American University Kyiv

A Capstone Project

LEVERAGING DIGITAL TRANSFORMATION FOR COMPETITIVE ADVANTAGE: A TECHNOLOGY INTEGRATION STRATEGY FOR MANUFACTURING COMPANY IN E-COMMERCE
ВИКОРИСТАННЯ ЦИФРОВОЇ ТРАНСФОРМАЦІЇ ДЛЯ ОТРИМАННЯ КОНКУРЕНТНИХ ПЕРЕВАГ: СТРАТЕГІЯ ІНТЕГРАЦІЇ ТЕХНОЛОГІЙ ДЛЯ ВИРОБНИКА ТОВАРІВ У ЕЛЕКТРОННІЙ КОМЕРЦІЇ

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ABSTRACT

This study reviews how digital transformation, focusing on composable architecture, can enable manufacturing companies to enter the e-commerce domain. Composable architecture, a modular alternative to traditional monolithic systems, addresses scalability and manageability challenges faced by enterprises experiencing rapid growth. The study assesses the operational and technological impact of transitioning to composable architecture through a mixed-methods approach, including case studies and qualitative interviews with industry experts. Key findings highlight the importance of aligning technological adoption with workforce readiness, operational processes, and business objectives to ensure sustainable growth. The proposed technology integration roadmap provides actionable strategies for manufacturing companies to leverage digital transformation and remain competitive in the evolving e-commerce landscape.

Keywords: Digital transformation, composable architecture, e-commerce platforms, technology integration, manufacturing industry, scalability, operational efficiency, workforce readiness, enterprise growth, modular systems.

INTRODUCTION

In an age where digital transformation is changing industries, manufacturing companies face unprecedented opportunities and challenges in adopting technology to enhance their competitive advantage.

Historically, monolithic architecture has dominated the construction of e-commerce platforms. While effective for many use cases, monolithic systems pose significant challenges in scalability, manageability, and operational efficiency, particularly for enterprises experiencing peak performance or rapid IT and marketing team growth. Composable architecture addresses these limitations by enabling modular, flexible solutions that align more effectively with the dynamic demands of modern e-commerce. This project assesses how composable architecture impacts the development and management of e-commerce platforms, as well as its influence on operational expenses and enterprise support requirements.

The objective of this study is to create a technology integration strategy, with a set of steps, that can be utilized by enterprises to go through the e-commerce digital transformation in the organizations.

The first task of this study is to explore and analyze the integration of digital transformation technologies within e-commerce operations in scientific literature, as well as real-life digital transformations ran in enterprise various sizes and domains. Specifically, it focuses on the adoption of composable architecture as a strategic approach to overcoming traditional system limitations and achieving operational efficiency, scalability, and enhanced customer engagement. By investigating how various technological components—such as commerce engines, headless storefront, product information management systems, and microservices — can be orchestrated into a unified and adaptable framework, the project seeks to provide a

comprehensive understanding of the interplay between technology and business strategy in the manufacturing e-commerce domain.

The second task of the study to propose technology integration roadmap tailored to the unique challenges and opportunities faced by manufacturing companies in e-commerce, based on previous analyzes and findings. This roadmap offers strategic recommendations for adopting digital solutions, including composable architecture, mitigating risks, and fostering sustainable growth in a competitive digital landscape. By aligning technological innovation with business objectives, this study aims to provide a framework for leveraging digital transformation as a strategic advantage while addressing the specific demands of e-commerce platforms.

The third task of the study is to build a conclusion on how effectively to run a digital transformation for manufacturers in the e-commerce, with realistic technical outcomes, that are influencing the business decisions, as well as, to lay down a basis for a future study in this area.

CHAPTER 1. OVERVIEW OF E-COMMERCE IN ENTERPRISES AND PROJECT METHODOLOGY

1.1 E-commerce landscape analysis

E-commerce has experienced exponential growth over the past decade, fundamentally altering the way businesses operate and consumers shop. According to Statista, global e-commerce sales reached approximately $5.7 trillion in 2022, up from $3.35 trillion in 2018, highlighting a compound annual growth rate (CAGR) of over 10% (Statista, 2023). This expansion has been driven by rapid advancements in digital technology, the proliferation of smartphones, improved internet access, and evolving consumer expectations for convenience and personalization. The COVID-19 pandemic acted as a major catalyst, accelerating the adoption of online shopping as businesses and consumers adapted to social distancing measures and lockdowns. This shift has solidified e-commerce as a critical component of global commerce, with projections suggesting that online sales could constitute nearly 25% of total retail sales by 2025 (Statista, 2023).

Enterprise companies have played a pivotal role in this growth, leveraging their resources, scale, and technological capabilities to drive innovation and set industry standards. Large corporations such as Amazon, Alibaba, and Walmart have not only captured significant market share but have also pioneered advancements in logistics, personalization, and customer experience. Their investments in cutting-edge technologies like artificial intelligence, machine learning, and automation have reshaped e-commerce operations, making processes faster, more efficient, and increasingly tailored to individual customer needs.

In addition to their direct contributions, enterprise companies have facilitated the development of sophisticated B2B e-commerce ecosystems. These platforms enable businesses to conduct digital transactions more efficiently, integrating supply chains, automating procurement

processes, and fostering collaboration across industries. Enterprise companies' influence is evident in their ability to scale operations globally, often setting benchmarks for smaller players. As a result, their role extends beyond mere participation—they act as enablers of broader digital transformation, pushing the boundaries of what is possible in e-commerce while shaping the future of the industry. This interplay between growth and enterprise-level innovation underscores the central role these companies play in driving the e-commerce revolution.

1.2 Composable Architecture

Composable architecture is a modular design approach that breaks down complex systems into smaller, independent, and reusable components. Each component, often referred to as a microservice, is designed to perform a specific function and can be integrated with others through standardized APIs. This contrasts with monolithic architectures, where all functionalities are tightly coupled within a single structure, making updates, scaling, or customization more challenging. Composable architecture allows organizations to adapt and innovate quickly by enabling the integration or replacement of individual components without disrupting the entire system. This approach is highly flexible, as it supports the selection of best-of-breed technologies and solutions tailored to specific business needs, ensuring a future-ready and agile system design.

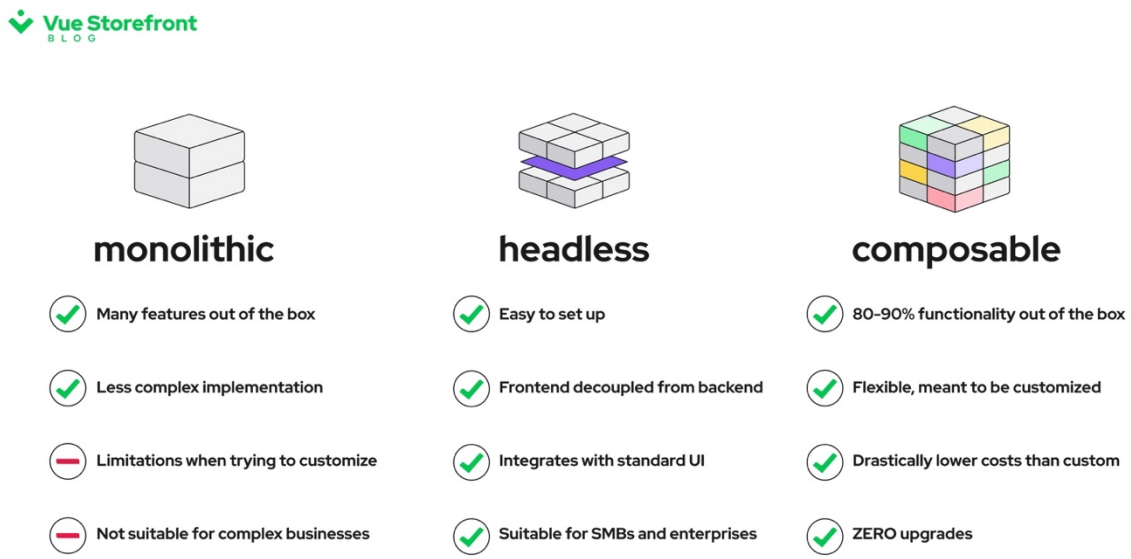

Figure 1. *Headless vs. Composable vs. MACH Architecture.*

Source: Adapted from "Headless vs. Composable vs. MACH," by Alokai (2024)

In practice, composable architecture is widely applied in e-commerce and enterprise systems where scalability, customization, and rapid deployment are critical. For instance, a composable e-commerce platform might include a headless CMS for content management, an independent search engine like Algolia for product discovery, and an ERP system for backend operations, all seamlessly connected via middleware. This modularity ensures that businesses can respond to market demands, technological advancements, or operational challenges with minimal disruption. As digital transformation becomes a strategic priority across industries, composable architecture is gaining traction as a foundational framework that aligns with the principles of agility, scalability, and innovation.

1.3 Literature Review

The evolution of digital transformation in enterprises has highlighted the need for scalable and flexible solutions, particularly in the e-commerce domain. Kuznetsov et al. (2021) emphasized the importance of strategic planning and IT integration as key drivers for successful digital transformation. While their research provides a macro-level understanding of digital adoption, it lacks a detailed exploration of specific architectures, such as composable systems, that are increasingly relevant in modern enterprise operations. Similarly, Sharma et al. (2020) outlined the challenges of transitioning legacy systems in e-commerce, identifying scalability and integration as significant hurdles. However, their work does not address how composable architecture can mitigate these issues, leaving a critical gap in understanding practical implementation strategies.

Composable architecture has emerged as a solution to address the limitations of monolithic systems, offering greater flexibility and scalability. Lederer et al. (2019) identified modularity and adaptability as crucial success factors for digital transformation in e-commerce but stopped short of discussing composable architecture's financial implications. Research by Kuznetsov et al. (2021) underscores the need for strategic alignment in technology adoption but does not delve into the operational efficiencies brought by composable systems. Meanwhile, studies such as "An Architectural Perspective on Service Adoption in E-commerce: A platform design and the case of pluggable cross-border trade compliance in e-commerce " by Aulkemeier et al. (2017) provide insights into how composable systems enhance service pluggability, yet their discussion on operational scalability and financial impact remains limited.

Research specific to composable architectures has explored their potential to redefine next-generation e-commerce platforms. According to Huang et al. (2018), composable frameworks eliminate the need for intermediaries, fostering operational transparency and efficiency through personalized portals and intelligent service matching. This approach aligns closely with enterprise demands for agility and direct interactions with customers. Despite these strengths,

their study lacks quantitative data on implementation challenges and cost-benefit analyses, which are crucial for enterprises considering a transition. Similarly, recent work by Agarwal et al. (2023) on composable MarTech systems highlights the adaptability of modular architectures but reveals persistent issues with integrating these solutions into existing enterprise workflows.

Cost management is another critical aspect of digital transformation that has not been adequately explored in relation to composable architecture. Dimitrov et al. (2021) examined cost allocation in IT systems, identifying growing financial burdens associated with digital technology investments. While this research provides valuable strategies for managing IT expenditures, it does not connect these challenges with composable e-commerce systems. Moreover, while studies like "Assessing the Gains from E-commerce" (Einav et al., 2020) emphasize the cost-saving potential of e-commerce platforms, they fail to address how composable architecture can further optimize operational expenses and ROI. This represents a significant gap in the literature, given the increasing adoption of modular solutions in enterprise platforms.

To validate the digital transformation the digital maturity model is playing the key role in the assessment of the success. Barry et al. (2023) contribute a comparative analysis of eight digital maturity models, identifying their structural strengths and weaknesses across various industries. Their study reinforces the importance of aligning maturity models with domain-specific requirements, such as the need for scalability, integration, and sector-specific capabilities. While their work highlights the Digital Internet Maturity Model (DIMM) as one of the most versatile frameworks, the study acknowledges limitations in its application to dynamic fields like e-commerce, where agility and composable architectures are crucial. This aligns with the findings of Pallas (2023), whose research on SMEs in the solar panel e-commerce sector emphasizes the need for tailored strategies that incorporate automation, AI, and internal process optimization. These studies collectively underscore the need for digital

maturity models that balance technical, operational, and human dimensions, paving the way for this capstone's focus on developing a targeted framework for e-commerce manufacturers leveraging composable architecture.

van Tonder et al. (2024) provide a systematic literature review of digital maturity models, identifying nine dimensions critical to assessing digitalization in small and medium-sized enterprises (SMEs): strategy, leadership, culture, organization, people/employees, technology, processes, products, and customers. These dimensions form a holistic framework that emphasizes the interplay of organizational, human-centric, and technological factors in driving digital transformation. While the study highlights the importance of these dimensions and identifies 16 measurable parameters to evaluate digital maturity, it primarily serves as a theoretical framework without delving into practical implementation strategies. When assessed against this capstone project, which focuses on leveraging digital transformation for competitive advantage through a technology integration strategy in the retail sector, van Tonder et al.'s findings provide a useful foundation for identifying key focus areas.

1.4 Research Methodology

To effectively explore the impact of digital transformation and composable architecture on e-commerce platforms, this study focuses on three manufacturing companies that underwent substantial digital transformation initiatives. The selection of these companies was guided by the following criteria:

1. **Diverse Manufacturing Sectors**: The selected companies represent a variety of industries, including sports equipment, healthcare technology, and consumer goods, to ensure a broad perspective on the implementation and outcomes of digital transformation.

2. **Successful e-commerce Expansion**: Each company successfully integrated e-commerce as a critical part of its operations, making them ideal candidates for analyzing the operational efficiencies achieved through composable architecture.
3. **Direct Project Involvement**: The companies were chosen because we were directly involved in leading their digital transformation initiatives, allowing for firsthand insights into the decision-making processes, implementation challenges, and resulting operational impacts.

These criteria ensure the case studies provide relevant, in-depth data for assessing the practical applications of composable architecture in manufacturing companies transitioning to full-scale e-commerce operations.

To gather comprehensive and reliable data, two primary sources were utilized:

1. **Interviews with Stakeholders**: Anonymized, in-depth interviews were conducted with key stakeholders involved in the digital transformation processes at the selected companies. These interviews provided qualitative insights into the motivations, strategic decisions, and challenges encountered during the transition to composable architecture.
2. **Industry Publications and Reports**: Relevant industry publications, white papers, and reports were reviewed to supplement the interview data. These secondary sources offered broader industry benchmarks and contextualized the companies' experiences within the larger e-commerce and manufacturing landscape.

By combining these data sources, the study ensures a balanced approach, integrating both company-specific and industry-wide perspectives. To evaluate the operational efficiencies achieved through digital transformation, the study employs the following analytical frameworks:

1. **SWOT Analysis**: This framework identifies the strengths, weaknesses, opportunities, and threats associated with the companies' digital transformation efforts, as can be seen in Fig. 2. It helps uncover internal and external factors that influenced the outcomes of adopting composable architecture.

Strength	Weakness
Opportunity	Threats

Figure 2. SWOT Analysis Framework Template

2. **Digital Maturity Model**: This framework assesses the companies' technological capabilities before and after the adoption of composable architecture. It evaluates progress across dimensions such as scalability, integration, and automation, highlighting the operational improvements achieved. The key areas of Digital Maturity Model can be seen on a Fig. 3.

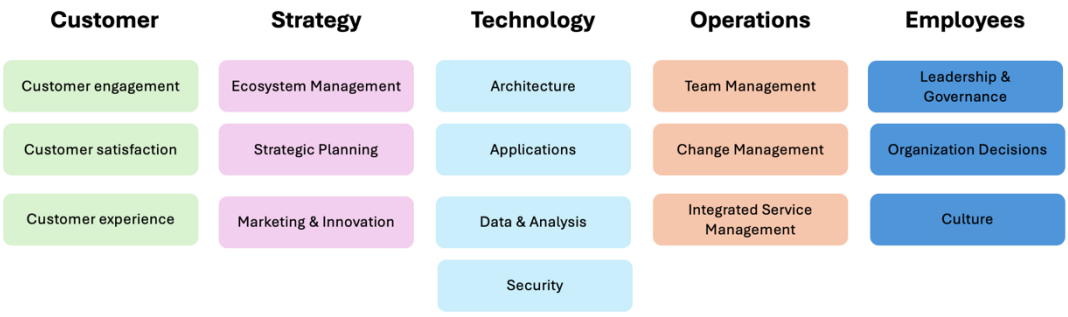

Figure 3. Digital Maturity Framework Visualization and it`s key components

These frameworks allow for a comprehensive evaluation of operational efficiency, focusing on the before-and-after states of e-commerce digital transformation of the selected companies. The insights derived from these analyses will contribute to a deeper understanding of how

composable architecture can drive competitive advantage in manufacturing companies transitioning to e-commerce.

To gather qualitative insights into the digital transformation initiatives and the adoption of composable architecture, we conducted in-depth interviews with key stakeholders from the selected manufacturing companies. These stakeholders included IT managers, directors, and Chief Information Officers (CIOs) who were directly involved in the transformation projects. The interviews provided firsthand accounts of strategic decision-making, implementation challenges, and operational outcomes. By engaging with individuals holding diverse roles within each company, the study captured a holistic view of the transformations, emphasizing both technical and business perspectives.

The selected Digital Maturity Model has five dimensions that include Organization Structure (Operations), Technology, Strategy, Employee, Customer. Each dimension in Digital Maturity Model is meant to present the capabilities, planning and activities of an enterprises. In Digital Maturity assessment, an enterprise can score from 1 to 4, based on their capabilities in regard to each dimension. The explanation for dimension scoring is presented Table 1.

Table 1. Maturity Model Dimension scores

Score	Customer	Employee	Org. Structure (Operations)	Strategy	Technology
1	Customer data are being gathered and stored	Employees have a digital platform to manage operations	Team operations can be done using digital tools	Established a project planning sessions within the organization	Commerce capabilities are enable with a commerce engine
2	Customer data are being analyzed in making decisions	Employee`s decision is being taken as part of project implementation	Single tool to manage the team organization, vendor onboarding	Established a technology vendor footprint strategy	Software and services being used to reach the short-term goals

3	Customer is being engaged in digital channel based on his profile	Employees understand the vision and culture or the organization	Clear understanding of each IT department boundaries and cooperation on the project	Established Content Management Strategy	Elements of the architecture support an integration between systems
4	Customer feedback is being gathered and processed into digital backlog	Employees can implement initiatives within the scope of their role, on a standalone basis	Change Management of a project scope can be done within the anticipated timeline, within the budget limits	Established and Documented Technology, Marketing and Experience Strategy and Architecture	A composable architecture and use of interconnected with middleware, fir for purpose commerce engine and the software

During the interview, see Appendix A, Table 1 for an example of question, answers and respective scoring, close-ended questions were asked to the key personal of the project. Using the answer to the questions, we measured a digital maturity level before the transformation and after. In the question list, each dimension has at least four questions, with a set of five answers. Each answer corresponds to the scoring level from 1 till 4 of respective dimension.

To calculate a scoring the following formula is used:

$$Score_{dimension} = \frac{a_1+a_2+a_3+a_4}{4}.$$

Within the scope of the interview, the list of technology that were used before and after the transformation was received, as well as companies' strength, weaknesses, opportunities and threats at the respective time, example of questions is in Appendix A, Table 2.

Based on the data collected from the interviews the study was able to evaluate the operational efficiencies achieved and the competitive advantages gained through digital transformation of each company. This methodology ensures the findings are robust, grounded in real-world experiences, and applicable to broader contexts within the e-commerce and manufacturing

sectors. The maximum scoring of twenty will show the enterprise to be Digitally Matured in all dimensions, with digital tools and capabilities aligned within the organization. Scoring of 10 is a digital transformation of a company is underway, with some process optimized to be digital as a primary experience.

CHAPTER 2. CASE STUDIES

2.1. Streamlining Operations with Composable Architecture: Company 1 Case Study

The first case study focuses on "Company 1" a prominent sports equipment manufacturer operating multiple well-known brands under its umbrella. Company 1's product range spans sportswear, skiing equipment, tennis racquets, diving gear, and swimwear. While its B2C channel historically contributed a small portion of overall revenue, it was pivotal in showcasing product lines, sharing up-to-date product information, and directly engaging customers. Recognizing the limitations of its outdated technology stack, the company decided on a digital transformation journey with clear goals: modernizing technology, improving operational efficiency, streamlining content management, and enhancing customer-centric experiences for future growth.

To achieve these goals, Company 1 adopted a composable commerce architecture that offered flexibility and avoided so-called vendor lock-in. The transformation involved implementing Adobe Commerce as the headless commerce engine, a React-based frontend for its B2C platform brands, and usage of Adobe's services for advanced search and product recommendations capabilities. The backend was powered by SAP for ERP functionality and a homegrown, flexible Product Information Management (PIM) system was used by brand team to fill in product information of over 30 000 product items. Supplementing this setup were microservices for specialized functionalities such as forms and translations, creating a scalable and modular system.

The result was a state-of-the-art composable e-commerce platform featuring a component-based content management system built with the React Storybook library and seamlessly integrated with Adobe Commerce. Content managers and product teams could now manipulate content using modular components, reducing the time required to input and distribute content

across 40+ country-specific websites by 80%. This efficiency gain allowed the company to better optimize operations and prepare for a future growth.

The transformation was spearheaded by the CIO and supported by a technology consultant team, that provided expertise in selecting the right tools for the project. Despite having a relatively small IT, analytics, and content team of around eight members total, Company 1 successfully implemented the solution while adhering to strict budget constraints. This lean yet effective team structure also minimized the need for many highly customized, off-the-shelf products.

Company 1`s journey demonstrates how a composable commerce architecture can transform even resource-constrained organizations, enabling them to modernize their operations, enhance customer experiences, and achieve efficiencies across their digital landscape.

2.1.1. Before Digital Transformation

In order to be able to assess the effect of digital transformation, this study assessed the SWOT and Digital Maturity of Company 1 with the result in Fig. 4 and 5.

Strength	**Weakness**
• well-utilized small team within budget constraints.	• Dependence on a homegrown PIM system limit scalability; • high support cost in keeping system working and platform extensibility;
Opportunity	**Threats**
• build partnerships with global retailers	• Competitive pressure from platform performance • potential cost vulnerabilities with software reliance

Figure 4. SWOT analyzes of Company 1 Before Transformation

Source: Analysis conducted by the author

To calculate the scoring of Digital Maturity Model before the Digital Transformation, customer interview was done.

With the response provided by Company 1 expert, the following calculations were done:

$$Score_{employee} = \frac{4+4+2+2}{4} = 3$$

$$Score_{customer} = \frac{3+2+1+2}{4} = 2$$

$$Score_{technology} = \frac{1+1+1+1}{4} = 1$$

$$Score_{strategy} = \frac{1+1+1+1}{4} = 1$$

$$Score_{operattions} = \frac{1+1+1+1}{4} = 1$$

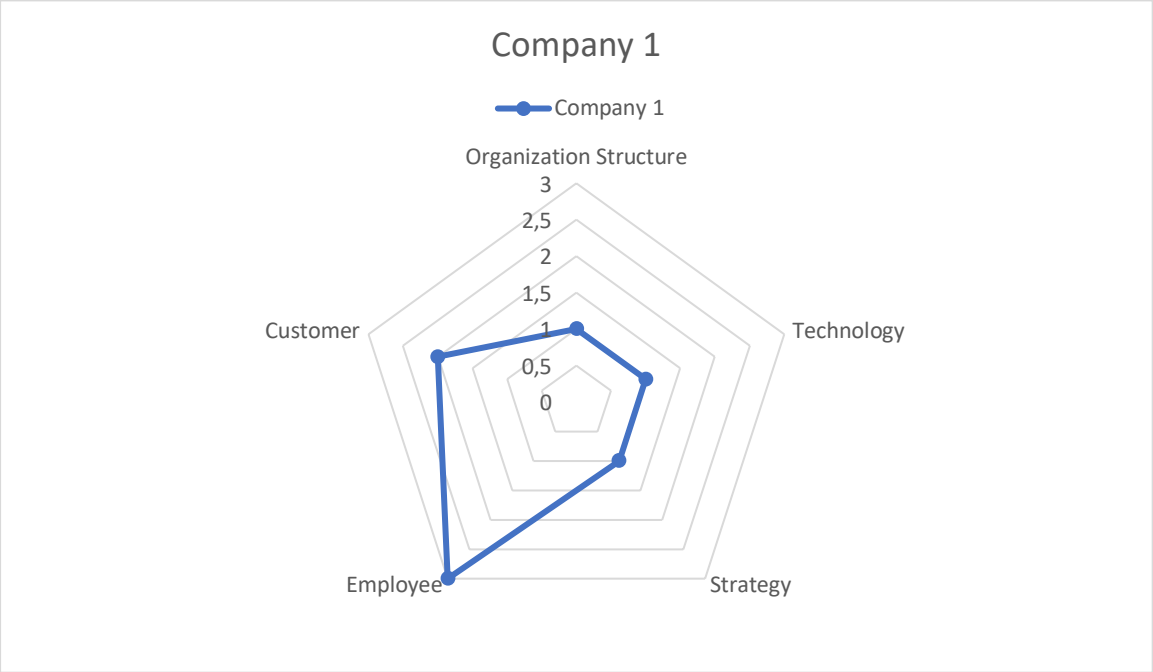

Figure 5. Digital Maturity Assessment Before Transformation

Source: Analysis conducted by the author

With the scoring presented in Fig. 5, Company 1 below the average level of digital maturity 8 out of 20. With Employee being the strongest strength of the enterprise.

2.1.2. Post Digital Transformation Analysis

By SWOT Analysis, we analyze how the digital transformation has been done (see Fig. 6).

Strength	**Weakness**
• Flexibility and scalability of composable architecture; • efficient content management reducing time by 80%; • well-utilized small team within budget constraints.	• Dependence on a homegrown PIM system limits scalability; • high initial investment in consulting and integration
Opportunity	**Threats**
• Expand B2C operations; integrate AI-driven personalization; • build partnerships with global retailers	• Competitive pressure from advanced platforms; • continuous need for technological upgrades;

Figure 6. SWOT analyzes of Company 1

Source: Analysis conducted by the author

Finally, assessed company 1 using Digital Maturity Model, see Fig. 7

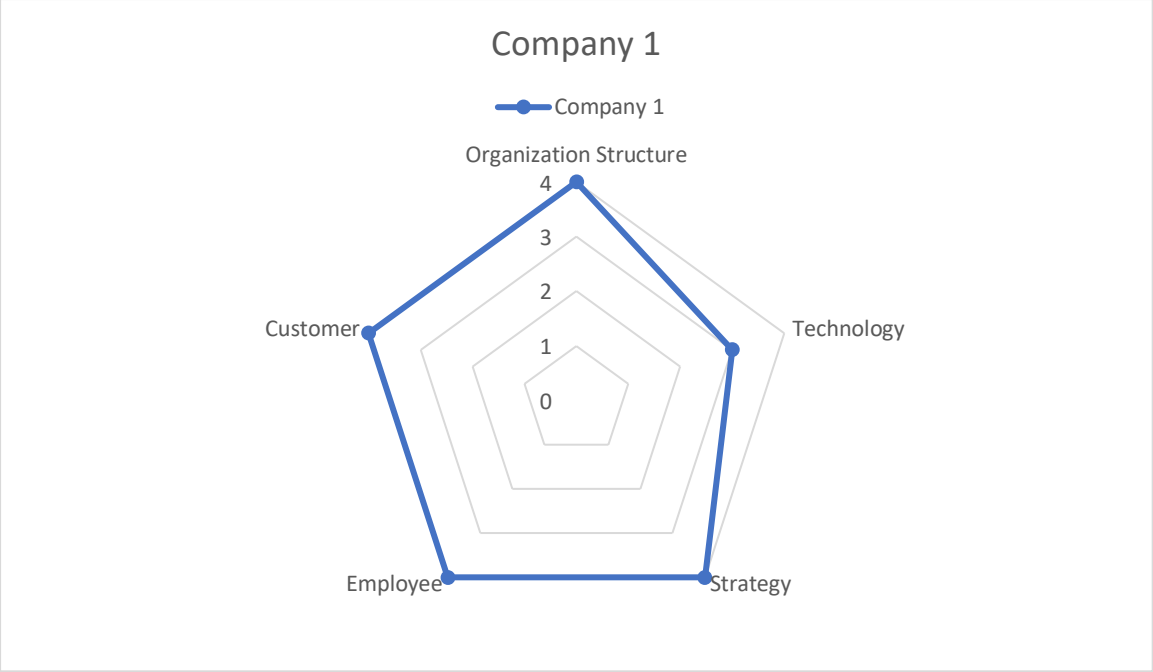

Figure 7. Digital Maturity Assessment

Source: Analysis conducted by the author

The score was done using dimension identified for Digital Maturity Model provided van Tonder et al. (2024). The scoring was done against the industry level using questions from Barry et al. (2024). The scoring for Company 1 is quite high 19 out of 20, that shows clear understanding of each dimension in the digital transformation and how it is applicable to the success of the e-commerce system.

As a result, Company 1 was able to run successful digital transformation, they used a number of best practices, such as composable architecture, tailored integration, PIM implementation and many other to reach their goals.

2.2. Transforming B2B Sales with Composable Architecture: Company 2 Case Study

The second case study examines "Company 2," an anonymized global leader in hearing aid manufacturing, encompassing multiple brands recognized worldwide. Company 2 digital transformation initiative centered around reimagining its B2B sales processes, which had become inefficient and fragmented due to reliance on three different outdated commerce

engines. These legacy systems required substantial manual intervention from customer service teams to communicate with clients and process orders, creating bottlenecks in operations and customer satisfaction.

To address these challenges, Company 2 adopted a digital transformation challenge using composable commerce architecture tailored to meet its complex requirements. The transformation leveraged a robust commerce engine, supported by a React-based headless storefront for greater flexibility and scalability. A component-driven strategy of commerce system, powered by a reusable library of design elements, was implemented to maintain consistency and minimize implementation efforts across the diverse brands under the company's umbrella.

A new Product Information Management system was introduced to streamline product data management, complemented by over five microservices designed to provide cutting-edge customization and customer experiences that set Company 2 apart from competitors. Recognizing the scale and complexity of the organization, the company implemented enterprise middleware to integrate these microservices seamlessly with existing systems for fitting, content management, and other operational needs.

Company 2 rolled out its unified commerce system across 10+ countries, enabling a consistent and scalable B2B experience. The component-based approach facilitated the sharing of commerce-related services across internal teams and initiative started by other teams, significantly reducing duplication of effort and resource expenditure. The new architecture not only modernized Company 2 sales processes but also empowered its teams to leverage digital tools effectively, driving operational efficiencies and enhancing customer satisfaction.

This case underscores how a composable architecture can be adapted to meet the complex needs of a global manufacturer, providing both flexibility and scalability to support diverse brands and product lines.

In the Fig. 8 and 9, identified SWOT and Digital Maturity assessment before the start of e-commerce digital transformation.

Strength	**Weakness**
• Working e-commerce in the biggest market of Company 2 •	• Complex organizational structure with multiple software and service vendors • Inability to roll out to multiple markets in less than a year.
Opportunity	**Threats**
• Enabling the best customer experience in the market	• Competitive pressure from B2B platforms offering similar capabilities; • Security threats due to technology choices

Figure 8. SWOT analyzes of Company 2 Before Digital Transformation

Source: Analysis conducted by the author

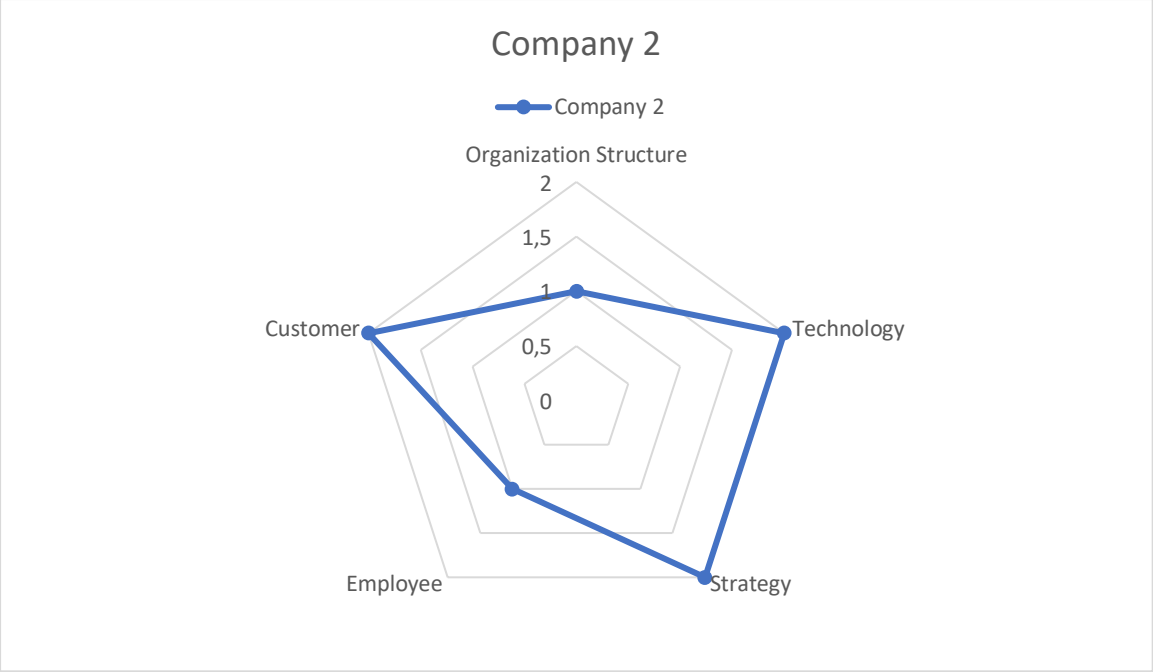

Figure 9. Digital Maturity Assessment Before Digital Transformation

Source: Analysis conducted by the author

Before the digital transformation, the company 2 had low level of digital maturity (8 our of 20) in all dimensions, that did not allow Company 2 to move into a new market, with existing competitive solutions.

Analyzing Company 2 with SWOT framework, the following was identified in Fig. 10.

Strength	**Weakness**
• Successful adoption of a composable commerce architecture enhanced flexibility and scalability; • streamlined processes with a new PIM system and enterprise middleware;	• Complex organizational structure made implementation more challenging; • Purchase of multiple systems, will lead to overspending on IT software.

• reduced duplication of effort through a component-driven strategy	
Opportunity • Expanded global reach with unified commerce across 10+ countries; • potential for integrating advanced analytics and AI-driven tools for customer experience enhancement	**Threats** • Competitive pressure from B2B platforms offering similar capabilities; • maintaining complex systems, that are used across multiple team, can create a long term support spendings

Figure 10. SWOT analyzes of Company 2 After Digital Transformation

Source: Analysis conducted by the author

Using Digital Maturity Model Assessment, before the transformation legacy systems were fragmented, required manual intervention, and lacked integration capabilities and there were no shared capabilities between fragmented team.

And after the transformation in Fig. 11.

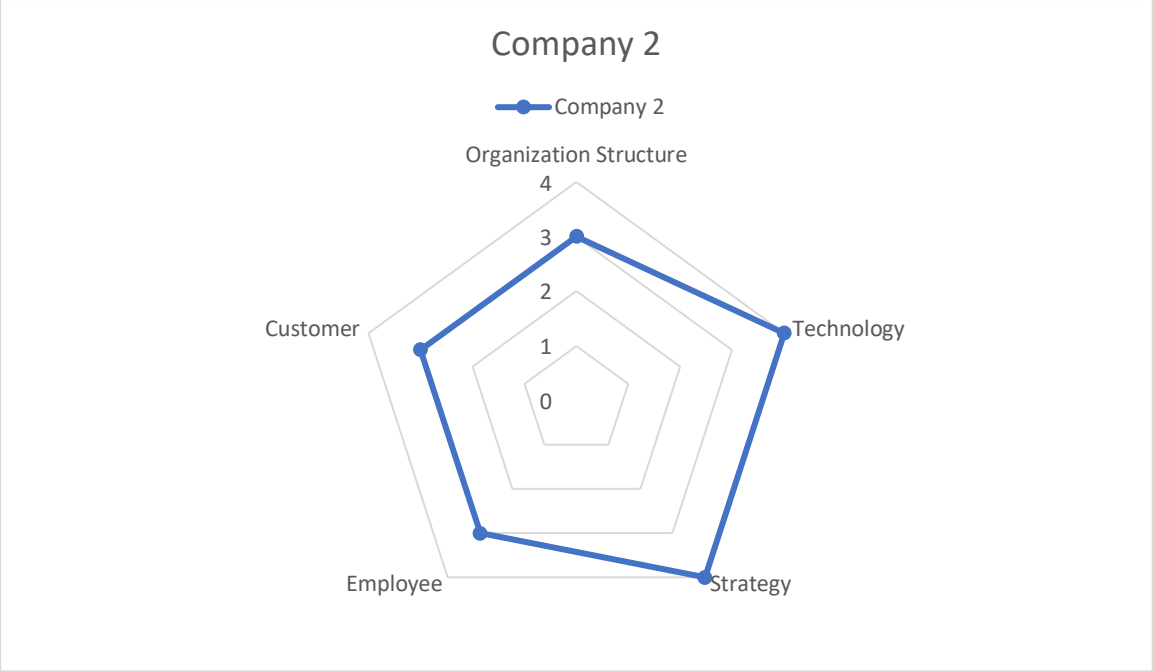

Figure 11. Digital Maturity Assessment After Digital Transformation

Source: Analysis conducted by the author

The score was done using dimension identified for Digital Maturity Model provided van Tonder et al. (2024). The scoring was done against the industry level using questions from Barry et al. (2024). The scoring for Company 2 is quite high 17 out of 20. During the analysis it was identified a few gaps in how their organizational structure and employee performed during their transformation.

As a result, Company 2 was able to achieve the results they were looking to, they used a number of best practices, such as composable architecture, tailored content management, enterprise middleware to connect number of their services.

2.3. Enabling B2C Transformation for a Multi-Brand Platform: Company 3 Case Study

The third case study examines "Company 3," an anonymized vitamins and wellness products manufacturer, operating under the umbrella of a larger consumer goods conglomerate. Company 3's product range spans vitamins, beauty products, and wellness items. The

company's digital transformation was driven by the need to establish a robust B2C commerce presence in the wake of COVID-19, as its prior infrastructure was inadequate for direct-to-consumer sales. Additionally, the transformation sought to improve operational efficiency, streamline content management, and showcase product lines more effectively.

To achieve these objectives, Company 3 adopted a composable commerce architecture, valuing its flexibility and scalability across multiple brand websites. Adobe Commerce was selected as the core commerce engine, with a React.js-based frontend. Algolia was integrated to deliver advanced search capabilities and a sophisticated product finder. Given the relatively limited size of its catalog, the company opted not to implement a PIM system. Instead, it used the flexibility of Contentful and Commerce engine, a headless content management system, to enable seamless integration with Algolia and support its many content teams.

The resulting e-commerce platform featured a component-based content management setup using Contentful CMS. The frontend was also built with a reusable, component-driven design, facilitating seamless integration and consistency across Company 3's 10+ brand websites. This shared approach significantly reduced implementation time and effort while enabling content managers and product managers to create, manipulate, and distribute content.

A centralized transformation team oversaw the project, collaborating with individual brands under the parent company to tailor the B2C e-commerce solution to their needs. Although the new system is currently U.S.-specific, its scalable architecture allows for future geographic expansion and other brand`s enablement.

Company 3's composable architecture not only modernized its operations but also empowered its teams with tools to enhance customer engagement. The transformation positioned the company to capitalize on the growing demand for direct-to-consumer sales in the wellness and beauty sectors, ensuring both flexibility and efficiency in its digital strategy.

Before the Digital Transformation of a Company 3, the following SWOT and Digital Matiruty level were identified in Fig. 12 and 13.

Strength	**Weakness**
• Strong e-commerce engine available for a subset of brands	• Inability to manage effectively manage products on the e-commerce • Multiple version of the same platform creates complexity to backend users.
Opportunity	**Threats**
• Leveraging existing e-commerce platform for digital transformation with AI/Customer-centrist capabilities	• Security issues with outdated version of the software. • Inability to enable new features compared to competitors.

Figure 12. SWOT analyzes of Company 3 Before Digital Transformation

Source: Analysis conducted by the author

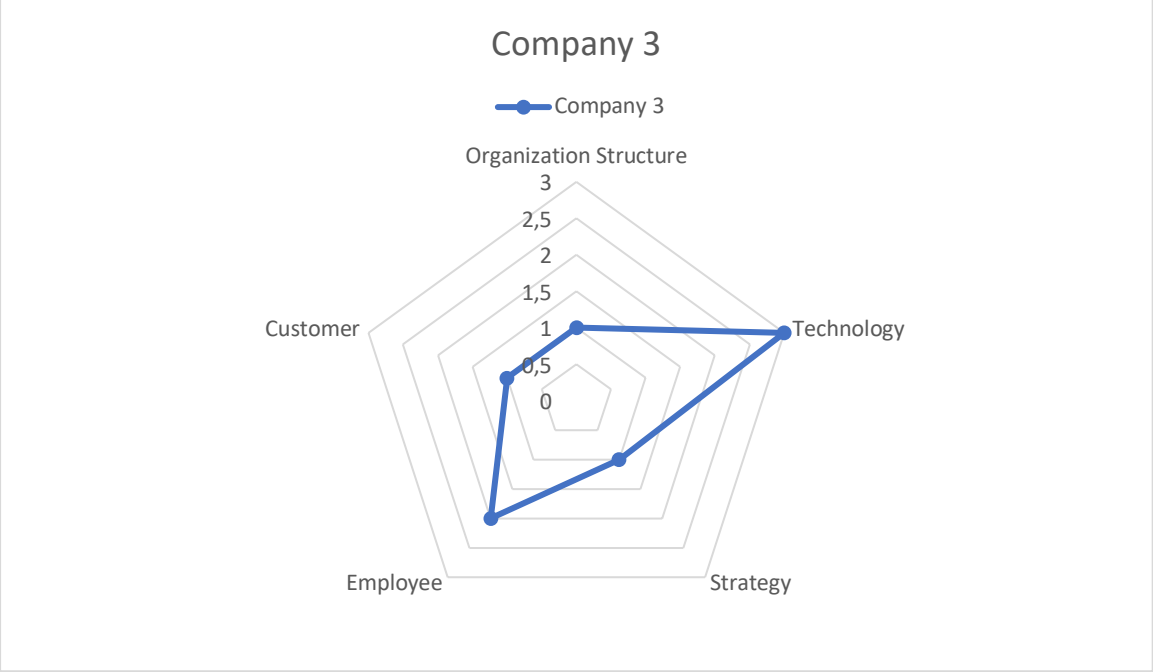

Figure 13. Digital Maturity Assessment Before Transformation

Source: Analysis conducted by the author

Based on the assessment result of a Company 3 state before the transformation, the only strong capabilities that they had was existing software in commerce and integration technologies.

Based on the SWOT analysis of Company 3, see Fig. 14.

Strength	**Weakness**
• Successful implementation of composable commerce architecture enhanced flexibility and scalability; • advanced search and product finder using Algolia improved user experience; • Contentful CMS enabled efficient content management for 40+ localized websites	• Lack of a PIM system may limit future catalog management scalability; • current platform is U.S.-specific, potentially restricting immediate global expansion.
Opportunity	**Threats**
• Expanding the platform internationally; • leveraging AI-driven personalization tools for customer engagement; • increasing cross-brand integration for unified customer experiences	• Competitive pressure from established B2C platforms with global reach; • risk of inefficiencies as catalog size grows without a PIM system; • dependency on middleware and SaaS tools requiring continuous updates and management

Figure 14. SWOT analyzes of Company 3 After the transformation

Source: Analysis conducted by the author

Using Digital Maturity Model Assessment, before Transformation: Inadequate infrastructure for B2C commerce; lacked integration and automation capabilities.

And after the transformation see Fig. 15.

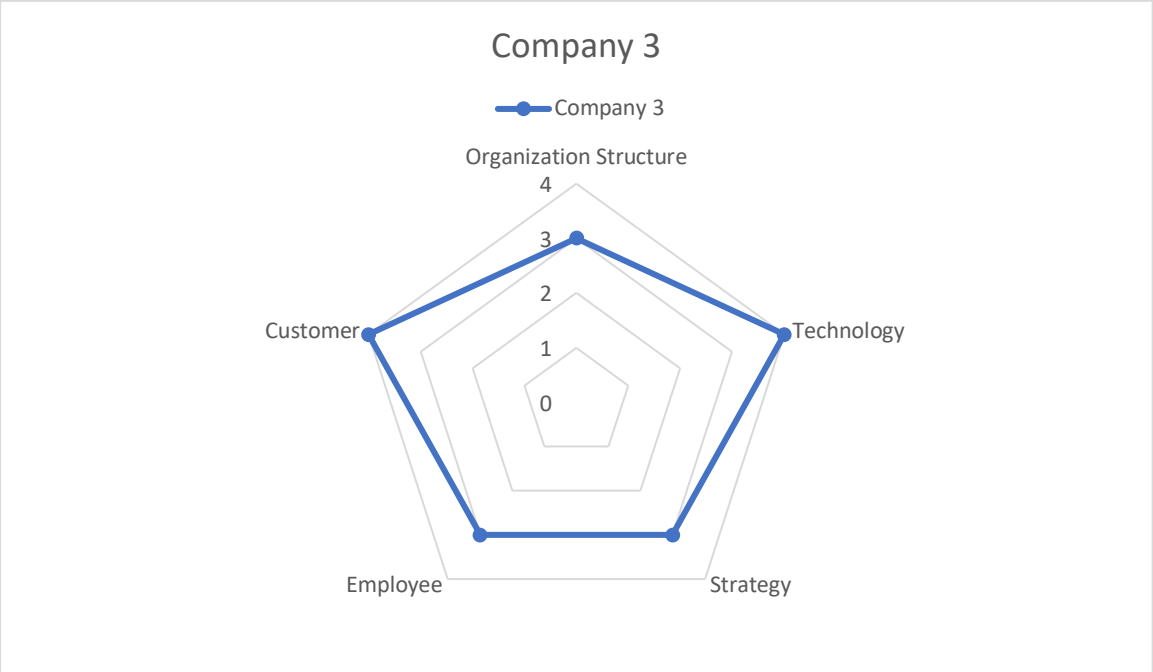

Figure 15. Digital Maturity Assessment Company 3 After Digital Transformation

Source: Analysis conducted by the author

The scoring was done using dimension identified for Digital Maturity Model provided van Tonder et al. (2024). The scoring was done against the industry level using questions from Barry et al. (2024). The scoring for Company 3`s is quite high 17 out of 20 as Company 2 had. During the analysis it was identified a few gaps in how their organizational structure and strategy of organization, that are related to the goals of organization after the digital transformation.

As a result, Company 2 was able to achieve the results they were looking to, they used a number of best practices, such as composable architecture, enterprise middleware to connect number of their services.

CHAPTER 3. FORMULATING TECHNOLOGY INTEGRATION STRATEGY

3.1. Analysis of Case Studies

In this chapter, we review and combine the result of each company assessments, that was done using SWOT analysis and Digital Maturity Models. This review aims to show the similarities and differences, that helped each company to get to the anticipated results.

The case studies reveal valuable insights into the commonalities and differences in how enterprises approach digital transformation in e-commerce.

With Digital Maturity Model assessment and analysis and combining the data about each company into one figure we can visualize the similarities that each company achieved, see Fig. 17, as well as, we can trace it back to the initial state of all companies, by reviewing Fig. 16, with the Digital Maturity assessment before the start of each companies transformation journeys.

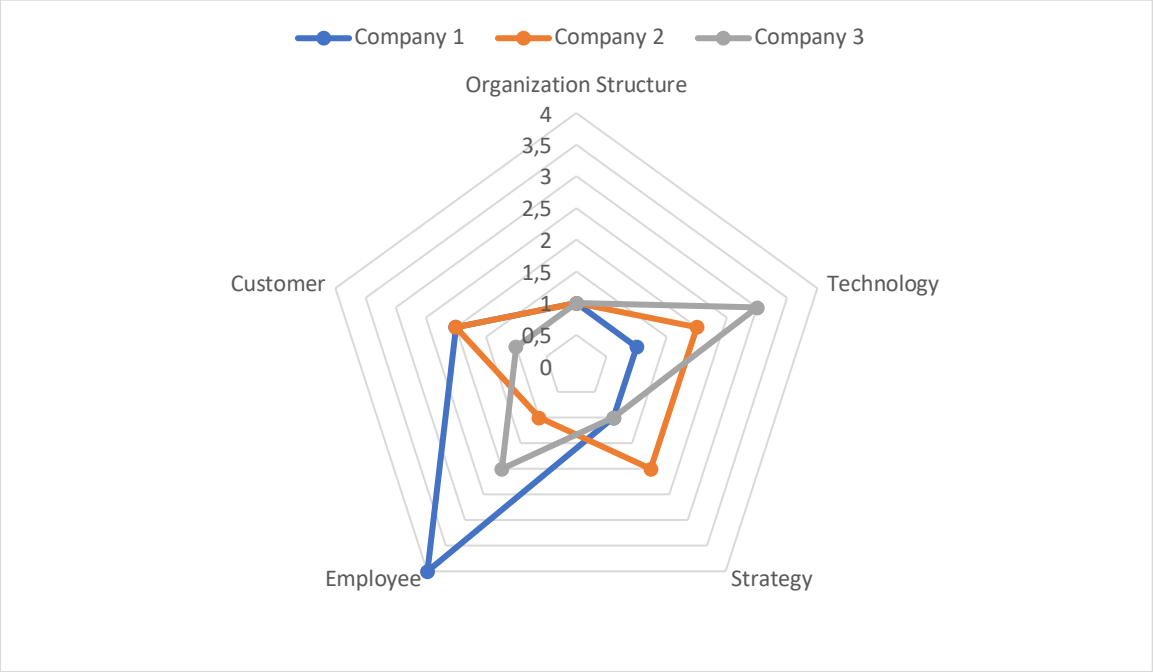

Figure 16. Combined Digital Maturity Assessment results of companies before transformation

Source: Analysis conducted by the author

With the assessment result of each company being, less than 10 out of 20 points, presents that companies, had a digital footprint in their e-commerce implementation, but they still were not able to utilize it for a digital first experience in their organization, as well as, to their end customers.

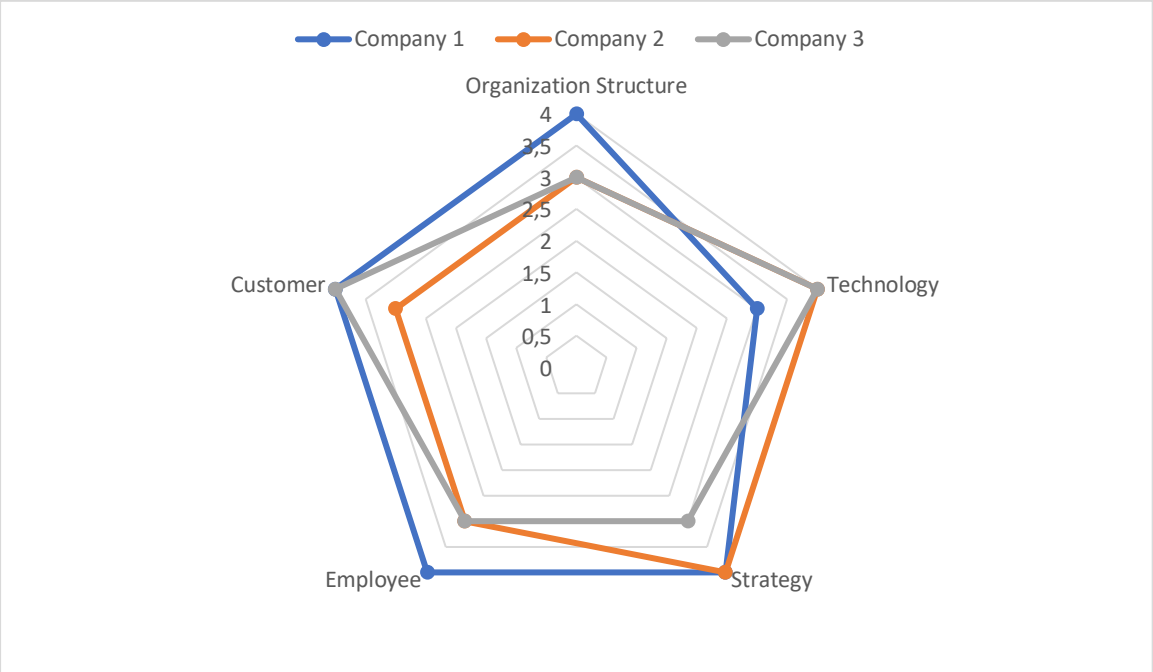

Figure 16. Combined Digital Maturity Assessment results

Source: Analysis conducted by the author

As presented on the figure, each company has achieved the highest levels of result in the digital assessment, compared to the previous assessment result.

Each company was assessed against SWOT and Digital Maturity Model. And as a result, all 3 Companies, based on the assessment are received a result 19 out of 20, 17 out of 20 and 17 out of 20 according to each company. This shows, a good level of successful digital transformation in their respective e-commerce sector.

The SWOT analyses of Companies 1, 2, and 3 reveal commonalities in how they approached digital transformation using composable commerce architectures. These similarities highlight shared strengths, opportunities, weaknesses, and threats that underscore the broader implications of leveraging composable systems in e-commerce and B2B contexts.

Strengths

Across all three companies, the adoption of composable commerce architecture emerged as a pivotal strength. This architecture provided flexibility, scalability, and modularity, enabling seamless integration across various tools and platforms. Company 1 utilized its modular system to reduce content management time by 80%, while Company 2 leveraged reusable components to streamline processes across multiple global brands. Similarly, Company 3 enhanced customer engagement and content management efficiency through advanced tools like Algolia and Contentful CMS. The ability to scale operations while maintaining a high degree of flexibility was a consistent advantage across the three cases.

Weaknesses

A recurring weakness among the companies was related to the limitations of their supporting systems or resource constraints. Company 1's reliance on a homegrown PIM system posed scalability issues, while Company 2 faced challenges in managing a complex organizational structure and overspending on IT tools. Company 3's lack of a PIM system created bottlenecks in catalog management as its operations grew. These weaknesses emphasize the importance of aligning system capabilities with the increasing complexity and scale of operations that digital transformation introduces.

Opportunities

All three companies identified significant opportunities to expand their digital presence and leverage advanced technologies to enhance customer engagement. For example, Company 1 highlighted potential for AI-driven personalization and global retail partnerships, while

Company 2 emphasized the integration of analytics and AI tools for B2B enhancements. Company 3 recognized opportunities for international expansion and increasing cross-brand integration. These opportunities point to the potential for composable commerce systems to serve as a foundation for strategic growth in competitive markets.

Threats

The primary threats were consistent across the companies and involved competitive pressures, technological dependencies, and the need for continuous updates. Company 1 faced challenges from advanced platforms offering similar functionalities, while Company 2 dealt with the long-term costs of maintaining complex systems. Company 3's reliance on middleware and SaaS tools introduced risks related to continuous updates and management overhead. These threats reflect the external and internal pressures of sustaining digital transformation efforts while managing dynamic market demands.

The SWOT analysis across the three companies underscores the shared benefits of composable architectures, including flexibility and scalability, while highlighting common challenges such as system dependencies and scalability bottlenecks. These shared insights suggest that while composable systems provide a robust foundation for transformation, strategic planning and resource alignment are crucial to overcoming inherent weaknesses and threats. This consistency across diverse industries demonstrates the relevance of composable systems as a universal solution, albeit with tailored strategies to address sector-specific challenges.

Within the scope of the case study analysis the key software components, Table 1, were identified. Understanding key software components, of each company, will provide a base to understanding the basis for building a proper Technology Integration Strategy, with the focus on technology capabilities.

Table 2. Technology stack of analyzed companies in the study

Technology Capabilities	*Company 1*	*Company 2*	*Company 3*
Commerce engine	+	+	+
External CMS	-	-	x
PIM	+	+	-
External Search engine	+	-	+
ERP	+	+	+
Storefront Application	+	+	+
Component Library	+	+	-
Enterprise Middleware Service	-	+	+
Microservices	+	+	-
Legacy Backend services	-	+	-
Payment integration	+	-	+

Source: data retrieved from the interviews

Based on the data in the table, we can conclude, that there are no single list of software or architectural approach, that can enable a digital transformation successfully. But the combination and selection of technical solution based on fit for purposes needs.

3.2. Technology Integration Strategy

The Technology Integration Strategy proposed in this project was developed as a direct response to the operational challenges and competitive pressures faced by companies navigating digital transformation. Through the analysis of case studies, it became evident that traditional monolithic systems were not suited to the fast-paced and highly customizable demands of modern e-commerce. The need for scalability, flexibility, and interoperability

called for a composable architecture approach. This strategy is designed to address these needs by creating a modular technology stack that allows businesses to integrate best-of-breed tools, adapt to emerging trends, and scale their operations efficiently. The adoption of this strategy aims to enhance operational efficiency, customer engagement, and long-term viability in the digital marketplace.

The proposed Technology Integration Strategy consist of three major components, that can make Company successfully in their digital transformation: Composable Architecture as a Foundation, Prioritization of Content Management and Personalization and Cost Management and Resource Allocation.

To implement the Technology Integration Strategy, and based on the experience that each company had, the following roadmap implementation is proposed in Fig. 17.

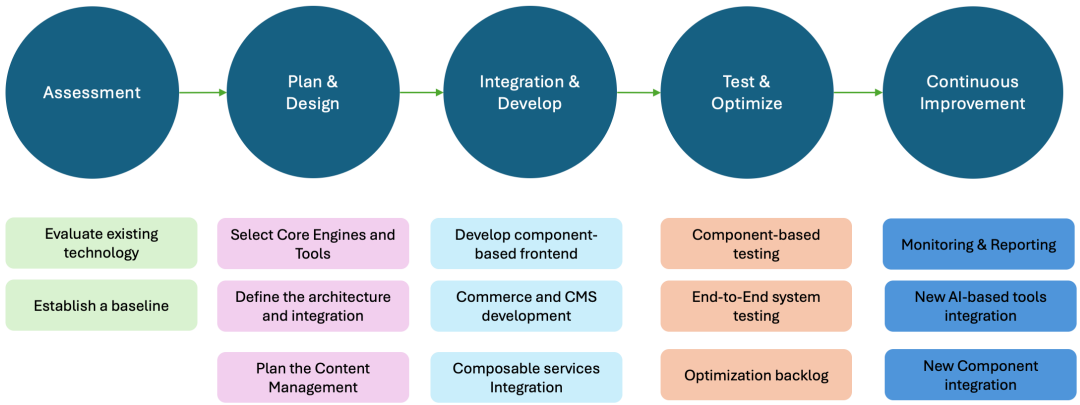

Figure 17. Technology Integration Strategy Roadmap

The first step is “Assessment”, this step is key in understanding of the existing state of the company on their digital transformation journey. It includes establishing the baseline of digital maturity and planning for the key goals of the digital transformation. During the assessment phase the company has to assess existing solution using SWOT framework, to identify strength available right now to grow on, as well as, to find solution for its weaknesses and implementation of opportunities available.

The second step, consist of key planning activities, including to future software selection, as well as the architecture of new e-commerce system. The design of the new system can only be based on the assessment of existing state, as well as gaps identification.

The next steps “Integration and Development” and “Test & Optimize” are based on the results of first two steps. The aim of those steps to effectively implement the best practices and suggestions.

Last, but not least, “Continuous Improvement” step aim to have frequent analysis of the received solution based on the transformation, and implement or integrate new services, best practices to improve the overall setup for customers or support team.

3.3. Technical Approaches of Technology Integration Strategy

Emphasis on Composable Architecture

The adoption of composable commerce architecture, see Fig.18 for a visualization, by all three companies underscores its critical role in driving digital transformation across diverse industries. Composable architecture provides a modular, flexible framework that enables enterprises to integrate best-of-breed tools and systems while avoiding the limitations of vendor lock-in. This approach allows businesses to rapidly adapt to evolving technology trends, scale their operations efficiently, and address specific needs without overhauling their entire technology stack.

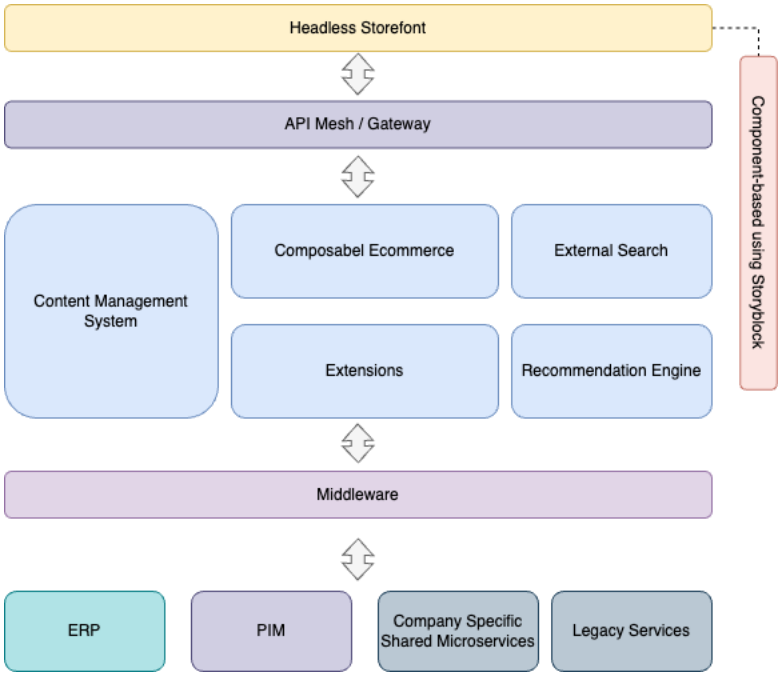

Figure 18. Reference Architecture for Technology Integration Strategy in e-commerce

Source: Architecture suggested by the author

Tailored Integration for Specific Needs

One of the key lessons derived from the case studies is the importance of tailoring technology integration strategies to meet the specific needs and operational contexts of each organization. This approach ensures that the chosen tools and systems align not only with the company's current requirements but also with its long-term growth objectives. The case studies of "Company 1," "Company 2," and "Company 3" vividly illustrate how tailored integration strategies can drive efficiency, scalability, and operational effectiveness in different business scenarios.

Component-Based Frontend Development

Component-based frontend development was a cornerstone of the digital transformation strategies of all three companies, with tools like React.js and Storybook enabling the creation of modular, reusable design elements. These tools streamlined content management processes, reduced development time, and ensured consistent user experiences across multiple brands and regions.

Storybook’s adoption across these companies illustrates its vital role in component-based frontend development. By ensuring design consistency, improving development workflows, and supporting collaboration, Storybook enabled these companies to maintain agility while delivering high-quality, cohesive user experiences. This approach was key to achieving scalability and adaptability in their composable architecture frameworks.

Focus on Content Management Efficiency and Advanced Personalization Tools

Content management efficiency and advanced search functionalities emerged as pivotal elements in the digital transformation strategies of the analyzed companies. These aspects directly addressed the challenges of scaling operations, localizing content, and enhancing user experience in competitive digital environments. The combined insights from "Company 1" and "Company 3" underscore the critical role of adopting robust tools and strategies to optimize these areas.

By combining efficient content management systems with advanced search tools, enterprises can create a seamless digital experience for both internal teams and external customers. These integrated approaches allow for rapid localization, consistent branding, and user-centric interactions, ensuring that companies remain competitive in fast-evolving markets. For businesses with large-scale operations or diverse product lines, prioritizing these capabilities is critical to optimizing operational efficiency, enhancing customer satisfaction, and driving long-term growth in a competitive digital landscape.

The Strategic Role of Enterprise Middleware in Managing Complex Ecosystems

For enterprises managing complex requirements, middleware is more than a technical solution—it is a strategic enabler. It simplifies system integrations, supports innovation, and provides the scalability needed to adapt to evolving market demands. "Company 2" demonstrates how middleware can streamline operations, reduce risks, and support long-term

digital transformation initiatives. Its success highlights the value of middleware as an essential component of any robust, composable architecture strategy.

Cost Management and Team Structure

Effective cost management and streamlined team structures are essential for achieving success in digital transformation projects, especially under budget constraints. "Company 1" exemplified this approach by maintaining a small, focused team of around eight members, including IT, analytics, and content specialists. This lean setup, coupled with clearly defined roles and cross-functional collaboration, enabled the team to implement a complex composable architecture involving tools like Adobe Commerce, SAP ERP, and modular microservices, all within strict financial limitations.

CONCLUSION

The findings from this research highlight the critical role of composable commerce architecture in modernizing e-commerce platforms and addressing key challenges faced by enterprises in diverse industries. Across the case studies, the primary issues revolved around outdated technology stacks, inefficiencies in operational processes, and limited scalability. These issues were compounded by fragmented systems that relied heavily on manual intervention, creating bottlenecks in workflows and customer engagement. For instance, companies with outdated content management systems faced difficulties in localizing and distributing content efficiently, a challenge mitigated by the implementation of component-based design strategies.

Technology Integration Strategy, that was created based on the successful digital transformation of all companies in our case study. This strategy brought a number of technical benefits. A central benefit observed was the enhanced flexibility and scalability offered by composable commerce architecture. By decoupling core components such as the commerce engine, CMS, and microservices, companies could tailor solutions to their specific needs without being locked into a single vendor. This modularity enabled rapid adaptation to changing market demands and technological advancements. For example, the integration of advanced tools like Algolia for search and recommendations, as seen in Company 3, provided a significant boost to the customer experience, demonstrating how targeted technology investments can yield tangible benefits.

Operational efficiency emerged as a common theme across the transformations. In each case, automating workflows and streamlining processes resulted in reduced manual effort and faster time-to-market for new content or product updates. For instance, the use of component-driven content management systems enabled teams to manage content for multiple localized websites with minimal effort, reducing resource constraints while enhancing output quality. These

efficiencies were particularly impactful in scenarios with small IT and content teams, such as in Company 1, where lean team structures delivered outsized results.

Scalability and geographic adaptability were also critical outcomes of the transformations. Whether scaling platforms to support multiple brands across different regions, as in Company 2, or focusing on a single geographic market with future expansion potential, as in Company 3, the flexibility of composable systems proved invaluable. These platforms not only addressed immediate operational needs but also laid a foundation for future growth, allowing companies to expand their digital presence without substantial system overhauls.

Customer-centricity remained at the heart of each transformation, with a clear focus on improving user experiences and engagement. Advanced search capabilities, personalized recommendations, and efficient post-purchase support were enabled through microservices and headless architecture. These enhancements not only addressed existing customer pain points but also positioned the companies to compete effectively in dynamic e-commerce landscapes.

The insights gained from this research demonstrate that digital transformation in e-commerce is not solely about adopting new technologies but about aligning those technologies with strategic business goals. By addressing inefficiencies, enabling flexibility, and focusing on customer needs, enterprises can build resilient e-commerce platforms capable of adapting to an ever-evolving digital landscape. This framework provides a replicable model for other organizations seeking to modernize their e-commerce operations, offering a clear path to operational efficiency, scalability, and competitive advantage.

REFERENCES

Agarwal, S. (2024). Plug and Play: Revolutionizing Marketing with Composable MarTech Architecture. *International Journal of Science and Research, 13*(7), 226-228. http://doi.org/10.21275/SR24703022659

Alokai. (2024). Headless vs. Composable vs. MACH architecture [Image]. Retrieved [November 5, 2024], from https://alokai.com/blog/headless-vs-composable-vs-mach

Aulkemeier, F., Iacob, M. E., & van Hillegersberg, J. (2017). An architectural perspective on service adoption: A platform design and the case of pluggable cross-border trade compliance in e-commerce. *Journal of Organizational Computing and Electronic Commerce*, *27*(4), 325–341. https://doi.org/10.1080/10919392.2017.1363588

Barry, A., Assoul, S., & Souissi, N. (2023). Strengths and Weaknesses of Digital Maturity Models. *Journal of Computer Science*, *19*(6), 727–738. https://doi.org/10.3844/jcssp.2023.727.738

Dimitrov, G. P. (2021). The impact of e-commerce development on business models. *TEM Journal*, *10*(4), 1558–1564. https://doi.org/10.18421/TEM104-09

Einav, L., Knoepfle, D., Levin, J., & Sundaresan, N. (2018). *Assessing the gains from e-commerce* (Working Paper 25610). National Bureau of Economic Research. https://doi.org/10.3386/w25610

Haryanti, T., Rakhmawati, N., & Subriadi, A. (2023). The Extended Digital Maturity Model. *Big Data and Cognitive Computing*, *7*(1), Article 17. https://doi.org/10.3390/bdcc7010017

Hassani, H., Huang, X., & Silva, E. S. (2017). An architectural perspective on service adoption: A platform design and the case of pluggable cross-border trade compliance in e-commerce. *International Journal of Electronic Finance, 11*(1), 24-35. https://doi.org/10.1080/10919392.2017.1363588

Huang, Y., Chai, Y. Liu, Y., & Shen, J. (2019). Architecture of next-generation e-commerce platform, *Tsinghua Science and Technology*, *24*(1), 18-29. https://doi.org/10.26599/TST.2018.9010067

Kuznetsov, A. (2021). Strategic management of enterprises in the digital transformation conditions. *Business Navigator, 6*(67), 81-85. https://doi.org/10.32847/business-navigator.67-14

Lederer, M., & Bruns, J. (2019). Success patterns for the digital transformation of b2b commerce. In M. B. Nunes, P. Isaías, P. Powell, P. Ravesteijn, & G. Ongena (Eds.), *Proceedings of 12th IADIS International Conference Information Systems 2019* (pp. 241-244). IADIS. https://doi.org/10.33965/IS2019_201905C002

Lixandroiu, R., & Maican, C.I. (2015). An Analysis On Choosing A Proper Ecommerce Platform. *Risk in Contemporary Economy, 2*(1), 54-59.

Mistry, J. J. (2019). Cost allocation and information technology. *IEEE Engineering Management Review, 47*(1), 77–85. https://doi.org/10.1109/EMR.2019.2901773

Pallas, L. (2023). *Optimizing Internal Operations: Digital Transformation Strategies in Solar Panel E-Commerce SMEs a Case Study* [Master thesis, Haaga-Helia University of Applied Sciences]. THESEUS. https://www.theseus.fi/bitstream/handle/10024/869880/Pallas_Lucia.pdf?sequence=2&isAllowed=y

Sharma, R., Srivastva, S., & Fatima, S. (2023). E-Commerce and Digital Transformation: Trends, Challenges, and Implications. *International Journal For Multidisciplinary Research, 5*(5), Article 7128. https://doi.org/10.36948/ijfmr.2023.v05i05.7128

Statista. (2023). Global retail e-commerce sales from 2014 to 2022 (in trillion U.S. dollars). Retrieved [November 16, 2024], from https://www.statista.com/statistics/379046/worldwide-retail-e-commerce-sales/

van Tonder, C., Bossink, B., Schachtebeck, C., & Nieuwenhuizen, C. (2024). Key dimensions that measure the digital maturity levels of small and medium-sized enterprises (SMEs). *Journal of Technology Management & Innovation, 19*(1), 110-130. https://doi.org/10.4067/S0718-27242024000100110

APPENDIX A. INTERVIEW QUESTION LIST

Table 1. Interview Question and Answer examples

Dimension	**Question**	**Answers and their scoring**
Customer	*How well does your organization understand customer needs?*	(1) Minimal understanding; customer insights are not actively collected or used. (2) Basic understanding; some insights are collected but not systematically applied. (3) Good understanding; customer insights are regularly collected and inform some decisions. (4) Deep understanding and capturing feedback; insights are actively collected, analyzed, and used to drive decisions across the organization.
Customer	*How personalized is your customer experience?*	(1) No personalization; customers receive a one-size-fits-all experience. (2) Limited personalization; basic customer segmentation is applied. (3) Moderate personalization; tailored experiences are offered based on customer behavior or preferences. (4) Advanced personalization; experiences are dynamically personalized using data-driven techniques.
Customer	*How does your organization gather and act on customer feedback?*	(1) Feedback is rarely collected or used to make changes. (2) Feedback is occasionally collected but only informally addressed. (3) Feedback is systematically collected and used to inform

		some changes. (4) Feedback is consistently collected, analyzed, and used to drive continuous improvement.
Customer	*How integrated are your customer interaction channels (e.g., website, app, social media, customer support)?*	(1) Channels are disconnected and provide inconsistent experiences. (2) Some channels are integrated, but others remain siloed. (3) Most channels are integrated, providing a mostly seamless experience. (4) All channels are fully integrated, offering a unified and consistent customer experience.
Organization Structure (Operations)	*How integrated are operational processes across departments?*	(1) Processes are siloed with little to no collaboration across departments. (2) Some processes are integrated, but most operate independently. (3) Processes are mostly integrated, allowing for collaboration and shared goals. (4) All processes are fully integrated, enabling seamless collaboration and data sharing across departments.
Employee	*How engaged are employees in supporting the organization's digital initiatives?*	(1) Employees are unaware of digital initiatives and show no involvement. (2) Awareness of digital initiatives exists, but almost no engagement. (3) Employees are averagely engaged and contribute to some digital initiatives. (4) Employees are highly engaged,

		actively participating, and contributing innovative ideas to digital initiatives.
Strategy	*How proactive is the organization in identifying and responding to digital trends?*	(1) The organization reacts to trends only when forced by external circumstances. (2) Trends are monitored sporadically, with limited response plans. (3) The organization actively monitors trends and occasionally updates its strategy accordingly. (4) The organization consistently identifies trends, anticipates market changes, and adjusts its strategy proactively.
Technology	*How integrated are the organization's core systems (e.g., ERP, CMS, PIM)?*	(1) Core systems are siloed and do not communicate with each other. (2) Some systems are integrated, but significant gaps remain. (3) Most core systems are integrated, enabling effective data sharing and workflows. (4) All core systems are fully integrated, providing seamless connectivity and efficiency.

Table 2. Interview Question and Answer examples collected from companies' stakeholders

Interview Question	**Answers (example)**
What were the primary challenges that led to the decision for a digital transformation?	"Our outdated systems were inefficient and unstable, particularly in content management and product data handling. It was not possible to grow."

Why did you choose a composable commerce architecture over other options?	"It provided the flexibility to avoid vendor lock-in and allowed us to integrate tools tailored to our needs, like Adobe Commerce for the ecommrece backend, headless frotend to enable easier integration and many others"
How did you approach the integration of the new technology stack with your existing systems?	"We prioritized commerce engine, as it is a key component in our system, and content management setup, that combined Commerce CMS capabilities and flexibility of ReactJS componany library – Storybook. Ensuring each component could operate independently yet cohesively within the system."
What role did your internal teams play in the transformation process?	"Our eight-member IT and content teams, dedicated to ecommerce, focused on managing workflows and coordinating with the technology consultants, who provided expertise in selecting and implementing tools."
How did the homegrown systems impact the transformation process, like PIM in your case?	"It was a practical choice given our budget and team size, but it required careful planning to ensure it could scale with the system as our product catalog expanded."
What measurable outcomes did the digital transformation achieve?	"We reduced content management time by 80% using the component based editing and now support over 40 localized websites with seamless integration of product data and updates. The actual number of saled gronw 10% month over month"

How did you manage the transformation within budget constraints?	"We relied on a lean team and avoided unnecessary off-the-shelf products. The modular approach allowed us to integrate only the tools we needed."
What were the key risks, and how were they mitigated?	"The biggest risk was the initial investment in consulting and integration, which we mitigated by thorough planning and leveraging consultants' expertise."
How did the new system improve customer engagement and experience?	"Targeted promotions and advanced search capabilities helped us directly engage customers, while localized content ensured a better experience across markets."
What future opportunities do you see enabled by this transformation?	"We can expand our B2C operations globally, integrate AI-driven personalization, and explore partnerships with larger retailers for enhanced reach."
What challenges remain post-transformation, and how are you addressing them?	"Scalability of the homegrown PIM system remains a concern. We're exploring enhancements or external tools to support future growth."