**Project Charter**

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| **Project Name** | SoFa Slotting Optimization | | |
| **Submitted By & Date** | Manuel Osterloh, Tim Weigand, Jonas Brockmöller, Jan Polfers, Mirjan Scholz | | |
| **Strategic Objective** | **To develop and implement an advanced Python-based optimization software that automates the process of determining the most frequently sold products and their optimal storage locations in the warehouse.** | | |
| **Project ID** | *HERB* | **Confidentiality** | *Confidential* |

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| PROBLEM STATEMENT |
| Currently, the warehouse manager maintains an excel document to find out which products are sold most frequently in order to arrange the pickline accordingly. This takes into account many factors such as size and destination market of the product, as well as marketing promotions. This is a very time-consuming process, because many different factors have to be taken into account, which can be accelerated by using an optimization software. The company would like to receive such a software coded in Python. |

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| 1. OBJECTIVES - SMART | 1. CRITICAL SUCCESS FACTORS |
| *What are the goals (purpose of the project) and objectives (what are you going to do) for the project?*  The goal of this project is to develop a python-based optimization software solution, which determines most frequently sold products and their optimal storage locations in the warehouse.  Specifically, the solution will be based on an algorithm that calculates results based on historical data and creates best-in-slot suggestions based on a simulation run-through.  After optimization, no individual zone in the warehouse should exceed a workload that is 10-15% higher than the average. The software aims to balance the workload across picking zones and decrease manual calculations by 100%.  All of this can be achieved within the given timeframe, by limiting the scope of the project. Deliverables will be strategically planned to produce a foundational MVP, which we will base future advice to the customer on. Leveraging the existing data and integrating new data where necessary, but also partnering with the IT/Warehouse team regularly to ensure customer acceptance will greatly help in achieving the goals.  The software will enhance overall warehouse productivity, ensuring efficient routes for pickers and optimal product placement based on sales frequency and other factors. Furthermore, it will eliminate the need for manual calculations.  Over a span of 5 months, multiple versions of the software will be presented to the client. Within this period, the software's development, testing, documentation, training, and final hand-over will be completed.  *Include the consequential impacts of the objectives (what effect, result or outcome will follow)*  This software offers the client an initial insight into the potential advantages of further investing in a solution that enhances the product picking process and determines product placement based on sales and other criteria.  *ie. Implement xyz by DDMMYY to deliver a benefit of $$$****whilst not increasing the cost to serve***   * There are no additional costs for this project as it's hosted locally. Furthermore, there's no need for hardware or paid labor to meet the project's requirements. * Incremental software versions are delivered to the client in a Scrum fashion. * Prioritization of tasks and deliverables is done by the scrum team and no deadlines are dictated by the customer. | *What needs to be in place to make the project successful?*  For the success of this project, it’s necessary to have an optimized stock placement system that supports the dynamic slotting calculations within a 30-minute window. The system should efficiently manage daily product movements and be versatile, considering various operational parameters.  ***What*** *activities are required to ensure success?*   * Working in an agile fashion with methodologies of scrum, such as regular adjustment meetings and incremental software versions will be key to success. * The integration with GitHub and Jira/Confluence will enable a smooth handover. * Professional behaviour with and from the customer, which includes respectful conduct and reliability. * Strategic planning in terms of deliverables and a clear communication on what can be expected. * Open communication with the customer and the university to ensure that set goals can be achieved.   *What do we need to focus on?*   * Specific member roles and their responsibilities within the team. * Reaching personal goals * Delivering the required documents and features in time. * Focus on simulating, **testing,** and improving the software. * Advising the client according to the findings, on a regular basis.   *How involved / engaged is the sponsor?*  The sponsor is engaged in that the software requirements are discussed on a regular basis. Software increments are acceptance tested with the client and they can steer the general direction based on their input.  *How much commitment can / will they make?*  Commitment is at least on a bi-weekly basis, joining the customer review meeting where the updated software increment is presented. Additionally, the sponsor will be available for intermediate questions via mail, if necessary. |
| 1. RISKS | 1. SCOPE FOCUS |
| *Identify potential risks for the project; consider scope, equipment, technology (hardware, software, infrastructure), existing data, resource, timescale, budget.*   * ***Scope****: The time we must fully realize this project might be too low.* * ***Data****: The existing data might be outdated, incomplete, or inaccurate, leading to suboptimal software outputs.* * ***Hardware****: Due to local hosting, there might be data losses in case of hardware failures* * ***Infrastructure****: Intermediate deployment and testing could be hard to realize on the client’s devices.* * *The software cannot be tested on every OS.* * ***Software****: The tech stack is new to the team and will take a lot of time to get used to.* * *The software may not be compatible with existing IT infrastructure or other systems in use.* * *The software might experience bugs, glitches, or unexpected errors during operation.* * *The software might lack trivial constraint mitigations that weren’t considered/that only occur in real life* | *What is in scope and what is out of scope? Clarify the limitations or parameters of the project and identify any aspects that are not to be included. Make clear what the project will deliver.*  A software solution that uses a complex algorithm to calculate an optimized workload distribution throughout several picking zones by taking into account the most efficient placement of products and updating it regularly based on collected data. |

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| 1. KEY ACTIVITIES & DATES | |
| *Identify all the possible activities it will take to complete the project; use various brainstorm techniques, like mind-mapping or word association, to create a full but high-level list. When will the key activities take place; start and end dates if known?*  Key activities:   * Scrum/Agile methodologies * Daily meetings (except Monday). * Retrospectives for steady improvements. (Bi-weekly) * Review meetings with the client for steady feedback cycle (Bi-weekly) * Estimation using story points (based on Fibonacci sequence). * Documentation via Confluence, shared with the client. * MoSCoW method and.. * Buy a Feature method for prioritization. | |
| 1. DELIVERABLES | 1. BUSINESS CASE |
| *What are the specific deliverables? What do you want to have achieved at the conclusion of the project?*   * CI/CD pipeline * Web based GUI (Interactive Monitoring Dashboard) * Scalable optimization algorithm * Documentation (frontend, backend and other processes)   + Research findings   + Business case   + Scope outline of MVP   + Definition of Done   + Project charter   + Project Plan * Source code * Executable software solution   . | *What’s the business rationale? Financial; a saving in cost or a greater return on investment, avoidance of a costly penalty, is there a penalty for not doing it? Non-financial; does it save time, provide customer satisfaction?*  To achieve operational efficiency and cost savings. Also, to add value by enhancing overall business performance long-term and integrate seamlessly into their existing systems.  Existing solutions to the client's issue would be expensive and require alterations to their internal systems, leading to significant migration effort that would cause disruptions. |
| 1. PROPOSED START & END DATES | 1. STAKEHOLDERS & RESOURCES |
| *Proposed start and end date; be realistic and consider all aspects*  Each member will start simultaneously, though different tasks will be divided between the team members.  The official date, dictated by the university, is from September 6th – beginning of January 2024 | *Who will assist with the delivery the project? Who will be accountable? Consider all aspects of the project and bear in mind business commitments.*  Every group member is held accountable for their role.   * **Manuel**– Project Manager/Scrum Master * **Jonas**- Full Stack Dev/PM * **Mirjan**- Data Engineer/Full Stack Dev * **Tim**- Full Stack Dev * **Jan**- Software Architect/Data Engineer   Internal stakeholder:  **Fontys University** represented by **Frank van Gennip**  External stakeholder:  **Marc Wilmsen** and **Gerard Fokkens** as Product Owner |

**Approvals**

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| Business Representative | Marc Wilmsen, Gerard Fokkens |  |
| Project Governance/Lecturer | Frank van Gennip |  |
| Supplier (you?) | Manuel Osterloh, Jonas Brockmöller |  |