



**UNIVERSITY
OF TWENTE.**

Project Report



Implementation of IT in Organizations

Recommendations to implement workspace 2.0 at Kadaster

A Case Study

Presented by (Group11)
Medha Varsha Alur Mahesh, Kes Greuter, Marzieh Adineh,
Tiemen English, Tifani Zata Lini, Nikitha Umamahesh Ritty

Acknowledgement

We would like to thank Rik Krikke for supervising us during this research and providing us with help when necessary. All feedback and information given have been extremely useful to us and have been used to make this research as complete as possible. We would also like to thank Dr. Guido Bruinsma, for an interesting course, and for providing all the materials needed for this project.

1 Management Summary

1.1 Problem definition

Kadaster employees are having trouble operating their tasks using the current workspace due to the need for increased advanced technical requirements to complete the employees' tasks. The cause of this problem relates to an outdated workspace for employees of Kadaster.

1.2 Plan of action

We follow the five phases of IT implementation; Analysis & Design, Development, Training, Testing, and Rollout for IT implementation to implement a platform to facilitate the need for an improved workspace to support employees' tasks using advanced features.

Analysis & Design: We suggest a focus on requirements engineering, prioritizing using MoSCoW and doing a fit/gap analysis.

Development: We suggest the integration of a SaaS platform and development of non-supported requirements. Furthermore, we suggest a plan-driven approach.

Training: We suggest hands-on training and the use of transition champions and knowledge workers.

Testing: We suggest focusing on integration testing.

Roll out: We suggest the all-at-once method, with staff available to resolve issues.

1.3 Comparison with the actual approach

Kadaster has a similar workflow, using the five phases, as we suggested in our plan of action. These phases were not necessarily chronological for Kadaster, often the phases were in parallel. Most phases had quite a similar approach, with only less use of scientific models. The biggest differences were in training as our plan was more elaborate and in roll out as Kadaster chose an incremental approach.

1.4 Conclusion

Workspace 2.0 implemented at Kadaster would have been executed flawlessly if the organization had educated their employees about the importance of system transition and integration. However, the project is still in progress.

2 Contents

Acknowledgement	2
1 Management Summary	3
1.1 Problem definition	3
1.2 Plan of action	3
1.3 Comparison with the actual approach.....	3
1.4 Conclusion.....	3
3 Introduction	6
4 Problem analysis	6
4.1 Step 1: Problem description and finding the root source.....	6
4.2 Step 2: Causes and effects	7
4.2 Step 3: Why?	7
4.3 Problem Statement	8
4.4 Drivers' and impact	8
5 Plan of Action	9
5.1 Project Management Methodology.....	9
5.2 What should be done.....	9
5.3 How is the goal achieved	10
5.3.1 Analysis and Design.....	11
5.4 Who is involved in the process	14
5.4.1 Onion model	14
5.4.2 RACI Matrix	16
6 Risk analysis	16
6.1 Risk analysis matrix	17
<i>Table 5: Risk analysis matrix</i>	17
6.2 Bowtie model	18
7 Challenges	18
8 Solutions to challenges	20
9 Economic impact.....	20
10 Comparison.....	21
10.1 Analysis and Design	21
10.2 Development.....	21

10.3	Training	21
10.4	Testing.....	22
10.4	Roll out.....	22
11	Conclusion.....	22
12	Reference	23

3 Introduction

Kadaster is a Dutch governmental organization, under the political responsibility of the Ministry of Interior and Kingdom Relations [1]. Their company values, “reliable, open, relevant and driven” are central to their actions and help them prepare for the future. According to the Kadaster law, article 2a [4], there are four main goals for Kadaster to achieve. First, the promotion of the legal certainty of registered property in legal transactions, and economic and administrative exchanges between citizens and administrative bodies. Second, is the promotion of efficient geo-information infrastructure. Third, is the efficient provision of information by the government for the fulfillment of public law duties and compliance with legal obligations. Finally, the support and promotion of economic activities. Kadaster plays a key role in the stimulation of stability and legal certainty in societal and economic traffic [2]. This key role is supported by the Information Technology within Kadasters’ primary processes. The teams of Kadaster work according to Agile principles with multidisciplinary, DevOps teams [3]. These teams have complete responsibility for the development and management of a service. To stay future-proof, Kadaster investigated their employee performance and workspace. Issues related to the workspace were found and an IT solution was implemented to resolve the issues.

The implementation of the new workspace, named workspace 2.0 in Kadaster has a considerable risk of acceptance of this new platform in the organization. The objective of this project is to study the implementation of a new workspace with a concept that can be reliable and provide enablement for their innovation to keep up with the technology evolvement. This report discusses the problem analysis of the previous workspace in Kadaster. It describes a suggested plan of action to implement a new workspace to overcome the problem. Finally, this report investigates the approach taken by Kadaster and it compares the plan of action as suggested with the implemented approach of workspace 2.0.

4 Problem analysis

To structure the problem analysis, we use the first three steps of problem analysis as suggested by E. Pulmanis in his research on project management applications [7]. The first step according to Pulmanis is to characterize the problem in simple terms. Here you specify what is wrong and what the root source of the problem is. The second step is to define the causes of the problem and specify the relation between cause and effect. Finally, step three includes asking “Why” to find a cause. After the problem analysis based on the research by Pulmanis, the paper discusses the drivers behind the implementation of a new IT system.

4.1 Step 1: Problem description and finding the root source.

According to research conducted by Insight [5], office workers waste 1.8 billion working hours every year due to the outdated technology that their company uses. E-buyer [6] also conducted a survey related to the impact of the outdated technology in their working environment and showed that over 50 percent of the workers stated that the company did not provide any support to make them aware of the technological update [6]. These studies closely relate to what Kadaster is experiencing with their current workspace. According to the interview we conducted with Kadaster, employees are struggling to execute their tasks as these are not supported by the necessary technology. There is a need for improvement in the technology supporting their tasks and supporting their communication with business partners and customers.

4.2 Step 2: Causes and effects

The problems that Kadaster is experiencing are depicted in Figure 1. These problems are the motivation behind the implementation of a new workspace. The problems are organized from affected problems on top to causing problems on the bottom. The top issue is that the current way of working is not future proof. This is because it lacks agility and advanced features. Employees lack ability because they are office, desk, and hardware bound. Each desk has a monitor, keyboard, and mouse where each employee works on their assigned devices locally. The lack of advanced features is due to employees being hardware bound and because video conferencing is not possible as there is no sound or video on their devices. All these problems are leading to one causing problem, which is the outdated workspace.

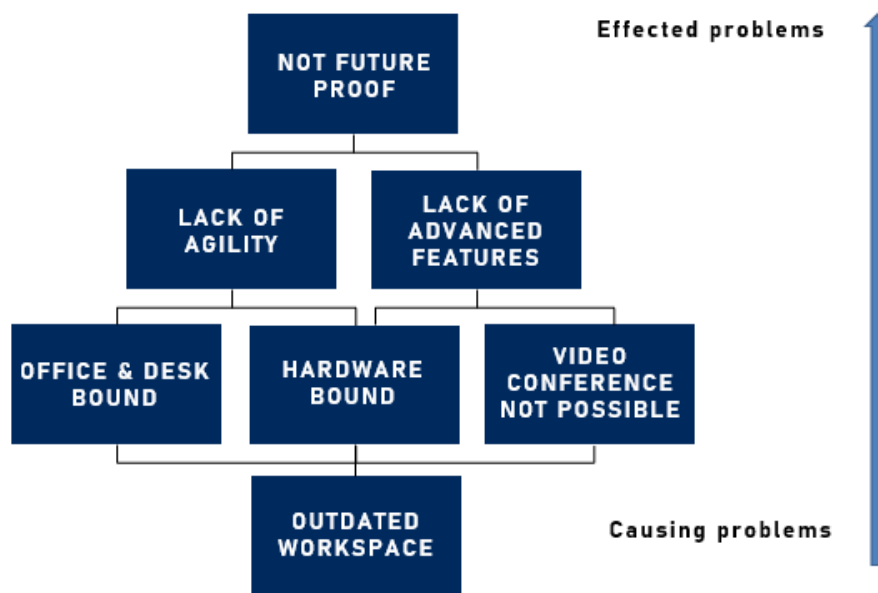


Figure 1: Problems that stem from the outdated workspace.

4.2 Step 3: Why?

In Figure 2, a why diagram is depicted. Concluding from this diagram, a new workspace with advanced features should be implemented to tackle the issues Kadaster is facing. This is further discussed in the problem definition in the next section.

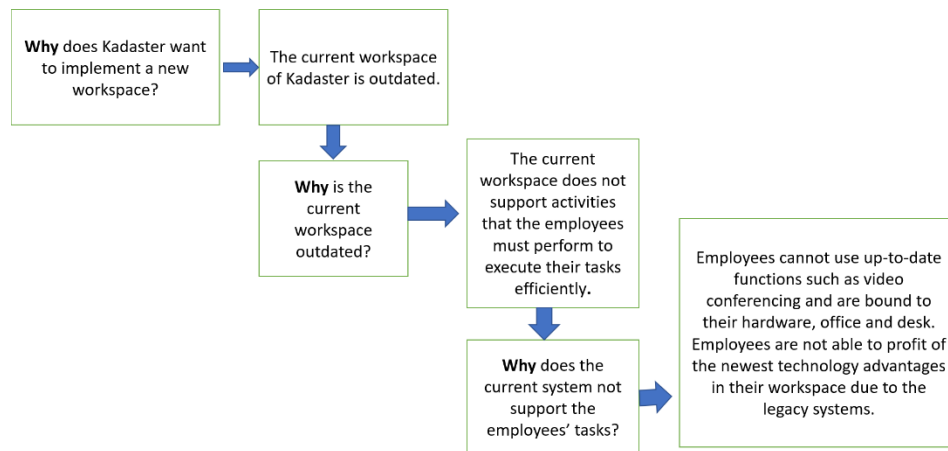


Figure 2: why diagram

4.3 Problem Statement

The current IT system used by Kadaster is outdated and needs replacing. This is important for the future operation of the company, in terms of efficiency and scalability. For the completion of this project, all workflows will need to be evaluated and implemented in a newer, more modern system that allows for the operation of the recent requirements that are becoming increasingly difficult for Kadaster employees to complete.

4.4 Drivers' and impact

The people, conditions, and information that initiate and support activities that will help the company define and achieve its goals are the strategic drivers of business. The drivers listed in Appendix I represent the most important influences or factors affecting the company's success. After describing the drivers, table 1 discusses the most important drivers for workspace 2.0.

Driver	Influence
Increase stakeholder value	Low - By improving the internal processes and technology, the stakeholder value does not necessarily go up. The improvement of productivity amongst employees will save costs for the organization.
Growth	High - A new workspace with innovative features is to provide growth to the employees of Kadaster, and the services they offer to business partners.
Value	Low – The new workspace will not impact the products of Kadaster, but might make business processes and services more efficient.
People	High – The workspace serves the employees by making it more user friendly and efficient. This improves the employee efficiency, employee experience and service quality.
Technology	High – the workspace supports better execution of tasks to provide better service to customers and achieve a strategic advantage over competitors.

Table 1: Drivers and related influence

5 Plan of Action

5.1 Project Management Methodology

A prominent factor considered for IT projects is the methodology that is followed over the course of the implementation project. The style used in the workspace 2.0 project is what is known as "Agile Waterfall". The term "Agile" has no consensus on a specific definition, but it is typically defined as several approaches that sprung up after a paper introducing the "Extreme Programming" method. Waterfall refers to the idea that a project happens in consecutive phases. The phases in question are Analysis, Design, Implementation, and Testing. A sprint in the case of agile project management is the amount of time a single cycle of the development is set to take. The shorter a sprint, the less work can be done before it is put to the test, but management can keep a better eye on the progress of the project. A longer sprint may lead to more effective production of larger parts of the project, but that leaves a greater chance of things becoming more difficult to change once it becomes clear that said change is required [18]. For this reason, using a short sprint with an Agile waterfall methodology is quite common. This does, however, leave a certain level of risk.

This risk is addressed in what is known as a Plan-Driven approach, and approaches under this umbrella. These approaches are usually described as having a more stable, predictable, and assured outcome [17]. This accuracy is only provided with a solid plan, which can still be implemented with minor alterations in the style of agile project management. It is, however, a balancing act between the two to get the best of both worlds. One option for this is to focus the plan on risk assessment and letting a stable plan give way to agile changes when a risk analysis deems it necessary. This project is cut-and-dry, as it were, as the project is set to catch up the workplace to modern standards. This does not mean that the state-of-the-art changes from the last five years are important to implement, however, the capacity to do all the work required does need implementation of hardware and software from up to at least then. This means that a plan could have been made to the standards needed to bring the project to a satisfactory conclusion. That said, the project would still benefit from frequent checks built into agile methodologies to keep progress on track.

5.2 What should be done

	AS-IS	TO-BE
PEOPLE	Communication physically or over phone. Desk bound.	Technology trained employees, communication supported by technology. Remote working possible.
PROCESSES	Processes include operating manually with minimal usage of technology.	Processes automated and supported by technology.
TECHNOLOGY	Not connected individual services, outdated workspace.	One cloud-connected platform, innovative features.

Table 2. as-is of the current technology versus the to-be of the desired technology

In table 2, the as-is of the current technology versus the to-be of the desired technology is depicted. This is categorized into people, processes, and technology. For people within as-is, communication was not supported by technology and the employees were desk bound. Processes included operating manually and using minimal technology. The technology consisted of non-connected individual services, and an outdated workspace.

For people within to-be, there should be technology-trained employees and communication supported by technology. Remote working must now also be possible. The processes are automated and supported by technology. For example, document reviews have automatic notifications. Finally, the technology is one, cloud-connected platform with innovative features.

5.3 How is the goal achieved

Below, we describe our suggested actions based on the typical IT implementation workflow as described by Be-Terna [10]. This model described five phases for IT implementation, which can be seen in figure 3.



Figure 3. IT implementation workflow [10]

5.3.1 Analysis and Design

In this phase, the main objectives are to analyze the requirements and prepare a detailed system design [10]. Usually in this step, requirements and business processes are evaluated and compared with a standard solution. The process of determining which requirements can be satisfied with a standard solution and which cannot, is done using the fit/gap analysis. Here, the fits are the requirements and processes while the gaps require customizations within the standard solution. Analysis and Design give insight into future business processes and form a foundation for the following phases of the implementation process. Below we discuss the Requirements Engineering, Requirements Prioritization, the Fit/Gap analysis, and the planning for the Analysis and Design Phase. A visualization of the components of analysis and design can be found in figure 4.

5.3.1.1 Requirements Engineering

During the Analysis and Design phase, the requirements for the IT implementation should be researched and defined. We follow three levels of requirements, as described by Conaug [13]. The model of these three levels can be found in figure 4. First, Business Requirements from the point of view of the sponsor, the scope of the project and the business objective should be set. Business requirements give structure to a problem. It captures the high-level need and when this need is met, it provides value to the business.

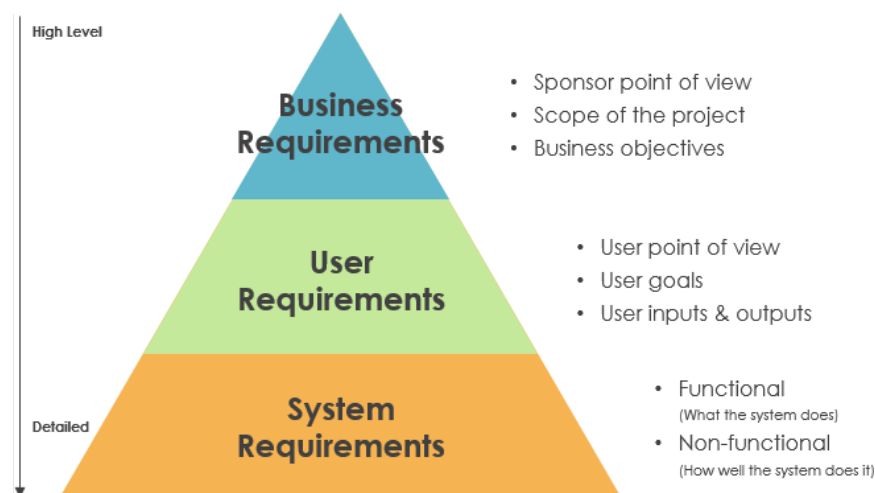


Figure 4. Three levels of requirements for the IT implementation [13]

Next, the analysis of employee goals, points of view, input, and output is critical to understanding how tasks are performed. A requirement engineer should speak to the employees to determine their behaviors and needs. The requirement engineer can write the needs of the employees in the form of Use Cases [12]. Finally, the requirement engineer should evaluate the system needs and write the corresponding requirements. Requirements can be categorized into functional requirements and non-functional requirements. Functional Requirements should be written in a measurable, achievable, and understandable form. For example, when downtime should be limited, the requirement should be written as “The system shall have a maximum of 3 seconds downtime per week”. Non-functional requirements describe for example the Usability of a system. An example is “The system shall be intuitively navigable.”

5.3.1.1 Requirement Prioritization

These Use cases should be listed and categorized using the MoSCoW [11] method. Using this method, requirements are prioritized based on must have, should have, could have, and will not have. Figure 5 visualizes the MoSCoW method.



Figure 5: MoSCoW method [14]

5.3.1.3 Fit/Gap analysis

When requirements are defined and prioritized, the organization can execute the Fit/Gap analysis. Here, you compare the listed requirements to the capabilities of the current system. A template specifically for this is shown in Table 3. The fit/gap analysis indicates that the system does not provide sufficient support for the listed requirements, there are three options to consider [15]. First, process change. Here you alter your business processes by altering how your needs are met. Next, the organization can improve its current system as it is using effective change management. Finally, a new system can be purchased. The latter is necessary when the current system lacks significant support for basic requirements. We suggest Kadaster implement a new system to suit their needs as their current system has little to no technical support for the activities that employees want to execute.

Requirement	Poor fit	Marginal fit	Acceptable fit	Good fit	Excellent fit	Gaps
RE1	x					[reason]
RE2					x	
RE3			x			[reason]
RE4		x				[reason]

Table 3: template fit/gap analysis

5.3.1.5 The recommended solution

After the collection of requirements and assessment of the current system, a solution must be chosen. Based on the issues specified in the problem analysis, we recommend the purchase of new Software as a Service (SaaS) platform. The following phases that are discussed are focused on the development, training, testing, and rollout of a SaaS platform for Kadaster.

5.3.2 Development

When the design of the new IT implementation is available, the development phase starts. For the purchased SaaS platform, the integration of Kadaster services and the chosen platform should be well implemented. The selected requirements that are not yet in the SaaS implementation should be developed. Such newly developed functionalities should be thoroughly documented in user manuals. The team during development should consist of the provider of Kadaster's current data center, the providers of the SaaS application and a team of Kadaster that oversees this project. This team should include tech-savvy employees and a project manager. During development, data, tasks, and procedures necessary for testing are prepared.

In the development process, the team might have to reiterate through the Analysis and Design phase to ensure the needs of the employees and the functionalities of the system are complete and correctly implemented.

5.3.3. Training

Lack of adequate training is the key reason for inefficiency in system usage [8] and is also mentioned as one of the IT implementation failure factors [Lecture1]. Therefore, it is essential that employees receive proper training to ensure they can operate efficiently and comfortably in the new workspace.

Figure 6 shows nine Critical Success Factors (CSF) for applying to the training aspects for a successful IT implementation, as found by Norton et. Al [8]. According to this research, preparing the end-user training and evaluating the post-training requirements are a key element of delivering training for an IT implementation. We suggest a strong focus on several points of these CSF's, which we describe below.

First, point 2 describes that customer management should be incorporated into training material for each department so the end-users can easily use the system to perform their role [8]. In the case of Kadaster, the customers/end users are the employees. There should be guidance available for the employees by

experts who can explain the system and help resolve issues. Next, point 6 suggests the appointment of transition champions who promote the benefits of the system post-implementation. The positive promotion of the system will impact on the acceptance rate of the employees and is therefore deemed critical. Finally, point 8 highlights the need for trained staff members to be treated as knowledge workers. This system ensures that information on the system is not only widely available but also new employees

End-user training			Post-implementation training
<p>1 Develop a holistic training strategy</p> <p>2 Incorporate customer management training</p>	<p>3 Timing of training delivery</p>	<p>4 Undertake skills based training</p> <p>5 Carry out training course evaluations</p>	<p>6 Promote the benefits of the system</p> <p>7 Ensure knowledge transfer from the vendor</p> <p>8 Treat as knowledge workers</p> <p>9 Internally disseminate knowledge</p>
Planning	Delivery	Review	Exploitation

can be trained by knowledge workers.

Figure 6: Nine Critical Success Factors (CSF)

5.3.4. Testing

Testing verifies and validates the solution. There are several methods of testing that each covers a different aspect of the solution [10]. Examples are security testing, integration testing, data, and stress testing. Since the solution chosen by Kadaster is a SaaS platform that already exists, basic functionalities should be in place and secure. The focus regarding testing should be on integration testing. It is important that the services that are offered by the current Kadaster platform are well-integrated with the SaaS platform. If any configuration or customization needs to be done to the SaaS solution, it is often necessary to have a fully functioning pre-production testing and staging pilot environment. This environment must include the ability to test integration with on-premises data sources and applications [9].

5.3.5. Roll out

Once organizational readiness is achieved to adopt the new system, data migration from the legacy system(s) to the new system can begin [10]. Once this is fully migrated, the new system can be implemented for the whole organization. Of course, during rollout, there should be employees available for issue resolution. Finally, the rollout phase.

5.4 Who is involved in the process

5.4.1 Onion model

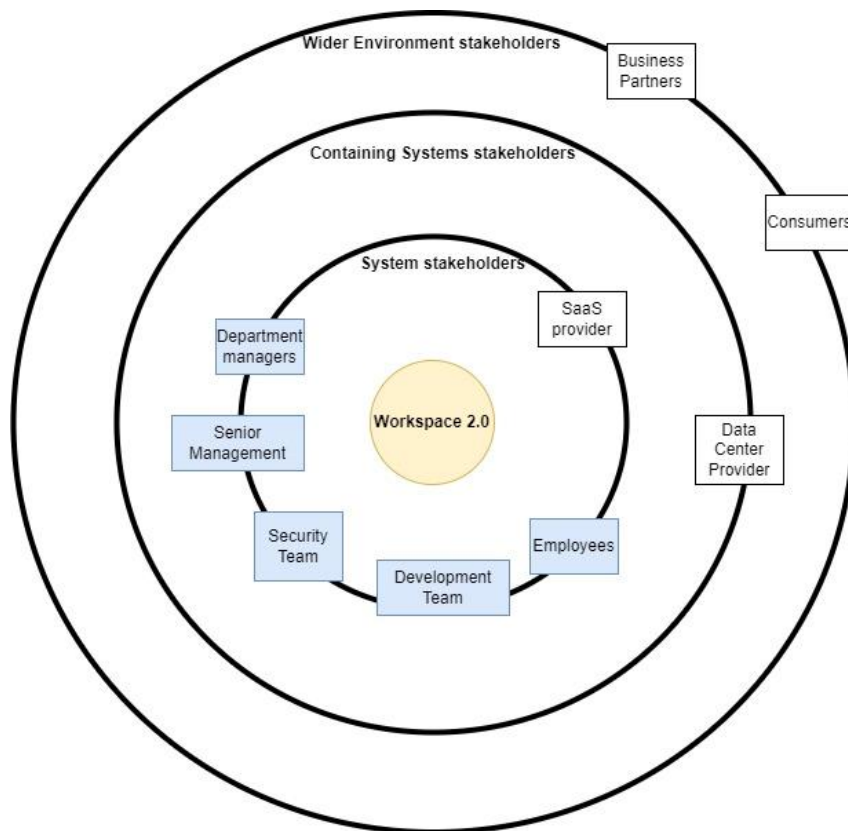


Figure 7: Onion model

Source: Model from Ian Alexander and Ljerka Beus-Dukic, *Discovering Requirements: How to Specify Products and Services* (Place of publication: John Wiley and Sons, Ltd., 2009), p.29-30

Figure 7 is the onion model for the stakeholders involved in the creation of workspace 2.0. The blue squares are Kadaster. The inner circle is people that are directly working with the system. We see here the management and department managers of Kadaster, the IT team including security, Kadaster employees, and the SaaS provider. The containing system stakeholder does not use the system directly yet has a direct effect from it. This is the Datacenter provider. Finally, in the wider environment stakeholders are interested in the system but do not interact with the system at all.

5.4.2 RACI Matrix

	KADASTER			
	MANAGEMENT	IT TEAM	SAAS PROVIDER	DATA CENTER PROVIDER
Analysis & Design	Responsible	Consulted	Consulted	Consulted
	Accountable			
Development	Accountable	Accountable	Responsible	Consulted
		Responsible		
Training	Responsible	Responsible	Responsible	Informed
	Accountable		Consulted	
Testing	Consulted	Responsible	Consulted	Informed
		Accountable		
Roll out	Accountable	Responsible	Consulted	Informed

Table 4: RACI matrix for management

RACI matrix is a responsibility assignment chart that maps out every task or a key decision that must be taken by the members involved in the project. This chart assigns which roles are responsible for each task. The four key responsibilities typically marked are Responsible, Accountable, Consult, and Informed. Table 4 We have five phases of IT implementation, and the responsibilities are marked against the stakeholders of Kadaster. From the above matrix, we see that the Management of Kadaster is held responsible and Accountable in the Analysis and design phase and the rest of the stakeholders (IT team, SaaS provider, Data center provider) are consulted about the design. In the development phase, the management and the IT team approve the design and hence move forward with development, and as a result, they are responsible for deciding about the development. The IT team and the SaaS provider work in developing the system, hence, are assigned responsibilities in completing the task and the data center provider is consulted about the development of the system. Furthermore, the Management, IT Team, and the SaaS provider are responsible for training the employees about the new system, and the data center provider is just informed about the training status. The management is also held accountable as they sign off approval for the training. The IT team is held responsible and accountable for the testing phase. Management and the SaaS provider are consulted about the testing phase and the data center provider is informed about testing system integration. The management approves the new implementation when the system is ready to be implemented, making them accountable. For a smooth rollout, the IT team is held responsible, and the SaaS Providers are consulted regarding the rollout. Meantime the data center provider is informed about the new implementation.

6 Risk analysis

To get a well-rounded picture of the risks to the implementation of workplace 2.0, we use a few models to show all risks that have been found, the severity of the risk, and what can be done to mitigate the risk. The

two models handled in this paper are a risk analysis matrix and a bowtie model, both in their sub-headers below.

6.1 Risk analysis matrix

The risks listed below are placed in the risk matrix which maps the likelihood against the impact of a risk to score the risk. The color scale from green to red shows the risk class of each point from unimportant to especially important to be dealt with.

1. **Data Migration:** Data security breaches during the migration of data from data center to offsite storage in the cloud. **Action required** – Mitigate/Accept – Certain security issues cannot be resolved
2. **Change Resistant:** Misunderstanding or bad description of workflows leading to bad working experience with the new system. **Action required** – Avoid – The company must make sure that the employees understand the importance of the new work concept.
3. **Users' lack of knowledge:** Lack of technical knowledge and understanding of the importance of new workspace in employees prohibits effective use of the system. **Action required** – Reduce – Provide a clear explanation of the importance of the new workspace along with apparent benefits that come with it.
4. **Errors in system installation and configuration:** **Action required** - Mitigate - Deploy system configuration management tools that will automatically enforce and redeploy configuration settings to systems at regularly scheduled intervals.
5. **Inadequate training:** There is no proper training provided for the new concept. **Action required** – Avoid – Have to provide proper training for employees to make the project successful. - Severe

Likelihood	5	Almost Certain					
	4	Likely		Errors in system installation and configuration		Users' lack of Knowledge	Change Resistant
	3	Possible					Inadequate training
	2	Unlikely			Data migration		
	1	Rare					
			Insignificant	Minor	Moderate	Major	Severe
			1	2	3	4	5
			Impact				

Table 5: Risk analysis matrix

6.2 Bowtie model

The bowtie method is a way to look at risks centered around a critical event. The event in question is the acceptance of the implementation of Workplace 2.0 within Kadaster. A bowtie model looks specifically at the things that can be done before the critical event, labeling them as preventative measures, and things that can be done after the event has passed, which are labeled as risk mitigation. This method of looking at an event can help foresee problems, try to lower the risk of the event happening, as well as try to mitigate the effects if they do happen [16].

In this case, once workplace 2.0 is implemented, and the communication towards the employees does not highlight the features of the workspace, the employees are not taking advantage of the available features. In that same structure, risks consequences are mentioned in the model. A selection of measures and mitigation methods have been put in Figure 8.

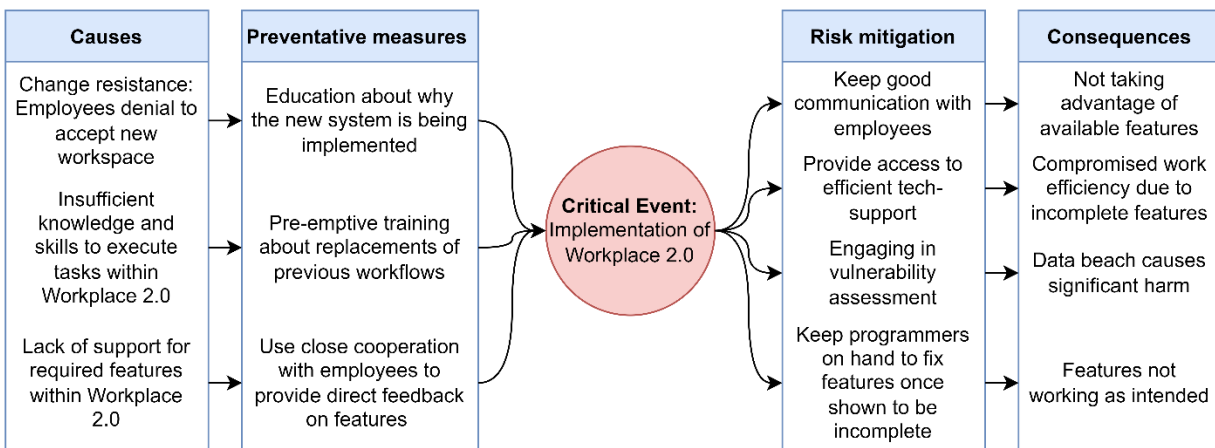


Figure 8- Bowtie model for the acceptance of Workplace 2.0 within Kadaster

7 Challenges

The implementation of a new workspace, which is implemented company-wide, requires a change in the technical architecture as well as in the employee behavior. Below, we explain the challenges for Workspace 2.0. The challenges are also summarized and visually depicted in Figure 9.

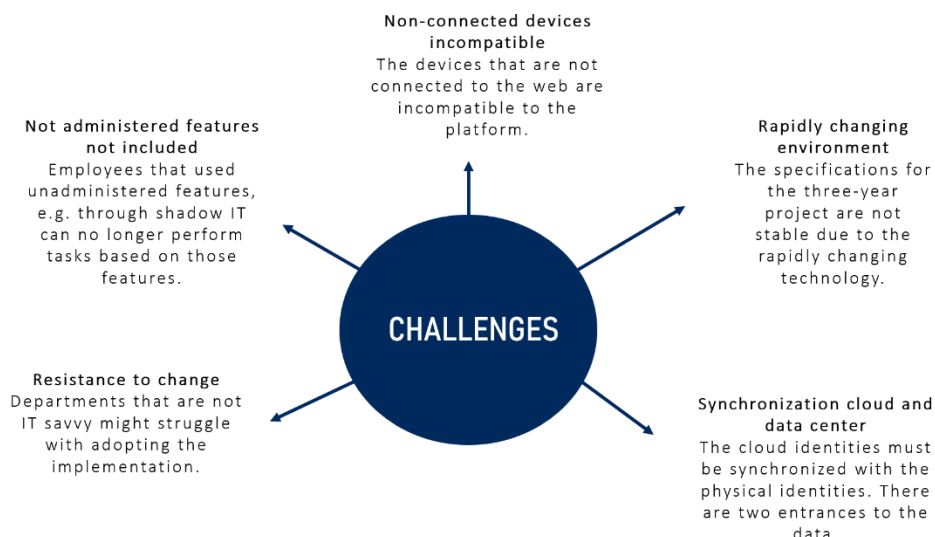


Figure 9- Challenges diagram

Technical challenges

Technology is rapidly evolving with new inventions and additional features every day. The implementation of the new workspace would require changes in technology for the workspace. The requirements for this technology are made at the beginning of the project. A project that lasts three years, such as this project, can hardly stay stable in the specifications. Another issue when implementing a new IT system is for the new implementation to integrate with previously available processes. These processes might have been executed using the legacy system, which hinders the compatibility of the new implementation. Legacy systems that are not connected work together with the SaaS platform. Another issue is that employees might have been executing their tasks using shadow IT. This means that they used unregistered programs. As these programs are not administered, they are not reflected in the requirements. Employees therefore might not be able to execute some of their tasks in the new workspace. Finally, the implementation of the SaaS platform requires the migration of data to the cloud. This migration will happen gradually, leaving part of the data in the data center. This is problematic because there are now two entrances to the data, via the data center or via the cloud. Both entrances need to be protected against attackers with proper security measures. To secure two entrances to the data can be expensive.

Employee behavior

Kadaster has departments that are at various levels adding their IT knowledge and skills. For some departments that are less IT-savvy, it will be more difficult to adopt the new workspace. These employees will feel resistance to the installation of a new workspace and might prefer their old systems. This is because the employees find it difficult to use new IT systems due to lack of IT-related skills. If non-technical employees decide to reject the new workspace, there could be communication issues with employees that have adopted the recent technology.

8 Solutions to challenges

Employee behavior:

The challenges faced by the people in the organization can be overcome by training and making them aware of why the changes in the workspace are important and useful. Training is an extremely important aspect in the implementation of the new workspace, the employees must completely understand the workspace to use it and perform their roles efficiently. The paper by Norton [8] explains that appointing a transition champion with key qualities like leadership, power, influence, and posture would help promote the benefits of the usage of the new workspace and train the employees, which leads to an impact on the acceptance rate of the workspace. Training would be a place where the employees can interact and understand the new workspace.

Technical challenges:

To deal with the rapidly changing environment, the specifications of the workspace should be updated when the market offers innovative technology that is considered a significant improvement for the workspace. This is important to maintain a competitive advantage. Updating specifications, however, is a challenging task and requires many iterations of the analysis and design phase and development phases. Legacy systems that cannot be connected to the new workspace eventually have to be replaced for better performance and connectivity. To replace a legacy system, first, research on what the legacy system's tasks were and what solution offers the necessary tasks that the legacy system was supporting must be conducted. If any important tasks were executed using shadow IT, the organization needs to investigate whether the new workspace supports this task. Another option is to search for a compatible program that can execute the task. The challenge coming from storing data on two locations can be solved by speeding up the data migration process to the cloud. Choosing a SaaS provider that is secure and complies with standards lowers the risks for the data in the cloud.

9 Economic impact

Before the approval of a project, the economic impact of the project should be known. In this section we will elaborate on the return on investment and several types of costs that might be incurred during the implementation of the new workspace.

First, we discuss the return on investment due to revenue improvement. When looking at the revenue that is made by employees, the improvement of the workspace is in such a way that if tasks are performed more efficiently it can automatically save costs. For example, if an employee is expected to generate 180 euros per hour and loses 15 minutes per day due to an outdated workspace, the organization loses 25% of 180 euros (45 euros) per day per employee. There is no data on the expected revenue to be generated by an employee of Kadaster, but it is confirmed the outdated workspace hinders the performance and efficiency of the employees. Kadaster has more than 800 employees and therefore suffers economically when employees are hindered. The cost of investment will be partially compensated for by the improved revenue from employees. Also, the improvement of services and communication with business partners can contribute to the return on investment.

Second, we discuss the costs involved in the implementation of the Kadaster workspace. The acquisition cost is the cost of the SaaS platform plus the cost of the server that supports the platform. Furthermore, the costs include the salaries of the employees that are involved in the integration of the SaaS platform. If hands-on training is provided, the costs of training per employee should be considered as well. Additional costs include maintenance costs, consultant costs and unforeseen costs.

10 Comparison

Based on the interview with the Head of Architecture and Information management at Kadaster, in this section, we will investigate our proposed plan of action and then compare it with the implementation process of Kadaster.

According to the Head, the project is still in the process of completion. This is because Kadaster is still in the process of transitioning from moving their data from the Data center to Cloud. Also, many of the employees are still comfortable doing paperwork rather than learning technology. They have a dedicated amount set for the transition and training the employees for the new workspace.

Below, we show a comparison of the existing approach and our plan of approach in each of the IT implementation phases that is Analysis and Design, Development, Testing, Training and Roll out.

10.1 Analysis and Design

The main objective in this phase is to analyze the requirements and design a detailed system design. Analysis and design phase is a crucial step as it gives insights into the future business processes and forms a foundation for the remaining phases of the implementation project. Before starting the implementation of workspace 2.0 Kadaster gathered all the system requirements and designed the system. Analysis and design phase is constantly compared to a standard solution, in the above [5.3.1.1, 5.3.1.2, 5.3.1.3] section we have Requirements engineering, MoSCoW method and Fit/gap analysis as some of our scientific models to guide through this project.

In comparison, the approach in this phase does not differ much. We think that the approaches of analysis and design should be theoretically supported, and this can be done by adapting a few scientific models.

10.2 Development

The development phase is about the integration of SaaS platform. In the interview the head said that they have data both in the cloud as well as data center in which case, retrieval of data and interoperability is time consuming. The requirements that are listed may not be found in the SaaS platform. We suggest the entire data to be moved to the cloud and SaaS platform should be developed and documented for future purposes. This way communication between departments will become much easier and time saving.

10.3 Training

Training before any new implementation is important. Kadaster implemented the new workspace without any prior training for the employees. Instead, they held an information session and created an application for any questions. Our suggestion is to train the employees hands-on before implementation and make them understand the importance of the transitioning to the new workspace using Transition champions. If any employee is facing any problem, there will be an expert to help the employees resolve the issue.

10.4 Testing

Kadaster tested all the systems before implementation. We suggested a focus on integrity testing, while Kadaster did not focus on integration testing specifically but tested on the overall technical and functional features and accessibility.

10.4 Roll out

Kadaster had a department-based rollout where they checked if the employees were facing any issues with the system and if there was any continuity. This allowed Kadaster to see whether the problem was related to the workspace or to any other service that was not functioning. At the time of rollout, Kadaster also had floor assistance in case the employees faced any difficulty using the system. We agree with this rollout where all the employees participated and in case anyone faced any issue (both IT and non-IT) there was an expert to guide them through the process.

11 Conclusion

Workspace 2.0 implemented at Kadaster would have been executed flawlessly if the organization had educated their employees about the importance of system transition and integration. However, the project is still in progress.

Our plan of action and their approach were mostly aligned. Looking at the three categories' people, process, and technology, they paid attention to the last two categories and implemented the project. Little attention was paid to educating their employees and making them understand the importance of the new workspace. Training their employees and making them understand the importance of adapting to technology would yield remarkable results and would make interoperability easier between departments.

12 Reference

- [1] <https://www.kadaster.nl/over-ons/het-kadaster>
- [2] https://www.tweedekamer.nl/kamerstukken/brieven_regering/detail?id=2021Z04996&did=2021D11035
- [3] <https://www.kadaster.nl/documents/1953498/4796371/Meerjarenbeleidsplan+2022-2026.pdf/00285d9a-7601-6c22-4ebc-7bd4c1e4c946?t=1640616992140>
- [4] <https://www.navigator.nl/document/ide2712d1d868e1875398e2e3bf5513b70?ctx=dd121c00faa059c2668ce78ff3054651>
- [5] <https://www.kadaster.nl/over-ons/beleid/meerjarenbeleidsplan>
- [6] https://uk.insight.com/content/dam/insight-web/en_GB/learn/user-experience-report-2019/insight-user-experience-report.pdf
- [6] <https://www.ebuyer.com/blog/2019/07/workers-less-productive-due-to-slow-and-outdated-technology/>
- [7] E. Pūlmanis, “Public Sector Project Management Application and Sustainability Problems, Case of EU Member State – Latvia,” PM World Journal, vol. 3, Issue 9, 2014. <https://pmworldlibrary.net/article/public-sector-project-management-application-and-sustainability-problems-case-of-eu-member-state-latvia/>
- [8] https://www.researchgate.net/publication/268067281_Evaluating_the_training_requirements_of_ERP_II_implementations
- [9] https://essay.utwente.nl/59924/1/MA_thesis_Santy.pdf
- [10] <https://www.be-terna.com/insights/erp-implementation-from-the-project-point-of-view>
- [11] https://www.agilebusiness.org/page/ProjectFramework_10_MoSCoWPrioritisation
- [12] <https://www.usability.gov/how-to-and-tools/methods/use-cases.html#:~:text=A%20use%20case%20is%20a,when%20that%20goal%20is%20fulfilled.>
- [13] <https://conaug.com/blog-details2>
- [14] <https://www.consuunt.com/moscow-method/>
- [15] <https://www.berrydunn.com/resources-detail/what-is-a-fit-gap-analysis#:~:text=A%20fit%2Dgap%20analysis%20determines,the%20organization%20to%20system%20capabilities.>
- [16] de Ruijter, A., & Guldenmund, F. (2016). The bowtie method: A review. *Safety science*, 88, 211-218.
- [17] Boehm, B., & Turner, R. (2003). Using risk to balance agile and plan-driven methods. *Computer*, 36(6), 57-66.
- [18] Abrahamsson, P., Salo, O., Ronkainen, J., & Warsta, J. (2017). Agile software development methods: Review and analysis. *arXiv preprint arXiv:1709.08439*.

[19] Beck, K. (1999). Embracing change with extreme programming. *Computer*, 32(10), 70-77.

Appendix I

Drivers

1. Financial Objectives:

- *Increase Shareholder Value.* Having profits as a strategic business driver is fine, provided it is not the only factor that is influencing your company's strategies.
- *Growth.* Growing companies are better able to serve their customers, employees and owners with new and innovative products, more jobs, higher salaries, and better returns. Companies not focused on growing are often left behind by their competition and lose customers and employees.

2. Product/Service Objectives

Value. A company that wants to increase the perceived value of its product or service to build a competitive advantage would have value as a strategic driver.

3. Employee/Internal Objectives

- *People.* Apart from serving customers, the company may also be driven by a desire to serve other stakeholders which includes investors, employees, business partners, suppliers and even members of their community.
- *Technology.* Technology is a strategic driver that every modern organization should consider putting at the top of their list. This refers to the firm using technology and innovation to serve clients better and gain a competitive advantage in your market.