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Developing an Approach for Identifying Employers´ Needs and Bridging the Gaps with Workforce's Skills and Capabilities

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In autumn 2017, when I started my studies in the Industrial management Master's program, I faced a challenge of finding a topic for my future Master's project. It turned out to be not an easy task! As I learnt later when investigating this topic, many students with foreign origin are confronted with a similar challenge, and many find it tough. This sparkled my interested in the practical side of the problem, what is actually the best way to finding a thesis and at best employment? My interest was supported by my instructor Zinaida Grabovskia, PhL, Senior lecturer, Head of IM and Logistics Masters' programs, who suggested to turn it into my Master's topic and dig deeper into this problem. The topic was also applicable in my life, and I enthusiastically started to work on it.

I would like to express my sincere thanks to Metropolia for the opportunity to study in the Master's program. My journey started with a memorable meeting with Marianne Autero, SIMHE coordinator and enthusiastic leader, who advised me to try and continue my education at a Master's level as a stepping stone to employment in Finland. I am grateful to Marianne for her advice! Moreover, Marianne once again stretched her helping hand to me when generously sharing her insight on the topic of this Master's thesis! It firmly guided me throughout this thesis. In Metropolia, I would also like to thank my thesis instructor Zinaida Grabovskia for her support and guidance. Her persistent efforts and help in various challenges during this journey helped me to mould this thesis.

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This Master's thesis focuses on developing an approach for identifying employers´ needs and bridging the gaps with workforce's skills and capabilities on the example of Master's students searching a job/thesis project in the field of Engineering.

The case organization in this case is an educational provider and one of the most esteemed international universities of applied sciences in Finland. Practice by this organization shows that sometimes Master's students, especially those unemployed and of foreign origin, may find it challenging to find a job/thesis project and the documented guidance is currently missing on how to do it, though the case organization has a wide range of current practices spread over various services.

This study followed the qualitative case study as a research approach as it utilizes the data from various sources such as face-to-face interviews with the stakeholders. After identifying the key challenges from the current state analysis, the conceptual framework of this study is constructed from literature review. The proposal is build focussing on the three key elements identified in literature review, namely, identifying employers' needs, mapping own skills and competences, and bridging the gaps to the desired competences. The proposal is based on the data obtained from interviews with stakeholders and combined with the literature findings and CSA data to build a self-help guide

The outcome of this study is (1) an approach for identifying the employers' needs and bridging the gaps with the workforce existing skills and capabilities, and (2) a self-help guide to find a job/thesis project for a Master's student.

Keywords	Employers' needs, Skills and competences, Employability, Bridging gaps to employment

Metropolia

Contents

Preface

Abstract

List of Figures

1 Introduction 1

1.1 Organizational Context 1
1.2 Research Objective and Outcome 2
1.3 Thesis Outline 3

2 Method and Material 4

2.1 Research Approach 4
2.2 Research Design 5
2.3 Data Collection and Analysis 7
2.4 Thesis Evaluation (Plan) 11

3 Current State Analysis of the Tools and Practices in the Case Organization 12

3.1 Overview of the Current State Analysis Stage 12
3.2 Current Tools and Practices in the Case Organization 13
3.2.1 Guidance and Tools by the Work Placement Services 14
3.2.2 Guidance and Tools SIMHE Services 17
3.2.2 Guidance and Tools Master's Program 22
3.3 Key Findings from the Current State Analysis 25
3.4 Summary of the Key Findings 29

4 Existing Knowledge and Best Practice on Identifying Employers' Needs and Bridging Gaps with the Workforce's Existing Skills and Capabilities 31

4.1 Identifying Employer Needs 31
4.1.1 Conducting Industry Analysis 31
4.1.2 Reports from the Industries and Agencies 34
4.1.3 Analysis of Job Advertisements 37
4.1.4 Employer Interviews and Industry Related Activities 39
4.2 Mapping of Competences 40
4.2.1 Competences 41
4.2.2 Skills 43
4.2.3 Mapping against National and International Qualification Framework 43
4.2.4 Self-evaluation 46

Metropolia

4.2.5 Mapping against Available Job Profiles 46
4.3 Evaluating and Bridging the Gaps 49
4.3.1 Employability 49
4.3.2 Evaluation of Gaps 52
4.3.3 Bridging the Gaps 54
4.3.4 Focus on Connecting to Working Life 57
4.4 Conceptual Framework 59

5 Building Proposal for an Approach for Identifying Employers´ Needs and Bridging the Gaps with Existing Skills and Capabilities 62

5.1 Overview of the Proposal Building Stage 62
5.2 A Starting Point: Fit between the CSA Results (Data 1) and Ideas from Literature (CF) 63
5.3 Findings from Data Collection 2 63
5.4 Building the Proposal for the Approach 65
5.4.1 Identifying Employers' Needs 65
5.4.2 Mapping OExisting Skills and Competences 70
5.4.3 Bridging the Gaps to the Desired Competences 72
5.5 Proposal Draft 75
5.6 Self-help Guide 76
5.6.1 Additional Data for the Self-help Guide (Data Collection 2) 77
5.6.2 Initial Proposal for the Self-help Guide 78

6 Validation of the Proposal 80

6.1 Overview of the Validation Stage and Findings of Data Collection 3 80
6.2 Final Proposal 82

7 Discussion and Conclusions 86

7.1 Summary 86
7.2 Practical Relevance and Implications for the Case Organization 88
7.3 Thesis Evaluation 89
7.3.1 Outcome vs Objective 89
7.3.2 Reliability and Validity 90
7.4 Final Words 91

References 92

Appendix. Self-help Guide (Proposal)

Appendix 1. Interview field notes for CSA (Data 1) with Work placement services

Appendix 2. Interview field notes for CSA (Data 1) with SIMHE services

Appendix 3. Interview field notes for CSA (Data 1) with the Business development manager, Metropolia Master's programmes

Appendix 4. Interview field notes for CSA (Data 1) with Head of Master's program in Industrial Management

Appendix 5. Interview field notes for initial proposal building (Data 2) with Employer 1

Appendix 6. Interview field notes for initial proposal building (Data 2) with Employer 2

Appendix 7. Questions used in the key stakeholder's interviews (Data 2) with graduates and students

Appendix 8. Survey questionnaire for Heads of Masters' programs in Metropolia through E-lomake

List of Figures

Figure 1. Case study research approach

Figure 2. Research design of this study

Figure 3. Key findings of current state analysis

Figure 4. Strengths and weaknesses of current approaches and practices

Figure 5. Gaps between competences achieved in education and needs of the professional role – results from alumni survey

Figure 6. Employer's evaluations on professional knowledge, general knowledge and skills, attitudes and motivation when recruiting new employees

Figure 7. Most important factors considered by employers when recruiting graduates

Figure 8. Core set of fundamental skills that potential employees need in the workplace

Figure 9. Grading of skills and capabilities during recruitment of higher education graduates

Figure 10. Relative frequency of competences in job profiles

Figure 11. Relative frequency of lifelong key competences within the sample of job advertisements.

Figure 12. Competence and skill expected from engineering graduates

Figure 13. Holistic model of competences

Figure 14. Means and Standard Deviations of Key Competency Items for Construction graduates

Figure 15. Thematic and conceptual map of job advertisements

Figure 16. Employability – main influencing factors

Figure 17. How the first job is found after graduation

Figure 18. Aspects of the competency gap between the industry and the university

Figure 19. Biggest obstacles for getting a job in Finland for international graduates

Figure 20. Main steps in bridging the gaps between employers and students

Figure 21. Graduate employability- structural indicators

Figure 22. Actions by higher education institutions to improve the employability of graduates

Figure 23. Conceptual framework for developing an approach for identifying employers' needs and to bridge the gaps with workforce´s skills and capabilities

Figure 24. A Collection of ideas for the proposal draft template

Figure 25. Steps in identifying employer needs

Figure 26. Steps in mapping own skills and competences

Figure 27. Options of finding a job after the Master's thesis project

Figure 28. Bridge the gaps to the desired competences

Figure 29. Initial approach to find a job/thesis

Figure 30. Final proposal for the approach to identify the employers' need and bridge the gaps with the existing skills and capabilities.

Figure 31. Final proposal of the Self-help guide to help Master's student find a job/thesis project

Figure 32. Results of the Metropolia UAS's AVOP survey 2017.

1 Introduction

In the context of deepening globalization and converging of technologies, the competence and skills of engineers need to be constantly updated according to new demands and challenges. The industry is on the lookout for engineering professionals with a combination of technical expertise, strong interpersonal skills and awareness of commercial realities.

Yet, practice shows that, for example, Master's students in Engineering, who already have 3+ years of professional experience, can still find it challenging to find a job/thesis project, especially those who are unemployed and with foreign background. They find gaps between their own skills and competences, as well as their sometimes rich work experience, obtained in another country, vs. the current needs of Finnish employers. This study aimed to suggest practical help and provide the necessary minimum guidance to the Master's students experiencing such challenges.

This thesis investigates how to bridge the gaps between the employer needs and the existing skills and competences of the workforce on the example of the Master's students at Metropolia. The purpose of this thesis is to produce an approach and also suggest practical guidelines to help Master's students in the University of Applied Sciences facing challenges of finding a job/thesis project.

1.1 Organization and Context

The case organization of this thesis is Helsinki Metropolia University of Applied Sciences (UAS), the largest University of Applied Sciences in Finland situated in Helsinki. It has four fields of study, Health care and social services, Technology, Culture and Business, with approximately 16,500 students and the staff of about 1000 people (Metropolia 2018: Metropolia in Brief). The University conducts 68-degree programmes, of which 11 of them are in English. This consists of 43 Bachelor's degree programmes (6 of them in English) and 25 Master's degree programmes (5 of them in English) and over 900 foreign degree students representing 90 nationalities study in Metropolia (Metropolia 2018: Metropolia in Brief).

As for the context, labor market is constantly changing its requirements for engineering professionals. Requirements are growing for professional, cross-field, interpersonal etc. competences, as well as the skills (such as IT skills) and capabilities from applicants. New types of expertise are needed in the current business environment due to extensive use of IT, automation, and collaborative work environment, which have become very

visible in the market. Competence needs and skills that were not required previously have become indispensable these days, and the new skills are expected from the engineering professionals. Capabilities and attributes such as emotional intelligence, creativity, adaptability, resilience and critical thinking are highly valued by employers.

Hence, Master's students (especially unemployed and with foreign background) face the need to effectively build up their competences, skills and networks, required to meet the labor market expectations and eventually find a job, or a thesis project, and they can ideally do it while studying at UAS.

1.2 Objective and Outcome

As practice shows, Master's students (especially unemployed and with foreign background) can find it challenging to find a job/thesis project. Such students often find gaps between their existing skills, competences and work experience (obtained in another country) vs. the needs of the current Finnish employers. Yet, the Master's students can utilize their studies in UAS to bridge these gaps, especially if the guidance is available along this way. Currently, the approach and one-documented guidance for the Master's students are missing.

The objective of this thesis is to propose an approach for identifying the employers' needs and bridging the gaps with the workforce's existing skills and capabilities (on the example of Master's students in the field of Engineering). Also, the objective includes building *a practical guide* that can be used in Metropolia UAS in Master's programs as a self-guidance material.

The thesis scope is focused on addressing the needs and helping Master's students studying at an UAS from the practical perspective, in their search for a job/thesis project, thus bridging the gap to employment. The schools need to know the challenges and, most importantly, available resources, to help students in effective employment orientation during their study period.

The expected outcome is *the approach for identifying the employers' needs and bridging the gaps with the students' existing skills and capabilities*, and *a practical guide* that can be used in Metropolia UAS in Master's programs as a self-guidance material. Such self-help guide should help the students in finding a job/thesis project by navigating them through the available opportunities and practical advice on how to bridge the gaps with their existing skills and capabilities.

1.3 Thesis Outline

The thesis is written in seven sections. Section 1 provides the introduction to the study. Section 2 describes the research approach, research design, data collection and analysis methods used in this study. Section 3 reports on the results of the current state analysis of the current practices and services to help students in finding a job/thesis projects available at the case organization. Section 4 explores best practice and reviews the existing literature on identifying employers' needs and bridging the gaps with the desired skills and competences. Section 5 describes the building of the initial proposal for the approach and the tool for Master's students. Section 6 validates the proposal and collects feedback to the self-help guide from the key stakeholders and incorporates the validation results into the final proposal. Section 7 presents the summary and discusses the results of the study.

2 Method and Material

This section describes the research method, data collection and analysis methods used in the study.

2.1 Research Approach

For conducting research in people related issues, a variety of research methods can be used such as experimental research, case study research, action research, grounded theory research, ethnographic research and other types of studies (Saunders et al. 2009: 108). Selection of research methods is done based on the context and the fit of the research approach with the research problem.

This thesis relies on elements of qualitative case study as its research approach since the objective of this study is to develop an approach for addressing a people related issue. According to Yin (2009.18), case study research can be defined as a detailed investigation that attempts to provide an analysis of the context and processes involved in the phenomenon under study. Case analysis are preferred when "how" and "why" are the form of research questions and the author of such research has little control over the events of the investigation, and the event focuses on contemporary events. (Yin 2009:9).

This thesis, following the data collection stage and its analysis, keeps it linked with the initial research question and investigates the literature to connect the findings to the available theories and best practice, so that to make sense of the phenomena and build a construct to explain and address it.

According to Yin (2009:1), case study is a linear and iterative process which includes the planning, designing, preparing, collecting, analyzing and sharing stages in its research framework. Figure 1 below shows the key steps in the case study research process.

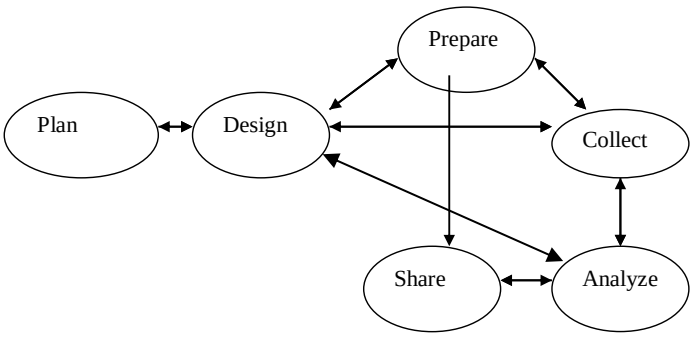

Figure 1. Case study (Yin 2009: page 1).

As seen in Figure 1, firstly, in the *planning* stage, the research question is identified, and the researcher decides on the types of research method appropriate for the phenomenon at hand. (Yin 2009:5). Secondly, the researcher *designs* the study and *data collections* specifying the types and source of data to be collected, and the methods for *data analysis*. (Yin 2009:27). Typical of the case study methodology is the principle of working with multiple sources of data, among which the most frequent are interviews and analysis of documentation, as well as surveys, and other qualitative methods of data collection. (Yin 2009: 102). For effective analysis of data, case study researchers typically maintain a database of materials, and pay special attention to keeping a logical chain of evidence, as well as explicit reporting on the data collection procedure and analysis methods (Yin 2009: 123). For data analysis, researchers look for patterns and interprets evidence. Finally, the results of the analysis are reported to the audience at the sharing stage where the findings are presented either orally or in writing to the defined audience, reviewed by the participants and informants in the case, and given careful attention, if found necessary and the case study is closed. (Yin 2009:164)

This thesis utilizes elements of the qualitative case study research to find answers to questions of *how* to identify the employers' needs for workforce skills and competences/capabilities, and *how* to evaluate and bridge the gaps with the work forces' existing skills and competences. The results of this research are used to develop the guidelines and recommendations to help Master's student on their road to finding employment.

2.2 Research Design

This study follows the research design as illustrated in Figure 2, with five main stages. The study starts with identifying the research objective in stage 1. In this stage, the problem is identified, and the objective is formulated.

Next, the current state analysis is conducted by examining the data from key stakeholders in order to establish the current situation and practices and identify the available and missing tools in the case organization. This analysis focuses on the current practices of helping students to find employment, or a thesis project, and evaluating their existing competences, as well as available practices for bridging the gaps toward employment. The analysis focuses on studying the available Work placement services in the case organization, the existing SIMHE services, and the practices by Master's programs conducted through interviews with the key stakeholders. The outcome is the identified strengths and weaknesses, as well as the available and missing tools and practices in the case organization.

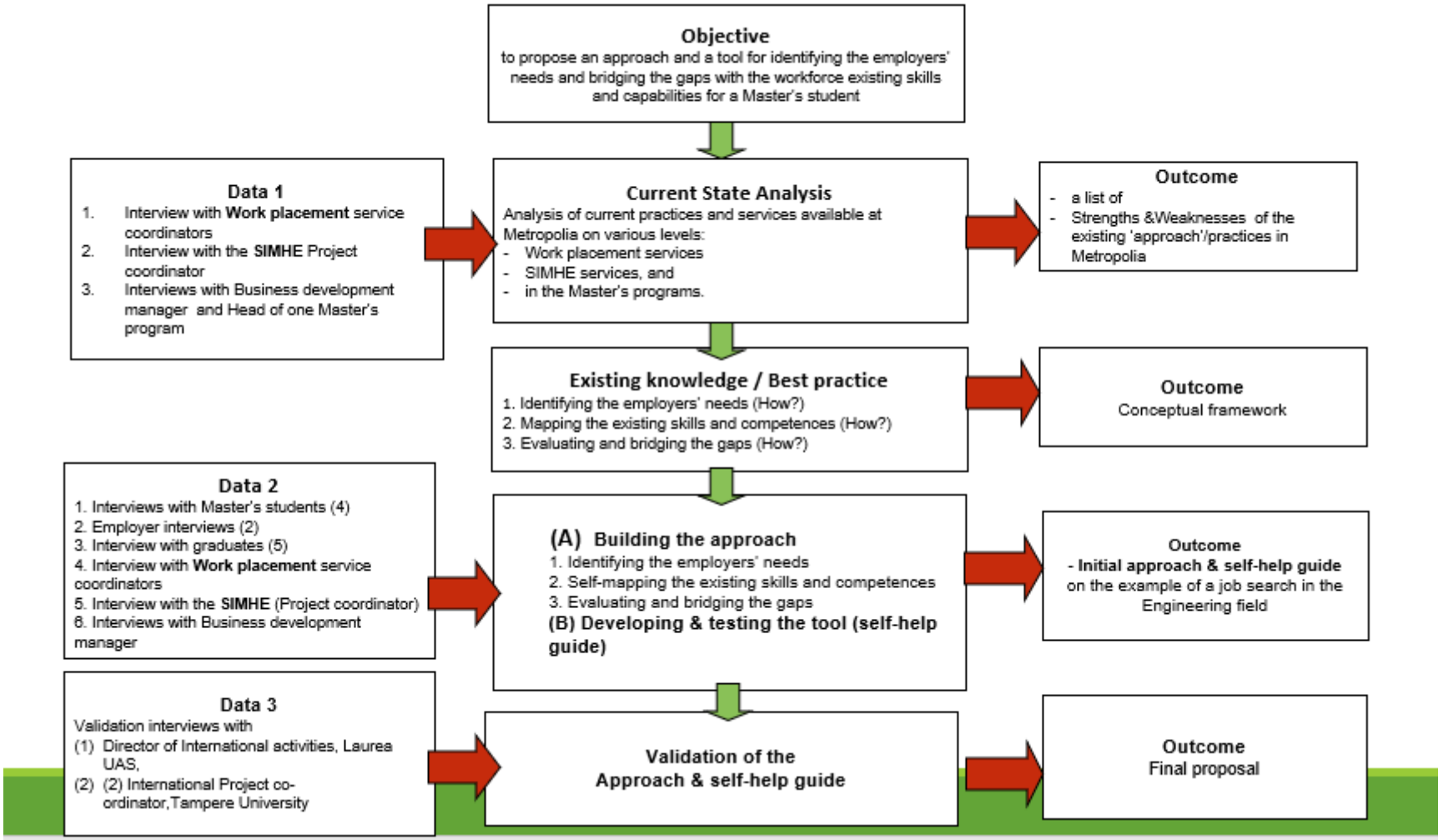

Figure 2. Research design of this study.

Metropolia

As seen from Figure 2, at stage 3, based on the identified challenges, search for existing knowledge is done to address the needs of the case organization. The identified best practice and tools are merged into the conceptual framework. Literature review and search for available knowledge is done by studying academic literature and best practice. The outcome of this stage is the conceptual framework for identifying employers´ needs and bridging the gaps with the existing workforce´s skills and capabilities.

Stage 4 focuses on building of the initial proposal based on the findings from the current state analysis, combined with best practice and tools identified from literature. The proposal includes the initial approach and a draft of self-help guide for identifying the employers' needs and bridging the gaps with the workforce existing competences and skills. It also includes a small-scale test of the proposed approach (on the example of a few Master's students, searching for a thesis/job in the field of Engineering). The proposal is developed in co-creation together with employers, graduates, Master's students and the stakeholders from Work placement services, SIMHE services, and the Business development manager of the case organization.

Stage 5 is the validation of the initial proposal and improvements made with the external expert feedback. Validation is done through the interviews with the Director of International activities, Laurea University of Applied Sciences, and with PhD researcher and International Project coordinator, University of Tampere. Results from the validation stage are included into building the final version of the proposal.

2.3 Data Collection and Analysis

This study uses various data sources and utilizes these data during the three rounds of data collection process. Table 1 below outlines the three data collections in this study.

Table 1. Overview of three rounds of data collection (Data 1-3).

STAGE	CONTENT	DATA SOURCE	TIMING	OUTCOME
DATA 1 CURRENT STATE ANALYSIS	**Analysis of current practices and approaches available at Metropolia on these levels:** 1. Work placement services 2. SIMHE services, and 3. in the Master's programs.	• Interview with **Work placement** service coordinators • Interview with the **SIMHE** (Project coordinator) • Interview with Metropolia's **Business Development Manager** • Interview with Head of Master's program	February 2018	- Strengths &Weaknesses of the existing 'approach' and practices in Metropolia
DATA 2 BUILDING PROPOSAL	**For Building the approach & drafting the Guidelines** 1. Identifying the employers' needs/ industry analysis 2. Mapping workforce existing skills and competences 3. Evaluating and bridging the gaps	1. Interviews with Master's students (4) 2. Employer interviews (2) 3. Job advertisements 4. Interview with graduates (7) 5. Interview with **Work placement** service coordinators 6. Interview with the **SIMHE** (Project coordinator) 7. Interview with Metropolia's **Business Development Manager** 8. Interview with Head of Master's program	APRIL 2018	**Outcome** **- Initial approach & a draft of Self-help guide** (on the example of a job search in Engineering)
DATA 3 VALIDATION /FEEDBACK	**For validation and finalizing the approach & the Guide** Feedback & further ideas to the initial Approach & Guide	1. Interview with Director for International activities, Laurea UAS 2. Interview with PhD researcher and International Project coordinator, Tampere University	APRIL-MAY 2018	**Final** proposal for the **approach & the Self-help guide for Master's students**

As seen from Table 1, data collection was done in three rounds. Data collection 1 was conducted for the CSA stage, Data 2 for proposal building, and Data 3 for validation. As clear from Table 1, the data collected in this study is of qualitative nature. The key data for the study was collected through interviews with individuals in the responsible positions. This data collection was supported by the content analysis of the tools, available guidelines and real-life materials (such as job advertisements, web publications, guides published by universities etc.) The interviews were conducted during February, March and April of 2018.

Table 2 below specifies the details of the interviews and discussions used as data sources for each data collection round in more detail.

Table 2. Details of the interviews and discussions in Data collections 1-3.

	Participants / role	**Data type**	**Topic, description**	**Date**	**Length**	**Documented as**
	Data 1, for Current state analysis					
1	Work placement Service co-ordinators, Metropolia	Face to face Interview	Current services offered to students in job search	Feb 2018		Field notes and recording
2	Work placement Service co-ordinators, Metropolia	Face to face Interview	Current services offered to students in job search	Feb 2018		Field notes and recording
3	SIMHE Project coordinator, Metropolia	Face to face Interview	Current practices in SIMHE to guide the workforce	Feb 2018		Field notes and recording
4	Business Development Manager, Metropolia	Face to face Interview	Interview about current curriculum and nature of skills and competence development of students	Feb 2018		Field notes and recording
5	Head of Master's program, Metropolia	Face to face Interview	Interview about current curriculum and nature of skills and competence development of students	Feb 2018		Field notes and recording
	Data 2, for Proposal building					
6	Interview with Master's students (4)	Face to face Interview	Proposal building	April 2018		Field notes and recording
7	Interview with graduates (7)	Telephonic interview	Proposal building	April 2018		Recording
8	Interviews with Employers (2)	Face to face Interview	Proposal building	April 2018		Field notes and recording
9	SIMHE Project coordinator, Metropolia	Face to face Interview	Proposal building	April 2018		Recording

10	Work placement Service co-ordinator, Metropolia	Face to face Interview	Proposal building	April 2018		Recording
11	Business Development Manager, Metropolia	Face to face Interview	Proposal building	April 2018		Recording
12	Head of Master's program, Metropolia	Face to face Interview	Proposal building	April 2018		Recording
13	Heads of Masters' programs, Metropolia (5)	E-lomake	Proposal building	April 2018		Questionnaire and recording
	Data 3, for validation, evaluation of the proposal					
14	Director for International activities, Laurea UAS	Face to face Interview	Validation, evaluation	April 2018		Recording
15	International Project coordinator, Tampere University	Skype Interview	Validation, evaluation	April 2018		Recording

Table 2 summarizes the details of the data collections conducted through interviews with the key stakeholders. As seen from Table 2, Data 1 for the current state analysis included the interviews with the Work placement services, the existing SIMHE services, and the representative of the Master's programs.

Data collection 2 relates to drafting the proposal where the data came from the same sources as for Data 1 (the Work placement services, the SIMHE services in Metropolia, the responsible head of Master's program). Additionally, Data 2 also includes inputs from 4 Master's students, 7 graduates, and 2 employers, as well as the questionnaire with responses from 5 Heads of Master's programs. Data 2 inputs were crucial for the drafting of the initial proposal and the draft of self-help guide.

Data collection 3 took place for validation of the proposal through the interviews with the Director for International activities, Laurea University of Applied Sciences and International Project coordinator, University of Tampere and feedbacks given from them. These feedbacks were used to refine the proposal and come up with the final approach and the self-help guide.

As seen from Tables 1 and 2, in this study, the interviews made the primary method of data collection. The interviews were mostly conducted as semi-structured, face-to-face interviews, held on the organization premises or via Skype, with questions created in advance. The interviews were recorded, and the field notes checked by the informants

afterwards. All data were analyzed using Thematic analysis. The questionnaire and field notes for the interviews can be found in Appendices I -VIII.

2.4 Thesis Evaluation (Plan)

The quality of research can be evaluated by focusing on the rigor in the research process and the evaluation of validity and reliability of the outcomes. According to Yin (2009), in a case study approach, four critical aspects are responsible for maximizing the quality. These include construct validity, external validity, internal validity and reliability measures. *Construct Validity* is used for studying concepts that are responsible for identifying correct operational measures. *Internal Validity* is to evaluate the research inputs leading to the conclusions and outcomes. *External Validity* is used for defining the domain where study's findings can be generalized. *Reliability* demonstrates if the results are trustworthy and can be obtained by repeating the research process and methods. (Yin 2009:40-41)

In this study, *validity* is planned to be measured through the depth and scrutiny of the data collected. Apart from this, valuable ideas from existing literature prove to be a helpful source of knowledge in the course of the study. In this study, the reliability is planned to be ensured through interviews with different stakeholders, which will shed light on the current state of labor market requirements and the gaps existing in the existing tools and services in the case organization.

Reliability of this study is further ensured by linking the findings, solutions and interpretations to the objective, and also by diligently documenting data during the data collection stages. Finally, reliability is planned to be assured by a thorough documentation of the research process and outcomes, with enough transparency so that the inputs are traceable and logical chain of evidence can be established between the stages to the final outcome.

3 Current State Analysis of the Tools and Practices Available in the Case Organization

This section discusses the current state of the tools and practices used in the case organization for helping students to bridge the gap to employment. In this section, the researcher collects and analyses available data about current practices, tools and services used in the case organization. The section ends with the overview of the strengths and weaknesses of the available tools and practices in the case organization, as well as pointing the missing features related to the topic.

3.1 Overview of the Current State Analysis (CSA) Stage

The goal of the current state analysis was to explore the current tools and practices available in the case organization to help the student find their way to employment in Finland. The CSA has been done by conducting face-to-face semi-structured interviews focused on discussing the current practices in the case organization. Based on findings, the strengths and weaknesses of the current practices in the organization are summarized. As mentioned in Section 2, the goal in all the data collection phases is to present a holistic view on the current practices and services. The data collected in this section corresponds to Data collection 1 of Thesis.

The current state analysis (CSA) was conducted in three steps. In order to analyse the current practices, the following steps were taken.

First, to have rich data inputs from different perspectives, first, the stakeholders were selected so that each of them is an expert in their respective role and is involved in the current practices and services in the organization. The interviews were conducted at three levels in the case organization, namely, the Work Placement services, SIMHE services (Supporting Immigrants in Higher Education in Finland) and at the Master's programs level.

Secondly, the themes of the interview with these stakeholders were prepared by listing questions aimed to identify details such as available guidance/web/manual/instructions to conduct a job search for Master's students, available sources of help/orientation/counselling for such guidance, challenges faced by students when finding a job in Finland, recognition of prior learning, etc.

Thirdly, a one-on-one interview session with each stakeholder was conducted. The data collection was based on the interviews and also the relevant documents and materials

provided by them. While conducting the interview, voice recordings were used. A summary of the interview was presented back to all the interviewees to confirm whether the data were captured correctly. The collected data can be found in Appendices I-VIII.

3.2 Current Tools and Practices in the Case Organization

The case organization for this study is Metropolia University of Applied Sciences (UAS). The University conducts 68-degree programmes, of which 11 are in English. This consists of 43 Bachelor's degree programmes (6 of them in English) and about 30 Master's degree programmes (5 of them in English) and over 900 foreign degree students representing 90 nationalities who study in Metropolia (Metropolia 2018: Metropolia in Brief).

As an important feature of this study, the Bachelor's students at Metropolia have to complete Work Placement as an essential part to complete their degree. The Bachelor's degree awards 15-30 credits for work placement depending on the degree programme. The target of the work placement is to familiarise the students with the practical tasks in their study fields and learn how to combine theory and practice. In addition, the students gain experience of the prerequisites of professional life to support their professional development and career choices, and to build up their professional identities. Metropolia assists and guides the student to complete the training process successfully. At the same time, it is usually the student's responsibility to search and acquire the work placement (Metropolia 2018: For Student. Work Placement, OMA workspace).

Another important aspect is that the Master's students at Metropolia, as well as in other Finnish AMKs, have to complete at least three years of work experience as a pre-requirement before they can apply to a Master's degree program. During their Master's studies, completing a thesis work (30 credits), as well as sometimes assignments, especially for Engineering programs, is critically dependent on finding a company/organization where such a project can be conducted. This is done since the studies for the Master's students aim at learning through practical projects and gaining further professional experience. Therefore, conducting project-based assignments make one of the key elements in a Master's program.

As defined in the Degree Regulations, the final Master's thesis project is a "workplace practice-based, independent research, design or report project dealing with an aspect of the student's field of study. It might be, for example, a research, product or workplace development project''. Section 20 of Chapter 4 of Degree Regulations of Metropolia University of Applied Sciences (2015) states that '' In the final project for a Metropolia Bachelor's degree, the student learns and implements workplace-oriented development work

based on researched information and other evidence. The purpose of the final project for a Master's degree is to develop and demonstrate not only an ability to apply research information and to use the selected methods to analyse and solve work-related problems, but also readiness for independent expert work in demanding positions. In the final project for a Metropolia Master's degree, the student aims to generate new competence and to develop workplaces and the field of study in an innovative way'' (Metropolia 2015: Metropolia Degree Regulations-Section 20)

3.2.1 Guidance and Tools Provided by the Work Placement Services

Since the work placement makes an essential part of studies at the Bachelor's level in Metropolia UAS, the Work placement services aim to help the student in finding a work placement. The work placement helps to gain first hand, practical experience of working for a company and familiarizes the student with the practical tasks in his or her field and applying their knowledge gained in Bachelor's studies to practice. By gaining experience in professional life, the student supports his or her professional development and career choices and builds up his or her professional identity (Metropolia 2018: For Student. Work Placement, OMA workspace).

The main task of the Work placement services functioning in the case organization UAS is to assist in finding placement for the Bachelor's students during their training period. The degree awards 30-120 credits of work placement depending on the degree programme. (Metropolia 2018: For Student. Work Placement, OMA workspace). The Work placement services help by providing hands-on help, information and guidance needed to the Bachelor's students to find suitable work placements. The Work placement services support the students with information on how to apply and hands-on help related to their documents. However, neither for Master's students, nor for Bachelor's students, a one-document guidance how to find a project is not available. As mentioned by Interviewees 1 and 2:

> *'The Work placement has general information for students on how to apply and the students have to try to find placement by themselves." (Interviewees 1, 2)*

Presently, the Work placement services provide the following services.

First, the Work placement services focus on *(a) conducting information sessions to Bachelor's students*. Because the companies contact the work placement units for getting

students, a fairly good idea of the company needs is available and hence, tips/information can be provided. As informed by Interviewees 1 and 2,

> *''We have the placement info's for the Bachelor's students during their 1st and 2nd years.''* (Interviewees 1, 2)

Second, the Work placement services provide (b) *individual consultancy and hands-on help* to Bachelor's students that includes CV and Covering letter correction, consultancy for the job application, etc. Also, the students are provided with the links/websites according to the need of the particular student. As informed by Interviewees 1 and 2,

> *''The students visit the Work placement unit for personal guidance and help with tips are given for searching work placement. Personal assistance is given for preparation and polishing of the student's CV and also Covering letter to companies for the job application". (Interviewees 1, 2)*

Third, the Work placement services provide (c) information on *the latest vacancies*, as well as links where the students can find details about the previous *harjoittelu* companies, and advertisements of companies, which are posted in OMA workspace, as given below: https://oma.metropolia.fi/tyopaikkailmoitukset

(d) Another source of information available to Bachelor's student in the Work placement OMA space is the form of .pdf guide in English, namely, 'Working in Finland – Information for Immigrants'' in English published by Finnish Institute of Occupational Health. This guide offers information about Finnish work life, advice on how to find a job, the induction process, the role of a supervisor, the Finnish work culture, and health and well-being at work with details of links to find a job. As stated by Interviewees 1 and 2,

> *''Job advertisements are posted in OMA and the students are directed to utilize them and apply to the projects/jobs according to their suitability. This help guides the student to find the placement themselves. The pdf guide is also helpful in this regard'' (Interviewees 1, 2)*

Fourth, the Work placement services provide *(e) information on how to find a work placement in OMA's workplace (given below) which helps Bachelor's students* in finding a suitable project with the placement guidelines and material related to job search: https://harjoittelu.edu.metropolia.fi

Fifth, the Work placement services also *(f) maintain a OMA workspace with work placement reports* from the Bachelor's students who completed their work placements in companies. For this, check OMA workspace ''Harjoittelu'' > ''Browse Companies/Reports''

for students reports after completing the work placement. There is also a list of companies and contact persons. As stated by Interviewees 1 and 2,

> *''Regarding the Work placement of Bachelors, a systematic approach is followed, where the students have to submit a report of what they have done in 20 weeks of their Work placement in two parts, these reports can be found in the website, and they play an important role in informing other students about Work placement.'' (Interviewees 1, 2)*

An example of a Work placement report done in Helsinki Environment Centre (in the field of Environmental Engineering) for compiling a database of building-wise energy consumption, energy efficiency and other relevant data related to buildings in Helsinki and refining and analyzing this data for the needs of various users can be found in this link: https://harjoittelu.edu.metropolia.fi/report/public/6555

Also, upon request, the Work placement services provide *(g) individual consultancy to Master's students* that includes (1) CV correction, (2) Covering letter correction, and (3) outlining/suggesting the companies that may be relevant to the professional interests to a particular Master's student. Also, Work placement services help in getting the Master's students acquainted with the information available in OMA and beyond (such as TE-toimisto web-site and the most important recruitment web-sites and events). Interviewees 1 and 2 also stated that,

> *'Master's students are already working professionals and hence, they do not need such guidance in work placement. So, the scope of work placement does not include Master's students, but the Work placement service welcomes them to get help from the Work placement specialists individually.'' (Interviewees 1, 2)*

This help is available to Master's students, but they need to know about it. As noted,

> *''At the moment, the students can only learn about it from heads of programs or other instructors who are aware of this service. A student can plan his own efforts and turn for professional help within Metropolia and beyond Metropolia, where help is available, if he/she know where to go (Interviewee 5)*

During the interview, the challenges were also discussed for foreign students to find a job/project in Finland. One of the main challenges faced by students with foreign background is the lack of knowledge of the Finnish language. As said by Interviewees 1, 2:

> *'To find job in Finland, working knowledge of Finnish language is needed (the professional language could be English) even for working in international companies in Finland. This is one of the factors that hinders international students in job search and it would be good to take some extra courses in*

> *Finnish language to cover the gaps, in the early stages itself (Interviewees 1, 2)*

Importantly, it was stressed that many jobs are not advertised as open positions. Hence, job search can be done in many ways and should include finding the employer needs by visiting trade fairs, company visits/excursions, contacting free consultancies, SIMHE, Work placement services etc. thus trying to get the feel of the current industrial trends. As pointed out by Interviewees 1 and 2,

> *''It is important to understand that many jobs are not advertised as open positions in the internet. So, contacts with the right persons have to be established, which is possible by attending trade fairs and getting the feel of the industry. The contact persons will directly contact the student when the need arises''. (Interviewees 1, 2)*

> *"Since the Master's students already have professional experience and not quite naive as the Bachelor's students, it is typically a much easier process for them - as they may be instructed in the form of a written guide. (Interviewees 1, 2)*

Summing up, presently, the scope of the Work placement services does not officially include Master's students as their target audience, and the links/websites/job advertisements posted in OMA workspace cater mainly to the Bachelor's students. Although help for the Work placement services is available upon request by a Master's student. There is also currently no single document / written step-by-step guidance/manual/ instructions on how to conduct a job search neither for the Bachelor's students, nor for Master's students. Thus, a written self-help guide on how to effectively search for a job, is currently lacking.

3.2.2 Guidance and Tools Provided by SIMHE (Supporting Immigrants in Higher Education in Finland) Services

The SIMHE project (Supporting Immigrants in Higher Education in Finland) funded by the Ministry of Education and Culture offers services for recognizing prior learning and competence of highly educated immigrants and their guidance. The aim is to recognize the competences of highly educated immigrants and to guide them, and those who are eligible to apply to higher education, to interesting and meaningful educational and career paths. SIMHE services are available in Metropolia, Karelia and Oulu Universities of Applied Sciences and in the Universities of Helsinki, Jyväskylä and Turku.

The project addresses the needs of highly educated immigrants in Finland to find a swift access to education or work. Immigrants often lack knowledge of the Finnish sufficient language skills to enter in their field of expertise, and most importantly, they lack the inherent social knowledge of the society and culture. As another challenge, they may not know how their existing competences match with the Finnish requirements, even though educated immigrants are needed in the Finnish labour market.

Presently, based on the results of the interview with the SIMHE Coordinator, the following services are provided. First, SIMHE provides *(a) Guidance and counselling services*, which aim at helping a customer to find the most suitable study and/or career paths. In personal guidance discussions, an hour is reserved to holistically go through the immigrant´s situation and possible options, with focus on the topics they want, most typically connected to studies and career. As stated by Interviewee 3,

> *It is not providing ready-made solutions, but guidance and counselling services offers different options through which the customer may plan what kind of study opportunities there are to enhance and top-up existing competences. It may also be starting a new study path or find ways to find employment in Finland. The number of customers at SIMHE-Metropolia has risen steadily over the past two years totaling in over 550 users for Guidance and Counselling and Recognition of Competences services in 2017 (Interviewee 3)*

Second, SIMHE provides *(b) Recognition of prior learning (RPL),* based on a working life and competence-oriented curriculum. The purpose is to ensure that the previous studies and degrees of highly educated immigrants are identified and recognized according to national policies as quickly as possible so that these people find their way to appropriate education and careers paths. As mentioned by Interviewee 3,

> *''SIMHE-Metropolia's service augments and modifies RPL concept to highly educated immigrants who are not able to use such services as they are not registered in higher education institution in Finland. The aim is to enhance the identification and recognition of prior learning (AHOT) of highly educated immigrants of different statuses and make it easier to direct immigrants to higher education on a national and regional level." (Interviewee 3)*

Third, SIMHE provides services in *(c) Recognition of competences which consists of Mapping of competences.* The Mapping of competences comprises of two phases: (1) Orientation (self-evaluation, degree comparison) and (2) In-Depth professional discussion with an expert in the field of study. After Mapping competences, a customer receives

a document which aims at making the customer's competence visible based on the previous studies, survey the possible needs for supplementary education and also explain what kind of additional competencies the customer has that are not included in the curriculum in our degree education. As stated by Interviewee 3,

> ''*These methods of Mapping of Competences enable to find out, what kind of competences the customer has and how these competences can be compared within the similar education in Finland. The document furnished to the customer also helps the employers to acknowledge the competences better, when applying for a job. The current method, Mapping of Competences, has now been carried out in the fields of technology and business thrice since autumn 2016 with some 150 customers. (Interviewee 3)*

For degrees from outside Finland, competences can be compared within the similar education in Finland. This is done by comparison of the foreign degree against Metropolia's (University/AMK) curricula and assessed whether the previous competences acquired through education and work match with the Finnish requirements.

According to the research made by Helsingin Seudun Kauppakamari (2016), a foreign employee and a foreign degree often raises questions among the employers. Mapping of Competences makes an international candidate more familiar to the Finnish employers as their skills and competences have been referenced by educational experts in the field at Metropolia. Also, the immigrants could benefit from the recognition of competences for example, if they apply to higher education in Finland, as an institution of higher education has already made an evaluation on their competences. However, Recognition of Prior Learning is made and decided by each institution. (SIMHE services 2018)

Fourth, SIMHE provides service in the (d) *preparatory education for people with immigrant backgrounds* which received funding from the Minister of Education where Metropolia UAS have teamed up with eight other UAS to develop preparatory courses. This education helps students develop for example their linguistic and mathematic knowledge as well as digital know-how to meet the requirements for higher education. As informed by Interviewee 3,

> ''*One of the projects which received funding from the Ministry of Education is called in Finnish as "Valmentavasta valmiiksi" where we in Metropolia UAS have teamed up with eight other UAS to develop preparatory courses. The idea is to develop them to be more nationally compatible and that the student who wants to graduate with a degree in higher education on that field would have a clear path for that. (Interviewee 3)*

Fifth, SIMHE has started providing support to (e*) create more ways to match the job-searching talents with those in need of skilled workforce by close contact with professional associations and companies.* The organisation of events like Recruitment and Matching Morning by COME project, where SIMHE actively participants, helps immigrants to meet up and network with employers-to-be (Autero 2018).

Interestingly, SIMHE is pro-actively researching further opportunities to provide services and connect through innovating challenges to their target audience. For example, another SIMHE service unit at Karelia University of Applied Sciences is developing a mobile application, to be launched by 2019 for online mobile services of SIMHE: http://simheapp.karelia.fi/en/what-is-simheapp/ , to provide services for those who are not currently enrolled in higher education.

Importantly, the aim of Metropolia SIMHE is to provide services for those who are not currently enrolled in higher education and the target customers are mainly outsiders who apply for guidance to SIMHE. According to the Interviewee 3,

> *''The Master's students should be able to express their competences better by the time they graduate, so as to make them more visible in the labor market. No one has determined which is the fastest route for a job searcher, because it depends on many factors, like the persons' capabilities, motivation, background etc. A self-help common tool will surely help in accelerating this process.'' (Interviewee 3)*

During the interview, the discussion pointed to the steps to be taken by the Master's students to find employment, and also how to conduct self-mapping of competences in particular, as SIMHE does not provide help to Master's students. A variety of different methods/tools are available for recognizing competences.

The first step in self-mapping of competences would be to identify what the students are or, in other words, self-knowledge, where they stand with the existing skills and competences, how their formerly acquired skills and competences match with the Finnish requirements. The next step would be to compare the previous degree with the most equivalent degree in Finland, with the help of curricula provided in website. Thus, the student gets an idea about the curricula needed in the Finnish labour market.

Then, the advice from SIMHE related to scanning the job advertisements to identify the Finnish companies' requirements and analyze a 'pattern' of skills and competences required in the job ads. Contacting companies and finding out what they need is another

important step. The next step is self-evaluation based on the observed 'pattern' of requirements and taking necessary steps to bridge own skills and competences to these requirements.

Another important aspect relates to finding the companies in one's own field, identifying the right pool of companies, and joining professional associations/labor unions like TEK, which provides a pool of services like CV clinics, seminars on current trends etc. is. As mentioned by Interviewee 3,

> *''Self-mapping of competences will give you a better understanding on your skills and information on what kind of studies/additional skills can supplement your job-search. Self-knowledge is the first step in this process, assessing where you stand. Then comes the scanning of the job advertisements to see what the Finnish companies' requirements are and the information on skills and competences which are most often repeated. Self-knowledge with your understanding of who you are, where you are, what the employers want, do you match it and presenting your competences professionally in the language of the employers makes a difference". (Interviewee 3)*

As stressed in the interview, for Master's students with foreign background, understanding of the Finnish context is another important factor. The social skills acquired through the Finnish system of education, with knowledge of Finnish society and culture, will make a difference in the self-mapping of competences. As pointed out by Interviewee 3,

> *'Most of the immigrants do not come from the Finnish system of education, starting from the early childhood education, preprimary system and they have some inherent disadvantages. At school, there is both a visible curriculum and a hidden curriculum, which is something unspoken, unwritten ways to do things. It has become very apparent from my work that these hidden skills acquired through the Finnish educational system has an important role. For e.g. in sending job applications. (Interviewee 3)*

The coordinator of SIMHE services in her blog (Autero 2018) also points to the importance of thesis topics. The aim is to offer both individual encounters in addition to group meetings and help applicants to understand how their formerly acquired skills and competences match with the Finnish requirements (employers' needs), find suitable educational paths, when applicable (bridge the gaps), support employment and obtain information and ideas on various ways for job-search in Finland, and be able to express their competences better (self-mapping). These steps are aimed at helping faster integration of immigrants and offering the trodden ways for such integration.

Summing up, presently, the scope of the SIMHE services include those who are not currently enrolled in higher education. Self-help / guidance on finding employment, or mapping of competences for Master's students is not available, due to the SIMHE services based on individual interactions that work best with SIMHE's target audience of foreign highly educated immigrants. Master's students are not included in their target audience as they are customers of the University and already on their firm way to employment.

3.2.3 Guidance and Tools Provided by the Master's Programs

In Metropolia, there are currently about 30 Master's degree programmes, out of which 5 are in English. (Metropolia 2018: Metropolia in Brief). Each Master's programme has the Head of the Programme. This teacher meets all the students and can consult them upon request for their working career. As mentioned by Interviewee 4,

> *"In Metropolia, there are presently no Career services, like big universities have, such as Aalto or University of Helsinki. Moreover, Master's students are already working professionals and hence, they do not need such guidance. However, my experience is that such guidance is really needed. Not for many, but for a few persons, each year." (Interviewee 4)*

As seen from this statement, every year there may be several Master's students – at least in the English language Master' Programs - with foreign background who are unemployed and actively seeking a job or a thesis project. In this context, the results of the Metropolia UAS's AVOP survey 2017 (Feedback questionnaire for graduating students) also point to this as a development area. As pointed out by Interviewee 4,

> *"In relation to guidance in job/project search (työelämäneuvonta in Finnish), the score is only 3.9. This is the only area where we score so low. All other areas are either very good or excellent! You can compare it, for example, to the score evaluating the Master's thesis project guidance - it has got an excellent score of 5.9 (on the scale 1-7). This low score for työelämäneuvonta should set an alarm for development and find a way to help students in this search". (Interviewee 4)*

As was evident from the interview, the main concern on the program level also relates to finding a thesis project, rather than full-time employment, as the Master's thesis project is needed to complete a degree and thus obtain new competences and get closer to employment. Also, based on the experience from the Master's programs,

> *"Successful thesis projects make the absolutely best way to employment. Therefore, as a Program, we are very much interested in our students finding a good thesis project. It is also a sure way to employment" (Interviewee 4).*

Presently, based on the interviews on the Master's programs level, the following opportunities to find help when finding for a job/thesis project are available.

First, (a) the programs keep close connection to the industry: invite various *company speakers,* organize *company trips/visits*, and support connections with graduates who announce available Master's thesis projects/summer jobs/vacancies. Heads of Programs, as well as enthusiastic instructors, maintain connections to the graduates and visiting companies, which results – typically several times a year - *in the job/traineeship advertisements* to all the students in the Program (typically distributed as an announcement in OMA, by email to students' email boxes, to the Program's students). The Programs inform their students about these opportunities.

Also, (b) the programs organize *networking events* with former students (for example, Alumni and students 'get-together' events), Alumni meetings open for the students, etc. thus helping students in building own networks.

The Programs also (c) *promote various recruitment, networking, and professional events* to the students (typically as OMA announcements), not systematically but when the opportunity arises. Importantly, OMA intranet provides a good overview in 'News' and 'Events' of the internal and some important external events (maintained by Communications department), which are diverse and many, and some are related to employment.

Also, the students often ask for (d) a *personal consultation with either instructors or the Head of the Program*, or for example, *guidance on how to express their skills and competences better, or which companies to contact. As expressed by Interviewee 5,*

> *"Here, we provide advice and share information on how to find a project/job (known to us). But it is important to stress that the expectations of some students to get a direct personal contact to some 'magic employer' (based on the instructor's personal contact and thus avoid a long job/project search) is unrealistic. Companies employ on competitive basis, aiming to find the best available talent. Therefore the students need to be prepared to search and present themselves in a professionally attractive way, in other words, to compete for the vacancy". (Interviewee 5).*

Importantly, one of the important sources is (e) *the discussions with the Master's thesis supervisor* as this instructor typically gets into quite close connection with the student and is typically eager to help, as also knows the student abilities well.

Form the opportunities currently missing, the Programs stress *the lack of any systematic, documented guidance* to help their students in their self-help search. Sometimes (not always), the programs may have (f) *a set of slides*, typically produced by an enthusiastic instructor or the Program Head, advising where to search for project with available sources and links, typically on a small scale (and not in all programs). But a systematic guidance is missing.

Moreover, the unemployed Master's students also complain that even if they do the project/job search *persistently* and apply to *many* companies in the open vacancies - they do not get a response. This may indicate a gap in the skills and capabilities to express themselves, so that the Finnish employers and labor market would 'listen'. As mentioned by Interviewee 4,

> *''Master's students may have all the willingness and persistence, but they may lack orientation on how to proceed in a systematic, effective manner – where to search and how." (Interviewee 4)*

Since Master's students have already had some work experience before joining a Master's course, the next logical step is *identifying employers' needs.* After some information is collected, the next step is to think how to make a more effective contact and become more appealing to employers (modification of CV, better description of competences, prepare an informative telephone talk, etc.). If this does not help, the Head of program can give advice to students on taking additional courses in Metropolia, or even studies outside Metropolia. In most of the situations, the students highly appreciate such information on how to proceed further.

On the positive side, the fact of being a student, and especially a Master's student, already helps a lot on the way to finding a project or employment.

> *"It is a very good situation for a highly educated foreigner to belong to an organization in Finland, rather than being an outsider. In this sense, being a Master's student at Metropolia is already an asset, since Metropolia is a big name. We are officially recognized, reliable, and the students are studying in a UAS in Finland." (Interviewee 4)*

Being a student, with the support from the programs described above, and – most importantly – being in the middle of actively upgrading professional competences, and also with access to professional guidance from the school, give a considerable preference to a job seeker with the Master's student status. In short, in Master's program, the challenge is to rather be active and able to utilize the available opportunities.

Summing up, the picture of getting help on the Program level is mostly positive, as there is range of help and quite a lot of efforts from the Programs. The challenges identified point to a need for a more systematic, compact guidance, or self-guidance for Master's students. As pointed out by Interviewee 5,

> *For a program with 40-50 students, it is difficult to guide each student individually. Here comes the relevance of developing an approach and the idea is to outline a path and give some orientation where to search. A general set of guidelines with details like where the students should go, what they should do, how to split this effort in a meaningful way and where to get other help, if possible, within Metropolia or what other professional organizations can provide such guidance would make the search process much easier. (Interviewee 5).*

Thus, the Programs are especially focused on getting help in finding thesis projects. The previous experience shows the thesis projects conducted for companies, in most of the cases, serve as the best source of professional experience and the shortest connection to employment. Hence, this urge for finding a thesis project in a company, which is highly important. Master's studies are the first step on this road.

3.3 Key Findings from the Current State Analysis

The key findings are summarized according to three focus areas. Summing up, this section presents key findings which need to be considered when developing the new approach for Master's students. They are summarized in Figure 3 below.

First, the finding relates to the current practices on *'How to learn what employers need?'* Next, the second group of findings relates to the current practices on *'How to formulate own existing skills and competences?'* Finally, the third group of findings relates to the current practices on *'How to best fit the existing skills and competences with the employees' needs?'.* The findings are summarized in Figure 3 below.

	Work placement services	SIMHE	Masters' programs
1. HOW TO LEARN what do employers need?	1. Focused **only on Work placement (15-30 cr) of Bachelors** 2. Info session provided for B's students 3. hands-on help/personal guidance for B's 4. collections of employer contacts, job ads, projects offerings & feedback from B's - maintained as 2 OMA workspaces	1.SIMHE keeps in close contact with **professonal assosiations** (e.g. TE-office and COME project to help foreign candidates to network with employers, etc)	1. Provide general information (as **.ppt or personalized guidance**), sharing vacancies, networking, advice on job/project search *= Exists as individual initiate of programs*
2. HOW TO FORMULATE own existing skills and competences?	As hands-on, practuical help when **revising** CVs and Covering letters. No special tools.	1. **Procedure and tool for Mapping competences** (for outside customers) 2. **In-depth professional discussions as a service** for recognizing and **documenting** skills and competences (with SIMHE experts) 3. **Mapping competences** (e.g. by comparing own competences with relevant curricula)	1.**Personalized guidance** (to some extent) how to express their skills & competences better when contacting employers *= Exists as individual initiate of some programs* 2. **RPL (Recognition of Prior Learning)** *=official*
3. HOW TO BEST FIT the existing skills & competences with the employees' needs?	As hands-on, practical help (as personal guidance) & info sessions for B's **how to bridge the cultural gap** with Finnish employers.	**Personalized duidance and counselling (very strong!)** 1. In-depth professional discussions (with SIMHE experts) 2. overview of options for supplementary education (various paths!)	**Personalized guidance in programs** in some required cases to advice students on (a) taking additional courses in Metropolia (b) studies outside Metropolia and other opportunities, professional events/communities, events, etc

Figure 3. Key findings from the current state analysis.

As seen from Figure 3, the first group of finding relates to the current practices on *'How to learn what employers need?'* The Work placement services focuses only on Work placement of Bachelor's students. The degree awards 15-30 credits of work placement depending on the degree program. Info sessions are provided for Bachelor's students placement during their 1st and 2nd years. The students visit the Work placement unit for personal guidance and help with tips are given for searching work placement and hands-on help/personal guidance for Bachelor's students. In OMA workspace, there are links where the students can find details of vacancies about work placement, project offerings and advertisements of companies. In the 2nd workspace in OMA, the list of companies where the students have done their work placements, with the students' reports on their work, can be found. This serves as a reference/base for students currently searching for work placement and provides details about the companies, contact persons etc.

In relation to *'How to learn what employers need?',* SIMHE services keeps in close contact with professional associations. For example, COME project to help foreign candidates to network with employers, etc. In autumn 2017, the Mapping of Competences service was offered for suitable customers through Public employment and business services (TE Services) in Uusimaa region with almost 60 customers along with some 25 customers who entered the process through SIMHE-Metropolia's own registration path. Mapping of competences makes an international candidate more familiar to the Finnish employers as their skills and competences have been referenced by educational experts in the field at Metropolia.

At the Master's program level, the instructors and heads of Master's degree programs provide, if available, information on vacancies, general information (as ppt or personalized guidance) on job/project search (links, websites where to find out about needs).

Next, the second group of findings relates to the current practices on *'How to formulate own existing skills and competences?'*

The Work placement services provide hands-on, practical help when revising CVs and Covering letters. No special tools are available here and presently, there is no single document / written step-by-step guidance/manual/ instructions on how to conduct mapping of competences or job search.

The SIMHE services has a procedure and tool for Mapping competences (but for outside customers), which is still in development stage. SIMHE-Metropolia first piloted recognition of competences for highly educated immigrants in the field of technology in spring 2016 with some 30 customers to establish what would be the best method and participant criteria for the process. In-depth professional discussions with an expert in the field of study, as a service for recognizing and documenting skills and competences enable to find out, what kind of competences the applicant has and how these competences can be compared within the similar education in Finland. Mapping of Competences will give a better understanding on the skills and information on what kind of studies can support job-search. Mapping competences is done by comparing own competences with curricula (e.g. Master's programs in Metropolia) and also comparing the previous degree with the most equivalent degree in Finland, with the help of curricula provided in website.

At the Master's program level, there is personalized guidance and some available guidance (in related courses) on how to express the skills and competences when contacting employers. Another official tool is the RPL (Recognition of Prior Learning) where the purpose is to ensure that the previous studies and degrees of highly educated immigrants are identified and recognized according to national policies, so that the applicants find their way to appropriate education and career paths.

Finally, the third group of findings relates to the current practices on *'How to best fit the existing skills and competences with the employees' needs?'*

In the Work placement services, there is hands-on, practical help (as personal guidance) and info sessions given for Bachelor's students on how to bridge the cultural gap with Finnish employers.

In SIMHE services, strong personalized guidance and counselling offers different options through which the applicant may plan what kind of study opportunities there are to enhance and top-up existing competences. It may also be starting a new study path or find ways to find employment in Finland. In-depth professional discussions (with SIMHE experts and also with heads of Master's programs) and overview of options for supplementary education (various paths) are provided. Language barriers and cultural differences also pose challenges, which are also taken into account.

At the Master's level, personalized guidance by the instructors and Heads of programs is provided. In some required cases, advice is given to students on: (a) taking additional courses in Metropolia, (b) studies outside Metropolia, and (c) in wider areas such as membership in professional communities, participation in events, trade fairs etc.

3.4 Summary of the Key Findings

The main strengths and weaknesses identified in the analysis of the current practices supporting Master's students on their way to finding a job or a thesis project are summarized in Figure 4 below. The summary also points to the main directions (1), (2), (3) in the current approach to finding a job/project.

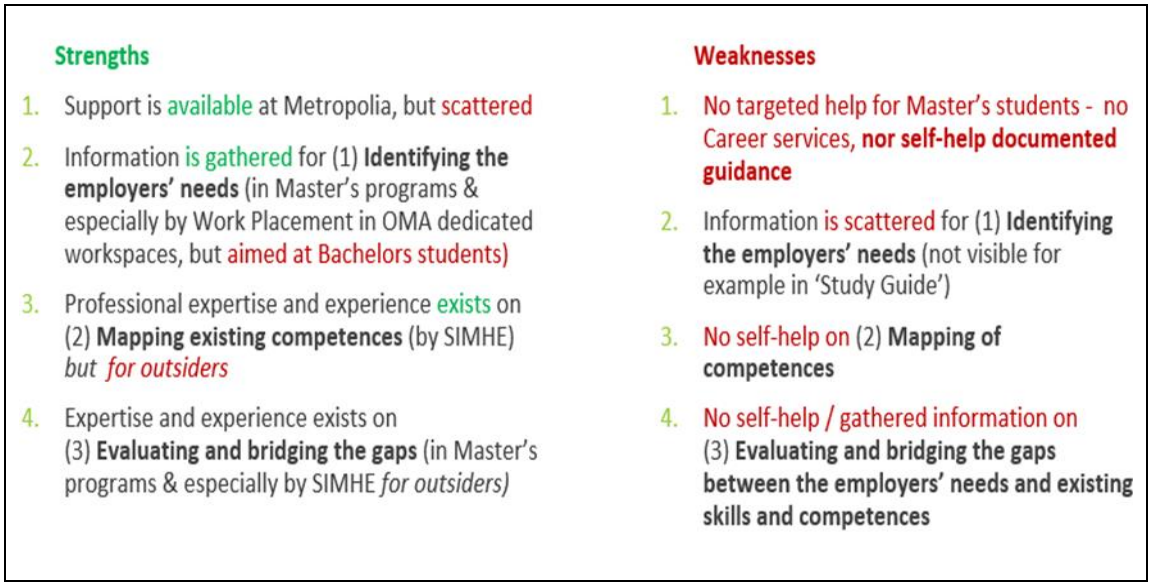

Figure 4. Strengths and weaknesses of the current practices and available tools.

To summarize, as seen in Figure 4, many good practices have been identified in the case organization with respect to Bachelor's students and outside customers. The dedicated team of Work placement services and SIMHE services provide guidance and counselling with mapping of competences to some extent.

On the other hand, the weaknesses identified in the existing practices and which will be the focus of this study are: (a) no targeted help for Master's students, no single step-by-step approach, *no self-help guidance in identifying employers' needs*. Also, (b) Master's students do not have *self-help on mapping of competences*. Also, (c) *no self-help on evaluating and bridging the gaps between the employers' needs and existing skills and*

competences. The next section focuses on exploring existing knowledge and best practice on identifying employers' needs and bridging the gaps with existing skills and competences.

4 Existing Knowledge and Best Practice on Identifying the Employers' Needs and Bridging the Gaps with the Workforce's Existing Skills and Capabilities

This section discusses existing knowledge related to identifying the employers' needs and bridging the gaps with the workforce's existing skills and capabilities. This section is divided into three parts, guided by the findings of CSA, in Section 3. The first section focuses on identifying the employer needs in the labour market. The second section investigates on mapping the existing skills and competences. The third section addresses on the evaluation and bridging of the gaps with the workforce existing skills and capabilities.

4.1 Identifying Employer Needs

The Union of Industrial and Employers' Confederations of Europe (UNICE, 2000) reports that successful international competition would depend upon ''a quality workforce with high levels of qualifications and skills that meet employers' needs". This in turn is based upon quality foundation learning that produces people who are adaptable. In addition to this foundation, formal education should provide ''soft skills, such as personal and social skills, that are needed in working life." UNICE proposes lifelong learning as a solution to the ongoing skills requirements of industry (The Union of Industrial and Employers' Confederations of Europe, 2000:2)

Industry needs are identified in various ways for the context of education and programs. These are done by industries, universities, researches etc. through industry needs reviews, competence needs publications, published industry analysis results etc. Education and training systems must be improved to meet challenges posed by technological change and globalization.

4.1.1 Conducting Industry Analysis

For example, engineering programs can identify the employers' needs by directly conducting the industry analysis.

Hanning et al. (2012) of Chalmers University in Sweden conducted a study on comparison between obtained competences in the engineering education for sustainable development and the Swedish industry needs. The analysis of industry's need of competences

for sustainable development(SD) amongst engineers was done by conducting interviews and focus group discussions with representatives from 16 Swedish companies and five organizations. The course content in 70 courses on environment and SD at Chalmers (as of 2009/2010) was also analyzed and quantified using all texts relating to the courses, along with surveys in the form of questionnaire to students and alumni.

The study revealed that the education at Chalmers has a strong focus on environmental issues, and less on economic and social issues. The companies ask for engineers with a higher general competence level relating to SD, and a thorough understanding of how SD affects their daily work. They need students who have taken advanced courses on different methods relevant for working with SD.

Several company interviewees mention a distinct lack of knowledge amongst newly graduated engineers when it comes to SD. As a result, eight out of 16 companies educate their own staff, or are presently developing an internal educational programme, in order to decrease the knowledge gap. According to the results from the Swedish case study, the course(s) should have an emphasis on environmental issues but must have a reasonable emphasis also on economic issues, sustainable business management, social issues, and green technologies to meet alumni and industry needs. (Hanning et al. 2012:314).

The alumni, who are now employed and in contact with employers, identify a need for more competences related to economic issues, sustainable business management, social issues and green technologies, than what they were provided in their education. This is shown in Figure 5 below.

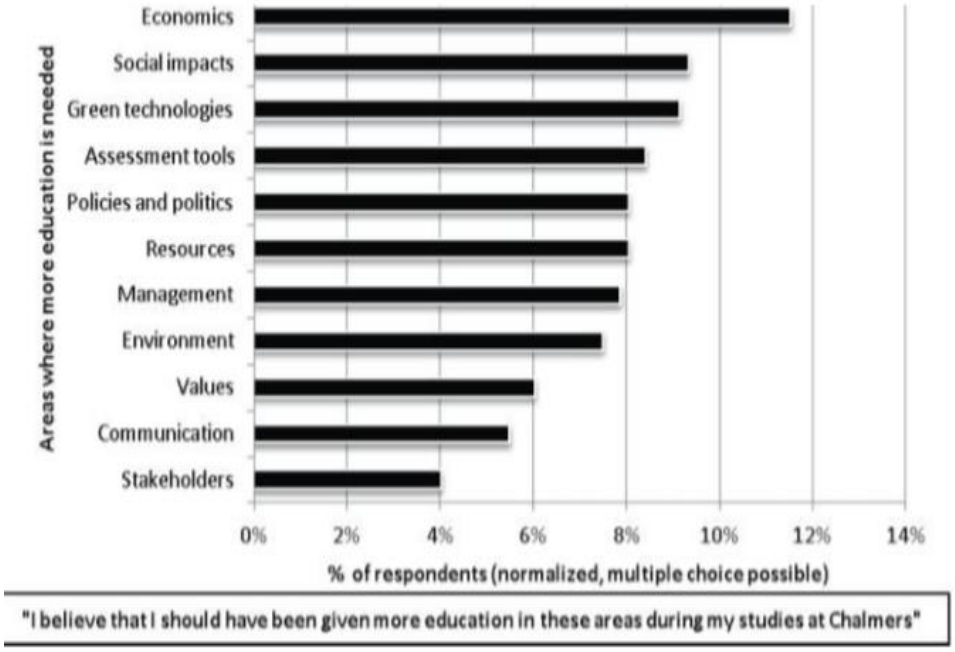

Figure 5. Gaps between competences achieved in education and needs of the professional role – results from alumni survey (Hanning et al. 2012:316).

In Figure 5 above, the three areas identified by alumni where more education is needed includes economics, social impacts, and green technologies. When looking at all alumni survey respondents, 27 per cent state that there have been occasions when they have not possessed enough competences to deal with SD issues properly, and 32 per cent believe they have enough competences. (Hanning et al. 2012:316).

Kantane et al. (2015) of University of Latvia investigated the expectations by employers on skills, knowledge and attitudes of employees by survey of employers of the Kurzeme region, Jelgava city, Jelgava district, Ozolnieku district, and Dobele district in Latvia.

The employers were asked to evaluate the significance on skills, knowledge and attitudes when recruiting new employees. The employers highlighted the importance of co-operation between education institutions and companies as necessary for the development of the studies programs and practical skills. The survey results show that employers highly value professional knowledge and skills, general knowledge and skills, attitudes and motivation to work in the company of new employees. (Kantane et al. 2015:226)

Figure 6 shows the results of the survey conducted among the employers.

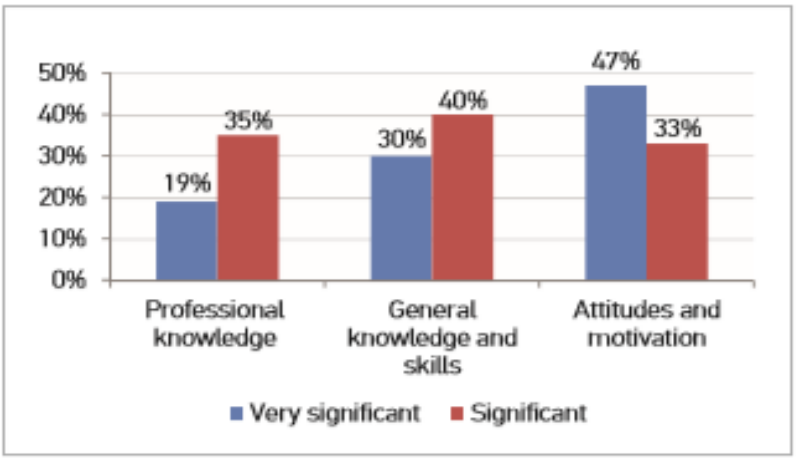

Figure 6. Employer's evaluations on professional knowledge, general knowledge and skills, attitudes and motivation when recruiting new employees (Kantane et al. 2015:226).

According to Figure 6 above, approximately 19% of employers evaluated professional knowledge (appropriate education and qualification, appropriate work experience) of new employees as very significant factors. 30% of the employers evaluated the general knowledge and skills (developed intellect, reasoning and analysis and synthesis capabilities, expression skill, communication and acumen) as very significant. 47% of employers evaluated the attitudes and motivation of new employees (sense of responsibility, honesty, desire to work in good faith, motivation to work in the company, appearance and social behavior) as very significant. (Kantane et al. 2015:226)

4.1.2 Reports from the Industries and Agencies

More often, universities do not have much time or opportunity to conduct such analyses themselves, so they use readymade reports from the industries and agencies.

The CBI/Pearson education and skills survey (2016), which is one of world's leading learning company with operations in 70 countries around the world, conducted a survey among employers and business organisations in UK among firms ranging from manufacturing and construction to the creative industries and professional services. The responses from nearly 500 organisations, gives a fairly good picture of the industry needs. Figure 7 shows the most important factors considered by employers when recruiting graduates as per the above survey.

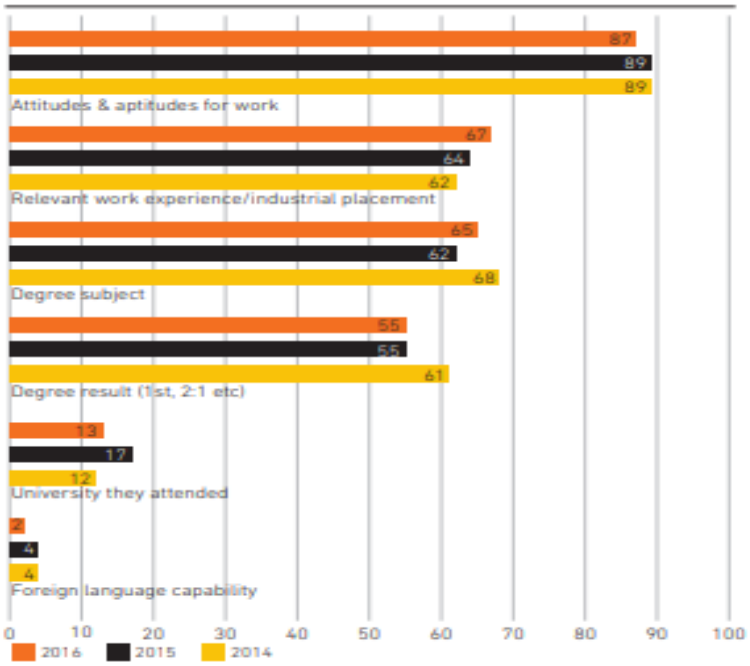

Figure 7. Most important factors considered by employers when recruiting graduates (The CBI/Pearson education and skills survey 2016:48).

As seen in Figure 7, when selecting graduate recruits, employers look first and foremost for the attitudes and aptitudes that will enable them to be effective in the workplace. The reality for graduates is that simply gaining a degree is not enough to gain a job. Developing the right skills and attitudes is critically important for a successful transition from higher education to the world of work. Two in three employers are also on the lookout for graduates with some relevant work experience (67%) and degrees in particular subject disciplines (65%). Work experience gained through business placements and/or internships can play a valuable part in strengthening students for employment. The degree subject studied is also among the top three considerations, particularly in manufacturing, science and hi-tech firms. (The CBI/Pearson education and skills survey 2016:48)

The National network of Business and Industry Associations (2014) in the US has brought together the organizations that represent employers from major economic sectors, and they have worked to identify the core set of fundamental skills that potential employees need in the workplace – and a common vocabulary to explain them, which is shown in Figure 8.

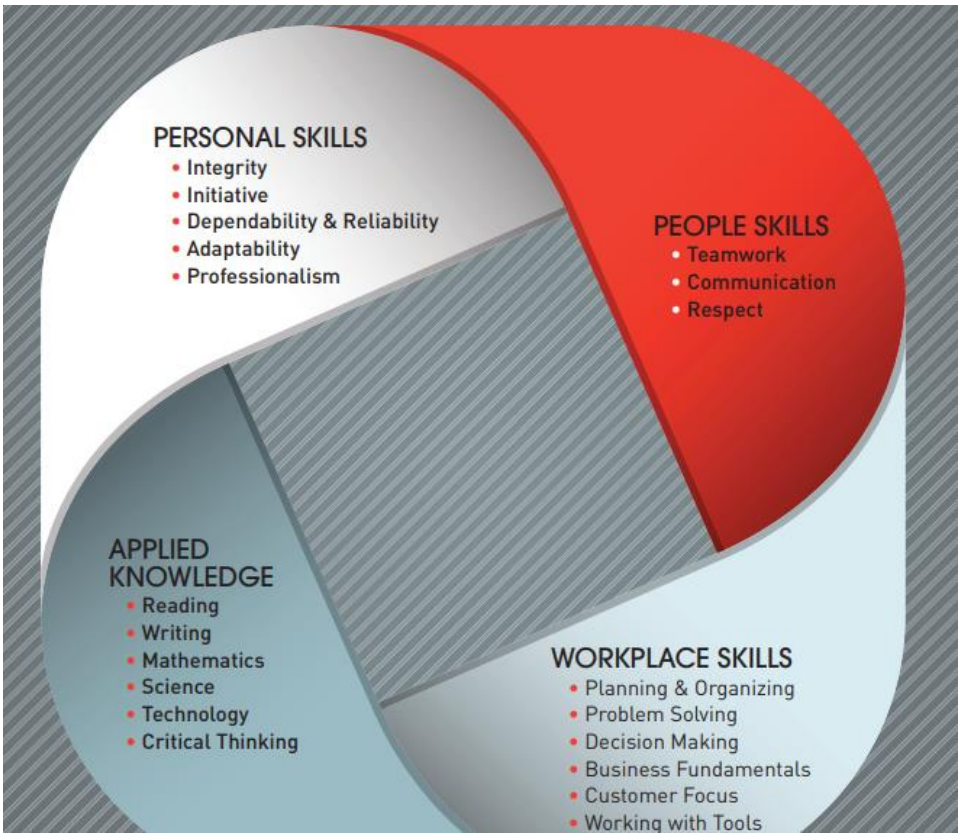

Figure 8. Core set of fundamental skills that potential employees need in the workplace (National network of Business and Industry Associations 2014).

As seen in Figure 8, these include personal skills (motivation, initiative), people skills (team work, communication), workplace skills (problem solving, decision making) and applied knowledge (analytical skills, critical thinking). This common employability skills for all jobs benefit: (a) Employers, who can identify the common skills that all their employees should exhibit, (b)Potential employees, who know what basic skills employers expect them to have for any job in the workplace and can better communicate their skill levels to employers and (c) Educators and other learning providers, who know what foundational skills to emphasize. (National network of Business and Industry Associations 2014:3).

In a survey on Employers' perceptions of graduate employability (European Commission, 2010:12) conducted across all EU Member States, as well as Norway, Iceland, Croatia and Turkey, among 7036 companies, Figure 9 shows the grading or importance of the various skills and capabilities when recruiting higher education graduates.

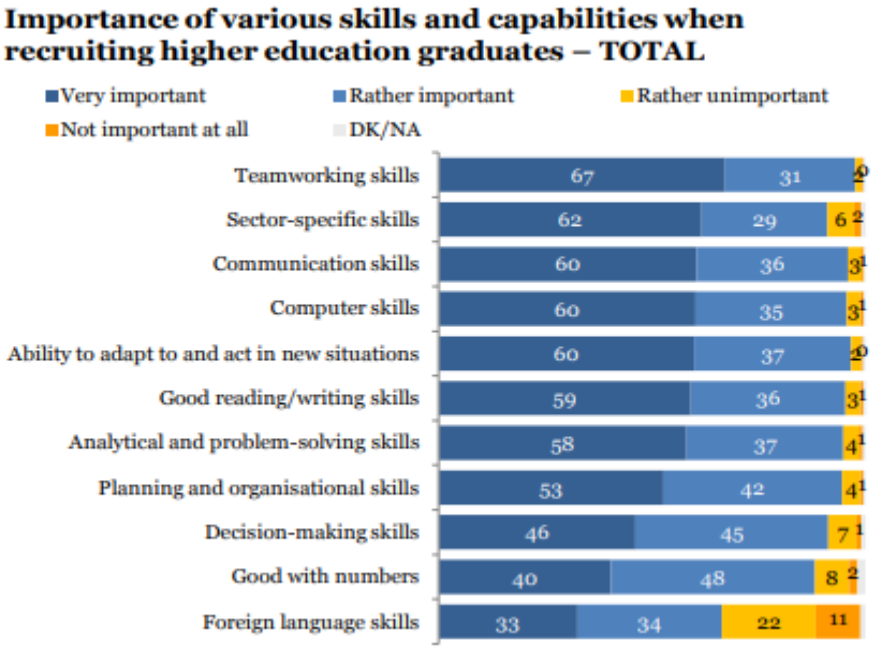

Figure 9. Grading of skills and capabilities during recruitment of higher education graduates (European Commission, 2010:12).

As seen in Figure 9, graduate recruiters highlighted the importance of team work, sector-specific skills, communication skills, computer literacy, the ability to adapt in new situations, first class ability in reading/writing and analytical and problem-solving skills. Foreign language skills were regarded as more important when the recruiter had international contacts. (European Commission, 2010:12)

4.1.3 Analysis of Job Advertisements

On a smaller scale, such analysis can be done by scanning of job advertisements. The first step to find a proper candidate for a job is still the job advertisement. For example, Steinmann et al. (2013) conducted an analysis of the professional requirements required of engineers by analysing 60 job advertisements in the German machinery and plant engineering industry from the year 2012. The study was done by dividing the competences into four general fields, namely, personal competence, decision-making and responsibility, professional and methodical competence, and social and communicative skills with a total of 64 competences.

One major result is all advertisements request professional expertise. Figure 10 shows the relative frequency for each competence in the job advertisements.

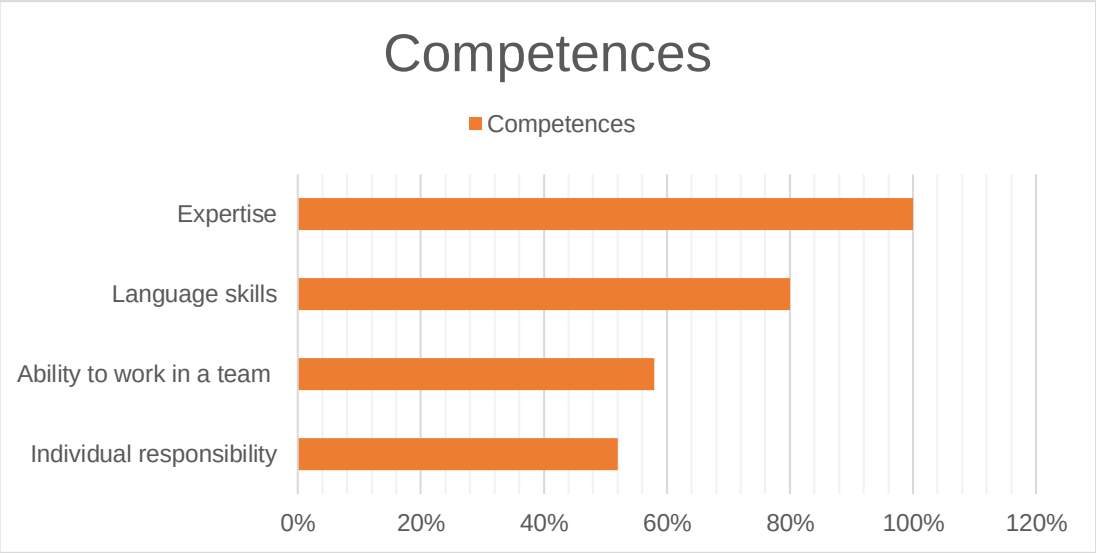

Figure 10. Relative frequency of competences in job profiles (Steinmann et al. 2013)

As seen in Figure 10, besides technical competences, the ability to communicate is required in about 80% of the vacancies, and in about 58 % of the vacancies, the ability to work in a team is required. Completing these top three soft skills, individual responsibility is required in about 52 % of the vacancies. This illustrates that social skills are on the advance regarding requested competences for engineers. (Steinmann et al. 2013)

Kotzab et al. (2018) conducted a review of the literature on competences and skills in the field of logistics in combination with an analysis of 832 job postings by means of content analyses and thematic mapping. The academic literature discusses more than 280 skills and competences related to the job profile of logistics and supply chain managers. Most of these skills represent social skills. Analyses of job postings show significant differences in the required portfolio of skills and competences depending on the hierarchical level of the position. Contrary to the literature, job postings include more cognitive competences and meta-competences than social skills. Figure 11 represents the relative frequency of lifelong key competences within the sample of job advertisements.

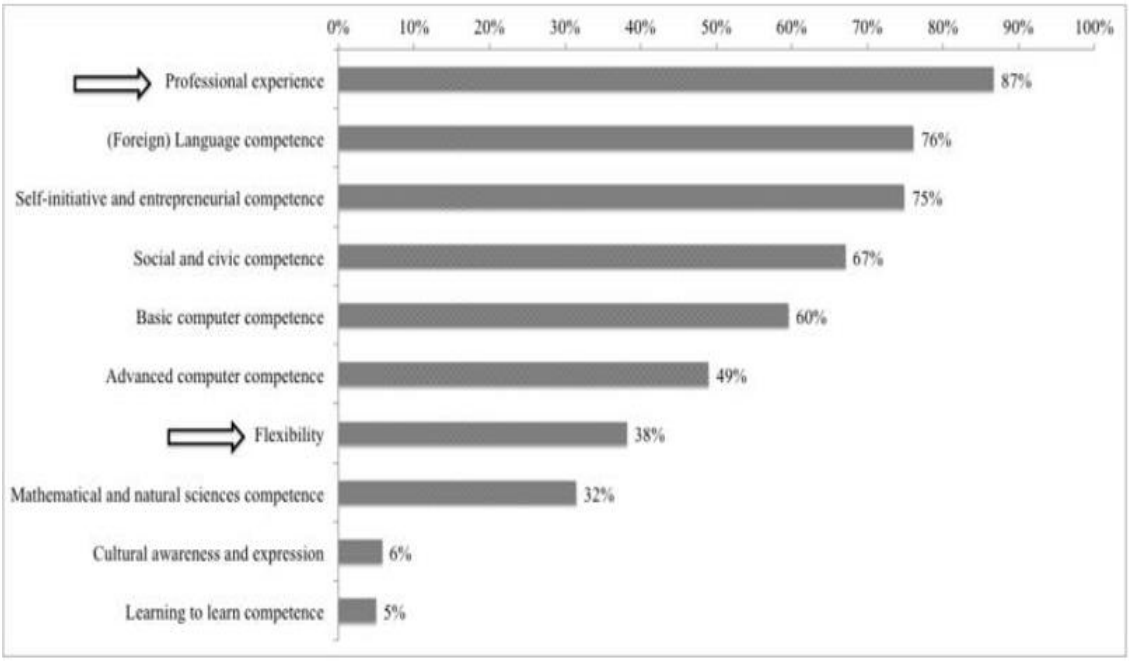

Figure 11. Relative frequency of lifelong key competences within the sample of job advertisements. (Kotzab et al. 2018:59).

As seen in Figure 11, one requirement found in almost all job postings was professional/job experience. With regards to the key competences for lifelong learning, (foreign) language, sense of initiative and entrepreneurship, social and civic and basic computer competences were mentioned most often, followed by advanced computer competences. Mathematical and basic science and technology competences, cultural awareness and expression and learning to learn came up less often. In addition to professional experience, flexibility is another requirement for logistics positions, specified by the job advertisements. (Kotzab et al. 2018:59)

4.1.4 Employer interviews and industry related activities

Finally, one of the very reliable sources is the interviews and asking directly. For example, the analysis and predictions in the doctoral dissertation, 'Future of the Finnish Engineering Education,'' by Yrjänheikki (2011) were based on discussions and interviews in three phases with stakeholders from industries. The most severe skills shortages of engineering graduates compared to future needs are in collaborative learning skills. Figure 12 shows the competence and skills expected from engineering graduates as a whole as identified in the discussions held with the stakeholders.

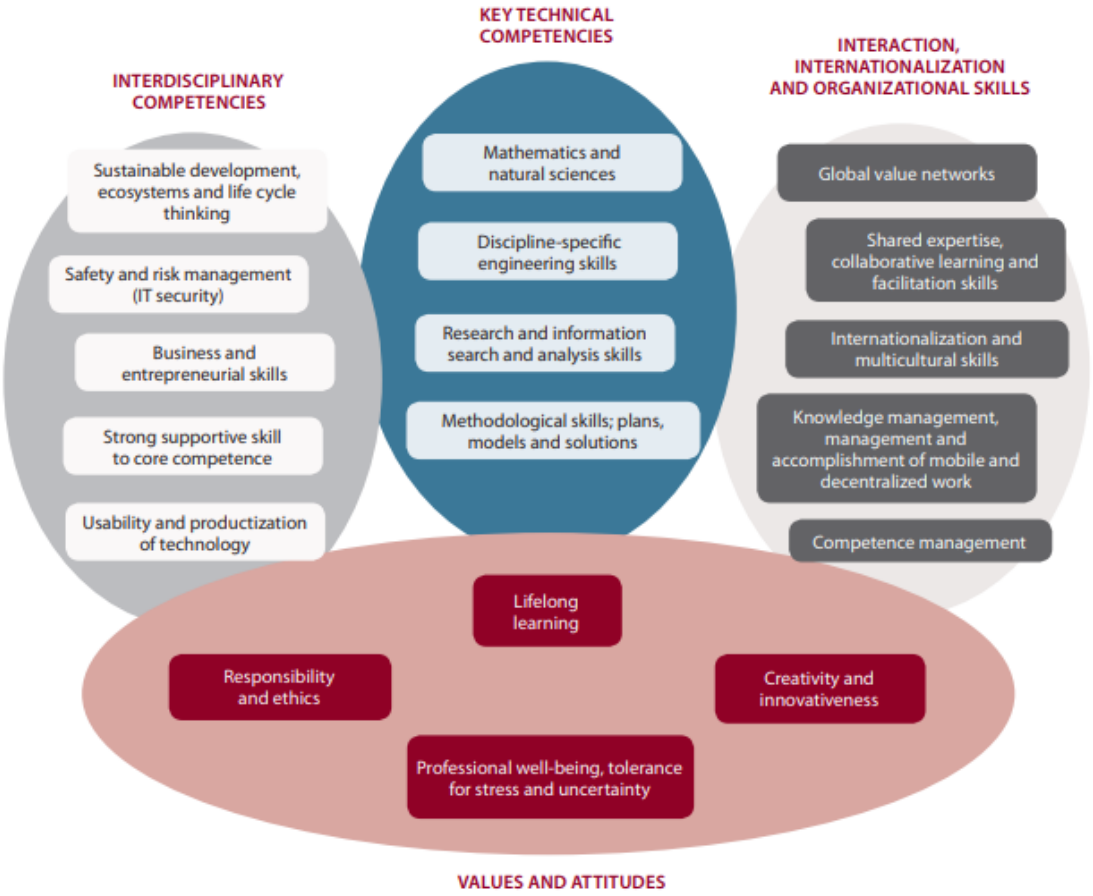

Figure 12. Competence and skill expected from engineering graduates (Yrjänheikki 2011:145).

As seen in Figure 12, besides key technical competences, interdisciplinary competences and social skills, along with values and attitudes of lifelong learning, creativity, ethics etc. are to be developed. In other words, engineering graduates need to be developed from technical problem-solvers to collaborative creators capable of defining and creating solutions collaboratively to complex transdisciplinary problems. Today´s engineers need to be versatile, know how to collaborate and work in an international environment. (Yrjänheikki 2011:145).

4.2 Mapping of Competences

Competency mapping identifies an individual's strengths and weaknesses, to help them better understand themselves and to show them where career development efforts need to be directed. Thus, the competence mapping works as a basis for further evaluation and development plan. The mapping of competences can be done by General Level 7 competences

officially formulated in national frameworks (National Qualification Framework 2017) or international frameworks (European Qualification Framework, EQF 2017), semi-official agencies, self- assessment tools and by field specific level mapping against available job profiles.

4.2.1 Competences

European Qualification Framework (EQF) for Lifelong Learning (2017) defines 'competence' as the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development. Hanning et al. (2012:307) defines ''competences'' as learning outcomes that the students should possess (and be able to show) when they have passed a course or a whole educational programme.

Job competences can be grouped into primary and secondary competences. "Primary competences" refers to the content of the professional practice, while ''secondary competences'' enable the effective performance of a job (Kotzab et al. 2018: 52). Mediano et al. (2012:131) groups competences into (a) specific competences, which include concrete 'technical' knowledge in a specific area, i.e. Engineering and (b) key competences, also known as generic, transdisciplinary or transversal competencies, which are shared by all professionals such as communication, teamwork, or information technology literacy.

Kotzab et al. (2018:52) categorizes four sets of competences, namely, (a) professional competences, (b) methodological competences, (c) social competences and (d) personal competences. Professional competences refer to the knowledge required for a specific profession. Methodological competences represent the capability and willingness to conduct tasks independently. They include correlating and processing information, problem-solving, creating solutions and decision-making. Social competences, also referred to as soft skills, involve the ability and willingness to communicate with other individuals. These competences include group and relationship behaviour, communicative behaviour, cooperative behaviour, assertiveness and the ability and willingness to solve conflicts. Personal competences are related to the development of an individual's own personality within a specific job role. This includes attributes such as the capability for self-reflection and self-organisation and these competences support motivation, talent and willingness to perform. (Kotzab et al. 2018:52)

LeDeist et al. (2005:40) proposes a holistic model of competences represented as a tetrahedron, useful in understanding the combination of knowledge, skills and social competences that are necessary for particular occupations. Figure 13 represents this holistic competence model as a tetrahedron in plan view.

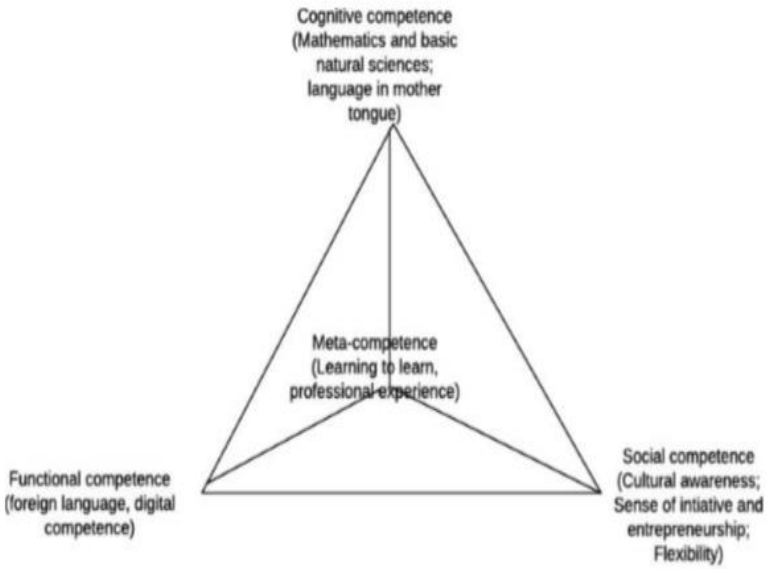

Figure 13. Holistic model of competences (LeDeist and Winterton, 2005:40).

The three dimensions, cognitive, functional and social competences, shown in Figure 13 are universal, where knowledge and understanding are captured by cognitive competence, skills are captured by functional competence and behaviour and attitudes are captured by social competence. Meta-competence is presented as an over-arching input that facilitates the acquisition of output competences at the base of the tetrahedron. Meta-competencies include higher order abilities which have to do with being able to learn, adapt, anticipate and create. (LeDeist et al. 2005:40).

According to the Organisation for Economic Co-operation and Development (OECD) Definition and Selection of Competencies (DeSeCo Project 2003), key competencies may be classified in three broad categories: (A) *Individual Competencies*: to be able to interact effectively with the environment (Socio-cultural such as the use of language and Physical such as Information Technology), (B) *Relational Competencies*: to be able to engage with others and interact in heterogeneous groups, (C) *Autonomous Competencies*: to manage one's own life responsibly in the broader social context.

These three categories are interrelated and form a basis for identifying and mapping key competencies. The need for individuals to think and act reflectively is central to this framework (DeSeCo Symposium 2003).

4.2.2 Skills

The European Qualification Framework (EQF) for Lifelong Learning (2017) defines 'skills' as the ability to apply knowledge and use know-how to complete tasks and solve problems. In the context of the EQF, skills are described as cognitive (involving the use of logical, intuitive and creative thinking) or practical (involving manual dexterity and the use of methods, materials, tools and instruments).

Kotzab et al. (2018:52) assigns skills to five different domains, namely, (a) generic skills, (b) specific skills, (c) cognitive skills, (d) interactive skills and (e) physical skills. Generic skills refer to tasks that generally occur in a wide range of occupations like generic IT skills. Specific skills are tasks that usually occur in one or only a few types of occupations and cannot be described with generic indicators, such as forecasting or scheduling skills. Cognitive skills include tasks that require thinking activities, such as reading, writing or problem-solving. Interactive skills cover tasks that require all types of communication and cooperative work. Physical skills represent tasks requiring dexterity or stamina. (Kotzab et al. 2018:52)

Green (2015:5) proposes PES concept of skill which have three key features, namely, Productive, Expandable and Social(PES). Productive denotes that using skill is productive of value; Expandable means skills are enhanced by training and development; and Social means skills are socially determined. This concept is action-centred, depending on how individuals and social agents can change these qualities. Green (2015:5) refers to "Basic skills" as the threshold level of cognitive skills needed for getting any job and for acquiring further skills, which is important in the labour market.

4.2.3 Mapping against National and International Qualification Framework

To enable a standardised measurement of competences, frameworks such as the European Framework for Key Competences for Lifelong Learning have been developed,

which represent a reference framework for policy makers, educators and employers (European Commission, 2017). The purpose of the framework is to facilitate the comparison of qualifications and qualification levels of different countries.

The European Parliament and the Council adopted the Recommendation on the European Qualifications Framework for Lifelong Learning (EQF) in 2008. The Council has updated the Recommendation in May 2017 (European Qualifications Framework for lifelong learning 2017).

In the European Qualifications framework (EQF) for lifelong learning, qualifications and competences are allocated on eight reference levels. The framework covers all general education, vocational and higher education qualifications. Each level is provided with a description of the knowledge, understanding and practical capability of a person who has achieved that level. Learning outcomes are defined in terms of knowledge, skills and competences. This is to facilitate comparison of qualifications and qualifications levels in order to promote geographical and labour market mobility as well as lifelong learning. (Council recommendations 2017 on EQF for lifelong learning)

In Finland, recognition decisions are made by different bodies for different purposes. The Finnish National Agency for Education (Opetushallitus) is the National Co-ordination Point for the European Qualifications Framework for engineering professionals. In the National Qualification Framework 2017 (FiNQF) the qualifications, syllabi and other extensive competence modules of the Finnish national education system are classified into eight levels on the basis of the requirements. It describes the learning outcomes required by qualifications, syllabi and other extensive competence modules as knowledge, skills and competences, and by defining their interrelations. The competence-based description of qualifications is designed to support lifelong learning, improve employment prospects, increase mobility, and bridge the gap between education and the world of work. The Master's degrees (universities of applied sciences) and Master's degrees (universities) are placed at level 7 of competence of the National Qualifications Framework (Finnish National Agency for Education 2017).

The Finnish National Agency for Education provides the recognition and international comparability of qualifications of a higher education degree. A foreign higher education degree can be recognised as comparable to a Bachelor's degree/Master's degree/post-

graduate Licentiate degree or Doctoral degree completed in Finland. The details for applying for a decision by The Finnish National Agency for Education is available in the official website (Finnish National Agency for Education 2017 Qualification Frameworks Act 93/2017).

Assessment centres conducts mapping of competences, which help to determine the suitability of employees to specific type of employment or job role. This is usually done through interviews, evaluation discussions, psychometric tests, studying the existing documents, comparing the previous degree acquired in another country with the most equivalent degree in Finland etc.

The SIMHE project in Metropolia (Supporting immigrants in higher education in Finland) funded by the Ministry of Education and Culture conducts mapping of competences in two phases: (1) Orientation (self-evaluation, degree comparison) and (2) In-Depth Professional Discussion with an expert in the field of study. The next step is to compare the previous degree with the most equivalent degree in Finland, with the help of curricula provided on Metropolia's website, for example. Thus, the customers get an idea about the curricula needed in the Finnish labor market.

After Mapping Competences, a customer receives a document in which the aim is to make the customer's competence visible based on the previous studies, survey the possible needs for supplementary education and explain what kind of additional competencies the customer has that are not included in the curriculum in Finnish degree education. The details of services conducted by SIMHE, Metropolia is available in the official website (Metropolia 2017, SIMHE, Supporting Immigrants in Higher Education in Finland)

Mapping of Competences makes an international candidate more familiar to the Finnish employers as their skills and competences have been referenced by educational experts in the field at Metropolia. At school, there is both a visible curriculum and a 'hidden' curriculum, which is something unspoken, unwritten ways to do things. When one arrives in Finland as an adult, there exists this lack of citizenship skills, how to be part of the Finnish society and integration as well. The main goal is to help to integrate into Finnish society faster through recognizing such skills and competence and thus also enhance the possibilities to enter to the labor market. The blog on 'Aiming at recognizing competences and guiding educated immigrants' by SIMHE gives an idea about steering the career paths through mapping of competences. (Autero 2018)

4.2.4 Self-evaluation

Various types of tests/tools are available for self-evaluation in internet that are used for recognizing and evaluating competences.

Mediano et al. (2012:133) recommends taking an active role in developing a Personal (and professional) Development Plan (PDP) early in one's career, which should be frequently updated and serve as a guide for achieving career and personal goals. The main steps in this process include: (1) Perform an assessment of one's knowledge, skills and social network against the requirement of the new job, (2) Identify important gaps that will need to filled in the initial phase of one's professional career, (3) Prepare a checklist of learning and development tasks with time goals, (4) Check the progress periodically to ensure continued career development, (5) Update one's plan focusing on key generic competencies and specialized and technical training.(Mediano et al. 2012:133)

The TAITO-URA Self-Assessment Tool by Career Services of Helsinki University and Haaga-Helia is a good tool to explore one's own personality traits, knowledge and skills. It helps one to recognise own strengths and development needs and to make informed choices. (VALOA-project and Career Guidance Service. n.d)

4.2.5 Mapping against available Job Profiles

Mapping of competences can be done against available job profiles, for example, in the case of construction industry professionals or in the case of logistics and supply chain management professionals.

Ahn Y.H et al (2012:125) lists the key competences for construction graduates from the industry perspective in the US using a survey of recruiters for over 100 construction companies. The survey asked recruiters to rate 14 key competencies for construction graduates that were identified as important in the literature: ethical issues, problem-solving skills, interpersonal skills, leadership, adaptability, collaborative skills, safety issues, interdisciplinary application, practical awareness, technical skills, computer skills, estimating/scheduling skills, communication, and environmental awareness. Figure 14 shows the means and standard deviation (SD) for each of the key competencies for construction graduates, as perceived by the survey respondents, in descending order.

‘

Key competency	Mean	Standard deviation	Key competency	Mean	Standard deviation
Ethical issues	4.52	0.720	Interdisciplinary application	4.04	0.930
Problem-solving skills	4.46	0.677	Practical awareness	3.96	0.794
Interpersonal skills	4.45	0.676	Technical skills	3.80	0.884
Leadership	4.30	0.845	Computer skills	3.77	0.957
Adaptability	4.29	0.709	Estimating/scheduling skills	3.68	0.947
Collaborative skills	4.29	0.730	Communication	3.32	0.931
Safety issues	4.09	0.935	Environmental awareness	3.00	1.057

Figure 14. Means and Standard Deviations of Key Competency Items for Construction Graduates (Ahn et al. 2012:125)

As seen in figure 14, the highest mean is for ethical issues (=4.52), indicating a strong agreement that this is a key competency for construction graduates. Ethical issues, problem-solving skills, and interpersonal skills were considered by recruiters to be key significant competencies for construction graduates, whereas communication and environmental awareness were ranked lowest. Clustering the 14 key competencies using factor analysis, four classes of competencies for construction graduates were identified: (1) general competency, (2) affective competency, (3) cognitive competency, and (4) technical competency.

Of these, general competency, which includes communication skills and environmental awareness, was ranked lowest by the respondents. In contrast, affective competency, which includes leadership, collaborative skills, and interpersonal skills, was considered to be the most important. Cognitive competency, which includes ethical issues, problem-solving skills, adaptability, safety issues, and interdisciplinary applications, had the next-highest composite mean score. Finally, technical competency, which includes technical skills, practical awareness, computer skills, and estimating/scheduling skills, had the second lowest score. Overall, affective competency and cognitive competency were perceived to be more important than general competency and technical competency. Based on the results of this survey, therefore, the construction industry is looking for construction graduates who are responsible, creative, and critical in both their affective competency and cognitive competency. (Ahn et al. 2012:125)

Kotzab et al. (2018:56) conducted a study to explore and identify specific qualifications and competences required within the field of logistics and supply chain management by

examining 1,000 job advertisements that had been posted on German online job portals. The academic literature discusses more than 280 skills and competences related to the job profile of logistics and supply chain managers. The majority of these skills represent social skills. Analyses of job postings show significant differences in the required portfolio of skills and competences depending on the hierarchical level of the position. Contrary to the literature, job postings include more cognitive competences and meta-competences than social skills. The thematic and conceptual map based on the job advertisements is shown in Figure 15.

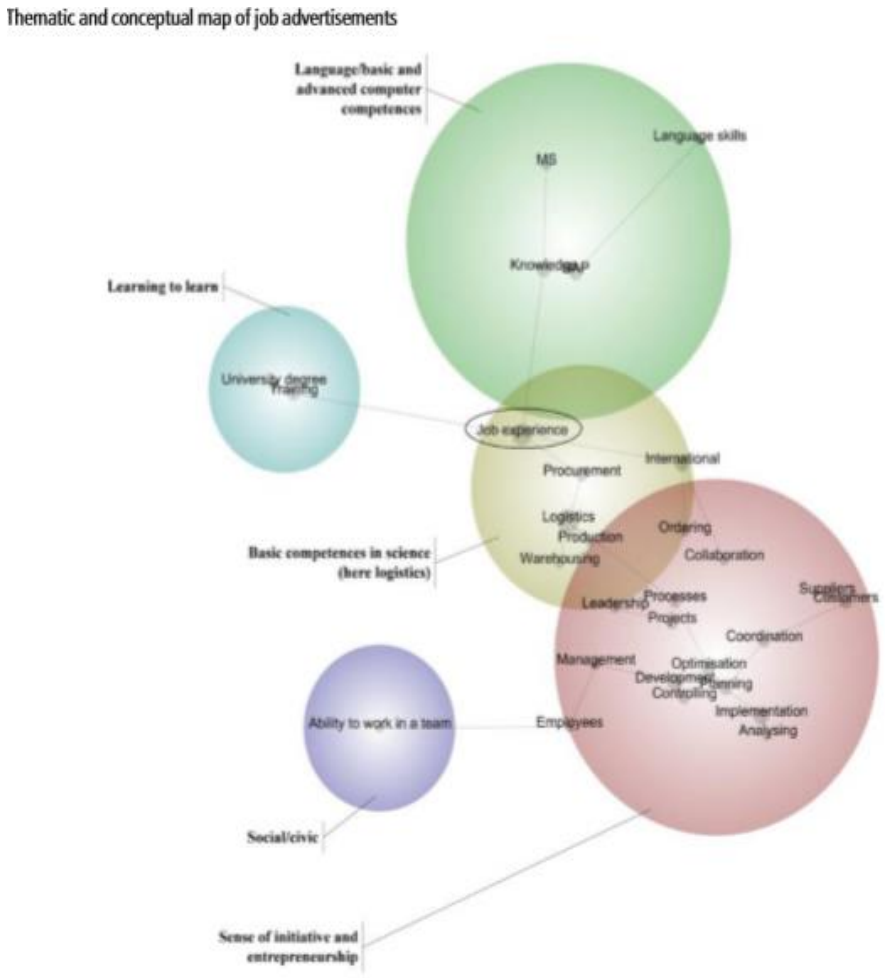

Figure 15. Thematic and conceptual map of job advertisements (Kotzab et al. 2018:58).

As seen in figure 15 above, the most important one refers to sense of initiative and entrepreneurship (100 per cent relevance). This includes concepts related to management areas, i.e. analysis planning, organization, implementation, coordination, collaboration,

control and development, support services and projects. The second most important theme relates to the specific expertise required for a role (65 per cent relevance). This theme includes concepts such as logistics, procurement, production and warehousing, though it also includes the concepts of work experience and international experience. The third theme refers to language as well as basic and advanced computer and software competences (23 per cent relevance). The fourth theme relates to learning to learn (13 per cent relevance) and includes concepts such as a university degree and training. The fifth and final theme that emerged from the advertisements refers to teamwork skills (5 per cent relevance). In light of these analyses, it can be concluded that job advertisements reflect a focus on management and industry specific skills. (Kotzab et al. 2018:58)

4.3 Evaluating and Bridging the Gaps

The Hays Global Skills Index 2016, a report published in collaboration with Oxford Economics, provides an analysis of professional employment markets across 33 global economies, reports that the Nordic countries have growing skills gaps in their labor markets, which is making it hard for companies in various sectors to find workers. Denmark lacks employees with vocational backgrounds, whereas Sweden is struggling to fill high-skill jobs. (Hays Global Skills Index 2016). Finland is also experiencing a high-skilled labor gap.

4.3.1 Employability

Minten and Forsyth (2014:96) defined employability as “capability to move self-sufficiently within the labor market to realize potential through sustainable employment”. The term employability can be explained as a transition to the work sphere. Yorke (2006:8) defines employability as a unit of achievements, skills, competences, understanding and personal characteristics that enable graduates to get employment, so they are successful in their chosen occupation. He also explains that employability is a graduate’s skill to work in a work environment.

It is important to establish which competences are needed for a successful entry into the labor market and better employability, and how these competences are related to a job profile (Allen and van der Velden 2009). Employability is about having the capability to

gain initial employment, maintain employability, to stay in employment and to progress during career.

Singh et al. (2014:318) elaborates that the employability equation is made up of two factors; one factor is the technical knowledge or hard skills while the other factor comprises the soft skills or the generic skills. These generic skills support the hard skills in the work place as they deal with those capabilities that employees would need to function competently in any organisation. These skills encompass a broad spectrum of competencies ranging from reading, writing and math, communication, critical thinking; group interactions; personal development; computer skills, leadership, and team work. (Singh et al. 2014:318)

Yorke et al. (2006:5) identifies employability as being influenced by four broad and inter-related components and proposes the USEM (understanding, skills, efficacy and meta-cognition) model of employability which is represented in Figure 16 below.

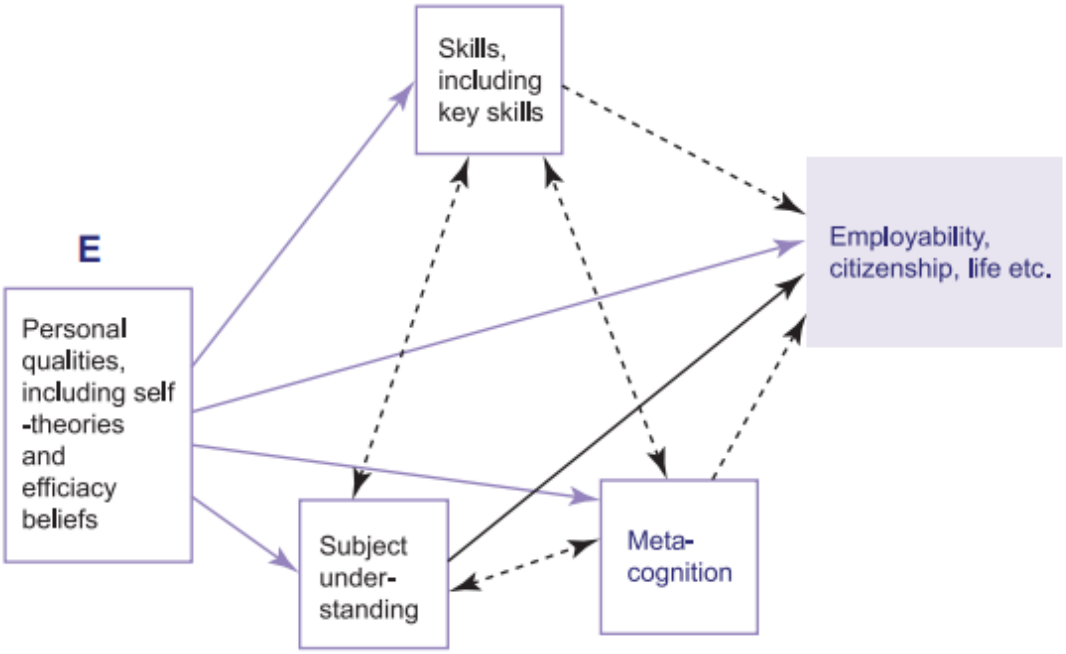

Figure 16. Employability – main influencing factors (Yorke et al.2006:5).

As seen in Figure 16, the model proposes four inter-related components of employability, which include (1) Understanding of disciplinary subject matter and how organisations work, (2) Skills including academic, employment, and life in general, (3) Efficacy beliefs which reflects the learner's notion of self, their self-belief, and the possibility for self-

improvement and development, (4) Metacognition which encompasses knowledge of strategies for learning, thinking and problem solving, and supports and promotes lifelong learning. (Yorke et al. 2006:5)

Ferm (2016:45) in his thesis entitled ''Employability of International Graduates from the field of technology and business'', surveyed 67 respondents from the Aalto University Alumni NET and from the Lappeenranta University of Technology's student register, regarding how the first job is found after graduation. Figure 17 shows the channels of employment of the first job.

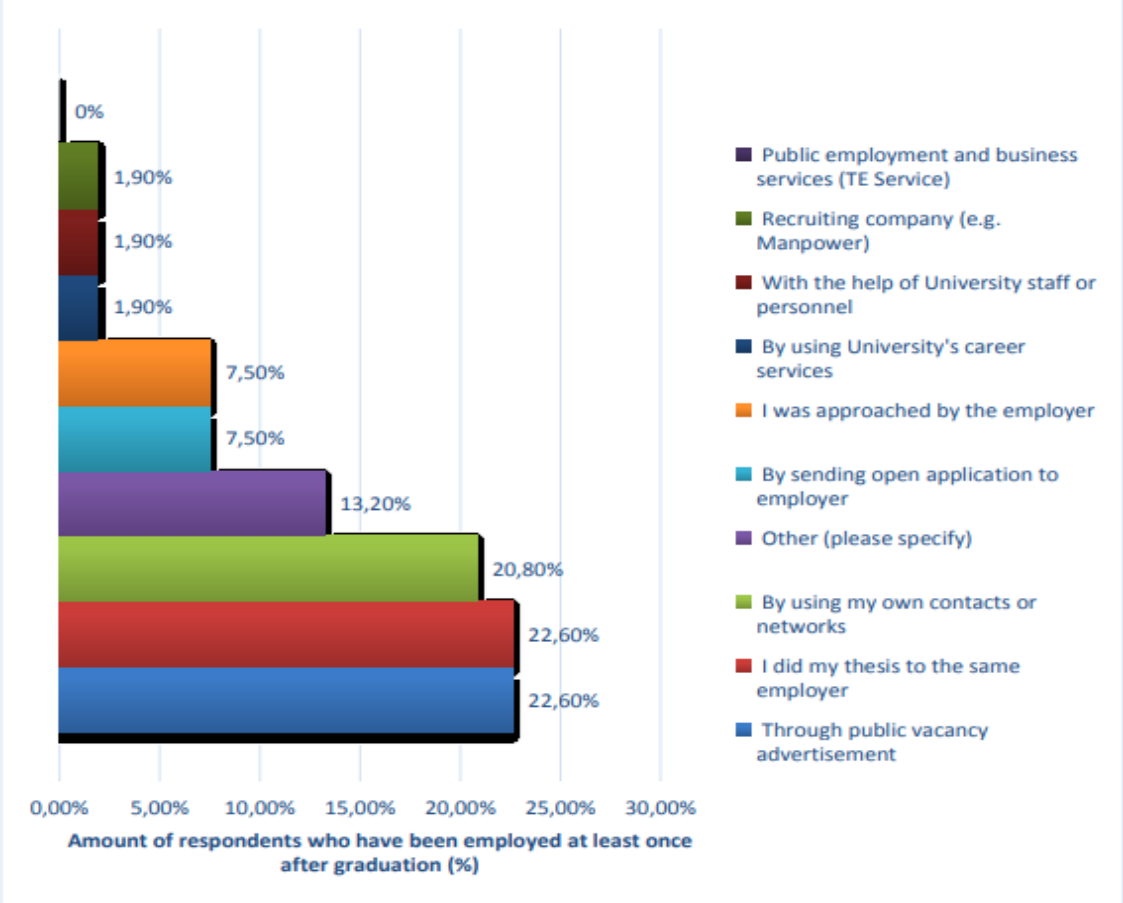

Figure 17. How the first job is found after graduation (Ferm 2016:45).

It is evident from Figure 17 that jobs are mostly found by applying through public vacancy advertisements and doing a thesis for the first employer (22.60% respondents). Personal contacts and networks are listed as the next major channels of employment (20.80% respondents). Sending open application to employer, using University's career services,

with the help of University staff or personnel, through recruiting companies are some of the other channels mentioned by the respondents. (Ferm 2016:45)

4.3.2 Evaluation of Gaps

Often students, especially with foreign background, find it challenging to understand and meet the employers' needs. They also find gaps between their skills and competences and work experience (obtained in another country) versus the needs of Finnish employers.

A degree/qualification on its own is not enough. Knowledge acquired through education is only one part of one's competence. Today employers look for a good degree plus a combination of employability skills, including soft skills, social skills, citizenship skills, as well as understanding, experience and personal attributes. (Singh et al. 2014:320). The students have to pick up the language for expressing their competences and they need support, encouragement and practical help in this regard.

Walther et al. (2007:2) conducted an analysis of the nature of the gap between the graduate attributes that universities are striving to produce in their graduates and the competencies needed in practice to perform satisfactorily in industry. Figure 18 illustrates the various dimensions of the competency gap between engineering universities and the industry.

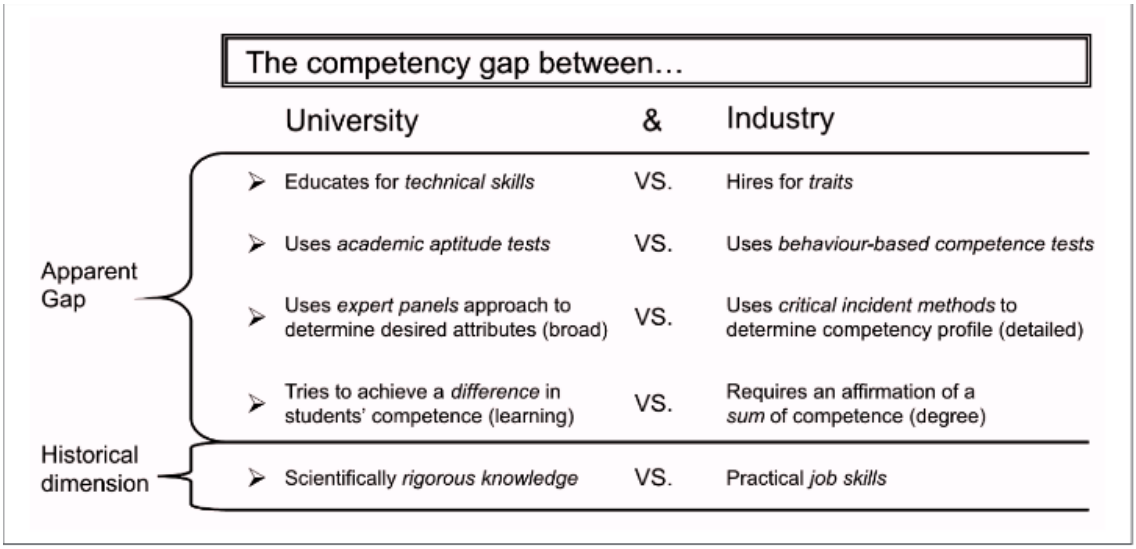

Figure 18. Aspects of the competency gap between the industry and the university (Walther et al. 2007:2)

As shown in Figure 18, the teaching and learning in universities is focused on developing the observable skills and knowledge dimension, rather than the less easily observable attributes required by industry. The industry requires a more adequate preparation of graduates for the job tasks of real-world engineering and companies tend to focus on the person variables when recruiting graduate engineers. The reason is that the industry thinks in terms of short range goals whereas the universities have a long-range perspective. (Walther et al. 2007:2)

Ferm (2016:72) in his thesis entitled ''Employability of International Graduates from the field of technology and business'', surveyed 67 respondents from the Aalto University Alumni NET and from the Lappeenranta University of Technology's student register regarding the obstacles for getting a job in Finland, to find out what kind of external factors impact the international graduates' employability. Figure 19 shows the main obstacles for getting a job in Finland.

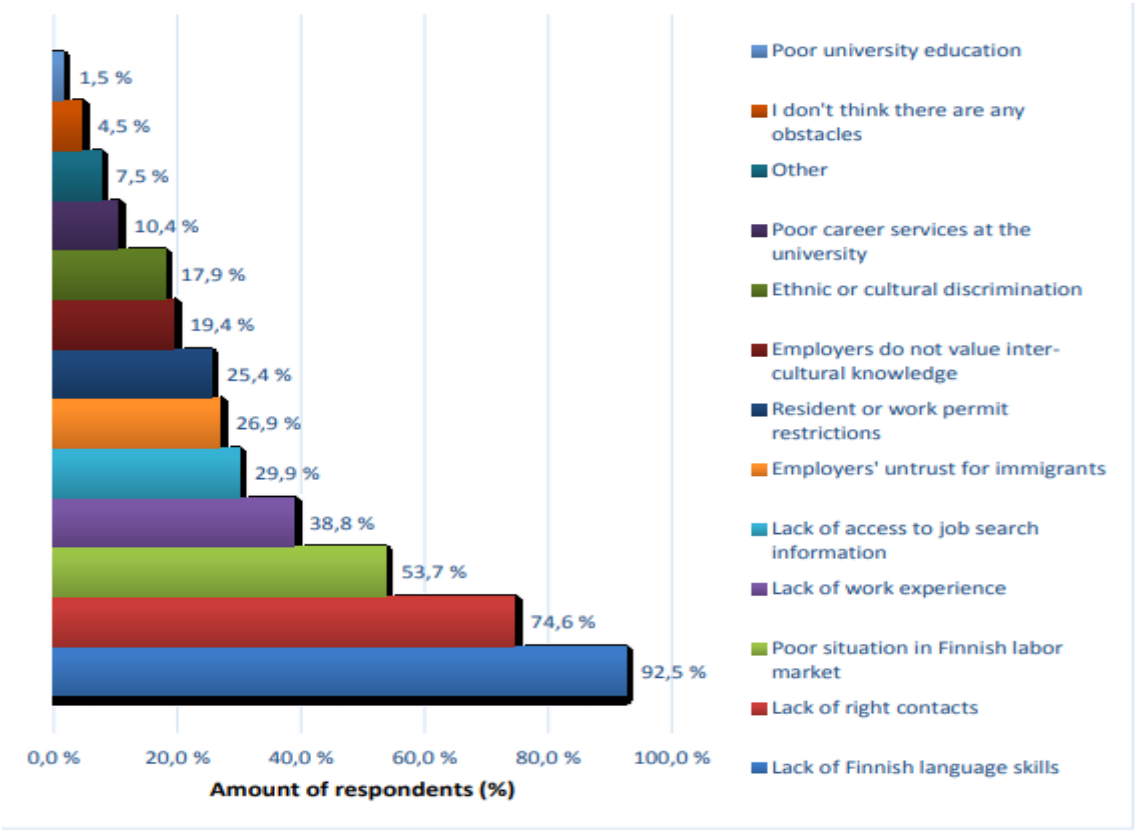

Figure 19. The biggest obstacles for getting a job in Finland for international graduates (Fern 2016:72).

From Figure 19, it is seen that the respondents consider the lack of Finnish language skills to be the biggest obstacle for gaining a job in Finland (92,5%). In addition, the lack of right contacts (74,6%) is another major reason. A poor situation in the Finnish labour market (53,7%), as well as employers' mistrust for immigrants (26,9%) and ethnic or cultural discrimination (17,9%) can be considered as some additional factors influencing the employment opportunities. Ferm (2016:72)

Similarly, Shumilova et al. (2012:70) in the VALOA project identifies the obstacles to getting employed in Finland as (1) the lack of adequate Finnish/Swedish language skills, (2) the lack of work experience (especially through internships), (3) the lack of the right networks, (4) the weak links between higher education and the labour market and (5) ethnic discrimination and the employers' unwillingness to hire foreigners.

4.3.3 Bridging the Gaps

Uffindell (2017:203) reports a recent survey carried out by Bright Network of 2,500 university graduates across the UK showed a concerning divide between what students believe employers are looking for in employees and what employers are actually looking for. The study showed that students believe that the most important thing for employers was applicants having achieved a 2.1 or above in their degree whereas in reality, passion for the business and for the role is at the top of the employers' wish list.

With the job market rapidly changing, Uffindell (2017:205) suggests four main steps elaborated below in bridging the gaps between employers and students, which is shown in Figure 20.

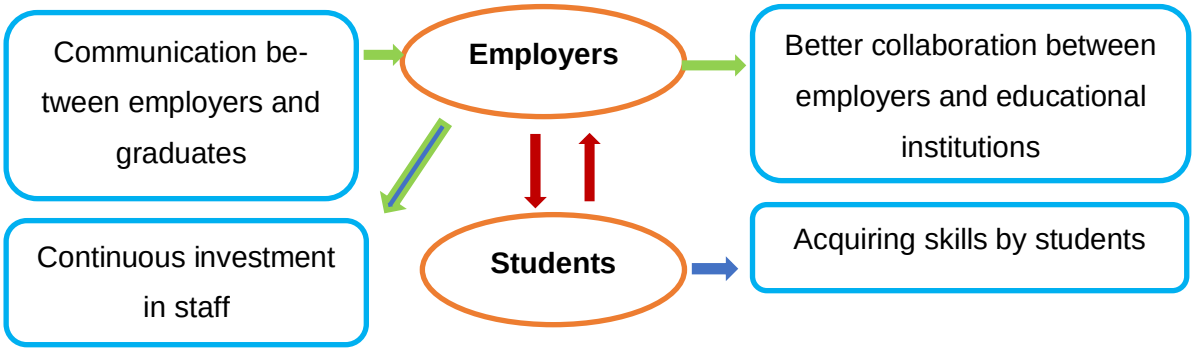

Figure 20. Main steps in bridging the gaps between employers and students (Uffindel 2017:205).

As seen in Figure 20, the first step is *communication between employers and graduates.* To overcome the misconception that industry-specific experience is the most important thing employers look for in a candidate, employers need to communicate to potential young applicants that they are after a wider skill set and give them a clear idea of what will be expected from them.

The second step suggested is *better collaboration between employers and educational institutions*. Universities are moving towards courses which include six-month-to-one-year work placements. Employers can look into opportunities to partner with universities and actively engage in attending career fairs to enable them to tap into the young talent pool and foster the next generation of skilled employees. Offering insight days, internships and work experience weeks can offer graduates and younger job seekers the opportunity to find out more about the company. This will not only attract young applicants, but it will also help retain them once they have come on board.

The third step proposed is *continuous investment in staff*. In-house training, practical assistance and external courses can really encourage young graduates to take notice of an employer and at the same time benefit employers, helping young recruits to excel and ensure they remain motivated because they value the investment in their career development.

The final step is *acquiring skills by the students.* Today's employers don't just look for relevant qualifications, they look at a wider combination of skills, attitude, enthusiasm and personal attributes as well. Graduates need to learn to understand the world of work and connect with potential employers while they are still at university. This includes attending relevant events across different industries but also developing the mind-set of being willing to learn and improve which will help them hit the ground running when they join the workforce. (Uffindell 2017:205)

Yorke et al. (2006:21) proposes embedding employability into the curriculum through various methods like, work-based or work-related learning interspersed within/ in parallel with the curriculum, employability-related modules within the curriculum, modular programs, personal development planning, progress files and portfolio production for bridging the gaps with the labour market.

Over the past years, internships and other forms of related training programs have become increasingly popular as a way to bridge the transition from the classroom to the work world. In the report of European Commission (2016), the term 'work placement' refers to two types of experience in a working environment. Firstly, it is the placement of students in supervised work settings (e.g. through internships) so they can apply the knowledge and skills learned during their studies. Secondly, it refers to a period of voluntary work (also referred to as 'student-community engagement') that is intended to allow students to become familiar with the working environment in general, while also conveying some benefit to the community (European Commission, EACEA, 2016:9)

Gault (2010:6) conducted a survey of 185 employers of 392 interns enrolled in an US university to study the relationship between internship participation and student employment marketability. Field internships are endorsed by schools as an effective way to gain practical experience and enhance employment marketability. Internships plays a vital role in enhancing the career preparation and marketability of students in the entry-level job market. Internships provide students (and faculty) with a means of bridging the gap between career expectations developed in the classroom and the reality of post-graduation employment. (Gault 2010:12)

Employers promote these intern programs and benefit directly in terms of increased effectiveness and efficiency in recruiting talent. Interns provide a ready and willing source of inexpensive, qualified, and usually highly motivated labour. The survey results indicate significantly more full-time opportunities for undergraduates with internship experience and also high-performing interns were more likely to receive higher starting salaries. The employers of high performing interns indicated a greater likelihood to show preference in hiring interns over non-interns and a greater willingness to offer higher pay to former interns. (Gault 2010:12)

In a changing labour market, students are more likely to experience part-time, temporary or casual jobs. However, with policy support, temporary jobs can be a good bridge or stepping stone, acting as a ’screening device for young people to test their abilities and their evolving preferences’. (European Commission, EU skills Panorama 2014)

Majakulma (2011:49), in her study of employability of international graduates, conducted a survey among 21 international graduates of University of Applied Sciences. The survey findings emphasize the importance of learning the Finnish language, developing job-

seeking skills and good connections to work life aspects, along with reflection on professional development and the development of intercultural competence during education. (Majakulma 2011:50)

The survey also investigated about the importance of work placements during the study. Work placements were found to be valuable by the students; during which it was possible to develop the competences needed in their work life and also to develop networks during the placement. Many students found employment through the placement either already during their studies or after graduation. Completing assignments or projects connected to work life, using companies for case studies was also regarded as a useful way of developing contacts. These contacts were also developed in workshops where companies and students jointly try to find solutions to real problems. Using expertise gathered from people employed within companies or having people from companies coming to school to talk about specific topics was also regarded as beneficial. (Majakulma 2011:54)

Career and recruitment services had also been useful in getting connected to Finnish work life. Portals through which students can find placements or work and announcements on employment opportunities were mentioned as being beneficial, as was organising more exhibitions or recruitment fairs where companies and students could meet. Career services including CV and covering letter preparation, interview questions etc were also beneficial, since some students had later noticed that different techniques, for example in writing an application or a CV, are used in Finland than in their home country. Interview techniques, such as being prepared to answer certain questions, were also important. Having the possibility to develop good connections to the world of work already during their education was very much emphasised. (Majakulma 2011:54)

4.3.4 Focus on Connecting to Working Life

The universities, employers, careers services, policy and makers and individuals have complementary roles in supporting graduate employability. The European Commission (2016:6) underlines the importance of involving employers in the design and delivery of higher education programs and ensuring that programs include an element of practical work experience. The European Commission's Education, Audio visual and Culture Executive Agency proposes formulated and developed structural indicators for graduate employability as shown in Figure 21.

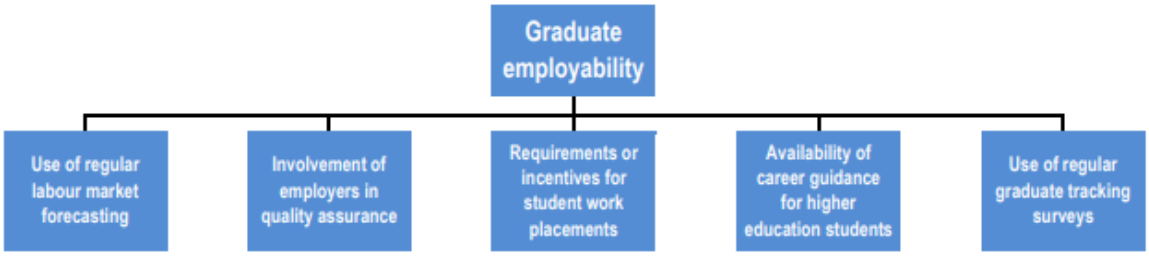

Figure 21. Graduate employability- structural indicators (European Commisssion 2016:6)

As seen in Figure 21, use of regular labour market forecasting, requirements or incentives for student work-placements, availability of career guidance for higher education students to provide students with labour-market relevant skills etc. are some of the proposed structural indicators in connecting to working life. The proposed selection of structural indicators is an illustration of the broad range of policy measures that can help improve graduate employability (European Commission, EACEA 2016:6)

The European Commission (2014) has sought to promote students exchange and high-quality apprenticeships as tools for enabling young people to develop the relevant experience and skills that employers seek. Having relevant work experience improves graduates' chances of getting a job and progressing in employment by helping to ensure that they have skills and attitudes in line with employers' demands. The European Alliance for Apprenticeships has been set up to promote apprenticeships through a network of ambassadors drawn from business and pledges from organisations. Also, the programme for the modernisation of higher education systems encourages Member States to undertake reforms in order to give higher prominence to the employability of graduates. (EU skills Panorama 2014)

In a survey on improving the employability of new graduates (European Commission 2010:56) conducted in all EU states, as well as Norway, Iceland, Croatia and Turkey, across a range of business sectors covering 7036 companies, graduate employers highlighted four major factors that higher education institutions should take in improving the employability. This is shown in Figure 22 below:

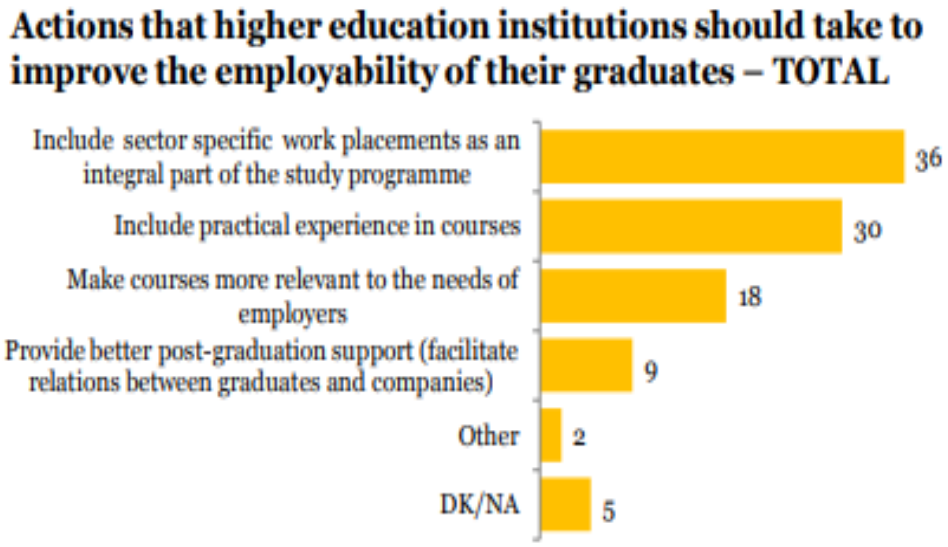

Figure 22. Actions by higher education institutions to improve the employability of graduates (European Commission 2010:56).

As seen in Figure 22, the main actions to be taken include, sector-specific work-placements as an integral part of study programs, including practical experience in such programs, making courses more relevant to employers' needs, and, providing better post-graduate support by facilitating relations between graduates and companies. (European Commission 2010:56)

4.4 Conceptual Framework for Developing an Approach for Identifying Employers' Needs and Bridging the Gaps with Workforce´s Skills and Capabilities

Based on the research literature and the best practice discussed in the section above, the steps involved in identifying employer needs and bridging the gaps with workforce skills and capabilities are synthesized in Figure 23 as conceptual framework.

		From Literature	*From Best practice*
1	**Identifying EMPLOYERS' NEEDS**	Key employer needs can be identified through: (a) **CONDUCTING /or SEARCHING INFO ON: industry needs & employers' needs** done by the 1. industries, 2.universities, 3.researches, etc. (for example, in industry needs reviews, competence needs publications, published industry analysis results, etc.) (b) **DOING:** analysis of **job advertisements** (c) **ASKING: in employer interviews** & industry relate **activities** (such as industry networking events such as TEK, etc).	Key steps for identifying employers' needs: (a) COLLECT information on employers and jobs (through multiple channels) (b) CONTACT employers.
2	**Mapping of COMPETEN-CES**	Mapping of competences can be done against: (a) **GENERAL LEVEL 7:** Competences officially formulated in national (National Qualification Framework 2009) or international (European Qualification Framework 2007; updated in 2017) frameworks (b) **FIELD SPECIFIC LEVEL:** mapping against available Job profiles.	Mapping of competences can be done: (a) **OFFICIAL, DOCUMENTED** - by Opetushallitis, Valvira, etc (b) **UNOFFICIAL or SEMI-OFFICIAL** – e.g. mapping against University/AMK curricula (a) **SELF-EVALUATION** by available tools.
3	**Evaluating and bridging the gaps**	(a) COMPARING the competence level achieved by students/graduates against the competences required by employers (b) EVALUATING and prioritizing development areas (c) SELECTING the path for competence/professional renewal (further education, training, etc)	• Focus on connecting to working life (through projects, theses, assignments, work try-outs, etc) • Monitor the requirements of the labour market (by ongoing communication with employers) • Measure graduates' employability

Figure 23. Conceptual framework for developing an approach for identifying employers' needs and to bridge the gaps with workforce´s skills and capabilities.

As seen in Figure 23, the conceptual framework has three phases, for developing an approach for identifying employers' needs and to bridge the gaps with workforce's skills and capabilities.

Identifying employers' needs makes the first stage. This includes conducting or searching information on industry needs and employers needs done by the industries, universities, researches etc. in industry needs reviews, competence needs publications, published industry analysis results, etc.**,** doing analysis of job advertisements, asking in employer interviews and industry related activities (Section 4.1). This extensive search gives an orientation about the Finnish labor market, and also recognizes the key steps in identifying employer needs, which includes collection of information on employers and jobs (through multiple channels) and contacting employers.

The second stage is the *Mapping of competences*, which can be done against: officially formulated competences in General Level 7 national (National Qualification Framework 2009) or international (European Qualification Framework 2017) frameworks. Field specific level mapping can also be done against available job profiles. (Section 4.2). The official documentation of qualifications can be done by Opetushallitus (Finnish National Agency for Education) and the unofficial documentation can be done by self-evaluation and degree comparison against University/AMK curricula or self-evaluation by available tools.

The third stage is related to the *evaluation and bridging of the gaps*. This can be done by comparing the competence level achieved by students/graduates against the competences required by employers, evaluating and prioritizing development areas and selecting the path for competence/professional renewal such as further education, training, etc. (Section 4.3). The bridging of the identified gaps include focus on connecting to working life (through projects, theses, assignments, work try-outs, etc), monitoring the requirements of the labour market by ongoing communication with employers and measuring graduates' employability.

Guided by these identified stages in the conceptual framework, the next section lays the ground for the proposal building by exploring best practice from existing knowledge and literature towards finding the approach that can help in identifying employers´ needs and bridging the gaps with workforce's skills and capabilities.

5 Building Proposal for an Approach for Identifying Employers´ Needs and Bridging the Gaps with Existing Skills and Capabilities

This section reports on building the proposal based on the results of the current state analysis and the conceptual framework. At the same time, this section also adds new data gathered during the discussions with stakeholders in Data collection 2. All this data as well as the suggestions from literature were used towards the building of the proposal. The section is divided into three subsections describing the proposal building in each step and giving the summary of the initial proposal at the end.

5.1 Overview of the Proposal Building Stage

This section provides an overview of the initial proposal building that consists of three phases in this section.

The first phase of the proposal building includes the results from the current state analysis and a collection of ideas captured from the literature review and merged into the conceptual framework, in order to address the main points identified from the current state analysis.

The second phase of proposal building focuses on developing an approach which was done in the following manner. Firstly, the key findings of the existing practices based on Data 1 as well as the conceptual framework were presented to the stakeholders for discussion. Secondly, the inputs to address the main 3 phases were gathered from the stakeholders.

In this second phase, 16 stakeholders participated in building the initial proposal, including 4 Master's students, 7 graduates, 2 employers, as well as 3 key stakeholders from Data collection 1, for CSA (the Work placement services, SIMHE & Master's programs representatives). The stakeholders were chosen so that they would be able to provide insights from different perspectives and contribute to the development of the proposed approach.

Third, based on the developed approach, a Self-help guide was developed. Before it was done, an additional input from the questionnaire was taken into account. This input came from the questionnaire to the Heads of programs (5 responses out of 25 questionnaires sent). Finally, the approach and the draft Self-help guide were summarized into an initial proposal and prepared for validation in Section 6.

5.2 Starting Point for the Proposal Building: Fit between the CSA results (Data 1) and Collection of Ideas from Literature and Best Practice (CF)

A starting point for the proposal building is related to the fit between the CSA findings (visible from data collection 1) and the relevant collection of the ideas, based on the literature and best practice review, visible in the conceptual framework for developing the approach. These ideas are then formulated into a proposal building template, which is used in Phase 2 as a platform for the discussion and for Data 2 collection. This proposal draft template is illustrated in Figure 24 below.

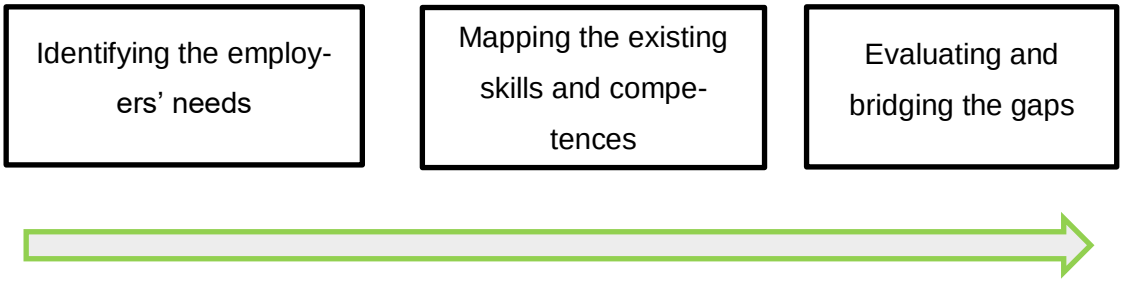

Figure 24. A starting point for the proposal building (based on findings from CSA + CF).

As seen in Figure 24, the outline of the approach was based on the findings from CSA and collection of ideas from literature and best practice. It resulted in formulating three key directions, namely: (a) identifying the employers' needs, (b) mapping the existing skills and competences, and (c) evaluating and bridging the gaps.

As for the findings from Data Collection 2, the proposed approach was developed based on the interviews with the stakeholders. The stakeholders discussed the strengths and weaknesses of CSA and suggestions from literature merged into the conceptual framework. After that, they also expressed own suggestions that are briefly summarizes in Table 3 before incorporating them into the proposal in the section below.

Table 3. Summary of the stakeholder suggestions for proposal building (Data collection 2).

	Key focus area from CSA (Data 1) and CF:	*Suggestions from key stakeholders (Data 2) in relation to*
1	**Identify employers' needs**	Gain understanding of the hidden labor market Majority of open positions are filled through direct contacts. Establish contacts with employers by attending job fairs/trade fairs.

		Contact employers directly over phone. Be brave to contact senior managers, who typically have bigger picture of the company future and needs. Identify skills/competences affecting employability in Finnish labor market. Combine social media networks with a traditional job search. Search for advertisements and create a database to keep track of the job ads, companies, contact persons, as well as a good understanding of the required qualifications and skills by the employers. Be flexible and look for different types of jobs like part-time work, intern, trainee etc. Utilize the brand name of Metropolia and sell yourself. Utilize your own institutional help, consult work placement services in the institution. Become a member of the professional associations/platforms in your field. Utilize your own network of fellow students, friends, acquaintances, and ex-colleagues. Build own profile in social media and be active, creating positive visibility and promote yourself as a job seeker. Expanding your own networks through hobbies, volunteering, participating in different events etc. is important.
2	**Map own skills and competences**	Get recognition of competences, official/semi-official as required. Identify own skills and professional / subject-specific competences, working experience Self-mapping with available tools/job profiles Update CV and Skills portfolio to a new level, using the language of the industry and employers. Prepare CV, covering letter according to the Finnish style. Covering letter is very important in Finland as the first contact to the company. Skills Portfolio (preferably, a digital e-portfolio) with a profile of own skills and expertise, photographs, project details, publications, writings etc.is becoming popular in Finland.
3	**Evaluate and bridge the gaps to the desired skills and competences**	Get a foot into a company, with the help of a Master thesis Enroll in Finnish language courses and become fluent in Finnish language. Integration into Finnish culture Develop professional competences and relevant ‘soft’ skills (interpersonal, job seeking skills, employability skills, etc). Attend career services and career workshops by associations/institution. Join for courses in open university/UAS for updating professional knowledge and for making up the deficiencies. Establish wide professional and personal networks. Contact potential employers through events, hackathons, professional programs etc. Search for options like job training through työharjoittelu, työkokeilu, työllistämistuki, etc. after the studies.

As seen from Table 3, *Identifying employers' needs* gathered new suggestions such as gaining orientation about the Finnish labour market, collecting information on employers' needs and available jobs through multiple channels, and contacting employers through job fairs, trade fairs, phone calls etc. *Mapping own skills and competences* results in identifying own skills and professional / subject-specific competences and working experience. *Bridging the gaps to the desired competences* stressed the learning by doing, more learning and more consulting approach, instead of the suggested from literature.

Below, the summary is opened up and related to the stakeholders and topics as suggested in the proposal building discussions.

5.3 Building the Proposal for the Approach

The second phase of the proposal building provides collective insight from Data 2 interviews, where all the relevant stakeholders were involved in order to co-create and develop the initial draft approach. Interview themes included the above three key concepts, namely, identifying employers' needs, mapping own skills and competences and bridging the gaps to the desired competences.

5.3.1 Identifying Employers' Needs

Based on the current state analysis, literature review and stakeholder's interview, the first step of the proposed approach was to identify employers' needs, including the following steps:

A. Gain orientation about the Finnish labour market

The first step is to gain a general orientation about the Finnish job market. Job seeking guides published by universities, association of professional engineers, Te-toimisto etc. helps in gaining an initial idea about the Finnish job market. This labor market has its specific features, for example:

> *"I had no knowledge about the 'hidden job market' here in Finland, until I read the guide by the University of Helsinki on hidden labor market* (*given to the interviewee by the researcher of this Thesis). So, I never used to contact any employer directly. This new knowledge changed my approach and methods of job search very much." (Interviewee 22)*

The guide mentioned by Interviewee 22 (that was shared by the researcher of this Thesis during the proposal discussion), gives an idea about CV models, covering letter, tips for portfolio and job interview and career planning, and the opportunities of the unannounced vacancies, which makes the 'hidden labour market'.

Another remarkable feature of the Finnish employers is that the employers are comfortable with project/job seekers contacting them directly. Many employees prefer not to advertise for job openings. Instead they expect possible candidates to contact them directly either by phone, post or email. These features make an example of the necessary orientation that is needed before the Finnish labor market becomes more familiar to the job seekers. They were also other features mentioned related to culture, language, form of CV and the Covering letter, that are included in the proposed approach.

B. *Collect information on employers' needs and available jobs through multiple channels.*

After gaining an initial understanding about the Finnish labor market, the next step confirmed by the stakeholders is to focus on practical search and collecting information about the available jobs/projects and employers' needs from all possible channels. For example, through job advertisements in job search engines like newspapers, professional journals, webpages of organizations, company websites, recruitment sites on the Internet, private recruitment companies and CV databases etc. As noted here:

> *'I started scanning ads from various channels in my field, for available projects/jobs. Based on this search, I created a database with details of the company, job title, contact person, e-mail id etc., along with archive of calls made and their responses It is a sort of real-time monitoring with key contact persons and evaluation of the required skills and competences in my field. (Interviewee 6)*

The analysis of job postings gives a picture of the employers' requirement of the portfolio of skills and competences and the most repeated ones. The know-how of the current professional requirements in the labour market is an asset in job search.

Utilising own institutional help, for example in Metropolia OMA intranet and work placement service unit will give details of work placement, projects, temporary jobs and job advertisements. One can also utilize the institutional brand when talking to employers. This will give an additional recognition and 'identity' in the labour market. Value for the employers will come from the actual completion of a high-quality project. As expressed by Interviewee 10,

> *'While contacting the employers directly, sell yourself and the Metropolia brand, by showing high quality Master's materials that the programs use for producing a Master's thesis. This will demonstrate that you are a professional and will have good support and complete on time. (Interviewee 10)*

These channels make an example of the mentioned sources that help in collecting information. There were also other sources mentioned that are included in the proposed approach.

C. Contact employers through job fairs, trade fairs, phone calls etc.

The most important channel for contacting employers is telephone calls to the contacts indicated in the job advertisements. Such calls need careful preparation and make one of the most important channels of contacting employers. It is preferable to call, only if a telephone number is indicated in a project/job advertisement. A well-prepared telephone call will increase the chances, as it allows to show own initiative, pro-active attitude, and high motivation in getting a project. A phone call etiquette in Finland may be very important to know. As shared by Interviewee 10,

> *'From my experience, the best way is to be active, search for all relevant job advertisements and be brave to contact the employers directly over phone. I would even encourage to get in direct contact with senior managers,* who *have bigger picture and deeper insight into the company future and needs. (Interviewee 10)*

Job fairs and trade fairs are places where one can meet potential employers, and most of the fairs are held connecting job-seekers, employers, organizations and educational institutions. The job fairs provide supported job search and career planning services, with CV clinics for getting the credentials checked, sometimes even a professional photographer. Visiting professional events of one's own field will help to gain more contacts with company persons. As pointed out by Interviewees 20 and 21,

> *'Many students complain that even if they apply to many companies in the open vacancies, they never get any response. So, the contact persons in companies are important, and for this, it is really important to visit the trade fairs and exhibitions. Contacting them via phone is more effective than sending mails. (Interviewees 20,21)*

Metropolia is a participant in fairs like Megarekry recruitment fair, Helsinki Region Chamber of Commerce's project Chamber of Multicultural Enterprises (COME) project etc. and such events provide platform for collaboration with industries and for the students to come in direct contact with companies. As shared by Interviewees 20 and 21,

> *''Metropolia students are directed to attend job fairs and the two major fairs/contact forum are Arena (business stream) and IT talent (IT stream). Companies like Accenture, ABB etc. also conduct their own individual fairs in Metropolia campus to recruit students for work placement and jobs, which are advertised in OMA workspace. (Interviewees 20,21)*

Thus, it is seen that events and fairs are a good and easy way of meeting employers. The details of professional trade fairs and job fairs are included in the proposed approach.

D. *Create own networks*

Becoming a member of the professional association(s)/platforms in own field will give access to more information and their own career services (advice and consultative help). They also organize various networking events to meet new people.

Networking is an essential factor in job search in the Finnish labour market, especially for hidden vacancies. Utilising the network of fellow students, friends, acquaintances, and ex-colleagues is highly recommended. It is also worth telling people that one is looking for work because information about jobs and job seekers travels quickly within networks and can receive crucial information about a job this way.

> *'I was on a study leave from my company and wanted to do a project for another employer. One of our classmates suggested a ''free topic'' because he had two alternatives. This is how I got an interesting Master's project for a large company, through my network of classmates. (Interviewee 13)*

Hobbies and extracurricular activities will easily connect to Finnish contacts and friends, which can expand the network. Hobby based trainings and extracurricular activities and joining less formal associations like students' unions, sports associations, voluntary organizations, societies, for example, Finnish British society etc. offer a chance to meet new people, make friends and build networks and is also a good way to gain language skills. As expressed by Interviewee 12,

> *''In my case, I could not find a thesis topic of interest from the advertisements and asked in my circle of friends and through other contacts. By chance, I also talked to a friend who worked in a bank about my dream project and was lucky to convince him, which resulted in my thesis project in this bank. (Interviewee 12)*

Social media is the most used channel for job advertisements by companies currently and also for creating networks in the Finnish labor market. Using the existing social media channels such as LinkedIn, Facebook, and Twitter for seeking employment opportunities and adding people in the network when meeting someone is important.

> *'Company X is active in LinkedIn and try to encourage employees to like and share the job advertisements, so as to give maximum visibility. We also use twitter mostly. (Interviewee 17)*

Creating own network is the most important part, also in social media, because networks are related to the hidden labor markets. Making more visible the role of own social account, especially LinkedIn and using the network to market oneself, presenting oneself as a 'brand' is a good technique. Someone giving a good word adds credibility and employers trust more easily. As pointed out by Interviewee 12,

> *''Immediately after my graduation, I placed my new info into my social media account, with the link to Master's thesis in www.theseus.fi, and immediately I was offered a job from one of my previous employers who read about me getting a degree and saw my completed Master's project. (Interviewee 12)*

Figure 25 below combines the steps that have emerged in the initial proposal building on the first element, namely, identification of employer needs.

1. **Gain orientation** about the Finnish labour market.
2. **Collect information** on employers' needs and available jobs through multiple channels.
3. **Contact employers** through job fairs, trade fairs, phone calls etc.
4. **Create own networks:** by membership in professional associations, participating in events, and otherwise actively building up esp. social media channels, e.g. LinkedIn

Figure 25. Initial proposal: steps in identifying employer needs.

5.3.2 Mapping Own Competences and Existing Skills

Evaluation of own competences is done to understand how own professional skills and competences could match with the Finnish employers' requirements. To talk to employers in a professional way, one needs to be able to describe oneself professionally. Mapping can be done by various ways and means.

A. Official recognition - from Opetushallitus or similar organization

Official recognition of qualifications can be officially required for some professions (such as teachers, librarians, firemen etc.). This is done by the Finnish National Agency for Education (Opetushallitus). Such official recognition by authorities is not required for engineers and management professionals.

B. Semi-official – from SIMHE, Metropolia

Unofficial competence recognition can be done by SIMHE Metropolia upon request for degrees outside Finland (by self-evaluation and degree comparison against Metropolia's University/AMK curricula). After Mapping competences, the applicant receives a document from SIMHE expert telling about the competence visible based on the previous studies (especially important to those who lack reference letters). However, this help is not currently available for Master's students.

C. Self-mapping by available tools/ against job profiles

Self-mapping can be by doing a self-evaluation by available tools. For example, TAITO-URA Self-Assessment Tool, by Career Services of Helsinki University and Haaga-Helia AMK helps to explore one's own personality traits, knowledge and skills, including inter-personal skills. Self mapping can also be done against available job profiles/ professional profiles, in which example of professional competernces, described using the industry language is available.

Knowledge acquired through education is only one part of competence. Employer is also interested in the employability skills of applicants. For example, Working skills (e.g. interaction skills, knowledge management, intercultural skills, project management), Inter-personal skills (Communication skills,Team building skills), Time management skills, Leadership skills, creative skills, experience and personality. As informed here:

> *'Besides sound technological knowledge, we need engineers with motivation, attitude to learn, good social skills, communication skills, able to take*

> *quick decisions on site, and work in an international environment. (Interviewee 18)*

Mapping of competences thus leads to identification of own skills and professional / subject-specific competences and working experience and also identifying skills/competences affecting employability in the Finnish context.

This results in revising own skills and competence, which should lead to updating CV and Skills portfolio to a new level, using the language of the industry and employers. The CV and Covering letter need to follow the local (Finnish) style. Covering letter is very important in Finland as the first contact to the company. As shared by Interviewee 17,

> *'It is quite common that if we have an open vacancy advertisement for junior level engineers, for example, process designer position, we get around 50 applications. All of them are graduates and some with Master's degree in water engineering. We interview maximum of 6-8 candidates. The CV and application and covering letter is considered during the first phase of screening, to select the candidates to the interview round. (Interviewee 17)*

In addition, creating a skills Portfolio (preferably, a digital e-portfolio) with a profile of own skills and expertise, photographs, project details, publications, writings etc is highly preferable. E-portfolios are getting more popular in Finland.

Building/improving own profile in social media already at the beginning of the studies is beneficial, promoting oneself as a job seeker, linking to own info (homepage, portfolio, LinkedIn CV, promotional video on YouTube etc.). As shared by Interviewee 12,

> *'I promoted myself as a jobseeker in LinkedIn, creating a professional profile with updated skills and competences after graduation, with active networking and making myself visible to employers. (Interviewee 12)*

Figure 26 below combines the steps that have emerged in the initial proposal.

1. **Official** recognition - from Opetushallitus
2. **Semi-official** – from SIMHE, Metropolia (for their target audience)
3. **Self-mapping** by available tools/ against job profiles

= in order to build and document own Portfolio in:
- own **skills** and **professional / subject-specific competences,** working experience
- identifying skills/competences affecting employability in the *Finnish* context.

Figure 26. Initial proposal: steps in mapping own skills and competences.

5.3.3 Bridging the Gaps to the Desired Competences

A degree/qualification on its own is not enough. Today employers look for a good degree plus a combination of professional and social skills. For bridging these gaps, consider these possible steps:

A. Learning by doing

According to all the in interviewed stakeholders, the best way to bring the gap for a Master's student, who is already on his/her way of getting the highest professional degree, is a Master's thesis project for an organization. It also serves as the best prove and recommendation for employment. Figure 27 below indicates some of way of finding a job *after* completing the Master's thesis in an organization (based on the interviews):

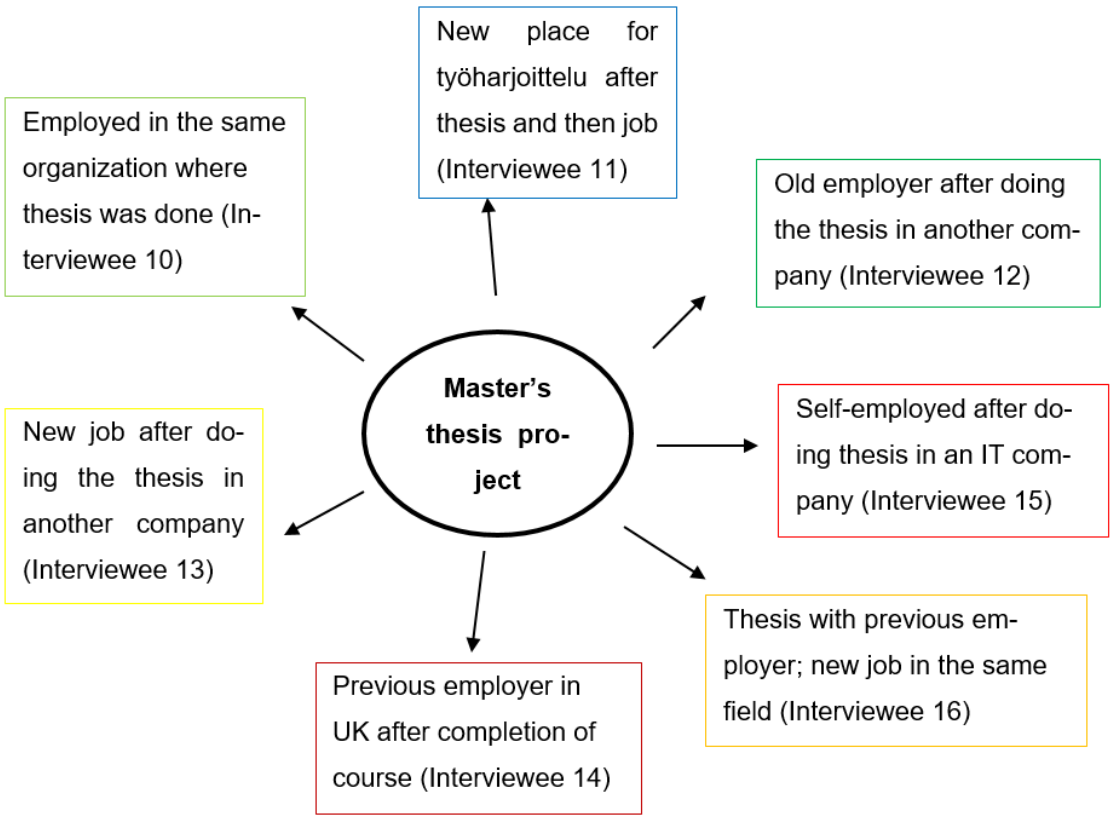

Figure 27. Options of finding a job after the Master's thesis project.

As seen from Figure 27, a completed Master's thesis has led, in various way, to getting employment by the graduate, either in the same organization, or in another (old or new). As shared by Interviewee 11,

> *I feel that completing a Finnish Master's degree gives more credibility and edge to the applicant. I first found a summer training job (työharjoittelu) and with that experience, and my newly accomplished Master's thesis, eventually got a place in that company. (Interviewee 11)*

B. More learning

Improving professional competences and relevant 'soft' skills (interpersonal, job seeking skills, employability skills, etc), or in other words, self-development is to be done for bridging the identified gaps. As observed by Interviewee 19,

> *'My advice is to never stop learning and keep one's competences up to date. New technological developments are emerging day by day, especially in the ICT field and updating oneself and keep on being potential applicants is a major contributing factor in the labor market. (Interviewee 19)*

For gaining missing professional knowledge in a focused way and improve the know-how required in working life, open university studies, short term courses and summer courses by universities and UAS are beneficial. Courses offered by Helsinki summer university (http://www.kesayliopistohki.fi/en/), Aalto University (Aalto University Information Technology Program (ITP), Metropolia summer courses: ICT summer school, Master's summer school in business (http://www.metropolia.fi/en/academics/summer-studies/) are some of the options available. As noted by Interviewee 8,

> *'I joined for an open university course in the University of Helsinki, where I first came into contact with a project manager in a company. I did a small project in my field which demonstrated my skills. This contact later helped me to find the Master's thesis project in the same company. (Interviewee 8)*

Knowledge and understanding of the Finnish society and Finnish labour market customs and culture is essential to be effective in job search. Almost all job environments require knowledge of Finnish. Enrolling in a suitable Finnish language course (easily found in internet) is beneficial and gives added advantage over other applicants. As observed by Interviewee 17,

> *''Most of the workers in water sector are not experts in speaking English and the jobs has to be done in Finnish. Hence, fluency in Finnish language is a must in water sector." (Interviewee 17)*

Some of the organisations that organise Finnish language courses for foreigners in Finland are (1) Summer universities in Finland (http://www.kesayliopistot.fi/summer-univer-

sities-in-finland/), (2) the Language Centre of the University of Helsinki (www.helsinki.fi/kksc/language.services/english/index.html), (3) Finnish language courses for adults in the Helsinki, Tampere and Turku regions (www.finnishcourses.fi/), (4) Finnish language course for students in Metropolia (http://www.metropolia.fi/en/apply/general-information/manage-your-studies/language-courses/) etc.

Libraries in Helsinki organise Language Cafés where one can practise speaking Finnish. Participation in extracurricular activities, hobby/language clubs etc. facilitate more interactions and will develop soft skills, language skills and expand the network of connections. As shared by Interviewee 14,

> *In my field of construction engineering, high level of Finnish language proficiency is a must. So, after completing my course, I could not find a suitable job with my long-term experience in the construction field, but only had the option of starting either from the scratch or in another field. (Interviewee 14)*

Thus, it is seen that different fields require different levels of language proficiency and the details of some of the organisations that organise Finnish language courses for foreigners in Finland are included in the proposed approach.

C. More consulting

Professional consultation provides valuable information and services about the labour market and will benefit those who are looking for career orientation, career guidance, advice on their career options and also to get tips to develop employability characteristics. As mentioned by Interviewee 17,

> We *do psychological tests to measure the aspect of employability characteristics as part of screening the candidates during job interviews. The students need to be aware of the existences of such tests and develop these characteristics. (Interviewee 17)*

After graduation from a UAS, TE-services can be utilized. For example, programs in career, education and training (http://www.te-palvelut.fi/te/en/jobseekers/career_education_training/index.html), job coaches who help in finding work or education (http://www.te-palvelut.fi/te/en/jobseekers/support_finding_job/job_coach/index.html) etc.

One of the ways to help getting connected to the working life is through the job training period. These training periods are granted by TE-toimisto. Therefore, it is always advisable to check possibilities available *after* completing the studies (työharjoittelu, työkokeilu, työllistämistuki, etc.) in the local TE-office.

Figure 28 below combines the steps that have emerged in the initial proposal building on the third element, namely, bridging the gaps to the desired competences.

1. **Learning by doing:** Master's thesis work and assignment work, project work, etc. – to get your foot into a company, establish contacts/network.

2. **More learning:**

(a) Self-development –professional competences and relevant 'soft' skills (interpersonal, job seeking skills, employability skills, etc).
(b) with **course offerings** (Open AMK, etc).
(c) Finnish language and culture, knowledge of the Finnish society and Finnish labour market.

3. **More consulting:** how to professionally renew **Networking and Connections to the working life** - Career services and career workshops, social networks.

Figure 28. Initial proposal: steps to bridge the gaps to the desired competences.

5.4 Proposal Draft

The initial draft of the approach to find a job/thesis project has three stages, as shown in Figure 29. The main three elements in a project/job search include (1) first, focus on identifying employers' needs, (2) next, map/revise own 'inventory' of existing skills and competences and (3) when clear what is missing, take steps to bridge the gaps to the desired job.

As seen in Figure 29, the three steps defined in this approach is a continuous ongoing process. In a dynamic knowledge-based economy, the job-specific skills are subject to

on-going change. It is therefore important to continually adapt and upgrade the employability skills. Also, the Finnish labor market is highly competitive due to its small size.

Hence, the first two steps defined in this approach is depicted by zig-zag arrows as shown in Figure 29. This indicates that identifying employers' needs and mapping own skills and competences are interlinked to each other, each step followed by another in a zig-zag manner, as the situation arises. The final step of bridging the gaps is the culmination of the first two steps and bridging of gaps to the desired competences.

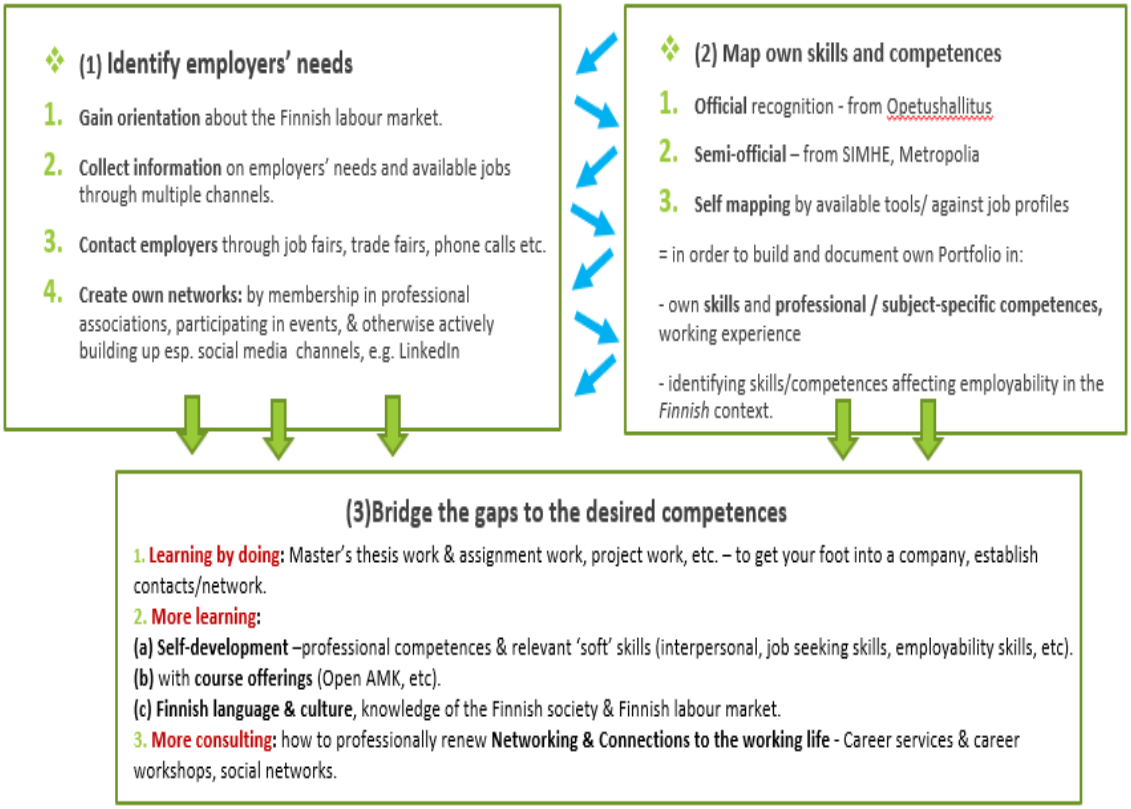

Figure 29. Initial approach to identifying the employers' needs and bridging the gap with the existing skills and capabilities of the applicant.

5.5 Self-help Guide

After the approach was developed, the self-help guide was drafted according to the proposed approach. The Self-help guide also drew from an additional data source, the questionnaire to the heads of programs.

5.5.1 Additional Data for Drafting the Self-help Guide (Data Collection 2)

The Self-help guide also incorporated the results of the questionnaire conducted among the Heads of Programs about the need for this approach and their basic suggestions for the content of the Self-help Guide. A questionnaire was conducted as Metropolia E-lomake to reach to the Heads of Master's programs and ask about their experience and needs related to this topic. Five Heads of Programs (out of 25 asked) in the case organization participated in this questionnaire and gave their comments to the topic.

The five responses that came from Head of Master's programs in the case organization also suggested important advice on helping students, especially in relation to problems with the thesis project:

> *'Help should relate to connecting to available projects or organizations willing to give projects' (Head 2).*
>
> *'Access/ participation in RDI-projects' (Head 4)*

At the same time, Heads of programs also admitted the difficulties related to finding such projects:

> *'I understand difficulty of connecting to companies' (Head 5)*
>
> *'Additional challenge, and even more severe, is when the projects are cancelled before the thesis project is finished' (Head 3)*

Importantly, none of the five programs whose heads responded to the questionnaire had any guidelines, or a ppt, or any document guiding their students in finding a thesis project. Neither the five responding programs had any other ways to help find a project. At the same time, three out of five programs have 1-3 students every year who fall into this category, and one program even has 3-5 such students every year. One program responded that they feel this need only *occasionally,* when *'They have a student who was laid off'* (a Finnish speaking program). While most of the Heads of programs who responded admitted that they feel this need *'Sometimes'* for guiding their students in how to find a project.

> *'If a student is not able to do a thesis for a company, I recommend that student will select a topic that will increase his/her knowledge in the field that he/she is interested and finds it useful for the future' (Head 3)*

For the Self-help guide, the results from the questionnaire to the Heads of programs suggest that such a Guide should contain:

> *'Case examples and stories of projects' (Head 4)*

> *'Questions that guide the student to make a rational decision about the choice of a company, subject and content of the project' (Head 3)*

In summary, an informative 'Self-help guide' was found as a possibility to help student to find a thesis project/job, especially in combination with the offering of available projects.

To corroborate with these suggestions, the other stakeholders also shared their ideas and needs related to the self-help guide. The four *current Masters' students* who participated in this study at the Proposal building stage also expressed the need for *more exposure to contacts, projects and events* with different organizations and more opportunities *to have access to projects* in organizations. As remarked by Interviewee 7:

> *'It would be really helpful if the list of companies which need a thesis, with contact persons, can be found, during the start of the studies already.'' (Interviewee 7)*

Also, all seven Master of Engineering graduates who were reached in a personal interview responded that guidance for finding a thesis project would have been very helpful at the time when they searched for the topic. One also noted that:

> *'Yes, just make this guide very clear and short, with real factual information (links, contacts, etc.). Not anything general'. (Interviewee 10)*

Summing up, it was suggested that the Self-help guide can be introduced to the Master's students during their start of study to find a thesis project/job. In addition, it was noted that Metropolia can also take actions to organise short term courses/orientation classes in collaboration with industries for updating professional knowledge and skills, related to Finnish labour market.

5.5.2 Initial Proposal for the Self-help Guide

A Self-help guide to find a job/thesis project for Master's students in Engineering was developed based on the approach proposed earlier during this thesis. The Guide is the

result of co-development with the stakeholders, as well as an early test on a few Industrial management students seeking jobs/projects.

In this Self-help guide, the contents are divided into the three main elements identified earlier during the study and embedded into the proposed approach, namely: (a) identifying employers' needs, (b) mapping own skills and existing competences and (b) bridging the gap to the desired competences. The input of the Self-help guide relates to the practical guidance in all three areas, with web links and factual information to help the students for search in these areas.

The first section introduces the five major key qualities required for a job-seeker, which has been identified through stakeholder interviews. The five key qualities stressed based on the input from the stakeholders are: (a) Be active and confident, (b) Be brave to contacts also senior managers, (c) Demonstrate your skills, (d) Be flexible, and (e) Utilise the brand name.

The next three sections present a structured approach to job seeking with the three main elements identified in the proposed approach earlier. The three elements are described separately and complemented with practical tips. Importantly, each section, starting from 'Identifying employers' needs', gives the links to websites and other required information, details of organizations and agencies in this field, networks and social media guidance. Next section focuses on tips for 'Mapping own skills and competences', including the information on Metropolia's internal services. Finally, the guide provides practical tips on 'Bridging the gaps to employment' by suggesting concrete steps that can be taken.

As suggested by the stakeholders, the Guide also includes the stories from the graduates and current students. Thus, the focus is mainly on making the guidebook concise and precise for the readers. The Self-help guide can be found in Appendix 9.

Next section focuses on the validation of the proposed approach and the Self-help guide.

6 Validation of the Proposal

This section presents the results from the validation of the proposal developed in Section 5. The goal of this section is to present the initial proposal of this thesis, i.e. developing an approach for identifying employers´ needs and bridging the gaps with workforce's skills and capabilities, and the self-help guide, for validation and feedback of the experts.

6.1 Overview of the Validation Stage and Findings of Data Collection 3

Validation of the proposal was done by two interviews with the external experts. First, Director for International Activities at Laurea University of Applied Sciences was interviewed and second the interview was conducted with the PhD researcher and International Project coordinator at the University of Tampere. Both experts are professionally researching the topic of employability of foreign students in Finland and both are involved in practical consultation of the students in finding employments in Finland.

The data from these interviews made Data 3 of this study. Details of Data 3 are given in Section 2.3 when describing the data collection and analysis methods of this study.

The two stakeholders provided their feedback to both the proposed approach and the Self-help guide, and also offered a few suggestions for improvement. Both gave positive feedback, and both agreed to and validated the approach suggested as the outcome of this study for Master's students at Metropolia. Further recommendations received from the experts are listed in Table 4 below.

Table 4. Summary of stakeholder suggestions for validation (Data collection 3).

Expert	*Comment*	*Relates to:*
1.Director for International activities, Laurea UAS	This study and the proposed approach covered almost all the relevant points regarding finding employment -and - more generally - employability of an international graduate in the Finnish labor market. The study successfully highlights the importance of developing the attributes, qualities and characteristics which refer to professional capabilities of individuals. This also includes developing the important employability characteristics such as *motivation, self-confidence, taking the initiative, persistence, openness, and flexibility.* It is good that they could be suggested to further reflect on own qualities related to 'employability'. My practical experience shows that these qualities and characteristics are equally important with the professional qualifications (as soon as the professional qualifications are met).	The proposed approach and the Self-help guide Phase 2: Mapping own skills and competences

	It is good that the study stresses the importance of knowledge and understanding of the Finnish society by participating in extracurricular activities, hobbies, language clubs, events etc. It can be stressed even more.	Phase 3: Bridge the gaps to the desired competences *(stressed further)*
2.PhD researcher and International Project Coordinator, University of Tampere	Positive feedback for the proposed approach.	The proposed approach
	Suggested to include a voluntary-based Mentoring program (conducted by various institutions) which would help to connect international students with Finnish employers. Participation in such a program could help to develop job hunting skills with a personal mentor and create new networks and contacts and thus to speed up the employment of higher education graduates.	Phase 3: Bridge the gaps to the desired competences.
	Suggested to include Massive Open Online Courses (MOOC) from top universities in the additional courses to be taken	Phase 3: Bridge the gaps to the desired competences.
	Make the self-help guide more user friendly.	Self-help guide *(polished)*

As seen in Table 4, during the interview with Director for International activities, Laurea UAS, the study was appreciated by pointing out that this study covered almost all the relevant points regarding finding employment for a master's level student and - more generally – contributed to researching employability of an international graduate in the Finnish labor market. The main suggestion was to further highlight developing not only the critical professional characteristics and attributes which refer to the professional capabilities of individuals, but also to stress the need to develop the *employability* characteristics. This set of characteristics includes developing motivation, self-confidence, taking the initiative, persistence, openness, and flexibility. The employers are very particular about having these characteristics, as soon as the basic professional requirements are met. Mapping of them in Phase 2 of the approach is a good idea and can be even stressed further, as one of the critical needs from the employers.

The experts also underlined the importance of knowledge and understanding of the Finnish society by participating in extracurricular activities, hobbies, language clubs, events. The efficiency of this channel for networking and learning about the society, based on the validation feedback, could not be underestimated and need to be stressed even further in the self-help guide and the proposed approach.

During the interview with the PhD researcher and International Project coordinator at the University of Tampere, feedback concerning the initial proposal for the approach was also positive. It was suggested to add mentoring programs as part of *Phase 3: More consulting.* Mentoring program in major cities are done by professional associations, Chamber of Commerce, centres for entrepreneurship, etc. and they can help to connect international students with Finnish employers and help to develop job hunting skills with a personal mentor. They will also help to create new networks and contacts, thus speeding up the employment of young people after graduation. This suggestion coincided with the suggestion from Expert 1, from Laurea UAS, about placing more focus on networking

Expert 2 suggested to include the following links related to mentoring programs in particular, in Tampere, https://talenttampere.fi/talents/talent-tampere-mentoring-programme-for-international-talents. On further search, it is found that in Helsinki, mentoring program can be availed from https://suomenmentorit.fi/tehdaan-toita/.

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Finally, there was an important suggestion regarding *Phase 3: More learning.* Additional courses could be taken to bridge the gaps, for example, chosen among the Massive Open Online Courses (MOOC) from top universities in one's own field. These voluntary studies can help to bridge the existing gaps and also to distinguish oneself from other applicants. Expert 2 suggested to start the search from this link: https://www.class-central.com/ and also pointed out that such courses can be done from MIT and other most reputable educational institutions. The final suggestion was to make the self-help guide more user friendly.

6.2 Final Proposal

The final proposal is based on addressing the selected key weakness identified in the current state analysis, suggestions from the existing knowledge as shown in from the conceptual framework, but it is especially rooted in the input from the case organization's stakeholders. This input was obtained in co-creating the initial proposal with key stakeholders in Section 5 and also extended with the feedback and validation of the initial proposal in Section 6.

The final approach to identify the employers' need and bridge the gaps to existing skills and capabilities is illustrated in Figure 30 below.

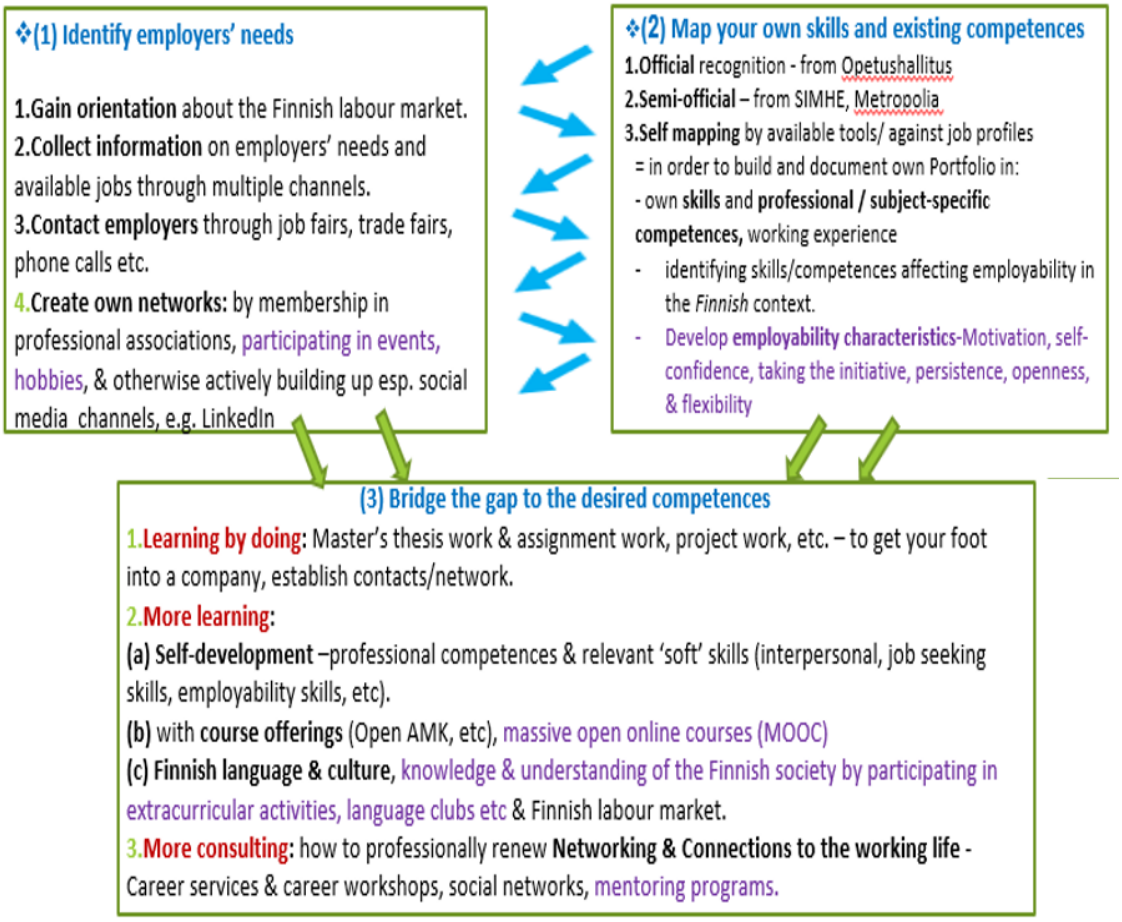
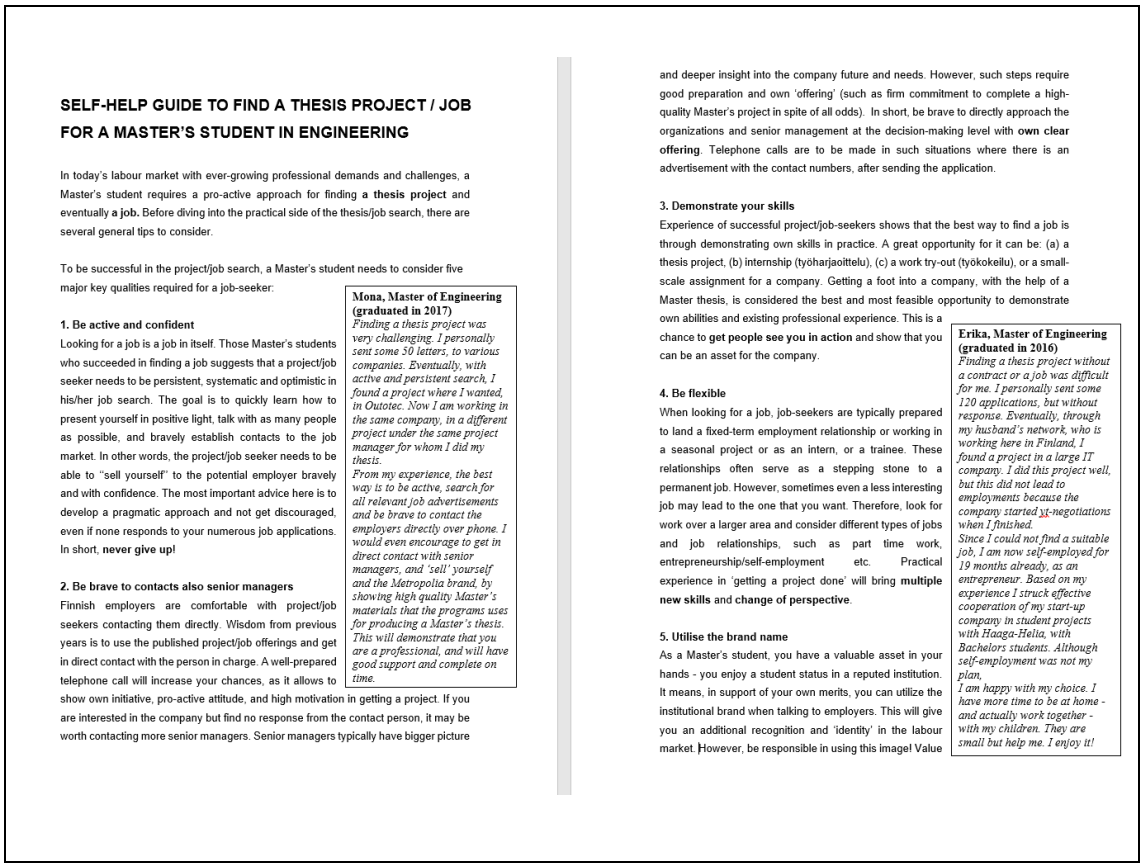


Figure 30. Final proposal for the approach to identify the employers' need and bridge the gaps with the existing skills and capabilities.

Figure 30 shows the proposed approach to identify the employers' need and bridge the gaps with the existing skills and capabilities, with the proposed three phases. The final proposal for the Self-help guide is attached as Appendix at the end of the thesis report, and the title page is shown in Figure 31 below.



SELF-HELP GUIDE TO FIND A THESIS PROJECT / JOB FOR A MASTER'S STUDENT IN ENGINEERING

In today's labour market with ever-growing professional demands and challenges, a Master's student requires a pro-active approach for finding **a thesis project** and eventually **a job.** Before diving into the practical side of the thesis/job search, there are several general tips to consider.

To be successful in the project/job search, a Master's student needs to consider five major key qualities required for a job-seeker:

1. Be active and confident

Looking for a job is a job in itself. Those Master's students who succeeded in finding a job suggests that a project/job seeker needs to be persistent, systematic and optimistic in his/her job search. The goal is to quickly learn how to present yourself in positive light, talk with as many people as possible, and bravely establish contacts to the job market. In other words, the project/job seeker needs to be able to "sell yourself" to the potential employer bravely and with confidence. The most important advice here is to develop a pragmatic approach and not get discouraged, even if none responds to your numerous job applications. In short, **never give up!**

Mona, Master of Engineering (graduated in 2017)
Finding a thesis project was very challenging. I personally sent some 50 letters, to various companies. Eventually, with active and persistent search, I found a project where I wanted, in Outotec. Now I am working in the same company, in a different project under the same project manager for whom I did my thesis.
From my experience, the best way is to be active, search for all relevant job advertisements and be brave to contact the employers directly over phone. I would even encourage to get in direct contact with senior managers, and 'sell' yourself and the Metropolia brand, by showing high quality Master's materials that the programs uses for producing a Master's thesis. This will demonstrate that you are a professional, and will have good support and complete on time.

2. Be brave to contacts also senior managers

Finnish employers are comfortable with project/job seekers contacting them directly. Wisdom from previous years is to use the published project/job offerings and get in direct contact with the person in charge. A well-prepared telephone call will increase your chances, as it allows to show own initiative, pro-active attitude, and high motivation in getting a project. If you are interested in the company but find no response from the contact person, it may be worth contacting more senior managers. Senior managers typically have bigger picture and deeper insight into the company future and needs. However, such steps require good preparation and own 'offering' (such as firm commitment to complete a high-quality Master's project in spite of all odds). In short, be brave to directly approach the organizations and senior management at the decision-making level with **own clear offering**. Telephone calls are to be made in such situations where there is an advertisement with the contact numbers, after sending the application.

3. Demonstrate your skills

Experience of successful project/job-seekers shows that the best way to find a job is through demonstrating own skills in practice. A great opportunity for it can be: (a) a thesis project, (b) internship (työharjaoittelu), (c) a work try-out (työkokeilu), or a small-scale assignment for a company. Getting a foot into a company, with the help of a Master thesis, is considered the best and most feasible opportunity to demonstrate own abilities and existing professional experience. This is a chance to **get people see you in action** and show that you can be an asset for the company.

Erika, Master of Engineering (graduated in 2016)
Finding a thesis project without a contract or a job was difficult for me. I personally sent some 120 applications, but without response. Eventually, through my husband's network, who is working here in Finland, I found a project in a large IT company. I did this project well, but this did not lead to employments because the company started yt-negotiations when I finished.
Since I could not find a suitable job, I am now self-employed for 19 months already, as an entrepreneur. Based on my experience I struck effective cooperation of my start-up company in student projects with Haaga-Helia, with Bachelors students. Although self-employment was not my plan,
I am happy with my choice. I have more time to be at home - and actually work together - with my children. They are small but help me. I enjoy it!

4. Be flexible

When looking for a job, job-seekers are typically prepared to land a fixed-term employment relationship or working in a seasonal project or as an intern, or a trainee. These relationships often serve as a stepping stone to a permanent job. However, sometimes even a less interesting job may lead to the one that you want. Therefore, look for work over a larger area and consider different types of jobs and job relationships, such as part time work, entrepreneurship/self-employment etc. Practical experience in 'getting a project done' will bring **multiple new skills** and **change of perspective**.

5. Utilise the brand name

As a Master's student, you have a valuable asset in your hands - you enjoy a student status in a reputed institution. It means, in support of your own merits, you can utilize the institutional brand when talking to employers. This will give you an additional recognition and 'identity' in the labour market. However, be responsible in using this image! Value

Figure 31. Final proposal of the Self-help guide to help Master's student find a job/thesis project (can be found from Appendix 9).

The self-help guide, the title page of which is shown in Figure 31 above, applies the approach proposed in this study in a practical form aiming to help the master's students find a job/thesis project by focusing on the three steps:

(a) Identifying the employer's needs, that is done by: first, gaining *a general orientation* in the Finnish labor market; second, by systematically *collecting information* on the employers' needs that comes from multiple channels (such as job advertisements in various job search engines, Metropolia OMA intranet etc.) and doing the content analysis of job advertisements and creating a database; third, by *contacting employers* through job fairs, trade fairs, phone calls etc.; fourth, by becoming a *member of the professional association(s)*/platforms; fifth, by *creating own networks* by participating in events, hobbies and extracurricular activities and sixth, by actively building up *networks, especially in social media channels*, e.g. LinkedIn, Twitter etc. which are channels of hidden labor market.

(b) *Map own skills and competences*, that is done by: first, start by doing a *self-evaluation* by available tools; second, by *self-mapping* against available job profiles/ professional

profiles, thus assessing own employability skills; third, by *official recognition* of qualifications from Opetushallitus or *semi-official recognition* of qualification from SIMHE, Metropolia etc. and leading to updating CV and Skills portfolio to a new level, using the language of the industry and employers.

(c) *Take steps to bridge the gaps to the desired job and competences*, that is done by: first, *learning by doing,* for example, Master's thesis project or assignment in an organization, second, *more learning*, for gaining missing professional knowledge and updating soft skills, language skills with course offerings from open universities, UAS, online courses etc.; third, by *more consulting* through mentoring program, career services and career workshops, availing TE-services after graduation etc.

The following section gives the summary of this thesis and evaluate the outcomes, along with reliability and validity of the study.

7 Discussion and Conclusions

This section discusses and summarizes the results of this thesis. First, it presents the summary of this thesis. Secondly, thesis evaluation is discussed based on the objectives and outcomes of this study. Finally, thesis evaluation is discussed based on the reliability and validity of the research process and outcomes.

7.1 Summary

The challenge for this study comes from the fact that often students, especially those who moved from another country, find it difficult to find a job due to various reasons. The most often cited reason is not knowing the local language, which is true. However, the language challenge can still be overcome, as many companies work in English due to globalization. Yet, other obstacles also stand on the way to finding employment, or at least getting a foot into the company, such as a project, or a short assignment.

On the example of Master's students at Metropolia UAS (especially unemployed and with foreign background), it was noticed that such challenges start from the students about not knowing where to learn about the local employers' needs and continue to the lack of skills to speak about own experience and competences in a convincing way with the Finnish employers, as well as can also be due to some gaps in professional competences that need bridging. This often results in challenges to find a job or a thesis project. Instead, with earlier orientation in how to address this challenge, Master's students can better utilize their studies in UAS and get closer to employment. One of the most effective ways, as previous experience shows, is by doing a Master's thesis project. A Master's project provides a unique opportunity for the students to get a foot into the company and demonstrate own skills and attitude in practice, which often helps employment. But without a clear job/project seeking approach, it sometimes becomes challenging to find a Master's thesis project, too. This makes a sad loop, which could potentially be helped with relevant guidance. Presently, however, such guidance for Master's students is missing in the case organization.

The objective of this thesis is to propose an approach and a tool for helping the Master's students get closer to employment, which is divided into three steps: (a) identifying the employers' needs, (b) exploring own skills and competences, and (c) bridging the gaps between the employers' requirements and existing skills and capabilities. This problem is explored on the example of a Master's student searching a job/thesis project in the field of Engineering.

The study was conducted with three rounds of data collection. First, it commenced with the analysis of the case organization's current practices and guidelines. This was done through the interviews with the case organization's stakeholders at three levels, at the Master's programs level, and the whole organization's level (SIMHE and Work Placement) who are best familiar with the guidance of students. This gave a picture of the existing current practices available to the Master's students.

The results of the current state analysis were used as a basis for literature search to explore the concepts and best practice of how finding employment can be approached on a Master's level. In order to get a full picture of the available knowledge, the researcher explored both, suggestions from literature and scientific sources, as well as the tips published in multiple 'how to find a job' publications, especially those coming from universities and UASs. Literature review and search for best practice (published by universities and UASs advice) resulted in the conceptual framework of this thesis. The three main elements, identified from the CSA, were expanded with the findings from available knowledge on: (1) identifying employers' needs, (2) mapping own skills and existing competences, and (3) bridging the gap to the desired competences.

The initial proposal of this thesis was developed from the interviews with the case organization's stakeholders, graduates, students and employers and included the approach on how to identify the employers' need and bridge the gaps to employment, and a self-help guide for Master's students based on this approach.

The initial approach and self-help guide were introduced to the stakeholders for validation and feedback, and the final approach and self-help guide were created. Thus, the outcome is (1) an approach for identifying the employers' needs and bridging the gaps with the workforce existing skills and capabilities, and (2) a self-help guide how to find a job/thesis project for Master's students.

Although the findings in this study are restricted to the context of Master's students in Engineering field in Metropolia AMK, the general logic of approaching this challenge could possibly be extended to the students studying in similar institutions. The proposed approach and the self-help guide are intended to help Master's students to start and conduct a structured search so that to find a job/thesis project as early in their Master's studies as possible.

7.2 Practical Relevance and Implications for the Case Organization

The topic of bridging the gap to employment shows recognition and high relevance to the case organization. The results of the Metropolia UAS's AVOP survey 2017 (Feedback questionnaire for graduating students to evaluate and provide feedback to their education and services of educational institution) in Figure 32 below shows the current state of the work-related guidance offered by the case organization.

Tutkintonimike	Työelämäneuvonta			Opinnäytetyö		
	2016	2017	Muutos	2016	2017	Muutos
Bioanalyytikko		2,89			5,56	
Ensihoitaja		2,50			5,94	
Insinööri, automaatiotekniikka	4,25	4,33	0,08	5,61	5,00	-0,61
Insinööri, logistiikka	4,18			6,00		
Insinööri, Maanmittaustekniikka		3,64			5,41	
Insinööri, rakennustekniikka ja yhdyskuntatekniikka	3,94	4,06	0,12	4,94	5,27	0,33
Insinööri, tietotekniikka	4,28	4,68	0,39	5,79	6,09	0,30
Insinööri, tuotantotalous	4,27	4,70	0,43	5,65	6,04	0,40
Kulttuurituottaja		5,30			6,00	
Medianomi	3,51	2,44	-1,07	5,39	6,00	0,61
Musiikkipedagogi	3,62	4,11	0,49	5,67	5,69	0,03
Sairaanhoitaja	3,71	3,41	-0,30	5,72	5,28	-0,44
Sosionomi, sosiaaliala	4,47	3,56	-0,92	5,51	5,00	-0,51
Terveydenhoitaja	3,08	3,08	0,00	5,13	4,77	-0,36
Toimintaterapeutti		3,83			5,50	
Tradenomi, muu tai tuntematon ala	3,06			5,93		
Tradenomi, talous, hallinto ja markkinointi	3,76	3,67	-0,09	5,20	5,56	0,36
Tradenomi, tietojenkäsittely	3,35	3,60	0,25	6,08	5,75	-0,33
Vestonomi	3,65	2,83	-0,82	5,58	4,42	-1,16
Yhteensä	**3,86**	**3,86**	**0,00**	**5,51**	**5,51**	**0,00**

Figure 32. Results of the Metropolia UAS's AVOP survey 2017.

The scores (designated from 1-7) in the field of work-related guidance *(Työelämäneuvonta)* is only 3.86. At the same time, for comparison, for the guidance provided when conducting a Master's thesis, the score is 5.51. The other areas that were measured also scored around 5-6.2. This shows a considerable gap in the current state of work-related guidance offered by the case organization in this area. It is evident that the case organization is lacking this type of guidance and needs further development in this area.

However, this problem is being recognized and the case organization is making efforts to help the students in various ways. One example of such effort is the organization by 3AMKs of a new type of event, a Hackathon (in 2017 for the first time and 2018 for the second time) that suggest projects from the best employers (such as Microsoft, Fortum, Nokia, etc.) for competition to the best students' ideas. Hackathon is a new way to create an open innovation platform where one learns to recognize and solve challenges together with innovative companies, professional experts and inspiring coaches. The

hackathons have been organized by very few companies so far, such as Accenture and also a few educational institutions in Finland. Now, also by 3AMKs with Metropolia also conducting them (http://10days100challenges.fi/). As noted by Interviewee 19:

> *The ''10 DAYS 100 CHALLENGES" hackathon program, jointly organized by Metropolia, Haaga-Helia and Laurea UAS during this summer is aiming for close interaction of students with companies and professionals and an absolutely great opportunity for those seeking jobs. (Interviewee 19)*

Hopefully, this direction will grow, and more projects will be available, and also other channels found for the student talent to demonstrate their ability to companies.

7.3 Thesis Evaluation

This section first evaluates the results of the thesis against the original objective and how well the thesis solves the challenge it intended to solve. After this a reflection against the reliability and validity of the research process and outcome is made.

7.3.1 Outcome vs Objective

The objective of this thesis was to propose an approach and a tool for identifying the employers' needs and bridging the gaps with the workforce's existing skills and capabilities (on the example of a Master's student searching interested in a job/ thesis project in the field of Engineering).The outcome of this study is (1) an approach for identifying the employers' needs and bridging the gaps with the workforce existing skills and capabilities, and (2) a self-help guide to find a job/thesis project for a Master's student. By following the research design presented in Section 2.2, the researcher was able to collect the data from different stakeholders and build the outcomes relevant for the case organization and rooted in its current practices and utilizing its current available opportunities. When comparing the outcome of this thesis to the objective, it can be seen that they are in line and therefore, this thesis meets its targets. This study can be used as a basis for further studies on providing employment guidance to the students in the future. One main challenge during this study was that the number of stakeholder interviews of employers for building the initial approach was limited, but on the other hand, these stakeholders were the most knowledgeable or most interested in the practical outcomes. So, the employers' perspective could be considered as addressed, too, at least to the available extent.

7.3.2 Reliability and Validity

When working on this thesis, key research criteria such as validity and reliability, relevance and logic were considered and made visible throughout the research process in this thesis in order to provide high quality research and outcome.

Validity in qualitative research means that the research is conducted following a clear and valid research process, by using valid tools and data collection methods. Yin (2009) suggests four points to check reliability of the study. *Construct validity* was addressed by using a variety of data sources such as interviews, surveys, observations. *Internal validity* was ensured through addressing the research objective, building a research design that withstood scrutiny, and through involving the most knowledgeable stakeholders in relation to the topic of this study. Thus, different levels of stakeholders were interviewed during this research. This was done in order to collect the practical insight from the most relevant stakeholders and to prove that this research addresses the problem in the correct way, with the right understanding of the context. *External validity* was secured by identifying the employers' needs and bridging the gaps with the workforce existing skills and capabilities based on the ideas identified from reputable literature and advice from relevant organizations, such as other AMKs and universities.

Reliability in qualitative research ensures that its results and research process are transparent, explicitly reported and repeatable for other researchers. Reliability was ensured by using at least three perspectives in the case organizations extended with the elements suggestions from literature when building the proposal. The stakeholders inside the case organizations were the most knowledgeable in the case organization or most interested in the practical outcomes. Moreover, to double-check the reliability of the outcomes, the study invited the best available experts for validations of the proposal – both persons are doing professional PhD-level research of this topic and one of them is also holding the position of Director of International activities on a similar level (Laurea AMK), thus both knowing the topic very closely.

Moreover, the chosen method of interviews ensured that the rich data was collected correctly and fully, by first gathering data using a tape-recorder and later checking all the field notes with the interviewed stakeholder, so that they had a chance to double-check their interview input collected during this research. The results of data 1-3 collections were transparent, reported clearly in this thesis, and made a significant contribution to building the outcome that was intended for the case organization. This was done in order to avoid bias during the research and to improve the reliability of this thesis.

Logic means in general the cause-and-effect explanation of an action, decision, event, phenomenon, or solution. During this study, logic was ensured by observing the logic of the thesis construct starting from establishing its business challenge and objective and up to the steps leading to its outcome, that were carefully selected, clearly explained, and defined. After that, the researcher followed the research design built in advance in Section 2.2 along the logical structure of the research and logically arrived at the actual outcome of this thesis.

7.4 Final Words

Master's students, especially unemployed and with foreign background, find it challenging to find a job/thesis project, and the guidance is currently missing how to do that. They also find gaps between their own skills and competences, as well as their sometimes-rich work experience, obtained in another country vs. the needs of Finnish employers. This study aimed to provide a practical solution and provide the necessary minimum guidance to the Master's students experiencing such challenges.

This study did not aim to explore the elements affecting employability in the Finnish labour market. This topic comes under investigation from a various perspective, as employability has been in focus of research by multiple researchers.

The aim for this study was more modest yet at the same time more immediate and practical. The outcome, that was developed by involving many people in a co-creative and collaborative way, wanted to help *now* those students who are missing some basic orientation in this topic, as the researcher of this thesis herself, who has now been living in Finland for 3 years, missed when she started her job and project search some time ago. Hopefully, this articulated approach and the self-help guide proposed as a result of this study will make a good starting point for students to gain knowledge about a very competitive Finnish labour market and guides them to better utilize their own profile. The researcher believes - and hopes - that it should result in a faster and more successful outcome of their search!

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Appendix. Self-Help Guide (Proposal)

SELF-HELP GUIDE TO FIND A THESIS PROJECT / JOB FOR A MASTER'S STUDENT IN ENGINEERING

In today's labour market with ever-growing professional demands and challenges, a Master's student requires a pro-active approach for finding **a thesis project** and eventually **a job.** Before diving into the practical side of the thesis/job search, there are several general tips to consider.

To be successful in the project/job search, a Master's student needs to consider five major key qualities required for a job-seeker:

Mona, Master of Engineering (graduated in 2017)
Finding a thesis project was very challenging. I personally sent some 50 letters, to various companies. Eventually, with active and persistent search, I found a project where I wanted, in a large multinational company. Now I am working in the same company, in a different project under the same project manager for whom I did my thesis.
From my experience, the best way is to be active, search for all relevant job advertisements and be brave to contact the employers directly over phone. I would even encourage to get in direct contact with senior managers, and 'sell' yourself and the Metropolia brand, by showing high quality Master's materials that the programs use for producing a Master's thesis. This will demonstrate that you are a professional and will have good support and complete on time.

1. Be active and confident

Looking for a job is a job in itself. Those Master's students who succeeded in finding a job suggests that a project/job seeker needs to be persistent, systematic and optimistic in his/her job search. The goal is to quickly learn how to present yourself in positive light, talk with as many people as possible, and bravely establish contacts to the job market. In other words, the project/job seeker needs to be able to ''sell yourself'' to the potential employer bravely and with confidence. The most important advice here is to develop a pragmatic approach and not get discouraged, even if none responds to your numerous job applications. In short, **never give up**!

2. Be brave to contacts also senior managers

Finnish employers are comfortable with project/job seekers contacting them directly. Wisdom from previous years is to use the published project/job offerings and get in direct contact with the person in charge. A well-prepared telephone call will increase your chances, as it allows to show own initiative, pro-active attitude, and high motivation in getting a project. If you are interested in the company but find no response from the

contact person, it may be worth contacting more senior managers. Senior managers typically have bigger picture and deeper insight into the company future and needs. However, such steps require good preparation and own 'offering' (such as firm commitment to complete a high-quality Master's project in spite of all odds). In short, be brave to directly approach the organizations and senior management at the decision-making level with **own clear offering**. Telephone calls can be made in such situations where there is an advertisement with the contact numbers, after sending the application.

3. Demonstrate your skills

Experience of successful project/job-seekers shows that the best way to find a job is through demonstrating own skills in practice. A great opportunity for it can be: (a) a thesis project, (b) internship (työharjaoittelu), (c) a work try-out (työkokeilu), or a small-scale assignment for a company. Getting a foot into a company, with the help of a Master thesis, is considered the best and most feasible opportunity to demonstrate own abilities and existing professional experience. This is a chance to **get people see you in action** and show that you can be an asset for the company.

Erika, Master of Engineering (graduated in 2016)

Finding a thesis project without a contract or a job was difficult for me. I personally sent some 120 applications, but without response. Eventually, through my network, who is working here in Finland, I found a project in a foundry for spare parts. I did this project well, but this did not lead to employment because the company started yt-negotiations when I finished.

Since I could not find a suitable job, I am now self-employed for 19 months already, as an entrepreneur. Based on my experience I struck effective cooperation of my start-up company in student projects with Haaga-Helia, with Bachelors students. Although self-employment was not my plan, I am happy with my choice. I have more time to be at home - and actually work together - with my children. They are small but help me. This very important to me and I enjoy it!

4. Be flexible

When looking for a job, job-seekers are typically prepared to land a fixed-term employment relationship or working in a seasonal project or as an intern, or a trainee. These relationships often serve as a stepping stone to a permanent job. However, sometimes even a less interesting job may lead to the one that you want. Therefore, look for work over a larger area and consider different types of jobs and job relationships, such as part time work, entrepreneurship/self-employment etc. Practical experience in 'getting a project done' will bring **multiple new skills** and **change of perspective**.

5. Utilise the brand name

As a Master's student, you have a valuable asset in your hands - you enjoy a student status in a reputed institution.

It means, in support of your own merits, you can utilize the institutional brand when talking to employers. This will give you an additional recognition and 'identity' in the labour market. However, be responsible in using this image! Value for the employers will come from the actual completion of a high-quality project. In other words, for the employer your 'brand' translates into a bigger promise, a higher quality outcome, and better excess to professional expertise and support from your home institution. Make it clear to your potential employer. This will give assurance to the employer that you will be able to complete the project on time and successfully. At the same time, utilize every opportunity to **grow own competences** and make it your priority to **deliver on your promise**!

CONSIDER A STRUCTURED APPROACH TO YOUR JOB SEEKING

As a Master's student, who is already in an institution after searching several options, consider approach to your job search in a structured way. We suggest three elements in a project/job search:

- First, **focus on identifying employers' needs**
- Next, **map/revise own 'inventory' of existing skills and competences**
- When clear what is missing, **take steps to bridge the gaps to the desired job and competences**.

STEP I. Identifying employers' needs

Start with the general orientation in the Finnish job market. These guides can help:

- **TE-toimisto**: The most basic guide for finding a job (official): http://www.te-palvelut.fi/te/en/jobseekers/finding_job/tips_for_finding_job/index.html
- **Finnish Institute of Occupational Health**: General guide on ''Working in Finland – information for immigrants in English'' (official): https://www.ttl.fi/wp-content/uploads/2016/10/englanti_toissa_suomessa.pdf
- **Organisation for academic engineers and architects in Finland (TEK):** The job search and career guide: With CV models, tips for portfolio and job interview, & career planning (for engineers! professional) advice: https://teekkarintyokirja.tek.fi/en/
- **Helsinki University:** Guide to the 'Hidden Labor Market':

http://www.helsinki.fi/nakoislehdet/ePaper/Guide_for_the_hidden_labour_market/

- **Helsinki University**: International students guide to working in Finland http://www.helsinki.fi/urapalvelut/materiaalit/workinginfinland.pdf
- **Aarresaari** (a network of Academic Career Services representing 13 Finnish Universities): Guide to tips for job seeking: https://www.aarresaari.net/download/7/tips_for_job_seeking/pdf.
- **Union of Professional engineers in Finland**: Guide on instructions for entering the job market: https://www.ilry.fi/tietoa-insinooriliitosta/english/career-services
- **Diaconia University of Applied Sciences**: Guidebook to employment. A simple but practical guide. Check specifically about writing a CV and Covering letter to a Finnish employer (pp. 8-12): https://drive.google.com/file/d/0B_vbywBZYcsTaUQ2elJPSVEzelU/view

As soon as you have got initial understanding of the Finnish job market, focus on practical search and **collecting information about the available jobs/projects and employers' needs** from all possible channels, for example:

- ✓ **Job advertisements** (job-search engines):
  - TE-palvelut.fi
  - Rekrytointi.com
  - Oikotie.fi
  - Monster.fi.
  - Kuntarekry
  - AcademicWork.fi
  - Adecco
  - StudentWork.fi
  - aTalent Recruiting
  - https://studentcareers.linkedin.com/
  - IMPORTANT. See also **Teknologiateollisuus** ('Technology Industries of Finland") with links to summer jobs and internships around Finland: http://teknologiateollisuus.fi/fi/jasenet/palvelut/mytechfi

Mohammad, Master's student in Logistics Management (graduation 2018)
I started scanning ads from various channels in my field, for available projects/jobs. Based on this search, I created a database with details of the company, job title, contact person, e-mail id etc., along with archive of calls made and their responses It is a sort of real-time monitoring with key contact persons and evaluation of the required skills and competences in my field.

- **EURES** (European Job mobility portal)- EU agency with a database of jobs in all the EU member countries.
  https://ec.europa.eu/eures/public/jobseekers-dashboard

To make your search structured and effective, do the content analysis of job advertisements and **create a database** to keep track of the job ads, companies, contact persons, as well as a good understanding of the required qualifications and skills by the employers.

✓ **Become a member of the professional association(s)/platforms** in your field. It will give you access to more information and their own career services (advice and consultative help). They also organize various networking events to meet new people.:

-**TEK,** for engineers and architects in Finland:
https://www.tek.fi/en/membership/join-tek

- **Union of Professional Engineers in Finland:**
https://www.ilry.fi/tietoa-insinooriliitosta/union-professional-engineers-finland
- **Finnish Society of Chemical Engineers** (KTY): Chemistry Days (Kemian Päivät), largest professional fair of its kind in the Nordic countries, organised semi-annually with seminars & exhibition for professionals & students:
https://kemianseurat.fi/kemia/english/
- **Finnish Association of Purchasing and Logistics** (LOGY): Annual LOGY Conference of professionals, usually conducted in February in SCM, transport and logistics in Northern Europe; a good. platform to meet with other professionals and top companies of this field. http://www.logy.fi/en/logy.html
- **Platforms like Demola, Creativity squads, Microsoft flux** - Free networking with professionals & also workshops for developing entrepreneurial and creative skills, while still a student, which facilitates co-creation projects between university students, companies and researchers
https://www.demola.net/,
http://creativitysquads.com/,
http://www.microsoftflux.com/

✓ **Utilize your own institutional help.** Check details of work placement and job advertisements **in Metropolia OMA intranet** and service units.

- check ads in **Metropolia intranet (OMA)** about internships, work placement, projects, temporary jobs: "For Student" > Work placement > Vacancies. https://oma.metropolia.fi/tyopaikkailmoitukset
- If interested in taking a look at the students' feedback to working in certain particular companies, check OMA workspace ''Harjoittelu'' > ''Browse Companies/Reports'' for students reports after completing the work placement. There is also a list of companies and contact persons: https://harjoittelu.edu.metropolia.fi
- Metropolia's **Work Placement service unit** can provide a brief individual consultation & hands-on help (upon email request) related to job ads, polishing your CV and Covering letter. See contact details from 'Technology": http://www.metropolia.fi/en/services/career-services/contacts/technology-and- transport/
- Metropolia's **SIMHE services** can provide individualized hands-on help (upon email request and registration) through: (a) individual consultations, (b) ''Guidance Generalia'' lectures (once in a month) proving information on educational opportunities, recruitment fairs and other events, (c) as well as Competence mapping sessions. See contact details from here: http://www.metropolia.fi/en/services/for-immigrants/

Denis, Master of Engineering (graduated in 2014)
In September, all Master's students are asked to find possible topics for a Master's thesis. In fact, they are asked to find a topic already over the summer. Some students find several topics as possible alternatives.
In my case, I was on a study leave from my company and wanted to do a project for another employer. One of our classmates suggested a ''free topic'' because he had two alternatives. This is how I got an interesting Master's project for a large company. After completing it successfully, I was offered employment in yet another company.

- ✓ **Utilize your own network** of fellow students, friends, acquaintances, and ex-colleagues. It is also worth telling people that you are looking for work because information about jobs and job seekers travels quickly within networks and you can receive crucial information about a job this way. There are many hidden vacancies and networks are very important.
- ✓ **Hobbies & extracurricular activities:** It is easier to get to know the Finnish society and the Finnish labour market, if you have Finnish contacts and friends. Hobby based trainings & extracurricular activities and joining less formal associations like students' unions, sports associations, voluntary organizations, societies, for example, Finnish British society etc. offer a chance to meet new people, make friends and build networks and is also a good way to gain language skills.

Thien, Master of Engineering (graduated in 2017)
In my case, I could not find a thesis topic of interest from the advertisements and asked in my circle of friends and through other contacts. By chance, I also talked to a friend who worked in a bank about my dream project and was lucky to convince him. But I did not get a job from that place (and it was not a plan).
Immediately after my graduation, I placed this news about my completed Master's project into my social media account, with the link to Master's thesis in www.theseus.fi, and immediately I was offered a job from one of my previous employers who read about me getting a degree and saw my completed Master's project.

- ✓ Consider using the existing **social media channels** such as LinkedIn, Facebook, and Twitter for seeking employment opportunities & adding people in the network when you meet someone. Creating your own network is the most important part, also in social media, because networks are related to the hidden labor markets. Make more visible the role of your social account, especially LinkedIn and use your network to market yourself. Someone giving a good word for you adds credibility and employers trust you more easily. For example:

- **LinkedIn group**: Master's thesis offers of "Master's Thesis in Finland" https://www.linkedin.com/jobs/master-thesis jobs/?trk=am-works_jserp_redirect&country=fi

After collecting information from the job/project ads, the next step is

- **Contacting potential employers'**

THE MOST IMPORTANT channel for contacting employers is your telephone calls to the contacts indicated in the job advertisements. Such calls need **careful preparation** and make one of the most important channels of contacting employers. Common wisdom of all previous generations of students tell: if only a telephone number is indicated in a project/job ad, **prepare, CALL and talk**! It is good to **practice** this telephone call, by making a rehearsal of a 'fake' interview with a friend. A phone call etiquette in Finland may be very important to know! (refer a guide for telephone calls – among other guidelines in job search).

➢

(See details of the preparation in Step 2, Mapping own skills and competences).

Shino, Master's student in Industrial Management (graduation 2018)
In my home country, contacting employers directly over phone is seen as a disqualification for being selected for the job. And also, I had no knowledge about the 'hidden job market' here in Finland. So, I never used to contact any employer directly. Understanding & knowledge of the Finnish society & the culture of the Finnish labor market changed my approach and methods of job search very much. So now I actively use this channel to tell directly about my skills and motivation to the employers.

Consider also various other ways and places where you can meet potential employers:

- **Job fairs:** Events and fairs are a good and easy way of meeting employers. In Metropolia, the announcement can be found also in Metropolia intranet OMA.
- **TalentIT**: Conducted by Aalto University for the ICT field, usually during November: https://fairs.aalto.fi/talentit/en/vieraalle/.
- **Arena Career fair:** Conducted by Aalto University School of Business, usually during November: https://fairs.aalto.fi/arena/fi/
- **Contact forum:** For AMK graduates. Conducted by CF-Opiskelijamessut OY, in January at Messukeskus, Helsinki. http://www.contactforum.fi/en/messuinfo/
- **Megarekry recruitment fair**: Held bi-annually in cooperation with Vantaa employment services, Uusimaa TE-office and Flamingo Entertainment Centre, along with Metropolia connecting job-seekers, employers, organisations and educational institutions.
  https://www.businessvantaa.fi/tapahtumat/kevaan-megarekry-lahestyy/

- **Duunifestarit:** Conducted at Otahlli, Espoo. For supported job search & career planning services, with CV clinics for getting your credentials checked, sometimes even a professional photographer
  http://www.saranen.fi/tapahtumia/duunifestarit-2/

➢ **Professional trade fairs**: Visiting professional events of one's own field will help to gain more contacts with company persons:

- **Teknologia: I**nternational technology and industry event, at Messukeskus, Helsinki: https://teknologia.messukeskus.com/?lang=en
- **IT PRO:** For IT professionals, at Messukeskus, Helsinki: http://www.easyfairs.com/it-pro-2017/it-pro-2017/.
- **Hackathons** in different fields**: Helsinki Digital Humanities Hackathon** (DHH), organized by University of Helsinki, Aalto University & Helsinki Institute for Information Technology HIIT every year; the participants will learn how to work in multidisciplinary research projects in a week of active co-operation in groups under the heading of Digital Humanities.
  https://www.helsinki.fi/en/helsinki-centre-for-digital-humanities/helsinki-digital-humanities-hackathon-2017-dhh17

  Future city challenge 2018: IoT hackathon event, with all the major cities involved, jointly organised by Etteplan, Digita and IBM, open for students. https://futurecitychallenge.fi/

  Accenture global digital Hackathon: For students, graduates, creative designers, for sharing ideas, experimenting with the latest technologies and innovations.https://www.accenture.com/ph-en/Careers/event-digital-hackathon
- **Advanced Engineering Helsinki**: For manufacturing industry professionals at Messukeskus, Helsinki.http://www.easyfairs.com/advanced-engineering-helsinki-2018/advanced-engineering-helsinki-2018/
- **Energia 2018**: Latest on energy production, transmission, distribution and storing at Exhibition & Sports Centre, Tampere https://energiamessut.fi/index.tmpl?sivu_id=7769;
- **FinnBuild 2018**: International Building and Building Technology Fair with latest products and services. https://finnbuild.messukeskus.com/?lang=en
- **Messukeskus Helsinki, Tampere, Jyväskylä** organizes exhibitions, meetings, conferences and other events:
  https://messukeskus.com/events/?lang=en

STEP 2. Map your own skills and existing competences / Competence recognition

Evaluation of own competences is done to understand how own professional skills and competences could match with the Finnish employers' requirements. Mapping can be done by various ways and means. Some tips below:

- **IMPORTANT! To talk to employers in a professional way, you NEED to be able to describe yourself professionally.**
- **Start by doing a self-evaluation** by available tools:

- University of Turku: **'How to apply for a job in Finland'**- A simple guide with details of hard skills and soft skills required by Finnish employers. https://www.utu.fi/fi/yksikko/yliopistopalvelut/opintohallinto/ohjauksen-ja-koulutuksen-tukipalvelut/rekry/koosteita-tapahtumista/Documents/How%20to%20apply%20for%20a%20job%20in%20Finland.pdf
- **TAITO-URA Self-Assessment Tool**, by Career Services of Helsinki University and Haaga-Helia AMK helps to explore one's own personality traits, knowledge and skills, including inter-personal skills. Knowledge acquired through education is only one part of your competence. Employer is also interested in your employability skills: http://www.uraohjaus.net/DefaultUK.aspx
  - Working skills (e.g. interaction skills, knowledge management, intercultural skills, project management),
  - Inter-personal skills (Communication skills,Team building skills)
  - Time management skills, Leadership skills, creative skills
  - your experience and personality.

- Self mapping against **available job profiles/ professional profiles:**

  For logistics and supply chain management professionals, example of professional competernces, described **using the industry language**, is available at: https://doi.org/10.1108/SCM-02-2017-0079

- **Official recognition of qualifications** can be officially required for some professions (such as teachers, librarians, firemen etc.) If this is your case, check:

- The Finnish National Agency for Education (Opetushallitus) http://www.oph.fi/english/services/recognition.

Note, such official recognition by authorities is NOT required for engineers and management professionals.

- **Unofficial competence recognition** can be done by SIMHE Metropolia upon request for degrees outside Finland (by self-evaluation & degree comparison against Metropolia's University/AMK curricula). After Mapping competences, the applicant receives a document from SIMHE expert telling about the competence visible based on the previous studies (especially important to those who lack reference letters). http://www.metropolia.fi/en/about-us/simhe/

- **IMPORTANT. Revising own skills and competence should lead to updating CV and Skills portfolio** to a new level, using the language of the industry and employers:
  - CV and Covering letter need to follow **the local (Finnish) style.** Covering letter is very important in Finland as the first contact to the company.
  - if help is still neded, **Work placement services** at Metropolia can help with a brief hands-on help (upon request).
  - **TEK career services** & CV clinics: https://www.tek.fi/en/services/career-services.

- In addition, consider creating **a skills Portfolio (preferably, a digital e-portfolio)** with a profile of your own skills and expertise, photographs, project details, publications, writings etc. E-portfolios are getting more popular in Finland.

- Finally, seriously consider building/improving **own profile in Social media.** Previous experience shows that it is worth creating a professional profile already at the beginning of the studies. Promote yourself as a job seeker, link to your own info (homepage, portfolio, LinkedIn CV, promotional video on YouTube etc.).
  - Check also **the Guide on using social media**: ''The Junior Woodchuck Guide to Social Media'', published by Metropolia: http://docplayer.net/1699093-Aleksandra-meyer-and-tuomas-korkalainen-eds-the-junior-woodchuck-guide-to-social-media.html

Reallistically assessing own skills and competences which describe you professionally will prepare you for the presentation to employers.

STEP 3. Take steps to bridge the gaps to the desired job and competences.

A degree/qualification on its own is not enough. Today employers look for a good degree plus a combination of professional and social skills. For bridging these gaps, consider these possible steps:

➢ **Learning by doing**

The BEST way to bring the gap for a Master's student, who is already on his/her firm way of getting the highest professional degree, is learning by doing.

- **A Master's thesis project or assignment** completed for an organization serves as the best prove and recommendation to employment. Thus, it brings us back to the beginning – to do a project, **find your project!**

➢ **More learning** (long-term and short-term)

- '**Integration to Finnish culture**: Knowledge & understanding of the Finnish society & Finnish labour market customs & culture is essential to be effective in job search. Participation in extracurricular activities, hobby/language clubs etc. facilitate more interactions and will develop your soft skills, language skills and expand your network of connections.
- Keep your competences up to date. Best long-term investment is improving own **Finnish language** skills. Almost all job environments require knowledge of Finnish. Enrolling in a suitable Finnish language course (easily found in internet) is beneficial and gives added advantage over other applicants.

Some of the organisations that organise Finnish language courses for foreigners in Finland are:

- Summer universities in Finland
  http://www.kesayliopistot.fi/summer-universities-in-finland/

Kavita, Master of Engineering (graduated in 2015)
Finding a thesis project was very challenging and I did my thesis for Metropolia, my university, on the topic of employee engagement.
Even though I did my thesis project NOT for the company, I found a job in two months after my graduation. I attribute it to the high quality of my work and also to the acquired R&D skills. Doing my thesis made my approach more structured and purposeful and definitely developed my skills.
I feel that completing a Finnish Master's degree gives more credibility and edge to the applicant. I first found a summer training job (työharjoittelu) and with that experience, and my newly accomplished Master's thesis, eventually got a place in that company.

- The Language Centre of the University of Helsinki www.helsinki.fi/kksc/language.services/english/index.html
- Finnish language courses for adults in the Helsinki, Tampere and Turku regions www.finnishcourses.fi/
- Finnish language course for students in Metropolia
- http://www.metropolia.fi/en/apply/general-information/manage-your-studies/language-courses/
- Online Finnish language courses: www.cimo.fi/programmes/finnish_language_and_culture/links_to_finnish_language_and_culture.

Libraries in Helsinki organise Language Cafés where you can practise speaking Finnish. You can obtain more information on Language Cafés from libraries.

- **Open University courses**: For gaining missing professional knowledge in a focused way and improve the know-how required in working life.

  Open university studies course details: http://www.avoinyliopisto.fi/en-GB/

  Metropolia: http://www.metropolia.fi/en/academics/open-university-courses/
- **Summer courses by universities:** For students covering various academic fields and up-to-date topics for updating professional knowledge.

  Helsinki summer university: http://www.kesayliopistohki.fi/en/

  Aalto University: Aalto University Information Technology Program (ITP)

  Metropolia summer courses: ICT summer school, Master's summer school in business. http://www.metropolia.fi/en/academics/summer-studies/
- Open student-employer events: **Hackathon '10 DAYS 100 CHALLENGES program**: An open innovation program where you learn new work-life

Antonio, Master of Engineering (graduated in 2017)

Different fields require different levels of language proficiency. In my field of construction engineering, high level of Finnish language proficiency is a must. So, after completing my Master's studies, I could not find a suitable job in spite of my long-term experience in the construction field in project management positions. The option was either starting from the scratch or in another field. Finally, I decided to go back to my previous employer in UK after the studies and they were very happy that I am back.

My experience shows the role of the language that may be very different for various professional fields. If in IT the English language is spoken everywhere at work, construction is a very client-based field, and here a full proficiency in the local language is a must for a project manager.

skills and solve challenges together with leading innovative companies, professional experts and inspiring coaches. Jointly organised by Metropolia, Haaga-Helia and Laurea UAS. http://10days100challenges.fi/

- **Online courses**: Take additional online courses, for example, Massive open online **(MOOCs)** courses from top universities in your own field to make up the existing gaps and also to distinguish yourself from other applicants. https://www.class-central.com/

➢ **More consulting about your professional renewal**

- **Mentoring program** in major cities by associations, chamber of commerce etc: Connects international students with Finnish employers; develop your job hunting skills with a personal mentor and be able to create new networks and contacts and thus to speed up the employment of higher education young people after graduation.

  In Helsinki, https://suomenmentorit.fi/tehdaan-toita/

  In Tampere, https://talenttampere.fi/talents/talent-tampere-mentoring-programme-for-international-talents
- **AFTER GRADUATION from AMK: TE-services**: Programs in career, education and training: http://www.te-palvelut.fi/te/en/jobseekers/career_education_training/index.html.
- **Job coaches**: TE-services provide help in finding work or education with the support of a job coach, upon request: http://www.te-palvelut.fi/te/en/jobseekers/support_finding_job/job_coach/index.html
- **Connections to the working life**: One of the ways to help getting connected to the working life is through the official job training period. These training periods are granted by TE-toimisto. Therefore, check possibilities available in your particular case, after completing your studies (työharjoittelu, työkokeilu, työllistämistuki, etc.) in your local TE-office. Remember to be insistent and specific! TE-toimisto offers various opportunities to update own skills at work, and they need thoughtful consideration:
- http://www.te-palvelut.fi/te/en/jobseekers/support_finding_job/work_tryout/
- http://www.tepalvelut.fi/te/en/employers/find_an_employee/support_recruitment/pay_subsidy/index.html