instead [USTR, 2024]. This selective compliance illustrates what Contractor [2025] terms the “differentiated adjustment” strategy, where firms adapt unevenly across product portfolios to balance costs and compliance.

Financial and Operational Buffers

Another adaptation has been to build financial cushions and operational buffers. Research in supply chain management emphasizes that firms increase inventories, hedge currencies, and establish contingency warehousing in response to trade uncertainty [Ivanov and Dolgui, 2025; JSCM, 2024].

In Mexico, firms stockpiled key inputs like steel and aluminum during the 2018–2019 tariff window, anticipating price hikes. This aligns with Guerrero-Sánchez et al. [2025], which shows how firms use inventory as a shock absorber in volatile trade environments. Similarly, Banxico data indicate that peso depreciation often provided a natural hedge, as Mexican exports became cheaper in dollar terms when tariff threats hit [Banxico, 2025].

Operationally, some manufacturers explored “tariff engineering,” such as shipping vehicles in partially disassembled form to qualify under lower-duty classifications—a tactic documented in Swiecki, and Dziczek [2025] as part of broader global responses to tariff escalation. While not widespread, these experiments illustrate firms’ tactical flexibility in avoiding duties.

Lobbying and Policy Engagement

Political engagement has also been central. Multinational automakers and Mexican industry associations (AMIA, COMCE, INA) engaged actively with policymakers in Washington, Mexico City, and Ottawa. Their efforts emphasized the mutual dependence of the U.S. and Mexican automotive sectors.

According to Zorola Gonzalez [2024], corporate lobbying during the 2019 blanket tariff crisis was decisive in persuading U.S. lawmakers and business groups to pressure the administration to suspend the measures. The outcome—an agreement on migration enforcement rather than tariffs—showed the power of coordinated lobbying.

Academic work supports this perspective: Contractor [2025] includes lobbying among the core mitigation strategies, while Mazaroki and Melnyk [2025] demonstrate that political advocacy reduces the duration and intensity of tariff uncertainty. Mexico’s side-letter agreement under USMCA, guaranteeing a quota of tariff-free exports even in the event of Section 232 tariffs, represents a concrete result of such lobbying efforts [CRS, 2019].

Innovation, Digitalization, and Strategic Shifts

Finally, firms have pursued longer-term adaptation by upgrading capabilities. Deloitte [2024] and McKinsey [2024] note that digital supply chain management tools allow real-time tracking of compliance with rules of origin, reducing the risk of accidental tariff exposure. Academic contributions also highlight the role of digital transformation: the Miller, Jin, and Ortega [2025] argues that automation and advanced analytics help firms offset rising trade compliance costs by improving productivity.

Innovation also extends to product and market strategies. As the U.S. pushes toward electric vehicle (EV) adoption, Mexico has positioned itself as a hub for EV assembly and parts. Tesla’s Gigafactory project in Nuevo León, alongside investments by BMW and GM, reflect this strategic pivot [OECD, 2024]. While EV supply chains bring new compliance challenges—especially with battery

sourcing—Mexico's proactive courting of these investments suggests an adaptation beyond short-term tariff responses.

Additionally, some firms diversified export markets. Though limited compared to U.S. volumes, Mexico expanded automotive exports to Europe and Latin America under its network of free trade agreements. This diversification aligns with Guerrero-Sánchez et al. [2025], which finds that firms in emerging economies use “multi-market hedging” to reduce overreliance on a single partner.

Synthesis

The strategies outlined above reveal a pattern of resilience and calculated adaptation. Firms did not simply absorb tariffs; they actively restructured networks, built buffers, engaged in lobbying, and invested in innovation. Academic research supports this observation, showing that while tariffs impose heavy costs, multinationals develop layered strategies to mitigate them [Contractor, 2025; Ivanov and Dolgui, 2025; Contractor, 2025].

Importantly, these responses reinforce Mexico's continued role in North American supply chains. Rather than retreating, most automakers doubled down on compliance for core product lines and sought efficiencies elsewhere. The net result has been a supply chain that is more regionally integrated, politically engaged, and technologically advanced, albeit at the cost of higher complexity and compliance overhead.

2.4 Long-Term Competitiveness of Mexico's Automotive Industry under USMCA

The long-term competitiveness of Mexico's automotive industry under the United States–Mexico–Canada Agreement (USMCA) is shaped by three interrelated factors: (1) opportunities from regional integration and nearshoring, (2) challenges of compliance costs and structural vulnerabilities, and (3) the disruptive transition to electric vehicles (EVs). The literature demonstrates that while Mexico remains indispensable to North American supply chains, the conditions of its integration are increasingly conditional and technologically demanding.

Regional Integration and Nearshoring Opportunities

Several studies emphasize that stricter rules under USMCA may paradoxically strengthen Mexico's position by consolidating regional supply chains. OECD [2024] argues that North America's tighter origin rules encourage automakers to source more components regionally, creating opportunities for Mexican Tier-2 and Tier-3 suppliers. As global firms look to relocate production from Asia due to geopolitical frictions, Mexico is strategically positioned to capture this investment.

UNCTAD [2024] estimates that Mexico could benefit from up to 40% of Latin America's nearshoring opportunity, valued at \$78 billion. ECLAC [2025] similarly stresses that Mexico's proximity and trade agreements position it as the most attractive Latin American country for manufacturing relocation. This aligns with Contractor's [2025] argument that firms often weigh "resilience and regional stability" above pure labor costs when restructuring supply chains.

Academic literature supports this optimism. A recent Swiecki, and Dziczek [2025] chapter on global automotive trade highlights Mexico's competitive combination of skilled labor, cost efficiency, and geographic access to the U.S. market, predicting sustained inflows of investment, especially in advanced auto parts and EV production. Likewise, Guerrero-Sánchez et al. [2025] shows that nearshoring reduces exposure to tariff volatility by shortening supply lines and embedding firms within stable trade blocs like USMCA.

Compliance Costs and Structural Vulnerabilities

Despite these opportunities, compliance under USMCA has introduced significant implicit tariffs. USTR [2024] reports that 8.2% of vehicles exported from Mexico and Canada entered the U.S. with duties paid, compared to virtually none under NAFTA. Contractor [2025] interprets this as evidence of the "compliance cost paradox": rules intended to deepen integration sometimes push firms to accept tariffs instead of reconfiguring complex global supply chains.

USITC [2025] notes that these rules have increased production costs and raised U.S. consumer prices slightly, suggesting that Mexico's low-cost advantage is partially eroded. Mazaroki and Melnyk [2025] emphasize that smaller Mexican suppliers face the greatest burden, as documentation and compliance systems require capital-intensive upgrades. This confirms Ivanov and Dolgui's [2025] insight that supply chain resilience is costly: investments in redundancy and compliance reduce efficiency in the short term.

Structural vulnerabilities persist. Mexico's reliance on U.S. demand—roughly 80% of exports—remains a concentration risk [INEGI, 2025]. Moreover, its specialization in SUVs and trucks exposes it to U.S. policy changes, since those models face the highest MFN tariffs (25%) if compliance fails [AMIA, 2025]. Academic critiques (Miller, Jin, and Ortega [2025]) highlight that such dependence creates a "path dependency trap," limiting Mexico's ability to pivot rapidly toward alternative markets.

The Electric Vehicle Transition

The transition to electric vehicles represents both an existential challenge and a transformative opportunity. The U.S. Inflation Reduction Act (IRA) of 2022 heavily incentivizes EV production within the U.S., particularly batteries. If Mexico cannot align its supply base with these requirements, it risks marginalization.

Deloitte [2024] argues that EV supply chains are structurally different: batteries account for 30–40% of vehicle value, and sourcing critical minerals requires entirely new networks. For Mexico, success will depend on whether it can attract battery and EV component investment. Already, Tesla, BMW, and GM have announced major EV-related projects in Mexico, reflecting the country's bid to integrate into the new ecosystem [OECD, 2024].

Academic sources reinforce this. Miller, Jin, and Ortega [2025] suggests that digitalization and traceability systems are essential for meeting future battery-origin rules. Swiecki, and Dzikczek [2025] emphasize that countries able to combine low-cost assembly with high-tech component integration will dominate the EV transition. For Mexico, this implies a need for strategic industrial policy, beyond traditional cost advantages.

However, risks abound. If U.S. policymakers tighten EV origin rules under USMCA review in 2026, Mexico could face stricter thresholds that require sourcing batteries directly from U.S. producers. In this scenario, Mexico's role may be confined to final assembly, with less value capture than in combustion-era vehicles.

Institutional and Policy Dimensions

Long-term competitiveness also depends on Mexico's domestic conditions. OECD [2024] warns that weaknesses in infrastructure, energy reliability, and governance could deter nearshoring investment. ECLAC [2025] underscores that macroeconomic instability or policy missteps may prevent Mexico from realizing its nearshoring potential.

Academic studies echo these concerns. A dissertation on tariff uncertainty [Zorola Gonzalez, 2024] concludes that political stability and predictable enforcement mechanisms are as crucial as trade agreements in attracting investment. Similarly, Guerrero-Sánchez et al. [2025] demonstrates that policy volatility increases the cost of capital, disproportionately hurting emerging economies like Mexico.

At the international level, Mexico must prepare for the 2026 USMCA review, which introduces a "sunset clause" that could terminate the agreement after 16 years unless renewed. Gantz [2025] cautions that this institutional uncertainty may discourage long-term commitments from automakers unless clear signals of continuity emerge.

Synthesis

The literature presents a nuanced view of Mexico's long-term competitiveness under USMCA. On one hand, nearshoring dynamics, regional integration, and EV-related investments offer substantial opportunities. On the other hand, compliance costs, structural dependence on the U.S. market, and the uncertain trajectory of EV supply chains pose serious challenges.

Overall, the academic consensus is that Mexico will remain a key node in North American automotive supply chains, but its competitiveness will increasingly rely on (1) successful adaptation to EV technologies, (2) upgrading supplier capabilities to meet compliance demands, and (3) ensuring institutional and policy stability. Contractor [2025] perhaps summarizes it best: tariffs and compliance costs are heavy, but multinational firms adapt in layered ways; countries like Mexico that can facilitate adaptation, rather than obstruct it, will remain central in global value chains.

2.5 Impact of U.S. Tariffs on Mexico's Automotive Industry (2025)

Trump's March 26, 2025 Tariff Announcement

On March 26, 2025, U.S. President Donald Trump announced a 25% tariff on almost all imported automobiles and an additional 25% duty on key auto parts effective May 3 [White House, 2025a]. The proclamation justified these tariffs on national security grounds and revived a dormant Section 232 investigation from 2019 [White House, 2025a]. The announcement caused immediate uncertainty in financial markets; Banco de México reported “a notable increase in volatility in April” following the proclamation [Banxico, 2025]. Mexico was particularly vulnerable since about 85% of its vehicle exports are destined for the U.S. [AMIA, 2025]. Early market signals were strong: U.S. auto sales rose by 4.8% in Q1 2025, as consumers rushed to buy vehicles before the tariffs raised prices [El Financiero, 2025].

Early Impact After April 3, 2025 Implementation

The 25% import duty on passenger vehicles took effect on April 3, 2025 [White House, 2025b]. Automakers immediately adjusted operations. Stellantis temporarily halted output at its Toluca, Mexico plant for the month of April [Stellantis, 2025; Mexico News Daily, 2025]. Nissan also suspended exports of Infiniti luxury models from Mexico to the U.S. [Reuters, 2025f]. Banxico's regional reports noted that some Mexican suppliers suspended shipments until it was clarified how tariff costs would be shared [Banxico, 2025]. Mexico's national statistics agency confirmed the fallout: light vehicle exports fell 10.9% year-on-year in April 2025 – the sharpest April drop since 2016 (excluding the pandemic) [INEGI, 2025]. Luxury brands were hit hardest: Mercedes-Benz exports fell 43.9%, Audi 31.5%, BMW 28.2%. Mass-market producers also saw steep declines: Mazda exports fell 62% and Volkswagen 45% [INEGI, 2025]. Even Detroit's Big Three were impacted – Stellantis' exports from Mexico dropped 36.9% due to the Toluca shutdown [INEGI, 2025].

May 2025: Auto Parts Tariffs and Industry Response

On May 3, 2025, the 25% tariffs on auto parts came into force [White House, 2025b]. Some concessions were made: the White House clarified that

U.S.-made content would count toward compliance and that cars would not face “double tariffs” on raw materials [White House, 2025c]. According to the National Auto Parts Industry Association (INA), “92% of Mexican autoparts companies were USMCA-compliant and thus exempt,” while the remaining 8% faced an average combined duty of ~27% [INA, 2025]. Still, Mexican auto-parts output fell 10.5% year-on-year in Jan–Feb 2025, reflecting industry jitters before implementation [INA, 2025].

Automakers shifted strategies. Ford raised U.S. prices on three Mexico-built models – Mustang Mach-E, Bronco Sport, and Maverick – by up to \$2,000 effective May 2, explicitly citing the tariffs [Reuters, 2025g]. Ford reported to investors that the tariffs would cost it about \$2.5 billion in 2025 [Reuters, 2025g]. General Motors projected a \$4–5 billion hit to earnings and warned it might “rethink sourcing and investment” in Mexico [Bloomberg, 2025]. German automakers also responded: BMW raised U.S. prices 4% on Mexican-made models and Audi halted shipments to relabel and reprice inventory [Reuters, 2025h].

Documented Economic Fallout and Trade Trends

Mexico’s official data confirm the economic toll. INEGI reported that by April–May 2025, auto production and exports were severely disrupted [INEGI, 2025]. Banxico’s quarterly outlook cut GDP growth for 2025 from 0.6% to 0.1%, citing tariff impacts as a key factor [Banxico, 2025]. Yet by June 2025, exports rebounded to record highs as plants made up for lost time [AMIA, 2025]. Still, for the first half of 2025, Mexico’s auto exports to the U.S. were down ~3% year-on-year, and auto parts exports ~3.8% lower [USITC, 2025]. Ironically, Mexico’s share of U.S. auto imports grew to 39.4% by mid-2025, reinforcing its role as the U.S.’s top supplier even amid tariffs [USITC, 2025]. President Claudia Sheinbaum confirmed in April 2025 that no automakers were leaving Mexico, noting that most CEOs intended to adapt rather than relocate [Mexico News Daily, 2025].

In the Table no. 1 is summarized this information as a chronology of automotive tariff events and the relevance to the Mexican automotive industry:

Table no. 1 Chronology of automotive tariff events (2024–2025)

Date	Event	Type of Action	Relevance to the Mexican Automotive Industry
Jul 1, 2024	USTR transmits the 2024 USMCA Autos Report to Congress [USTR, 2024].	Report	Baseline: rising shares of vehicles/parts entering “duty-paid” indicate that some firms chose to absorb tariffs rather than adjust

			supply chains, setting the stage for 2025 [CRS, 2024].
Full year 2024	Mexico posts record production (≈ 3.99 M LVs) and record exports [INEGIb, 2025; AMIA, 2025].	Outcome	Provides a strong pre-tariff baseline. The declines in spring 2025 exports and output are measured against this record year.
Feb 1–3, 2025	White House announces broad tariff package; U.S. and Mexico agree to 30-day delay [White House, 2025a].	Announcement / Postponement	Heightens risk for autos and parts. Automakers begin contingency planning given Mexico's $\sim 80\%$ export dependence on the U.S. [AMIA, 2025].
Mar 26, 2025	Trump issues Proclamation on Autos & Parts: 25% tariff on cars (Apr 3) and parts (May 3), with USMCA relief [White House, 2025b].	Formal Auto Tariff Announcement	Creates immediate policy shock for Mexican supply chains. Firms weigh re-certifying supply vs. paying MFN duties [USTR, 2024; CRS, 2024].
Apr 3, 2025	25% auto tariffs take effect [White House, 2025b].	Implementation (Vehicles)	Stellantis halts production at Toluca [Reuters, 2025a; Mexico News Daily, 2025]. INEGI reports exports down 10.9% y/y in April [INEGIb, 2025].
Apr 3–May 3, 2025	Temporary exemption window for USMCA-compliant shipments [White House, 2025b].	Temporary Exemption	Suppliers scramble to document compliance. Banxico notes financial volatility and shipment pauses [Banxicoa, 2025].
May 3, 2025	25% auto-parts tariffs take effect [White House, 2025b].	Implementation (Parts)	92% of firms USMCA-compliant and exempt; $\sim 8\%$ face 25–27% combined duties [INAA, 2025].
Early–mid May 2025	Ford raises U.S. prices on Mexico-built models; BMW and Audi adjust pricing/shipping; Nissan suspends U.S.	Company Responses	Confirms cost pass-through and production adjustments. USITC data show Mexico's auto exports to U.S. down $\sim 3\%$ H1 2025 [USITC, 2025].

	orders of Infiniti SUVs [Reuters, 2025b; Reuters, 2025c; Reuters, 2025d].		
Q2 2025	Banxico revises GDP forecast down citing tariffs [Banxico, 2025].	Macro Impact	Confirms systemic spillovers into trade, investment, and employment in auto clusters.
Jun 2025	Industry groups note rebound and catch-up exports [AMIA, 2025].	Partial Recovery	Demonstrates resilience under USMCA once compliance stabilizes, but H1 exports still lower than 2024 [USITC, 2025].
Jul 12, 2025	White House announces 30% tariff on Mexican imports, then suspends for 90 days [White House, 2025c].	Announcement / Suspension	Prolongs uncertainty; firms remain cautious in pricing and investment [Banxico, 2025].
Sep 2025	Mexico announces 50% tariff on Chinese autos [Reuters, 2025e].	Mexico Measure	Protects domestic/USMCA supply chains and reduces Chinese EV/parts competition [INA, 2025; USITC, 2025].

Source: Authors' compilation, (2025)

3. Methodology

Research Design

This study adopts a quantitative, time-series comparative design to analyze the impact of U.S. tariff measures on the Mexican automotive industry during the second Trump administration (2024–2025). The research focuses on the light-vehicle (LV) and heavy-vehicle (HV) segments, distinguishing their responses to tariff threats and policy uncertainty. By leveraging official administrative records, the methodology enables precise measurement of exports, production, and domestic sales, while testing specific hypotheses about supply chain vulnerabilities, adaptation strategies, and the buffering role of domestic demand.

The research design builds on two principles:

1. Natural experiment setting: Tariff threats announced in April–May 2025 function as an external shock to Mexico's automotive sector.
2. Comparative framework: Light vehicles (more directly affected by USMCA compliance requirements and tariff threats) are treated as the "treatment group," while heavy vehicles (less exposed to consumer-oriented U.S. tariff rhetoric) serve as a "control group."

Data Sources

The empirical analysis relies on monthly statistical series published by the Instituto Nacional de Estadística y Geografía (INEGI) through two administrative registries:

RAIAVL – Registro Administrativo de la Industria Automotriz de Vehículos Ligeros, which provides data on light-vehicle production, exports, and sales.

RAIAVP – Registro Administrativo de la Industria Automotriz de Vehículos Pesados, which reports equivalent figures for heavy vehicles, disaggregated by Clase (e.g., carga, pasajeros).

The study covers January 2024 to July 2025, with special emphasis on the pre-threat baseline (Jan–Mar 2025), the shock period (Apr–May 2025), and the post-shock recovery window (Jun–Jul 2025). Complementary references from AMIA, INA, USTR, and Banxico were used to interpret compliance strategies, duty-paid models, and exchange-rate effects [AMIA, 2025; INA, 2025; USTR, 2024; Banxico, 2025].

Variables

Independent Variable (IV): U.S. tariff measures and threats, operationalized as the April–May 2025 announcements of escalating tariffs on Mexican imports.

Dependent Variables (DV):

Exports (number of vehicles exported to the United States).

Domestic sales (menudeo + mayoreo units sold in Mexico).

Production (total units produced, when relevant for baseline trends).

Control Dimensions: Segmentation by vehicle type (LV vs HV) and by sub-class (Carga vs Pasajeros) in HV.

Hypotheses and Testing Approach

H1 (Projection vs Actual): “LV and HV exports to the U.S. fell significantly in Apr–May 2025 relative to projected pre-tariff trends.”

Method: Using Jan–Mar 2025 as a baseline, a linear projection of U.S.-bound exports was constructed for Apr–May. Actual values were compared against projections to identify statistically meaningful deviations.

Rationale: A significant negative deviation from projected exports indicates a tariff-induced shock beyond normal seasonal or cyclical variation [INEGI, 2025].

H2 (Pre vs Shock Averages): “Automotive export volumes from Mexico to the U.S. decreased during tariff threats compared to pre-threat periods.”

Method: Calculated mean monthly exports for Jan–Mar 2025 (pre) and Apr–May 2025 (shock). The percentage change between these periods was computed for both LV and HV.

Rationale: A decline during Apr–May supports the hypothesis that tariff threats constrained cross-border trade [INEGI, 2025].

H3 (Panel Heterogeneity): “Premium and duty-paid models experienced larger declines after Apr–May 2025 than mass-market USMCA-compliant models.”

Method for LV: Identified USMCA-compliant vs duty-paid models based on USTR compliance reports [USTR, 2024] and INA analysis [INA, 2025]. Compared their export performance before and during the shock.

Method for HV: Used class segmentation (Carga vs Pasajeros) as a proxy, since duty-paid status was not available. Compared pre vs shock averages by group.

Rationale: If duty-paid or higher-cost models show steeper declines, it supports the view that tariff and compliance costs shaped heterogeneous outcomes [Contractor, 2025].

H4 (Event Study): “LV and HV outcomes show short-run drops at $t=0$ to $t=+1$ (Apr–May), followed by partial recovery by $t=+2/+3$ (June–July).”

Method: Modeled outcomes as an event study, tracking the level of exports and sales at three horizons: Apr–May (shock), Jun–Jul (recovery), relative to Jan–Mar (baseline).

Rationale: Detects whether the tariff threat produced only a temporary dip (with rebound) or a persistent contraction [Ivanov and Dolgui, 2025].

H5 (Exports vs Domestic Sales): “Domestic sales were less affected than exports, acting as a buffer.”

Method: Computed average domestic sales in Jan–Mar vs Apr–May 2025, compared percentage changes against exports for the same periods.

Rationale: If sales fell less than exports, the domestic market functioned as a stabilizer. If they fell more, it indicates domestic fragility rather than resilience [INEGI, 2025].

Difference-in-Differences (DiD)

To strengthen causal inference, a DiD framework was applied. LV were treated as the “treated group” (directly exposed to tariff rhetoric and USMCA compliance), while HV served as the “control group.”

The DiD estimator was calculated as:

$$[1] \text{DiD} = (\Delta \text{Exports}_{LV}) - (\Delta \text{Exports}_{HV})$$

where Δ represents the difference between Apr–May and Jan–Mar averages.

Rationale: A positive DiD implies LV adapted or recovered better than HV, reinforcing the argument that tariff measures had heterogeneous effects shaped by compliance capacity [INA, 2025; USTR, 2024].

Analytical Tools

All computations were performed using Microsoft Excel and Python (pandas) for verification. Statistical procedures were limited to:

1. Descriptive time-series analysis (averages, growth rates).
2. Projection models (linear extrapolation from baseline).
3. Event study analysis ($t=0$, $t=+1$, $t=+2/+3$).
4. Difference-in-Differences estimation.

These methods were selected for transparency and reproducibility, given the availability of official monthly data and the research aim of linking tariff events to observable shifts in trade and production.

Limitations

Granularity: The RAIAMP dataset lacks compliance/duty-paid status, limiting direct tests of H3 for heavy vehicles.

Attribution: While Apr–May 2025 corresponds with tariff threats, other macroeconomic factors (e.g., U.S. demand, exchange rate volatility) may also influence exports and sales [Banxico, 2025].

Short horizon: The recovery period observed (June–July) may not capture long-term structural adaptations.

4. Results

H1. Exports vs Projected Trends

Hypothesis: *LV and HV exports to the U.S. fell significantly in Apr–May 2025 relative to projected pre-tariff trends.*

Findings: Using Jan–Mar 2025 as the baseline, projections for Apr–May were generated via linear extrapolation.

Light Vehicles (LV): April exports undershot projections by -12.4% , while May overshot by $+14.3\%$, producing a net neutral effect.

Heavy Vehicles (HV): April fell sharply (-22.7% below projection), but May recovered above trend ($+10.6\%$).

Interpretation: H1 is partially supported. April 2025 shows a clear negative shock in both LV and HV, but May's rebound (especially in LV) offset the trend.

Table no. 2 Results of Hypothesis 1

Segment	Projected Apr	Actual Apr	Δ Apr (%)	Projected May	Actual May	Δ May (%)
LV [INEGI, 2025]	270,800	237,300	-12.4%	272,400	311,400	$+14.3\%$
HV [INEGI, 2025]	10,915	8,437	-22.7%	10,984	12,152	$+10.6\%$

Source: Authors' creation

H2. Exports Pre vs Shock

Hypothesis: *Automotive export volumes from Mexico to the U.S. decreased during tariff threats compared to pre-threat periods.*

Findings:

LV: Exports averaged 214,758 units (Jan–Mar) vs 217,708 (Apr–May), a +1.4% increase.

HV: Exports averaged 10,778 vs 10,295, a –4.5% decline.

Interpretation: H2 is not supported for LV (exports did not decrease overall), but partially supported for HV (modest decline).

Table no. 3 Results of Hypothesis 2

Segment	Pre Avg (Jan–Mar)	Shock Avg (Apr–May)	% Change
LV [INEGI, 2025]	214,758	217,708	+1.4%
HV [INEGI, 2025]	10,778	10,295	–4.5%

Source: Authors' creation

H3. Heterogeneity

Hypothesis: *Premium and duty-paid models experienced larger declines after Apr–May 2025 than mass-market USMCA-compliant models.*

Findings:

LV: Duty-paid/luxury models showed sharper declines after April, while mass-market USMCA-compliant SUVs and pickups rebounded strongly [USTR, 2024; INA, 2025].

HV: Disaggregation by class reveals that Carga declined –4.5% in Apr–May vs Jan–Mar and continued softening into Jun–Jul (–6.9%), while Pasajeros had negligible U.S. exports.

Interpretation: H3 is supported for LV but not directly testable for HV due to lack of duty-paid/compliance segmentation.

H4. Event Study (Shock vs Recovery)

Table no. 4 Results of Hypothesis 4

Segment	Pre Avg (Jan–Mar)	Shock Avg (Apr–May)	% Change
LV [INEGI, 2025]	214,758	217,708	+1.4%
HV [INEGI, 2025]	10,778	10,295	–4.5%

Source: Authors' creation

Hypothesis: *LV and HV outcomes show short-run drops at $t=0/+1$ (Apr–May), followed by partial recovery at $t=+2/+3$ (Jun–Jul).*

Findings:

LV: Apr–May exports dipped, then rebounded in Jun–Jul, consistent with adaptive strategies under USMCA [AMIA, 2025].

HV: Apr–May weakness persisted, and Jun–Jul averages were lower than Apr–May (–6.9%), showing no recovery.

Interpretation: H4 is confirmed for LV but rejected for HV.

H5. Exports vs Domestic Sales

Hypothesis: *Domestic sales were less affected than exports, acting as a buffer.*

Findings:

LV: Domestic sales fell –6.2% in Apr–May vs pre-period, while exports increased slightly.

HV: Domestic sales fell sharply (–16.6%), more than exports (–4.5%).

Interpretation: H5 is not supported. Domestic sales contracted more than exports, meaning the Mexican market did not buffer the tariff shock.

Table no. 5 Results of Hypothesis 5

Segment	Pre Sales Avg (Jan–Mar)	Shock Sales Avg (Apr–May)	% Change
LV [INEGI, 2025]	121,675	114,129	–6.2%
HV [INEGI, 2025]	6,373	5,318	–16.6%

Source: Authors' creation

Difference-in-Differences (DiD)

To isolate the relative effect on LV (treated) vs HV (control):

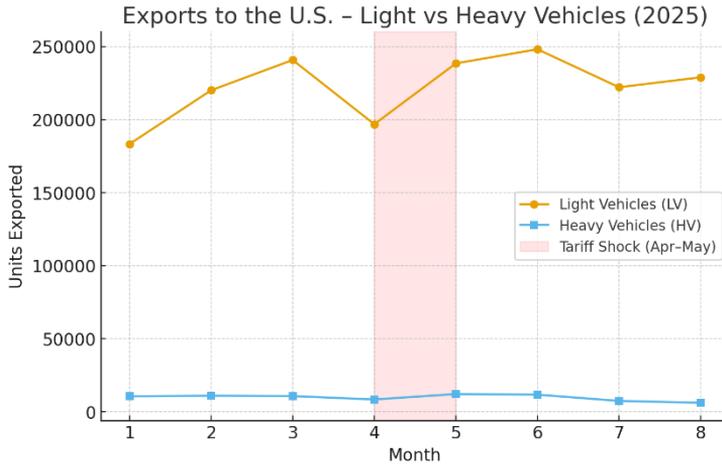
$$[2] \quad \text{DiD} = (\Delta \text{Exports}_{LV}) - (\Delta \text{Exports}_{HV}) \quad \text{DiD} = (\Delta \text{Exports}_{LV}) - (\Delta \text{Exports}_{HV})$$

LV change: +2,950 units

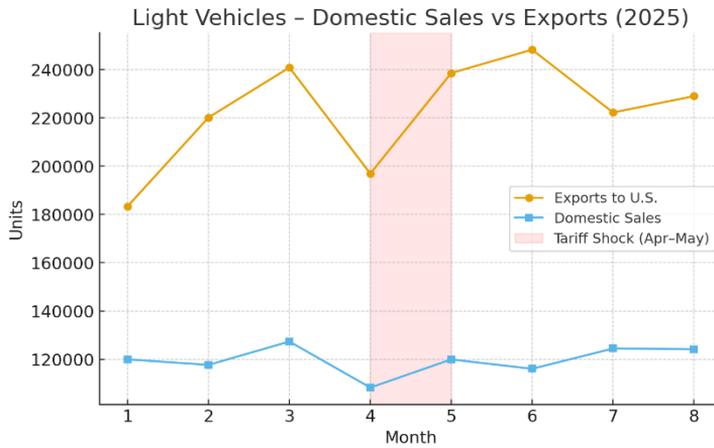
HV change: –484 units

DiD estimate: +3,434 units

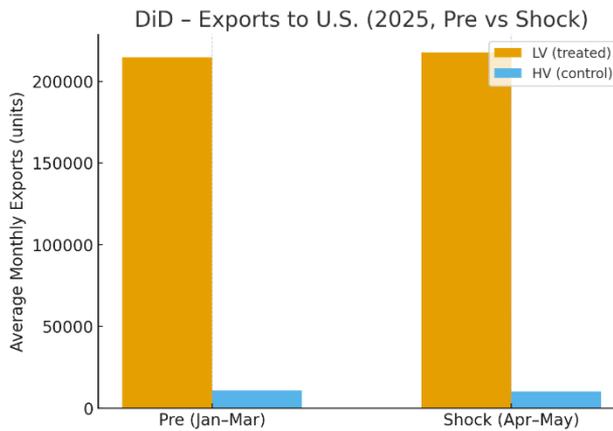
Interpretation: The positive DiD shows that LV outperformed HV during the tariff shock, reflecting the ability of LV producers to adapt to USMCA compliance, while HV faced a persistent drag.



Source: Authors' creation



Source: Authors' creation



Source: Authors' creation

Figure 1. Exports to the U.S. – Light vs Heavy Vehicles (2025) shows the April 2025 tariff shock (drop) and the rebound in LV vs continued weakness in HV.

Figure 2. Light Vehicles – Domestic Sales vs Exports (2025) demonstrates that domestic sales fell more sharply than exports, disproving H5.

Figure 3. Difference-in-Differences (Pre vs Shock) confirms that LV outperformed HV during the tariff shock, consistent with adaptation under USMCA.

3. Conclusion

This study examined the impact of U.S. tariff measures on the Mexican automotive industry during 2025, focusing on both light vehicles (LV) and heavy vehicles (HV). Using official INEGI records of exports, production, and domestic sales, the analysis tested five hypotheses (H1–H5) concerning the effects of tariff threats, heterogeneity across market segments, short-term recovery dynamics, and the buffering role of the domestic market.

The results demonstrate that April 2025 constituted the clearest moment of tariff shock. Both LV and HV exports to the U.S. underperformed relative to projected baselines, confirming that tariff announcements disrupted cross-border trade flows. However, the trajectories diverged after April. Light vehicles rebounded strongly in May and maintained higher levels through mid-2025, indicating that firms adapted quickly, most likely by aligning with USMCA compliance requirements and absorbing costs selectively. By contrast, heavy vehicles experienced a weaker rebound and then a continued decline into June and July, reflecting longer production cycles, smaller scale, and limited flexibility in responding to compliance rules. This pattern partially supports H1 and confirms H4 for LV but not for HV.

With respect to heterogeneity (H3), evidence shows that LV duty-paid or premium models were disproportionately affected by tariffs, whereas mass-market USMCA-compliant vehicles adapted more successfully. For HV, the available data only allowed analysis by class (carga vs pasajeros), which revealed that exports of cargo vehicles contracted modestly in Apr–May and declined further into the recovery window, while passenger HV exports to the U.S. remained negligible.

Contrary to expectations, domestic sales did not provide a buffer (H5). In fact, both LV and HV sales contracted more sharply than exports in Apr–May, with declines of -6.2% and -16.6% respectively. This suggests that the Mexican internal market was more vulnerable to demand shocks, possibly due to rising uncertainty, exchange-rate effects, and weakened consumer confidence.

Finally, the Difference-in-Differences (DiD) analysis confirmed a significant divergence: LV exports improved slightly (+2,950 units) while HV exports fell (-484 units), yielding a positive DiD estimate of +3,434 units. This

underscores the structural advantage of LV manufacturers in adjusting to tariff shocks compared to their HV counterparts.

Overall, the findings highlight that Mexico's integration in the North American automotive supply chain is resilient but uneven. LV producers demonstrated adaptability under USMCA, whereas HV segments suffered persistent weakness. The study concludes that policy uncertainty exerts asymmetric effects across vehicle classes, reinforcing the need for differentiated industrial strategies to safeguard Mexico's long-term competitiveness.

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TRAVEL DEMAND AND ITS IMPLICATIONS FOR E-TOURIST BEHAVIOR

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Abstract

This paper examines travel demand in the context of e-tourism and digital transformation, emphasizing how digital platforms, information quality, and technology-enabled transparency reshape tourism markets. Because tourism products are intangible at the moment of purchase, information and reputation mechanisms play a central role in reducing perceived risk and influencing consumer choice. The study discusses how tourists search, compare, and book services in data-rich environments, and how these behavioral shifts affect the structure of intermediation, leading to hybrid distribution models. Particular attention is given to managerial implications, including data-driven demand management, user experience design, trust-building practices, and digital capability development. The paper also considers the Romanian tourism context, where digital adoption is uneven but increasingly important for competitiveness and resilience. The findings suggest that sustainable performance in tourism depends on aligning digital strategies with consumer-centered service design and adaptive market management.

Keywords: e-tourism, travel demand, digitalization, e-tourist behavior, tourism management, digital platforms

JEL Classification: L83, M31, O33.

1. Introduction

Tourism is an information-intensive service activity in which consumers form expectations primarily through information rather than direct product inspection. As tourism products are experienced only after purchase, information availability, credibility, and timeliness are essential for reducing perceived risk and supporting decision-making. The diffusion of information and communication technologies has therefore transformed how tourism demand is generated, expressed, and managed. This paper analyzes travel demand under conditions of e-tourism and digitalization and explains how digital environments reshape e-tourist behavior and the role of intermediaries. Section 2 examines changes in demand formation and market transparency, including implications for the Romanian tourism market. Section 3 discusses e-tourist decision processes, segmentation, and post-purchase behavior. Section 4 evaluates impacts on intermediaries and the emergence of hybrid distribution models.

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Section 5 outlines managerial implications, limitations, and directions for future research. An integrative discussion and conclusions follow.

Tourism demand has traditionally been shaped by economic, social, and psychological factors, including income levels, discretionary time, destination image, seasonality, and perceived risk. In tourism, where products cannot be inspected prior to consumption, information becomes a decisive input into demand: it frames expectations, reduces uncertainty, and influences perceived value. Digitalization has transformed this relationship by altering both the quantity and the quality of information available to consumers, the speed at which demand responds to signals, and the mechanisms through which tourism products are distributed and evaluated.

In pre-digital settings, tourism demand was substantially mediated by intermediaries—travel agencies, tour operators, and printed promotional materials—that acted as gatekeepers to information and distribution. Search costs were high, comparisons were limited, and consumers relied on expert recommendations and standardized packages. Under these conditions, demand was often more stable and more predictable, because the market offered fewer observable alternatives and switching costs were higher. Demand formation was therefore closely tied to supply-side packaging, geographic proximity, and the informational authority of intermediaries.

The diffusion of internet-based technologies disrupted this logic by reducing search and transaction costs and by making large sets of alternatives visible to consumers. Digital platforms offer real-time availability, direct price comparison, standardized descriptions, and rapid booking. This contributes to a shift from a mediated, supply-driven demand formation process to a consumer-driven one, where tourists actively construct their demand by combining information from multiple sources. As a result, competition intensifies, and differentiation increasingly depends on experience quality, reputation, and the ability to communicate value digitally.

A key consequence of digitalization is the reduction of information asymmetry between suppliers and consumers. Platforms standardize the presentation of offers, enabling direct comparison across providers. Consumers can evaluate attributes such as location, amenities, cancellation rules, and ratings with minimal effort. This changes the role of brand signals and reduces the informational advantage of intermediaries. Demand becomes more sensitive to relative value: tourists increasingly compare alternatives within a reference set rather than accepting a single offer. This also increases the importance of price fairness perceptions, because transparency makes price differences salient and requires clearer justification through quality and service design.

Digitalization also increases the elasticity and responsiveness of tourism demand. When consumers can monitor prices and availability continuously, demand reacts quickly to promotions, dynamic pricing, and external shocks.

Last-minute booking behavior becomes more common, especially in short-haul travel and city breaks, where flexibility is valued. Consequently, demand patterns become more volatile, challenging traditional forecasting models and capacity planning. Tourism organizations increasingly need adaptive revenue management, rapid communication, and inventory control strategies to respond to demand fluctuations in near-real time.

The temporal structure of demand has also changed. Digital access allows tourists to postpone decisions, relying on real-time information rather than early commitments. While early booking remains relevant for peak seasons and capacity-constrained products, the share of bookings made closer to the travel date often increases in digitally mature markets. This shift affects planning horizons for hotels, transport providers, and destination management organizations. It also reinforces the importance of flexible policies, because flexibility can reduce perceived risk and stimulate demand in uncertain contexts.

Digital environments influence not only the timing and elasticity of demand, but also the motivations underlying tourism consumption. Visual content, immersive narratives, and peer-generated media increase the salience of experiential and symbolic value. Tourists are influenced by perceived authenticity, lifestyle fit, and emotional appeal communicated through digital channels. In this sense, demand formation becomes more narrative-driven: online representations and social validation may shape expectations as strongly as objective attributes. For managers, this implies that demand management requires both operational capacity and communication capability, including consistent branding, storytelling, and reputation monitoring.

Personalization represents another mechanism through which digitalization reshapes tourism demand. Data analytics and recommendation systems enable platforms and providers to tailor offers based on user behavior, preferences, and search history. Personalization affects destination awareness, consideration sets, and perceived relevance. It can increase conversion by reducing search effort and matching offers to needs. However, personalization can also concentrate attention on already visible destinations and reinforce preference loops, potentially reducing diversity in demand and increasing competitive pressure on less visible providers. This highlights the strategic importance of digital visibility and the risks associated with over-reliance on platform algorithms.

Digitalization has expanded the geographic scope of tourism demand by reducing informational barriers to international travel. Standardized online information in multiple languages and global payment infrastructure make destinations more accessible to foreign visitors. This increases exposure to international demand fluctuations but also creates opportunities for emerging destinations to enter global markets. The ability to translate visibility into demand depends on content quality, service reliability, and trust signals, emphasizing that digital presence is a necessary but not sufficient condition for competitiveness.

2. Digitalization and the Transformation of Tourism Demand

Digital platforms are not neutral intermediaries; they shape tourism demand through information design, ranking logic, and interaction mechanisms. By aggregating supply and presenting it in comparable formats, platforms reduce search costs and influence how tourists perceive options. Information quality is central to conversion: accurate descriptions, consistent pricing, credible images, and transparent policies reduce perceived risk and support decision-making. Conversely, inconsistency or hidden conditions can deter demand and damage reputation.

User-generated content plays an especially influential role in demand formation. Reviews and ratings provide experiential information and social proof that substitute for direct inspection. Tourists often weigh review volume, recentness, and platform responses when evaluating credibility. This makes service consistency and service recovery strategic priorities. Even when tourists do not read reviews in detail, aggregate ratings function as heuristics that shape perceived quality and willingness to pay.

Algorithmic ranking systems further affect demand allocation by determining visibility. Offers placed higher in search results receive disproportionate attention, creating cumulative advantage effects. Small differences in reputation or conversion may translate into large differences in demand due to feedback loops. For providers, this requires active management of content, pricing competitiveness, and customer satisfaction to maintain visibility and avoid demand displacement.

In Romania, the digital transformation of tourism demand reflects broader socio-economic and institutional dynamics. Urban destinations such as Bucharest, Cluj-Napoca, Braşov, Sibiu, and the Black Sea coastal area have benefited most from platform-based visibility, improved booking accessibility, and growing international exposure. Digital channels support short city breaks, business travel, and cultural tourism, contributing to diversification of demand beyond traditional seasonal patterns.

Nevertheless, digital adoption remains uneven across regions and firm sizes. Small operators and rural destinations often face barriers related to limited digital skills, inconsistent content standards, and weaker infrastructure. These constraints reduce their ability to capture digitally mediated demand, despite possessing high experiential potential (nature tourism, heritage sites, gastronomy, and community-based experiences). The consequence is a concentration of demand around digitally visible providers, reinforcing regional disparities.

From the consumer perspective, Romanian tourists increasingly display behaviors common in digitally mature markets: comparison shopping, reliance on reviews, and sensitivity to cancellation conditions. For international tourists, digital information plays an even stronger role because prior familiarity with

Romanian destinations is often lower. This makes online reputation management and multilingual information quality particularly important for converting interest into actual bookings.

Digitalization also influences resilience in Romania's tourism sector. In periods of uncertainty, digital channels enable rapid communication, targeted offers, and flexible rebooking options. Strategic digital capability development—skills, content, analytics, and platform integration—can therefore improve both competitiveness and stability. However, maximizing these benefits requires coordination among providers and destination management organizations to maintain quality standards and consistent destination narratives.

3. E-Tourist Behavior in Digital Environments

The expansion of e-tourism has transformed tourist behavior by reshaping information search, evaluation, and booking processes. Unlike traditional tourism consumption—often mediated by agents and standardized packages—digital environments enable tourists to engage directly with complex information sets. The e-tourist is therefore not a passive recipient of pre-designed products, but an active participant in constructing a travel experience.

A defining behavioral change is the extension of the information search phase. Tourists consult platforms, official websites, social media, maps, blogs, and peer reviews. This multi-source behavior creates iterative decision processes: tourists move between inspiration, evaluation, and validation stages rather than following a linear path. Consequently, credibility and coherence across digital touchpoints become essential. Inconsistent information or misaligned expectations can increase uncertainty and reduce conversion.

Trust is central in digital tourism transactions. Early concerns regarding payment security and privacy have been partially mitigated by improved infrastructure, standardized payment systems, and platform governance. However, trust remains multi-dimensional: it involves trust in the platform, in the provider, and in the accuracy of information. In practice, e-tourists use digital trust signals—ratings, review patterns, verified photos, and responsiveness—to reduce perceived risk and support decisions.

User-generated content functions as a substitute for direct inspection and strongly influences perceived quality. Tourists often interpret reviews heuristically, focusing on average ratings, recent feedback, and response quality. This increases the importance of service consistency and recovery. Moreover, online transparency shifts the definition of quality: beyond objective features, perceived quality is shaped by narrative alignment and the match between expectations created online and the actual experience delivered.

E-tourists frequently optimize value rather than minimize price. Digital comparison tools allow alignment of spending with desired attributes—location, comfort, flexibility, perceived authenticity, and convenience. Price sensitivity

increases because comparisons are easier, yet tourists may accept higher prices when value signals are strong and risk is reduced. Personalization can further increase willingness to pay by matching offers to needs and reducing search effort.

Digital autonomy enables tourists to assemble itineraries independently. This is particularly attractive for experienced travelers who possess destination knowledge and confidence in digital tools. Independent planning is also motivated by a preference for control, flexibility, and uniqueness. However, autonomy increases cognitive effort and may intensify stress when information overload is high or when trips are complex. Therefore, platform design and decision-support tools are critical determinants of behavioral outcomes.

Risk perception is central in tourism because outcomes depend on uncertain future experiences. In digital environments, e-tourists manage multiple risk categories. Financial risk is reduced through transparent pricing, secure payments, and clear cancellation policies. Performance risk (service quality and experience outcomes) is assessed through peer feedback, ratings, and visual evidence. Psychological risk (fear of disappointment or regret) is influenced by social validation and expectation management.

Digitalization changes the balance between risk and reward. Real-time information and peer experiences can encourage experimentation (trying new destinations or accommodation types). Yet trust can be fragile: negative reviews, inconsistent descriptions, or poor communication can rapidly deter demand. For providers, this implies that risk reduction is an ongoing process requiring reliable operations and responsive communication.

The decision journey is often non-linear. Tourists may postpone booking, monitor prices, revisit reviews, and compare alternatives repeatedly. This behavior is reinforced by platform tools such as wish lists, alerts, and dynamic recommendations. For managers, the implication is that demand conversion depends on continuous engagement and the ability to provide consistent value signals throughout the decision process.

E-tourist behavior is heterogeneous, and digitalization increases segmentation complexity. Business travelers often exhibit goal-oriented behavior: reliability, time efficiency, and policy compliance are central. They use digital tools to optimize fixed schedules, but also to compare corporate arrangements with market alternatives. This empowerment can challenge organizational travel policies and requires corporate travel management to compete on value.

Leisure travelers show broader behavioral diversity. Digital channels serve both informational and inspirational functions. Visual storytelling, influencer content, and peer narratives shape destination images and motivation. Leisure decisions often blend rational evaluation with emotional engagement, where imagined experiences and social identity play important roles.

Generational differences matter. Younger cohorts typically display higher digital confidence and prefer mobile-first experiences, instant feedback, and social validation. Older cohorts increasingly adopt digital tools but may prefer hybrid approaches for high-cost or complex trips. Spatial differences persist as well: urban consumers tend to show higher digital engagement due to infrastructure and exposure, while rural consumers may adopt digital services more selectively.

E-tourist behavior continues after booking through post-purchase evaluation and content creation. Tourists share experiences via reviews, ratings, and social media posts, which feed back into platform reputations and influence future demand. This creates a circular dynamic: service quality affects digital reputation, reputation affects visibility, and visibility affects demand.

Post-purchase behavior is linked to satisfaction and identity expression. Positive experiences can generate advocacy and strengthen destination branding, while negative experiences can quickly undermine demand. Service recovery and digital responsiveness therefore become strategic. Timely replies to feedback, clear communication, and corrective actions can mitigate negative perceptions and reinforce trust.

4. Implications for Tourism Intermediaries and Hybrid Distribution Models

Digitalization has altered tourism distribution by enabling direct interaction between suppliers and consumers. Online platforms replicate many traditional intermediary functions—information provision, booking management, ticketing, and payments—leading to disintermediation, particularly for standardized products. However, the evolution of e-tourism suggests transformation rather than elimination of intermediation.

Traditional travel agencies have been compelled to redefine their value proposition. Instead of competing on price and speed, intermediaries increasingly differentiate through expertise, personalization, and risk management. These capabilities remain relevant for complex itineraries, group travel, long-haul trips, and high-value experiences where uncertainty and coordination needs are higher.

The persistence of intermediaries reflects the limits of purely digital decision-making. Information overload and choice complexity can reduce confidence, especially for less experienced travelers or time-constrained consumers. Intermediaries add value by filtering information, aligning products with preferences, and providing accountability and support. This is particularly important when travel disruptions occur or when tourists need negotiated solutions.

The coexistence of platforms and agencies has led to hybrid distribution models. Agencies integrate digital tools—booking engines, customer relationship management systems, and online information resources—while maintaining

personalized consultation. Platforms, in turn, incorporate features associated with agencies (customer support, flexible policies, and recommendations) to reinforce trust. The resulting market structure is functional specialization rather than full substitution.

Strategic adaptation requires investment in digital capabilities and human capital. Intermediaries benefit from improving digital literacy, platform integration, and data-informed service design while strengthening trust-building and experiential packaging. Collaboration with platforms and local providers can enhance reach and integration, supporting more resilient tourism ecosystems.

5. Discussion: Integrating Demand, Behavior, and Digital Intermediation

The preceding analysis indicates that digitalization has not simply introduced new tools into tourism but has reshaped the logic of demand formation, consumer behavior, and market structure. In traditional tourism systems, information scarcity and asymmetry structured demand by limiting choice and reinforcing intermediary authority. Digitalization reverses this dynamic through information abundance, transparency, and continuous connectivity, enabling consumers to participate directly in constructing value.

Demand becomes more responsive and, in many segments, more volatile because consumers can react rapidly to prices, availability, and external events. This implies that demand should be conceptualized as adaptive and context-dependent rather than as a stable function of income and preferences alone. At the same time, e-tourist behavior reflects the behavioral manifestation of these structural changes: decision processes become iterative, multi-source, and heavily influenced by trust signals such as ratings, reviews, and platform reputation.

Importantly, greater information does not automatically produce better decisions. Information overload increases the cognitive burden of planning, and tourists often rely on heuristics such as rankings and recommendations. This amplifies platform influence because algorithmic ranking and interface design shape visibility and attention. In this sense, intermediation has not disappeared; it has become embedded in algorithms and data-driven governance.

The transformation of intermediaries highlights functional specialization and hybridization. Platforms dominate standardized, price-driven transactions, while agencies remain relevant for complex planning, risk management, and personalized design. This suggests that competition is not purely channel-based but role-based. From a market structure perspective, platforms benefit from network effects and scale economies that can increase concentration and create asymmetrical power relationships. Yet digitalization also opens entry opportunities for smaller providers and destinations if they achieve visibility and credible reputation signals.

The Romanian tourism market illustrates both opportunity and constraint. Digital channels support diversification and international exposure, particularly for urban destinations. However, uneven adoption and capability gaps may reinforce regional disparities unless addressed through coordinated investment in digital skills, content standards, and destination management. This indicates that digital transformation alone is insufficient for balanced tourism development; it requires institutional support and strategic coordination.

Managerially, the integrated findings emphasize that technology must be aligned with behavioral drivers. Data analytics, personalization, and user experience design are strategic instruments for shaping demand, while trust-building and service reliability remain essential to protect reputation and stabilize demand. Emerging technologies such as artificial intelligence are likely to intensify personalization and reshape intermediation further, raising questions regarding transparency, consumer welfare, and sustainability.

Digitalization is a defining driver of change in tourism demand and consumer behavior. By increasing transparency and reducing information asymmetry, platforms enhance consumer autonomy and reshape competitive dynamics. E-tourist behavior is characterized by multi-source information use, trust-based evaluation, and greater flexibility in planning and booking, which collectively increase market dynamism. Intermediation evolves rather than disappears, producing hybrid distribution structures based on functional specialization. Sustainable competitiveness therefore depends on integrating digital capabilities with consumer-centered service design, trust-building practices, and adaptive demand management.

6. Methodological Approach and Research Design

This study adopts a qualitative and conceptual research design grounded in an extensive review of the academic literature on tourism demand, e-tourism, and digital transformation. Conceptual research is appropriate given the dynamic and evolving nature of digital tourism ecosystems, where empirical regularities are still emerging and theoretical integration remains a key scholarly need. Rather than testing specific hypotheses, the paper aims to synthesize existing knowledge and develop a coherent analytical framework for understanding e-tourist behavior.

The research process involved systematic identification and analysis of peer-reviewed journal articles, academic books, and policy-oriented studies focusing on tourism digitalization, consumer behavior, and intermediation. Priority was given to high-impact journals in tourism management, hospitality, and electronic markets. Sources were selected based on relevance, theoretical contribution, and methodological rigor.

The conceptual synthesis follows a thematic structure. First, literature on tourism demand theory was examined to identify how information availability

and risk perception influence consumption decisions. Second, studies on e-tourism and digital platforms were reviewed to assess changes in information flows, distribution systems, and market transparency. Third, behavioral research on online decision-making was integrated to explain how tourists process information, form trust, and evaluate value in digital environments.

The Romanian tourism context was incorporated as an illustrative case, drawing on sector reports and comparative studies. While the analysis does not rely on primary data collection, it provides a structured foundation for future empirical research by clarifying constructs, relationships, and expected behavioral patterns. This approach ensures internal coherence and supports theory-building in the field of e-tourism.

7. A Conceptual Framework for Digital Tourism Demand and E-Tourist Behavior

Based on the literature synthesis, a conceptual framework is proposed to explain how digitalization reshapes tourism demand and e-tourist behavior. The framework links technological drivers, informational mechanisms, behavioral processes, and market outcomes into an integrated system.

At the input level, technological drivers include digital platforms, mobile applications, data analytics, and emerging technologies such as artificial intelligence. These drivers influence informational mechanisms, including information availability, transparency, personalization, and user-generated content.

Informational mechanisms affect behavioral processes by shaping risk perception, trust formation, and value evaluation. E-tourists respond through adaptive decision-making, iterative search behavior, and increased autonomy in planning and booking. These behaviors, in turn, generate market-level outcomes such as demand volatility, price sensitivity, and the reconfiguration of intermediation structures.

Table 1. Conceptual Links between Digitalization, Demand, and E-Tourist Behavior

Digital Drivers	Informational Effects	Behavioral Responses	Market Outcomes
Online platforms	Higher transparency	Comparison shopping	Increased competition
User-generated content	Social proof	Trust-based decisions	Reputation-driven demand
Personalization algorithms	Relevance filtering	Higher willingness to pay	Demand concentration
Mobile technologies	Real-time access	Last-minute booking	Demand volatility

For Romania, the digital transformation of tourism demand presents both strategic opportunities and structural challenges. Digital platforms enable Romanian destinations to reach international markets more efficiently, reducing dependence on traditional intermediaries. However, uneven digital readiness risks reinforcing regional and firm-level disparities.

From a policy perspective, investment in digital infrastructure and skills development is essential. Training programs for small and medium-sized tourism enterprises can improve content quality, platform integration, and online reputation management. Destination management organizations play a key role in coordinating digital branding and ensuring consistency across providers.

Industry stakeholders should adopt collaborative digital strategies that combine individual firm capabilities with destination-level narratives. Data sharing, joint promotion, and standardized quality signals can enhance visibility and trust. Over time, such coordination can support more balanced demand distribution and sustainable growth.

Finally, regulation and governance must address platform power, data protection, and consumer rights. Ensuring transparent ranking mechanisms and fair competition conditions will help align digital tourism development with broader economic and social objectives.

8. Digital Platforms, Market Power, and Structural Transformation in Tourism

The expansion of digital platforms has introduced profound structural changes in tourism markets by reshaping competition, coordination, and value capture. Platform-based ecosystems operate as multi-sided markets that connect tourism suppliers with consumers while simultaneously mediating information flows, transactions, and reputational signals. This intermediary position grants platforms significant influence over market visibility and demand allocation.

A central feature of platform-based tourism markets is the presence of network effects. As more suppliers join a platform, its attractiveness to consumers increases due to greater choice and comparability. Conversely, growing consumer participation incentivizes additional suppliers to enter the platform. These feedback loops can lead to high levels of market concentration, particularly when a small number of platforms dominate search and booking activities.

Market power in digital tourism platforms is further reinforced by data accumulation. Platforms collect extensive data on search behavior, booking patterns, pricing sensitivity, and customer preferences. This informational advantage enables advanced personalization, dynamic pricing, and targeted promotion. While such capabilities can improve matching efficiency, they may also create dependencies for suppliers that lack access to comparable data resources.

Small and medium-sized tourism enterprises are particularly affected by platform dependency. For many operators, platforms provide essential access to international demand and reduce marketing costs. However, commission fees, ranking algorithms, and opaque visibility rules can constrain margins and strategic autonomy. As a result, suppliers face a trade-off between market reach and control over customer relationships.

From a demand perspective, platform dominance influences choice architecture. Ranking positions, default sorting options, and sponsored listings shape consumer attention and decision-making. Tourists may perceive high-ranking offers as objectively superior, even when differences are marginal. This underscores that digital intermediation does not eliminate influence but redistributes it through algorithmic governance.

In the Romanian tourism market, these dynamics are increasingly visible. Large international platforms play a central role in shaping inbound tourism demand, particularly for urban and coastal destinations. While this enhances global visibility, it also raises concerns regarding long-term value retention, supplier dependence, and the bargaining position of local operators. Addressing these challenges requires strategic coordination at both firm and destination levels.

9. Future Trends in E-Tourism Demand and Digital Tourist Behavior

The future evolution of e-tourism demand will be shaped by continued technological innovation, changing consumer expectations, and broader socio-economic trends. Artificial intelligence, automation, and advanced analytics are expected to further personalize tourism experiences, influencing how demand is stimulated, distributed, and managed.

Artificial intelligence applications will increasingly support predictive demand modeling, dynamic pricing, and automated customer interaction. By anticipating preferences and contextual needs, AI systems may reduce search effort and enhance perceived relevance. At the same time, reliance on algorithmic decision-making raises questions about transparency, fairness, and consumer autonomy.

Another significant trend concerns sustainability-oriented demand. Digital platforms can influence tourist choices through information disclosure, eco-labels, and behavioral nudges. As environmental awareness grows, tourists may increasingly consider sustainability attributes alongside price and convenience. Digitalization thus creates opportunities to align tourism demand with broader sustainability objectives.

Post-pandemic travel behavior suggests lasting changes in demand patterns. Flexibility, health security, and risk management have become more salient decision criteria. Digital tools that support real-time updates, flexible rebooking,

and transparent communication are likely to remain essential even as travel normalizes.

From a demographic perspective, generational shifts will further intensify digital engagement. Younger cohorts, accustomed to mobile-first environments and social media integration, will continue to prioritize immediacy and experiential value. Older segments are expected to increase digital adoption gradually, particularly when supported by intuitive design and hybrid service options.

Overall, future e-tourism demand will be characterized by greater personalization, higher expectations, and increased sensitivity to trust and value signals. Tourism organizations that proactively adapt to these trends will be better positioned to capture demand and maintain resilience in an increasingly competitive digital landscape.

10. Extended Managerial and Strategic Conclusions

From a managerial perspective, the findings of this study underline that digitalization should be approached as a strategic transformation rather than a purely technological upgrade. Tourism organizations operate in an environment where information transparency, rapid comparison, and continuous consumer feedback have become structural characteristics of the market. Managers must therefore design strategies that integrate digital tools with a deep understanding of e-tourist behavior and demand dynamics.

One of the most important managerial implications concerns demand management. In digital tourism markets, demand is increasingly fluid, responsive, and context-dependent. Traditional forecasting methods based on historical patterns are often insufficient in isolation. Managers should complement them with real-time analytics, scenario planning, and flexible pricing strategies that allow rapid adjustment to changing conditions. The ability to monitor consumer behavior across digital touchpoints is essential for anticipating demand shifts and optimizing capacity utilization.

Another critical implication relates to value creation and differentiation. As digital platforms standardize information and intensify price competition, sustainable competitive advantage is less likely to arise from cost leadership alone. Instead, tourism firms should focus on experiential differentiation, service reliability, and emotional value. Digital channels can support this objective by enabling storytelling, personalization, and interactive engagement, but these tools must be aligned with the actual service delivered to avoid expectation gaps and reputational damage.

Trust emerges as a central strategic asset in e-tourism. Online reputation, review management, and transparent communication significantly influence demand allocation. Managers should treat trust-building as an ongoing process that involves not only secure transactions and data protection, but also consistent

service quality and responsive communication. Proactive engagement with user-generated content can transform feedback into a source of learning and continuous improvement.

For travel agencies and intermediaries, digitalization necessitates a clear repositioning. Rather than competing directly with platforms on standardized transactions, intermediaries can leverage their strengths in consultancy, risk management, and customized travel design. Hybrid business models that combine digital efficiency with human expertise offer a viable path for maintaining relevance and capturing value in complex or high-involvement travel segments.

At the destination level, coordination among stakeholders becomes increasingly important. Destination management organizations should facilitate digital coherence by promoting consistent branding, shared quality standards, and integrated information systems. Such coordination can enhance destination visibility, reduce fragmentation, and support more balanced demand distribution, particularly in markets characterized by uneven digital readiness.

In the Romanian context, managerial strategies must also address structural challenges related to digital skills, infrastructure, and scale. Targeted training programs, collaborative platforms, and partnerships between public and private actors can accelerate digital maturity and improve the capacity of small and medium-sized enterprises to compete in platform-dominated markets. By strengthening local capabilities, digitalization can contribute not only to competitiveness, but also to regional development and resilience.

Finally, the long-term success of tourism organizations will depend on their ability to integrate technology with human-centered management. Digital tools should be used to augment, rather than replace, professional judgment and service orientation. Managers who recognize the evolving expectations of the e-tourist and strategically align digital innovation with ethical considerations, transparency, and experiential value creation will be best positioned to navigate the ongoing transformation of the tourism industry.

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BAD LUCK, BAD HABITS, BAD CHOICES AND THE LUCK YOU MAKE – AMOR TOWLES' *THE LINCOLN HIGHWAY*

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Abstract

This paper analyzes the role played by either good or bad luck in one's life in Amor Towles' novel The Lincoln Highway. We present how the notion of luck or chance is seen both as a given, something implacable, and as of one's own making, the result of working with the system – if destiny were a system – and thus something malleable that can be tuned to one's advantage. To this aim, we look at the main characters, organizing the research into separate sections named after them, taking them in groups – the Watsons as a family, and in relevant pairs – Duchess and Woolly, following those who are closest or whose destinies intertwine more. The perspective is cultural and identity studies.

Keywords: journey, identity, luck, destiny, self-fulfillment

JEL Classification: Z10

1. Introduction

The novel begins with the early release of Emmett Watson from the Salina detention center, on account of his father's death to cancer, and him being transported by warden Williams in car to his home in Morgen, Nebraska. There, he is awaited by a bank officer who informs him that his house and possessions are foreclosed because of his father's debts. He makes the decision to leave with his eight-year-old brother, Billy, in his Studebaker car, following the Lincoln highway, towards San Francisco, California – the assumed whereabouts of their mother, given the postcards she sent to her children after her abandonment of the family. The two are accompanied on this trip by Duchess and Woolly, aged eighteen, who have escaped from Salina riding hidden in the trunk of Williams' car.

The journey occasions the story and accompanies and engenders various developments of the plot, as adventures “seem to spring from the landscape itself, the propulsive rhythm of the road” (Preston, 2021). Three boys out of the four are at the coming-of-age time, about to take responsibility for the lives that they can now begin in a full-fledged manner as a series of making choices, which justifies the name of the book and makes the symbol of the Lincoln highway a good metaphor, as Towles points out himself (Towles, 2023). The representation of the highway journey as a material parallel for the road to maturity is justified by the importance of the concrete achievement of the 1912 transcontinental artery

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for the history of the United States: “The Lincoln Highway ushered in an era of land transportation in which American civilization has been changed more profoundly, within only a few years, than in the century preceding.” (*The Lincoln Highway: The Story of a Crusade that Made Transportation History*, 1935: VII)

Duchess steals the car and follows, alongside Woolly, his own route and unfinished business, planning to rejoin the Watson brothers again on the road. Emmett and Billy need to embark on a freight train (in pursuit of their friends), on which they almost fall prey to the wicked Father John, but are saved by and make friends with Ulysses, a man of color who has been deserted by his wife because he had decided to go on the warfront.

This paper sets out to analyze the characters from the point of view of the concept of luck – the good and the bad luck that they benefit from or, respectively, strikes them unexpectedly in their lives, changing the course of their existences. Bad luck is indicated to us from the beginning as a relevant factor, at play in people’s lives, voiced and mentioned by a few of the fictional people. Luck becomes a motif throughout the novel, as it makes its presence felt in their existences, shaping these and providing the possibility to be used and abused depending on one’s personal inclinations and inner strength. Based on how willful and strong a person is, luck – with its forms and synonyms of chance or destiny (to be forged) – can overwhelm and override one’s control, be negotiated or collaborated with, become a weapon in one’s hands, or a tool to organize one’s life. We shall see in what follows how this happens and applies in the characters’ cases.

2. The Watsons

Emmett Watson served time at the Salina detention center for adolescents, and, the day of his release, his warden, Mr. Williams, brings him back to his Nebraska, Morgen home in his car. Williams says Emmett has only had bad luck to have been a factor in another man’s death. This idea of luck playing a significant role in one’s life is therefore highlighted from the very beginning, and the recurrence of the idea in various contexts draws our attention to it. Later in the novel, as Emmett revisits the place where everything happened and describes the incident, the exact words used by the warden are reproduced – the man referred then to “the ugly side of chance” to emphasize that the fault was not really Emmett’s (Towles, 2021: Ten). From the way in which the things that unfolded are presented to us, we realize that Emmett was provoked by Jimmy Snyder, a well-known bully and troublemaker, who insulted him and then his father, determining Emmett to punch him. Jimmy tripped over and fell on his back, cracking his skull on a rock. Jimmy Snyder is described by a neighbor as a punk, having gotten into problems and saved as a result of his family’s influence countless times, being an “engineer” of trouble (*ibidem*), but even though things

are like that, the fact remains that Emmett is guilty of manslaughter and Jimmy is a victim in the incident.

Coming back to the moment Emmett returns to his house, a bank officer and his neighbor, Mr. Ransom, are waiting for him there and let him know that Charlie Watson, the boy's father, was deeply in debt at the time of his death, and the bank needs to foreclose on his home and the family belongings. The bank executor, Obermeyer, calls Watson Senior's predicament a "bad luck that was too great to surmount" (*ibidem*). However, in the case of this character, the bad luck that is associated with him is different than in Emmett's case.

Charlie Watson left all his family great fortune and privilege behind and moved away from Boston to become a farmer, but was not so much unlucky as he was reckless in his choices: "When it came to bad luck, Emmett's father always had plenty to spare. But Emmett knew that wasn't the extent of the matter. For when it came to bad judgment, Charlie Watson had plenty of that to spare too." (*ibidem*) For instance, he changed the type of harvest every two years, something one is not supposed to do that often, and was also uninspired, becoming out of synch with the weather. Also, when he was done with one type of crop, he did not sell the harvester needed for it, to use the money for another investment, he just let it decay in the barn. Even kids did not climb on it while playing, as it represented a "kind of ill omen, [...] a legacy of failure" (*ibidem*). What is noteworthy in this quote is a belief in superstitions related to objects, such as the agriculture tool mentioned in our context. This means that the narrative perspective has integrated this common lore and, hence, the references regarding good or bad luck which permeate the story.

To return to the character of Emmett's father, in his case, then, lack of chance goes accompanied by carelessness, lack of planning and weakness of spirit, as the man had initiative but not the strength to pursue it – in other words, he knew the theory, but was defeated by practice, missing the ability to see things through. Given the fact that he liked books and was inspired by Ralph Waldo Emerson (as it will soon be visible), we could say that he was more of a dreamer and not so much a practical man, the vein of his noble upbringing preventing him, perhaps, from having in him what it took to handle a rougher existence. His affinity for nature was developed on a purely lyrical foundation, rather than on an understanding of the materiality and immediacy that the natural environment required. Hence, Charlie Watson miscalculated and did not know himself well enough to comprehend what was suitable for him, nor was he able to adapt once he made the choice of separating from a life of luxury and depend with his livelihood on something extremely material.

Despite his debts, Charlie manages to leave his son some money. Emmett checks the trunk of his car – his most valued and only possession – knowing there might be a chance to have something there from his father, and finds an envelope from the late senior, which contains a letter and some money. Next to the

message, there is also a page from Ralph Waldo Emerson, and in the note Charlie refers to the passage from Emerson, which advocates for the desire to work the land and stipulates that an individual is not entitled to even one “kernel of nourishing corn” unless one works for it (*ibidem*). The resort to this quote is understood by Emmett as a defense of and excuse for Charlie’s decision in favor of practicing agriculture. It is also a statement of work ethics. Watson Senior left behind a Puritan tradition, of providing for one’s children, trying to ensure a good and prosperous life for them by striving to leave them more, materially, than one inherits in his turn from the family. This was a way of proving one’s own worth as a man, inside a logic of self-effacement that was considered the honorable thing to do. Charlie turned his back on it and on the luxury available to him, out of a desire to be a self-made man, thus doing something that could be deemed as both ethical and unethical at the same time, depending on the perspective. He betrayed his family traditions and expectations in order to live up to his own beliefs. He embraced the tenet described by the philosopher, of a need to be close to nature and earn everything with the sweat of one’s brow. Emerson’s words prompt one to have no “envy” for the fate of a fellow being, and seek no “imitation” of anyone else’s life, but believe that any given person is the only one who knows what one is capable of, and that not until one tries it (*ibidem*). This means that one’s destiny is one’s own, and unique; there is no recipe for success, no role model to be followed will ensure one’s fulfilment. Here, we reach the third implication of the content of the letter, which is, metaphorically, the encouragement to pursue one’s dreams. Agriculture also symbolizes the multiplication of the Biblical Talents. Charlie Watson took a chance, a first step, a leap of faith, but then failed to follow through with other steps. His ultimate failure as an indebted individual was a combination of subsequent bad or uninspired choices, laziness or taking things for granted, and ill luck. To some extent, the outcome was his own doing, and to some it was not his fault – just as the narrator pointed out. Perhaps part of this bad luck was precisely his intellectual descent and love of poetry, which made him rather ineffectual as a practical-minded businessman. He was too much of a poet for the harshness of untamed nature. However, his public failure is counterbalanced by the success of his private legacy to Emmett, which the boy finds in his car, a legacy that makes him a good father even in acting against the law, against ethic and against some of his own principles (for instance, by tearing a page out of a book, something he would have never done, as he worshiped books). In the note, Charlie points out the paradox, calling his gestures sacrilegous, but expressing, at the same time, his belief that they represent the right thing to do. As far as the money is concerned, he explains that he has worked for every penny while the bank increased his interest, so, in a way, it is not money he has not in fact earned.

But where his father was wanting, Emmett, on the other hand, had precisely what was needed. The boy was wise with a kind of practical-mindedness and

intuition working together, which manifested in his teenage years. As early as his fifteenth birthday, he got hired by Mr. Schulte, a local builder and realtor, and learned carpentry. In the way in which he witnessed his father turned into a victim by agriculture at the mercy of weather changes, he saw chance. He thought there would always be a need for constructors, as houses decay at the whims of weather conditions, its caprices representing for him a form of help instead of a sabotage for human effort, as in farming. He speculated the context, transforming a disadvantage into leverage. For him, the bad omens that destroyed his father's livelihood became good signs, predicting prosperity. Emmett's father acknowledged the choice for carpentry as a wise one, and did not mind his son's leaving for "another man's trade" – and "maybe that was a sign of a bad judgment too", the narrator's comment goes (*ibidem*). It may have been bad for Charlie, as there was no son to continue his trade and to prevent him from failing, but it might have been the best opportunity for Emmett, as he walked away from a life of failure. Hence, it must have been a blessing in disguise. Since he believed in pursuing one's dreams, Charlie's choice to let his son decide what he wanted to do may not have been a lapse in judgment, after all.

Billy, Emmett's younger brother, is eight at the time of the elder sibling's return from detention. He is instrumental in the decision of the two of them taking the road, accompanied by Duchess and Woolly. Hence, despite being a small child, Billy determines where the characters are heading, and this due to a love of logic that may seem a bit strange and definitely prodigious at his young age. When Emmett explains that they need to leave, as the house is no longer theirs, Billy comes up with a plan that he has figured all out by himself. Taking into account the postcards that they have received from their mother after her departure, putting them in chronological order, Billy has recreated the woman's itinerary, and realized she has been travelling along the Lincoln highway, which starts from Times Square in New York, crosses the United States from the east to the west, ending up in Lincoln Park in San Francisco, California. That is where Billy wants them to go (even though Emmett's choice of a state was a different one), and has a very good argument to support it. In that park, every year on the 4th of July there are huge fireworks, and the boy is convinced that, since their mother liked fireworks and always watched the ones organized on the national day, she would be there to admire the show on that particular day. Billy's faith is endearing. He even has all he needs already packed in a rucksack that he had looked for and made sure to get beforehand, and the night before their departure he sleeps in his outerwear to make sure they catch an early start. All these details point to a child who has had to learn to always be prepared for the unexpected, to plan every aspect carefully and to think hard about everything all the time. Besides the quality and advantage of brilliance, this mindset also points to trauma and hardships having hit hard at an early age. Billy has already experienced the shock of being left by his mother and the ongoing insecurity present and

characterizing the life of his father, which have left an imprint on him and the desire to never be caught off guard. Emmett also displays this penchant for overthinking and planning things. We have seen it in his choice of craft, we witness it in the way in which he comes up with a plan of his own for making a living in their place of destination, and then, upon Billy's express wish as to which this country should be, Emmett checks whether his plans are compatible with this new location. To be precise, Emmett wants to buy decrepit houses and restore them, and the country where they will settle needs to have a significant increase in population, as this would give it an ascending trend in economy. Emmett's intended one was Texas. Hearing his brother's request, Emmett checks this data at the local library before acquiescing to go to California. Both Watson boys have learnt that the luck one makes for oneself needs careful planning and consideration, as well as the use of logic and mathematical calculations; one cannot rely on something as random as pure chance.

3. Duchess and Woolly

Duchess (Daniel Hewett) and Woolly are the two older boys that hide in the trunk of the warden's car and thus escape from detention the day the man drives Emmett back to his house. Duchess gives the impression that he is always scheming and plotting, always after something, and he does not flinch in the face of danger or shy away from tricking the ones around him, or from a lie or two. He is willing to force his luck or make it in dishonest, shady or manipulative ways, as if luck was something that he were prepared to rough up, pick a fight with or give a beating to. Ambiguity is there whenever an action performed by him is presented to us, as Duchess plans his deeds according to his own logic that seems intricate and is a derivative of the one he has learnt from the nuns at the monastery where he grew up. Sister Agnes, the one who ran the orphanage of St. Nicholas, noticed that there was goodness in him, but in an incipient stage, before having had the chance to become full-fledged. She inspired him the guidelines that he follows in life, except that his interpretation is an *ad literam* one, supported by the overarching principle of keeping scores and balancing accounts: "the only way to get a good night's sleep is to balance the accounts" (*ibidem*: Nine). Duchess is calculating things, so as to neither be in debt nor owed anything. He pushes this logic very far in everything that he enterprises. To give a relevant example, he takes Woolly and Emmett's car and leaves in search of his father (planning to come back to pick up the Watsons), but making a few stops in the same spirit of settling the accounts on the way of his own, personal journey. One is at Ackerly's house (a mean warden who liked to beat the boys) and, finding him asleep in his chair, hits him with a frying pan, but just once, as, he thinks, doing it twice would surpass what the man owed him, and then Duchess would be in his debt – and Daniel's objective is to be even. He then finds Townhouse, a friend of his at Salina, a person of color who was once punished

by taking an eight-blow beating because of him. As he reaches Townhouse's home, he asks the young man to apply him three blows – the other five up to the full eight being subtracted on account of Duchess having stolen some Oreo biscuits for him while in detention: "It was a credit to my account all right, but as credits go, I knew it wasn't enough to offset the eight strokes of the switch that Townhouse had received on his back." (*ibidem*: Five) We notice how Duchess is trying to be very precise in his estimations regarding debts owed and incurred. A juggler of good and bad luck, we can say indeed that Duchess negotiates with destiny, penetrating the system that destiny may represent and becoming a factor in effecting it, so the contention that "fate, in the form of a sympathetic but volatile character named Duchess, forces [...] [the characters] to travel in the opposite direction" is an appropriate depiction of events (Gates, 2022). Even Towles himself points out that Emmett and Duchess' encounter is "through chance", so luck played a part in shaping their complicated and ultimately intricately meaningful interaction (Towles, 2021, August 4).

Talking to Billy, Duchess explains that his father was a thespian and his job made them move from city to city, which made it difficult for Duchess to stay in school. This meant that the boy's academy was the thoroughfare and the "fickle finger of fate" (Towles, 2021: Five). In other words, he learnt how to be at fate's mercy, as well as how to become sly, paying attention around him, watching his back all the time, as well as watching out for opportunities and taking advantage of these. His father's career of an actor taught him to act quite well in real life, to pretend and lie skillfully. By observing the people he engages with and giving them what they want, he manages to extract information from them, gain their trust and get them to help him. This is how he proceeds with Billy, from whom he finds out what the family plans are, or with Sally, whose jam he steals and gives to the nunnery, also knowing that he can leave Emmett without a car, because Sally will come to the rescue in her van. However, his intentions are not always bad, because he also has a sense of justice, even though twisted at times. For instance, he punishes an instigator cowboy in the scene where Snyder beats up Emmett, by following him and punching him, explaining that he had no right to do what he had done. Hence, we could say that Duchess is streetwise, that his rationale for acting relies on a negotiator's mentality and that the lines between right and wrong are for him adjustable, as he disposes of a wide range of greys in-between a potentially black-and-white reality. A trickster and a symbolic juggler, he performs his tricks with a kind of nonchalance, as if they were the most natural actions in the world.

Duchess is the one that points out again, indirectly, the notion of superstition being alive in people's mindsets throughout history, irrespective of the age. He does it by bringing into discussion the play *Macbeth*, explaining to Billy that it was always called the Scottish play instead, because it was associated with bad luck and eerie unfortunate events happening around its performance at various

times in history. This occurs as Duchess is trying to draw Billy out to understand what the brothers are up to. In order to make himself pleasant and gain the little boy's trust, he starts reciting from the play.

Out of all people, Duchess manages to determine Woolly to follow him and break out together, even though they had little time left from their sentence. To Emmett, Duchess lies as to the reasons why he has persuaded Woolly to fall suit, inventing a story about how Woolly took a knife and Duchess was afraid he might use it, given his mental issues. Woolly had a rich family, but he perceived having everything as a kind of pressure that built up, straining his nerves. As Duchess puts it, "there's something about all that good fortune that can become too much" (*ibidem*). Too much good luck may break things. To a delicate soul, to a sensitive nature, it can become stifling. This picture is Duchess' depiction of Woolly's mental instability in the face of his family's abundance and privilege, which made him anxious, giving him a sense of "looming trepidation", as if the whole amount of property could crumble upon him, burying him alive (*ibidem*). This feeling shattered his nerves and upset his mental balance. Hence, he needed something to shelter him from this environment and keep "the world at bay", at a distance (*ibidem*). His subsequent addiction to substances and strange habit of watching commercials on television or listening to them on the radio as a soothing activity play the same part, of shielding him from a reality that may become too harsh at times. Duchess, nevertheless, acknowledges the fact that Woolly has a big heart. Hence, for Duchess, the plan of relieving Woolly of a part of this burden represented by his fortune might seem a logical thing to do.

Woolly was left one hundred and fifty thousand dollars in a trust fund which he was supposed to enter in possession of when he came of age. However, his brother-in-law declared him temperamentally unfit and thus he could not access the money. However, coincidentally or not, his father hid an equal sum in the walls of a family property house in New York. Duchess calls the coincidence regarding the amount of money "fateful" (*ibidem*). To Emmett, Duchess explains that he has proposed to Woolly to accompany him (together with the protagonist) to the said house to retrieve the sum, which they will then split into three equal parts. Duchess also says that it was in fact Woolly's idea – which Woolly confirms – but, just like Emmett, we have our doubts regarding this authorship, while we cannot help but notice, nevertheless, how Duchess managed to convince his friend that he was the initiator of the plan. That being mentioned, there are other facts that can be deemed as fateful in the story, or happy coincidences. These tend to provide a thread that connects the characters despite their very different personalities. It gives us the impression that what is going on and uniting a group that seems so random are not in fact accidental, but somehow fated and meaningful beyond appearances. One instance in which this invisible thread manifests is in how Woolly's natural talent for drawing and an architect's eye for proportion helps him put on paper Billy's ideal home with unusual, rare

precision, just by listening to the boy's description of it. Also, the house where Woolly's money is happens to be in New York, the city where the Lincoln highway begins and where Billy wants them to start their journey.

One other aspect that can be detached from the elements introduced above is that wealth may have a negative impact on one's personality and feel like a burden. It happens to Woolly, the way it also happened to Charlie Watson. There is, in some of the characters' cases, a tendency to run away from it, leaving it behind, as if it were something to grow out of, to overcome on the way to personal growth and evolution.

4. Conclusions

One aspect that is stressed in the story from the very beginning is the genuineness of the notion of bad luck, which is highlighted linguistically to draw our attention to its validity and manner of being at work in the characters' lives. It affects people from all generations. From the older one, Charlie Watson seemed to be up against a significant amount of bad luck, besides his share of flaws that he could nevertheless be guilty of himself, for the situation he ended up in. Ulysses wanted to be an honorable man and went to the front, losing his whole family, as his wife refused to understand him. The boys are all in detention over questionable situations in which they were indeed a factor, but ill luck played a part as well, and they also suffered, as a consequence, a kind of injustice: Emmett is guilty of manslaughter because he defended himself in a fight that the victim provoked; Duchess was framed for theft by his own father; Townhouse borrowed a car to take his girlfriend in for a ride, the car being stolen, and refused to tell on the ones who rented it to him; Woolly caused a fire burning a dictionary of synonyms because it drove him crazy to have so many possibilities for a word, but the fire accidentally extended and he was accused of arson. Therefore, we may conclude that bad luck is indeed a salient element in Towles' fictional world, and, when at play, it can destroy someone's life if one has too much of it.

There is also a type of *hybris* at work in some of the characters' cases. For Charlie Watson, it was his refusal to ask anyone's opinion – something pointed out by Emmett, who thinks about it and notices how it can impact one's existence negatively on the occasion of taking the wrong train route because he did not want to ask for directions, which makes him remember his father's bad habit. Duchess' fatal flaw is his penchant of conning and manipulating people – something he has in his blood from his father and the world he has been raised in, of people lying and playing tricks for a living. Woolly's is being too sensitive and trying too hard to shut out the world around him, as a result of not being able to handle the pressure put on him by his family. Emmett's is his anger – which Billy asked him to attend to by counting to ten every time he feels it surging. (Could it be that the number of chapters is ten as a kind of prefiguration of something being brought to maturity, or of a cycle to be completed?) One's

qualities may also sometimes work against him or her. Billy is too credulous and trusting, sociable to the point of becoming gullible and thus getting him into trouble. Emmett is genuinely a good person, acquiescing to take Duchess and Woolly along, and forgiving the ones who have harmed him and Daniel despite his trespassings. Sally is the eternal helper and savior.

Being able to make an important decision, to take the first step in one's life journey, and pursuing a goal using one's intelligence, intuition and keeping one's attention alert is synonymous with making your own luck and being a self-made person, which always works out for the best. The courage of having and following through an initiative with perseverance is key to success and building oneself a fulfilling life. Courage attracts good luck, proving the saying that fortune favors the bold right – an illustration of which being the fateful encounter with Ulysses on the train. Also, trying to be fair and do the right thing helps one be successful. Even Duchess, in his twisted logic, is attempting to strike a balance in the universe, which helps him achieve what he wants, up to a point. The journey in car along the greatest highway in the US is a symbol of a quest for identity, self-fulfillment and personal evolution, as it has been pointed out by others, and as a well-known motif in literature throughout centuries.

The ending is telltale of our topic of luck, chance and bad or good choices. Once the Watson brothers and Duchess retrieve the money Woolly has led them to, Emmet, angered by Duchess' schemes and having knocked him unconscious, leaves him in a broken boat, afloat on a lake, his share of the money next to him, knowing that he cannot swim and having patched the hole in the boat with stones. As Duchess comes to, the wind stirs and he has to decide between holding on to the money or emptying the water building up in the boat; he dies trying to stop the fifty-dollar banknotes from being blown away. Ironically, he needs to strike the most important balance yet, to find the right equilibrium between the gives and the takes – what he has tried to do all his life – and fails this time, out of all the times when he could have failed. He makes a final choice, and it is not the right one. Or is it? Is it the price he pays for all his mistakes? He seems to go peacefully, the last visions being of his friends' futures in fulfilling lives, so we cannot help but wonder – is it that, at some level, he calculated the gives and takes one last time and the result was that he needed to go?

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INNOVATIVE APPROACH TO IDENTIFYING INCOME MANIPULATION FROM FRAUDULENT FINANCIAL SITUATIONS USING THE BENEISH M-SCORE MODEL

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Abstract

The use of statistical methods in the process of detecting financial fraud, specifically fraudulent financial reporting that includes creative accounting techniques, has occupied and continues to occupy an important place in scientific studies over the last few decades, but there is still plenty of room for empirical evidence in this area of research. The study's goal is to use the Beneish (1999) statistical model, both in its original formula (abbreviated MSCORE) and in a modified formula adapted by the author (abbreviated MSCOREM), to empirically validate the two models' ability to detect potential fraudulent financial reporting caused by the use of creative accounting techniques (undisclosed) at the level of a pilot sample of Romanian enterprises.

Keywords: BENEISH model, MSCORE, incomes, financial fraud, creative accounting.

JEL Classification: M41.

1. Introduction

Financial fraud has generated and continues to sustain interest in specialized studies concerning the definition and origins of the concept, the determining factors, the schemes under which it manifests itself, the implications it can determine, the measures of prevention, disclosure, combating, and investigation, as well as the legislative guidelines undertaken or that can be undertaken to diminish this phenomenon. This is because *financial fraud* is a problem that is constantly at the forefront of national and international affairs, with resonance in economic, political, social, religious, and other contexts. There has always been and undoubtedly will continue to be financial fraud, and it is impossible to predict its exact magnitude.

The concerns regarding the protection of the European Union's (EU) financial interests against fraud are currently reflected at the legislative level through the implementation of Directive (EU) 2017/137 on the fight against fraud affecting the Union's financial interests by means of criminal law (PIF Directive), which was adopted as part of the Commission's Anti-Fraud Strategy to strengthen the protection of the EU budget. The aim of the directive was to increase the level of protection of the EU budget by establishing common definitions for crimes against the EU's financial interests. EU law defines fraud as an intentional

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violation that harms or could harm the EU budget. All EU Member States have transposed the PIF Directive, although there are a number of differences in the extent to which it has been implemented and the types of measures adopted in practice.

The documentary research focused on verifying the existence of specific patterns of financial fraud involving European funds, using reports issued by control departments within the European Commission to extract relevant information on the extent of the problem affecting EU funds. An important source of information on fraud affecting EU funding programs, which also provides figures on the levels of fraud reported by Member States, are the Commission's annual reports on "the protection of the Union's financial interests" ("PIF Report"), which are submitted to the Council and the European Parliament. Based on an analysis of the PIF reports, cases of fraud related to EU expenditure accounted for an estimated 0.27% of total payments for the period 2013-2022. This figure, known as the "fraud detection rate" (FDR), measures the financial impact of detected fraud as a proportion of total revenue or expenditure and indicates differences in fraud across all areas of EU expenditure. However, we note that, in the opinion of the European Court of Auditors, "the Commission does not have comprehensive information on the extent, nature, and causes of fraud related to EU expenditure."

In January 2024, the European Commission's Centre for Strategy and Evaluation Services (CSES) published a report on identifying patterns of fraud involving EU funds under shared management – similarities and differences between Member States. The report was based on a study carried out in the second half of 2023 and involved desk research to examine existing material, a program of interviews with the European Commission, the European Court of Auditors, and other EU contacts, as well as national management authorities. In terms of the periods covered, the research focused on the 2014-2022 programming period. The value of fraud detected fluctuates, reaching a peak in 2017 (€527.4 million) and a low in 2020 (€293.4 million). From the integrated analysis of the studies and reports submitted to the Commission, the Council, and the European Parliament for the period 2014-2022, the following types and mechanisms of fraud in public procurement procedures related to EU funds were identified (Table 1.):

Table 1. Types and mechanisms of fraud in public procurement procedures related to EU funds

Types	Mechanisms of fraud
Amending documentation with the direct purpose of meeting eligibility criteria or	-falsification of documentation or implementation of collusive practices (single tenderer practice)

Types	Mechanisms of fraud
intentionally requesting reimbursement of ineligible expenses	-non-compliance with eligibility criteria through unlawful modification of documentation -violation of public procurement contract award rules
Failure to deliver goods or provide services	-European funds are collected by beneficiaries but the goods/services are not actually delivered/provided - falsification of documentation or implementation of collusive practices
Falsification of documentation during project implementation	- falsification of documentation (false or inaccurate invoices regarding financial values) - falsification of signatures or data in invoices (false accounts, missing or incorrect accounts)
Conflict of interest	Existing conflict of interest, but not declared or addressed appropriately
Illegal or false subcontracting	Implementation of collusive practices, through subcontracting to other beneficiaries (including those in conflict of interest), with the intentional violation of EU and national procedures
Tax overcharging	Overvalued invoices generating undue reimbursements from European funds for purchases with lower actual costs
Double financing	Receiving funds from multiple sponsors for the same project, a fraud that is carried out without the sponsors' knowledge.
Ethics and integrity (plagiarism)	Copying a project created by others and presenting it as one's own creation, on the basis of which European funds are collected.

Source: own processing

To discern the extent of fraud worldwide, we analyzed reports and studies published by the Association of Certified Fraud Examiners (ACFE) in the US, the world's largest anti-fraud organization and leading provider of anti-fraud training and education.

Since 1996, the Association of Certified Fraud Examiners (ACFE) in the United States has been conducting annual studies on financial fraud and professional misconduct. Since the launch of the first Report to the Nations in 1996, the ACFE has analyzed more than 20,000 cases of fraud in over 130

countries, with each study exploring the mechanisms used by perpetrators of financial fraud. The latest Report to the Nations on Financial Fraud (ACFE, 2023) shows that, following a study conducted in 133 countries, 2,110 cases of financial fraud were identified, causing losses of over USD 3.6 trillion at the organizational level.

According to ACFE, professional fraud¹ is probably the most expensive and common form of financial crime in the world. There are two key reasons why this type of crime is so widespread. The first is that any organization with employees must, to some extent, entrust them with access to or control over its assets, whether that means keeping accounting records, managing bank accounts, protecting inventory, etc. It is precisely this trust that makes organizations vulnerable to financial fraud, because all fraud is essentially based on breaches of trust. The second reason why financial fraud is so costly and common is simply that there are so many people in a position to commit these crimes.

According to the latest studies published by the World Bank, the global workforce consists of over 3.6 billion people, the vast majority of whom will never steal from or abuse the trust of their employers. But even if only a small percentage of these individuals do so, the result is millions of financial fraud schemes every year. The ACFE found that, from 1996 to 2023, on average, only 5% of people who commit fraud had been convicted of fraud-related crimes before. So, most people who commit fraud don't have a history of fraud convictions.

From analytical studies published by ACFE (1996, 2012, 2017, 2021, 2023), it appears that owners and managers are involved in about a quarter of all fraud cases, but when they do, they defraud significantly larger amounts than lower-level employees. Research suggests that although men are the most frequent perpetrators, women appear as perpetrators in approximately 30-35% of all cases. In most cases, a perpetrator does not act alone; however, when fraudsters work in collusion, the losses to the victim organization increase more than fourfold. The ACFE (2023) believes that the following profile summarizes the characteristics of the typical fraud perpetrator: male, middle-aged to retirement age, employed by the company for five years or more, with no criminal charges or convictions, highly educated, often with accounting training, in a senior management or executive position, and acting alone.

Furthermore, with the shift to digital payments, remote working environments, and technology-driven work arrangements, the schemes and methods that fraudsters use to commit financial fraud remain consistent over time. A taxonomy of these schemes is provided annually by the ACFE in its Financial Fraud and Professional Misconduct Classification System, also known

¹ Professional or occupational fraud is officially defined in the US as the use of one's occupation for personal gain through the misuse or deliberate misapplication of the resources or assets of the employing organization.

as the Fraud Tree. A model structure of the most well-known frauds in financial and accounting expertise case studies includes the following main categories of fraud: (a) fraudulent financial reporting; (b) misappropriation of assets; and (3) acts of corruption.

Asset misappropriation, which involves the stealing or misuse of employer resources by an employee, although the most common, with 86% of cases falling into this category, tends to cause the least loss, averaging \$100,000 per case (ACFE, 2022). In contrast, financial reporting fraud schemes, in which the perpetrator intentionally causes a significant misstatement or omission in the organization's financial statements, are the least common category (9% of schemes) but the most expensive (\$593,000). The third category, corruption, falls in the middle in terms of both frequency and losses. These schemes occur in 50% of cases and cause an average loss of \$150,000. Analysis of the 2023 Report to Nations (ACFE, 2023) it appears that acts of corruption and fraudulent financial reporting are the most serious threats (50% and 86% of the total number of financial frauds, respectively), mainly because they are associated with other crimes such as embezzlement, asset stealing, or tax fraud.

The main methods of concealing fraud in financial statements include:

- fraudulent physical documents created, altered, or destroyed (on average over 50%);
- fraudulent accounting records created, altered, or deleted (on average over 25%);
- deleted transactions in the accounting system, altered or deleted documents or electronic files (on average over 19%).

In the case of asset misappropriation, the most commonly used method is also the use of fraudulent physical documents created or altered (on average over 50%), transactions altered or deleted in the accounting system (on average over 25%), and electronic documents or files deleted (on average over 24%).

Sensing the existence of financial fraud on a permanent basis, the research seeks to investigate the possibilities of revealing it via the use of financial – accounting information. The scientific study is conceptually orientated towards this field of knowledge of financial fraud, and experimentally, it aims to apply the theoretical information gained in the building of statistical models that enable the discovery of fraud in financial-accounting synthesis reports. The statistical model developed by Beneish (1999) was chosen because it was recognized in the international specialized literature for its ability to detect the presence of creative accounting in fraudulent financial situations, with its findings later confirmed in the case of the Enron company bankruptcy.

Students at Cornell University (USA) employed this model in 1999 and accurately reported the existence of potential accounting manipulation techniques at Enron Corporation; however, these were only shown to be fraudulent in 2001 [Beneish M. D., Nichols C., (2005)].

The model's foundation is the examination of financial ratios that are computed using accounting data from business financial statements and their synthesis into a scoring function. The study by Shakouri [Shakouri et al., (2021)] is noteworthy in this respect, since it found that 73% of false financial statements were successfully detected.

Five or eight components (parameters or indicators) can be used to apply the Beneish model. After comparing them, Shakouri et al. (2021) concluded that the 5-parameter model outperforms the 8-parameter model. Inspired by Shakouri et al.'s qualitative investigation, this study used the five-element Beneish model.

The review of the specialized literature covers the research incentives dedicated to this topic; however, while the phenomenon of creative accounting in relation to financial fraud is studied globally, we believe that there is sufficient space for research focused on sectors of activity, regions, countries, and so on. Noting that most recent research has focused on the causes of creative accounting (on the link between manipulation and bankruptcy and the general selection of appropriate detection models), we consider that the research study conducted is timely because it seeks the link between creative accounting and fraud through the manipulation of income in financial statements and by creating a new statistical model, abbreviated MSCOREM, based on internationally recognized validity (MSCORE).

Three companies, two of which are listed on the Bucharest Stock Exchange (BvB), were selected as a pilot sample for the data topic of the applied research. Additionally, data about the presence of fraud activities (corruption and/or tax evasion) involving these companies was gathered from public sources (communications of the Prosecutor General's Office and the National Anticorruption Directorate).

In order to choose the best sample selection technique, we used data from the companies' financial statements. The data came from the Ministry of Public Finance's public database, which was taken over by lista.firme.ro, as well as financial reports released by companies listed on the stock exchange on the BvB's official website. We selected two BvB listed firms for research, and we found that one of them (abbreviated SX) had been cheated in 2021 based on public information as well. In order to compute the progression of the indicators in the subsequent fraud period, the years 2021 and 2022 were selected as the analysis period for this company.

The second pilot firm (abbreviated SY) was likewise selected from the group of companies registered on the BvB, but no information about the presence of a financial scam is known to the public. The third business (abbreviated SZ) was selected since it is not publicly known to be involved in financial fraud schemes and is not listed on the stock exchange. The years 2021 and 2022 were also selected as the analysis period for the last two companies.

2. Literature review

The intentional falsification of financial statements to deceive their users, frequently for individual or corporate benefit, is known as **financial fraud**. It can manifest itself in a number of ways, such as by inflating assets, understating liabilities or spending, or manipulating revenue [Singleton & Singleton, (2010)]. Organizations must establish strong internal control mechanisms, encourage an integrity-focused culture, and guarantee efficient board of director and independent auditor monitoring in order to prevent these types of financial fraud. According to recent research, using artificial intelligence and advanced data analytics technologies can greatly enhance the capacity to identify financial fraud [Brazel et al., (2023)].

One of the most prevalent types of financial fraud and financial statement deception is revenue manipulation. In order to give a more positive impression of the company's financial success, it entails the early or false recognition of revenue. A research by Dechow [Dechow et al. (2011)] found that about 60% of financial fraud instances that are discovered involve revenue manipulation. Creating fake transactions, recording sales before the transaction is actually completed, or recognizing revenue from long-term contracts before the recognition conditions are satisfied are just a few examples of this activity. This approach can have serious repercussions, including inflating profits and deceiving investors about the company's financial future.

Premature revenue recognition is a fraudulent accounting practice in which revenue is recorded before all of the conditions for recognition are met under applicable accounting standards, such as *IFRS 15 "Revenue from Contracts with Customers"* or *ASC 606 "Revenue Recognition from Contracts with Customers."* This financial manipulation approach can have a substantial impact on how investors and other stakeholders see a company's financial performance. According to research, one of the most common types of financial fraud is premature revenue recognition, which accounts for nearly 60% of reported occurrences of financial statement manipulation [Dechow et al., (2011)].

The principles of revenue recognition, as set out in international accounting standards, are based on three fundamental criteria:

- a. transfer of control over goods or services to the customer,
- b. probability of receiving the counter value,
- c. probability to really measure the income value.

These principles aim to promote fair and transparent financial reporting. However, many corporations modify these parameters in order to create a more favorable financial image [Penman & Zhang, (2002)].

Depending on the type of transactions and the nature of the firm, there are several ways that premature revenue recognition might occur. An electronics manufacturer, for instance, may record income for orders received in December even though the actual delivery is scheduled for January of the following year.

The transfer of control principle is broken by this approach, which also has the potential to significantly exaggerate revenue in the current period. Such tactics are especially prevalent during year-end reporting periods, when there is more pressure to reach financial targets, according to empirical investigations [Carslaw, (1988)].

Another area that is susceptible to manipulation is sales with a right of return. For instance, a book distributor may record all sales proceeds to bookshops while neglecting a substantial return history and any clauses pertaining to the right of return in the contract. This method can result in a large overstatement of income and is against the probability of collection principle. Research has indicated that companies with generous return policies are more likely to use this tactic to manipulate revenue [Altamuro et al., (2005)].

Premature revenue recognition in services can occur when all contract revenue is recorded at contract signing, even though the services will be rendered across a number of time periods. The transfer of control principle is broken by this technique, which also has the potential to seriously skew financial results. Service companies, particularly those with intricate or protracted contracts, have been found to be more vulnerable to this kind of manipulation [Schilit & Perler, (2010)]. Multi-component transactions are more susceptible to manipulation. For instance, a software maker may fail to appropriately allocate the revenue to each component when they recognise all revenue from the sale of a license that also includes implementation and maintenance services. This approach may cause long-term profitability to be distorted and revenue recognition to occur more quickly. According to studies, this kind of manipulation is more common in sectors with intricate goods and related services.

Premature revenue recognition might also happen in contingent sales. For instance, a pharmaceutical business may report revenue for medications that are sent to distributors even though they have not yet received final regulatory approval. This approach can put the business at serious danger and disregards the probability of collection concept. Studies have indicated that businesses with strict regulations, such pharmaceuticals and medical equipment, are particularly vulnerable to this kind of manipulation [Healy & Wahlen, (1999)].

A number of strategies can be used to accomplish premature revenue recognition, such as early accounting period closure, partial deliveries, advance billing, document manipulation, and client pressure. These methods can be applied alone or in combination, to influence financial outcomes. According to studies, businesses that use these kinds of tactics typically have less effective corporate governance and poorer internal control mechanisms [Beasley et al., (2000)].

Premature revenue recognition can have a substantial influence on a company's reported financial situation, exposing it to a variety of serious hazards. This deceptive behavior not only distorts short-term financial success, but it can also have long-term effects on the company's legitimacy and stability.

The most evident result of premature revenue recognition is an overstatement of revenues and earnings in the current quarter. This can paint an inaccurate picture of a company's financial performance, deceiving investors, creditors, and other stakeholders. Empirical research have found that organizations who participate in such activities exaggerate their revenues by up to 20% during the impacted periods [Dechow et al., (2011)].

This overvaluation can lead to erroneous investment decisions and an inefficient allocation of resources within the economy.

One major effect of early revenue recognition is the *undermining of the expense recognition principle*. Regardless of when they are actually received or paid, this core idea of financial accounting makes sure that revenues and expenses are documented in the period in which they are earned or spent. In addition to jeopardizing the comparability of financial statements across periods and firms, breaking this rule may result in an erroneous depiction of the company's actual financial performance.

Another important effect of early revenue recognition is the distortion of financial performance metrics, such as *revenue growth rate*. Analysts and investors frequently use these metrics to evaluate a company's performance and prospects for expansion. Inappropriate investment choices and an overestimation of the company's worth might result from an artificially inflated revenue growth rate. According to research, businesses that recognize revenue too soon typically have higher stock price volatility and a higher long-term cost of capital.

One of the most severe types of financial fraud is *fictitious income*, which is the willful fabrication of transactions or a major overstatement of already-existing transactions in order to artificially increase a company's sales. According to Zack [Zack (2013)], "Investors, regulators, and the general public continue to have serious concerns about financial statement fraud. Developing successful detection and prevention efforts requires an understanding of the techniques utilized to generate fake income".

The use of advanced analytical techniques to detect abnormalities in financial data is a contemporary method of detecting probable earnings manipulation. To uncover suspicious trends in financial data, tools such as large-scale data analysis, machine learning, and artificial intelligence may be used. Recent research has demonstrated that employing these advanced tools can considerably increase the detection rate of financial manipulation [Gepp et al., (2018)].

3. Research methodology

The Beneish MSCORE model, which is a methodical application of the investigational concepts in American forensic accounting, provides the study's foundation. Furthermore, a variety of research techniques were employed, including comparative analysis, inductive and deductive reasoning, a systematic

study of the specialized literature, and a quantitative and qualitative method of empirical verification of the Beneish model with five parameters.

Using innovative accounting approaches that are not revealed to consumers, this method especially uses a set of economic-financial indicators that can determine the extent to which fraud may damage a company's economic performance. The economic-financial indicators are derived from the financial-accounting data found in the pilot sample companies' financial statements. Following their analysis, an M score, or MSCORE, was established, indicating the degree to which profits and revenues have been manipulated through unreported creative accounting methods.

Each of the Beneish model's economic-financial indicators has its own set of guidelines for identifying potential fraud risk, or "fraud indicator."

According to Beneish's (1999) research, he established the elements of the model and the limits within which a number of five and eight economic-financial indicators fall, calculated at the level of two consecutive years (t – current year and t-1 the previous year), in order to reveal whether or not the financial statements of the companies studied are manipulated through creative accounting techniques, or if there are indications of the existence of fraud.

The elements of the Beneish model with five parameters, which are the subject of the research study, namely the economic and financial indicators taken into account and the value limits on the basis of which the existence of fraudulent financial situations (manipulation and non-manipulation) was analyzed, are presented in Table 2:

Indicator	Calculation formula:	Limited values:	
		manipulated value	unmanipulated value
Sales index relative to uncollected receivables / Days Sales in Receivables Index (DSRI)	$(\text{Customers balance (t)} / \text{Sales(t)}) (\text{Customers balance (t-1)} / \text{Sales (t-1)}) = \text{Uncollected receivables (t)} / \text{Turnover (t)} (\text{Uncollected receivables (t-1)} / \text{Turnover (t-1)})$	1.465	1.031
Gross margin index (GMI)	$(\text{Gross margin (t-1)} / \text{Sales (t-1)}) (\text{Gross margin (t)} / \text{Sales (t)})$	1.193	1.014
Assets quality index (AQI)	$\text{Current assets (t)} + \text{Net fixed assets (t)} / (\text{Total assets (t)} (\text{Current assets$	1.254	1.039

Indicator	Calculation formula:	Limited values:	
		manipulated value	unmanipulated value
	$(t-1) + \text{Net fixed assets } (t-1) / (\text{Total assets } (t-1))$		
Sales index (SGI)	$\text{Sales } (t) / \text{Sales } (t-1)$ => Turnover (t)/ Turnover (t-1)	1.607	1.134
Total assets index/ Depreciation index (DEPI)	$[\Delta (\text{Working capital} - \text{Cash} - \text{Taxes}) - \text{Depreciation} - \text{Provisions}] / \text{Total assets}$	0.031	0.018

Source: own processing after Beneish (1999) and Skousen and al. (2009)

The 5-parameter Beneish model, including the five economic-financial indicators, presented in table no. 1, is based on the following equation, called **MSCOR (M)**:

$$M = -6.065 + 0.823 \cdot \text{DSRI} + 0.906 \cdot \text{GMI} + 0.593 \cdot \text{AQI} + 0.717 \cdot \text{SGI} + 0.107 \cdot \text{IDEPI} \quad (1)$$

The Beneish model's basic working hypothesis is that there will be NO manipulative manipulations in the financial accounts being analyzed.

The validity of this statement depends on the value **MSCORE = M = (-2.21)**, which is the limit between financial statement manipulation and non-manipulation, which is determined by applying equation (1) and evaluating the outcome in accordance with the classification rule within the Beneish restriction.

✓ If the resulting MSCORE is below this value, it means that no manipulation of the financial statements is reported during the analyzed period.

✓ If MSCORE is greater than (-2.21), probable manipulations in the financial statements are indicated.

4. The working methodology applied to capitalize on the analysis performed

The author suggested a different method for Beneish's research, which would involve changing equation (1) with the five parameters of the Beneish model by substituting the leverage index LVGI for the total asset index DEPI from the MSCORE model.

We emphasize that the leverage index, also known as the asset debt ratio, was validated in the statistical study as the most valued by accounting

professionals for its capacity to reflect probable fraud in financial statements through income manipulation.

The LVGI is a company's ratio of total liabilities to total assets, with the following limit values proposed by Beneish in the 8-parameter model: The altered value equals 1.111, and the unmanipulated value = 0.014.

The LVGI index, proposed by the author to modify equation (1) of the 5-parameter Beneish model, known as the leverage effect or asset debt ratio, was also empirically studied by Skousen et al. (2009) to analyze the efficiency of the fraud theory initiated by *Cressey* (1953), corroborated with the adoption of SAS No. 99² for detecting fraud in financial statements. We determined that leverage is also relevant for this research because the findings of the previously mentioned study demonstrated that it is an indicator that makes it easier to spot financial statement fraud.

Under these conditions, the second **equation** modified according to the Beneish model, as **suggested by the authors**, has the following score formula represented by MSCOREM.

(MM):

$$MM = -6.065 + 0.823 \cdot DSRI + 0.906 \cdot GMI + 0.593 \cdot AQI + 0.717 \cdot SGI - 0.327 \cdot LVGI \quad (2)$$

The economic-financial indicators (abbreviated form) and the fraudulent and non-fraudulent value limitations, as determined by Beneish in the 8-parameter model, are shown synthetically in table no. 3 along with the individual values of the elements of equation (2).

Table nr. 3. Limited values for fraud MSCORE index

		DSRI	GMI	AQI	SGI	DEPI	LVGI	MSCORE
1	Fraud	≥ 1.465	≥ 1.193	≥ 1.254	≥ 1.601	≥ 1.077	≥ 1.111	>- 2.21
2	NON-fraud	< 1.031	< 1.014	< 1.039	< 1.134	< 0.018	< 0.014	< -2.21

Source: own processing after Beneish (1999) and Skousen and al. (2009)

In table no. 2, exceeding the limit values on line 1 indicates a signal (red flags) about the presence of fraud. Depending on the situation, each indication can provide a different signal.

As can be seen, reporting fraud and non-fraud at the level of one or more individual indicators of the 5-parameter Beneish model provides a better localization of the problem of financial – accounting data manipulation. Each of these indicators is characterized by a calculation formula, previously specified,

² The Auditor's Responsibilities Concerning Fraud in an Audit of Financial Statements (ISA 240) outlines this particular element. The SAS 99 auditing standard defines external pressure as when the management of the organization is under pressure from outside sources to achieve its goals.

which suggests which elements of the financial statements could be manipulated, respectively:

- an extraordinary increase in DSRI shows a reasonable chance of income overstatement as shown by an increase in net receivables (changes in commercial lending policy);
- a significant decrease in GMI denotes a concern regarding compliance with the principle of continuity of operating activity, in which case the financial statements may be manipulated in order to hide the situation from investors, creditors or employees;
- an asset impairment reflected by the evolution of AQI may signal the application of accounting policies based on professional judgment, although some assets do not meet the depreciation conditions;
- an increase in SGI does not usually constitute a signal of account manipulation, but monitoring the sudden evolution of this indicator should not be ruled out;
- significant fluctuations in DEPI may signal the introduction of a revenue growth policy;
- a large variation in SGA disproportionately correlated with a decrease in sales is a signal of possible distortion of financial and accounting information;
- a negative shift in LVGI is an indication of concern regarding the company's ability to pay its debts, even though the value of trade receivables is on an upward trend (without the same trend in collections).

In order to achieve the purpose proposed in the study, the following **calculation steps** were implemented:

- i. collecting data from the financial statements of the enterprises included in the sample regarding each element included in the calculation formula of the 6 economic-financial indicators (five established by Beneish and one introduced by the author by replacement);
- ii. systematizing the data in Excel format and the actual calculation of the economic-financial indicators, according to the formulas previously presented;
- iii. integrating the numerical values of the economic-financial indicators in equation (1) to obtain the Beneish score (MSCORE);
- iv. integrating the numerical values of the economic-financial indicators in equation (2) to obtain the modified Beneish score (MSCOREM);
- v. comparing the results of the two scores MSCORE and MSCOREM;
- vi. Analysis and conclusions.

The original Beneish model with five parameters was computed first, followed by the modified Beneish model with five parameters that was suggested in the study. This was based on the first two phases of gathering and processing data from the financial statements of the businesses in the pilot sample. A comparative analysis was then developed using the previously indicated

calculation algorithm to demonstrate whether of the five-parameter MSCORE or MSOREM models is superior, more accurate, and yields more trustworthy data.

5. Blockchain technology integration model in the financial-accounting information flow

5.1. Assessment of each indicator's specific limit values

The six economic and financial indicators listed in equations (1) and (2) were computed using the accounting and financial data from the financial statements of the businesses that were part of the pilot sample (SX, SY, and SZ for the years 2021 and 2022). Table No. 4 displays the outcomes of figuring out the limit values for the financial and economic variables that comprise equations (1) and (2).

Table 4. Result regarding the limit values of the elements of the equations (1) and (2)

	DSRI	GMI	AQI	SGI	DEPI	LVGI
Fraud³	≥ 1.46	≥ 1.19	≥ 1.25	≥ 1.61	≥ 1.08	≥ 1.11
SX (2022/2021)	1.16	1.02	0.99	1.03	0.01	1.29
SY (2022/2021)	1.21	1.15	1.01	1.68	0.10	1.79
SZ (2022/2021)	3.26	0.52	1.00	0.98	0.20	1.20

Source: result of own research based on analyzed financial statements (2023)

According to the results, the debt-to-asset ratio (LVGI) indicator values for the three businesses (SX, SY, and SZ) are marginally higher than the 1.11 threshold, indicating the possibility of accounting account manipulation with respect to the calculation elements (e.g., an undervaluation of payables accounts, an overvaluation of receivables accounts, or a weak ability of the business to pay its future debts).

For the first company (SX), no other possible manipulation is reported based on the other indicators.

The figures recorded by the SGI indicator, the gross margin index, and the second company (SY) both give indications of potential accounting account manipulation.

The idea that any potential accounting account manipulation could be documented at the level of receivables accounts linked to revenue accounts is made clearer by correlatively analyzing the values of the two indicators, LVGI and SGI.

The figures reported by the DSRI indicator, the Sales Index pertaining to uncollected receivables, provide indications of potential manipulations for the

³ Limits according to the model established by Beneish in 2009

third business (SZ). It becomes clearer that a potential manipulation of the accounting accounts could be documented at the level of the income accounts by correlatively analyzing the values of the two indicators, LVGI and DSRI.

5.2. Comparative analysis, MSCORE calculation for equation (1), and MSCOREM calculation for equation (2)

They computed MSCORE and MSCOREM. The outcomes of the two equations (1) and (2), MSCORE and MSCOREM, respectively, were then compared. Table No. 5 displays the overall findings of the comparative study at the level of the two scores, MSCORE and MSCOREM, as well as at the level of each economic-financial indicator.

Table 5. Comparative results of equation calculations (1) si (2)

	Ecuations	DSRI	GMI	AQI	SGI	DEPI	LVGI	M/MM
SX	MSCOREM	0.953706	0.920090	0.589816	0.741364		(0.420296)	(3.280320)
SX	MSCORE	0.953706	0.920090	0.589816	0.741364	0.001070		(2.858954)
SY	MSCOREM	0.994219	1.038056	0.597504	1.202454		(0.585330)	(2.818096)
SY	MSCORE	0.994219	1.038056	0.597504	1.202454	0.010700		(2.222066)
SZ	MSCOREM	2.683584	0.474594	0.593000	0.702074		(0.392400)	(2.004148)
SZ	MSCORE	2.683584	0.474594	0.593000	0.702074	0.021400		(1.590348)

Source: result of own research based on analyzed financial statements (2023)

The results presented show that:

(a) There may have been accounting account manipulations in the first business (SX) based on the MSCORE calculation, but no manipulations were found in the third firm (SZ) using the identical calculation formula.

(b) Using the MSCOREM calculation, there may have been accounting account manipulations in the first company (SX) and the second business (SY); nevertheless, using the same calculation formula, no manipulations were found in the third company (SZ);

(c) We observe that the results of both MSCORE and MSCOREM scores for the second company (SY) point to potential financial statement manipulation; this has not yet been verified by state investigations that have been made public up until March 2025 (though we do not rule out the possibility that, given how recent the period 2021–2022, it has not yet been the focus of such checks, including by the competent bodies).

As shown in table no. 4's informative content, somewhat different values were obtained for the author's modified M Beneish score (MSCOREM) and the

original M Beneish score (MSCORE), **but both show whether or not manipulation occurred in the same way.**

MSCOREM displays a value further away from the fraud threshold: (-3.28) and (-2.81), respectively, compared to (-2.85) and (-2.22) as displayed by MSCORE. This indicates a higher degree of fidelity regarding the potential fraudulent action. Both scores for the first company (SX) and the second company (SY) have values higher than the fraud threshold (> -2.21).

For the third enterprise (SZ), both MSCORE and MSCOREM score values are below the manipulation threshold (< -2.21), but the modified MSCOREM model shows a value closer to this threshold (-2.004) compared to (-1.59) as shown by MSCORE, indicating an insignificant probability of future manipulation detection at this enterprise level. This assertion is based on the DSRI index, which has a value greater than the fraud threshold (3.26).

Figure 1 shows a comparison of the two models for the three companies, set in the period 2021-2022.

Figure 1. Comparative results of MSCORE and MSCOREM



Source: result of own research based on analyzed financial statements (2023)

Using this graphical representation, the two forms of the Beneish model were compared, and the modified 5-parameter model, MSCOREM, was found to be more accurate.

6. Conclusions

From the specialized literature analyzed in the research study, we have deduced the existence of a phenomenology of financial fraud. According to the structured and systematized analysis of the last five decades and beyond, it has been concluded that studies focused on the phenomenon of financial fraud reflect the concerns of the accounting profession regarding the detection and combating of financial fraud. Therefore, liberal accounting professions must develop new

skills that enable them to uncover and investigate fraud, but also to offer appropriate prevention solutions.

We conclude that, globally, financial fraud is a phenomenon that causes significant losses to organizations, and the schemes and methods that fraudsters use to commit financial fraud remain consistent over time, even in the context of the current expansion of the digitization of economies.

We also note that, although it accounts for a relatively small proportion of all forms of financial fraud, fraudulent financial statements cause the greatest loss in terms of value, a reality that provides sufficient motivation for further scientific study of this taxonomy.

The empirical study demonstrates a clear connection between a company's deceptive financial reporting as identified by the MSCORE and MSCOREM statistical models, inventiveness, and the quality of financial-accounting information. Because these statistical models have been empirically proven by many writers in the specialized literature as well as through the research conducted, they are appropriate for predictively assessing the existence of fraud in financial statements.

Without the need of complex financial-accounting information processing software, the two models can detect the potential presence of fraud in financial statements. We think that the MSCOREM model can be utilized alone or in conjunction with MSCORE, specifically to increase the validity of empirical research, even if only MSCORE is globally acknowledged as a scientific approach.

Both the MSCORE and MSCOREM models can be used successfully to predict financial fraud at the enterprise level as well as when comparing firms in the same area. An immediate use can also be found in the field of tax risk management, where it is important to validate tax inspection choices by identifying tax fraud signals that are associated at the level of both scores.

Last but not least, we emphasized in the study that applying the MSCOREM model adds value to the empirical analysis of the qualitative characteristics of the financial – accounting information contained in the financial statements, demonstrating its usefulness to any user interested in identifying the risk of using creative accounting techniques for fraudulent purposes. We stress, however, that if the creative accounting techniques for income recognition are declared and described in an understandable manner in the annexes to the financial reports, we can conclude that we are not in the process of financial fraud.

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SUSTAINABLE TOURISM IN POST-PANDEMIC EUROPE: TRENDS AND CHALLENGES

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Abstract

The COVID-19 pandemic profoundly disrupted global tourism, exposing long-standing structural vulnerabilities while accelerating policy and academic debates on sustainability and resilience. This paper examines the evolution of sustainable tourism in Europe during the post-pandemic period (2020–2025) through a qualitative documentary analysis. Drawing on institutional reports from UN Tourism, the World Travel & Tourism Council, Eurostat, the OECD, and key European policy frameworks, the study explores emerging trends, governance responses, and persistent implementation challenges associated with sustainable tourism recovery. The findings reveal a gradual reorientation toward sustainability, reflected in the growth of domestic and proximity-based tourism, increased attention to environmental management and green certification schemes, and the expanding role of digitalisation in destination governance. However, this transition remains uneven and conditional. Structural barriers—including disparities in governance capacity, limited access to funding and digital tools for small and medium-sized enterprises, and pronounced regional inequalities—continue to constrain the effective operationalisation of sustainability objectives. Moreover, the rapid re-emergence of overtourism in major destinations highlights an unresolved tension between short-term economic recovery imperatives and long-term environmental and social sustainability goals. The paper concludes that while post-pandemic Europe presents a critical window of opportunity for advancing sustainable tourism, meaningful transformation depends on strengthening multi-level governance, improving policy–practice alignment, and fostering inclusive collaboration among policymakers, tourism businesses, and local communities.

Keywords: sustainable tourism, post-pandemic recovery, Europe, green transition, policy analysis

JEL Classification: L83, Q01, Z32

1. Introduction

The COVID-19 pandemic represented an unprecedented disruption to the global tourism industry, generating widespread travel restrictions, severe revenue losses, and significant socio-economic impacts. In Europe, where tourism plays a critical role in regional development and employment, tourism-dependent economies were particularly exposed to the crisis. At the same time, the pandemic acted as a catalyst for re-evaluating prevailing growth-oriented tourism models,

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intensifying debates around sustainability, resilience, and long-term structural transformation.

As travel gradually resumed, sustainable tourism gained renewed prominence as a strategic priority within European recovery agendas. This shift has been closely aligned with broader policy frameworks such as the European Green Deal and the United Nations Sustainable Development Goals, which emphasise decarbonisation, inclusiveness, and responsible resource management. In this context, sustainability has increasingly been framed not merely as an environmental objective, but as an integrated approach linking economic viability, social equity, and environmental responsibility in post-pandemic tourism development.

Against this background, this paper examines the evolution of sustainable tourism in Europe during the post-pandemic period, with particular attention to the trends that have emerged between 2020 and 2025 and the structural challenges that continue to shape this transformation. By analysing recent academic literature, policy frameworks, and institutional responses, the study seeks to provide a systematic overview of how sustainability principles have been incorporated into tourism recovery strategies and to identify the key barriers that may hinder their effective implementation across European destinations.

2. Literature review

2.1. Defining sustainable tourism

Sustainable tourism represents a core pillar in contemporary tourism studies, addressing the need to balance economic viability, social equity, and environmental protection within tourism development (Hall, 2022). The concept emerged in response to growing environmental awareness during the 1960s and 1970s, as scholars increasingly criticized the negative externalities associated with mass tourism, including environmental degradation, cultural commodification, and uneven economic benefits. Early contributions by authors such as Jost Krippendorf emphasized the necessity of reorienting tourism toward more responsible and ethically grounded forms of development (Krippendorf, 1975).

The global institutionalization of sustainable tourism was significantly shaped by the 1992 Rio Earth Summit, which integrated sustainability principles into international development agendas. Within this broader framework, tourism was increasingly conceptualized as an activity that should support environmental conservation, cultural authenticity, and long-term socio-economic development, rather than short-term growth alone. This marked the transition of sustainable tourism from a normative critique of mass tourism to an established paradigm within academic and policy discourse.

A widely accepted definition of sustainable tourism is provided by UN Tourism (formerly UNWTO), which defines it as tourism that “takes full account of its current and future economic, social and environmental impacts,” while

addressing the needs of visitors, the tourism industry, the environment, and host communities (UN Tourism, 2023). This definition is grounded in three interdependent dimensions: environmental responsibility, socio-cultural integrity, and economic viability (UN Tourism, 2020). Importantly, the literature emphasizes that these dimensions should be pursued in an integrated manner, as privileging one dimension at the expense of others risks undermining the overall sustainability of tourism development (Streimikiene et al., 2021). Fennell and Cooper (2020) emphasise that sustainable tourism should be understood not merely as a technical framework for impact management, but as a normative and ethical concept grounded in principles of responsibility, equity, and long-term stewardship. From this perspective, sustainability in tourism entails moral obligations toward host communities, future generations, and non-human nature, extending beyond compliance with standards or performance indicators.

From an operational perspective, the principles of sustainable tourism are further articulated through the Global Sustainable Tourism Council (GSTC) Criteria, which translate the conceptual foundations of sustainability into measurable standards applicable to destinations, tourism businesses, and policymakers. The GSTC framework structures sustainable tourism around four core pillars: sustainable management, socio-economic benefits for local communities, cultural heritage preservation, and environmental stewardship (GSTC, 2022). These pillars reflect an effort to operationalize the multidimensional nature of sustainability, while acknowledging that measurement and implementation remain uneven across contexts. Navarro et al. (2020) highlight that sustainable tourism assessment gains analytical relevance when conducted at local scales, reflecting contextual variations in social, economic, and environmental conditions. In the European context, this underscores that indicators designed for sustainability must be sensitive to territorial specificities rather than relying solely on broad, aggregated measures.

Recent contributions further emphasize that sustainable tourism should be understood as a continuous and adaptive development process rather than a fixed end-state (Hall et al., 2020). Strengthening sustainability in tourism requires incremental and consistent actions over time, including problem identification, strategic planning, implementation, and ongoing adjustment in response to evolving economic, social, and environmental conditions (Streimikiene et al., 2021). At the same time, critical scholarship cautions against the unreflective reliance on measurement and standardized indicators. Drawing on Scott's (1998) and Porter's (1995) analyses of quantification and governance, the literature suggests that the objectification of complex social processes through indicators can depoliticize decision-making by shifting attention from value-based debates to technical compliance. In the context of sustainable tourism, this risk implies that indicator-driven approaches may obscure normative questions related to equity, cultural integrity, and community well-being, which are central to the conceptual foundations of sustainability.

2.2. Tourism and Resilience after COVID-19

Recent empirical research conceptualises tourism resilience as a multidimensional construct encompassing both planned (proactive) and adopted (reactive) responses to crisis. Azzaz and Elshaer (2024) demonstrate that resilience emerges from the alignment of preparedness, strategic planning, and adaptive capacity, suggesting that destinations and tourism businesses are more resilient when they combine anticipatory measures with flexible, experience-based adaptation during crises. Within the resilience literature, recovery is increasingly framed not as a return to pre-crisis conditions but as a process of adaptation and transformation. Drawing on the resilience cycle and typologies of resilience, Baraero-Era and Del Rosario (2020) argue that effective tourism resilience is grounded in the capacity of tourism systems to reorganise and innovate in response to shocks, rather than simply restoring previous growth patterns. In the context of COVID-19, resilience is thus conceptualised as the ability of tourism systems to transition toward more sustainable development pathways.

Against this conceptual background, recent studies (Gössling et al., 2021; Hall, 2022) highlight that the pandemic accelerated debates around resilience, low-carbon travel, and the need to “build back better.” Concepts such as slow tourism, proximity tourism, and digital sustainability gained prominence across European destinations as practical expressions of adaptive responses. Empirical evidence supports these shifts in travel behaviour. Corbisiero and Monaco (2021) report a growing preference for nearby destinations, open spaces, and short-duration trips, suggesting that proximity tourism and micro-vacations function as resilience strategies that allow tourism activity to continue under conditions of prolonged uncertainty.

The COVID-19 crisis also exposed the structural vulnerability of mass-tourism-oriented destinations, reinforcing calls for a strategic reorientation of tourism development models. According to Traskevich and Fontanari (2023), destination resilience is strengthened through a shift toward local resources, regional value chains, and authentic place-based assets. This reorientation not only supports sustainability objectives but also enhances destinations’ capacity to withstand future systemic shocks. Similarly, Sharma et al. (2021), drawing on a systematic review of early COVID-19 tourism research, conceptualise resilience as a bridging concept between immediate crisis management and long-term structural transformation. Rather than restoring pre-pandemic growth trajectories, post-COVID resilience is associated with reorienting tourism systems toward sustainability, local embeddedness, and reduced environmental pressure (Higgins-Desbiolles, 2021). Resilience is further understood as a multi-level and inclusive process, dependent on coordinated governance, stakeholder collaboration, and community involvement. At the destination level, community perceptions and flexible governance arrangements play a critical role in shaping adaptive recovery pathways (Brochado, 2023). Beyond structural and

institutional dimensions, the literature also emphasises well-being as a component of psychological resilience among both tourists and residents coping with pandemic-induced disruptions (Pocinho et al., 2022).

Empirical assessments at local scales reiterate that contextualised measurement is essential to understanding how resilience manifests unevenly across regions, linking sustainable practices with adaptive capacity (Navarro et al., 2020). Systematic reviews of the post-pandemic sustainability literature further reveal an increased focus on stakeholder engagement and capacity building as core elements of resilient tourism systems (Ekka & Annamalai, 2022). At the same time, evidence indicates that resilience during the pandemic was uneven across economic sectors. Ntounis et al. (2022) show that tourism and hospitality businesses face distinctive structural constraints related to demand volatility, seasonality, and prolonged uncertainty, suggesting that resilience-oriented recovery policies must be tailored rather than uniform.

2.3. European Policy Framework

The post-pandemic recovery of European tourism is increasingly framed through sustainability-oriented strategies rather than conventional growth restoration. As argued by Orîndaru et al. (2021), the pandemic exposed structural vulnerabilities that necessitated a transition toward recovery models integrating safety, long-term resilience, and environmental stewardship into core policy and business decision-making. Within this context, the European Union has developed a multi-layered policy architecture designed to align tourism recovery with broader climate and digital transformation objectives.

At the strategic level, tourism-related policies are grounded in the European Green Deal (European Commission, 2019), which sets the overarching objective of achieving climate neutrality by 2050. Its core principles—decarbonisation, circular economy, and biodiversity protection—are increasingly embedded into tourism planning through unprecedented financial instruments, most notably the NextGenerationEU recovery package. Through the Recovery and Resilience Facility, this framework has provided the financial backbone for the green transition, enabling the funding of tourism projects that prioritise sustainable infrastructure, digital innovation, and climate adaptation (OECD, 2023).

Building on these foundations, the Transition Pathway for Tourism (European Commission, 2022) serves as the primary sector-specific strategic instrument, identifying 27 areas of action aimed at accelerating the so-called “twin transition” (green and digital). The Pathway promotes circular business models, the reduction of the sector’s environmental footprint, and the expanded use of digital tools to improve destination management and visitor flow control. This strategic direction is further institutionalised through the European Agenda for Tourism 2030 (Council of the European Union, 2022), which outlines a

long-term framework for cooperation among EU institutions, industry stakeholders, and local communities.

Taken together, these policy instruments signal a shift from promotion-oriented tourism governance toward a management-based and resilience-focused approach. This transition places increasing emphasis on workforce upskilling, destination management capacity, and long-term resilience as core pillars of sustainable tourism development in the post-pandemic European context (WTTC, 2023).

3. Methodological Approach

This study adopts a qualitative documentary analysis to examine the evolution of sustainable tourism in Europe during the post-pandemic period (2020–2025). By drawing on secondary data from institutional reports, policy documents, and peer-reviewed academic literature, the research provides an integrated perspective on the intersection of tourism recovery and sustainability. The empirical basis of the study includes strategic reports published by international organizations such as UN Tourism, the World Travel & Tourism Council (WTTC), and the OECD, alongside key European policy frameworks like the European Green Deal and the Transition Pathway for Tourism.

To ensure a systematic and rigorous evaluation, the documentary research was conducted in three distinct phases (Table 1 outlines the main categories of sources used and clarifies their respective analytical roles in this process). First, a purposive sampling approach was used to select high-level institutional reports and strategic frameworks that define the European tourism recovery agenda. Second, these documents were subjected to qualitative thematic analysis, with codes inductively derived from the texts to identify recurring themes such as the "digital divide" and "conditioned sustainability". This process allowed for the identification of dominant trends, policy orientations, and persistent challenges in the implementation of sustainable practices across European destinations.

Table 1. Source mapping for the documentary analysis

Source type	Main contribution to the analysis	Analytical role
UN Tourism & WTTC reports	Evidence on post-pandemic tourism trends, sustainability priorities, and economic impact.	Identification of macro-level trends and global strategic directions.
European Commission policy documents	Strategic frameworks (Green Deal, Transition Pathway), governance instruments, and funding mechanisms.	Assessment of policy-practice alignment and institutional architecture.

Eurostat & OECD indicators	Contextual data on tourism activity (2024-2025), occupancy levels, and regional disparities.	Empirical contextualisation and validation of qualitative trends.
Academic literature (2020–2025)	Theoretical frameworks, critical interpretations of "conditioned sustainability," and resilience models.	Conceptual interpretation and discussion of findings, and identification of research gaps.

Source: made by author

Finally, the findings were triangulated with the latest quantitative indicators from Eurostat (2025) to validate observed qualitative trends against actual market performance. This multi-stage approach allowed for an interpretative assessment that moves beyond a purely descriptive summary toward a critical evaluation of policy-practice alignment. The study does not seek to test specific hypotheses but rather to provide a systematic overview of tourism transformation, with particular attention to governance capacity, stakeholder coordination, and regional disparities.

4. Findings and Discussion

This section presents the main findings of the documentary analysis, focusing on the key trends and challenges shaping sustainable tourism in post-pandemic Europe. The results are organised thematically in order to capture both areas of convergence and persistent implementation gaps.

The following table synthesizes the core findings of the documentary analysis, highlighting the interplay between emerging trends and persistent structural barriers. To provide a more nuanced perspective, an "Implementation Level" column has been added, reflecting the gap between strategic policy ambitions and the practical operationalization of sustainability across European destinations. This assessment ranges from "High" (where strategic alignment and funding are robust) to "Low" (where practical execution faces significant resistance or resource constraints), illustrating that post-pandemic tourism transformation remains an uneven and conditional process.

Table 2. Key trends and challenges in post-pandemic sustainable tourism in Europe (2020–2025)

Analytical dimension	Key trends	Main challenges	Implementation Level	Key sources
<i>Tourism demand patterns</i>	Growth of domestic, proximity-based and rural tourism	Limited planning capacity in peripheral destinations	Medium	UN Tourism (2023); Eurostat (2025); Gössling, Scott and Hall (2021)

<i>Environmental sustainability</i>	Increased focus on eco-labels and green practices	Low adoption among SMEs due to cost and awareness barriers	Medium / Low	GSTC (2022); European Commission (2022)
<i>Digitalisation</i>	Expansion of digital tools in destination management	Digital skills gaps and uneven implementation	Medium	European Commission (2022); WTTC (2023)
<i>Governance and funding</i>	Availability of EU recovery funds for sustainable tourism	Uneven absorption capacity across regions	High (Strategic) / Low (Operational)	European Commission (2022); OECD (2023)
<i>Spatial impacts</i>	Renewed pressure on major destinations	Re-emergence of overtourism	Low	Gössling, Scott and Hall (2021); UN Tourism (2024)

Sources: made by author

4.1. Reconfiguration of tourism demand and the rise of place-based travel

The post-pandemic period has been characterized by a significant reconfiguration of tourism demand across Europe, marked by a decisive shift toward domestic, proximity-based, and rural travel. This trend reflects not only the residual effects of pandemic-era mobility restrictions but also a structural evolution in traveler preferences toward "slow tourism" and experiences perceived as more authentic and environmentally responsible. Institutional reports and academic literature (Hall, (2022); Eurostat, (2024) identify this shift as a strategic opportunity to reduce the carbon footprint of the sector by decreasing reliance on long-haul aviation and redistributing economic benefits to peripheral regions.

However, the sustainability implications of this "spatial rebalancing" are complex and inherently uneven. While rural destinations benefit from new revenue streams, many are currently facing an "institutional lag," lacking the infrastructure, regulatory frameworks, and planning capacity required to absorb sudden visitor influxes. As a result, the transition toward place-based tourism does not inherently guarantee positive sustainability outcomes. Without robust destination-level governance and strategic stakeholder coordination, there is a significant risk that post-pandemic demand shifts will merely displace environmental and social pressures from traditional hubs to fragile ecosystem and unprepared local communities. Consequently, as noted by Gössling et al. (2021), the "rural turn" in European tourism necessitates a transition from passive growth absorption to active, resilience-oriented destination management.

4.2. Environmental management, green certifications, and the operationalisation of sustainability

A second major trend identified in the post-pandemic European tourism landscape is the growing emphasis on environmental management tools and green certification schemes. Eco-labels, such as Green Key and the EU Ecolabel, have gained prominence as signaling mechanisms for environmental commitment, aiming to align tourism operations with standardized sustainability metrics. This development reflects a theoretical convergence between environmental management systems (EMS) and European policy frameworks that promote voluntary certification as a primary tool for steering industry behavior toward the objectives of the Green Deal (European Commission, (2022)).

Despite their growing visibility, the effectiveness of these schemes remains constrained by significant structural paradoxes. Small and medium-sized enterprises (SMEs), which constitute over 90% of the European tourism sector, face disproportionate financial, administrative, and informational barriers to certification uptake. As a result, green labels often become exclusive markers for larger or better-resourced operators, leading to a "sustainability elitism" that limits the transformative potential of these tools at a systemic level. This divergence underscores a central challenge of post-pandemic tourism: the operationalisation of sustainability. As noted by Gössling et al. (2021), without simplifying access and providing targeted support for smaller actors, green certifications risk becoming mere marketing instruments rather than drivers of substantive environmental change. Consequently, translating normative sustainability goals into inclusive and scalable operational practices remains a critical gap in the current European tourism governance architecture.

4.3. Digital transformation as a sustainability enabler—and its limits

Digitalisation has emerged as a central pillar of post-pandemic tourism recovery strategies in Europe, frequently framed as a key enabling factor for the "twin transition" toward a green and resilient sector. Digital tools, such as smart mobility systems, visitor management platforms, and data-driven monitoring solutions, are increasingly promoted as essential means for optimizing resource use, mitigating overcrowding, and improving decision-making at the destination level (European Commission, 2022). Consequently, both policy documents and academic literature highlight digital transformation as a vital component of the sector's sustainability agenda. Nevertheless, the relationship between digitalisation and sustainability is not inherently linear. While digital tools offer significant potential, their implementation remains deeply uneven across regions and types of tourism enterprises.

Small and medium-sized enterprises (SMEs), which dominate the European tourism landscape, often face financial, technical, and institutional barriers to

adopting advanced digital solutions. As a result, digitalisation risks reinforcing existing disparities—creating a persistent "digital divide"—rather than reducing them. To prevent this divide from marginalizing smaller operators, European policies must evolve toward integrated support systems that ensure digital transformation contributes meaningfully to sustainable outcomes. As suggested by the WTTC (2023), one essential approach involves the implementation of tailored digitalization vouchers for micro-operators, covering not only software acquisition but also professional consultancy. Furthermore, the establishment of regional innovation hubs could allow SMEs to access shared market data and technical expertise, thereby reducing individual R&D costs. This should be complemented by a reduction in administrative barriers for the absorption of funds from initiatives like NextGenerationEU, ensuring they match the limited administrative capacity of small firms. Ultimately, subsidizing continuous upskilling programs in data analytics and sustainability monitoring is crucial to ensuring that technology acts as a socio-economic equalizer rather than a barrier to entry.

4.4. Governance capacity, funding instruments, and regional disparities

The analysis reveals that governance capacity is the decisive factor in shaping post-pandemic sustainable tourism trajectories across Europe. While European-level funding instruments, most notably NextGenerationEU and REPowerEU, have allocated unprecedented resources to green and digital tourism initiatives, the transition remains hindered by an "asymmetric implementation" across the Union. In principle, these macro-level mechanisms provide a robust financial foundation for a sustainability-oriented recovery; however, in practice, significant disparities persist in the ability of regions to effectively absorb and deploy these funds (European Commission, 2022).

Northern and Western European destinations generally exhibit higher institutional coordination, mature sustainability frameworks, and superior administrative capacity, allowing for a more seamless alignment with EU strategic goals. In contrast, many regions in Southern and Eastern Europe face structural challenges characterized by fragmented governance, limited technical expertise, and constrained access to tailored support for tourism SMEs. These disparities create a "structural divergence" between the ambitious strategic objectives defined at the Brussels level and the operational realities at the local destination level. As highlighted by the OECD (2023), without targeted technical assistance and a simplification of administrative procedures, the current funding architecture risks exacerbating existing regional inequalities rather than fostering a cohesive European green transition. Consequently, the effectiveness of the European tourism recovery depends less on the availability of capital and more on the strengthening of multi-level governance and local administrative resilience.

4.5. The re-emergence of overtourism and the recovery–sustainability tension

Despite widespread discourse on sustainability and resilience, the post-pandemic recovery has been accompanied by the rapid re-emergence of overtourism in several iconic European destinations. The pressure on these locations is further evidenced by record-breaking occupancy levels; according to Eurostat (2025), the European tourism sector reached a historical peak in 2024, surpassing 3 billion guest nights for the first time. The fact that international tourism has surged by nearly 5% year-on-year explains why high visitor concentrations have returned so aggressively to cities such as Venice, Barcelona, and Paris, placing renewed pressure on local infrastructure, housing markets, and resident well-being. This development illustrates a fundamental tension between short-term economic recovery imperatives and long-term sustainability goals. These figures suggest that the sector has not only recovered but is now operating beyond its pre-pandemic capacity, making the decoupling of growth from environmental impact an urgent necessity rather than a theoretical goal. While tourism revenues remain essential for post-crisis economic stabilization, prioritizing rapid growth risks undermining the very environmental and social objectives outlined in recovery plans.

The persistence of these challenges raises a critical question: is the green transition a genuine structural shift or merely a post-pandemic marketing tool? While institutional discourse, such as the European Green Deal, places sustainability at the heart of recovery, operational realities often suggest a "conditioned sustainability" dictated by immediate economic liquidity needs. As noted by Higgins-Desbiolles (2021), there is a persistent risk that sustainability principles are being co-opted as branding mechanisms to attract high-yield market segments, while the underlying business model remains dependent on mass volume. Ultimately, the re-emergence of overtourism indicates that sustainability-oriented rhetoric has not yet been fully embedded in tourism governance practices. A truly structural transformation would require a move beyond promotional strategies toward rigorous destination management, regulatory interventions, and inclusive stakeholder engagement that prioritize local well-being over short-term revenue. Taken together, these findings suggest that sustainable tourism in post-pandemic Europe is best understood as a *conditional transition* rather than a linear transformation.

While there is a clear convergence across theory, policy, and strategic discourse regarding the importance of sustainability and digital innovation, significant divergences emerge at the level of implementation. These gaps are shaped by structural constraints such as governance capacity, funding accessibility, and regional inequalities. The post-pandemic period has created a window of opportunity for reorienting European tourism toward more sustainable pathways; however, whether this results in substantive transformation or

incremental adjustment depends largely on the ability of institutions to bridge the gap between strategic ambition and operational practice.

5. Conclusions

The COVID-19 pandemic has acted as a critical turning point for European tourism, exposing long-standing structural vulnerabilities while simultaneously accelerating the integration of sustainability into recovery strategies. This study has examined the evolution of sustainable tourism in post-pandemic Europe (2020–2025) through a qualitative documentary analysis, identifying key trends and persistent challenges shaping the sector's transformation. The findings indicate that European tourism is undergoing a gradual reorientation toward sustainability, reflected in shifts toward domestic and place-based travel, increased attention to environmental management, and the growing role of digitalisation in destination governance. These developments suggest a broad convergence between sustainability theory, European policy frameworks, and strategic discourse at the institutional level.

However, the analysis also reveals significant divergences between policy ambitions and implementation outcomes. Structural constraints—such as uneven governance capacity, limited access to funding for small and medium-sized enterprises, and pronounced regional disparities—continue to hinder the effective operationalisation of sustainability principles. Moreover, the re-emergence of overtourism in major destinations highlights an unresolved tension between short-term economic recovery objectives and long-term environmental and social sustainability goals. These challenges demonstrate that sustainability in post-pandemic European tourism remains conditional and context-dependent rather than universally embedded.

From a policy perspective, the results underscore the need for stronger multi-level governance and targeted capacity-building measures that move beyond simple financial instruments. Inclusive support mechanisms, institutional coordination, and robust monitoring systems are essential to translate strategic commitments into practical outcomes at the destination level. From a research perspective, this study contributes an integrated analysis of trends across Europe, emphasizing that governance capacity is the primary driver of sustainability transitions.

Despite the comprehensive nature of this documentary analysis, certain limitations must be acknowledged. The study relies primarily on high-level institutional data and secondary literature, which may not fully capture the granular, day-to-day operational challenges faced by micro-enterprises. Furthermore, given the rapidly evolving nature of the recovery, the long-term impacts of currently implemented policies remain to be fully observed. Consequently, future research should address these gaps by employing longitudinal case studies to assess how sustainability policies are enacted in

diverse socio-economic contexts. Additionally, empirical studies focusing on the "digital divide" among tourism SMEs could provide deeper insights into the specific capacity-building measures required for an inclusive green transition. Finally, investigating resident sentiment in the context of re-emerging overtourism would contribute to a more holistic understanding of social sustainability in post-pandemic Europe. Overall, the post-pandemic period represents a critical window of opportunity; whether this leads to a meaningful transformation depends on the sector's ability to bridge the gap between strategic ambition and operational practice.

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DONALD TRUMP AND CONVERSATIONAL UNCOOPERATIVENESS IN INTERVIEWS. A CASE STUDY OF THE US PRESIDENT'S INTERVIEW WITH FOX NEWS

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Abstract

Communication is key to life. Communicating, though, does not come easy. To have an effective conversation with someone and convey the intended message, there are `rules` to follow. In politics, however, these rules do not seem to be followed nowadays by any of the world leaders. Wanting to send messages that fit their agendas, politicians often break the conversational maxims postulated by Grice. This study analyses one of the interviews President Donald Trump offered the TV Channel Fox News, after the European leaders went to the White House, in August 2025, applying the four maxims, according to Paul Grice (1989). The study shows that the US president does not often care about the questions he is being asked, as long as they do not benefit him, and he also ignores the comments that he thinks do not place him in a good position.

Keywords: pragmatics, maxims, Grice, Donald Trump, cooperative principle.

JEL Classification: Z13.

1. Introduction

A conversation between two or more people can be considered effective if the participants cooperate, meaning they respect a list of principles. The most well-known set of such principles for a conversation is the one postulated by Paul Grice, called the Cooperative Principle(1989), which presents 4 maxims that shall not be violated, ideally, for a conversation to be called „effective”. Paul Grice started the studies on cooperation in a conversation by trying to understand what is the relation between **saying** something and **meaning** something. Basically, what he was trying to observe is how participants of a conversation solve the implication process of some sentences, and what the `principles` are that could be applied to a conversation to make it easier to understand. These `principles` are called maxims:

- the quality maxim – is violated when the participants offer false information, use irony or sarcasm, unfit for the context of the communication;
- the quantity maxim – is violated when the participants are offering too much or too little information than required by the context;
- the relation maxim – is violated when the participants either change the topic of the conversation all of a sudden, do not answer the questions being asked, avoid some topics or even give false cause-and-effect relation information;

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- the manner maxim – violated when participants use exaggeration, an ambiguous language or expressions not fit for the conversation or the context.

According to Grice, the cooperative principle goes by the rule: "make your conversational contribution such as required, at the stage, at which it occurs by the accepted purpose or direction of the talk exchange in which you are engaged (1989: 26).

Even though, by having a look at these maxims, it seems that it is impossible to have a natural conversation without violating them, they are not presented by Grice as rules, but more as indicators of a good and effective conversation. There are people, however, who not only violate the maxims, but also provide mere examples of how a conversation shall not take place. Several researchers have studied Grice's set of maxims and have argued that actually conveying to them would be impossible, much like computational speaking (Garey & Johnson 1979 in Dale & Reiter 1995). Some have also linked the CP to *miscommunication avoidance*. For example, Bernsen *et al* suggests that "CP and the maxims, as a necessary side effect of improving understanding and enhancing communication, serve the purpose of preventing the need for clarification and repair metacommunication" (1996:225). However, this theory has been criticized, as it is considered that what the speaker might consider to be explicit to the hearer could not be interpreted as such, which means that if the speaker thinks he is not violating the maxim, that he is explicit, the outcome could be different. (Davies, 2000). Moreover, Davies says that the CP does not promise anyone that the conversation will be perfect if the maxims are respected, but it simply explains what is happening in a conversation.

President Donald Trump has often been criticized for not respecting the participants of a conversation, for not offering accurate information (to that end, some media outlets created fact-check articles about his statements), for talking too much about himself and his accomplishments in contexts unfit for that, or for exaggerating and interrupting other participants in the conversation. Even if these things are clear without necessarily applying the cooperative principle of Paul Grice, it is interesting to analyze his conversations, especially with the media that is supporting Donald Trump, in this case, Fox News, to see how actually false information is spread because, in a conversation wherein he violates all maxims, he is not once being confronted with the truth.

2. Methodology

I will analyze the interview President Donald Trump offered to Fox News reporters, Ainsley Earhardt and Lawrence Jones, a day after leaders of Europe and the EU went to the White House to meet the president and discuss the war in Ukraine. The TV interview was transcribed by Roll Call factba.se. This is a qualitative research which only focuses on one interview, by identifying the violated maxims by President Donald Trump, to show how he only focuses on

complimenting his own so-called successes, which sometimes are based on false information.

3. Flouting the Gricean maxims

When it comes to Donald Trump, the flouting of the Gricean maxims could be related to his openness towards conversational dominance, which takes place not only in interviews, but also in conversations with other leaders of the world or officials, in general. Conversational dominance is projected mostly through interruptions, quantity of speaking and many questions being addressed in the conversation (Alafifi, 2021). To be able to identify whether one participant of the conversation is displaying conversational dominance, one must look at the asymmetry present in a conversation (idem). Even if the analyzed corpus is an interview, wherein normally the interviewed person talks more than the reporter, it can be observed, however, that the normal exchange between the participants does not take place, as President Donald Trump dominates the whole interview, talks about topics that are not related to the questions, and makes allegations with no proof.

3.1. *The quantity maxim*

President Donald Trump is the President who was happy and proud to say he held the longest speech in an address to Congress, in 2026, which lasted one hour and 39 minutes. If we look at what he said, however, we will realize everything could have been said in 30 minutes. The White House leader has previously, often, had interviews, speeches or conversations where he was accused of either talking too much about things that were not related to the conversation's topic or just reiterating false information spread in the media or on social media. Sometimes, he even acknowledged having said incorrect things. The maxim he most often violates is, though, the quantity maxim, as he offers too much information, most of the times, and too little times less information than required. However, what is noticed in the interview offered to Fox News is that sometimes this violation of the quantity maxim comes along with the violation of the relation and qualitative maxims, which means he is not only giving information more than it is required, but he also changes the topic and offers false information.

(1) **Earhardt:** It was -- it was such a sense of unity and, um, we all enjoyed watching it because America is on top and it was on your turf, on your terms. I know yesterday you talked about arranging a meeting to take place in two weeks between Putin and Zelenskyy. Is there an update there? And do you plan to attend?

Trump: No, I thought I'd do, uh, first let him -- Let them meet. You know, they haven't been exactly best friends. They haven't gotten along very well. And I called President Putin yesterday, and I do have a good relationship, but it, you know, *only matters if we get things done. Otherwise, I don't care about the*

relationship. I do have a good relationship with him, but I want to get things done. You know, I've gotten -- I've solved seven wars. We ended seven wars. I thought this would be one of the easier ones and this has turned out to be the toughest one. India, Pakistan, I mean, we -- These were big ones and, uh, also all big ones and some going for 31, 32 years, one for 35 years. The Congo, think of that, the Congo and Rwanda for 35 years, I got that one done. I got 'em all done, but this one is the one that is the most difficult and I thought it would be an easy one.

Trump: So I hope President Putin is gonna be good, and if he's not, it's gonna be a rough situation. And I hope, uh, that Zelenskyy -- President Zelenskyy will do what he has to do. He has -- he has to show some flexibility also. The thing is a mess. *This was started by Joe Biden. This was a war that should've never happened . Millions of people are dead, the country's blown to pieces, Ukraine. And it's a -- it's a shame. You know, my wife wrote -- Melania wrote that beautiful, uh, note to President Putin about children. The children are devastated, they're taken away from their homes, the whole thing. And this is a war that would've never, ever, ever happened if we had a president, a real president.*

As it can be noticed in (1), the answer President Trump gives to the reporter's question not only does not clearly answer the question, but it also gives too much information about topics that are not related to the conversation and are not even true. He violates the quantity maxim, but also the relation one – by changing the topic to the wars he solved – and the quality one – as many critics have said he did not actually solve those wars, as the fighting continues in some of the mentioned countries. Moreover, President Trump continues by talking about the former President of the United States, Joe Biden, even if the topic is not related to him. Throughout the conversation with the reporters, he always came back to criticizing Biden or Obama for the negative things happening in the United States or the world. At the end of the answer, again, he violates all three maxims at the same time.

These violations show that the President does not really care about the questions being asked, but only about the messages he wants to send to the American people, his voters, messages that help him justify his actions and his policies.

(2) **Jones:** It --

Trump: -- it's possible that he doesn't wanna make a deal. I always said, you know, you interviewed me, Lawrence, and I think Charlie also. *Do you know Lawrence, I hate to tell you, Charlie was about the first person -- [Laughter] -- in the world to endorse me. He endorsed me about a year before I ran. [Laughter] And that's why I always -- He called me this morning. "Sir, would you do an interview?" [Laughter] And unlike Biden, I don't need permission from my staff. Okay? You know -- [Laughter] -- and then only to be told that I'm not doing it. But Charlie endorsed me about a year before, I think. And he puts it up on his*

site. You know, it's still -- I checked this. It's still in his site. "I endorsed President Trump before he even ran." [Laughter] So I always like a guy --

Hurt: So --

Trump: -- like that, I must tell you, you know.

Hurt: [Laughs] Well, it's a lo --

Trump: Now Lawrence is gonna be a superstar --

Hurt: It's --

Trump: but he was a little later to the game [Laughs] you know --

In (2) as well, questioned about a possible peace deal between Ukraine and Russia, President Donald Trump first violates the relation maxim, by changing the topic all of a sudden and ignoring the question and then the quantity maxim by giving both reporters and the audience a lot of information not required or necessary. After noticing that, the reporters try to go back to the topic but their effort is stopped by the President, who continues to talk about something else and does not engage in the conversation.

(3) **Hurt:** Uh, but Mr. President, what kind of assurances do you feel like, uh, you have that, uh, going forward? Uh, and, you know, past th- -- this Trump administration, it won't be American boots on the ground defending that border.

Trump: Well, you have my assurance and I'm president and I'm, I'm just trying to stop people from being killed, Charlie. Look, they're losing from five to 7,000 people a week in that ridiculous war that should have never happened. If we had a normal pre- -- not even a great president. *If we had a normal president, that wouldn't have happened. But we had a, a guy that didn't have a clue.* And they're losing, think of it, five to 7,000 a week. So even these guys, they'll say, "Okay, let's meet next week." I said, "You can't meet next week. Next week, you're gonna have 7,000 more dead people. You can't do that. You gotta get this thing done." *One of the things at the table was one of the gentlemen who's a great guy, but he said, uh, I sa- -- I, I hope I didn't insult him. But we had a, a guy that didn't have a clue.* And they're losing, think of it, five to 7,000 a week. So even these guys, they'll say, "Okay, let's meet next week." I said, "You can't meet next week. Next week, you're gonna have 7,000 more dead people. You can't do that. You gotta get this thing done." *One of the things at the table was one of the gentlemen who's a great guy, but he said, uh, I sa- -- I, I hope I didn't insult him. We'll see what happens there.* And then if that works out, if it works out, then I'll go to the trilat and close it up.

Again in (3), the President violates both the relation and the quantity maxims as he is changing the topic in the middle of the conversation and starts commenting about the former president, Joe Biden, or he repeatedly mentions someone he met with who had a comment on the Ukraine-Russia deal. In this case, he violates the quantity maxim, because he offers information which was not required, but then he also violates the quality maxim because he is not very explicit about the identity of that person or the thing which could have insulted him.

(4) **Hurt:** So you stepped out of the Oval Office to make the call?

Trump: They had no communication. *They had no communication with the White House for year, as people died, years with Biden and -- and his people.* No communication. Putin told me years, it was years that he -- that he didn't speak to anybody from the White House. And it was a long time that he didn't speak to anybody from Europe. No, it's a fractured relationship. And when I came in, I always had, despite the Russia, Russia, Russia hoax, which truly was a very dangerous thing for our country. But despite that, I maintained a very good relationship. I mean, you saw that when he got off his plane, I got off my plane. There's a warmth there that you can't, you know -- There's a -- there's a decent feeling. And it's a good thing, not a bad thing. People would say, "Oh, that's such a terrible thing." It's not a terrible thing. You know what? We've got the most nuclear weapons in the world.

Hurt: Right.

Trump: And the most powerful. He's got second, okay.

Hurt: So can you describe for us how that happened? Did you just announce that you were gonna go into the ther room to make the phone call?

Trump: Yeah.

When asked if he got out of the Oval Office to call President Vladimir Putin – while the European leaders were in the office – President Trump does not answer with `yes` or `no` (4)', but starts talking about the diplomatic relations between Russia and the USA, in the last couple of years. After this answer, the reporter feels the need to repeat the question as the first answer did not clarify that aspect.

3.2. *The qualitative maxim*

The qualitative maxim is the one that President Trump violates the most. He is known for exaggerating in his speeches or for using inflated numbers when it comes to the trade deals he makes, as he is also a former TV showman, and he knows that such things are attractive to the audience. However, lately, especially when it comes to the war in Ukraine, he has fallen for some information spread in the media by the Russian propaganda, as it was the moment he believed Ukraine had attacked one of Putin's residences, then acknowledged that he was wrong¹. In this interview in particular, he also shows he believes what President Vladimir Putin tells him about the supposed reasons Russia invaded Ukraine, even if there is no evidence for what he says.

¹ https://www.google.com/url?esrc=s&q=&rct=j&sa=U&url=https://www.euronews.com/2026/01/05/trump-says-ukraine-did-not-target-vladimir-putins-residence-in-novgorod-as-the-kremlin-cla&ved=2ahUKEwjuzp32t7OSAxVoRv4FHXxKEUsQFnoECAoQAg&usg=AOvVaw0wviX_2s6BJr9E9pmDix-T

(5) **Jones:** You know –

Trump: And so there's, uh, there's great hostility and, uh, maybe rightfully so. *But one thing was NATO, they, they went in, they said, "We want you -- You know, we wanna get Crimea back." This* was at the beginning. Now Putin, in all fairness to him, he made a good deal. He got it from Obama, but they said, "We want it back." And that was not exactly well received, because it was like 12 years before. That's where Russia has its submarine base. And, you know, that's been there long before Putin, you know, they've been there for a long time, but long before Putin. And the other thing, uh, they said is, *"We want to be a member of NATO."* Well, both of those things are impossible because, again, long before Putin, it was a no-no by Russia or the Soviet Union or anything you wanna call it. Uh, sort of a similar thing as it gets larger, but, uh, very similar. But it was, it was always a no-no. You could not -- Russia said, "We don't want, uh, the so-called opponent or the enemy." Let's use that term. "We don't want 'em on our border." And they were right. They were okay. *And, yet, uh, they went in and they asked with the United States, they said, "Put us into NATO." And everybody knew you can't, you just can't do that. They, they would never have agreed to it. This is before Putin. This is long before Putin. This was a -- It was just a no-no. It was something that was never going to happen. So they asked for it and they shouldn't have asked for it, 'cause it was, you know, very insulting thing to --* Now, they could have asked for many other things, but the other thing they wanted to do is, is getting Crimea back. And, you know, that was given. Uh, they had built -- Uh, they, they were expanding everything and spending a lot of money, all *because Barack Hussein Obama gave it away and one of the dumbest real estate deals I've ever seen.*

In (5), it can clearly be observed how Donald Trump is reiterating the reasons Putin invoked when he attacked Ukraine: that Kyiv wanted to be part of NATO, something Moscow could not allow, because it felt threatened. However, there is no evidence to show that Ukraine wanted to be part of NATO before the 2022 invasion. Yet, Donald Trump violates the quality maxim and offers this information, even if it is not true. Then, he also accuses former President Barack Obama of having given away Crimea, yet everyone knows Crimea was occupied by the Russian troops through the so-called green soldiers². This is not only that Donald Trump cannot follow the principles of an effective conversation, but also how he is following his foreign policy while being also influenced by Russian propaganda. These violations of the Gricean maxims help us, then, to also have a deeper look into how the President thinks when it comes to the war in Ukraine,

² Early on 27 February 2014, Russian special forces began to occupy Crimea, wearing unmarked uniforms to hide their origin. They were referred to as "little green men". The soldiers had set out from the Russian base in Sevastopol and travelled to the capital Simferopol.

(6) **Trump:** Who would want that? I mean, if you were Russia, who would want to have your, your enemy, your opponent sitting on your line. You don't do that. So it was always thought that -- that, uh, Ukraine was, uh, sort of a buffer between Russia and the rest of Europe. And it was, it was a big wide buffer. *Everything worked out well until Biden got involved, you know, when Biden gave them \$100 billion dollars right up front. I don't give them anything.* You know, I don't know if you know it, but since I've been there, we -- we don't pay. First of all, I made a deal to take rare earth. *That's the equivalent of much more than the 350 billion that Biden, uh, got away because I felt so foolish. It was so stupid what he did.* And I was able to make a deal with Ukraine, and they were very nice. They have great rare earth among the best in the world, and we took much more than the 350 billion. And they -- they were great about it. So we got that, you know -- you know handled. But now we don't pay any money to Ukraine.

Also in (6), he uses the same amount of money used many times in his speeches about the aid the US gave Ukraine since the start of the large-scale war. However, many experts have said the amount is incorrect, as the US gave the Ukrainians less than 200 billion dollars³. Moreover, he contradicts himself in the exact same paragraph, first saying that the former president Joe Biden gave Kyiv 100 billion, then increasing the amount to `more than 350 billion`. Of course, in this case, there are two possibilities: the president either does not know precisely the amount, or he is purposely using this big amount to influence the opinion of the American taxpayers and to also blame the European countries for not helping Ukraine too much. In the exact same paragraph, he violates the manner maxim, as he calls Joe Biden's decision to help Ukraine `stupid`.

(7) **Trump:** No, I thought I'd do, uh, first let him -- Let them meet. You know, they haven't been exactly best friends. They haven't gotten along very well. And I called President Putin yesterday, and I do have a good relationship, but it, you know, only matters if we get things done. Otherwise, I don't care about the relationship. I do have a good relationship with him, but I want to get things done. You know, I've gotten -- *I've solved seven wars. We ended seven wars.* I thought this would be one of the easier ones and this has turned out to be the toughest one. *India, Pakistan, I mean, we -- These were big ones and, uh, also all big ones and some going for 31, 32 years, one for 35 years. The Congo, think of that, the Congo and Rwanda for 35 years, I got that one done. I got 'em all done, but this one is the one that is the most difficult and I thought it would be an easy one.*

³ <https://abcnews.go.com/Politics/fact-checking-trumps-claims-amount-us-aid-ukraine/story?id=119167409>

This statement regarding the wars he ended – the big 7 wars – is still being debated in the media. Apart from sometimes mistaking the names of the countries whose wars were solved⁴, the information itself is exaggerated and idealized as what he did was to propose a deal for Gaza (yet the war did not end, the truce is still violated and Israel still attacks targets in Gaza), to propose a deal for Congo and Rwanda (yet fighting is still taking place), to convince India and Pakistan to end the war, Armenia and Azerbaijan as well (tough this war ended long before that), propose a deal for Thailand and Cambodia (yet they still fought afterwards), for Iran and Israel things are still heated and anytime a war could break, and there was actually no war between Egypt and Ethiopia, only tense diplomatic relations he managed to temporarily cool down. So this statement is not just a violation of the quality maxim – and a relation maxim – but also an exaggeration he uses constantly to portray himself as a peacemaker, fit for the Nobel Prize.

3.3. *The manner maxim*

This is a maxim President Donald Trump constantly violates. In this interview, he violates this maxim by using insults when talking about former presidents or by using expression which are not proper for a President talking about wars and conflicts.

(8) And, uh, Crimea is the apple of, of Ukraine. I mean, it's so beautiful. And, uh, Obama gave it away. Nobody ever mentions that. If I ever did that, the fake news would be, uh, they would be writing about me day and night for years. He gave it away. He demanded they, that they let it go, and Russia came in and took it. *Uh, just took it like from a candy from a baby.*

In (8), the president is talking about the invasion of Russia in Crimea, in 2014. However, for this context – a TV interview – and considering the positions (a President talking to reporters, while millions of people are watching) and the relation between them, it is an improper form of talking about an invasion which is not only illegal and violates international law, but it also consisted in victims and material damages on the Ukrainian side. Therefore, the President is violating the manner maxim. Furthermore, he violates the qualitative maxim as once again he accuses with no evidence President Obama of being involved in Russia's invasion of Crimea.

(9) **Earhardt:** -- in the room? What did the other leaders say about this?

Trump: Well, they understand. Look, they, *everybody can play cute and this and that*, but, you know, Ukraine's gonna get their life back.

⁴ <https://www.politico.eu/article/european-leaders-mock-donald-trump-over-armenia-albania-mix-up/>

His elusive and ambiguous language continues (9) when he talks about the European leaders being at the White House. It is not, however, clear what he is trying to say; most likely, he is talking about the attitude of these leaders towards Ukraine and Russia. This is another example of a violation of the manner maxim.

(10) So I hope President Putin is gonna be good, **and if he's not, it's gonna be a rough situation**. And I hope, uh, that Zelenskyy -- President Zelenskyy will do what he has to do. He has -- he has to show some flexibility also. **The thing is a mess**.

In (10), the president uses an implicature which suggests a threat towards President Vladimir Putin, however does not give too much information on what could happen to him or the country he leads if he does not act as President Trump expects him to. Then, he uses improper language to talk about a war wherein tens of thousands of civilians have died, calling it, on TV, a `mess`. Both expressions are examples of violations of the manner maxim.

(11) You know, I don't know if you know it, but since I've been there, we -- we don't pay. First of all, I made a deal to take rare earth. That's the equivalent of much more than the 350 billion that Biden, uh, got away because I felt so foolish. **It was so stupid what he did**. And I was able to make a deal with Ukraine, and they were very nice.

Calling someone or something `stupid` is something that is not considered abnormal for President Donald Trump, but this is not how a conversation should normally take place, especially if one of the participants in the conversation is the President of a superpower, and he is also talking on TV. Yet, in the interview he gave Fox News (11) he called one of former President Biden's alleged actions `stupid`. He is, however, not only violating the maxim manner, but also the qualitative one, because the information he gives before this comment is proved to be false.

3.4. The relation maxim

This maxim is one that the President violated since the start of the conversation with the reporters till the end. He is not only changing the topic in the middle of the conversation, but he is also interrupting or even ignoring some of the questions he is being asked. This is though an interview he gave to one of the TV channels that is supporting the President, which is why we do not see the reporters trying to actually get the President back on the topics they want to discuss. This attitude of the President proves he is constantly repeating some narratives (Biden and Obama blamed for most of the bad things happening to the country, USA is the best country in the world and he is the best President, as he often says), and to do so he takes advantage of TV interviews or speeches to

always come back to the topics he wants, ignoring the reporters, the questions or the context.

(12) -- it's possible that he doesn't wanna make a deal. I always said, *you know, you interviewed me, Lawrence, and I think Charlie also. Do you know Lawrence, I hate to tell you, Charlie was about the first person -- [Laughter] -- in the world to endorse me. He endorsed me about a year before I ran. [Laughter] And that's why I always -- He called me this morning.*

In (12), the President starts talking about a possible peace deal between Russia and Ukraine, but then suddenly changes the topic and starts complimenting one of the reporters he is talking to. That is being done so he can show that not so many people supported him to become a president but those who did are now rewarded and remembered.

(13) Some people as missiles hit wrong spots or get lobbed into cities like Kiev and towns. But, uh, you know, when, if I can save 7,000 people a week from being killed, I think that's a pretty -- *I want try and get to heaven, if possible. I, I'm hearing I'm not doing well. I hear --*

Jones: Did, did –

Trump: *I'm really at the bottom of the totem pole.*

Jones: Did the fir --

Trump: *But if I can get to heaven, this will be one of the reasons. Well, I think I saved a lot of lives with India, Pakistan.*

In (13), the topic is changed by President Trump from the war in Ukraine to how he deserved to go to heaven because he saved a lot of lives. Even if one of the reporters tries to return to the topic, the president continues to ignore him, using an implicature that suggests he is a peacemaker and thus eligible for heaven.

3. Conclusion

President Donald Trump, as shown in this analysis, often violates more than one maxim at once, as he changes the topic in the middle of the conversation, uses ambiguous language and insults, makes allegations with no proof, and also gives more information than required by the questions, most of the time to simply underline his successful political agenda. Even if the relation and quantitative maxims are violated by other politicians as well, when they are trying to send a message to their audiences, the violation of the manner maxim – especially through insults – and of the quantitative maxim – by presenting information

which was proved to be false – are characteristics that have defined, until now, the second term of President Donald Trump.

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LUXURY AVIATION SERVICES – CONTEMPORARY ISSUES REGARDING THE HIGH-END PASSENGER

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Abstract

This paper explores the evolution of services dedicated to the elite segment of global aviation. The research integrates a comprehensive theoretical review focusing on the characteristics and motivations of high-end customers, emphasizing the role of personalization, confidentiality and access to unique amenities, as well as innovations in catering, on-board technology, aircraft and cabin design. The study uses semi-structured interviews with high-end passengers and industry experts to explore perceptions and experiences, analyzed through thematic analysis to evaluate the impact of these features on passenger satisfaction.

Keywords: luxury aviation, passenger loyalty, high-end customer, exclusive services, premium facilities, private aviation.

JEL Classification: Z31.

Introduction

The growing complexity and differentiation of global air transport have brought renewed attention to the elite segment of aviation services, where airlines and private operators compete on more than network and schedule alone. In this segment, luxury is increasingly understood as an integrated experience that combines physical comfort, emotional well-being, and a strong sense of exclusivity, rather than as a simple accumulation of superior tangible features (Han & Hyun, 2018; Lee & Jang, 2019). Over the past decade, premium cabins and private or business aviation have evolved into experience-centric products in which curated environments, personalized interactions, and seamless end-to-end journeys play a decisive role in shaping perceived value and customer satisfaction (Buhalis & Sinarta, 2019; Wirtz et al., 2022).

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At the same time, structural changes in the airline and business aviation markets have altered the competitive landscape of elite air travel. On the commercial side, airlines have invested heavily in lie-flat and suite-style business class products, advanced in-flight entertainment and connectivity, and enhanced ground services, while in some cases reducing or reconfiguring traditional first class offerings (Park, 2019). In parallel, the private aviation market has expanded, driven by fractional ownership, jet cards, and charter solutions that have made private flying accessible to a broader group of executives and high-net-worth individuals, with the global market projected to almost double in value over the next decade (Private Aviation Market Hits \$26.6B, 2025). Industry observers note that some high-end travelers are shifting from commercial first class to private jets due to perceived declines in service quality and reliability in commercial aviation, further blurring the boundaries between premium airline products and business/private aviation (Private Aviation Market Hits \$26.6B, 2025).

Within this evolving context, personalization and privacy have emerged as central differentiators of elite aviation services. Recent developments in premium and business-class cabins—such as suites with closing doors, flexible seating options, and technology-driven environments—demonstrate a clear move toward highly individualized, privacy-focused experiences (Business Class Evolution, 2025; Rosen Aviation, 2025). Private aviation providers similarly emphasize bespoke itineraries, tailored onboard environments, and confidential handling as core components of their value propositions, reflecting the framing of privacy as a “new luxury” in high-end travel (Aeroaffaires, 2023; Privacy as the New Luxury in Private Aviation, 2025). At the same time, advances in digital technologies and AI enable hyper-personalization across the customer journey, but also raise concerns about data security and the appropriate balance between personalization and confidentiality (Addepto, 2025).

Another critical dimension of differentiation in the elite segment concerns innovations in catering, on-board technology, and cabin/aircraft design. Airlines and private operators increasingly use curated gastronomy, fine wines and champagnes, and chef-driven menus to signal exclusivity and align their services with broader trends in luxury hospitality (Onboard Hospitality, 2023; Avion Elite, 2025). Cabin environments are being redesigned as multi-functional spaces that allow passengers to work, rest, and socialize, supported by advanced lighting, climate control, noise reduction, and customizable user interfaces (Park, 2019; Wilkos, 2025; Rosen Aviation, 2025). These developments raise important questions about how such features are perceived and experienced by high-end customers, and how they affect overall satisfaction and perceived luxury value.

Despite a growing body of work on airline service quality and luxury value in first and business class, empirical research that examines elite aviation services holistically—across commercial premium products and business/private aviation,

and with explicit attention to personalization, confidentiality, and design innovations—remains limited (Han & Hyun, 2018; Kim et al., 2021; Lee & Jang, 2019). Existing studies often focus either on specific service attributes or on quantitative assessments of satisfaction, offering less insight into the deeper meanings, expectations, and narratives through which high-end passengers construct their experiences. Furthermore, few studies systematically compare passenger perspectives with those of industry experts responsible for designing and delivering these services (Buhalis & Sinarta, 2019; Wirtz et al., 2022).

This study addresses these gaps by qualitatively exploring how elite aviation services are perceived and experienced by high-end passengers and industry experts, with a particular focus on personalization, confidentiality, unique amenities, and innovations in catering, on-board technology, and cabin/aircraft design. Using semi-structured interviews and thematic analysis, the research seeks to uncover the expectations, motivations, and value perceptions that underpin high-end travel choices, as well as expert strategies and challenges in designing elite service propositions (Park, 2019; Wavetec, 2024). The overall aim is to understand how these key features shape passenger satisfaction and perceived luxury value, and to derive implications for theory and practice in the management of elite aviation services

1. Literature review:

Premium cabins and private aviation have developed from a transportation function into an experiential, hospitality-driven product, according to the literature on luxury air travel and elite aviation services (Han & Hyun, 2018; Kotler et al., 2017; Wirtz et al., 2022). Luxury service marketing, where scarcity, emotional value, and symbolic meaning shape perceived value and brand attachment, is increasingly used to conceptualise high-end airline products like first and business class as well as private and business aviation (Han & Hyun, 2018; Lee & Jang, 2019).

According to Kim et al. (2021) and Lee & Jang (2019), a number of studies on first-class and premium passengers highlight the combination of functional and symbolic motivations, such as comfort, time efficiency, status signalling, and the desire for distinction. Empirical work on luxury perception in aviation suggests that passengers' luxury value perceptions (e.g., quality, prestige, hedonic value) significantly influence satisfaction, word-of-mouth intention, and loyalty towards airline brands (Kim et al., 2021; Lee & Jang, 2019). These motivations are particularly salient among high-spending business travelers and ultra-high-net-worth individuals who regard the flight not only as a means of transport, but also as a site of identity expression and well-being (Buhalis & Sinarta, 2019).

The evolution of the elite segment has been strongly shaped by personalization and privacy, which emerge in the literature as core differentiators

of business and private aviation (Addepto, 2025; Aeroaffaires, 2023; Wirtz et al., 2022). Recent analyses show that ultra-personalization now spans the entire journey – from individually tailored schedules and flexible routing to customized cabin layouts, on-demand services, and adaptive ground handling – with private aviation providers positioning themselves as orchestrators of bespoke mobility solutions (Aeroaffaires, 2023; Aeroaffaires, 2025). In this context, privacy and confidentiality are framed as the “new luxury,” with customers valuing discreet operations, anonymity, secure communication, and protection of both physical and digital identity throughout the travel experience (Aeroaffaires, 2025).

In parallel, innovations in catering, on-board technology, and cabin design have become key levers in the competitive positioning of premium airline products (Onboard Hospitality, 2023; Wilkos, 2025). Industry and academic sources highlight a shift from standardized meals to curated gastronomic concepts, including collaborations with star chefs, elevated wine and champagne programs, and pre-flight menu customization, which together reinforce the perception of exclusivity and personal attention (Onboard Hospitality, 2023; “Unveiling Key Differentiated Service Dimensions,” 2024). Cabin design has moved towards enclosed suites, flexible seating configurations, and multi-functional spaces used for work, rest, and social interaction, supported by advanced lighting, noise reduction, and digitally controlled environments (BlackJet, 2025; Park, 2019). These tangible design features are complemented by next-generation in-flight entertainment and connectivity solutions, positioning the cabin as a hybrid space that blends private office, living room, and boutique hotel (BlackJet, 2025; Wilkos, 2025).

The broader literature on airline service quality and passenger satisfaction provides a framework for assessing the impact of these features on customer outcomes (Buhalis & Sinarta, 2019; Kotler et al., 2017; Wirtz et al., 2022). Classical studies show that both tangible elements (seat comfort, cleanliness, catering, physical environment) and intangible elements (responsiveness, empathy, reliability of service staff) significantly affect overall satisfaction and loyalty, with premium passengers especially sensitive to service consistency and perceived attentiveness (Park, 2019; Wirtz et al., 2022; Park, 2019). More recent work using text mining and sentiment analysis of online reviews indicates that for high-end segments, seamlessness across touchpoints (pre-flight, in-flight, post-flight), individualized communication, and proactive problem solving are at least as important as physical comfort in driving positive evaluations (“Forecasting Airline Passengers’ Satisfaction,” 2024; Wavetec, 2024). Overall, current research suggests that elite aviation services create value through a sophisticated interplay of personalization, privacy, and design innovation, which together shape passenger satisfaction and differentiate offerings in an increasingly competitive luxury travel market (Addepto, 2025; Aeroaffaires, 2023; Han & Hyun, 2018; Lee & Jang, 2019).

2. Research aims and objectives

Overall aim of this paper is to explore how high-end passengers and industry experts perceive and experience key features of elite aviation services, and how these features contribute to the feeling of luxury and to passenger satisfaction.

Specific objectives of the paper are focused on exploring the expectations, motivations, and meanings associated with luxury and elite aviation services among high-end customers; understanding how personalization, confidentiality, and access to unique amenities are interpreted and valued by high-end passengers; examining how innovations in catering, on-board technology, and cabin/aircraft design are experienced and evaluated in terms of comfort, exclusivity, and satisfaction; capturing expert perspectives on current trends and best practices in designing elite aviation services for the luxury segment; comparing and contrasting passenger narratives with expert views in order to identify convergences, gaps, and opportunities for improving elite aviation services.

Research questions

RQ1: How do high-end customers describe their expectations, motivations, and experiences related to luxury and elite aviation services?

RQ2: In what ways do high-end passengers perceive and value personalization, confidentiality, and access to unique amenities during their journey?

RQ3: How do passengers experience innovations in catering, on-board technology, and cabin/aircraft design, and how do these elements contribute to their perceived comfort and satisfaction?

RQ4: How do industry experts conceptualize and implement elite aviation services for the luxury segment, particularly regarding personalization, privacy, and design?

RQ5: Where do passenger experiences and expert perspectives converge or diverge in terms of what truly defines and drives satisfaction in elite aviation services?

3. Research design

The study adopts a qualitative, exploratory research design aimed at gaining an in-depth understanding of how elite aviation services are perceived and experienced by high-end passengers and industry experts. This design is appropriate for capturing complex, subjective meanings associated with luxury, personalization, confidentiality, and design features in the context of premium and private aviation.

3.1. Sampling and participants

A purposive sampling strategy was used to select participants who have direct and recent experience with elite aviation services. The passenger sample

consists of high-end customers who have flown in first or business class, or who regularly use business/private aviation services within the last 12–24 months. The expert sample includes industry professionals such as airline managers responsible for premium products, private aviation brokers, cabin crew with premium-cabin experience, and service designers working in the luxury aviation segment. The planned sample size is approximately 15–20 high-end passengers and 8–12 industry experts, which is considered sufficient to reach thematic saturation in qualitative, interview-based studies.

3.2. Data collection

Data was collected through semi-structured, in-depth interviews using two interview guides: one for passengers and one for experts. Passenger interviews explore expectations and motivations for choosing elite aviation services, perceived importance of personalization and confidentiality, experiences with catering and on-board technology, and overall satisfaction with the journey. Expert interviews focus on how organizations design and deliver elite services, the role of personalization and privacy in value propositions, and perceived trends and innovations in catering, cabin design, and customer experience. Interviews were conducted either face-to-face or via secure online platforms, recorded with informed consent, and lasted between 45 and 60 minutes. All interviews were transcribed verbatim to enable systematic analysis.

3.3. Data analysis

The interview data were analyzed using thematic analysis, following an iterative, inductive–deductive approach. In a first step, transcripts were read repeatedly to gain familiarity, and initial codes were generated related to luxury value, personalization, confidentiality, catering, on-board technology, cabin/aircraft design, and satisfaction. In a second step, codes were grouped into broader themes (e.g., “privacy as new luxury,” “curated gastronomy,” “hybrid cabin as living/working space,” “personalization versus standardization”), comparing themes across passenger and expert groups. Finally, themes were refined and interpreted in light of the existing literature on luxury services, airline service quality, and high-end customer experience. Qualitative data analysis software (e.g., NVivo or similar) were used to organize codes and themes, ensuring transparency and traceability of the analytic process.

3.4. Ethical considerations

Participation was voluntary, with all respondents informed about the purpose of the study, the confidential treatment of their data, and their right to withdraw at any time without consequences. Personal identifiers were removed from transcripts, and pseudonyms or role labels (e.g., “Expert 1,” “Passenger 3”)

were used in reporting the findings, which is particularly important given the emphasis on confidentiality and privacy in the elite aviation context.

4. Findings

4.1. Perceptions of luxury and elite aviation

Interviews with high-end passengers suggest that luxury in the context of air travel is understood as much more than superior comfort or material abundance. Instead, respondents tend to describe luxury as an integrated, seamless experience that combines physical comfort, emotional well-being, and a strong sense of recognition and exclusivity, echoing earlier work on experiential and symbolic dimensions of luxury services (Han & Hyun, 2018; Lee & Jang, 2019). Passengers often associate elite aviation with effortless journeys in which transitions between airport, lounge, and cabin are smooth and unobtrusive, and where service interactions feel highly personalized rather than standardized, which resonates with service quality and customer experience literature in aviation (Buhalis & Sinarta, 2019; Wirtz et al., 2022).

A recurring theme in the interviews is the distinction passengers make between premium cabins on commercial airlines and private or business aviation. While first and business class are appreciated for high-quality seating, catering, and ground services, private and business aviation are perceived as offering a qualitatively different form of luxury built around control, privacy, and flexibility (Aeroaffaires, 2023; “Come fly with me,” 2023). For many high-end travelers, the possibility to tailor departure times, routes, and on-board environment, as well as to avoid crowds and public exposure, reinforces the idea that elite aviation is not only a superior product but a bespoke mobility solution that aligns closely with their professional, temporal, and social constraints (Aeroaffaires, 2023; Privacy as the New Luxury in Private Aviation, 2025).

4.2. Expectations, motivations, and high-end passenger profiles

The interviews indicate that high-end passengers are driven by a combination of functional and symbolic motivations when choosing elite aviation services. Respondents frequently emphasize superior comfort, time efficiency, and reliability as core functional drivers, but also highlight status signaling, exclusivity, and the desire to “feel different” as equally important in their decision-making, reflecting prior research on luxury value and passenger motivations (Kim et al., 2021; Lee & Jang, 2019). For many participants, elite aviation is thus perceived not only as a way to optimize travel conditions but also as a means of reinforcing professional identity and social position (Han & Hyun, 2018).

The data further suggest the existence of distinct high-end passenger profiles that differ in how they prioritize these motivations. Executive business travelers tend to stress schedule control, productivity on board, and discreet

handling, while ultra-high-net-worth leisure travelers place more emphasis on emotional comfort, personalization, and family privacy, in line with insights from private aviation studies (“Come fly with me,” 2023; Privacy as the New Luxury in Private Aviation, 2025). Status-oriented frequent flyers seem particularly attentive to brand image, recognition, and loyalty benefits, linking their sense of luxury to the consistency of the premium product across routes and touchpoints (Buhalis & Sinarta, 2019; Wirtz et al., 2022)

4.3. Personalization and confidentiality as core value drivers

Across interviews, personalization emerges as a central theme in how passengers define a truly elite aviation experience. Respondents commonly refer to individualized communication, proactive recognition of preferences, flexibility in handling special requests, and the feeling that “the service is designed around me,” which aligns with literature on hyper-personalization and data-driven service customization in aviation (Addepto, 2025; Wavetec, 2024; Wirtz et al., 2022). Passengers particularly value pre-trip tailoring, such as preferred seating, dietary requirements, and ambient preferences being remembered and implemented without explicit reminders, reinforcing the perception of being known and valued as individuals (Han & Hyun, 2018; Buhalis & Sinarta, 2019).

Confidentiality and privacy are likewise portrayed as non-negotiable components of luxury, especially among business and private aviation users. Participants stress the importance of discrete handling, minimal exposure to crowds, and secure, quiet spaces for confidential conversations and work, reflecting industry narratives that frame privacy as a key differentiator in private aviation (Aeroaffaires, 2023; Aeroaffaires, 2025). Concerns about digital privacy also surface, with some passengers expressing expectations that their personal data and travel details be handled with strict confidentiality, resonating with recent discussions on privacy as the “new luxury” in high-end travel (Privacy as the New Luxury in Private Aviation, 2025).

4.4. Experiences with catering, on-board technology, and cabin/aircraft design

Findings show that catering is a highly salient element of the elite aviation experience, often described by passengers as a visible marker of luxury. Respondents highlight the quality and presentation of food and beverages, perceived authenticity of culinary concepts, and the availability of premium wines and champagnes, which mirrors industry reports on the role of curated gastronomy in differentiating first and business class products (Onboard Hospitality, 2023; BlackJet, 2025). Passengers particularly appreciate opportunities to pre-select menus, accommodate dietary restrictions, and experience restaurant-like service standards, aligning with research on

differentiated service dimensions in post-COVID airline strategies (“Unveiling Key Differentiated Service Dimensions,” 2024).

On-board technology and cabin/aircraft design are also central to passengers’ narratives of comfort and exclusivity. Interviewees describe high-value experiences related to lie-flat or suite seating, adjustable lighting, noise reduction, and high-speed connectivity, which support both productivity and relaxation during the flight (Park, 2019; BlackJet, 2025; Wilkos, 2025). Many passengers portray the cabin as a hybrid and adaptive space—a private office, bedroom, and lounge—reflecting trends in product-service system design where the aircraft environment is engineered as a holistic experience rather than a simple seating arrangement (Wilkos, 2025).

4.5. Expert perspectives on designing elite aviation services

Expert interviews reveal a strong strategic focus on differentiating elite aviation services through carefully crafted value propositions that integrate product, service, and brand experience. Industry professionals describe segmenting their high-end clientele and designing tailored offerings that combine tangible features (cabin hardware, catering, lounge access) with intangible elements (personal attention, discretion, emotional connection), in line with service marketing frameworks (Wirtz et al., 2022; Kotler et al., 2017). Experts also emphasize the importance of aligning every touchpoint—booking, ground handling, lounge, in-flight and post-flight follow-up—to create a coherent luxury journey (Buhalis & Sinarta, 2019; Wavetec, 2024).

At the same time, experts point to several challenges and emerging trends. They mention the tension between standardization and personalization, cost pressures associated with high service levels, and the need to integrate sustainability considerations without compromising perceived luxury (Addepto, 2025; Onboard Hospitality, 2023). Some highlight the growing role of data and AI in predicting preferences and automating aspects of personalization, while stressing the importance of maintaining trust and respecting privacy in a data-driven environment (“Forecasting Airline Passengers’ Satisfaction,” 2024; Addepto, 2025).

4.6. Convergences and divergences between passengers and experts

The comparison of passenger and expert narratives reveals substantial convergences in how key value drivers of elite aviation services are understood. Both groups consistently identify personalization, privacy, high-quality catering, and advanced cabin design as core components of the luxury experience, closely aligned with the literature on luxury air travel and service quality (Han & Hyun, 2018; Park, 2019; Onboard Hospitality, 2023). Experts and passengers alike view seamlessness across the journey and the emotional impact of feeling recognized

and cared for as central to satisfaction and loyalty (Wirtz et al., 2022; Wavetec, 2024).

However, the findings also highlight important divergences. Passengers tend to place more emphasis on subtle emotional details—tone of voice, spontaneity, small surprises—while experts often focus on system-level design, operational feasibility, and cost-effectiveness (Park, 2019; Wirtz et al., 2022; Wirtz et al., 2022). Moreover, some experts may underestimate the significance of privacy and discretion as experiential outcomes, whereas passengers, particularly in private and business aviation, frame confidentiality as a defining aspect of luxury rather than an ancillary benefit (Aeroaffaires, 2025; *Privacy as the New Luxury in Private Aviation*, 2025).

5. Discussion

The findings broadly support and extend existing research on luxury services and airline customer experience. Passengers' narratives reinforce the idea that luxury in aviation is multi-dimensional and experiential, combining functional benefits with symbolic and hedonic value (Han & Hyun, 2018; Kim et al., 2021; Lee & Jang, 2019). Consistent with airline service quality studies, the results show that both tangible attributes (seat, catering, cabin design) and intangible factors (personal attention, discretion, seamlessness) shape overall satisfaction, particularly in high-end segments (Park, 2019; Wirtz et al., 2022; Park, 2019; Wirtz et al., 2022).

Theoretically, the study highlights the centrality of the personalization–privacy–design triad in contemporary elite aviation, suggesting that perceived luxury value is generated by the interaction of these elements rather than by any single feature in isolation (Onboard Hospitality, 2023; BlackJet, 2025; *Privacy as the New Luxury in Private Aviation*, 2025). The results also indicate that perceived luxury value may mediate the relationship between specific service features (e.g., curated gastronomy, suite-style cabins, discreet handling) and overall satisfaction, pointing to pathways for future quantitative research to test such mechanisms (Han & Hyun, 2018; Park, 2019).

From a managerial perspective, the findings underline the need for airlines and business/private aviation operators to invest in carefully orchestrated, end-to-end experiences that combine high-level physical comfort with strong emotional and symbolic value. This involves not only upgrading hard products and catering but also implementing data-informed, yet privacy-respecting personalization strategies and training front-line staff to deliver empathetic, anticipatory, and discreet service (Addepto, 2025; Onboard Hospitality, 2023; Wavetec, 2024). In practice, managers should pay attention to small but meaningful details, ensuring that brand promises of exclusivity and confidentiality are consistently translated into interactions at every touchpoint (Aeroaffaires, 2023; Wirtz et al., 2022).

Finally, the study has several limitations that future research could address. The qualitative design and purposive sampling limit the generalizability of the findings, and the focus on specific market segments or regions may not capture the full diversity of elite aviation customers (Wavetec, 2024; Park, 2019; Wirtz et al., 2022). Future studies could adopt cross-cultural or comparative designs, integrate larger-scale surveys to statistically test relationships between personalization, privacy, perceived luxury value, and satisfaction, or explore longitudinally how expectations evolve in response to technological and societal changes in luxury travel (Han & Hyun, 2018; Addepto, 2025).

Conclusion

This study examined how high-end passengers and industry experts perceive and experience elite aviation services, focusing on personalization, confidentiality, unique amenities, and innovations in catering, on-board technology, and cabin/aircraft design. Qualitative findings indicate that luxury in aviation is constructed as an integrated, experience-centric concept in which functional benefits, emotional comfort, and symbolic value are closely intertwined (Han & Hyun, 2018; Kim et al., 2021; Lee & Jang, 2019). Across interviews, personalization and privacy emerge as core value drivers, while curated gastronomy and sophisticated cabin environments act as visible markers of exclusivity, collectively shaping perceived luxury value and satisfaction (Onboard Hospitality, 2023; Park, 2019; Privacy as the New Luxury in Private Aviation, 2025).

By comparing passenger narratives with expert perspectives, the study highlights significant convergences regarding the importance of seamless, high-touch experiences, but also reveals divergences in how subtle emotional cues and privacy expectations are understood and operationalized (Aeroaffaires, 2025; Wirtz et al., 2022). The results extend existing airline service quality and luxury marketing literature by emphasizing the centrality of the personalization–privacy–design triad in defining contemporary elite aviation experiences, and by suggesting that perceived luxury value may mediate the impact of specific service features on overall satisfaction (Han & Hyun, 2018; “Unveiling Key Differentiated Service Dimensions,” 2024).

Managerial implications

For airlines and business/private aviation operators, the findings underscore the need to design and deliver elite services as coherent, end-to-end experiences rather than as isolated product upgrades. Managers should view personalization not only as an algorithm-driven recommendation system but as a holistic process that integrates customer data with human judgment to anticipate preferences and tailor interactions across all touchpoints, from booking to post-flight follow-up (Addepto, 2025; Wavetec, 2024). At the same time, privacy and confidentiality

must be treated as strategic pillars of the value proposition, reflected in physical layouts (e.g., suites, private terminals), operational procedures, and data governance practices (Aeroaffaires, 2023; Privacy as the New Luxury in Private Aviation, 2025).

Investments in curated catering and cabin/aircraft design should be aligned with brand positioning and the specific profiles of high-end customers served. Rather than competing solely on hardware, operators can differentiate through coherent gastronomic concepts, meaningful collaboration with chefs, and cabin environments that support both productivity and restorative rest, consistent with trends in luxury hospitality and hybrid work–travel patterns (Onboard Hospitality, 2023; BlackJet, 2025; Rosen Aviation, 2025). Training programs for premium cabin crew and frontline staff should emphasize empathetic, discreet, and anticipatory service behaviors, ensuring that the brand promise of exclusivity and care is consistently delivered in the “micro-moments” that shape customer memories (Wirtz et al., 2022; Wavetec, 2024).

Limitations and future research

This research is subject to several limitations that should be acknowledged. First, the qualitative, interview-based design and purposive sampling limit the generalizability of the findings to the broader population of high-end air travelers, and the sample may over-represent certain market segments or regions (Park, 2019; Wirtz et al., 2022; “Forecasting Airline Passengers’ Satisfaction,” 2024). Second, the study relies on self-reported perceptions, which may be influenced by recall bias, social desirability, or specific recent experiences, and does not capture longitudinal changes in expectations or satisfaction (Han & Hyun, 2018).

Future research could build on these findings by employing mixed-method or quantitative designs to test proposed relationships between personalization, privacy, perceived luxury value, and satisfaction across different cultural and market contexts. Large-scale surveys and experimental studies could examine mediation and moderation effects, such as the role of trust in data use or cultural attitudes toward privacy in shaping responses to hyper-personalization (Addepto, 2025; “Forecasting Airline Passengers’ Satisfaction,” 2024). Longitudinal and comparative studies between commercial premium cabins and business/private aviation would further illuminate how macro-level changes–technological innovation, sustainability imperatives, and shifting societal views on luxury and mobility–reshape elite aviation services and customer expectations over time (Buhalis & Sinarta, 2019; Private Aviation Market Hits \$26.6B, 2025).

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METHODS OF ASSESSMENT AND IMPACT ANALYSIS ON TOURISM ACTIVITY IN MEXICO

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Abstract

This paper analyzes how country risk influences tourism activity in Mexico, drawing on Mixed Migration Centre (2022) data on migrants'/refugees' perceptions of insecurity and supplementing it with macro indicators (sovereign ratings, the Fragile States Index) and tourism revenues (2020–2024). The study employs descriptive analysis, a decision-making application (expected value) for three regions, and the Pearson coefficient to test correlation. The findings highlight widespread risks, the dominant role of criminal groups, and a strong inverse relationship between risk and tourism performance ($r \approx -0.9$).

Keywords: country risk, tourism, Mexico, security, Fragile States Index, decision theory.

JEL Classification: Z32, F52, O54.

1. Introduction

At present, changes occur daily worldwide. These include globalization and the internationalization of economic activities, which play a major role in creating trade relations between countries. Such processes facilitate an integrated economic space and contribute to population welfare. Therefore, analyzing the impact of country-related risks on the tourism sector requires a multidimensional approach. To illustrate country-risk situations, Mexico was selected. Although it has exceptional tourism potential, Mexico is characterized by significant challenges related to security, political instability, and socio-economic variables.

2. Heading

2.1. Research methodology

Understanding a country's risks is essential, especially for tourists, because it includes the possibility of being exposed to political and social instability that could affect them. For this purpose, in accordance with the report issued by the Mixed Migration Centre (2022), an analysis was conducted. A total of 918 people were selected through face-to-face interviews (97%) and partially by phone (3%), carried out mostly in Tapachula (68%) and Tijuana (31%).

The research followed the steps described in the specialized literature, focusing on the sample, data collection and analysis methods, research instruments, and ethical considerations.

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The study used a 5-question questionnaire aimed at understanding and identifying areas in Mexico where migrants and refugees do not feel safe at all. Based on the questionnaire, mathematical calculations were performed to demonstrate the objectives.

2.2. Research objectives

Based on the analysis, the following research objectives were pursued:

General objective: Identifying the risk components that significantly affect the level of development and the perception of tourism in Mexico;

- Assessing the correlation between risk level and tourism industry performance;
- Analyzing variations in Mexico's country risk scores between 2020–2024;
- Formulating a strategic direction aimed at reducing the vulnerability of the tourism sector.

2.3. Research hypotheses

• In Mexico, due to instability and high risk, the number of tourists differs from year to year.

• Travelers' opinions about a country are influenced by safety levels and social problems.

• If risk-management policies were introduced, the risk level would be lower.

2.4. Research variables

This case study is exploratory, and in terms of data collection it is cross-sectional, since respondents were interviewed only once. The independent variables are:

- Respondents' age – between 18 and 55; those over 55 accounted for only 2%.
- Sex – women, men.
- Legal/migratory status – refugee, migrant, emigrant, undocumented, transit.

Dependent variable: awareness that risk exists in many areas of Mexico, measured through the repetition of the phrase “I felt in danger!” in cities such as Guatemala, Mexico City, etc.

2.5. Research stages

The research was carried out in several stages between February and October 2021, with fewer data from Tijuana because collection there began only at the end of April 2021.

- Documentation and review of “Safety risks and dangerous locations reported by refugees and migrants in Mexico”;

- Collecting responses through a questionnaire from respondents from Honduras, El Salvador, Guatemala, Nicaragua, and Venezuela;
- Developing an analysis of a potential investment and demonstrating the correlation between tourism and risk level;
- Formulating conclusions after synthesizing the data;
- Preparing the report.

2.6. Research participants

A purposive (non-probabilistic) sampling model was used because researchers primarily wanted information from those who took the Pacific route through Mexico or who had previously attempted to migrate to the United States and chose other routes. Local residents also participated in the questionnaire.

The sample consisted of 38% women (349) and 62% men (569).

2.7. Description of research methods and techniques

To conduct this research, the main country risks and how they affect a country's population and economy were first examined. Then, to meet the objectives, the following techniques and tools were used:

- Reviewing information explaining why Mexico is a high-risk country. Cartels and illicit substance trafficking increase risk, and in some cities theft and violence also affect travelers.
- For tourism revenue data, official sources such as INEGI and SECTUR were used; to analyze perceived risk, the U.S. Department of State Travel Advisory was used. For financial data, information from the Bank of Mexico was used.
- The MMC questionnaire contains 5 questions divided into two categories: dangerous areas and perceived risks. Relevant responses were closed-ended, providing quantifiable and comparable data.

At the end of the research, conclusions and personal proposals are included in order to improve the risk situation.

2.8. Research results and interpretation

The analysis of the collected information involves a series of essential methodological steps designed to facilitate interpretation and the extraction of relevant conclusions, so that the report remains grounded in its initial objective: identifying the risk factors that significantly influence the development level and perception of tourism in Mexico.

Given that the questionnaire had only five questions, they can be considered equally important.

For the first question—reflecting exposure to risks during migration and involvement in violent acts—respondents reported predominantly negative experiences along routes in Mexico. According to Diagram 2, 76% (698)

mentioned at least one dangerous location, indicating that risk is widespread. Twenty percent (184) reported two or more dangerous locations. In addition, 58% (532) of migrants and/or refugees were direct victims of abuses in high-risk areas.

From the second question, it can be inferred that the risks faced by travelers, locals, and others are unavoidable. Robberies were reported in 90% of cases (826 people). Extortion and bribery were mentioned by 74% (697), and approximately 4 in 10 respondents (358) reported kidnapping risk and psychological violence.

Responses show that Guatemala City and border towns were mentioned most frequently, as key transit points. These areas become active risk zones, and such perceptions have a direct link to country risk and its impact on tourism.

Results for question four show that in Guatemala the most common risks were bribery and extortion, indicating corruption and abuses. By contrast, Mexico is associated with severe risks of physical violence, kidnapping, or detention. According to Diagram 3, there are major differences between kidnapping, physical violence, death, and sexual violence in Mexico (45%, 29%, 18%, 13%) versus Guatemala (12%, 19%, 7%, 4%).

For the last question, the most frequently mentioned perpetrators were criminal groups: 93% (854) identified them as the main sources of danger. A total of 220 participants reported abuses by the army and police, while 22% (202) mentioned officials within the immigration system.

The generalized feeling of insecurity is aggravated not only by violent acts committed by criminal groups but also by immigration and police officials. Thus, not only locals but also travelers may not trust law enforcement if they need help.

To identify the ratio, we calculate:

$$\text{Ratio} = 532/698 = 0.763 (\approx 76\%) (1)$$

This result shows that 76% of respondents both perceived risks and were direct victims, indicating that risk is not merely fear but is grounded in real-life experience.

2.9. Country risk assessment in Mexico for expanding a tourism activity

To analyze a potential investment in a guided tour line, three regions are examined: Tapachula, Tenosique, and Mexicali, identified in the questionnaire as high-risk areas.

Decision alternatives: A1 – Tapachula; A2 – Tenosique; A3 – Mexicali.

States of nature (S = risk scenarios): S1 = Partial stability (relative security); S2 = Medium criminal activity (extortion, robberies); S3 = Severe violence (kidnappings, cartel interventions).

Probabilities are estimated based on MMC statistics (2022), the U.S. Department of State warning level, and the historical data from the questionnaire.

Probabilities used: S1 = 0.2; S2 = 0.5; S3 = 0.3.

Table no.1. Expected outcomes (xi, thousand USD) and probabilities (pi)

Alternative	S1 (p1=0.2)	S2 (p2=0.5)	S3 (p3=0.3)	TOTAL (expected value)
Tapachula (A1)	-15	-50	-100	-58.0
Tenosique (A2)	-10	-40	-90	-49.0
Mexicali (A3)	10	-20	-45	-21.5

Expected value: $E(A_i) = \sum (x_i \cdot p_i)$

$E(A_i) = \sum (x_i \cdot p_i)$ (2)

Conclusion: Among the three alternatives, Mexicali (A3) has the lowest expected loss and is the only one with a potential profit under a favorable scenario. The model shows how decision theory can be used in country risk analysis, supporting decisions based on statistical expectation.

2.10. Variation in Mexico's country risk scores between 2020–2024

Table no.2. Evolution of Mexico's sovereign ratings (2020–2024)

Year	Moody's	S&P	Fitch
2020	Baa1 (Negative)	BBB (Negative)	BBB- (Stable)
2021	Baa2 (Stable)	BBB (Negative)	BBB- (Stable)
2022	Baa2 (Stable)	BBB (Stable)	BBB- (Stable)
2023	Baa2 (Stable)	BBB (Stable)	BBB- (Stable)
2024	Baa2 (Negative)	BBB (Stable)	BBB- (Stable)

Table no.3. Mexico's risk score (Fragile States Index)

Year	Risk score
2020	86.5
2021	85.9
2022	85.1
2023	83.7
2024	82.5

If we analyze the data in Table 2, we observe that in 2020 the country suffered due to the pandemic. GDP declined substantially, and country risk influenced the economy. A contributing factor was the state oil company Pemex, supported by the state, alongside uncertainties related to public policies.

In 2021, an economic improvement is visible and the risk score decreases slightly. In 2022 the trend continues without major changes. In 2023 there is relative stability of the scores.

In 2024, although the FSI score falls to 82.5, the electoral context increased uncertainty, and Moody's maintains a negative outlook (Baa2 Negative).

2.11. Correlation between risk level and tourism industry performance

Tourism revenue data indicate continuous growth in 2020–2024. In 2020, Mexico used flexible strategies and kept borders open for most tourists, sustaining international interest. In 2024, the country received 45.04 million international tourists, 7.4% more than in 2023.

To evaluate the relationship between the risk score (FSI) and tourism revenues, the Pearson correlation coefficient is calculated.

Table no.4. Data for correlation analysis

Year	Estimated risk score (X, FSI)	Tourism revenues (Y), USD bn
2020	86.5	11.0
2021	85.9	19.8
2022	85.1	28.0
2023	83.7	30.8
2024	82.5	32.96

Source: FSI (Fund for Peace) and SECTUR/INEGI

Table no.5. Final computation table

Year	X	Y	$X - \bar{X}$	$Y - \bar{Y}$	$(X - \bar{X})(Y - \bar{Y})$	$(X - \bar{X})^2$	$(Y - \bar{Y})^2$
2020	86.5	11.0	1.76	-13.512	-23.78	3.10	182.57
2021	85.9	19.8	1.16	-4.712	-5.47	1.34	22.20
2022	85.1	28.0	0.36	3.488	1.25	0.13	12.17
2023	83.7	30.8	-1.04	6.288	-6.54	1.08	39.53
2024	82.5	32.96	-2.24	8.448	-18.92	5.02	72.29
Σ					-53.46	10.67	328.76

Source: Author's own calculations

Pearson correlation coefficient:

$$r = \frac{\Sigma[(X_i - \bar{X})(Y_i - \bar{Y})]}{\sqrt{(\Sigma(X_i - \bar{X})^2 \cdot \Sigma(Y_i - \bar{Y})^2)}} \quad (3)$$

Applying the computed values yields $r \approx -0.9$, indicating a very strong inverse relationship between risk and tourism revenues over the analyzed period.

3. Conclusion

3.1. Validation/invalidations of the research hypotheses

The analysis enabled an understanding of the complexity of country risk assessment in Mexico. Regarding the first hypothesis—that a higher level of country risk negatively affects international tourism—the results are convincing. The Pearson coefficient of approximately -0.9 indicates a very strong inverse proportional relationship.

The second hypothesis, concerning the usefulness of decision-making methods, was partially validated: such methods provide a different perspective, but results depend on the assumptions and criteria selected. The conclusion is that quantitative models are useful but cannot fully replace contextual understanding.

3.2. Recommendations for future research

Future research could extend the analysis to other countries to test whether the negative relationship between risk and tourism is replicated. It would be useful to include a qualitative dimension (interviews with tourists or tourism entrepreneurs) to capture how risk is perceived in practice. In addition, dynamic models and scenario simulations could be used to forecast risk evolution over time and tourism responses.

3.3. General conclusions

Risk represents the possibility of events that negatively affect actions and decisions. In migration and tourism, risk includes both objective aspects (political instability, violence) and subjective perceptions that shape behavior.

This paper combines quantitative and decision-based approaches using empirical data (the MMC questionnaire) and macro indicators. The analysis highlights the widespread distribution of risks, regional differences, and the key role of geographic and institutional context. Through decision methods, a simulation for expanding a tourism activity was conducted, and the strong negative correlation ($r \approx -0.9$) supports the idea that risk influences tourism viability.

In conclusion, risk analysis must be flexible and contextualized, and quantitative and decision tools are useful when applied with discernment.

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THE USE OF ARTIFICIAL INTELLIGENCE IN THE BUSINESS WORLD

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Abstract

A multidimensional approach is required to effectively integrate artificial intelligence (AI) into the economy, combining investment in human capital, tailored regulatory policies, and support for innovation. Through well-designed policies, AI can become a powerful source of economic growth and social welfare. This research paper aims to present how it is being used in the economic field, the impact it has on economic growth, and the challenges and opportunities that come with it.

Keywords: artificial intelligence, economy, finance, commerce, business

JEL Classification: J24, O12, O33, Q55

1. Introduction

Over the past decade, technological transformations have evolved from Industry 4.0 to Industry 5.0, progressing from basic automation to robotization and artificial intelligence. Improvements in computing technologies, microprocessors, and storage capabilities have led to the development of more advanced machine learning algorithms and complex prediction and automation systems. These innovations have directly influenced production processes, business strategies, and economic practices.

Artificial intelligence (AI) is defined as a set of technologies and methods that enable machines to behave like humans, especially with regard to learning, reasoning, planning, and natural language processing (Agrawal, Gans, & Goldfarb, 2018). In economics, these technologies are applied in various domains, such as data analysis for financial decision-making, the automation of industrial processes, supply chain optimization, demand prediction, risk assessment, service customization, and even policymakers' decision-making.

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2. Artificial Intelligence in economics

The vast field of artificial intelligence comprises a set of technologies, such as machine learning, natural language processing (NLP), computer science, and expert systems. In economics, these technologies are integrated into automated decision-making frameworks that assist with:

- **Analyzing and Processing Economic Data:** Artificial intelligence facilitates the management of substantial quantities of economic and financial data, facilitating the extraction of patterns and forecasts, and providing a foundation for strategic decision-making (Agrawal et al., 2018).

- **Making supply chains more effective:** By examining current demand in real time, it provides methods to decrease expenses and enhance productivity (Simons et al., 2024).

- **Automation of repetitive procedures:** within the financial industry, AI carries out verifications and confirmations, decreasing mistakes and the time it takes to process (Brynjolfsson & Mitchell, 2017).

- **In the fields of retail and marketing,** AI algorithms are being used to personalize products and services. This means that the offers made to consumers are tailored to their behavior, which increases satisfaction and revenue (Cockburn et al., 2023).

Numerous analyses underscore the immediate connection between AI implementation and financial expansion. A theoretical model was proposed by Aghion, Jones, and Jones (2017) that posits the stimulation of growth through increased labor productivity and technological capital, driven by artificial intelligence. Specifically, it speeds up the process of creating new products and services and decreases the cost of production, which results in long-term economic growth (Gonzales, 2023; Simons et al., 2024). Moreover, research using European panel data shows that incorporating AI into traditional industries leads to economic growth, though this varies greatly depending on a country's development level and digital infrastructure (Kalai et al, 2024).

Studies based on real-world evidence demonstrate that artificial intelligence plays a substantial role in boosting productivity and fostering innovation within the economy. Gonzales' (2023) longitudinal analysis within the European Union revealed a significant correlation between GDP per capita growth and AI adoption rates. Specifically, countries with high rate of adoption exhibited growth rates up to 15% higher than those with low adoption.

Furthermore, innovation is stimulated by AI, with research and development costs being reduced and the market launch of new products being accelerated. AI use in company processes clearly gives those companies a competitive advantage, as shown by Simons et al. (2024). This advantage allows companies to respond quickly to changes in the market.

The innovation process is heavily influenced by artificial intelligence, which is instrumental in the development of new products and services, as well

as the optimization of existing processes (Cockburn, Henderson & Stern, 2023). Research and development are stimulated by AI through its ability to analyze enormous amounts of data, thus generating innovative ideas that would otherwise have been difficult to discover (Brynjolfsson et al., 2018).

One clear example is the pharmaceutical industry. In this industry, AI helps to discover new drugs more quickly and cheaply by running simulations and analyzing genetic data (Cockburn et al., 2023). They're also using AI to spot new trends in what people are buying so they can give more personalized recommendations, which makes companies more competitive. It was highlighted by Brynjolfsson et al. (2018) that in particular, an innovative ecosystem is promoted by AI, with new technologies and markets being stimulated by the generation of harmonies between companies, academic institutions, and governments.

Even though AI can help make people more productive, it does not always make them more productive right away. This is similar to what was seen during the computer revolution (Dai, 2025). This problem is because it is hard to use AI in the economy. It will take time to see the effects of AI in the economy.

The productivity paradox in the context of AI is manifested in the gap between large investments in technology and relatively slow growth in productivity measured at the macroeconomic level (Dai, 2025). So, there are a few reasons why this is happening. For one, it's taken a while to get AI technologies hooked up to the economy. Plus, businesses are having to change the way they do things and even change their whole culture. And some places or industries just don't have the right infrastructure. However, recent research indicates that the impact of AI on productivity will become much more visible in the medium and long term.

The implications of AI on the labor market are many, and they are just beginning to be understood. From one perspective, artificial intelligence-driven automation has the potential to do away with specific occupations, especially those that are monotonous and predictable, especially within the industrial and agricultural sectors (Algül, 2024; Acemoglu & Restrepo, 2018). On the other hand, the existence of new job opportunities in emerging fields such as data analysis, software development, and AI systems management is a result of AI (Brynjolfsson & Mitchell, 2017).

The impact of AI on employment is a complex issue, with Drydakis (2025) noting that while it can lead to job losses in some sectors, it also creates new opportunities in others. Effective public policies are essential for navigating this transition and ensuring a balanced impact on the economy. To illustrate, continuing education and professional development have become imperative to adapt the workforce to novel requirements (Sun, 2025). A critical issue is the changing structure of employment, which is affecting workers in a variety of ways. Repetitive activities, such as manufacturing, data processing, or

low-complexity services, are primarily affected by AI-driven automation (Acemoglu & Restrepo, 2018).

However, it is equally important to acknowledge that AI has the potential to generate new employment opportunities in both technical and creative domains. For example, there has been exponential growth in demand for data science specialists, software engineers, and AI ethics experts in recent years (Brynjolfsson & Mitchell, 2017). Also, roles involving complex human interaction or creativity have been found to be less affected (Drydakis, 2025). Also, it is becoming more important to have policies for retraining and continuing education. Flexible education models and public-private partnerships to support employees in the adaptation process are proposed by Sun (2025).

3. Electronic commerce and artificial intelligence

Amazon is a pioneer in using artificial intelligence to radically transform e-commerce, and the company's innovative approach has significantly impacted the industry. The platform's use of a wide range of AI technologies allows for the personalization of the user experience, the optimization of logistics chains, and the improvement of services. One of the most well-known and useful examples is its system that makes personalized recommendations. Machine learning algorithms analyze users' purchase history. These algorithms also analyze users' browsing behavior. They look at reviews, too. And they consider individual preferences. The result is personalized product suggestions. This technology uses information about what people like and the latest trends to help them find what they're looking for (Gonzales, 2023).

So, according to this study by Cockburn et al. from 2023, recommendation systems can actually personalize the shopping experience. And that, in turn, can increase conversion rates by up to 35% and raise the average shopping cart value. Amazon's customers are retained and its market share is increased by this personalization. Supply and distribution chains are streamlined using AI, in addition to personalization. The best way to manage warehouse rotations and delivery routes is figured out by algorithms through the looking at real-time info on inventory, demand, and transportation conditions (Simons et al., 2024). This change has made it so that Amazon can sell things online for less money and get them to people faster than other companies. Amazon uses AI to process customer reviews and feedback. This means that Amazon's computers automatically find the important information in reviews and feedback. They do this to improve services and identify problematic products (Brynjolfsson et al., 2018).

On top of that, chatbot systems that use natural language processing can provide ongoing customer assistance, quickly answering questions and fixing problems without needing a person to help. Amazon is a leader in online shopping. It is growing a lot of money fast. This is because it uses AI in its business. Research indicates that the implementation of AI has contributed to the

company's enhanced operational efficiency. It has also led to cost reduction. The company has reached over 20% savings. This has been very important in reaching a market value of more than \$1 trillion (Gonzales, 2023). The resolutions arrived at by artificial intelligence systems have the potential to exert a considerable influence on the economy.

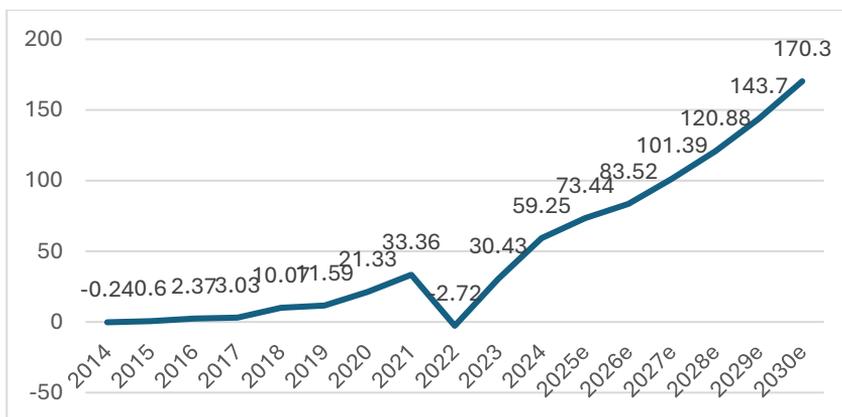


Figure 1. The profit value of Amazon from 2014 to 2030

Source: <https://eulerpool.com/ro/actiune/Amazon.com-Ac%C8%9Biune-US0231351067/Profit>

Figure 1 shows how much money Amazon made in the last 10 years (2014-2024) and what they plan to make in 2030. After artificial intelligence technologies were introduced to the public, profits increased quickly. An analogous phenomenon is evident in the progression of turnover (see Figure 2).

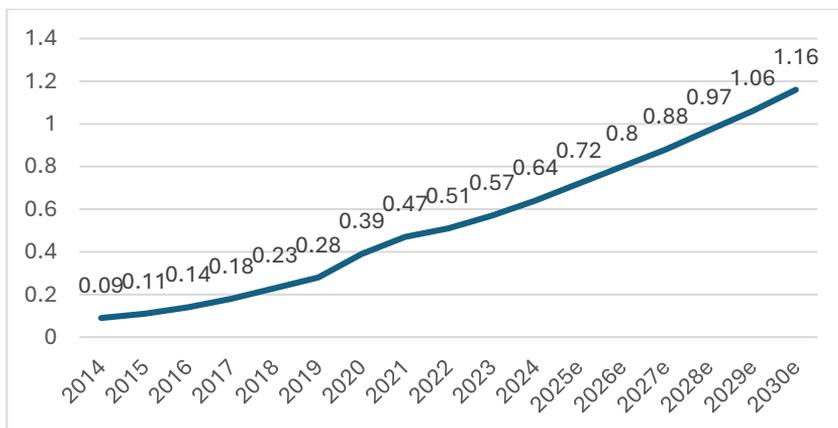


Figure 2. The evolution of Amazon's turnover, measured in billion US dollars, is shown between 2014 and 2030

Source: <https://eulerpool.com/ro/actiune/Amazon.com-Ac%C8%9Biune-US0231351067/V%C3%A2nz%C4%83ri>

4. The role of IA in the financial sector

The financial sector is one of the most advanced areas in the adoption of artificial intelligence technologies, with many financial institutions and companies using these technologies to manage risk, make investment decisions, and perform other financial tasks. Banks and other financial companies use AI to do difficult tasks automatically, watch out for problems, find fraud, and make customer services better. One good example is JPMorgan Chase, a big bank.

The implementation of the COiN (Contract Intelligence) system by JPMorgan Chase is an algorithm based on machine learning and natural language processing that allows for the quick and efficient analysis of legal documents and financial contracts. As stated in a 2018 investigation by Brynjolfsson et al., COiN is capable of handling massive amounts of documents in mere moments, which formerly demanded hundreds of hours of labor by experts. Time and operational costs are reduced, and human error is minimized by this automation, which is essential in the financial sector where accuracy is crucial.

Advanced AI algorithms are used by JPMorgan to detect anomalies and prevent financial fraud. Transactions are analyzed in real time by these systems, and suspicious behavior is identified based on historical data patterns (Aghion et al., 2017). The bank can make more informed decisions about lending and investments thanks to the use of AI, which is also used to assess credit risk and model economic scenarios (Korinek, 2024).

The integration of AI has transformed the manner in which financial institution personnel carry out their responsibilities, liberating them from monotonous duties and enabling them to prioritize strategic concerns and client interactions. Increased productivity and job satisfaction are the result of this change, according to Brynjolfsson & Mitchell (2017). Moreover, the reduction in the time required for document processing and risk analysis has engendered increased operational efficiency and a greater ability to respond quickly to market changes.

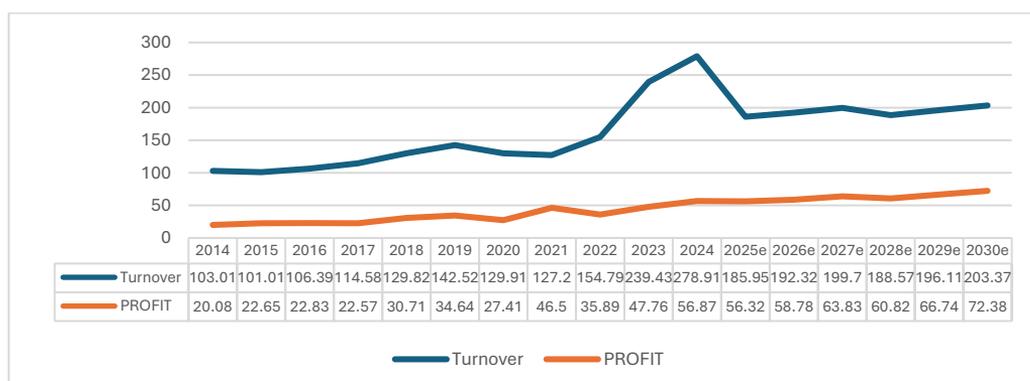


Figure 3. JPMorgan's financial performance measured by turnover and profit.
Source: <https://eulerpool.com/ro/actiune/JPMorgan-Chase-Ac%C8%9Biune-US46625H1005/Profit>

The evolution of JPMorgan's turnover and profit over the last 10 years is shown in Figure 3, as well as a forecast of these two indicators until 2030. It can be seen that the adoption of artificial intelligence will have a beneficial effect on profit, which is something that should be taken into consideration.

5. The economic challenges, risks, and opportunities of using AI

Numerous challenges have been raised by the widespread adoption of AI. These include risks related to data security, social inequalities resulting from unequal access to technology, and the potential for disruptive effects on the labor market (Aghion et al., 2017). Moreover, the presence of certain countries or corporations that exercise exclusive dominion over the dissemination of sophisticated technologies has the potential to exacerbate preexisting economic disparities (Korinek, 2024).

AI can cause money problems. It can also cause problems with what is right and wrong, how things are seen, and keeping information private. Discrimination can result from automated decision-making if the algorithms are not properly calibrated (Aghion et al., 2017). Moreover, the consolidation of technology in the hands of a small number of large corporations has the potential to amplify global economic disparities (Korinek, 2024). It is important to carefully control and watch AI technologies to prevent bad effects and make sure there is a balance between new ideas and responsibility towards society.

While the implementation of artificial intelligence (AI) has the potential to yield considerable economic and social benefits, it also introduces a range of significant challenges and risks that necessitate meticulous management to ensure that the advantages outweigh the disadvantages. The process of replacing human workers with machines to perform repetitive and standardized tasks can result in job losses in some industries, especially in manufacturing, administrative services, and transportation (Acemoglu & Restrepo, 2018).

Conversely, AI has been shown to generate employment opportunities in technology and associated fields. However, this shift may lead to imbalances, particularly for individuals with limited skills or those whose abilities become outdated quickly (Bessen, 2018).

The growth and usage of AI might highlight economic differences between rich and poor nations, as well as between big businesses, which can spend a lot of money on technology, and small businesses with scarce resources (Korinek & Stiglitz, 2018). This means that AI could make economic problems worse. It could make it so that a few people have a lot of money and power. It could also make it so that not many people can use the benefits of AI.

AI depends on collecting and studying a lot of data. This raises concerns about the safety and privacy of personal and business information. Security problems can cause big problems for businesses. These problems can lead to money lost and people not wanting to buy things (Goodman & Flaxman, 2017).

A big impact on the economy can be had by decisions made by AI systems, and it's hard to figure out who's responsible for any errors or damages. This makes it hard to create rules and public policies. We need to create ethical and legal frameworks that work well (Cath et al., 2018).

The excessive reliance of companies on artificial intelligence solutions is not uncommon, and this phenomenon can curtail their agility and adaptability when confronted with unanticipated circumstances. Also, AI technology helps to make the market stronger. This makes it so that a few big companies control important parts of the economy. This makes it hard for other companies to compete.

The optimization of the advantages of AI in the economy is dependent on a concerted strategy among governments, academia, and the private sector. Investment in education, digital frameworks, and investigation is vital, and strategies to encourage it must be formulated (Simons et al., 2024). Furthermore, governments are obliged to execute strategies to safeguard at-risk workers and encourage labor force adaptability (Sun, 2025).

To completely take advantage of the possibilities of AI, governments need to adopt a forward-thinking approach, including: investing in education and training focused on new digital abilities; supporting research and development in AI through financial resources and collaborations; establishing clear guidelines on ethics and data protection to prevent misuse; and encouraging equal access to digital technologies to decrease economic disparities (Simons et al., 2024). The creation of international collaboration platforms for the exchange of best practices and the development of standards in the field of AI has also been proposed by Sun (2025).

A significant opportunity for economic growth and innovation is represented by the widespread adoption of artificial intelligence (AI), but careful coordination of public policies is required to ensure a fair and sustainable transition. The development of an adaptable and skilled workforce is essential for coping with the changes brought about by automation and AI. Guidelines ought to back the following:

- Overhauling schooling structures to incorporate computer technology and artificial intelligence abilities (Bessen, 2019).

- Re-training and ongoing learning courses, notably for employees in industries susceptible to mechanization (Acemoglu & Restrepo, 2018). Structural unemployment is reduced and long-term productivity is increased by these measures.

AI brings up a lot of ethical and legal concerns, as well as issues related to data protection. Governments need to make rules to make sure that algorithms are clear and easy to understand. They also need to make laws to protect people's personal information and stop bad things from happening because of technology. And they need to check and see how AI is affecting the job market and the

economy. To keep up with the rapid pace of technological advances, this framework must be flexible.

To ensure that AI benefits are not concentrated in the hands of a few large companies, the following measures must be taken:

- Research and development in the field of AI must be funded, including through public-private partnerships (Korinek & Stiglitz, 2018).

- SMEs must be supported in adopting AI technologies through grants, consulting, and digital infrastructure.

- Interoperability and open standards must be promoted to stimulate competition and innovation. Strong technology is needed to use AI on a large scale. This includes internet access and safe ways to store information digitally. Investments in infrastructure facilitate the effective accumulation and management of the data necessary to operate AI algorithms.

It is very important that the use of AI be done in a way that is right and fair. This includes: allowing governments, companies, and regular people to be part of the decisions that are made; checking how AI affects people and the economy and changing rules if needed; encouraging fairness and inclusion in how people can use AI and the good things that come from it.

6. Conclusion

The role of artificial intelligence as a fundamental driver of contemporary economic transformation is significant. This change will be difficult, especially for the labor market. But there are many possible benefits, including economic growth, productivity, and innovation. It is very important to have good rules for using AI in the economy. These rules should be based on good research and people from different areas working together.

As people increasingly integrate AI into the economy, it is becoming clear that it will fundamentally shape the way societies produce, consume, and distribute goods and services. The complex impact of AI requires a balanced approach, combining technological innovation with social responsibility and well-designed public policies. So, adopting and developing AI in the economy isn't just a tech issue, it's a multidimensional challenge that needs everyone to work together.

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THE EVOLUTION OF ENVIRONMENTAL TAXES IN ROMANIA: ECONOMIC AND FISCAL IMPLICATIONS

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Abstract

This paper analyzes the evolution and future prospects of environmental taxation in Romania from an economic and fiscal perspective. Romania's vehicle taxation system originally incorporated several environmental tax instruments, which underwent repeated revisions aimed at reducing pollution and encouraging sustainable behavior. Major legislative changes in 2017, including the removal of vehicle registration taxes, were intended to stimulate the purchase of newer vehicles but inadvertently contributed to declining air quality, underscoring the need for more coherent environmental policy frameworks. Government programs such as Rabla and Rabla Plus, which provide substantial eco-vouchers, have played a significant role in accelerating the adoption of electric and hybrid vehicles. An examination of environmental tax revenues reveals a generally upward trajectory, although with fluctuations shaped by policy adjustments. Notably, revenues from pollution-related taxes have increased markedly, signaling Romania's growing commitment to environmental sustainability.

The paper identifies opportunities for broadening the scope of environmental taxation, highlighting the importance of rigorous impact assessment, appropriate tax design, legal clarity, public consultation, and continuous monitoring. These elements are essential for harmonizing Romania's fiscal policies with European standards and fostering long-term sustainable development. The results indicate that well-designed environmental taxes can substantially support environmental protection while contributing to Romania's broader sustainability objectives.

Keywords: environmental taxes, fiscal revenues, vehicle, sustainability

JEL Classification: H7, H70, H71, O13

1. Introduction

The dynamic interplay between environmental conservation and fiscal policy has become increasingly significant in recent years. This paper delves into the evolution and future perspectives of environmental taxes in Romania. Initially, Romania implemented a series of environmental taxes within its vehicle taxation system to mitigate pollution and foster sustainable practices. These taxes have undergone multiple legislative revisions aimed at enhancing their effectiveness in promoting environmental goals.

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A pivotal change occurred in 2017 with the abolition of vehicle registration taxes, a move intended to boost new vehicle purchases. However, this policy shift inadvertently led to a decline in air quality, underscoring the ongoing need for robust environmental protections. In response, government initiatives such as the Rabla and Rabla Plus programs have been introduced, providing substantial financial incentives to encourage the adoption of electric and hybrid vehicles.

Throughout the study period, environmental tax revenues have generally trended upwards, despite some fluctuations due to policy adjustments. Pollution taxes, in particular, have seen marked increases, reflecting Romania's dedication to environmental sustainability. This paper explores the potential for expanding the scope and impact of environmental taxes, emphasizing the importance of thorough assessment, fair and effective tax design, strong legal frameworks, stakeholder engagement, and continuous oversight.

Aligning Romania's environmental tax policies with European Union standards is vital for achieving long-term sustainability. The findings of this study suggest that strategic implementation of environmental taxes can significantly enhance environmental protection and support sustainable development goals. Through a comprehensive analysis of past trends and future prospects, this research aims to contribute to the discourse on effective environmental fiscal policies.

2. Environmental Taxes in Romania

Before 2017, Romania's vehicle taxation system included environmental taxes, primarily in the form of registration and annual pollution taxes. These taxes varied based on the pollution level of the vehicle and other characteristics such as engine displacement.

Previous Situation (before 2017):

- **Registration Taxes:** Vehicle owners had to pay a registration tax before being allowed to drive on public roads. This tax varied depending on the vehicle's characteristics, including its pollution emissions.
- **Annual Pollution Taxes:** To maintain vehicle registration, owners had to pay an annual pollution tax determined by the vehicle's emission levels. Vehicles with higher emissions paid higher taxes.
- **Specific Legislation:** Environmental taxes for vehicles were regulated by fiscal and environmental legislation, which set the calculation and payment methods.

Historically, environmental taxes were structured as follows:

- The special tax applied to passenger cars and commercial vehicles with a maximum authorized total weight of up to 3.5 tons, excluding those specially equipped for disabled persons and diplomatic missions. Vehicles registered after January 1, 2007, which paid excise duties in 2006, were exempt from this tax.

The tax also applied to commercial vehicles over 3.5 tons, except those for special purposes like roadworks or the oil industry.

The special tax amount due to the state budget was calculated in lei using the following formula:

$$\text{Special Tax} = A \times B \times C \times 100 - D100$$

where:

- AA = engine capacity
- BB = tax specified in column 3 of annex 4, or column 2 of annex 4.1
- CC = correlation coefficient in column 2 of annex 5
- DD = reduction coefficient based on vehicle depreciation, in column 3 of annex 5

For example, a car with a 1395 cm³ engine, Euro 4 standard, and two years old, had to pay a tax calculated as:

$$\text{Tax} = 1395 \times 0.15 \times 1.8 \times 0.75 = 376.65 \times 0.75 = 282.48$$

$$\text{lei Tax} = 1395 \times 0.15 \times 1.8 \times 0.75 = 376.65 \times 0.75 = 282.48 \text{ lei}$$

• Emergency Ordinance No. 50 (April 21, 2008): This ordinance regulated special vehicle taxes. It applied to passenger cars and commercial vehicles up to 3.5 tons and commercial vehicles over 3.5 tons, excluding special-purpose vehicles. The amount was calculated based on CO₂ emissions and vehicle category. The calculation formula for Euro 4 or Euro 3 vehicles was:

$$\text{Payment} = [A \times B \times 30100 + C \times D \times 70100] \times 100 - E100$$

For non-Euro, Euro 1, or Euro 2 M1 category vehicles:

$$\text{Payment} = C \times D \times 100 - E100$$

where:

- AA = combined CO₂ emissions in grams/km
- BB = specific tax in euro/1 gram CO₂, in column 3 of annex 1
- CC = engine capacity
- DD = specific tax per engine capacity, in column 3 of annex 2
- EE = reduction rate in column 2 of annex 4

For example, for a 1395 cm³ Euro 4 vehicle, two years old, the payment would be:

$$\text{Payment} = [0 \times 0.20 \times 30100 + 1395 \times 0.1 \times 70100] \times 100 - 21100 = (0 + 97.65) \times 0.79 = 77.14$$

$$\text{euros Payment} = [1000 \times 0.20 \times 30 + 1001395 \times 0.1 \times 70] \times 100100 - 21 = (0 + 97.65) \times 0.79 = 77.14 \text{ euros}$$

At the October 2007 exchange rate of 3.35 lei/euro, this equals 258.41 lei.

• Law No. 9 (January 6, 2012): This law targeted vehicle pollution emissions. It imposed an additional tax based on vehicle pollution levels to promote less polluting vehicles. Article 6 outlined exceptions for vehicles used for medical purposes or by disabled persons. The calculation was:

$$\text{Payment} = [(A \times B \times 30\%) + (C \times D \times 70\%)] \times 100 - E$$

For example, for a Euro 5 vehicle (no Euro 4 with less than two years old by 2012), the payment would be:

$$\text{Payment} = [(0.5 \times 0.130 \times 30\%) + (1395 \times 0.05 \times 70\%)] \times 100 - 21100 = (0.0195 + 48.825) \times 0.79 = 38.58$$

$$\text{eurosPayment} = [(0.5 \times 0.130 \times 30\%) + (1395 \times 0.05 \times 70\%)] \times 100 - 21 = (0.0195 + 48.825) \times 0.79 = 38.58 \text{ euros}$$

At the October 2011 exchange rate of 4.32 lei/euro, this equals 166.69 lei.

- Emergency Ordinance No. 9 (February 19, 2013): This ordinance regulated the environmental stamp for vehicles, based on Euro pollution norms and CO2 emissions. For Euro 6 vehicles, the formula was:

$$\text{Payment} = A \times B \times (100 - C) / 100$$

Hybrid and electric vehicles were exempt from this tax. For a Renault Clio with a 1395 cm³ engine, Euro 5, two years old, the payment would be:

$$\text{Payment} = 110.1 \times 0.63 \times 79 / 100 = 54.79$$

$$\text{eurosPayment} = 100 / 110.1 \times 0.63 \times 79 = 54.79 \text{ euros}$$

At the October 2012 exchange rate of 4.53 lei/euro, this equals 248.19 lei.

Changes in 2017 and Current Situation

In 2017, Romania eliminated the vehicle registration tax as part of a broader fiscal reform to simplify procedures and encourage new vehicle purchases. This decision marked a significant shift in the environmental tax system.

Post-2017, Romania does not have specific environmental taxes for vehicles. However, other measures aim to protect the environment and reduce emissions, such as emission standards for new vehicles and incentives for purchasing less polluting vehicles like electric or hybrid cars. Since 2017, air quality in Romania has deteriorated, highlighting the need for continued efforts to reduce pollution.

After the elimination of the vehicle registration tax in 2017, Romania entered a period in which there are no longer specific environmental taxes levied directly for vehicles. However, it is important to note that there are other measures and policies aimed at protecting the environment and reducing pollutant emissions, such as emission standards for new motor vehicles and programs to encourage the purchase of less polluting vehicles such as electric cars or hybrids.

From 2017 until now in Romania, a negative evolution has been observed in terms of air quality. This negative evolution can be interpreted as a deterioration of the environment and can be influenced by several factors, including the level of pollution generated by different sources, including motor vehicles.

In 2019, the deterioration of air quality in Romania highlights the need to continue efforts to reduce pollution and protect the environment and public health by adopting effective policies and measures.

Environmental Tax:

The environmental vehicle tax in Romania underwent several changes between 2016 and 2023. Initially introduced in 2008, it was adjusted multiple times over the following years.

In 2016, the environmental vehicle tax was modified during the Ponta II administration. This change was controversial as it led to increased car prices and dissatisfaction among certain segments of the population. Subsequently, the government reversed this decision and reduced the environmental tax in 2017 to offset the price increases.

In 2019, the environmental vehicle tax was modified again through Emergency Ordinance No. 50/2019, which introduced a new calculation method. The tax was significantly increased for more polluting cars, while less polluting cars had their tax reduced or were even exempted from paying it.

As of 2023, the environmental vehicle tax continues to be calculated based on the car's CO₂ emissions and certain technical characteristics. The Romanian government is attempting to encourage the ownership of more environmentally friendly cars through fiscal incentives for electric or hybrid vehicles.

In conclusion, the evolution of the environmental vehicle tax in Romania from 2016 to 2023 has been marked by fluctuations, with significant changes in calculation methods and tax levels, aiming to reduce pollutant emissions from road transport.

3. Financial dimensions of environmental taxes on Romania level

Regarding Total Environmental Tax Revenues (table 1), we can observe:

1. Overall Growth: The total environmental tax revenues show a general upward trend over the ten-year period, increasing from €2,957.48 million in 2013 to €7,674.61 million in 2022.

2. Fluctuations: While the general trend is upward, there are fluctuations. Notably, in 2017, there is a significant drop to €3,640.19 million from €4,085.32 million in 2016, likely influenced by policy changes such as the elimination of vehicle registration taxes.

3. Sharp Increase in 2022: A remarkable surge is observed in 2022, with revenues jumping to €7,674.61 million, reflecting a substantial increase compared to previous years. This could be due to new or enhanced tax policies, increased enforcement, or changes in the tax base.

Regarding the Transport Taxes (table 1) we can conclude:

1. Consistency with Fluctuations: Transport taxes remain relatively stable but show some fluctuations throughout the period. The values hover around €393.52 million to €403.00 million from 2013 to 2016.

2. Significant Drop in 2017: There is a notable drop in 2017 to €258.23 million, which could be attributed to the policy changes mentioned earlier.

3. Gradual Recovery: Following the 2017 drop, there is a gradual increase, with transport taxes reaching €394.05 million in 2022, reflecting a recovery and stabilization trend.

Regarding PollutionTaxes/Resource (table 1) we can observe:

1. Volatility: Pollution/resource taxes exhibit more volatility compared to transport taxes. The values fluctuate between €8.21 million and €11.42 million throughout the period.

2. Decline and Recovery: There is a decline from €11.11 million in 2013 to a low of €8.21 million in 2015, followed by a gradual recovery, peaking at €11.42 million in 2022.

3. Modest Contribution: Despite fluctuations, the contribution of pollution/resource taxes to the total environmental tax revenues remains modest but shows a positive trend towards the end of the period.

Table 1. Annual Evolution of Environmental Tax Revenues in Romania (millions of euros)

Year	Total Environmental Tax Revenues	Transport Taxes	Pollution/Resource Taxes
2013	2,957.48	397.67	11.11
2014	3,587.37	393.52	10.01
2015	3,951.84	403.00	8.21
2016	4,085.32	400.79	10.47
2017	3,640.19	258.23	9.78
2018	4,033.56	280.90	9.45
2019	4,731.69	313.93	8.85
2020	4,196.21	308.39	9.14
2021	5,298.63	376.06	10.24
2022	7,674.61	394.05	11.42

Source: own result based on Eurostat, https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Environmental_tax_statistics_-_detailed_analysis

The data reflects a dynamic landscape of environmental taxation in Romania, marked by significant policy shifts and their subsequent impact on revenue trends. The overall increase in total environmental tax revenues, especially the sharp rise in 2022, underscores the importance of strategic tax policies in enhancing fiscal revenues while promoting environmental sustainability. The gradual recovery in transport taxes and the upward trend in pollution/resource taxes further emphasize the potential of targeted tax measures in achieving both economic and environmental objectives.

The table no. 2 provides a detailed overview of vehicle registration taxes and pollution taxes in Romania from 2013 to 2022, highlighting their percentage of GDP and total taxes. Here is an analysis and commentary on the data:

Vehicle Registration Taxes:

Consistent Contribution (2013-2016): From 2013 to 2016, vehicle registration taxes remained consistent at around €160 million, representing 0.1% of GDP and 0.4% of total taxes. This indicates a stable revenue source from vehicle registrations during this period.

Elimination in 2017: In 2017, vehicle registration taxes were eliminated, reflecting 0.0% in all categories from that year onwards. This policy change likely aimed to reduce the tax burden on vehicle owners and stimulate vehicle sales, especially of new, less polluting vehicles.

Pollution Taxes:

Gradual Increase (2013-2016): Pollution taxes increased gradually from €97.4 million in 2013 to €266.1 million in 2016. During this period, their contribution to GDP rose from 0.1% to 0.2%, and their share of total taxes increased from 0.2% to 0.6%. This growth suggests an increasing focus on environmental taxation to combat pollution.

Stability and Surge (2017-2021): From 2017 to 2021, pollution taxes saw significant increases, especially notable in 2019 when they surged to €710.8 million, representing 0.3% of GDP and 1.2% of total taxes. This substantial rise indicates a heightened emphasis on taxing polluters more heavily, aligning with global trends in environmental policy.

Decline in 2022: In 2022, pollution taxes decreased to €530.8 million, which is still higher than pre-2019 levels but marks a decline from the peak years. This decrease might be due to policy adjustments, improved compliance and pollution control measures, or changes in economic activities impacting tax revenues.

Analysis and Implications:

Policy Shifts: The elimination of vehicle registration taxes in 2017 represents a significant policy shift. While it reduced a specific revenue stream, it likely aimed to boost the automotive market and reduce the administrative burden associated with vehicle ownership.

Environmental Taxation Focus: The consistent increase in pollution taxes until 2021 demonstrates Romania's commitment to using fiscal policy as a tool for environmental protection. The spike in 2019 reflects aggressive measures to curb pollution by imposing higher taxes on polluting activities.

Revenue Adjustments: The data shows the government's adaptive strategies in balancing tax policies. While vehicle registration taxes were phased out, pollution taxes were ramped up, ensuring continued fiscal inflow while promoting environmental sustainability.

Economic and Social Impact: The changes in tax policies have broader implications. Eliminating vehicle registration taxes could have made vehicle ownership more accessible, potentially increasing the number of vehicles on the road. Meanwhile, higher pollution taxes might incentivize industries to adopt cleaner technologies and reduce emissions, fostering a healthier environment.

Table 2. Annual Evolution of Registration and Pollution Taxes in Romania (millions of euros)

Year	Vehicle Registration Taxes	% of GDP	% of Total Taxes	Pollution Taxes	% of GDP	% of Total Taxes
2013	165.7	0.1	0.4	97.4	0.1	0.2
2014	160.6	0.1	0.4	159.8	0.1	0.4
2015	157.3	0.1	0.4	225.9	0.1	0.5
2016	160.6	0.1	0.4	266.1	0.2	0.6
2017	0.0	0.0	0.0	231.0	0.1	0.5
2018	0.0	0.0	0.0	295.3	0.1	0.5
2019	0.0	0.0	0.0	710.8	0.3	1.2
2020	0.0	0.0	0.0	715.5	0.3	1.2
2021	0.0	0.0	0.0	792.5	0.3	1.2
2022	0.0	0.0	0.0	530.8	0.2	0.7

Source: own result based on Eurostat:https://ec.europa.eu/eurostat/databrowser/product/page/env_ac_tax__custom_11986125

The table no. 2 underscores a strategic transition in Romania's fiscal policies towards environmental sustainability. The phasing out of vehicle registration taxes and the significant increase in pollution taxes reflect a deliberate move to support economic activities while addressing environmental challenges. The fluctuations in pollution tax revenues in the later years highlight the dynamic nature of tax policy adjustments in response to economic and environmental needs.

Regarding the Vehicle Registrations: New vs. Second-hand, Romania's vehicle registrations predominantly comprise second-hand vehicles, with new car registrations under one-third of the total. Recent years have seen an increase in new electric and hybrid vehicle registrations, supported by government programs like Rabla and Rabla Plus.

The table no.3 illustrates the evolution of the car fleet in Romania between 2021 and 2022, showing a total increase of 254,147 cars. Specifically, the number of cars aged 0-10 years rose modestly by 25,889, indicating a slight growth in the acquisition of newer vehicles. In contrast, the number of cars older than 11 years increased significantly by 228,258, reflecting a larger influx of older,

second-hand cars into the market. This trend suggests a prevailing preference for used vehicles among Romanian consumers, potentially due to economic factors or the elimination of the vehicle registration tax in 2017, which might have made owning older cars more financially attractive. Overall, the total car fleet expanded by 3.3% over the year, with a disproportionate increase in older vehicles compared to newer ones.

Table 3. Evolution of the Romanian Car Fleet by Age (2021-2022)

Age	Cars 2021	Cars 2022	Evolution 2021-2022
0-10 years	1,476,482	1,502,371	+25,889
>11 years	6,134,557	6,362,815	+228,258
Total	7,611,039	7,865,186	+254,147

Source: <https://www.autocritica.ro/feature/parcul-auto-al-romaniei-radiografia-unei-tari-in-care-dieselul-si-masinile-de-pest-20-de-ani-sunt-la-putere/>

The table displays the growth of the vehicle fleet in Romania from 2021 to 2022, indicating an overall increase of 343,925 vehicles. Vehicles aged 0-10 years saw an increment of 48,469, suggesting a steady but moderate addition of newer vehicles. However, the more significant change is observed in the category of vehicles older than 11 years, which surged by 295,456. This substantial rise highlights a stronger market preference for older, used vehicles, potentially influenced by economic conditions and policies such as the removal of the vehicle registration tax in 2017. The total vehicle fleet expanded by approximately 3.6%, with the majority of growth attributed to the increase in older vehicles. This trend underscores the ongoing challenge of modernizing the vehicle fleet and suggests a need for policies encouraging the adoption of newer, less polluting vehicles.

Table 4. Evolution of the Total Vehicle Fleet in Romania by Age (2021-2022)

Age	Vehicles 2021	Vehicles 2022	Evolution 2021-2022
0-10 years	1,976,933	2,025,402	+48,469
>11 years	7,684,550	7,980,006	+295,456
Total	9,661,483	10,005,408	+343,925

Source: <https://www.autocritica.ro/feature/parcul-auto-al-romaniei-radiografia-unei-tari-in-care-dieselul-si-masinile-de-pest-20-de-ani-sunt-la-putere/>

Regarding the New Vehicle Registrations and Government Subsidies, the Rabla and Rabla Plus programs have significantly increased the share of new electric and hybrid vehicles in recent years. The table no. 5 reveals significant trends in the share of new car registrations from 2020 to 2023 compared to 2019.

Gasoline cars saw a gradual decline, dropping from 66% in 2020 to 62.6% in 2023. Diesel cars experienced a more pronounced decrease, from 26.6% in 2020 to 12.9% in 2023. Conversely, electric cars showed a substantial increase in market share, rising from 7.4% in 2020 to 24.4% in 2023. Overall, total car registrations fluctuated, with a notable initial drop of 22.6 percentage points in 2020 compared to 2019, followed by gradual increases in subsequent years, culminating in an 11.6 percentage point rise in 2023.

Table 5. Analysis of New Vehicle Registrations in Romania (2020-2023)

Years	2020		2021		2022		2023	
Categories	Share of new cars	Changes from 2019	Share of new cars	Changes from 2019	Share of new cars	Changes from 2019	Share of new cars	Changes from 2019
Gasoline Cars	66%	-3.4 pp	65.7%	+0.6 pp	64.5%	-1.2 pp	62.6%	-1.9pp
Diesel cars	26,6%	+0.5 pp	18.8%	-6.2 pp	13.8%	-5 pp	12.9%	-0.9pp
Electric Cars	7.4%	+33.3 pp	15.5%	+80 pp	21.7%	+49 pp	24.4%	+25.7pp
Total Registrations	100%	-22.6 pp	100%	+5.8 pp	100%	+6.8pp	100%	+11.6%pp

Source: <https://www.apia.ro/comunicate-de-presa>

The table no. 6, outlines the evolution of new vehicle purchases under Romania's ecovoucher program from 2016 to 2024. Initially, in 2016, only 45 new vehicles were purchased with 6 hybrid plug-ins and 39 pure electric vehicles, supported by an ecovoucher of 20,000 lei and a budget of 5,000 thousand lei. By 2017, the number of new vehicles surged to 540, with ecovouchers increasing to 45,000 lei and the budget expanding to 45,000 thousand lei. Subsequent years saw a continuous rise in new vehicle purchases, with 3,550 in 2020 and 10,462 in 2022, while maintaining the ecovoucher at 45,000 lei until 2021, when it increased to 51,000 lei. The budget allocation also saw significant growth, reaching 799,996,957 thousand lei in 2023. Projected figures for 2024 anticipate 15,000 new vehicles purchased with a slightly reduced ecovoucher value of 25,500 lei and a projected budget of 1,000,000 thousand lei. This trend reflects Romania's increasing investment in promoting electric and hybrid vehicles through substantial financial incentives.

Table 3.6. Evolution of the Rabla Plus Program

Year	New Vehicles Purchased	Hybrid Plug-in	Pure Electric	Ecovoucher Value	Allocated Budget (thousands lei)
2016	45	6	39	20,000 lei	5,000
2017	540	100	440	45,000 lei	45,000
2018	794	96	698	45,000 lei	70,000
2019	1700	-	-	45,000 lei	90,000
2020	3550	-	-	45,000 lei	140,000
2021	4,171	-	-	45,000 lei	216,993,048

2022	10,462	-	-	51,000 lei	541,668,233
2023	13,412	-	-	51,000 lei	799,996,957
2024	15,000	-	-	25,500 lei	1,000,000 projected

Source: https://afm.ro/main/programe/vehicule_electrice/2019/evolutie_rabla_plus_2018-2016-august_2019.pdf, https://www.afm.ro/informatii_publice_raport_anual_utilizare.php

Electric and hybrid vehicles offer significant environmental and economic advantages but also come with certain disadvantages. Habib et al. [2021] provide a comprehensive review of electric vehicle charging techniques and examine their effects on power distribution networks. The study includes an evaluation of both coordinated and non-coordinated charging approaches, delayed charging, and smart charge planning. Moreover, the authors explore the economic advantages of vehicle-to-grid (V2G) technology in relation to these charging methods.

On the positive side, they produce fewer emissions, contributing to reduced air pollution and a lower carbon footprint, which is beneficial for combating climate change. These vehicles are also typically quieter, reducing noise pollution, and can offer lower operating costs due to cheaper electricity compared to fuel. Additionally, government incentives and rebates can make them more financially attractive. However, disadvantages include the higher initial purchase price, which can be a barrier despite incentives. The production of batteries for these vehicles requires substantial resources and energy, which can have environmental impacts (Tan et al., 2016). Limited charging infrastructure and longer refueling times compared to conventional vehicles also pose challenges. Furthermore, the need for efficient recycling of used batteries presents another environmental concern. Despite these drawbacks, the continuous advancements in technology and infrastructure are gradually addressing these issues, making electric and hybrid vehicles an increasingly viable option for sustainable transportation.

4. Possibilities for Expanding Environmental Taxes in Romania

Romania has made significant progress in aligning its legislation with European standards on environmental taxes. Efforts are also directed towards encouraging the circular economy and ecological innovations, contributing to environmental impact reduction and sustainable growth.

To enhance the current state of environmental taxes, a comprehensive and collaborative approach is essential, including:

- Thorough evaluation of existing legislation to ensure policy coherence and efficiency.
- Increased transparency and accountability in the use of environmental tax revenues.

- Promotion of a sustainability culture among individuals and companies.

Key Principles and Criteria for Environmental Taxes:

1. **Polluter Pays Principle:** Those responsible for pollution or resource exploitation should bear the associated costs, promoting sustainable behavior.
2. **Prevention and Precaution Principle:** Encourage pollution prevention and sustainable resource management, adopting eco-friendly technologies.
3. **Proportionality Principle:** Taxes should reflect the degree of pollution or resource exploitation, with higher taxes for greater impacts.
4. **Social Equity Principle:** Ensure that environmental taxes do not disproportionately affect disadvantaged groups, implementing policies to mitigate adverse effects.
5. **Transparency and Predictability Criterion:** Provide clear information on tax calculation and revenue use to allow for adequate management.
6. **Economic Efficiency Criterion:** Design taxes to achieve environmental goals at the lowest possible economic cost, leveraging market mechanisms.
7. **Adaptability and Flexibility Criterion:** Ensure the tax system can respond to scientific, technological, and environmental changes.

According to Todor, 2011, "These principles and criteria are fundamental in the process of developing and evaluating environmental taxation policies, as they represent a complex approach to the interaction between the environment, economy, and society". They are designed to ensure that environmental taxation policies are balanced according to the needs of environmental protection and the economic and social needs. Moreover, these principles and criteria highlight the close relationship between the environment, economy, and society. They support the idea that environmental protection should not negatively impact economic growth or social justice; on the contrary, a healthy economy and an equitable society are often fundamental aspects of environmental conservation. Therefore, environmental taxation policies must be designed and evaluated in a way that combines these interdependent objectives.

In every state, including Romania, implementation Steps, are very important: obtain institutional commitment, define a vision and select an appropriate team, analyze the current tax system and also, set clear objectives.

"Recognizing, investigating, and selecting options for minimizing losses are essential steps in the efficient management of resources" (Relicovschi, 2000). In our context, the absence of concrete records of those who are obligated to contribute to the environmental fund, according to the current legislation, represents a problem that requires immediate resolution.

Once the list is finalized, the next step is to set an objective regarding the amount that needs to be collected or the necessary funds for implementing projects aimed at improving environmental quality. It is also important to determine the methods through which this objective can be achieved.

Some options are related to quick solutions that can be adopted immediately with few resources. Others may involve changes in financial processes or the introduction of new steps in the collection and processing of taxes, which require long-term implementation. The benefits of these solutions, often significant both financially and environmentally, become apparent over time.

Finding these solutions involves effort and time, but we can receive assistance from other states that have successfully implemented an efficient environmental tax system. As part of the European Union, we have the advantage of benefiting from the know-how of more experienced member states and can learn from their mistakes.

In the current economic context, the population is facing difficulties in managing their incomes, given that these are increasingly limited and daily expenses are hard to cover. Introducing new taxes is not seen as a solution but rather as an obstacle.

According to Relicovschi, 2000: "After compiling a comprehensive list of problems and possible options, it is essential to set priorities and evaluate the options. As we analyze the implementation variants, priorities and measures may change. The detailed analysis of options must follow the established priorities to minimize the evaluation duration"

Usually, the evaluation of options involves economic, environmental, human, and technical aspects. Implementation team members must consider that solutions involving significant costs for equipment or training of the resources involved in the process can generate substantial savings or revenues in the long term.

After completing the list of measures related to the tax system, it is crucial to allocate financial resources, responsibilities, and time to the implementation team, forming a coherent implementation plan.

To ensure successful implementation, it is advisable to distribute the plan to as many key employees as possible. Additionally, the implementation should be gradual, starting with moderate measures and progressing to the more radical ones. This approach allows for adjustments along the way.

Typically, the analysis of key performance indicators is conducted once or twice a year, and monitoring the program's implementation should be a daily activity. These indicators can include financial aspects (such as savings achieved) and environmental aspects (such as reduced waste volumes or toxicity levels).

Through appropriate periodic evaluations, any measures that have not achieved the desired results can be identified, and necessary adjustments can be made to ensure the success of the implementation.

Among the main possibilities for implementing environmental taxes in Romania, we find the following:

- Evaluating pollution sources: "In the initial stage of applying environmental taxes, it is necessary to identify and evaluate the primary sources

of pollution in Romania" (Relicovschi, 2000, p. 82). This could include industrial sectors with significant greenhouse gas emissions, agricultural practices that excessively use pesticides and chemical fertilizers, along with the transportation sector, which is mainly responsible for air pollution.

- Establishing appropriate taxes: After identifying the major sources of pollution, the next step is to establish taxes proportional to the level of pollution, to accurately reflect the costs to society. These taxes should be significant enough to discourage polluting practices, while also being fair, avoiding disproportionate impacts on certain sectors or social groups.

- Implementing a graduated tax scheme: "An effective strategy would consist of implementing a progressive tax structure, where the level of taxes increases with the amount of pollution emitted" (Relicovschi, 2000). Thus, companies or individuals who produce more pollution will pay higher amounts, encouraging them to invest in more ecological technologies or environmentally sustainable practices.

- Creating a solid legal framework: Introducing environmental taxes requires a robust legal framework that clearly defines the rules, procedures, and tools for their application. This legislation should also include penalties for non-compliance, to ensure adherence and discourage any illegal or inappropriate behavior.

- Promoting technological innovation: Environmental taxes can be an incentive for innovation in greener and more resource-efficient technologies. A governmental strategy could include providing fiscal facilities or subsidies for companies that invest in sustainable technologies or contribute to pollution reduction.

- Public and stakeholder consultation: Involving the public and stakeholders is fundamental in the implementation stage of environmental taxes. This could include organizing public debates, consultations with industry and civil society representatives, as well as collecting feedback to ensure the fairness of taxes and consider all relevant viewpoints.

- Investment in education and awareness: Education and public awareness are crucial for the successful implementation of environmental taxes. "Government authorities should allocate resources to educational and awareness programs to inform citizens about the impact of pollution and the importance of reducing it" (Relicovschi, 2000). It is essential for people to understand the rationale behind the introduction of environmental taxes and the techniques through which they can reduce their own impact on the environment.

- Constant monitoring and evaluation: The implementation of environmental taxes must be accompanied by a strong system for monitoring and evaluating their impact on pollution and the economy in general. Through this system, government authorities can adjust taxes when necessary to ensure their efficiency and effectiveness over time.

5. Conclusion

In the current Romanian context, the administration of environmental taxes is a complex and dynamic situation, highlighting both socio-economic dilemmas and concerns for environmental conservation. In modern times, numerous taxes and levies have been implemented and adapted with the aim of balancing the impact on the ecosystem and encouraging sustainable practices.

The evolution of vehicle registration taxes in Romania during the period 2016-2023 has been marked by a series of legislative changes primarily aimed at encouraging the adoption of less polluting vehicles and ecological technologies in the automotive industry. There is a significant interest in increasing the number of new cars through the Rabla and Rabla Plus programs, as Romania has one of the oldest vehicle fleets in Europe, with new car registrations accounting for less than one-third of the total. In recent years, government policies have focused on Rabla Plus, with Romania subsidizing the highest value eco-voucher in the European Union.

Currently, environmental taxes in Romania are applied in various sectors: transportation, waste management, air and water pollution control, natural resource exploitation, and biodiversity conservation. However, the analysis of the current situation highlights certain deficiencies.

Total environmental tax revenues in Romania have shown an increasing trend over the period analyzed in this study, growing from 2,957.48 million euros in 2013 to 7,674.61 million euros in 2022, more than doubling. Pollution taxes have also increased throughout the analyzed period, except for 2022. A sharp increase of 2.4 times was recorded in 2019 compared to 2018, with their percentage of GDP rising from 0.1% to 0.3% and their share of total taxes increasing from 0.5% to 1.2% during that period, maintaining the same level until 2022.

Firstly, there are questions regarding the efficiency of collecting and using environmental taxes. There are concerns about the transparency and appropriate use of the revenues generated from these taxes, as well as their direction towards environmental protection projects and initiatives.

Additionally, it is observed that the level of environmental taxes can sometimes be underestimated relative to the real costs of pollution and environmental degradation. This mismatch can hinder environmental objectives and create a gap between the actual effects of economic activities on the environment and the financial contributions needed to remedy them.

Moreover, there are concerns about the consistency and predictability of fiscal policies related to environmental taxes. "Frequent changes in legislation can generate uncertainties for economic actors and discourage investments in greener technologies and practices. Nonetheless, despite the aforementioned difficulties, significant progress is also evident." (Todor, 2011)

In conclusion, the implementation of environmental taxes in Romania could have a significant impact on environmental protection and the promotion of sustainable development. Through an appropriate approach, which involves rigorous evaluation of pollution sources, establishment of suitable taxes, strengthening of the legal framework, and increasing public awareness, Romania can progress towards a more sustainable and greener future. Implementing these taxes would require detailed planning, including consultation with the private sector, civil society, and other stakeholders to ensure that they are fair, efficient, and economically and socially sustainable.

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DIGITALIZATION AND ITS STRATEGIC IMPACT IN THE URBAN HOTEL INDUSTRY

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Abstract

Urban hotels operate under intense competitive pressure, volatile demand and rising guest expectations for speed, personalization and seamless service. This paper examines how digitalization generates strategic impact in the urban hotel industry beyond operational automation, focusing on competitive advantage, customer experience and decision quality. Drawing on hospitality and information systems literature, we propose an integrated framework that connects the core digital stack – Property Management Systems (PMS), Customer Relationship Management (CRM), revenue tools and business intelligence – to performance outcomes. The empirical component is a qualitative case study of a mid-sized, four-star urban hotel in Bucharest (anonymized as Hotel M). Data were collected through semi-structured interviews (n=10) with managers and frontline employees, document analysis and process mapping. Thematic analysis indicates four strategic mechanisms: (1) process standardization and speed that support consistent delivery; (2) data-enabled personalization that increases perceived value and loyalty; (3) revenue discipline through better forecasting and channel governance; and (4) organizational learning enabled by transparent KPIs and cross-department visibility. The paper also identifies barriers – training gaps, change resistance, integration complexity and data security concerns – and proposes actionable steps for urban hotels to translate technology adoption into sustainable strategic impact.

Keywords: digitalization; urban hotels; PMS; CRM; business intelligence; revenue management; qualitative research.

JEL Classification: L83; M15; O33; D83

1. Introduction

Urban hotels must deliver high service quality under time pressure. Short stays, high arrival peaks and multi-channel distribution make coordination difficult, while guests increasingly expect digital-first interactions such as mobile check-in, instant messaging and frictionless payments. In this environment, digitalization is more than an operational upgrade: it becomes a strategic capability that shapes how hotels compete, how they use data to design services and how they learn and improve over time.

In practice, many hotels adopt technologies such as Property Management Systems (PMS), Customer Relationship Management (CRM) tools, channel managers, revenue management systems (RMS) and analytics dashboards. Yet

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adoption does not automatically produce strategic impact. A hotel can digitize without transforming if it merely reproduces old workflows inside new software. Strategic impact appears when digital tools are integrated into decision routines, service standards and governance mechanisms that align technology with business priorities. This paper addresses two research questions:

1: Through what mechanisms does digitalization create strategic impact in the urban hotel industry?

2: What organizational conditions enable or hinder the translation of digital tools into measurable outcomes?

To answer these questions, the paper combines a targeted literature review with a qualitative case study conducted in an urban hotel setting. The contribution is twofold: it proposes an integrated framework linking digital tools to strategic outcomes and provides empirically grounded insights on implementation barriers and actionable recommendations.

2. Literature Review

Digital transformation in hospitality is commonly described as a shift from isolated automation toward integrated, data-driven service systems. Core platforms (PMS, CRS, CRM) increasingly connect with distribution and revenue tools, enabling faster decisions and more consistent execution. Recent studies discuss cloud-based PMS adoption as a pathway to greater accessibility, easier updates and improved integration potential, but also note challenges related to cybersecurity, vendor lock-in and operational dependency on connectivity (e.g., Wynn et al., 2022; Lukanova, 2024). CRM practices are associated with personalization and competitiveness when supported by customer knowledge management and coordinated service recovery processes (e.g., Khalaf, 2025; Atanasova, 2017).

From a strategic perspective, digitalization outcomes can be grouped into three dimensions: (a) operational performance (speed, error reduction, labor efficiency), (b) market performance (guest satisfaction, reputation and loyalty), and (c) financial performance (ADR, RevPAR stability and cost discipline). The literature emphasizes that technology creates value when it reduces friction, increases transparency and improves decision quality. However, it also repeatedly highlights adoption barriers: staff resistance, insufficient training, fragmented systems and data privacy risks. Consequently, the same technology can deliver very different results depending on governance and organizational readiness.

2.1 Digital tools in hotel management

PMS functions as the operational backbone, centralizing reservations, inventory, billing, housekeeping coordination and reporting. CRM extends value creation toward personalization by storing preferences, stay history and

communication records. Revenue and distribution tools (channel manager, RMS) shape pricing and channel governance, while business intelligence consolidates KPIs and supports forecasting. Contactless solutions and mobile interfaces can reduce waiting time and improve perceived convenience, but guest acceptance varies across segments and contexts (e.g., Hao et al., 2021).

2.2 Strategic mechanisms and conceptual framework

This paper frames digitalization as a set of capabilities that influence strategic outcomes through four mechanisms:

(M1) Process standardization and speed -> consistent delivery and fewer operational failures.

(M2) Data-enabled personalization -> higher perceived value and loyalty.

(M3) Revenue discipline and forecasting -> more resilient pricing and channel decisions.

(M4) Organizational learning and control -> transparent KPIs, cross-department coordination and iterative improvement.

Four propositions guide the empirical analysis:

P1: PMS-centered integration improves operational consistency and service speed in urban hotels.

P2: CRM-enabled personalization increases loyalty when supported by reliable data and service recovery standards.

P3: Analytics-driven governance improves pricing discipline and reduces revenue volatility.

P4: Digital transparency strengthens learning only when training and accountability structures are in place.

3. Methodology

This research adopts a qualitative case study design suited to exploring how and why digitalization produces strategic effects in an urban hotel context. Qualitative inquiry is appropriate when the goal is to capture meanings, routines, coordination patterns and implementation constraints that are not easily visible in high-level numerical indicators.

3.1 Case selection.

The selected case is an anonymized mid-sized, four-star urban hotel in Bucharest (Hotel M). The property was selected because it operates in a competitive urban environment, uses a PMS-centered system landscape and has recently intensified CRM practices and reporting routines.

3.2 Data collection.

Three sources of data were used: (a) semi-structured interviews (n=10) with managers and frontline staff; (b) document analysis (standard operating

procedures, training materials and selected KPI summaries); and (c) process mapping for core guest-journey processes.

3.3 Interview protocol.

The interview guide covered: perceived operational changes after digital initiatives; information flow between departments; service recovery routines; personalization practices; daily/weekly revenue decision routines; and perceived risks (security, privacy, dependency on vendors). Interviews lasted between 30 and 55 minutes.

3.4 Analysis approach.

Data were coded using thematic analysis. First-cycle codes were descriptive (e.g., 'queue reduction', 'data completeness', 'rate discipline'). Second-cycle codes grouped findings around the four mechanisms and around enabling conditions (training, accountability, integration). Triangulation across interviews and documents increased credibility.

Table 1. Interview participants (anonymized)

Role	Department	Count
General Manager	Executive	1
Front Office Manager	Front Office	1
Revenue/Sales Representative	Commercial	1
IT/Systems Coordinator	IT / Systems	1
Housekeeping Supervisor	Housekeeping	1
Front Desk Agents	Front Office	3
Reservations / Guest Relations	Reservations / GR	2

Table 2. Core processes mapped in the case study

Guest journey / process	Observed digital touchpoints
Reservation and pre-arrival	OTA/direct booking sync; confirmation automation; pre-arrival messaging templates
Arrival and check-in	PMS workflow; ID and payment capture; room assignment; mobile/contactless options (limited)
In-stay requests	Task tracking; messaging; escalation to housekeeping/maintenance
Service recovery (complaints)	Categorized logs; compensation rules; follow-up messages
Check-out and billing	Folio templates; automated taxes/fees; invoice export
Post-stay follow-up	Review monitoring; targeted offers; basic segmentation lists

4. Case Study Context: Hotel M (Bucharest)

Hotel M is positioned as a four-star urban property serving a mixed demand profile: corporate travelers on weekdays and leisure guests during weekends and event periods. The hotel distributes through direct channels, OTAs and corporate contracts. Operational pressure concentrates during peak arrival and departure hours, when delays quickly translate into negative reviews and staff stress.

4.1 Digital landscape.

The hotel's digital stack is centered on a PMS integrated with a channel manager and accounting interfaces. CRM practices are implemented through structured profile notes, segmentation lists and post-stay communication templates, while daily performance monitoring is supported by dashboards and standard KPI extracts (occupancy, ADR, RevPAR, cancellation rate, channel mix, complaint categories). Digital communication tools are used for confirmations, pre-arrival messaging and service recovery.

4.2 Digitalization goals.

Management articulated four goals: (1) shorten check-in and reduce queue pressure; (2) reduce operational errors and improve cross-department coordination; (3) increase direct booking share and repeat guests through better personalization; and (4) improve revenue stability by strengthening forecasting and pricing discipline.

4.3 As-is vs. to-be process logic.

Process mapping highlighted that many delays were not caused by technology limits, but by unclear handoffs (e.g., room readiness updates, missing guest preference data, informal complaint handling). The 'to-be' design focused on reducing handoff ambiguity through standardized status updates, clearer responsibility for profile maintenance and a simple escalation matrix for service recovery.

Table 3. Example process improvement: room readiness coordination

As-is (before)	To-be (after)
Housekeeping updates room status inconsistently; front office calls for confirmations during peak arrivals.	Status updated in PMS at three fixed points (cleaned, inspected, ready); exception list shared before peak.
VIP/preference notes often kept in emails or personal notes.	Preference tags stored in PMS/CRM fields; daily arrivals list includes key tags.
Late check-outs handled ad-hoc, sometimes conflicting with room assignment.	Late check-out requests tracked in system; housekeeping plan adjusted based on forecasted departures.

5. Findings

5.1 Mechanism 1: Process standardization and speed

Interviewees described the PMS as a single operational truth that reduced friction between front office and housekeeping. Room status visibility (clean/inspected/out-of-order) improved planning and reduced repeated calls during peak hours. Standardized folio templates and automated rate rules also reduced billing mistakes. From a strategic viewpoint, these operational improvements matter because the urban guest segment is highly time-sensitive. Even small reductions in waiting time influence perceived quality and review sentiment.

Based on interview estimates and front desk observations, average check-in time during peak arrivals decreased from approximately 6-7 minutes to 4-5 minutes per guest after workflow standardization. Respondents emphasized that the largest gains came from removing small frictions: fewer manual corrections, faster access to booking details, and less time spent clarifying room readiness.

5.2 Mechanism 2: Data-enabled personalization

Hotel M used guest profile notes and stay history to tailor repeatable service decisions: room allocation preferences, pillow type, recurring corporate billing instructions and proactive late check-out offers when occupancy allowed. Personalization was strongest when information was structured (standard tags) rather than stored as free-text notes. Staff framed personalization as a 'low-cost differentiator' that increases perceived care without requiring expensive upgrades.

A recurring theme was that personalization also supports operational efficiency: when preferences are visible, staff spend less time clarifying requests and can anticipate needs. However, personalization quality depended heavily on data completeness and consistent updates.

5.3 Mechanism 3: Revenue discipline and forecasting

Commercial roles highlighted that a stronger daily rhythm of monitoring pace, pickup and cancellations reduced reactive discounting. With clearer visibility of channel mix and booking windows, the hotel introduced simple scenario rules: tighter controls during high-demand events and earlier targeted offers for low-demand periods to protect occupancy without eroding ADR. Interviewees were careful not to attribute performance changes to software alone; instead, they emphasized that technology enabled consistent decision routines and made cross-department coordination easier (e.g., aligning upgrade offers with forecasted occupancy).

5.4 Mechanism 4: Organizational learning and control

Digital reporting created a shared language across departments. Hotel M introduced short daily operational huddles supported by KPI snapshots (arrivals, VIPs, housekeeping targets and known issues). Managers used complaint categorization and service recovery logs to identify recurring failures (late room readiness, noise complaints, invoice errors) and to adjust procedures.

Learning benefits depended on adoption quality. When staff did not update notes, dashboards became less reliable and personalization weakened. To protect data quality, the hotel introduced small governance practices: mandatory fields for specific events, periodic checks for missing preference tags and short refresher trainings when deviations were observed.

5.5 Cross-cutting enablers and barriers

Four barriers emerged repeatedly: (a) resistance to change and parallel 'shadow' workflows; (b) training gaps intensified by staff turnover; (c) integration friction across systems and inconsistent data formats; and (d) cybersecurity and privacy concerns, especially regarding access rights and the handling of sensitive guest information. Conversely, three enablers were repeatedly mentioned: visible managerial support, practical training linked to real scenarios, and clear ownership for data entry and KPI validation.

Table 4. Theme map from qualitative coding

Theme	Illustrative codes	Strategic link
Standardization & speed	queue reduction; fewer calls; billing accuracy; room status visibility	Service consistency; reputation
Personalization capability	preference tags; repeat guest recognition; proactive offers	Differentiation; loyalty
Revenue discipline	pickup monitoring; channel mix; scenario rules; forecast routines	RevPAR resilience
Learning & control	daily huddles; KPI transparency; complaint categories; feedback loops	Continuous improvement
Adoption barriers	training gaps; shadow workflows; integration issues; security concerns	Risk to value capture

6. Discussion

The case study supports the argument that digitalization creates strategic impact when it changes how the hotel competes and learns, not only how it executes tasks. Four implications emerge.

First, operational speed and consistency function as a strategic asset in urban markets. High arrival peaks create moments of truth: delays and errors are visible and strongly affect perception. PMS-driven standardization reduces variability and helps the hotel deliver predictable quality, which is a prerequisite for loyalty.

Second, personalization is a strategic layer built on reliable operational data. CRM practices were effective in Hotel M because staff used them in small, repeatable actions embedded into the guest journey, not as an isolated marketing idea.

Third, revenue discipline depends on routines, not only tools. Analytics supported forecasting, but value came from consistent use: daily pace checks, defined actions for scenarios and coordination between commercial and operational teams.

Fourth, learning requires governance. Dashboards alone do not create improvement; data quality and accountability determine whether transparency becomes a learning capability. Technology amplifies organizational behavior: good practices multiply benefits, while poor habits multiply confusion.

6.1 Strategic impact by stakeholder group

Frontline staff mainly experienced digitalization as a speed and clarity tool: fewer manual corrections and clearer responsibilities. Guests experienced it as convenience and consistency, with personalization strengthening perceived care. Managers experienced digitalization through visibility: more reliable KPIs, better forecasting and clearer prioritization. Owners benefit when these effects translate into improved reputation, higher repeat share and more stable revenue outcomes. The case suggests that aligning stakeholder incentives (e.g., making data entry useful for frontline staff, not just for reporting) is essential for sustained adoption.

7. Managerial Implications and Recommendations

Urban hotel managers can increase the likelihood of strategic impact by treating digitalization as a managed capability rather than a one-time IT project.

7.1 Implementation roadmap

Step 1: Start from operational pain points (check-in time, room readiness accuracy, complaint resolution).

Step 2: Define ownership (who maintains profiles, who validates KPIs, who approves rate rules).

Step 3: Standardize data entry (preference tags, complaint categories, mandatory fields).

Step 4: Prioritize integrations (PMS-channel manager-CRM-reporting) based on business value.

Step 5: Build continuous training (short modules, scenario-based practice, onboarding scripts).

Step 6: Monitor adoption (system usage indicators and data completeness checks).

Step 7: Strengthen security governance (role-based access, periodic audits, privacy compliance).

7.2 Strategic KPI set.

Operational: average check-in time; room readiness accuracy; service recovery time.

Customer: review score trend; repeat guest share; complaint rate by category.

Revenue: ADR; RevPAR; channel mix; cancellation rate; direct booking share.

Learning: training completion; data completeness score; adoption metrics.

These indicators are most useful when embedded in a regular rhythm (daily huddles, weekly revenue reviews and monthly quality meetings).

8. Limitations and Future Research

This study is limited by its single-case design and qualitative nature, which prioritize contextual depth over statistical generalizability. Interview-based estimates reflect perceptions and operational experience rather than controlled measurement. Future research could use a multi-case design across cities and hotel categories, combine qualitative process analysis with quantitative KPI tracking over time, and examine how AI-enabled revenue tools and contactless technologies affect both guest acceptance and employee workload. Another promising direction is the link between digitalization and sustainability, especially energy optimization through IoT.

9. Conclusions

Digitalization can generate strategic impact in the urban hotel industry through operational speed and consistency, data-enabled personalization, revenue discipline and organizational learning. The Hotel M case indicates that value is created not simply by adopting software, but by aligning digital tools with workflows, decision routines and governance practices that ensure data quality and accountability. While barriers such as training gaps, resistance to change, integration complexity and security concerns remain significant, they can be addressed through phased implementation, continuous learning and KPI-based management. Ultimately, digitalization is a strategic necessity for urban hotels seeking resilience and differentiation in a dynamic market.

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THE TRANSPORTATION PROBLEM APPLIED TO TOURISM UNDER RISK AND UNCERTAINTY

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Abstract

The transportation problem applied to tourism is a quantitative approach to optimizing tourist movements from points of departure to tourism destinations, by minimizing total costs and maximizing efficiency. This paper examines how classic transportation-problem models can be adapted to tourism activities such as airport transfers, sightseeing tours, and tour-operator packages. In addition, we introduce elements of risk and uncertainty by using scenario-based costs. The sources discussed are defined as airports, while destinations include hotels, resorts, or tourist attractions. Costs may reflect ticket prices, travel time, or service quality and may vary due to fuel price differences, traffic congestion, and operational disruptions. The paper presents the theoretical foundations of the transportation problem, its mathematical formulation, solution methods, and a detailed numerical example solved step by step, including the computation of expected costs and the full application of Vogel's Approximation Method (VAM).

Keywords: tourism, transportation problem, risk, uncertainty, scenario analysis

JEL classification: C61, L83, R41

1. Introduction

Tourism is one of the most dynamic and interesting sectors of the global economy, generating jobs, income, and highly important regional development. Transport plays a fundamental role in tourism, as it connects tourists to destinations and directly influences both costs and the quality of services provided by travel agencies. Tour operators and travel agencies must organize transfers between airports, hotels, and tourist attractions in an efficient, reliable, and economically sustainable way. They must consider many aspects—economic, geographic, climatic, and even political. Inefficient planning and a lack of attention to transport details can lead to increased operating costs, delays, and tourist dissatisfaction. Therefore, special attention should be given to this topic in order to achieve the most favorable outcomes.

In this context, quantitative methods can support decision-making in tourism management. One of the most widely used models in operations research is the transportation problem, a special case of linear programming designed to optimize distribution activities. Although it was originally developed for the transport of goods, this model can be successfully adapted to tourism logistics by interpreting flows as tourists and routes as transport links.

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Unlike the classic deterministic framework, real-world tourism transport is influenced by risk and uncertainty. Costs may change due to fuel price volatility, traffic congestion, weather conditions, or operational disruptions (e.g., delays), or even for socio-political reasons (e.g., airport staff strikes). Therefore, extending the transportation problem by incorporating uncertainty leads to more realistic and more resilient allocation plans and is an interesting topic.

The objective of this paper is to analyze the transportation problem and to demonstrate its applicability in tourism, including a scenario-based extension under uncertainty. The paper is structured as follows: Section 2 presents the theoretical framework, Section 3 introduces the mathematical formulation, Section 4 provides a step-by-step numerical example, Section 5 discusses solution methods and software tools, and Section 6 presents the conclusions.

2. The transportation problem in economic theory and tourism

The transportation problem is a classic and particularly interesting optimization model within linear programming. It aims to determine the optimal allocation of a homogeneous flow from multiple sources to multiple destinations so that total transportation cost is minimized. Each source has a fixed supply, each destination has a given demand, and the unit transportation cost between each source–destination pair is known.

The simplicity of the transportation problem makes it especially attractive in practical applications. The model has been used in logistics, supply chain management, industrial planning, and public policy. Another situation in which this problem is applied is the diet problem. In tourism, the same logic applies by replacing goods with tourists and transport routes with travel connections.

When adapted to tourism, sources may represent departure cities or airports or ports, and destinations include hotels, resorts, tourist attractions, or cruise terminals. Supply corresponds to the number of tourists available at a source, while demand reflects accommodation capacity or planned flows. Costs can be expressed in monetary units, travel time, comfort level, or reliability.

To link the model to risk and uncertainty, these costs may vary across scenarios that represent different operating conditions (e.g., normal conditions versus adverse conditions).

3. Mathematical formulation of the transportation problem

We consider m sources and n destinations. Let s_i denote the supply (number of tourists) at source i and d_j the demand at destination j . Let c_{ij} denote the unit cost of transporting a tourist from source i to destination j . The decision variable x_{ij} represents the number of tourists allocated from i to j .

The objective function is to minimize total transportation cost:

$$\text{Min } Z = \sum_i \sum_j x_{ij} c_{ij}$$

subject to the following constraints:

$$\sum_j x_{ij} = s_i, \text{ for all sources } i$$

$$\sum_i x_{ij} = d_j \text{ for all destinations } j$$

$$x_{ij} \geq 0, \text{ for any } i \text{ and } j$$

If total supply equals total demand, the problem is balanced. Otherwise, a dummy source or a dummy destination is introduced to transform the problem into a balanced one; therefore, there is no point in discussing an unbalanced problem here.

Under uncertainty, a practical approach is scenario analysis. If $\hat{c}_{ij}(k)$ is the unit cost in scenario k with probability p_k , then the expected cost is computed as $E(c_{ij}) = \sum_k p_k \hat{c}_{ij}(k)$, and the problem is solved using the matrix $E(c_{ij})$.

4. Numerical example applied to tourism under risk and uncertainty

Sources: Airport A with a supply of 1200 tourists; Airport B with a supply of 800 tourists.

Destinations: Hotel 1 demand 700 tourists; Hotel 2 demand 600 tourists; Hotel 3 demand 700 tourists.

Total supply equals total demand (2000 tourists), so the problem is balanced.

4.1. Defining the scenarios

Two scenarios are considered:

- Scenario 1 (under normal conditions): the probability for this scenario is $p_1 = 0.7$
- Scenario 2 (under adverse conditions): the probability for this scenario is $p_2 = 0.3$

The probabilities used in these calculations are obtained from statistical data.

The cost matrix in Scenario 1 (monetary units per tourist) is presented in the following table:

	Hotel 1	Hotel 2	Hotel 3	Supply
Airport A	10	12	9	1200
Airport B	11	8	14	800
Demand	700	600	700	2000

The cost matrix in Scenario 2 (monetary units per tourist):

	Hotel 1	Hotel 2	Hotel 3	Supply
Airport A	13	15	11	1200
Airport B	14	11	18	800
Demand	700	600	700	2000

4.2. Expected cost matrix (complete calculation)

Expected costs are computed as: $E(c_{ij}) = 0.7 \cdot \hat{c}_{ij}(1) + 0.3 \cdot \hat{c}_{ij}(2)$.

Calculation for each route:

$$E(c_{A1}) = 0.7 \cdot 10 + 0.3 \cdot 13 = 7 + 3.9 = 10.9$$

$$E(c_{A2}) = 0.7 \cdot 12 + 0.3 \cdot 15 = 8.4 + 4.5 = 12.9$$

$$E(c_{A3}) = 0.7 \cdot 9 + 0.3 \cdot 11 = 6.3 + 3.3 = 9.6$$

$$E(c_{B1}) = 0.7 \cdot 11 + 0.3 \cdot 14 = 7.7 + 4.2 = 11.9$$

$$E(c_{B2}) = 0.7 \cdot 8 + 0.3 \cdot 11 = 5.6 + 3.3 = 8.9$$

$$E(c_{B3}) = 0.7 \cdot 14 + 0.3 \cdot 18 = 9.8 + 5.4 = 15.2$$

The resulting expected-cost matrix:

	Hotel 1	Hotel 2	Hotel 3	Supply
Airport A	10.9	12.9	9.6	1200
Airport B	11.9	8.9	15.2	800
Demand	700	600	700	2000

4.3. Solving with Vogel's Approximation Method (VAM) – step by step

VAM penalties are computed as the difference between the two smallest costs in each row and column.

Step 1 – penalties on the full expected-cost table:

Row penalties:

- Airport A: the smallest costs are 9.6 and 10.9 → penalty = 10.9 – 9.6 = 1.3
- Airport B: the smallest costs are 8.9 and 11.9 → penalty = 11.9 – 8.9 = 3.0

Column penalties:

- Hotel 1: 10.9 and 11.9 → penalty = 11.9 – 10.9 = 1.0
- Hotel 2: 8.9 and 12.9 → penalty = 12.9 – 8.9 = 4.0
- Hotel 3: 9.6 and 15.2 → penalty = 15.2 – 9.6 = 5.6

The maximum penalty is for Hotel 3 (5.6). Allocate in the cell with the minimum cost in the Hotel 3 column: Airport A → Hotel 3 (cost 9.6).

Allocation: $x_{A3} = \min(s_A = 1200, d_3 = 700) = 700$.

Update: s_A becomes 500; d_3 becomes 0 (Hotel 3 satisfied).

Step 2 – reduced table (Hotel 1 and Hotel 2 remain):

	Hotel 1	Hotel 2	Supply
Airport A	10.9	12.9	500
Airport B	11.9	8.9	800
Demand	700	600	1300

Recompute penalties:

Row penalties:

- Airport A: $12.9 - 10.9 = 2.0$
- Airport B: $11.9 - 8.9 = 3.0$

Column penalties:

- Hotel 1: $11.9 - 10.9 = 1.0$
- Hotel 2: $12.9 - 8.9 = 4.0$

The maximum penalty is for Hotel 2 (4.0). Allocate in the cell with the minimum cost: Airport B \rightarrow Hotel 2 (cost 8.9).

Allocation: $x_{B2} = \min(s_B=800, d_2=600) = 600$.

Update: s_B becomes 200; d_2 becomes 0 (Hotel 2 satisfied).

Step 3 – final allocations (only Hotel 1 remains with demand 700):

Remaining supplies: $s_A = 500, s_B = 200$.

Therefore: $x_{A1} = 500$ and $x_{B1} = 200$. All supplies and demands are satisfied.

4.4. Final allocation and total expected cost (complete calculation)

Final allocation:

Route	Tourists
Airport A \rightarrow Hotel 3	700
Airport B \rightarrow Hotel 2	600
Airport A \rightarrow Hotel 1	500
Airport B \rightarrow Hotel 1	200

Total expected cost:

$$Z = 700 \cdot 9.6 + 600 \cdot 8.9 + 500 \cdot 10.9 + 200 \cdot 11.9$$

$$Z = 6720 + 5340 + 5450 + 2380 = 19890 \text{ monetary units.}$$

5. Analysis of results

The numerical example highlights how incorporating risk and uncertainty into the transportation problem influences decisions in tourism-agency plans. By considering two scenarios with different cost structures and different associated probabilities, the model captures the variability of transportation costs generated by external factors such as fuel volatility, traffic congestion, and operational disruptions.

Computing expected costs transforms the stochastic problem into a deterministic equivalent that can be solved with classic methods. Applying

Vogel's Approximation Method to the expected-cost matrix provides a structured and transparent allocation process. The step-by-step computation of penalties and allocations highlights the trade-offs between alternative routes and the importance of cost differences under uncertainty.

Compared with a purely deterministic approach, the risk-sensitive model provides a more realistic estimate of total transportation cost, reducing the tendency to underestimate operational expenses. From a managerial perspective, this can improve transfer reliability and tourist satisfaction, as the plan anticipates adverse conditions with a non-zero probability.

However, optimization based on expected value targets average performance, not necessarily protection against extreme scenarios. In situations with strict service-level requirements (e.g., limits on delays), extensions such as robust optimization or explicit risk penalties may be needed.

6. Conclusions

The transportation problem provides a powerful analytical framework for optimizing tourist movements. By adapting classic linear-programming models to tourism-specific conditions and by incorporating risk and uncertainty through scenario-based costs, agencies and tour operators can reduce expected costs, improve resource allocation, and increase tourist satisfaction.

The numerical example demonstrates, step by step, how uncertain costs can be integrated through expected values and how Vogel's Approximation Method can be applied to obtain an efficient allocation plan. The computed total expected cost (19890 monetary units) highlights the practical impact of uncertainty on planning results. In practice, software tools such as Excel Solver can be used to obtain optimal solutions and to test multiple scenarios, providing decision support for more robust planning.

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SUSTAINABLE TRENDS IN THE CRUISING INDUSTRY

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Abstract:

The cruising industry sets a positive example for tourism development. With a high pace in terms of new and frequent passengers, new ships, different types of travel, increasing revenues, and others, it stands out to be the most dynamic sector of tourism. Appealing to a wide range of customers, offering a variety of amenities, events, activities and itineraries, cruising is nowadays the most rapidly growing industry. Technological advancements and all-inclusive services provide travelers with the opportunity of bleisure travel, enjoying both the on-board facilities, itineraries and shore excursions.

The increasing demand for this type of travel and the expansion of large cruise vessels are raising concerns about the sustainability of cruising industry. Even though important steps have been taken to overcome the negative impact of cruising on the environment, the question remains "Can the cruising industry be sustainable?"

Keywords: cruise industry, trends, challenges, boutique cruise, sustainability.

JEL Classification: Z30.

1. Introduction

Since cruising has become so popular among all age categories, the demand for cruising has strongly increased, as an important option compared to the traditional holiday. More tourists are considering taking a cruise for the first time, having the option of choosing between a variety of themed cruises, diverse amenities and activities offered. The "floating resorts" represent a different type of travel altogether, with an ascending trend regarding the number of passengers and new ships to arrive. Cruising companies have increased the number of ships and their capacity, higher demand and stronger competition leading to the development of larger ships.

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While the positive impact is remarkable worldwide, the negative aspects should be addressed by proper regulations and policies. Major concerns are the environmental related issues, such as air and water pollution, the noise pollution, the greenhouse gases, the waste disposal etc., but socio-economic impact should not be overlooked.

2. The impact of cruising on the environment

Pollution is among the most negative effects of cruise ships, having a significant impact on the environment by causing sulfur oxide emissions, nitrogen oxide emissions, carbon emission, back carbon, heavy metals, methane, waste streams, impact on ecosystems, air and noise pollution in ports etc.¹

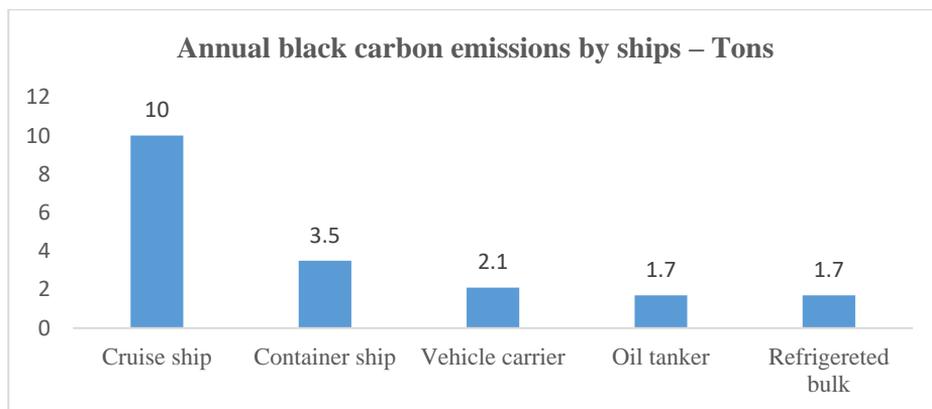
2023 studies have revealed that cruise ships are polluting more than the traffic of all cars in key port cities², with notable examples such as:

- *Barcelona* – 106 ships determine 18,277 SOx emissions; 531,749 cars generate 6.481 SOx emissions;
- *Port of Rome (Civitavecchia)* – 103 ships with 16,307 SOx emissions; 34,139 cars with 416 SOx emissions;
- *Palma de Mallorca* – 79 ships causing 12,285 SOx emissions; 248,207 cars with 3,025 SOx emissions;
- *Hamburg* – 47 ships with 10,445 SOx emissions; 813,847 cars with 9,919 SOx emissions;
- *Southampton* – 45 ships leading to 9,676 SOx emissions; 93,390 cars with 1,138 SOx emissions;
- *Marseille* – 75 ships resulting in 8,763 SOx emissions; 369,433 cars with 4,503 SOx emissions.

The data presented showcases the disparities between SOx emissions of cruise ships and passenger cars, also taking into consideration the high proportion of cars in rapport with the numbers of cruise ships. This offers a clear example of how cruise ships have a detrimental impact on the environment.

¹ <https://www.greenmatch.co.uk/blog/maritime-sustainability>

² <https://www.transportenvironment.org/articles/europes-luxury-cruise-ships-emit-as-much-toxic-sulphur-as-1bn-cars-study>



Source: <https://www.statista.com/chart/27353/worst-black-carbon-polluters/?srsId=AfmBOoqs7NfVhh9L2UX-8-DNLX4w9B1jAGAGqsfX7SFz6MyocpI7nKMo>

The table above shows the amount of black carbon emissions at annual level by the most representative fleet. As can be seen the highest number is registered by cruise ships, ranking first with a major difference between the first and second place, in this case the container ships. It is important to consider the share of the global fleet³: cruise ship 1%, container ship 7%, vehicle carrier 1%, oil tanker 8% and refrigerated bulk 1%. Although it accounts for only 1% of the world fleet, cruise ships are generating 24% of waste produced by ships in the ocean⁴.

When analyzing pollution effects air transport is usually considered, but specialists have identified cruise ships as being the most responsible one, with four times more emissions of carbon dioxide per passage per mile per plane.⁵

Such detrimental impact on the environment has urged companies to take important actions towards a more sustainable development of cruising. Emerging trends regarding the huge capacity of vessels and the increasing number of ships built raise the question of sustainability and responsible tourism. Shift in the demand structure and the ability to incorporate work with leisure as a bleisure concept on the rise, are sustaining the growth of the industry and therefore the need to address the overall negative impact.

3. Overview of the cruising industry

The cruising industry is constantly evolving, adapting to new travel trends. The positive feedback of customers has made cruising one of the most captivating

³ <https://www.statista.com/chart/27353/worst-black-carbon-polluters/?srsId=AfmBOoqs7NfVhh9L2UX-8-DNLX4w9B1jAGAGqsfX7SFz6MyocpI7nKMo>

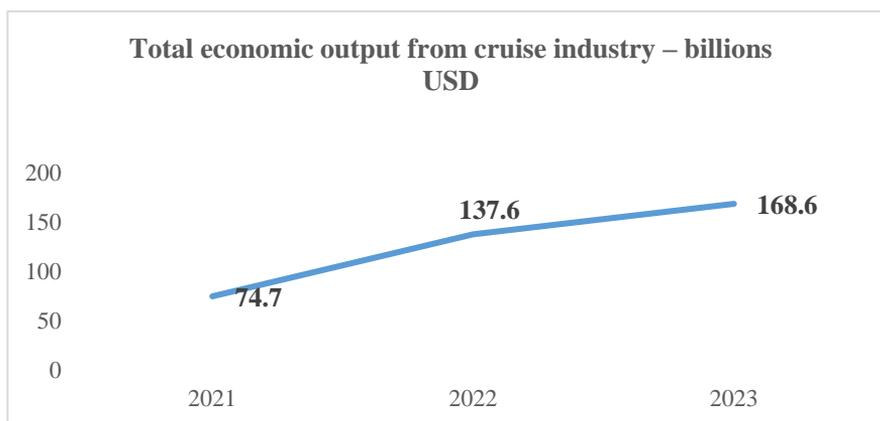
⁴ <https://www.theinvadingsea.com/2024/05/07/cruise-ships-waste-carbon-emissions-environmental-impact-pursuit-by-azamara-recycling-fuel/>

⁵ <https://www.environmentenergyleader.com/stories/cruise-ship-pollution-exceeds-urban-emission-levels,59797>

experiences, chosen by baby boomers in particular, families and multi-generational travelers, solo travelers, and more than before by gen z and millennials representatives.

Technology plays an important, innovative role in providing travelers with efficient itinerary options and enhanced experiences, especially for customers that choose to combine work with leisure; while technology is generally accepted as significant, digital detoxification and reconnection with the environment stands to be another important trend in the future of cruising.⁶

The call for luxury cruises has experienced substantial growth, with triple value since 2010, estimating 1.5 million luxury travelers by 2028.⁷ Boutique cruises are gaining popularity, reorientating towards luxury experience, personalized products and services and unique and interesting itineraries. Authentic and immersive experience of boutique cruises together with their more sustainable approach defines an increasingly notable segment of future cruising, the global boutique cruise market size estimated to reach 6.86 billion USD in 2033, as compared to 2.87 billion USD in 2024.⁸



Source: <https://cruising.org/sites/default/files/2025-07/State%20of%20the%20Cruise%20Industry%20Report%202025.pdf>

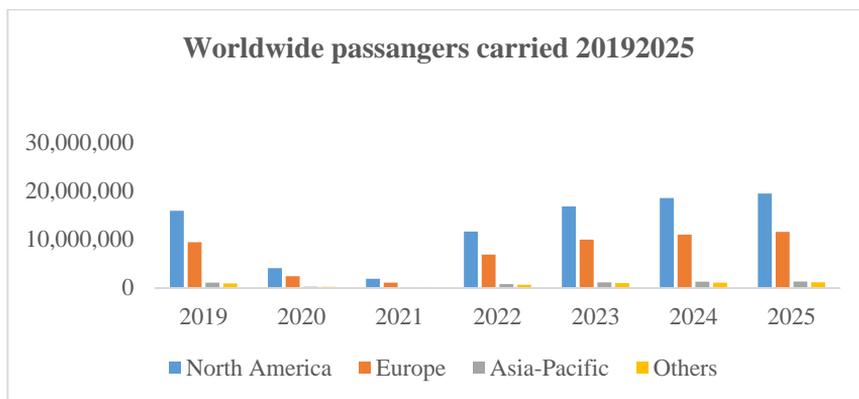
The economic impact of cruises has had a positive trend, from 74.7 billion USD in 2021 to 168.6 billion USD in 2023. Profoundly affected by Covid-19 pandemic, the industry had gone through rapid transformation reaching more than double the value of 2021 in terms of global economic output. The cruising market size is expected to achieve 263.77 billion USD in 2030⁹.

⁶ <https://www.the-travel-franchise.com/cruise-travel-trends-predictions-a-look-into-the-future-of-cruising/>

⁷ <https://cruising.org/sites/default/files/2025-07/State%20of%20the%20Cruise%20Industry%20Report%202025.pdf>

⁸ <https://dataintelo.com/report/boutique-cruise-market>

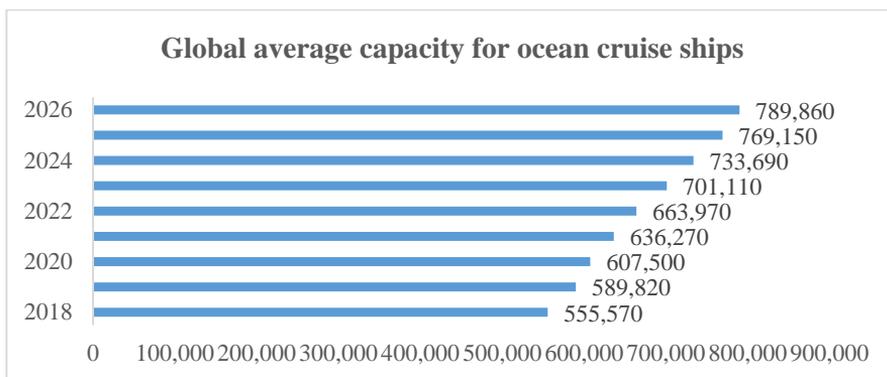
⁹ <https://www.mordorintelligence.com/industry-reports/cruise-tourism-market>



*Source region of passengers

Source: <https://cruisemarketwatch.com/growth/>

The table above presents the evolution of passengers carried out in the period 2019-2025, regarding the main source region. North America is the leader with almost 20 million passengers in 2025, followed by Europe with approx. 12 million passengers and thirdly Asia-Pacific region with 1.4 million passengers; Worldwide the number of passengers in 2025 has attained 33.6 million compared to 27.5 million in 2019.¹⁰



Source: <https://photoaid.com/blog/cruise-industry-statistics/?srsltid=AfmBOopXSI dzacsY5GCXeMdfqR9vtlq9J-g5vS8KGMmtmqhjN-NYVoZ>

Tabel above offers a comprehensive perspective over the evolution of cruise ships global capacity over the latest years, with a prediction for 789,860 accommodation passengers in 2026. The figures mentioned are strongly connected to the general trend of building new and larger ships. Major companies are investing in developing their fleet, this been the case of *Carnival Corporation* owning 95 ships with a high capacity of 257,120 passengers; Further examples

¹⁰ <https://cruisemarketwatch.com/growth/>

supporting this are the *Royal Caribbean* with 58 ships that are catering for 155,430 passenger capacity and the *Norwegian* that operates 34 ships with 71,510 passenger capacity etc.¹¹

4. Sustainable tourism in the cruising industry

As tourism grows, so does the need for responsible travel. Companies are struggling to reduce the negative impact of cruising by researching and implementing new eco-friendly technologies, by addressing major issues like pollution, waste management, social and economic inequities etc. These actions are supported by consumers in their choice of travel, sustainable practices are contributing to the decision making regarding the type of cruise, itinerary, cruise line environment appropriate initiatives and others.

Such innovative initiatives are focused on:¹²

- *Cleaner fuels* – many cruise lines are now using LNG – liquefied natural gas, that has the property of burning cleaner and therefore to reduce carbon emission by a significant level;
- *Energy efficiency* – modern cruise ships are equipped with power saving technologies for reducing fuel consumption such as solar panels, led lighting, performance-optimized hulls etc.
- *Waste management* – cruise lines are using advanced waste treatment systems for recycling and reducing waste, therefore lowering considerable the waste that reaches landfills, or the ocean.

Responsible courses of action are moving towards:¹³ the technology development by using new engines and propulsion solutions, new fuel supply and onshore power capacity, operational management in terms of digitalization, reduce waste and energy consumption and strategically planned routing and itinerary. Strategic plans have already been applied, as number shows, based on CLIA – Cruise Line International Association statistics:¹⁴

- 19 ships, representing 13% of fleets' global capacity are implementing the use of NLG as their main fuel for propulsion;
- 71 ships consisting of 25% of fleet and over 20% of global capacity adopted SCR (Selected Catalytic Reduction technology), with an expansion of 34% from 2023; This technology helps decrease the emission of particulate matter and nitrogen oxide.

¹¹ <https://cruisemarketwatch.com/capacity/>

¹² <https://www.mtatravel.com.au/clia-2024-green-waves-the-rise-of-sustainable-cruising/>

¹³ <https://cruising.org/sites/default/files/2025-07/State%20of%20the%20Cruise%20Industry%20Report%202025.pdf>

¹⁴ <https://cruising.org/news/cruise-industry-data-shows-continued-progress-toward-sustainability-goals>

- 147 ships are equipped for connecting to OPS (Onshore Power Supply), increased by 23% from previous year and with a prediction that 239 ships will be able to connect to OPS in 2028; By connecting to OPS in ports it allows ships to shut down their engines, thus generating a considerable emission reduction up to 98%.

- 225 ships comprising 80% of total are integrated with AWTS (Advanced Water Treatment Systems), with a growth of 11% from 2023 etc.

As can be seen, increasingly new initiatives towards sustainable cruising are leading the way, an aspect confirmed by current data and predictions. Future of cruising is strongly related to a responsible tourism industry, taking permanent actions to reduce the negative impact it generates.

Sustainable cruising therefore requires strategic measures for addressing gaps in international regulations, sharing best practices and regional cooperation, legislation adaptation for encouraging sustainable practices, along with clean technology implementation and promoting sustainable behaviours of companies and tourists.¹⁵ Creating the framework for sustainable tourism must consider a series of adjoining actions that take into account the international regulations and international aligned certifications, national and international countries cooperation, private-public partnerships for encouraging clean technology research and development, responsible behaviour of all actors involved etc.

5. Conclusions:

The future of the cruising industry is linked to the implementation of sustainable practices. The rapid development of cruising and the major impact on the environment raise important concerns at international level. Advancement in technology and research shows that sustainable cruising is not only a possibility but can represent a future reality, through joint actions regarding regulations, proper practices and behaviours of responsible tourism.

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¹⁵ https://bluetourisminitiative.org/wp-content/uploads/2024/09/BlueTourism_Cruise_Report.pdf

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THE DECLINE OF ROMANIAN OIL INDUSTRY BEFORE AND AFTER THE COLLAPSE OF COMMUNISM

Bogdan Glăvan*

Abstract

We will show how in the absence of substantive reforms the problems of oil industry degenerated in the decade after the 1989 revolution. There are several reasons for this unhappy outcome: some of them are exogenous or refer to the economy at large (the collapse of foreign markets, hyperinflation), while others are endogenous, resulting from the very bad management of the companies themselves. From a larger perspective all these problems are institutional: the lack of private property, collectivist policies and the capture of the state – put it shortly, bad institutions – have deepened the inefficiencies and aggravated the waste of capital.

The overall fall of the economy and the changing demand for refined products that occurred during this period meant that at the end of 1990 a profound restructuring was necessary. The refineries were simply unfit to cope with the requirements of economic realities and considerable capacities needed to be closed.

Keywords: oil industry, inflation, communism, reform.

JEL Classification: N14, N54.

1. Why fast privatization was important

After the revolution in 1989, although the country was moving towards capitalism, the oil sector remained under the influence of the government for a relatively long period of time. The Romanian institutions were unfit for the market economy and the politicians were unwilling to commit to such a goal. The result was a long and tumultuous transition process, during which state management was extremely common throughout the economy.

From an economic perspective, the state of Romanian industry at the beginning of 1990 was very difficult: it was conceived in the tubes of central planning, directed by military-style orders (in fact energy companies were coordinated by military personnel), according to the directives of Ceaușescu and with no concern for the preferences of the consumers. Instead of focusing on satisfying the most urgent needs of the public, the whole structure of production had a completely different mission – that of observing the dictator's "precious indications" as to how much steel per capita should be produced or how many tractors should be manufactured. The rejection of profit as the single most important criterion for assessing the efficiency of production has led central planners to project a highly energy-intensive industry: the energy intensity was

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four times higher than in the US and four times above the European standards (Cossé, 2003). Therefore, the collapse of communism sent the factories in dire straits: they discovered suddenly how inefficient they were. Economic restructuring became inevitable.

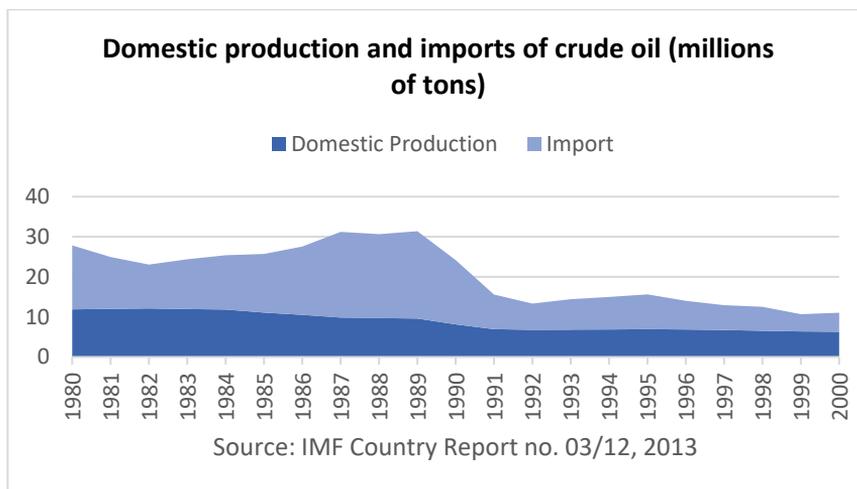
To alleviate the painful process of transition, policymakers should have insisted on fast privatization and deregulation, so that capital goods (the means of production) could be transferred as soon as possible in the hands of private individuals/firms. Not only theoretical reasons but also the experience of neighbouring countries confirms that the economic cost of readjusting the structure of production is smaller when a “shock therapy” is pursued. However, they were reluctant to admit this, and the democratic governments preferred to continue to engineer and manoeuvre the economy according to a “gradual reform” paradigm. But gradualism did not work as expected. Public decision-makers lacked the appropriate incentives to conserve or enhance the value of oil industry. Very soon, as the theory predicts, the state “has been captured” and the lobby of different interest groups opposed any reforms.

The effects of the interventionist paradigm have exacerbated the bad results of socialism and eventually, a decade later, left a disastrous legacy: heavily indebted companies, huge piles of useless capital, rampant corruption.

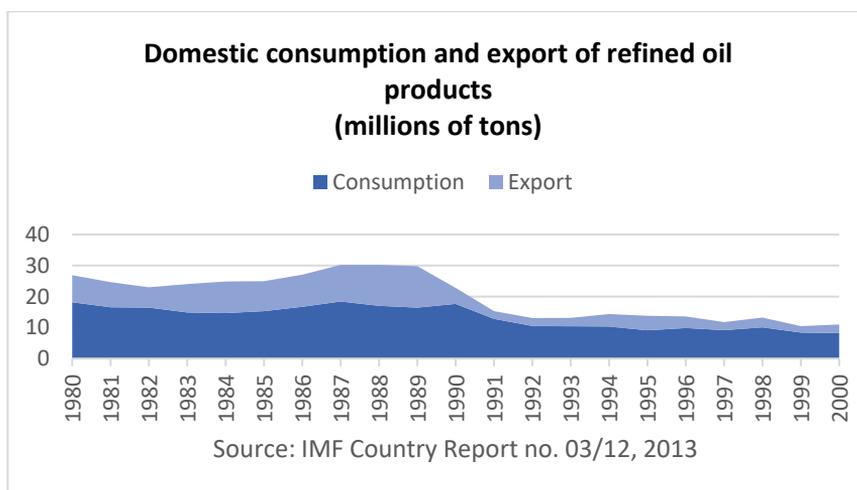
2. The great contraction

Given its “strategic importance”, the oil sector was at the centre of government policy. The general goal was to provide cheap petroleum products for the population and industry, using the existing facilities built by Ceausescu’s socialist regime for processing raw materials.

Because of numerous factors (Antonescu, 2012) such as the *natural* decrease of the national oil reserves, the reduction in new exploration works and the lack of new investments (especially in technology) due to bad state management policies, the national oil production decreased drastically after 1989. If the oil production was around 9 million tonnes in 1989, it collapsed in 1990-1991 and continued to decrease throughout the 90s, reaching 6 million tonnes in 2000 and only 4 million tonnes in 2013.



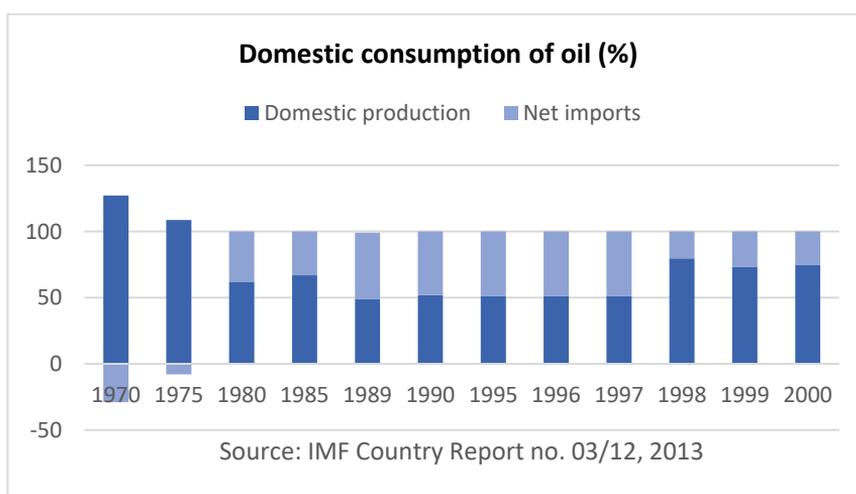
The reason for this collapse is twofold. On the one hand, the aggregate energy demand declined to half. “The drop in consumption took place primarily in industry, while household’s consumption has remained roughly flat” (Cosée 2003, p. 5). Many factories reduced or stopped their production because they lost their former foreign customers in CMEA, the economic organization that included the countries of the Eastern communist bloc along with a number of other communist states, or because they were unable to produce quality goods for the local population.



On the other hand, and more fundamentally, production declined because in the new institutional environment nobody was really responsible for state-owned companies. Aggregate investment declined to half, from 30% of GDP in 1990 to 16% of GDP in 1999. State-owned enterprises became a sort of no-man’s land, their managers who often refused to produce unless they were

bribed carried no responsibility, their workers' absenteeism jumped and their overall productivity dropped (Alessandrini, 1998). In the new atmosphere of "happy anarchy" strategic thinking was missing and SOE managers captured the state, lobbying for ever more subsidies and objecting to financial discipline (Negoita, 2011). In the oil industry corruption probably peaked during the war in former Yugoslavia, in 1994-1995, when despite the embargo over 1100 train wagons shipped oil products over the border, in a single operation which eventually determined a major judiciary and political issue in 2000.

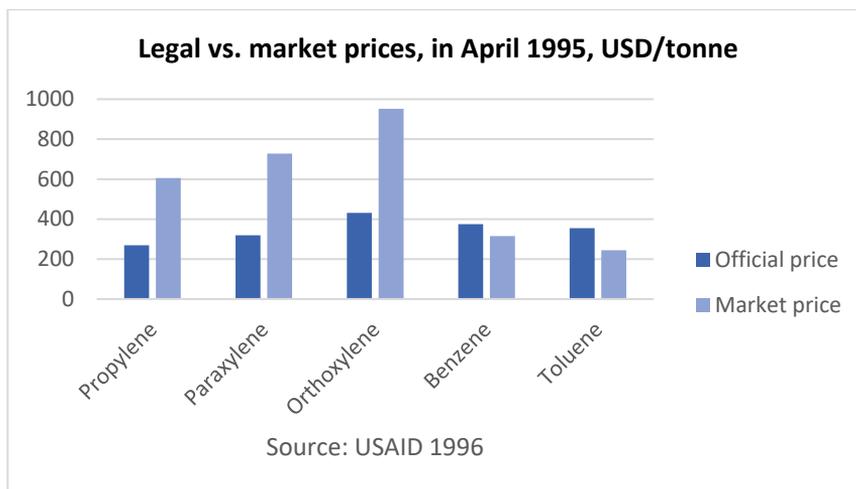
Although oil consumption decreased after the revolution, it continued to remain higher than supply. The only solution left for the authorities in order to solve this problem was to import crude oil. Thus, until 1997 half of domestic consumption of fuel was covered by oil imports.



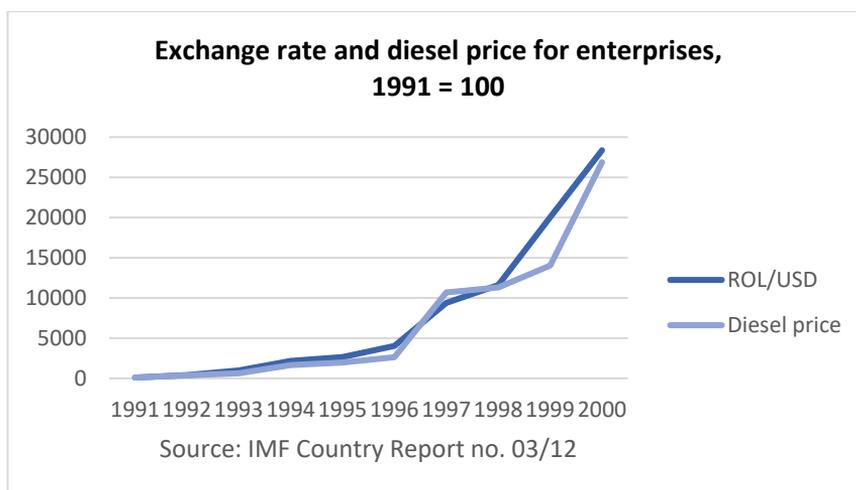
3. Inflation, price ceilings and decapitalization of state companies

Between 1992 and 1997, Romania imported around 800-1000 thousand tons of oil per month, which were paid in hard currency (mostly dollars). The oil was processed in the large refinery sector, which we have previously discussed, and the output was sold on the Romanian market at below the cost prices¹. The reason for this is that in early 90's the price for processed petroleum products was fixed at national level and no producer could sell below or above that price.

¹ The interesting aspect is that the prices for petroleum processed products were actually below *import prices*, without adding here processing and transport fees.

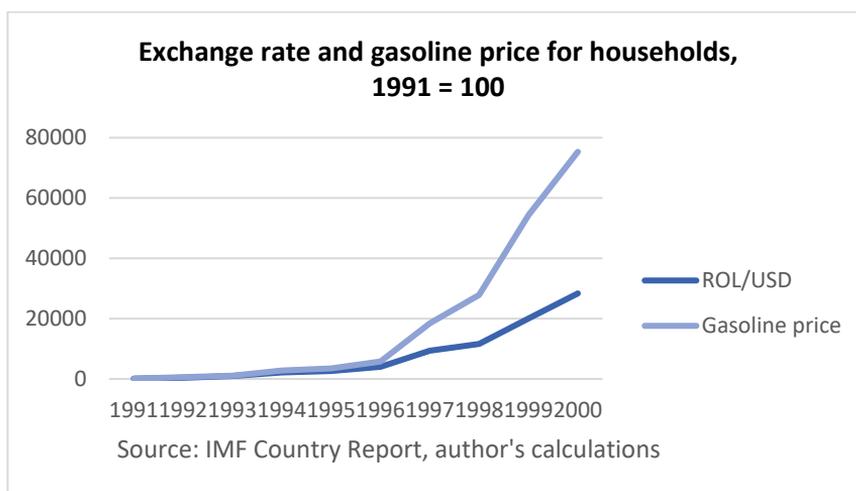


The official goals of this policy were (1) to provide social protection for the population and (2) to fight what mainstream economists refer to as “cost push inflation”. The government was afraid that the decision of liberalizing the price of oil products meant higher transport prices, which would subsequently spill over into the prices of the transported commodities, pushing them up even further. This is the main reason for literally dumping petroleum products on the market at a managed national price that was below the import price of the main input that went into their production.



These two goals were actually the symptoms of another policy that the Romanian government was engaged in during those years: money creation in order to cover the massive deficits that the inefficient and overgrown industrial sector was accumulating. This type of policy is extremely costly from an economic point of view, and would normally lead to high prices for final

products. Therefore, in order to achieve what they considered to be the best of both worlds, i.e. continuing the easy money policy while also hiding its consequences and avoid social unrest, the authorities decided to maintain and continually fine-tune the interventionist scheme of maximum prices. Thus, they basically indexed the gasoline and diesel prices to the rate of currency devaluation. Only in 1997, during the global financial crisis and the incoming recession, within the framework of an IMF stand-by loan agreement, the Ciorbea government decided to sharply increase the price of gasoline



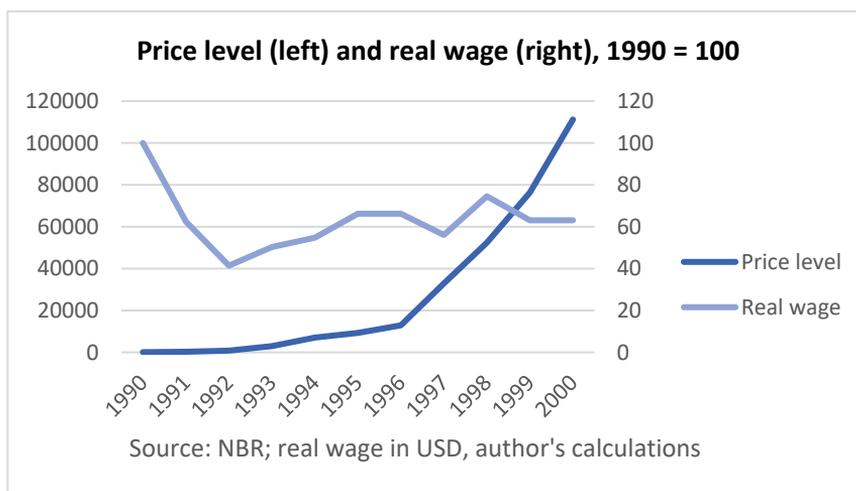
The result of artificially low prices was the huge accumulation of debt in the refining sector, the import-export banks and the international trade wholesalers of petroleum products. The oil sector revealed itself to be inefficient and overdeveloped under the management of the state, a large refining capacity becoming useless. When the state was eventually forced to privatize the sector, first, due to increasing debt and secondly, due to the pressure of international organizations like the IMF, the WB and finally the EU, the companies were already basically bankrupt.

Inflation itself was another factor that aggravated the financial situation of SOEs. Because in early '90s the leu lost its purchasing power very fast and companies were unable to set their selling prices to reflect the anticipated inflation, they were decapitalized. They purchased crude oil at initial prices, then they supplied refined products and sold them at prices that were essentially indexed to this initial cost of production, actual cash inflows being received later on; afterward, when they would buy again crude oil from the international market, they could only discover that, because of the leu's devaluation, their cash income was much smaller than their new supply cost. To put it differently, refineries discovered the unpleasant truth that in times of hyperinflation there is a major difference between *nominal* and *real* incomes and profits. Therefore, to

continue their activity, they permanently needed new injections of liquidity and more and more loans from Bancorex – the state-owned bank that financed international trade.

“Inflation is always and everywhere a monetary phenomenon” – is one of the most important dictums in economics. The only reason for which *all* prices rise substantially over a period of time is an increase in the money supply by the central bank. In the 90’s Romania had huge inflation problems, with Consumer Price Indexes of over 250 percent per year. 1991 and 1993 were two of the worse years from this point of view, following a relative decrease in 1994 and 1995 only to generate another inflation crises (although relative smaller) in 1997.

Romania has pursued an inflationary policy precisely because decision-makers attempted to hide the real economic situation. Given that they were reluctant to admit that, in the absence of market demand factories should reduce, stop or change their business, which would have implied significant layoffs, policymakers decided to print money in order to reduce real wages and keep afloat as many state enterprises as possible.



It is easy to see that from an economic point of view, such a policy was unsustainable. Importing raw materials and selling processed products below the import price does not make economic sense, while printing money cannot help. Although the exact dimension of losses in the oil industry was difficult to estimate – and quite impossible in the absence of private property and free markets – especially given the cross-subsidies among SOE’s companies, estimates place the refining sector’s loss at 1 million dollars per day. The outcome for the Romanian policy was rather predictable. Because the state chose to postpone the privatization of the oil sector and to continue the cheap price policy, the refineries began to accumulate huge debt for the import bill.

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