Case Study 3

Construction and Building Company

Plugge, Albert; Nikou, Shahrokh

DOI
10.1007/978-3-031-51528-6_8

Publication date
2024

Document Version
Final published version

Published in
Digitalisation of Global Business Services: Orchestrating the Enterprise Ecosystem

Citation (APA)
Plugge, A., & Nikou, S. (2024). Case Study 3: Construction and Building Company. In A. Plugge, & S. Nikou (Eds.), *Digitalisation of Global Business Services: Orchestrating the Enterprise Ecosystem* (pp. 165-180). (Technology, Work and Globalization (TWG)). Springer. https://doi.org/10.1007/978-3-031-51528-6_8

8

Case Study 3: Construction and Building Company

8.1 Context of the Case Study

The enterprise is a global operating construction and development organisation, which has been in operation for over 100 years. The construction unit is the enterprise's largest division with over 1.740 employees at the time of writing this chapter (2023). At the construction unit, the primary focus is on the acquisition and execution of integrated projects related to infrastructure, residential, commercial, utility, and industrial sectors. The unit possess specialised knowledge in several ears, such as car park construction, road construction, integrated tunnelling, offshore wind farm development, and foundation solutions. Additional expertise also includes the transformation, renovation, and restoration of buildings through modular construction and concrete solutions. Its purpose is to build a safe and sustainable living environment characterised by health, comfort, and well-being. To achieve this, the company has four overarching ambitions, including operational excellence, employer of choice, value creation, and sustainable development. The company focuses on its employee value proposition, fostering a culture of performance, and operational excellence to remain an employer of choice. They want to have a qualified workforce, stimulate productivity and employability, and

A. Plugge, S. Nikou, *Digitalisation of Global Business Services*, Technology, Work and Globalization, https://doi.org/10.1007/978-3-031-51528-6_8

create a healthy and welcoming work environment. The enterprise emphasises on the importance of quality and control of processes to deliver the best value for clients.

The enterprise is renowned for its expertise in engineering, building, and managing complex projects that range from residential and commercial buildings to infrastructure and energy-related developments. The headquarters is in the Netherlands, and projects are located both within the Netherlands and beyond, including the United States, Canada, and the Middle East. The enterprise's vision is to create a safe and sustainable living environment that prioritises the health, comfort, and well-being of its clients and the community. The company is committed to using sustainable building practices and materials that promote energy efficiency, reduce waste, and limit the impact on the environment. Their dedicated and skilled team of professionals is responsible for ensuring that its projects meet the highest standards of safety, quality, and innovation. They bring a wealth of experience and expertise to each project, providing customised solutions that meet the unique needs and requirements of each client. The sustainable development strategies of the company focus on reducing its negative impact on the environment and promoting biodiversity. It invests in renewable energy and uses sustainable materials. The company also aims to take care of its employees by offering competitive compensation, individual care, and personal growth opportunities.

In addition to its construction and development services, the enterprise also offers a range of specialised services, including engineering, project management, and consultancy. The company prides itself on its ability to provide end-to-end solutions for complex projects, from the initial design phase to the final delivery and maintenance of the completed structure. The company has received numerous awards and recognition for its work, including the Dutch Building Award and the BREEAM Award for sustainable building practices (ESG). They are committed to promote diversity and inclusion in the workplace, as evidenced by its participation and its ongoing efforts to create a safe and inclusive work environment for all employees.

8.2 Financial Shared Service Centre

The unit of analysis of our study is the construction company's FSSC. The FSSC is a centralised unit within a company that provides financial services, such as accounting, payroll, and accounts payable to multiple business units or subsidiaries. The purpose of establishing an FSSC is to streamline and standardise financial processes across the organisation, reduce costs, and improve efficiency and quality of financial services. In general, the FSSC operates by consolidating the financial functions of various business units or subsidiaries into one centralised location. This can involve standardising accounting policies, procedures, and systems across the organisation, as well as automating processes wherever possible. The FSSC is staffed by finance professionals who are responsible for providing financial services to the rest of the organisation and their contractors, such as processing transactions, generating financial reports, and providing financial analysis.

One of the interviewees mentioned that "*The invoices is the main part of our business at the moment. There are about 200,000 invoices that we need to process each year and that goes with the so-called purchase to pay cycle. So, for each invoice, you need to have a purchase order. You need to have a receipt for the goods and services receipt and in between, the company tried with procurement to find a solution how to control all the spendings and obligation that has been entered into the system. So, in that respect, all of those transactions will we try to digitalise that, and it took a while, but we are almost there*" (Source: Manager Administration).

The specific practices and processes used by an FSSC can vary depending on the company and industry. In the case of this construction company, their FSSC may operate in a similar way, providing centralised financial services to different business units or subsidiaries within the company. However, the exact practices and processes used would depend on the specific needs and requirements of the enterprise.

Regarding the implementation of the FSSC, one of the interviewees mentioned that "*The shared service centre is the financial shared service centre, right? So, the impact on the whole company was at the time that people did not believe that we would need a shared service centre. All the*

business units were like independent entities, and they found that there was no need for the shared service centre" (Source: Manager Business Consultancy).

The same interviewee mentioned that after five years since starting the project "*Now we are coming down to standardisation and harmonisation of the different transactions and processes. We are using a central application to process incoming invoices from suppliers. Not outgoing invoices, because that is an autonomous situation for the business because they know more than us what to invoice and if there is a problem, clients can approach them for explanations directly*" (Source: Manager Administration).

In general, some of the benefits of implementing an FSSC may include:

- Standardisation and consistency of financial processes across the organisation.
- Improved efficiency and speed of financial transactions and reporting.
- Reduced costs through economies of scale and automation.
- Improved accuracy and quality of financial data and reporting.
- Enhanced ability to provide financial analysis and insights to the organisation as a whole.

With respect to internal challenges regarding the implementation of the FSSC, one of the interviewees mentioned that "*In that respect also, we have our own existing stuff who always needs an upgrade in our refreshment in what we are doing in the shared service centre. What we have done so far is to organise once in a week, a one-hour question. Employees can call in while experts are ready to answer any questions they have. So, in the beginning there were a lot of people calling in. Now, it is like, one or two people only calling*" (Source: Manager Business Consultancy).

Overall, it was found that the FSSC can be an effective way to streamline and optimise the enterprise's financial processes, reduce costs, and improve overall financial performance.

- **Impact of digitalisation on employees**

Digitalisation refers to the process of using digital technologies to transform business processes and operations. This can involve

automating tasks, adopting, and implementing new digital tools and digital platforms, and leveraging data and analytics to improve decision making. As such, digitalisation can have a significant impact on employees in various ways. For example, digitalisation can introduce changes in job roles and responsibilities through implementation of new digital tools and processes. Employees may need to adapt to new ways of working and learn new skills to perform their jobs effectively. By introducing new digital tools in the enterprise, some job roles may become obsolete, while new roles may emerge, requiring employees to acquire new knowledge and expertise. In addition, digitalisation can increase efficiency and productivity. For instance, digitalisation can help streamline and automate tasks, allowing employees to focus on more high-value tasks that require critical thinking and creativity. This can lead to increased efficiency and productivity and may result in job satisfaction for employees who prefer challenging work.

Digitalisation and introducing new digital technologies can improve collaboration and communication. As an example, digitalisation can enable employees to work more collaboratively and communicate more efficiently across units, locations, and time zones. This can improve employee engagement, promote knowledge-sharing, and enhance the overall work culture. Our research has shown that sharing knowledge has become a crucial component when delivering knowledge-based services such as financial services. This aligns with the findings of Wang and Hou (2015) and Zhang (2018), where the authors argued that knowledge sharing is instrumental in achieving an organisation's business strategy.

Regarding the digitalisation impact, one of the interviewees mentioned that "*So in that sense, digital technologies just have to achieve a goal. And I do not think there is any much more to it than that, it is a tool to align your processes because when working with digital tools, you need to have clear input or uniform inputs. In that sense, it also helps to get your processes organised in a better way. But really a strategic ambition is to be the number one digital company*" (Source: Manager Administration).

In addition, the same interviewee mentioned that "*RPA for example, is really hot at the moment. We get opportunities to start exploring new tools like RPA and AI, and when we have a feeling that it could contribute to our company, we invite our IT steering committee to give a judgment. We further*

explore such tools and then we asked the business to come up with some business cases. In the end, it will be like a business case driven decision, on a case-by-case basis" (Source Manager Administration).

Other impact of digitalisation on the company's workforce can facilitate the balance between work and life. In this regard, digitalisation can allow for more flexible working arrangements, such as remote work, which can improve work-life balance for employees. It can also reduce the need for employees to commute to work, which can lead to reduced stress and improved well-being. One of the interviewees mentioned that "*There are still a lot of hurdles that we need to take. We are working with people. For instance, if somebody leaves the company, and a new person comes in, we must make sure that the onboarding is OK. If the business unit does not have anybody who can do the onboarding, this person will be a swimming around for one or two months not knowing who to approach and what to do*" (Source: Manager Business Consultancy).

In addition to the challenges discussed above, one of the interviewees noted an important problem with the digital technology integration and implementation at the case company. He mentioned that "*If invoices cannot be matched with a purchase order or the receipt of the purchase order, the invoice cannot be processed, which means that the invoice cannot be paid. We are finding ourselves frequently in an old-produced situation where invoices are overdue. Suppliers are complaining about their payments and often saying that we are stopping the delivery*" (Source Manager Business Consultancy).

Finally, the impact of digitalisation on the enterprise's workforces may relate to job security. While digitalisation can improve efficiency and productivity, it can also result in job displacement, particularly for employees whose job roles become obsolete due to automation. The enterprise may need to invest in upskilling and reskilling programmes and workshops to help employees adapt to new roles or acquire new skills and digital competence to remain relevant in the job market.

8.2.1 Plural Sourcing Strategy

The plural sourcing strategy involves engaging multiple suppliers to provide goods or services, rather than relying on a single supplier. The goal

of the plural sourcing strategy of the enterprise under study is to diversify risk, increase competition, and ultimately achieve better value for all stakeholders involved in the processes and all operations. For example, the enterprise contracted multiple suppliers for different materials such as steel, cement, or timber (supply chain management). One of the benefits of plural sourcing includes diversification of risk. By engaging multiple suppliers, the company is able to mitigate the risk of relying on a single supplier for critical materials and services. This can help ensure continuity of supply and reduce the impact of supply chain disruptions. Plural sourcing also can provide additional benefits such as increased competition. By engaging multiple suppliers, the company can create a competitive environment, encouraging suppliers to offer better pricing and quality to win business. It can also provide a better access to specialised expertise. With successful and strategical implementation of plural sourcing, the enterprise can engage with multiple suppliers, which allows them to tap into specialised expertise and knowledge that might not be available from a single supplier.

8.2.2 Business Service Portfolio

It is reported that, based on interviews conducted, the enterprise under investigation has not yet fully automated its financial services portfolio. However, they have strategic plans to incorporate more digital tools in the future. The portfolio includes traditional financial services such as bill payment systems, accounts payable, and payroll, which provide support for tasks such as paying the bills, salary sheets, and bank accounts. According to the interview findings, the financial services offered by the FSSC have largely been automated using portals and digital solutions such as Robotic Process Automation (RPA) and Machine Learning (ML).

8.2.3 Modularised Business Processes

The enterprise has implemented digital technologies to improve their business processes. Some of the potential benefits of digital technologies

include (1) improved efficiency, where digital technologies can help streamline processes and reduce the time and resources required to complete tasks. It can also (2) enhance collaboration, such that with the use of digital tools, different teams and stakeholders can easily share knowledge and information, and collaborate on projects, leading to better outcomes. It can also (3) allow better risk management and help identify and mitigate risks early in the project lifecycle, reducing the likelihood of delays and cost overruns. It is important to note that the specific impact of digital technologies on the enterprise's business processes would depend on the types of tools and solutions they have implemented or plan to do so, as well as how these tools are integrated into their operations.

Regarding implementation of digital tools such as RPA and supporting financial business processes that support various administrative processes, one of the interviewees mentioned that "*For instance, the number of steps that needs to be taken. Currently I am pretty sure that it can be decreased by 50%. So, the process will be shorter. In that respect, it will allow the operations people, to add more control points in what they are doing, or it will increase the customer satisfaction in servicing the customers and not waiting for, let's say, information that still needs to be processed. So, all of that will be made shorter and of course efficiency will go higher. This is at least the expectation*" (Source Manager Administration).

8.2.4 Customer Orientation

The interview analysis revealed that the FSSC aims to align enterprise's objectives and their relationships with customers. It was found that FSSC demands management from the customer perspective. One of the interviewees mentioned that "*Our customer is interested in the service levels based on both quality and quantity. So how we meet these service levels is basically indifferent to them*". The same interviewee continued by indicating that "*And our internal customers, they just want an invoice to be booked on the right course centre on time and paid on time. So, they do not get phone calls or angry suppliers on the construction side. If we do that fully manually or fully automated, it is basically indifferent to them. The only thing is of course there is a cost related to it*" (Source Manager Business Consultancy).

One of our interviewees commented on how intelligent automation affects the demand management of FSSC from a customer perspective or orientation, when we asked for their views. He mentioned that "*Management is confronted to the facts when the complaints come in from suppliers and customers, then it will be reported on board level. Then, management will have to look at it. And this is where we are now. They are looking at it and they see that there is not only a financial issue, but also operational. Satisfaction of people just doing their job, I am pretty sure that is the most important thing that you need*". He continued by stating that *"Because good people are very scarce to find. We need to do anything that can make them happy in their job and that is not only financial, but also taking away all the frustration that is going along with the job and that is where automation comes in. So that would help them a lot as well" (Source Manager Administration).*

8.2.5 IS Standardisation

The enterprise has divided the theme of digitalisation and innovation into three major topics: (1) data, digitalisation, and analytics, (2) automation and robotics, and (3) advanced building methods. The core focus of the enterprise regarding the data, digitalisation and analytics is to upgrade existing technical systems, such as document management and Building Information Modelling (BIM) collaboration tools, and to transform them into a common data environment. The enterprise is also streamlining data flows and visualising data through dashboarding to provide better insight into business operations and increase responsiveness and decision making. They strive to develop the QS2Field application for safety and quality inspections, which is being used to standardise registrations and create a single source of information that will enable them to learn and adjust faster. It can be used on desktops, laptops, tablets, and mobile phones. Additionally, the enterprise is introducing a centralised information platform (*KnowMan*) to make knowledge accessible for all employees. Regarding data, digitalisation and analytics, the enterprise strategy is to upgrade their existing technical systems and move towards a common data environment. This involves moving all

on-premises data sources to the cloud, including next-generation administrative systems and data analytics, to increase data accessibility, security, collaboration, and automation to support business processes.

Addressing automation and robotics, the enterprise strategy is to automate and streamline processes through robotics and advanced building methods. They invest in automation and robotics technologies to improve efficiency and productivity in construction processes. This includes using drones and other automated tools to reduce the amount of manual labour required on construction sites. They also explore advanced building methods, such as modular construction and 3D printing, to further improve efficiency and productivity. Modular construction involves building individual components of a structure offsite and then assembling them onsite. This reduces construction time and labour costs. 3D printing allows for the creation of complex shapes and structures, which can be produced quickly and at a lower cost than traditional construction methods.

Regarding advanced building methods, the focus and objective of the enterprise is to use advanced building methods such as Building Information Modelling (BIM) and digital twin processes to increase efficiency, improve quality, and enhance collaboration throughout the construction process. They piloted 4D and 5D software in 2022 in one its projects. This enabled them to control the time-to-cost dimension and identify how progress monitoring added value to their project reporting. They also use point clouds for as-build comparisons, helping them reduce failure costs, and aim to further develop innovative ideas, such as using visualisation to enhance feasibility and safety. The enterprise plans to improve the quality of metadata in models, bring 3D models on-site through personal smart devices, and use data for progress monitoring. They aim to have a progress and cost dashboard operational for one of their projects in 2023.

8.2.6 Managing Decision Rights

Digitalisation refers to the use of technologies such as AI, ML, and RPA to automate tasks and processes that were previously performed

manually. This can help to improve efficiency, reduce errors, and free up human resources for more complex tasks. In the case of the enterprise under study, digitalisation could have several impacts on the decision rights that correspond to financial services. For example, it can improve project management, such that automated decision rights can help with project planning and scheduling, resource allocation, and risk management. This could support the enterprise to better manage their projects, ensuring that they are delivered on time, within budget, and to the required quality standards.

Digitalisation would have an impact on the decision rights of the FSSC such that it can help to improve and enhance quality control. With the use of AI and ML algorithms, the FSSC could automate decisions to monitor construction materials and equipment, as well as the inspection of construction sites. This could help to identify and resolve issues more quickly, improving quality control and reducing the risk of defects or safety issues. In addition, it can help to increase efficiency in administrative tasks. For example, RPA can be used to automate routine decisions such as invoice processing and contract management tasks. This could help to reduce the workload of administrative staff and free up their time for more strategic tasks. Automating decision rights can help to improve customer experience. By automating processes such as project tracking and communication with clients, the enterprise could provide a more seamless and transparent experience for their customers. This may improve customer satisfaction and loyalty.

However, it should be noted that automated decision making can introduce potential risks and challenges. As such, it is important for the FSSC to ensure that the benefits of automation outweigh any potential drawbacks, and that they have appropriate measures in place to mitigate risks such as data security and job displacement. Overall, digitalisation has the potential to impact the decision rights of services, helping them to improve efficiency, quality, and customer experience. When we asked "how does of digitalisation (intelligent automation) would have an impact on the decision rights of the FSSCs? One of the interviewees mentioned that "*I think the automated decisions of financial processes will lead to improved efficiency; I mean efficiency is the keyword.*" Another mentioned that "*You reach maybe more controls compliance type of topics. It will*

help to face out certain steps, eliminate human steps. So, in that sense, it can definitely improve controls, I am sure" (Source Manager Business Consultancy).

8.3 Analysis

8.3.1 Resource Orchestration Theory

Due to the implementation of digital technologies and tools, the enterprise's senior management focus is to bundle the internal and the external resources effectively. The orchestration of internal and external resources can be investigated under theoretical lens of institutional theory (Figueiredo & Pinto, 2021), or resource orchestration theory (Kumar et al., 2022; Maatman & Bondarouk, 2014). With regard to resource configurations, the enterprise has a diverse range of resources, including skilled personnel, construction equipment, and expertise in various areas such as civil engineering and sustainable building. They also have a strong brand and reputation for delivering high-quality projects. However, they may face challenges in coordinating and integrating these resources effectively. Regarding resource deployment, a decentralised structure is used including various business units and projects operating independently. This may provide flexibility and agility in responding to customer needs, but it may also result in redundancy and inefficiencies in resource deployment. The enterprise may need to develop more standardised processes and procedures to optimise resource deployment across the organisation. They may benefit from improving their resource orchestration capabilities. This could involve better alignment of resources with the organisation's strategic goals, as well as more effective coordination and collaboration across different business units and functions. Adopting digitalisation, as discussed in the previous section, could also help to improve resource orchestration by streamlining processes and freeing up human resources for more value-adding activities.

In addition, the enterprise may improve resource optimisation by leveraging data analytics and technology (Grover et al., 2018; Okanga &

Groenewald, 2019), to better understand resource utilisation and identify opportunities for improvement. This may involve implementing systems for tracking and analysing data on equipment usage, labour productivity, and project costs. The enterprise could also invest in upskilling their workforce to enable them to take on more complex and higher-value tasks. Overall, the case company has a strong set of resources, both internal and external but they may need to work on improving their resource orchestration capabilities to fully leverage these resources and sustain their competitive advantage.

8.3.2 Boundary Resources

Integration platforms, also known as boundary resources, can increase the implementation of financial business services at the FSSC under study by providing a centralised location for information and data to be shared between different systems and stakeholders. This can help to streamline processes, reduce errors, and increase efficiency. Based on our analysis we find that the FSSC uses boundary resources to help facilitate their financial business services by integrating their financial systems with their project management systems. This allows them to better manage their financial resources, including budgeting, forecasting, and reporting, and to track financial performance more easily across multiple projects. By using integration platforms or boundary resources, the enterprise as a whole may increase the implementation success of their financial business services. In addition, they are able to improve collaboration, communication, and data sharing between different systems and stakeholders. The FSSC recognised the importance of digital solutions in supporting their financial business services both for internal employees and for external clients. However, the FSSC should aim to integrate digital platforms that orchestrate different financial systems, including budgeting, forecasting, and reporting. These integrated platforms help to streamline and optimise the financial services, which in turn can improve efficiency, accuracy, and reduce costs.

One key aspect of boundary resources and the digital solutions is their ability to support internal employees in managing financial data and

processes. For example, the enterprise's project managers can access real-time data on project budgets, cash flows, and forecasts, enabling them to make more informed decisions about resource allocation and cost management. By having a centralised and integrated platform, employees across the company can have access to the same information, ensuring consistency and reducing errors. In addition to supporting internal employees, the case company's digital solutions should aim to help support financial services for external client organisations. For instance, they should strive to offer digital solutions that enable clients to monitor project progress, costs, and other financial data in real-time. This not only provides transparency for the client, but it also helps to build trust and increase satisfaction with enterprise's services.

Overall, the use of digital solutions and integrated platforms helps the enterprise to optimise their financial business services and provide more value to their clients. By having a centralised platform, financial business processes can be streamlined and ensure consistency across different systems and stakeholders. Additionally, the use of digital solutions can provide greater transparency and data-driven decision-making capabilities for both internal employees and external clients.

8.4 Conclusion

In this chapter, we studied the enterprise of a construction and building company by focusing on how financial business services are managed and developed by the FSSC. More specifically, we studied the antecedents as described in our research model (see Chap. 4).

We find that the FSSC has not fully digitalised its business processes, although the FSSC explores and invests in digital technologies. Regarding decision making as part of financial business processes we find that the FSSC is in its early days to automate decision rights. Although we found some examples of the antecedent customer orientation the FSSC lacks a strong emphasis to improve their financial business services. When addressing IS standardisation we conclude that the use of digital platforms and applications contributes to the implementation of business services. Consequently, digital technologies can help streamline business

processes and reduce the time and resources required to complete business services tasks. Based on the findings we may conclude that the business services portfolio is partially digitalised although the type of services did not change. We find that the FSSC's and IT department's main goal is to develop orchestration capabilities to effective coordinate internal and external resources. To support their orchestration capability future digital integration platforms will support orchestration tasks more easily. This will reduce lead times of digitalised financial services. In doing so, the FSSC is better able to solve existing challenges throughout its business operations. To summarise, we found evidence that the FSSC partially paid attention to the antecedents as part of our research model. We may conclude that business processes and IS standardisation can be seen as essential antecedents as part of orchestration tasks. In particular, the importance of IS standardisation fits with the findings of the fsQCA analysis where IS standardisation is considered to be an essential condition (four out of seven solutions).

References

Figueiredo, A. S., & Pinto, L. H. (2021). Robotizing shared service centres: Key challenges and outcomes. *Journal of Service Theory and Practice, 31*(1), 157–178.

Grover, V., Chiang, R. H., Liang, T. P., & Zhang, D. (2018). Creating strategic business value from big data analytics: A research framework. *Journal of Management Information Systems, 35*(2), 388–423.

Kumar, M., Pullman, M., Bouzdine-Chameeva, T., & Sanchez Rodrigues, V. (2022). The role of the hub-firm in developing innovation capabilities: Considering the French wine industry cluster from a resource orchestration lens. *International Journal of Operations & Production Management, 42*(4), 526–551.

Maatman, M., & Bondarouk, T. (2014). Value creation by transactional shared service centers: mapping capabilities. In *Shared services as a new organizational form* (Advanced Series in Management) (Vol. 13, pp. 153–174). Emerald Group Publishing Limited.

Okanga, B., & Groenewald, D. (2019). Optimising enterprise resource planning system to leverage a firm's absorptive and adaptive capabilities. *South African Journal of Information Management, 21*(1), 1–15.

Wang, W. T., & Hou, Y. P. (2015). Motivations of employees' knowledge sharing behaviours: A self-determination perspective. *Information and Organization, 25*(1), 1–26.

Zhang, Z. (2018). Organizational culture and knowledge sharing: Design of incentives and business processes. *Business Process Management Journal, 24*(2), 384–399.