Inception report

Date : June 6, 2019
Contract : Contract SRSS/C2019/024
Project : Introducing a Building Information Model (BIM)-based process for building permits in Estonia
Created by : Future Insight Group

Funded by the Structural Reform Support Programme of the European Union and implemented by Future Insight Group B.V. in cooperation with the European Commission's Structural Reform Support Service (SRSS).

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1. Project Management

a. Overview of meetings

In this chapter you'll find an overview of the meetings and their content. The several meetings via video conference and on site have brought us to clear understanding of the project and the wishes and demands of the beneficiary of the project. We are confident that together with all key stakeholders involved we can support the goal of the Estonian government with this project.

Date	Medium	Who	Contact	Topic
6-5-2019	Mail	Rick	SRSS	Receipt of signed contract
7-5-2019	Mail	Rick	Michela	Pick a date for kick-off and ok for sharing proposal
8-5-2019	Telephone	Rick	Michela	Discuss time/date for kick-off and ok for sharing proposal
8-5-2019	Mail	Rick	Michela	Confirmation of agreements from phone call
10-5-2019	Telephone	Rick /Judith	Michela /Jaan	First acquaintance and preparing kick off
10-5-2019	Mail	Rick	Michela /Jaan	Sent draft agenda for kick-off
15-5-2019	Mail	Rick	Michela /Jaan	Sent our presentation as preparation for kick-off
17-5-2019	Meeting on site	Whole team	Whole team	Kick- off meeting in Tallinn
22-05-2019	Weekly call	Rick /Judith	Michela /Jaan/Taavi /Krista	Discuss loose ends of the kick-off agenda like communication and complaint handling.
27-05-2019	Weekly call	Rick / Judith / Léon	Jaan / Taavi	Discuss progress and actions. Special attention for Quickscan attendees and whom to invite in July
31-05-2019	Technical interview	Rick / Léon	Jaan / Taavi	First technical interview as input for the technical report

b. Project goals & context

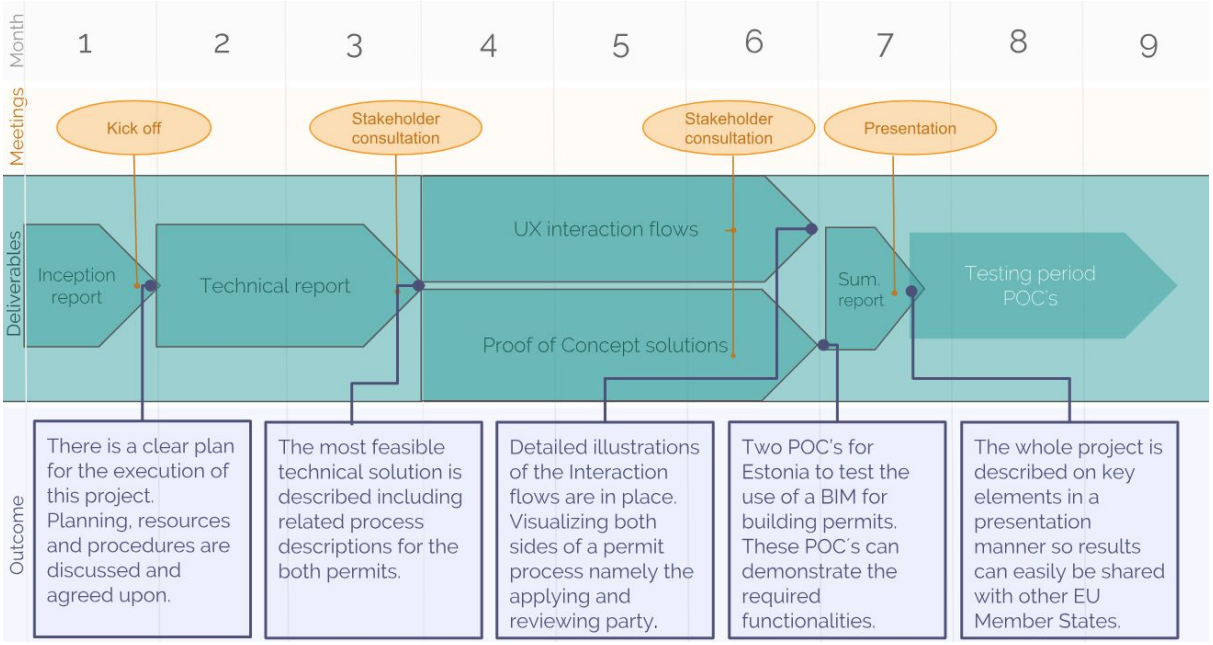
The Estonian government states to be a digital society. This can be concluded for example by the 99% rate of state services being online. The government aims to increase the construction sector productivity times three by 2030, partly via this digitalization. One way to achieve this is to create a national digital infrastructure for construction. This e-construction platform will create the environment for secure and reliable data exchange: 'lossless exchange of standardized and trustworthy data between all stakeholders throughout the building lifecycle'.
This project: *Introducing a Building Information Model (BIM)-based process for building permits in Estonia* fits in this bigger ambition. How to reach this ambition is visualized in the image below[1]:

This project will provide the insights, knowledge and communication tools that enable the Estonian government to consciously proceed with the next step on this roadmap. The deliverables that this project will produce are explained in the next paragraph.

[1] E-constructing ENG - presentation from kick-off

c. Deliverables

The deliverables we will provide in this project are shown in the overview below and thereafter explained



The inception report gives a summary of the updated approach and agreed way of working during this project.

The technical report shall mainly advise on the most feasible technical solution which fits the ambition of the Estonian government. The SWOT-analysis done for this deliverable will give a good insight in which international developments are helpful in bringing this Estonian goal within reach.

The UX interaction flows will help the future developers of the Estonian Building Registry (EHR) and e-construction platform how to set up and build the two building permits procedures based on automated BIM-validation.

The proof of concept will be built to actually show the function of an automated BIM-validation check. It will be used for having a better understanding of the algorithms but also as a communication tool for creating support with key stakeholders.

In the summary report key elements per deliverable are described such as: approach, resources and outcomes. Together with a general overview of the whole project and the conclusions of the lessons learned this will deliver a great summary that can easily be shared with other EU Member States.

d. Scope definitions

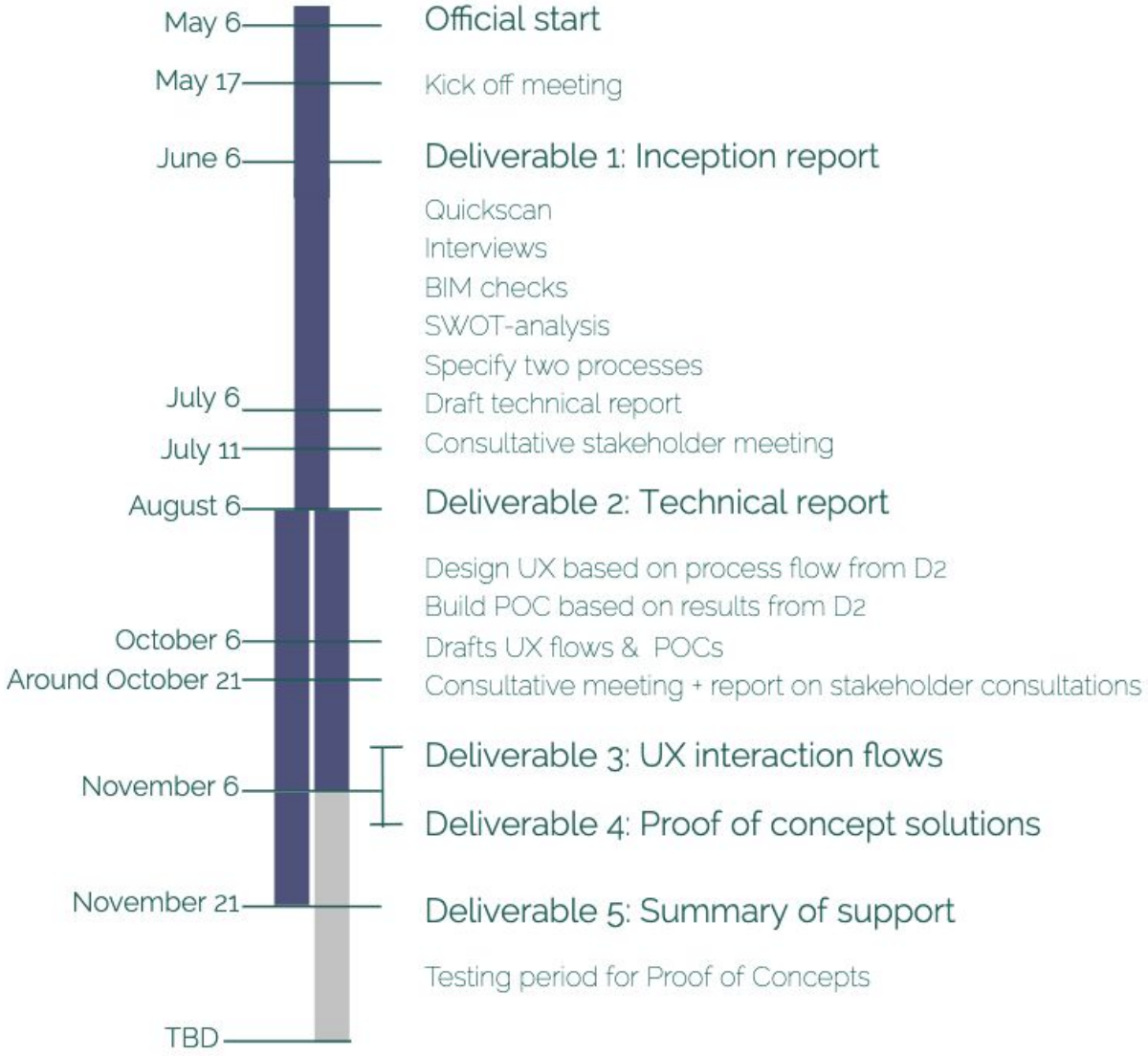
The scope of this project is to define the foundation for the further implementation of the two permit processes. This foundation will consist of research (technical report), visualization (UX design) and two POC's (of chosen analysis). This will be used as input for the implementation project, where the actual BIM-based building permit processes will be implemented in the Estonian Building Registry (EHR). Once the summary report is delivered this project will be closed out.

e. Project charter

Function	Name	Role / responsibility
Contract Manager at SRSS Growth & Business Environment	Michaela Foresti	Contract manager on behalf of the official client SRSS.
Head of Digital Construction at EMEAC*	Jaan Saar	Project Manager and main contact person on behalf of the beneficiary.
Product owner building registry at EMEAC	Taavi Jakobson	Content expert for this project and important sparring partner.
Deputy Secretary General for Construction at EMEAC	Jüri Rass	Hierarchical manager over the Estonian project team.
Analyst at EMEAC	Krista Hinno	Expert support
Analyst at EMEAC	Liilian Välison	Expert support
Project manager infrastructure and buildings at EMEAC	Meelis Raidmaa	Expert support
Chief Creative Officer & Founder at Future Insight	Rick Klooster	Project Manager and main contact person on behalf of Future Insight
Head of HR, Quality and Communications at Future Insight	Judith van Deth	Collaboration Expert
BIM Innovator at Future Insight	Léon van Berlo	BIM expert
Chief Technology Officer at Future Insight	Stephan Meijer	UX Interaction flow specialist

*) EMEAC = Estonian Ministry of Economic Affairs and Communications

f. Updated work plan



g. Meeting schedule

In our offer we made a proposal regarding the meetings sequence, with whom on which topic. This has been discussed, adjusted and agreed upon during the kick-off on May 17 and the next video meeting on May 22.

Every Monday afternoon Jaan and Taavi will join our project team meeting via conference call. This way technical elements of the project can be discussed and will keep the progress of deliverables connected to the constraints and demands of the project.

Every month a Project Managers Meeting will be held via conference call. Michela, Jaan (and when possible Taavi), Rick (and when possible Judith) will join this meeting in order to discuss the progress of the project as offered.

Next to the Project Managers Meeting, every 4 weeks a Video Message Update (VMU) will be sent by Future Insight to the contact persons of Estland and SRSS. This is for internal use only. The VMU will give a short energetic update on the progress and way of working of the project team.

h. Project risks and the identification of issues

Three important project risks or issues were identified during the kick off and the subsequent conference call by all key project team members:

1. Collaboration between geographically remote teams
    a. So far we experience a very pleasant and constructive collaboration between all important parties involved. We believe that clear communication, the structural meetings (online) and shared drive are important elements to overcome the distance;
2. Translation of the Estonian documents into English
    a. Many relevant documents are written in Estonian, a language Future Insight team members do not master;
    b. The first translation can be organized via google translate;
    c. Also Michela can arrange translations via a tool of the EU;
    d. Unfortunately not all images are translated with the tools mentioned above. Therefore Jaan and Taavi will specify which images are relevant for customized translation;
    e. EMEAC will provide professional English translations of key documents as soon as possible.
3. The holiday season is coming up and this coincides with an important part of

the project. Therefore planning is important and insight in the absence of project team members is needed.

   a. A spreadsheet with all scheduled holidays is created.

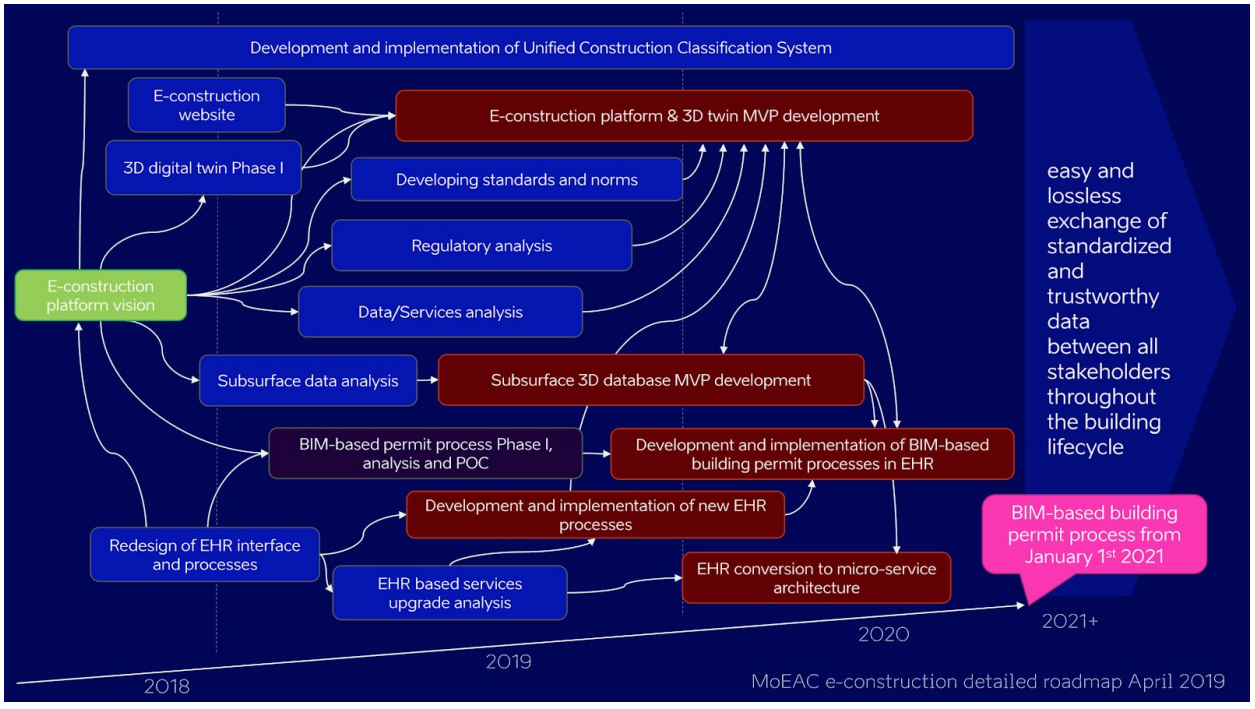
4. During this project technical principles are a key element in all deliverables. The report and the POC's will be based on certain technical principles. Therefore it is very important to align on the definition of these principles to ensure the same understanding of what's being developed during this project.

   a. For this reason we'll organize an interview with the two most important stakeholders on this matter: Jaan and Taavi.

2. Detailed description of the deliverables

a. Detailed description deliverable 2: Technical report

During the kick-off was explained that the focus of the technical report and our project should be on the future. Looking back is important to get a clear understanding of where we stand today, but we should especially look forward. This project is part of a larger program which aims at completely digitizing the e-construction industry within Estonia, as explained earlier in chapter 2. During the kick-off this larger program was further explained in detail via the image below. This shows the relations and impact of this project related to other projects of the program and the program as a whole. The BIM-based building permit process is an important part within the program, therefore it is worthwhile to invest in a solid foundation for these processes.



[2]

The technical report will describe the most feasible technical solution for developing a BIM-based process for building permits in Estonia. As part of the technical report the following methods and tools will be used:

- SWOT analysis:
- BIM Quickscan®: to get a better understanding on the state of the BIM usage in Estonia and the ambitions we will send out the BIM Quickscan® to a select group of

[2] E-constructing ENG - presentation from kick-off

relevant stakeholders. The invitations will be sent in consultation with the national governmental body.
- BIM Analytics tool: for a selection of users that already have experience with the use of the open BIM data standard IFC, we will execute an additional analysis: the 'BIM Analytics' tool. In this tool they upload their IFC data and we can evaluate the quality of that data. This gives us insight into their BIM models and which modelchecks are feasible to incorporate in the POC's.

Based upon the results of the SWOT analysis, the BIM Quickscan® and the BIM Analytics tool we will propose the most feasible technical options for developing a BIM-based Model Checking solution within the Estonian context. For this proposal we will also take into account the minimal requirements which have to be set for delivered BIM models in relation to the current situation in Estonia based on the results from the BIM Quickscan.

The next step is to describe the related business and technical processes for the "building permit request" and "building use and occupancy permit".
Finally we will organize a consultative stakeholder meeting on the 11th of July guided by Judith to ensure that all needs are taken into account and we all have a belief that we will continue working with the best feasible technical option.

b. Detailed description deliverable 3: UX interaction flows

Deliverable 3 will describe and visualize the workflows related to the following two procedures: building permit and use and occupancy permit. The existing draft of the new user interface by PWC will be used as a basis for the design. Next to that the outcome of our technical report related to the two workflows will be used for creating the visualisation of a new UX interaction flow. The UX design will give an impression on how these Business Model Checking (BMC) processes can be handled using the new EHR platform.

The two procedures of the Estonian Building Registry will be visualised by sequenced user interface illustrations. Finally the interface illustrations will be validated during a stakeholder meeting and brought to final version based upon the gathered feedback.

c. Detailed description deliverable 4: Proof of Concept solutions

The goal of the Proof of Concept is to demonstrate how the proposed BMC solution works. Next to that, the POC's will be used to show these possibilities and their benefits to stakeholders.

Prerequisite for the solution is that it should be an online web service to upload and automatically check BIM data. The solution should be based on open standards for data (IFC, CityGML, etc), results (BCF) and the API or web interface. For the POC the BIM data will be checked on specific predefined topics, like automatically checking the volume of spaces or the surface of the windows. The final topics to be checked will be chosen together with the beneficiary, this will be done during the creation of the technical report (deliverable 2). The choice will be made based on potential impact and feasibility.

The final 2 POC's will ideally check on three different layers:

1. Checking if the BIM data is valid
2. Check against scheme and against modelling guide
3. Checking the data for code compliance. Which type of checks we select is discussed during the technical report phase and further derived from the SWOT analysis.

d. Detailed description deliverable 5: Summary report

During the execution of the project we will keep a register for the lessons learned that are collected during every relevant meeting. Next to that every deliverable is finalised with a report. Key elements per deliverable are described such as: approach, resources and outcomes. Together with a general overview of the whole project and the conclusions of the lessons learned this will deliver a great summary that can easily be shared with other EU Member States. The creation of the report will mainly rely on the effort of Rick but we will present our summary report on site in Estonia with the whole project team present.

List of relevant data, documents and other information

1. PwC analysis report of the building registry processes in Estonian.et.en
2. Estonia_e-construction_platform_summary.ENG
3. e-construction platform report full document
4. Building_register_prototype_and_test_environment
5. E-constructing ENG - presentation from kick-off
6. Classification documents CoClass
7. Local authorities building permit checklists
8. BIM handbook
9. Tender Specifications
10. Offer SRSS/C2019/024