FOM Hochschule für Oekonomie & Management

University Location Nürnberg

Exposé

in the study course Wirtschaftsinformatik

as part of the course
Preparatory Seminar for the Bachelor Thesis

on the subject

Design and Development of a Prototype for a Contact Management System in
a Dynamic Corporate Structure

by

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1 Introduction

In an age in which agile working and frequent reorganizations are on the rise especially in large tech companies but also surprisingly in non-tech areas [1], it gets increasingly complicated for teams to stay structured and organized. Those challenges can be tackled with a good internal infrastructure and company fitted tools.

Despite a high level of digitalization and automation in the business world, there are still great challenges to overcome. For many of those challenges, custom software solutions can be developed to solve those problems. One of those fields, that can still be optimized is the search for suitable contacts within a company. In day-to-day business, it is almost daily necessary to work together with colleagues from other departments or teams to tackle a variety of problems. Right now, most of the time a handful of colleagues must be asked via chat or email to find the right contact. Although tools like Microsoft Teams, Jira or Slack offer the possibility to search for colleagues, they are not specialized in finding colleagues based on a specific topic or problem. This is where this project tries to offer a solution.

The following sections will provide a detailed overview of the project goals, technologies as well as methodologies that will be used in the course of the project.

2 Problem Statement

In the Telekom field operations team, and in many similar teams, it is often necessary to collaborate with colleagues from other departments and teams. The problem is that oftentimes processes to ensure fast and efficient communication are missing. Additionally, frequent reorganizations and agile working environments make it difficult to build a network of the right experts. This leads to an unnecessary loss of time and efficiency. This project aims to solve this problem by offering a custom fitted tool that supports finding the right contacts by providing a user-friendly tool that specializes in finding the right contacts with the use of keywords and topics, as well as an automatic search optimization through machine learning approaches.

3 Research interest

The findings of this paper will show the impact of an optimized knowledge transfer. Time savings, efficiency gains and the impact on synergy effects will be presented in the course of the project. In addition, the prototype that will be developed in course of this project can be used as a template or basis for companies that want to develop a similar contact management tool and contact database. When focusing on the scientific aspect of this work, it will show the impact of optimization in this area, and findings can also be used in related fields, possibly even creating new perspectives in some areas.

4 State of Research

4.1 Knowledge Management Systems

In recent years, contact management systems or People-Finder Systems, a special form of knowledge management systems, have become increasingly important due to the rise of digitalization and the need to optimize internal processes. People-Finder Systems are specialized Systems that help in the process of finding the right contacts by linking specific keywords and topics with fitting experts [2]. Some real-world examples of People-Finder Systems are Expertise Finder [3] or Expertfile [4], which are web applications that help to find experts in a specific field.

Some more general information can be found in the field of knowledge management systems. Here, works like "Knowledge Management in Organizations: A Critical Introduction" [5] and "Fundamental Concepts of Knowledge Management" [6] provide a good overview of the field.

What has not been researched as much is the field of contact management solutions fitted for dynamic and agile working environments. Also, usability and user-friendliness are often neglected in the development of such systems. This is where this project tries to offer a solution by developing a prototype to address those problems.

4.2 Prototype Development

For design and conception of the prototype, the project will relie on Figma, a web-based design tool and industry standard for user interface design trusted by companies like Microsoft, airbnb or GitHub [7]. For the development of the prototype, the project will use React, a JavaScript library for building user interfaces, and also the most popular JavaScript front-end library in the world based on a survey conducted by stackoverflow in 2022 [8]. The project will also use the Scale CSS framework, a Telekom CSS framework that provides a set of components and styles to build a consistent unser interface [9]. Finally, the project will be developed with a fast-api backend, which is a python based modern and fast web framework for building APIs [10].

5 Objectives and Research Question

The goal of this project is the conception as well as the development of a prototype for a contact management tool. This objective can be broken down into the following sub-goals:

- Requirement analysis: In the first part of the project, the goal will be to gather information and documenting the individual requirements of the Telekom field-operations team regarding the contact management system, as they will be the ones involved in testing later on.

- Design of the prototype: The second part of the project will focus on the design and conception of the prototype. There, a combination of functional but also user-friendly design will be the main target. On the one hand it should be possible to find the right contacts for a given problem in a variety of ways, on the other hand the possibility to maintain and manage contact data should be given.

- Implementation and testing of the prototype: The third and final part of the project has the sub-goal to develop and test the previously designed prototype. Tests will include usability as well as functionality aspects.

The project won't focus on long-term implications. Also, security aspects will mostly be ignored. The main focus will be on the functionality and usability of the tool.

6 Methodology

Regarding requirements analysis, members of the Telekom field-operations team, which consists of mobile technicians, will be interviewed. The project will just focus on a group of selected potential stakeholders, as the project is limited in time and resources. This makes it possible to stay in control over the time of the project. Literature research will also take a part in the requirements analysis. The goal is to use the already available findings productively and to elaborate on those findings if possible.

Prototyping will be another important research method. With this method, the goal is to develop a working prototype with just the most important features. This saves the project time and resources, and also makes it possible to get feedback from the stakeholders as early as possible.

Lastly testing will be utilized as a research method. People who are not involved in the development project will be asked to test the prototype. The goal is to get feedback on usability and functionality, and to get an outside perspective on the project.

7 Draft outline

1. Introduction

    a) Problem Statement

    b) Objective

    c) Structure of the Thesis

    d) Methodology

        i. Requirements Analysis

        ii. Prototyping

        iii. Testing

2. State of Research

    a) Terms and Definitions

    b) Contact Management Tools

    c) Telekom Field Operations Mobile

3. Theoretical Framework

    a) Requirements Engineering

    b) Design of the Prototype

    c) Implementation and Testing of the Prototype

4. Implementation of the Methods

    a) Requirements Engineering

    b) Design of the Prototype

    c) Implementation and Testing of the Prototype

5. Evaluation of the Prototype
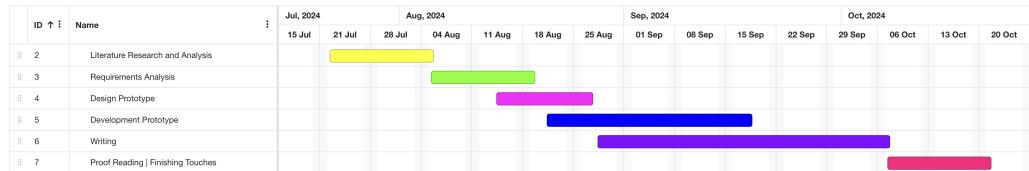
    a) Usability Testing

    b) Functionality Testing

6. Conclusion and Outlook

    a) Conclusion

    b) Outlook

8 Schedule

Figure 1: Timeline

	ID ↑	Name		Jul, 2024			Aug, 2024				Sep, 2024				Oct, 2024		
				15 Jul	21 Jul	28 Jul	04 Aug	11 Aug	18 Aug	25 Aug	01 Sep	08 Sep	15 Sep	22 Sep	29 Sep	06 Oct	13 Oct	20 Oct
	2	Literature Research and Analysis																
	3	Requirements Analysis																
	4	Design Prototype																
	5	Development Prototype																
	6	Writing																
	7	Proof Reading | Finishing Touches																

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Reference of AI Tools

I hereby declare that I have used the following AI tools for this thesis:

• DeepL for translating parts of the thesis from German to English

• GitHub Copilot for code suggestions and completions for the LaTeX code

• OpenAI ChatGPT for supporting the brainstorming ideas for the thesis

Declaration in lieu of oath

I hereby declare that I produced the submitted paper with no assistance from any other party and without the use of any unauthorized aids and, in particular, that I have marked as quotations all passages which are reproduced verbatim or near-verbatim from publications. Also, I declare that the submitted print version of this thesis is identical with its digital version. Further, I declare that this thesis has never been submitted before to any examination board in either its present form or in any other similar version. I herewith agree that this thesis may be published. I herewith consent that this thesis may be uploaded to the server of external contractors for the purpose of submitting it to the contractors' plagiarism detection systems. Uploading this thesis for the purpose of submitting it to plagiarism detection systems is not a form of publication.

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(Location, Date)

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