# Participatory IT Design Project for UIS2020 - Part 3

## NB Only new text in 3rd assignment below and in the last two paragraphs!

### Context

Since the summer of 2016 The Capital Region and Region Zealand have implemented an electronic medical record system from the American company Epic. It is called "Sundhedsplatformen" *part of which* – "Min Sundhedsplatform" (as an app: MinSP) is intended for the regions' patients and their relatives.

The purpose of the Participatory IT Design Project is that you - in groups of 4 –develop an in-depth analysis of various situations in which Min Sundhedsplatform is/may be used by its intended users. What do they perceive as helpful, problematic, or missing?

Further and based on this, the purpose of the Participatory IT Design Project is for the group to design a coherent vision for change of Min Sundhedsplatform. It should have the potential to remedy some of the challenges and create new opportunities for meaningful use.

The last part of the Participatory IT Design Project is to present an implementation strategy, and a plan for how your suggestions could come to life.

Intended users of Min Sundhedsplatform include yourself and people with frequent encounters at hospitals. It may be elderly family members or chronic patients among your friends and family. Intended users include also relatives – e.g. children of elderly people or parents with smaller kids – who need help with their encounters in the health system.

If you don't know people, who have frequent encounters with hospitals, you may be able to recruit people through patient associations for specific diseases, e.g. cancer, diabetes, sclerosis, HIV, heart disease, etc..

Health professionals at hospitals primarily use Sundhedsplatformen. However, when they see patients who use Min Sundhedsplatform, they may become secondary users of Min Sundhedsplatform, if patients e.g. refer to what they have found/not found in the system.

### Assignments and deadlines

Your Participatory IT Design Project is **divided into 4 assignments**:

1) **February 28th before 23:59**:
Submit the project charter including considerations about strategic alignment – max 10 pages.

The MUST method offers recommendations for how to organize and carry out

each of the four suggested phases - and for the format of the deliverables. See Chapter 4 and 5 for more details on the first two phases of a participatory IT design project.

The objective of the first phase is to clarify and come to an agreement among the involved parties about the premise and conditions of the project. The objective of the second phase is to clarify the relations between your project and the regions' IT and business strategies. However, since the complexity of the strategic analysis is low, we suggest that you combine the two phases and submit only one report.

In figure 8.1 you are advised as to which tools and techniques to use in which of the four phases. You will find a brief introduction to the tools and techniques in section 8.4, and more instructive descriptions in Chapter 9. Start reading about the techniques for phase 1 and 2 that are boldfaced in figure 8.1.

Figure 8.1 also shows, which techniques will help you adhere to which of MUST's four principles. Finally, figure 8.1 highlights the tools and techniques that help you develop an understanding of each of the six knowledge areas (see also section 2.2.1).

See Figure 4.6 for how to structure the Project Charter and include ideas from Figure 5.4 about the strategic analysis.

In Absalon you will find the following documents: "Systemlandskab for MinSP", "Informationsmodel for MinSP", "Fælles regionalt atlas (it arkitektur)" and part of a cover letter provided by The Capital Region. They will be useful for the strategic analysis and when you get to focus on the database part of the project – but more about the latter when you will receive the below assignments.

2) **April 24th before 2PM (new text since the first assignment)**
Submit the analysis report – max 20 **pages including the artifacts described below, but excluding front page, table of contents and appendix.**

See chapter 6 in the MUST book for recommendation for how to organize and carry out the work. Figure 6.5 shows the recommended format of the deliverable.

The objective of the In-depth analysis phase is that you develop and document a thorough understanding of the selected work domains, the goals its actors strive to pursue, the challenges they experience, and the potentials for improvements.

On this base your prioritize for which goals, problems and needs that you – in the last phase – are going to develop a coherent vision for change. You may do that by choosing which future user stories that your vision is going to support: Must have, Should have, Could have, Won't have.

You are advised again to consult figure 8.1 as to which tools and techniques to apply to help you develop that understanding, and to section 8.4 and Chapter 9 for a brief and a more detailed description of the recommended tools and techniques.

In this phase you should strive to adhere to the principle of genuine user participation and the principle of firsthand experience with work practices (see section 2.2 and 2.3). And in your report there need to be arguments for and reflections about how you took care of these two principles.

In Assignment 2, we expect you to include the following artifacts for database modeling and running prototype project work: (1) A set of user stories documenting functionality expected in the information system in the context of your exploration; (2) Prioritized user stories that are so far identified as important to be implemented in a future running prototype, following a MoSCoW prioritization. You can find examples of these artifacts in the context of the banking example in Absalon (Absalon -> Modules -> Artifacts for Database Modeling and Prototype in Project Work).

Furthermore, we expect that you will be able to formulate queries in database query languages at this point to validate your modeling of the information managed in the domain. To make sure you formulate queries of sufficient complexity and study the MinSP information model, we have mapped a small subset of the model provided by the Region (Absalon -> Modules -> Input from region) into a relational schema:

```
patients(cpr, first_name, last_name, address, zip, country, journal)
allergies(allergen, allergy_type, reaction)
patient_allergies(allergen, cpr)
```

All the information about allergies is recorded in the relation **allergies**, identified by the allergen in addition to allergy type and reaction pattern. The patient information is recorded in the relation **patients** identified by the CPR number and in addition recording the first and last names, address, zip code, country, and journal entry. The identified allergies are recorded in the relation **patient_allergies**.

We ask that you: (3) State the following three queries in the database language requested:

a) List the first names of patients that are allergic to allergies of both allergy type ‘pollen’ and allergy type ‘animals’. (relational algebra and SQL, i.e., state the same query twice, once in each language)
b) For each allergy type, list the allergy type and the number of patients that have that allergy type. NOTE: In the output, all allergy types must be

listed, even if the number of patients with that allergy type is zero. (extended relational algebra and SQL, i.e., state the same query twice, once in each language)

c) List the pairs of CPR numbers for patients that are allergic to exactly the same set of allergens. NOTE: In the output, please make sure to only list pairs (i,j) and not (j,i); also, you should not pair a patient with him/herself. (SQL)

In addition to the queries above formulated against the schema based on the MinSP information model, we expect you to identify: (4) **three main queries** associated with the highest priority user stories in your exploration. Please provide a short description of what is to be computed by each query as well as a formulation of the query in SQL. Remember to also state the relational schema over which your queries are formulated (obtained from mapping the necessary subset of your ER diagram).

As part of Assignment 1, you have developed: (a) an ER diagram of the domain of your investigation; (b) A description of the information managed in the domain. Please make sure to include these artifacts in an appendix to Assignment 2, so that we can check the formulation of the three main queries you have identified. If your understanding of the domain improves during the analysis phase, you may include directly revised versions of these artifacts in your appendix.

3) **May 22th before 2PM (new text since the first and second assignment)**
Submit a draft of the final design project report. (The final report to be delivered June 12th is expected to be around 25 pages long plus descriptions of the database and the code).

In this last phase of the project you should strive to adhere to the principles of a coherent vision for change, genuine user participation and anchoring of visions (see section 2.1, 2.2, 2.4). And in your report there need to be arguments for and reflections about how you took care of these three principles.

You are advised again to consult figure 8.1 in the MUST book as to which tools and techniques to apply for this phase, for developing the 6 knowledge areas, and that helps you adhere to the 4 principles. In Chapter 9 you find a more detailed description of the recommended tools and techniques for this phase.

See chapter 7 for recommendation for how to organize and carry out the work. Figure 7.3 shows the recommended format of the deliverable.

Furthermore, the deliverable comprises a prototype of the envisioned information system covering a subset of the user stories according to prioritization (at a minimum, the user stories prioritized as Must-Have are to be included). The artifacts related to the prototype and expected for the deliverable are:
(a) A high-level description of the prototype design;

(b) An ER diagram of the prototype database;
(c) A description of relations derived from the ER diagram of the prototype database;
(d) Given the relations derived in (c) above, what normal form are each of these relations in? Are there any nontrivial functional dependencies where the left side is not a superkey? If so, discuss further normalization steps for your database schema or justify why no further steps are necessary.
(e) Python/Flask and SQL source code of the prototype. The source code can be packaged as a separate ZIP file in addition to the report PDF.

Moreover, we expect that the deliverable include as appendices revised versions of the following artifacts:
(f) Text description of information managed in the domain;
(g) ER diagram of domain;
(h) Prioritized user stories.

To clarify expectations, examples of these artifacts in the context of a simplified banking application are provided in Absalon.

4) **June 12th before 2PM:**
The final design project report.

## Supervision, feedback and grading **(new text since the second assignment)**

The TAs offer supervision and feedback, and together with the professors they will also evaluate the deliverables, so you get an idea of your performance throughout the course.

For the exam we will use the numerical scale, but we don't find it helpful for ongoing work. Therefor, as for the second assignment, we have decided to this scale instead: Unacceptable, A start, Ok, Good, Very Good, Excellent.