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University of Oslo

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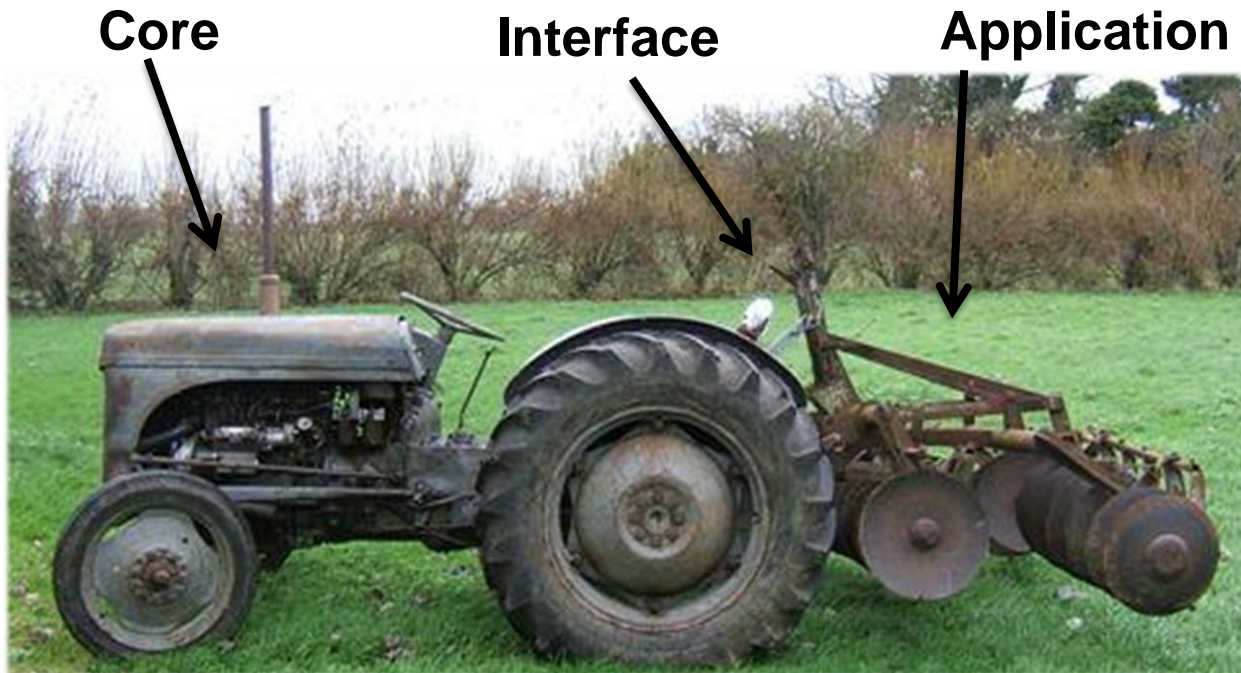
Theoretical perspectives on governance of
information infrastructures, inter-organisational
systems and platform eco-systems

IN 5430 - April 17th 2018



Platform technical view

A core, its interfaces, and the applications



Brief recapitulation of previous lecture

- Governance
 - Within organizations - managerial authority
 - Supply chains – contractual relations
 - Ecosystems – ‘governance through architecture’
- Platforms - a socio-technical «arrangement» of inter-organizational/wider collaboration
 - Core (platform), modules and interfaces
- Platform governance (Tiwana, 2013)
 - Decision rights
 - Centralized/decentralized, strategy/implementation
 - Control mechanisms
 - Gate keeping, metrics, process control, norms/values
 - Pricing

Today: Theoretical perspectives on governance

- Between «the market» and «the organization»
 - The market: self-organizing, price as signalling mechanism which ensures coordination
 - The organization: hierarchy, authority/power ensures coordination
- Examples: e-prescription and Wikipedia
 - Vassilakopoulou et al. (2017) "Collective action in national e-health initiatives: findings from a cross-analysis of the Norwegian and Greek e-prescription initiatives." Proceedings from the 15th Scandinavian Conference on Health Informatics
 - Aaltonen, Aleksi, and Giovan Francesco Lanzara (2015). "Building governance capability in online social production: insights from Wikipedia." *Organization Studies* 36.12 (2015): 1649-1673.
- Concepts for today:
 - Collective action dilemmas and mechanisms for resolution
 - The notion of commons, governance of commons (polycentric governance)



DD FORM 1289

1 NOV 71

DOD PRESCRIPTION

FOR (Full name, address, & phone number) (If under 12, give age)

John R. Doe, HM3, USN

U.S.S. Neverforgotten (DD 178)

MEDICAL FACILITY

U.S.S. Neverforgotten (DD 178)

DATE

23 JAN 99

R (Superscription)

gm or ml.

(Inscription)

Tn Belladonna

15 ml

Amphogel qsad

120 ml

(Subscription)

M & FT Solution

(Signa)

Sig: 5ml tid a.c.

MFGR: *Wyeth*

EXP DATE: *12/02*

LOT NO: *P39K106*

FILLED BY: *KMT*

R NUMBER

10072

Jack R. Frost
LCDR. MD. USNR

SIGNATURE RANK AND DEGREE

Superscription:

Rx – *lat. recipe*
«take thou»

Inscription:

List of ingredients

Subscription:

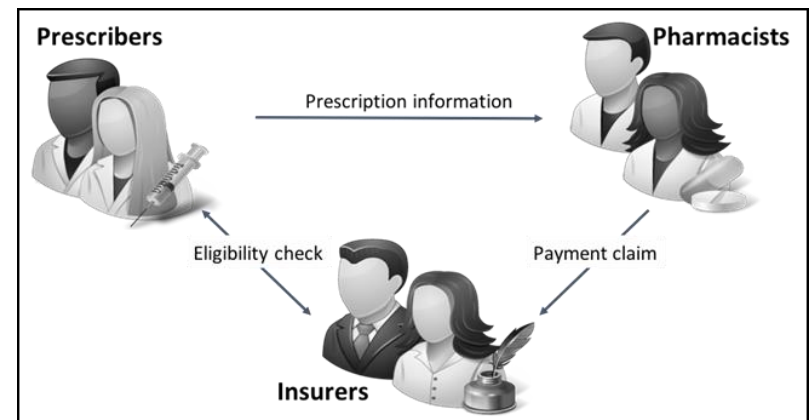
Instructions to
compunder

Signa («Sig.»):

Instructions to
patient

Example: e-prescription (Norway)

- Infrastructure for digital capture, transmission and dispensing of prescription for medical drugs
- Planned since 2003, rolled out 2012-13 to GPs and pharmacies
- Ongoing developments
 - Hospitals, multidose, online pharmacies, MyPrescriptions
- Organised as joint program w/public and private actors

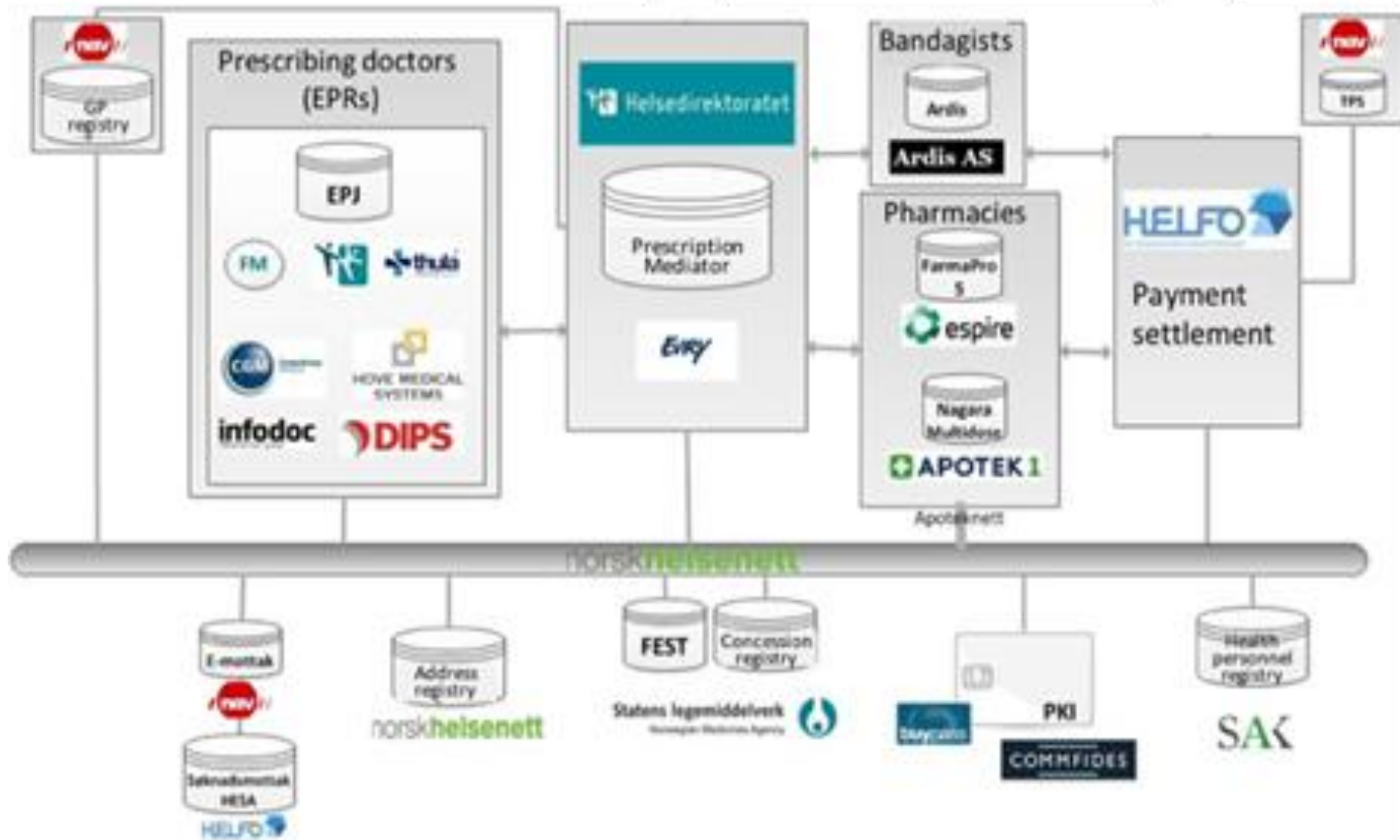


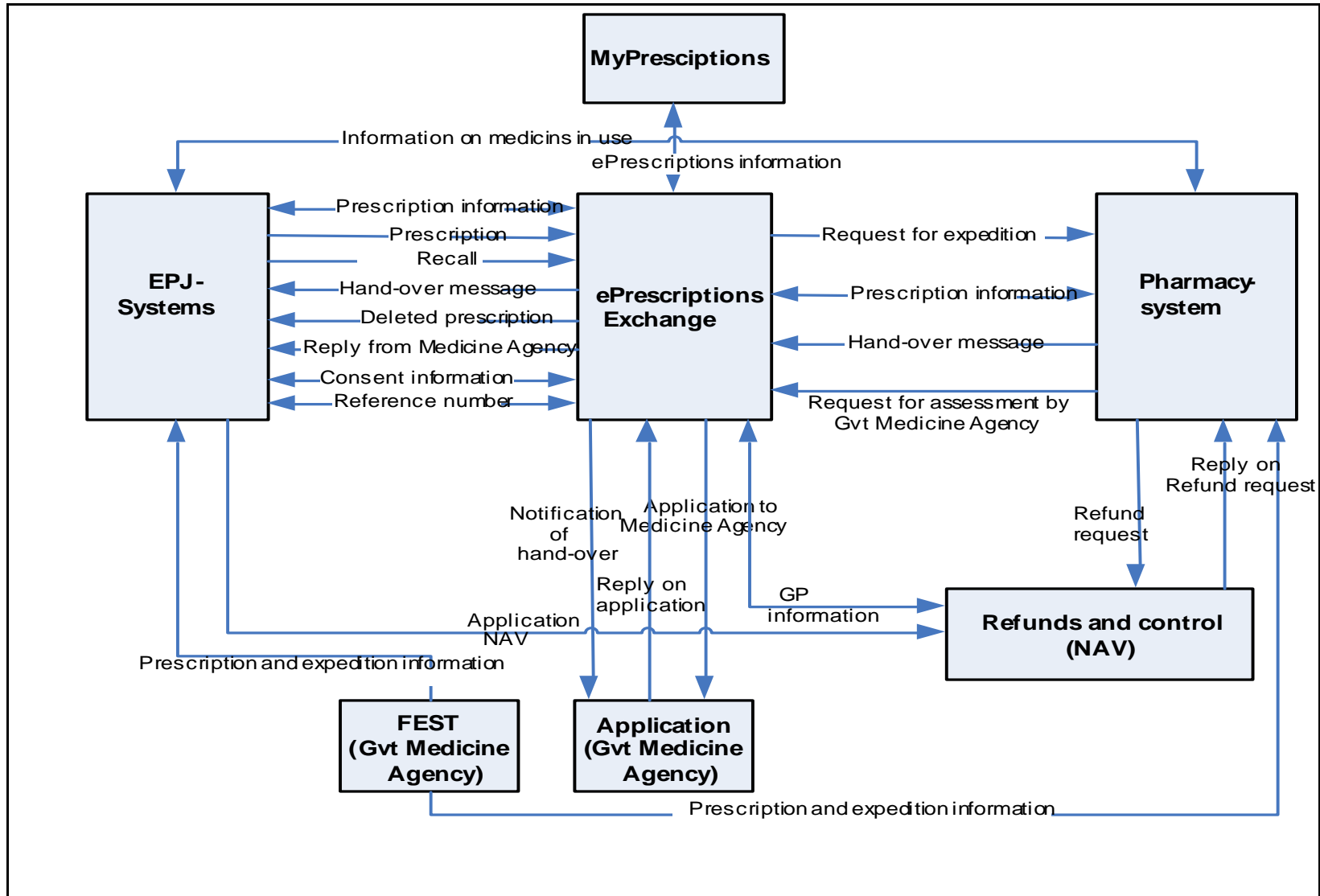
Period	Description
Norwegian e-prescription	
2003-2004	Decision to initiate e-Prescription
2005-2006	Starting e-Prescription program
2007-2008	Tender First Pilot (stopped after significant problems)
2009-2012	Re-planning Successful pilot and rollout Prescribing Module developed
2013-2016	Extensions including: multidose dispensing, online-pharmacies and new projects for further extensions
Greek e-prescription	
2010	Decision to initiate e-Prescription
2011	Pilot and rollout
2013	Coverage 98%
2013-2015	Extensions including: therapeutic protocols, caps for prescribing doctors, diagnostic test ordering

Table 2. Temporal evolution of the e-prescription cases

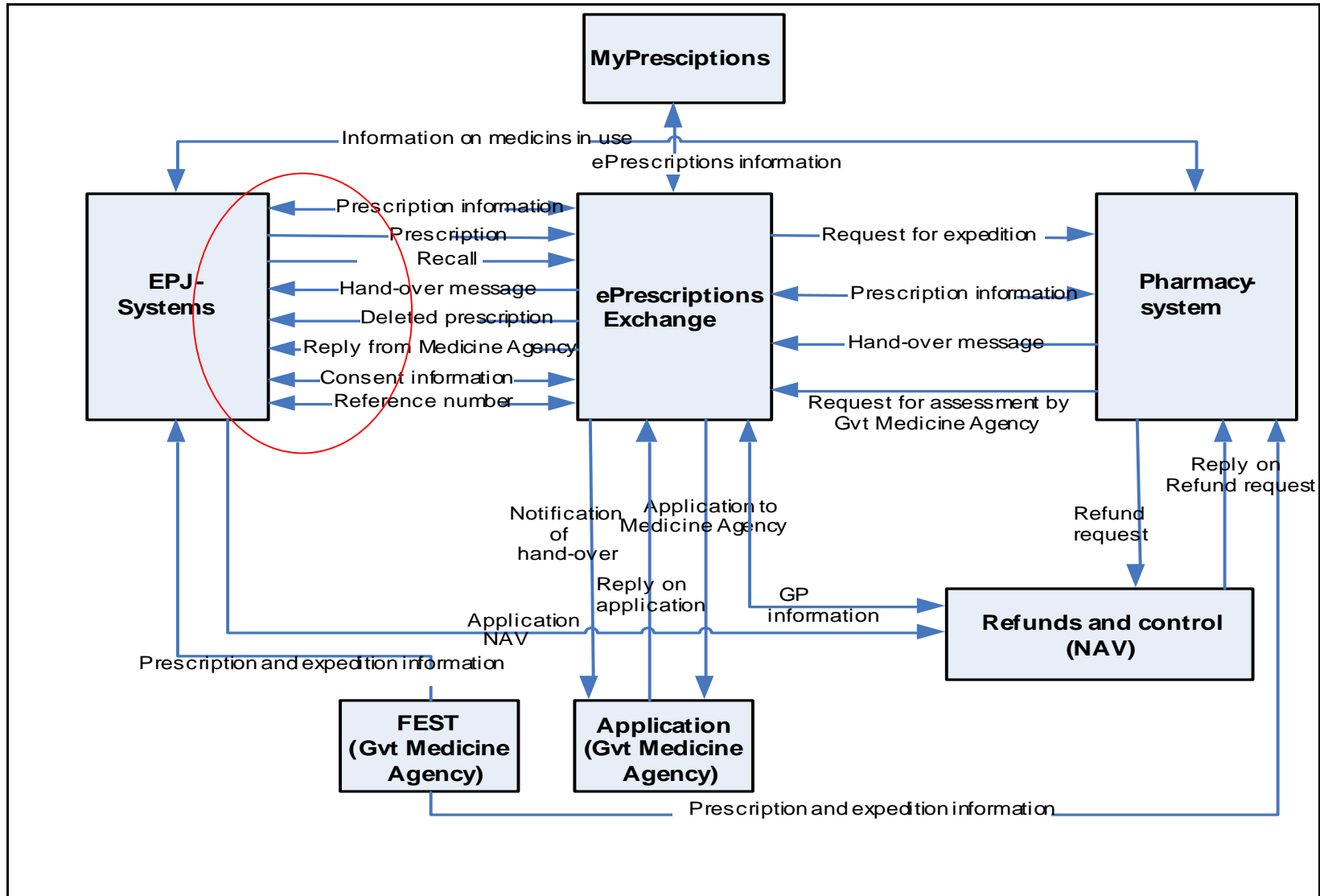
The paper compares Norway and Greece:

- N: tight integration with EPRs
- G: non-integrated web application
- N: voluntary collaboration («dugnad») of relatively few vendors
- G: «too many vendors» to expect collaboration
- Both countries: required regulatory and legal interventions





Phase	Period	Key Actors	Description
Initiations	2003-2004	National Social Security Administration, Health Ministry, Health Directorate	Social Security Reform Decision to initiate e-Prescription
Planning & Initial Development	2005-2006	Health Ministry, Health Directorate, SLV Pharmacists Association, Doctors Association, Bandagists, EPR vendors and other software development companies	Starting e-Prescription program Merging NHN on a national level Cooperation-agreement
Unsuccessful Deployment Attempt	2007-2008	Health Ministry, Health Directorate, SLV Pharmacists Association, Doctors Association, Bandagists, EPR vendors and other software development companies	Tender First Pilot County stops pilot after significant problems emerge
Successful Deployment	2009-2012	Health Ministry, Health Directorate, SLV Pharmacists Association, Doctors Association, Bandagist, EPR vendors and other software development companies, HELFO	Re-planning Prescription mediator launched Successful pilot and rollout Migration Factory developed for pharmacy systems Prescribing Module developed My Prescription service
Management, Operations & further Upgrades	2013-2016	Health Ministry, Health Directorate, Directorate of e-Health, Pharmacists Association, Doctors Association, Bandagists, EPR vendors and other software development companies, HELFO PLO (Municipal Care institutions), Norwegian Institute of Public Health	Multidose Dispensing Online-pharmacy Transfer to directorate of e-Health Initiatives for comprehensive overview of patient's medications and for connecting with the Norwegian Institute of Public Health





«Belling the Cat» - example of a collective action dilemma ¹⁴

Collective action

- “The age-old problem of how to induce collaborative problem solving and other forms of collective action among self-interested individuals, groups, or organizations, assuming, of course, that they share at least some common goals”
 - (Fulk and DeSanctis, 1995, p. 60).
- Collective Action dilemma:
 - If each group member acts according to their own’s best interest, the outcome will not be in anybody’s interest
 - Example: Environmental destruction
- A fundamental aspect of societal organizing

Game theory: «Prisoner's dilemma»

Two members of a criminal gang are arrested and imprisoned. Each prisoner is in solitary confinement with no means of communicating with the other. The prosecutors lack sufficient evidence to convict the pair on the principal charge. They hope to get both sentenced to a year in prison on a lesser charge. Simultaneously, the prosecutors offer each prisoner a bargain. Each prisoner is given the opportunity either to: betray the other by testifying that the other committed the crime, or to cooperate with the other by remaining silent. The offer is: If A and B each betray the other, each of them serves 2 years in prison

- If A betrays B but B remains silent, A will be set free and B will serve 3 years in prison (and vice versa)
- If A and B both remain silent, both of them will only serve 1 year in prison (on the lesser charge)
- (assume no reward or punishment afterwards)

Point: it is rational for each to betray the other – but this (pursuing individual reward) leaves each one worse off than if they cooperated

Mechanisms

- A typology we draw on in the paper, from (Heckathorn, 1996), who analysed collective action based on three underlying mechanisms (ways to resolve collective action dilemmas):
 - **voluntary cooperation**: actors choose between two strategies (cooperate or not) forgoing any attempts to influence others
 - **strategic interaction**: actors make their choices conditional on others' choices according to principles of reciprocity
 - **selective incentives**: laws or social norms that punish defectors or reward cooperators are employed to facilitate collective action

Propositions

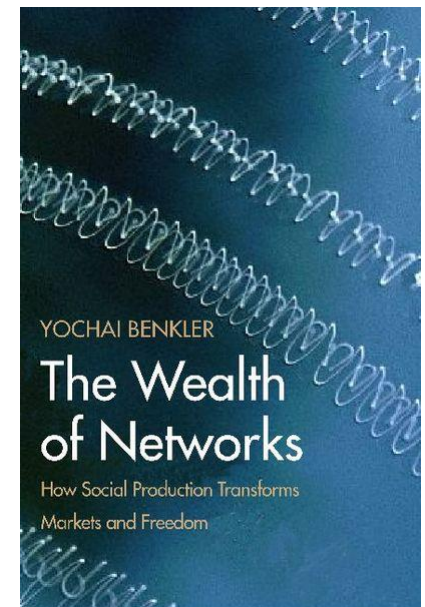
- The technological architectures chosen will influence the nature of the collective action dilemma associated with building and implementing them
 - Ex: Role of prescription module to resolve the dilemma
- «Governance through architecture»

Successful collective action



Linux

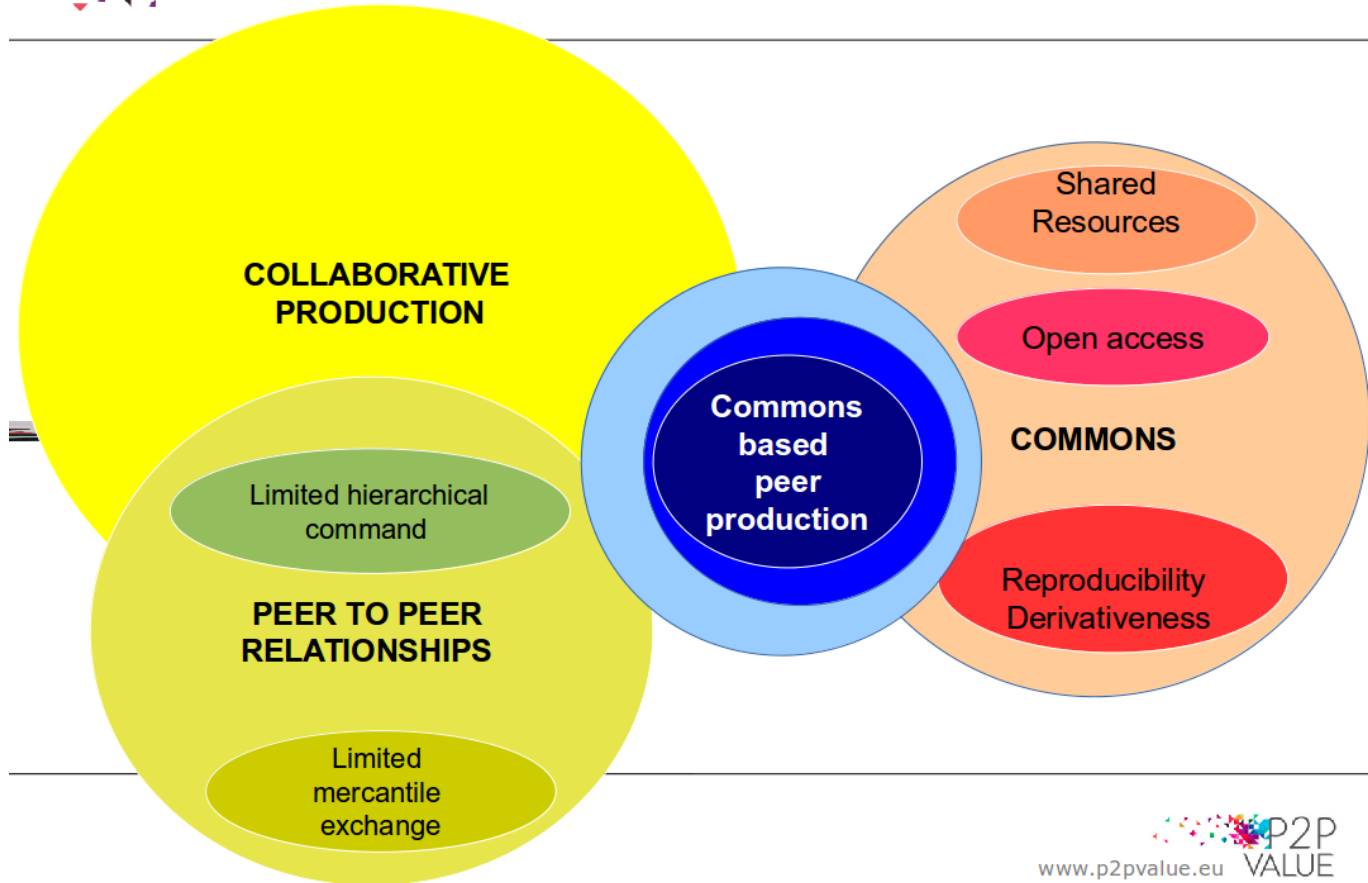
- Open source software
- More general:
 - Commons-based peer production - a different form than firm-based production
 - Inputs and outputs are freely shared
 - knowledge is not proprietary, but shared
 - Governed by licences, norms etc.
 - <http://www.benkler.org/wonchapters.html>



Commons-based Peer Production



Delimitation and typification criteria of CBPP



Readings: Aaltonen and Lanzara 2015

- How can distributed knowledge be harnessed, integrated and steered towards a coherent collective input?
- Wikipedia (Wikimedia) 2001-2009 – the emergence and evolution of governance capabilities
 - i.e. capability to design and implement mechanisms to control and coordinate joint production
- Governance mechanisms need to evolve to adapt

The early years: attracting and integrating distributed knowledge resources: (table 1)

Governance problem	How to attract and integrate distributed knowledge resources?
Example of routines	<ul style="list-style-type: none">- Writing routine- Version control routines- Reverting routine- Discussion routine
Capabilities	Capabilities are focused to the production of encyclopedia articles: <ul style="list-style-type: none">- Individual skills and knowledge in writing on topic- Technological ordering of edits from multiple contributors- Collaborative assessment of edit quality- Discussion focused on article content and its development
Learning	Contributors learn from each other in talk page discussions and by observing reactions to edits
Social structure of capabilities	Capabilities are anchored to small and fluid groupings of contributors and to the technological platform

The growth of complexity: the emergence of a collective governance capability (table 2)

Governance problem	How to control and coordinate a distributed and rapidly growing production system?
Example of routines	<ul style="list-style-type: none">- Three-Revert Rule (3RR) routines- Featured Article Review (FAR) routines
Capabilities	<p>New capabilities are anchored to the online social production system rather than to individual contributors or small groupings. Examples:</p> <ul style="list-style-type: none">- Capability to control behaviour instantiated by the writing and reverting routines in a radically open system- Capability to improve the quality of articles against a common criteria
Learning	Contributors develop new routines by discussing problems on talk pages and writing metatext; they also learn through the enactment of the new routines
Social structure of capabilities	The enactment of production routines remain widely distributed, but some editorial and administrative agency become more centralized and attached to emerging roles

The age of maturity: maintaining and enhancing the common value (table 3)

Governance problem	How to protect and maintain the online social production system?
Example of routines	<ul style="list-style-type: none">- Bot deployment routines- Flagged revisions routines
Capabilities	New capabilities target the collective governance capability itself. Examples: <ul style="list-style-type: none">- Capability to stabilize capabilities by automating routines- Capability to balance participation and quality in the production of articles
Learning	Contributors are socialized to a regime of principles, rules, procedures, policies, etc.; learning increasingly happens through norms and rules
Social structure of capabilities	The enactment of production routines remain mostly distributed despite some selective restrictions, while a concentrated and structured system of administrative capabilities is established

Governing the Commons

- «Commons» – common resources, e.g. for common land for hunting, grazing
 - Enclosure of the commons (privatization): England 18th century, the «clearings» in Scotland
 - Hardin (1968): «Tragedy of the Commons»: They are susceptible to over-exploitation if users don't restrain themselves
 - Heller (1998): «Tragedy of the Anti-commons»: a single resource has numerous rightsholders who prevent others from using it, frustrating what would be a socially desirable outcome.
- Information Commons - similarities and differences from natural/physical resource commons

Design principles for Common Pool Resource (CPR) institutions

1. Clearly defined (clear definition of the contents of the common pool resource and effective exclusion of external un-entitled parties);
2. The appropriation and provision of common resources that are adapted to local conditions;
3. Collective-choice arrangements that allow most resource appropriators to participate in the decision-making process;
4. Effective monitoring by monitors who are part of or accountable to the appropriators;
5. A scale of graduated sanctions for resource appropriators who violate community rules;
6. Mechanisms of conflict resolution that are cheap and of easy access;
7. Self-determination of the community recognized by higher-level authorities; and
8. In the case of larger common-pool resources, organization in the form of multiple layers of nested enterprises, with small local CPRs at the base level.

Elinor Ostrom (1990): “Governing the Commons: The Evolution of Institutions for Collective Action”



U B E R



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How Platform Coops Can Beat Death Stars Like Uber to Create a Real Sharing Economy

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By Noel
Goretti

The Battle of Yavin shows the first Death Star was destroyed. Credit: Foxpop

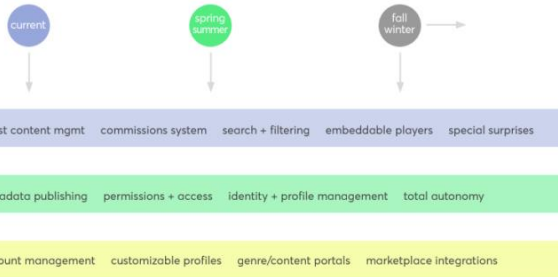
We have an epic choice before us: between platform cooperatives and Death Star platforms, and the time to decide is now. It might be the most important economic decision we ever make, but most of us don't even know we have a choice.

And just what is a Death Star platform? Bill Johnson of Structure33 referred to Uber and

RESONATE – an alternative to Spotify

the Resonate roadmap

always evolving
this 2017 timeline and feature list represents ever-evolving conditions, constantly subject to change



<https://resonate.is>

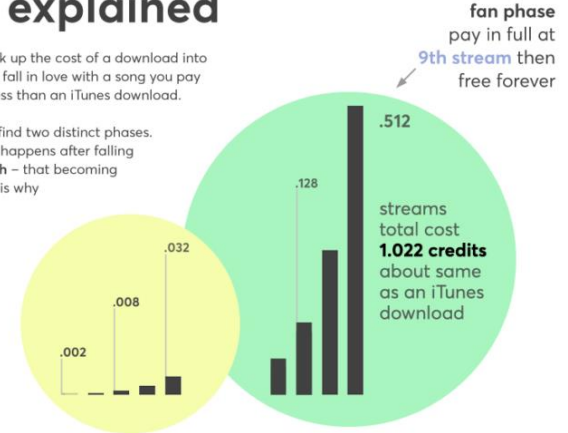
stream to own explained

Stream to own is new but fairly simple – we break up the cost of a download into 9 plays. In the beginning it's super cheap. As you fall in love with a song you pay a bit more to support the artist. In total, a little less than an iTunes download.

Looking closer at this "pay as you go" model we find two distinct phases. **Discovery** is about exploring new artists and **fan** happens after falling in love with their music. It represents a **basic truth** – that becoming a fan leads to wanting to support the artist. This is why we also refer to it as **stream to support**.

discovery phase →
listen **five times**
for around **7 cents**

2 hours a day for
around **\$2-\$4**
per month



membership + supporter shares

Resonate is owned by its members (artists, labels, fans, workers and volunteers) who have paid their membership of €5.

But we need to raise a lot of money if we are to build our user-owned platform.

Therefore we are offering gift memberships and supporter shares to raise the necessary funds.

Members are able to make an additional investment in the cooperative by purchasing **Supporter Shares**.

By holding these shares, the Investor is entitled to **Preference Interest** (of up to 8%) every year that the Cooperative makes a profit!



Supporter Shares

8%

These **Supporter Shares** don't give you any additional votes and you won't be able to transfer or sell them freely. See our Investor Shares terms and conditions for more information.

<https://resonate.is>

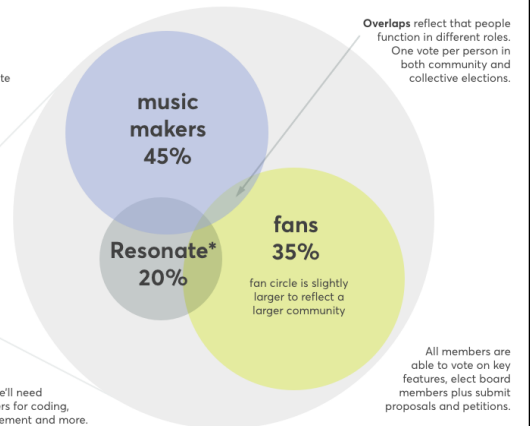
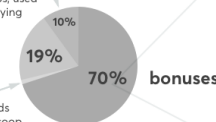
bonuses + votes

Supporter shares. Investors receive a pro rata share of this, up to 8% of their total investment.

Outer circle represents Resonate as a complete collective and inner circles represent various communities. Some votes are community specific, others for the entire collective.

Reserve fund. Standard for multi-stakeholder co-ops, used for emergencies and buying back investor shares.

The 1% community reinvestment fund. Seeds the next generation of coop apps and startups. Administered on the blockchain by Seedbloom.



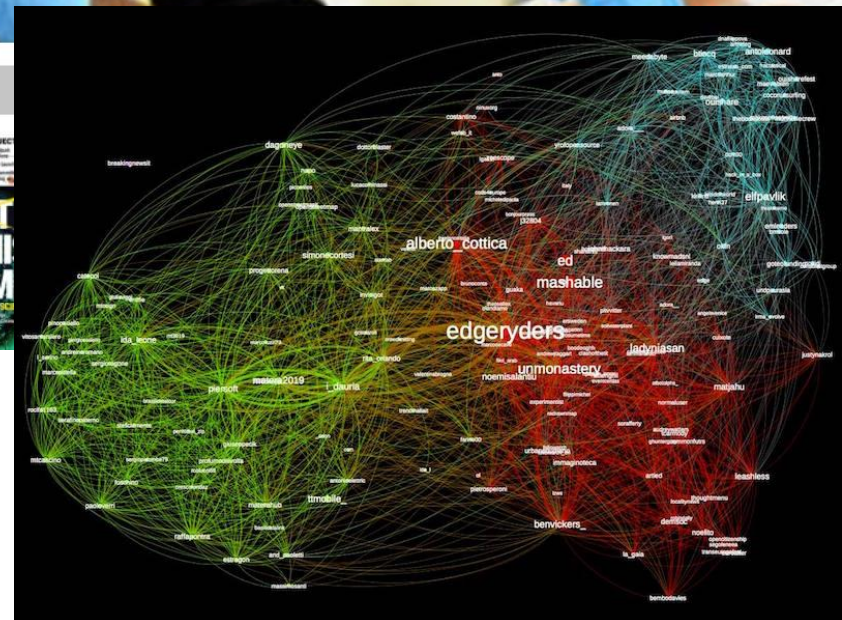
*Resonate has a big block as we'll need a large community of volunteers for coding, marketing, community management and more. Volunteers are **first** to receive bonuses before paid staff.

<https://resonate.is>

Oakland's Open Insulin Project Aims to Disrupt Diabetes



Medical patents typically last 20 years, but because of minor yet regular advancements to the insulin production process, these patents have been maintained for nearly a century. Biohackers working on the [Open Insulin Project](#) are now working to come up with their own protocol to create the compound that diabetics have relied on since 1922. They plan to make their research available so that a generic drug company can take up their process to produce a low-cost version of the drug.




openinsulin.org

NYBY.NO



Se hva du kan bidra med

 **Aiswarya Ria**
24 minutter siden

Kan noen kjøre meg til legen nå på Onsdag?

Følgevenn  Frivilligby frivilligsentral

 **Erik Melbye**
28 minutter siden

Jeg trenger hjelp til å handle i butikken



Se hva du kan ønske deg

Ærend

Diverse praktisk bistand i og utenfor hjemmet.

 Kirkens Bymisjon

 104 personer er godkjent for dette

Følgevenn

Med følgevenn kan du bli fulgt til lege eller sykehus.

 Frivilligby frivilligsentral

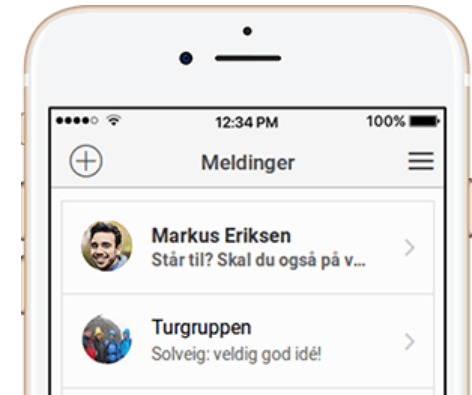
 93 personer er godkjent for dette

Volunteer matching

Service swapping

Utilize idle resources

ALDER.NO





Discover *farmland* in
Gothenburg

<https://growgbg.com/en>

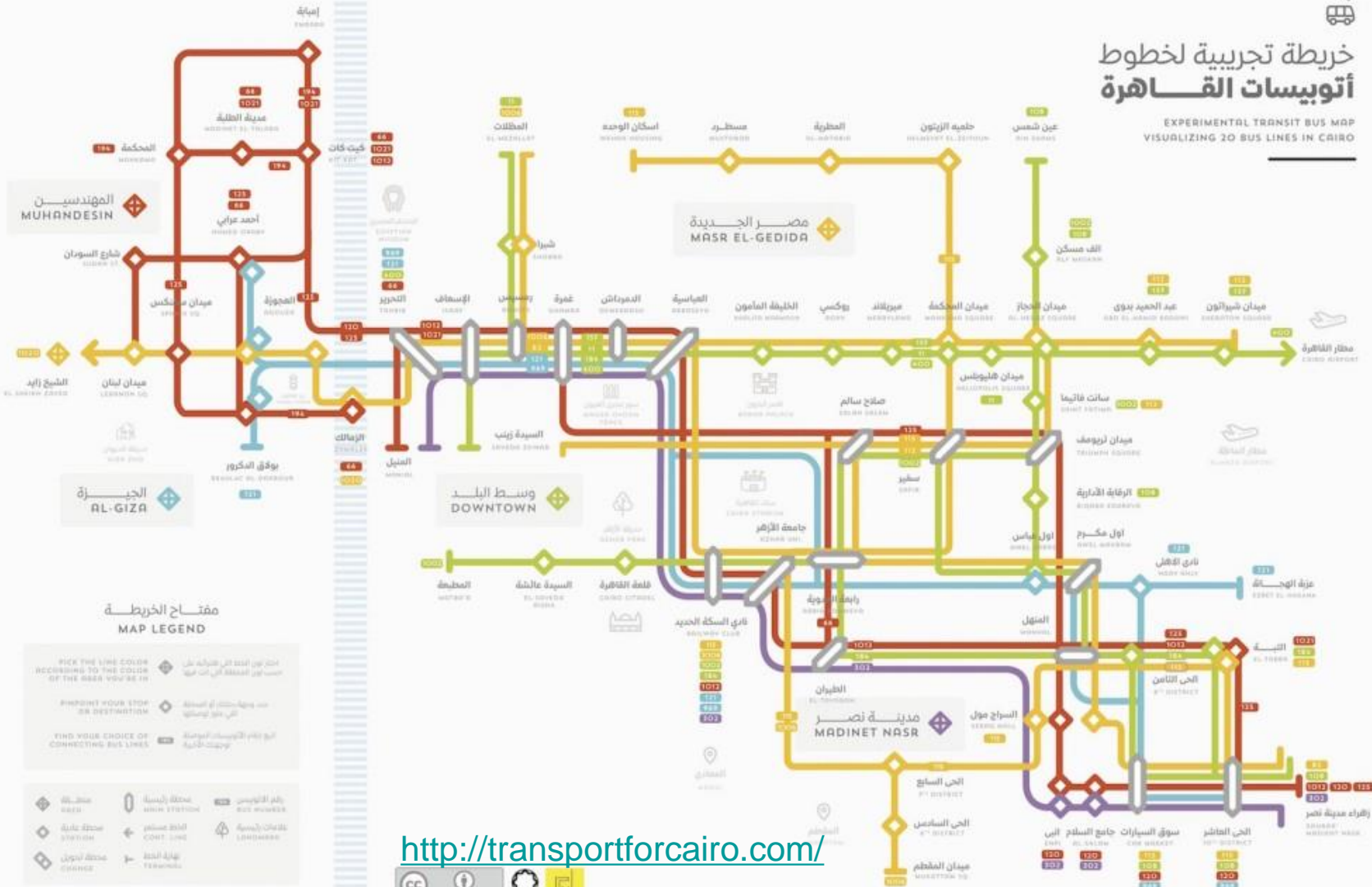


<https://diwala.org/>



خريطة تجريبية لخطوط أتوبيسات القاهرة

EXPERIMENTAL TRANSIT BUS MAP
VISUALIZING 20 BUS LINES IN CAIRO



<http://transportforcairo.com/>



This Experimental Map is one first step.
It visualizes just 2% of Cairo's Bus System. Follow us for more comprehensive maps in the Future.

هذه الخريطة التجريبية هي فقط خطوة أولى.
يتميز بتوضيح 2% من شبكة نقل القاهرة. تابعنا لتابعنا المزيد من الخرائط الشاملة في المستقبل.

ميرنا نعمان . محمد عبد العزيز . ندى حسين . أحمد زايد

Additional readings:

- Vassilakopoulou, P., Skorve, E. Aanestad, M. (2016). A Commons Perspective on Genetic Data Governance: the Case of BRCA Data." ECIS.
- Markus, M. Lynne. "The governance of free/open source software projects: monolithic, multidimensional, or configurational?." Journal of Management & Governance 11.2 (2007): 151-163.
- Hess, Charlotte, and Elinor Ostrom. Understanding knowledge as a commons. The MIT Press, 2007.
- McGinnis, M. (2016): Polycentric Governance in Theory and Practice: Dimensions of Aspiration and Practical Limitations.
- Barrett, Oborn, Orlikowski (2016): Creating Value in Online Communities: The Sociomaterial Configuring of Strategy, Platform and Stakeholder Engagement. Information Systems Research, 27(4)