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PROJECT:



Research Report

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Management summary

Fontys is a university of applied science, with 477 different studies and courses. Providing Bachelor study to 46.123 students, employing 5,186 people. All done by 28 institutions (Fontys, n.d.-a), with locations in Bergen op Zoom, Eindhoven, Helmond, Maastricht, Nijmegen, Rotterdam, Sittard, ’s-Hertogenbosch, Tilburg, Utrecht, Veghel and Venlo (Fontys, n.d.-b). Fontys believes that the education they provide contributes to vital, sustainable and a happy society (Fontys, n.d.-a).

Brainwave has helped Fontys with a new project management system. This project is for the ICT institute and leads as an example for how the project management system is going be implemented throughout Fontys at a later stage.

Currently, Fontys has several projects running within the university. However, Fontys does not have a centralized project management system in place. Resulting in each institute within the university coordinating their projects. This decentralized way of working causes several problems within the university. (R. Lippits, personal communication, September 13, 2021)

The future goal of Fontys is to have a centralized project management system with an integrated financial system. However, it will take at least five years to start this process. Currently there not an online tool in place that follow a procedure for professor to follow, and captures data alongside.

The research has been executed by using the following Main- and Sub questions:

**Main research question:** How can Fontys optimize and centralize their way of working regarding project control with a Proof-of-Concept?

**Sub-questions:**

1. How are the current processes built up and where are the bottlenecks?
2. How do other companies structure project management?
3. What does the desired situation look like and what are the requirements?
4. How can a proof of concept be used to introduce a new way of working for optimizing Fontys’ project management?
5. What does Fontys have to do to implement the solution for all institutes?

For this project several documents have been made that will help to elaborate on how the project request forms can be handled such as:

* Requirements document
* This research report
* Proof of Concept
* Implementation plan
* Transferability document

Using the same requirements as a basis for a continuation of this project would be a good start. Another set of points of advice are listed below:

**Advice:**

* Fix the problems in PowerApps that prevent it from being used by students and make it secure enough so that not every app can be accessed by anyone
* Transfer the sharepoint list to an azure database to improve datamanagement
* Create several dashboards in PowerBI to enable segregation of duties
* Add tooltips to the varying input fields in Forms (or in PowerApps when available) to make them self-explanatory
* Start collecting data that is used for project management after the request (e.g. milestones, percentage budget spent, percentage chance of succession, etc.)

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# Introduction

Fontys Hogescholen is a university of applied science in the Netherlands consisting of 28 institutions. With students across the Netherlands and the world, students can acquire a Bachelor degree, course, or a minor in various fields. Fontys was Founded on September 1 in 1996 (Arts, n.d.), with high care of sustainability (Bron, 2021). (R. Lippits, personal communication, September 13, 2021)

Currently, Fontys has several projects running within the university. However, Fontys does not have a centralized project management system in place. Resulting in each institute within the university coordinating their projects. This decentralized way of working causes several problems within the university. (R. Lippits, personal communication, September 13, 2021)

With the magnitude of Fontys, it becomes increasingly more challenging to maintain such a decentralized way of working. This is the motivation for Fontys to change the current of working, This is where motivation starts of Fontys. There are already steps taken for this change to occur. At first, new accounting software is going to be implemented from January 1, 2022. secondly, to regain control over the projects, a new centralized project management system will be created. Deloitte, an accounting firm, did the initial research. Which interviewed and worked together with Fontys to establish a basic blueprint of how project management should be handled within Fontys. Along with forms, roles, and more. Along with PerusahaanIT, a group of students from Fontys researched that the Microsoft Power Platform meets most of the requirements. And is going to be used by Fontys for the creation of a centralized system. (R. Lippits, personal communication, September 13, 2021)

# Context and background

## Fontys Hogescholen

Fontys is a university of applied science, with 477 different studies and courses. Providing Bachelor study to 46.123 students, employing 5,186 people. All done by 28 institutions (Fontys, n.d.-a), with locations in Bergen op Zoom, Eindhoven, Helmond, Maastricht, Nijmegen, Rotterdam, Sittard, ’s-Hertogenbosch, Tilburg, Utrecht, Veghel and Venlo (Fontys, n.d.-b). Fontys believes that the education they provide contributes to vital, sustainable and a happy society (Fontys, n.d.-a).

## Fontys Projects

Brainwave is going to help Fontys with a new project management system. This project is for the ICT institute and leads as an example for how the project management system is going be implemented throughout Fontys at a later stage. These projects are set up by professors that want to do one of the following: Enhance study quality, research, or create new learning material like minors, studies, or courses for external firms. Before a project can start, it first needs to be approved by several employees in other departments. The amount and type of approvals depend on the project budget and the funding source. There are three ways for a project to get funded. Firstly, by having Fontys pay for the project using internal budgets. Secondly, via "Zakelijke Dienst" this department works with external firms to gather funding for projects or create a course for that firm. Lastly, subsidies from governmental or other institutions. (R. Lippits, personal communication, September 13, 2021)

## Current Situation

Fontys currently operates in a decentralized project management system. All project management is done internally in each institute. The problems start from the beginning, professors hand in project requests in a variety of formats, ranging from Excel to Word to PDF, which makes it possible for anyone and everyone to edit the document. This causes several difficulties for professors during the request phase, like outdated documents, accidental changes to data even with the possibility for malicious intent. These difficulties are passed onto the people approving a project. They must adapt each time, do it at the last minute, or get incorrect information. This is all made possible by the mentality that everyone does it in their way of working. (R. Lippits, personal communication, September 13, 2021)

After a project is accepted, all problems continue. There is no data available apart from the financial data. Therefor no one within Fontys has a clear overview on the amount of projects, progression of these projects, potential delays, and other issues. This is due to the sheer amount of work it requires to stay up to date with each project. As the project management office has no clear dashboard, it becomes increasingly difficult to get control over all those projects. As the best way to gather information is to have a chat at the coffee machine with the project leaders. But there are no forms, milestones, dashboards, midterm evaluations or KPI’s to show how well the project is progressing. Making it especially difficult for different institutions to work together on one project. The only data available is financial. This data only contains the incurred expenses and project hours. However, there is no requirement to specify what the hours are used for, nor the actual time or date. As professors tend to fill in the same amount of hours each week on Monday morning, whilst providing lectures at that specific time. However, Fontys trusts these professors in working those X amount of hours that particular week. (R. Lippits, personal communication, September 13, 2021)

Fontys has already started doing research on creating structured processes and tools. First, PerusahaanIT a previous group of students research that the Microsoft power platform containing most of the requirements. And the decision has been made by Fontys to use this platform for creating a centralized project management system. Fontys also worked together with Deloitte, an accounting firm. To create a blueprint of how the project request processes should look like, this was done in collaboration with Fontys and the stakeholders of the projects. Like professors, PMO office, and others. (R. Lippits, personal communication, September 13, 2021)

## Desired situation

The future goal of Fontys is to have a centralized project management system with an integrated financial system. However, it will take at least five years to start this process. Currently there not an online tool in place that follow a procedure for professor to follow, and captures data alongside. However there is previous research done by PerushaanIT and Deloitte. It will take at least a year for Fontys to establish a project management system in Microsoft Power Platform in all 28 institutions. Time which Brainwave does not have. (R. Lippits, personal communication, September 13, 2021)

The project management system should be efficient and effective. This is done by automating as many processes as possible. It starts with forms at the request phase, which will require the professor to fill in necessary information and data. This data is then translated into a dashboard to help with evaluation and feedback. Along with approval or denial, the outcome depends on several factors gather from the form, and additional information side factors like. The number of projects currently active. What information project management needs will be researched by Brainwave. Fontys wants this form to be cumulative throughout the process. In the next step the proposal needs to be worked out more with the addition of milestones and other information, which will be research by Brainwave. This request and will be further evaluated by the necessary employees. Who is going to evaluate is purely depended on the type of project, type and amount of funding required. Once the proposal has been accepted it will go into the request for funds and evaluated further. Once this is done, it will be automatically sent to the right employees for signing. Finishing the request phase. (Deloitte, 2021)

Next to the automation of these processes project management office wants to have midterm meetings for project progression. To evaluate the current projects. This midterm meeting is currently non-existent, nor does anyone know what is important in those meetings. This would ideally be changed to prevent, potential delays, and adjust projects in time. (R. Lippits, personal communication, September 13, 2021)

# Research methods & approach

This chapter will describe the goal of the project, the research questions, and other important aspects that define the project such as the desired situation, the research approach, the products that will be delivered, exclusions, scope and necessary resources.

* 1. **Project goal and research questions**

**Project goal:** Investigate how Fontys can optimize their project management by standardizing and automating this with a Proof-of-Concept that Fontys can use to implement in their projects.

**Main research question:** How can Fontys optimize and centralize their way of working regarding project control with a Proof-of-Concept?

**Sub-questions:**

1. How are the current processes built up and where are the bottlenecks?
2. How do other companies structure project management?
3. What does the desired situation look like and what are the requirements?
4. How can a proof of concept be used to introduce a new way of working for optimizing Fontys’ project management?
5. What does Fontys have to do to implement the solution for all institutes?

***3.1.1 Intended project result***

Fontys wants insight in the possibilities of Microsoft Power Platform that can help them with optimizing and centralizing their projects. These results will be put in a research report. The result of the project should give them an image of what can be used to optimize and centralize their project management, not only in this project, but also other projects and units that Fontys has. This result will include a proof of concept that will be developed based on the information that has come forward during the research. The proof concept will be tested against expected input and the results will be processed in a test report.

Since Fontys wants to use the results of this project for other units and projects, the result will include a report that describes how to use the solution and information that will come out of this project. The next phase of the project will be done by the next group so the transition of information should be clear for them.

* 1. **Research approach**

Diagram

Description automatically generatedTo carry out the research, the methods and strategies of ictresearchmethods.nl and cmdmethods.nl are used. The methods that will be used fall under the following 5 strategies:

1. Library: Doing research into what has already been done in terms of solving the problem.
2. Field: Explore the context by, for example, researching where the problem is located and finding out requirements.
3. Lab: Testing the designed product or concept to see if everything works as intended.
4. Showroom: Present the product or idea to stakeholders or see if the product or meets general guidelines.
5. Workshop: Exploring possibilities in the form of prototyping, for example, to see what is possible and what is not (ICTresearchmethods, n.d.).
6. Stepping Stones: Communicating your results in tangible representations that can be used by others within your project (the HAN and AUAS, n.d.).
   * 1. ***Subquestion 1***

|  |  |  |
| --- | --- | --- |
| Subquestion | Strategies & Methods | Explanation |
| How are the current processes build up and where are the bottle necks?  Products: Process description | Icon  Description automatically generated     Literature Task analysis  Study    Interview Document analysis      Root cause analysis Peer review | To do research in how the current processes are build up, research has to be done on how the processes are build up and what is going wrong. Aside from that, literature involving project control will be used to get a better understanding of the subject matter (**Literature study**). The processes will be analysed with **Task analysis**, documents that describe how the processes currently will be used (**Document analysis**) and stakeholders like project managers and planning & control employees will be interviewed to get an image how they see the current processes and where they see the bottlenecks (**Interview**). With this information the bottlenecks will be described (**Root cause analysis**). The results will be discussed with peers like fellow students in the project group and stakeholders (**Peer review**). |

***3.2.2 Subquestion 2***

|  |  |  |
| --- | --- | --- |
| Subquestion | Strategies & Methods | Explanation |
| How do other companies structure project management?  Products: Research results in the research report. | Icon  Description automatically generated  Best and good Literature study  Practices    Interview Peer review | Other institutes may offer insight in the structure of project control and how they handle it (**Best and good practices**). To know which institutes have use Power Platform already, research is required to find that out (**Literature study**). Aside from consulting sources online, stakeholders that know of what and how other institutes these tools are consulted (**Interview**). The results are discussed with peers and stakeholders (**Peer review**). |

***3.2.3 Subquestion 3***

|  |  |  |
| --- | --- | --- |
| Subquestion | Strategies & Methods | Explanation |
| How does the desired situation look like and what are the requirements?  Products: Interviews, requirements, research results in the research report | Icon  Description automatically generated Literature study Interview  Explore user  requirements Document analysis    Requirements Peer review  prioritization | To get a clear image of the desired situation, there will be interviews with stakeholders to get an overview of the requirements for the desired situation (Interview and Explore user requirements). Aside from interview, documents that describe how the desired situation looks like will be used (Document analysis). It Is important that the stakeholders are heavily involved since they will be working with in the desired situation. Sources that describe how to draw up requirements will be used (Literature Study). The requirements will be prioritized to set the most important requirements and the requirements that are not as important (Requirements prioritization). The results will be discussed with the team and stakeholders for feedback (Peer review). |

***3.2.4 Subquestion 4***

|  |  |  |
| --- | --- | --- |
| Subquestion | Strategies & Methods | Explanation |
| How can a proof of concept be used for centralizing and optimizing Fontys’ project management?  Products: Proof of concept, testreport | Icon  Description automatically generated Literature study System test  Community  Research Product review      Proof of concept | Based on the results of the previous research question, a proof of concept will be made within Power Platform. Research will be required to find out how the tools work exactly and if there are any problems while developing the proof of concept, the community and documentation regarding the issues will be consulted (**Literature study and community research**). Then the proof of concept will be made within Power Platform. It will be developed in a test environment so it can be tested (**Proof of concept**). When the proof of concept is done, it will be tested for functionality and the requirements that have been set up in the previous research questions (**System test**). Eventually, the results will be reviewed by peers and stakeholders (**Product review**). |

***3.2.5 Subquestion 5***

|  |  |  |
| --- | --- | --- |
| Subquestion | Strategies & Methods | Explanation |
| What does Fontys have to do to implement the solution for all institutes?  Results, Implementationplan,  transferdocuments | Icon  Description automatically generated Literature study Interview    filter on stepping-stones methods  Design specification Product review | The results of this sub question will be an implementation plan that describes how the results can be implemented for Fontys. Aside from that, everything that will be made gets transferred to the next phase which will be done by a different project group. For this, research will be required how to set up an implementation plan and how to make the transfer documents and check what is important when developing these documents (**Literature study**). What has to be transferred and what the stakeholders want to see in the implementation has to be discussed with the stakeholders themselves and the client (**Interview**). What we made has to be described in detail for the next group (**Design specification**). The results and products will be reviewed by peers, stakeholders and the client (**Product review**). |

**3.3 Project scope**

The project team will deliver a report with an advice that Fontys can use for further usage of the proof of concept that will be made. The project will focus on subsidy projects within Fontys where we visualize the data that is used. All data that will be gathered and used will comply with the General Data Protection Regulation. To improve the way of working, Power Platform will be used for automating the project process. The following will be out of scope:

* The implementation of the result.
* The implementation of the results for every project at Fontys. The focus will be on one type of project because that type of project is representative as a start for the other types of projects.
* Changing the culture in the way of working within Fontys units. The result of the project will only help with that.
* Other software or tools outside the Microsoft Power Platform.

# Research results

In this chapter four sub-question will be answered following the principles of the DOT-framework method. (n.d.)

## How are the current processes built up, and where are the bottlenecks?

### 4.1.1 Approach

In figure 1 are the different methods and connections displayed. This report starts with interviews from the Fontys staff. Rutger has provided Brainwave with a list of employees who all have a role in the subsidy projects. These analyses can be found in Appendix G and are used to establish the current situation and the bottlenecks. In addition, a literature study on how project management should be handled, with a document analysis of the prior research done by PerusahaanIT. A task analysis leads to a root cause analysis and is peer-reviewed by the client correspondent Rutger Lippits.

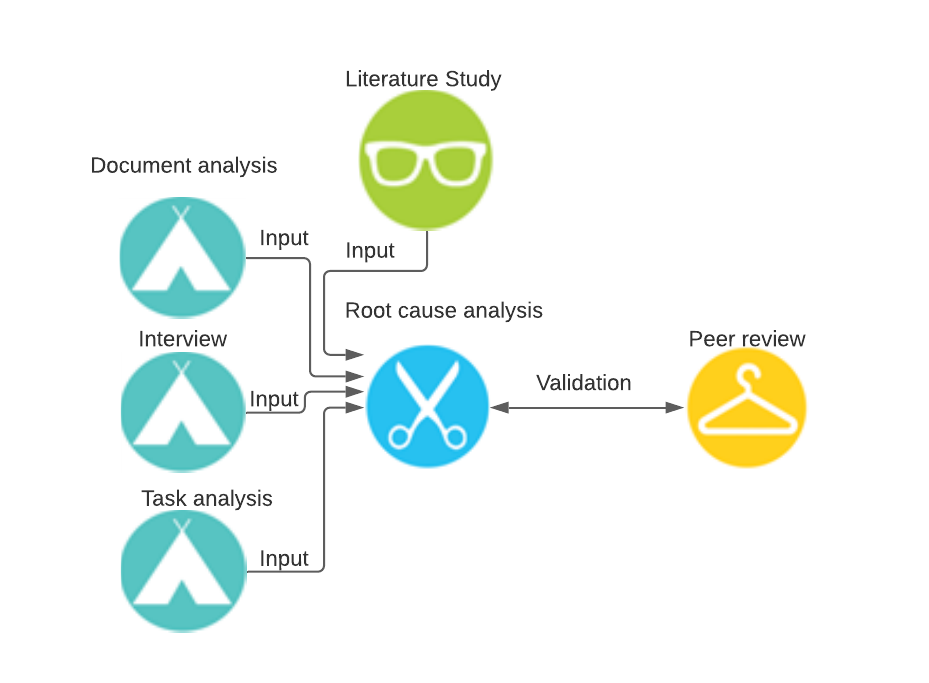


Figure 1: Research approach sub-question 1

### 4.1.2 Root cause analysis

Figure 1 displays the flow diagram of how a lecturer sees the current situation. Brainwave has conducted several interviews with staff members from Fontys with the following roles:

* Domain controller
* Project controller
* Planning & control
* Lecturer
* Professor
* Subsidy advisor
* Program researcher
* Lead for implementing Unit 4
* Two universities: HAN and TU Eindhoven.

These roles all have a different view of the project proposal.

Diagram

Description automatically generated

Figure 2: Flow diagram research proposal according to Teade Punter (lecturer)

\*: The subsidy granter or Fontys internal might require additional signatures from departments like “college van bestuur (CVB)”.

Out of all these interviews, Brainwave found that Rutger (R. Lippits, personal communication, September 22, 2021) is correct. There is no set structure everyone follows. Every institute is free to decide on how to set up projects. Causing everyone to see these project proposals from his or her perspective instead of having a unified ‘language’ (Appendix G - Interview Analysis Peter van de Ven).

It becomes impossible to pinpoint a set structure in which all roles clearly understand what is expected. Like the Subsidy advisors, the current tasks are out of scope according to the Deloitte blueprint. Despite having some projects test this new system, non of the projects abided by this and resulted in the subsidy advisors still working beyond their scope (Appendix G - Interview Jeanine). This is the case for every role within the projects. This confusion in responsibilities can be solved by structure. Milano (n.d.) elaborates that small business or in this case institutions start of with a flat hierarchy. And no structure. As it is too small for creating a hierarchy and role definition. The institutions grows and it becomes impossible to all have it done in a flat hierarchy style. Which is now the case for Fontys (Appendix G - Interview analyses Erik). The only structure currently is the internal approval and the signatures acquired. Which also leads to confusion as employees do not have a clear process in how to gather these signatures, leading to confusion, deadlines missed and mistakes (Appendix G - Interview analysis Jeanine).

Milan Vossen, with years of experience in project management sees this as the employees unknowing of what is best for Fontys (Appendix G - Interview analysis Milan). Milan States that having a unified language and procedures are critical for improving projects.

The current situation is a mess, there is potential to improve. Gary Chin (2019) has been a project leader for decades and helped develop courses for project management. According to Gary Chin, it is important to find the balance between structure and freedom. Gary claims the biggest challenge is to establish what level of “process” a team need to follow. Too much freedom leads to difficulties with finishing project. On the contrary too much structure decreases innovation and created frustration.

The prediction of Gary is correct, all 28 institutions have complete freedom on how to do project management. As a result, no one is happy with the current way of working. There are plenty of bottlenecks which all stems from a lack of structure, which is the current experience of Fontys. However, Fontys wants to change this, from January 1 Unit 4 will be the new financial system. This new system is going to contain all hours, costs, invoices, and master data (Appendix G - Interview analysis Milan). Fontys also hired Delloite to create a blueprint, in which all procedures and roles are laid out.

Lastly PerusahaanIT, a group of Fontys students has conducted research into the Microsoft Power Platform. This platform allows Fontys to create automated procedures and force employees to only use a single system or type of document, to create a common language. PerusahaanIT used the MoSCoW analysis with all the requirements for the Microsoft Power Platform by Fontys. PerusahaanIT only found two requirements not possible, the first one is that the proof-of-concept created by PerusahaanIT did not have the Fontys house style. To create a house style, more development time is required and some changed to the format may be required. Secondly, the Proof-of-concept did not contain a possibility to check the forms. This can be done by adding the approval actions in the processes on the Power Platform (Microsoft, 2021). Despite PerusahaanIT’s Proof-of-Concept not meeting two requirements, it should be possible within the Microsoft Power Platform. Which makes it a suitable tool for establishing a new structure.

**List of bottlenecks**

The current situation is causing several bottlenecks, these bottlenecks are summarized in Table 1. Table 1 displays a list of bottlenecks which are caused by the current situation. These bottlenecks are from the interviews, along with how many others had a similar experience/opinion on the subsidy project proposals.

|  |  |
| --- | --- |
| Data is insecure as this is passes around and saved on emails, making it difficult to access | Dries, Peter, Mark G |
| No data available, no information on what to do and how, no overview of current project request, no overview of project member and projects themselves | Erik, Daan, Mark Aelmans, Peter, Mark G, Milan, Bart |
| The amount of projects has risen beyond a point where manually keeping track is feasible | Erik |
| All subsidies need to go through the subsidy advisor and deadline are forgotten. caused by lack of information. | Jeanine, Hans, Mark |
| Deviations are made too easily | Mark |
| Not all 28 institutes of Fontys are linked despite being one Fontys | Bart |
| Small cooperation within Fontys such as The Spark Cooperation is a separate entity. | Bart |
| For different amount of subsidy, different approaches to the different subsidy providers are done. There needs to be a standardisation or an overview what to do for which subsidy provider, to prevent being slowed down or | Mark G |
| The bigger the project, the bigger the communicational problems. Making it difficult to chase parties if something is insufficient or late. | Mark G |
| Everyone can become a project leader without any prior experience or training | Milan |

Table 1: Bottlenecks Current situation

Note. From “LowCode Interview report V3” by Brainwave, 2021. Appendix G

## How do other companies structure project management?

### 4.2.1 Approach

In figure 3 are the research methods for this sub-question stated. To answer this sub-question, two universities who are also very involved with project subsidisations and requests in the Netherlands were interviewed: the HAN and the TU/e. These interviews were conducted with one representative per university that has a financial and or management role in setting up universities related projects. These can be seen as ‘Expert Interviews’ on the library dot from the ‘ICT research methods’. After the expert interview were taken they were analysed to get a detailed view on what the universities approach is for project requests and management. This is done by comparing their ‘best and good practices’, where is incorporated what has proven to work for each of the universities. Lastly their requirements are compared and a conclusion can be withdrawn from it. Here are also factors taken in that are of importance for Fontys.

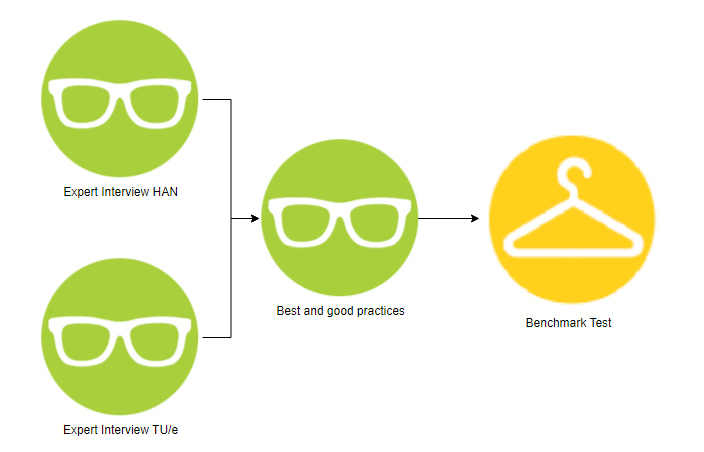


Figure 3: Research methods and order of sub-question 2



### 4.2.2 Expert interview: HAN

The HAN University of Applied Sciences, commonly referred to as HAN, is one of the larger universities of applied sciences in the Netherlands with 36,000 students. HAN provides higher vocational education in Gelderland, with branches in Arnhem, Nijmegen and Doetinchem. The HAN consists of 14 academies offering education, research and consultancy. (HAN. (n.d.). November 1, 2021)

The interview was taken with Frank de Haan, he is in the project quality control team and is involved in the technical developments of the internal systems. (F. de Haan, personal communication, October 28, 2021)

For full analysis of this interview see Appendix G *HAN. (N.d.) logo [foto]. Geraadpleegd op 1 november van*

### Afbeelding met tekst Automatisch gegenereerde beschrijving4.2.3 Expert interview: TU/e

Eindhoven University of Technology is a technical university in Eindhoven. It was founded on 15th of June 1956 by the Dutch government. Since its foundation, the university had its own campus in the center of Eindhoven. TU/e has more than 10,000 students, 250 professors, 600 PhD students, 200 post-docs and 2,047 other employees. TU/e offers eleven Bachelor's programs, one special Bachelor's program, nineteen Master's programs and eight special Master's programs. This university is focused on research and has more experience doing (international) projects then Fontys does. (TU/e. (n.d.). November 1, 2021)

The interview was taken with Marco Steinman, a central financial controller over all the academies at the TU/e University. He is involved with the development of their internal management systems. (M. Steinman, personal communication, October 20 2021)

For full analysis of this interview see Appendix G *TU/e. (N.d.) logo [foto]. Geraadpleegd op 1 november van*

### 4.2.4 Best and good practices

For each of the universities the best practices of processes that are internally executed will be compared. This is based on project management, internal systems and pitfalls with the universities’ desired situation in mind. This can be seen in table 2.

|  |  |  |
| --- | --- | --- |
|  | **HAN** | **TU/e** |
| Which internal systems are used? | **Frontoffice toolkit:** The usual way of submitting a project application is via the toolkit. This is an sophisticated toolkit within excel. New projects can be requested via this toolkit. It consists of includes a request sheet, risk analysis, a sheet to measure milestones, an invoice plan, a checklist with mandatory documents, links to a manual and internal budget, UBW reports and several sheets about the VAT.  **Quality manual:** This quality system provides insight into how Project Control is practiced within the HAN. It checks whether the quality meets the requirements HAN has set for project management and the subsidy conditions stated by the subsidy provider.  **Cloud:** | **DIPRO:** The process starts here, where all the necessary information for a complete project request is written down, along with automatic cost calculation  **ORCA:** The information from DIPRO is send to ORCA, which is a self-developed dashboard which is only available from the intranet of TU/e. These dashboards are all based on financial information.  **Oracle:** Oracle makes software, called database management systems, to create and manage databases.  **SharePoint:** all the information from the systems mentioned above are stored in this online cloud. |
| What is the new situation? | This way of working with the manual is relative new (2 years). Everyone who is involved got a training on this new way of working. These trainings are given by the marketing department (instead of an administrational person) and this has caused the culture to shift in a positive trajectory in recent years as professors are now pushing others to use the manual and the forms in a correct way. | The projects of TU/e are aimed at research instead of applied science (like HAN and Fontys). They also have more and bigger variety projects because of the many availabilities and faculties within TU/e.  TU/e decided that setting up projects have clear separate responsibilities: almost all administration tasks are placed on administrational employees. This is to avoid mistakes and save time for the busy professors, so they only have to focus on the content of the project. |
| Wat are the current pitfalls? | - From the past experience of Frank de Haan, it could be seen that people wanted to be heard. That’s why the manual is updated twice a year. Everyone involved is expected to give feedback and afterwards the feedback is implemented. In fact, people who do not proactively give feedback on the information in the manual will be approached so that they are still listened to and their motives are noted.  - Working with an Excel file in a cloud can be dangerous since anyone with access can change the whole content of the document by accident. Finished parts of the document cannot be locked or if someone only needs to fill in a specific part, it is not possible to highlight only the relevant part. | - The separation of tasks means that basic administrational actions are quickly seen as not done by the professor even though it might be their responsibility. Example of this is keeping track of worked hours: it is difficult to ensure professors to fill out just the weekly hours. Asking for more information then just the hours would be quickly deemed as too much administrative work.  - DIPRO, Oracle and ORCA all use the same data base. Using three systems instead of one takes time to switch and may lead to mistake or system errors. |
| What is the desired situation? | HAN would like to receive more information for monitoring, and not everyone has finished trainings for their roles.  HAN would like to see that project leaders are required to have passed certain courses before starting a project, which will be provided through their internal acadamy. This would be to help them understand how to be a project manager and the aspects of the project and eliminate time consumption at the beginning of a project. | To keep administration and project management separated, but mostly a new system which includes all three of the currently used systems in one. |

Table 2: Best and good practices HAN & TUe

### 4.2.5 Benchmark test/conclusion

For the benchmark test, look at the table above to compare the situations. The biggest differences between TU/e and de HAN in project requesting and project management is that TU/e keeps administration and project management separated, where HAN believes it is good that all parties involved know everything. HAN tries to accomplish this by giving internal trainings to employees and gauge everyone’s opinion and feedback on the current way of working which they afterwards implement in a new manual.

TU/e has digitalized their project requesting and managing for the biggest part, but they are currently working with three different systems in which it is hard to connect and link information. Also, it is confusing working with several systems at the same time and is it easier to make administrational errors.

The most important factors to consider for Fontys are both the digitization of the administrative tasks at TU/e and the involvement of all staff at HAN. A combination of these two could lead to a clear overview in terms of administration and the involvement of all parties that are part of a project application are exactly aware of what the state of affairs is, which all can lead to a more efficient way of working with less chaos and stress.

## What does the desired situation look like and what are the requirements?

### Approach

Research question three is cut up in different section which are displayed in figure 4. Firstly the interviews which are mentioned in previous chapters are held and used for exploring the user requirements. Secondly, a literature study is conducted on what other universities do for their project management. Thirdly, a document analysis is conducted on the previous work of PersuhaanIT and Delloite. The most important diagram is displayed in figure 5. These requirements are then prioritised by using the MoSCoW analysis. Which is created by Brainwave and located in LowCode Requirements V2 (Appendix B). This document is then peer reviewed with the client Rutger Lippits.

Diagram

Description automatically generated

Figure 4 Approach Research Question 3

Deloitte made diagrams on what the desired situation looks like. The process starts with an idea for a project and will have the application for the subsidy request as the last step:

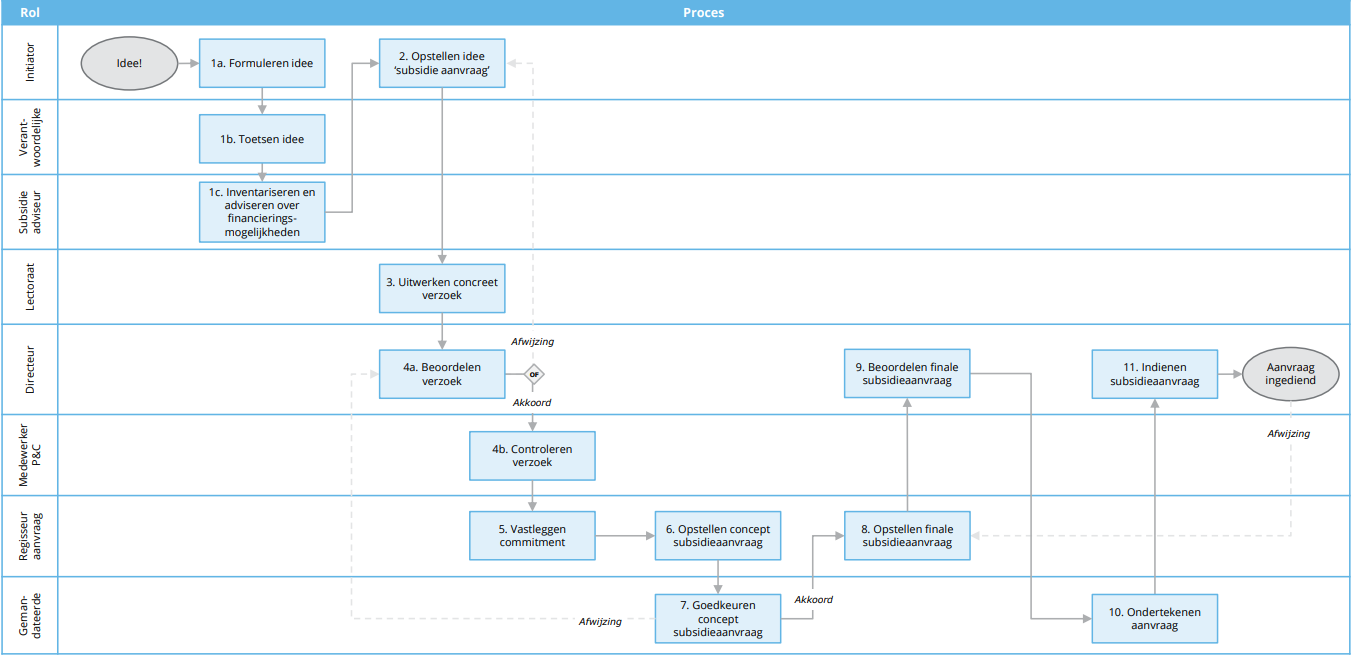


Figure 5 Subsidy Request Process

### Requirements

These requirements are coming the previous document analysis, literature study and interviews. Brainwave has summarized them and categories them into different types of requirements these are business requirements in table 3, user requirements in table 4, functional requirements in table 5, non-function requirements in table 6 and technical requirements in table 7. All these requirements are then analyzed using the MoSCoW method. This method consist of categorizing these requirements into four sections, ranked from highest to lowest priority: Must have, should have, could have and won’t have. W. Additional information can be found in Appendix B

Table 3 Business Requirements Proof-Of-Concept

|  |  |  |  |
| --- | --- | --- | --- |
| Code | Title | Description | MoSCoW |
| BR-01 | Central Process | The client wants to apply for one central process for a (subsidy) project. | **Must Have** |
| BR-02 | Progress Insight | The client must have more insight into the progress of the project. | **Won’t Have** |
| BR-03 | Financial Dashboard | The client wants a dashboard for the current financial status of approval. | **Should Have** |

Table 4 User Requirements Proof-Of-Concept

|  |  |  |  |
| --- | --- | --- | --- |
| Code | Title | Description | MoSCoW |
| UR-01 | Overview #1 | The user can see an overview, in the form of a dashboard, of the tasks of different employees. | **Won’t Have** |
| UR-02 | Dashboard #1 | The user can see the progress of the current projects in a dashboard. | **Won’t Have** |
| UR-03 | Overview #2 | The user can see an overview of all available and involved parties from team members to consortium. | **Won’t Have** |
| UR-04 | Overview #3 | The user can see an overview of all the projects categorized in ‘Applied for’, ‘In-Progress’ and ‘Finished’ | **Won’t Have** |
| UR-05 | Dashboard #2 | The user can see a dashboard where the KPI’s ‘Return’, ‘Drop-out’ & ‘Succes-Rate’ is visualized. | **Won’t Have** |
| UR-06 | Availability | The user can see the availability for project with other institutes. | **Could Have** |
| UR-07 | Notification #1 | The user is reminded when a deadline is coming up within a project. | **Won’t Have** |
| UR-08 | Overview #4 | The user can see an overview of the amount of requests, and other transactional data regarding the project requests | **Must have** |
| UR-09 | Overview #5 | The user can see an overview of the status of a project request | **Must have** |
| UR-10 | Overview #6 | The user can see a short history of the most recent project requests | **Should have** |

Table 5 Functional Requirements Proof-Of-Concept

|  |  |  |  |
| --- | --- | --- | --- |
| Code | Title | Description | MoSCoW |
| FR-01 | Trigger | The Proof-of-Concept can use MS Forms as a trigger to start a flow in Power Automate | **Must Have** |
| FR-02 | Unique Id | The Proof-of-Concept can give new project an unique number as ID | **Must Have** |
| FR-03 | Checklist | The Proof-of-Concept must add a checklist for all the documentations and approvals. | **Should Have** |
| FR-04 | Centralizing | The Proof-of-Concept needs to centralize the data and documents for every project. | **Must Have** |
| FR-05 | SharePoint | The Proof-of-Concept must be able to work with files from the SharePoint environment. | **Must Have** |
| FR-06 | Calculating #1 | The Proof-of-Concept must be able to demonstrate that it is possible to calculate formulas automatically. | **Should Have** |
| FR-07 | Approval | The Proof-of Concept must be able to let certain persons give approval about project requests. | **Should Have** |
| FR-08 | Accessibility | The Proof-of-Concept must be available within the network of Fontys University of Applied Sciences. | **Must Have** |
| FR-09 | Notification #2 | The Proof-of-Concept should send a notification when approval has been given. | **Should Have** |
| FR-10 | Notification #3 | The Proof-of-Concept sends a notification when the project request is filled in. | **Should Have** |
| FR-11 | Calculating #2 | The Proof-of-Concept must have the ability to calculate data from one file to multiple files. | **Should Have** |

Table 6 Non-functional Requirements Proof-Of-Concept

|  |  |  |  |
| --- | --- | --- | --- |
| Code | Title | Description | MoSCoW |
| NFR-01 | User-friendly | The Proof-of-Concept needs to be user-friendly. | **Should Have** |
| NFR-02 | House-rules | The Proof-of-Concept needs to follow the house-rules of Fontys Hogeschool. | **Must Have** |
| NFR-03 | Transferable | The Proof-of-Concept needs to transferable for further developments. | **Should Have** |

Table 7 Technical Requirements Proof-Of-Concept

|  |  |  |  |
| --- | --- | --- | --- |
| Code | Title | Description | MoSCoW |
| TR-01 | Office 365 | Using Office 365 (Microsoft Power Platform) to create the Proof-of-Concept. | **Must Have** |
| TR-02 | Right System | The Proof-of-Concept must be able to work with the current rights system of Fontys University of Applied Sciences. | **Must Have** |
| TR-03 | Adaptable | The Proof-of-Concept must be adaptable, so that extensions and adjustments are possible in the future. | **Should Have** |

## How can a proof of concept be used to introduce a new way of working for optimizing Fontys project management?

### 4.4.1 Approach

For this question the following three research methods are conducted. First proof of concept which will be used to make a prototype for the solution. This prototype will consist of a Power Automate flow which is made from the newly designed process flow as well as a findings report for obstructions and design choices. After that it will be user tested to make sure that the prototype fits the need of the users. And lastly a product review with the stakeholders will be done to make sure that all their wishes are fulfilled.

First we also wanted to do some library research for the power automate program, but this seemed to be unnecessary as we already had enough project members that have that expertise.

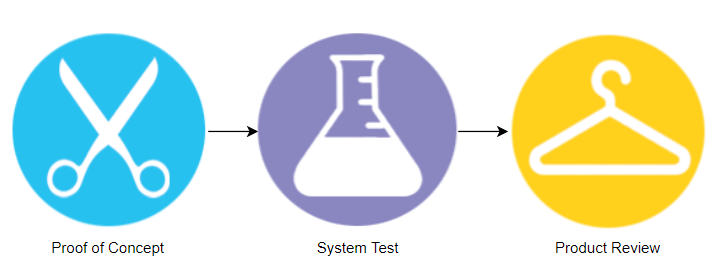


Figure 6: Research methods and order of sub-question 4

### 4.4.2 Proof of concept

The plan is to build a power automate flow which should automate the process flow of the project request form. We use the template of the project request form that was provided by the client as the input fields and we will use the steps from the newly created process flow as a guideline for the power automate flow. After that we will show all of the data from power automate in a Power BI-dashboard

First we checked on how to setup a basic flow in the power platform environment when immediately some problems arose. Both the PowerApps environment and power automate environment were too sectioned off (for security measures) to be able to prosecute the things that were supposed to be realized. Therefor we first setup a very basic flow that contained most of the steps that were supposed to be realized just not as a complete version nor a version that had all the requirements (see figure 6). This was to have a head start when the Power Platform environments were opened up by the security department of the client.

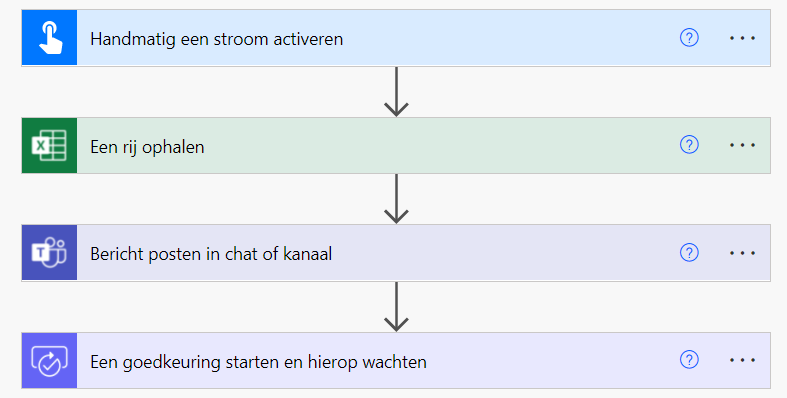


Figure 7: Basic flow in power automate with some of the required steps as a head start

This flow gathered the data from a google forms form linked to excel (step 2) with a manual trigger (step 1) and put the data required in an automated message via teams (step 3). After that it requested approval (step 4) from the (eventually) people that require to approve the requests.

After that the environment got finally opened so that we could use the necessary parts of power automate to make the complete flow. We started off by making individual versions to see what everyone’s interpretation was for a solution. After that we took all the best parts of each version and put that into one ultimate version. Then we repeated those steps for Power BI.

For a more in-depth analysis on the steps and building process see Appendix C.

### 4.4.3 User test

After constructing the prototype we user tested it to make sure that the prototype fulfilled the needs of the user. We interviewed four people with the a test script (Appendix H)

The most important findings (with an appearance of 2 or more) from the user test were the following (Appendix I):

**Power automate**

* 3) Names of stakeholders should be in the mail
* 3) ProjectID is unclear in the mail and the forms (please let this appear more often in mail, on the forms, etc. to make it more clear)
* 2) ProjectID rather filled out automatically when clicking the link

**PowerBI**

* 2) Name initiator overview unclear (maybe change to search project)
* 2) Finding the project name is challenging (maybe make the visual a tableview)

**Other remarks from the user test**

* Where is fontys in the maturity level of data-driveness?
* As a workaround for the powerapps security problem, contact an instance from PoI/PoE
* Idea to also appoint someone internally from the IT-department to work on the project

### 4.4.4 Product review

Within the product review the contractor had a look at the prototype to make sure that everything he had envisioned was in it. He had a couple of annotations on the KPI’s that were showed. He was missing a few which weren’t defined previously. In table 8 there is an overview of his feedback and the status of those annotations:

Table 8: Product Review

|  |  |
| --- | --- |
| Feedback | Status |
| ‘Instituten Overzicht’ separate the status from status to institute | Changed |
| ‘Projecten Status Overzicht’ change name to ‘Project Controller Overzicht’ | Changed |
| Add an additional filter on the type of project (subsidy, internal, zakelijke dienst) | Changed |
| More drill-through links in the dashboards | - |
| Add an additional gauge diagram to the ‘Project Status Overzicht’ | Changed |
| Couple institutes to centre of expertise by using general institute emails. | Changed |
| Overview of centre of expertise as several institutes may possess the same expertise | Changed |

### 4.4.3 Summary (Findings & Design choices)

**Findings:**

* PowerApps environment was not secure enough as everyone within the fontys environment could edit each and every solution
* PowerApps environment was too sectioned off in functionality for students
* Power automate environment was too sectioned off in functionality for students

**Design steps & choices**

1. Create a basic flow as a head start for when the environment was ready
2. Create separate prototype versions for the power automate solution
3. Combine all of the versions to make one ultimate prototype
4. Test the ultimate solution for all of the requirements
5. Repeat steps 2-4 for PowerBI
6. User test for the complete prototype (power automate and PowerBI)
7. Apply feedback from user test (if possible repeat steps 5 and 6 for a better end product)
8. Product review for the complete prototype
9. Apply feedback from product review

## What does Fontys have to do to implement the solution for all institutes?

### 4.5.1 Approach

For this sub-question, we used multiple research methods. We started with an research on how to set-up an implementation plan and transfer document (**Literature Study**). We also executed a couple of interviews with stakeholders of this project (**Interview**). This information is used to write an implementation plan. This information, with the already gotten information from the requirements & test results, is also used to write the transfer documentation (**Design Specification**). This results and products were reviewed by the client (**Product Review**).

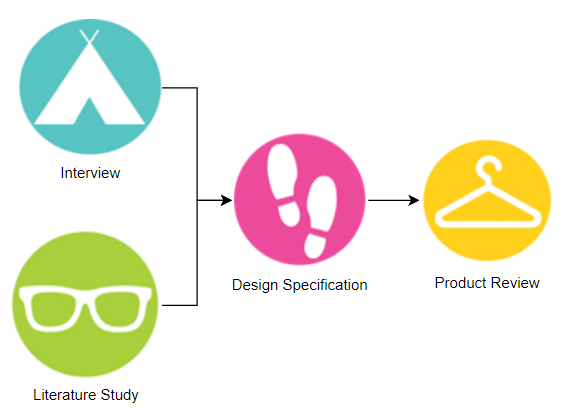


Figure 8: Research methods sub-question 5

### 4.5.2 Implementation Plan

For the implementation, seven steps are created to implement the Proof-of-Concept within the Fontys environment. Each step has it own tasks. This can be seen in table 9 below.

Table 9: Steps Implementation

|  |  |  |
| --- | --- | --- |
| NR | Step | Explanation |
| 1 | Define Project | Introduce the Proof-of-Concept & analyze the time-bridge. Also analyze the project risks. |
| 2 | Business Definition | Train the points of contact, contact Dienst-IT and execute a GAP-analyze. |
| 3 | Realization | Develop Power Apps & Power Apps and normalize the changes. |
| 4 | Configuration | Configure the rights of the Microsoft Power Platform and update the data. |
| 5 | Testing | Establish the test-environment and execute a functional test. Also execute an audit on the information security and finish with an acceptance test. |
| 6 | Implementation | Start the time-bridge and make clear who is the point of contact. Also map the risks. |
| 7 | Aftercare | Set-up an cyclical check for the security and fully integrate the system. After this, evaluate the finished product and improve it where necessary. |

For the full explanation of the steps, see Appendix D.

### 4.5.3 Transfer

For the next group that will work further on this project, an advice has been written. This has been written within the ‘Transfer document LowCode’ (see Appendix E). The following statements below are a summary of the advice of the Proof-of-Concept for the next group.

**Power Automate Workflow:**

* Use Power Apps instead of the Microsoft Forms.
  + Make Power Apps able to automatically fill in answers or give suggestion to certain questions according to the answers of previous filled in questions.
  + Make it able for Power Apps to make one forms in three sections (the three stages) and that the initiator can fill in the next section of questions when he gets approval by the certain stakeholders.
* Use Azure as a database instead of SharePoint lists.
* Find out a way to connect the right person with the right function to a certain project using the stakeholder list.
* Make an instruction manual for the useability of the prototype. This will ultimately give a better user experience.

**Power BI:**

* Improve or add graphs to the dashboards and make them drill-through, to be able to drill-through another level.
* Consider project duration in the dashboard.
* The navigation menu needs to be clearer.
* Give an separate overview of specific projects instead of a drill-through.
* Add an textual explanation.
* Create a check-list of projects that users find interesting.
* Add an indication on the status of budget that is used.

For a full description of the advice & changes, see the transfer document (Appendix E)

# Conclusion and Advice

For this project several documents have been made that will help to elaborate on how the project request forms can be handled. Using the requirements (table 10) as a basis for a continuation of this project would be a good start.

Table 10 - Most important requirements of the research

|  |  |
| --- | --- |
| Type Of Requirement | Requirement |
| Business requirement | The client wants to apply for one central process for a (subsidy) project. |
| User requirement | The user can see an overview of the amount of requests, and other transactional data regarding the project requests |
| User requirement | The user can see an overview of the status of a project request |
| Functional requirements | The Proof-of-Concept can use MS Forms as a trigger to start a flow in Power Automate |
| Functional requirements | The Proof-of-Concept can give new project an unique number as ID |
| Functional requirements | The Proof-of-Concept needs to centralize the data and documents for every project. |
| Functional requirements | The Proof-of-Concept must be able to work with files from the SharePoint environment. |
| Functional requirements | The Proof-of-Concept must be available within the network of Fontys University of Applied Sciences. |

Furthermore for the Proof-of-Concept, two SharePoint-lists have been made to store the data that is collected using Power Automate. This method was chosen because of the scope of the project. Our advice is to research the possibilities to use Azure as a database where the data that is going to be collected using Power Automate is going to be stored. This will give a better security for the data that is collected and it can also lead to the data already being structured. It is also going to be more easy to retrieve the data for other purposes.

When using Azure, the data can be well managed using SQL for the long-term. Using SharePoint lists as a data source can trouble the data management on the long-term, because it is easier to export, transform and retrieve the data from a SQL-server than from a SharePoint list.

On the negative side, According to Dries van der Ende, Azure is very expensive and difficult to implement properly because of privacy and security.

However, in general, SQL Server works better with PowerApps because it provides better query delegation support using the Microsoft Power Platform (Microsoft, sd). Since we advise to use Power Apps instead of Microsoft Forms, we also advice to use Azure for the next groups prototype.

The last deliverable for the Proof-Of-Concept is Power BI. This tool is used for dashboarding to give different stakeholders overview. Requirements are different for each role, so Brainwave advices to create several dashboards. Even additional dashboards for the same role are advisable, as a lot of data is gathered making the possibilities endless. All Dashboard created by Brainwave are found in the LowCode Dashboard (V2).pbix file.

Microsoft Forms is unfortunately not a success. At first Brainwave planned to use Microsoft Power Apps but this was unfortunately impossible. The Fontys environment has no features or modules available at all, which heavily restrict the possibilities. There is also a safety issue, everyone within the environment has access to everyone’s Power Apps projects within the organization of Fontys. This means that the rights management is not yet been well configured. There have no changes been made at the time of writing. Brainwave highly recommends the next group to start contacting Fontys IT to make the environment more secure or to make an environment that is specially designed for this project. This resulted in Brainwave choosing for Forms, which also has limitations. These limitations are mentioned in table 2 which displays the feedback derived from the user tests.

**Advice:**

* Fix the problems in PowerApps that prevent it from being used by students and make it secure enough so that not every app can be accessed by anyone
* Transfer the sharepoint list to an azure database to improve datamanagement
* Create several dashboards in PowerBI to enable segregation of duties
* Add tooltips to the varying input fields in Forms (or in PowerApps when available) to make them self-explanatory
* Start collecting data that is used for project management after the request (e.g. milestones, percentage budget spent, percentage chance of succession, etc.)

# Sources:

Chin, G. (2019, October 17). How to balance process intensity with Creative Freedom. LinkedIN.

Retrieved November 3, 2021, from <https://www.linkedin.com/pulse/your-project-managers-being-crushed-management-process-gary-chin/>

Eindhoven University of Technology. (n.d.). TU/e. Retrieved November 1 2021, from

<https://www.tue.nl/en/>

HAN. (n.d.). *Over de han*. Retrieved November 1 2021, from https://www.han.nl/over-de-

han/organisatie/

HAN logo. (n.d.). [Foto].

<https://nl.wikipedia.org/wiki/HAN_University_of_Applied_Sciences#/media/Bestand:HAN->merkteken-descriptor.png

ICTresearchmethods. (n.d.). *Methods.* Retrieved on November 1 2021, from

<https://ictresearchmethods.nl/Methods>

Milano, S. (n.d.). *What Is the Impact of Poor Organizational Structure Relative to Growth?* Small

Business - Chron.Com. Retrieved 19 November 2021, from <https://smallbusiness.chron.com/impact-poor-organizational-structure-relative-growth-75327.html>

N. (2019). *What Is an Oracle Database (Oracle DB)?* | NetApp. NetApp. Retrieved November 1

2021, from <https://www.netapp.com/knowledge-center/what-is-oracle-database/>

TU/e logo. (n.d.). [Foto]. <https://www.academischerfgoed.nl/wp-> content/uploads/2016/12/9\_kleur.png

# Appendix A – Project Initiate document

Logo

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Management summary

Fontys currently operates in a decentralized project management system. All project management is done internally in each of the 28 institutes which leads to problems, especially when two or more institutes work together. There is no data available apart from the financial data. Therefore no one within Fontys has a clear overview on the number of projects, progression, potential delays, and other issues. Due to the sheer amount of work it requires to stay up to date with each project. As the project management office has no clear dashboard, it becomes increasingly difficult to get control over all those projects.

Brainwave will investigate how Fontys can optimize their project management by standardizing and automating this with a Proof-of-Concept that Fontys can use to implement for the subsidies project within the IT institute.

With this project goal, Fontys wants to generate insights in the possibilities of Microsoft Power Platform that can help with optimizing and centralizing projects. These results will be put in a research report. The result of the project should give an image of what can be used to optimize and centralize the project management, not only for brainwave, but also future groups building further on our creation and research.

**Main research question:** How can Fontys optimize and centralize their way of working regarding project control with a Proof-of-Concept?

**Sub-questions:**

1. How are the current processes built up and where are the bottlenecks?
2. How do other companies structure project management?
3. What does the desired situation look like and what are the requirements?
4. How can a proof of concept be used to introduce a new way of working for optimizing Fontys’ project management?
5. What does Fontys have to do to implement the solution for all institutes?

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# Introduction

Fontys Hogescholen is a university of applied science in the Netherlands consisting of 28 institutions. With students across the Netherlands and the world, students can acquire a Bachelor degree, course, or a minor in various fields. Fontys was Founded on September 1 in 1996 (Arts, n.d.), with high care of sustainability (Bron, 2021). (R. Lippits, personal communication, September 13, 2021)

Currently, Fontys has several projects running within the university. However, Fontys does not have a centralized project management system in place. Resulting in each institute within the university coordinating their projects. This decentralized way of working causes several problems within the university. (R. Lippits, personal communication, September 13, 2021)

With the magnitude of Fontys, it becomes increasingly more challenging to maintain such a decentralized way of working. Therefore, Fontys wants to change this. At first, new accounting software is going to be implemented from January 1 2022. secondly, to regain control over the projects, a new centralized project management system will be created. Deloitte, an accounting firm, did the initial research. Which interviewed and worked together with Fontys to establish a basic blueprint of how project management should be handled within Fontys. Along with forms, roles, and more. Along with PerusahaanIT, a group of students from Fontys researched that the Microsoft Power Platform meets most of the requirements. And is going to be used by Fontys for the creation of a centralized system. (R. Lippits, personal communication, September 13, 2021)

The purpose of this document is to support Brainwave for the project LowCode from Fontys. It elaborates on, firstly, the project definition. Looking at what more information Brainwave needs to complete the project. Secondly, project organizational structure. Elaborates Fontys with Rutger Lippits as representative. Thirdly, project management. It goes into detail on the outcomes of this project. Lastly, supporting appendixes. Are created to support the PID document and all the chapters. [Appendix B](#_Appendix_B:_Business) provides the reader with the business case for this project.

# Background

## Fontys Hogescholen

Fontys is a university of applied science, with 477 different studies and courses. Providing Bachelor study to 46.123 students, employing 5,186 people. All done by 28 institutions (Fontys, n.d.-a), with locations in Bergen op Zoom, Eindhoven, Helmond, Maastricht, Nijmegen, Rotterdam, Sittard, ’s-Hertogenbosch, Tilburg, Utrecht, Veghel and Venlo (Fontys, n.d.-b). Fontys believes that the education they provide contributes to vital, sustainable and a happy society (Fontys, n.d.-a).

## Fontys Projects

Brainwave is going to help Fontys with a new project management system. This project is for the ICT institute and leads as an example for how the project management system is going be implemented throughout Fontys at a later stage. These projects are set up by professors that want to do one of the following: Enhance study quality, research, or create new learning material like minors, studies, or courses for external firms. Before a project can start, it first needs to be approved by several employees in other departments. The amount and type of approvals depend on the project budget and the funding source. There are three ways for a project to get funded. Firstly, by having Fontys pay for the project using internal budgets. Secondly, via "Zakelijke Dienst" this department works with external firms to gather funding for projects or create a course for that firm. Lastly, subsidies from governmental or other institutions. (R. Lippits, personal communication, September 13, 2021)

## Current Situation

Fontys currently operates in a decentralized project management system. All project management is done internally in each institute. The problems start from the beginning, professors hand in project requests in a variety of formats, ranging from Excel to Word to PDF, which makes it possible for anyone and everyone to edit the document . This causes several difficulties for professors during the request phase, like outdated documents, accidental changes to data even with the possibility for malicious intent. These difficulties are passed onto the people approving a project. They have to adapt each time, do it at the last minute, or get incorrect information. This is all made possible by the mentality that everyone does it in their way of working. (R. Lippits, personal communication, September 13, 2021)

After a project is accepted, all problems continue. There is no data available apart from the financial data. Therefor no one within Fontys has a clear overview on the amount of projects, progression of these projects, potential delays, and other issues. This is due to the sheer amount of work it requires to stay up to date with each project. As the project management office has no clear dashboard, it becomes increasingly difficult to get control over all those projects. As the best way to gather information is to have a chat at the coffee machine with the project leaders. But there are no forms, milestones, dashboards, midterm evaluations or KPI’s to show how well the project is progressing. Making it especially difficult for different institutions to work together on one project. The only data available is financial. This data only contains the incurred expenses and project hours. However there is no requirement to specify what the hours are used for, nor the actual time or date. As professors tend to fill in the same amount of hours each week on Monday morning, whilst providing lectures at that specific time. However Fontys trusts these professors in working those X amount of hours that particular week. (R. Lippits, personal communication, September 13, 2021)

Fontys has already started doing research on creating structured processes and tools. First, PerusahaanIT a previous group of students research that the Microsoft power platform containing most of the requirements. And the decision has been made by Fontys to use this platform for creating a centralized project management system. Fontys also worked together with Deloitte, an accounting firm. To create a blueprint of how the project request processes should look like, this was done in collaboration with Fontys and the stakeholders of the projects. Like professors, PMO office, and others. (R. Lippits, personal communication, September 13, 2021)

## Desired situation

The future goal of Fontys is to have a centralized project management system with an integrated financial system. However, it will take at least five years to start this process. Currently there not an online tool in place that follow a procedure for professor to follow, and captures data alongside. However there is previous research done by PerushaanIT and Deloitte. It will take at least a year for Fontys to establish a project management system in Microsoft Power Platform in all 28 institutions. Time which Brainwave does not have. (R. Lippits, personal communication, September 13, 2021)

The project management system should be efficient and effective. This is done by automating as many processes as possible. It starts with forms at the request phase, which will require the professor to fill in necessary information and data. This data is then translated into a dashboard to help with evaluation and feedback. Along with approval or denial, the outcome depends on several factors gather from the form, and additional information side factors like. The number of projects currently active. What information project management needs, will be researched by Brainwave. Fontys wants this form to be cumulative throughout the process. In the next step the proposal needs to be worked out more with the addition of milestones and other information, which will be research by Brainwave. This request and will be further evaluated by the necessary employees. Who is going to evaluate is purely depended on the type of project, type and amount of funding required. Once the proposal has been accepted it will go into the request for funds and evaluated further. Once this is done, it will be automatically sent to the right employees for signing. Finishing the request phase. (Deloitte, 2021)

Next to the automation of these processes project management office wants to have midterm meetings for project progression. To evaluate the current projects. This midterm meeting is currently non-existent nor does anyone know what is important in those meetings. This would ideally be changed to prevent, potential delays, and adjust projects in time. (R. Lippits, personal communication, September 13, 2021)

# Project definition

This chapter will describe the goal of the project, the research questions, and other important aspects that define the project such as the desired situation, the research approach, the products that will be delivered, exclusions, scope and necessary resources.

## Project goal and research questions

**Project goal:** Investigate how Fontys can optimize their project management by standardizing and automating this with a Proof-of-Concept that Fontys can use to implement in their projects.

**Main research question:** How can Fontys optimize and centralize their way of working regarding project control with a Proof-of-Concept?

**Sub-questions:**

1. How are the current processes built up and where are the bottlenecks?
2. How do other companies structure project management?
3. What does the desired situation look like and what are the requirements?
4. How can a proof of concept be used to introduce a new way of working for optimizing Fontys’ project management?
5. What does Fontys have to do to implement the solution for all institutes?

### 3.1.1 Intended project result

Fontys wants insight in the possibilities of Microsoft Power Platform that can help them with optimizing and centralizing their projects. These results will be put in a research report. The result of the project should give them an image of what can be used to optimize and centralize their project management, not only in this project, but also other projects and units that Fontys has. This result will include a proof of concept that will be developed based on the information that has come forward during the research. The proof concept will be tested against expected input and the results will be processed in a test report.

Since Fontys wants to use the results of this project for other units and projects, the result will include a report that describes how to use the solution and information that will come out of this project. The next phase of the project will be done by the next group so the transition of information should be clear for them.

## Research approach

Diagram

Description automatically generatedTo carry out the research, the methods and strategies of ictresearchmethods.nl and cmdmethods.nl are used. The methods that will be used fall under the following 5 strategies:

1. Library: Doing research into what has already been done in terms of solving the problem.
2. Field: Explore the context by, for example, researching where the problem is located and finding out requirements.
3. Lab: Testing the designed product or concept to see if everything works as intended.
4. Showroom: Present the product or idea to stakeholders or see if the product or meets general guidelines.
5. Workshop: Exploring possibilities in the form of prototyping, for example, to see what is possible and what is not (ICTresearchmethods, n.d.).
6. Stepping Stones: Communicating your results in tangible representations that can be used by others within your project (the HAN and AUAS, n.d.).

### Subquestion 1

|  |  |  |
| --- | --- | --- |
| Subquestion | Strategies & Methods | Explanation |
| How are the current processes build up and where are the bottle necks?  Products: Process description | Icon  Description automatically generatedIcon  Description automatically generated     Literature Task analysis  Study  Icon  Description automatically generatedIcon  Description automatically generated  Interview Document analysis    Icon  Description automatically generatedIcon  Description automatically generated  Root cause analysis Peer review | To do research in how the current processes are build up, research has to be done on how the processes are build up and what is going wrong. Aside from that, literature involving project control will be used to get a better understanding of the subject matter (**Literature study**). The processes will be analysed with **Task analysis**, documents that describe how the processes currently will be used (**Document analysis**) and stakeholders like project managers and planning & control employees will be interviewed to get an image how they see the current processes and where they see the bottlenecks (**Interview**). With this information the bottlenecks will be described (**Root cause analysis**). The results will be discussed with peers like fellow students in the project group and stakeholders (**Peer review**). |

### 3.2.2 Subquestion 2

|  |  |  |
| --- | --- | --- |
| Subquestion | Strategies & Methods | Explanation |
| How do other companies structure project management?  Products: Research results in the research report. | Icon  Description automatically generatedIcon  Description automatically generated  Best and good Literature study  Practices  Icon  Description automatically generatedIcon  Description automatically generated  Interview Peer review | Other institutes may offer insight in the structure of project control and how they handle it (**Best and good practices**). To know which institutes have use Power Platform already, research is required to find that out (**Literature study**). Aside from consulting sources online, stakeholders that know of what and how other institutes these tools are consulted (**Interview**). The results are discussed with peers and stakeholders (**Peer review**). |

### 3.2.3 Subquestion 3

|  |  |  |
| --- | --- | --- |
| Subquestion | Strategies & Methods | Explanation |
| How does the desired situation look like and what are the requirements?  Products: Interviews, requirements, research results in the research report | Icon  Description automatically generatedIcon  Description automatically generated Literature study Interview Icon  Description automatically generatedIcon  Description automatically generated  Explore user  requirements Document analysis  Icon  Description automatically generatedIcon  Description automatically generated  Requirements Peer review  prioritization | To get a clear image of the desired situation, there will be interviews with stakeholders to get an overview of the requirements for the desired situation (Interview and Explore user requirements). Aside from interview, documents that describe how the desired situation looks like will be used (Document analysis). It Is important that the stakeholders are heavily involved since they will be working with in the desired situation. Sources that describe how to draw up requirements will be used (Literature Study). The requirements will be prioritized to set the most important requirements and the requirements that are not as important (Requirements prioritization). The results will be discussed with the team and stakeholders for feedback (Peer review). |

### 3.2.4 Subquestion 4

|  |  |  |
| --- | --- | --- |
| Subquestion | Strategies & Methods | Explanation |
| How can a proof of concept be used for centralizing and optimizing Fontys’ project management?  Products: Proof of concept, testreport | Icon  Description automatically generatedIcon  Description automatically generated Literature study System test  Community Icon  Description automatically generatedIcon  Description automatically generated  Research Product review  Icon  Description automatically generated    Proof of concept | Based on the results of the previous research question, a proof of concept will be made within Power Platform. Research will be required to find out how the tools work exactly and if there are any problems while developing the proof of concept, the community and documentation regarding the issues will be consulted (**Literature study and community research**). Then the proof of concept will be made within Power Platform. It will be developed in a test environment so it can be tested (**Proof of concept**). When the proof of concept is done, it will be tested for functionality and the requirements that have been set up in the previous research questions (**System test**). Eventually, the results will be reviewed by peers and stakeholders (**Product review**). |

### 3.2.5 Subquestion 5

|  |  |  |
| --- | --- | --- |
| Subquestion | Strategies & Methods | Explanation |
| What does Fontys have to do to implement the solution for all institutes?  Results, Implementationplan,  transferdocuments | Icon  Description automatically generated Icon  Description automatically generatedLiterature study Interview  Icon  Description automatically generated  filter on stepping-stones methods  Design specification Product review | The results of this sub question will be an implementation plan that describes how the results can be implemented for Fontys. Aside from that, everything that will be made gets transferred to the next phase which will be done by a different project group. For this, research will be required how to set up an implementation plan and how to make the transfer documents and check what is important when developing these documents (**Literature study**). What has to be transferred and what the stakeholders want to see in the implementation has to be discussed with the stakeholders themselves and the client (**Interview**). What we made has to be described in detail for the next group (**Design specification**). The results and products will be reviewed by peers, stakeholders and the client (**Product review**). |

## 3.3 Project scope

The project team will deliver a report with an advice that Fontys can use for further usage of the proof of concept that will be made. The project will focus on subsidy projects within Fontys where we visualize the data that is used. All data that will be gathered and used will comply with the General Data Protection Regulation. To improve the way of working, Power Platform will be used for automating the project process. The following will be out of scope:

* The implementation of the result.
* The implementation of the results for every project at Fontys. The focus will be on one type of project because that type of project is representative as a start for the other types of projects.
* Changing the culture in the way of working within Fontys units. The result of the project will only help with that.
* Other software or tools outside the Microsoft Power Platform.

## 3.4 Product decomposition structure (PDS) on project level

PDS Project

Diagram

Description automatically generated

## Productdescription

1. **Research report:** This document serves as the document where the research results will be found. Every product that will be made during the project will be found in this document.
2. **Interview reports:** The interview reports with stakeholders and users are made to get a clear grasp on what the users and stakeholders want to see in the proof of concept and where the bottleneck lie according to them.
3. **Requirements:** From the interviews, a requirements analysis will be made so it's clear for the project group what the client and stakeholders want to see in the proof of concept.
4. **Proof of concept:** The proof of concept will be made in Power Platform and will serve as an example how the bottlenecks and processes can be automated and optimized. This will be for one type of project, eventually this will serve as an example for the other types of projects within Fontys.
5. **Test report:** The proof of concept will be tested on the functionality to see if everything is working according to the expected results. This report also includes tests based on the requirements that have been made during the second research question. This will serve as a check to see if all the requirements are in the final product.
6. **Implementation plan:** Fontys wants to use the proof of concept for projects in Fontys. The implementation plan will describe how this can be implemented and what is important for the implementation.
7. **Transfer documents:** After this project is done, it will go into the next phase and another group will use our work for their project. So the products that will be delivered during the project have to be transferred in a clear way so the next group won't take too long analysing our work.

## Project budget

The budget will be measured in working hours for each group member that works on this project which will be from 9 to 4 during weekdays. This is with exceptions in regards to workshops, meetings and other subjects that we have to attend.

## Necessary resources

* Power platform from Fontys
* Communication lines to stakeholders from Fontys projects
* Documentation that might be relevant for this project

## Exclusions

What is not part of the project result? Which parts, target groups, work areas, departments, etc. are not involved in the end result?

* There won't be a completely working product at the end, just a concept.
* The concept will apply to one institute of Fontys, not the whole of Fontys.

## Dependencies

Interfaces and relationships

− with programs,

− with other projects,

− with business units,

− with other organizations.

* Input and feedback from stakeholders, clients and coaches
* Availability from clients for meetings and feedback.

# Project Organisational Structure

Diagram

Description automatically generated

Figure 1 - Projectorganisationstructure Diagram

## Contractor – Rutger Lippits representing Fontys LowCode

Role Description: The contractor assigns the project to the project group and is the one approving or disapproving important decisions. He is the decider on whether the project is going to be realized or not.

Responsibilities:

* Instruct the project group about the assignment
* Clearing out uncertainties regarding the project

Tasks:

* Answer questions regarding the project
* Approving / Disapproving important decisions about the project
* Fund the project

Personal Information:

Rutger Lippits  
Financiëel Medewerker Fontys  
[r.lippits@fontys.nl](mailto:r.lippits@fontys.nl)

## Project leader – Jacek Peterse representing Brainwave

Role Description: De leader of the project group.

Responsibilities:

* Making sure the project group works coordinated
* Making sure deadlines are pursued
* Adding tasks to the scrum board

Tasks:

* Dividing of work together with the project group
* Taking the lead in meetings
* Contribute to the project

Personal Information:

Jacek Peterse  
Student International Food Business  
[j.peterse@student.fontys.nl](mailto:j.peterse@student.fontys.nl)

## Archivist – Robin Blom

Role Description: De archivist of the project company.

Responsibilities:

* Making sure the documents are tidy and ordered

Tasks:

* Organize documents and files
* Contribute to the project

Personal Information:

Robin Blom  
Student ICT & Business  
[r.blom@student.fontys.nl](mailto:r.blom@student.fontys.nl)

## Secretary – Lucia Geurts

Role Description: Secretary of the project company.

Responsibilities:

* Making sure that the minutes are kept up

Tasks:

* Take minutes of every meeting
* Contribute to the project

Personal Information:

Lucia Geurts  
Student International Business & Languages  
[lucia.geurts@student.fontys.nl](mailto:lucia.geurts@student.fontys.nl)

## CEO – Rareș Petrișor representing Brainwave

Role Description: CEO of the project company.

Responsibilities:

* Making sure that all projects run smoothly

Tasks:

* Organizes meetings
* Has contact with other CEO's
* Contribute to the project

Personal Information:

Rareș Petrișor  
Student ICT & Software  
[r.petrisor@student.fontys.nl](mailto:r.petrisor@student.fontys.nl)

## Scrum Master – Richard van Gestel

Role Description: Scrum Master of the project company.

Responsibilities:

* Making sure the scrum board is tidy and kept up

Tasks:

* Assist in daily scrum meetings
* Contribute to the project

Personal Information:

Richard van Gestel   
Student ICT & Business  
[richardvgestel.vangestel@student.fontys.nl](mailto:richardvgestel.vangestel@student.fontys.nl)

## Project Member

Role Description: Contributor to the project.

Responsibilities:

* Making sure that the divided tasks are done in time
* Assisting the cooperation in the group

Tasks:

* Contribute to the project
* Give feedback on made work (peer review)

Personal Information:

Maurits Verhage  
Student Industrial Engineering and Management  
[m.verhage@student.fontys.nl](mailto:maurits.verhage@student.fontys.nl)

Anaïs Conradus  
Student ICT & Business  
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Daniel van Dinter  
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[d.vandinter@student.fontys.nl](mailto:d.vandinter@student.fontys.nl)

Efaliso Tamerat  
Student ICT & Software  
[e.tamerat@student.fontys.nl](mailto:f.vangelov@student.fontys.nl)

## Group policies and regulations

For a more in depth view of the groups policies and regulations have a look at [[Appendix D - Company Policies & Regulations]](#_Appendix_D:_Company).

# Project management

## Report

When, to whom and how to communicate is recorded in the communication plan. The communication plan can be found in [Appendix A](#_Appendix_A:_).

## Progress monitoring

This will be done in a Trello board and a [Gantt-chart](https://stichtingfontys.sharepoint.com/sites/Company2797/Gedeelde%20documenten/General/Fontys%20Lowcode/1.%20General%20documents/Gantt-Chart-Fontys-LowCode.xlsx). They will both be visible in the Teams environment of the project. In here, all tasks are divided and assigned to team members.

## Tolerances

### Project tolerances

|  |  |  |
| --- | --- | --- |
| Transit time: | Scope: | Quality: |
| 20 weeks | During this project the focus will be on the institute Fontys IT. A central workflow concept needs to be designed for projects within Fontys IT. Later on this will be rolled out over all projects within Fontys. During the development of a project a method needs to be developed to report the progress. These concepts will be developed within the Microsoft Power environment. | HBO-worthy, consult 5.5 Quality Assurance |

### Risk acceptance:

The risks identified in the Risk log are tolerated up to a certain layer. The layer from L onwards is no longer tolerated and then a phase tolerance is introduced. In which the risk must be eliminated at the end of the lead time.

## Risk Management

The risks are elaborated in a Risk Log. This also identifies how to deal with the risks. See [Appendix C](#_Appendix_C:_Risklog).

## Quality Management

To maintain quality is ensured by asking for regular feedback on the products created and asking clear questions in order to answer the research questions, realize products and eliminate any problems.

To determine when the project is successful, a number of acceptance criteria are established. The drafting is done through a consultation with the client.

The acceptance criteria per product/report is when the client has no more additions/feedback to add and when the product/report is fully completed.

## Change Procedure

When a change occurs or is proposed, a certain step-by-step process is followed to make or reject the changes. This roadmap is called a change procedure. The change procedure for Fontys LowCode is as follows:

1. A team meeting will be held with the project leader, Jacek Peterse.
2. A team meeting will be held with the content coach, Jose Huisman.
   1. If positive, change will be implemented.
   2. If negative, change will not be implemented.

## Escalation Procedure

If escalation occurs, it can happen at various points. Then a certain roadmap is followed to de-escalate the escalations. This roadmap is almost the same as that of the change procedure. The roadmap in this case is called an escalation procedure. The escalation procedure for Fontys LowCode is as follows:

1. Try to resolve it between the parties.
   1. If outcome positive, involve the project leader Jacek Peterse.
   2. If outcome negative, involve both the project leader Jacek Peterse and content coach Jose Huisman.
2. Create a plan to de-escalate the situation.
3. Report this to the process coach, Rob Verhoeven.
   1. Create a plan to prevent escalations on this matter in the future.
4. Make it discussable in the weekly company meetings with the rest of the members of Brainwave.

# References

* Arts, M. (n.d.). *Fontys bestaat op 1 september aanstaande 25 jaar! En dat gaan we vieren.* Www.Fontys.Nl. Retrieved September 21, 2021, from <https://www.fontys.nl/actueel/fontys-bestaat-op-1-september-aanstaande-25-jaar-en-dat-gaan-we-vieren/>
* Bron. (2021, March 25). *Online platform draagt bij aan een duurzaam Fontys*. Www.Bron.Fontys.Nl. https://bron.fontys.nl/online-platform-draagt-bij-aan-een-duurzaam-fontys/
* ICTresearchmethods. (n.d.). *Method*. Retrieved 02 24, 2021, from <http://ictresearchmethods.nl/Methods>

de HAN en AUAS. (n.d.). *Stepping Stones*. Retrieved 03 05, 2021, from <https://cmdmethods.nl/>

* Deloitte. (2021, January). *Appendix A1 Blauwdruk – Subsidie Projecten.*
* Fontys. (n.d.-a). *Feiten en cijfers*. Retrieved September 15, 2021, from https://fontys.nl/Over-Fontys/Organisatiestructuur-en-sturing/Jaarverslagen-feitencijfers.htm
* Fontys. (n.d.-b). *Locaties en campuskaarten van Hogescholen*. Retrieved September 15, 2021, from https://fontys.nl/Over-Fontys/Contact-en-locaties/Fontyslocaties.htm
* Fontys. (n.d.-c). *Over*. Retrieved September 15, 2021, from https://fontys.nl/Over-Fontys.htm

# Appendix A: Communication Plan

The table below shows how communication has been arranged within the project:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Communication method | Tool | Frequency | Durance | Responsibility |
| Stand up | Microsoft Teams | Every day at 09:30 | 15 minutes | Brainwave |
| Planning meeting | N/A | Mondays at 13:00 | 1 hour | Brainwave (+ Rob) |
| Feedback session | N/A | Fridays at 13:00 | 1 hour | Brainwave (+ Rob) |
| Weekly update | N/A | Thursdays at 13:00 | 1 hour | Project group, Jose Huisman & Rutger Lippits |

The table below shows how information (documents) is managed within the project:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Documents | Content coach | Process coach | Fontys LowCode | Project leader | Project members |
| PID | A, R | A, R, AP | A, R, AP | E, D | E |
| Research report | A, R | A, R | A, R | E, D | E |
| Requirements | A, R | A, R | A, R, AP | E, D | E |
| Implementation plan | A, R | A, R, AP | A, R | E, D | E |
| Interview report | A, R | A, R | R | E, D | E |
| Test report | A, R | A, R | R | E, D | E |
| Transfer documents | A, R | A, R | R | E, D | E |

Legend:

|  |  |  |
| --- | --- | --- |
| **E** Establish | **A** Advice | **R** Receive for information |
| **T** Test | **D** Distribute | **AP** Approve |

# Appendix B: Business Case

Preface

This business case will describe the LowCode project for Fontys. It will go into detail on the current situation, the desired situation costs and gains. This case will go into the importance for creating a centralized project management system over the current decentralized system.

Current situation

Fontys hogescholen currently operates in a decentralized project management system. It’s actually not a "project management system" as there is none. The problems occur from the start, there is no standardized format for professors to follow, causing a variety of documents which people lose track of or get adjusted. Leading to problems with deadlines, especially if projects are funded via subsidies which are bound to hard deadlines.

Before a project can be approved, some members from the management team, director or others need to first inspect and read the document. Which team is involved depends on the amount of money involved. The higher the budget the more pressure on the project to succeed and be on time. An effect of this lack of structure is that projects approvals can happen at the last minute. Which makes it difficult to get the necessary approvals, as those employees are now forced into overtime or work in the weekends. As a result of this low timeframe, projects cannot be accessed thoroughly. After the project has been approved and signed it can begin. Currently the only data available of each project are all the hours and expenses. These hours do not include a general description or category. Making it difficult for the project management team to assess a project with only this data available. With the best way to gather information is to have a chat with a team member.

As a results of all this, many project run into difficulties due to the previously mentioned issues. As a result of this, project go over budget, delayed, other professors need to step in, or externals need to be hired at a significantly higher rate. If Fontys does not finish on time with a hard deadline, it could lead to problems. For subsidies it could mean that all the money needs to be paid back, or a firm might send employees over for a course which is non-existent yet but already paid for. Leading to projects being finished at the last moment with the questions rising if the quality is as expected.

However, Fontys has already started on going into the new direction for the centralized project management system. PerusahaanIT, a group of students has research that the Microsoft Power Platform is a suitable option. Fontys also hired Deloitte to help create blueprints for different types of projects. These blueprints are made by accountants and do not factor in the priorly mentioned Fontys work culture. Resulting in Brainwave to further interview key stakeholders and other firms to gather more information on how to use and create a project management system most efficiently.

Desired situation

The Ultimate goal of Fontys is to have a management system and financial system combined. This will not be feasible in the next 5 years, so Fontys needs an in between solution. Another desire is to change the current working culture, as many professors are used to the current way of working and might not want to change this.

Brainwave can contribute to this project by four phases. First phase, is using the current available information and expending on this. Firstly interviews need to be held with outside firms to get a different perspective on project management. Those interviews need to be analysed and used for interview questions to the stakeholders within Fontys, as many Fontys employees have no prior experience with a sophisticated system like Fontys wants to create. After the interviewing analysis takes place, Brainwave and Rutger are meeting to adapt the current blueprint and forms accordingly.

The second phase, consist of Brainwave creating a proof of concept within the Microsoft Power Platform, for the subsidy's projects. After this proof of concept, test runs will take place by Brainwave and stakeholders to test the effectiveness of this proof of concept.

The third phase is analysing information from phase three and creating recommendations for the rollout within Fontys.

The fourth phase consists of documentation for the stakeholders and the future groups expanding on this project. It will range from basic information for a professor on how to fill in a form, to a short guide on how Brainwave created these actions in the Microsoft Power Platform along with recordings, transcripts, and summaries of the interviews.

# Appendix C: Risk log

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Risk-ID | Description | Impact  H/M/L | Prob.  H/M/L | Severity H/M/L | Risk  Owner | Control measurement |
| R01 | Client can no longer supervise, causing project to fail. | H | L | M | Fontys LowCode | Utilize current knowledge and data to preface the project and discuss this occurrence with the content and semester coach |
| R02 | Conflict within group, making project uncomfortable. | M | L | L | Brainwave | Resolve conflict with a medium so that the project can resume. (See 5.7 escalation procedure) |
| *R03* | Conflict between group and client, making project uncomfortable. | M | L | L | Brainwave & Fontys LowCode | Resolve conflict with a medium (content coach/semester coach) so that the project can resume |
| R04 | Fontys Dienst IT fails to provide access to the Microsoft Power environment on time. | H | M | H | Fontys LowCode | Contacting Fontys LowCode on time. |
| R05 | Due to illness of team member/process coach/  team leader absent for long periods of time, making project difficult to proceed or impossible to proceed at all. | H | M | M | Brainwave & Process coach | Finish project without the project member/  Doing project with a substitute process coach |
| R06 | Data loss, either through theft or destruction. | M | L | L | Brainwave | Store data not only locally, but also online. |
| R07 | No data available from logs. | H | M | H | Project group/  Client company/  Content coach | Use dummy data |

# Appendix D: Company Policies & Regulations

**Rules**

* **In case of absence, report a day in advance with a valid reason.**
* **In case of late/delay or if leaving early, report half an hour in advance with a valid reason.**
* **Show respect for each other (understand each other's situation).**
* **Working transparently (everything in teams/shared files).**
* **Relaxation is part of it. 3 warnings can be issued when someone is not doing their job. After this, an immediate measure will be taken (consulted with the Semester coach). In this case, this is Rob Verhoeven.**

**Communication**

* **Absence and informal conversations via WhatsApp**
* **Official documents in Teams**
* **External Emails goes in consultation and via the project leader**

**Sanctions**

* **If the rules are not complied with, there will be a sanction. At the first two violations, without valid reason, the group will be consulted.**
* **At a third time, contact is also made with the semester coach for a suitable solution.**
* **At a fourth time, a different kind of collaboration is looked at.**

**Meetings**

* **Meeting twice a week (planning meeting every Monday 13:00, feedback session every Friday 13:00)**
* **Every 2 weeks, the planning meeting on Monday becomes a Sprint Planning Meeting, meaning tasks get moved If not finished to the following sprint and new tasks are added for the new sprint. Everyone decides what they would want to do for the following sprint (guidelines).**
* **Daily SCRUMs at 9:30**

**Agile Implementation**

* **There will be one SCRUM board that will contain all tasks during these 3 projects. This will all take place on Trello. During the daily SCRUM, specific tasks will be assigned to everyone, distributed evenly. Project leaders may change the tasks or assigned members of the team, if they give valid reasoning, but only during this meeting**

**Meetings are held at least twice a week. In this meeting the tasks and progress are discussed. This involves checking whether everyone is on schedule and whether any complications have arisen.**

**Members and corresponding personal details:**

|  |  |
| --- | --- |
| **Name** | **Personal Details** |
| Richard van Gestel | 345921  [richardvgestel.vangestel@student.fontys.nl](mailto:richardvgestel.vangestel@student.fontys.nl)  06-18377640  ICT & Business, Fontys |
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# Appendix B – Requirements document

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# Introduction

Fontys Hogescholen is a university of applied science in the Netherlands consisting of 28 institutions. With students across the Netherlands and the world, students can acquire a Bachelor degree, course, or a minor in various fields. Fontys was Founded on September 1 in 1996 (Arts, n.d.), with high care of sustainability (Bron, 2021). (R. Lippits, personal communication, September 13, 2021)

Currently, Fontys has several projects running within the university. However, Fontys does not have a centralized project management system in place. Resulting in each institute within the university coordinating their projects. This decentralized way of working causes several problems within the university. (R. Lippits, personal communication, September 13, 2021)

With the magnitude of Fontys, it becomes increasingly more challenging to maintain such a decentralized way of working. Therefore, Fontys wants to change this. At first, new accounting software is going to be implemented from January 1 2022. secondly, to regain control over the projects, a new centralized project management system will be created. Deloitte, an accounting firm, did the initial research. Which interviewed and worked together with Fontys to establish a basic blueprint of how project management should be handled within Fontys. Along with forms, roles, and more. Along with PerusahaanIT, a group of students from Fontys researched that the Microsoft Power Platform meets most of the requirements. And is going to be used by Fontys for the creation of a centralized system. (R. Lippits, personal communication, September 13, 2021)

In this document, the requirements are formulated for process improvement, using Microsoft Power Platform. It states which requirements have arisen and how they apply to the Proof-of-Concept.

The requirements are divided into the following subgroups:

* Business Requirements
* User Requirements
* Functional Requirements
* Non-Functional Requirements
* Technical Requirements

It has also been established in what necessity these requirements must be complied with. This was done using the so-called ‘MoSCoW-method’.

# Requirements

The requirements are prioritized according to the ‘MoSCoW-method. Requirements listed under "Must Have" are critical to making the project a success. Requirements under "Should Have" are important, but not necessary for delivery in the current project. While "Should Have" requirements can be as important as "Must Have" requirements, they are often not as time critical or there may be some other way of meeting the requirement so that it can be deferred to a future delivery deadline. Requirements under "Could Have" are desirable but not necessary and can improve user experience or customer satisfaction at low development costs. Requirements under "Won't Have" have been identified by stakeholders as the least critical, least profitable, or not appropriate at the time. As a result, "Won't Have" requirements are not planned in the schedule.

## Business Requirements

|  |  |  |  |
| --- | --- | --- | --- |
| Code | Title | Description | MoSCoW |
| BR-01 | Central Process | The client wants to apply for one central process for a (subsidy) project. | **Must Have** |
| BR-02 | Progress Insight | The client must have more insight into the progress of the project. | **Won’t Have** |
| BR-03 | Financial Dashboard | The client wants a dashboard for the current financial status of approval. | **Should Have** |

## User Requirements

|  |  |  |  |
| --- | --- | --- | --- |
| Code | Title | Description | MoSCoW |
| UR-01 | Overview #1 | The user can see an overview, in the form of a dashboard, of the tasks of different employees. | **Won’t Have** |
| UR-02 | Dashboard #1 | The user can see the progress of the current projects in a dashboard. | **Won’t Have** |
| UR-03 | Overview #2 | The user can see an overview of all available and involved parties from team members to consortium. | **Won’t Have** |
| UR-04 | Overview #3 | The user can see an overview of all the projects categorized in ‘Applied for’, ‘In-Progress’ and ‘Finished’ | **Won’t Have** |
| UR-05 | Dashboard #2 | The user can see a dashboard where the KPI’s ‘Return’, ‘Drop-out’ & ‘Succes-Rate’ is visualized. | **Won’t Have** |
| UR-06 | Availability | The user can see the availability for project with other institutes. | **Could Have** |
| UR-07 | Notification #1 | The user is reminded when a deadline is coming up within a project. | **Won’t Have** |
| UR-08 | Overview #4 | The user can see an overview of the amount of requests, and other transactional data regarding the project requests | **Must have** |
| UR-09 | Overview #5 | The user can see an overview of the status of a project request | **Must have** |
| UR-10 | Overview #6 | The user can see a short history of the most recent project requests | **Should have** |

## Functional Requirements

|  |  |  |  |
| --- | --- | --- | --- |
| Code | Title | Description | MoSCoW |
| FR-01 | Trigger | The Proof-of-Concept can use MS Forms as a trigger to start a flow in Power Automate | **Must Have** |
| FR-02 | Unique Id | The Proof-of-Concept can give new project an unique number as ID | **Must Have** |
| FR-03 | Checklist | The Proof-of-Concept must add a checklist for all the documentations and approvals. | **Should Have** |
| FR-04 | Centralizing | The Proof-of-Concept needs to centralize the data and documents for every project. | **Must Have** |
| FR-05 | SharePoint | The Proof-of-Concept must be able to work with files from the SharePoint environment. | **Must Have** |
| FR-06 | Calculating #1 | The Proof-of-Concept must be able to demonstrate that it is possible to calculate formulas automatically. | **Should Have** |
| FR-07 | Approval | The Proof-of Concept must be able to let certain persons give approval about project requests. | **Should Have** |
| FR-08 | Accessibility | The Proof-of-Concept must be available within the network of Fontys University of Applied Sciences. | **Must Have** |
| FR-09 | Notification #2 | The Proof-of-Concept should send a notification when approval has been given. | **Should Have** |
| FR-10 | Notification #3 | The Proof-of-Concept sends a notification when the project request is filled in. | **Should Have** |
| FR-11 | Calculating #2 | The Proof-of-Concept must have the ability to calculate data from one file to multiple files. | **Should Have** |

## Non-functional Requirements

|  |  |  |  |
| --- | --- | --- | --- |
| Code | Title | Description | MoSCoW |
| NFR-01 | User-friendly | The Proof-of-Concept needs to be user-friendly. | **Should Have** |
| NFR-02 | House-rules | The Proof-of-Concept needs to follow the house-rules of Fontys Hogeschool. | **Must Have** |
| NFR-03 | Transferable | The Proof-of-Concept needs to transferable for further developments. | **Should Have** |

## Technical Requirements

|  |  |  |  |
| --- | --- | --- | --- |
| Code | Title | Description | MoSCoW |
| TR-01 | Office 365 | Using Office 365 (Microsoft Power Platform) to create the Proof-of-Concept. | **Must Have** |
| TR-02 | Right System | The Proof-of-Concept must be able to work with the current rights system of Fontys University of Applied Sciences. | **Must Have** |
| TR-03 | Adaptable | The Proof-of-Concept must be adaptable, so that extensions and adjustments are possible in the future. | **Should Have** |

# Process Flow

A process flow is created to get better insights in the steps of making a project request. Important to take in mind is that are three different stages. Before moving on to the next stage, the most important stakeholders of the current project request must approve the previous steps of the process. With this system all stakeholders are involved with every step of the process flow and are up to date of the timeline of it.

To make this process flow work there is chosen to work with Power Automate and Forms. It was preferred to work with Power Apps, but due environmental issues of Fontys this is not possible and are the current options limited. The three stages of the process flow can be in filled out via a link from Forms. The data from the form will automatically be linked to a SharePoint list which is combined with Power Automate.

Once an approval is declined the flow automatically stops and won’t be processed in the forms. The person that declines it, can write a feedback and then the project initiator will get a message.

Tabel 1: The process flow written out

|  |  |  |  |
| --- | --- | --- | --- |
| **Steps:** | | **Task:** |  |
| 1 |  | The initiator formulates the idea in a 1-pager format. | **Stage 1** |
| 2 |  | The initiator sets up the financial proposal. |
| 3 |  | The initiator fills in the first form (stage 1). |
|  | 3A | The Research Leader checks and APPROVES the idea on ‘Reachable’, if DECLINED back to step 1. |
|  | 3B | The Curriculum Owner checks and APPROVES the idea on ‘Education match’, if DECLINED back to step 1. |
|  | 3C | The managing member checks and APPROVES the idea on ‘Strategy’, if DECLINED back to step 1. |
| 4 |  | The managing board member authorizes the project initiation. |
|  | 4A | The managing member adds the project initiation in the acquisition list in the Dashboard |
| 5 |  | The initiator sets up the project plan in the 4-pager format. | **Stage 2** |
| 6 |  | Subsidy advisor gives advice & support to the initiator regarding the project plan. |
| 7 |  | The initiator applies the feedback, that the subsidy advisor gave, to the project plan. |
| 8 |  | The initiator sets up a concept version of the budget. |
| 9 |  | The initiator fills in the second form (stage 2). |
| 10 |  | P&C employee applies an internal test and APPROVES the second form, if DECLINED back to step 5. |
| 11 |  | The CEO approves the request for realization, if DECLINED back to step 5. |
| 12 |  | The Manager Business Operations approves the request for realization, if DECLINED back to step 5. |
|  | 12A | The P&C employee adds the project in acquisition list dashboard. |
| 13 |  | The initiator fills in form (stage 3). | **Stage 3** |
|  | 13A | The P&C employee checks and APPROVES the subsidy- and internal budget, if DECLINED back to step 5. |
|  | 13B | The FSA finishes the subsidy request. |
|  | 13C | The Director app APPROVES, if DECLINED back to step 5. |
|  | 13D | The board of directors APPROVES, if DECLINED back to step 5. |
|  | 13E | The financial advisor APPROVES, if DECLINED back to step 5. |
| 14 |  | The P&C employee adds the project in acquisition list dashboard. |

Scatter chart

Description automatically generated with low confidence

Figure 1: The process flow (see Appendix for clearer picture)

# Appendix C – Process Documentation

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# Introduction

This document introduces the reader to the Proof-Of-Concept (POC) of the ‘LowCode project’ created by Brainwave for Fontys. This POC is created within the Microsoft Power Automate to automate the project proposal phase and consist of three phases. The data gathered by forms and processed by Microsoft Power Automate will be used for creating dashboards with Power BI. This is further illustrated in figure 1, where a swim lane figure displays the flow of data.

This document further visualizes the flow within Microsoft Power Automate, along with visualization of the data sources and Power BI. Which are used for extensive test cases to create a more suitable automation.

# 1.1 Context

As mentioned in the introduction, Brainwave is using Microsoft Power Automate to automate the flow by using a Robotic Process Automation (RPA). This software was chosen due to PerusahaanIT’s previous research on the viability of the platform and the already available access by Fontys, due to the already established partnership with Microsoft.

This assignment is on selecting and implementing different solutions from the Microsoft Power Platform and creating a POC within this platform. This can then be used within the whole organization and the assignment and POC are combined into the same product.

The requirements of the POC are, creating an automatic flow within Microsoft Power Automate that helps the lecturer and other involved parties in the creation of a project proposal and visualize those within Power BI. There are several triggers causing the need of this POC. Like, automation a centralized storage of information and documents(for quick and easy access to those document instead of digging through teams, email or WhatsApp), an automated approval system(which is now done manually via email or in person), immediate information sending(which is now done manually and may miss some information by accident), limiting the possible document types (to have everyone use the same document type instead of different ones likes pdf, pages etc.) and database structured for dashboards(to provide additional overview of all projects).

The Tools used are Microsoft Forms. There are three different forms which all gather the required information for each stage of the project approval process. These forms trigger Microsoft Power Automate to gather the information of those forms and follow the created flow. This flow will then send information to SharePoint List. These lists are used as a database to store all the information gathered by these forms. This data is then used to create dashboards.

The above-mentioned triggers are current problems with the subsidiary project proposal system of Fontys. The POC needs to contain a solution for those triggers within the subsidiary project proposal system.

Diagram

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Figure 1 Swim Lane Data Flow

# 2.0 SharePoint list

This chapter visualizes the databases used by Brainwave for the POC, and the relationships between SharePoint list and other tools.

## 2.1 LowCode list of current stakeholders

Graphical user interface, table

Description automatically generated

Figure 2 Stakeholders SharePoint List

Figure 1 displays the first SharePoint list Brainwave uses for this POC. It is a database containing stakeholders of the project proposals. The involvement of these roles is further explained in Research Report LowCode (2021). This data base is used to acquire the correct emails for approval and sending emails. This will be done by searching for the needed function along with the correct institute. Some functions and universal and will have “algemeen” in the institute row. The dates there to establish when employees will start and end employment, to correctly remove someone from the list. The process of adding and removing employees needs to be done manually.

Table 11 'LowCode List Of Current Stakeholders' Column type

|  |  |
| --- | --- |
| Column Name | Data Type |
| Full name (first and last name) | Single line of text |
| Email address (Fontys email) | Single line of text |
| Function | Choice (all potential roles are already placed as an option |
| Institute | Single line of text |
| Start date (of employment) | Date |
| End date (of employment) | Date |

## 2.2 LowCode Project List.

Graphical user interface, application

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Figure 3 SharePoint List 'Low Code Project List’ Stage 1 Part 1/2

Calendar

Description automatically generated

Figure 4 SharePoint list 'LowCode Project List' Stage 1 Part 2

Figures 2 and 3 display the database used for the first stage of the project. After a lecturer filling in the form “projectaanvraag (stage 1) “, a trigger Is sent to Microsoft Power automate which then stores the data in this SharePoint List from the form. The one pager link is used by Microsoft Power Automate as an attachment for validating the project proposal. The other information can always be extracted and used for again in later usages of Power Automate or for dashboarding with Power BI.

Table 12 Sharepoint List ‘LowCode Project List’ stage 1 Column type

|  |  |
| --- | --- |
| Column Name | Data Type |
| Projectname | Single line of text |
| Initiator | Single line of text |
| Initiator Email | Single line of text |
| ProjectId | Number |
| Status | Choice |
| 1-Pager | Multiple lines of text |
| Naam Subsidieverstrekker | Single line of text |
| Extern financials | Number |
| Co-financials | Number |
| External financials in % | Number |
| Co-financials in % | Number |
| Deadline (subsidy) request | Date |
| Instituut | Choice |

Graphical user interface, text, application

Description automatically generated

Figure 5 SharePoint list 'LowCode Project List' Stage 2 Part 1

Graphical user interface, application

Description automatically generated

Figure 6 SharePoint list 'LowCode Project List' Stage 2 Part 2

Table 13 Sharepoint List ‘LowCode Project List’ stage 2 Column type

|  |  |
| --- | --- |
| Column Name | Data Type |
| Projectomschrijving | Multiple lines of text |
| Project start | Date |
| Project einde | Date |
| Naam Penvoerende organisatie | Single line of text |
| Overige Partners | Single line of text |
| Contact subsidie adviseurs | Choice |
| Eigen bijdrage Fontys | Number |
| Eigen bijdrage partners | Number |
| Subsidie bijdrage Fontys | Number |
| Subsidie bijdrage partners | Number |
| Personele lasten Fontys | Number |
| Personele lasten partners | Number |
| Overige lasten Fontys | Number |
| Overige lasten partners | Number |
| Eventuele opmerkingen | Multiple lines of text |

Figures 4 and 5 display the database used for the second stage of the project. The second stage starts when the lecturer fills the “projectaanvraag (stage 1)“ form. This is a trigger which is send to Microsoft Power automate which then stores the data in this SharePoint List from the form in the same row as in figure five and six. Making the information gather cumulative. The one pager link has now become a four pager which requestion additional information and is send by Power Automate as an attachment for validating the project proposal. The other information can always be extracted and used for again in later usages of Power Automate or for dashboarding with Power BI.

Graphical user interface, text, application, email

Description automatically generated

Figure 7 SharePoint list 'LowCode Project List' Stage 3

Table 14 Sharepoint List ‘LowCode Project List’ stage 3 Column type

|  |  |
| --- | --- |
| Column Name | Data Type |
| Schijf team inhoudelijk | Single line of text |
| Schrijf team financieël | Single line of text |
| Schrijf team planning | Single line of text |
| Schrijf team Schrijver | Single line of text |
| Interne begroting | Multiple lines of text |

Figure 6 displays the last database for the last stage. This form only requests the employees which have worked on the research proposal and for the internal budget document. This is a trigger which is send to Microsoft Power Automate which then stores the information from the form into SharePoint list. Instead of the one or four pagers, now the internal budget is requested and used as an attachment for approval. The other information can always be extracted and used for again in later usages of Power Automate or for dashboarding with Power BI.

## 2.3 Centre Of Expertise.

Table

Description automatically generated

Figure 8 Centre Of Expertise

|  |  |
| --- | --- |
| Column Name | Data Type |
| Title | Single line of text |
| Institute | Choice |
| Email | Single line of text |
| Location | Choice |

Figure 8 displays the centre of expertise SharePoint List. This list is meant to Contain all centre of expertise within Fontys. This concept is in works and not officially out. The goal of these centres to allow the possibility for employees to easily search and get in touch with an expertise. Each institute will have multiple expertise and each expertise can have multiple institutes. This data is further used in a dashboard.

# 3. Relationship Model Power BI

This chapter introduces and elobarted the relationship model used within Power Bi, this chapter uses the previous SharePoint lists and some additional data sources. To prepare for chapter 9, 10 and 11 where the flow and code is elaborated.

The Proof-Of-Concept in Power BI uses several data sources. The LowCodeProjectList, LowCodeListOfcurrentStakeholders and Centre Of Expertise has been previously elaborated on in chapter 2. Brainwave decided to add additional data sources to ensure the SharePoint List data can be displayed appropriately. Firstly the Dim\_Institute consist of two institutes which are then linked to both the SharePoint List. Secondly, the Dim\_Date, consist of all days of the year. This is used in order to create a measure which checks the current date compared to all the project, this is then linked to the dates of the LowCodeProjectList. These measures are elaborated on in chapter 9, 10 and 11.

Thirdly the Measure table, these are the measures which calculate different data. These measures use the outcomes of the Dim\_Date and LowCodeProjectList to determine how many projects are in which stage. Lastely, Centre Of Expertise’s data is also used to display

Graphical user interface, application

Description automatically generated

Figure 9 Relationship Model Power Bi Proof-Of-Concept

# 4. Data Source Stage 1

For this flow a different data sources are used. This chapter further illustrates those data sources along with the relationship to the other tools.

Form “Projectaanvraag (Stage 1)”

Graphical user interface, application

Description automatically generated

Figure 10 form ‘Projectaanvraag (Stage 1)’ section 1/3

Graphical user interface, text, application, email

Description automatically generated

Figure 11 form ‘Projectaanvraag (Stage 1)’ section 2/3

Graphical user interface, application

Description automatically generated

Figure 12 form ‘Projectaanvraag (Stage 1)’ section 2/3

Link: <https://forms.office.com/r/kKBMT8u1QQ>

Figures 7, 8, and 9 are the first project proposal forms. This form is separates in three sections which all require different information. The first form requires basic information on what the project, who starts the project, 1 page document with more information on the project for approval and some financial information. Once the form is filled in, it will trigger a flow in Microsoft Power Automate.

# 5. Flow & Code

This chapter will visualize and explain the flow created for stage 1 out of 3 by Brainwave within Microsoft Power Automate. This flow contains 21 steps, all steps and code are displayed in table 10

Graphical user interface

Description automatically generated with medium confidence

Figure 13Microsoft Power Automate Flow Stage 1 1/2

A picture containing bar chart

Description automatically generated

Figure 14 Microsoft Power Automate Flow Stage 1 2/2

|  |  |  |
| --- | --- | --- |
| Step | Explanation | Code |
| 1 | Graphical user interface, text, application, Word  Description automatically generated  This first step is the trigger for the flow. It starts when “Project Aanvraag Stage 1” in forms is filled in. | {      "inputs": {          "host": {              "connectionName": "shared\_microsoftforms",              "operationId": "CreateFormWebhook",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_microsoftforms"          },          "parameters": {              "form\_id": "ZWdrxpS3K0qE7YRbNBwIalQLYJLV4AxGpYeokovnY8pUMFdaN0pRUFE2UzUwODFFTDcyRzlPOEU5NSQlQCN0PWcu"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "15e7a127-6dfb-4723-a7cd-565b8fbeccf8"      },      "splitOn": "@triggerOutputs()?['body/value']"  } |
| 2 | Graphical user interface, text, application, email  Description automatically generated  This step will the extract the data from the “Aanvraag Formulier Stage 1” form. | {      "inputs": {          "host": {              "connectionName": "shared\_microsoftforms",              "operationId": "GetFormResponseById",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_microsoftforms"          },          "parameters": {              "form\_id": "ZWdrxpS3K0qE7YRbNBwIalQLYJLV4AxGpYeokovnY8pUMFdaN0pRUFE2UzUwODFFTDcyRzlPOEU5NSQlQCN0PWcu",              "response\_id": "@triggerOutputs()?['body/resourceData/responseId']"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "74e25dda-3c27-4679-87c6-922c2f34d762"      }  } |
| 3 | Graphical user interface, text, application  Description automatically generated | - |
| 3.1A | Graphical user interface, application  Description automatically generated  The flow checks if the filled in form start date is sooner then the end date. |  |
| 3.1B | Graphical user interface, text, application  Description automatically generated  If the end date is sooner then the start date, then an email is send to the responder informing them of their mistake. | {      "inputs": {          "host": {              "connectionName": "shared\_office365\_1",              "operationId": "SendEmailV2",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_office365"          },          "parameters": {              "emailMessage/To": "@outputs('Reactiedetails\_ophalen')?['body/responder']",              "emailMessage/Subject": "Project aanvraag datums verkeerd ingevuld",              "emailMessage/Body": "<p>Beste Initiator,<br>\n<br>\nU heeft de datums verkeerd ingevuld. Wilt u de forms opnieuw invullen met de juiste start- en einddatum.</p>"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "238d7c9e-6268-4ae5-a628-73aeaa94099e"      }  } |
| 3.2B | Graphical user interface, application  Description automatically generated  The flow is then ended. | {      "metadata": {          "operationMetadataId": "131b4319-35bf-421e-9f31-e6b472e7c721"      },      "inputs": {          "runStatus": "Succeeded"      }  } |
| 4 | Graphical user interface, text  Description automatically generated  In this step Json separate all the variables of the project omschrijving document (one pager) which come from the document. These are the following:  -Name -Link -ID  -ReferenceId  -Driveld  -Size  -Status    Instead of a whole string containing all these variables breaking the hyperlink when used in other stages. | {      "inputs": {          "content": "@outputs('Reactiedetails\_ophalen')?['body/r88615898378c4778b25846e33bc371e2']",          "schema": {              "type": "array",              "items": {                  "type": "object",                  "properties": {                      "name": {                          "type": "string"                      },                      "link": {                          "type": "string"                      },                      "id": {                          "type": "string"                      },                      "type": {},                      "size": {                          "type": "integer"                      },                      "referenceId": {                          "type": "string"                      },                      "driveId": {                          "type": "string"                      },                      "status": {                          "type": "integer"                      },                      "uploadSessionUrl": {}                  },                  "required": [                      "name",                      "link",                      "id",                      "type",                      "size",                      "referenceId",                      "driveId",                      "status",                      "uploadSessionUrl"                  ]              }          }      },      "metadata": {          "operationMetadataId": "bebea787-f2fc-421f-9435-8a75f8088ce5"      }  } |
| 5 | Graphical user interface, text, application, email  Description automatically generated  This step gathers emailadresses of the functions Research Leader, Curriculum Owner and Managing Board Member. These emailadresses are gathered from the “LowCode List Of Current Stakeholders”. These emailadresses are filted on function and institute which the lecturer has answered in the form “Aanvraag Fomrulier Stage 1”. | {      "inputs": {          "host": {              "connectionName": "shared\_sharepointonline",              "operationId": "GetItems",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_sharepointonline"          },          "parameters": {              "dataset": "https://stichtingfontys.sharepoint.com/sites/Company2797",              "table": "71bde792-7934-4bd6-92cd-2321c90cf55b",              "$filter": "(Function eq 'Research Leader') or (Function eq 'Curriculum Owner') or (Function eq 'Managing Board Member') and (Institute eq '@{outputs('Reactiedetails\_ophalen')?['body/r51684c3a6fab4e2ca15b1ca5e32ef4d2']}')"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "60504765-3ee6-4660-8d36-046a0aad3c7b"      }  } |
| 6 | Graphical user interface, text, application, email  Description automatically generated  This step sends an email to the responder, notifying them that their forms has succesfully been received. | {      "inputs": {          "host": {              "connectionName": "shared\_office365\_1",              "operationId": "SendEmailV2",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_office365"          },          "parameters": {              "emailMessage/To": "@outputs('Reactiedetails\_ophalen')?['body/responder']",              "emailMessage/Subject": "Project aanvraag is correct aangekomen",              "emailMessage/Body": "<p>Beste Initiator,<br>\n<br>\nDe forms is correct aangekomen en is momenteel onder 'review' bij de verschillende stakeholders. Zodra er meer informatie is, wordt u hierover gecontacteerd.</p>"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "2451f631-f187-458c-8db3-d9a1cc8ad715"      } |
| 7 | Graphical user interface, text, application, email  Description automatically generated  This step sets a variable to true. This is due to step 8 not having the option for a condition action | {      "inputs": {          "variables": [              {                  "name": "Goedkeuring",                  "type": "boolean",                  "value": "@true"              }          ]      },      "metadata": {          "operationMetadataId": "7c009df0-d1b2-451c-9917-bce8d6f4494e"      }  } |
| 8 | A picture containing table  Description automatically generated  This step takes the emailadresses from step four, by selecting the output. These emailadresses are used in step 8.2 | {      "inputs": {          "host": {              "connectionName": "shared\_approvals",              "operationId": "StartAndWaitForAnApproval",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_approvals"          },          "parameters": {              "approvalType": "BasicAwaitAll",              "WebhookApprovalCreationInput/title": "@outputs('Reactiedetails\_ophalen')?['body/rb4e7d32cfd804599b7efb54173724bae']",              "WebhookApprovalCreationInput/assignedTo": "@items('Goedkeuring\_Res\_Leader,\_Curriculum\_Owner,\_Managing\_Board\_(Member)')?['Emailadress']",              "WebhookApprovalCreationInput/itemLink": "@items('Op\_elk(e)\_toepassen')['link']",              "WebhookApprovalCreationInput/itemLinkDescription": "Beste @{items('Goedkeuring\_Res\_Leader,\_Curriculum\_Owner,\_Managing\_Board\_(Member)')?['Title']},\n\nGaat u akkoord met deze project aanvraag?",              "WebhookApprovalCreationInput/enableNotifications": true,              "WebhookApprovalCreationInput/enableReassignment": true          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "ace32a8c-a5d9-49e0-9c51-592325356e48"      }  } |
| 8.1 | Graphical user interface, text, application, email  Description automatically generated  This step takes the Json variables from step three, and enables the usage of all variables in step 8.2. |  |
| 8.2 | Graphical user interface, application  Description automatically generated  This step starts the approvals for the Employee P&C, CEO and Manager Business Operations. It send an email to these function which are gathered from step 5. This email contains an approval or deniel option, the title of the project and the new attachment from the new form “Projectomschrijving (1 pager)”. The Employee P&C, CEO and Manager Business Operations Must all approve the project in order for it to continue. If any of them denies this proposal then the initiator will receive the feedback given by set employee and the flow ends. |  |
| 8.3A | Graphical user interface, application  Description automatically generated  If all all the employees approve the projects then the answere is yes and nothing changes. If one or more employees rejects this then the flow goes to no. |  |
|  | Graphical user interface, application  Description automatically generated  If everyone has approved the project, then the flow goes to ‘yes’ and continues forwards |  |
| 8.3B | Graphical user interface, application  Description automatically generated  If one of the employees rejects the proposal, then the variable in 7 gets changed from ‘true’ to ‘false’ | {      "inputs": {          "name": "Goedkeuring",          "value": "@false"      },      "metadata": {          "operationMetadataId": "ad78ce81-ec12-43c7-a677-d30f589d8909"      }  } |
| 9 | Graphical user interface, text, application  Description automatically generated  This step looks if the variable is still true or false. If true it goes to yes if false then it goes to no. |  |
| 9.1A | Graphical user interface, application  Description automatically generated  If the answer is true the flow will continue |  |
| 9.1B | Graphical user interface, application  Description automatically generated  An email will be send to the responder informing them that the project has been rejected. | {      "inputs": {          "host": {              "connectionName": "shared\_office365\_1",              "operationId": "SendEmailV2",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_office365"          },          "parameters": {              "emailMessage/To": "@outputs('Reactiedetails\_ophalen')?['body/responder']",              "emailMessage/Subject": "Project aanvraag@{outputs('Reactiedetails\_ophalen')?['body/rb4e7d32cfd804599b7efb54173724bae']} afgekeurd",              "emailMessage/Body": "<p>Beste @{outputs('Reactiedetails\_ophalen')?['body/r6fcfbef85b8f4976b32ccae47c59934f']},<br>\n<br>\nUw project aanvraag is helaas afgekeurd. U wordt spoedig gecontacteerd.</p>"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "8af0b40c-5967-49c0-8d08-c3effb92ca96"      }  } |
| 9.2B | Graphical user interface, application  Description automatically generated  This step end the flow. | {      "metadata": {          "operationMetadataId": "cd97f248-6bd6-4cbd-87fb-dc32d1d16971"      },      "inputs": {          "runStatus": "Succeeded"      }  } |
| 10 | Graphical user interface, text, application, email  Description automatically generated  This step gathers emailadresses of the Managing Board Member, from the SharePoint list “LowCode List Of Current Stakeholders”. These emailadresses are filted on function. | {      "inputs": {          "host": {              "connectionName": "shared\_sharepointonline",              "operationId": "GetItems",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_sharepointonline"          },          "parameters": {              "dataset": "https://stichtingfontys.sharepoint.com/sites/Company2797",              "table": "71bde792-7934-4bd6-92cd-2321c90cf55b",              "$filter": "(Function eq 'Managing Board Member')"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "8ac42bc6-8c9a-4711-8a64-cfd84c83afb7"      }  } |
| 11 | A picture containing diagram  Description automatically generated  This step takes the emailadresses from step six, by selecting the output. These emailadresses are used in step 7.2 | {      "inputs": {          "host": {              "connectionName": "shared\_office365",              "operationId": "SendEmailV2",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_office365"          },          "parameters": {              "emailMessage/To": "@items('Email\_autorisatie\_')?['Emailadress']",              "emailMessage/Subject": "Project autorisatie @{outputs('Reactiedetails\_ophalen')?['body/rb4e7d32cfd804599b7efb54173724bae']}",              "emailMessage/Body": "<p>Geachte heer/mevrouw,<br>\n<br>\nEr is zojuist een project aanvraag gestart door @{outputs('Reactiedetails\_ophalen')?['body/r6fcfbef85b8f4976b32ccae47c59934f']} van het instituut @{items('Email\_autorisatie\_')?['Institute']}.<br>\n<br>\nHierbij de link naar het document:<br>\n<br>\n@{items('Op\_elk(e)\_toepassen\_2')['link']}<br>\n<br>\nGelieve aan de hand van dit document akkoord of geen akkoord geven.<br>\n<br>\nFontys Hogescholen<br>\n</p>"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "00a2161c-a9e1-41ac-9724-6d3e95e1f2a6"      }  } |
| 11.1 | Graphical user interface, text, application, email  Description automatically generated  This step takes the Json variables from step three, and enables the usage of all variables in step 7.2 |  |
| 11.2 | Graphical user interface, text, application  Description automatically generated  This step sends an email to the “Managing Board Member” containing the autorisation of the project. As all employees from five have approved the project. So now the project can be authorized. By the Managing Board, for this the link to the “Project omschrijving (1 pager) is send again along with the project title and initiators name.  The emailadress is gather from step 7.1. Project title, initiator and institute are all gather from the forms in step 2 and the link for the “Project omschrijving (1 pager)” is the Json link gather from 7.1. |  |
| 12 | Graphical user interface, application  Description automatically generated  This step extracts the input of ‘cofinanciering | {      "inputs": "@outputs('Reactiedetails\_ophalen')?['body/rc898e8f4b7c147069732b0582a4efdec']",      "metadata": {          "operationMetadataId": "6459d376-89c6-4ed2-a38d-a655d7523411"      }  } |
| 13 | A picture containing application  Description automatically generated  This step translates the previous input into a float | {      "inputs": "@float(outputs('Samenstellen\_Cofinanciering'))",      "metadata": {          "operationMetadataId": "9772c61d-4a1b-4961-86de-18cf8c0dadc9"      }  } |
| 14 | Graphical user interface, application  Description automatically generated  This step extracts the input of ‘Externe Financiën’ | {      "inputs": "@outputs('Reactiedetails\_ophalen')?['body/r05b2a5f41381419a8788ed2adeda77cb']",      "metadata": {          "operationMetadataId": "83006748-5fb6-42b6-9728-451b03aa962d"      }  } |
| 15 | Graphical user interface, application, box and whisker chart  Description automatically generated  This step transaltes the previous input into a float | {      "inputs": "@float(outputs('Samenstellen\_Externe\_financiën'))",      "metadata": {          "operationMetadataId": "a9d7bf6c-c05d-4fe0-b33d-18a8d9829d49"      }  } |
| 16 | Graphical user interface, text, application, email  Description automatically generated  This step calculates the percentage of the amount of external financing | {{      "inputs": {          "variables": [              {                  "name": "PercentageExternFinanciën",                  "type": "float",                  "value": "@mul(div(outputs('Float\_Externe\_Financiën'),add(outputs('Float\_Externe\_Financiën'),outputs('Float\_Cofinanciering'))),100)"              }          ]      },      "metadata": {          "operationMetadataId": "d6bd95df-b2ee-4ad7-934a-e1f8918bb506"      }  } |
| 17 | Graphical user interface, text, application, email  Description automatically generated  This step calculates the percentage of the amount of cofinancing | {      "inputs": {          "variables": [              {                  "name": "PercentageCofinanciëring",                  "type": "float",                  "value": "@mul(div(outputs('Float\_Cofinanciering'),add(outputs('Float\_Externe\_Financiën'),outputs('Float\_Cofinanciering'))),100)"              }          ]      },      "metadata": {          "operationMetadataId": "f671284e-c20a-4b65-9c6d-c1f7cee04dc7"      }  } |
| 18 | A picture containing application  Description automatically generated  This step takes the Json variables from step 3, and enables the usage of all variables in step 18.1 | {      "inputs": {          "host": {              "connectionName": "shared\_sharepointonline\_1",              "operationId": "PostItem",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_sharepointonline"          },          "parameters": {              "dataset": "https://stichtingfontys.sharepoint.com/sites/Company2797",              "table": "7fc526fe-a48a-4dd2-a2fa-283b564af813",              "item/Title": "@outputs('Reactiedetails\_ophalen')?['body/rb4e7d32cfd804599b7efb54173724bae']",              "item/Initiator": "@outputs('Reactiedetails\_ophalen')?['body/r6fcfbef85b8f4976b32ccae47c59934f']",              "item/InitiatorEmail": "@outputs('Reactiedetails\_ophalen')?['body/responder']",              "item/ProjectId": "@triggerOutputs()?['body/resourceData/responseId']",              "item/Status/Value": "Stage 1",              "item/OData\_\_x0031\_\_x002d\_Pager": "@items('Verwerking\_Stage\_1\_in\_project\_lijst')['link']",              "item/Naamsubsidieregeling": "@outputs('Reactiedetails\_ophalen')?['body/r166c50c408924ce59d54d945f7bf6552']",              "item/Externfinancials": "@outputs('Reactiedetails\_ophalen')?['body/r05b2a5f41381419a8788ed2adeda77cb']",              "item/Co\_x002d\_financials": "@outputs('Reactiedetails\_ophalen')?['body/rc898e8f4b7c147069732b0582a4efdec']",              "item/Externfinancialsin\_x0025\_": "@variables('PercentageExternFinanciën')",              "item/Co\_x002d\_financialsin\_x0025\_": "@variables('PercentageCofinanciëring')",              "item/Deadline\_x0028\_subsidy\_x0029\_req": "@outputs('Reactiedetails\_ophalen')?['body/r53e8ae9822304a89853a1a51e726cdb9']",              "item/Instituut/Value": "@outputs('Reactiedetails\_ophalen')?['body/r51684c3a6fab4e2ca15b1ca5e32ef4d2']",              "item/Projectstart": "@outputs('Reactiedetails\_ophalen')?['body/r389f6e1574a544d29f9759abd056053b']",              "item/ProjectEinde": "@outputs('Reactiedetails\_ophalen')?['body/r239a9b3e164f4dd3a20d9c578687d535']",              "item/Projecttype/Value": "@outputs('Reactiedetails\_ophalen')?['body/r6e46c9ab59804e9cb316481d036334d6']"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "7edbe3ba-e190-4c2c-bab8-80ca06d8f29e"      }  } |
| 18.1 | Graphical user interface, application  Description automatically generated  This step takes all the answeres from the froms and creates a new row in “LowCode Project List” database. which then adds the values from the form. Along with the status “Stage 1”  The following values are added to the database :  -Project title  -Initiator  -Initiator Email  -ProjectId  -Stage 1  -HTTML link to the “project omschrijving (1pager) document”  -Name subsidy scheme  -External financials  -Co-Financials  -External financials in %  -Co-Financials in %  -Deadline (subsidy request)  -Institute  -Project start date -Project end date |  |
| 19 | Graphical user interface, text, application, email  Description automatically generated  This step gathers the Project Id from the SharePoint list “LowCode Project List”. This Project Id is automatically assigned to the project once a new row is created by step 14.1. This Project Id is used for step 16 | {      "inputs": {          "host": {              "connectionName": "shared\_sharepointonline\_1",              "operationId": "PostItem",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_sharepointonline"          },          "parameters": {              "dataset": "https://stichtingfontys.sharepoint.com/sites/Company2797",              "table": "7fc526fe-a48a-4dd2-a2fa-283b564af813",              "item/Title": "@outputs('Reactiedetails\_ophalen')?['body/rb4e7d32cfd804599b7efb54173724bae']",              "item/Initiator": "@outputs('Reactiedetails\_ophalen')?['body/r6fcfbef85b8f4976b32ccae47c59934f']",              "item/InitiatorEmail": "@outputs('Reactiedetails\_ophalen')?['body/responder']",              "item/ProjectId": "@triggerOutputs()?['body/resourceData/responseId']",              "item/Status/Value": "Stage 1",              "item/OData\_\_x0031\_\_x002d\_Pager": "@items('Verwerking\_Stage\_1\_in\_project\_lijst')['link']",              "item/Naamsubsidieregeling": "@outputs('Reactiedetails\_ophalen')?['body/r166c50c408924ce59d54d945f7bf6552']",              "item/Externfinancials": "@outputs('Reactiedetails\_ophalen')?['body/r05b2a5f41381419a8788ed2adeda77cb']",              "item/Co\_x002d\_financials": "@outputs('Reactiedetails\_ophalen')?['body/rc898e8f4b7c147069732b0582a4efdec']",              "item/Externfinancialsin\_x0025\_": "@variables('PercentageExternFinanciën')",              "item/Co\_x002d\_financialsin\_x0025\_": "@variables('PercentageCofinanciëring')",              "item/Deadline\_x0028\_subsidy\_x0029\_req": "@outputs('Reactiedetails\_ophalen')?['body/r53e8ae9822304a89853a1a51e726cdb9']",              "item/Instituut/Value": "@outputs('Reactiedetails\_ophalen')?['body/r51684c3a6fab4e2ca15b1ca5e32ef4d2']",              "item/Projectstart": "@outputs('Reactiedetails\_ophalen')?['body/r389f6e1574a544d29f9759abd056053b']",              "item/ProjectEinde": "@outputs('Reactiedetails\_ophalen')?['body/r239a9b3e164f4dd3a20d9c578687d535']",              "item/Projecttype/Value": "@outputs('Reactiedetails\_ophalen')?['body/r6e46c9ab59804e9cb316481d036334d6']"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "7edbe3ba-e190-4c2c-bab8-80ca06d8f29e"      }  } |
| 20 | A picture containing table  Description automatically generated  This step gathers the Project Id from step 19. Which allows it to be used for step 20.1. | {      "inputs": {          "host": {              "connectionName": "shared\_office365\_1",              "operationId": "SendEmailV2",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_office365"          },          "parameters": {              "emailMessage/To": "@outputs('Reactiedetails\_ophalen')?['body/responder']",              "emailMessage/Subject": "Stage 1 Project aanvraag (@{outputs('Reactiedetails\_ophalen')?['body/rb4e7d32cfd804599b7efb54173724bae']}) is afgerond",              "emailMessage/Body": "<p>Geachte @{outputs('Reactiedetails\_ophalen')?['body/r6fcfbef85b8f4976b32ccae47c59934f']},<br>\n<br>\nBedankt voor het invullen van uw project aanvraag: &nbsp;@{outputs('Reactiedetails\_ophalen')?['body/rb4e7d32cfd804599b7efb54173724bae']}.<br>\n<br>\nDeze is door de Research leader, curriculum owner en de managing board member goedgekeurd.<br>\n<br>\nU kunt nu over naar stage 2. Dit houdt in dat er diepere informatie gevraagd wordt over het project met de volgende onderwerpen:<br>\n<br>\n- Project omschrijving (4 pagina's)<br>\n- Project start datum<br>\n- Project eind datum<br>\n- Pen voerende organisatie<br>\n- Overige partners<br>\n- Concept begroting met een marge van 10%<br>\n&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;- Eigen bijdrage Fontys &amp; partners<br>\n&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;- Subsidie verleend aan Fontys &amp; partners<br>\n&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;- Personele lasten Fontys &amp; partners<br>\n&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;- Overige lasten Fontys &amp; partners<br>\n<br>\nOm stage 2 te beginnen moet u het zojuist genoemde formulier aan de hand van deze link invullen: https://forms.office.com/r/zAtgKTvwnf<br>\nMet als id nummer @{items('Mail\_verzenden\_naar\_Initiator')?['ProjectId']}.<br>\n<br>\nVoor extra advies kunt u altijd bij de subsidie adviseurs terecht (insert email). Deze zullen u helpen bij het proces van de aanvraag en eventuele verdere vragen over subsidies.<br>\n<br>\nMet vriendelijke groet,<br>\n<br>\nFontys Hogescholen</p>"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "09bcdc6e-a121-412c-9941-0653bcfcfc8c"      }  } |
| 20.1 | Graphical user interface, text, application, email  Description automatically generated  This step send the initiator an email. This email confirms that the the project has been approved by the Research Leader, Curriculm Owner and the Managing Board. It then provides a list of questions asked in the next form “Projectaanvraag (Stage2) , and a link to the new form with the ProjectId gathered from 16.0 which is required in this POC in order to link form 2 and 3 to the correct row in SharePoint list “LowCode Project List”. The email finishes with recomendations and the email adress of the subsidy advisors. |  |
| 21 | Graphical user interface, application  Description automatically generated  This step ends the flow so that it cannot be stuk in an infinate loop. | {      "metadata": {          "operationMetadataId": "2d451d43-8b76-4353-9e53-13dea8194be1"      },      "inputs": {          "runStatus": "Succeeded"      }  } |

# 6. Data Source Stage 2

Graphical user interface, text, application, email

Description automatically generated

Figure 15 form ‘Projectaanvraag (Stage 2)’ section 1/3

Graphical user interface, text, application, email

Description automatically generated

Figure 16 form ‘Projectaanvraag (Stage 2)’ section 2/3

Graphical user interface, text, application, email

Description automatically generated

Figure 17 form ‘Projectaanvraag (Stage 2)’ section 3/3

Link: <https://forms.office.com/r/zAtgKTvwnf>

Figures 12, 13 and 14 are the second project proposal form. This form is separates in three sections which all require different information. The first section required the ProjectId to ensure power automate can connect this to the correct row in the SharePoint list “LowCode Project List”, and an attachment “project omschrijving (4 pager formulier) which contains more elaborate information about the project. And then some administration information. Section two asks to give a ballpark estimate of 10% to budget incoming funds and section three asks to budget the expenses in a ballpark of 10%. Once the form is filled in, it will trigger a flow in Microsoft Power Automate.

# 7. Flow & Code Stage 2

This chapter will visualize and explain the flow created for stage 2 out of 3 by Brainwave within Microsoft Power Automate. This flow contains 14 steps, all steps and code are displayed in table 15

Graphical user interface, application

Description automatically generated with medium confidence

Figure 18 Microsoft Power Automate Flow Stage 2

|  |  |  |
| --- | --- | --- |
| tep | Explanation | Code |
| 1 | Graphical user interface, application  Description automatically generated  This first step is the trigger for the flow. It starts when “Project Aanvraag Stage 2” in forms is filled in. | {      "inputs": {          "host": {              "connectionName": "shared\_microsoftforms",              "operationId": "CreateFormWebhook",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_microsoftforms"          },          "parameters": {              "form\_id": "ZWdrxpS3K0qE7YRbNBwIarALHKSIwAJGkfucnkYjEYhUOVFIUzJCWFpYMEFCNUFERE9JSzU2QkE0Ry4u"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "15e7a127-6dfb-4723-a7cd-565b8fbeccf8"      },      "splitOn": "@triggerOutputs()?['body/value']"  } |
| 2 | Graphical user interface, text, application, email  Description automatically generated  This step will the extract the data from the “Aanvraag Fomrulier Stage 2” form. | {      "inputs": {          "host": {              "connectionName": "shared\_microsoftforms",              "operationId": "GetFormResponseById",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_microsoftforms"          },          "parameters": {              "form\_id": "ZWdrxpS3K0qE7YRbNBwIarALHKSIwAJGkfucnkYjEYhUOVFIUzJCWFpYMEFCNUFERE9JSzU2QkE0Ry4u",              "response\_id": "@triggerOutputs()?['body/resourceData/responseId']"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "74e25dda-3c27-4679-87c6-922c2f34d762"      }  } |
| 3 | Graphical user interface, text  Description automatically generated  This step looks is the project start data is before project end date. If this is true then it goes to yes, if not it goes to no |  |
| 3.1A | Graphical user interface, application  Description automatically generated  This step is a yes and the flow continuous |  |
| 3.1B | Graphical user interface, text, application  Description automatically generated  In this step an email gets send to the initiator stating that there has been a mistake and the date should be adjusted. | {      "inputs": {          "host": {              "connectionName": "shared\_office365",              "operationId": "SendEmailV2",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_office365"          },          "parameters": {              "emailMessage/To": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/responder']",              "emailMessage/Subject": "Project aanvraag datums verkeerd ingevuld",              "emailMessage/Body": "<p>Beste Initiator,<br>\n<br>\nU heeft bij uw aanvraag de datums verkeerd ingevuld. U kunt de forms opnieuw invullen.</p>"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "efe98d9b-c4ac-445e-bb9a-ce54a90e6263"      }  } |
| 3.2B | Graphical user interface, application  Description automatically generated  This step then ends the flow | {      "metadata": {          "operationMetadataId": "d0008eb5-5596-41e7-8d2e-b4ed003b9575"      },      "inputs": {          "runStatus": "Succeeded"      }  } |
| 4 | Graphical user interface, text  Description automatically generated  In this step Power Automate looks at the data gather from the “Projectaanvraag (Stage 2)”, which asks if the subsidy advisors have been informed and have given advice. If this is “true” then the flow proceeds to step 3.1A. If this has not happened then the answer is “false” and then the flow goes to step 3.1B |  |
| 4.1 A | Graphical user interface, text, application  Description automatically generated  The subsidy advisors have been informed and gave advice, so the flow advances to step 4 |  |
| 4.1 B | Graphical user interface, text, application, email  Description automatically generated  This step sends an email to the responder of the form. This email states that in order to proceed with stage 2 the responder first needs to inform the subsidy advisors. After receiving feedback the initiator may redo the form again. | {      "inputs": {          "host": {              "connectionName": "shared\_office365",              "operationId": "SendEmailV2",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_office365"          },          "parameters": {              "emailMessage/To": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/responder']",              "emailMessage/Subject": "Subsidie advies aanvragen",              "emailMessage/Body": "<p>Beste Initiator,<br>\n<br>\nVóór u Stage 2 kunt invullen, moet u eerst feedback over de subsidie hebben gekregen en toegepast aan de projectomschrijving. Hierna kunt u de forms opnieuw invullen.</p>"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "8b534c73-3dea-4aad-92ef-e3b3efe29dbe"      }  } |
| 4.2 B | Graphical user interface, text, application, email  Description automatically generated  The flow is being stopped in step, as it cannot continue until the subsidy advisors have been informed. | {      "metadata": {          "operationMetadataId": "29827af1-48b8-4ffe-91a9-dca171e03ac4"      },      "inputs": {          "runStatus": "Succeeded"      }  }  } |
| 5 | Graphical user interface, text, application, email  Description automatically generated  This step sends an email to the responder, notifying them that their forms has succesfully been received. | {      "inputs": {          "host": {              "connectionName": "shared\_office365",              "operationId": "SendEmailV2",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_office365"          },          "parameters": {              "emailMessage/To": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/responder']",              "emailMessage/Subject": "Stage 2 van project aanvraag aangekomen",              "emailMessage/Body": "<p>Beste initiator,<br>\n<br>\nStage 2 is ontvangen.</p>"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "2b24f751-9ba8-45b7-b418-678154a07429"      }  } |
| 6 | Graphical user interface, text, application  Description automatically generated  In this step Json separate all the variables of the “Project Omschrijving (4 pager formulier) which come from the document. These are the following:  -Name -Link -ID  -ReferenceId  -Driveld  -Size  -Status    Instead of a whole string containing all these variables breaking the hyperlink when used in other stages. | {      "inputs": {          "content": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/r82339bf2639240ba91973bae6f489326']",          "schema": {              "type": "array",              "items": {                  "type": "object",                  "properties": {                      "name": {                          "type": "string"                      },                      "link": {                          "type": "string"                      },                      "id": {                          "type": "string"                      },                      "type": {},                      "size": {                          "type": "integer"                      },                      "referenceId": {                          "type": "string"                      },                      "driveId": {                          "type": "string"                      },                      "status": {                          "type": "integer"                      },                      "uploadSessionUrl": {}                  },                  "required": [                      "name",                      "link",                      "id",                      "type",                      "size",                      "referenceId",                      "driveId",                      "status",                      "uploadSessionUrl"                  ]              }          }      },      "metadata": {          "operationMetadataId": "bebea787-f2fc-421f-9435-8a75f8088ce5"      }  } |
| 7 | Graphical user interface, text, application, email  Description automatically generated  This step gathers the row created by the first stage of forms and Microsoft Power automate from the SharePoint list “LowCode Project List”. This is done by using the ProjectId gather by forms and using this as a filter in the SharePoint List. | {      "inputs": {          "host": {              "connectionName": "shared\_sharepointonline\_1",              "operationId": "GetItems",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_sharepointonline"          },          "parameters": {              "dataset": "https://stichtingfontys.sharepoint.com/sites/Company2797",              "table": "7fc526fe-a48a-4dd2-a2fa-283b564af813",              "$filter": "(ProjectId eq '@{outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/r01902fa9abf143e594d5fdece2ed1287']}')"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "11ab2f47-9987-4b1b-b222-d81b71604b11"      }  } |
| 8 | Graphical user interface, text, application, email  Description automatically generated  This step gathers emailadresses of the functions: Employee P&C, Ceo andManager business Operations. These emailadresses are gathered from the “LowCode List Of Current Stakeholders”. These emailadresses are filted on function and institute which the lecturer has answered in the form “Aanvraag Fomrulier Stage 2”. | {      "inputs": {          "host": {              "connectionName": "shared\_sharepointonline",              "operationId": "GetItems",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_sharepointonline"          },          "parameters": {              "dataset": "https://stichtingfontys.sharepoint.com/sites/Company2797",              "table": "71bde792-7934-4bd6-92cd-2321c90cf55b",              "$filter": "(Function eq 'Employee P&C') or (Function eq 'CEO') or (Function eq 'Manager Business Operations') and (Institute eq '@{outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/r8729efe4b30a412e98c10b48b5012084']}')"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "90252152-b965-4588-8fd2-5407bbd62193"      }  } |
| 9 | Graphical user interface, text, application, email  Description automatically generated  This step sets a variable to true. This is due to step 10 not having the option for a condition action | {      "inputs": {          "variables": [              {                  "name": "Goedkeuring",                  "type": "boolean",                  "value": "@true"              }          ]      },      "metadata": {          "operationMetadataId": "7c009df0-d1b2-451c-9917-bce8d6f4494e"      } |
| 10 | A picture containing chart  Description automatically generated  This step takes the emailadresses from step 6, by selecting the output. These emailadresses are used in step 7.3 |  |
| 10.1 | Graphical user interface, text, application, email  Description automatically generated  This step takes the Json variables from step 4, and enables the usage of all variables in step 7.3 |  |
| 10.2 | Graphical user interface, text, application, email  Description automatically generated  This step takes all the previous acquired project information, which is received from step 5. This enables 7.3 to use all the information from the database. |  |
| 10.3 | Graphical user interface, application  Description automatically generated  This step starts the approvals for the Employee P&C, CEO and Manager Business Operations. It send an email to these function which are gathered from step 7. This email contains an approval or deniel option, the title of the project and the new attachment from the new form “Projectomschrijving (4 pager formulier)”. The Employee P&C, CEO and Manager Business Operations Must all approve the project in order for it to continue. If any of them denies this proposal then the initiator will receive the feedback given by set employee and the flow ends. | {      "inputs": {          "host": {              "connectionName": "shared\_approvals",              "operationId": "StartAndWaitForAnApproval",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_approvals"          },          "parameters": {              "approvalType": "BasicAwaitAll",              "WebhookApprovalCreationInput/title": "@items('Apply\_to\_each')?['Title']",              "WebhookApprovalCreationInput/assignedTo": "@{items('Voor\_elk\_emailadres\_een\_goedkeuring\_sturen')?['Emailadress']};",              "WebhookApprovalCreationInput/itemLink": "@items('Op\_elk(e)\_toepassen\_2')['link']",              "WebhookApprovalCreationInput/enableNotifications": true,              "WebhookApprovalCreationInput/enableReassignment": true          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "9a27f291-f607-49ae-b683-869cd35b0caf"      }  } |
| 10.4 | Graphical user interface, application  Description automatically generated  If all all the employees approve the projects then the answere is yes and nothing changes. If one or more employees rejects this then the flow goes to no |  |
| 10.5A | Graphical user interface, application  Description automatically generated  If everyone has approved the project, then the flow goes to ‘yes’ and continues forwards |  |
| 10.5B | A screenshot of a computer  Description automatically generated  If one of the employees rejects the proposal, then the variable in 9 gets changed from ‘true’ to ‘false’ | {      "inputs": {          "name": "Goedkeuring",          "value": "@false"      },      "metadata": {          "operationMetadataId": "33d36ac9-6852-46f5-b485-223682582f20"      }  } |
| 11 | Graphical user interface, text, application  Description automatically generated  This step looks if the variable is still true or false. If true it goes to yes if false then it goes to no. |  |
| 11.1A | Graphical user interface, application  Description automatically generated  If the answer is true the flow will continue |  |
| 11.1B | Graphical user interface, text, application  Description automatically generated  In this step An email will be send to the responder informing them that the project has been rejected. | {      "inputs": {          "host": {              "connectionName": "shared\_office365",              "operationId": "SendEmailV2",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_office365"          },          "parameters": {              "emailMessage/To": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/responder']",              "emailMessage/Subject": "Stage 2 Project aanvraag afgekeurd",              "emailMessage/Body": "<p>Beste initiator,<br>\n<br>\nUw Stage 2 project aanvraag is afgekeurd. U wordt spoedig gecontacteerd.</p>"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "33e8a170-d60d-4ea1-b8b2-002d324b6193"      }  } |
| 11.2B | Graphical user interface, application  Description automatically generated  This step ends the flow | {      "metadata": {          "operationMetadataId": "2af3d994-c127-4a24-9aa5-99953d0ffc15"      },      "inputs": {          "runStatus": "Succeeded"      }  } |
| 12.1 | Graphical user interface, text, application, email  Description automatically generated  This step takes the Json variables from step 4, and enables the usage of all variables in step 8.2 |  |
| 12.2 | Graphical user interface, application  Description automatically generated  This step takes all the answeres from the from “Projectaanvraag (Stage 2)” and adds this data to the “LowCode Project List” database. The project status is changed to “Stage 2 and this data is added to the correct row by varifying the ProjectId, making the information within SharePoint List cumulative.  The following values are added to the database :  -Project start date  -Project end date  -Name coordinating organization  -Other partners  -HTTML link to the “project omschrijving (4 pager formulier) document”  -Own contribution Fontys  -Own contribution partners  -Subsidie contribution Fontys  -Subsidie contribution Partners  -Personnel costs Fontys  -Personel costs partners  -Other costs Fontys  -Other costs Partners -Additional comment on the budget. | {      "inputs": {          "host": {              "connectionName": "shared\_sharepointonline",              "operationId": "PatchItem",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_sharepointonline"          },          "parameters": {              "dataset": "https://stichtingfontys.sharepoint.com/sites/Company2797",              "table": "7fc526fe-a48a-4dd2-a2fa-283b564af813",              "id": "@items('Item\_bijwerken\_binnen\_project\_lijst')?['ID']",              "item/Title": "@items('Item\_bijwerken\_binnen\_project\_lijst')?['Title']",              "item/Status/Value": "Stage 2",              "item/Projectomschrijving\_x0028\_4pager": "@items('Op\_elk(e)\_toepassen\_3')['link']",              "item/Projectstart": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/r841e2c8a69dd4782ad2c8316789365ee']",              "item/ProjectEinde": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/r9d88d43556404ba5b89a0535859bb9b9']",              "item/NaamPenvoerendeorganisatie": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/r41f9fa60cd144512beaff625feacbb01']",              "item/Overigepartners": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/r34a74bea2dfd4398a2d60ac5259b2ca5']",              "item/Contactsubsidieadvies": [                  {                      "Value": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/ree9a36268b374cac8c5613b2088437bb']"                  }              ],              "item/EigenbijdrageFontys": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/r9f36c79fafd24c10958c0221c92a614e']",              "item/Eigenbijdragepartners": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/rb95c01ca67f042c19d8890fb1c572b5a']",              "item/SubsidiebijdrageFontys": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/rfc333cf785d44299aa31c29da0dedcca']",              "item/Subsidiebijdragepartners": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/r264ee73f7b9a4b15949adc5537273b95']",              "item/PersonelelastenFontys": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/r76742b04e30f43649908703022f16df2']",              "item/Personelelastenpartners": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/re9c20962416448068db685b500636b51']",              "item/OverigelastenFontys": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/r56afbb5a2f1445f9a76fd37f62407e5a']",              "item/Overigelastenpartners": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/rf351fefd966241d8aa4e218a3187233e']",              "item/Eventueleopmerkingenbetreffended": "@outputs('Reactiedetails\_ophalen\_(Stage\_2)')?['body/r86b56aa12a9b48e4ab9eef0611c9a317']"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "8aed0fbc-58f5-43dc-96f2-fc98b49982e1"      }  } |
| 13 | Table  Description automatically generated with low confidence |  |
| 13.1 | Graphical user interface, text, application, email  Description automatically generated  This step sends an email to the initiator. Confirming that the project has been approved an succesfully finished stage 2. The initiator is provided with a link to the form for stage 3 | {      "inputs": {          "host": {              "connectionName": "shared\_office365",              "operationId": "SendEmailV2",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_office365"          },          "parameters": {              "emailMessage/To": "@items('Mail\_verzenden\_Initiator\_')?['InitiatorEmail']",              "emailMessage/Subject": "Stage 2 @{items('Mail\_verzenden\_Initiator\_')?['Title']} afgerond",              "emailMessage/Body": "<p>Beste @{items('Mail\_verzenden\_Initiator\_')?['Initiator']},<br>\n<br>\nStage 2 van @{items('Mail\_verzenden\_Initiator\_')?['Title']} is afgerond. U kunt verder met Stage 3.<br>\n<br>\nForms Stage 3: https://forms.office.com/r/r9s3yNki0L&nbsp;</p>"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "83aed467-6391-4847-be12-f2c57ba6edbc"      }  } |
| 14 | A picture containing application  Description automatically generated  This step ends the flow so that it cannot be stuk in an infinate loop. | {      "metadata": {          "operationMetadataId": "2d451d43-8b76-4353-9e53-13dea8194be1"      },      "inputs": {          "runStatus": "Succeeded"      }  } |

# 8. Flow & Code Stage 3

This chapter will visualize and explain the flow created for stage 3 out of 3 by Brainwave within Microsoft Power Automate. This flow contains 13 steps, all steps and code are displayed in table 17

Graphical user interface

Description automatically generated with low confidence

Figure 19 Microsoft Power Automate Flow Stage 3

|  |  |  |
| --- | --- | --- |
| Step | Explanation | Code |
| 1 | Graphical user interface, text, application  Description automatically generated  This first step is the trigger for the flow. It starts when “Project Aanvraag Stage 3” in forms is filled in. | {      "inputs": {          "host": {              "connectionName": "shared\_microsoftforms",              "operationId": "CreateFormWebhook",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_microsoftforms"          },          "parameters": {              "form\_id": "ZWdrxpS3K0qE7YRbNBwIarALHKSIwAJGkfucnkYjEYhUQUhYTVZQN1oxS0xXTUZCRldPVDBSSVdWUy4u"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "7bd1f6bd-3872-408f-82c3-d0eeca9b7735"      },      "splitOn": "@triggerOutputs()?['body/value']"  } |
| 2 | Graphical user interface, text, application  Description automatically generated  This step will the extract the data from the “Aanvraag Fomrulier Stage 2” form. | {      "inputs": {          "host": {              "connectionName": "shared\_microsoftforms",              "operationId": "GetFormResponseById",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_microsoftforms"          },          "parameters": {              "form\_id": "ZWdrxpS3K0qE7YRbNBwIarALHKSIwAJGkfucnkYjEYhUQUhYTVZQN1oxS0xXTUZCRldPVDBSSVdWUy4u",              "response\_id": "@triggerOutputs()?['body/resourceData/responseId']"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "1a9f6328-2f52-434c-8cdd-acb666d6383d"      }  } |
| 3 | Graphical user interface, text  Description automatically generated  In this step JSON separate all the variables of the “Project Omschrijving (4 pager formulier) which come from the document. These are the following:  -Name -Link -ID  -ReferenceId  -Driveld  -Size  -Status    Instead of a whole string containing all these variables breaking the hyperlink when used in other stages. | {      "inputs": {          "content": "@outputs('Reactiedetails\_ophalen')?['body/r7286cdf756444e319a79d5ca463cf929']",          "schema": {              "type": "array",              "items": {                  "type": "object",                  "properties": {                      "name": {                          "type": "string"                      },                      "link": {                          "type": "string"                      },                      "id": {                          "type": "string"                      },                      "type": {},                      "size": {                          "type": "integer"                      },                      "referenceId": {                          "type": "string"                      },                      "driveId": {                          "type": "string"                      },                      "status": {                          "type": "integer"                      },                      "uploadSessionUrl": {}                  },                  "required": [                      "name",                      "link",                      "id",                      "type",                      "size",                      "referenceId",                      "driveId",                      "status",                      "uploadSessionUrl"                  ]              }          }      },      "metadata": {          "operationMetadataId": "ed4c2779-10ef-41e8-8bfc-e91d7f56fe38"      }  } |
| 4 | Graphical user interface, text, application, email  Description automatically generated  This step gathers the row created by the first stage of forms and Microsoft Power automate from the SharePoint list “LowCode Project List”. This is done by using the ProjectId gather by forms and using this as a filter in the SharePoint List. | {      "inputs": {          "host": {              "connectionName": "shared\_sharepointonline",              "operationId": "GetItems",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_sharepointonline"          },          "parameters": {              "dataset": "https://stichtingfontys.sharepoint.com/sites/Company2797",              "table": "7fc526fe-a48a-4dd2-a2fa-283b564af813",              "$filter": "(ProjectId eq '@{outputs('Reactiedetails\_ophalen')?['body/r23b26e375c204c64816b48686a102807']}')"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "e869f14f-d30a-45b5-83f8-a4f745d13046"      }  } |
| 5 | Graphical user interface, text, application, email  Description automatically generated  This step gathers emailadresses of the functions: Director, Financial Advisor. These emailadresses are gathered from the “LowCode List Of Current Stakeholders”. These emailadresses are filted on function and institute which the lecturer has answered in the form “Aanvraag Fomrulier Stage 3”. | {      "inputs": {          "host": {              "connectionName": "shared\_sharepointonline",              "operationId": "GetItems",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_sharepointonline"          },          "parameters": {              "dataset": "https://stichtingfontys.sharepoint.com/sites/Company2797",              "table": "71bde792-7934-4bd6-92cd-2321c90cf55b",              "$filter": "(Function eq 'Director') or (Function eq 'Board of Director') or (Function eq 'Financial Advisor') and (Institute eq '@{outputs('Reactiedetails\_ophalen')?['body/r24f2ff3215fb480a870dcb147584d661']}')"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "2596d7de-2f3c-48b0-94e7-78371b8e5ad0"      }  } |
| 7 | Graphical user interface, text, application, email  Description automatically generated  This step sets a variable to true. This is due to step 8 not having the option for a condition action | {      "inputs": {          "variables": [              {                  "name": "Goedkeuring",                  "type": "boolean",                  "value": "@true"              }          ]      },      "metadata": {          "operationMetadataId": "7c009df0-d1b2-451c-9917-bce8d6f4494e"      } |
| 6 | A picture containing table  Description automatically generated  This step takes the emailadresses from step 5, by selecting the output. These emailadresses are used in step 7.3 |  |
| 7.1 | Graphical user interface, application, email  Description automatically generated  This step takes all the previous acquired project information, which is received from step 4. This enables 7.3 to use all the information from the database. |  |
| 7.2 | Graphical user interface, text, application, email  Description automatically generated  This step takes the Json variables from step 3, and enables the usage of all variables in step 6.3 |  |
| 7.3 | Graphical user interface, application  Description automatically generated  This step starts the approvals for the Director and Financial Advisor. It send an email to these functions which are gathered from step 7. This email contains an approval or deniel option, the title of the project and the new attachment from the new form “Internal Budget”.Must all approve the project in order for it to continue. If any of them denies this proposal then the initiator will receive the feedback given by set employee and the flow ends. | {      "inputs": {          "host": {              "connectionName": "shared\_approvals",              "operationId": "StartAndWaitForAnApproval",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_approvals"          },          "parameters": {              "approvalType": "BasicAwaitAll",              "WebhookApprovalCreationInput/title": "@items('Goedkeuring\_sturen')?['Title']",              "WebhookApprovalCreationInput/assignedTo": "@{items('Apply\_to\_each\_2')?['Emailadress']};",              "WebhookApprovalCreationInput/itemLink": "@items('Apply\_to\_each\_3')['link']",              "WebhookApprovalCreationInput/enableNotifications": true,              "WebhookApprovalCreationInput/enableReassignment": true          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "0157ef5c-0e2a-44e9-864f-40fcd9b25218"      }  } |
| 7.4 | Graphical user interface, application  Description automatically generated  This step looks if one the employees has rejected the proposal. If all has been approved then it continiues to yes, if not then it continious to no. |  |
| 7.5A | Graphical user interface, application  Description automatically generated  If everyone has approved the project, then the flow goes to ‘yes’ and continues forwards |  |
|  | Graphical user interface, application  Description automatically generated  This step looks if one or more employees have rejects the proposal, then the variable in 7 gets changed from ‘true’ to ‘false’ | {      "inputs": {          "name": "Goedkeuring",          "value": "@false"      },      "metadata": {          "operationMetadataId": "06bbc7dc-9893-4296-9825-410e49e9898e"      }  } |
| 8 | Graphical user interface, text, application  Description automatically generated  This step looks if the variable is still true or false. If true it goes to yes if false then it goes to no. |  |
| 8.1A | Graphical user interface, application  Description automatically generated  If the answer is true the flow will continue |  |
| 8.2B | Graphical user interface, application  Description automatically generated  This step sends An email to the responder informing them that the project has been rejected. | {      "inputs": {          "host": {              "connectionName": "shared\_office365\_1",              "operationId": "SendEmailV2",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_office365"          },          "parameters": {              "emailMessage/To": "@outputs('Reactiedetails\_ophalen')?['body/responder']",              "emailMessage/Subject": "Stage 3 afgekeurd",              "emailMessage/Body": "<p>Beste Initiator,<br>\n<br>\nStage 3 is helaas afgekeurd. U wordt spoedig gecontacteerd.</p>"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "e60643bc-e724-49bc-8540-43cca78ed285"      }  } |
| 8.3B | Graphical user interface, application  Description automatically generated  This step ends the flow | {      "metadata": {          "operationMetadataId": "39914a40-880e-47a8-872f-53e22a26b21a"      },      "inputs": {          "runStatus": "Succeeded"      }  } |
| 9 | Graphical user interface, text, application, email  Description automatically generated  This step gathers emailadresses of the function: Subsidy Advisor (FSA). These emailadresses are gathered from the “LowCode List Of Current Stakeholders”. These emailadresses are filted on function. | {      "inputs": {          "host": {              "connectionName": "shared\_sharepointonline",              "operationId": "GetItems",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_sharepointonline"          },          "parameters": {              "dataset": "https://stichtingfontys.sharepoint.com/sites/Company2797",              "table": "71bde792-7934-4bd6-92cd-2321c90cf55b",              "$filter": "(Function eq 'Subsidy Advisor (FSA)') "          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "da0dd3c7-68ed-45b5-9bd5-88e72c371e85"      }  } |
| 10 | A picture containing diagram  Description automatically generated  This step takes the emailadresses from step 7, by selecting the output. These emailadresses are used in step 8.2 |  |
| 10.1 | Graphical user interface, text, application, email  Description automatically generated  This step takes all the previous acquired project information, which is received from step 4. This enables 7.3 to use all the information from the database. |  |
| 10.2 | Graphical user interface, text, application, email  Description automatically generated  This step sends an email to the subsidy advisors, confirming that the project has been past all approvals and that stage 3 has been finished. | {      "inputs": {          "host": {              "connectionName": "shared\_office365",              "operationId": "SendEmailV2",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_office365"          },          "parameters": {              "emailMessage/To": "@items('Mail\_versturen\_Subsidy\_Advisor')?['Emailadress']",              "emailMessage/Subject": "Afronding Subsidy aanvraag @{items('Apply\_to\_each\_5')?['Title']}",              "emailMessage/Body": "<p>Beste,<br>\n<br>\nBij deze is het project zover gevorderd dat de subsidie aanvraag afgerond kan worden.</p>"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "d98ed078-246c-42f6-81ee-26f8f2f52e1f"      }  } |
| 11 | A picture containing diagram  Description automatically generated  This step takes all the previous acquired project information, which is received from step 4. This enables 8.2 to use all the information from the database. |  |
| 11.1 | Graphical user interface, text, application, email  Description automatically generated  This step takes the Json variables from step 3, and enables the usage of all variables in step 9.2 |  |
| 11.2 | Graphical user interface, text, application, email  Description automatically generated  Graphical user interface, text, application, email  Description automatically generated  This step takes all the answeres from the from “Projectaanvraag (Stage 3)” and adds this data to the “LowCode Project List” database. The project status is changed to “Wachtende Goedkeuring Subsidie Verstrekker” and this data is added to the correct row by verifying the ProjectId.  The following values are added to the database :  -Writing team content  -Writing team Financial  -Writing team Planning  -Writing team writer  -HTTML link to the “Internal Budget” | {      "inputs": {          "host": {              "connectionName": "shared\_sharepointonline",              "operationId": "PatchItem",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_sharepointonline"          },          "parameters": {              "dataset": "https://stichtingfontys.sharepoint.com/sites/Company2797",              "table": "7fc526fe-a48a-4dd2-a2fa-283b564af813",              "id": "@items('Verwerking\_Stage\_3\_in\_Project\_lijst')?['ID']",              "item/Title": "@items('Verwerking\_Stage\_3\_in\_Project\_lijst')?['Title']",              "item/Status/Value": "Wachtende Goedkeuring Subsidie Verstrekker",              "item/SchrijfTeamInhoudelijk": "@outputs('Reactiedetails\_ophalen')?['body/rd2bb00d904a544deacf529de1c23e1c1']",              "item/SchrijfTeamFinancieel": "@outputs('Reactiedetails\_ophalen')?['body/r2035503bbd634ed5afc5bd40368a666f']",              "item/SchrijfTeamPlanning": "@outputs('Reactiedetails\_ophalen')?['body/rd52e8f88c6dc4fa186a291a7756889a7']",              "item/SchrijfteamSchrijver": "@outputs('Reactiedetails\_ophalen')?['body/r60acde5c69cd46fcb418047f96afa012']",              "item/Internebegroting": "@items('Apply\_to\_each\_7')['link']"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "f23e8088-e5f2-42ba-a8fc-2a6790a0c084"      }  } |
| 12 | A picture containing graphical user interface  Description automatically generated  This step takes the information from the sharepoint list and allows it to be used in step 12.1 |  |
| 12.1 | Graphical user interface, text, application, email  Description automatically generated  This step sends an email to the initiator stating that stage 3 is completed. | {      "inputs": {          "host": {              "connectionName": "shared\_office365\_1",              "operationId": "SendEmailV2",              "apiId": "/providers/Microsoft.PowerApps/apis/shared\_office365"          },          "parameters": {              "emailMessage/To": "@items('Email\_verzenden\_Initiator')?['InitiatorEmail']",              "emailMessage/Subject": "Stage 3 @{items('Email\_verzenden\_Initiator')?['Title']} afgerond",              "emailMessage/Body": "<p>Beste @{items('Email\_verzenden\_Initiator')?['Initiator']},<br>\n<br>\nStage 3 van @{items('Email\_verzenden\_Initiator')?['Title']} is afgerond.</p>"          },          "authentication": "@parameters('$authentication')"      },      "metadata": {          "operationMetadataId": "8a1cfe6d-9ebb-4847-b7d6-89ab88f3f8bb"      }  } |
| 13 | A picture containing bar chart  Description automatically generated  This step ends the flow so that it cannot be stuk in an infinate loop. | {      "metadata": {          "operationMetadataId": "17d1374e-0803-4903-8d77-d2b9953188d5"      },      "inputs": {          "runStatus": "Succeeded"      }  } |

8. Flow & Code Power Power BI “Initiator overzicht”

This chapter will visualize and explain the “initiator overzicht” dashboard in Power BI.

This translates into initiator overview. This dashboard gives the initiator additional information on their current projects. This Overview consist of 4 different visualizations, slicer and a navigation menu shown in figure 18. The navigation menu is the same for each dashboard but will only be explain within this chapter.

Chart, bar chart

Description automatically generated

Figure 20 Initiator Overzicht Dashboard

|  |  |  |  |
| --- | --- | --- | --- |
| Dashboard number | | Explanation | Code |
| 1 | Icon  Description automatically generated  This is the symbol used for the menu navigation. This symbol is the same for each dashboard page. Pressing the button will open a window with all dashboard pages, allowing the user to navigate to a dashboard page | | This is done by creating bookmarks for the page with the menu opened and closed. It has do be done manually for each dashboard page. |
| 1.1 | Diagram  Description automatically generated with low confidence  This is the navigation menu. A user can navigate to a page by pressing on the name of those projects. The menu is closed by pressing the left pointing arrow. | | - |
| 2 | Graphical user interface, text, application, email  Description automatically generated  This slicer filters on initiator. It allows the user to investigate the specific data from the chosen imitator. This filter will then be applied to all visualizations on this page. | | Source: LowCodeProjectList (SharePoint list)  field: Initiator |
| 3 | Chart, bar chart  Description automatically generated  This clustered column chart displays the amount of projects there are, at what stage they currently are and what institute is responsible for the projects. | | Source: LowCodeProjectList (SharePoint list)  Axis: status  Legend: Instituut  Values: Aantal Projecten |
| 4 | Chart, bar chart  Description automatically generated  This stacked column chart displays the amount of co-financing and external financing per project. With the light blue displaying the co-financing from Fontys and the dark blue displaying the external financing. | | Source: LowCodeProjectList (SharePoint list)  Axis: Projecten  Values: Co-Financiëring & Externe Financiën |
| 5 | Graphical user interface, text  Description automatically generated  This card displays the total amount of financing Fontys would need to provide for the projects at the approval stage. | | Fields: Totale Financials Measure: TotaleFinancials = SUMX(LowCodeProjectList, LowCodeProjectList[CoFinancials] + LowCodeProjectList[ExternFinancials]) |
| 6 | Graphical user interface, text, application  Description automatically generated  This card displays the total amount or project at one of the 3 stages. | | Source: LowCodeProjectList (SharePoint list)  Fields: Projecten |

# 9. Flow & Code Power Power BI “Projecten Financieel Overzicht”

This chapter will visualize and explain the “Projecten Financieel Overzicht” dashboard in Power BI.

This translates into project financial overview. This Overview displays the financial information of each individual project, this is done by 7 different visualizations displayed in figure 19.

Graphical user interface, application

Description automatically generated

Figure 21 Projecten Financieel Overzicht dashboard

|  |  |  |  |
| --- | --- | --- | --- |
| Dashboard number | | Explanation | Code |
| 1 | A picture containing text, clipart  Description automatically generated  This card displays the currently chosen project for the other visualizations | | Source: LowCodeProjectList (SharePoint list)  Field: Title |
| 2 | Text  Description automatically generated  This card displays the current costs this project would ensue for this project by the Fontys. | | Fields: totale Lasten Fontys  Measure: TotaleLastenFontys = SUMX(LowCodeProjectList, LowCodeProjectList[PersoneleLastenFontys] + LowCodeProjectList[OverigeLastenFontys]) |
| 3 | Text  Description automatically generated with low confidence  This card displays the current costs this project would ensue for this project by the partners | | Fields: Totale Lasten Partners  Measure: TotaleLastenPartners = SUMX(LowCodeProjectList, LowCodeProjectList[PersoneleLastenPartners] + LowCodeProjectList[OverigeLastenPartners]) |
| 4 | A picture containing text  Description automatically generated  This card displays the total amount of funding Fontys would need to put into the Fontys. | | Fields: Totale Bijdrage Partners  Measure: TotaleBijdragePartners = SUMX(LowCodeProjectList, LowCodeProjectList[EigenBijdragePartners] + LowCodeProjectList[SubsidieBijdragePartners]) |
| 5 | A picture containing graphical user interface  Description automatically generated  This card displays the total amount of funding Fontys would need to put into the project. | | Fields: Totale Bijdrage Fontys  Measure: TotaleBijdrageFontys = SUMX(LowCodeProjectList, LowCodeProjectList[EigenBijdrageFontys] + LowCodeProjectList[SubsidieBijdrageFontys]) |
| 6 | Chart, diagram  Description automatically generated  This donut chart breaks down all the costs Fontys and the Partners would ensue. | | Source: LowCodeProjectList  Values: Overige Lasten Fontys, Personele Lasten, Overige Lasten Partners, Personele Lasten Partners |
| 7 | Diagram  Description automatically generated  This Donut chart displays the amount of Funding Fontys and the partners would need to put into the project. | | Source: LowCodeProjectList  Values: Subsidie Bijdrage Fontys, Eigen Bijdrage Fontys, Subsidie Bijdrage Partners, Eigen Bijdrage Partners |

# 10. Flow & Code Power Power BI “Project Status Overzicht”

This chapter will visualize and explain the “Project Status Overzicht” dashboard in Power BI.

This translates into Project status overview. This dashboard provides an overview on how many projects are currently present in each stage. This dashboard uses that information and uses this to calculate how many projects are currently longer then 5 days in each status. The overview consist of 2 slicers and 4 graphs displayed in figure 20.

Chart

Description automatically generated

Figure 22 Project Status Overzicht Dashboard

|  |  |  |  |
| --- | --- | --- | --- |
| Dashboard number | | Explanation | Code |
| 1 | A picture containing shape  Description automatically generated  This slicer filters on in what year(s) projects started and filter the rest of the visualization on this page. | | Source: DIM\_Date  Field: Year  DIM\_Date = ADDCOLUMNS(  CALENDARAUTO(),  "year", FORMAT([Date], "yyyy"),  "quarter", QUARTER([Date]),  "monthnr", MONTH([Date]),  "month", FORMAT([Date], "mmm"),  "week", WEEKNUM([Date], 2),  "wdnr", WEEKDAY([Date]-1),  "weekday", FORMAT([Date], "ddd"),  "weekend", IF(OR(WEEKDAY([Date]-1) = 6, WEEKDAY([Date]-1) = 7), TRUE(), FALSE())  ) |
| 2 | Graphical user interface, application, Word  Description automatically generated  This slicer filters on in what quarter(s) projects started and filter the rest of the visualization on this page. | | Source: DIM\_Date  Field: Quarter  DIM\_Date = ADDCOLUMNS(  CALENDARAUTO(),  "year", FORMAT([Date], "yyyy"),  "quarter", QUARTER([Date]),  "monthnr", MONTH([Date]),  "month", FORMAT([Date], "mmm"),  "week", WEEKNUM([Date], 2),  "wdnr", WEEKDAY([Date]-1),  "weekday", FORMAT([Date], "ddd"),  "weekend", IF(OR(WEEKDAY([Date]-1) = 6, WEEKDAY([Date]-1) = 7), TRUE(), FALSE())  ) |
| 3 | Chart  Description automatically generated  This clustered column chart displays the amount of projects in each stage. Along with what month they started. | | Source: LowCodeProjectList & DIM\_Date  Axis: Month  Legend: Status Value  Values: Count of ProjectId |
| 4 | Chart, sunburst chart  Description automatically generated  This gauge displays the number of projects that are in stage 1 for more then 5 days, along with a line displaying what the maximum of project allowed to be beyond 5 day. | | Value: Status\_Te\_Lang\_Stage\_1  Maximum Value: Count\_Stage\_1  Target value: Target\_Stage\_1  Measure:  Count\_Stage\_1 = COUNTROWS(FILTER(LowCodeProjectList, LowCodeProjectList[StatusValue] = "Stage 1")) + 0  Status\_Te\_Lang\_Stage\_1 = COUNTROWS(FILTER(LowCodeProjectList, LowCodeProjectList[StatusValue] = "Stage 1" && DATEDIFF(LowCodeProjectList[Gemaakt], TODAY(), DAY) >= 5)) + 0  Target\_Stage\_1 = CALCULATE(CONVERT(0.25 \* [Count\_Stage\_1], DOUBLE)) |
| 5 | Diagram  Description automatically generated with medium confidence  This gauge displays the number of projects that are in stage 2 for more then 5 days, along with a line displaying what the maximum of project allowed to be beyond 5 day. | | Value: Status\_Te\_Lang\_Stage\_2  Maximum Value: Count\_Stage\_2  Target value: Target\_Stage\_2  Measure:  Count\_Stage\_2 = COUNTROWS(FILTER(LowCodeProjectList, LowCodeProjectList[StatusValue] = "Stage 2")) + 0  Status\_Te\_Lang\_Stage\_2 = COUNTROWS(FILTER(LowCodeProjectList, LowCodeProjectList[StatusValue] = "Stage 2" && DATEDIFF(LowCodeProjectList[Gemaakt], TODAY(), DAY) >= 10)) + 0  Target\_Stage\_2 = CALCULATE(0.25 \* [Count\_Stage\_2]) |
| 6 | Diagram  Description automatically generated  This gauge displays the number of projects that are in stage 3 for more then 5 days, along with a line displaying what the maximum of project allowed to be beyond 5 day. | | Value: Status\_Te\_Lang\_Stage\_3  Maximum Value: Count\_Stage\_3  Target value: Target\_Stage\_3  Measure:  Count\_Stage\_3 = COUNTROWS(FILTER(LowCodeProjectList, LowCodeProjectList[StatusValue] = "Wachtende Goedkeuring Subsidie Verstrekker")) + 0  Status\_Te\_Lang\_Stage\_3 = COUNTROWS(FILTER(LowCodeProjectList, LowCodeProjectList[StatusValue] = "Wachtende Goedkeuring Subsidie Verstrekker" && DATEDIFF(LowCodeProjectList[Gemaakt], TODAY(), DAY) >= 15)) + 0  Target\_Stage\_3 = CALCULATE(0.25 \* [Count\_Stage\_3]) |

# 11. Flow & Code Power Power BI ‘Instituten Overzicht’

This chapter will visualize and explain the ‘Instituten Overzicht’ dashboard in Power BI.

This translates into institute overview. This dashboard displays the amount of projects per institute for a timeframe. This Overview consist of 1 visualization and 2 slicers displayed in figure 21.

Chart, waterfall chart

Description automatically generated

Figure 23 Instituten Overzicht Dashboard

|  |  |  |  |
| --- | --- | --- | --- |
| Dashboard number | | Explanation | Code |
| 1 | A picture containing background pattern  Description automatically generated  This slicer filters on in what year(s) projects started and filter the rest of the visualization on this page. | | Source: Dim\_Date  Field: Year  DIM\_Date = ADDCOLUMNS(  CALENDARAUTO(),  "year", FORMAT([Date], "yyyy"),  "quarter", QUARTER([Date]),  "monthnr", MONTH([Date]),  "month", FORMAT([Date], "mmm"),  "week", WEEKNUM([Date], 2),  "wdnr", WEEKDAY([Date]-1),  "weekday", FORMAT([Date], "ddd"),  "weekend", IF(OR(WEEKDAY([Date]-1) = 6, WEEKDAY([Date]-1) = 7), TRUE(), FALSE())  ) |
| 2 | Graphical user interface, application  Description automatically generated  This slicer filters on in what quarter(s) projects started and filter the rest of the visualization on this page. | | Source: Dim\_Date  Field: Quarter  DIM\_Date = ADDCOLUMNS(  CALENDARAUTO(),  "year", FORMAT([Date], "yyyy"),  "quarter", QUARTER([Date]),  "monthnr", MONTH([Date]),  "month", FORMAT([Date], "mmm"),  "week", WEEKNUM([Date], 2),  "wdnr", WEEKDAY([Date]-1),  "weekday", FORMAT([Date], "ddd"),  "weekend", IF(OR(WEEKDAY([Date]-1) = 6, WEEKDAY([Date]-1) = 7), TRUE(), FALSE())  ) |
| 3 | Chart, waterfall chart  Description automatically generated  This clustered column chart uses the previous filters and displays the total amount of project for each institute with the starting month. | | Source Dim\_Date & LowCodeProjectList  Axis: Month  Legend: Instituut Value  Values: Count of ProjectId  DIM\_Date = ADDCOLUMNS(  CALENDARAUTO(),  "year", FORMAT([Date], "yyyy"),  "quarter", QUARTER([Date]),  "monthnr", MONTH([Date]),  "month", FORMAT([Date], "mmm"),  "week", WEEKNUM([Date], 2),  "wdnr", WEEKDAY([Date]-1),  "weekday", FORMAT([Date], "ddd"),  "weekend", IF(OR(WEEKDAY([Date]-1) = 6, WEEKDAY([Date]-1) = 7), TRUE(), FALSE())  ) |

# 12. Flow & Code Power Power BI ‘Centre Of Expertise’

This chapter will visualize and explain the ‘Centre Of Expertise’ dashboard in Power BI.

This dashboard displays all the centers of expertise and the associated institutes. Along with a general count in which someone can see how many expertises an institute has, or how institutes have the same expertise. displayed in figure 21.

Graphical user interface, chart

Description automatically generated

Figure 24 Centre Of Expertise Dashboard

|  |  |  |  |
| --- | --- | --- | --- |
| Dashboard number | | Explanation | Code |
| 1 | Graphical user interface, text, application  Description automatically generated  This slicer filters on in what Specific expertise someone is looking for. | | - |
| 2 | Graphical user interface, text, application, email  Description automatically generated  This slicer filters on in what Specific institute someone is looking for. | | - |
| 3 | Graphical user interface, application, table  Description automatically generated  This table displays the information filted for by dashboard 1 & 2. It allows the user to see what the email of that specific expertise/institute is and the location. | | Values:  Expertise, Institute, Email, Location |
| 4 | Chart, bar chart  Description automatically generated  This Clusterd Colmn Chart displays information based on dashboard 1 & 2. It shows the user how many and which institutes have a certain expertise | | Axis: Title Legend: Institute  Values: Count of Institute |

# 13. User Test And Peer Review

This chapter discusses, results of the user test (REFERENCE USER TEST) and the peer review. As a result changes are made to the Proof-Of-Concept which are also discussed in this chapter.

## 13.1 User test

The user test was conducted by Brainwave with firstly, Bart van Gennip a professor. Secondly, Dries van den Enden a project leader and lately, Mark Aelmans a project controller. These three Fontys employees have different roles during the project proposal stage resulting in diverse requirements from the Proof-Of-Concept.

The testers were given four different scenarios. First two are based on the automatizations created for the project proposal stage by Brainwave. Which uses Microsoft Forms and Microsoft Power Automate. For the first scenario the testers had to complete the form ‘project aanvraag stage 1’. All users were able to complete this stage with an average time of 3:04 minutes, this time will obviously increase as the testers were allowed to do this for a fictional project. The second scenario required the users to open the form ‘project aanvraag stage 2’ and fill in the project id. Which they received in an email after finishing stage 1. All users were able to complete this stage with an average time 28 seconds.

The last two scenarios are based on the Power BI dashboards which are created from the data gathered during the automatization. The third scenario asked tested to search for how many projects there currently are and the status of December 2021. The average time of these test was 1:33 minutes with one tester failing to complete the scenario. The fourth scenario required the testers to find more information on the project “Fontys Lowcode” by using a drill-through on one of the bars in the chart. All users were able to complete this stage with an average time of 1:39 minutes.

## 13.2 Peer Review

For the peer review the client Rutger Lippits was chosen. Rutger has worked closely with Brainwave in order to accomplish a solid Proof-Of-Concept and has extensive knowledge on all the needs roles may have.

This occurred on 16th of December 2021, in this meeting Brainwave took Rutger step by step through every aspect of the Proof-Of-concept, afterwards Rutger was presented with the same user test as the other three Fontys employees.

## 13.3 Results

Table 1 demonstrates all the feedback provided to Brainwave for the Power Automate Proof-Of-Concept. Unfortunately, Brainwave will not be able to change the Power Automate Flow, as a previous round of feedback has been implanted already and doing so again would cause a lack of time for improving Power BI, creating a transition document and answering research question 5. This feedback will be noted in the recommendation for future development of the automatization for Fontys projects. There is one exception, the last email is improved with the ProjectId mentioned several times.

Table 15 User Test Power Automate feedback

|  |  |
| --- | --- |
| Times mentioned | Feedback |
| 3 | Mention the names of stakeholders in the email |
| 3 | ProjectID is unclear in the email and forms |
| 2 | Preferable having the link in the last email automatically fill in the ProjectID |
| 1 | Initiator is the on that has contributed in writing the proposal but not always the one applying for the subsidies. |
| 1 | Forms does not take ‘.’ and ‘,’ into consideration |
| 1 | Ad-blocker may cause the forms to not function properly(especially date picker) |
| 1 | Prefers the communication to be via teams instead of email |
| 1 | In the stage 2 forms, change the question “institute” to something slightly different which will result in the same answer but will not feel like answering the same question each time. The example provided is “welk instituut beoordeeld deze aavraag” |
| 1 | Change forms “project id” to “PROJECT ID (zie email) |
| 1 | Different type of projects need different input fields. Examples are internal projects are not granted subsidies but are still required to provide one. |
| 1 | Provide the initiator with more feedback from the employees approving the project, instead of all at once. Also providing the ability for stakeholder to look into the other approvals. |

Table 5 demonstrates all the feedback provided to Brainwave for the Power BI Proof-Of-Concept. This will be the first round of feedback provided to Brainwave on Power BI. Therefor some of the feedback will be used and implemented. However only feedback that Brainwave deems within scope is implemented, reasoning being that taking on additional work beyond the scope close to the deadline would negatively impact Brainwave’s schedule.

Table 16 User Test Feedback Power BI

|  |  |  |
| --- | --- | --- |
| Times mentioned | Feedback | Status |
| 2 | Name ‘initiator overzicht’ is unclear | Changed |
| 2 | Finding the Project name in the “initiator overzicht” is difficult | Changed |
| 1 | Consider project duration in the dashboard. | Beyond scope |
| 1 | What bars are selected in the bar chart is not fully with some only the transpiration effect. | Changed |
| 1 | In “Projecten Status Overzicht” have an absolute number of projects instead of only bar charts | Changed |
| 1 | The navigation menu needs to be clearer | Beyond scope |
| 1 | A separate overview of specific project instead of a drill-through | Beyond scope |
| 1 | Add textual explanation | Beyond scope |
| 1 | Check-list of project that users find interesting | Beyond scope |
| 1 | Add an indication on the status of budget used | Beyond scope |

The first change is done by adding another Slicer in the ‘initiator overzicht’ displayed in figure 22, adding an additional filter option. An Initiator was previously only able to select a specific project by pressing it in the bar chart. By adding this slicer, it now also solved the issue of not being clear what is now being selected and accessible for the user to select a project. The last change was adding the total number of project for an initiator. This has to previously be done by counting the amount of projects from the bar chart. Now with the addition of the card displayed in figure 23 it now is also displayed as a numerical value.

Graphical user interface, application

Description automatically generated with medium confidence

Figure 25 addition slicer in “initiator overzicht”

A picture containing graphical user interface

Description automatically generated

Figure 26 Change total amount of projects in “Initiator Overzicht”

Table

## 13.4 Peer Review Feed Back

Brainwave has conducted a peer review on 16th of December, Brainwave has taken Rutger through the Power BI Proof-Of-Concept created by Brainwave. The following results are displayed in table 7. This feedback will be used to alter the previous elaborated Power BI dashboards.

Table 17 Peer Review Feedback Power BI

|  |  |
| --- | --- |
| Feedback | Status |
| ‘Instituten Overzicht’ separate the status from status to institute | Changed |
| ‘Projecten Status Overzicht’ change name to ‘Project Controller Overzicht’ | Changed |
| Add an additional filter on the type of project (subsidy, internal, zakelijke dienst) | Changed |
| More drill-through links in the dashboards | - |
| Add an additional gauge diagram to the ‘Project Status Overzicht’ | Changed |
| Couple institutes to centre of expertise by using general institute emails. | Changed |
| Overview of centre of expertise as several institutes may possess the same expertise | Changed |

‘Instituten Overzicht’ has been changed up significantly compared to figure 24(vorige instituten overzicht) the stacked column chart has been altered to now display based on institute instead of project status, the project status is now displayed as a stack within the bar. Along with a new slicer which filters on the project type, to create the possibility for distinguishing between those. Something which will be relevant during the rollout of the project beyond subsidy projects.

Chart, bar chart

Description automatically generated

Figure 27 New Dashboard 'instituten Overzicht'

‘Project Controller Overzicht’ has changed, it was previously named ‘Projecten Status Overzicht’. An additional two-gauge graphs have been added to the dashboard. These gauge’s display the amount a project will cost Fontys and the amount of subsidies being granted by the subsidy provider. As Rutger mentioned on the 16th of December, these are two figures are detrimental for establishing budgets. This overview now better helps stakeholders in determining if a project is able to be pursued due to the amount of funding required. Leading to better decision making during the approval stage.

Graphical user interface, application

Description automatically generated

Figure 28 New Dashboard 'Project Controller Overzicht'

As a result of Rutger’s feedback, a Dashboard has been created. It is called ‘Center Of Expertise displayed in figure 26. Rutger Explained that Fontys is working on a new format called “The centre of expertise”. The goal is to create different fields of expertise, with the possibility of an expertise present at several institutes. This dashboard allows the user to filter on an expertise and or institute. This filter effects the table which contains an email and location of the institute and expertise. This makes it possible for staff member to get in touch with one another and see where the staff member is located. There is also a clustered column chart which displays the expertise and institutes in a chart. Making it possible to get a general oversight in how many expertise an institute has or how many institutes share the same expertise.

Chart, bar chart

Description automatically generated

Figure 29 New Dashboard Center Of Expertise

# Appendix D – Implementation plan

Inhoudsopgave

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# Introduction

This report is an implementation plan for the Proof-Of-Concept created by Brainwave for Fontys. Firstly an introduction to the project and the definition, then the whole implementation will be explain within several categories.

# Implementation plan

In this chapter, the implementation plan of the system is set out into seven steps. These are the steps necessary to implement the Proof-of-Concept that Brainwave has realized.

## Define Project

The Proof-Of-Concept is created to ensure a streamlined and efficient way of working. For this the partnership of Fontys with Microsoft is utilized by using the following tools. Microsoft Power Automate, Power BI, Forms, SharePoint List  
  
These tools all have their own separate functions. Microsoft Power Automate is to create a ‘flow’. The flow stands for actions created by Brainwave which the tool will do once a trigger is given. Microsoft Forms are used as triggers for the flow. There are 3 different flows and 3 different forms, each form has its own flow. All this information will then be stored in the SharePoint List and the data is made available for the Power BI dashboards.   
  
There are risks with this project.

* It is a whole new concept which employees will find difficult and need to get used to.
* All the tools need to be placed correctly and heavily tested, cause one mistake may lead to problems down the line.
* Forms is suboptimal for this project.

All these risks can be handled if enough care and testing has taken place before the official rollout.

## Business definition

In order to ensure a success on the business, several employees need to be trained beforehand. This to provide expertise within institutions instead of constantly having to question the I(C)T department or worse fall back into the old way of working. Which actually harms the progress and acceptance level. This training can be done by the I(C)t department and all the aspects need to be finetuned together with the I(C)T department.

To ensure further success, a gap analysis should be made. As this Proof-Of-Concept will not be used for rollout Brainwave will not create a gap analysis. As the situation will be different with the following group.

## Realisation

Brainwave has created the databases, flows, questioners and dashboards. Within the tools previously mentioned in chapter 2.1. These tools are now capable of functioning autonomously, this is accomplished by heavily testing each tools repeatedly. With most importantly taking the feedback gathered from the interviews into consideration, to make sure tools are developed which actually benefit the stakeholders.

Once everything has been created it should now be normalized. By using the actions of the business definition in combination with the roll out of the tools. The shift in work environment will slowly shift to a more optimized way of working.

## Configuration

For the configuration-phase, the rights for the Microsoft Power Platform can configured, keeping the accessibility of the Power Automate flows in mind.

After the rights are declared, the data that is used in the ‘Stakeholder list’ on SharePoint needs to be updated for the Power Automate flows. Besides that, the available data of all the projects that are finished or currently being executed needs to be extracted, transformed and loaded into the ‘Project list’ on SharePoint. With these configurations, the data can be retrieved with Power BI.

## Testing

For the testing-phase, a test-environment needs to be established. After establishing the test-environment, a functional test needs to be executed to validate the system against the functional requirements. After this, the security can be tested by executing an audit regarding the rights and accessibility security.

After finishing these tests, an acceptance test needs to be executed, to see if the system has additional problems that can be expected when the system in already in use.

## Implementation

For the implementation-phase, there needs be clarity about who is going to be the point of contact for the implementation. When this has been established, a bridging-time can be set to map out and indicate the risks of the system after it has been implemented within the right environment.

## Aftercare

When the implementation-phase ended and the system has been implemented, there needs to be a structural check-up for the information security set into place to ensure the security of the system for the future.

After the implementation of the system, there also needs to be an evaluation on the system, so the system can be updated when necessary.

# Appendix E – Transfer document

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# Introduction

Fontys Hogescholen is a university of applied science in the Netherlands consisting of 28 institutions. With students across the Netherlands and the world, students can acquire a Bachelor degree, course, or a minor in various fields. Fontys was Founded on September 1 in 1996 (Arts, n.d.), with high care of sustainability (Bron, 2021). (R. Lippits, personal communication, September 13, 2021)

Currently, Fontys has several projects running within the university. However, Fontys does not have a centralized project management system in place. Resulting in each institute within the university coordinating their projects. This decentralized way of working causes several problems within the university. (R. Lippits, personal communication, September 13, 2021)

With the magnitude of Fontys, it becomes increasingly more challenging to maintain such a decentralized way of working. Therefore, Fontys wants to change this. At first, new accounting software is going to be implemented from January 1 2022. secondly, to regain control over the projects, a new centralized project management system will be created. Deloitte, an accounting firm, did the initial research. Which interviewed and worked together with Fontys to establish a basic blueprint of how project management should be handled within Fontys. Along with forms, roles, and more. Along with PerusahaanIT, a group of students from Fontys researched that the Microsoft Power Platform meets most of the requirements. And is going to be used by Fontys for the creation of a centralized system. (R. Lippits, personal communication, September 13, 2021)

The purpose of this document is to transfer the project over to the client and their next group of researchers with the problems & findings we encountered during the execution of the project. This document assumes that the reader has read the previous made documents & research report.

# Transfer

## Research Report

Before a Proof-Of-Concept is created, research is done to investigate the requirements. All requirements are stated in the Process Documentation Microsoft Power Platform (from Brainwave, 2021). This document will further elaborate on the requirements which are not met. Brainwave has gathered the requirements from different interviews and user tests. All summaries can be found in the Interview Forms document (from Brainwave, 2021).

During the interview it became clear that the Fontys staff hardly has any experience on project management, even less on what is needed. Most requirements are something the interviewees feel is missing or want improved but this will always be a part of the picture. Therefor we advise to interview several roles multiple times, the most important requirements are displayed table 1 which were the foundation of this project. Besides Fontys employees, Brainwave highly recommends interviewing employees of other universities. During this research the TU/e (Marco Steinmann) and HAN Hogeschool (Frank de Haan) have been interviewed. More information on the outcome can be found in the Research Report LowCode (from Brainwave, 2022) lol

This gave Brainwave a better perspective of how project management should be done and several tips for the Proof-Of-Concept. Everyone is busy, so schedule these interviews immediately once Rutger provides a list. It took 4 weeks before Brainwave was able to interview everyone.

Table 18 Crucial Requirements Interviews

|  |  |
| --- | --- |
| Type Of Requirement | Requirement |
| Business requirement | The client wants to apply for one central process for a (subsidy) project. |
| User requirement | The user can see an overview of the amount of requests, and other transactional data regarding the project requests |
| User requirement | The user can see an overview of the status of a project request |
| Functional requirements | The Proof-of-Concept can use MS Forms as a trigger to start a flow in Power Automate |
| Functional requirements | The Proof-of-Concept can give new project an unique number as ID |
| Functional requirements | The Proof-of-Concept needs to centralize the data and documents for every project. |
| Functional requirements | The Proof-of-Concept must be able to work with files from the SharePoint environment. |
| Functional requirements | The Proof-of-Concept must be available within the network of Fontys University of Applied Sciences. |

## Power Automate & Microsoft Forms

Power Automate worked as expected and Brainwave was able to suffice all requirements, however Brainwave had to contact Fontys IT (Flip Wetzer & Ron Limborgh) before an environment was created. Once the next group takes over, contact Fontys IT immediately to ensure this environment is available.

Microsoft Forms is unfortunately not a success. At first Brainwave planned to use Microsoft Power Apps but this was unfortunately impossible. The Fontys environment has no features or modules available at all, which heavily restrict the possibilities. There is also a safety issue, everyone within the environment has access to everyone’s Power Apps projects within the organization of Fontys. This means that the rights management is not yet been well configured. There have no changes been made at the time of writing. Brainwave highly recommends the next group to start contacting Fontys IT to make the environment more secure or to make an environment that is specially designed for this project. This resulted in Brainwave choosing for Forms, which also has limitations. These limitations are mentioned in table 2 which displays the feedback derived from the user tests.

Table 19 Feedback User Test Forms compared to Apps

|  |  |  |
| --- | --- | --- |
| Feedback | Forms | Apps |
| ProjectID is unclear in the email and forms | ProjectID needs to be re-entered in order to make it possible for Power Automate to function. This leads to confusion | Possible, the form is cumulative and will therefor not need a separate form or input field for ProjectID |
| Preferable having the link in the last email automatically fill in the ProjectID | Impossible as forms cannot be cumulative or reedited once submitted | Possible, as the form will have a unique weblink and cumulative. |
| Initiator is the one that has contributed in writing the proposal but not always the one applying for the subsidies. | Difficult to adjust form specifically for each individual case | Possible, to choose an option which will then expend the form into different questions based on this option. |
| Forms does not take ‘.’ and ‘,’ into consideration | This is a limitation on forms | Unsure, Brainwave has not research if this would be possible in Apps |
| Ad-blocker may cause the forms to not function properly (especially date picker) | This is a limitation of forms | Unsure, Brainwave has not research if this would be possible in Apps |
| In the stage 2 forms, change the question “institute” to something slightly different which will result in the same answer but will not feel like answering the same question each time. The example provided is “welk instituut beoordeeld deze aavraag” | This is a limitation of forms, as the form would be cumulative there would be no need to continuously ask for the institute. | Possible, not an issue when Apps is used |
| Different type of projects need different input fields. Examples are internal projects are not granted subsidies but are still required to provide one. | This is a limitation of forms, it impossible to create customizable fields which take information and automatically update. | Possible, make a dropdown menu that uses data from a data base which can easily be changed. |

## Data Flow

For the Proof-of-Concept, two SharePoint-lists have been made to store the data that is collected using Power Automate. This method was chosen because of the scope of the project. Our advice is to research the possibilities to use Azure as a database where the data that is going to be collected using Power Automate is going to be stored. This will give a better security for the data that is collected and it can also lead to the data already being structured. It is also going to be more easy to retrieve the data for other purposes.

When using Azure, the data can be well managed using SQL for the long-term. Using SharePoint lists as a data source can trouble the data management on the long-term, because it is easier to export, transform and retrieve the data from a SQL-server than from a SharePoint list.

On the negative side, According to Dries van der Ende, Azure is very expensive and difficult to implement properly because of privacy and security.

However, in general, SQL Server works better with PowerApps because it provides better query delegation support using the Microsoft Power Platform (Microsoft, sd). Since we advice to use Power Apps instead of Microsoft Forms (see previous chapter), we also advice to use Azure for the next groups prototype.

## Power BI

The last deliverable for the Proof-Of-Concept is Power BI. This tool is used for dashboarding to give different stakeholders overview. Requirements are different for each role, so Brainwave advices to create several dashboards. Even additional dashboards for the same role are advisable, as a lot of data is gathered making the possibilities endless. Which preferable are coming from an SQL server like Azure, to provide an easier experience with data management. All Dashboard created by Brainwave are found in the LowCode Dashboard (V2).pbix file.

However, Brainwave did not include all requirements gathered from the interviews and user tests. This was due to it either being beyond the scope or too big to change as the time remaining was short. table 3 and 4 display the feedback from user tests and requirements from the interviews with follow up steps on how the next group could implement these requirements.

Table 20 Feedback User Test Power BI

|  |  |
| --- | --- |
| Feedback | Elaboration |
| Consider project duration in the dashboard. | This was partly done by having a meter display how many projects were over time. This addition should be added in the initiator overview |
| The navigation menu needs to be clearer | The icon was not clear enough according to testers, so a different icon is advised. |
| A separate overview of specific project instead of a drill-through | The Drill-through tends to have bugs, causing the Drill-through to rarely work. |
| Add textual explanation | Brainwave has kept it mostly without text explanation. Recommendation for the next group is to create a handbook to further explain each dashboard and tool. |
| Check-list of project that users find interesting | This is a large undertaking, especially when considering all the institutes. Recommendations for this is to create a separate page exclusive for this. |
| Add an indication on the status of budget used | This would require an API with Unit4 which is the new financial system (started in January 2022). Or have an employee fill in the financial information twice. Making this a difficult requirement to fulfil. |

Table 21 Requirements Interview Test Power BI

|  |  |
| --- | --- |
| Requirement | Elaboration |
| The user can see an overview, in the form of a dashboard, of the tasks of different employees. | This is a dashboard for during the projects, therefore a new page should be created dedicated for this stage. In which project members can select the project and have additional tasks information. Along with potentially an app in Power Apps to provide information to the team with what the tasks and deadlines are. |
| The user can see the progress of the current projects in a dashboard. | This dashboard for during the project is aimed at controlling the projects. Currently there is hardly any data on how far projects actually are in comparison to deliverables. Only data available is financial information, which might not be up to date if the project has not maintained the financial information. For this Brainwave recommends incorporating the milestones created by the initiator during the project proposal phase, so this can then be used for monitoring the general progression of the projects. |
| The user can see a dashboard where the KPI’s ‘Return’, ‘Drop-out’ & ‘Succes-Rate’ is visualized. | This dashboard is for the approval phase. These kpi’s could be used for deciding if it would be worth to spend time on a project for this specific subsidy provider. This metric can also be used to spot lecturers having difficulty getting a project approved and can therefor receive help. To establish this create another page within Power BI and have someone responsible for providing this data to the data base. |

# Sources

Microsoft. (sd). *Waarom Power Apps en Microsoft Azure samen beter zijn*. Opgehaald van Microsoft Power Apps: https://powerapps.microsoft.com/nl-nl/power-apps-and-azure/

# Appendix F – Transferability document

Table

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# Research Themes

Within the minor ‘Data Driven Business Lab’, Brainwave carried out a project for Fontys Hogescholen according to one of the following six research themes of FHICT:

* Artificial Intelligence
* Applied Games
* Data and Software Services
* Digital Communities
* Human Capital
* Robots

The research theme for the LowCode project is data and software services. The goal of the project is to investigate how Fontys can optimize their project management by standardizing and automating this. The main-end product will be a Proof-of-Concept in the form of a Power Automate flow with a Power BI dashboard.

# Assignment and main-research question

The project consists of the following main-question.

**Main research question:** *How can Fontys optimize and centralize their way of working regarding project control with a Proof-of-Concept?*

With this main-research question, our assignment was to design a project management system as Proof-of-Concept with the software from the ‘Microsoft Power Platform’ to enable Fontys executives to gain insights in the possibilities of the ‘Microsoft Power Platform’ that can help with optimizing and centralizing the projects. It ultimately enables Fontys employees to have control over all the projects that are executed within Fontys Hogescholen.

The next groups can use the Proof-of-Concept to build a prototype as project management system with the gathered information that Brainwave provided.

# Context

Brainwave is going to help Fontys with a new project management system. This project is for the ICT institute and leads as an example for how the project management system is going be implemented throughout Fontys at a later stage. These projects are set up by professors that want to do one of the following: Enhance study quality, research, or create new learning material like minors, studies, or courses for external firms. Before a project can start, it first needs to be approved by several employees in other departments. The amount and type of approvals depend on the project budget and the funding source. There are three ways for a project to get funded. Firstly, by having Fontys pay for the project using internal budgets. Secondly, via "Zakelijke Dienst" this department works with external firms to gather funding for projects or create a course for that firm. Lastly, subsidies from governmental or other institutions (R. Lippits, personal communication, September 13, 2021).

# Results

This chapter contains the most important results, deliverables, and insights of our project. The added value of the these will be measured by applying the ‘TRLevel Positioning’.

## Research Document

This document contains research on the requirements from the stakeholders (TRL level 3), the technical design choices for the ‘Power Automate’ workflow and the ‘Power BI’ dashboard, and the findings we turned into advice for the making of the prototype. The validation of these results is mainly done by product reviews by the client, content coach and stakeholders.

The added value for the research document mainly resides on the fundamental research and applied research to find the possibilities of the ‘Microsoft Power Platform’ software as a project management system. It also has added value due to the advice that we gave to improve the Proof-of-Concept and make it into a prototype to ultimately implement the prototype within Fontys Hogescholen.

## Power Automate Flow

By using the research on the requirements from the stakeholders, we could set up an workflow in ‘Power Automate’ using ‘Microsoft Forms’ and ‘SharePoint lists’ (TRL level 4 and 5).

The Flow is validated by the client to make sure the Proof-of-Concept has the expected result.

The added value of this flow is being able to show Fontys the possibilities of having a structured process of the project request process. This flow will keep the process clear, efficient and effective.

## Power BI Dashboard

Chart, bar chart

Description automatically generatedBy connecting the ‘SharePoint’ lists to Power BI, we could structure the data and make a relational data model. By creating this dashboard, we could give the client an overview for the different projects on 5 different levels (TRL level 4 and 5):

Figure 1: Institute Overview in Power BI

* The Center Of Expertise
* Institute Overview (see figure 1)
* Project Controller Overview
* Initiator overview
* Project Overview

The dashboards are validated by the client & content coach to make sure the Proof-of-Concept has the expected result.

The added value of this dashboard is having a clear overview of all the projects that are currently being, or have been, executed by Fontys for the direction of Fontys, project controllers or the initiators themselves.

# Methodology

* This chapter explains the step-by-step description of the project according to the ICT research method: ‘The DOT-framework’ (ICT research methods, n.d.).
* These are the categories in which all the research methods are included in:
* Icon

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* Showroom Workshop Library Field Lab

The following chapters will give information of the methodology used in the sub-questions.

## Sub-question 1

This sub-question starts with interviews from the Fontys staff. Rutger has provided Brainwave with a list of employees who all have a role in the subsidy projects. These analyses are used to establish the current situation and the bottlenecks. In addition, a literature study on how project management should be handled, with a document analysis of the prior research done by PerusahaanIT. A task analysis leads to a root cause analysis and is peer-reviewed by the client correspondent Rutger Lippits.

## Sub-question 2

To answer this sub-question, two universities wo are also very involved with project subsidisations and requests in the Netherlands were interviewed: the HAN and the TU/e. These interviews were conducted with one representative per university that has a financial and or management role in setting up universities related projects. These can be seen as “expert interviews” on the library DOT-framework from the ‘ICT research methods’. After the expert interview were taken they were analysed to get a detailed view on what the universities approach is for project requests and management. This is done by comparing their ‘best and good practices’, where is incorporated what has proven to work for each of the universities. Lastly their requirements are compared and a conclusion can be withdrawn from it. Here are also factors taken in that are of importance for Fontys.

## Sub-question 3

To answer this sub-question, we had multiple interviews with stakeholders to get an overview of the requirements. This can be seen as ‘Interview and Explore user requirements’ on the library DOT-framework. We also described the desired situation (document analysis). We than searched for a source to describe how we could draw up the requirements (literature study). After this, the requirements were prioritized to set the most important requirements and the requirements that are not as important (Requirements prioritization). The results were discussed with the team, client and stakeholders for feedback (Peer review).

## Sub-question 4

For this question the following three research methods are conducted. First the Proof-of-Concept which will be used to make a prototype for the solution. This prototype will consist of a ‘Power Automate’ flow which is made from the newly designed process flow as well as a findings report for obstructions and design choices. After there was a user-test to make sure that the prototype fits the need of the users. And lastly a product review with the stakeholders has been done to make sure that all their wishes are fulfilled.

First we also wanted to do some library research for the Power Automate, but this seemed to be unnecessary as we already had enough project members that have that expertise.

# Hand-over

This chapter gives a small overview of the deliverables, and it briefly describes our advice for the next group.

## Files in SharePoint

All the deliverables & files made for the project are in the ‘LowCode’ zip-file that is shared with the client, Rutger Lippits.

## Power Automate Flow

The Power Automate flow consists of three stages. All the three stages are shared with the client, Rutger Lippits.

## Trello

* To keep track of the progress that was made, there were daily SCRUM-meetings with the entire Brainwave team. Using a Trelloboard, we kept an overview on the deadlines using multiple sprints. to daily SCRUM-meetings with Brainwave were held as wel as Trelloboard meetings where deadlines per sprint were made.
* Graphical user interface, application

  Description automatically generated

Figure 2: Example of the LowCode project in the Brainwave Trello

## Brainwave Advice

In the document ‘transferdocument LowCode’ is an advice stated for the next group that is going to work on this project. The following statements are an overview of this advice:

* Use Power Apps instead of the Microsoft Forms. Get into contact with Fontys IT (Flip Wetzer & Ron Limborgh) to enable and secure the environment of the Microsoft Power Platform to be able to work with Power Apps. When this is done properly, the following most important statements can be implemented:
  + Make Power Apps able to automatically fill in answers or give suggestion to certain questions according to the answers of previous filled in questions.
  + Make it able for Power Apps to make one forms in three sections (the three stages) and that the initiator can fill in the next section of questions when he gets approval by the certain stakeholders. This ensures that multiple questionnaires are not necessary. Culumative, keep the date when a project is requested and is when the certain sections are approved.
* Use Azure as a database instead of SharePoint lists. This will give a better security for the data that is collected. This will also lead to the data already been structured instead of using Power BI to structure the data.
* Within Power BI, improve or add graphs to the dashboards and make them drill-through, to be able to drill-through another level.
* Improve the questions within the forms and add descriptions for ‘difficult’ questions, so the initiator knows the meaning of all the questions that have been asked.
* Find out a way to connect the right person with the right function to a certain project using the stakeholder list.
* Make an instruction manual for the useability of the prototype. This will ultimately give a better user experience.

# Appendix G – LowCode Interview Report V3

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# Introduction

Fontys Hogescholen is a university of applied science in the Netherlands consisting of 28 institutions. With students across the Netherlands and the world, students can acquire a Bachelor degree, course, or a minor in various fields. Fontys was Founded on September 1 in 1996 (Arts, n.d.), with high care of sustainability (Bron, 2021). (R. Lippits, personal communication, September 13, 2021)

Currently, Fontys has several projects running within the university. However, Fontys does not have a centralized project management system in place. Resulting in each institute within the university coordinating their projects. This decentralized way of working causes several problems within the university. (R. Lippits, personal communication, September 13, 2021)

With the magnitude of Fontys, it becomes increasingly more challenging to maintain such a decentralized way of working. Therefore, Fontys wants to change this. At first, new accounting software is going to be implemented from January 1 2022. secondly, to regain control over the projects, a new centralized project management system will be created. Deloitte, an accounting firm, did the initial research. Which interviewed and worked together with Fontys to establish a basic blueprint of how project management should be handled within Fontys. Along with forms, roles, and more. Along with PerusahaanIT, a group of students from Fontys researched that the Microsoft Power Platform meets most of the requirements. And is going to be used by Fontys for the creation of a centralized system. (R. Lippits, personal communication, September 13, 2021)

The purpose of this document is inventory the requirements and wishes of the stakeholders for the LowCode project. This document describes the results of the conducted interviews.

# Interview Conclusions

In this part of the interview report the most important conclusions from the conducted interviews are gathered and put in a table to keep overview. Based on the interviews all statements can be divided in five different categories:

* Microsoft Power Platform
* Culture
* Data and processes
* Current situations and bottlenecks
* Desired situation.

For a valid research ten different participants were interviewed and asked questions related to these subjects.

For further elaboration on the statements, the full analysis of the interviews with al participants can be found in [Chapter 3: Appendix.](#_Appendix)

## Microsoft Power Platform

The following statements have been made regarding the Microsoft Power Platform.

|  |  |
| --- | --- |
| Statement | Interviewees |
| Power Automate must let forms act as a trigger for processes, create a unique ID from the first entry, communicates with notifications, and connect employees (avoiding repetitive tasks/everyone doing it their own way, to create a common language/structure for the process of project request). | Dries, Erik, Daan, Mark A, Peter, Mark G, Milan, Peter, Jeanine |
| There needs to be an overview of project proposal ideas, (financial) status, subsidy scheme’s, and responsibilities. | Erik, Daan, Peter, Bart, Mark G, Milan Erik, Teade, Dries, Bart |
| The succession rate of grants provided per subsidy provider needs to be shown. | Daan, Hans, Milan |
| There needs to be an overview of all involved parties and availabilities from other institutions. | Daan, Peter, Teade, Bart, Mark G, Milan |
| The KPI’s like drop-out and success rate need to be visualized. | Hans |
| The documents of a project need to be stored centralized and have a checklist whether all required documents are present. | Dries, Mark G, Jeanine |
| There needs to be an centralized and structured way of working, which connects employees earlier to the project in the process. | Mark A, Mark G, Peter |
| There needs to be a low barrier of entry to use the process. | Teade |
| The access to information/documents needs to be limited to the necessary information (Rights within the system). | Teade, Daan |
| There needs to be a tool that helps with time management. | Mark G |
| No need for tracking costs, hours & invoices this will be done in other systems. | Milan |
| Master information is available in Unit 4 | Milan |

All the statements that are bold, are scoped within the research.

## Culture

The following statements have been made regarding the Culture within Fontys University.

|  |  |
| --- | --- |
| Statement | Interviewees |
| The project request process must feel accessible for everyone. | Daan |
| Employees are hesitant on the administrational section of the project. | Hans, Peter, Daan |
| There needs to be a clear advantage for the new tools to ensure the adaptation, then the change should not be an issue. | Hans, Teade |
| Fontys University has highly motivated employees. We need to keep them motivated. | Peter, Bart, Milan |
| Some lecturers have no prior business project management experience and are not used to being assessed by financial performance. Despite not having these experiences they do need different mindsets (business, researcher etc.). | Milan, Teade |
| Lecturers should know all information on how to start a project. | Daan, Teade, Bart, Milan |

## Data and processes

The following statements have been made regarding the data and the processes within the Project Request process.

|  |  |
| --- | --- |
| Statement | Interviewees |
| Azure would be the best option for storing and gathering data but this is expensive. | Dries |
| Data is insecure as this is passes around and saved on emails, making it difficult to have access to them. | Dries, Peter, Mark G |
| The right information needs to be presented at the right time with tasks, basic of platforms and hours, whilst maintaining historical data. | Daan, Mark G, hans, Bart |
| Project control data is needed for budgeting and financing to prevent too many projects. | Hans |
| Processes need to be followed which currently does not always happen. | Peter, Milan |
| The forms need to be specific so not the whole 90-page document is send. | Peter |
| Flow of a project request:   1. Idea starts 2. finding/being approached by a consortium 3. Internal approval 4. Writing project proposal 5. Signatures 6. Delivery | Teade |
| The lecturer needs to know who is going to be needed for the project. | Teade |
| Unit 4 will be implemented on the 1st of January. This system has a sub administration which contains the following financial information:   * Hours * Costs * Invoices   It is also going to protect the progress on a financial side. | Milan |
| Oversight only occurs when something seems financially off and there lacks a control during the processes from outside project members. | Milan |

According to the documents that Dries has send us, the current project request documents are the following:

* ‘Vraag artciulatie formulier’
* ‘Projectbrief’
* ‘Architectuur laag (PSA)’

After filling in these documents, the right people are chosen for the different tasks.

## Current situation and bottlenecks

The following statements have been made regarding the current situation and the bottlenecks.

|  |  |
| --- | --- |
| Statement | Interviewees |
| Data is insecure as this is passes around and saved on emails, making it difficult to access | Dries, Peter, Mark G |
| The following is unavailable currently:   * Data about projects. * Information on what to do and how (structured process). * Overview of current project request. * Overview of project member and projects themselves. | Erik, Daan, Mark Aelmans, Peter, Mark G, Milan, Bart |
| The amount of projects has risen beyond a point where manually keeping track is feasible. | Erik |
| All subsidies need to go through the subsidy advisor, deadline are forgotten. caused by lack of information. | Jeanine, Hans, Mark |
| Deviations are made too easily. | Mark |
| Not all 28 institutes of Fontys are linked despite being one Fontys. | Bart |
| Small cooperation within Fontys such as The Spark Cooperation is a separate entity. | Bart |
| For different amount of subsidy, different approaches to the different subsidy providers are done. Need for a standardization or an overview what to do for which subsidy provider, to prevent being slow and miss potential subsidies. | Mark G |
| The bigger the project, the bigger the communicational problems, making it difficult to chase parties of something is insufficient or late. | Mark G |
| Everyone can become a project leader without any prior experience or training. | Milan |

## Desired situation

The following statements have been made regarding the desired situation.

|  |  |
| --- | --- |
| Statements | Interviewees |
| List of project in what category they are from available, pending, approved, running and finished. | Daan, Hans, Peter, Bart, Mark G, Teade |
| Revenue streams mixed, so subsidies with internal projects | Daan |
| Overview of all the data in real time which can be used to look for mistakes and correct them, with notification of responsibilities and deadline on a monthly bases. | Daan, Hans, Bart, Jeanine |
| Standardized forms/processes, automatic folder recreation for better document storage | Hans, Peter, Mark G |
| Training/manuals on how to use the new system and project management | Jeanine, Milan |
| API with UNIT 4. | Jeanine |
| Hours filled in with a description | Peter |
| Have senior lecturers available for proposal writing | Teade, Bart |
| A system that would monitor the process and make deadlines clear. Which is connected to an agenda | Mark G, Milan |

All the statements that are bold are scoped within the research.

# Appendix

## 3.1 Analysis interview Dries van Ende

### 3.1.1 Introduction

Dries is a project leader and/or project member. He has a specific view on how projects should be managed using IT-support.

### 3.1.2 Microsoft Power platform

Dries believes that the data from the forms must trigger different processes, communication processes in particular (for example notifications). He thinks we can win a lot by adding more communication between the project team and stakeholders using Power Platform.

Dries wants to know who is responsible is for some kind of data. He wants it in a dashboard.

### 3.1.3 Culture

Dries believes that the biggest challenge is in the culture.

### 3.1.4 Data and processes

When using the Microsoft Power Platform, Dries believes that Azure is the best option for storing the data that was gathered. However, because Azure is expensive and difficult to implement properly (because of privacy and security), we need to use ‘SharePoint-lists’ or ‘Excel documents’ in our Proof-of-Concept, but give an advice about why that Azure is the better option. All together he believes that ‘SharePoint-lists’ and ‘Excel documents’ are easily secured.

### 3.1.5 Current situation and bottlenecks

At the team of Dries, they use the following process:

* ‘Vraag articulatie formulier’
* ‘Projectbrief’
* ‘Architectuur laag (PSA)’
* Than the right people for the task are chosen.

At the moment, Dries doesn’t know where the files of all the projects are. They are send to him via a lot of different channels (Teams, Mail, Whatsapp, etc).

Describe how the interviewee sees the current situation and bottlenecks in the current situation negatively impacting Fontys.

### 3.1.6 Desired situation

Dries want to get notifications for his responsibilities, once in the month or week. This means that he wants tasks to be filled in a database (or something).

## 3.2 Analysis interview Erik de Kok

### 3.2.1 Introduction

Erik is process manager research, education and research department. Ensures that the supporting processes are properly set up and that they have the correct systems in place. Ensures that projects are started and ensures that those processes are set up and improved.

### 3.2.2 Microsoft Power platform

* An automated system with an overview of started projects, ideas for projects, status of the projects, communication system.
* Approval of subsidy overview, status of the specific project, add certain people to the project when it reaches a certain stage.

### 3.2.3 Culture

-

### 3.2.3 Data and processes

Projects: Registration for projects with approval, costs, project leader, lectorate, institute, connection to other departments/institutes, planning.

### 3.2.4 Current situation and bottlenecks

No overview of projects, no data related to projects, so no overview of what projects and who needs support in their tasks. The data that is used is not secured, saved on google drive or sent to others. They don’t have an overview of this so they can’t control it.

They use a list of projects that they check once a year. Now the growth is beyond the current system.

### 3.2.5 Desired situation

## 3.3 Analysis interview Daan Wiercx

### **3.3.1 Introduction**

Daan Wiercx function is project control and project member. His function is to support ‘Zakelijke Dienst’ from Fontys and support the project leader of subsidy projects.

### 3.3.2 Microsoft Power platform

Daan his opinion is that the Project Leader should know all the information and progress of it’s project, and that he should communicate it with stakeholders. But he agrees with a better structured approach, so that he (as a project controller) can steer a project in the right way if it is not going as wanted. But Daan thinks that this way of working (with the project leader checking boxes to show where he stands with the progress), is not suitable for FHICT, because he believes that questions the trust of project leaders. Daan wants to see that the success rate and the progress of the project is firstly discussed with him and the project leaders and stakeholders, and that they all fill in the boxes. The project controller should see on the dashboard that something is not right, than he can contact the lecturer (project leader).

### 3.3.3 Culture

The projects request must be accessible for lecturers, because it mustn’t feel obligated so that it feels not important for the lecturer. The request needs to be the size of a ‘beermat’.

Also, Daan is afraid that it could have bad impact on the lecturers if they get the feeling that they need to justify all the hours they spend on the project in the Forms. This however can be dealt with by filling this forms with the project controllers using meetings.

### 3.3.4 Data and processes

For the forms, Daan finds the following questions most important:

* Does not want to know information from the phase where the lecturer is already busy with starting up the project request, that is not his task.
* If the projects is a ‘GO’ (when it is discussed internally), than we want to know: The scope, financials (the subsidy), which institutes are included, who are the stakeholders, who are the partners (extern 3rd parties), when does it start and when the project is filed.
  + What is the added value of the project (important for other people)

### 3.3.5 Current situation and bottlenecks

One of the bottlenecks is that project control can’t see the progress of projects that are in request. The communication is almost only via mail or the phone, so project control can’t see the progress. That is a problem because they need to inform the CEO of FHICT about the current state of the financials.

### 3.3.6 Desired situation

Wants to see a list of projects with a categorize on:

* Pending Projects
* Approved projects
* Running projects
* Finished projects

Fontys wants to process projects mixed together in the future (intern projects cross with subsidised projects, etc).

Daan wants to see a dashboard for the project controller so that he/she can see all the projects and their progress, so that he/she can contact the project leader when he/she sees something odd. But he is concerned that the data misleads the real situation (for example that a project leader looks lazy in the data while he has the most difficult project).

## 3.4 Analysis interview Mark Aelmans

### 3.4.1 Introduction

Mark Aelmans function is project controller.

### 3.4.2 Microsoft Power platform

-

### 3.4.3 Culture

-

### 3.4.4 Data and processes

-

### 3.4.5 Current situation and bottlenecks

At the moment there is not a lot of knowledge about project management with the project leaders. A lot of project take ultimately more time and money.

Currently, the big project need to be requested one month before the start of a project. At that moment, the deadlines need to be set. However, these deadlines are not always set (on time). At the moment, big project sometimes still need a signature the day that it needs to be delivered.

Deviation of the original milestones are made to easy.

### 3.4.6 Desired situation

Mark want’s to see the blueprints implemented, because it will stabilise the project management, because not every project leaders works out his tasks.

He also wants to see 1 big portfolio of all the projects. He also wants to see that every project request is analysed if it is reachable and if it fits the strategy of Fontys or the institute.

Mark also wants to avoid that employees still need to be connected to a project when the project is approved. This means that there needs to be a clear oversight about people with their expertise.

## 3.5 Analysis interview Peter van de Ven

### 3.5.1 Introduction

Peter van de Ven is a project controller. He has a similar role as Rutger but for a different institute. So Peter is focused on financing, reporting and giving his opinion on the financial situation of each project. Along with the administration tasks.

### 3.5.2 Microsoft Power platform

Peter has no prior knowledge on the Microsoft Power Platform. After explaining the possibilities, Peter was convinced it would be a useful to assist during the projects. The powerplatform would mainly elimate repetitive tasks, easier access to documents and information, a better overview of the status of each project, have the project start with all information so there is no need to “repair” something afterwards, and Have the same “languages” across the boards (with language Peter means that everyone speaks differently depended on someone’s background)

### 3.5.3 Culture

The culture is not optimal. Project members are highly motivated and passionate to immediately start projects. Therefore do not see or forget to keeping administration up to date. This leads to difficulties down the line along with controllers having to repeatedly requestion information. And small administration tasks are quickly seen as accountant work which is beyond their scope.

### 3.5.4 Data and processes

Data is incredibly difficult to access. There is no organized place where documents are placed, and all information is scattered within an Excel file which Peter sometimes does not understand himself and is insecure. Leading to confusing, along with being provided 90 page documents. Peter has no interest in those 90 pages apart from the financial section which could be summarized in 1 or 2 page documents or forms.

It is extremely important to have correct processes. Currently not all processes are followed correctly/fully, causing additional work to “repair” later on. Negatively impacting the project and incurring unnecessary costs

### 3.5.5 Current situation and bottlenecks

Chaos, the employees are highly motivated and ambitious. However there is no overview of project, no cost benefit analysis, no standardized way of working, no central place to quickly find document,  And other issues currently negatively impacting stakeholders. This current situation leads to misinformation, excess workload, project failing or delayed, everyone has a different way of communicating and last minute work which should have been known ahead of time.

### 3.5.6 Desired situation

That each process is standardized and everyone is automatically informed. So that team leaders are now approached instead of members. Folders are automatically set up with all necessary information and linked to unit 4. summarized information provided to the necessary employees instead of a 90 page document. Along with hours being filled in at the end of the week with some information on what has been worked on. With an a dashboard where projects can be tracked. To track the total amount of project, current status of the projects with additional information if something needs to be changed.

## 3.6 Analysis interview Mark de Graaf

### 3.6.1 Introduction

Lecturer at Fontys ICT, research group interaction design, chairman of the research group in which the lecturers sit, so from there I sit in the MT. Also within Fontys main lecturer inclusive society. (One of the research themes of Fontys).

### 3.6.2 Microsoft Power platform

-

### 3.6.3 Culture

-

### 3.6.4 Data and processes

 -

### 3.6.5 Current situation and bottlenecks

* He applies for projects himself (at least 20 times a year), including small grants such as Take-of: a grant for teachers who want to start a business at an early stage and do some research (e.g. market research), which amounts to 20,000 euros. If you apply for it, you will be reimbursed for half of your hours. Subsidies are calculated through different rates.
* Pace of project application for the university is not done within Fontys, so they sometimes miss out on money.
* The current application is far too detailed according to Mark, such as hours and rates. Hoe groter het project hoe ingewikkelder de onderlinge communicatie vaak is.
* University + HBO work and think very differently. The first time you work together, there is often a lot of misunderstanding and so on, but once you get to know each other, it goes much better.
* The slow internal procedures are troublesome
* Chasing after parties that do not contribute sufficiently or that are late
* There is no clear forum where documents are exchanged. Sometimes teams, mail
* Usually, one party is really writing and other parties are contributing pieces. In other cases, a document is really worked on together, and this is then done via Google Drive or Teams.
* There are several grant providers you can qualify for, it all depends on the size of the grant/ budget and whether it is for international projects or not, etc.

### 3.6.6 Desired situation

* Together with the CVB and larger projects. A convenient way to say 'we're going to participate in this and now we're there'. That these lines are shorter, just like at the university. The directors with authority to sign would immediately know that someone is busy and they would see him coming, so they could sign five minutes before the submission, for example, because they had been informed from the start. A connection with the agenda would also be nice. So the system that Rutger has in mind. A to-do list in which all the things that still need to be done are clearly arranged.
* Mark now keeps a list (a document on the PC) of topics to be discussed, but he does this himself and it is not part of a process.
* If a system would monitor the process and make deadlines clear.
* Someone who monitors the process and signals deadlines in good time and informs the parties involved accordingly
* Someone or something that helps with time planning
* Gain insight into who you spoke to, for which project, what the conclusions of the conversation were and where it landed (for the unstructured people)

## 3.7 Analysis interview Bart van Gennip

### 3.7.1 Introduction

Bart is the Coordinator of the Data Driven Business Lab minor. The audio was unfortunately recorded in 3 pieces and the first file is corrupted. So the analysis will only be on part of the interview

### 3.7.2 Microsoft Power platform

* Overview of project status
* Overview of upcoming projects
* Overview of current financial status
* Master data on a project
* Would prefer a less graphic dashboard, but out of experience most would prefer a more graphic one.
* Overview of other institutes to see what is running, for potential assistance.
* Overview of current or upcoming subsidies.
* Overview of what needs to be done and who to contact.

### 3.7.3 Culture

Employees at Fontys are highly motivated.

### 3.7.4 Data and processes

In order to get inside into the current projects that are running and coming, Bart needs to first ask Daan or Artikan. These employees will send Bart an Excel file which contains the overview. Bart mentioned that cause he is familiar with Excel it is not difficult for him to understand. But for someone not familiar with excel this might become a challenge. but it’s important for everyone to see in an overview what is coming as this process is time consuming.

### 3.7.5 Current situation and bottlenecks

Fontys currently has 28 institutes, despite being one Fontys. It does happen that not each institute manages to establish a connection. Which might cause a barrier, as these other institutes may have no idea

The Spark Cooperation is where other business partner with Fontys, this is a separate entity from Fontys. These funds are managed by the cooperation itself and is used for funding research.

As a new lecturer it is unclear to gather the right information. It is not clearly displayed, it takes dedication to just get the right information.

### 3.7.6 Desired situation

Daily real time information on what projects are coming, status and potential coming subsidies. And the status on financials. To see if there is more budget left for the project, or other projects. Which is displayed in numbers and tables. Bart also wants to have an overview in which he can look at other institutes and their status on project. With this Bart could be proactive and ask for collaboration, or see if he as an IT employee might be needed.

## 3.8 Analysis interview Teade Punter

### 3.8.1 Introduction

Lector at ICT, focusing on software for autonomous system. Using techniques like digital twins which he currently has project for. And several robots which operate autonomously, and could potentially be used for inspections.  

### 3.8.2 Microsoft Power platform

* It is not clearly displayed who is doing what and which person can be tasked with what responsibility. Like subsidy advisors only advice, but are not creating the advice.
* Possibility to announce/see if other institutes have free space over for projects.
* Needs to have a low barrier and easy to use
* Needs to be clear what documents are needed.
* It is important to only give confidential information to the right person
* There needs to be room for email discussions which are not open to everyone

### 3.8.3 Culture

As a lector you need to have several mindsets, the business mind to sell the project. Meanwhile also have the capabilities to write a research paper, and lead the project which takes an pro-active stance. And more experience is needed to hand of project to one another. There is no problem with change, if it is reasonable.

### 3.8.4 Data and processes

It all starts with a project idea, and with finding a consortium. Which takes a lot time and networking. The goal is to find likeminded people to figure out the answer. From there a research proposal is written, this is highly depended on what the subsidy provider requirements are for the proposal and consortium. Which are different for each of them. The proposal writing may take from a month up to nine months, and is then handed in. When the deadline ends it takes some time before it is announced who is given which subsidy. And during the process each members is regularly updated cause this is needed to maintain the network.

### 3.8.5 Current situation and bottlenecks

It is difficult to plan projects, a project might come in at the last minute which is a month before the due date. There for Teade thinks it is impossible to easily plan ahead of time.

If there is time over, then this is solved by calling other institutes and saying that they have time over for projects. Which makes this all tricky

Some consortiums may already be in existence for a year before Fontys is involved.

In the mind of the lecturer is a vision of who he wants to hire

### 3.8.6 Desired situation

Have a clear overview of what needs to finished beside the proposal itself,  and who is available to help the lecturer during this process. Like subsidy advisors that have all the information for on the subsidy giver. Whilst being able to show other or see if other institutions have available employees. Along with potentially senior lecturers which have a clear understanding and responsibility of how a proposal is writing which takes away pressure from Teade.

## 3.9 Analysis interview Jeanine Geest

### 3.9.1 Introduction

Jeanine is a subsidy advisor

### 3.9.2 Microsoft Power platform

Wishes:

* An automatic checklist that brainwave can already deploy in a form to make it easier to submit a request and verify that all the necessary documents are present
* New system Every subsidy-related project must be given a number and be in the system so that the subsidy advisers know about it and can see it (even though their signature is not a requirement).
* The new system will give a warning to the project leader one month before the deadlines of, for example, the progress reports
* The new system (unit4) must notify the finance department if any documents are missing or if no data are available yet.
* Training must be provided for the new system so that the finance people know exactly how to take over the tasks of the cvb
* The monitoring of which subsidy schemes apply to which subsidy provider should be on the power platform
* An intern link with unit4

### 3.9.3 Culture

-

### 3.9.4 Data and processes

-

### 3.9.5 Current situation and bottlenecks

Everything is mixed up now, the CVB as subsidy advisors have much more tasks than just giving advice. People prefer to arrange things through them because the subsidy advisers deal with everything. The problem is, however, that not every subsidy applied for goes through the CVO because people sometimes apply for it independently. The CVB has no insight into this, so they cannot provide any figures on how many subsidies were applied for in total. This makes for a confusing whole and a misconception because people often assume that the subsidy advisers also have all the financial data, whereas this is the responsibility of the institute itself.

### 3.9.6 Desired situation

A new version of unit4 will be used (not many people are aware of this) in which the final responsibility for a project will lie with the project leader. The subsidy advisers will really only have a supporting role.

## 3.10 Analysis interview Milan Vossen

### 3.10.1 Introduction

Is the leader for implementing Unit 4. He start from a young age at the ABN AMRO a bank located in the Netherlands. Then worked at Hans coning as a business controller which gave him the exerpeince in working abroad. From the Middle East to Asia. This is where the passion started for project management. After Hans Coning came a couple of other jobs like HAN which is another university of applied science in the Netherlands. Milan works for the last two years as a freelancer focusing on process optimalization, and setting up systems for those. Milan is now implementing UNIT 4 which he has over 20 years of experience with. This is needed due to the rise of project within Fontys, it has grown to large for simple Excel file’s.    
15 min

### 3.10.2 Microsoft Power platform

* Unity and structure are important, this eliminated everyone doing it their own way.
* Same language for everyone
* Training & manuals available
* No need for, tracking costs, hours, invoices and other financial information.
* Employee planning, as this is not present in unit 4
* Master information is available in Unit 4

### 3.10.3 Culture

The meetings where progression is discusses are not being taken seriously. The current employees are also a bit unconsciously and incompetent in regard to projects. They are educators and probably have no prior experience in project management, and are not asses by financial performance. This can be caused by them being used to have losses on subsidy project. Which is not their fault, as there is a different culture and no oversight. There does need to be training, manuals and systems to monitor this, so they can improve. This will take years to change.

### 3.10.4 Data and processes

Unit 4 will be implemented on the 1st of January. This system has a sub administration which contains the following financial information:

* Hours
* Costs
* invoices
* protecting the progress on a financial side.

Oversight is done by Financial advisors which reach out to themselves if something seems off, after the meeting the data is adjusted in Excel. These meetings and changes are not documented. Making it impossible for managers or other employees to look at the changes and asses those. a project leader is assigned by someone wanting to do a project, there are not requirements or further thought on what implications this might have. Cause there are financial and budgeting tasks which are forgotten.

### 3.10.5 Current situation and bottlenecks

Currently there is no oversight into the projects. Financial advisors reach out to project leaders asking for a status update when something seems off. This is then based on the financial overview, and lacks the additional information as deliverables etc.

### 3.10.6 Desired situation

Unit 4 is an ERP system, however there is no aspect of planning employees. Which deviates from a “common” ERP system. They are now focusing on creating the best solution for universities, they already have experience with those as the university of Twente, Hogeschool Utrecht, Avans and TU/e from Eindhoven. Giving the possibilities for project management which have been worked out by a custom solution from UNIT 4.

# Appendix H – Useability Test Script

**Testpersoon**

(naam)

**Functie:**

**Introductie**

Je gaat vandaag een test doorlopen om te kijken of de layout van de PowerBI solution en het PowerAutomate prototype naar behoren zijn. Om te beginnen gaan we een aantal scenario’s doorlopen waarin je hardop mag denken wat je verwacht en waar je het verwacht. Achteraf worden nog een aantal vragen gesteld waarbij je scores mag geven over bepaalde criteria die te maken hebben met beide onderdelen.

**Scenario’s**

**Scenario 1:**

Je wilt stage 1 van het projectaanvraag-formulier invullen en versturen.

**Scenario 2:**

Je hebt goedkeuring gekregen op stage 1 van het projectaanvraag-formulier, je wilt nu doorgaan met het invullen van stage 2 (vul tenminste het projectId in).

**Scenario 3:**

Je wilt het aantal projecten en hun status weten van de maand december 2021.

**Scenario 4:**

Je wilt weten wat de gegevens zijn van het project met de naam Fontys Lowcode je kunt een drill-through gebruiken door met de linkermuisknop op een staaf te klikken van een project.

**Vragen**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Vragen | Helemaal mee eens | Mee eens | Neutraal | Niet mee eens | Helemaal niet mee eens | Score |
| Powerautomate | | | | | | |
| De vragen en invoervelden waren duidelijk en vanzelfsprekend |  |  |  |  |  |  |
| De manier waarop de aanvragen werden afgehandeld sprak mij aan |  |  |  |  |  |  |
| De manier waarop om goedkeuring gevraagd wordt is voor mij logisch |  |  |  |  |  |  |
| De manier waarop ik Appendixs moet toevoegen is voor mij duidelijk |  |  |  |  |  |  |
|  | | | | | Subtotal: |  |
| PowerBI | | | | | | |
| De filters stonden op de plek waar ik ze zou verwachten |  |  |  |  |  |  |
| De overzichten waren duidelijk en vanzelfsprekend |  |  |  |  |  |  |
| De overzichten waren makkelijk te vinden |  |  |  |  |  |  |
| De KPI’s waren belangrijk voor mij als belanghebbende |  |  |  |  |  |  |
| De kleuren in de overzichten spraken mij aan |  |  |  |  |  |  |
|  | | | | | Subtotal: |  |
| Total: |  |

**Opmerkingen**

# Appendix I – Answers Proof-of-Concept Test

# Testcases

Bart van Gennip

Rutger Lippits

Dries van den Enden

Mark Aelmans

# Scenario’s

**Scenario 1:**

You want to fill in and send stage 1 of the projectaanvraag-formulier.

Time (mm:ss):

3:30 3:37 2:51 2:20 **average: 3:04**

**Scenario 2:**

You got approval on your stage 1 projectaanvraag-formulier form, you want to continue to fill in stage 2 (fill in at least the projectid)

Time (mm:ss):

1:09 0:10 0:17 0:18 **average: 0:28**

**Scenario 3:**

You want to know the amount of projects and their status in December 2021

Time (mm:ss):

X 1:23 1:51 1:24 **average: 1:33 + 1 failed attempt**

**Scenario 4:**

You want to know the data from the project Fontys Lowcode, you can use the dril-through function by pressing on the bar using the left mouse button of a project.

Time (mm:ss):

2:23 0:57 1:14 2:02 **average: 1:39**

# Questions

Avg=Average

|  |  |
| --- | --- |
| Questions | Scores |
| The questions and input fields were clear and selfexplenatory | 3 5 2 5 = **avg: 3,75** |
| The way in which the proposal was processed spoke to me | 4 5 3 4 = **avg: 4** |
| The way in which approval is asked for is clear and logical to me | 4 3 4 4 = **avg: 3,75** |
| The way in which I need to add attachments is clear to me | 5 5 5 5 = **avg: 5** |
| The filters were positions in the right place where I expected them | 4 4 4 5 = **avg: 4,25** |
| The dashboards were clear and self explanatory | 2 5 4 3 = **avg: 3,5** |
| The dashboards were easy to find | 2 5 2 3 = **avg: 3** |
| The KPI’s were important for me as stakeholder | 3 4 1 5 = **avg: 3,25** |
| The colours in the dashboards were appealing | 3 5 4 5 = **avg: 4,25** |

total Scores:

30 42 31 39

**Average:**

**35,5**

# Feedback test

**Power automate**

|  |  |
| --- | --- |
| Times mentioned | Feedback |
| 3 | Mention the names of stakeholders in the email |
| 3 | ProjectID is unclear in the email and forms |
| 2 | Preferable having the link in the last email automatically fill in the ProjectID |
| 1 | Initiator is the on that has contributed in writing the proposal but not always the one applying for the subsidies. |
| 1 | Forms does not take ‘.’ and ‘,’ into consideration |
| 1 | Ad-blocker may cause the forms to not function properly(especially date picker) |
| 1 | Prefers the communication to be via teams instead of email |
| 1 | In the stage 2 forms, change the question “institute” to something slightly different which will result in the same answer but will not feel like answering the same question each time. The example provided is “welk instituut beoordeeld deze aavraag” |
| 1 | Change forms “project id” to “PROJECT ID (see email) |
| 1 | Different type of projects need different input fields. Examples are internal projects are not granted subsidies but are still required to provide one. |
| 1 | Provide the initiator with more feedback from the employees approving the project, instead of all at once. Also providing the ability for stakeholder to look into the other approvals. |

**PowerBI**

|  |  |
| --- | --- |
| Times mentioned | Feedback |
| 2 | Name ‘initiator overzicht’ is unclear |
| 2 | Finding the Project name in the “initiator overzicht” is difficult |
| 1 | Consider project duration in the dashboard. |
| 1 | What bars are selected in the bar chart is not fully with some only the transpiration effect. |
| 1 | In “Projecten Status Overzicht” have an absolute number of projects instead of only bar charts |
| 1 | The navigation menu needs to be clearer |
| 1 | A separate overview of specific project instead of a drill-through |
| 1 | Add textual explanation |
| 1 | Check-list of project that users find interesting |
| 1 | Add an indication on the status of budget used |

# Remaining remarks

* Maturity stages of Data-driven where are we?
* Look at bypassing the security of PowerApps via the institution Pol/Poe
* Maybe an idea to also discuss this with an internal IT to contribute to the project