Examination guidelines - HINF1102 fall 2019

The exam consists of three assignments (three questions). All assignments should be answered, they have equal weight.

Assignment 1.Tenk deg at du leder en klinisk avdeling på et sykehus hvor det nå skal innføres et nytt EPJ-system (Elektronisk Pasientjournal) hvor det tidligere var et papir basert system. Ta utgangspunkt i kurslitteraturen og drøft tre aspekter som vil være viktige for å lykkes med denne innføringen.

The student is expected to identify three aspects that are critical for a successful EPR implementation process in a clinical department at the hospital. Examples of these aspects are the following:
- Learning
- Sociotechnical complexity
- Implementation process
- User participation
- Infrastructural interdependencies

For each aspect the student should explain what it means with references to the course literature and why it is relevant in relation to an implementation process, with examples from the course literature.

For example, about sociotechnical complexity, students should explain what sociotechnical means and this could include the following aspects presented in book chapter 1, 2 in Berg, M. et al. (2004) "Health Information Management. Integrating information technology in health care work", and articles Aanestad and Olaussen (2010) and Berg, Arts, van der Lei (2003): (a) a sociotechnical approach considers how technical, organizational and social aspects are interrelated. (b) An information system is thoroughly intertwined with the work practices in which it functions, and a work practices include networks of people, tools, organizational routines, documents etc. (c) Both social and technical take an active role. (d)The socio technical approach stands in contrast to a technical approach where the focus is primarily on the IT artefact not taking into account the socio-institutional context within which the technology is designed and used. (e) health information systems are especially socio-technical as they deal with data about people, processes, practices, and necessarily involves inter-connections with different groups of people, departments, institutions and even countries.

They should then explain how this can be used in facilitating a successful implementation: for instance this means that one should pay attention not only to the technical implementation, but also to how the technical system will change and influence the existing organizational practices in the department. They could mention the article by Vikkelsø which illustrates the changes in the distribution of risk, roles and responsability in a hospital department following the implementation of a novel EPR system.

Assignment 2. NHN (Norskhelsenett) støtter blant annet informasjonsutveksling i form av standardiserte meldinger. Ta utgangspunkt i PLO-caset i pensum og diskuter fordeler og ulemper ved denne type strukturerte kommunikasjonsformen.

The student is expected to discuss the benefits and challenges of introducing a structured communication form in relation to the PLO case from Larocca and Hoholm (pensum article). The students should explain:
- that structured communication is a form of standardization of the information and of the work practices. This should be linked to the literature from the pensum about standardization, expecially the paper by Ellingsen and Monteiro about standardizing across context. The PLO case is an example of such process.
- That standards are important for creating a common language for systems and people to speak to each other. This is especially relevant in the health domain, for example in a hospital, where there are a multiplicity of systems operating and there is both the clinical

and administrative need for these systems to speak to each other. They should highlight the importance of standards to enable interoperability by encoding health data using a common, generally agreed upon "language" that multiple systems can read.

- That a standardization process is a sociotechnical process which has implications for practice and which influence the organization of work in relation to the existing work practices. They could here refer to the concept of 'installed base' and how the existing practices and technology in place are hard to change.
- They should then use the case described in the article and point to the positive and negative aspects of a structured communication as illustrated in LaRocca and Hoholm.

Assignment 3.Hvilken utfordring er det "bootstrapping-strategien" forsøker å håndtere? (Beskriv både utfordringen i seg selv og hvordan denne strategien bidrar til å møte den).

The student is expected to explain in brief what a bootstrapping strategy is. Bootstrapping is a concept (from Information Infrastructure literature) presented in the article by Hanseth and Aanestad 2003. Bootstrapping can be described as a strategy for implementing network technologies which uses the self-reinforcing mechanism of network effects, critical mass and direct usefulness to initiate the uptake of a new network technology. Students should explain the following core concepts: critical mass (one needs to reach a certain number of users), network effect (the value of using a technology increases with the number of users), direct usefulness (one has to design the system for solving actual problems so that users perceive the usefulness of the system at once as they start using it).

The student is expected to then focus on which challenges does the strategy address. The student should mention that:

a.   it is a strategy that can be used when there are limited resources, as it builds on a gradual approach which starts with few users and a small implementation;

b.   it is a strategy that can be used when the benefits from the use of the technology are not 'proven' yet. Bootstrapping allows for containing risks and trying the technology first on small scale to assess the benefits before a full implementation is done;

c.   it is strategy that can be used with network technologies, where the benefits are not only local and limited to one context and few users, but network effects emerge. The network effects can then be exploited to scale up the implementation process;

The student should use the examples from the course pensum to illustrate the challenges. Possible examples from the course literature are:

- The ambulance case in Østfold in Hanseth and Aanestad 2003;
- The EDI standard in Hanseth and Aanestad 2003;
- The MinJournal case in Vassilakopoulou, P. and Grisot, M. (2012).
- Other cases that have been discussed in class: e.g. eResept, health registers.