MBAI5410G Group Final Report

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Executive Summary

This case study depicts the journey of Murano Glass, a company striving to maintain its leadership position in the market while innovating. In 2014, an innovation manager had been appointed, and a digital initiative was launched, with a focus on exploring the ecosystem, generating ideas, developing strategic profiles, and validating them to create new products. However, implementation proved to be a challenge, particularly in the core glass cartridge production processes. As a result, Murano Glass explored an alternative route to digital opportunities through a startup company while maintaining its existing production and product lines.

Giuseppe, CIO of Murano Glass, remained dedicated to the pursuit of digital transformation and aimed to improve plant efficiency, people performance, and processes using digital technologies. One area he focused on was remote assistance with augmented reality, which helped bridge the gap between the Italian headquarters and plants. Giuseppe pursued a Canadian-based company that developed an app for remote assistance, enabling staff to provide technical support through a live call, thereby enhancing real-time interaction.

The remote assistance app had not been limited to its initial purpose; it was also used in marketing and events, demonstrating the potential of the app beyond its original scope. Murano Glass also leveraged digital technologies to enhance quality control, safety, and security. The case study highlights the challenges of implementing digital transformation in a traditional manufacturing company while showcasing the potential benefits of digital technologies.

This case will effectively take a deep dive into the road to digital transformation, the benefits and challenges, and the theories and frameworks that highlight the flow of how knowledge was transferred within the company.

Section 1: Introduction

In 1949, Giovanni Murano started Murano Glass, a glass manufacturing company specializing in glass bottles, in Italy (Vaia & Oshri, 2022). Murano Glass grew significantly and in 2005, became a multinational company, including plants in Mexico, Brazil, China and Japan (Vaia & Oshri, 2022). Murano Glass's CIO, Giuseppe, acknowledged the coordination and communication challenges given rapid growth and expansion (Vaia & Oshri, 2022). As discussed by Vaia & Oshri (2022, Giuseppe decided to embark on several digital transformation projects, including:

Creating New Services and Products: Murano Glass's CEO was a big proponent of staying innovative to keep the company at the top of its game. An innovation manager was hired to drive forward new services and products.

Remote Assistance: Murano Glass faced challenges in transferring knowledge and skills from the headquarters in Italy, to the different plants around the world. Giuseppe wanted a solution that would enable knowledge transfer without Italian employees having to travel to the different plants. The biggest challenge experienced was in remote assistance for machinery malfunction. Instructions were difficult to give over the phone and were often unclear and inefficient. Technicians often had to travel to different plants around the world to resolve issues.

SYN and HERE apps: Due to the rapid multinational growth faced by Murano Glass, there were several challenges in internal communications and a lack of awareness about the different plant layouts and assets. This project was launched to create apps which displayed plant layouts, including what assets and machinery were available at each plant and allow for real-time communication between employees.

Section 2: Response to three questions

This section seeks to answer three questions considering the case of Murano Glass:

1. Referring to the case, what, if applicable, were the benefits and disadvantages of conducting digital transformation in this way?
2. Looking back at how digital transformation was conducted at Murano Glass, what advice would you offer? Identify a list of recommendations and provide a justification.

3. Which theoretical frameworks and lenses could be applicable in this case to explain how knowledge was transferred at the company and what challenges they faced?

Question 1

Creating New Services and Products

There were a couple benefits in how Murano Glass rolled out the Creating New Services and Products initiative. First, Murano Glass's CEO hired an innovation manager to fill gaps in how Murano Glass approached digital transformation. The new innovation manager brought in extensive experience driving innovation in the pharmaceutical and medical industries. Second, many areas of the business were involved in the project and employees were able to present ideas on new products, generating several novel ideas. An event was held for teams to present their projects to the company, which helped build employee enthusiasm and excitement. Involving employees in the inclusive ideation of innovation could help embed innovation into the company's culture (Jackson, 2023).

There were a number of disadvantages in how Murano Glass approached digital transformation. There was a lack in budget and management support, which was a blocker for the project being a success. It appeared that the project used a waterfall approach, making it difficult to iterate and adapt as the environment changed (Jackson, 2023). This is seen in many aspects of the project. For example, feedback from senior leaders and the board was collected far too late in the project for the feedback to be implemented. It was also determined far too late in the project that it would be too challenging to change existing operations in the short and medium term. The implementation would have been too disruptive to the core business processes and practices. As discussed by Vaia & Oshri (2022), some of these challenges are include:

- Modifying the glass product and production process at the same time.
- It would take 2-3 years to implement changes.
- Changes on products would require strict controls and approval from regulatory bodies which could take months or years and be costly.
- The board was worried that unforeseen problems could arise that would impact the reputation and traditions of the business.

Remote Assistance

There were a couple benefits in how Murano Glass rolled out the Remote Assistance project. First, they interviewed employees from different plants to get their perspectives on current challenges and potential solutions. Additionally, they rolled the app out in Brazil and Mexico before rolling out the solution across the entire business. Gathering end user input early and piloting rollouts on a smaller scale are good agile methods that can enable feedback to be implemented prior to a full rollout (Jackson, 2023).

The app was only ever used at its lowest potential, however it doesn't appear that Murano Glass explored why this was. While user input was gathered in the beginning, it doesn't appear feedback was gathered during development of the app. This indicates a waterfall method was used rather than an agile method where feedback would be constantly gathered and implemented into the project (Jackson, 2023). By the time the app was rolled out everywhere, it was underutilized. Some of the challenges faced were that the app required changes to the assistance model (engagement and utilisation wasn't standardized across the business). Additionally, employees were resistant to the app as they perceived the app as a way to control their work. Finally, knowledge was held within the IT team and consultation with end users and other practitioners was minimal. Given these disadvantages, it appears that Murano Glass took a technological determinism approach, expecting the technology to drive cultural change (Jackson, 2023).

SYN and HERE

For the SYN and HERE apps project, the main benefit was that the rollout of these apps was tied to real challenges the company faced. Unfortunately, the project was stopped by the board. The team did not involve the board in the use of these applications during the ideation or development phases of the project. Murano Glass expected technology to drive cultural change through a technological determinism approach (Jackson, 2023). Additionally, like the other projects, feedback was not gathered throughout the project and key stakeholders were not consulted.

Question 2

In the previous section, we reviewed the methodology by which digital transformation took place at Murano Glass. The section explored some of the positives of that approach, but more

importantly, it highlighted the drawbacks of conducting digital transformation in that way. We saw that Murano Glass used a waterfall approach, which made it challenging for them to iterate and adapt as the environment changed. In this section, we will provide two major recommendations that Murano Glass can utilize if they were to undergo another digital transformation project.

Agile Methodology

We believe that the agile methodology would be a strong option for Murano Glass to consider for their digital transformation journey, as the features of this approach are likely to circumvent the issues they faced in their previous attempt. In a nutshell, the agile approach suggests that all teams should work in a collaborative environment where new releases are tested right away and feedback is provided, which can be incorporated into the next iteration (Alexander). The agile method uses a technique called "sprints", whereby teams regularly participate in short project planning meetings to review a new iteration of a release and provide feedback to improve it further or adjust it according to the project's demands (Alexander).

We will now suggest two frameworks from within the agile methodology that can help Murano Glass foster an environment of collaboration and ensure maximum productivity from all parties involved.

Scrum: This is a framework that can be applied to any project of an iterative nature (Tyagi). The framework consists of three main components: product owner, scrum master, and scrum team (Bouchrika). In the case of Murano Glass, the product owner would be responsible for acting as a bridge between the board and the scrum team to ensure that the project does not encounter any unforeseen problems that could negatively affect the organization's reputation (Bouchrika). The product owner would also ensure that they have a clear understanding of the board's expectations (Bouchrika). The scrum master would take those expectations, goals, and feedback from the stakeholders and turn them into a set of targets for the scrum team to achieve in “sprints” (a period of 2–4 weeks) (Bouchrika). This approach would mitigate the issue of the lack of support from management and potentially allow Murano Glass to introduce new releases in parallel with the existing operations instead of at the very end. The management can review the progress after each sprint and provide feedback throughout the lifecycle of the transformation project as opposed to only at the end (Tyagi).

Lean: There were some issues with the remote assistance application not being utilized to its fullest potential due to the employees' perception of the app as a surveillance measure. Consequently, the resources allocated for developing this application were unnecessarily spent. An approach like Lean, which prioritizes optimized resource allocation, could have detected, and eliminated bottlenecks early in the project, ultimately saving time, money, and resources (Tyagi). Furthermore, the Lean approach places a strong emphasis on respecting employees, which will be vital for Murano Glass in any future transformational projects (Tyagi).

Time and money were significant concerns for the board at Murano Glass, but these can be effectively addressed through the implementation of agile methodology. As the collaboration between teams and management improves, the time required to achieve project milestones decreases, and overall productivity increases (Bouchrika). A study has shown that a project that would take 30 months using the waterfall approach can be completed in 19–24 months using agile methodology (Peitl & Baptista, 2017). A shorter project timeline not only results in lower costs but also makes the board more enthusiastic about the project as it requires less funding.

DevOps Methodology

Murano Glass could potentially adopt DevOps as another methodology. This strategy aims to unify the software development team with the rest of the organization, including administration, sales, operations, etc., with the goal of delivering products faster and more efficiently (Oliveira). According to AWS, a leading provider of tools for DevOps operations, the DevOps framework can give an organization a competitive advantage over their competitors that continue to rely on traditional infrastructure (Oliveira). We believe that DevOps is the right framework for Murano Glass's next iteration in their digital transformation journey, as it can help address the weaknesses in their initial effort.

One of the major challenges in Murano Glass's transformation journey was the lengthy implementation time of up to 3 years for changes to the production machines. However, DevOps features such as continuous integration and continuous delivery allow for a gradual phase-in approach where new software and technologies can be introduced, and old infrastructure phased out incrementally instead of waiting until the end (Makadia).

The remote assistance app developed by Murano Glass did not perform to its full potential due to limited user feedback collected only at the beginning of the project, and the app not being well-received by employees. This issue can be addressed by adopting a DevOps approach. DevOps promotes cross-functional collaboration between the software development team and other teams, utilizing feedback loops to gather input from users of the software (Makadia). This allows for quick changes and updates to be made. As a result, this approach fosters open communication lines between different teams, enabling all team members to feel involved in the transformation process and have their voices heard (Makadia).

Murano Glass employees can enjoy several additional benefits by utilizing the DevOps methodology. One of the advantages is the opportunity to work on smarter and more innovative projects, as the software tools can automate certain tasks that were previously handled manually, freeing up their time (Buchanan). If the teams at Murano Glass fully embrace the DevOps mindset, the organization can reap long-term benefits such as reduced operating and production costs as well as a stable IT infrastructure (Makadia).

In today's constantly evolving business landscape, it is essential for companies to remain relevant and adapt to new technologies and methodologies. Therefore, we recommend that Murano Glass considers utilizing either Agile or DevOps methodologies for their next transformation project. Both Agile and DevOps methodologies provide robust options for Murano Glass to better prepare for potential upcoming transformation projects, avoid repeating past mistakes, and achieve a more successful transformation.

Question 3

In the given case, the company implemented a knowledge transfer program to facilitate the transfer of knowledge from experienced employees to new hires. The program involved a series of augmented reality workshops, coaching sessions, and job shadowing opportunities. However, the company faced several challenges in implementing the program, including resistance from experienced board members and a lack of resources. To understand these challenges and the transfer of knowledge in general, it is helpful to apply various theoretical frameworks and lenses. This section will explore three such frameworks: knowledge management theory, social capital theory, and institutional theory.

Knowledge management theory focuses on the creation, dissemination, and use of knowledge within organizations (Alavi & Leidner, 2001). This theory is relevant to the case because the company implemented a knowledge transfer program with the explicit goal of sharing knowledge among employees. Knowledge management theory emphasizes the importance of creating a culture that values knowledge sharing and collaboration (Nonaka & Takeuchi, 1995). In the context of the company, this could mean creating incentives or recognition programs for employees who participate in the knowledge transfer program, such as the staff member and technicians.

Additionally, knowledge management theory emphasizes the importance of knowledge codification and documentation (Wiig, 1997). The company could have created a knowledge repository or database where experienced employees could share their knowledge and new hires could access it. This approach could help address the challenge of time and resources, as it allows knowledge to be shared and accessed asynchronously, instead of implementing remote assistance instruction with augmented reality, as this requires both sides to be both present and engaged.

Social capital theory emphasizes the importance of social networks and relationships in facilitating the transfer of knowledge (Burt, 2000). This theory is particularly relevant to the case because the knowledge transfer program involves building relationships between experienced employees and new hires. Social capital theory suggests that relationships between individuals can facilitate the flow of knowledge by creating trust and reducing transaction costs (Nahapiet & Ghoshal, 1998). Thus, the company could have focused on building relationships between experienced employees and new hires to facilitate the transfer of knowledge. This could involve team-building activities or networking events that bring employees together. Creating a bond earlier on with the board members or upper-level management could have propelled Murano into the process of digital transformation sooner.

Institutional theory posits that organizations are influenced by the social and cultural norms of their environment (DiMaggio & Powell, 1983). This theory is relevant to the case because the company may have implemented the knowledge transfer program in response to external pressures or expectations. For example, the company may have implemented the

program to meet industry standards or to attract and retain talent. Institutional theory suggests that organizations are constrained by institutional pressures, which can limit their ability to innovate or deviate from established norms (Scott, 2014). Thus, the company had faced challenges in implementing the knowledge transfer program if it conflicted with institutional norms or expectations. This is evident in the hesitation that the board members displayed when first hearing about digital transformation implementation, with time consuming and strict regulation bodies like the FDA. Since the process of digital transformation seemed daunting, the environment around the innovation manager within the organization became conflicted because of the lack of expectation from other management.

Overall, the case study highlights the challenges that companies face in implementing knowledge transfer programs. The program implemented by the company in this case study was designed to facilitate the transfer of knowledge from experienced employees to new hires, with the goal of improving organizational performance and efficiency. However, the company faced several challenges, including resistance from experienced employees, lack of resources, and limited institutional support.

To understand these challenges, three theoretical frameworks were explored. Social learning theory suggests that learning occurs through observation and imitation of others' behavior, and the experienced employees serve as role models for the new hires. However, the resistance of experienced members or the board and the lack of resources prevented the company from fully implementing this approach and fully utilising the application during that time period. Knowledge management theory emphasizes the importance of creating a culture that values knowledge sharing and collaboration, which Murano Glass could have achieved by creating incentives or recognition programs. This may have led to Murano implementing digital transformation techniques sooner.

Section 3: Conclusion

In this report, we conducted a review of the digital transformation journey undertaken by Murano Glass. The company initiated the project by appointing an innovation manager. The purpose of the transformation project was to create new services and products, provide remote

assistance to different plants across the world, and design apps that could display the layouts of the company's plants.

In section two, we analyze the benefits and disadvantages of Murano Glass's approach to digital transformation. While the company excelled in some areas, such as employee collaboration, it faced challenges in other departments, such as support from management and budget allocation.

Next, we examine how Agile methodology and DevOps methodology can help Murano Glass overcome the hurdles they encountered. We highlight specific features of both methodologies that the company can leverage for future transformation projects.

Lastly, we explore theoretical frameworks and lenses to explain the knowledge transfer process at Murano Glass and identify challenges the company faces in transferring knowledge. Some of the theoretical frameworks that we explore are knowledge management theory, social capital theory, and institutional theory, and review their applicability to Murano Glass’s case.

This project signifies the culmination of the theoretical principles learned in this course and their practical application to a real-world case study. As businesses strive to adapt to the digital landscape, it is imperative to learn from organizations like Murano Glass.

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