18th prof. Vladas Gronskas International Scientific Conference

Reviewed Selected Papers

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Vilnius University Kaunas Faculty Council considered and recommended the publishing of peer-reviewed proceedings (e-version) of the 18th prof. Vladas Gronskas International Scientific Conference, which was organized by the Institute of Social Sciences and Applied Informatics in Vilnius University Kaunas Faculty.
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Foreword

In keeping with the scholarly traditions of Vilnius University Kaunas Faculty, the 18th “Prof. Vladas Gronskas International Scientific Conference” was held in December 2023. This international conference is an arena for cooperation and scholarly fellowship, with young researchers, bachelor, master and doctoral students from Lithuania as well as Latvia, Turkey, Hungary, Finland, Ukraine, Egypt, India, Cameroon, Jordan, Thailand, Spain, Azerbaijan, participating in the different conference sections.

The main goal of this scientific gathering has always been to contribute to the reliable, safe, effective and sustainable economy and business development. Thus, the organizing committee strives to create a suitable platform for well-grounded and open discussion where young researchers have the opportunity to present and share their insights.

Encouraging entrepreneurship is a crucial condition for economic growth andthis puts forward anew approach to business, creativity, value creation, and the implementation of innovations. It is precisely in this context where business and science should interact. To reinforce this relevant bond, the guest speakers of the plenary session were selected amongst experienced practitioners – Ernesta Varnelienė (Head of Exports Asia at MV GROUP Production. Markets expertise Taiwan, Vietnam, Cambodia, and others (Lithuania)), Gintarė Dagytė-Kavoliūnė (Senior Marketing Project Manager at Go Vilnius, PhD candidate at Vilnius University (Lithuania)), Renata Danielienė (Manager of CyberAgent: SMEs Cyber Security Change Agents project at VU Kaunas, assistant lecturer at VU Kaunas (Lithuania)).

This conference encourages internationalization and a closer cooperation between science and business. Hopefully, there has been some useful take-away for both academia and business conference participants: new insights and inspirations for further scientific research.

On behalf of the Scientific Committee

Assoc. Prof. Dr Ingrida Šarkiūnaitė

Enhancing Supply Chain Synchronisation in the Fast Moving Consumer Goods Industry

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Abstract. In 2021–2022, a decade's worth of disruptions battered material supply chains, establishing them as a permanent factor. COVID-19 caused labour shortages, rising fertiliser costs altered farming, Europe faced energy crises, USA-China tensions grew, and the Ukraine-Russia war escalated. Extreme weather and policy shifts worsened global supply chains, leading to bare shelves and crippled businesses. Just-in-time delivery failed, and traditional supply chains no longer ensure business continuity. This article aims to prove the inefficiencies of traditional supply chains and offer an approach to creating an end-to-end model with better visibility, service, and cost control for Fast-Moving Consumer Goods (FMCG) manufacturing plants. During the research phase, 12 European Pet food production plants were visited, analysing their supply chains via People/Systems/Process lenses. Risks, synchronisation needs, system requirements and training gaps were identified. Preliminary research findings are presented in this article.

Key words: supply chain disruption, manufacturing, fast-moving consumer goods, continuous improvement.

Introduction

Relevance of the article

The global supply chains have been shaken in recent years. COVID-19, wars, extreme weather events, economic and political instability unprecedentedly shook global trade, and it seems that such events will continue and become the new normal. Research is needed to help organisations become resilient and continue operations while facing these new challenges.

Problem investigation level

There are a lot of resources available that recommend a lean supply, just-in-time deliveries, inventory control. All those papers were correct for the time they were written. Unfortunately, business operations have changed, and there are very few papers that stress agility and resilience more than immediate cash benefits while stopping the factory due to the lack of materials, which is extremely expensive.

Scientific problem

How to strengthen and adapt the global supply chains to compensate for unpredictable force majeure that is more common than expected? How to increase supply chain risk visibility and transparency?

Object of the article – Fast-Moving Consumer Goods (FMCG) manufacturing sites and their global supply chains.

Aim of the article – to research and define the inefficiencies of traditional supply chains in the changing global environment and argue that this model can no longer ensure business continuity. End-to-end supply chain visibility and proper enterprise planning must be implemented in order to avoid losses due to missed deliveries.

Objectives of the article:

1. To overview traditional supply chains;
2. To reveal recent supply chain disruptions;
3. To clarify the findings of research done in 12 FMCG factories.

1. Traditional supply chain model and just-in-time concept

The APICS dictionary (Pittman & Atwater, 2016) defines the term "supply chain" as a set involving all processes that connect producing firms and consumers. These processes start with supplying the raw materials and finish with the final product delivery to the consumer. Additionally, the term "supply chain" is defined as a compilation of internal and external organisational activities, enabling the value chain to offer services and products to clients. (Cox et al., 1995). "Supply chain

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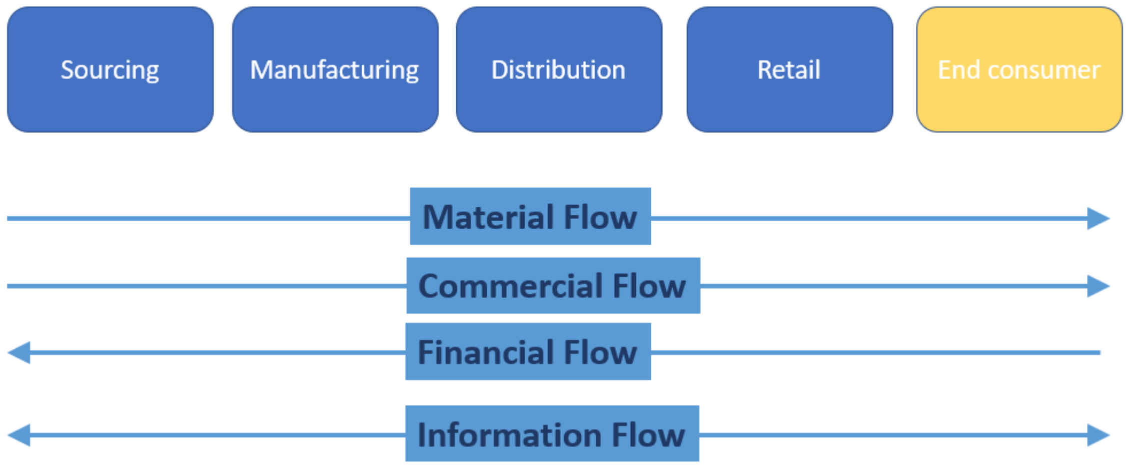
is defined as a group of inter-connected participating companies that add value to a stream of transformed inputs from their source of origin to the end products or services that are demanded by the designated end-consumers" (Lu, 2011). In other words, it is a flow of materials, information, finance and commerce from the extraction of raw materials to the final product sold to the end consumer. Active control strategies are often used to manage supply chain systems, where nonlinear control synthesis is recommended (Xu et al., 2022). These authors emphasise that using System Dynamics Theory can be a potentially effective strategy to deal with chaotic supply chains with unpredictable behaviour over time. Other authors (Wofuru-Nyenke et al., 2023) have explored recent trends in sustainable manufacturing supply chain modelling. These studies aimed to identify modelling approaches. Assessing the challenges posed by COVID-19 in adapting supply chains to function in suddenly changed conditions, significant research on strategy formation in crises was conducted (Durugbo & Al-Balushi, 2023). Such strategies fundamentally differ from conventional strategies that focus on developing competitiveness. The COVID-19 epidemic has drawn the attention of companies to blockchain technology, which can help them quickly gain competitiveness in the market. However, this technology also requires significant financial investments. To solve this problem, an effective supply chain contract can be started by adopting blockchain technology in the supply chain (Liu et al., 2023).



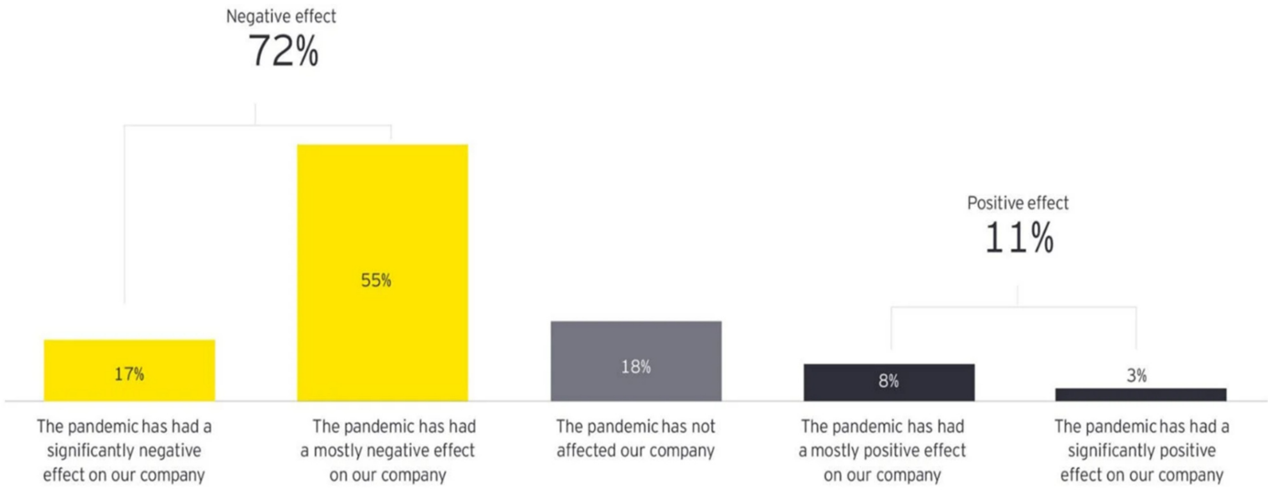
Source: created by the author.

Fig. 1. Supply chain flows

Often, companies concentrate on financial and material flows, which allow operations in the short term, but do not allocate enough resources to information and commercial flows, which are crucial in the long term. In past studies, several strategies were provided for supply chain, which can generally be divided into two categories: responsive/agile supply chain strategies and efficient/lean supply chain strategies (Fisher, 1997). Toyota, a leader in innovative Lean manufacturing strategies, introduced its Just-in-Time (JIT) strategy. As M'Barek, Fujii and Ohtaki (1988) described in their paper, it is designed to produce and deliver materials, parts, and components just before they are needed. This strategy is well known for considerable cost reduction and total productivity improvement in many manufacturing companies. It is based on a close relationship with the supplier, allowing accurate planning of materials avoiding inventory storage. Implementing JIT can lead to significant savings for companies that can meticulously establish their planning systems. JIT became a go-to strategy for many manufacturing companies seeking to optimise resources and achieve cost and cash savings. However, in today's environment, not having any safety stock and relying on supply chains designed for a stable global market brings huge risks and potentially enormous costs if production must be stopped due to disrupted deliveries and lack of materials. This is exactly what happened to Toyota after the earthquake in Japan in 2011. Most of Toyota's Japanese plants were closed for nearly two months. In addition, Toyota's North American production was cut to 30% for the subsequent 6 months due to a shortage of 150 different parts which should have been produced by Toyota's Japanese plants (Canis, 2011). Toyota had a 77% fall in profits in the second quarter of 2011, equivalent to $1,36 BN (MacKenzie et al., 2012). Toyota learned this painful lesson early and revised its operating strategy, while the rest of the world did so only in 2020 after experiencing disruptions in the supply chain due to COVID-19. That is why Toyota did relatively well during 2020–2021, while most other companies struggled to get the needed materials and components for production.

2. Post-pandemic supply chain trends

Harapko (2023), working in Ernst & Young LLP (EY US), a global business consultancy company, conducted a survey of 200 senior-level supply chain executives in late 2020 and then in 2022 to determine how/if the COVID-19 pandemic impacted global supply chains. 72% of respondents reported a negative effect.



Source: Harapko, S. (2023).

Fig. 2. Survey results – pandemic effect on the business

According to the executive supply chain survey, it is evident that top priorities include enhancing visibility, efficiency, and reskilling supply chain personnel. These results align with expectations, considering that cost optimisation in the supply chain remains a consistent focus, even when bolstering resilience. Traditionally, cost reduction involved lean operations, extended lead times, and low-cost labour. Looking ahead, the emphasis shifts towards agility, visibility, automation, and upskilling the workforce. These factors contribute to cost reductions and foster improved decision-making, standardised processes, and excellence throughout the supply chain and collaborative partners within the ecosystem. The surveys highlight that supply chain visibility ranked among the top three priorities in late 2020 and claimed the top spot in 2022. Despite its prominence, achieving comprehensive supply chain visibility remains an ongoing effort. Although COVID-19 was the first factor that shook the global supply chains, it is now only one of many over the last three years. Executives acknowledge the heightened strategic significance of their supply chain due to the changing global trade environment. Consequently, businesses are forced to promptly establish a supply chain structure that aligns with the demands of the emerging digital and autonomous-focused era. To sum up, we can observe a trend where supply chains require adaptation to enhance agility and transparency, which is crucial for supporting business operations. Technological innovation is pivotal in facilitating data analytics, furnishing a foundation for strategic organisational decision-making. A case study was conducted to analyse this problem further and identify the specific challenges confronting businesses.

3. Optimising FMCG supply chains: a comprehensive analysis of 12 case studies

Research methodology

Aim of the research is to define "as is" material management process, identify supply chain weak points and gaps, propose solutions.

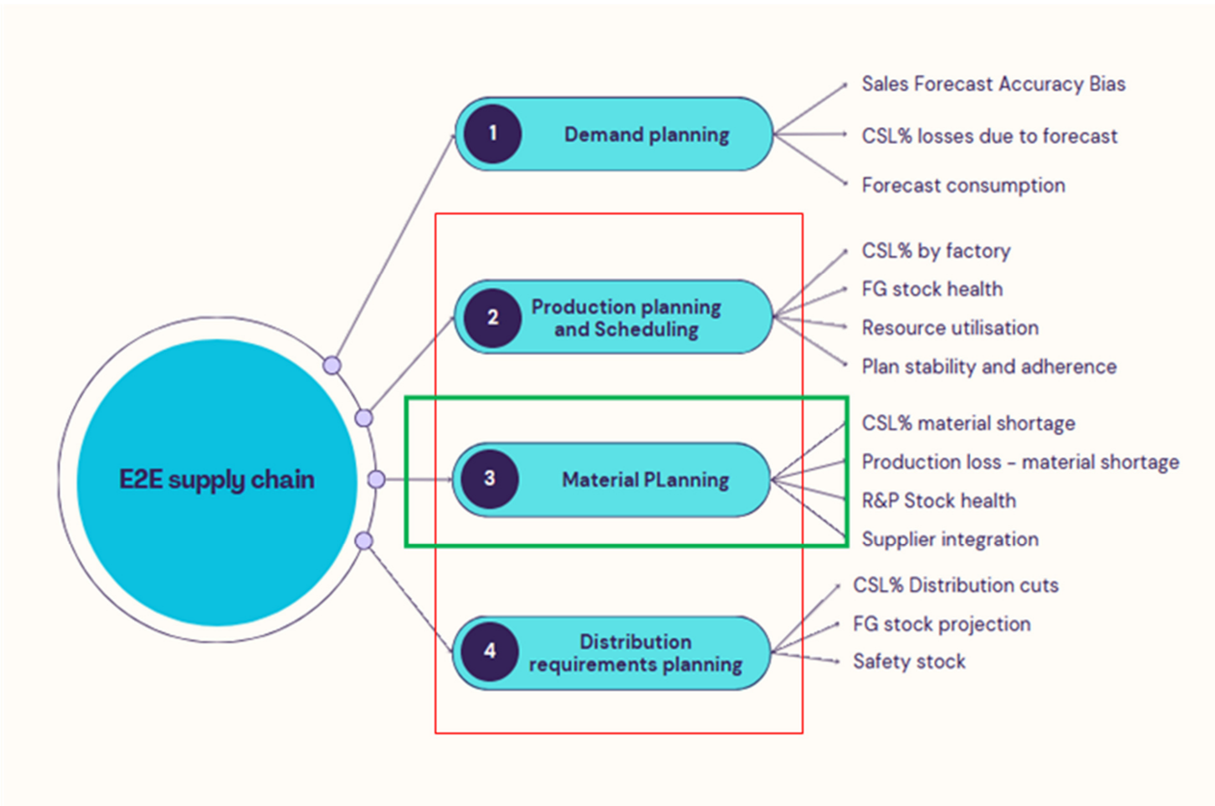
Objectives of the research:

1. To define "as is" material management process;
2. To identify supply chain weak points and gaps;
3. To propose solutions and methodology for continuous improvement.

Selective Sample. 12 EU and UK Pet Food manufacturing plants.

Research methods

The research was conducted in July-November 2023. Each production plant was physically visited and audited. The qualitative research methodology was used, and only matter experts were considered. Interviews were conducted with factory raw/pack material planners, who dived deep into their daily routines of ordering materials for production. The planners were asked to describe their daily tasks step by step, making sure to cover all areas relevant to the research: master data maintenance, MRP runs, requirements, ordering procedure, risk assessments and risk management, inventory assessment and management, new product development and other activity management, supplier relations and performance management. The planners answered open questions to get a complete overview, avoiding bias and predisposition.



Source: Company inner resources.

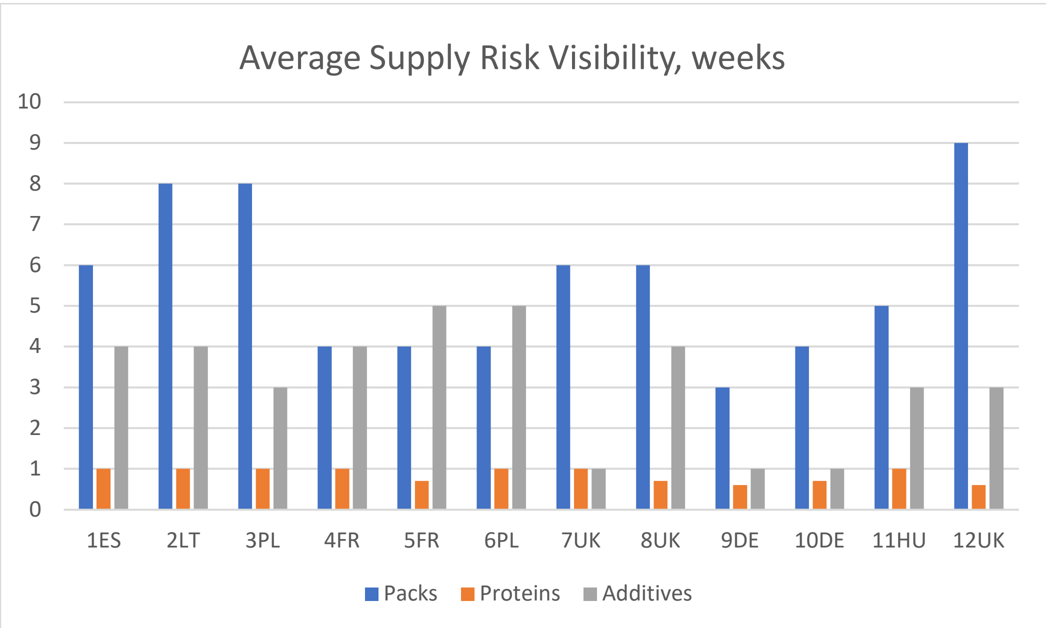
Fig. 3. End-to-end supply chain components and their KPIs

Systems experts, scheduling and commercial specialists, logistics managers and the factory leadership team were also interviewed to define their input to the factory supply chain. Visual inspection and observation methodology were also used. In addition to the physical interviews in the factory office, a factory tour was also arranged to learn about the technologies, capacity constraints, systems integrations, infrastructure and accessibility, storage capabilities, etc. The factory tour is the most valuable tool for witnessing each site's unique setup and understanding why specific working methods are applied. Focus groups were created with relevant site team members to discuss first findings and preliminary risk factors, urgent actions (if any), and continuous improvement action plan. The collected data is non-numerical, it is detailed information on processes, systems, and people integration. Based on the collected data, each site will be evaluated following the same template, clearly indicating the current "as is" maturity level, stating the gaps and defining the maturity level – primary, capable, advanced or enterprise. The template was prepared and created by the investigated company, following their enterprise planning guidelines.

Research data analysis and discussion of the results

The analysis and comparison of research data is ongoing, but the preliminary findings have prompted the company to implement new KPIs, training programs, communication strategies and process change procedures. An ingrained continuous improvement mindset in the company allows these changes to be implemented relatively smoothly – factory teams are engaged, understand the bigger picture, and welcome positive change. Several benchmarking opportunities were identified, where some factories have very effective processes that could be deployed to others.

Among the most worrying findings was the risk visibility, which usually is limited to the supplier lead time, while the target should be at least 12 weeks. If this lead time is less than 1-2 weeks, then the factory might not have enough time to implement any mitigation actions and end up stopping the production lines. While some safeguards are already in place, such as safety stock and diversification away from single-sourced materials, this cannot be implemented across all inbound portfolios. Fresh raw materials cannot have any safety stock due to limited expiry time, which is 24-48 hours. In this case – close relationships, service level agreements and systems integration with key suppliers are essential to business continuity. It is vital to inform suppliers of future demand and agree on risk management processes to allow more time to prepare for a material shortage.



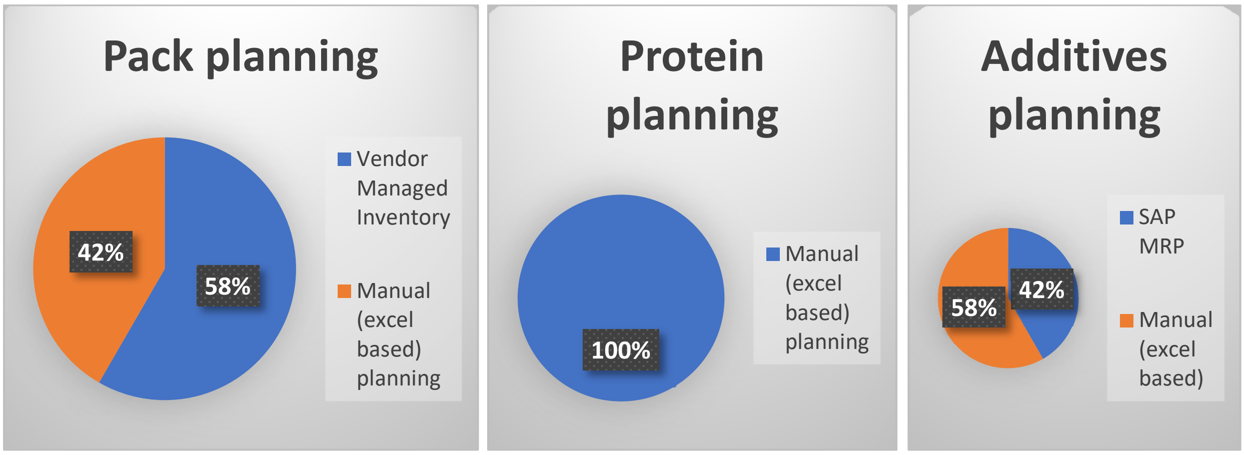
Source: Research data.

Fig. 4. Risk visibility based on material type and lead time

When looking at safety stock and material inventory targets, there is still a lack of standard methodology that could cater to differences in factory setup, such as infrastructure, production capacity, warehousing space, and material storage requirements. A standard safety stock calculation methodology could be applied region-wide but must be adjusted to individual factory setup requirements.

Demand accuracy and production plan adherence are other issues for factories. While in FMCG industry, manufacturing must be very reactive to fulfil ever changing customer needs, a balance is also necessary to have a steady fixed time horizon to prepare for production. Demand planning accuracy and bias must be assessed using new statistical, interpersonal and AI tools. If factories can achieve relatively accurate demand planning and factory output adherence to plan, a reasonable amount of cash could be saved by lowering the safety stocks on finished products and materials.

System limitations were another factor that added extra manual work. Because the main systems were not adapted to the local factory setup, requirements, and operations, workarounds had to be created to compensate for them. These manual Excel-based tools were used for material requirement planning and ordering while interfering with data accuracy and material inventory visibility in the central operating systems. Only individuals in specific roles possess the expertise required to handle the Excel-based macro tools, which causes a potential risk to the company's supply should they leave unexpectedly. Additional features must be added to the software so the factories can bring all planning back to the central operating systems, stop outside transactions, and have clean and reliable data to enable advanced technology adaptation and analytics.



Source: Research data.

Fig. 5. Factory planning methods based on material type

One more very important finding that should be mentioned is people: proper recruitment, retention, development, proper handover and onboarding. A clear trend emerged where the factory supply team exhibited experience, comprehensive training, and minimal staff turnover, resulting in fewer supply issues. In contrast, at other factories where knowledge was lost during handovers, more issues with data accuracy, lower system usage and trust, underutilisation of available tools were observed. A specific gap identified here was the lack of fully documented processes to support onboarding, along with the absence of training programs to develop essential knowledge of system functionality.

Conclusions

1. Having overviewed traditional supply chains, it was determined that traditional supply chain methods need reassessment to accommodate the new global trade reality. Businesses need to consider three key areas: processes, technology, and people. Advanced technology solutions can enhance supply chain efficiency by enabling predictive analytics that enables risk visibility and support decision-making.
2. Having revealed recent supply chain disruptions, earthquakes, COVID-19 and other severe natural disasters and uncertainties can immediately destroy prior developed and implemented manufacturing and distribution plans. Implementing JIT can lead to significant savings for companies that can meticulously establish their planning systems. However, all those benefits can be taken only in predictable conditions. COVID-19 has an extremely

painful impact on the disruption of such thoroughly balanced supply chains.

3. Having clarified the findings of research done in 12 FMCG factories, several benchmarking opportunities were identified that could be deployed to other factories for relevant process improvements. As one of the most worrying findings was the risk visibility, which is usually limited to the supplier lead time. It is important to inform suppliers of future demand, agree on risk management processes to allow more time to prepare for a material shortage. Another relevant finding is about safety stock and material inventory targets – there is still a lack of standard methodology that could cater for differences in factory setup – infrastructure, production capacity, warehousing space, and material storage requirements. Demand accuracy and production plan adherence are other issues for factories. System limitations were another factor that added extra manual work. Additional features must be added to the software so the factories could bring all planning back to the central operating systems, stop any transactions being done outside of it. One more very important finding that should be mentioned is people: proper recruitment, retention, development, proper handover and onboarding.

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Towards Service Quality in Logistics in a Multi-Crisis Environment: The Combination of Lean and Digitalisation

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Abstract. Organisations operating in an environment of uncertainty are looking at 15-18 months to run operations at the same level as in the pre-crisis period. Therefore, companies have to focus on updating existing quality approaches, developing new models, and finding best practices. This paper aims to investigate the activities of a logistics company operating in Lithuania, which is implementing the lean philosophy through improving quality using information technology, and to analyse its actions in improving quality during the crisis. In order to achieve the set goal, the non-conformance management data of the parcel delivery company from 2016 to 2022 was analysed. During the research, it was found that the company had faced several crises, the most prominent of which was the increased demand for logistics services during the COVID-19 pandemic. The results show that new, emerging quality management challenges are managed by applying knowledge of lean management practices within two years.
Key words: *lean, digitalisation, logistics.*

Introduction

Relevance of the article

Logistics companies worldwide strive for market share by attracting customers and differentiating themselves from other market players through continuously improving systems and processes. New technologies such as big data management, Global Positioning System (GPS), and artificial intelligence (AI) have fundamentally changed the understanding of efficiency and convenience in business organisations (Chung, 2021). Technologies including data analytics, remote monitoring systems, automation (Ambika Zutshi, 2023), and remote collaboration tools can help organisations respond more effectively to change, consequently improving quality, significantly enhancing performance management, increasing competitiveness, productivity, effectiveness, and fostering the development of new skills and digital capabilities (Mazzarol, 2015). Applying new technologies creates an opportunity to gain advantages over competitors and achieve higher quality in logistics services (Akkaya & Kaya, 2019).

The unique political, economic, technological, and environmental challenges of the last five years (Narcevičius, 2022) have provided an opportunity to test and improve existing information technologies and methodologies to achieve the highest possible level of service quality.

Problem investigation level

The interest in the quality of logistics services provided by companies has been noticeable in the scientific literature for a long time, but the emergence of COVID-19 in 2019 highlighted the importance and vulnerability of logistics services, leading to increased research. It has been observed that the topic of the synergy between lean and IT is not emphasised in scientific articles related to logistics services, and only a few studies have theoretically formulated or modelled leadership strategies while maintaining the quality level. To assess a company's resilience to unexpected situations, it is crucial to explore further the aspects influencing the level of quality and how the company's IT and lean practices impact its operations.

Scientific problem.

How can lean and IT be utilised to maintain the quality level of logistics services?

Object of the article. The evolution of logistics services quality in companies that employ information technologies and lean principles.

Aim of the article. To investigate the activities of a logistics company operating in Lithuania that is implementing the lean philosophy to enhance quality through the use of information technology and to analyse its actions in quality improvement.

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Objectives of the article:

1. To analyse the scientific background related to the combination of lean and digitalisation;
2. To collect the data related to the activities of logistics companies operating in Lithuania that implement the lean philosophy while using information technologies to enhance quality and manage discrepancies;
3. To analyse the logistic company's actions in handling discrepancies during periods of uncertainty.
4. To evaluate the actions that positively influenced the restoration of the quality level.

Methods of the article

The study is based on empirical data on non-conformities in logistics companies for the period 2016–2022. Using descriptive statistics methods, the non-conformities recorded in the quality management system were analysed, characterising the one-day delay in the delivery of parcels. A clustering method was also applied to the empirical data according to the qualitative groups of non-conformities to identify the causes of the unevenness of service quality.

1. Theoretical and analytical aspects of service quality in logistics in a multi-crisis environment

External and Internal Challenges in the Logistics Industry

The logistics industry operates in a dynamic environment, encountering many external and internal challenges that shape its operations and performance. Logistics faces significant external challenges, such as new technologies, emerging market players, evolving customer expectations, and introducing new business models (Zaviša, 2023). Additionally, internal challenges include system complexity, inconsistent external regulations, and issues like a lack of competence, employee shortages, high turnover, rising costs for maintaining personnel and other resources, and fragmented communication. These factors create a constantly evolving landscape, requiring logistics companies to adapt and innovate to remain competitive.

Scientific literature points out specific challenges for logistics service companies, including infrastructure bottlenecks, the absence of efficient technical systems, a lack of government support policies, and a shortage of suitable key performance indicators (KPIs) (Gupta, Singh, & Suri, 2018), as well as reliance on traditional operational methods (Sharma, Panda, Mahapatra, & Sahu, 2011).

Companies grapple with daily difficulties that impact the level of logistics service quality. However, purposeful and consistent identification, monitoring, and resolution of these challenges contribute to greater resilience and learning by doing within the company. Amidst the challenges faced daily, purposeful and consistent identification, monitoring, and resolution of these issues pave the way for greater resilience and learning within logistics companies, ultimately driving forward the ongoing digital transformation in logistics.

Digital Transformation in Logistics

Companies providing logistics services face two main challenges: (1) increasing complexity in warehousing and transportation operations due to a growing market assortment and (2) the need to maintain stable efficiency as profit margins tend to decrease due to rising consumer expectations (Loske & Klumppc, 2020). In the face of product diversity, companies seek to reduce operational costs through tools such as Artificial Intelligence, automation, and digital transformations (Bell & Griffis., 2010). The European Parliament also facilitates the digitisation process, which has mandated that as of August 2024, national institutions must adopt the information provided by carriers in a digital format applicable across all EU countries (GmbH n.d.). Digitisation and digitalisation have become crucial in today's era of sustainable practices, aiming to maintain data flows (Menon, et al., 2022). Furthermore, insights from specific authors suggest that digitalisation empowers companies to develop eco-friendly innovations by considering their internal capacities (Ninga, Jianga, & Luo, 2023). Changes induced by the pandemic accelerated the digitisation processes in logistics, but companies still grapple with insufficient transparency, lack of information, and fragmented supply chains (Hartel, 2022). Additionally, the exchange of information among transportation participants often occurs chaotically and inefficiently, using various means such as phones, various communicators, paper documents, or email (Waldmann & Kolinska, 2022). Researchers also indicate that 'high investment costs,' 'lack of financial resources,' 'inadequate internet connectivity,' 'lack of IT infrastructure,' and 'unclear economic benefits of digital investments' are the five main obstacles to implementing digital technologies during the pandemic (Gupta, Yadav, Kusi-Sarpong, Khan, & Sharma, 2022). Fatorachian and Kazemi note that there is a significant need to apply technologies such as Global Positioning System (GPS), barcode scanning, radio frequency identification (RFID), cloud computing, Big Data, and augmented reality in the logistics sector. However, the human skill set is insufficient to cope with these technological challenges (Fatorachian & Kazemi, 2018).

Companies providing logistics services have many interrelated systems, such as Logistics Process Management, Order System Management, Fleet Management, Transport Monitoring Management, Warehouse Management (3PL), Information Management, Cargo Management, Document Management, etc. Therefore, companies need to use data integration, processing, and presentation systems for data visualisation, analysis, and decision-making, such as Tableau, PowerBI, SQL, Python, or other systems.

Embracing digital transformation in logistics sets the stage for integrating innovative solutions, laying a robust foundation for implementing lean tools for nonconformities tracking, thereby optimising processes and enhancing overall operational excellence.

Lean Tool for Nonconformities Tracking

In the realm of quality management and continuous improvement, the utilisation of lean tools for nonconformities tracking stands as a pivotal strategy, offering organisations a structured approach to identify, address, and resolve deviations from established standards, thereby fostering enhanced operational efficiency and heightened quality standards. Quality is highly subjective (Werbińska-Wojciechowska, 2011); nevertheless, companies must create, monitor, and manage their service quality through a system of indicators or another tool. Companies must record complaints, claims, and internal nonconformities to achieve the highest service quality. Businesses can choose from a wide range of tools and methods designed to capture, improve, and enhance quality. One such tool, which involves reducing costs, inventory, and cycle time (quick response), improving delivery performance/customer satisfaction, ensuring a smoother workflow, and achieving higher efficiency in logistics, is the lean methodology (Sim, 2016) non-conformity management tool – PDCA (Zhang, 2014), where the abbreviations stand for *Plan*, *Do*, *Check*, and *Act*. PDCA provides an overview of the entire service process during work and conditions to avoid errors and waste (Amin, Mahmood, Kamat, & Abdullah, 2018).

The PDCA conceptual system is used to support and coordinate daily routine management, standard problem-solving processes, and continuous improvement efforts, and also aids the service development process (Nienaber & Barnard, 2007)

The lean methodology suggests capturing nonconformities on appropriate forms, but the development of information technology allows non-conformity management to be carried out using the software.

Lean and Digitalization – Foes or Friends

Both lean and digitalisation aim to improve efficiency, optimise processes, and enhance overall organisational performance, but they often approach these goals from different perspectives (Lorenz, Buess, Macuvele, Friedli, & Netland, 2019). Lean principles, derived from manufacturing and management practices pioneered by Toyota (Teich & Faddoul, 2013), focus on eliminating waste, improving flow, and creating value for the customer. Lean emphasises continuous improvement, employee involvement, and a systematic approach to problem-solving. Traditional lean practices have been associated with physical processes and visual management systems (Liker & Morgan, 2006). On the other hand, digitalisation involves the integration of digital technologies to transform business processes and operations (Haddud, 2020), it may include the use of data analytics, artificial intelligence, automation, and other technologies to streamline workflows, enhance decision-making, and improve overall agility.

Some scientists argue that lean practices may conflict with rapid digitalisation efforts, as lean traditionally involves incremental changes and may resist the rapid, transformative nature of digital technologies. Others believe that combining lean principles with digitalisation can create a powerful synergy, allowing organisations to achieve the benefits of both approaches (Trabucco & Giovanni, 2021).

In summary, the logistics industry navigates a complex landscape of external and internal challenges, including emerging technologies, market shifts, and operational inefficiencies. Digital transformation is a significant driver of change, enabling logistics companies to improve efficiency and customer satisfaction through real-time tracking, predictive maintenance, and secure transactions. Meanwhile, lean tools are crucial in tracking and addressing nonconformities, leading to more streamlined processes and higher quality outcomes. As companies integrate lean principles with digitalisation, they face both opportunities and potential conflicts. Balancing these approaches requires strategic planning and adaptability to thrive in the evolving logistics environment.

2. Research Methodology and Data Analysis on Lean and Digitalization Integration for Service Quality in Logistics

Research method and data

The aim of the research is to explore how the integration of lean principles and digitalisation strategies can enhance service quality within the logistics industry, particularly amidst challenging multi-crisis scenarios. This research seeks to investigate the synergies between lean methodologies and digital technologies, examining their combined impact on operational efficiency, resilience, and service delivery in the face of dynamic and unpredictable crisis environments.

The objectives of the research:

1. To investigate the principles and methodologies of lean management and digitalisation strategies relevant to the logistics sector;
2. To explore the potential synergies between lean principles and digitalisation strategies in enhancing service quality and resilience in logistics operations during times of crisis;
3. To identify barriers and challenges to the integration of lean and digitalisation in logistics operations and propose strategies for overcoming these obstacles.

The research was conducted at a logistics company in Lithuania that provided post service. To achieve the set goal, a qualitative analysis of statistical data was performed, focusing on the dynamics of nonconformities in the company's operations, also interview with three TOP management representatives was conducted. The selected company, operating in Lithuania for over 20 years, holds a leading position in its segment, providing postal and logistics services. With a workforce of 650 employees and sales revenue of 64 million Euros in 2022, it is classified as a large company. The company serves individual clients (B2C) and legal entities (B2B). It is innovative, implementing both managerial practices (LEAN, ISO) and technological innovations in its operations. Since implementing digital Quality Management tools, the company has accumulated statistical data on its activities since 2016.

Data. The research utilises data on non-conformity management in parcel delivery from 2016 to 2022, provided in .xls format from the Quality Management system. Only data related to delays in parcel delivery for one day are analysed. All company employees have access to the system, but only those in the transport and warehouse, customer service, and quality departments can record nonconformities in the system. The system is integrated with Microsoft Office products, and notifications about task assignments are sent via email. Employees responsible for task completion have predefined indicators (response time, decision-making time, first-time resolution) monitored in real-time. It is noteworthy that nonconformities are recorded in the system 24/7.

Data analysis method. The data were analysed using descriptive statistical methods, data gathered and categorised, analysed from different angles. The list of variables created by categories was based on the main variables concepts reviewed in the literature that influence service quality but were tailored to the specifics of the analysed company.

Analysis strategy

The strategic component of this study involves examining the non-conformity management tools utilised by the company, evaluating their effectiveness in reducing nonconformities, identifying interrelations, and conducting the interpretation, summarisation, drawing of conclusions, and formulation of recommendations based on the research results.

The research data analysis and the discussion of the results

Non-conformity Dynamics.

The nonconformities registered in the company's internal system were analysed during the research. The number of nonconformities was as follows (see Fig.1): in 2016 – 1668 units; in 2017 – 2013 units; in 2018 – 2317 units; in 2019 – 2657 units; in 2020 – 2610 units; in 2021 – 1651 units; and in 2022 – 1136 units. It is noteworthy that the number of shipments recorded in the same system since 2018 is as follows: in 2018 – 9.5 million units; in 2019 – 9.9 million units; in 2020 – 13,6 million units; in 2021 – 16,1 million units; and in 2022 – 18,7 million units. The highest number of nonconformities occurred in 2019, and since 2021, the number of nonconformities has been decreasing.

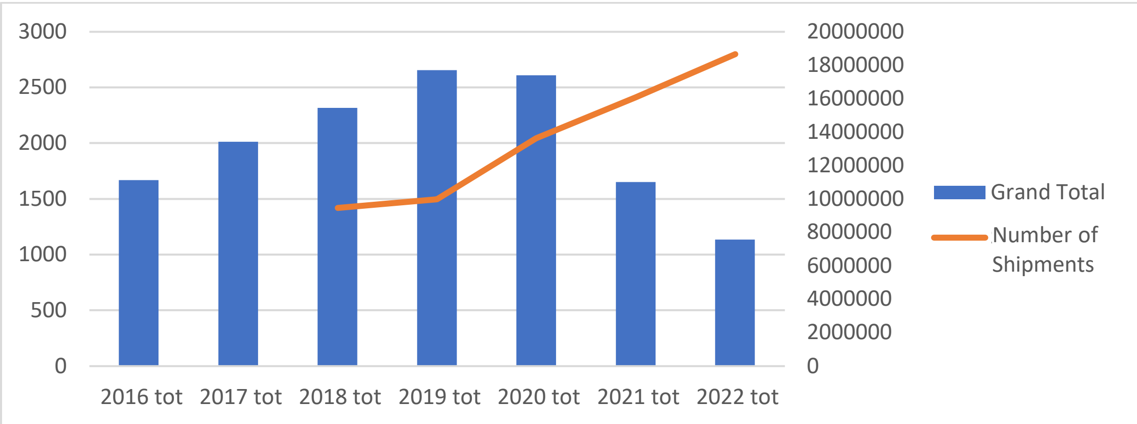

Fig.1. Dynamics of non-conformities (2016–2022)

These dynamics indicate that significant changes have occurred in the company, enabling the management of the growth in nonconformities (Fig.1). The transformation observed within the company's operations, as depicted in Figure 1, underscores the need for a strategic approach towards the development and implementation of the Company's Non-conformity Management Strategy.

Company's Non-conformity Management Strategy

In the examined logistics service-providing company, measures and methodologies for reducing nonconformities have been implemented since 2016. In 2016, the company obtained ISO 9001:2015 certification for Quality Management Systems and underwent a re-certification three years later, continuing its activities in accordance with the standard until 2022. In 2018, the company's management familiarised itself with the lean methodology, and tools such as an idea submission platform, a key performance indicator system, and the Plan-Do-Check-Act tool were introduced. Due to increasing shipments, the lean philosophy was not a prioritised strategy. However, efforts have been made to revitalise it since 2021 by implementing a gathering system, improving the non-conformity registration tool, simplifying audits, and forming project groups. Since 2019, the company has implemented digitisation and digitalisation tools, such as Tableau, Power BI, and tools that improve logistics processes, including GPS, RFID, NFC and others.

It is noteworthy that during the research period, the company experienced several shocks, some of which were officially recognised as crises—changes in C-level leadership, a shift in strategy, new partners, high turnover, and changes in the customer portfolio. One of the most prominent external events was the COVID-19 pandemic, which led to increased demand for logistics services.

While this is a positive phenomenon for the business, it poses a significant challenge to the company's management and sustainable growth.

Discussion of the results of the research

The analysis of non-conformity dynamics within the examined logistics service-providing company reveals interesting trends over the years. Despite fluctuations, there is a notable increase in non-conformities from 2016 to 2019, followed by a decline in 2020 and a further reduction in 2021 and 2022. These dynamics suggest that significant changes have occurred within the company, enabling effective management of nonconformities over time. The decrease in nonconformities since 2021 is particularly noteworthy, indicating successful efforts in addressing underlying issues and improving operational efficiency.

The implementation of the Company's Non-conformity Management Strategy has played a crucial role in addressing nonconformities and driving improvements within the organisation. Since 2016, the company has been committed to quality management systems, obtaining ISO 9001:2015 certification and continuously refining its processes to adhere to the standard. Additionally, the adoption of the lean methodology in 2018 has introduced various tools and methodologies aimed at streamlining operations and reducing nonconformities. Despite challenges posed by increasing shipments, efforts to revitalise the lean philosophy since 2021 have yielded positive results, with the implementation of new tools and project groups.

However, it is essential to note that the company faced several external shocks during the research period, including changes in leadership, strategy shifts, high turnover, and the COVID-19 pandemic. While these events posed challenges, they underscored the importance of adaptive strategies and resilience in navigating crises.

Overall, the combination of quality management systems, lean principles, and digitalisation tools has been instrumental in improving non-conformity management and enhancing service quality within the logistics company. The analysis results highlight the importance of a holistic approach to quality management, encompassing both strategic initiatives and technological advancements, to achieve sustainable growth and resilience in the face of evolving challenges.

Conclusion

1. Analysing the scientific background related to the combination of lean and digitalisation showed that leveraging both methodologies presents a promising avenue for enhancing operational efficiency, improving service quality, and fostering organisational resilience in dynamic business environments.
2. Collected data related to the activities of logistics companies operating in Lithuania that implement the lean philosophy while using information technologies to enhance quality and manage discrepancies revealed that companies experience notable improvements in process efficiency, resource utilisation, and customer satisfaction, indicating the effectiveness of integrating lean principles with digitalisation strategies.
3. Analysed logistic company's actions in handling discrepancies during periods of uncertainty disclosed that defying non-conformities (LEAN) creates prerequisites for targeted managerial interventions.
4. The increase in non-conformities recorded by the Lean system led to investment in the quality of the service system (including digitisation tools), but only after two years was a real improvement in quality (or reduction in non-conformities) observed.

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Employer Image & Employer Brand: Interaction of Both Terms

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Abstract. Currently, when the demand for employees is higher than supply, there is a question of possible solutions. One of the opportunities for companies is to ensure that they will be chosen when their potential employees consider making career changes. This is where the terms "employer image" and "employer brand" come into the picture – terms often used interchangeably in the scientific and professional fields. The aim of the article is to eliminate the confusion in the use of employer brand and employer image as terms and to show their theoretical position among other interconnected terms. It is presented through definitions and a model proposed by the author. In addition, the author points to the consideration of ethics when applying the employer brand.

Key words: *employer image, employer brand, labour shortage.*

Introduction

Relevance of the article

Currently, when there are many countries where the demand for employees is higher than the supply, there appears to be a question of how to solve this issue. The competition among companies is fierce regarding the opportunities to acquire a good quality workforce – 40% of employer brand professionals report struggling with a talent shortage, and 30% identify hiring top talent as their primary challenge (Seenit, 2023). Thus, employers are forced to think about retaining or attracting good employees. Some argue that the labour market should be opened more widely, while others are against it due to potential consequences arising from choosing this strategy. Others are advocates of AI technologies as the solution. However, implementing AI technologies is still a time- and cost-consuming solution that can be implemented slowly in many businesses (Fleming, Goehring, Li, Svanberg, & Thompson, 2024). However, the instrument that is readily available for every company is to make sure they will be chosen when their potential employees consider making career changes. This is where the terms "employer image" and "employer brand" come into the picture. Until now, notable work has been published by such researchers as Barrow & Ambler (1996), Minchington (2015), Mosley (2011, 2014) and many others, who have worked to both create theoretical concepts and discuss practical approaches that can be used in companies. However, it can be noticed in several papers that the terms employer brand and employer image have been used interchangeably. Thus, firstly, the author wants to point out the apparent differences between the terms and draw a distinctive line in their usage. Secondly, the author wants to show the importance of a well-created employer brand as a tool to enhance the opportunity to be chosen among the fierce competition since many companies still do not consider using employer branding as a tool. The relevance from the scientific point of view is that the author's work allows clarifying the appropriate use of terms when approaching the topic. The relevance of the paper is that by understanding the conceptual position of employer brand and employer image in the context of other elements interconnected to it, it is easier to conclude the possible influencing forces and allow evaluation of where the company currently stands.

Problem investigation level

The author has analysed the available scientific literature and created a conceptual model that shows the interplay of both terms. It is possible to draw a clear line on what employer image is, how employer brand differs from it, and what could be the key elements to look at when employer brand strategy does not work out as expected.

Scientific problem

It can be noticed that both terms are often used interchangeably in both scientific literature and among professionals; thus, it can create misunderstandings and inaccuracies when dealing with the topic in the academic, scientific or professional fields. Also, the scientific literature does not fully establish a conceptual mechanism of interaction between the terms.

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Object of the article

The object of this article is an organisation and its role as an employer.

Aim of the article

The aim of the article is to dispel confusion about the terms employer brand and employer image and show a clear position of the terms in relation to each other.

Objectives of the article:

1. To compare the approach of defining aforementioned terms by other authors;
2. To evaluate the existing literature regarding the elements that create both the employer image and employer brand;
3. To conceptually show the distinction between employer brand and employer image.

Methods of the article

By using the monographic method, the author chose to collect and analyse the available scientific literature on the subject of employer image and employer brand, including both – the significantly quoted authors and their articles, as well as contributions from more recent years. Exploring existing approaches allows the creation of a conceptual framework of the interaction of both terms that can be used in the academic and professional fields.

1. Good quality employees – an opportunity to gain competitive advantages

In the second half of the 20th century, managers began to realise that gaining competitive advantages with high-quality employees was possible in companies worldwide. Especially important, but not only, it can be felt in companies where there is a need for a highly professional, educated workforce and the competition for attracting these jobs to the company is fierce. It can be felt in Europe as well as other countries in the world (EURES, 2022). Also, since generations have replaced each other over time, it is crucial for companies to know what changes should be applied in order to keep up with the demands of the workforce. For instance, elements such as competitive salary, work-life balance and flexible working have become more important globally among students over the years (Universum, 2023). It can be challenging to keep up with the ideals of the incoming generation in the labour market. However, in the long term, it can be even more costly not to be aware of the demands and topicalities.

Most researchers may talk about employer brand and employer image in articles that discuss the attraction of employees in particular. However, in the author's opinion, making sure they want to stay is not less important since an employee who works for a particular company not just to survive but because they like working for the organisation will be more involved and dedicated. According to Porath (2016), companies have higher profitability, higher productivity, higher turnover, less workplace theft, and other beneficial indicators etc. Thus, it is clear why a good employer image is essential for organisations to consider and why employer brand is the tool to use when managing employer image is necessary.

The concept of employer image

According to Highhouse, Brooks, Gregarus (2009), employer image is a part of corporate image and explains the definition of employer image as *people's perception of the company as an employer.* Corporate image, in turn, according to him, consists of a total of four elements – social image, financial image, employer image and market image. To manage the corporate image for decades since the 90s of the 20th century, academics and professionals have paid attention to corporate branding as a crucial part of any organisation.

Lievens & Slaughter (2016) state that to fully describe employer image, it is vital to take into account that the image 1) is held by individuals (not groups), 2) might fluctuate (thus can be changed), 3) targets specific aspects (versus an overall impression), and 4) is cognitive in its nature.

To conclude, research on the definition of **employer image** explains that employer image is formed by any experience a person has had with a particular organisation or any information they have heard from other people or companies about the organisation. Thus, it is crucial not only to know what the company is like as an employer but also to know what it is like as a company while performing its basic functions.

Employer brand as an instrument to enhance employer image

Bickerton & Knox (2003) define a corporate brand as follows: “A corporate brand is the visual, verbal and behavioural expression of an organisation’s unique business model”. Companies with strong employer brands have been found to have lower employee turnover, higher employer attractiveness, lower recruitment costs, better relationships with their employees, and can hire the best talent (Berthon, Ewing & Hah, 2005; Sokro, 2012; Kalinska-Kula & Staniec, 2021).

Accordingly, if the employer image is a part of the corporate image, then the employer brand is a part of the corporate brand. Mokina (2014) also agrees, stating that the employer brand is a part of the corporate brand or B2L, while the other parts are B2G (business to government & social relations), B2C (business to consumer market), B2B (business to business). At the same time, Dhar, Mehendale, & Sodal (2018) define employer branding as follows: “employer branding is the image of a company in the eyes of its employees and represents its reputation in the market”. In the author’s opinion, in the given definition and others similar in the literature, the essence and nature of marketing are being ignored. Similarly, a confusing use of both terms has been noticed in the work of Anseel, Hoye & Lievens (2007), which was not observed in the later work of Lievens (2016). The author believes that it is essential for the definition to imply that the employer brand is actively and consciously created and not a passive self-creating phenomenon. This is what seems to be the main difference between employer image and employer brand – **while the image is a perception and opinion that arises whether the employer wants it or not, employer branding is a deliberate action to create the most positive image possible, using marketing tools**.

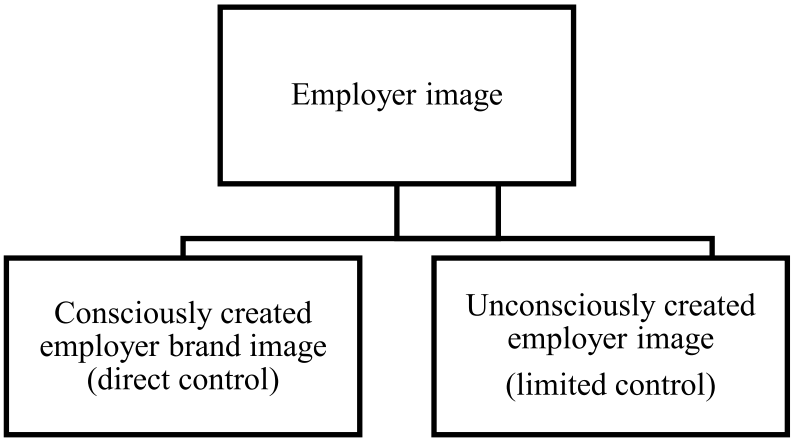
Interaction of employer brand and employer image

According to Lievens & Slaughter (2016) the image of the company is created by various elements:

1. Job advertisements (style of the job description, requirements, offered benefits, content of the advertisement in general, etc.),
2. The experience with the company itself,
3. The homepage and social network profiles,
4. The opinions of current and former employees,
5. Scandals that might have occurred,
6. The size of the organisation,
7. Corporate social responsibility activities,
8. Advertising,
9. Diversification of the company’s operations and many other elements.

For instance, in the context of job advertisements, there are studies performed by Derious & Wille (2017) and Walker & Hinojosa (2013) that prove that even the way the various qualities that an employer is looking for in potential employees are formulated matter. Such a perspective undeniably shows how complex this topic is and how a nuanced approach is necessary when considering improving an employer’s image. However, overall, considering the elements suggested by Lievens & Slaughter (2016), it is possible to separate those into two groups (Fig.1): 1) elements that the company has direct control over, 2) elements that the company does not have direct control over.

The instrument used to optimise the part under the company’s control is **employer branding** activities that the organisation performs to convey the values and benefits that are promised to the potential and existing employees. The creation of an employer brand not only gives a clear direction for the company but also allows it to be ready to manage the elements that arise outside the company’s direct control. The unconsciously created part can have a positive as well as negative impact on the overall image. It is possible that rumours, gossip, praises, and even scandals arise from both positive actions and wrongdoings by the organisation while it performs its basic functions. While it is also possible that neither positive nor negative actions have been performed, unpredictable situations arise. No investment in employer branding can fully eliminate the possible impact outside the company's control.



Source: created by the author.

Fig. 1. Elements forming the concept of the employer's image

The non-existence of an employer brand and, thus, more likely, a weak image of the company does not automatically imply that the company is a poor place to work. However, it can be a severe obstacle to attracting talent to the company and have many other long-term consequences, such as a high employee turnover rate, low job satisfaction and others.

Various authors describe the dimensions of employer brand and, thus, elements that are under the company's direct control. Some of the authors are Sharma & Prasad (2018), Tanwar & Prasad (2016), Hillebrandt & Ivens (2013), Jain (2013), Corporate Leadership Council (1999), Barrow & Mosley (2011), Nanjundeswaraswamy, Bharath, & Nagesh (2022) and others. Authors take quite different approaches to categorising the dimensions – Jain (2013), for example, offers 4 dimensions, while Barrow et al. (2011) offer 12. A recent extensive study offered by Nanjundeswaraswamy's, Bharath's & Nagesh's (2022) – as a result offers 7 dimensions of employer brand – career development opportunities, compensation and benefits, corporate social responsibility, organisational culture, training and development, work environment and work and life balance. Thus, when creating an employer brand and trying to understand the factors an organisation should emphasise, these dimensions are crucial.

2. The challenge of building a successful employer brand

Empirical research shows that investing in employer branding comes with benefits. For instance, Hudakova & Urbancova (2017) concluded that the benefits resulting from employer branding are winning new talented employees, retaining key employees, increasing the motivation of current employees, improving public brand awareness of the organisation, improving financial performance and others. Another recent research study states that 96% of employees are more likely to apply to a company with a good employer brand, and 87% state that negative reviews deter them from applying (Seenit, 2023). It clearly shows that it is essential not only to have a strong brand but also that the inconsistency between what the brand has promised and what it is doing can significantly affect the amount and quality of applicants considering applying for the company.

While it might seem that building a brand is a simple solution to managing an employer's image, it is not the case. Employer brand as an instrument is incredibly powerful; however, it must be used correctly to be beneficial, not create damage.

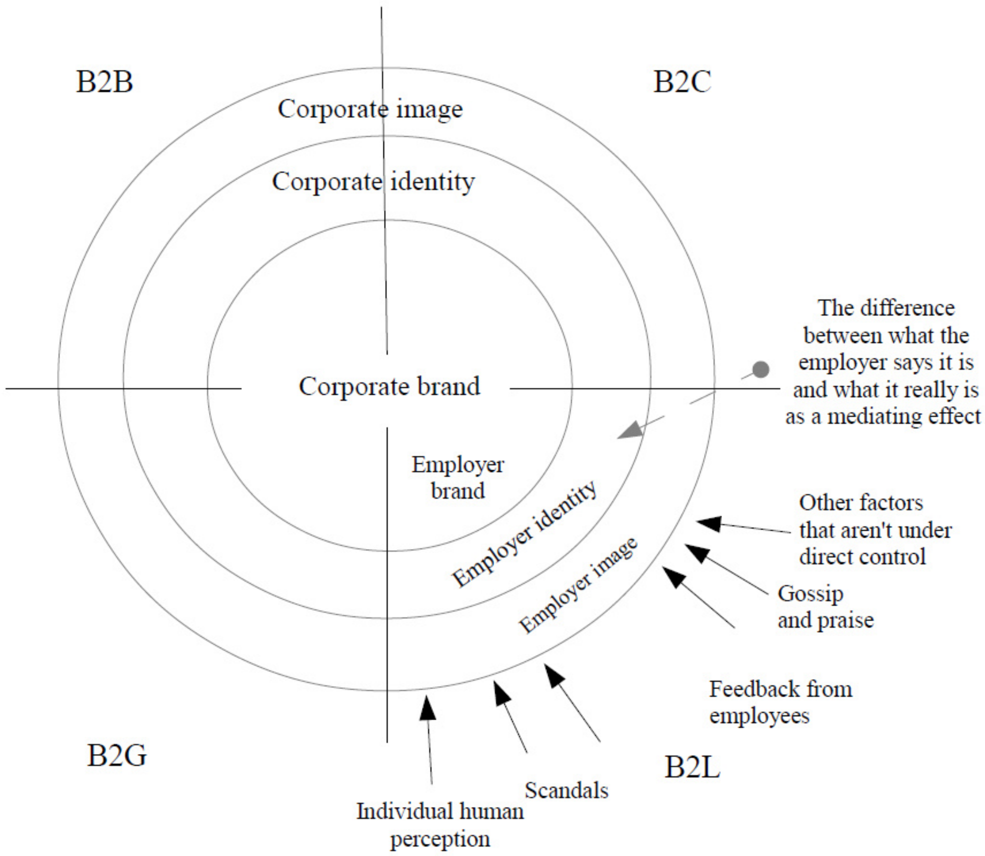
From the employee's perspective, there is no guarantee that it will be better to work in a company that has developed an employer brand than in a company that has not yet spent much time thinking about how the potential employees perceive the company since it does not mean they do not provide benefits and do not value their employees as their core asset. In addition, the fact that the brand has been developed does not mean it performs well. An example of a troublesome case study in the scientific literature is given by Mark & Toelken (2009); where they state that "this case study exemplifies the worst of Employer Branding by illustrating the toxic effect employer branding can have in the hands of senior executives who fail to live up to the promise of their own Employer Brand when they do not follow the company's organisational narrative and dishonour their psychological contract with their employees." Considering their research, it can be concluded that the most significant issue will not always be a lack of non-existent employer brand strategy. There might be other serious issues inside the company that, no matter the strategy, will create friction for or among employees and create a ripple effect of different consequences. Thus, looking at the company and its processes holistically is necessary.

Thus, it is crucial to be educated regarding the best practices to build an employer brand, monitor the chosen indicators after the implementation, and create a brand that merges well and is true to the core of the company. Also, a thorough completion of the brand positioning process has to be performed in order to provide the best results. In the author's opinion, apart from following the actual brand positioning process step by step that is provided by, for instance, Thompson (2004) or other researchers, it is also crucial for the organisation to focus not only on the enhancement of the image but on the actual benefits they can provide for the existing and potential employees. For instance, research in 2022 claims that 61% of employees globally consider salary and benefits to be the most important driver, 57% consider work and life balance as the second most important driver, while 55% of respondents claim long-term job security to be necessary, but are employers ready to take it fully into account or is the employer brand created for the sake of creating a fleeting image? Correspondingly, corporate social responsibility activities have been discussed, which is a widely used tool in employer branding. When companies support certain causes, are they "washing away their sins" as stated by Kand, Germann & Grewal (2016) and similarly claimed by Bernardino (2021) or are the values they are claiming to support intertwining their actions outside CSR activities as well? To contribute perspective from other researchers, it is crucial to sincerely care about employees because they are a direct link between the company and customers – Minchington & Morris (2015) state that employees are central to the customer experience.

The coherence between what has been promised by the brand and what is being done is highly important. If the brand does not deliver what has been promised, there is a high chance of value incongruence, which has been evaluated as an important element by Kim & Legendre (2001). While regarding the ethical usage of an employer brand as an instrument, it is valuable to mention Ind's & Ian's (2011) work. Researchers suggest using the terms **conscientious brand** or **brands with conscience** and state that: "Acting conscientiously means rejecting expediency for principle, temporary advantage for long term gain." In the author's opinion, introducing such a vision is important to foster the creation of ethical, transparent and honest brands, for which it is important to be who they say they are.

Conceptualisation of employer image and employer brand

In order to build an employer brand, it is crucial to understand its conceptual position in the context of other elements interconnected to it. As previously mentioned, Mokina (2014) suggests that the employer brand is a part of the corporate brand or B2L, while the other parts are B2G (business to government & social relations), B2C (business to consumer market), B2B (business to business). Similarly, Highhouse, Brooks & Gregarus (2009) state that corporate image also consists of 4 elements – social image, financial image, employer image and market image. Based on previous authors, the author provides a conceptual framework of interaction between both terms.



Source: created by the author.

Fig. 2. The mutual interaction of the main theoretical concepts related to the employer brand and the main forces forming the employer image

It can be seen that the four elements that form both the corporate image and the corporate brand, proposed by Mokina (2014) and Highhouse, Brooks & Gregarus (2009), have been used as the basis. In the image, it can be seen that strong corporate brands are an important platform for establishing strong employer brands. Each separate part must agree with the corporate brand to create an image without contradictions. The focus of this article is the employer brand and the other parts – B2G or business to government and social structures, B2C – business to consumer market and B2B – business to business are not examined in this article. However, as stated above, the image of a company as an employer can be influenced by any experience with the company; thus, all four parts are strongly interconnected and crucial when considering the reasons for a favourable or non-favourable employer image. For instance, someone from the B2G sector or B2B sector can also be a part of B2L sector in the future and the obtained image of the brand previously will play a role in determining what they think about the brand when they consider working for the organisation. Consequently, the four quadrants are interrelated rather than independent. The message, communication, actions and values of each element of the corporate brand must be consistent and not contradictory.

A corporate brand is a promise (Bedi & Bhargava, 2022) conveyed in the organisation's actions and communication, while corporate identity answers the question of what this company is. **The intersection of employer identity between employer brand and employer image is a decisive element in assessing the chosen path of the company.** Is the company what it says it is? Moreover, what are the real reasons if the current image is not favourable? The answer understandably depends from case to case. In the author's opinion, it is essential to emphasise that in order for a brand to be strong, it is crucial for it to perform as promised.

Regarding the ethicality of brands, it was mentioned above that Ind & Ian (2011) suggest using the term **conscientious brand** for brands. The author suggests separating and introducing the term

conscientious employer brand since the author has not yet found evidence of researchers already using this term. A conscientious employer brand incorporates a mindset that focuses on the following idea "if it is pleasant to work for the company, people will think good about us", rather than "we just want people to think good of us". Thus, a conscientious employer brand is one where professionals are sincerely interested in creating a workplace that is in the best interests of employees within the limitations of available resources. The author believes that, although it can be cost-consuming and sometimes challenging, it is also incredibly rewarding, there are numerous papers that discuss the benefits of high job satisfaction (Omah & Obekwie, 2019, Loan, 2020). For instance, a recent research study by Bruno (2023) talks about lower employee turnover, higher ROIC, and other benefits arising from investing in employees.

To describe Fig.2 further, it is possible to see that no matter how hard any organisation tries to sustain a good employer's image, there are forces out of their direct control that can both enhance and harm the image. Regarding the forces outside direct control, it is possible to mention gossip and rumours that can be both with a justification or created as a smear campaign, scandals, where an organisation can be involved without an intention or, for instance, an accident at work that people hear about and that is not managed correctly. Although most influencing factors will probably be connected more to the corporate brand and not employer brand in particular, as mentioned before, all the parts of the corporate brand are interconnected and cannot be separated. The author believes that sometimes, an event that puts a risk on the corporate or employer brand image can be turned upside down if managed correctly. After all, it is understandable that perfection is illusory, but taking accountability for adversities is highly attractive for every stakeholder involved – consumers, potential and existing employees, other companies, and others.

Conclusions

1. In some articles, authors use employer brand and employer image as synonyms or ignore the marketing nature of employer brand. It is crucial to distinguish the terms clearly to avoid confusion in the scientific and professional literature.
2. Many authors have offered their perspectives on the dimensions of creating an employer brand. Less attention has been paid to dimensions creating employer image.
3. While the elements creating employer brand and employer image are mainly similar, the difference is that employer image consists of elements that are both – in the control of the company and outside of direct control of the company.
4. Employer's identity is an intersection between employer brand and employer image that might illuminate reasons why the company's image is not as desired even if an employer brand strategy is developed. One of the reasons is that the company's actions and communication are different from what it says they are. For an employed brand to be strong, it has to deliver the promises included in its concept practically. The approach of being honest, genuinely caring and ethical when it comes to doing what the company says it will do is rewarding in the scientific literature. Employer identity is a phenomenon that could be further researched in cases when employer brand strategies do not deliver the expected results.

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The Impact of Restrictions on the State-Owned Enterprises to Expand their Operations into New Product Lines in Latvia

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Abstract. There is a practice among OECD countries of establishing restrictions for state-owned enterprises to develop new products in addition to their main production. Scarce attention is paid to how such an approach affects public enterprises' performance in favour of the public good; thus, it must be clarified. This research aims to propose competition policy improvements based on the evaluated impact of new product restrictions on competition neutrality. The research methodology includes interviews with Latvian public sector stakeholders concerning the advantages of optimal use of the company's resources and risks' diversification. Private sector disadvantages if state-owned enterprises offer their products in private-dominated markets are considered. It was observed that national policy is contradictory: there is an emphasis on efficiency goals, but the expansion initiatives by state-owned enterprises in the market are accepted reluctantly. Taking advantage of state-owned enterprises to boost R&D innovations is important to fostering Latvian regional development policies.

Key words: *competitive neutrality, state-owned enterprises, free resources, diversification, resource view.*

Introduction

Relevance of the article

In business, diversification occurs when a company expands its production and services and enters new markets to favour its business. Diversification of products and risks is an important strategic option for a successful business. Among possible benefits, Jayeola, Ismail, & Sufahani (2017) pointed out the improvement of productivity, which is the cornerstone in discussions about public governance like Osborne (2006) and Marcon (2014).

Regarding the public sector, Rentsch & Finger (2015) noted that to pursue their entrepreneurial plans, diversification is one of the commercial techniques of state-owned enterprises to develop new lines of business or acquire subsidiaries to enter new markets. In this article, the definition of "state-owned enterprises" (SOE) refers to the companies of state and local government ownership.

Diversification should be essential to research on SOE as it applies public value issues through better use of public assets. In this respect, the problems concerning the legislative burden on restrictions to diversify SOE operations must be addressed.

The principle of equal competition is defined by the OECD (2012) and adopted by the EU (2007). The principle is argued to be essential for developing entrepreneurship and economics; however, Rentsch & Finger (2015) noted that it applies mainly to the twofold regulated public sector regarding competition and public-service regulations.

The Latvian legislation about public governance by Saeima (2002) allows SOE to enter a commercial market if there is a need for products or services of strategic interests, management of strategic properties, or if market failure is observed. However, the line beyond what one should observe market failures and application of defined strategic goals is subject to interpretation due to blurred boundaries defined by Saeima (2002) of operations that could fit in the strategic goals relying on. Pukis (2016) also explains the diversity of values of different actors. In this regard, it is vital to counterweight competition control practices to the commercial operations for both the public and private sectors, to which the broader research by Vircavs (2023) is devoted. This paper specifically contributed to the level playing field set by SOE diversification restraints.

Problem investigation level

In the seminal work, Markowitz (1952) addressed the options of efficient portfolios, almost all of which are diversified if the "right kind" of diversification has been done for the "right reason". Christensen & Montgomery (1981) and Montgomery & Wernerfelt (1988) have shown that diversification profiles differ across industries with different degrees of industry concentration. Chang & Wang (2007) and Yang, Cao, & Yang (2017) have referred to various business fields, such as marketing, management, retailing, as well as recreation, transportation etc., where diversification strategies have been applied to. Voorn, van Genugten & van Thiel (2020), in their research devoted to

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governance and performance issues at the local level, revealed a scarcity of research into the circumstances under which municipal corporatisation is effective. Białek-Jaworska (2022) and Jeong (2020) address issues of long-term debt capacity measures of local governments related to their companies. Andrews, Clifton & Ferry (2022) concluded that measures of effectiveness, efficiency, economy, and equity of corporatised provision across multiple policy sectors and countries are scarce. There are still many challenges for future research. However, specific research concerning public sector diversification practices is often overlooked.

In Latvia, competition discussion is much powered by non-governmental institutions like LCCI (2022), thus securing private sector views to foster control and detailed measures like The State Audit Office (2023) and Competition Council of Latvia (2022) to prevent private markets from public sector operations while the provision of services of general interests should be more accessible for private companies. No research has been done from the public sector's perspective to evaluate competitive neutrality, nor have specific studies been made concerning diversification and public value issues. However, The Government of Latvia (2023) recently admitted the unused potential and revisable role of SOE in the context of economic policies, with implications coinciding with the research by Bērziņš & Priede (2021) on R&D and contributions to the commercial environment adaptable for regional startups.

Overall, not all the relevant factors and their weight of influence are comprehensively discussed to get a knowledge-based viewpoint to address the balanced competition measures. Insufficient previous research on diversification issues in the public sector urges the author to emphasise this research from such a view, thus contributing to the main novelty of this article.

Scientific problem

Montgomery (1994) reveals that diversification is often related to a concern for its potentially anti-competitive effects, especially if one looks from market views only with the illustration by Hill (1985) that diversified firms will "thrive at the expense of non-diversified firms not because they are any more efficient, but because they have access to what is termed conglomerate power". Such a view is widely supported in Latvia mainly due to the historically based poignant mindset described by Randma-Liiv (2008) that "everything associated with the state had a bad reputation during the Communist era as the 'state' was usually equated with the rule of the Communist Party" as well as what Sheppard & Droog (2019) called declined trust in public sector institutions.

Moreover, like the approach of market view, the best international experience in the form of guidelines, for instance, OECD (2012, 2015), was implemented in Latvia. Related legislative amendments by Saeima (2014 & 2019) concerning SOE governance and competition regulation were adopted. Besides, Cabinet of Ministers (2022) regulations and numerous guidelines, such as the Competition Council of Latvia (2020), were issued. Meanwhile, decades ago, Hood & Peters (1994) and Randma-Liiv (2008) argued the significance of the critical approach of institutional design of one-fits-all countries referring to experiences following reforms related to New Public Management. Policy restrictions might impact the operations of SOE differently depending on the industry and obligations to serve services of general interest.

Implementing OECD international practices of competitive neutrality with implications of the post-soviet market view may reach out to diversification aspects. The competition measures in Latvia lack knowledge of how the legislative practices against diversification affect the performance of SOE. The research question addresses whether SOE operations are affected from a diversification perspective.

Object of the article is competitive neutrality issues between public and private sector enterprises concerning diversification to expand new production lines.

Aim of the article is to evaluate diversification aspects from the perspectives of the public sector.

Objectives of the article are the following:

1. To examine diversification issues in the context of competitive neutrality;
2. To evaluate the diversification opportunities of SOE and contribute to developing a competitive neutrality approach that fits the diversification initiatives.

Methods and limitations of the article

Research has been conducted to address the issues of the competitive neutrality model in Latvia. Along with the diversification issues to what is devoted to this paper, the creation of daughter companies, public problems of procurement and transparency, policies of non-financial goals, and human resource management, Pukis & Vircavs (forthcoming) examined in the broader research.

Qualitative and quantitative methods are used to study the legislative burden for SOE to develop expansion initiatives. The public sector stakeholders' perceptions are examined due to the lack of such views in competition-related diversification studies, which has implications for future research for comparing measures from public and private perspectives.

1. Theoretical aspects of diversification initiatives

Ansoff (1957) defined diversification as a change in the company's product line and/or market characteristics in his eponymous work. To examine diversification, one needs to consider relevant perspectives that provide a comprehensive and synergetic playground of performance and the views of market power, agencies, and resources. The market power view traces back to the work of Edwards (1955) and following scholars, who emphasised an undue implementation of gained power in terms of competition. However, Montgomery (1994) noted they do not pay attention to motivations, efficiencies, or inefficiencies it may involve, while undue benefits would include cross-subsidisation and predatory pricing as well as reciprocal buying. Overall, the market view is frightened of the risks of monopolisation and reduced competition.

Concerning the agency viewpoint, Kozlenkova, Samaha & Palmatier (2014) explain that it incorporates managers' professional and personal incentives to optimise resource exploitation, including rewards and control measures by shareholders. Penrose (1995), Montgomery (1994), Kozlenkova, Samaha & Palmatier (2014) claim the efficient use of underused resources that also deals with profit issues. An incentive to expand relies on a better ability to use resources. Wang, Ning, & Chen (2014) summarised synergistic and financial motives, where one attempt to exploit operating synergies from the resource-based view thus, diversification could improve the efficient use of resources with positive Chatterjee & Blocher (1992) association on performance.

Finally, the comprehensive approach on all views is backed by Gyan, Brahmana, & Bakri (2017), which improved agency performance impacts on the resource capability of the firm.

2. Diversification evaluation practices

Sanchez (1995) and Yuan & Rieger (2021) claim that by producing a wide range of products, the company is reducing risks, gaining strategic flexibility and advanced market power by increasing its sales and may realise economies of scale in promoting, advertising, and distributing its products (Jovanovic & Gilbert 1993), thus enjoying more opportunities (Ruland & Zhou 2005), sustainability and Dierickx & Cool (1989) argue against providing a company with more competitiveness.

Various research like Chatterjee & Wernerfelt (1991), Penrose (1995), Gyan, Brahmana & Bakri (2017), Suoniemi, Meyer-Waarden, Munzel, Zablah & Straub (2020) are linking this business logic to better performance and capability for competition thus getting advantages.

Therefore, diversification initiatives are essential and widely used if a commercial company would like to successfully operate its businesses and raise the value and profit of a firm. To clarify this, let us see the example of vehicles at the disposal of a municipal company. These buses are to be used for children's school transport in remote rural areas only for a couple of hours a day, thus performing specific local government tasks of education reachability to everyone. The commercial logic means that these vehicles are available resources to undertake services in the private market, thus leveraging the company's expenditures if there are no other functions to employ vehicles under delegated tasks of the municipality. Therefore, SOE might also apply diversification options; however, the latest report by The State Audit Office (2023) does not support it.

3. The study of diversification aspects of competitive neutrality

Research methods

Aim of the research – to evaluate from a public sector perspective whether there is a burden of diversification restraints to SOE performance and competitiveness that stems from legislation.

Objectives of the research:

1. To review studies related to diversification practices;
2. To compare the impact of the legislative burden on Latvian SOE to expand their operations;
3. To evaluate diversification practices in Latvia from the perspectives of public sector experts;
4. To examine the diversification opportunities of Latvian SOE and propose solutions.

Survey sample

Experts were chosen from the public sector based on two criteria – the company's governance and political representation, respectively. First, all SOE management and governance levels were covered (shareholders and representatives of the supervision council as well as board members and department leaders). Second, the top-level politicians, both from position and opposition at state and local government levels. The Chief of the Competition Council of Latvia was also approached. In total, 24 experts were involved in the survey.

Research methods

The study of this article consists of the following steps.

1. Analysis of legislation of restrictions concerning diversification, which could decrease the performance of SOE. Besides, the experts were asked to indicate other vital factors influencing SOE. The political influence was highlighted in the answers and thus considered in the study.
2. The structural interviews consist of a qualitative evaluation of the experts' perceptions of competitive neutrality and related issues regarding Latvian SOEs, as well as a quantitative impact evaluation of legislative restrictions on the performance of SOEs.
   At first, qualitative questions deal with aspects of diversification such as the advantages and disadvantages of SOE, concerns about competition legislation and its practice, the experience of expansion initiatives, legislation amendment opinions regarding restrictions, etc.
   Secondly, the impact of eight types of legislative restrictions (including diversification, expansion of daughter companies, etc.) was quantitively evaluated with SOE performance constraints: cost, time, and quality based on The Iron Triangle concept offered by Atkinson (1999). Ward (2018) highlighted that owners and investors claim for the lowest cost; clients often want the shortest schedule while users enjoy the highest quality. All of them are impossible to reach. Davis (2016) underlined that success depends on stakeholders' ability to balance these constraints. Though, experts' rankings were accommodated on a scale from 1 (very negative) up to 10 (very positive). Question Pro and Microsoft Excel tools were used to process the data.
3. Finally, the evaluation and interpretation of results were done. The classification of individual private and services of general interests performed by the public and private sectors and fulfilment of governmental tasks were considered in tackling development initiatives.

The analysis of legislation burden and practices

According to Saeima (2002), the private sector can make intervention initiatives to provide services of general interest if they find them profitable. There are various cases when such intervention is undertaken, such as public transport lines served by private bus operators who compete with public railway companies in some lines. Other examples include private and public hospitals and real estate house maintenance enterprises. The government widely supports to the extent that derived from New Public Management the superiority of the private-sector managerial techniques over those offered by the public sector in line with Osborne (2006).

The research shows the legitimacy issues of Latvian SOE's diversification initiatives. No explicit definition of SOE operations to use free and unused resources is defined in legislation by Saeima

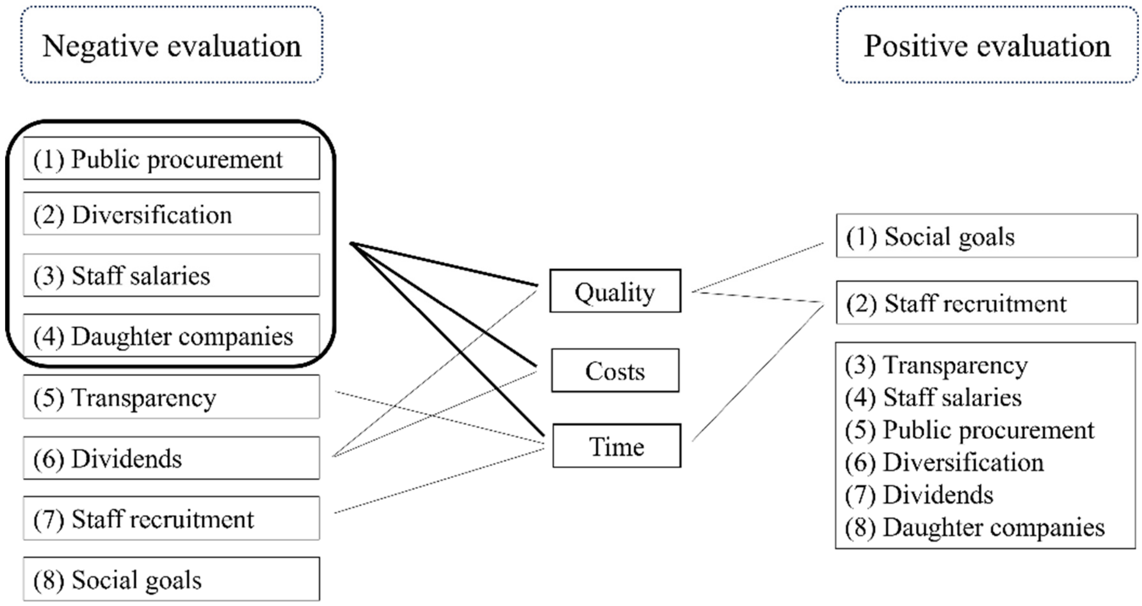
(2002 & 2014). Furthermore, regarding strategies, the review of long-term and medium-term policy documents like Saeima (2010) shows the main priorities – investment in human capital and education, an innovative economy and public governance, and nature as a future capital, thus in line with a spatial development perspective. These priorities do not provide for a sufficiently explicit strategic objective to augment public resources.

Therefore, SOEs are restrained from using diversification for development to leverage excess resources, costs, and income if shareholders of the state or municipality do not set public value goals in company strategies. Moreover, the argumentation based on Saeima (1995) concerning rationally used public resources is not accepted by The State Audit Office (2023), thus arguing that the principle of rationally used public resources is not applicable if SOE operates in the private markets beyond government functions. Such arguments are naturally logical for a commercial entity if one looks at a company through Penrose's (1995) concept of a "collection of productive resources". According to Capobianco & Christiansen (2011), the government or municipalities could be accused of the undue preference given to SOE. This approach is well received and used by private sector organisations to justify their initiatives.

The research data analysis and the discussion of the results

The results of the Iron Triangle

The Iron Triangle tests reveal the dominance of negative evaluation. Moreover, there are more negative rankings of diversification among other factors except public procurement obligations. In addition, the observed issues related to expansion through the creation of daughter companies are also binding to diversification initiatives (Fig. 1).



Source: created by the author.

Fig. 1. Experts' rankings of SOE restrictions and majority impact lines on The Iron Triangle constraints in Latvia

Regarding diversification, the results show different evaluations, however mainly negative influences that depend on industry, ownership, and government tasks as referred to by representing experts, thus showing the future research direction to avoid typical mistakes if reformers override suggestions noted by Hood & Peters (1994) that effectiveness of one-size-fits-all measures differs. Timing and cost issues are primarily affected, while negative quality evaluations are not far behind (Table 1). There are only a few positive evaluations and attention should be paid to this issue. The competitiveness risks should be considered.

Table 1

The experts' evaluations of diversification restrictions impact the Iron triangle constraints of SOE performance in Latvia

Constraints	Negative		Neutral		Positive		No answer	
Quality	10	45%	7	32%	2	9%	3	14%
Costs	12	55%	3	14%	4	18%	3	14%
Time	14	64%	4	18%	0	0%	4	18%
Total	36	55%	14	21%	6	9%	10	15%

Source: created by the author.

Results from experts' interviews

Structured interviews reveal the pros and cons of SOE diversification legislative practices to use a company's resources. First, although SOEs are legally created and experts noted several opportunities to develop new services, there is an observed burden of uncertainties concerning allowed business strategies and rational use of resources due to inconsistencies within legislation documents, practice of control institutions, SOE financial goals as well as customers' expectations concerning social goals. When SOE decides to offer new products on the grounds of strategic goals, they might be exposed to interpretations of whether it is bound by strategic importance if their private rivals have objections. There is a possible playground for undue pressure from the private sector representatives to secure their market positions.

Second, diversification restraints are growing; for example, it recently stopped the unused car rental business. A municipally owned public transport company is not allowed to offer unused buses for rent in the market. On the other hand, the company suffers from the lack of financial investments needed for development. The same applies to tariff-regulated energy companies' initiative to offer electric car rentals. The customer tariff costs are subject to suffering. No-attention has been paid to the game-changer point beyond what diversification restrictions are critically jeopardising the performance of SOE.

Third, the existence of a private monopoly is the subject of market failure treatment, which appears disregarded, as observed during the study. Distrust in the public sector and SOE management principles does not help reverse market failures.

Fourth, the experts' experience reveals that the needs of public interests have been considered primarily from an individual perspective. There is evidence of cancelled initiatives, such as car rental, delayed or social entrepreneurship (café) or postponed initiatives, like commuter bus lines connecting neighbouring municipalities. The practice shows that the setup of any new SOE production line initiative must be consulted by the Competition Council and negotiated with related industry representatives. Inviting competitors to evaluate their rivals' initiatives might appear against the natural logic of competition. It is based on the principle that the public sector is not welcome to conduct commercial and competitive activities in the private markets, followed by OECD (2015) good governance principles. However, governance must be appropriately undertaken, thus embracing Jordan & Bird (2010) that nonstate actors may operate across the spectrum of multilateral diplomacy and governance issues; some try to influence the standards, while others see themselves as a watchdog role. Muris (2005) suggested the actions of the state itself, not of private parties. Competition Council mitigates public and private interests. The results depend on the competitive neutrality approach. The observed line of balance is yet blurred.

Policy issues and the proposal

Concerning legislation improvement, there are claims for a clear framework for the boundary of allowed SOE services. Despite their ownership status, a need for the equivalence of legislative burden has been observed. At the same time, the private sector, like LCCI (2022), neglects any SOE initiative when private interests are in doing business and demanding strict regulation. A feasible solution is grounded on how the competition neutrality principle is applied.

Suppose the Government keeps the existing focus on encouraging private commercial activities. In that case, the policy amendments must clarify the definition of services of strategic and public importance to avoid interpretations about legitimate SOE initiatives. However, the Government must define social goals and allocate funding for public services.

Meanwhile, a shift towards balanced competition intervention tools like diversification should be recommended for all commercial entities, regardless of ownership. Private-owned companies offer public services if they find it profitable. At the same time, the analogue intervention principle should be applied to SOE, allowing them to expand their production lines in the private markets according to rational business logic. SOEs should not use state support except if market failures are observed.

Conclusions

1. Diversification strategies are proven to be an efficient scenario for a company's growth. They are widely used in business to use available resources better and raise competitiveness. However, there is an unequal set of rules for commercial enterprises in Latvia based on their ownership under the shield of competitive neutrality that protects only private sector initiatives. Little attention has been paid to how this practice impacts the public sector's undertakings except for general statements like contribution to economic development.
2. The examined competitive neutrality practice presents evidence opposing Latvian practice under the moniker of equal competition. First, SOE diversification-related restrictions are among those that affect performance more negatively. Secondly, SOE development issues are neglected by control practice despite their significance for competitive neutrality. This embarrasses SOE expansion initiatives if unused resources are left. Not all SOE resources are set to make a profit, contrary to the principles of business logic and rationality.
3. There is a narrow path to expand new SOE production lines if market failures are observed. SOE diversification eligibility interpretation issues open the playground for pressures imposed by private rivals, including political lobbying that affects SOE strengthening initiatives. Undertakings of public services may suffer.
4. The proposed balanced intervention principle for diversification initiatives for public and private enterprises shows the way towards the competitive neutrality model in compliance with commercial principles and favours the public good.
5. The research limitation tackling the public sector perspective is appropriate at the particular research stage. However, the playground for future study is also outlined. The research of legislative burden from public and private perspectives, which deals with the comparison of different factors' impact, will reveal the place of diversification in the equilibrium model of competitive neutrality and allow the adoption of policies that fit the development of the public good as well as bring the business environment closer to competitive neutrality. The issue of the private sector having an equal legislative burden should also be examined.

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