




Rijkswaterstaat
Ministry of Infrastructure
and Water Management

Rijkswaterstaat


Solving the biggest infrastructure challenge since WW2

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June 4th, Helsinki

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Introduction:



Initiator Workmethods within Replacement and Renovation Team of Rijkswaterstaat

Wiebe



Rijkswaterstaat, over 200 years of age

- It was founded in 1798 when a major plan was adopted to take control of public works and water management in the Batavian Republic (1795-1801)
- From that moment all matters concerning public works and water management were dealt with in a central way



Rijkswaterstaat's mission

Rijkswaterstaat operates to ensure the Dutch inhabitants have

- protection against flooding
- sufficient clean water
- a smooth and safe transport by road and water
- reliable and useful information
- a sustainable living environment

Rijkswaterstaat is fulfilling three social roles: a public-oriented network manager, a leading project manager and an effective crisis manager





Rijkswaterstaat in a nutshell

- around 8,800 employees
- 7 regional departments, 16 districts, 4 process departments, 1 department for innovation, 1 department for scope and 1 corporate department
- special departmental agency since 2006
- annual budget: 4.2 billion euro

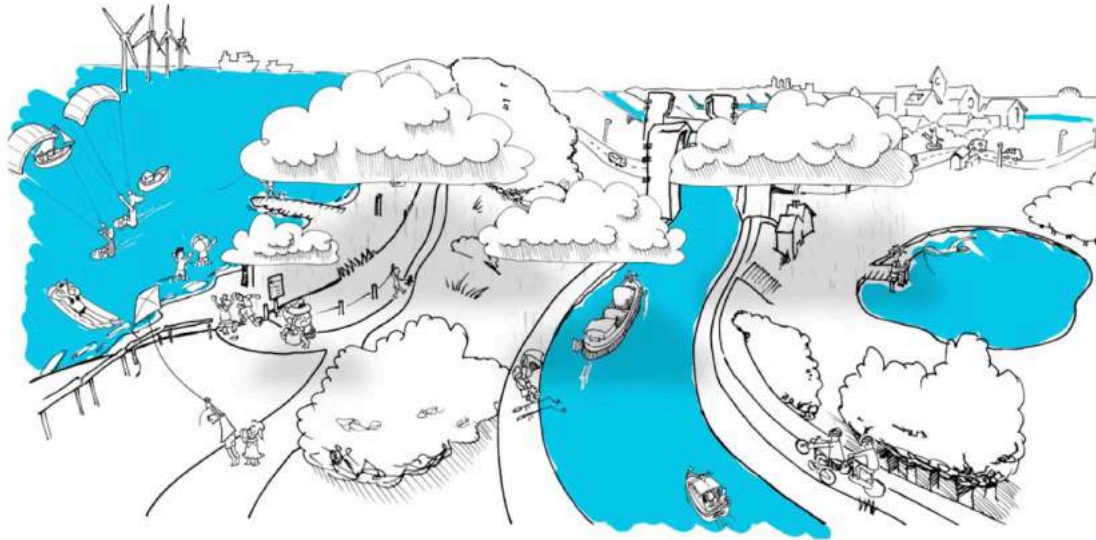


Rijkswaterstaat's area of management

Rijkswaterstaat is in charge of three national infrastructure networks



Movie: <https://www.rijkswaterstaat.nl/english/water/water-safety/storm-surge-barriers/index.aspx>



Organizational challenges:

- Rising water level
- Aging install base
- Traffic density quadrupled
- More complexity as a result of and automatic central controls (with less people)
- Durability
- Availability and Reliability
- Cooperation with market parties (and using / creating knowledge together)
- Environment



What is the problem we are facing with the existing assets?



Our install base is aging



More intensive use than ever anticipated



Merwede bridge closed for all heavy trucks!

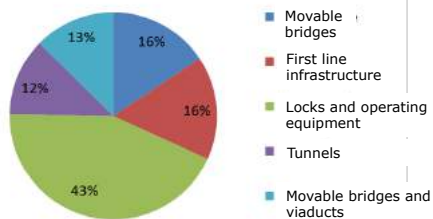
Keeping them safe and available



A very diverse task



Wet and dry install base across the Netherlands:



- Movable bridges
- First line infrastructure
- Locks and operating equipment
- Tunnels
- Movable bridges and viaducts





What does that mean for our processes?

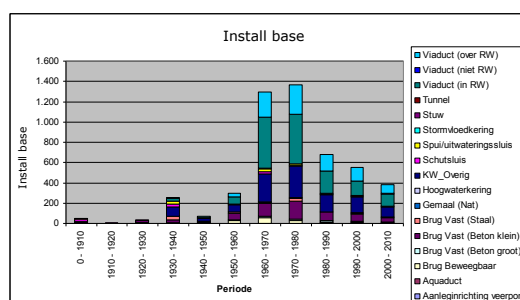
Three main processes:

- Running the equipment and install base
- Maintaining install base
- Install new infrastructure



But:

- Our processes are not ready for replacing, or updating and maintaining existing infrastructure
- If we would treat this the same way as we do, the time to replace and refurbish would be double of the original building time
- Complexity (network interdependencies) has increased and use of objects is more intensive than anticipated





Artist of picture: Vita Rode

So we need a new workflow: renovation or replacement (V&R in Dutch)

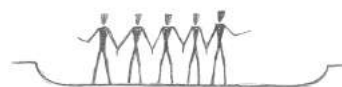
- More efficient
- With a different kind of thinking
- With a different kind of working
- Learning from what other teams have done is key!



From: we are all dealing with similar problems



To: passing on learning experiences to each other

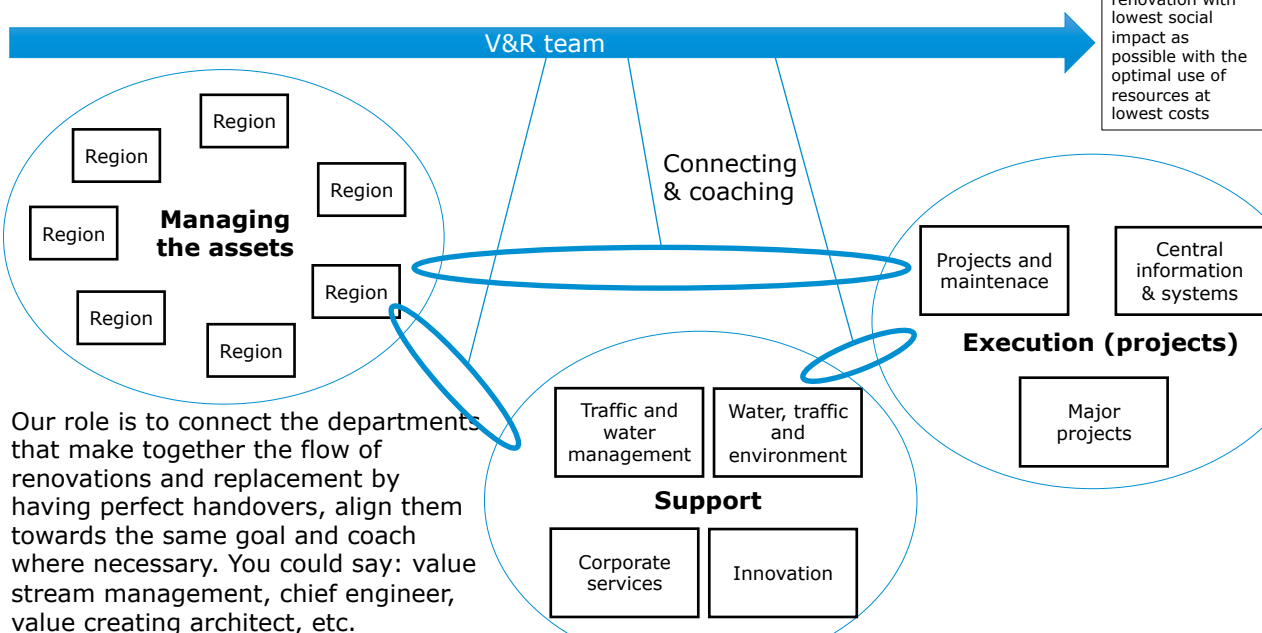


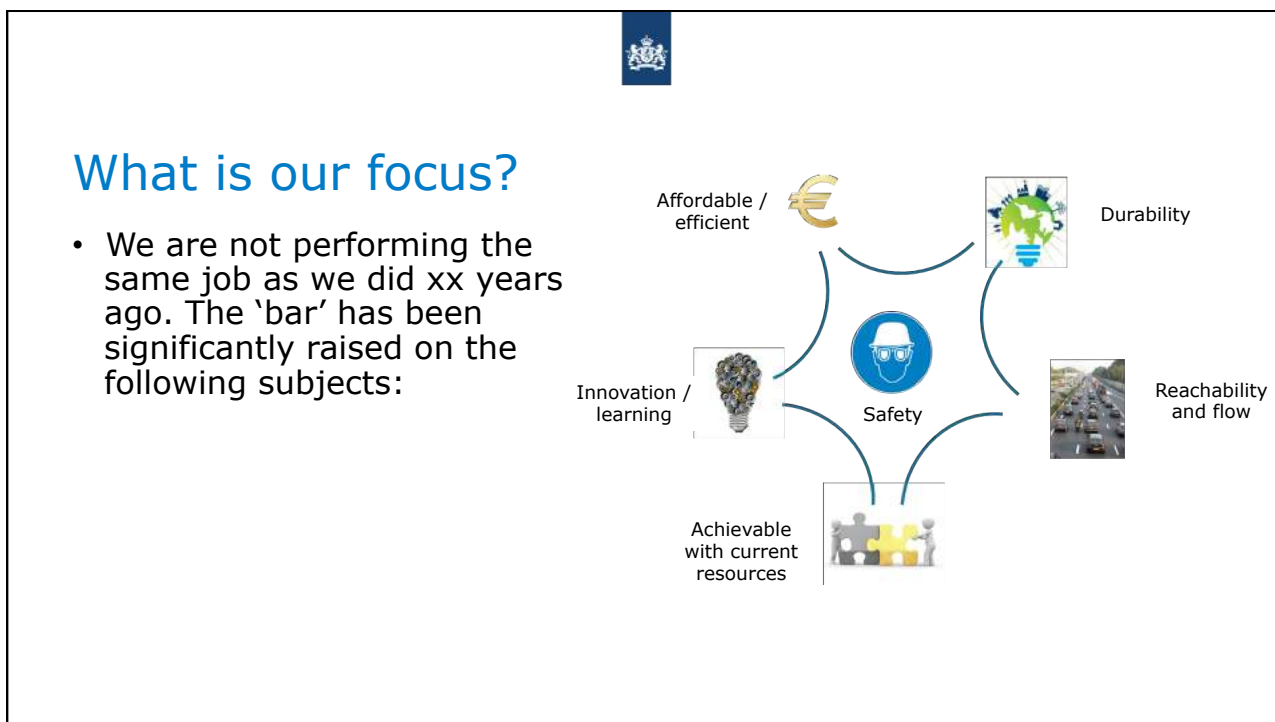
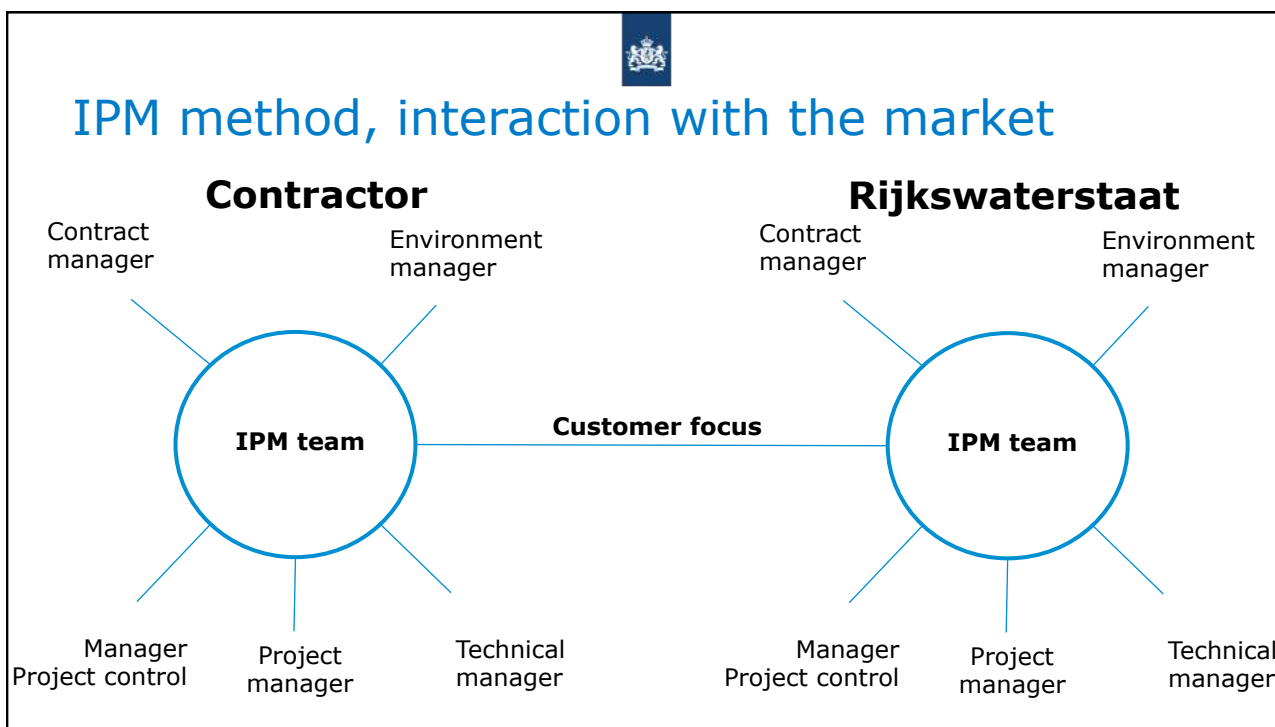
In order to: eliminate waste and do the work better together!

What is our role?



Goal: efficient, durable, reliable, replacement or renovation with lowest social impact as possible with the optimal use of resources at lowest costs







What is preventing us from working like this?

- How we currently solve issues and steer on reaching our goals and targets (and think)
- Missing horizontal links will prevent us from reaching value stream goals
- Main obstacle!

Sometimes even:

Senior management

Little to no connection!

Dept. leader

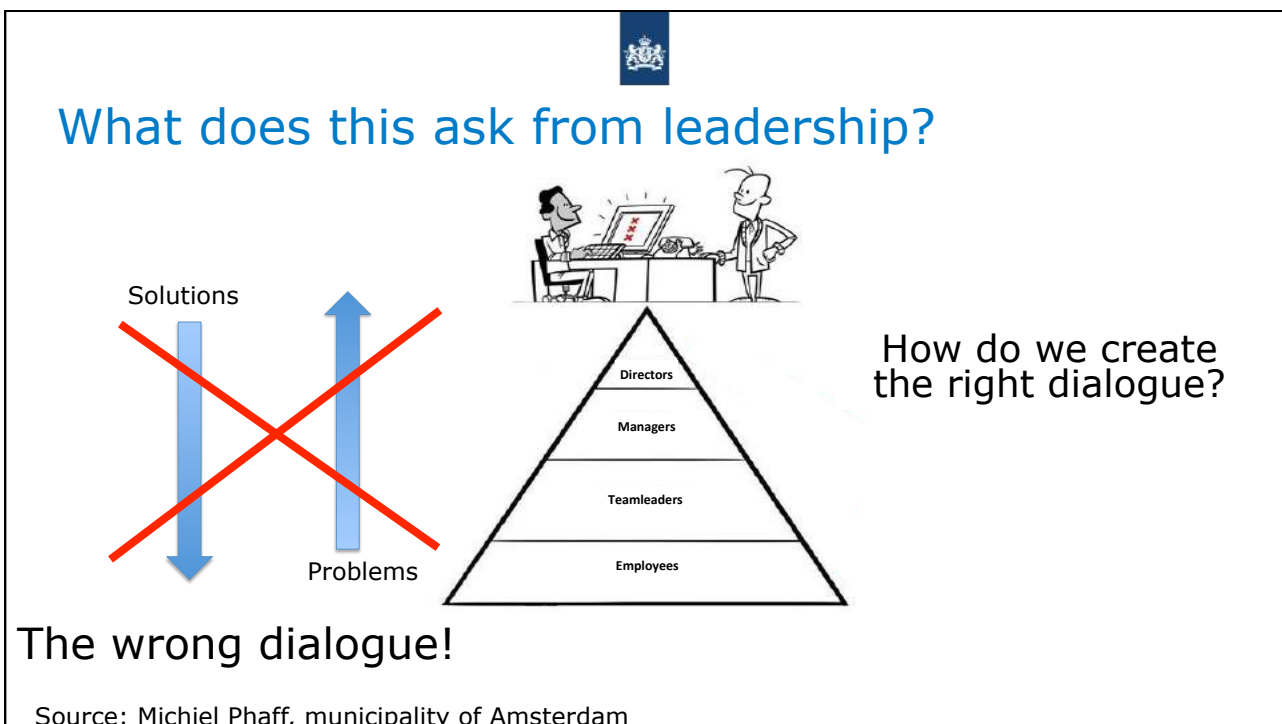
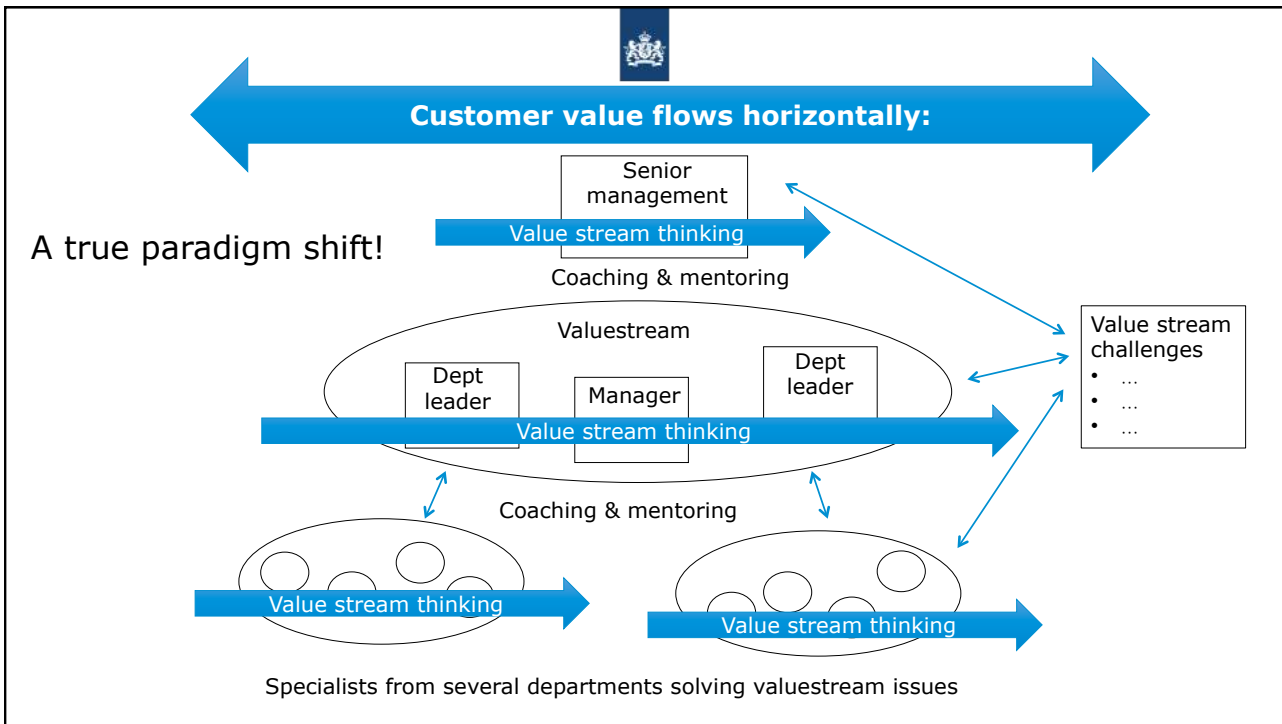
Manager

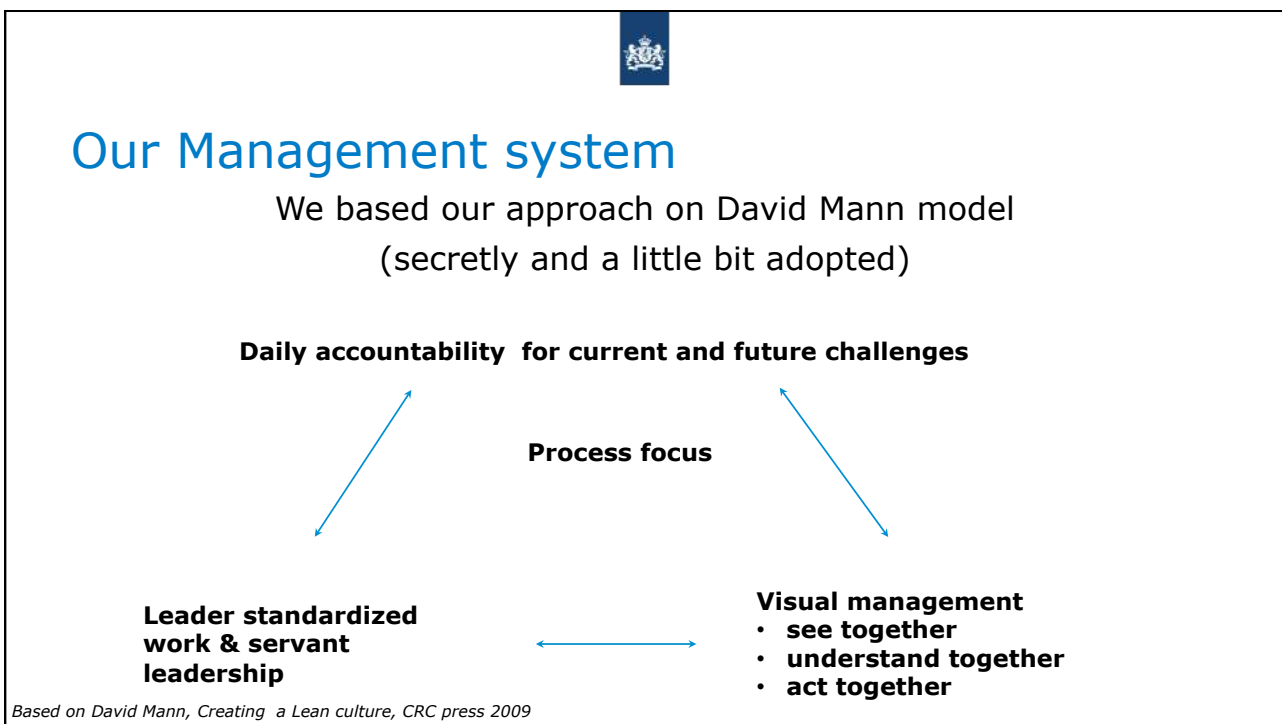
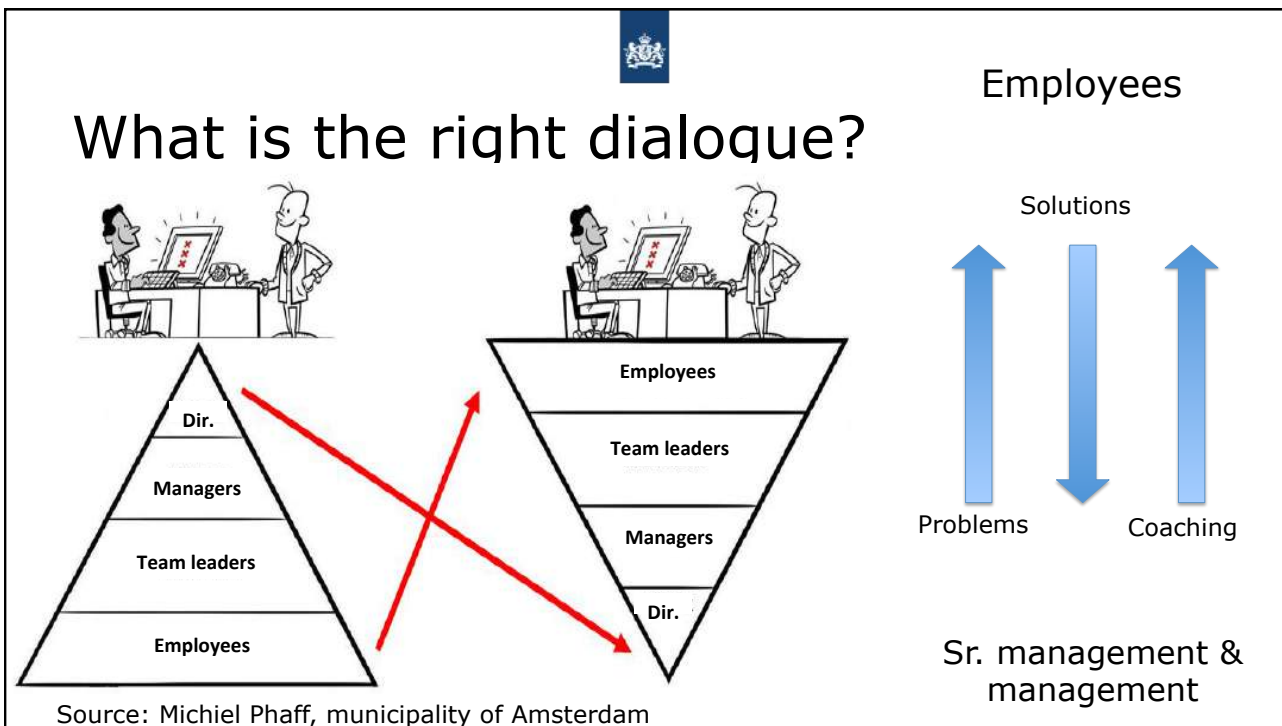
Dept. leader

employees

These connections are needed to solve the organisations issues

Vertical steering & problem-solving thinking





Visual management:

- Purpose:**
 - Standard
 - Deviation
 - Response
- Purpose:**
 - Give guidance

Flowboard at a project

KPI track board

Kanban / scrum board

My daddy works here!
Used at roadworks
To create awareness

Change to 90 km/h
Part of infographic

Work together on safety, PDCA

Purpose:

- Motivational
- Challenging

Deviation at roadworks

Pop-up museum: The innovation collection

Example: annual target setting & follow-up @ major projects

5 focuspoints → Knowledge circle around the focuspoints → Scrumsession 1 to determine goals for 2019 (what do we need to contribute) → Scrumsession 2 to define targets throughout the year (how do we see progress) → Finalize, summarize and integrity check → Management contract 2019

Pro-active safety culture

Sustainable living environment

Data & information systems

Replacement & renovation program

New environment act

All leaders & specialists, 50 persons

For each focuspoint

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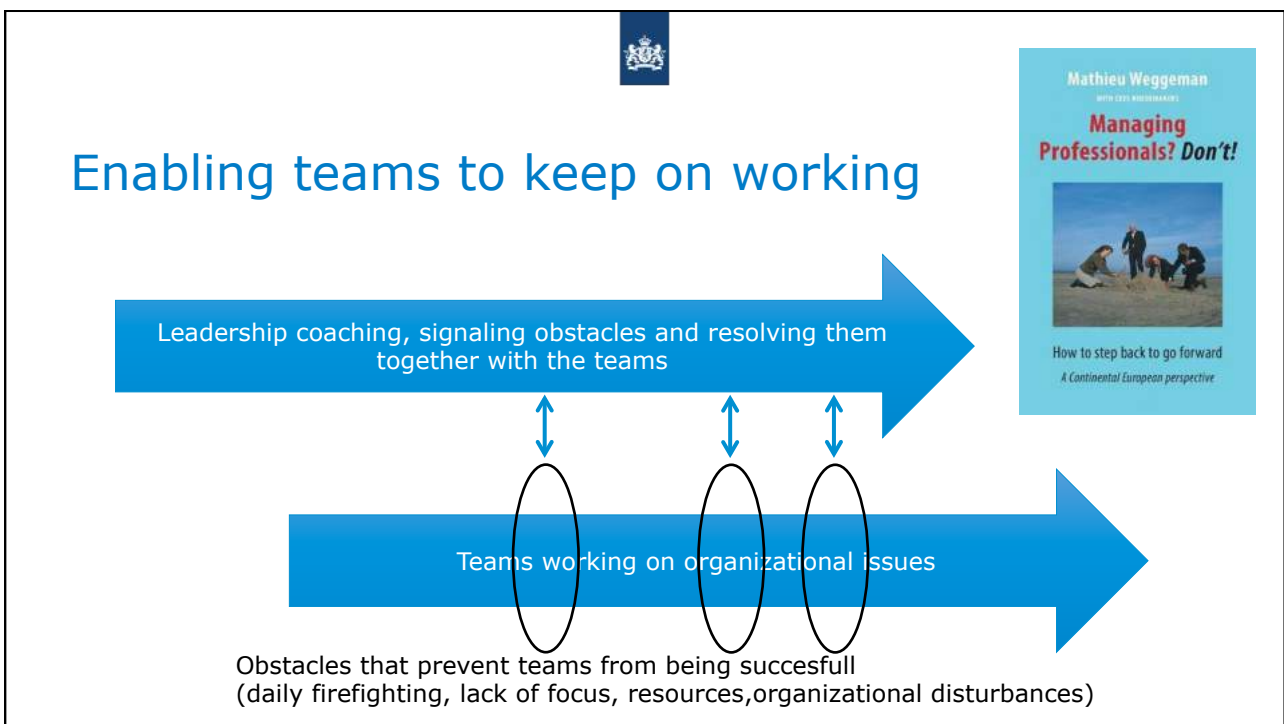
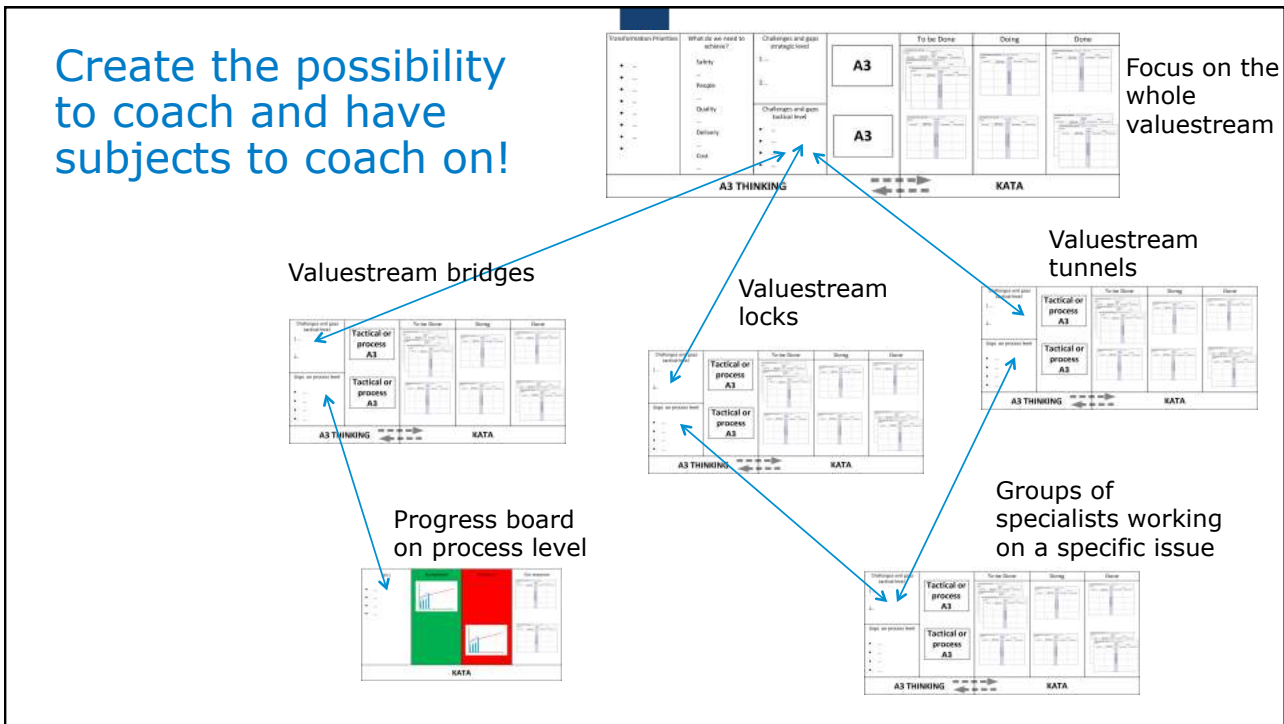
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Less is more!

Handover to HID

PDCA throughout the year with visual management

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Daily accountability

- How can I contribute to the organizational goals by using my full potential?
 - Really understand what our challenges are and they mean
 - Unlocking potential by creating improvement capabilities (improvement beyond brown paper and sticky note level)



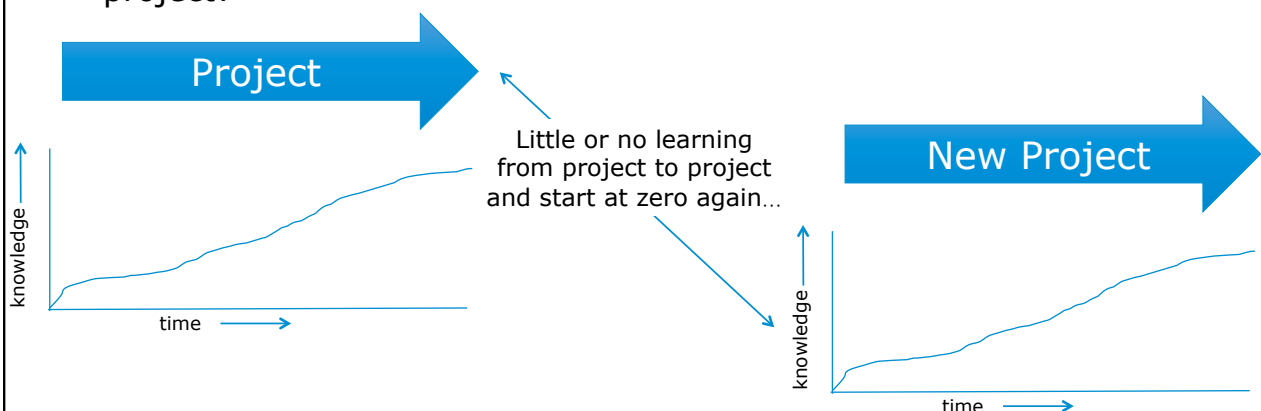
Picture: Humanpsychology.com.au

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A paradigm shift: in order to be successful in projects, stop thinking in projects!

- What is happening with the build up of knowledge after we finished a project?



Thinking in challenges instead of projects

Project 1
Project 2
Project 3

Challenges

Group of specialists on a specific challenge

These challenges will 'land' in a group of specialists with knowledge of this specific challenge. Per challenge, we will find the best solution based on the existing knowledge from that moment. For each challenge, we will find a solution on which we will do structural PDCA, standardize and improving the standard each time we apply the standard in a project. Remark: These are not departments, but groups of specialists / experts that based on their expertise work with a specific challenge. These specialists can come from multiple organizations. We can think of market parties (contractors) but knowledge institutes or universities as well.

List with challenges:

- ● ...
- ● ...
- ● ...
- ● ...
- ● ...
- ○ ...

Workteam Project 1

Workteam Project 2

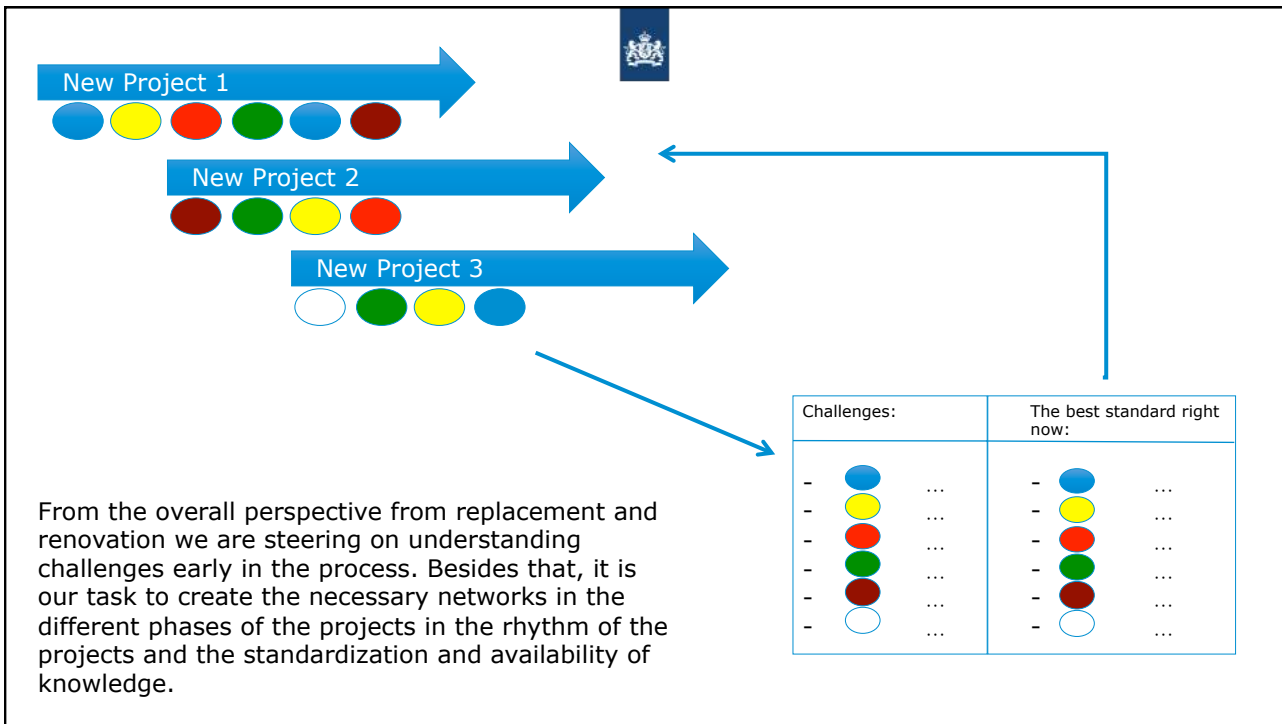
Workteam Project 3

In each phase of the project, the specialists will work together (although the teams might differ during the project). By involving each other early in the process, interfaces and possibly implications and complications, become much more clearer in an early stage of the project. As a way of working we can use sprints (scrum) or concurrent engineering methods.

Per work team we steer on being on time, controlling the interfaces and KPI's from a value stream perspective. This is where we want to build on the learning

Per group of specialists focusing on one subject, we steer on finding the best solution (from a value stream perspective) and on standardization and continuously improving the solution

Group of specialists on a specific challenge



Example, handover at the end of a project

- Issue: we have 7 locks in a specific kind of contract.
- The way how these locks will be managed in the future is new for us
- With the first lock we decided to map the process of the handover from the building organization to the maintenance organization
- This became our new standard
- All based on TWI...

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How do we capture the knowledge?

- With the first project that needs to do the handover, we map the whole process
- In each process we distinguish themes (like exploration fase, organizing sufficient capacity etc.)
- For each theme we have process steps. For each step, we write down: major steps, keypoints, reasons why:

Thema: Capaciteit

Over welke gedeelte van het proces hebben we het hier. Bijvoorbeeld, verkenning, capaciteit regelen, uitvoering, etc.

Wat zijn de processtappen?

Omschrijf de werkzaamheden zijn die we in deze processtep doen. Gebruik werkvoorden.

1. _____
2. _____
3. _____
4. _____

Wat zijn de belangrijke punten om op letten als we deze stappen uitvoeren? Wat is voor jou kwaliteits in deze stap? Hoe kunnen we deze stap kwalitatief goed uitvoeren? Wat zijn de punten waar je op moet letten tijdens de uitvoer. Gebruik hier ook bijvoorbeeld afbeeldingen, verwijzingen naar richtlijnen, instructies etc.	Wat gebeurt er als we dit niet doen?	Resultaat Wat is het resultaat van het proces? Wat is de kwaliteit van het resultaat?

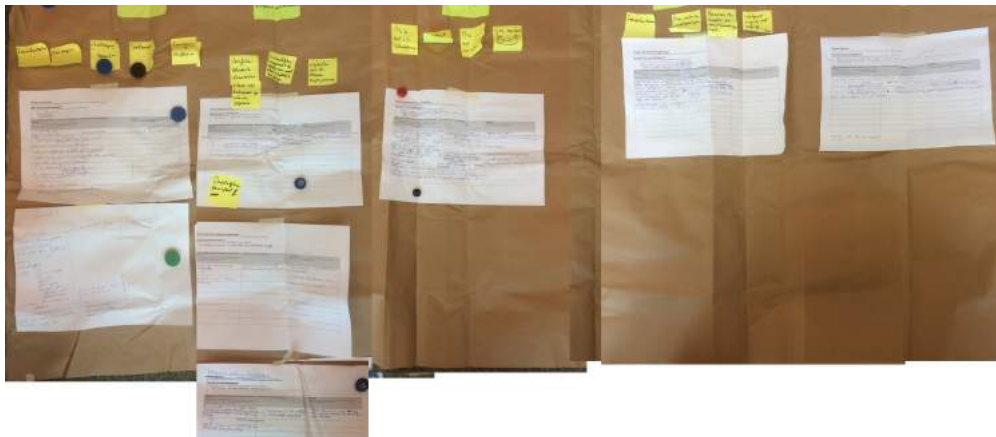


Hoe does this look?

The image shows a corkboard with four copies of the process mapping template. The first template is labeled 'exploration' and the second is labeled 'Organizing capacity'. Arrows point from the text labels to the corresponding parts of the templates: 'Theme's' points to the title, 'Process step(s)' points to the first column header, and 'Per process step: major steps, keypoints, reasons why' points to the main content area.



In reality:

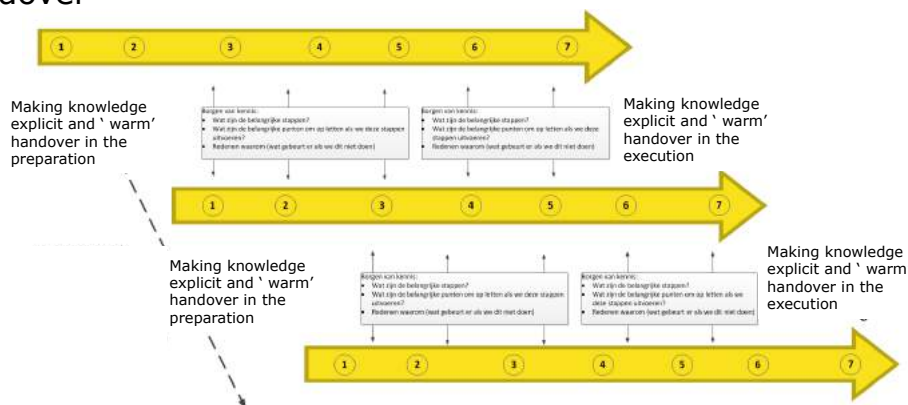


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Standardize and handover from project to project

- We have a small team that is coaching the projects to realize the handover



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Summary:

- External: work hard on cooperation with market parties on real issues. Create a common focus
- Focuspoints: Customer value first (although not always easy)
- Internal & external cooperation: have a team of coaches that are specialized on these subjects
- Teamwork and leadership are crucial
- Understand the paradigmes we need to break
- This won't happen fast, persevere.

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We are not there yet, but we will address this challenge as well (like we did in the past)



1930's



Now!

1970's



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