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# Professionalism in Finnish Customs' ICT Leadership

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Master of Engineering

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## PREFACE

In this thesis I studied professionalism, competencies, and job roles in the world of information technology. I chose this theme, because it was something I had already pondered earlier, and now the same issues rose up from organizational surveys and were included in the strategy. I was lucky enough to be included in the strategy work groups and could utilize the thoughts I had earlier. However, this was not my first idea for thesis. When I applied for this degree program, I was thinking about something more technical and relating to machine learning. This idea did not fly, mainly because from the time usage point of view. I was not able to assign enough time for the required project since it did not relate to my normal work at Finnish Customs. The second more feasible idea was finding a new organizational model for ICT services and specifically the change management related to it. At this point I was introduced to other thesis writers at work and found out that organizational model was already covered in another study. Sparring together with our thesis works, gave us all more detailed scopes around the strategy themes we were researching. Professionalism in ICT leadership was born here and my Metropolia instructor reinforced this idea.

While working on this thesis, and being included in different work groups, it was interesting to learn how everything was connected. Professionalism, role clarifications, competencies and career paths all had interfaces to each other. Meeting and connecting with all the people related to these themes was rewarding itself.

I would like to thank my peer thesis workers at the Finnish Customs and my study group in the Metropolia for pacing my work on this thesis. Content of this study is a combination of several strategy work groups I was involved in, and I want to thank everyone involved in those groups. Special thanks to Anu Autio for her guidance from the strategy point of view, Riitta Paalanen for including me into career path strategy group and Raija Haurinen for accepting me to lead role clarifying project in her professional domain. Thanks belong also to my supervisors Sami Sainio and Ville Jääskeläinen at Metropolia for pushing me towards graduation. Loving thanks of course to my family for arranging undisturbed time and hot coffee for my study sessions. Last but not least, thanks to my cat for warming my feet during the long sittings drafting this thesis during the dark and chilly winter evenings.

Helsinki, 31 March 2023  
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## Abstract

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This master's thesis was done for the Finnish Customs' information and communications technology (ICT) services. ICT services has overlapping organizational structures and over hundred different ICT roles and titles. These create working environment with loosely defined and unclear responsibilities and complicate the processes and workflows in the organization. Controlling the situation requires increased professionalism for the ICT leadership. The personnel had given feedback on these issues, and actions needed to be taken.

To tackle overwhelming amount of ICT roles and to add more professionalism in the ICT leadership, this thesis proposes a concept for standard based ICT role profiles, including professionalism criteria for leadership roles. The concept was based on European competency framework for ICT professionals and utilizing it was expected to reduce the amount of ICT roles and titles dramatically and define their responsibilities clearly in role profiles. In the scope of this master's thesis, only ICT leadership role profiles are provided in detail. Other ICT role profiles were left out but are covered during the future work. This decision was done to cover the scope of personnel feedback and to keep the scope manageable. This thesis was done under the guidance of a workgroup responsible for a strategic priority theme for increasing the professionalism in leadership.

During the interviews and workshops, the proposed concept was widely accepted. Most arguments considered what job titles would be assigned to which person and what would the Finnish translations be for role profile names and for job titles.

Keywords: Customs, professionalism, IT, ICT, leadership, competency, framework, role profile

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Appendix 1: Current Roles in the Customs' ICT Services

Appendix 2: European e-CF ICT Professional Role Profiles

Appendix 3: European e-CF Level Table

Appendix 4: Enriched ICT Professional Role Profiles

## List of Abbreviations

CIO	Chief Information Officer
CEN	European Committee for Standardization
CEPIS	Council of European Professional Informatics Societies
CustComp <sup>eu</sup>	European Union Customs Competency Framework
e-CF	European e-Competence Framework
EU	European Union
ERDF	European Regional Development Fund
HR	Human Resources
ICT	Information and Communications Technology
IT	Information Technology
ITPE	IT Professionalism Europe. A network of stakeholders committed to the advancement of IT professionalism.
KPI	Key Performance Indicator
PM	Product Manager
PO	Product Owner
SAFe	Scaled Agile Framework
SFS	Finnish Standards Association
VM	Valtiovarainministeriö
VMBaro	A tool for the state personnel survey
WCO	World Customs Organization

# 1 Introduction

## 1.1 Context

Finnish Customs is a government agency employing over two thousand customs officers and specialists.[1] Its responsibilities include protecting the society, the environment, and the citizens.[1,2] Three hundred information systems and about one hundred and fifty persons in the Information and Communications Technology (ICT) services support the task.

## 1.2 Business Challenge

A look at the future of working life in the state administration brings up two rising themes in Finnish government. One of them is technological development, and the other one phenomenon orientation. The latter includes that, the work becomes more network-like and crosses organizational boundaries, and system and complexity thinking are emphasized along with foresight. Competence and skills might become more important determinants of work than job titles in the future.[3]

An extensive survey on management in the public sector was conducted in autumn 2021 as part of public management projects launched by the Ministry of Finance Finland. Respondents consisted of 355 managers from central government, municipalities, and other public sector organizations. One conclusion from this survey was that in general the leadership in the public sector was in a decent shape, but there is still room for improvement. On state level the survey showed that 66 % of respondents experienced leadership as professional or mostly professional. This is not bad result, but municipal and other public sectors had even better result with the score of 87 % and 80 %. Based on responses, the leadership roles and their expectations should be further clarified, and decision making should be transferred to lower levels. It would be faster and more efficient to resolve issues. One final conclusion was that leadership should

be more clearly seen as its own profession and the professionalism in leadership should be developed even more.[4]

Finnish Customs' ICT services has overlapping organizational structures and over hundred different ICT roles and titles. These create working environment with loosely defined and unclear responsibilities. These further complicate the processes and workflows in the organization. This is shown in the Figure 1. In addition, controlling the situation requires increased professionalism for the ICT leadership. This came up in well-being surveys conducted during 2022, where the personnel gave feedback on both issues, unclear roles, and professionalism in leadership.

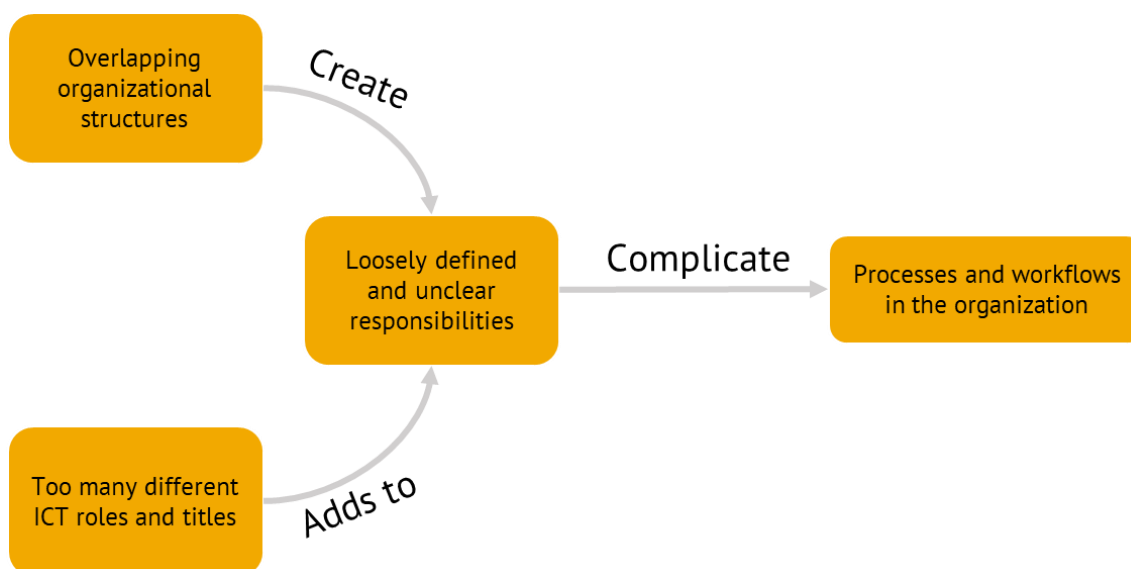


Figure 1. Business challenge

The situation is not specific to Finnish Customs. Other example can be found from Pratt & Whitney, a US designer and manufacturer of jet engines, where they conducted employee survey which confirmed the need for performance management reforms.[5] As a result of the survey, they specified key job requirements together with the employee and supervisor and managed to reduce their job descriptions from around three thousand to several hundred.[5] In their article, they state that this was achieved by pooling similar occupational groups together.[5] They also ended up reducing the number of salary levels from eleven

to six, which helped them to better define key benchmarks and assign them to jobs.[5]

### 1.3 Objective

Customs' strategy is divided into priority themes. One theme is leadership and workplace culture. This includes making the internal cooperation within Customs even closer and improving the leadership and the work of managers by supporting their skills. ICT services has set goals based on these and one of them is increasing the professionalism in leadership.[2]

A straightforward answer to business challenge is to modify organizational structure, reduce ICT roles and define clear responsibilities. This is shown in the Figure 2. Changing the organizational structure is not part of this study.

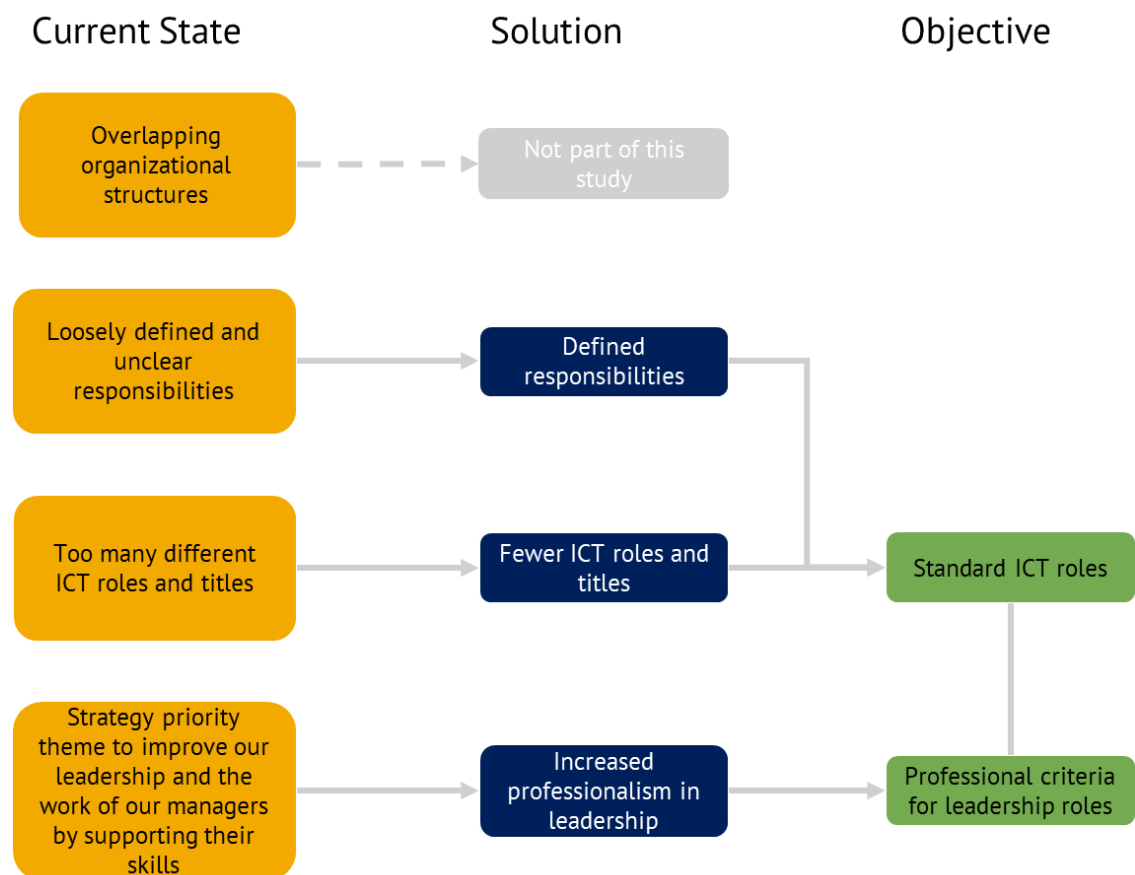


Figure 2. Objective

The objective of this thesis is to increase professionalism in the Finnish Customs' ICT leadership by proposing a model for standard based ICT roles and professionalism criteria for ICT leadership roles. The change from current state to expected state is shown in the Figure 3 below. Further utilization of the model is recommended to streamline and standardize all ICT roles in the future.

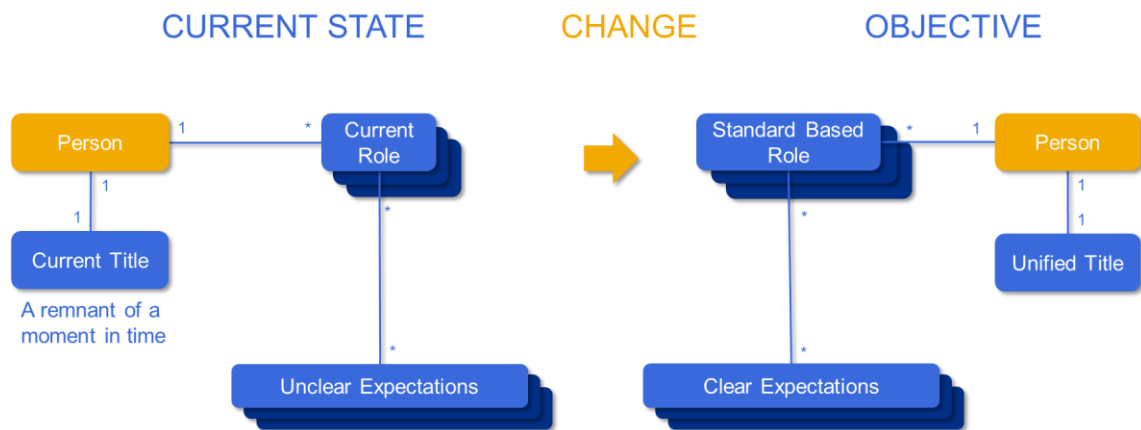


Figure 3. Suggested Approach

#### 1.4 Thesis Outline

This thesis has been divided into seven sections. Section 1 introduces the case government agency, the business challenge, and the objectives of the study. Section 2 describes the research approach and research plan. Section 3 covers the current state analysis, including organization structure, leadership roles, strategy guidelines and input for the study. Section 4 investigates theoretical background for professionalism in ICT and different competency frameworks. Section 5 presents a solution and proposes professionalism criteria for Customs' ICT leadership roles. Section 6 validates the solution using feedback from the original interviewees. Section 7 discusses ideas for job titles and competence levels in the future. Section 8 concludes and summarizes everything. The project is evaluated, and future work and next steps are proposed.

## 2 Methods & Materials

### 2.1 Research Approach

The research question was “How to increase professionalism in Finnish Customs’ ICT leadership?” The research was done as part of strategy work, and it was approached qualitatively by interviewing key persons and having workshops. Quantitative results from personnel surveys were also used as a starting point for this research.

One way to describe qualitative research is to use a definition by Pritha Bhandari, which states that “*Qualitative research involves collecting and analysing non-numerical data (e.g., text, video, or audio) to understand concepts, opinions, or experiences. It can be used to gather in-depth insights into a problem or generate new ideas for research*”.[6] Pritha Bhandari also lists some of the most common qualitative methods as observations, interviews, and surveys with open ended questions.[6] In the same article, qualitative research is described as “*the opposite of quantitative research, which involves collecting and analysing numerical data for statistical analysis*”.[6]

### 2.2 Research Plan

Current state analysis was done by interviewing key persons, participating to strategy workgroups, studying organizational documentation and survey results, and having workshops. The main areas of analysis included ICT services organization and roles in the ICT services, concentrating on leadership roles. Theoretical background was studied from online sources, including publicly available material from Finnish Customs and other government agencies. Main areas of study were professionalism, competency frameworks, ICT profiles and competency levels. The solution was iterated with several individuals and workgroups and consisted of proposing standard ICT roles and professional criteria for leadership roles. The Proposition was validated by piloting the solution and gathering feedback on it. Finally, conclusions were made, and summary was

written for the management. The Project was evaluated, and future work was recommended based on conclusions. This is shown in the Figure 4.

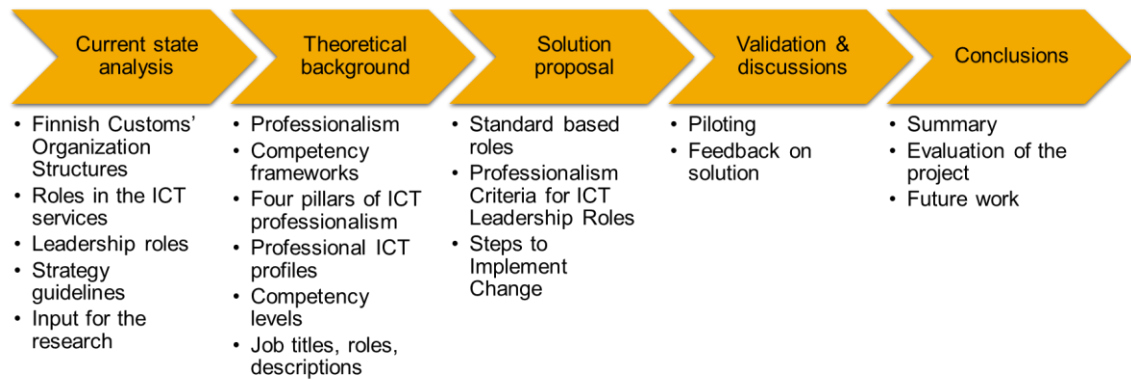


Figure 4. Research plan

### 3 Current State Analysis

Finnish customs is a government agency steered by the Ministry of Finance Finland. As such, it is also part of the customs system of the European Union. In addition, Finland is an EU member country and has been since 1995.[1,7] This is the general scope for the analysis and research.

Current state analysis consists of presenting Finnish Customs' organization structures, roles in the ICT services, leadership roles, strategy guidelines and input for the research. These are presented in the following chapters.

#### 3.1 Finnish Customs' Organization Structures

ICT services are part of administration department, shown in the Finnish Customs' organization and management chart (Figure 5). Finnish Customs' latest publicly available personnel statistics from 2021 shows that 93,5 % of the employees are civil servants [8], and the remaining 6,5 %, where also most of the employees in the ICT services belong, are in employment relationship instead. This division is done to make it easier to recruit ICT professionals when the government paygrades are not a limiting factor. The Statistics Finland lists the average monthly earnings of ICT professionals in the year 2021 in private sector

as 4861 € (based on the information of 55930 full-time employees).[9] This corresponds roughly to level 19 (on scale of 7 - 22) on Customs' paygrade table, and is considered high managerial or high senior expert level.[10] This division is relevant when the job competence levels are discussed in chapter 7. The current structure of the ICT services is shown at abstract level in the Figure 6. Exact structure is not important, because it changes occasionally and is therefore left out from the scope.

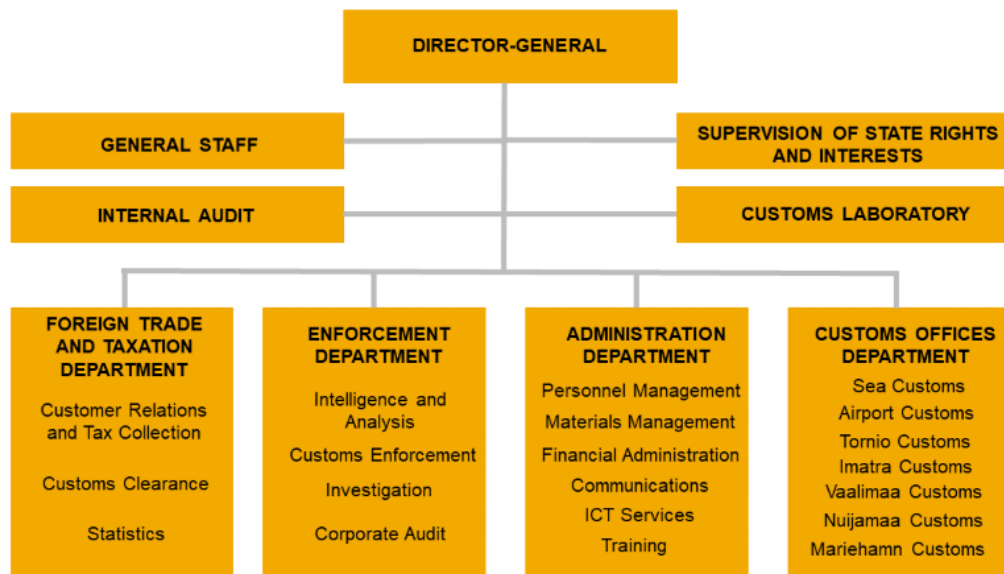


Figure 5. Organization and management [11]

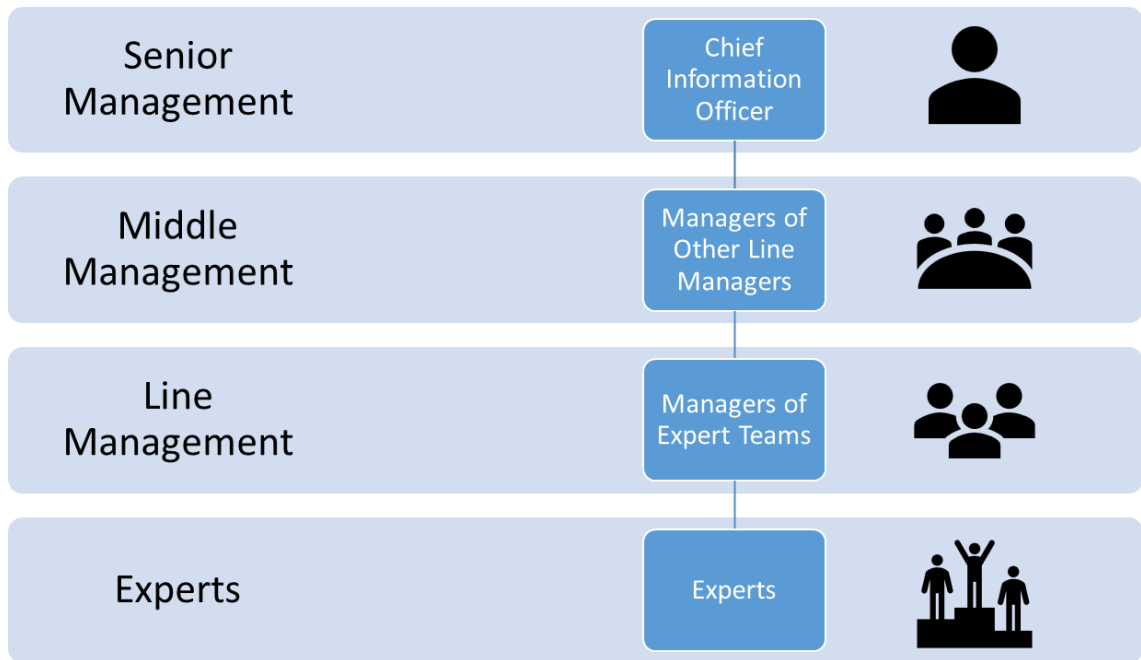


Figure 6. Structure of the ICT services

In addition to line management structure (Figure 6), there are also overlapping program and project structures in Finnish Customs' ICT Services. Some of these structures are based on waterfall methods, and some on agile methods.[12–14] These structures have their own job roles with different expectations, which might differ from case to case and cause unclear responsibilities. Changes in organization structure and procedures are expected to improve leadership possibilities and remove uncertainties as part of the solution. Solution for renewing organizational structure is not part this thesis. This and other ways to improve leadership in ICT services are covered in chapter 3.5.2.

### 3.2 Roles in the ICT services

In general, the ICT services consists of Customs personnel and consultants. This thesis concerns only Customs' own personnel. Latest internal check resulted to 113 different roles or titles for ICT personnel as they are found in the internal sources like phonebook. These are listed in Appendix 1. This is a result of different practices during different times in recruitment, and sometimes not having a planned practice at all. In addition, a person's role might have been changed at some point, but the title has not. In some case a person has collected a lot of

different tasks and then resigned. This has triggered the need for recruiting a new person to substitute the same profile, which has led to a very specific role definition and a title. The current situation creates confusion in the expectations of one's job content, demands and compensation.

Research about the effects of unclear roles and responsibilities has revealed that employees find uncertainty in their job as a stressor, which can lead to tense work settings and unhappy, even unhealthy employees.[15] Occasional and temporary stress is part of work life, and it usually does not cause bigger problems when the intensity is mild. Jill Geisner discusses this in her article and lists several serious stressors, of which unclear roles and responsibilities are one.[15]

SafeWork NSW (New South Wales) states in their article that *“lack of role clarity can lead to tension and conflict between workers. Role conflict occurs when workers are given different and incompatible roles at the same time, or their role overlaps with another worker or work group. The greater the role conflict, the higher the likelihood of a worker experiencing work-related stress”*.[16]

### 3.3 Leadership roles

The basic leadership structure in Finnish Customs, defined by the law, consists of director general, departmental directors, director of finances and director of communications.[17]

The ICT services are part of administration department and its tasks and rules of procedure are defined in organization's internal documentation.[17] Leadership roles in the ICT services include:

- Chief information officer (CIO)
- Members of the ICT executive team
- Other management roles

This thesis concentrates on the leadership roles of the ICT executive team, since they are managers with right to direct. Head of this team is the CIO, and the other

participants are team and group leaders. Team leaders are line managers who directly lead ICT experts. Group leaders belong to middle management, and they manage team leaders. Many have expert roles in addition.

### 3.4 Finnish Customs Strategy Guidelines

The Customs strategy for 2020-2023 guides the operation. In the strategy, the changes in the operating environment and the challenges of the 2020s have been taken into account, by choosing priority themes.[2] These strategic priority themes are advanced in workgroups, and they are [2]:

- Leadership and workplace culture
- Social responsibility
- Technology and information
- Personnel and competence
- Interest groups and networks

This thesis was done under the leadership and workspace culture theme, but there were lots of collaboration with other workgroups working on other priority themes.

### 3.5 Input for the Research

Main inputs for the research were two well-being surveys, results of the ICT executive team workshops, and expectations from the key person interviews. All of these were conducted in 2022. Well-being surveys were the VMBaro state personnel survey and workplace survey.[18,19]

#### 3.5.1 Well-being surveys

VMBaro (VM meaning Valtiovarainministeriö or ministry of finance Finland, and Baro as a shortening from barometer) is a tool for the state personnel survey, where organizations can measure and monitor the job satisfaction of their personnel, the success of their immediate supervisors' management work, and the functionality of the state's salary system in practice.[18] VMBaro job

satisfaction survey consists of eight sections of questions as presented in their survey material and listed here below [20]:

1. Managerial work and leadership
2. Content of work and possibilities to influence
3. Pay
4. Skills and competencies, learning and updating
5. Operating culture of the working community
6. Working and operating environment
7. Interaction and communication
8. Employer image and values

The results from the first two sections of VMBaro material, “managerial work and leadership”, and “content of work and possibilities to influence”, brought up the need to increase professionalism in leadership, and to clarify ICT roles.[20]

A website of the Occupational and Health Administration in Finland describes the workplace survey as something which is conducted by the occupational health care professionals and must be performed in all workplaces that have employees.[19] The description in their website continues to state that *“In the workplace survey, occupational health care professionals investigate and assess the work and the circumstances in the workplace in terms of health and safety. They also assess the impact of those factors on the employees’ health and ability to work”*.[19] A workplace survey is required by the Finnish law.[21]

The workplace survey revealed unclear roles and responsibilities as stressors, and together these two surveys show the importance of role clarification and the increased professionalism in leadership. Detailed results of these surveys are for internal use only.

### 3.5.2 ICT Executive Team Workshops

ICT executive team had four workshop sessions for brainstorming solutions to leadership related issues risen from the well-being surveys. These workshops focused on enabling the successful leadership work and increasing the

professionalism in ICT leadership. Based on those, some of the more important objectives identified and chosen to be advanced were:

- Job roles need to be clear and well organized.
- There must be a feeling of control in the leadership work.
- Work must be scoped and prioritized clearly.
- Individual workload needs to be realistic.
- Leadership procedures need to exist, and they need to be clear and unified.
- Organization structure needs to be arranged based on common connecting factors.

This thesis was chosen to be the practical solution for the first objective on the list: "job roles need to be clear and well organized". Other objectives were decided to be advanced by different means. It was noted that unclear job roles and increasing need for professionalism in ICT leadership could not be exclusive issues for Finnish Customs' ICT services, so it was decided to research solutions already available.

Research conducted in IT-sector in Germany points out that: *"ICT can be seen as a particularly innovative field, with increasing employment over the last decades. This has led to new demands regarding qualifications and occupational profiles related to ICT or directly embedded into the IT sector"*.<sup>[22]</sup> Their research continues to state that: *"Standardisation on the European level is hoped to provide for a better transparency of certifications received in different member states and eventually increase in mobility within the European workforce"*.<sup>[22]</sup> From the point of skills and knowledge, the standardisation serves different purposes for different groups.<sup>[22]</sup> The research by IT-sector in Germany clarifies that: *"For employers, certificates and qualifications are intended to signal certain personal capacities and help to make the right decision as regards to employing the best matching candidates. For the individual they serve as a mechanism of orientation when aiming at certain positions and jobs in the labour market"*.<sup>[22]</sup> Based on this, it was decided that further research would focus on existing solutions on standardised ICT-profiles and professionalism criteria. This would be started by interviewing key persons for solution expectations.

### 3.5.3 Expectations from Interviews

Considering standardized ICT-profiles and professionalism criteria, key person interviews and workgroups produced following requirements for the solution:

- Role responsibilities needs to be clear.
  - Currently there are loosely defined and unclear responsibilities for several roles.
  - Well-being surveys and literature (e.g. Jill Geisner and SafeWork NSW) have shown that unclear responsibilities create stress.[15,16]
- Needs to co-exist with the EU Customs Competency Framework.
  - EU Customs Competency Framework is in use and covers the needs of Finnish Customs in general. It is covered in chapter 4.2.2 in more detail.
- Needs to be independent from the organization structure.
  - Independence from the organization structure was thought to be important because structures may change.
- Needs to cover both specialists and managers.
  - This makes the solution more usable and expandable.
- Should have potential for career path planning.
  - Career path planning was a topic for another strategy workgroup, and during its work, it became clear that defined roles and career paths are strongly connected.
- Job titles should be commonly acknowledged.
  - Commonly known job titles and role definitions are expected to help Customs' ICT services interact more clearly with external parties and e.g., recruit new personnel more accurately.

## 4 Theoretical Background

In the scope of this thesis, theoretical background covers the definition of professionalism, competency frameworks, four pillars of ICT professionalism, professional ICT profiles, competency levels, job titles, job roles, and job descriptions.

### 4.1 Professionalism

The Cambridge dictionary defines professionalism as *“the combination of all the qualities that are connected with trained and skilled people”*.<sup>[23]</sup> It also defines professional as a person who has the type of job that needs *“a high level of education and training”*.<sup>[24]</sup> In addition, the profession is defined as *“any type of work that needs special training or a particular skill, often one that is respected because it involves a high level of education”*.<sup>[25]</sup>

The Merriam-Webster dictionary defines professionalism as *“the conduct, aims, or qualities that characterize or mark a profession or a professional person”*.<sup>[26]</sup> Same source defines professional as someone “engaged in one of the learned professions”, as well as someone “characterized by or conforming to the technical or ethical standards of a profession”.<sup>[27]</sup> It also defines profession as *“a calling requiring specialized knowledge and often long and intensive academic preparation”*.<sup>[28]</sup>

The common or standing out aspects of these definitions are **education, training, knowledge, skills, and ethics**.

#### 4.1.1 Professionalism in European Union

Since Finnish Customs is part of Financial Ministry Finland and a member of European Union (EU), it is natural to search solution for professionalism in the scope of EU.

There are several frameworks for professionalism and competencies created or initiated by the European Commission. These include e.g.:

- EU Competency framework.[29]
- EU Customs Competency Framework.[30]
- European e-Competence Framework.[31]

These are displayed in hierarchy in Figure 7 and are covered in more detail in the following chapters.

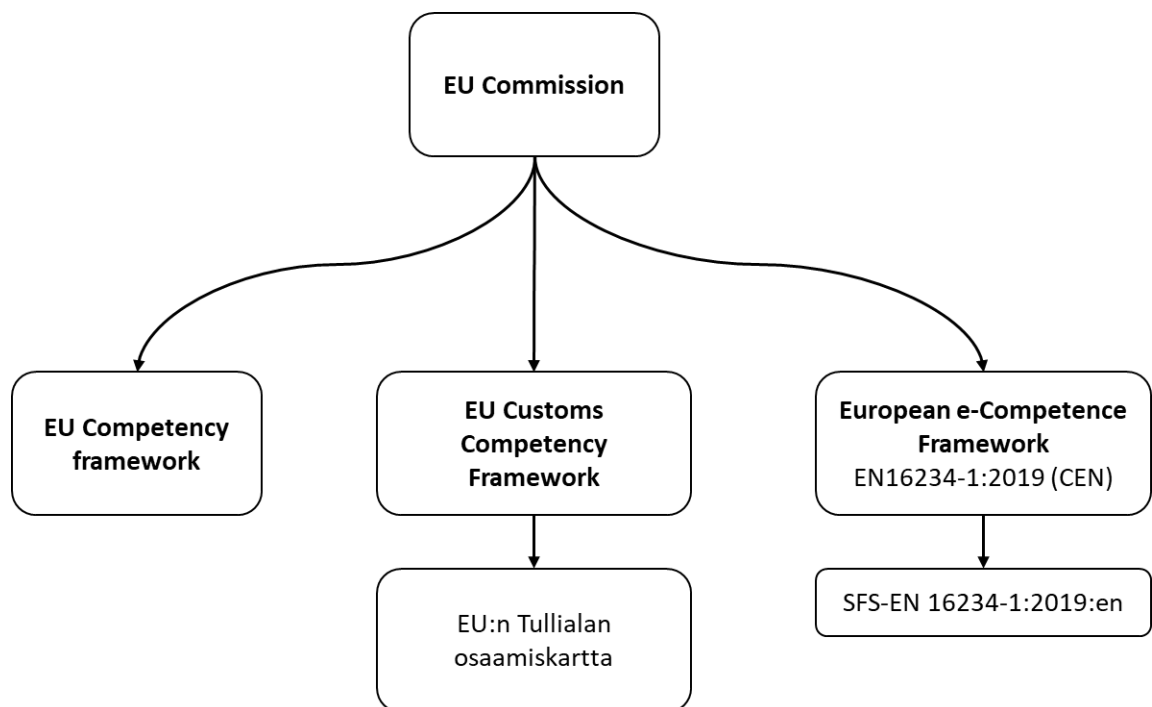


Figure 7. EU competency frameworks

## 4.2 Competency Frameworks

Competency frameworks tend to be domain specific. EU competency framework is specific for administrative domain. EU customs competency framework is specific for customs in the EU. European e-competence framework is specific for ICT professionals within EU. These are covered in more detail in the following chapters.

#### 4.2.1 EU Competency Framework

A website by the European Commission says the following about EU Competency Framework: *“The commission is making available an EU competency framework and an accompanying self-assessment tool for national coordinating bodies, managing, certifying and audit authorities, joint secretariats, and intermediate bodies. These instruments will support administrations in their efforts to improve their administrative capacity for management of the funds by helping them to identify and address potential competency gaps”*.<sup>[29]</sup>

This framework does not apply very well in the scope of this thesis, since it is described as a *“specific tool to support member state administrations in their efforts to improve their administrative capacity for management of the European Regional Development Fund (ERDF) and Cohesion Fund”*.<sup>[29]</sup>

#### 4.2.2 EU Customs Competency Framework

Another competency framework within the European Commission is the European Union Customs Competency Framework (CustComp<sup>eu</sup>). European Commission website describes that this framework *“aims at harmonising and raising customs performance standards throughout the EU. It has been developed in collaboration with public and private experts from EU countries, the World Customs Organization (WCO) and other international sources”*.<sup>[30]</sup>

CustComp<sup>eu</sup> has three competency areas: professional, operational and management. The professional competencies are based on Lominger’s competency descriptions, which has 67 competencies.<sup>[30,32]</sup> The overview of EU Customs Competency Framework states that the *“management competencies are based on existing national competency models”*.<sup>[30]</sup> In addition, the overview document says that *“management competencies are strongly aligned with the WCO Picard professional standards competency model and have been adapted to the EU Customs context”*.<sup>[30,33]</sup>

The European Commission website describes the Custcomp<sup>eu</sup> with the following words: *“The CustComp<sup>eu</sup> is the foundation, which sets out a consensus view of the optimal set of knowledge, skills and behaviors required by customs professionals in the EU. It also further defines public and private Customs roles and offers tools to map and adapt the agreed EU Customs competencies and role descriptions to different customs organizations and structures, both for national administrations and businesses”*.<sup>[30]</sup> The same website lists the following items, which the framework enables to improve <sup>[30]</sup>:

- identify competency gaps and training needs
- assess staff against established standards
- improve both operational and human resources processes
- allow for data driven decisions
- expand on sharing best practices and the creation of a thriving EU Customs community
- create significant cost efficiencies.

Continuing to describe the framework, European Commission website says, that *“common EU Customs Role Descriptions (each followed by a unique to the role competency profile) describe in detail the responsibilities, behaviors and optimal blend of competencies customs professionals are expected to learn to be considered successful in their roles”*.<sup>[30]</sup> These descriptions are linked to the website are for the following roles <sup>[30]</sup>:

- Policy
- Client Management
- Risk
- Declaration Processing
- Control
- Investigation
- Enforcement
- Audit
- **Supportive Functions**
- Cross Functional

In the documentation for the supportive functions in Customs Administration, the functions can be HR, Training, Finance, IT, Communication, Legal, Logistics etc.[34] Under these functions, the following expert areas may exist [34]:

1. HR experts
2. Training experts
3. Finance experts
- 4. IT experts**
5. Public Relations experts
6. Legal experts

The scope of this thesis is IT experts in the supportive functions, and roles covered within its domain are listed below as stated in the documentation for supportive functions [34]:

- Management Roles:
  - Senior Manager
  - Middle Manager
  - Line Manager
- Expert Roles:
  - Senior Expert
  - Expert
- Operational Roles:
  - Team Lead
  - Customs Officer
  - Customs Officer Trainee

The role of Strategic Manager is not included in the supportive functional domain, since it is only present in the cross-functional domain.[34]

Finnish Customs has adopted EU Customs Competency Framework as “EU:n Tullialan osaamiskartta”, but it lacks specific competencies and roles for ICT professionals.

### 4.2.3 E-Competence Framework

There are different ICT competence, skills, qualification, and profile frameworks, which exist around Europe.[35] Some of them, as listed on e-Competence Framework's case studies, are [35]:

- CIGREF's (Club Informatique des Grandes Entreprises Françaises) nomenclature of IT job profiles. CIGREF is an association, which brings together a network of stakeholders from the private sector in France.[36]
- Advanced IT Training system (AITTS), which is used in Germany for National ICT Professional Profiles.[35]
- Profiles from "Duale Ausbildung" (dual education), also used in Germany.[35]

These frameworks are based on The European e-Competence Framework, and the case studies for this framework, it is said it "*establishes a European standard for ICT competences and skills description as needed and applied at the Professionals' workplace*".[35] It is also said in this case study, that the framework is "sufficiently generic to be adaptable to the requirements of different countries, different companies and organizations and to technological evolutions and ICT service developments over the next few years".[35]

The European e-Competence Framework (e-CF) EN16234-1:2019 was published by CEN as a European Norm (EN).[37] European Norms can be purchased from the national organizations of CEN members.[37] In the case of Finland, this sales point is the Finnish Standards Association (SFS).[38]

IT Professionalism Europe (ITPE) hosts the e-Competence Framework.[39] ITPE about page on their website presents themselves as "a network of stakeholders committed to the advancement of IT professionalism".[39] They state that their network includes public and private sector experts from domains like policy, standards, HR, IT management, education, training and other service providers interested in supporting IT professionalism.[39] They make a note, that they work together with key public actors from the European Commission, the European Parliament, CEN, national standards bodies, and member states.[39]

This framework is an Initiative of Council of European Professional Informatics Societies (CEPIS).[39]

ITPE states the four pillars of IT professionalism as [41]:

- Body of knowledge
- Competence
- Education & training
- Ethics

These four professional pillars correspond to the definitions of professionalism in the chapter 4.1 and are studied in more detail in chapter 4.3.

### 4.3 Four Pillars of IT Professionalism

The four pillars of IT professionalism are body of knowledge, competence, education & training, and ethics. These are presented in the following chapters.

#### 4.3.1 Body of Knowledge

*A website for IT Professionalism Europe uses the following way to describe body of knowledge: “A body of knowledge refers to the knowledge which is essential for a professional to know. The Foundational IT Body of Knowledge is a reference set by ITPE to the requirements for the ICT professionals, and it was developed under the patronage of the European Commission. It refers to the core IT knowledge shared by all the different IT sub-domains and which any IT professional should master even before approaching a career in the sector”.[42]*

This website also makes a note that the body of knowledge relates closely to the e-CF.[42]

The documentation of the European Foundational ICT Body of Knowledge presents the classification of high-level areas of understanding for beginner ICT professionals.[43] In their documentation, they present the 12 knowledge areas, which are listed here below [43]:

1. ICT Strategy & Governance

2. Business and Market of ICT
3. Project Management
4. Security Management
5. Quality Management
6. Architecture (including computer systems, business, data, applications, technical and enterprise)
7. Data and Information Management
8. Network and Systems Integration
9. Software Design and Development
10. Human Computer Interaction
11. Testing
12. Operations and Service Management.

These knowledge areas can be detailed further, as described in their document and listed below [43]:

- Definition of the Knowledge Area.
- List of items required as foundational knowledge necessary under this Knowledge Area.
- List of references to the e-Competence Framework.
- List of possible job profiles that require understanding the Knowledge Area.
- List of examples of specific Bodies of Knowledge, certification, and training possibilities.

#### 4.3.2 Competence

IT Professionalism Europe website explains that the European e-Competence Framework (e-CF) includes 41 competences as a reference for the IT professional work context.[44] They state these references can be used as “*a common language for competences, skills, knowledge and proficiency levels that is applied and understood across Europe*”.[44]

### 4.3.3 Education & Training

In the website of ITPE, the next pillar of IT professionalism is education and training.[45] They describe this with the following sentences: *“Certifications, qualifications, non-formal learning, and informal learning are all mutually supportive components of an IT professional’s career development. For this reason, it is necessary to recognise and support co-existence of the different educational paths, as standard education is not sufficient for the changing industry demands. It is common that IT professionals acquire expertise during their career, without formal qualifications”*.[45] The last sentence about expertise without formal qualifications is interesting and has been noted also in the Customs’ ICT services.

### 4.3.4 Ethics

The last pillar of IT professionalism is ethics. ITPE website explains this as follows: *“Developing a consistent approach to ethics is an essential part of building any profession. Cooperation with relevant stakeholders, including the European Commission, national bodies as well as with the private sector, is necessary to ensure that ethical standards are fully developed”*.[46] They continue with the distinction between a ‘Code of Ethics’ and a ‘Code of Conduct’: *“The first being understood as a set of guidelines for the profession in general, whereas a Code of Conduct focuses more on enforced rules of conduct, which are binding for all practicing professionals”*.[46] As a Finnish agency, Customs follows code of conduct for civil servants.[48]

## 4.4 Professional ICT Profiles

ICT professional role profiles are in the centre of this thesis. These are introduced in the ITPE website with the following background: *“The European ICT Professional Role Profiles were published by the European Committee of Standardization (CEN) and provide a generic set of typical roles performed by IT Professionals in any organisation, covering the full range of ICT business*

processes”.[49] These role profiles can be seen in the Figure 8, which is taken from the ITPE website.[49]

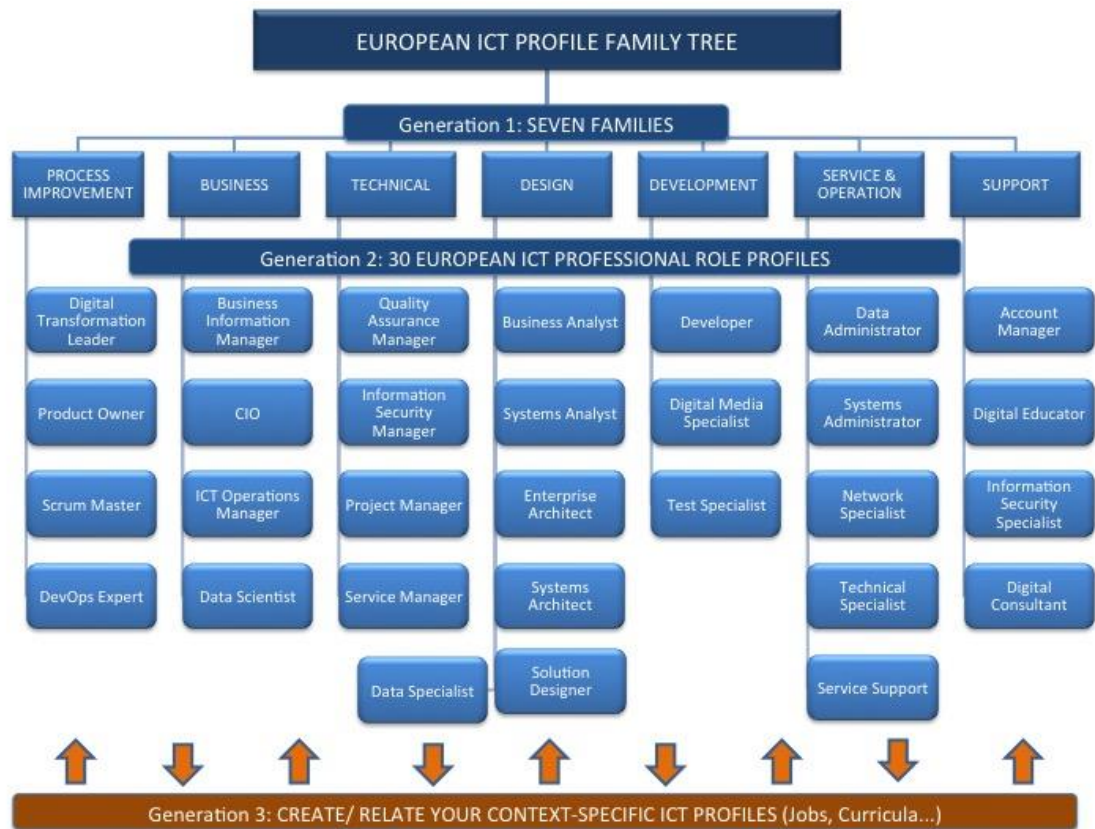


Figure 8. European ICT Professional Role Profiles [49]

## 4.5 Competency Levels

There are many ways to define competence levels. This chapter covers some framework examples in the scope of EU and Finland.

### 4.5.1 Ministry of Finance Finland

Ministry of Finance Finland has made a study on expert career paths and suggests the use of three levels, shown below [50]:

1. Aloitteleva asiantuntija (Beginner expert)
2. Asiantuntija (Expert)
3. Senioriasiantuntija (Senior expert)

First level in this model is a beginner expert, which indicates a temporary position. However, this might not be the case every time. A person could work a whole career at this level. In addition, three levels are not so much when career path is considered, and many might start already at higher expert levels. This model specifically covers experts and not managers.

#### 4.5.2 Statistics of Finland

Statistics of Finland has expanded model from Ministry of Finance Finland further and suggests the implementation of four levels for their own internal use, as listed here [51]:

1. Asiantuntija (Expert)
2. Erikoisasiantuntija (Specialist)
3. Senioriasiantuntija (Senior expert)
4. Johtava asiantuntija (Leading expert)

This model covers also specifically experts and not managers.

Statistics of Finland uses four different levels externally for statistical purposes, as shown here [52]:

1. Suorittavat tehtävät (Performing tasks)
2. Asiantuntijatehtävät (Expert tasks)
3. Erytisasiantuntijatehtävät (Specialist tasks)
4. Johtotehtävät (Managerial tasks)

Statistics of Finland defines erityisasiantuntija (specialist) as someone who possesses at least bachelor's or equivalent level degree (level 6 on ISCED-11 scale).[53,54] They also define asiantuntija (expert) as someone who possesses Short-cycle tertiary education (level 5 on ISCED-11 scale).[53,54]

### 4.5.3 IT Professionalism Europe

ITPE discusses in their website, why a certain number of competence levels should be used. They state that: *”Organizations seek to simplify structures and in recent years have commonly reduced career structures to the minimum. Five levels were identified that adequately covered the span of IT professional activities and reflected competences within IT professional roles”*.<sup>[55]</sup> These five levels are listed below and are described in more detail in appendix 3.<sup>[56]</sup>:

1. Associate
2. Professional
3. Senior Professional / Manager
4. Lead Professional / Senior Manager
5. Principal

### 4.5.4 EU Customs Competency Framework

EU Customs Competency Framework has career paths and role levels for general management and experts as seen in the Figure 9.<sup>[57]</sup>

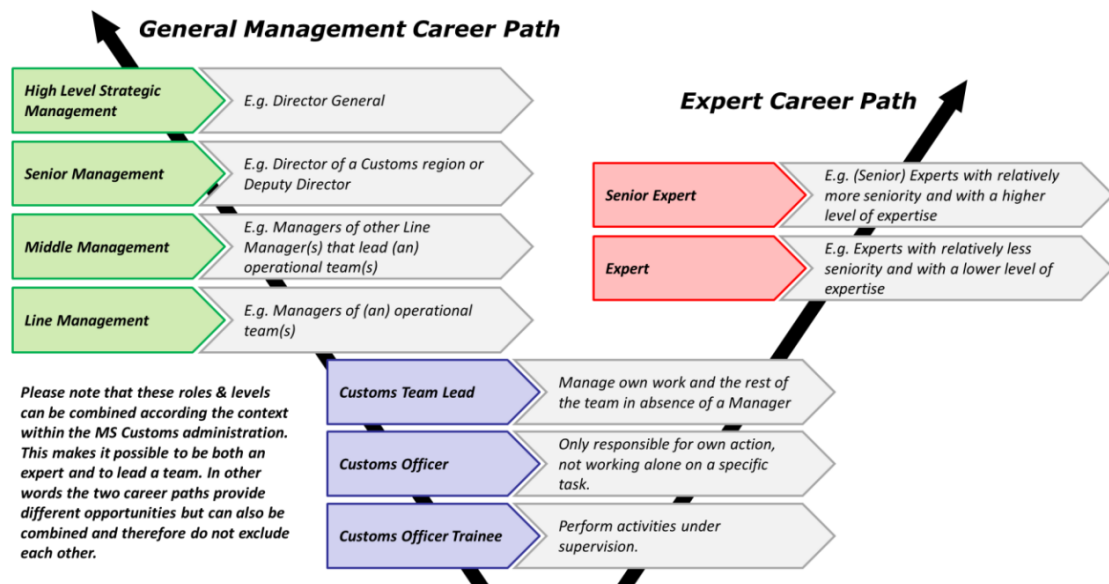


Figure 9. EU Customs Competency Framework Role Levels [57]

Each agency has its own payroll system, but all are based on government remuneration policy.[58] Finnish Customs has internal application instructions and job descriptions for its payroll system. This system has pay grade levels from 7 to 22.[10]

The ICT services in the Finnish Customs is an expert organization and includes only experts and management roles. The job descriptions in the payroll system include expert and management roles in paygrades 16 – 21. For ICT services, only levels 16 – 20 apply. These roles and their paygrades are:

16	Expert
17	Senior Expert
18	Senior Expert / Line Management
19	Senior Expert / Middle Management
20	Senior Management

Currently paygrades are not directly used in the ICT services since most employees are not civil servants. These paygrades are loosely followed.

#### 4.5.5 Diving Industry

As a comparison from completely different field of expertise, the diving industry has the following levels as defined in CSN EN ISO 24801 (requirements for the training of recreational scuba divers) and 24802 (requirements for the training of scuba instructors) standards [59]:

1. Supervised diver, level 1
2. Autonomous diver, level 2
3. Dive leader, level 3
4. Scuba Instructor, level 1
5. Scuba Instructor, level 2

#### 4.5.6 Thoughts About Competency Frameworks

These last three samples (chapters 4.5.3, 4.5.4 and 4.5.5) show that the five-level competency model can be used in different professions and should provide some potential for career growth. However, during interviews and workshops, it was noted that career directions could change from time to time, and be horizontal or vertical, which gives a lot more variety and possibilities for career planning.

#### 4.6 Job Titles, Roles, and Descriptions

iHire claims to be “*a leading career-oriented platform that brings candidates and employers together in 57 industry-focused communities*”.[60] An article in their webpage defines job titles, job roles and job descriptions as follows [61]:

- Job title is a label, which a person can hold within a company, based on the position.
- Job role is a function, which a person fills in the organization. It defines what the person does.
- Job description lists the particulars of the position, including duties, responsibilities, and necessary skills. While job roles can be universal, the job descriptions may vary widely depending on the specific focus, needs, and expectations of each organization.

In addition to iHire, there are several other platforms for similar purposes. E.g., Indeed-web page states to be the number one job site in the world, which provides “*free access to search for jobs, post resumes, and research companies*”.[62] In their article, the editorial team describes a job title as something that refers to individual’s official designation in the company.[63] They write that “*It indicates your seniority level and roles and responsibilities in the organisation*”.[63]

In their article, they list three types of job titles, which are presented here [63]:

1. One that indicates the seniority level, e.g., team lead or regional manager.

2. One that describes what you do in a company, e.g., programmer or data engineer.
3. One that reveals both the seniority level and the tasks performed, e.g., chief financial officer, or production supervisor.

The article in the Indeed-web page continues to state that a job title is important, because [63]:

- It reflects career advancement.
- It helps determine salary-level.
- It helps in application screening.
- It helps in employee growth planning.

Same kind of findings are also in article for OfficePRO, where Hoskins lists four reasons why the job description and title should reflect what a person really do.

[64] These reasons are covered below, as written in the article [64]:

1. Names matter:

The results were based on a survey of 2200 administrative professionals conducted by their Office of the Future research project. 93% of these professionals stated that an accurate job title is important since lots of professional identity comes from the title. The title should reflect current job and not the job a person was initially hired for. Only 50% of respondents said their job description is accurate. In addition, 40% think their job descriptions are inaccurate because their responsibilities had evolved considerably since starting their job.

2. Hitting expectations:

Job titles for similar roles can vary from workplace to workplace. A job title alone is therefore not enough to define expectations. An accurate job description is also needed.

3. Setting performance goals:

Specifics of job description helps to manage time and hit productivity targets. A good description will spell out what needs to be done and how often.

4. Positioning yourself for advancement:

87% of respondents said they often help with something outside their job description. Having a well-defined job description and listing these additional tasks, makes it possible to discuss about compensation and promotion.

## 5 Solution proposal

The objective of this thesis was to increase professionalism in the Finnish Customs' ICT leadership. This is expected to be achieved by utilizing a model for standardized ICT roles and professionalism criteria for ICT leadership roles. Based on the research, this thesis proposes following concept to meet the objective:

- **Model for standard based ICT roles.**
  - Adapt the e-Competence framework and its standard role profiles.
  - Create a clear correlation between roles, job titles and job descriptions.
- **Professionalism criteria for ICT leadership roles.**
  - Select the standard role profiles best corresponding the ICT leadership roles, i.e., members of the ICT executive team in the Customs' ICT services.
  - Enrich the ICT leadership role profiles with organization specifics.

These are covered in more detail in the following chapters.

### 5.1 Standard Based Roles

This thesis suggests that one person can have multiple ICT role profiles based on e-Competence framework. These standard ICT role profiles are enriched with the organization specific information, like recommended education, courses, certifications, and interactions. The process for adapting and enriching the profiles is described in the chapter 5.1.2. The role profiles are mainly independent from the organization hierarchy and are not bound specifically to certain individuals. This means that roles are transferrable between persons. The actual job of an individual consists of selection of these standard ICT role profiles and administrative information including the job title, job description, contract, and salary. This is described in Figure 10, which is based on principles in the user guide for European ICT professionals role profiles.[65]

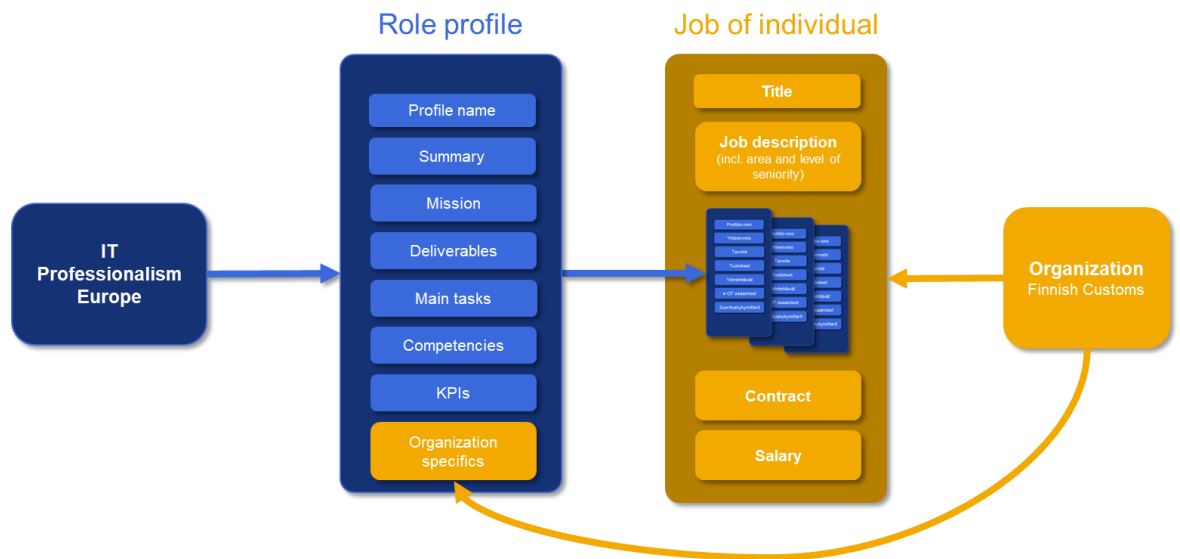


Figure 10. Role profiles inside jobs

### 5.1.1 The Chosen Framework

e-Competence Framework was chosen because:

- It has currently 30 ready-made standard role profiles, both specialist and manager roles
- Roles and their names are commonly acknowledged
- It has five competence levels for IT professional roles
- Its four pillars of professionalism match the definition of professionalism
- It has instructions for adapting existing and creating new role profiles
- It has online tools and lots of supporting documentation
- It is not bound to specific organization structure
- It can be used as a helping tool for Career path planning
- It compliments EU Customs Competency Framework
- It is a result of European Commission initiative
- It is actively upheld by ITPE
- It is standardized and the standard is upheld by CEN and SFS

These properties fulfil the original requirements from chapter 3.5.3.

### 5.1.2 Adapting the Role Profile Template

The user guide for European ICT professionals role profiles suggests the following steps to adapt role profiles to local needs [65]:

1. Select best fit ICT Profile/s (One/ Part of one/ Set of several).
2. Adapt (Title/ Summary Statement/ Mission).
3. Keep or Add (Deliverables/ Tasks/ Competences/ Align Proficiency Levels).
4. Apply the appropriate use of the acronyms, IS and ICT, as applying to your context.
5. Add missing items according to your organizational needs, (e.g., Experiences (Tools, Methods)/ Attitudes/ Qualification/ Certification(s)/ Accreditation(s)/ Reporting line).

This thesis recommends using standard role profiles if possible and executing the steps 1 and 5 to find best matching profiles for individuals and to enrich the profiles with organization specific information. This is done to keep the number of role profiles low and as standard and robust as possible to restrain the role definitions running wild. If specifically needed, new non-standard roles can be defined, but they should be created and documented using the e-Competence framework and all the steps above.

### 5.1.3 Generic profile template for ICT roles

This thesis suggests the use of role profile template based on the European ICT Professional Role Profiles, enriched with the Customs' specific information and selected knowledge areas from the foundational ICT body of knowledge.[43,49]

The generic profile template is presented in Figure 11.

<b>Profile Title:</b>	<i>Profile Title</i>		
<b>Summary:</b>	<i>Summary statement</i>		
<b>Mission:</b>	<i>Mission statement</i>		
<b>Deliverables:</b>	<b>Accountable</b>	<b>Responsible</b>	<b>Contributor</b>
	<i>Deliverable 1</i> ... <i>Deliverable n</i>	<i>Deliverable 1</i> ... <i>Deliverable n</i>	<i>Deliverable 1</i> ... <i>Deliverable n</i>
<b>Main Task/s:</b>	<i>Task 1</i> ... <i>Task n</i>		
<b>e-Competences:</b>	<i>Competence 1</i> ... <i>Competence n</i>		<i>Level of comp. 1</i> ... <i>Level of comp. n</i>
<b>KPI Area:</b>	<i>Definition</i>		
<b>Customs' Specifics</b>	<i>Recommended Education</i> <i>Recommended training path inside Finnish Customs</i> <i>Interaction and reporting line</i> <i>Customs Professional Competencies (max 5)</i> <i>Customs Operational Competencies (max 5)</i> <i>Customs Management Competencies (max 5)</i>		
<b>Foundational ICT Body of Knowledge</b>	<i>Foundational knowledge 1</i> ... <i>Foundational knowledge n</i>		

Figure 11. Generic profile template

This generic template includes Customs' specific part, which is used to add missing items according to organizational needs, as described in step 5 of adapting the role profile template (chapter 5.1.1). Customs' specific part contains following suggestions from the strategy work group:

- Recommended education.
- Recommended training path inside Finnish Customs, including preferred certifications and courses.
- Interactions and reporting line.

Customs' specific part also contains selection of Customs professional, operational and management competencies (as discussed earlier in the chapter 4.2.2) from the collection presented in Figure 12, Figure 13, and Figure 14.[57]

Customs Professional Competencies			
Dealing with Operational Risk	Coaching/Mentoring	Analytical Thinking	Oral Communication
Drive for results	Knowledge/experience sharing	Interpersonal Relations	Reporting
Investigative Ability	Coping with stress	Problem Solving	Creativity
Teamwork	Handling Conflict	Time Management	Data Management
Professional Networking	Adaptability to Change	Priority Setting	Technological Ability
Written Communication	Decision Making	Processing Information	Working Virtually
Research			

Figure 12. Professional Competencies

Customs Operational Competencies			
Customs Business Understanding	Tariff and Classification	Control of Goods	Operational Analytics
Integrated Border Management	Valuation	Prohibitions and Restrictions	Risk Analysis
Debt and Guarantee Management	Origin of Goods	Enforcement	Customs Procedures
Trade Facilitation	Supply Chain Operations	Customs Investigation	Customs Legislation
Economic Operators Management	Customs Supervision	Audit	Support for Customs
Customs Declaration Processing			

Figure 13. Operational Competencies

Customs Management Competencies			
Act as a Role Model of Ethics, Good Governance and Good Service	Strategic Supply Chain Management	Change Management	Customs Trends of the 21 <sup>st</sup> Century
Strategic Agility	Negotiating	Financial Management	Entrepreneurship
Visionary Leadership	People Management	Communication Management	Strategic IT Management
Innovation	Project Management	Policy Design	Managerial Courage
Conflict Management	Political Awareness	Process Management	

Figure 14. Management Competencies

#### 5.1.4 Unified Job Titles

This thesis suggests that job titles are separate from roles and job descriptions, as shown earlier in Figure 10. Specific titles or details of job descriptions are not covered, but the concept for them is presented. One person can hold multiple roles, but only one job title. A job description will specify the responsibility area and other specifics of individual's job. Title, role, and job description are discussed in chapter 4.6. Also, it is suggested that a job title reflects the level of responsibility and complexity of a job and is based on five levels of e-CF and is in line of CustComp<sup>eu</sup>. The correspondence of these titles are presented in the Figure 15.

It is understood that renewing job titles will create lots of discussions and requires a lot more work before the actual titles can be presented. The work required for renewing job titles is discussed tentatively in chapter 8.2 Future work.

CustComp <sup>EU</sup>	e-CF
Expert	Associate
Senior Expert	Professional
Senior Expert / Line mgt.	Senior professional / Manager
Senior Expert / Middle mgt.	Lead professional / Senior Manager
Senior Management	Principal

Figure 15. Titles compared.

## 5.2 Professionalism Criteria for ICT Leadership Roles

The professionalism criteria are fulfilled by selecting and enriching the role profiles. This is shown below for each part of the professionalism definition:

Body of Knowledge:

- European Foundational ICT Body of Knowledge.[43]

Competence:

- European e-Competence Framework.[44]
- EU Customs Competency Framework.[30]

Education & training:

- Recommended education (Chapter 5.1.3).
- Recommended training path (Chapter 5.2.1).

Ethics:

- Code of conduct for civil servants is a core value and common for all government employees.[48] There is no need to include these specifically in the ICT role profiles.

All the current ICT professional roles in the European e-Competence Framework are listed in Appendix 2. Step 1 in adapting the role profile template (chapter 5.1.1), was to select best fit ICT Profile/s from the framework. In the scope of ICT executive team, the following three profiles were selected at this point because it

was acknowledged that most members of the ICT executive team filled at least these management roles:

- Account Manager
- Business Information Manager
- ICT Operations Manager

Steps 2 – 4 were considered not to be mandatory since the use of standard profiles was suggested. Step 5 enriches the profile with additional organization specific information described in the chapter 5.1.3. The enriched role profiles for ICT executive team members are presented in Appendix 4.

### 5.2.1 Recommended Training Path for Chosen Roles

This study was involved in several strategy workgroups and one of the results was a general career path (simplified version here) shown in Figure 16. This can be used for visualizing and planning of training paths for the chosen roles. The full version of the general career path is complex and contains too much organizational details to be presented here.

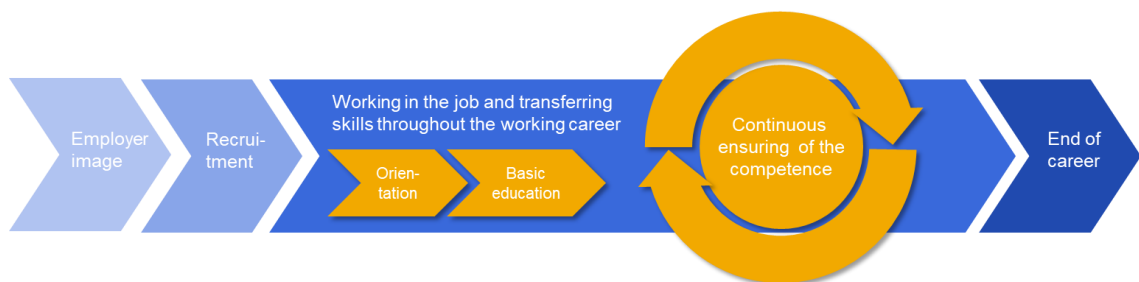


Figure 16. General Career Path

The common training path for all roles in the Customs' ICT Services are:

- General orientation – Common orientation program for all new employees.
- ICT services orientation – Common orientation program for ICT experts.
- Job orientation – Specialized orientation for specific job.

- Customs' basic education for expert roles – A year long stripped-down version of Customs' basic education degree.

In addition, the chosen roles have a recommended prerequisite education of a suitable bachelor's or equivalent-level degree. However, as mentioned in the chapter 4.3.3, it is common that IT professionals have necessary expertise without formal qualifications.[45]

Role specific training includes the following:

- Account Manager
  - ICT procurement training
- Business Information Manager
  - Scaled Agile Framework (SAFe) Product Owner (PO) / Product Manager (PM) certificate
- ICT Operations Manager
  - Further vocational qualification in first-level management
  - Specialist vocational qualification in leadership and management

Figure 17 shows the recommended prerequisite and training path for ICT Operations Manager as an example.

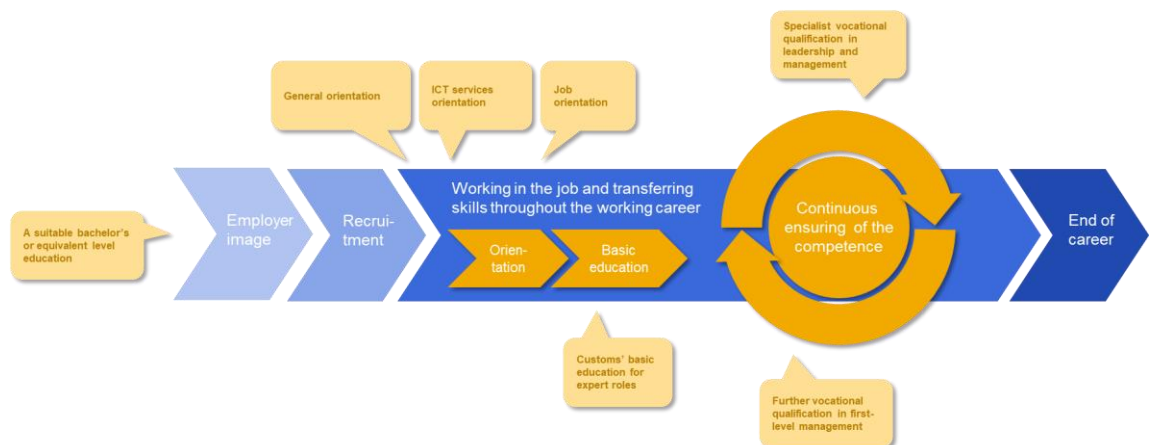


Figure 17. Example Career with Training Path

### 5.3 Steps to Implement Change

Finnish Customs uses Finnish as a main communication and documentation language. Also, certain style and terms are used in the organization. This makes it necessary to translate e-CF framework to Finnish and convert the terms to suit the organization culture. During this work it became clear that the conversion would take a significant amount of time, so the project was divided into phases, and the project objective was divided into smaller interim goals, which could be taken into use when they would be ready. This did not change the project content; it just provided more prioritization and iterative approach. This translation and conversion work was a prerequisite for steps adapting the role profiles, which are described in chapter 5.1.1. The phasing was planned in two parts, and the phase 1 was reached during this thesis and phase 2 was planned for future work:

#### Phase 1, spring 2023

- **Task sets** – Clarify the main tasks needed for the Customs' ICT management and which task sets they are part of. This is done by iterative reviews in the ICT services and covers all recognized main tasks.
- **Selected management role profiles** – Example profiles in the scope of this thesis. These are not translated or reviewed in this phase.

#### Phase 2, autumn 2023

- **Roles** – Describe the roles and complete the role profiles around task sets.
- **Titles** – Discuss the titles, competence levels, and possibilities for their renewal.

#### 5.3.1 Main task cards

First interim goal, or phase 1, was to create task sets or “main task cards”. Main tasks are part of the ICT role profile as seen in the chapter 5.1.3. This part was chosen because clarifying main tasks was immediately applicable in the ICT services. This resulted in 30 main task cards, which could be assigned to ICT personnel based on their current responsibilities. This would not change anyone's job, responsibilities, or place in the organization, but make them visible and

categorized. Also, it is not specified whether a main task card relates to expert or manager role. It was also decided that at this point it was useful to keep main tasks separated from role names and titles. This was done to keep the momentum of implementation and not to open possible heated discussions about changing anyone's' role designation or job title. The cards were designed to be like playing cards, so that they could be printed out and used as a tactile help for planning. These cards had three components: The name of the task set, list of main tasks and the category they belonged to. Example of one of these cards is presented in the Figure 18.

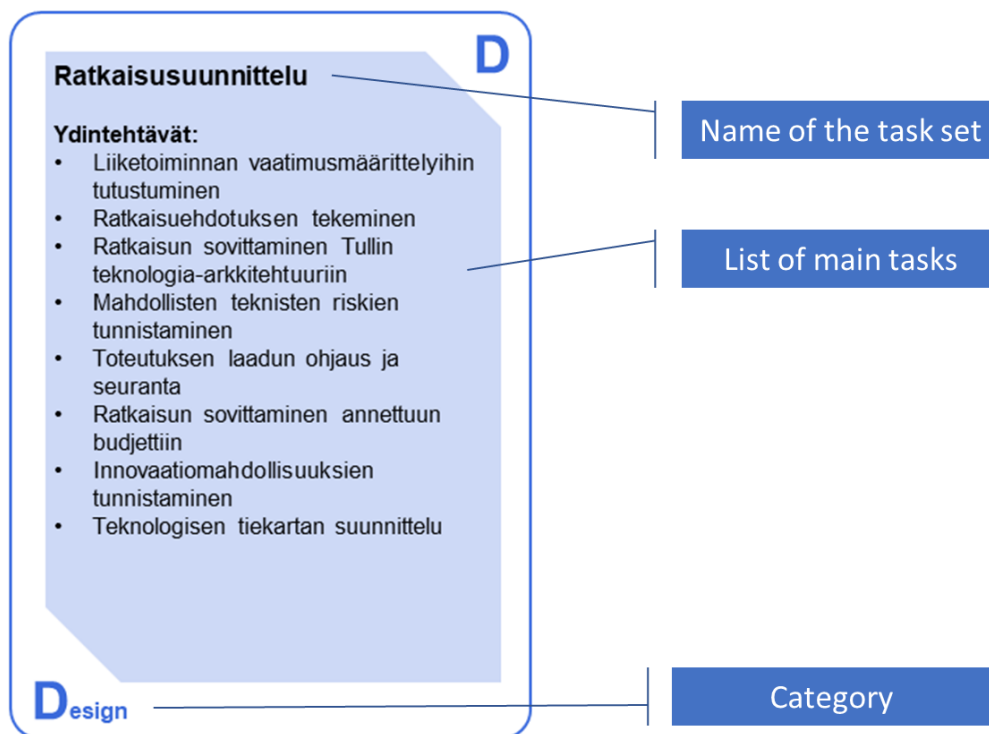


Figure 18. Example main task card

## 6 Validation

Validation of the solution proposal was done by piloting and gathering feedback. These are covered in next chapters.

### 6.1 Piloting

Piloting in the phase 1 was done with the ICT executive team for the concept and main task cards. The concept was piloted theoretically, but main task cards were assigned to members of two ICT teams, totalling 20 persons.

The validation for the requirements is as follows:

- Role responsibilities needs to be clear.
  - Phase 1 provided main task cards, which help to clear what are the core tasks for each person. It was immediately seen how these cards helped to clear and visualize everyone's core tasks, responsibility domains and relationships.
  - Phase 2 will further clarify the responsibilities and expectations for ICT personnel.
- Needs to co-exist with the Customs Competency Framework.
  - The suggested concept integrates the Customs competencies in the Customs' specific part of the role profile (Figure 11).
  - The CustComp<sup>eu</sup> and e-CF competency level titles are matching (Figure 15).
- Needs to be independent from the organization structure.
  - Main task cards (in the phase 1) are completely independent from any hierarchy. They describe the main or core tasks needed for ICT services to be functional (chapter 5.3.1).
  - The concept covers the standardized framework, which does not require any specific organization structure.
- Needs to cover both experts and managers.

- In the phase 1, the main task cards do not state whether they belong to an expert, manager, or a combination of those (Chapter 5.3.1).
- The full concept has role profiles for both experts and managers (Appendix 2).
- Should have potential for career path.
  - Using the full concept, career path can be planned based on number of role profiles held by a person, and the data included in the profiles. The career planning is thought to be part of general career path's (Figure 16) continuous ensuring of the competence cycle.
  - Career path can be planned horizontally and vertically, and can be based on competencies, competency levels, role families and role domains. E.g., it would be natural to move between roles in the same domain, or domains near each other. These connections can be seen in the Figure 19, taken from the methodology documentation of the European ICT professional role profiles.[66]
- Job titles should be commonly acknowledged.
  - Phase 1 does not cover the titles or role names, but it was noted that using the e-CF standard would increase the recognition of roles and what they mean.

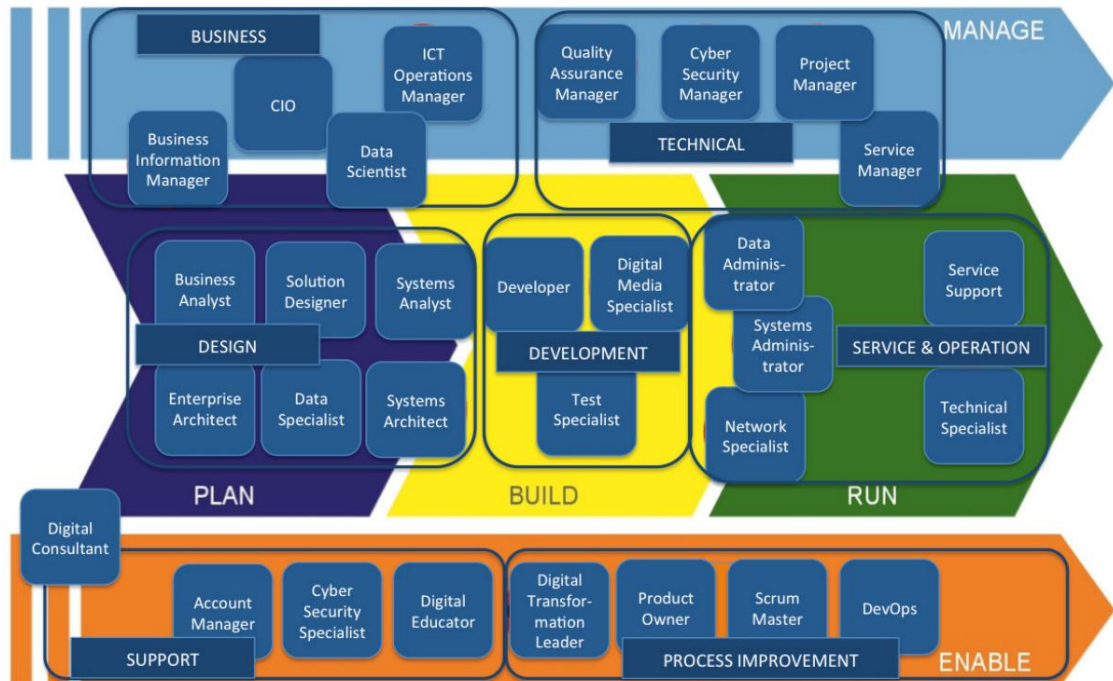


Figure 19. Roles Positioned into Families and Business Processes [66]

## 6.2 Feedback on solution

The feedback was requested from the people involved or close to the project. Here is a compilation of their answers.

“Applying a theory/framework to a long-lived operational model that has been shaped over time is challenging – especially when the established operational models are still partially siled.”

“Unfortunately, the subject is also strongly related to emotions and the external world, because titles, roles and tasks include a lot of status questions. This is a factor that increases the challenge.”

“The project itself is very necessary and eye-opening: even though it was known that the situation was not under control, with this work it perhaps became somehow more concrete (“something needed to be done”).”

“As a process, for the author, it is very unfortunate that there is a lot of passion involved and the participants are strong-willed persons, in which case the advancement of the work has not been straightforward either. Also, the point of view that the expectations for the results of the work are probably already quite high for the

participants and probably those “following from the side-lines” are expecting a miracle.”

“Current results are already good, but the completion is still waiting for the phase 2 and there will still be many joint sessions and twists to come. So, the work continues.”

“Even though implementation in relation to the thesis is still in progress, I am at least personally happy that concretely already during the thesis we tried/are trying to implement theory into practical life. It often (?) happens with these theses that they are done, then they are read and then it is stated that it is challenging to implement in practice – and thus perhaps the results/observations made during the work are wasted. In this project, the author (as well as the participants) has also had a dream to see the observations made, etc., realized in practice.”

“Pulling off this project really requires persistence, so thank you very much for finding it!”

“The work has progressed well and now we have a working base model and main task cards for viewing. It made sense to take the international model as a basis and not start working on tasks and roles based on the current situation. The final output of this phase is functional and clear.”

“It is important that the work is now carried out to the end according to the plan and that the roles + titles are reformed, and the tasks of the persons are clarified.”

## 7 Discussions

Many ideas for job titles and competence levels were researched and some are presented here as a basis for further discussions.

### **Idea 1, CustComp<sup>eu</sup> based job titles for experts.**

It would be possible to use expert job titles directly from CustComp<sup>eu</sup>. They would be expert, senior expert and director. There is only one director in the ICT services, which is the CIO. This leaves only expert and senior expert available for other personnel. This is not enough to cover the initial requirement from the interviews in the chapter 3.5.3. The requirement was to have potential for career path planning.

Expert and senior expert titles could still be considered further because Finnish Customs officers' titles went through a reform some years ago, and they got reduced and streamlined and they are now based on CustComp<sup>eu</sup>. Currently the following titles are used: Tullitarkastaja (Customs officer), Tulliylitarkastaja (senior Customs officer) and johtaja (director). When needed, these are presented with the tasks or roles they are responsible for, e.g.:

- Tullitarkastaja, asiakaspalvelu (Customs officer, customer service)
- Tulliylitarkastaja, yksikön päällikkö (senior Customs officer, head of unit)
- Tulliylitarkastaja, riskienhallinta (senior Customs officer, risk management)

The same approach could be used with expert roles in the ICT services, e.g.:

- Asiantuntija, palvelun tuki (expert, service support)
- Erytisasiantuntija, järjestelmävastuu (senior expert, systems admin)
- Erytisasiantuntija, yksikön päällikkö (senior expert, head of unit)

This would be in line with the current title system for Customs officers, but when compared against the job title definitions and research results in chapter 4.6. this approach does not satisfy the requirements. It would just state whether a person is an expert or senior expert, which references the education level.

## Idea 2, E-CF competency-based job titles.

E-CF had five competence levels, which could also be used as titles. They were associate, professional, senior professional/manager, lead professional/senior manager, and principal.[56] As covered in chapter 5.1.4, these match with the CustComp<sup>eu</sup> competence levels. Using these would require selecting suitable Finnish terms for them. One possibility is shown in Figure 20 for experts and in Figure 21 for managers.

CustComp <sup>eu</sup>	E-CF	Suggested (Eng.)	Suggested (Fin.)
Expert	Associate	Expert	Asiantuntija
Senior Expert	Professional	Specialist	Erytisasiantuntija
Senior Expert	Senior Professional	Senior Specialist	Vanhempi asiantuntija
Senior Expert	Leading Professional	Leading Specialist	Johtava asiantuntija
Senior Management	Principal	Principal	Pää-

Figure 20. Expert levels

CustComp <sup>eu</sup>	E-CF	Suggested (Eng.)	Suggested (Fin.)
-	-	-	-
-	-	-	-
Line Management	Manager	Manager	Esihenkilö
Middle Management	Senior Manager	Senior Manager	Vanhempi esihenkilö
Senior Management	Principal	Director	Johtaja

Figure 21. Management levels

In general, each ICT role can exist in different competence levels. However, some ICT roles can exist only in specific competence level.

In this case there are five possible steps for expert career advancement and three for management. This is good for career planning, but this title alone does not identify what the person does. It needs tasks or roles in addition just like in idea 1 earlier. Some examples of this kind of titles are:

- Erytisasiantuntija, järjestelmävastuu (specialist, systems administration)
- Johtava asiantuntija, järjestelmäarkkitehtuuri (leading specialist, systems architecture)
- Esihenkilö, tiimin hallinta (Manager, Team Management)

### **Idea 3. E-CF role-based job titles**

E-CF has 30 standard roles, as presented in chapter 4.4. When translated to Finnish and adapted to Customs' ICT services, these could be used for job titles. Many role name translations would be straight forward and directly matching the existing titles, but many would not. This thesis suggested in chapter 5.1, that one person could hold many roles but only one title. This is problematic when a person actually does have several roles. It can not be directly implied which role name would become the job title. Also, there would be no clear career path steps upwards when more complexity and autonomy is wanted. Career paths from role to role could still be planned and it would be more systematic than before.

### **Idea 4. E-CF competency- and role-based job titles**

It would be possible to also combine the earlier ideas. Each of the five competency levels could have context combined with designated title type, e.g.:

1. Xxx Asiantuntija (context + expert)
2. Xxx Vastaava (context + admin)
3. Xxx Päällikkö (context + manager)
4. Xxx Arkkitehti (context + architect)
5. Pää- xxx (principal + context)

One example in the systems context could be:

1. Järjestelmäasiantuntija (systems expert)
2. Järjestelmävastaava (systems admin)
3. Järjestelmäpäällikkö (systems manager)
4. Järjestelmäarkkitehti (systems architect)
5. Pääarkkitehti (principal architect)

This would create five job titles per context and could total up to 150 different title names. This is not favorable, since it would be more than currently, and reducing the number of titles was preferred. However, the titles would be unified and logical.

## 8 Conclusions

To increase professionalism in Finnish Customs' IT Leadership, this thesis suggested the concept of basing the ICT roles on e-CF framework's standard roles. This is expected to define responsibilities and decrease the number of roles. The role profiles contain criteria for professionalism, which were body of knowledge, competence, education and training, and ethics.[41] One person can hold several roles, and different persons with same roles can have different job descriptions and titles based on their responsibility areas.

The project was split into phases, and the first phase was finished during this thesis. The implementation result from phase 1 was the main task cards, which can be taken into use immediately. Later in the phase 2 they will act as a core for the complete role profiles.

The concept of unified job titles and competency levels were also suggested, and further discussions and their implementation was planned for phase 2.

### 8.1 Evaluation of the project

The project advanced much slower than expected, but the results were good and were expected to improve current situation. The slow advancement was due to mainly two things:

1. The concept required lots of presentations and discussions on different forums, which took time.
2. The translation and adaption of e-CF model took significant amount of time and required many review iterations.

Even though these two issues took time, it was time well spent. It made people aware of this coming change and included them more in the process. Splitting the project into phases gave possibility to first concentrate on the undisputed part and proceed with the main task cards, which could be taken into use immediately. The feedback for the concept and the project was very positive and supportive. The phasing and iterations planning could have been implemented from the start, to better accommodate interim results.

## 8.2 Future work

### Phase 2, autumn 2023

- **Roles** – Describe the roles and complete the role cards around task sets.
- **Titles** – Discuss the titles, competence levels, and possibilities for their renewal.

This thesis only recommends a concept, and does not define a title, role, or job definition for anyone. Implementing full role profiles for all ICT roles is straight forward work and there is a high confidence that it will go as planned. The titles and competences will require lots of discussions, reviews and iterations, and there is a risk whether this part of the work can be finished within the planned phase 2 timeline. Some ideas for titles are still presented in the chapter 7 for basis of future work.

Further in the future, when the full role profiles are hopefully implemented, and assigned to personnel, there will be lots of structured data based on role profiles. This will make it possible to use data analysis tools for finding out e.g., gaps in competencies, work overloads, and possibilities in career planning.

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## Current Roles in the Customs' ICT Services

- 1 Accessibility Champion
- 2 Arkistovastuuhenkilö
- 3 Automaatioasiantuntija
- 4 Business Owner
- 5 Docker- & kontti teknologioiden asiantuntija
- 6 Epic Owner
- 7 EU-koordinaattori
- 8 Hankekoordinaattori
- 9 Hankepäällikkö
- 10 Hanketoimiston vetäjä
- 11 Hankinta-asiantuntija
- 12 ICT-tuotantopäällikkö
- 13 ICT-asiantuntija
- 14 ICT-controller
- 15 ICT-koordinaattori
- 16 ICT-omistaja
- 17 ICT-resurssisuunnittelija
- 18 ICT-tekniologiapäällikkö
- 19 ICT-tietoturvapäällikkö
- 20 Integraatioarkkitehti
- 21 Integraatioasiantuntija
- 22 Järjestelmäasiantuntija
- 23 Järjestelmäpäällikkö
- 24 Järjestelmävastaava
- 25 Kehityksestä tuotantoon koordinaattori
- 26 Kehityskohteen asiantuntija
- 27 Kehityspäällikkö
- 28 Kehittäjä
- 29 Ketterä tiimi
- 30 Kielenhuoltaja
- 31 Kirjanpidon ja maksuliikkeen asiantuntija
- 32 Kohdearkkitehti
- 33 Kokoonpanonhaltija
- 34 Koordinaattori
- 35 Käyttöliittymä-suunnittelija
- 36 Käyttöpalveluomittaja
- 37 Käyttöönoton koordinaattori
- 38 Käyttöönottopäällikkö
- 39 Laatupäällikkö
- 40 Laitealustan asiantuntija
- 41 Liiketoiminta
- 42 Liiketoimintaomistaja

- 43 Lomakesuunnittelija
- 44 Maksujen käsittelijä
- 45 Menetelmäasiantuntija
- 46 Menettelyvastaava
- 47 Määrittelijä
- 48 Palvelumuotoilija
- 49 Palvelupäällikkö
- 50 Palveluvastaava
- 51 Pilvipalveluasiantuntija/tietoturva
- 52 Portfolion omistaja
- 53 Product Manager
- 54 Product Owner
- 55 Projektipäällikkö
- 56 Prosessikehittäjä
- 57 Prosessinomistaja
- 58 Pääkäyttäjä
- 59 Q-projektipäällikkö
- 60 Ratkaisuarkkitehti
- 61 Ratkaisusuunnittelija
- 62 Release manager
- 63 Riskienhallintapäällikkö
- 64 RTE Junakuski
- 65 Ryhmäesihenkilö
- 66 Saavutettavuus-asiantuntija
- 67 Sanomavälitys-asiantuntija
- 68 Scrum Master
- 69 Security Champion
- 70 Sovellusarkkitehti
- 71 Sovelluskehittäjä
- 72 Sovellusvastaava
- 73 Suorituskykytestausasiantuntija
- 74 Suunnittelija
- 75 Tekninen arkkitehti
- 76 Tekninen projektipäällikkö
- 77 Teknologia-arkkitehti
- 78 Testaaja
- 79 Automaatioasiantuntija
- 80 Testausasiantuntija
- 81 Testauskoordinaattori
- 82 Testauspäällikkö
- 83 Testausvastaava
- 84 Tiedon omistaja
- 85 Tietoarkkitehti
- 86 Tietohallintopäällikkö
- 87 Tietojärjestelmän omistaja

- 88 Tietojärjestelmä-arkkitehti
- 89 Tietoliikenneasiantuntija
- 90 Tietoliikennesuunnittelija
- 91 Tietokanta-asiantuntija
- 92 Tietosuoja-asiantuntija
- 93 Tietosuojavastaava
- 94 Tietoturva-asiantuntija
- 95 Tietoturvasuunnittelija
- 96 Tietovarastoasiantuntija
- 97 Toiminta-arkkitehti
- 98 Toteuttaja
- 99 Turvallisuuspäällikkö
- 100 Tuotantokoordinaattori
- 101 Tuotantopäällikkö
- 102 Tuotehallinta
- 103 Tuotehallintatiimi
- 104 Tuoteomistaja
- 105 Tuotepäällikkö
- 106 Vaatimusmäärittäjä
- 107 Verkkotoimittaja
- 108 Ympäristön omistaja
- 109 Kokonaisarkkitehti
- 110 Koulutusyhteyshenkilö
- 111 Kehitysjohtaja
- 112 Tietohallintojohtaja
- 113 Tiimiesihenkilö

## European e-CF ICT Professional Role Profiles

1. Account Manager
2. Business Analyst
3. Business Information Manager
4. Chief Information Officer (CIO)
5. Data Administrator
6. Developer
7. Digital Media Specialist
8. Enterprise Architect
9. Digital Consultant
10. ICT Operations Manager
11. Information Security Manager
12. Information Security Specialist
13. Digital Educator
14. Network Specialist
15. Project Manager
16. Quality Assurance Manager
17. Service Support
18. Service Manager
19. Systems Administrator
20. Systems Analyst
21. Systems Architect
22. Technical Specialist
23. Test Specialist
24. Solution Designer
25. Digital Transformation Leader
26. Devops Expert
27. Data Scientist
28. Data Specialist
29. SCRUM Master
30. Product Owner

## European e-CF Level Table

e-CF Levels	e-CF Levels descriptions	Typical Tasks	Complexity	Autonomy	Behavior
e-5	<b>Principal</b> Overall accountability and responsibility; recognized inside and outside the organization for innovative solutions and for shaping the future using outstanding leading edge thinking and knowledge.	IS strategy or program management	Unpredictable – unstructured	Demonstrates substantial leadership and independence in contexts which are novel requiring the solving of issues that involve many interacting factors.	Conceiving, transforming, innovating, finding creative solutions by application of a wide range of technical and/or management principles.
e-4	<b>Lead Professional/Senior Manager</b> Extensive scope of responsibilities deploying specialized integration capability in complex environments; full responsibility for strategic development of staff working in unfamiliar and unpredictable situations	IS strategy/ holistic solutions		Demonstrates leadership and innovation in unfamiliar, complex and unpredictable environments. Addresses issues involving many interacting factors	
e-3	<b>Senior Professional/Manager</b> Respected for innovative methods and use of initiative in specific technical or business areas; providing leadership and taking responsibility for team performances and development in unpredictable environments.	Consulting	Structured - Unpredictable	Works independently to resolve interactive problems and addresses complex issues. Has a positive effect on team performance.	Planning, making decisions, supervising, building teams, forming people, reviewing performances, finding creative solutions by application of specific technical or business knowledge/skills.
e-2	<b>Professional</b> Operates with capability and independence in specified boundaries and may supervise others in this environment; conceptual and abstract model building using creative thinking; uses theoretical knowledge and practical skills to solve complex problems within a predictable and sometimes unpredictable context.	Concepts/ Basic principles		Works under general guidance in an environment where unpredictable change occurs. Independently Resolves interactive issues which arise from project activities.	Designing, managing, surveying, monitoring, evaluating, improving, finding non standard solutions. Scheduling, organizing, integrating, finding standard solutions, interacting, communicating, working in team.
e-1	<b>Associate</b> Able to apply knowledge and skills to solve straight forward problems; responsible for own actions; operating in a stable environment.	Support/ Service	Structured – predictable	Demonstrates limited independence where contexts are generally stable with few variable factors.	Applying, adapting, developing, deploying, maintaining, repairing, finding basic-simple solutions

## Enriched ICT Professional Role Profiles

<b>Profile Title:</b>	<b>Account Manager</b>		
<b>Summary:</b>	Senior focal point for client sales and customer satisfaction.		
<b>Mission:</b>	Builds business relationships with clients to facilitate the sale of hardware, software, telecommunications, or ICT services. Identifies opportunities and manages sourcing and delivery of products to customers. Has responsibility for achieving sales targets and maintaining profitability.		
<b>Deliverables:</b>	<b>Accountable</b>	<b>Responsible</b>	<b>Contributor</b>
	Sale	Business Relationship	Sales Forecast Technical Proposal Production Forecast
<b>Main Task/s:</b>	<ul style="list-style-type: none"> <li>• Maintain overall customer satisfaction with products and/or services.</li> <li>• Identify opportunities to propose new products or services.</li> <li>• Provide the primary contact point for client executive management.</li> <li>• Deliver value added presentations related to products and services to customer executive management.</li> <li>• Lead negotiations to establish profitable contracts with client(s)</li> <li>• Maintain and enhance business relationships</li> </ul>		
<b>e-Competences:</b>	D.5. Sales Development		e-3
	D.6. Digital Marketing		e-4
	D.7. Data Science and Analytics		e-4
	E.1. Forecast Development		e-3
	E.4. Relationship Management		e-4
<b>KPI Area:</b>	Customer satisfaction		
<b>Customs' Specifics</b>	<p><b>Recommended Education</b></p> <ul style="list-style-type: none"> <li>• A suitable bachelor's or equivalent level</li> </ul> <p><b>Recommended training path inside Finnish Customs</b></p> <ul style="list-style-type: none"> <li>• General orientation</li> <li>• ICT services orientation</li> <li>• Job orientation (business domain and service providers)</li> <li>• Customs' basic education for expert roles</li> <li>• Public sector ICT procurement training</li> </ul> <p><b>Interaction and reporting line</b></p> <ul style="list-style-type: none"> <li>• Interaction with related business area and service providers. Reports to own supervisor.</li> </ul> <p><b>Customs Professional Competencies</b></p> <ul style="list-style-type: none"> <li>• Technological Ability</li> <li>• Interpersonal Relations</li> <li>• Analytical Thinking</li> <li>• Adaptability to Change</li> <li>• Written and Oral Communication</li> </ul>		

	<p><b>Customs Operational Competencies</b></p> <ul style="list-style-type: none"> <li>• Customs Business Understanding</li> <li>• Support for Customs</li> </ul> <p><b>Customs Management Competencies</b></p> <ul style="list-style-type: none"> <li>• Negotiating</li> <li>• Change Management</li> </ul>
<p><b>Foundational ICT Body of Knowledge</b></p>	<p><b>Business and Market of ICT</b></p> <ul style="list-style-type: none"> <li>• Concepts of business and business models</li> <li>• Foundations of market analysis and benchmarking</li> <li>• Supply chain management: overview of the main supply chain models, including sourcing &amp; shoring</li> <li>• Concepts of e-procurement and e-sourcing</li> <li>• Distribution and delivery models</li> <li>• Business process management</li> </ul> <p><b>Operations &amp; Service Management</b></p> <ul style="list-style-type: none"> <li>• Basic concepts of service management (including the concept of service and service level agreement)</li> <li>• Key principles and models</li> <li>• Service management processes (including design, transition, delivery, and improvement of services)</li> <li>• Service management standards (including ISO 20000)</li> <li>• Contract management</li> </ul>

<b>Profile Title: Business Information Manager</b>			
<b>Summary:</b>	Proposes, plans, and manages functional development of the Information System (IS) focusing upon the needs of users.		
<b>Mission:</b>	Aligns the Information System to the business strategy within their area/domain. Ensures continuous enhancement whilst accounting for user requirements, service quality and budgetary constraints.		
<b>Deliverables:</b>	<b>Accountable</b>	<b>Responsible</b>	<b>Contributor</b>
	Project Portfolio	Solution Specification	Business Plan
<b>Main Task/s:</b>	<ul style="list-style-type: none"> <li>• Manage the information and communication technology development focused on user needs</li> <li>• Prepare for changes to the Information System influenced by technology updates or user needs</li> <li>• Formalise, consolidate, and drive the development of the IS configuration</li> <li>• Evaluate the relevance of the Information Systems to users</li> <li>• Liaise between the user community and the IS infrastructure</li> <li>• Translate user requirements into functional specifications</li> </ul>		
<b>e-Competences:</b>	A.1. IS and Business Strategy Alignment		e-4
	A.3. Business Plan Development		e-4
	E.4. Relationship Management		e-4
	E.7. Business Change Management		e-4
	E.9. Information Systems Governance		e-5
<b>KPI Area:</b>	Related project portfolio is up to date with the business plan and the actual work. Evaluation for the suggested information systems, or changes to them, has been done.		
<b>Customs' Specifics</b>	<p><b>Recommended Education</b></p> <ul style="list-style-type: none"> <li>• A suitable bachelor's or equivalent level</li> </ul> <p><b>Recommended training path inside Finnish Customs</b></p> <ul style="list-style-type: none"> <li>• General orientation</li> <li>• ICT services orientation</li> <li>• Job orientation (business domain, projects, and information systems)</li> <li>• Customs' basic education for expert roles</li> <li>• SAFe PO/PM certificate</li> </ul> <p><b>Interaction and reporting line</b></p> <ul style="list-style-type: none"> <li>• Interaction with related business area and projects. Reports to program office and own supervisor.</li> </ul> <p><b>Customs Professional Competencies</b></p> <ul style="list-style-type: none"> <li>• Technological Ability</li> <li>• Interpersonal Relations</li> <li>• Analytical Thinking</li> <li>• Adaptability to Change</li> <li>• Written and Oral Communication</li> </ul>		

	<p><b>Customs Operational Competencies</b></p> <ul style="list-style-type: none"> <li>• Customs Business Understanding</li> <li>• Support for Customs</li> </ul> <p><b>Customs Management Competencies</b></p> <ul style="list-style-type: none"> <li>• Negotiating</li> <li>• Change Management</li> </ul>
<p><b>Foundational ICT Body of Knowledge</b></p>	<p><b>ICT Strategy and Governance</b></p> <ul style="list-style-type: none"> <li>• Introduction to organisations, structures, and business functions</li> <li>• The role of ICT within organisations and benefit realisation</li> <li>• Information and content management</li> <li>• Concept and theory of strategic planning</li> <li>• International standards for corporate governance of information technology (ISO 38500)</li> <li>• Foundations of IT value analysis and portfolio management</li> <li>• Foundations of risk management</li> <li>• Foundations of economics</li> <li>• Foundations of ICT strategy design</li> <li>• Information technology planning</li> <li>• IT decision-making processes</li> <li>• Communication systems</li> </ul> <p><b>Data and Information Management</b></p> <ul style="list-style-type: none"> <li>• Information and data modelling</li> <li>• Physical file storage techniques</li> <li>• Database management systems (DBMS)</li> <li>• Document, records, and content management</li> <li>• Reference and master data management</li> <li>• Integrated data management</li> </ul>

<b>Profile Title:</b>	<b>ICT Operations Manager</b>		
<b>Summary:</b>	Manages operations, people, and overall ICT resources.		
<b>Mission:</b>	Implements and maintains a designated part of an ICT operation ensuring that activities are conducted in accordance with organisational rules, processes, and standards. Plans changes and implements them in accordance with organisational strategy and budget. Risk manages and ensures the effectiveness of the ICT infrastructure.		
<b>Deliverables:</b>	<b>Accountable</b>	<b>Responsible</b>	<b>Contributor</b>
	<ul style="list-style-type: none"> <li>Budget Plan</li> </ul>	<ul style="list-style-type: none"> <li>HR Development Plan</li> <li>Training Program</li> </ul>	<ul style="list-style-type: none"> <li>Sustainable ICT Policy</li> </ul>
<b>Main Task/s:</b>	<ul style="list-style-type: none"> <li>Coordinate and manage staff</li> <li>Direct, organize, plan, and monitor activities</li> <li>Negotiate the objectives and resources</li> <li>Manage the departmental budget</li> <li>Establish and monitor management information</li> <li>Analyse and propose solutions for continuous productivity improvement</li> <li>Manage the implementation and monitoring of IS quality assurance and security</li> <li>Communicate with internal business departments and project owners</li> </ul>		
<b>e-Competences:</b>	D.9. Personnel Development		e-4
	E.2. Project and Portfolio Management		e-4
	E.3. Risk Management		e-3
	E.6. ICT Quality Management		e-3
	E.8. Information Security Management		e-3
<b>KPI Area:</b>	Budget realization. Personnel competency and development discussions have been carried out and documented.		
<b>Customs' Specifics</b>	<p><b>Recommended Education</b></p> <ul style="list-style-type: none"> <li>A suitable bachelor's or equivalent level</li> </ul> <p><b>Recommended training path inside Finnish Customs</b></p> <ul style="list-style-type: none"> <li>General orientation</li> <li>ICT services orientation</li> <li>Job orientation (related personnel, consultants, projects, information systems and budgeting)</li> <li>Customs' basic education for specialist roles</li> <li>Further vocational qualification in first-level management</li> <li>Specialist vocational qualification in leadership and management</li> </ul> <p><b>Interaction and reporting line</b></p> <ul style="list-style-type: none"> <li>Interaction with related personnel and consultants. Reports to ICT executive team and own supervisor.</li> </ul> <p><b>Customs Professional Competencies (max 5)</b></p> <ul style="list-style-type: none"> <li>Technological Ability</li> <li>Interpersonal Relations</li> <li>Drive for results</li> </ul>		

	<ul style="list-style-type: none"> <li>• Priority setting</li> <li>• Dealing with Operational Risk</li> </ul> <p><b>Customs Operational Competencies (max 5)</b></p> <ul style="list-style-type: none"> <li>• Customs Business Understanding</li> <li>• Support for Customs</li> <li>• Supply Chain Operations</li> </ul> <p><b>Customs Management Competencies (max 5)</b></p> <ul style="list-style-type: none"> <li>• Act as a Role Model of Ethics, Good Governance and Good Service</li> <li>• People Management</li> <li>• Customs Trends of the 21st Century</li> <li>• Strategic IT Management</li> <li>• Managerial Courage</li> </ul>
<p><b>Foundational ICT Body of Knowledge</b></p>	<p><b>Project Management</b></p> <ul style="list-style-type: none"> <li>• Project management principles and concepts</li> <li>• Project planning, monitoring and control</li> <li>• Cost / financial management (including budget planning, etc)</li> <li>• Fundamentals of econometrics</li> <li>• Project management methodologies, tools and change management</li> </ul> <p><b>Quality Management</b></p> <ul style="list-style-type: none"> <li>• Quality principles, frameworks and ISO-9126</li> <li>• Software quality management (including QM systems, methodologies for QM, quality audits)</li> <li>• Fundamentals of quality analysis tools</li> <li>• Procedural documentation production</li> </ul> <p><b>Security Management</b></p> <ul style="list-style-type: none"> <li>• Introduction to security principles and concepts</li> <li>• IT Security controls, plans and procedures</li> <li>• Computer security (including firewalls and intrusion prevention systems, malicious software, cryptography, etc)</li> <li>• Network security</li> <li>• Computer forensics</li> <li>• Business continuity management (e.g., security audit)</li> <li>• Human behaviour / psychology</li> </ul> <p><b>Operations &amp; Service Management</b></p> <ul style="list-style-type: none"> <li>• Basic concepts of service management (including the concept of service and service level agreement)</li> <li>• Key principles and models</li> <li>• Service management processes (including design, transition, delivery, and improvement of services)</li> <li>• Service management standards (including ISO 20000)</li> <li>• Contract management</li> </ul>