RESOURCE ALLOCATION IN ORGANIZATIONS’ DIGITAL TRANSFORMATION PROCESS

A Case Study Comparing Four Enterprises

Bachelor’s Thesis
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**Abstract**

Digitalization has profoundly influenced businesses in recent years, requiring companies to develop new approaches to their business models, which necessitates allocation of resources. While resource allocation is considered fundamental, there has not been enough attention to researching the specific types of different resources that should be allocated, and to what extent.

This thesis focuses on four critical resources, financial, physical, technological, and human resources, and their contribution to undergoing a successful digital transformation. The study seeks to provide a better understanding on how fulfilling organizations’ digitalization goals is dependent on resource allocation.

Through thorough examination of the relationship between resource allocation and digitalization, this thesis provides management accountants with valuable insights that can help them achieve success in their digital transformation endeavours.

**Keywords** resource allocation, digitalization, digital transformation
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1. Introduction

In recent years, digitalization has been one of the biggest forces impacting businesses (BarNir et al., 2003; Parviainen et al., 2017; Schwertner, 2017). It compels companies to develop new approaches to their business models, which requires allocation of resources (Bouwman et al., 2019; Mugge et al., 2020).

Research suggests that with digitalization driving the need for new business models, companies that dedicate time and resources to experimenting and implementing these models can expect to see positive impacts on their financial performance (Bouwman et al., 2019), making it a critical area of focus for management accountants as companies need to create a plan to manage the change brought upon digital transformation, and ensure the whole organization is committed to the goals around it (Matt et al., 2015).

While resource allocation is considered a fundamental element of strategic management, it is surprising that scholars have not given enough attention to researching the specific types of different resources that should be allocated and to what extent (Maritan & Lee, 2017b), including their impact on digital transformation and other related phenomena.

This thesis, however, examines the role of resource allocation in organizations’ digital transformation process. The research focuses on four critical resources: financial, physical, technological, and human resources. The study seeks to provide a better understanding on how the digitalization of organizations is dependent on resource allocation, and what actions are needed for them to transition from their pre-digitalization state to the desired digitalized state. By doing so, this thesis contributes to existing literature on resource allocation and digitalization and provides insights for management accountants to allocate resources effectively to succeed in digital transformation. Thus, the research question of the thesis is framed as follows:

*How do organizations allocate their resources to succeed in digital transformation?*

The study is organized as follows. Section two discusses the theoretical background to the study, exploring the previous literature on resource allocation, digitalization, and digital transformation, examining each as a phenomenon of their own as well as their relationship. Section three presents the results of the case study, describing the research method and material used in the case study and introducing the case companies’ digital transformation
process. It then analyzes the factors leading for both success and failure in digital transformation, to further explain the link between resource allocation and digitalization process. The results finally conclude to presentation of resource allocation framework, as well as discussion the results. Finally, section four ends the study with a conclusion that answers the research question of the thesis, as well as limitations and suggestions for future research.
2. Theoretical background

This section of this thesis provides an overview of key concepts and theories related to resource allocation and digitalization. The concepts serve as a foundation for understanding the case companies analyzed in subsequent chapters.

2.1. Resource allocation

The first duty and responsibility of a manager to a business is “to strive for the best possible economic results from the resources currently employed or available” (Drucker, 1963). Resource allocation is a crucial aspect of managerial responsibilities that aims to maximize economic results from the resources available to the organization. It involves understanding how resources are allocated currently, determining how they should be allocated in the future to take advantage of opportunities, and identify the necessary actions to transition from the current state to the desired state.

Research on resource allocation emerged in the late 1960s as a reaction to finance models. Researchers began studying the resource allocation process to provide a more accurate understanding of investment decision making, which went beyond the abstract models of capital budgeting in finance (Maritan & Lee, 2017b). What this indicates, is that resource allocation is not a simple task, but rather a complex process that occurs in multiple stages within an organization, and it requires extensive understanding and experience from managers to make informed resource allocation decisions.

The allocated resources can be financial, or non-financial (Danneels, 2007). This thesis seeks to examine allocation of the following four resources: financial, physical, technological, and human resources. For instance, financial resources might include allocating funds to different departments, such as marketing. Physical resources might involve allocating space within a warehouse, for instance, or opening or closing new locations. An example of technological resource allocation is investing in or integrating new technology into existing systems. Lastly, human resources might involve recruiting new employees, allocating staff to different departments or projects. The examples of the four resources mentioned are not an exhaustive list of all resource allocation possibilities, and different organizations may prioritize, and allocate resources differently based on their separate needs and goals.
Bower’s (1970) widely recognized model on allocating resources recognizes how complex resource allocation is. His model recognizes that managers at different levels of an organization have varying access to information and play different roles. The model proposes that the resource allocation process is not merely based on predetermined investment decisions, but it also considers cognitive, social, and political factors in deciding how resources should be allocated.

In his later work, Bower adds a set of fundamentally interrelated forces to be involved in the resource allocation process, such as technological, organizational, cultural, and interpersonal forces. Furthermore, allocating resources is a crucial aspect to both economics (Bower, 2017), and to the strategic management of companies (Bower, 2017; Sebastian et al., 2017). The additions done to previous research suggest that the impacts of resource allocation are multifaceted. The research in this area is constantly evolving as scholars seek to gain better understanding of the various factors that influence resource allocation decisions and their outcomes.

Therefore, because of the multitude of forces impacting the allocation process, no single theoretical perspective can fully capture the complexity that is resource allocation (Maritan & Lee, 2017a). That is why management accountants need to adopt a flexible and adaptive approach when making resource allocation decisions. Ultimately, the goal is to maximize the value that an organization creates (Drucker, 1963), which can be achieved through various means, including effective and a holistic approach to resource allocation, which the studies made by Danneels (2007) and Bower (1970) suggest.

### 2.2. Digitalization and digital transformation

One of the biggest trends that affects society and business is digitalization. This involves companies incorporating digital technologies into their operations, and it leads to various changes (Parviainen et al., 2017). Given that resource allocation is a fundamental driver for strategic management (Bower, 2017; Sebastian et al., 2017), it would be essential for companies to consider it when incorporating digitalization into their strategic goals. In the upcoming chapters, digitalization will be examined from a theoretical perspective to facilitate a comprehensive understanding of its relevance to companies’ resource allocation decisions.

The concept of digitalization can be defined to be a process of restructuring various aspects of society, such as industries and businesses, around digital technologies, and media platforms
In other words, digitalization equals a change in the way that people interact with each other using digital tools and platforms.

The digital technologies that businesses use can include for instance cloud computing, the Internet of Things (IoT), social and mobile technologies, big data, and data analysis (Schwertner, 2017).

Organizations can benefit from digitalization in numerous ways, such as significant cost savings and improved turnaround times. Additionally, it helps companies to automatically collect data, which will ease analyze process performance, cost drivers, and causes of risk (Parviainen et al., 2017). Furthermore, research indicates that companies that have undergone a digital transformation are more profitable compared to those that have not yet embraced digital technologies (Mugge et al., 2020; Schwertner, 2017).

The impact of digitalization is widespread. Aside from organizations, economies as whole benefit from digitalization significantly, as Parviainen et al. (2017) note that it leads to economic growth, reduced unemployment, and boosts citizens’ access to public services. What is more, “countries at the most advanced stage of digitalization derive 20 percent more in economic benefits than those at the initial stage” (Parviainen et al., 2017). This goes to support the statement of the significant impact of digitalization.

To provide further explanation of the phenomenon’s significance, digitalization was contained already in the Third Industrial Revolution. But in recent years, the world has witnessed the emergence of the Fourth Industrial Revolution. It extends on the Third at an exponential rate, and its scale has the potential to improve society more than the first three industrial revolutions combined (Xu et al., 2018).

While a few companies have achieved a front-runner status, many organizations are lagging as they have been slow to adopt new technologies even though it has the potential to improve profitability. For instance, it is a worry for Senior Management “that their organizations may not have the knowledge, tools, and even the will, to undergo a change of this magnitude” (Mugge et al., 2020).

However, the study of Mugge et al. (2020) further explains that for executives, it is not a matter of “if” but rather “when” digitalization will disrupt current business models. In a survey of 728 participants from top management of their companies, 67% of respondents answered that the “rapid speed of disruptive innovation” to be a top strategic threat to their
organization. In conclusion, companies are not necessarily fearful of digitalization per se, but rather the tremendous speed at which it is occurring. That makes it even more crucial for companies to have a clear understanding of digitalization and its potential impacts on their business to make informed decisions and adapt their strategies accordingly.

Other challenges include implementing a data-driven culture in a company when digitally transforming a business model. Other researchers add cybersecurity and hacking issues being a concern (Xu et al., 2018). Also, while Parviainen et al. (2017) discussed economic growth brought upon digitalization, Xu et al. (2018) recognized the bigger phenomenon of the Fourth Industrial Revolution to lead to growth of income inequality. This could happen due to the increased use of automation and digital technologies, which may lead to the displacement of low-skilled and low-wage workers, simultaneously making high-skilled and high-paying jobs potentially more crucial, leading to segregation in the job market (Parviainen et al., 2017). Therefore, despite the benefits stated previously, there are significant hurdles to be overcome, and there are no long-term studies available into the actual consequences of digitalization, as it is unfolding at a rapid pace.

In practice there is lack of effort to differentiate the meanings and practical use of terms such as digitization, digitalization, and digital transformation, which leads to their interchangeable use (Mergel et al., 2019). The terms may have slightly different nuances or implications in different contexts, but they are often used as synonyms.

For this reason, it is necessary to define the relevant terminology. This thesis focuses on the changes that companies experience in their resource allocation process as they adopt and incorporate changes brought about by digital transformation specifically. The best way to characterize digital transformation in the context of this thesis is “the creation of, and consequent change in, market offerings, business processes, or models that result from the use of digital technology” (Nambisan et al., 2017).

Consequently, digital transformation results in companies having to reassess how they perceive and utilize data within their business models, and it often represents a significant change in companies’ mindset, systems, and tools (Mugge et al., 2020). To conclude, the areas digital transformation concerns are transforming processes, business models, business domain or company culture.
In their study, Parviainen et al. (2017) distinguish three perspectives on the effects or goals of digital transformation within an organization: internal efficiency, external opportunities, and disruptive change.

Internal efficiency means a better method of carrying out work via digital means, and it can improve efficiency, quality, and consistency of business processes as it eliminates manual steps and provides more accurate results. External opportunities include emerging possibilities within the existing business sphere, for instance new customers, business methods, or the opportunity to provide better and faster client service. Disruptive change happens in the operating environment, and it can be for instance substituting manual processes with electronic ones or establishing entirely new business models.

2.3. Integrating digital transformation in resource allocation

2.3.1. Linking resource allocation to strategic management

Research suggests that resource allocation is fundamental for strategic management (Bower, 2017; Maritan & Lee, 2017b). As organizations increasingly prioritize digitalization as part of their strategic goals, the allocation of financial, physical, technological, and human resources takes on even greater importance. As stated by Sebastian et al. (2017), “A digital strategy is valuable only if it drives resource allocation and capital investments.”. As significant and complex implementing a digital transformation in a company may be, it is not sufficient on its own. Without proper allocation of resources, an organization may not be able to fully realize the potential of transformation. Therefore, careful planning is needed to determine how the organization’s limited resources will be allocated in the process.

The findings of Mugge et al. (2020) also verify the previous statement. According to them, companies who wish to undergo a digital transformation should align their resources with their strategy. They highlight that allocation of scarce resources is necessary for achieving strategic objectives since “the relationship between resources and strategy is a two-way street”.

In other words, the strategic direction a company chooses impacts the allocation of resources, and conversely, the allocation of resources can impact the company’s overall strategy. By understanding this relationship, companies can make more informed decisions about where to
properly allocate their financial, physical, technological, and human resources to achieve their desired strategic outcomes in relation to their digital transformation.

Therefore, undergoing a digital transformation process without prioritizing resource allocation is illogical. Additional sources suggest that the inability to allocate resources sufficiently in a time of technological change can even result in failure of previously successful companies (Christensen & Bower, 1996). While no direct connection is established, the current technological shift towards digitalization could imply similar consequences. However, the hypothesis leaves room for further studies to prove it.

Notably, digitalization has already disrupted the traditional resource allocation process instead as digital technologies can make resource management more efficient. That, for instance, is one of the reasons why cloud technologies are adopted increasingly. In the perspective of big data and data analytics, cloud computing can help companies in achieving greater flexibility as well as innovate faster. This is because data can be accessed and analyzed fast and easily, and therefore companies can use cloud computing to efficiently allocate resources needed to respond to changing business demands (Schwertner, 2017).

2.3.2. Resource allocation factors driving successful digital transformation

Schwertner (2017) found that the first and foremost thing businesses need to consider triumphing in their digital transformation is not the technologies themselves, but the strategy to implement the new technologies. The researcher states:

“Without the necessary strategy, too many companies are focused on technology rather than on the customer. It is necessary that organizational change, technology and data integration are addressed equally to achieve successful digital transformation of business.”

While technology is an essential component to digital transformation and cannot happen without it, the statement suggests that instead of overly focusing on that aspect, companies should adopt a more holistic approach. As discussed earlier, from resource management perspective, this requires considering the financial, physical, and human resources, too.

Another researcher shares similar thoughts, from the perspective of big old companies, a category that the case companies used in this study fit. The study of Sebastian et al. (2017) states:

“To succeed digitally, big old companies need to embrace new organizational structures and processes that empower their people to
collaboratively experiment with technologies and deliver integrated products and services to their customers. Companies that fail to adopt new technologies and fail to heed the need for digital transformation are likely to be left trailing behind in the dust."

What this means in practice is that even big corporations with a long history of success and plenty of resources need to find new ways to adapt to survive in competition. The statement combines the elements of transforming processes, organizational structures, which can mean their business model or domain, and highlighting collaboration within the employees, meaning adjusting the company culture, the four areas of digital transformation recognized previously. Three of the four resource allocation elements, financial, technological, and human resources, are included in the thinking as well.

Even though the current state of literature has formed the link between holistic resource allocation and successful implementation of digital transformation, there is no research that would have focused on the allocation of the four resource elements specifically (Maritan & Lee, 2017b). Examples, such as the study of Sebastian et al. (2017), only recognize the elements, and deeper analysis is needed. What do organizations do to allocate their resources? For this reason, this thesis analyses case companies from each of the four perspectives to recognize how comprehensively the resources are divided to support their digitalization.
3. Case study

3.1. Description of the research method

The research method of this thesis involves a combination of a literature review and a case study approach. The literature review provides a comprehensive analysis and theoretical framework from existing studies of digital transformation and resource allocation decisions of organizations.

To expand the understanding of the success factors of resource allocation in companies’, the case study involves a selection of different companies from different industries. The selection of case companies was also based on the accessibility of information regarding their digital transformation. This grants a more comprehensive understanding of the topic, the relationship between resource allocation and digitalization. In addition to companies who have succeeded in their digital transformation, section 3.2.2. dives into examples of companies who failed.

The material used for the case study consists of information, which has been gathered from web pages, news articles, other studies, and companies’ annual reports. Some of the web sources contain interviews with key personnel from the company who were involved in their digital transformation. All information available is public, which is why the case study utilizes large companies who have more public information available.

The aim of the methods used is to discover whether there are common factors that influence the success or failure in companies’ resource allocation decisions for executing their digital transformation strategies. Therefore, the results gathered from the case study will be thoroughly analyzed and compared to the literature review to draw conclusions on the contributing factors.

3.2. Case companies’ digital transformation process

This section of the thesis will delve into the case companies’ digital transformation process, analyzing the different areas and perspectives of their transformation. Then, the companies’ resource allocation actions are analyzed to provide a resource allocation framework. Finally, the results explore reasons for digital transformation failure.
Some famous cases of companies that succeeded in their digital transformation include Ikea, LEGO Group, Nike, and Netflix. The following sections will introduce what these international organizations’ digital transformation concerned.

Ikea’s digital transformation began in 2014 as a reaction to the decline of previously steady annual growth. As ecommerce saw rapid growth, the group included digitalization objectives in their new business model (Hagberg & Jonsson, 2022). In 2018, the company adopted cloud computing, and the Covid-19 crisis motivated the transition to digital even further as subsidiaries showcased a significant improvement in online sales (Ikea¹).

During the pandemic, Ikea closed approximately 75% of its physical stores and transformed the customers’ traditional shopping experience in-store to online and started using the closed stores as fulfillment centers to support their online business. They also launched a Shop&Go app in selected countries, in which customers can scan products in physical stores to their mobile shopping cart (Ikea²).

Going digital meant transforming the company’s entire business model. According to Barbara Martin Coppola, Chief Digital Officer (CDO) at Ikea, the digital transformation was driven by changing customers and competitive position rather than just technology (Ikea³), which also Schwertner (2017) found to be necessary to succeed in the transformation.

The second case company, LEGO group, nearly went bankrupt in 2003 due to lack of focus on their key competencies (Andersen & Ross, 2016). According to David Gram, a LEGO ventures business partner and entrepreneur, the group had moved too far away from LEGO’s core competencies and customers lost sight of what LEGO was all about. To get back on its feet, the company shifted its focus back to their core product, the infamous LEGO brick, and when innovating, the company would “have to be obviously LEGO but never seen before” (LEGO Group¹). Today, LEGO is one of the 500 most valuable brands in the world (LEGO Group²).

Digitalizing LEGO Group revolved around two factors: digitalizing their key product by incorporating it in digital toys and gaming and riding the digital wave to engage with customers on social media. The company even introduced its own platform, LEGO Ideas, where customers could propose new products from existing components (Andersen & Ross, 2016). It took several years and multiple different stages until LEGO Group became a digital enterprise by 2016 (Margiono, 2021). Like Ikea, LEGO Group changed its business model but the focus of it considered possible external opportunities (Andersen & Ross, 2016).
For the third case company, Nike, digital transformation has been a marathon, not a sprint. The retail company has integrated artificial intelligence, e-commerce, and in-store experiential technology for years, and constantly explores new digital concepts, like metaverse and NFTs as of recently (Nike¹).

The company places a strong emphasis on their customers, and their goal is “that technology will create memorable shopping and leisure experiences that will build strong bonds between customers and the brand” (Nike¹). That is why Nike invested heavily in data science (Nike²), and for instance acquired a leading data analytics company Zodiac as a part of their digital transformation, as analyzing customer data will help them identify which customers to target and how to target them to initiate them to make a new purchase (Nike³). Engaging with customers on their multiple mobile applications (Nike²), the company was successful in generating favorable sales results even during the time Covid-19 pandemic (Nike⁴). The retail industry faced challenges during the peak of the pandemic.

The fourth case company, Netflix started out as DVD rental company, and underwent a lengthy digital transformation of their business model and domain. Already in 2000, the company started their transformation by developing an algorithm for recommending DVDs for their customers based on their previous choices of movies. By gradually integrating new technologies into their business model, Netflix became the leading streaming service it is today (Margiono, 2021).

### 3.2.1. Factors for successful digital transformation

As listed before, the four areas that can undergo a digital transformation within a company are transforming processes, business models, business domain or company culture. Digital transformation can result in a change of internal efficiency, bring upon external opportunities, or cause a disruptive change.

Each of the case companies were analyzed based on available news articles from reputable news outlets, some of which included interviews, web pages, other studies, and annual reports, and a further analysis revealed that each of the companies demonstrated at least one or more of these features. This chapter introduces case by case what contributed to each case company’s success, providing examples and context from real-life scenarios, which helps us understand why a certain characteristic contributed to each company’s success. In the end, the
common factors are gathered in Table 1 to summarize the success factors across the case companies.

In Ikea’s case, the company’s digital transformation regarded most of these areas: processes, business model, and culture. The biggest change happened in Ikea’s business model. The company’s DNA did not change, but the company utilized data and analytics to increase the speed to support a fast implementation of taking their business more on their online domain. To do this, the processes had to be modernized through data: their inventory management, logistics, fulfillment, and supply chain. The third area, company culture, was changed to implement digitalization in all aspects of Ikea, as the company brought in the new CDO Coppola to lead the digital change, and the company hired new employees and reskilled a lot of personnel for the skills that were needed (Ikea²). Therefore, transforming the culture was necessary to implement the new business model.

Ikea had to understand the customers’ needs for it to make sense to move physical business online, as the goal of the digital transformation was to bring new services to the existing customers, not necessarily to attain new customers primarily (Ikea²). To proficiently supply the customers’ needs, Ikea increased their internal efficiency. As stores were closed and more resources were used for ecommerce, it needed to be noted that the online store is open 24/7. There are more hours in a day for customers to fill in their orders, which Ikea responded to by transforming their processes to respond to the increased speed of working.

One could also say that disruptive change took place, as even if the DNA of the company stayed the same, Ikea did reform their business model, as it launched a new way of working within the same industry as before.

Like Ikea, LEGO Group transformed their processes, business model, and company culture. According to Jørgen Vig Knudstorp, the Chief Executive Officer of LEGO Group, the company’s business model is impacted by “what is the next upcoming disruptive gaming or consumer-engaging technology that could really impact our business and business model” (Andersen & Ross, 2016). As a digital company, LEGO Group indicates that is has the capability to react quickly, as digitalization happens at a rapid speed, like Mugge et al. (2020) stated.

The new business model required LEGO Group to update its processes. The group’s digital systems needed to be available and operational around the clock, seven days a week for customers to have omni-channel access, and therefore to manage customer engagement. As
part of the group’s Enterprise Platform, it would contribute to increasing productivity and for products faster time to market (Andersen & Ross, 2016).

Finally, LEGO Group created a culture of constant improvement for all its business areas (LEGO Group¹). Even the CEO emphasized that the “collaborative culture made it possible to execute an overall strategy” and even if it took a lot of time and effort, it was worth it as it enabled the digitalization to take effect in the company (Andersen & Ross, 2016).

LEGO Group’s digital transformation can be categorized as disruptive change due to them establishing a completely new business model, and it benefits from external opportunities. New possibilities emerged from the gaming world, that being the external opportunity, that the company utilized within the already existing business, the LEGO bricks. On one hand, LEGO Group also had to increase their internal efficiency to support their transformation, as according to Andersen & Ross (2016) it was necessary for the group to update their processes. It could be viewed as if increasing internal efficiency was necessary for the company to utilize external opportunities and undergo a disruptive change.

Nike’s digital transformation regarded their processes and business domain. Based on the material attained from public sources, it was not possible to make conclusions whether business model or company culture were in key position in the transformation, as there were no mentions indicating towards direction of the two areas.

Digitalization introduced a new business domain to Nike, the metaverse called Nikeland. It was launched in November 2021, and within a time of approximately, it attracted 7 million visitors. In the digital platform, users can buy and showcase their collection (Nike¹), bringing more revenue from digital ventures for the company.

What comes to processes, for example their marketing activities have changed since the company is implementing more data analytics to generate repurchasing customers. Additionally, Nike digitalized its supply chain that leverages advanced analytics, automation, and technology as response to supply chain issues to deliver to customers faster than before (Nike²).

The company’s digital transformation can be viewed from the perspectives of internal efficiency and external opportunities. The company is digitalizing bits of its business at a time to add to its core business, which is why it would not be disruptive change in its current state. The company increased the efficiency of its supply chain with digital means (Nike³) and Nike
collaborates with strategic distribution partners to create a blend of physical and digital elements that work together to improve the overall customer experience (Standaert, 2022). With heightened consumer engagement it attracted new customers globally resulting in repeat engagement and buying from both digital and physical retail (Nike⁴), therefore having benefited from external opportunities.

The digital transformation of Netflix was holistic, and it reached all transforming processes, business model, domain, and the company culture. It was in 2007 when the company launched their video streaming service (Netflix¹), which marked the change of their business domain from DVD rental to streaming service.

The company was already implementing a subscription-based business model in their DVD rental service (Netflix²) but as they adopted the new business domain, they also adopted a hybrid business model that combines two different approaches to value creation: exploitation, which means creating value from existing resources, and exploration, which involves creating new value through innovation. In Netflix’s case, the company first exploited the existing market by offering DVD rental services, which was a popular business model at the time. But as the market and consumers’ preferences started to change, Netflix introduced the streaming services domestically, and later internationally, and therefore the company entered a new market and created value through innovation (Margiono, 2021).

Operating a streaming business required renewing processes. The company had to improve their storage processes, which they did by using cloud computing technology, and they developed the recommendation algorithm further by, for instance, exploiting data from their previous system (Netflix³). This comes to show the benefits of the gradual transformation and constant deployment of new available technologies.

What is more, the culture the company adapted played into the successful implementation of the digital transformation. Netflix is said to have “reinvented HR” and driven a culture that encourages high performance and results oriented mindset. The company made significant changes in their human resources to implement that kind of company culture (Netflix⁴).

Digitalizing Netflix was first and foremost about disruptive change. They did improve internal efficiency with enhanced processes and human resource allocation, as well as included emerging possibilities within the existing business sphere ergo external opportunities. However, it was all about the bigger picture, changing the entire way of operating to launch the streaming service business.
In conclusion, each of the case companies underwent digital transformation in different areas: Ikea and LEGO Group both in processes, business model, and culture, Nike knowingly in processes and business domain, and Netflix in all four areas. Each company’s transformation was unique, they all had payoffs from increased internal efficiency, on top of which LEGO Group, Nike, and Netflix reached to benefit from external opportunities, and Ikea, LEGO Group, and Netflix had varying degrees of goals or outcomes in terms of disruptive change. The implementation of the specific digital transformation initiatives in these key areas enabled them to adapt the digital change, which according to the research of Sebastian et al. (2017) is necessary to remain ahead of competition.

The common success factors that were repeatedly identified in the case companies can be summarized as follows in Table 1 below. Overall, the common success factors highlight the importance of embracing new technologies while benefiting from already existing strengths in organizations, fostering a collaborative culture, having the right people to lead and execute the transformation, and maintaining a customer-centric focus throughout. By incorporating these factors in their digital strategies, companies can increase their internal efficiency, drive innovation, and achieve success in the digital age.

Table 1. Success factors contributing to case companies’ digital transformation.

<table>
<thead>
<tr>
<th>Transforming processes</th>
<th>Adopting new technology</th>
<th>Collaborative culture and continuous improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased efficiency in case companies.</td>
<td>E.g., cloud technology, artificial intelligence, e-commerce, and metaverse.</td>
<td>Increases productivity and fosters innovation.</td>
</tr>
<tr>
<td>Flexible organizational structure</td>
<td>Repurposing what exists</td>
<td>Customer-centric approach</td>
</tr>
<tr>
<td>Hiring, reskilling, or letting go of employees for digitalizing purposes.</td>
<td>E.g., transforming stores to fulfillment centers, physical LEGO bricks to games, and DVD algorithms to streaming recommendations.</td>
<td></td>
</tr>
</tbody>
</table>

3.2.2. Factors for digital transformation failure

As noted earlier in this study, the failure to adapt to digitalization and allocate resources adequately can result in companies being left behind or even becoming obsolete despite previous success, as discussed in Christensen & Bower’s (1996) research on the subject. Even
the case companies of this study, LEGO, and Nike, have had unsuccessful digitalization projects (General Electric\(^1\)). To further understand the topic, this study investigates examples of companies that failed in their digital transformation and compares the application of the theory and previous results to them.

One cautionary example is Revlon, who tried to improve their internal efficiency by reforming their processes by implementing a new enterprise resource planning (ERP) system in 2018 after acquiring another company, a process which resulted in late filing of the company’s annual report, crash of their stock price, and drop of sales in the quarter (Revlon\(^1\)). After the merger, the company allocated financial and human resources to support the transition phase but failed in allocating sufficient technological resources with the failed ERP implementation and underestimated the allocation of human resources. The company lacked expertise as not enough staff was trained, and to correct their mistakes the company had to seek for assistance from external consultants and implement new processes and control (Qumer & Purkayastha, 2021).

General Electric, also known as GE, tried to digitally transform their product and service offerings since 2011 but their investors did not acknowledge the transformation, leading to replacing GE’s CEO with someone who was mainly focused on cutting costs (General Electric\(^1\)). The company tried to increase their internal efficiency by changing their business model and processes and invested heavily in new technology and building data centers (General Electric\(^2\), General Electric\(^3\)). Where GE failed was that they overallocated physical and technological resources, and therefore the financial resources invested in them, when instead the company should have allocated more in human resources, as individual business units made separate decisions on which technologies to implement (General Electric\(^3\)). GE failed to transform the company culture to support the digital transformation, which would have been needed, and did not focus on their customers’ needs (General Electric\(^3\)). The company ended up allocating their resources wrong – and still lost to their competitors, who had more financial resources to invest in similar technologies (General Electric\(^3\)).

The examples of failing companies appear to highlight the previous findings of the requirement for holistic approach to allocating resources. One of the resource categories, however, becomes highlighted: underestimating the necessity of allocating sufficient human resources. For Revlon, the technological failure could have possibly been avoidable had there been more resources allocated to human expertise, and GE could have benefited from a
stronger focus on building a digital culture within the company to support the transition, which based on previous results appears to require allocation of sufficient human resources. Overall, the failure to allocate resources effectively can greatly hinder a company’s digital transformation efforts and leave them vulnerable to competition. Particularly, these examples of unsuccessful digital transformation attempts of the companies point to the area of human expertise, emphasizing its significance even more than the resource allocation framework presented in the next chapter will imply, leaving room for further studies in the future.

3.3. Development of a resource allocation framework for digital transformation

The successful digital transformation of the case companies required a well-planned allocation of resources that matched their digitalization goals and enabled them to keep up with the constantly evolving digital landscape. This section of the results will explain the findings of how each of the case companies allocated their financial, physical, technological, and human resources. Some of the companies utilized a holistic allocation of all four types of resources, while some of the companies allocated less resources to support their digital transformation.

3.3.1. Resource allocation in case companies

Ikea allocated all four types of resources to support their digital transformation. It had the right people, as they hired new employees and reskilled employees to match the know-how to the changed job descriptions brought upon digitalization (Ikea²). Investments were made to add technological resources, such as data and cloud (Ikea¹, Ikea²). Physical resources needed to be allocated into different use, and the company utilized the closed stores as fulfillment centers to support ecommerce activities, for which they made changes to the floorplans of the closed stores (Ikea²).

The company also allocated financial resources by discontinuing outdated printed catalogues and investing over $200 million to acquire companies to support their digitalization strategy (Ikea¹). However, the total amount of financial resources used to the digital transformation throughout the years remains unclear from public materials, as it is not possible to derive what exact proportion of the organizations investments in their annual reports were related to the digitalization goals.
Analysis of LEGO Group indicates that they needed to allocate three types of resources: financial, technological, and human resources. There were no cues of allocating physical resources.

The leadership team at LEGO Group had to consider renewed workforce requirements as new skills were required when the company became digital. It was recognized that it would be a challenge for many of the employees, and therefore variety of incentives and digital “boot camps”, for instance, were launched to reskill employees and foster data-driven decision making (Andersen & Ross, 2016). It appears that allocating human resources is linked to the company culture allowing the digital transformation of the company, as their goal was to foster a collaborative culture to incite the employees’ data driven decision making.

The group used their financial resources to establish five business areas to support business process integration, and later reorganized them to just three areas: operations, marketing, and business enabling (Andersen & Ross, 2016). Each of these areas supported the digitalization of the group but the exact number of financial resources allocated to each area remains unclear.

Andersen & Ross’ (2016) case study also notes that digital transformation was brought upon new technology requirements, and the company had to constantly recognize and adapt to new technologies to not fall behind the constant digital development. For instance, digital toys the company adapted could become outdated unlike the core product, the LEGO bricks. It appears that allocating technological resources was dependent on allocating human resources, as the company’s leaders particularly focused on the developing skills and mindsets required on the workforce, as they would be the ones to recognize or work on adapting the new technologies.

Analysis of Nike’s public materials, the company’s digital transformation focused on allocation of financial and technological resources. The role of physical resources does not seem apparent, and the role of human resources within the company is not clear, as the magazine interviews and other materials highlight the customer-centric approach.

Key to Nike’s digital transformation is investing. They allocated their financial resources to acquisitions, by acquiring Zodiac, the leading data analytics company (Nike3) and RTFKT, a leading brand that merges culture and gaming (Nike6). What is more, as digital demand is growing, Nike’s annual report from 2022 states the company to have continued investments in digital marketing (Nike7). By incorporating data science elements, new apps (Nike2), and in-
store technological experiences (Nike\textsuperscript{1}), the company widened their portfolio of technological resources.

When it comes to Netflix, the company focused on allocating financial, technological, and human resources in their digital transformation. According to their 2012 annual report, Netflix had fewer financial resources than their competitors in the beginning of their transformation. The company must spend significantly on their streaming content annually to maintain customer interest (Netflix\textsuperscript{3}) and the annual report highlights investing in new technologies and marketing to expand especially on a global scale. This, of course, is very expensive, and therefore resources allocated to maintaining the DVD services were very limited during the transformation. In fact, the company used the capital provided from any profit made from the DVD business to fund losses that arose from chasing international growth.

As stated before, the digitalizing company’s technological resources were allocated towards cloud technologies and algorithm development. A considerable change was made in human resources. The culture of the company changed along the digitalization process, and the people changed too. The company focused on having the right people for the right jobs, and discharged people by offering severance packages if their job description on skillsets were no longer actual. Netflix needed people who were very experienced in the technology they adapted, like cloud, and acquired employees from their competitors like Amazon, who could reliably access the huge amount of data stored in the cloud (Netflix\textsuperscript{4}). Consequently, by acquiring employees from their competitors, Netflix would gain expertise from their newly hired human resources.

As previously explained, each of the case companies allocated their financial, physical, technological, and human resources to achieve their digital transformation goals. The theoretical background of this study suggested that a digital strategy is beneficial only if it leads to the allocation of resources and investments in digital capabilities and technologies (Sebastian et al., 2017). In other words, without allocating resources and making the necessary investments to support the digital transformation, the organizations may not be able to achieve their goals or fully derive the benefits of their strategy. The results of the case companies showcase that while not all companies used all their resources in their digital transformation, we can consider it a holistic approach to resource allocation since most of the components were met in each company, contributing to their successful fulfillment of their digital strategy.
As demonstrated in Table 2 below, the results indicate that a common factor for each of the case companies is that they all had to transform their processes to undergo a successful implementation of their digital transformation. This would lead to increased internal efficiency in the case companies, and the perspective of transformation was accompanied by at least either external opportunities or a completely disruptive change. Therefore, the results imply that there is a link between allocating resources into a company’s processes if it wants to improve their internal efficiency.

In every case, the companies had to allocate both financial and technological resources in each case. The role of human resources is significant, whereas allocation of physical resources appears circumstantial, like for Ikea, whereas other case companies did not indicate necessity of allocating physical resources in their digital transformation.

Table 2. The results of case companies categorized.

<table>
<thead>
<tr>
<th>Areas of digital transformation</th>
<th>Ikea</th>
<th>LEGO Group</th>
<th>Netflix</th>
<th>Nike</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processes</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Business model</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>unknown</td>
</tr>
<tr>
<td>Business domain</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Company culture</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>unknown</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perspective of digital transformation</th>
<th>Ikea</th>
<th>LEGO Group</th>
<th>Netflix</th>
<th>Nike</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal efficiency</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>External opportunities</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Disruptive change</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resource allocation</th>
<th>Ikea</th>
<th>LEGO Group</th>
<th>Netflix</th>
<th>Nike</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial resources</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Physical resources</td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Technological resources</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Human resources</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>unknown</td>
</tr>
</tbody>
</table>

However, what the study does not reflect is how much resources were allocated relatively as the results focus on exploring the scope of different resources used. The amounts of each resource used is not plausible to derive from the public sources used in a way that the results would be comparable, and it leaves room for future research.

Additionally, the analysis of the case companies indicates that some of the resources allocated associated with each other, For example, for LEGO Group it appears that allocating technological resources was dependent on allocating human resources. The study of Andersen
& Ross (2016) suggested that handling new technology required resources to reskill employees. Similar measures were taken by Netflix who hired employees from competitors to acquire expertise to operate and control the new technologies implemented in the company. Even Ikea’s case demonstrates that automating or digitizing a company does not necessarily lead to a decrease in demand for human labor. On the contrary, digitalization brought upon new job opportunities, as indicated by the interviews of the sources, and the company required more human resources than before.

The analysis leaves room for an assumption that allocation of human resources would be vital for allocation of technological resources, and if the assumption would hold true, Nike could have taken similar actions as well as they constantly allocate resources in embracing new technologies, yet the sources do not confirm any allocation of human resources. However, the assumption is currently speculative and requires further investigation.

3.3.2. Discussion of the results

It is worth noting that while the focal point of this study is the resource allocation decisions impacting the success of companies’ digital transformation, there are additional factors that companies should consider including in their digital strategy, like the macroeconomic situation or desirability of their product. Likewise, a customer-centric approach is something that was combined in all the successful case companies on top of their holistic resource allocation approach. Ikea changed its business model from physical to digital to respond to the changing needs of their customers. LEGO Group’s business model would change based on what is an upcoming disruptive consumer-engaging technology. Nike invested heavily in data science to learn more about their customers preferences and build bonds between them and the brand. Netflix changed their business domain from DVDs to streaming services due to the change in customer preference and nowadays spends significant financial resources to maintain customer interest at their digitalized platform.

On the contrary, the unsuccessful companies lacked “customer first thinking”: Revlon was unsuccessful in their digital transformation efforts, which were focused on improving internal processes and efficiency, not something that was built on customer needs, and General Electric updated their product and service offerings but failed to include features that were in customers’ demand (General Electric²). Therefore, customer-centricity is an incidental discovery of this study and provides a relevant mention for future consideration.
Another aspect worth considering is that existing literature argues that firm size indicates the availability of resources for a company, and small and medium-sized enterprises (SMEs) have fewer resources available, and they are left behind progress compared to large firms regarding digitalization, impacting their performance negatively (Bouwman et al., 2019; Eller et al., 2020).

The insufficient resources stem from the SMEs’ limited size and access to capital, technology, and skilled labor. Moreover, SMEs can encounter higher levels of uncertainty and risk than larger companies, making it challenging for them to invest in new technologies or digital strategies (Eller et al., 2020). In comparison, Nike, for instance can afford to try out new technologies, and even sometimes fail in them, but one failed attempt could be detrimental to an SME’s finances.

For instance, Ikea was able to gather financing worth $200 million to support their digitalization strategy just by discontinuing an outdated service and reallocating the financial resources towards their goals. Financing of such scale would not be likely to be attained for an SME, especially in a timely manner. Referring to the study of Mugge et al. (2020), the speed of digital change is rapid, and SMEs may struggle with this due to their smaller scale and limited resources, which can make it difficult for them to achieve the full benefits of digitalization.

While SMEs may not have the resources larger companies have, they can still learn from the larger corporations and their success. They can, for instance, put more emphasis on human resources, as their relevance on managing digitalization appears high based on the results, and even bigger companies with more resources, like Revlon, may fail their digital transformation attempts due to underestimating the need of allocating sufficient human resources.
4. Conclusion, limitations, and future research

In conclusion, the success of companies’ digital transformation efforts hinges on their ability to allocate resources effectively and embrace the ever-evolving technological landscape. It is evident that a comprehensive approach to digital transformation requires more than just investing in technology. The main implication for managers is that companies also need to necessitate a cultural shift within their organization and upskilling of employees to enable the use of new technologies.

Therefore, to answer my research question, companies allocate their resources in a holistic manner to succeed in their digital transformation, with emphasis on financial, technological, and human resources. The failure of an effective and holistic approach to resource allocation can lead to being left behind competition, with examples supporting this finding from previous research.

The limitation of this study is that it provides only a small sample size of case companies with access to public information sources only, which may not present every detail of actions taken in the resource allocation. This implies that the results may not be representative of all companies or industries. While it sets direction, I suggest future research to select a bigger sample size of case companies to study the contribution of each of the four types of resources serve to explore the topic further. To add to this study, it would be worthwhile to investigate the impact of customer-centricity further, or the absence of it, on the success of digital transformation efforts.

This study supports previous findings from literature, shedding light on several important factors that contribute to successful digital transformation, while also introducing new perspectives that warrant further explanation. Future studies could add on to my research by investigating what impact resource allocation decisions had on the companies’ revenue and profitability, especially focusing on the role of human resources, which this study suggests could play a crucial role for failing in a digital strategy, if not utilized sufficiently.

Additionally, it would be valuable to compare how resource allocation efforts differ in large companies and small and medium-sized enterprises. A comparison of the two could reveal whether SMEs face unique challenges or opportunities in allocating resources for digital transformation, or whether larger companies are equipped better to leverage their resources for more significant outcomes.
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