

IN5320 - Development in Platform Ecosystems

Lecture 7: *Summary*

25th of November 202

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Course project

- Good job on the course project!
- Many interesting solutions
- In general, it appears that the dhis2-app-course, the DHIS2 UI design system and the app platform has helped improve the final results of the project work
- We hope it was fun and interesting!

Final exam

- 6th of December
- Individual
- Four hours
- At home
- In Inspera
- Graded A - F
- Counts 60% towards the final grade

Students are to demonstrate an understanding of the theoretical topic(s) of the course

- Platform Ecosystems, and particularly *software/innovation platforms*

Final exam

All aids are allowed (syllabus articles, online resources, notes, etc.) It is **not** allowed to collaborate and communicate with others during the exam. Students may be selected for a control interview to assess the ownership of their delivery. The interview will not affect the grade of the exam, but in suspicion of cheating the department can issue a suspicion-of-cheating case.

More information:

- https://www.uio.no/english/about/regulations/studies/studies-examinations/routines-cheating.html

Topics for the exam

- **The aim of the exam** is for you to show your ability to reflect and discuss important aspects of the theoretical topics of the course using concepts from the syllabus.
- The exam has three main parts where you are asked to explain and discuss certain topics.
- **When asked to *explain*** a concept or phenomenon we expect you to be as thorough and elaborate as possible to sufficiently illustrate your understanding of it.
- **When asked to *discuss***, we expect you to use any relevant knowledge from the course syllabus (e.g., concepts, arguments, phenomenon, examples) to shed light on the phenomenon you are discussing, and where relevant include different and/or opposing perspectives.
- If you include sentences or paragraphs from the syllabus (i.e., anything not written by you), make sure to indicate so by using quotation marks (like “this”), and indicate where you got the quote from (like this (Tiwana, 2013, p. 43))

Topics for the exam

Most relevant topics from lectures for the exam

- **Platform ecosystems fundamental concepts**
- **Governance in platform ecosystems**
- **Enterprise platform ecosystems**
- Platforms in the public sector (only the research paper)

Primary topics in bold

Preparation

Exam preparations

Project

IN5320 - Autumn 2021

Exam preparation

The final individual exam (6th of December) counts 60% of the grade in the course. The questions on the exam will mainly relate to the theoretical part of the course. It is hence vital to prepare by following the theoretical lectures, reading the associated mandatory readings, and doing exercises. Below, you'll find old exams,a set of exercises that you can work with to prepare, and an overview of the lectures.

- Log in to see lecture recordings!

Previous exams

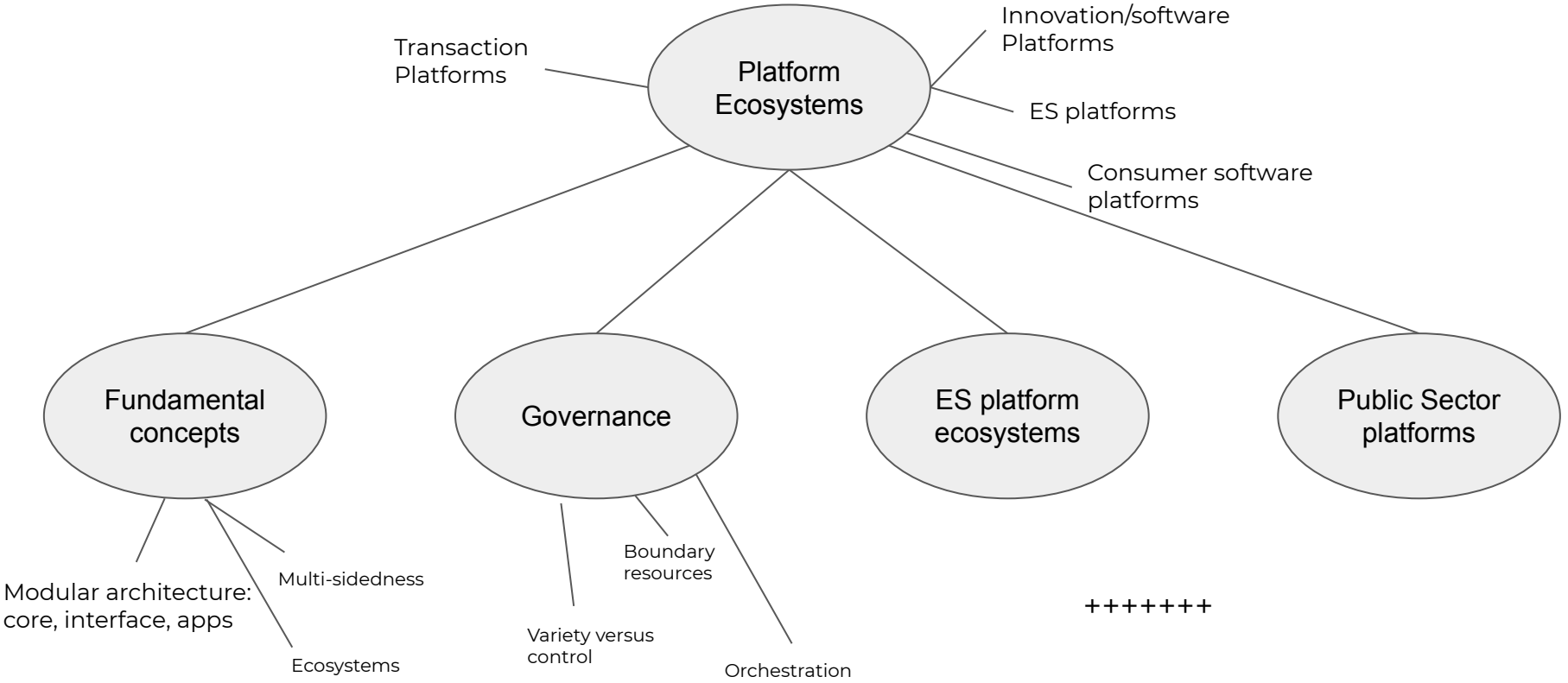
- Exam 2020 (format closest to this years format)
- Exam 2019 (expect less of the short-answer-type of questions on this years exam)
- Exam 2018 (expect less of the short-answer-type of questions on this years exam)

Lectures

Introduction



Suggestion: make a topic overview figure and start populating it in this lecture. Build on it further in the coming week by reading the literature and revisiting previous lecture.



Topic summary

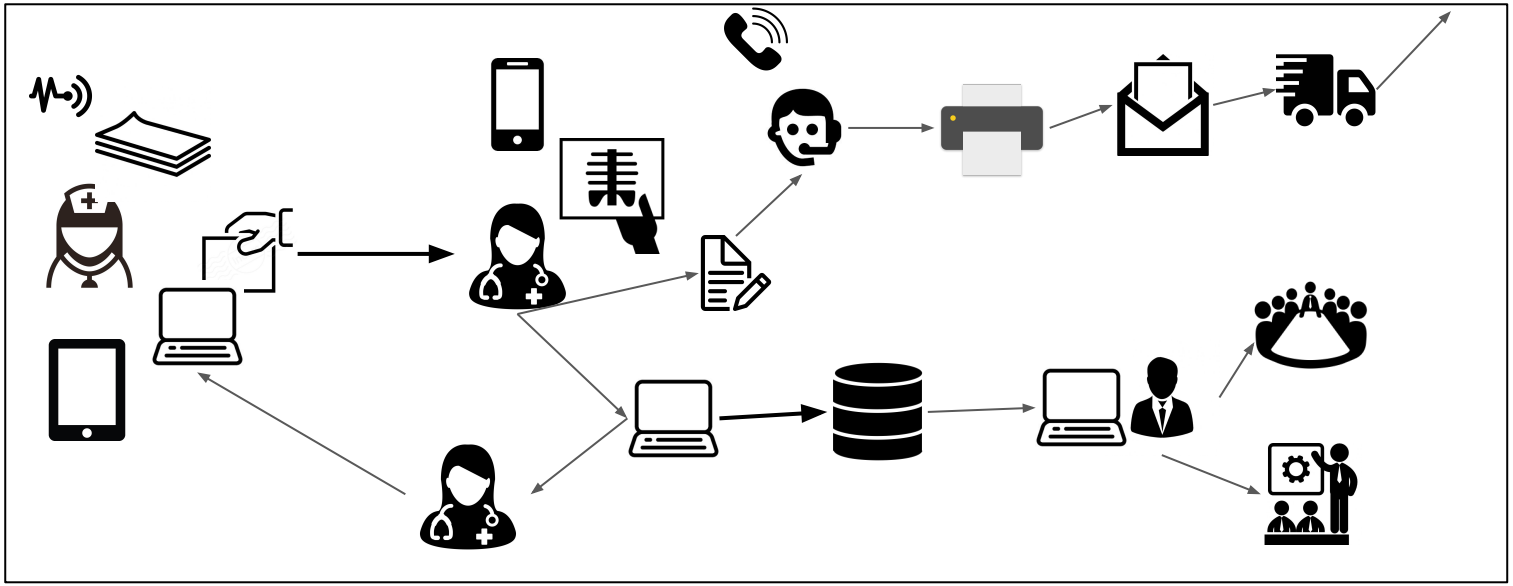
Information Systems

An information system is not the information technology alone, but the system that emerges from the ***mutually transformational interactions*** *between the* ***information technology*** *and the* ***organization***.

(Allen S. Lee, 2004)

Information Systems

Information system = technology <--> organization(s)



Platform Ecosystems fundamental concepts

Platforms

Two types of *digital platforms*:

- **Transaction platforms**
  Facilitates interaction between participants in a market or network

- **Innovation platforms** (software platforms or platform architectures)
  Facilitates innovation by enabling efficient use and reorganization of resources by a large audience.
  Main focus of this course

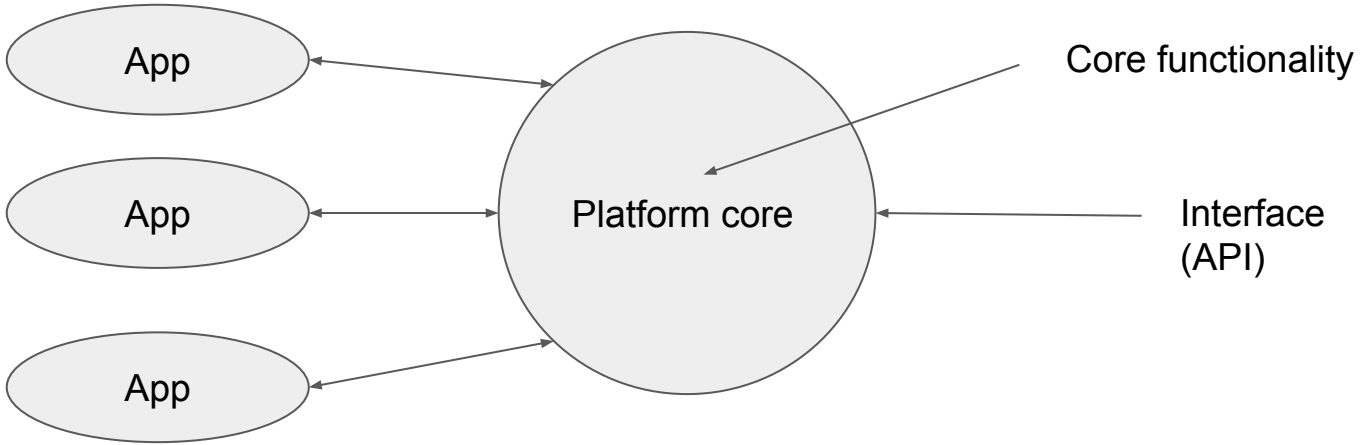
Also:

- ***Hybrid platforms (both - e.g., Facebook)***

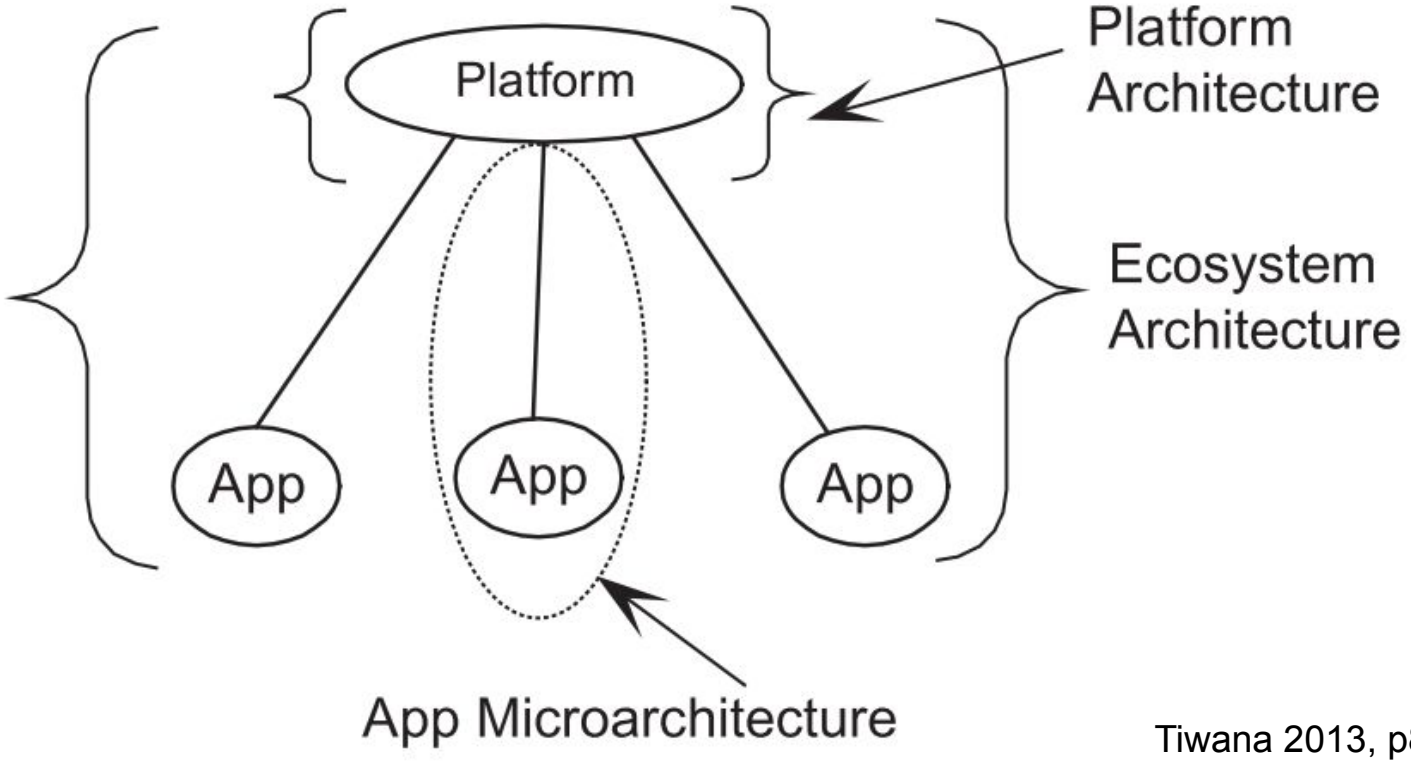
What is a platform?

"A software platform is a software-based product or service that serves as a foundation on which outside parties can build complementary products or services" - Tiwana 2013 p5

- Provides core functionality which is extendable
- Entails interfaces that allows third parties to develop *apps* that extend the functionality of the platform



Two levels of architecture



Tiwana 2013, p85

What is a platform ecosystem?

- Tiwana defines the platform ecosystem as the platform core + the apps

- **Obs:** Other *socio-technical / organizational* definitions use “ecosystem” to refer to the platform core, the apps, and all the actors involved in their design, development, and use (i.e., platform owner, third-party developers, and end-users)



Core characteristics (beyond the architecture)

- *Innovation* or *software* platforms are characterized by an architecture with a stable core + APIs - enabling development of apps.

Additional characteristics:

- Multi-sidedness
- Network effects
- Multi-homing
- Tipping-points
- Lock-ins
- Competitive durability
- Envelopment

Exercise

For one minute. Note down some bullet points on paper on the following question:

Voi allows you to book e-scooters on your phone

- Is it a transaction or innovation platform or neither?
- Consider Tiwana's concept of multi-sidedness: what are the "sides" on Voi?



Governance in Platform Ecosystems

Today's lecture

Governance

"the act or process of governing or overseeing the control and direction of something (such as a country or an organization)" (merriam-webster.com)



What is Governance?

Governance - the traditional hierarchical organization



CEO

CTO | COO | CMO | CSO

Sub-manager | Sub-manager | Sub-manager | Sub-manager | Sub-manager | Sub-manager

Worker | Worker | Worker | Worker | Worker | Worker | Worker | Worker | Worker | Worker

Exercise

Think and note down some bullet points on the following question:

- What may be different about governing a platform ecosystem as compared to a traditional hierarchical organization?

What is Governance in Platform Ecosystems?

"If the metaphor for traditional organizations is an army, the metaphor for platform ecosystems is a symphony. The platform owner is like the conductor and the app developers are like the musicians." (Tiwana, 2013 p. 117)

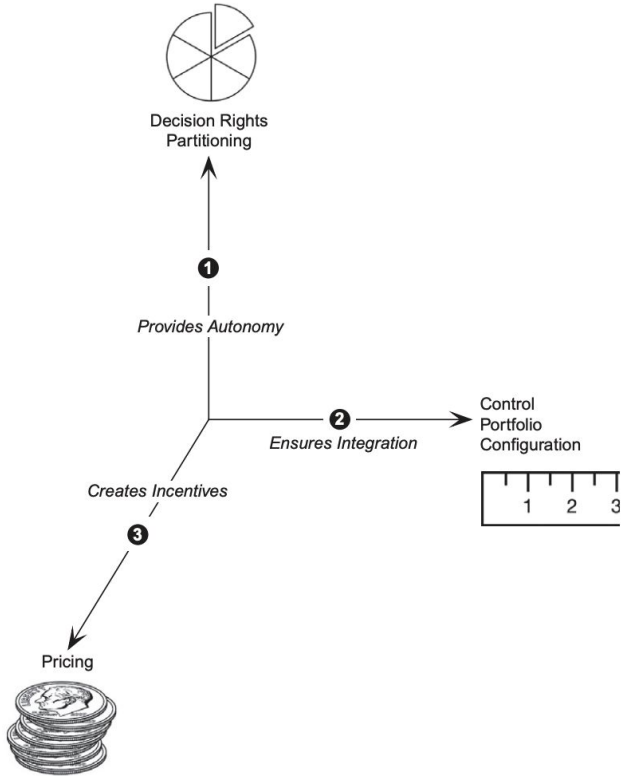
- Platform owner to not direct, but **orchestrates** to "ensure overall coherence in their collective performance" (Tiwana, 2013 p. 117)
- The third-party firms choose to follow the platform owner

"Governance of a platform ecosystem broadly refers to the mechanisms through which a platform owner exerts ***influence*** over app developers participating in a platform's ecosystem" (Tiwana, 2013, p. 118)

Key dimensions of governance in platform ecosystems

Three key dimensions of Governance in platform ecosystems, according to Tiwana (2013):

1. Decision rights partitioning
2. Control portfolio design
3. Pricing



Some key challenges and tensions

1. Diversity versus control
2. Ecosystem-wide versus dyadic relationships and rules
3. Soft versus hard regulation

Boundary resources

“To successfully build platform ecosystems, the focus of the platform owner must shift from developing applications to providing resources that support third-party developers in their development work” - Ghazawneh & Henfridsson 2013 p 174

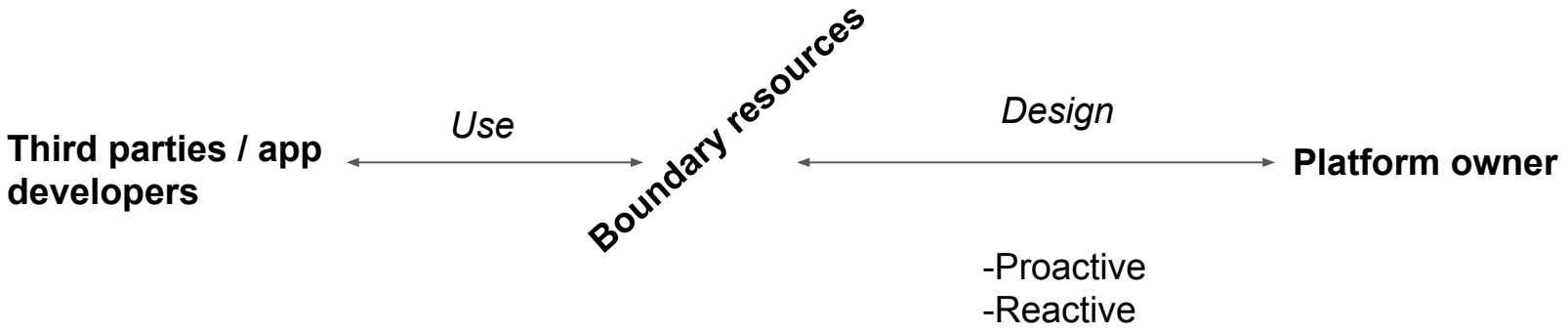
→ Boundary resources: resources enabling and controlling third party development through tools and regulations



Boundary resources

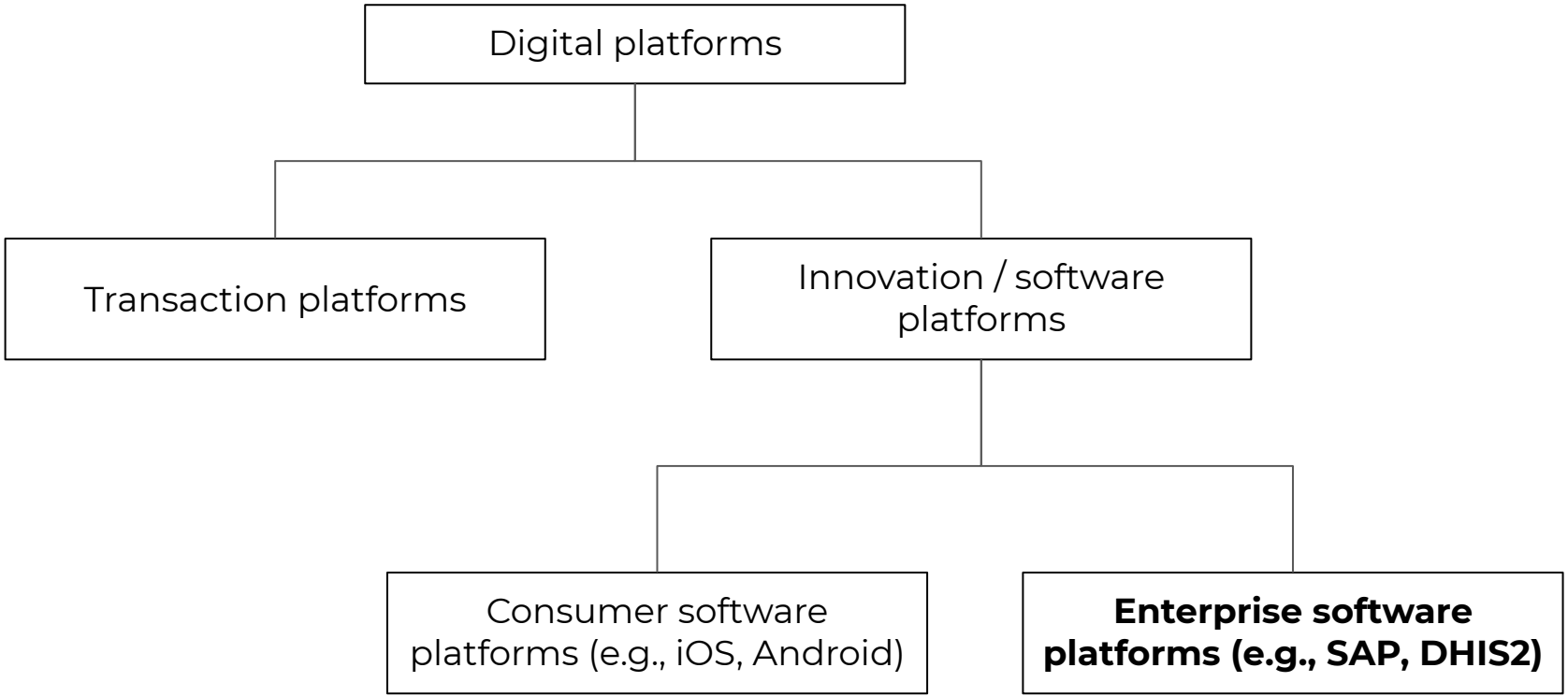
- To enable innovation, design and development of new functionality to the platform.
- To control the platform and its evolution in some desired direction.

Therefore: boundary resources has to be designed with the balance between these two in mind.



Enterprise Software Platform Ecosystems

Today


Digital platforms
Transaction platforms
Innovation / software platforms
Consumer software platforms (e.g., iOS, Android)
Enterprise software platforms (e.g., SAP, DHIS2)

Enterprise software (ES)

“Enterprise software [...] is computer software used to satisfy the needs of an organization rather than individual users. Such organizations include businesses, schools, interest-based user groups, clubs, charities, and governments.

Enterprise software is an integral part of a (computer-based) information system [...] These systems handle a chunk of operations in an organization with the aim of enhancing the business and management reporting tasks.” (wikipedia.org)

Buy versus built?

- When in need of new comprehensive IT solutions in an organization, a key consideration is whether to ***buy*** or ***build*** an appropriate software solution

- Build: bespoke software development built in-house or with the support of IT consultants.

- Buy: adopt a generic Enterprise Software solution











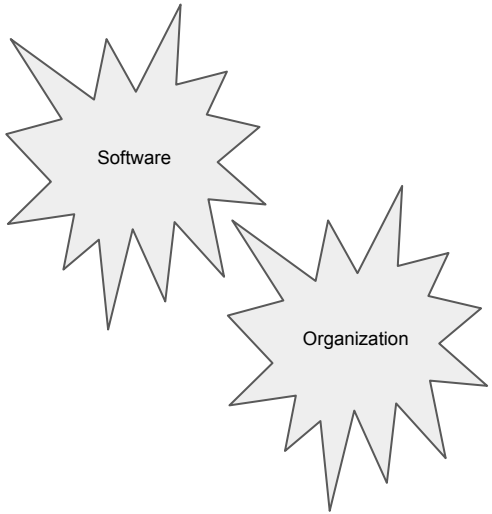




Generic ES - a challenge: misfits

Bespoke

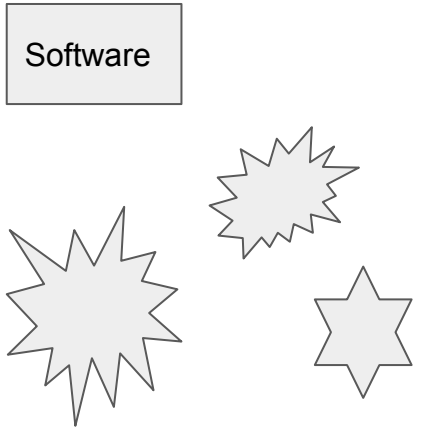
Flexibility and proximity to build based on existing practice and specific organizational needs



Generic software

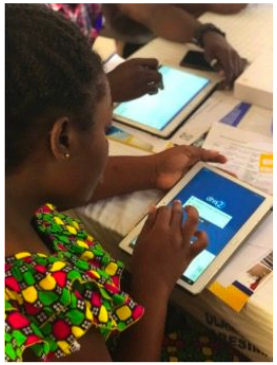
Design for market of several ‘similar’ organizations.

A process of *generification* where shared traits are emphasized and specifics are filtered out.





“DHIS2 serves as a platform for the Rapid Response Mechanism (RRM) in Mali to coordinate and share information regarding crisis alerts, rapid assessments, and humanitarian responses” (DHIS2 CoP)



“Ghana supporting all TB burden district hospitals with Android tablets to support offline data capture for TB care and treatment” (DHIS2.org)



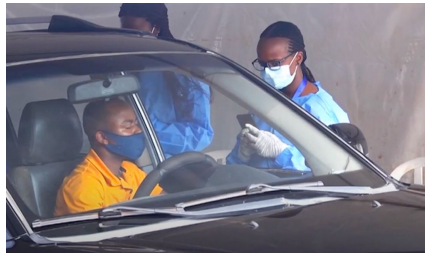
“Health workers in Sri Lanka enter use their DHIS2 COVID-19 surveillance system” (DHIS2.org)



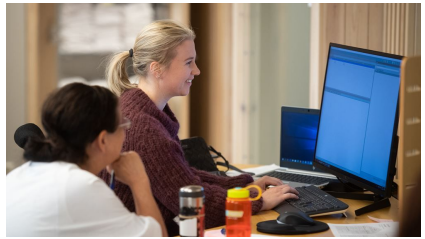
DHIS2 Tracker e-Registry collects, analyzes and tracks case-based data for maternal and child health in Palestine. (DHIS2.org)



“The Nature Conservancy uses DHIS2 to support conservation in Eastern Africa” (DHIS2.org)



“The DHIS2 Android Capture App supports mobile data entry at Rwanda's drive-through testing centers” (DHIS2.org)



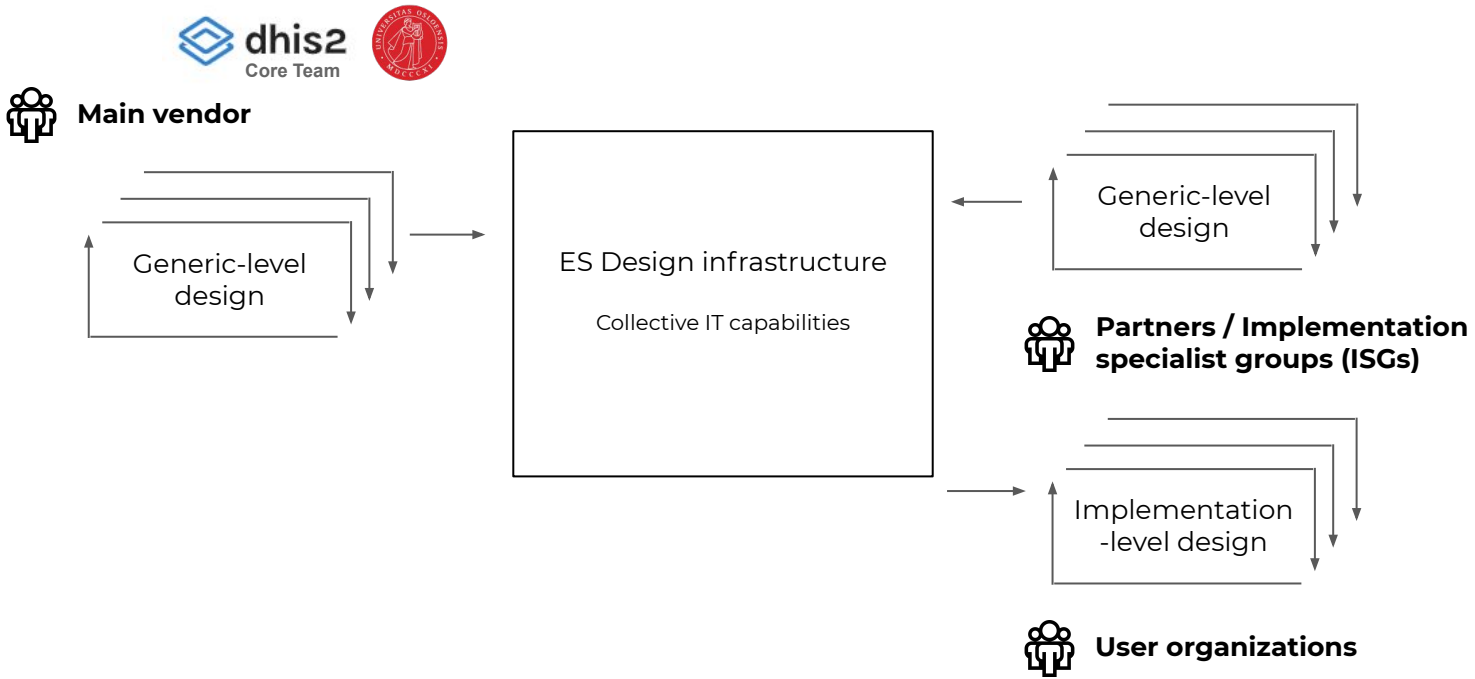
Infection tracing in Norwegian municipalities (picture from asker.kommune.no)

ES platform strategy

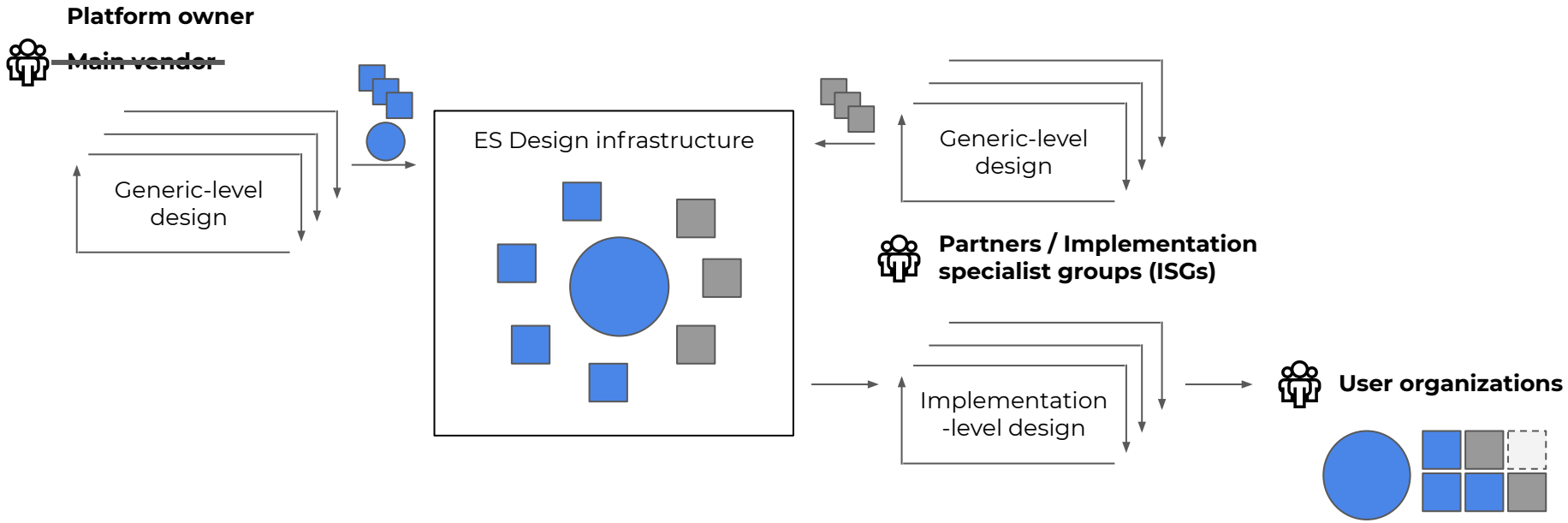
A platform strategy in the context of enterprise software involves “moving the locus of product development from within the firm toward independent third-party firms, so-called complementors” (Foerderer et al., 2019, p. 120)

“platform strategies require an enterprise software vendor to focus less on managing product and service development within their boundaries, focusing instead on the careful governance of complementors in order to profit from their development outcomes” (Foerderer et al., 2019, p. 120)

ES platform strategy



ES platform strategy



Challenges

- **Knowledge boundaries**

- Partitioning of design and maintenance work

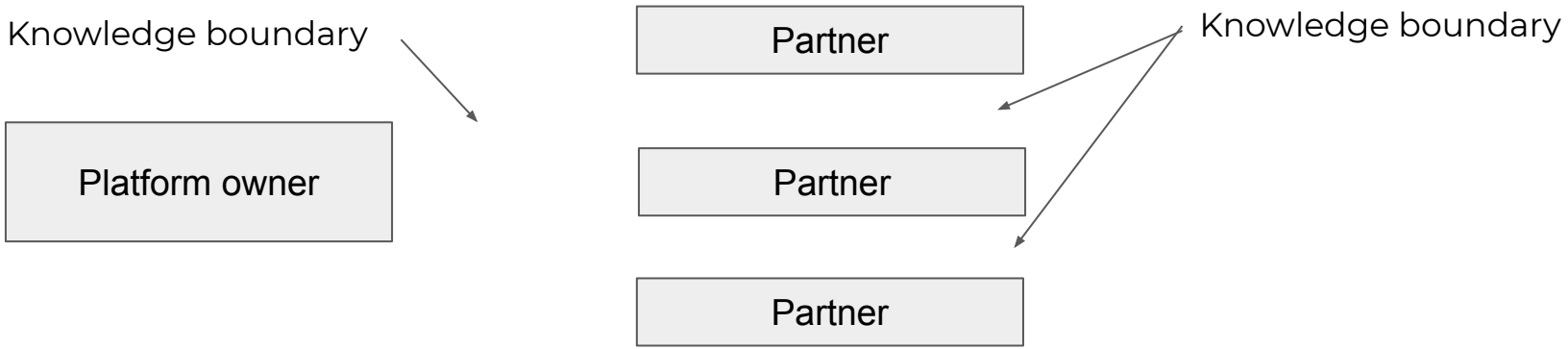
- Address uncertainties of depending on apps designed and maintained by partners

- Support partners in remaining cognizant and to navigate the generic software features available in the design infrastructure

Knowledge boundaries

- ES solutions are complex, and complementing them requires knowledge
  - Logic of the ‘core’
  - Roadmap of the platform owner
  - Roadmap of other complementors / partners

- Foerderer et al., 2019 (on the syllabus) show how platform owners employ ‘knowledge boundary resources’ to address this



Final exam

Example: long answer question

Name an example of a software platform ecosystem and discuss how it meets the definition and characteristics of a platform ecosystem using concepts you see relevant from the course literature (e.g., architecture, multi-sidedness, boundary resources, network effects, etc.). (20%)

Example: long answer question

Explain what is meant by "boundary resource", and discuss their role in platform ecosystems. (15%)

Tip: time management

- The exam is 240 minutes in total
- Total of 100 points.
- 1% / 1 point = 2,4 minutes.

- 5% question = 12 min.
- 10% question = 24 min.

Tip: preparing for the discussion

- The discussion/long answer questions are quite extensive (up to 40%)

- It may be wise to read all questions first and keep a paper note where you first make an outline of how you will answer each (main points for discussion)

- When you answer other questions, ideas for the discussion questions might emerge → note them down on your draft.

Course evaluation

- Remember to fill out the course evaluation distributed by FUI!

- What worked (and hence, we should continue to do)
- What could be improved (constructive feedback to help us strengthen the course)

Final words

- Thank you for a great semester!
- We hope that both the practical and theoretical parts have been valuable and interesting!
- Now: read and work with the exam questions posted on the course page.
- Maybe you could continue the great collaboration in your project group to work towards the exam?
- It is possible to ask questions related to the theoretical exam on Mattermost, and I’m available on email.
- Good luck on your final exam, and further with your masters!