THESIS GUIDE FOR MASTER'S DEGREES

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1 A Master's thesis at Humak

Introduction

At Humak, a Master's thesis is a research-based development project. While it is primarily completed in pairs or small groups, individual work is also possible. Working in pairs or small groups is a natural approach, as most development work in professional settings is also carried out in teams and working groups. One of the objectives of theses at Humak is to strengthen the development skills needed in working life.

Students from different degree programmes at Humak may work in pairs or groups to produce theses. Sometimes the authors of a thesis may even come from different educational institutions. Cooperation between educational institutions and the details thereof are subject to agreement on a case-by-case basis. The same requirements apply to individually written theses as to those completed in pairs or small groups.

Research-based development refers to developing solutions with a research-based approach. The purpose of the research-based approach in a thesis is to create and share new knowledge. This results in systematic and analytical work and helps to examine issues critically. Development, on the other hand, means that the necessity of the work is carefully justified, objectives are precisely defined, and the concrete output improves some aspect by changing or renewing it.

In all cases, the aim of a Master's thesis at Humak is to solve problems arising from workplace practices, to renew the professional sector, and to produce new, reliable knowledge. These goals are demanding but not impossible. At their best, the research-based development projects completed as Humak theses have created new work cultures that continue to have an impact long after thesis completion. Humak theses have also produced valuable information for our professional sectors. Theseus, the online library of universities of applied sciences, has registered more than one million downloads of theses completed at Humak.

1.1 How does research-based development differ from scientific research and everyday development?

The best way to define a Master's thesis completed at Humak and research-based development is to start from what they are not. While a Humak thesis is not a scientific study, neither is it a description of everyday development work or a project report produced without a critical approach. The ultimate objective of scientific research is to produce new knowledge and understanding of the topic to be studied, whereas the goal of everyday development is to solve a practical problem. The objective of research-based development is to solve real-world problems in the professional field and to produce new knowledge that the professional sector can use immediately.

While the theoretical framework of a scientific study is based exclusively on research literature, research-based development can also utilize information gathered at workplaces. A scientific study is primarily intended for the scientific community, whereas a Humak thesis is targeted at the authors' professional sector and the commissioning organisation.

While scientific research relies on established research methods, any transparent, carefully documented methods that lead to achieving the objectives can be used in research-based development. In scientific research, only one method is usually used in a single study (except in mixed methods studies, which combine several methods). In contrast, research-based development work rarely relies on just one method. Much more commonly, different methods are used at different stages of the process, depending on what the situation requires. In everyday development work within organisations, there is usually no specific method. Rather, a hands-on, intuitive approach is used.

The conclusion of a scientific study text is usually an analysis of the research findings and a reflection chapter. The practical application of the research findings is often not included in the actual study. A research-based development project, on the other hand, always produces something that includes practical improvements or enables new solutions. Typically, the output is a new operating method or model, strategy, manual, service or product. The practical implementation of the output is an important part of research-based development. The output may also be a research-based plan, roadmap or set of justified development proposals. In this case, however, the actual development will take place at the stage following the thesis work.

Research-based development projects and scientific studies have many features in common. In both, the research-based approach means working systematically, analytically and critically. Simply using certain methods does not qualify a project as research-based. Authors of theses are expected to maintain a research-based approach, even when the actual development goals are highly practical.

Research-based development also resembles scientific research in that both always produce data that must be analysed. Typical types of data include observations from pilots and field work, outputs from collaborative ideation, various forms of feedback, as well as discussions and interviews. For example, when the authors of a thesis write notes during participant observation or record reflections in a thesis diary, these notes provide data for the development project. Students in a Master's degree programme are expected to familiarise themselves with different methods of data analysis so that this material is used effectively and not overlooked.

Research-based development is not easier or more difficult than scientific research– both can be done well or poorly. However, research-based development requires a great deal of initiative, innovativeness, networking, and courage. High-impact research-based development work can rarely take place in an "ivory tower", because its success requires interaction with different actors and stakeholders. Ambitious research-based development also requires a great deal of tolerance for uncertainty, the ability to take risks, and the courage to leave your comfort zone and explore unfamiliar areas.

	Scientific Research	**Research-Based Development**	**Everyday Development**
Goal	Producing new theoretical knowledge	New knowledge from working life and solutions to real-world problems	Solving practical problems
Theoretical Framework	Research literature	Research literature and tacit knowledge	Tacit knowledge
Target Audience	Scientific community	Entire professional field and the commissioning organization	One's own work and one's own organization
Methods	Usually a single research method	A combination of many development work methods	Practical, instinct-driven methods
Interaction	Minimal, often done in relative isolation	Close, usually requiring fieldwork	Depends on the goals
Criticality	Systematic, critical	Systematic, critical	Accidental or unsystematic

Completion of Work	Research results are published	Results are implemented in practice and new knowledge is produced for the professional field	The problem is solved

Table 1. Scientific Research, Research-Based Development and Everyday Development

1.2 Use of theory in a thesis

To produce a high-quality Master's thesis, the author needs thorough familiarisation with Finnish and international research literature on the topic of the thesis. In research-based development, students should not rush into fieldwork without first understanding the broader societal discussions connected to the topic. The choices and solutions made in the project are built on existing knowledge. For this reason, a well-developed theoretical understanding is a prerequisite for setting meaningful development goals and formulating relevant questions. Without good grounding in the theoretical framework, it is difficult to even identify a need for development. The theoretical framework should be mastered— and for the most part written— before practical measures are undertaken. If you write the theoretical section afterwards, it inevitably remains disconnected. This is one of the most common errors seen in thesis work.

Research based development is guided by practical objectives, which are clarified and informed by theory. The value of the development work depends largely on how well the implemented actions can be translated into real improvements in working life, or potentially across the entire professional sector. This way, research-based development produces practical knowledge that is transferable and generalisable. However, a Master's thesis may also bring added value to existing conceptual or theoretical knowledge. Based on their observations, thesis authors can present clarifying detail, pinpoint exceptions or add new perspectives to existing theoretical knowledge. This requires both the ability and the courage to connect empirical findings to theoretical discussions and, when appropriate, to challenge existing assumptions.

1.3 Methods of research-based development

The methods of research-based development are extremely diverse. The work of Katri Ojasalo et al. (2014) contains a valuable discussion of many development work methods and approaches. A work edited by Minna Hautio and Arto Lindholm (2025) presents 50 different methods for development activities. The methods of a development project are typically action-based, participatory, and creative, but they can also be narrative, playful, surprising, observational or experimental, or they can be used to make hidden aspects of work visible. Thesis authors also have full permission to innovate methods for a development project themselves, as the "method" is any systematic and methodical way of achieving the objectives of the development work. It is important that thesis authors consider different methodological options, rather than settling for the easiest methods, or the first ones that come to mind.

In research-based development, you are also allowed to depart from the idea of striving for an outsider's objectivity. The word "method" can easily create the mental image of data collection in which the "researcher" poses questions and the subject answers them. Alternatively, you can treat the developers and participants as equal contributors who work together to improve practices. This orientation is often applied in development projects that take a socially critical or emancipatory stance.

Thesis authors should distinguish the *approach* of research-based development from the *methods* of development work. The approach determines what the development aims for and what kind of strategy is selected to achieve this goal. For example, action research, service design, experimental culture or constructive research may serve as approaches to research-based development work. When an approach is chosen, it should provide guidance throughout the entire thesis process rather than remaining a brief, disconnected reference. You do not necessarily need to define an approach: in many cases, the end result you achieve is equally good if you structure the narration directly around the methods used in the development work.

1.4 Evaluation of a development project, evaluation of outcomes and impacts and implementation of results

Research-based development aims for change. If things do not change in any way, they will not develop either. For example, if you test a new operating method in your thesis and draw up development proposals for the commissioner on this basis, it is important to also plan how the proposals will be implemented—that is, how they will be taken into practice.

A development project aiming for impact includes the idea of evaluation. In a research-based development project, your goal is to ensure that the work will genuinely have positive outcomes for the commissioner and that it will produce new knowledge or ideas for the wider professional community.

It often makes sense to distinguish between outcomes and impact. Outcomes are achieved whenever the participants benefit from the completed development project or when a change in the workplace renews practices, for example. Impact, on the other hand, refers to societal benefits, which are often indirect and slow to manifest themselves. Outcomes can often be demonstrated by quantitative or qualitative facts, while demonstrating impact is a matter of interpretation and perspective.

It is often difficult to separate the evaluation phase of research-based development work into a distinctive work phase, as the evaluation becomes intertwined with other systematic analysis of the data. Thesis authors can decide for themselves if they prefer to write a separate chapter on evaluation. Conceptually, however, it is worth keeping evaluation in mind. Evaluating the success of the different stages of the process, outcome achievement, and impact are the cornerstones of all research-based development work. Ideally, practical implementation begins already before the work is completed, and the knowledge gained from its results is incorporated into the thesis.

The commissioner's feedback on the project is an essential part of the evaluation. This is why thesis authors must ensure that they present the outputs of the project to the commissioner clearly and request feedback on the work. At large workplaces, the results should be presented to everyone interested in them, for instance at a weekly meeting. At best, the results of the project can be introduced to a wider professional community, for example at a (web) seminar or another similar event. If they wish, the thesis authors can request written feedback on their work from the commissioner and include it as an appendix to the thesis. This may have a positive effect on the assessment of the thesis.

1.5 What is the difference between a Master’s thesis and a Bachelor’s thesis?

Both Master’s and Bachelor’s theses at Humak are primarily research-based development projects completed in pairs. However, a Master’s thesis must also produce new knowledge that can be used by a wider professional community than the commissioner alone. The new knowledge may be related to development needs in the professional sector, or the authors' output may have societal significance. Ambitious Master's degree students may also bring their observations into dialogue with theoretical knowledge, challenging and strengthening the existing conceptual knowledge base. The reflection chapter at the end of a Master’s thesis is expected to demonstrate greater depth than a Bachelor's thesis.

In addition, the difference between a Master’s and a Bachelor’s degree lies in the depth of the work at every stage. To begin with, the initial design of the thesis should make it possible to both develop the commissioner’s activities and produce new knowledge for the professional sector. The development need should be justified using research-based evidence. In the theoretical framework, different sources should be brought into dialogue with one another, and international literature relevant to the topic must also be taken into account. The methods used in the development work are expected to be innovative, and the analysis transparent. For these reasons, the number of pages in a Master’s thesis is usually slightly more than in a Bachelor's thesis. The maximum length of the thesis is 60 pages plus appendices, but a concise, excellent thesis may also be shorter than this.

1.6 A Humak project as the commissioner of the thesis

In addition to providing education, universities of applied sciences have a statutory mission to develop their professional sectors. Humak carries out a significant number of Finnish and international development projects in collaboration with its partners, especially considering its size. Such projects offer excellent learning environments for thesis authors. Humak’s projects frequently commission theses from Master’s students. Commissions from Humak are offered to pairs or small groups.

When the commissioner is a Humak development project, the project manager or a project employee will be the commissioner's representative. A separate supervisor is usually appointed for the students from among the teaching staff. Master’s degree students and the commissioner’s representative fine-tune the goals and methods of the thesis, ensuring that the interests of the project and the students coincide. In order for it to succeed, it is important that the thesis is a clearly defined sub-area of the project. The commissioner and the thesis authors must distinguish the goals of the thesis from the more general objectives of the project. While a Master’s thesis usually serves the research-oriented objectives of the project, it may also include field work, such as various action-based experiments.

Immersion in project work takes courage and often requires students to leave their comfort zone, but this is precisely what enables learning. It is worthwhile for students to participate in project work, even if it would be “easier” to do the thesis at one's own familiar workplace. Ideally, the project team provides students with intensive guidance, the students' networks expand, and they learn a great deal about research-based development conducted as a project.

1.7 Forms required for the thesis process

Almost all theses require various forms to be completed. This text discusses four of them:

- Participant Information template
- Participant Consent template
- Privacy policy form
- Research permit form.

You can find these forms in the Student's Guide under Studies > Thesis > ”Ethical instructions and documents”. Save all the forms you use in your thesis in Wihi, with the exception of the Participant Consent forms. Keep the Participant Consent forms on file yourself for one year from the date on which your thesis is approved and then destroy them. Ensure that they are both stored and destroyed securely.

Participant Information and Participant Consent templates

When your research subjects are humans, you must inform them of what you are doing. Based on the information they receive, they can make an independent decision on whether or not they agree to participate in your project. This decision must be expressed clearly, and whether the answer is yes or no, it must be respected. The Participant Consent form is used to request consent for three different matters: participation in the research itself, processing of personal data, and possible further use of the data as described in the Participant Information form.

The Participant Information and Participant Consent templates are intended to be customised. You should add information that is relevant to your thesis to the forms and delete the instruction texts and, in the Participant Information template, the sections that are not relevant to your thesis. To allow the participant sufficient time to consider participation, it is important to inform them before requesting their consent. This is why separate templates are provided. For example, you can edit the Participant Information template to write a message that you send to the subject when you ask them to participate in the study. Once they have agreed to participate, you can send them the form you produced based on the Participant Consent template as well as the Privacy policy form.

The subject confirms their consent either by signing the form or by email. If they use an email message, save the entire email response, ensuring that the sender's email address is displayed. Also ensure that the email response has come from a personal email address that can be unambiguously linked to the person in question and that the response indicates exactly what they consent to. Therefore, you should instruct the participant to copy the text of the form into their reply message.

Privacy policy form

The Privacy policy form is related to the General Data Protection Regulation of the European Union (GDPR). Under the GDPR, all personal data files must have a privacy policy that describes the principles for processing the data in question. Personal data are generated surprisingly easily. For example, the Participant Consent form described above, which shows the name of the person participating in the study, contains personal data. An audio or video recording of an interview and its transcript can also be used to identify a person, which means that it is personal data. Datasets gathered with research methods can be anonymised or pseudonymised. Pseudonymisation means that the interviewee's name is, for example, replaced with a code, such as 'interviewee 1'. When anonymising the data, you must be absolutely certain that all factors that could lead to identification have been permanently and irreversibly removed from the dataset.

Consequently, the Privacy policy form must always be completed before an interviewee's voice or image is recorded, or other direct or indirect identifiers making it possible to identify an individual are generated. Indirect identifiers mean that an individual can be identified based on such factors as age, gender, place of residence, details of the interview content or a combination of these factors. For more information on a personal data file and the cases in which one is generated, visit www.tietosuoja.fi.

When you have such documents and files in your possession, even momentarily, you become a data controller and must fill in the Privacy policy form. The form describes in detail all information related to the collection, processing and destruction of data containing direct or indirect personal data. Include in this form information on all files created while working on your thesis, such as consent forms, recordings and transcripts.

Relationship between the forms

You can think of the Participant Information and Participant Consent templates and Privacy policy form as a kind of trio: the Participant Information template is used to inform the research subject of the purpose of the study, allowing them to know what they consent to when they sign the consent form. The Participant Consent form complete with the subject's data contains personal data, which is why this alone crosses the threshold for filling in the Privacy policy form. The Privacy policy must further be consistent with the way in which the processing of the dataset is described in the Participant Information template.

It is likely that you have collected information during your previous studies by conducting interviews, making observations or carrying out surveys. In those cases, the forms described here were not needed, because studying is regarded as activities for household use for which the forms are not required. Nonetheless, it is important to also take special care and follow ethical guidelines when processing such datasets. The thesis differs from your previous learning projects in that the status of the thesis is a public document. This is why it is subject to a different permit process than your previous projects.

Research permit form

If your research focuses on an organisation, you may need a separate permit from this organisation to research it. Check this well in advance before starting the work. Organisations that require such permits usually already have a ready-made form for this purpose, which you should use. The research permit form in the Student’s Guide is intended for situations where the research subjects are Humak students or staff.

A slightly different process is followed in surveys

The templates and forms described above are used particularly in situations where you interview or observe people. However, informing the respondents and obtaining unambiguous consent are also essential in surveys. Information is provided in the introductory statement of the survey (cover letter), and a separate section is added to the form where the respondent specifically expresses their wish to participate in the survey.

If direct or indirect personal data are requested in the survey, a privacy statement using the Privacy policy form is also needed. You can add the Privacy policy to the introductory statement, for example by embedding a link to it in the form. If personal data are requested, the form must also contain a separate mandatory box which the respondent ticks to give their consent to the processing of their personal data under the conditions set out in the Privacy policy.

Checklist:

- Apply for a research permit (where needed).
- Complete the Privacy policy form.
- Inform the research subject using the Participant Information template.
- Ask for the subject's consent using the Participant Consent template.
- Save these documents in Wihi, with the exception of the Participant Consent form. Keep the subject’s consent forms securely in your possession and destroy them one year after the date on which your thesis was approved.

If you are unsure about which forms and templates you need in your thesis, contact your thesis supervisor.

Example 1:

Your thesis is about developing e-learning at educational institution X. To this end, you would like to find out about students' experiences with e-learning at educational institution X. You plan to conduct an extensive anonymous survey and also interview some students. Complete these steps:

- Obtain a research permit from the organisation in question. Save it in Wihi.
- Make sure that the survey produces genuinely anonymous data in which the respondents cannot be identified even indirectly based on their responses.
- Provide information about the survey in the cover letter. You will not be collecting personal data, which is why you do not need the Privacy policy. Add to the survey a mandatory box which the respondent ticks to express their willingness to participate in the survey.
- Fill in the Privacy policy form for interviews. Save it in Wihi.
- Inform the interviewees using the text you have edited based on the Participant Information template. Save the information text in Wihi.
- Ask the interviewees to give their consent using the form you edited based on the Participant Consent template. Keep the Participant Consent forms securely in your possession and destroy them one year after the date on which your thesis was approved.
- Process the datasets as described in your information texts. Store the datasets securely. The software systems offered by Humak are secure, which is why you should use them.
- Destroy the recordings and transcripts as well as any other files containing personal data on your computer and/or in a cloud service appropriately after the thesis has been evaluated. Also destroy the survey responses. If you intend to request a rectification of the grade awarded for your thesis, only destroy these files after the rectification process has ended.

Example 2:

Your thesis is about developing the service process of company X. To this end, you want to know what people think about the current service. You visit the location and ask customers about their experiences of using the service, and you also ask them for suggestions for improvement. You have prepared a questionnaire, and you record each customer's answers on a separate form yourself. You also write down the customers' answers to the open-ended questions in your own words. You do not record anything, and you do not ask or write down anything that contains direct or indirect personal data. Complete these steps:

- Find out from the organization you are developing whether you need a research permit and obtain one if necessary. Save it in Wihi.
- Inform the interviewee about the purpose of the development work and how the material will be processed. Verbal information is sufficient, but also be prepared with written information that you can present if necessary.
- Ask the interviewee for their consent to be interviewed. Verbal consent is sufficient.
- Make sure that what you write down on the forms does not contain direct or indirect personal data.
- Process the datasets as described in your information texts.
- Destroy the forms appropriately once your thesis has been completed.

The reason for the differences in the information and consent procedures in these examples is that in the latter example, nothing is recorded, and the interviewer writes down the answers in their own words. The key is that nothing is written down in such detail that the interviewee could be identified. This also means that no personal data files are generated. Providing information and giving the consent orally are sufficient for such short interviews in which a form is used and which are anonymous from start to finish (direct or indirect personal data are not requested or recorded at any stage). In longer interviews, however, which typically should be recorded and transcribed verbatim, you must always inform the interviewee and ask for their consent in writing.

1.8 Ethical principles

In a research-based development project, the authors must comply with good scientific practice and ethical principles of research with human participants. Universities of applied sciences are committed to complying with these guidelines and practices in theses. This is why it is important for thesis authors to familiarise themselves with the Code of Conduct for Research Integrity and ethical principles of research with human participants, and to apply this information to their research-based development projects. The Rectors' Conference of Finnish Universities of Applied Sciences (ARENE) has prepared ethical guidelines especially with the needs of universities of applied sciences in mind. You should read them carefully. See the thesis pages of the Student's Guide for up-to-date links to the ethical guidelines for theses.

The more sensitive the data you collect is, the more carefully you should think about the ethical issues. Some research and development topics require a preliminary ethical assessment. If you think this might apply to the topic of your thesis, discuss the matter with your supervisor. The requirements and instructions for ethical pre-assessment are explained in Arene's guidelines.

Thesis authors must also ensure that the datasets they collect are appropriately destroyed, anonymised, and archived in accordance with the instructions issued by the Data Protection Ombudsman. Particular attention must be paid to legislation on the collection of personal data.

Thesis authors must also use ethically sustainable information acquisition, research and evaluation methods and ensure openness when publishing the results. They should take due account of other researchers' works and achievements and plan, carry out and write their work in compliance with the requirements set for scientific knowledge. They must also report any funding sources and interests that underlie the research.

Thesis authors must follow the ethical principles of scientific writing. They should ensure ethically correct use of citations. The sources used must be indicated both in the actual text and in the list of references. In the text, the citations direct the reader to the list of references at the end of the thesis, which provides the reader with more detailed bibliographic information. The citations and the list of references must be coherent. Judicious selection and careful interpretation of literature as well as noting the citations accurately are part of high-quality research and development work.

2. Stages of the thesis process

2.1 Thesis topic proposal

The thesis process begins with drawing up a topic proposal. The author draws up the topic proposal by defining the development need for the thesis, its goals and measures, and its results and outputs. The students describe the need for the project, explaining why completing the thesis is important. The commissioner or the entire professional sector may lack important information, the commissioner's organisation may have a crucial need for renewal, or the thesis may resolve identified concrete problems.

The instructions for the thesis commissioner explain the commissioner's responsibilities, obligations, and rights. These instructions should be used to explain the nature and purpose of the thesis to the commissioner already when students are seeking a commissioner. At the latest before the agreement is drafted, the authors of the thesis should ensure that the commissioner has reviewed the instructions.

Achieving the objectives eliminates or mitigates the need for development described above. The objectives of the work are often defined in such a way that some of them are directly related to development and some to the production of knowledge for the professional field. The objectives related to development can be very concrete, while those related to the production of knowledge can be more abstract. Objectives that produce new knowledge can be formulated in the form of research questions. Since a thesis produced at Humak is a research-based development project rather than a scientific study, the authors can also refer to questions set for the development project.

While the methods of a development project need not be described in detail in the topic proposal, it is advisable to present preliminary ideas. The output of the thesis, such as a new operating model, usually only benefits the commissioner, whereas the results comprise new knowledge that benefits the wider professional community or society.

2.2 Thesis plan

The thesis plan is produced for three parties: the authors themselves, the educational institution, and the commissioner. The plan helps to ensure that all parties understand the purpose of the project in the same way. The commissioner can verify that the project will meet their needs and expectations. The supervisor ensures that the project meets the requirements set for a Master's thesis at Humak. The students can determine that the project is suitable as a Master's thesis in terms of its scope, delimitation, and objective.

In terms of its content, the thesis plan is an advanced version of the "four focus area" model (need, objectives, measures and results/products). To this model are added the theoretical framework of the thesis and a bibliography, an implementation schedule, and a preliminary table of contents. The detailed methods are additionally included, and more specific estimates of the expected results and products of the thesis are given. In the thesis plan, the need for development is justified on the basis of literature.

The theoretical framework of the thesis is built by combining different written sources. This way, the students form their unique perspective on the topic to be developed. The goals or research questions of the thesis can be placed before or after the theoretical framework. The goals of the thesis are concrete and respond to the commissioner's needs, whereas the answers to the research questions produce knowledge for a wider readership than the commissioner.

The actions of the project are described in as much detail as possible at the planning stage. Each method of the development project is usually discussed in a separate chapter. At the planning stage, particular attention should be paid to how observations are documented and how the authors intend to analyse the generated data.

The estimate of the results expected of the work and the planned outputs is more detailed than in the initial plan. A result refers to new knowledge, whereas an output is usually a concrete benefit intended for the commissioner. Students should pay attention to the practical implementation of the results and outputs for the commissioner and in the professional sector. If no one makes use of the output of the work and the results do not bring about any change, there will be no development.

The plan must also include information on how the development project will be evaluated once it has been completed. In the evaluation phase, it often makes sense to separate a process evaluation from evaluating how the ultimate goals of the project were achieved. It also makes sense to distinguish between the direct outcomes of the project for the target group and its wider societal impact.

The thesis plan also includes a data management plan, which is a plan for how you will collect and store your data, how you will process them ethically, and how you will ultimately either destroy them or hand them over to a permanent archive. Permanent archiving of data is rare in connection with theses. It is more typical that the dataset is destroyed after the thesis evaluation has been completed. It is essential to ensure that the dataset is disposed of appropriately. Type the data management plan on the ready-made template and attach it to your thesis plan.

A thesis plan must always contain a table of contents. A full-length plan usually consists of around ten pages. The structure of the plan may, for example, be as follows:

1. Development need (Why is it important to complete this thesis? What information is lacking in the field? Why do the commissioner's activities need to be developed? What societal or professional problems exist?)
2. Thesis objectives and research questions
3. Theoretical framework (from what perspective is the development work carried out in this thesis?)
4. Methods of the development work (what you will do when you are working on your thesis; in as much detail as possible)
5. Results (what new knowledge will the thesis produce?)
6. Outputs (what are the concrete outputs of the project for the commissioner and/or the professional sector?)
7. Evaluation of the development project (how will the success of the process will be evaluated? How will the outcomes and societal impact be evaluated?)

2.3 Thesis cooperation agreement

The thesis cooperation agreement is concluded between the authors, the commissioner and the supervisor in the AtomiSign program, after which the students save it in Wihi. The agreement is drawn up using the template provided by Humak. When the thesis cooperation agreement is signed, the section of the agreement text stating that all theses will be published in the Theseus online library should be emphasized to the commissioner. Any licensing issues and confidentiality obligations should be resolved in the agreement negotiations.

Not all workplace commissions are suitable as theses. Sometimes the commission may be too routine to produce new knowledge for the professional sector or even society at large, which is required of a Master's thesis. Master's level students usually can influence the content of the commission to a large extent. Similarly, while the bar for the project's goals should be set high, students should steer clear of topics so abstract that the actual development dissolves into lofty objectives. The best commission is one that genuinely benefits the commissioner but also offers an opportunity to produce new, significant knowledge.

The plan for a research-based development project is never final: it is typical of development work that the plan changes at least slightly, and detail is added to it as the work progresses. While a changed plan need not be written and approved again, major changes must be agreed upon with the thesis supervisor and the commissioner. If the thesis topic changes completely, the thesis planning process must be started from the beginning, and a new plan must be written.

2.4 Working on the thesis and supervision

Students have the right to receive guidance while working on their theses. Each thesis is assigned a personal supervisor, who schedules meetings with the students they supervise at agreed intervals. Supervisors may have different working methods, which are discussed and agreed upon at the start of the process. The supervision is delivered as online group guidance, in which students read each other’s theses at their different stages. The supervisor informs the students about the meetings and gives them instructions for the meetings.

Students should prepare carefully for guidance meetings. Typically, the supervisor expects to see progress in the thesis before the next session. Guidance should not be viewed as criticism of the work. At its best, it is a process of solving problems together and considering which aspects are worth focusing on next. A successful guidance meeting is usually evident when students leave knowing clearly what their next steps are.

The thesis is probably the most extensive project in terms of the required workload that the student will undertake during their studies. It can evoke many kinds of emotions: enthusiasm, the joy of insight, worry, tiredness, and even irritation. The supervisors are experienced and know how to help students overcome problems.

Sometimes uncomfortable feelings associated with working on the thesis may be reflected on the supervision relationship and make it seem awkward. Primarily, efforts should be made to resolve such challenges between the supervisor and the student. Students can only change thesis supervisors for compelling and justified reasons. The reasons and justifications must be proven to the thesis coordinator who, after consulting both parties, will make a decision on the matter.

2.5 Pre-evaluation

Before the thesis is submitted, a pre-evaluation of it is conducted. In the pre-evaluation version of the thesis, all the main chapters must be in place and mainly finished. In other words, this version must be advanced enough for the pre-evaluator to determine the conditions under which the thesis will definitely be passed in the actual evaluation. This allows students to correct their work based on the feedback they receive before submitting the thesis for evaluation. The pre-evaluation is arranged as determined by the supervisor.

2.6 Submission and evaluation of the thesis

To submit their thesis for evaluation, the students upload it in PDF/A format to Wihi through Wihi's plagiarism check program. Before submitting the thesis, students must ensure that it meets the accessibility requirements. The evaluation of the thesis will be based on this version, and it may no longer be changed. The same version will be uploaded to Theseus. Theses produced in pairs or groups are only saved by one person who, however, records the names of all authors in Theseus. Individual theses are evaluated based on the same criteria as those produced in pairs and small groups. All those working in a pair or small group are awarded the same grade for and receive the same statement on their theses.

The primary evaluator of the thesis is a member of Humak's teaching staff appointed to this task who has not been involved in the thesis process. The evaluator and the supervisor write a statement of approx. one page on the thesis, in which they grade it as either satisfactory (1–2), good (3–4) or excellent (5).

The thesis will be evaluated according to the following three assessment criteria: 1) significance of the thesis for the professional sector, 2) generation of knowledge and competence, and 3) the appearance and legibility of the thesis.

2.7 Evaluation criteria

I. Significance of the thesis for the professional sector (weight 50%)

In this evaluation section, the thesis is examined from the perspective of its significance, outcomes and impact. These perspectives include generation of new knowledge, outcomes for the target group or the commissioner's activities, and wider societal impact. Consequently, the significance of the thesis stems not from the choice of topic but from the results and outputs.

5 = The thesis is particularly valuable for the commissioner. The thesis also produces new knowledge that is significant for a wider audience than the commissioner, or for society at large. The output of the thesis is innovative and is linked to topical discussion in the professional sector.

3 = The thesis produces important new knowledge for the commissioner and a wider audience, but it cannot be deemed particularly significant. The output is well-managed but ordinary.

1 = The thesis comprises routine work and does not effectively produce particularly significant new knowledge for a wider audience than the commissioner. However, the work has significance for developing the commissioner's activities.

II. Generation of knowledge and competence (weight 30%)

5 = The authors apply development methods skilfully and boldly. The produced dataset is analysed both carefully and insightfully. The theoretical framework of the thesis guides the development work. Sources are combined skilfully.

3 = The authors use conventional methods in their development project. The produced dataset is analysed carefully. The authors have familiarised themselves adequately with literature on the topic, but the theoretical framework remains at least partly separate from the development work.

1 = The authors use ordinary methods of a development project. The use of reference literature is inadequate. While the data have been analysed and results have been obtained, the link between the analysis and the results remains unclear, or the analysis is superficial.

III. Appearance and readability (weight 20%)

5 = The text is grammatically correct and easy to read. The body text does not exceed the maximum length of 60 pages. The structure of the thesis is clear. Any diagrams, tables and figures are tidy and high in quality.

3 = Linguistically, the thesis meets the criteria for scientific writing, even if there is room for improvement in the text and/or diagrams.

1 = The text contains distracting grammatical errors and/or clumsy expressions. The text is comprehensible but obviously unfinished. The structure of the thesis is illogical.

Consequently, the most important aspect in the evaluation is the significance of the results and outputs. Naturally, there is also an interplay between the evaluation criteria: in-depth familiarisation with literature on the topic, bold and innovative implementation and good mastery of the methods often produce the most significant theses.

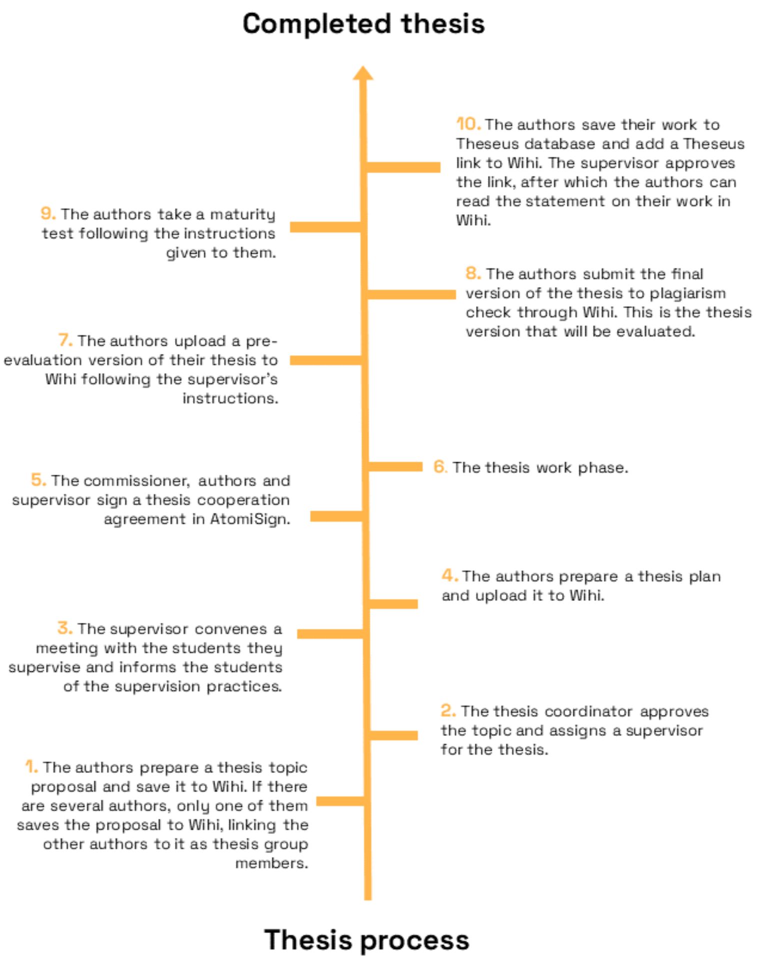
If the thesis authors are dissatisfied with their grades, they may request a rectification. The request for rectification is submitted to the thesis supervisor within 14 days of the students receiving the written statement on their thesis. The request for rectification must be justified. The thesis supervisor examines the grounds for the request, asks for a third-party opinion if necessary, and talks to the authors before responding to the request for rectification. A consensus is usually reached at this stage. If the students are still dissatisfied with the decision on their request for rectification, they have a right to address a request for rectification concerning that decision to Humak's Examination Board within 14 days of being informed of it. For further information on this procedure, contact the supervisor or thesis coordinator.

2.8 Maturity test

To graduate with a UAS degree, students must take a maturity test in the field of their thesis that demonstrates their knowledge of the sector. Students take the maturity test in their mother tongue if it is Finnish or Swedish. If the student's language of education is other than Finnish or Swedish, the language of their maturity test is decided by the thesis supervisor. The maturity test is completed in the form of a written summary of the thesis. If the thesis was completed in pairs or in a small group, each student writes their own summary as their maturity test.

An approved maturity test is professionally written. The writing must comply with the requirements of good factual style and make up a clear and consistent whole in terms of structure, language and layout. The maturity test is checked in terms of both content and language. The maturity test is assessed on a pass/fail basis rather than numerically. If the test is deemed to need improvement, the student will be given feedback before repeating it.

2.9 Thesis process in a nutshell



3. Layout, structure and writing of the thesis

3.1 Structure of the thesis

There is no single definitive model for the structure of the thesis that everyone should strictly follow. However, all theses share the same basic structure. You should keep the structure of the thesis simple. Students tend to write too many chapters rather than too few. It is important to keep the structure of the headings reader-friendly. Having a structure of two heading levels is significantly better than three levels. Two consecutive headings should be avoided: a main chapter should have at least a short introductory paragraph before the heading of the first section. The chapters should also not be excessively short, as this makes the text look like a list.

A good number of main chapters is around 6 or 7: an introduction, the theoretical framework of the thesis, 2–3 chapters on the processing of the development project data, and a conclusion. A thesis often also includes a separate methodology chapter that describes the development methods used. In addition, a separate chapter on the evaluation of the development project or practical implementation of its results can in some cases be included. Before the introduction chapter, the thesis contains abstracts in Finnish and in English.

Usually, the structure of a thesis resembles the shape of the letter U in terms of its level of abstraction. In the introduction and in the theoretical framework chapter, the text is guided by theoretical concepts. In the methods chapter and the subsequent content chapters, the writing moves down from the conceptual level to a description of practical activities. The content chapters may describe in detail how, for example, action-based experiments were carried out and how the data for analysis were collected from them. Finally, the text returns to a more abstract level when discussing the new knowledge produced by the thesis and the added value it brings to conceptual, or theoretical, knowledge.

3.2 Functions of the chapters

The abstract can be prepared based on the same “four focus areas” model used in the thesis proposal. The abstract may contain 5–6 paragraphs, the first of which describes the development need, the second one the goals, the third the actions or methods, the fourth any outputs, plus a final paragraph that discusses the results, or the knowledge generated by the thesis. You can use up to two paragraphs to describe the results. It is important not to leave the results out of the abstract. As a rule, a passive voice and past tense should be used in the abstract.

The introduction should not be confused with the abstract. The purpose of the introduction is to justify the significance of the development work and the entire thesis, and to present the objectives of the work. A good introduction is often approximately the same length as the other chapters, and it may also contain sections. The authors of a Master’s thesis are expected to provide a literature-based view of what knowledge or skills are lacking in the sector. The goals and research questions of the thesis can be placed at the end of the introduction or after the theoretical framework at the beginning of the methodology chapter.

The theoretical framework is an important part of a research-based development project. Development without a proper theoretical basis resembles everyday, informal development, which does not correspond to the aims of research based development. The theoretical framework expresses a conceptual understanding of the topic of the thesis, based on which activities can be developed. In research-based development, theory and practice are not separate; rather, they overlap and intertwine with each other. As Kurt Lewin, a social psychologist considered the founder of action research, put it: "There is nothing as practical as a good theory."

In the methods chapter, the actions carried out in the thesis are described, as well as how data for analysis has been collected through the methods of development work. In other words, rather than analysing the data yet, the methodology chapter describes how different methods have been used in the research-based development project. If the work involves action-based experiments, their implementation method is also described in the methodology chapter. In addition, the methodology chapter describes the general approach of the thesis if a specific approach is applied.

Thesis authors can also use the "zipper technique" when presenting the theoretical framework. In this case, the thesis does not contain a separate theory chapter; rather, the theory is presented whenever it becomes relevant for discussing data collection. This allows the writer to reach the core of the work more quickly, without extensive theoretical background chapters. The advantage of the zipper technique is that theory never remains detached from practical development work but becomes fully integrated into it. However, in practice the zipper technique is difficult to execute well. It is worth trying, but if it becomes too challenging, it is advisable to choose a more traditional structure.

The data produced during the development work are usually analyzed one method at a time. The material can also be analyzed one theme at a time while combining multiple methods, but this is a more demanding approach. The reflection chapter is typically the final chapter of the thesis. In this chapter, findings are linked to conceptual knowledge and generalized— that is, abstracted. The reflection chapter may also consider the broader significance of the work and the new knowledge it adds to the existing theoretical foundation. The research questions are answered at the latest in the reflection chapter.

The output of a research-based development project typically is a new operating method or model, service, event, strategy, product, or another similar outcome that renews the commissioner's operations. The output may also consist of a number of justified development proposals, but in this case, it is important to include a plan for implementing the proposals in the thesis. It is usually best to dedicate a separate chapter to describing the outputs. In some cases, you can describe the outputs in an appendix that can be easily detached from the rest of the thesis. Even in this case, the key aspects of the output should also be set out in the actual text of the thesis. It is particularly important to make visible the relationship between the output and the knowledge produced by the data and the theoretical foundation. A separate main chapter on the dissemination or implementation of the results is rarely necessary, but as a subsection near the end of the thesis, this important phase of the work often functions well. If a separate chapter on the implementation of results or on the evaluation of the development work is written, it may be placed either at the very end or before the reflection chapter.

3.3 Thesis writing

The thesis should be written in a good factual style. The text of a good thesis is clear, reflective, and easy to read: what is written clearly is also clearly thought out. In terms of style, the text should be appropriate: it can be nuanced but not contain colloquial language. Rather than being dry and boring, factual style may be highly interesting and persuasive for someone knowledgeable in the topic. Thesis authors should read Humak's Writing Guide.

When writing a thesis, it is important to consider the text from the reader's perspective. A thesis is not written solely for the commissioner, and certainly not only for the supervising teacher, but for a broader readership. Development projects carried out within one's long-term workplace can easily become overly internal or insider-focused, making it difficult for both the supervisor and other external readers to follow the narrative. One way to avoid this narrow perspective is to imagine the reader as a knowledgeable professional in one's own field who lives in another city, and to write with that person in mind. Students are therefore encouraged to have someone outside their organisation read the work. In addition, correct and clear language is essential in a thesis. Students should not write anything in their work that they do not fully understand themselves.

The word "report" is problematic in many ways in the context of a thesis. Reporting suggests that something is first done and only afterwards reported on. In the case of a thesis, writing is not only a method of transferring thoughts in your head to the screen but also one of the most important methods of producing ideas. For this reason, it is advisable to write your thesis continuously throughout the process.

Carefully noted citations and list of references will increase readers' trust in your work, as does a tidy and consistent layout compliant with the instructions. In citations, you should follow the instructions approved by Humak. It is a good idea to note the sources immediately with a citation manager, such as Mendeley or Zotero, which significantly reduces the possibility of errors.

3.4. Use of AI

The ability to harness artificial intelligence (AI) is an important skill in many professions that will become even more important in the future. Humak encourages its students to take advantage of the opportunities offered by AI already during their studies, for example, in the various stages of their thesis work. In the early stages, artificial intelligence can be asked for comments on the thesis idea. When encouraged to do so, AI may also propose usable innovative, creative and participatory development methods. When building the theoretical framework, AI may suggest relevant sources. In the final phase, it can help proofread the thesis.

AI can also be a useful tool in the data analysis phase. For example, AI applications can be used to code, classify, quantify, and summarize qualitative data. AI can also support quantitative data analysis. It can additionally generate suggestions for how to interpret research results in light of theoretical knowledge. Participants must be told in advance in the Participant Information form that the data will be entered into an AI program, and this must be mentioned in the data management plan. For security reasons, only Microsoft tools provided by Humak should be used for producing transcripts.

You must never input personal data into AI applications, and any data entered into them must always be completely anonymised. Particular discretion is needed when processing sensitive data. Inform yourself carefully of what personal data and anonymisation mean. For more information, visit the website of the Data Protection Ombudsman (opens in a new browser).

AI analyses should not be blindly trusted. AI may hallucinate, hallucinate, i.e., provide incorrect information and interpretations in convincing terms. It may also refer to sources that do not exist. The author is always responsible for interpretations presented in the thesis and commits a breach of ethics when including AI hallucinations in their work.

You must be transparent about using AI in your thesis. The introduction to your thesis should describe which AI applications you used and how. You can add detail to the description of AI use as necessary in other chapters of the thesis. For example, if students have used AI to analyse data, they can describe this in detail in the methodology or analysis chapters of their thesis. The description must be sufficiently detailed to give the reader an idea of the role AI had in the different stages of the work. Direct quotations from content produced by AI not be included in the thesis. However, if you use content produced by AI, remember to paraphrase it in your own words and refer to AI in an appropriate manner, as instructed in Humak's Citation Guide.

You should not use a source suggested or referred to by AI in your thesis unless you have obtained the source in question and familiarized yourself with it sufficiently. It is absolutely essential to ensure that the source proposed by AI exists in general, and that AI has not interpreted it in a questionable, biased, or completely incorrect manner. A good thesis rarely uses artificial intelligence as a source.

These instructions are based on the recommendations of the Rectors' Conference of Finnish Universities of Applied Sciences (ARENE), and they are in line with the guidelines issued by the Universities of Helsinki and Turku. The guidelines may be updated quickly along with technical development and changes in the common policies of higher education institutions. Any new guidelines will be updated in the Thesis Guide without delay.

3.5 What to do if the thesis becomes stuck

The thesis is often one of the longest texts the authors have ever written. It is quite common for such a large project to seem insurmountably difficult at some point during the process. It is also difficult to stay motivated month after month. However, it is important to remember that a thesis is not meant to be an easy, routine attainment, and that learning happens precisely through overcoming difficulties.

One effective way to produce a high-quality thesis without running into major difficulties is to work on it briefly every day— around 20 minutes, for example— despite other commitments. It is unlikely that a thesis written a little bit each day would remain unfinished. In contrast, waiting for long, uninterrupted periods of concentration is risky, as such opportunities may never come. The nature of research-based development work also requires continuous note-taking and documentation of observations.

If the work nevertheless becomes stuck, it is important to tell the supervisor directly. Supervisors rarely have miracle solutions to untangle every issue, but discussing the situation with another person can generate new ideas and open up different perspectives. It is also worthwhile to ask for comments and suggestions from the commissioner, from someone completely outside the project, or even from an AI tool. Reading literature related to the topic may likewise spark new insights that help move the work forward. Only in very rare cases does the entire thesis plan need to be completely changed.