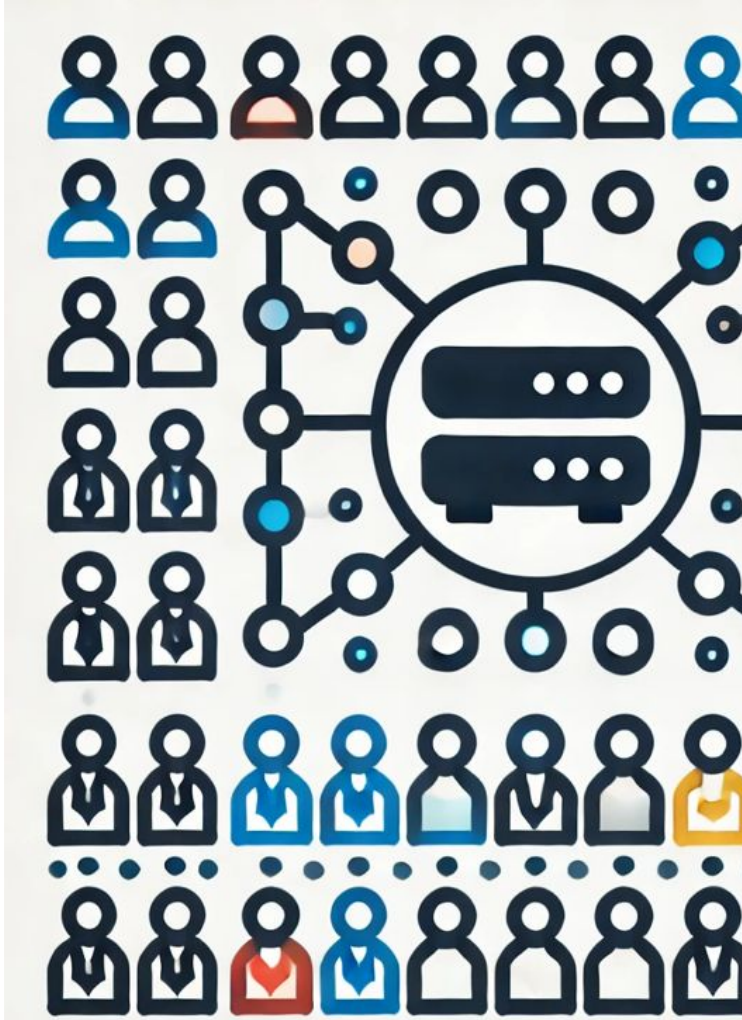
Why is public sector digitalization so difficult?

Magnus Li & Alexander Kempton
Information Systems, Department of Informatics

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Britenes journalprosjekt ble omtalt som «Titanic-utgaven av IT-katastrofer». Nå skal Norge forsøke å få til noe lignende.

Helseplattformen-trøbbel kan gi 835 millioner kroner i ekstrakostnader

Ber regjeringen stoppe Helseplattformen: – Hvor lenge skal dette egentlig få pågå?

Staten styrer mot endå ein it-skandale

Vend i tide. Det er inga skam å snu.

aten har brukt en halv milliard på
nstridt IT-prosjekt. Nå setter
gjeringen foten ned.

Derfor gikk på NAV på en IT-smell i milliardklassen

Nye tall: Helseplattform-trøbbel vil koste over en halv milliard

– Alt Nav har gjort har vært fiasko

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På tide å ta sterkere styring

Ni av ti offentlige virksomheter mislykkes med å ta ut gevinstene av digitaliseringsprosjekter. Det er ikke bærekraftig. Skal vi klare å omfordele ressursene i samfunnet og sikre velferden, må vi ta sterkere styring med digitaliseringen og sette inn støtet der samfunnsnytten er størst.

06. august 2024

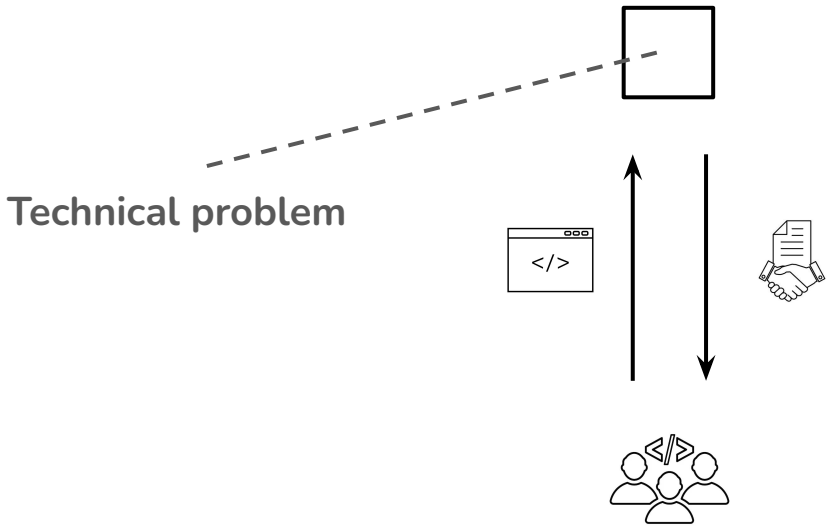
Rikets digitale tilstand | Digitalisering og samordning | Fellesløsninger | Kunstig intelligens | Sammenhengende tjenester



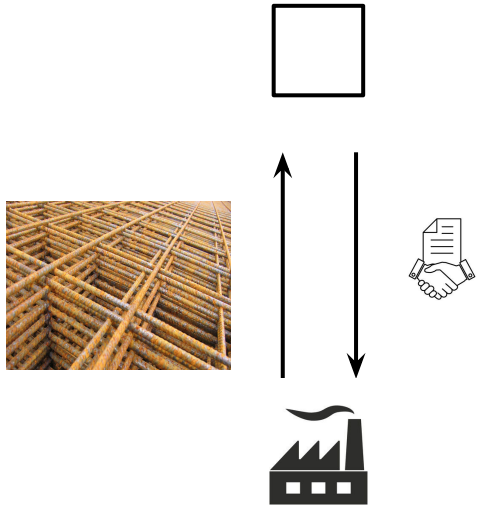
Is there something wrong with the fundamental understanding of digitalization and how we tend to organize it?

Digitalization as development and delivery of products

“We need a digital tool to collect and analyze data”



“We need rebar according to the following specifications”



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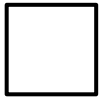
“We need a concrete floor with the following specs”



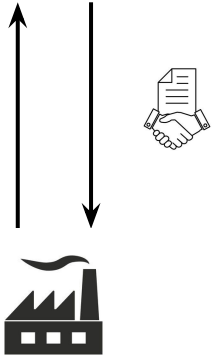


Implement

“We need rebar according to the following specifications”





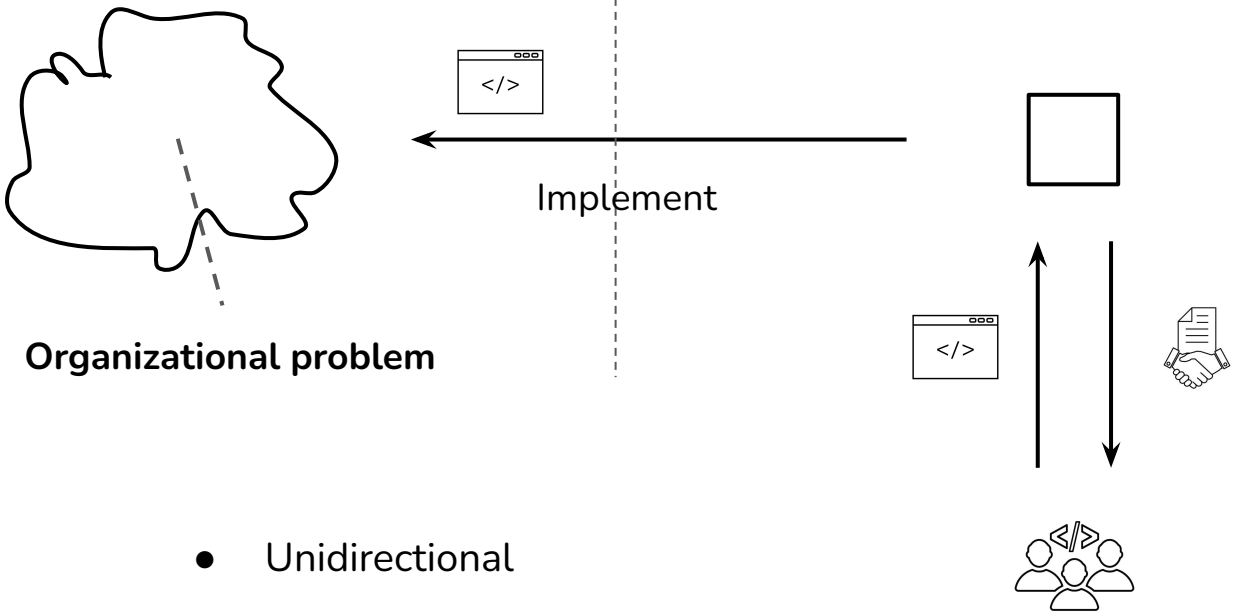


- Unidirectional
- Loose coupling

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“We are poor at resource planning”

“We need a digital tool to collect and analyze data”



Organizational problem

- Unidirectional
- Loose coupling

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How does this product-based understanding impact how we think about digitalization?

Digitalization becomes the goal

Digital technologies are means towards other goals, but digitalization is often treated as a technical matter

Digitalization projects, therefore, tend to implement technical solutions, while benefits are expected to be realized after implementation



Better planning and governance should result in better digitalization (?)

Both the technologies we are implementing and the organization we are improving are in continuous change

With long-term and detailed planning, will the plan fit with reality when the technologies are in use?

Agile projects are placed within other structures and processes

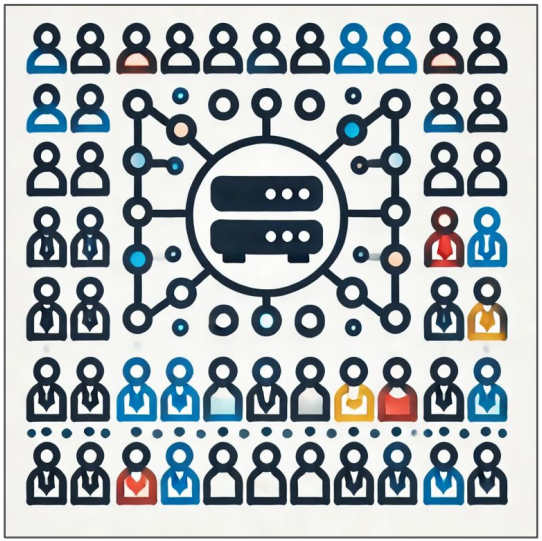


One large system can meet different user needs as well as the flow of information (?)

Why do we need many small systems when user needs seem similar and we need economies of scale and flow of information?

There is often more variation than expected, both within and between organizations

More variety of users, more compromises



The more generic the better

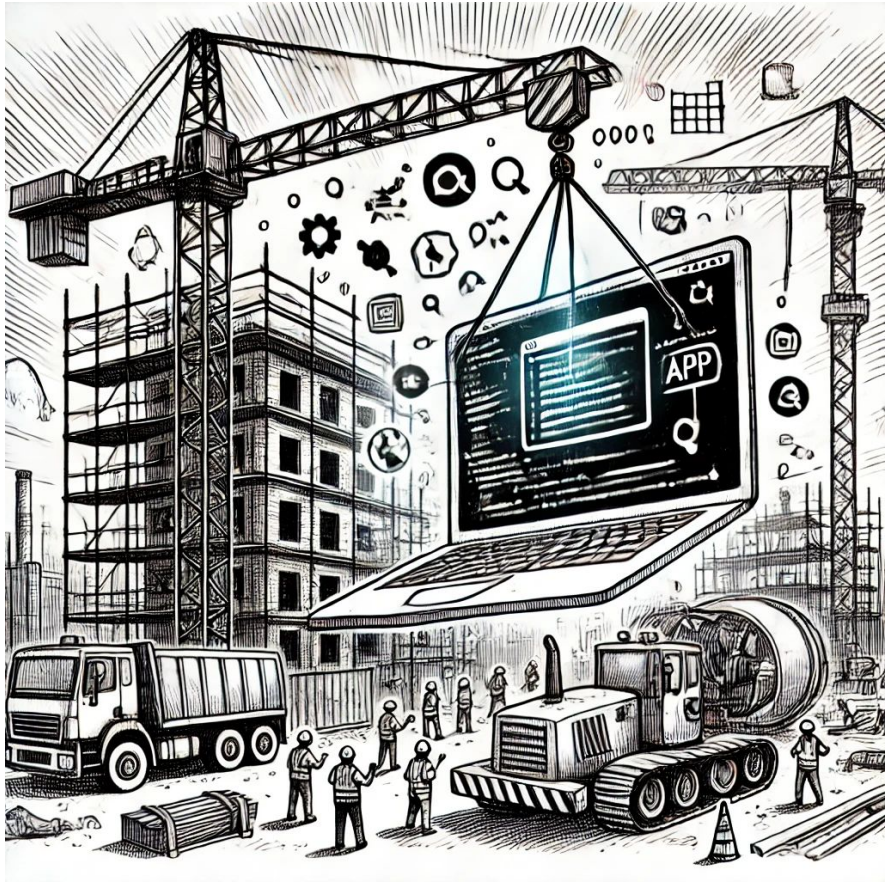
Procured off-the-shelf solutions need to fit with the routines of the organization as well as existing infrastructure and technologies

Options:

- follow the system and change the organization
- follow the organization and change the system
- both

What should be procured, how should vendor-built systems be organized, and what does their utilization require from the implementing organization?

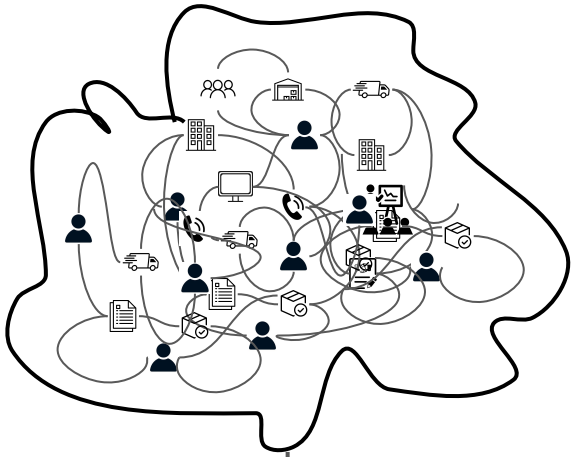




What is it about the product-based understanding that becomes problematic in digitalization?

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“We are poor at resource planning”



Problem emerges out of a complex sociotechnical system

“We need a concrete floor with the following specs”

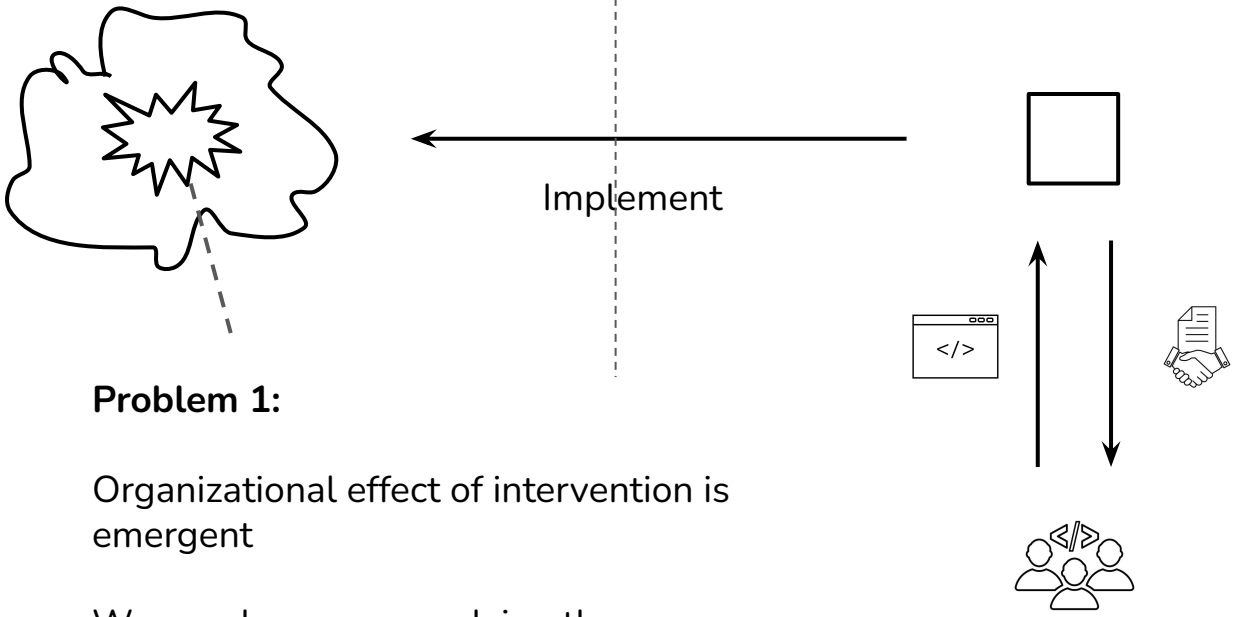


Relatively stable and predictable effect

Established practice around how to address it (rebar)

"We are poor at resource planning"

"We need a digital tool to collect and analyze data"



May go on for 5, 10 + years

Problem 1:

Organizational effect of intervention is emergent

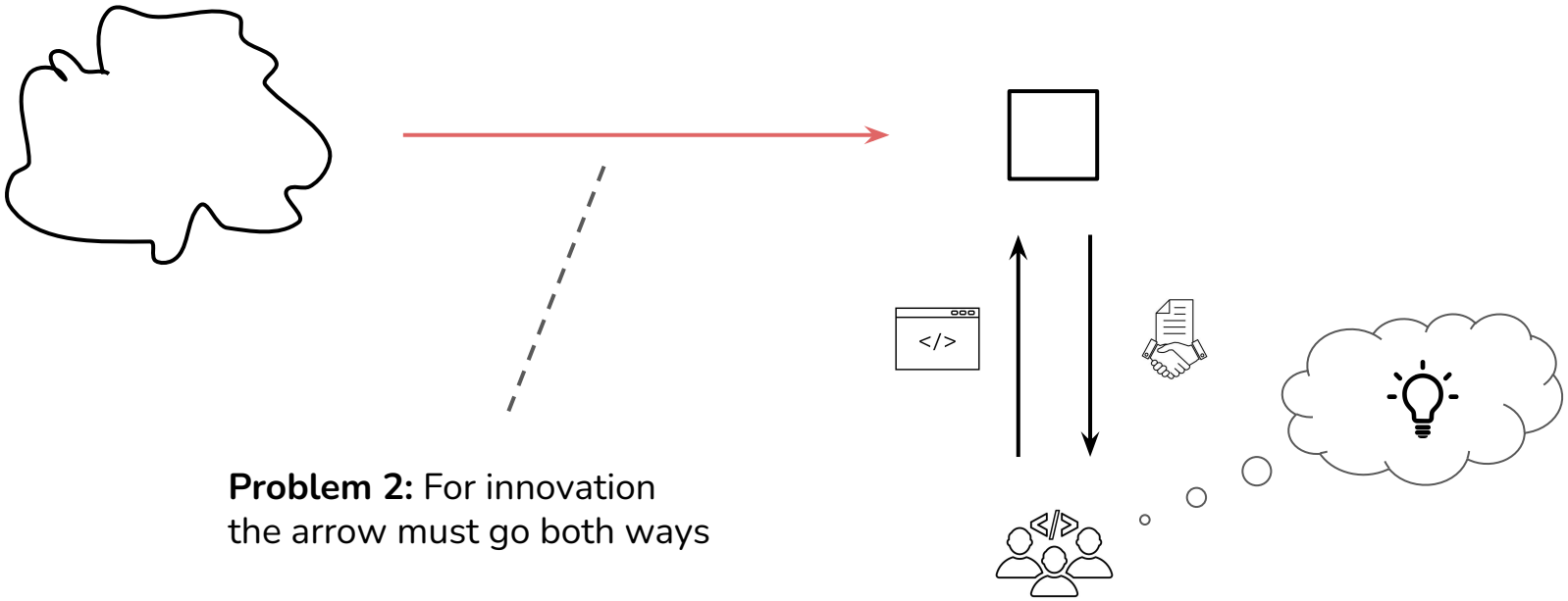
We may learn we are doing the wrong intervention

Often we do not even monitor the consequences

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“We are poor at resource planning”

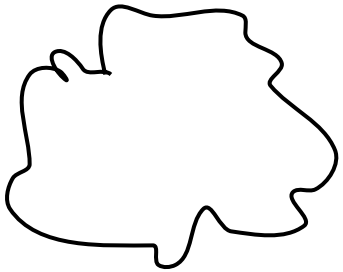
“We need a digital tool to collect and analyze data”



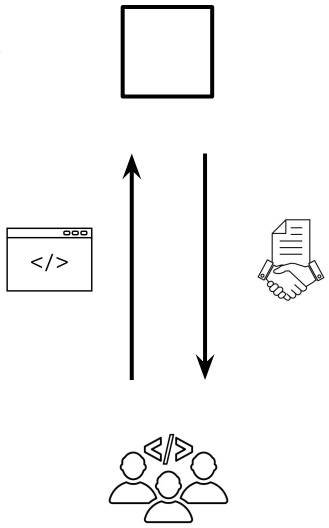
Problem 2: For innovation the arrow must go both ways

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“We are poor at resource planning”



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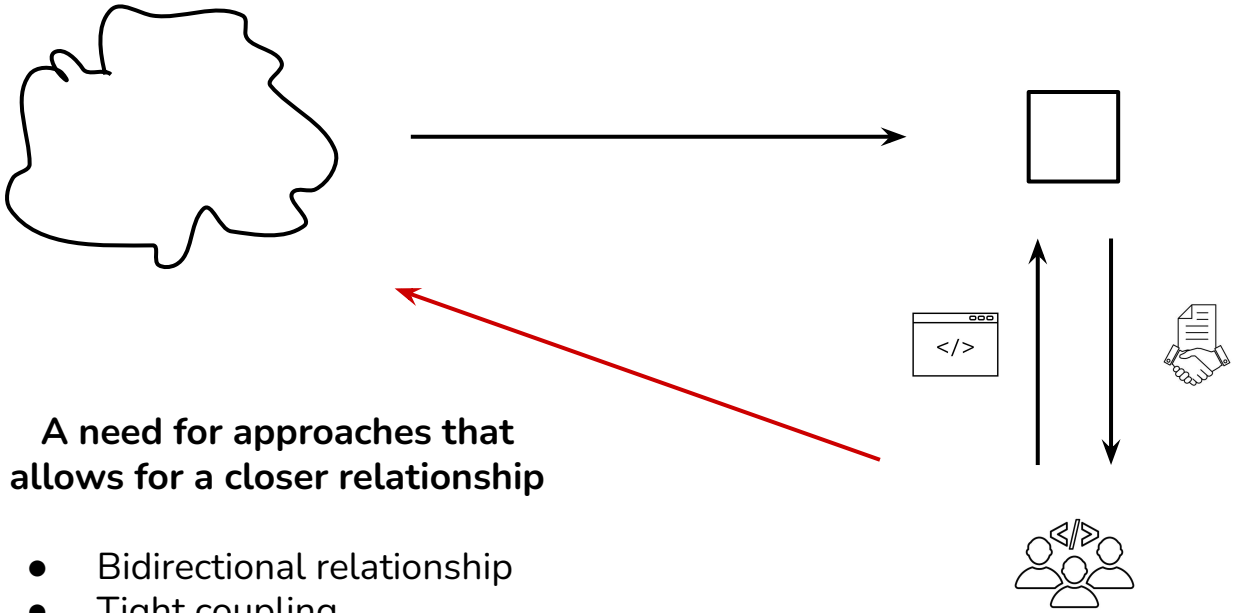


Primary focus of software development methods, including agile

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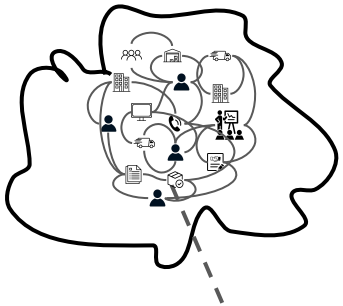


A need for approaches that allows for a closer relationship

- Bidirectional relationship
- Tight coupling

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"We are poor at resource planning"

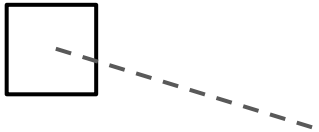


Unstructured problem

- A complex system! Problem is emergent
- Indeterminate, unknown unknowns
- Unclear boundaries
- Dynamic

We perform persistently poor here!

"We need a digital tool to collect and analyze data"



Structured problem

- Determinable
- Stable

We are very good at this!

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Fortunately, several streams of ideas and theory on how to approach complex, unstructured problems

- Pragmatism (e.g., Peirce, 1931, Dewey, 1938; Schön, 1989)
- Systems thinking (e.g., Checkland, 1989; Meadows, 2005; Jackson, 2019)
- Learning systems and action research (e.g., Lewin, 1946; Argyris, 2006)
- “Design” as approach to problem solving (e.g., Schön, 1989; Dorst 2014)
- Infrastructures and cultivation (e.g., Ciborra et al., 2000)

All, in different ways, point to the need for a different model for working with unstructured problems, which is relevant to digitalization

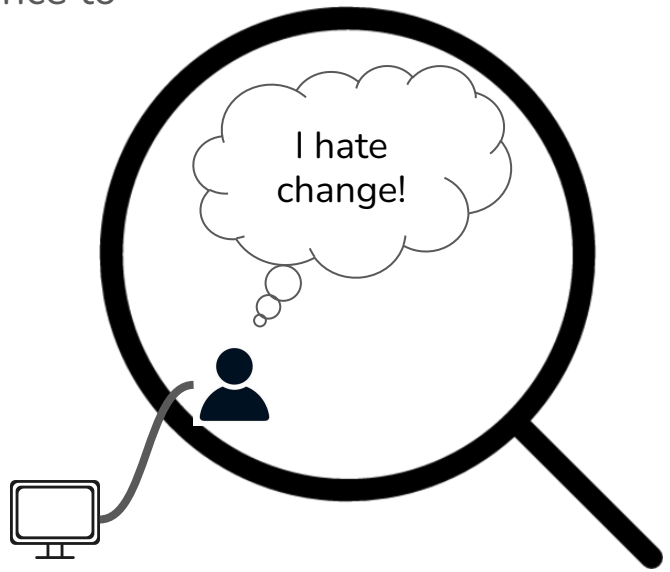
Digitalization as *systemic cultivation*



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“Systemic” cultivation

Example: “resistance to change”



Classic product development approach: to divide the problem into parts.

To think systemically involves focusing on the “whole” that emerges from the interaction of many parts.

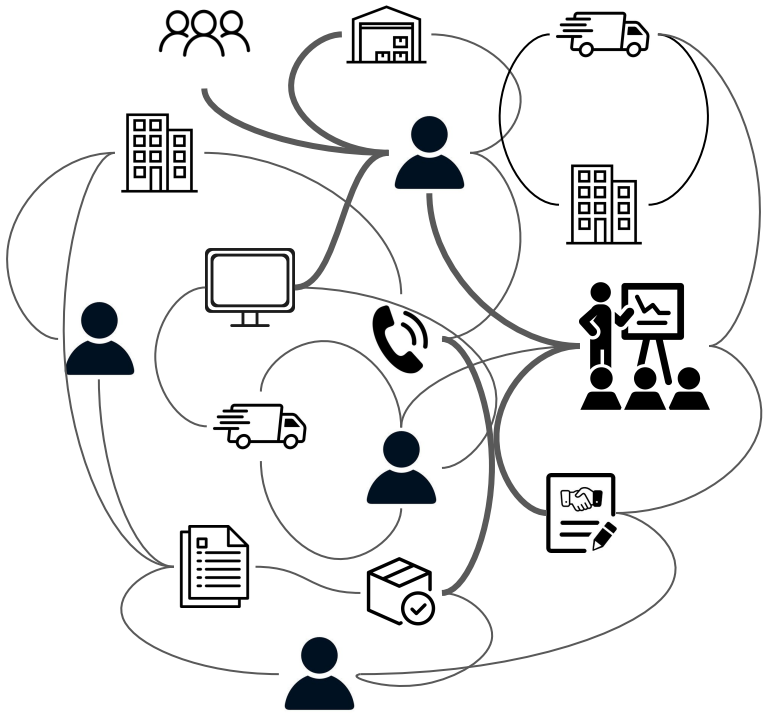
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Example: “resistance to change”

“Systemic” cultivation

Classic product development approach: to divide the problem into parts.

To think systemically involves focusing on the “whole” that emerges from the interaction of many parts.



Systemic **“cultivation”**

Coding

```
<!DOCTYPE html>
<html>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

My First Heading

My first paragraph.

VS.

Gardening

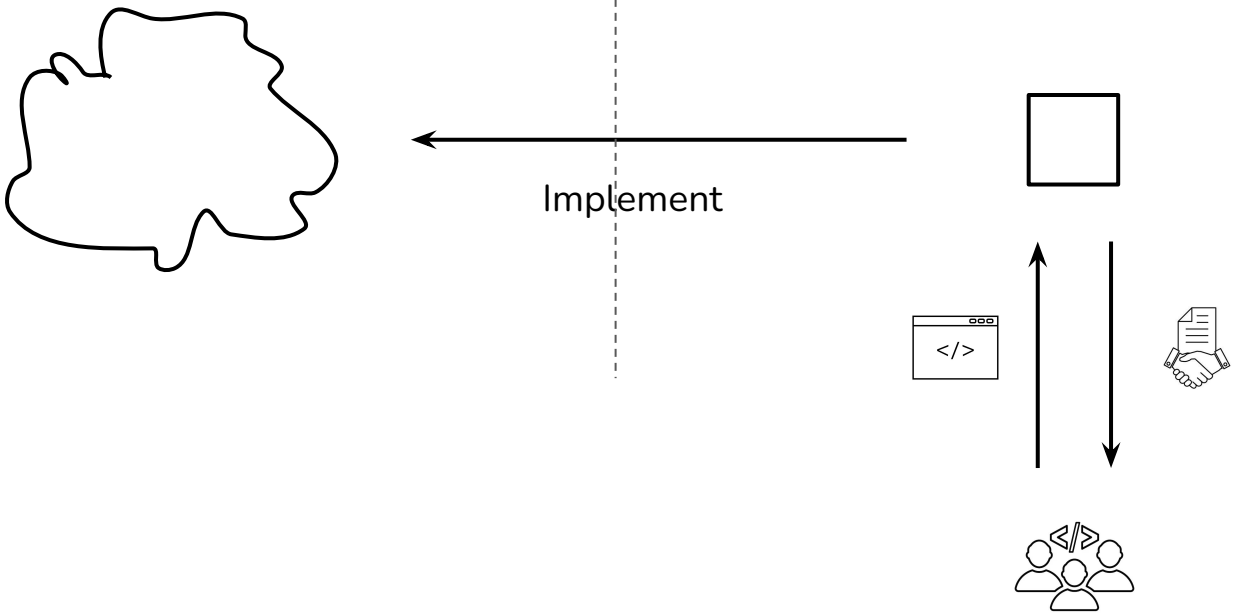




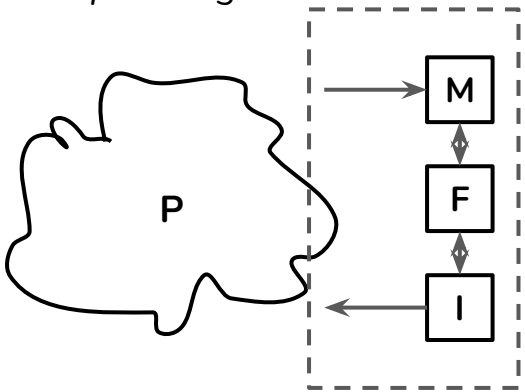
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“We are poor at resource planning”

“We need a digital tool to collect and analyze data”



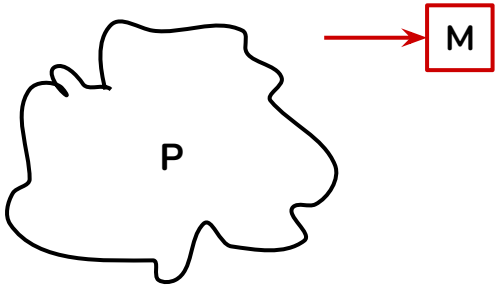
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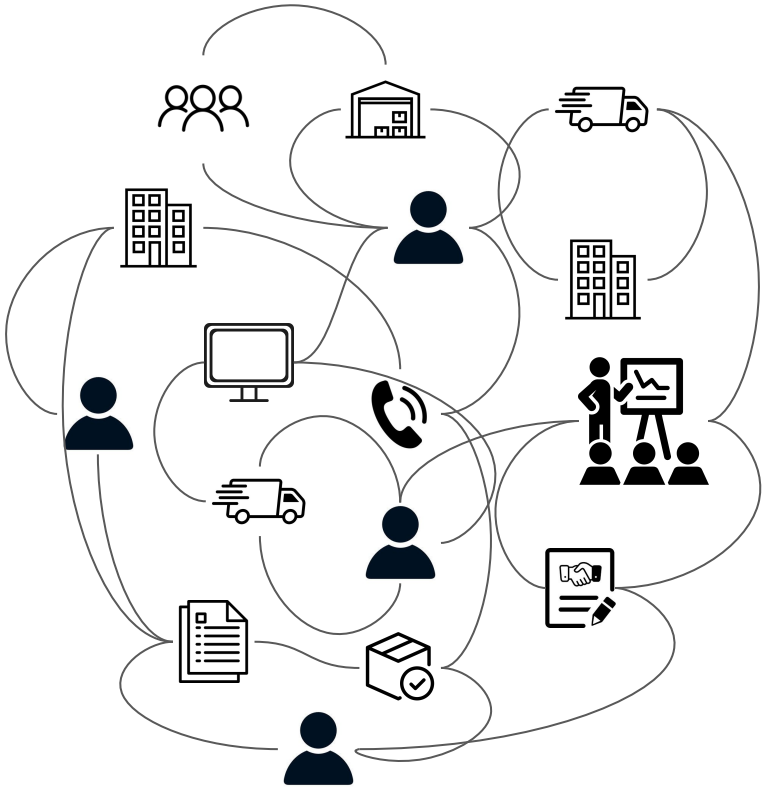
Digitalization as systemic cultivation

An adaptive learning system!

“We are poor at resource planning”

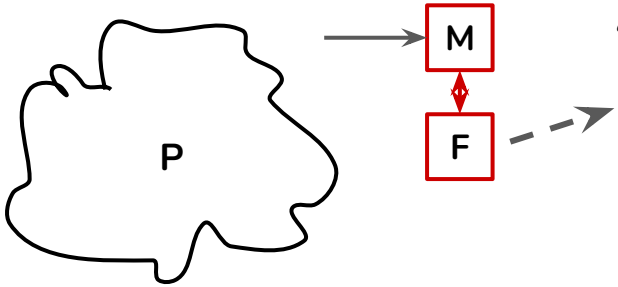


Develop a systemic understanding of the organizational problem, often through maps (M)

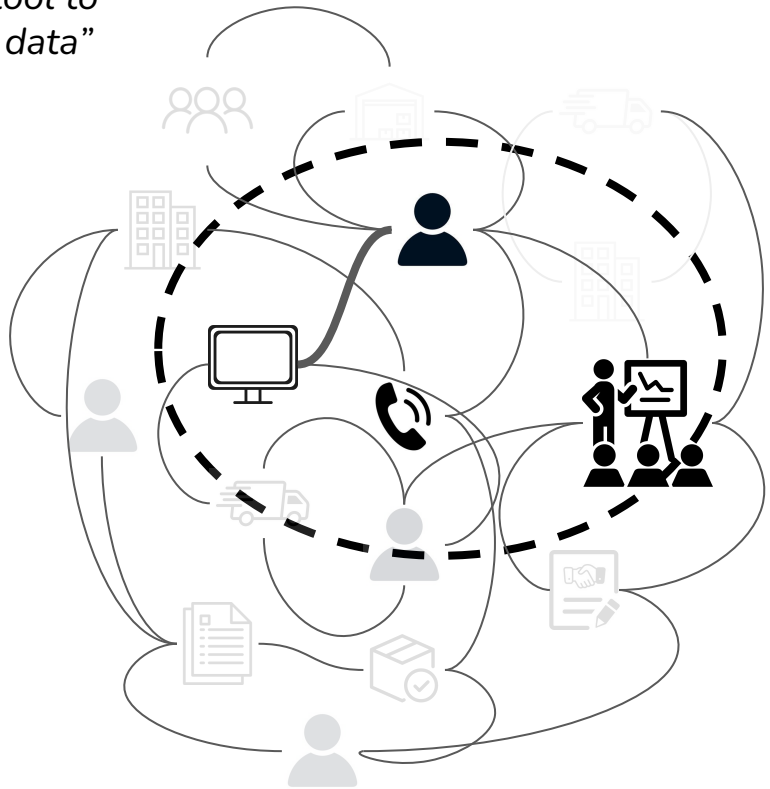


Work explicitly, exploratory, and dynamic with the framing (F) of the organizational problem (P)

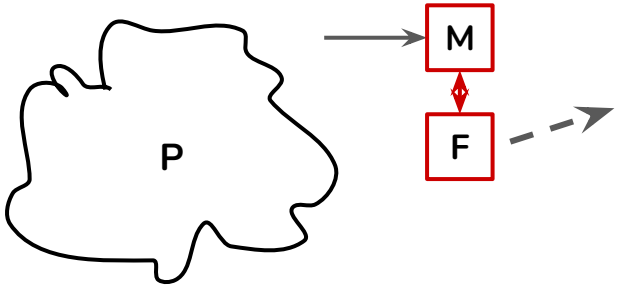
"We are poor at resource planning"



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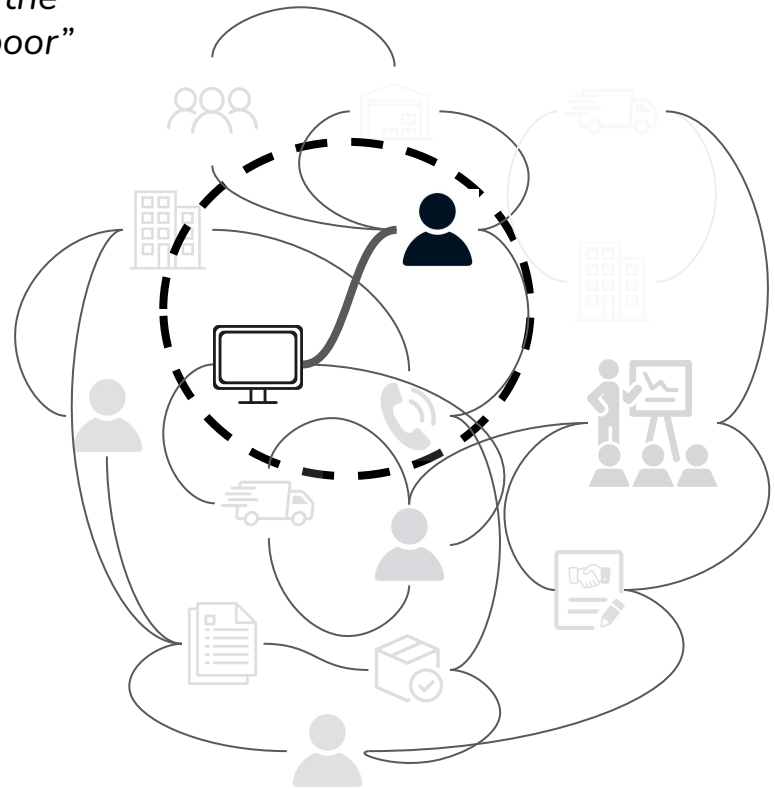


“We are poor at resource planning”



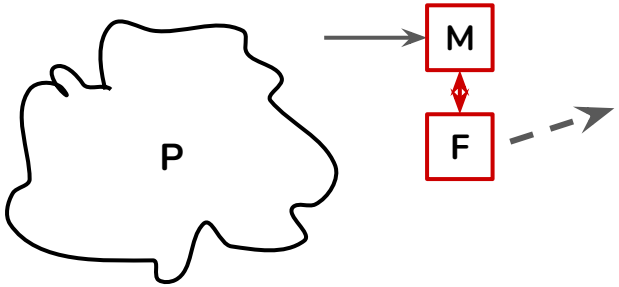
Work explicitly, exploratory, and dynamic with the framing (F) of the organizational problem (P)

“The usability of the reporting tool is poor”

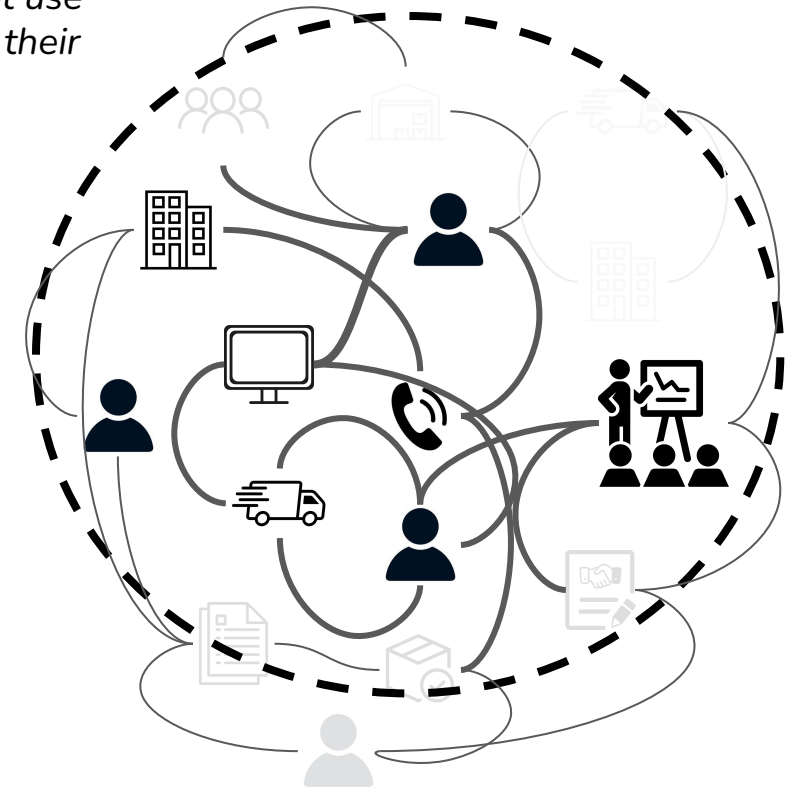


Work explicitly, exploratory, and dynamic with the framing (F) of the organizational problem (P)

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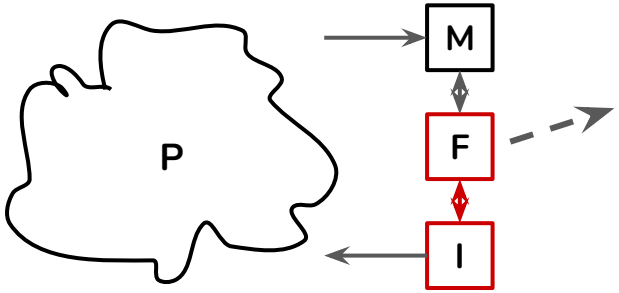


"Managers do not use available data in their planning"



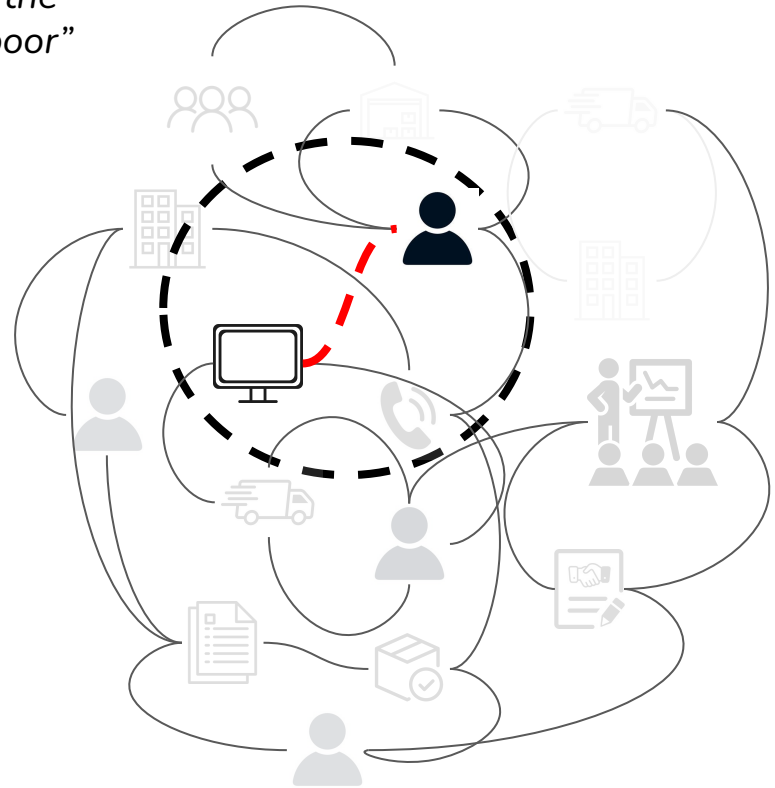
Frames (F) are assessed based on the probable value of the interventions (I) they illuminate

"We are poor at resource planning"



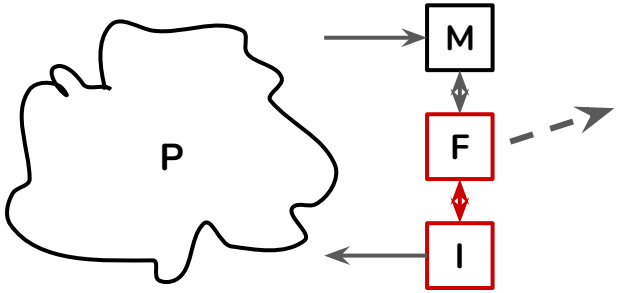
"The usability of the reporting tool is poor"

Improved usability of tool



Frames (F) are assessed based on the probable value of the interventions (I) they illuminate

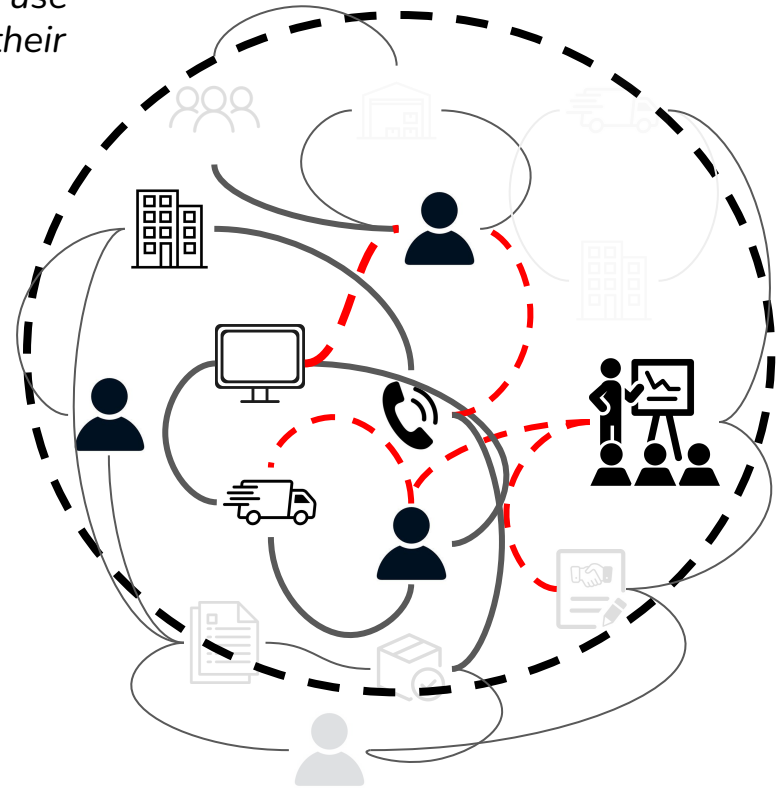
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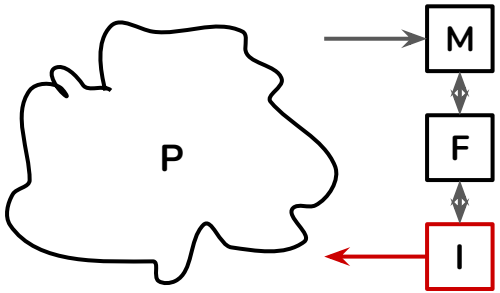


Measures to increase incentives, accountability, transparency related to decisions



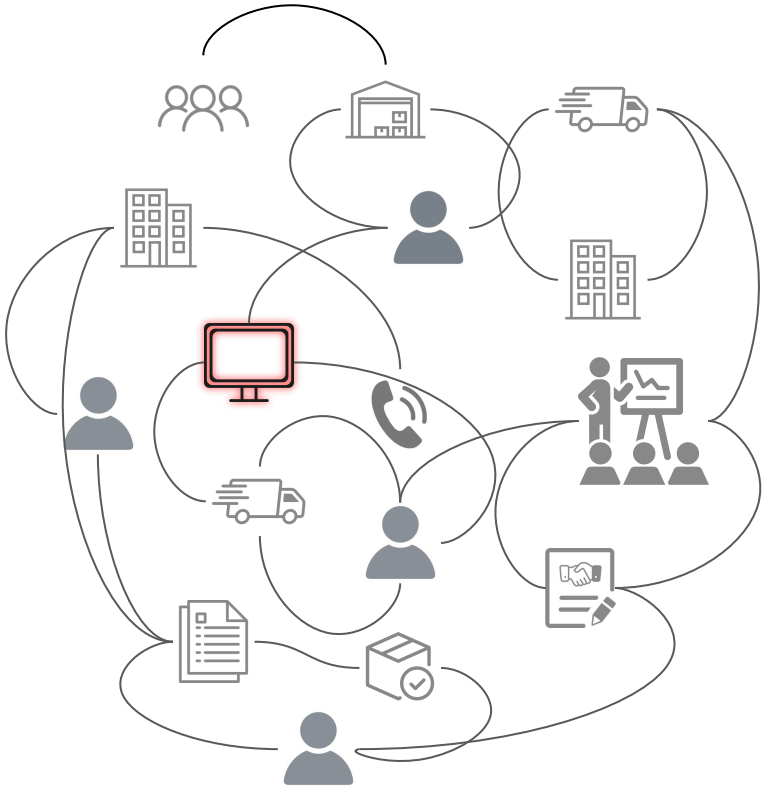
Systemic interventions (I)

"We are poor at resource planning"



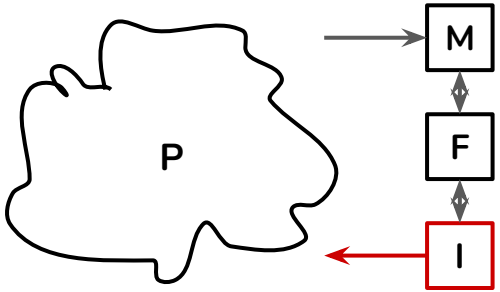
Example: the idea that "the more generic the better"

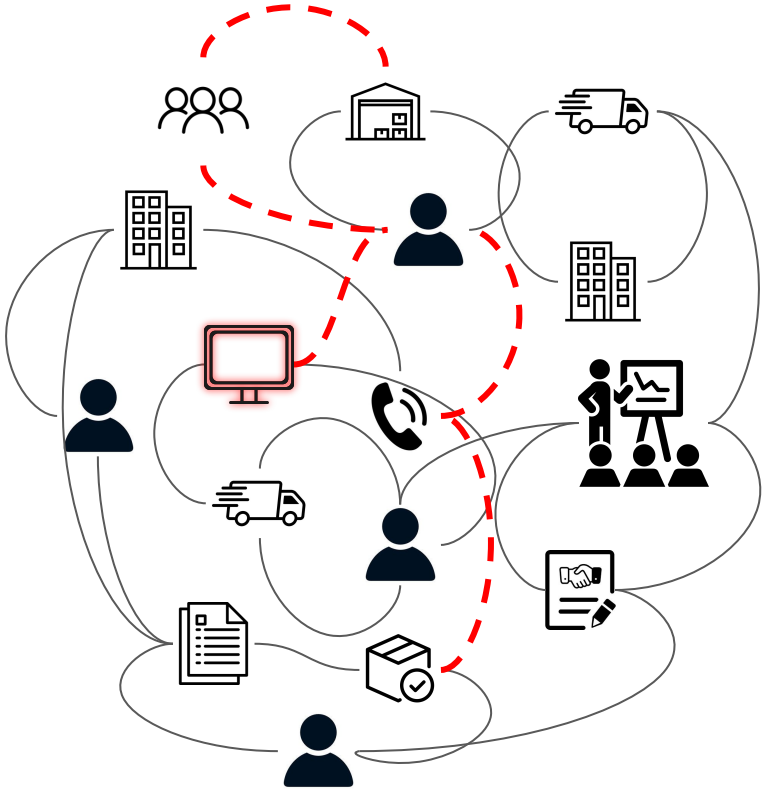
"The solution is simple, they must just get their act together"



Systemic interventions (I)

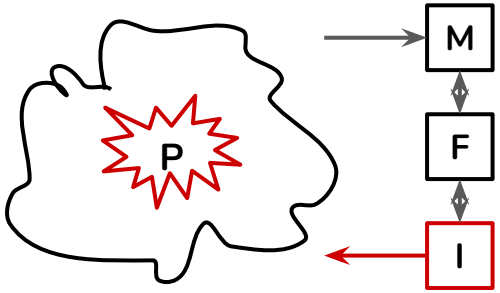
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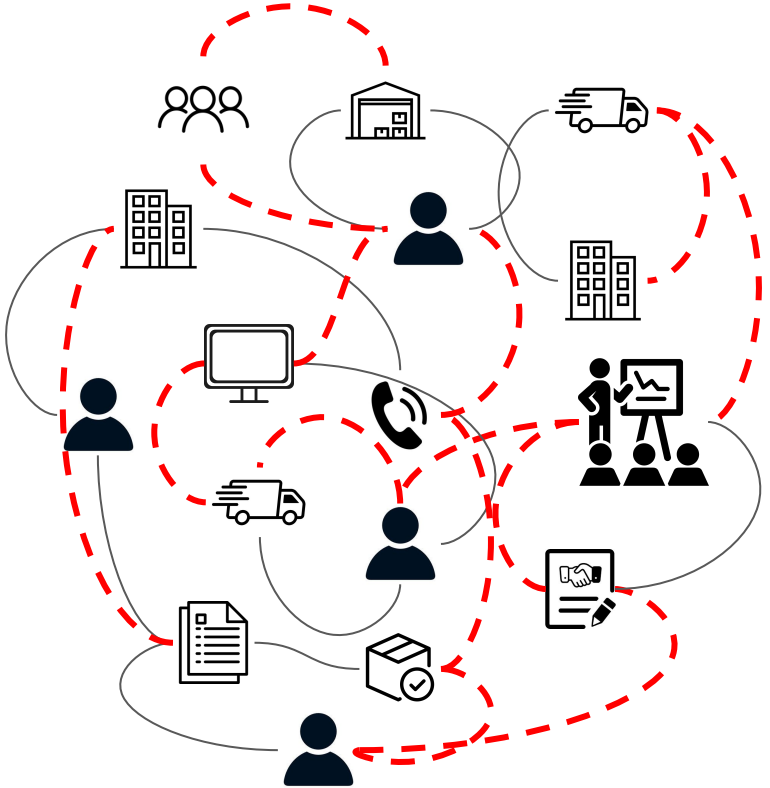




Small, measurable interventions (I)

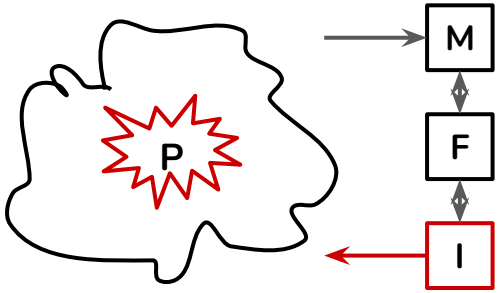
“We are poor at resource planning”





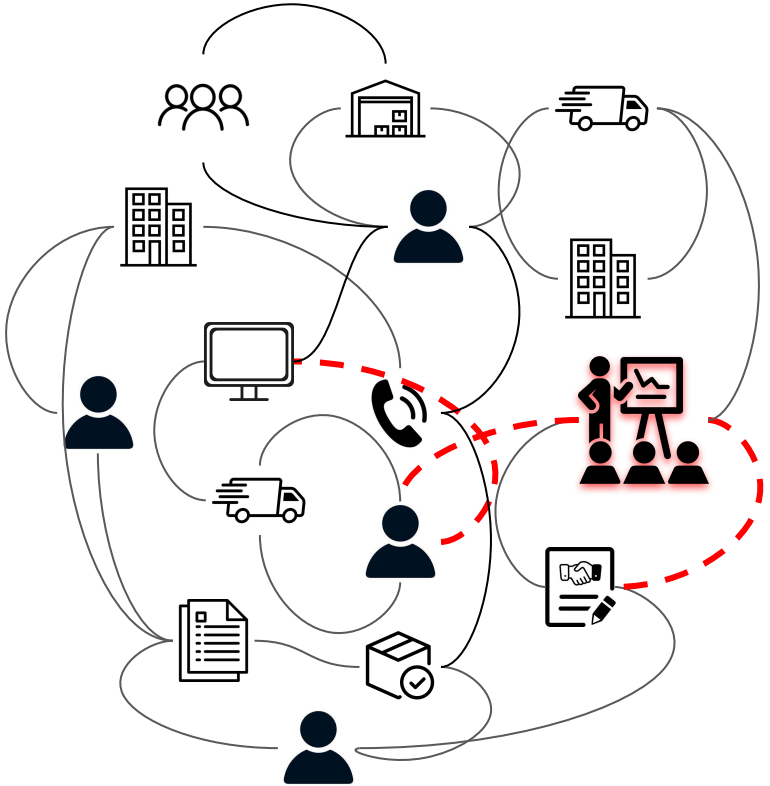
Small, measurable interventions (I)

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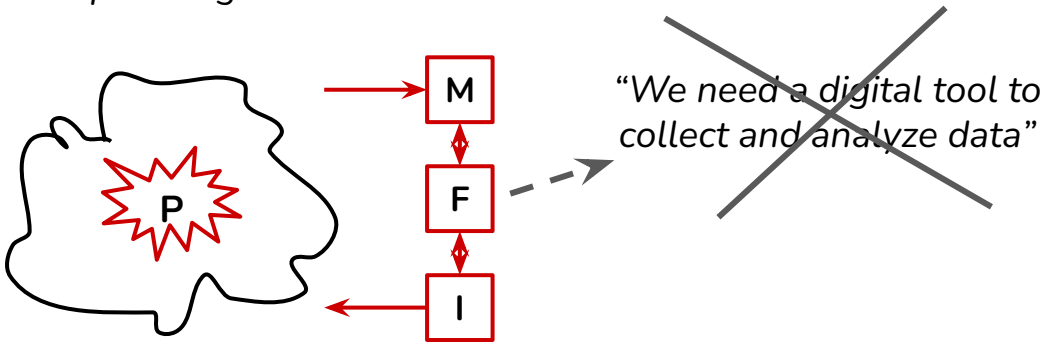
“We can decrease the number of stock-outs by X by introducing a monthly facility review meeting where resource planning is discussed”

Measuring effect is not something done in the “end” but acts as a compass!



Double looped learning

"We are poor at resource planning"



"We need a digital tool to collect and analyze data"

"Managers do not use available data in their planning"

Measures to increase incentives, accountability, transparency related to decisions

Learnings of the effects informs:

a. further design of the intervention

b. our systemic understanding and our frame

What now?



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Some interesting research directions:

1. How do we help cultivate a fruitful understanding of digitalization with relevant actors?
2. How do we align systemic cultivation with the use of generic software solutions?
3. How do we make such approaches work within existing practice of project management, funding, control, etc. and vice versa?