

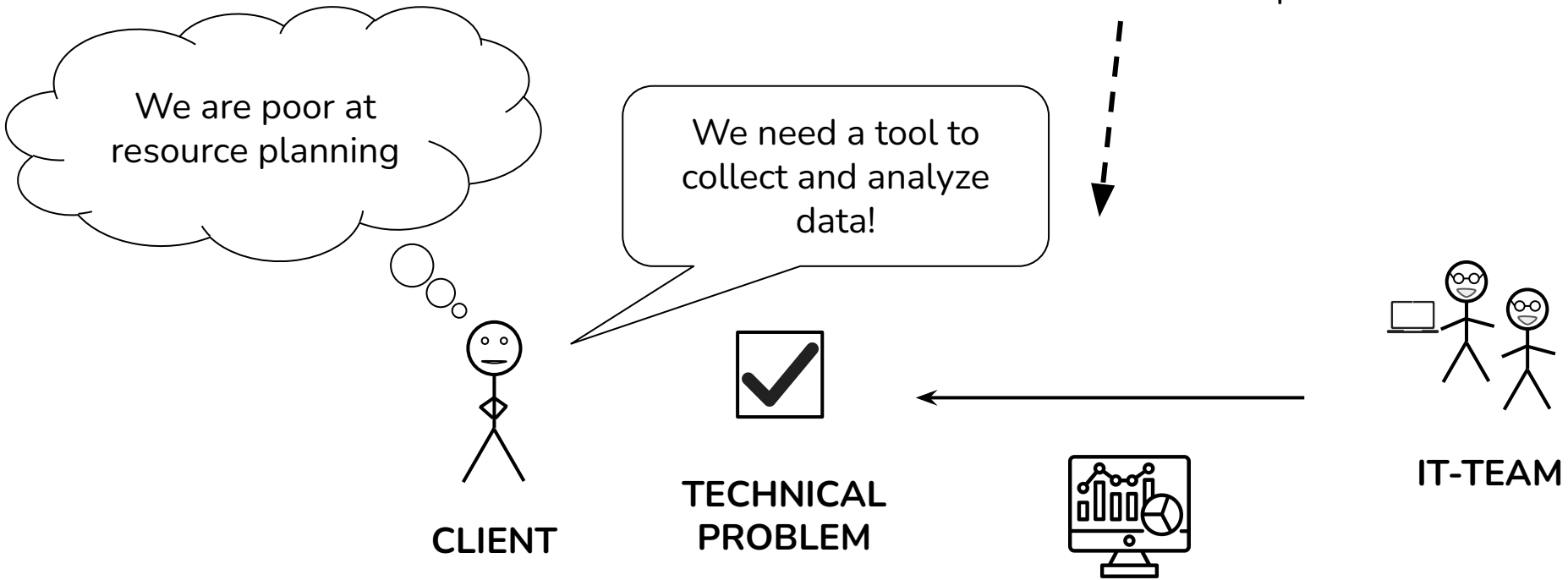

# IN5210
# Digitalization and agility

10th of September 2025

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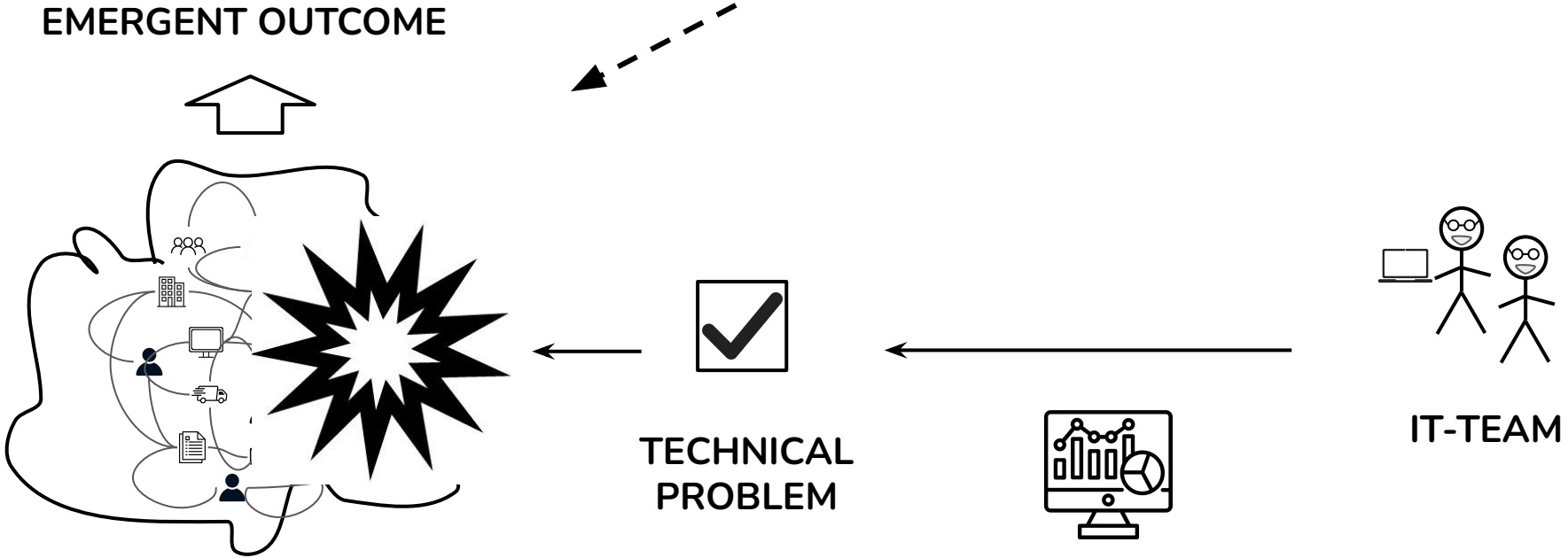
# THE PREVIOUS LECTURE

**Digitalization:** Not only about building and delivering digital “solutions” to technical problems



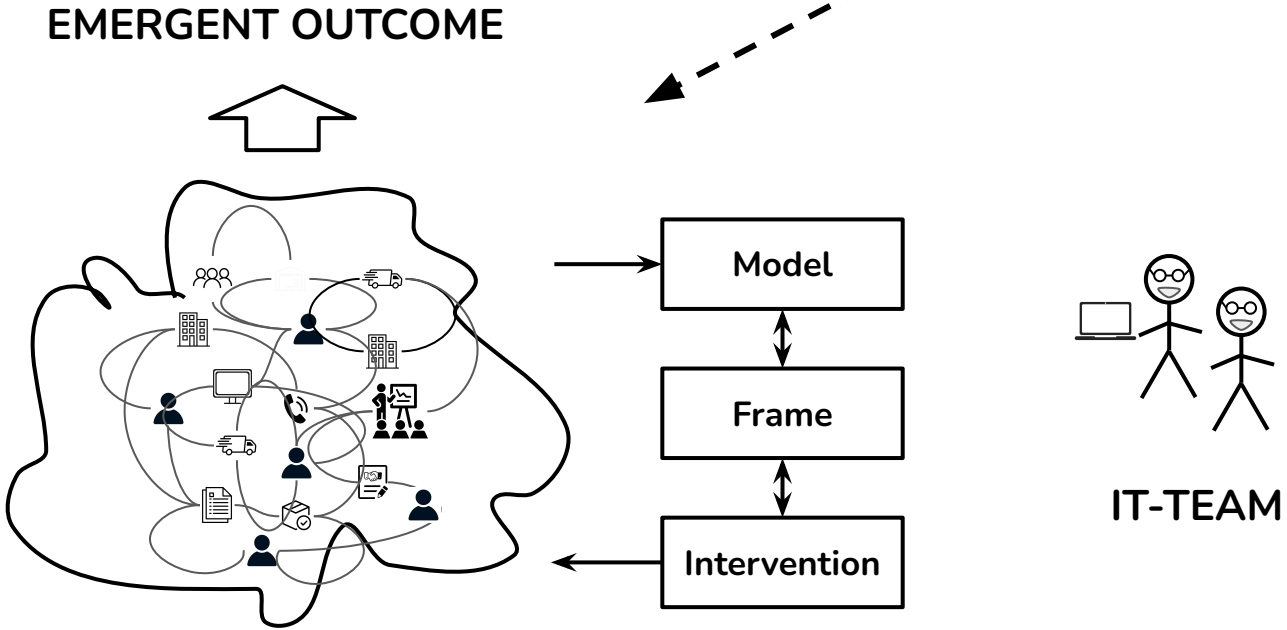
# THE PREVIOUS LECTURE

**Digitalization** involves interventions in complex sociotechnical systems - **highly unpredictable!**



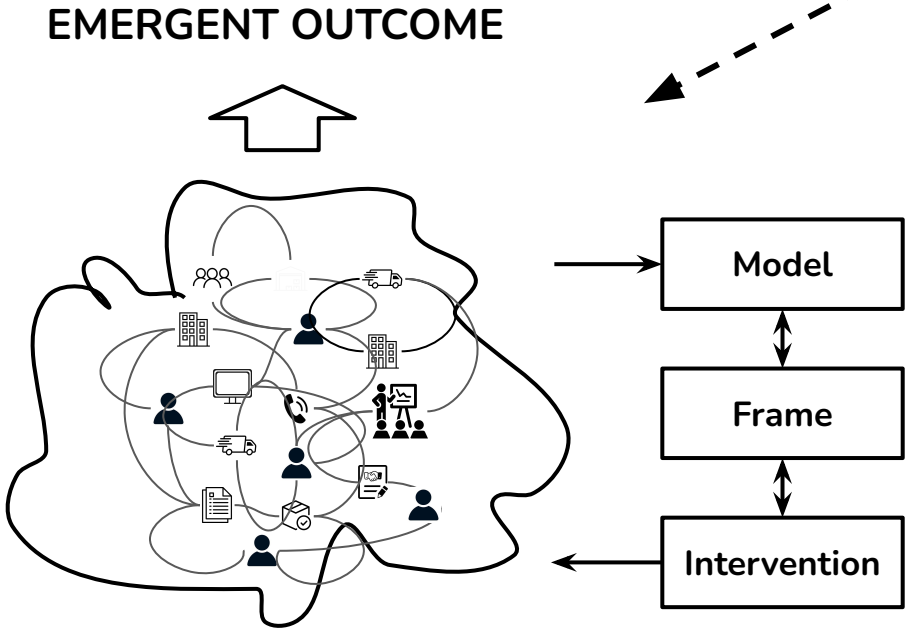
# THE PREVIOUS LECTURE

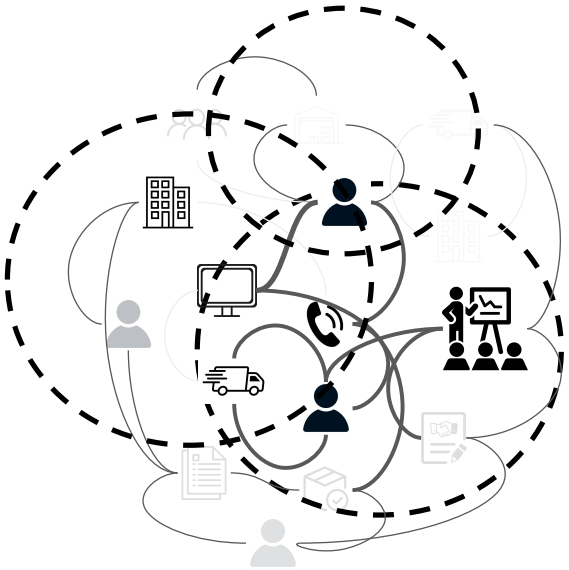
Digitalization require active work with the organization as a system, a “whole”



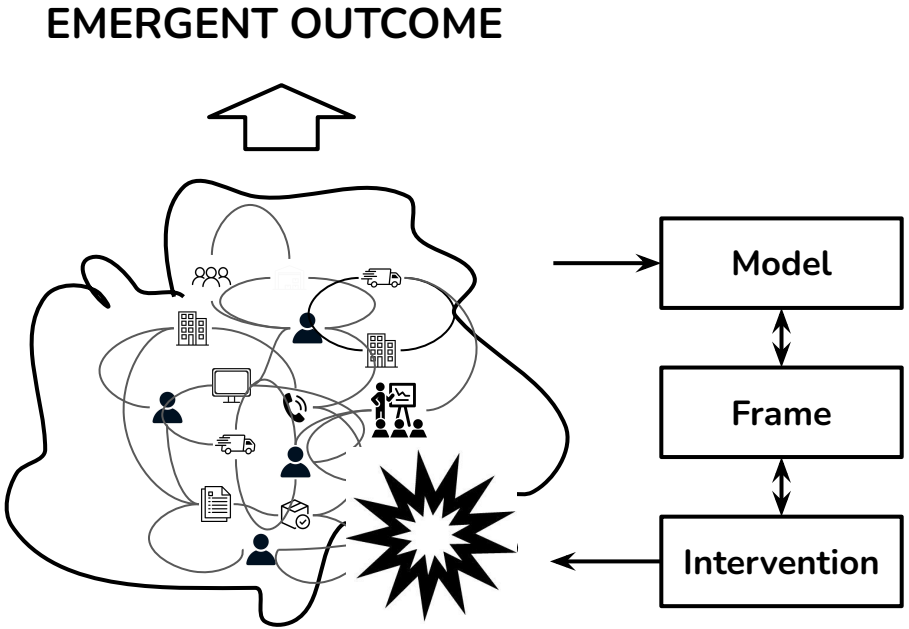
# THE PREVIOUS LECTURE

Require us to actively work with “frames” - ways of seeing the situation that point us towards interventions



# THE PREVIOUS LECTURE



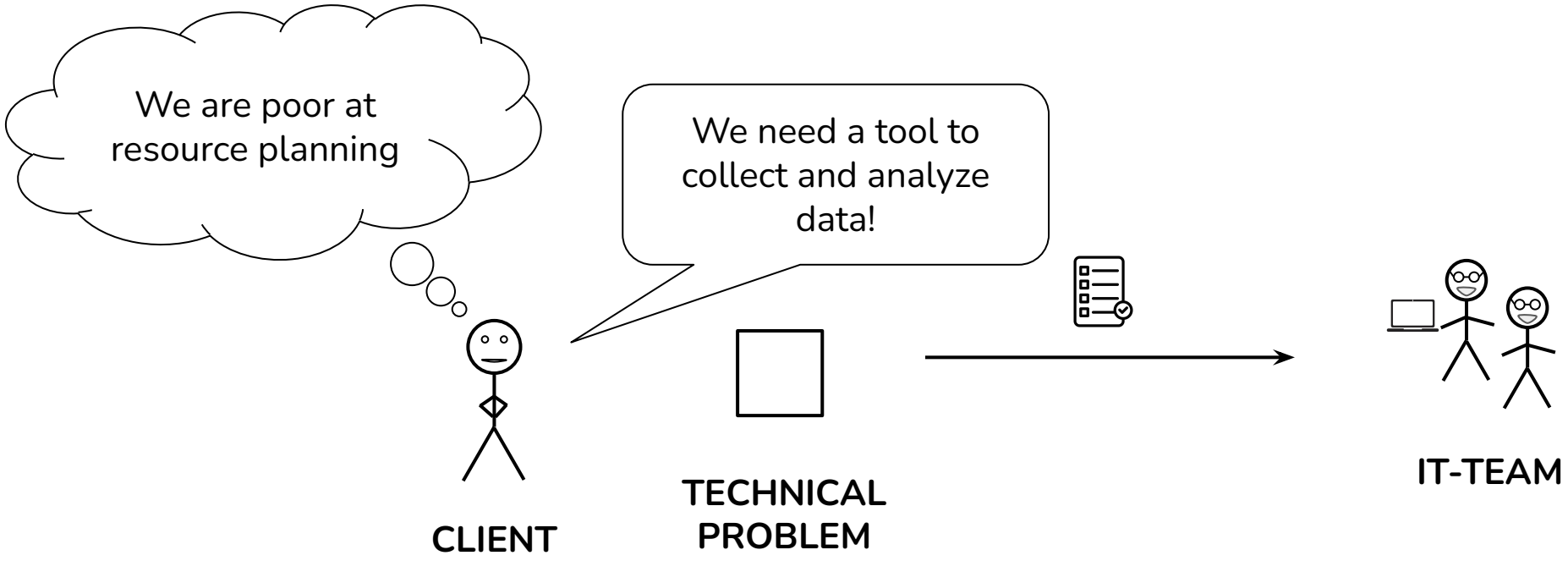

Since reaction is unpredictable - *cultivation* towards an emergent outcome, not construction of a solid property!

# TODAY - AGILITY

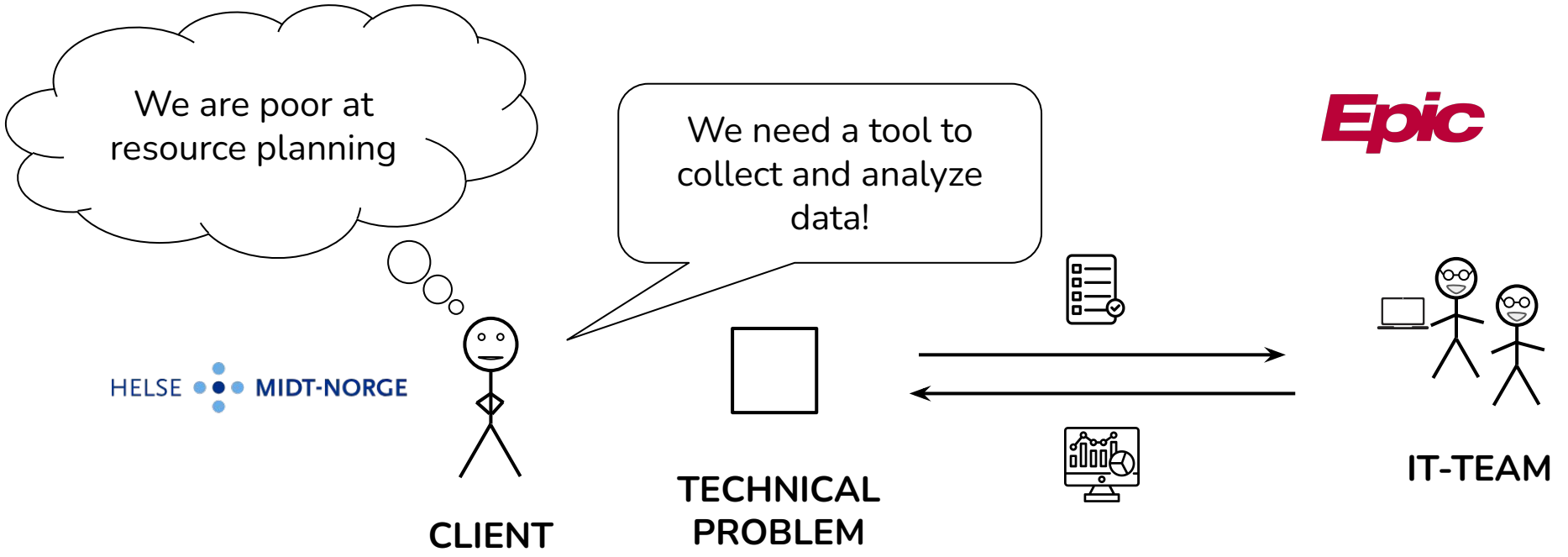
- Traditional product-oriented agility in digitalization
- System-oriented agility
- Different forms of sensing and responding
- Case example

# PRODUCT-ORIENTED AGILITY

# TRADITIONAL PRODUCT DEVELOPMENT



# TRADITIONAL PRODUCT DEVELOPMENT

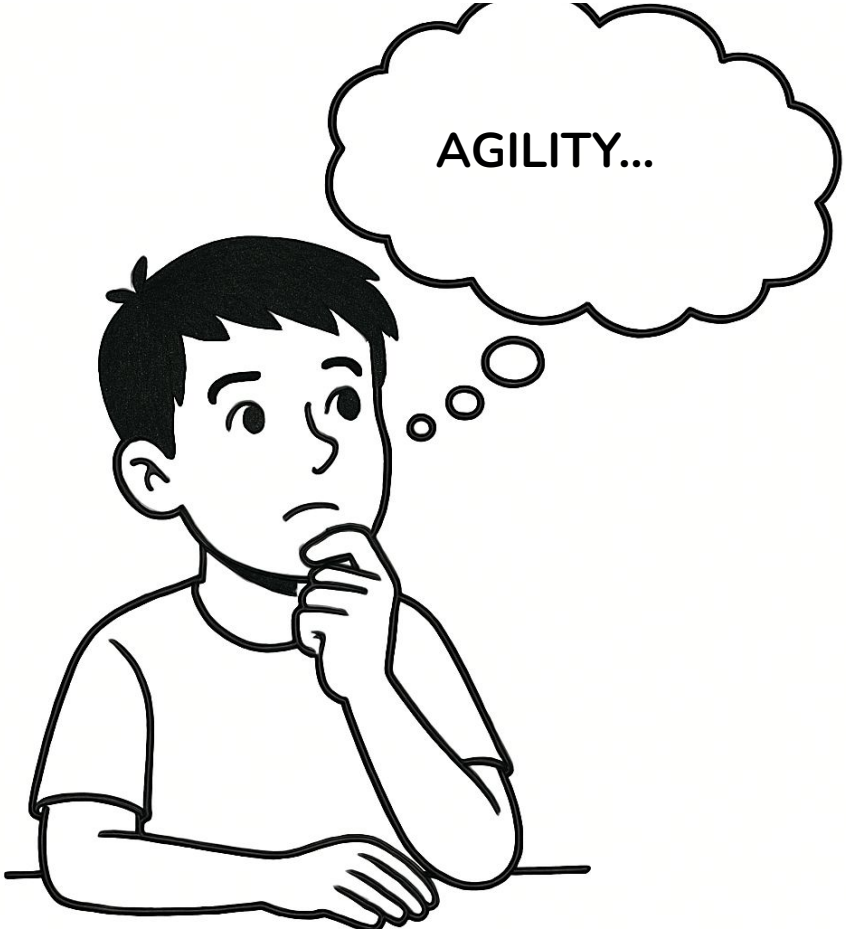



**In plan-driven process** - could take years!

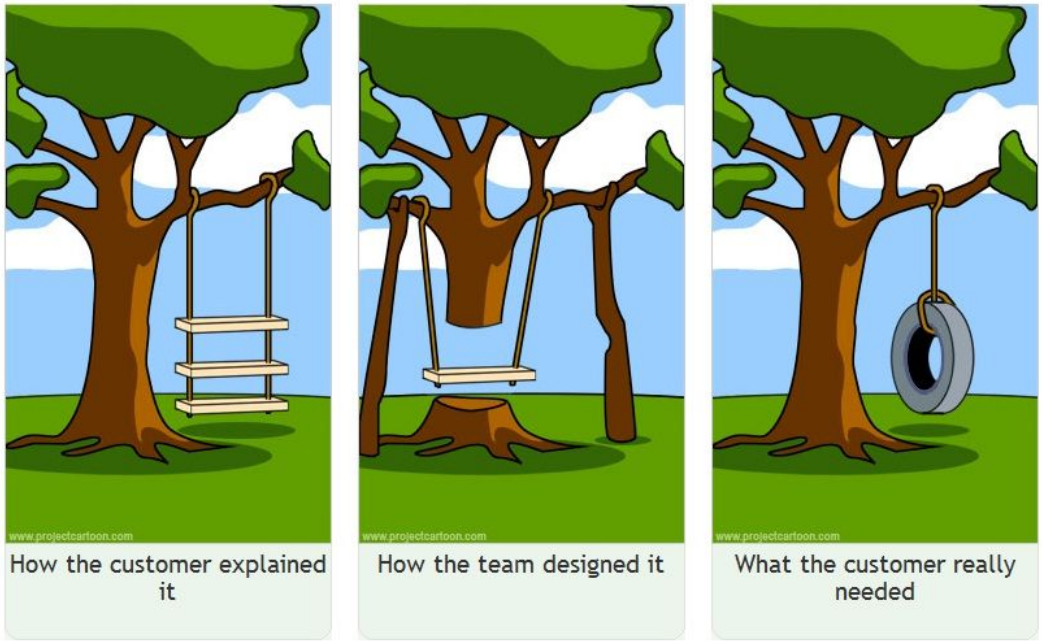
# PROBLEMATIC?

How can it be problematic to spend a long time between defining requirements and exposing the solution to the client?

Think and note down some points
- 1 min



# Uncertainties in product-oriented agility




Hard to establish a shared understanding...

# Uncertainties in product-oriented agility

“I want two pieces of bread with ham and cheese between them”




Hard to establish a shared understanding…

# Uncertainties in product-oriented agility

Organizations and technological opportunities are both moving targets!



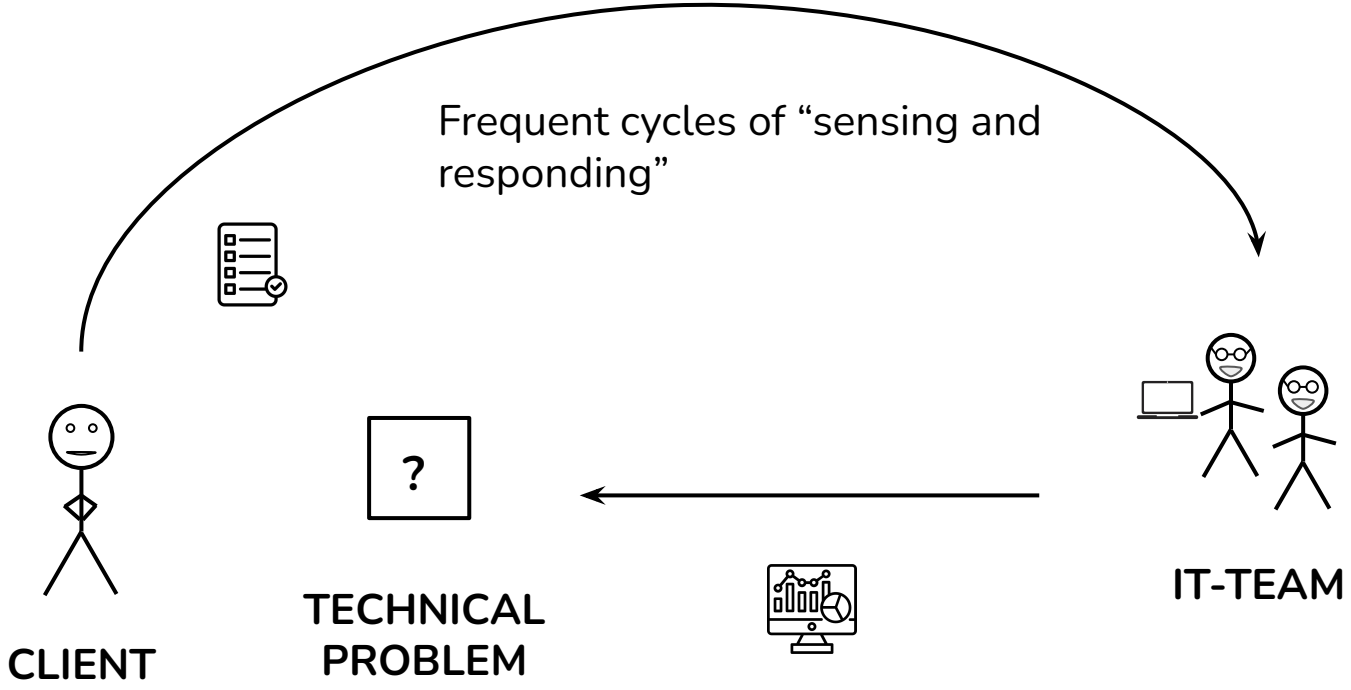
# Uncertainties in product-oriented agility

**Two key uncertainties:**

- Do we understand the requirements the same way?
- Will client needs or technological opportunities change?



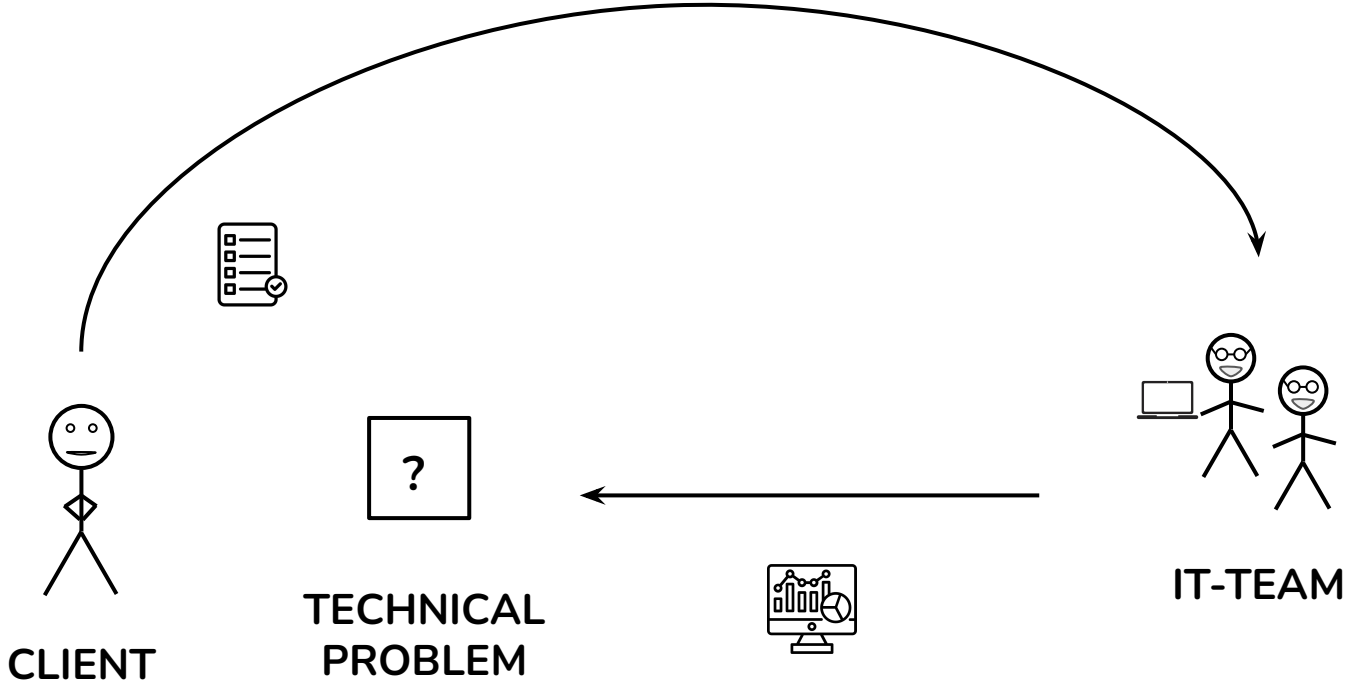
# Product-oriented agility



**Hypothesis-driven**

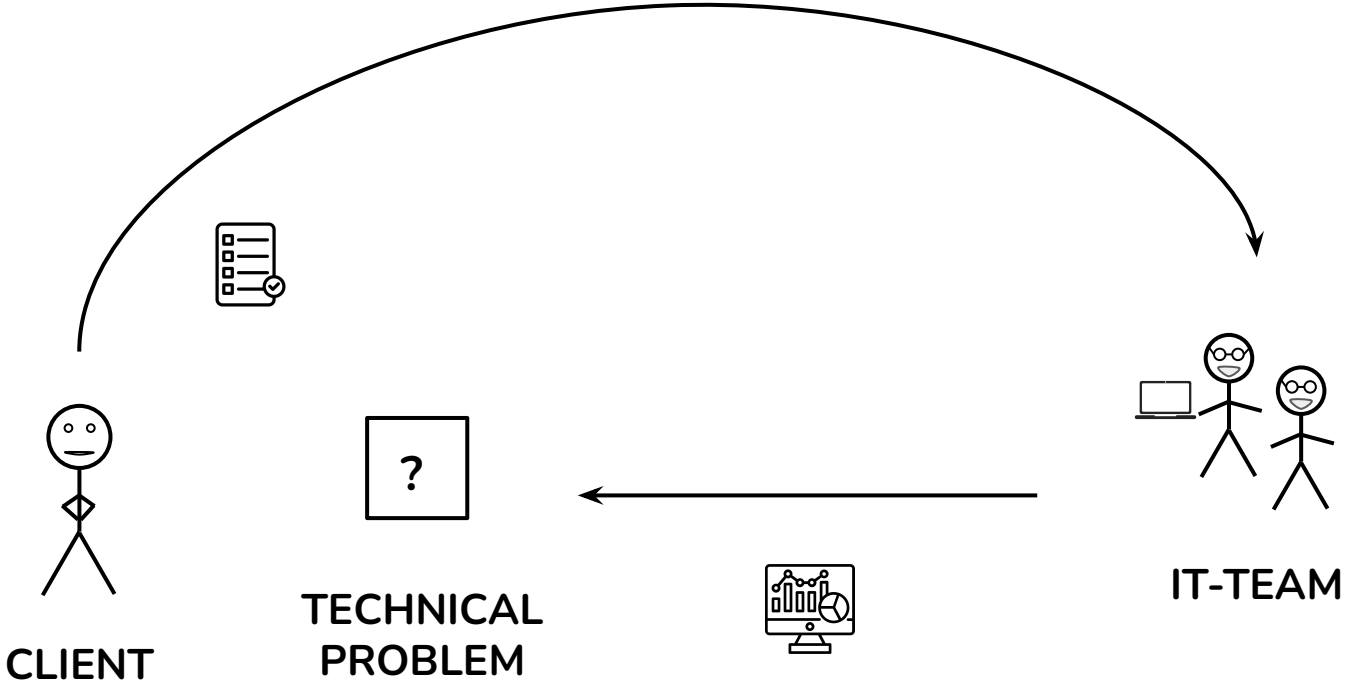
# Product-oriented agility

“We think the user will find the menu easier if it is on the right hand side”



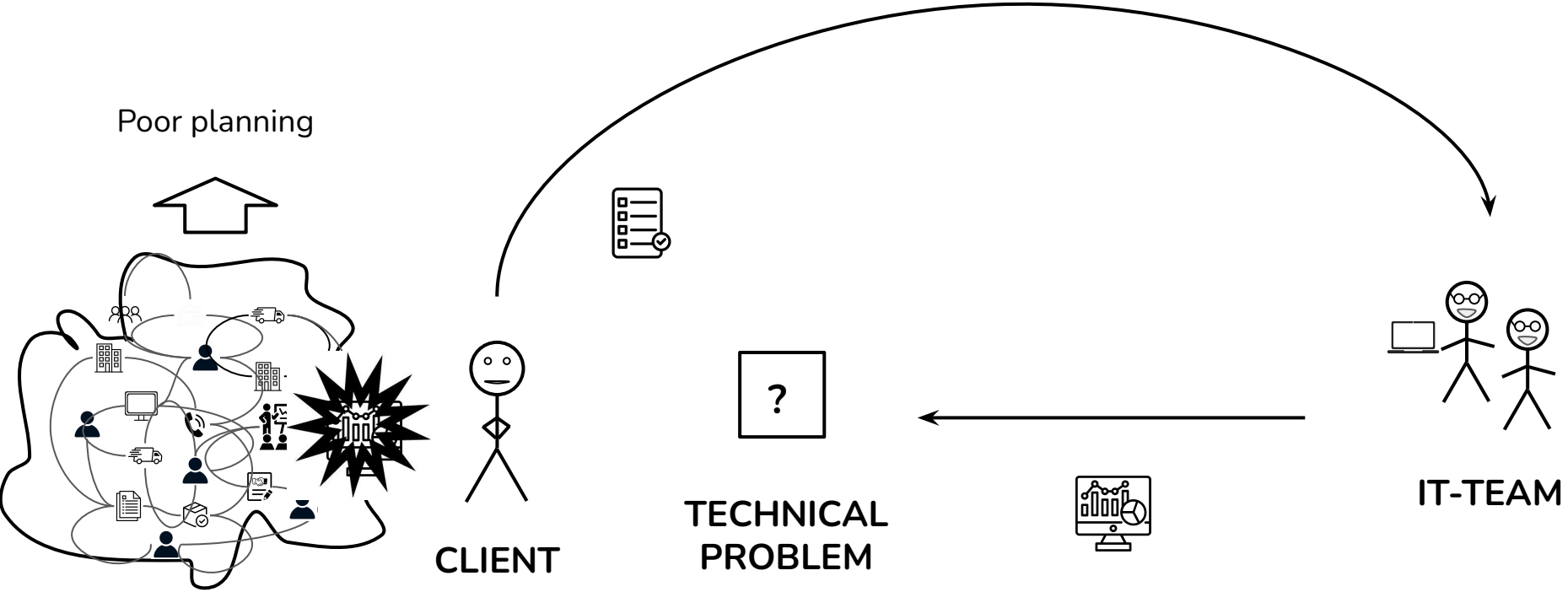
# Product-oriented agility

All fine if we care about ***product delivery and "user acceptance"***



# Product-oriented agility

All fine if we care about ***product delivery***




***what if we care about organizational effects?***

# WHY?

How can product-oriented agility be problematic if we care about organizational effects, not just product delivery?

Think and note down some points
- 1 min



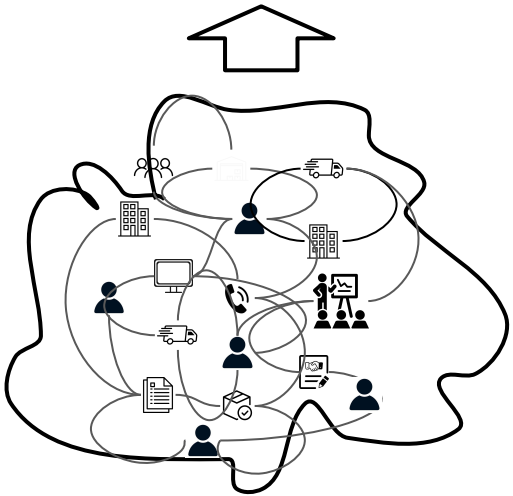
# SYSTEM-ORIENTED AGILITY

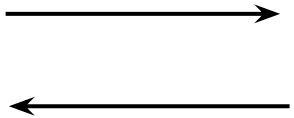
# A “system-orientation” - different uncertainties

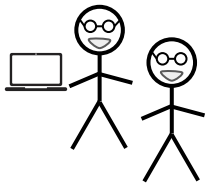
- Do we understand the system from which the problem emerges?
- Do we have the **best** frame?
- What effects will emerge when reacting with the whole?

*Answer is almost always **NO***

Poor planning

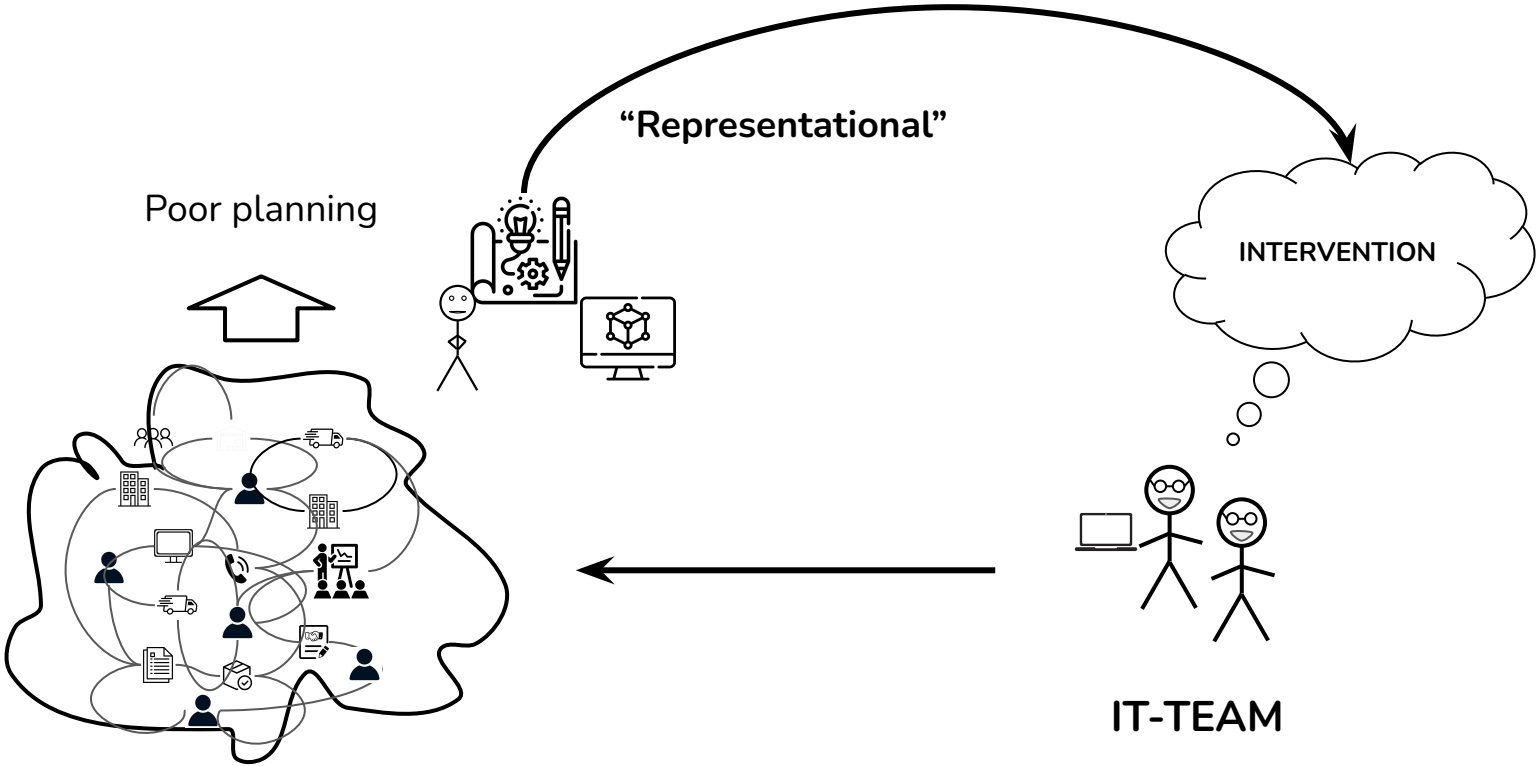




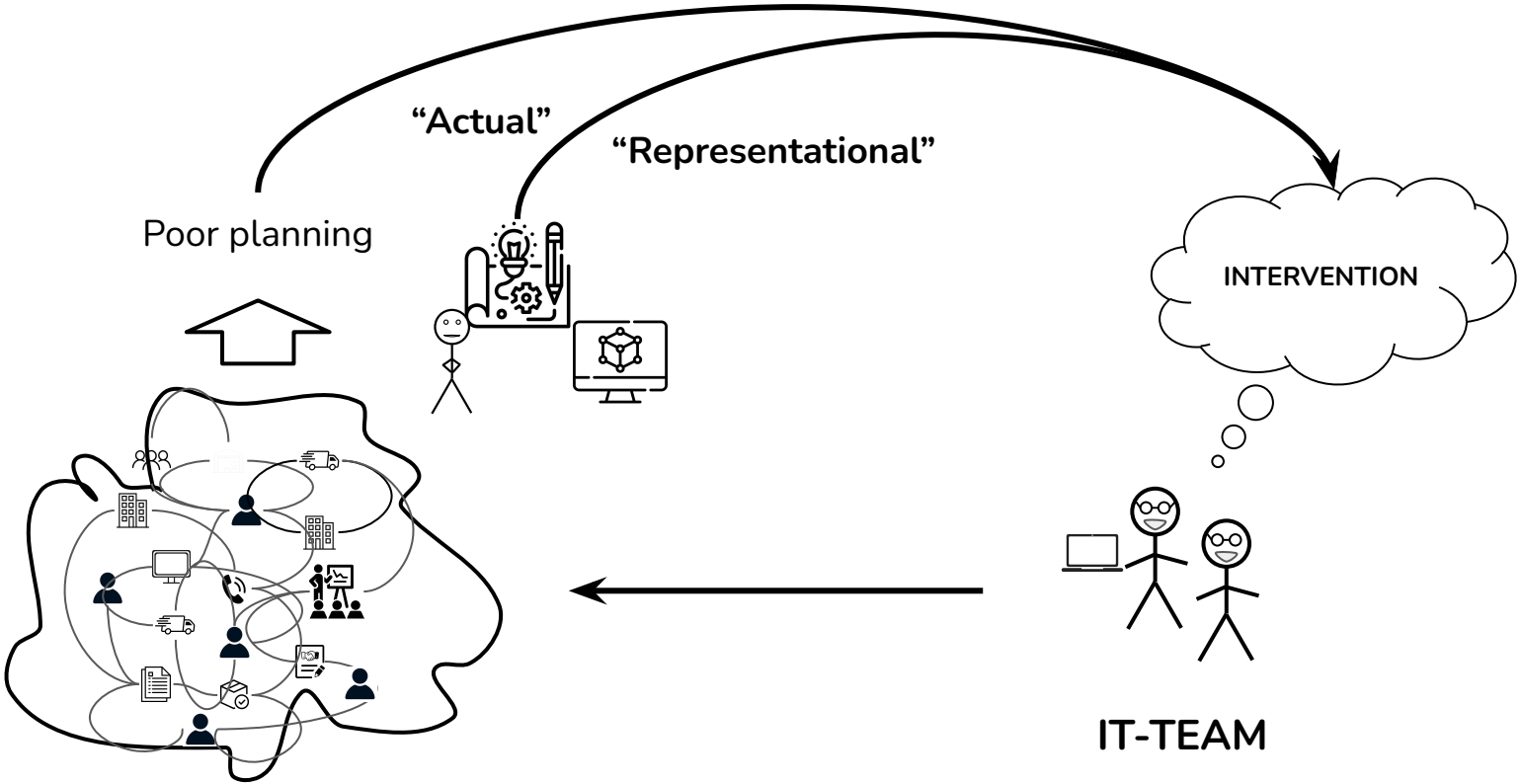


IT-TEAM

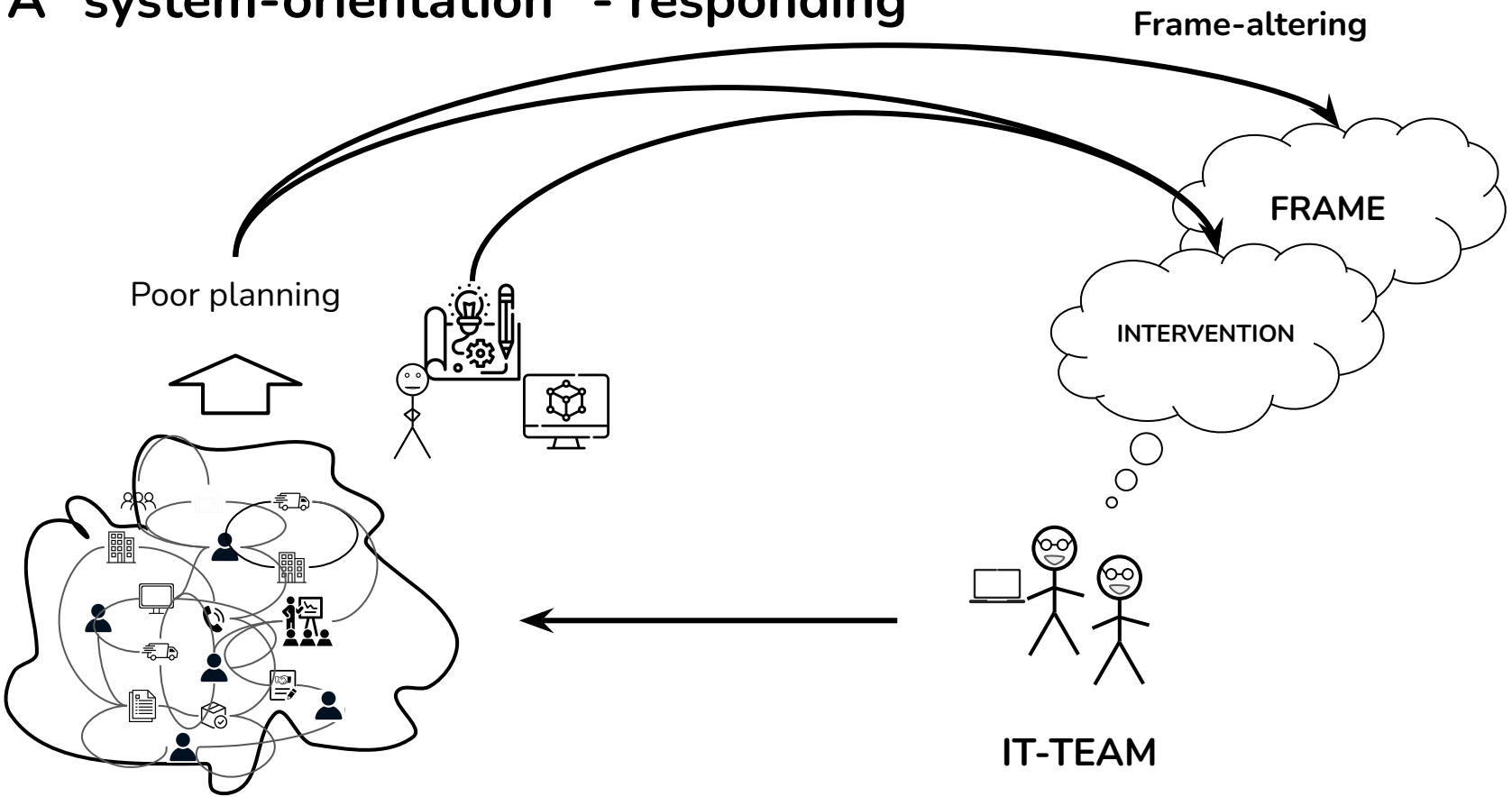
# A “system-orientation” - sensing



# A “system-orientation” - sensing



# A “system-orientation” - responding



# SYSTEM-ORIENTED AGILITY

| | Form | Definition |
|---|---|---|
| Sensing | Representational | The effects of an intervention are assessed based on some synthetic representation of the organization (e.g., a simulation). |
| | Actual | The effects of an intervention are observed in the actual organization. |
| Responding | Intervention-altering | The intervention is modified or elaborated |
| | Frame-altering | Changing how we understand, formulate, and 'frame' (Schön, 1984) the problem we seek to address, and thus also the objectives we seek to achieve. |

**Table 1. Key forms of sensing and responding in system-oriented ISD agility**

Li, 2025

# CASE EXAMPLE

# EXAMPLE - HOSPITAL OFFICE SERVICE

- Improving the support capacity and “robustness” of the office service at the hospital
- Office service - supporting the clinicians and patients with scheduling and other administrative work



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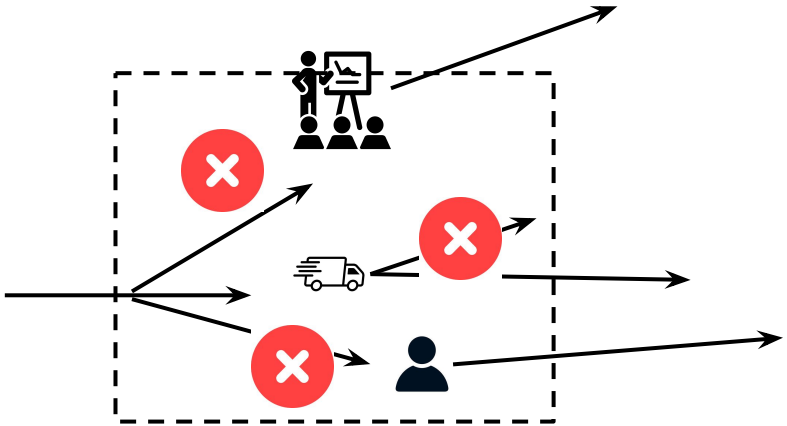


# EXAMPLE - HOSPITAL OFFICE SERVICE

- A two year ish project - including consultants with expertise in service design, innovation, and management consulting
- Two administrative leaders at the hospital side
- Office workers and others participated through workshops, testing of interventions, etc.
- License to explore, experiment, innovate
- Interesting as it relied on experimenting with interventions in real practice

# EXAMPLE - HOSPITAL OFFICE SERVICE

- Starting with a diagnosis: Mapping out the patient and office service “journeys” and workflows
- Identifying issues and bottlenecks



# EXAMPLE - HOSPITAL OFFICE SERVICE

- Through workshops with office service staff - narrows down to two issues of focus

1. **Task delegation** - Moving workload associated with phone calls from office service to front desk service





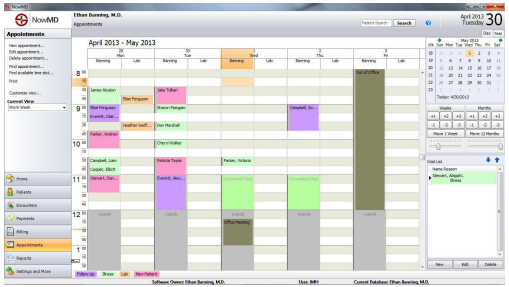

# EXAMPLE - HOSPITAL OFFICE SERVICE

- Through workshops with office service staff - narrows down to two issues of focus

**2. Extended scheduling** (extending scheduling horizon from 6 - 12 months)

**Waiting List**

| # | Date | Name | Phone | Email | Notes |
|---|---|---|---|---|---|
| | | | | | |
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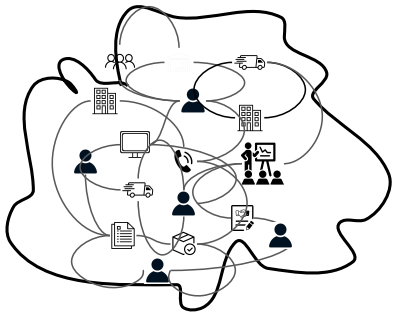
# EXAMPLE - REPRESENTATIONAL SENSING

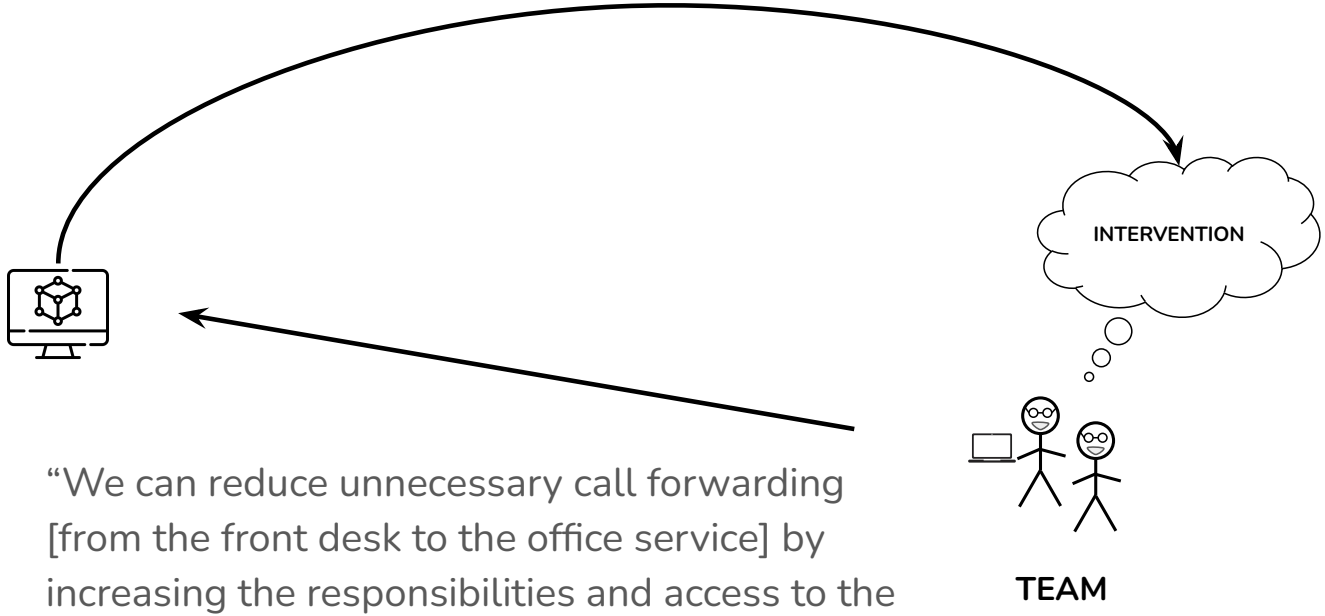
**H1:** We can reduce unnecessary call forwarding [from the front desk to the office service] by increasing the responsibilities and access to the EPJ for the front desk.”

**H2: “**We can reduce waiting lists and the associated workload through extended scheduling.”

# Task delegation

reduction in phone call volume to the office service by 50%, relieving the office service of around 4300 hours per year.






“We can reduce unnecessary call forwarding [from the front desk to the office service] by increasing the responsibilities and access to the EPJ for the front desk.”

# EXAMPLE

**H1:** We can reduce unnecessary call forwarding [from the front desk to the office service] by increasing the responsibilities and access to the EPJ for the front desk." →work associated with waiting lists can be reduced by around 400 hours per year!

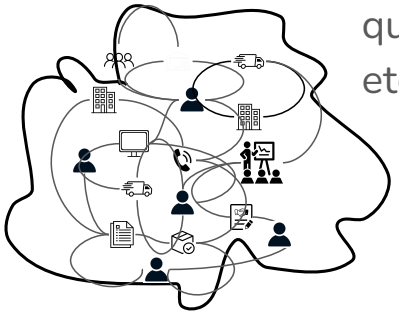
**H2:** **"**We can reduce waiting lists and the associated workload through extended scheduling." → reduction in phone call volume to the office service by 50%, relieving the office service of around 4300 hours per year.

# Task delegation

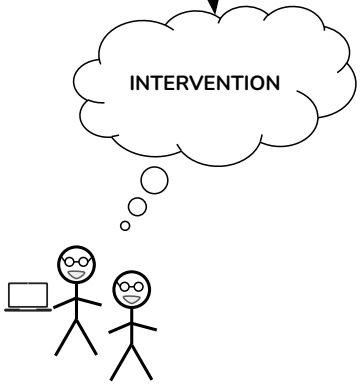
Confirms positive results - turned into a long-term pilot, accompanied by continuous actual sensing (teams channel, regular meetings,) and continuous intervention-altering responses.

Monitoring quantitative (calls, minutes), qualitative (experiences from both sides, questions answered, etc.)

Effect



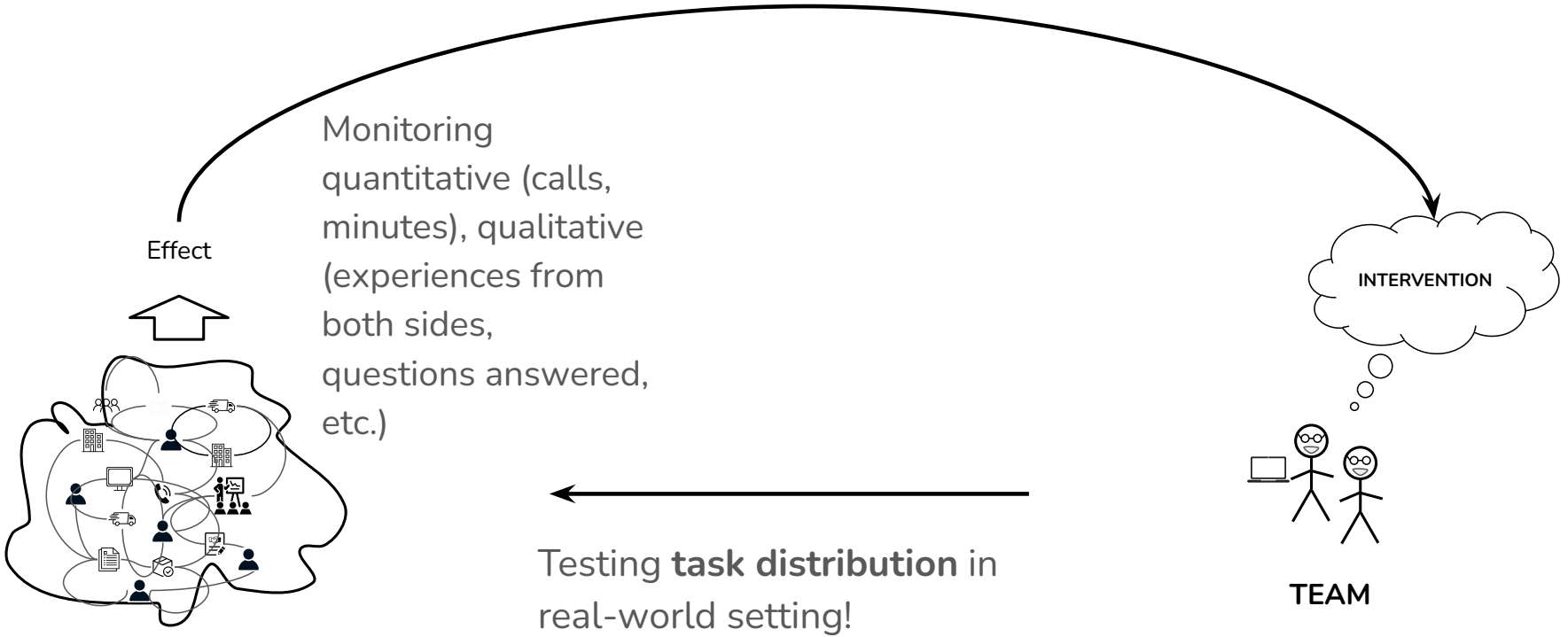
Testing **task distribution** in real-world setting!




TEAM

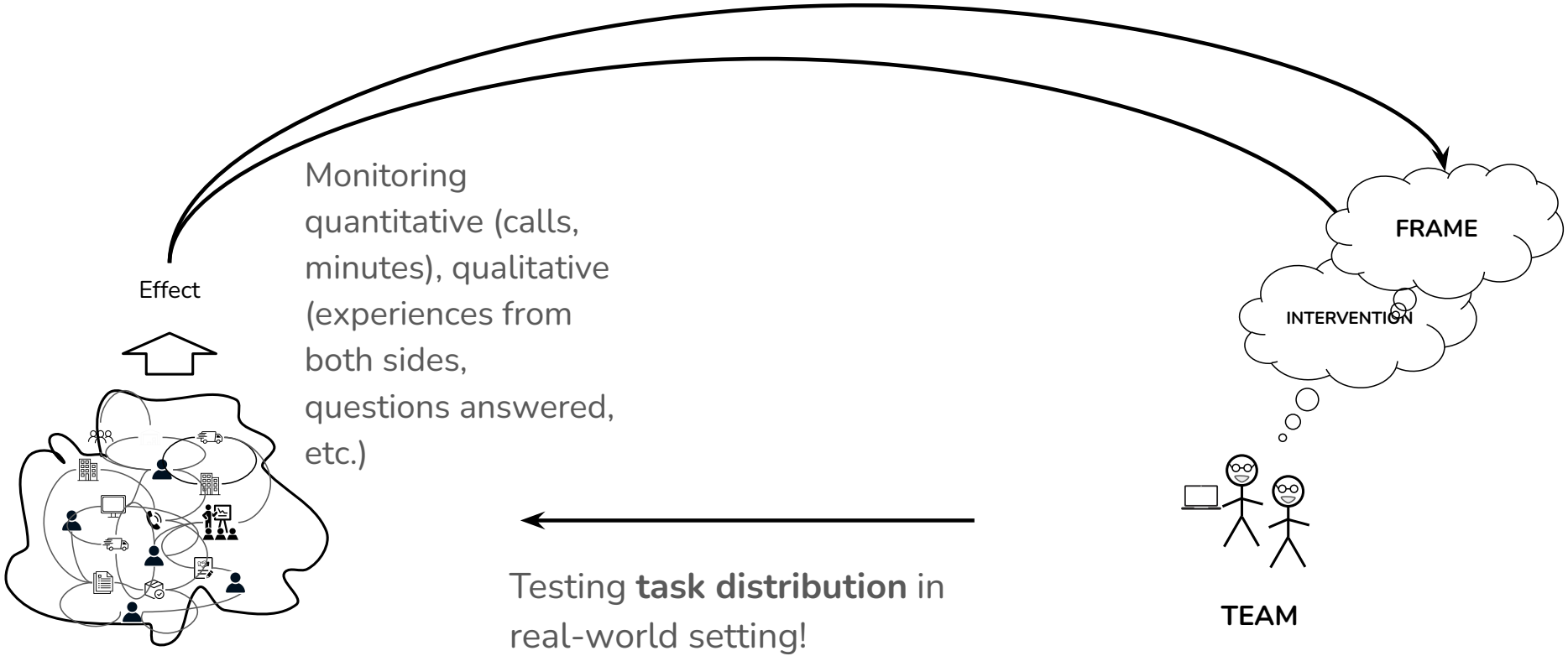
# Task delegation

**Problem! To effective - workload gets too high for front desk service - no way to balance out**



# Task delegation

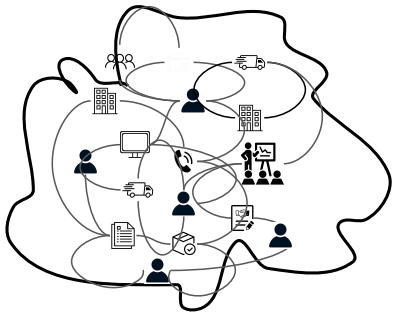
## Frame change: move tasks to reduce tasks altogether - better SMS communication

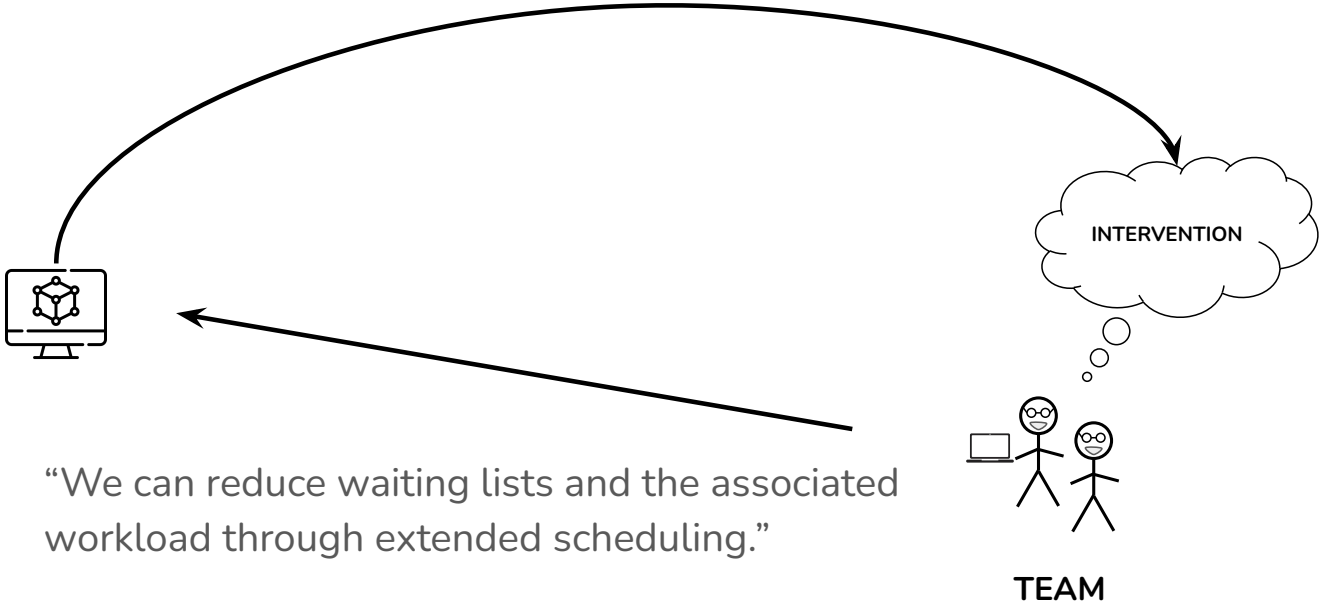


# Extended scheduling

## Applaus from the steering group!

work associated with waiting lists can be reduced by around 400 hours per year!





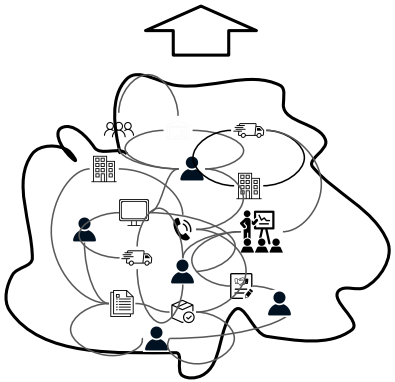

“We can reduce waiting lists and the associated workload through extended scheduling.”

# Extended scheduling

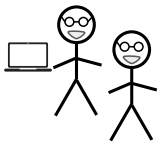
**Problem! Doctors do not want to collaborate!**

A few weeks of trying it out in one clinic

Effect



INTERVENTION



TEAM

Testing **extended scheduling** in real-world setting!

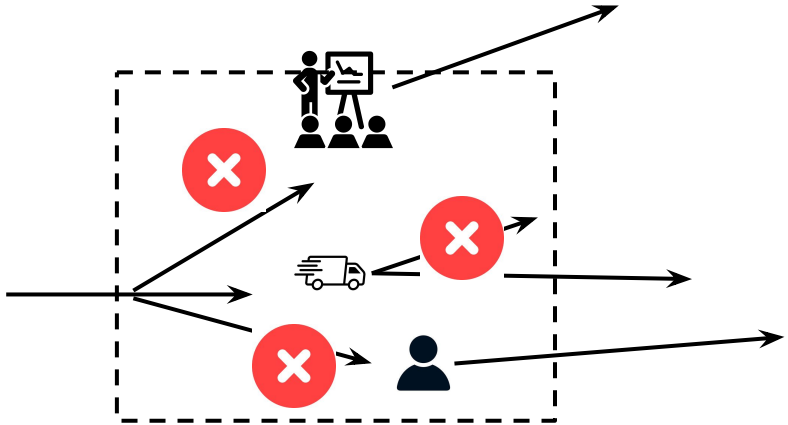
## Extended scheduling

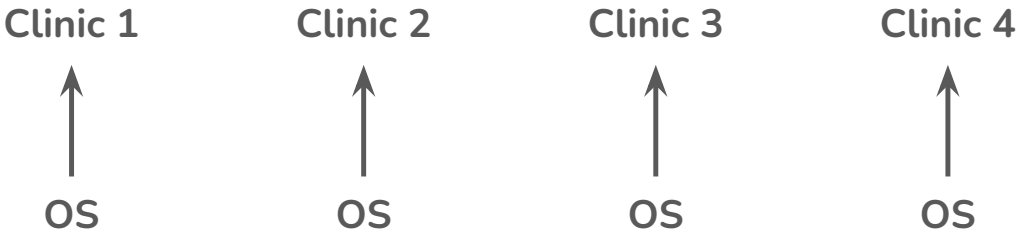
- Proves difficult - doctors are not interested!

“It’s about getting the doctors on board with long-term planning, but they don’t really want to do it. They prefer the freedom to take a day off. I don’t fully understand all the reasons, but there are countless reasons why long-term planning is challenging, and there’s a lot of resistance to it.”

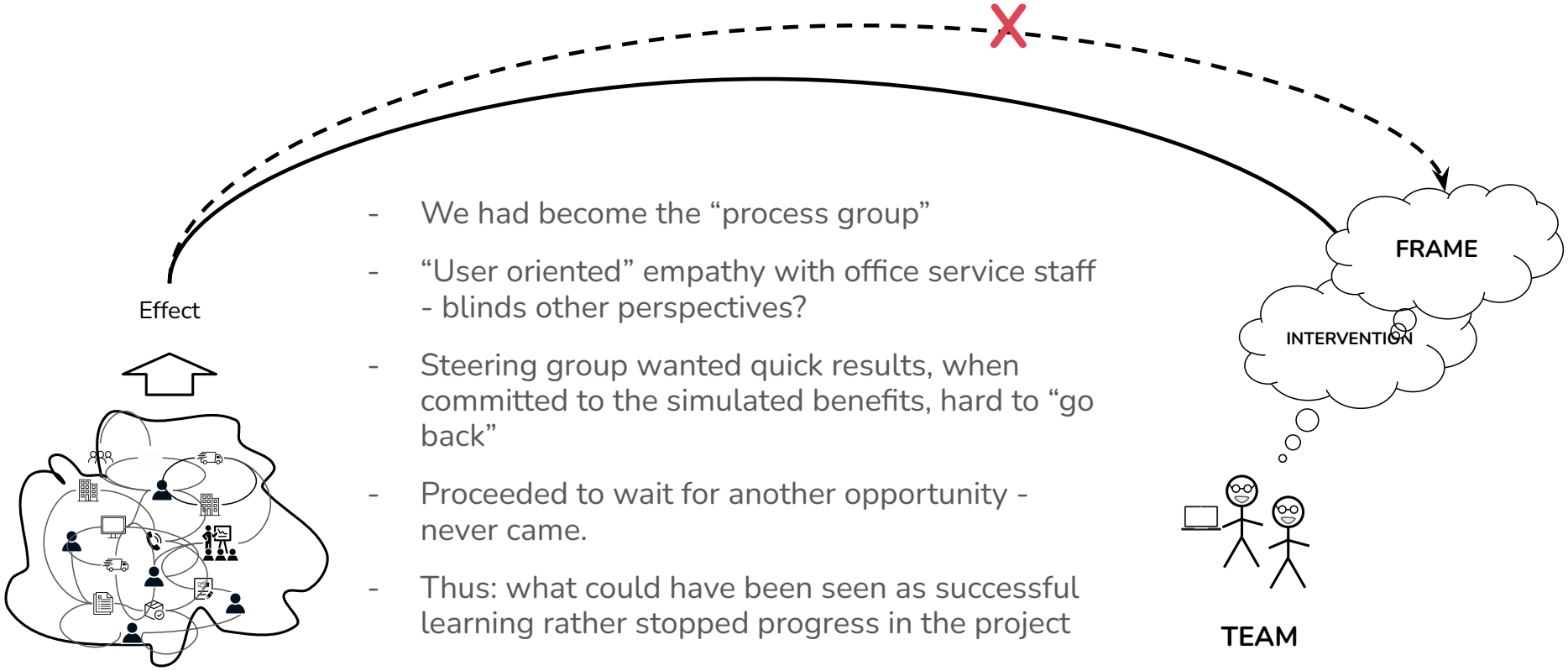
# Extended scheduling

- Extended scheduling - based on a process improvement frame from within the office service
- Now: illuminates a tension





# Extended scheduling




- We had become the “process group”
- “User oriented” empathy with office service staff - blinds other perspectives?
- Steering group wanted quick results, when committed to the simulated benefits, hard to “go back”
- Proceeded to wait for another opportunity - never came.
- Thus: what could have been seen as successful learning rather stopped progress in the project

# SUMMARY OF THE DIFFERENT FORMS

- **Sensing**:
  - Simulation - possible to understand some “known unknowns” - i.e., effects within a very limited model - limited by the modeller and the modelling syntax!
  - Actual - also learning about unknown unknowns - can be “frame challenging”
- **Responding**
  - Intervention-altering - the “usual”
  - Frame-altering: several obstacles - basically all is rigged against it!

# LECTURE SUMMARY

# SUMMARY

- **System-oriented agility** - i.e., digitalization processes directly targeting organizational improvement goals - not just technology delivery
- Faces different kinds of uncertainty - do we know the problem, do we have a good frame, what will be effects of intervention
- Different kinds of sense and respond - representational, actual, intervention-altering, frame-altering
- Frame-altering seems difficult.

# RESEARCH?

How could we do research on:

- Frames and framing in digitalization projects
- System-oriented agility
- How to enable frame-altering responses

Think and note down some points - 1 min

