



NEW WORK
HEROES

Being agile in construction

The agile construction working model inspired by LeSS

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27th September 2024

LeSS
conference

Being agile in construction

10:45 - 10:55	Intro
10:55 - 11:10	Towards the agile construction working model
11:10 - 11:20	The challenges
11:20 - 11:30	Demo
11:30 - 11:45	Q&A

Moin 🖐️

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About 50Hertz Transmission

One of four transmission system operators (TSO) in Germany

We operate the electricity transmission system in the east and north of Germany, and are expanding it to meet the requirements of the energy transition. We are leaders in integrating renewable energy sources (RE) – by 2032 we aim to move our grid towards 100 per cent RE, calculated over the course of a year.



**1.800
employees**



**2023 investment
volume: €1.686bn**



**10,658 km
circuit length**



**18 million consumers
in grid area
(served via TSO)**



About the SuedOstLink

One of the largest infrastructure projects in Germany: the SuedOstLink

- Due to the energy transition, increasing amounts of wind power are being produced in the windy north of the country, while nuclear power plants in the south are gradually being taken off the grid.
- The SuedOstLink will transport electricity from the northeast to the south of Germany using high-voltage direct current (HVDC) transmission.
- The SuedOstLink is around 540km long. 50Hertz is the project owner for the northern part

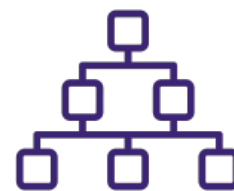
My project Civil & Lines is responsible for delivery the electrical infrastructure on "the line" with these specs:



4 Delivery Teams
1 PMO Level
+40 Team Members



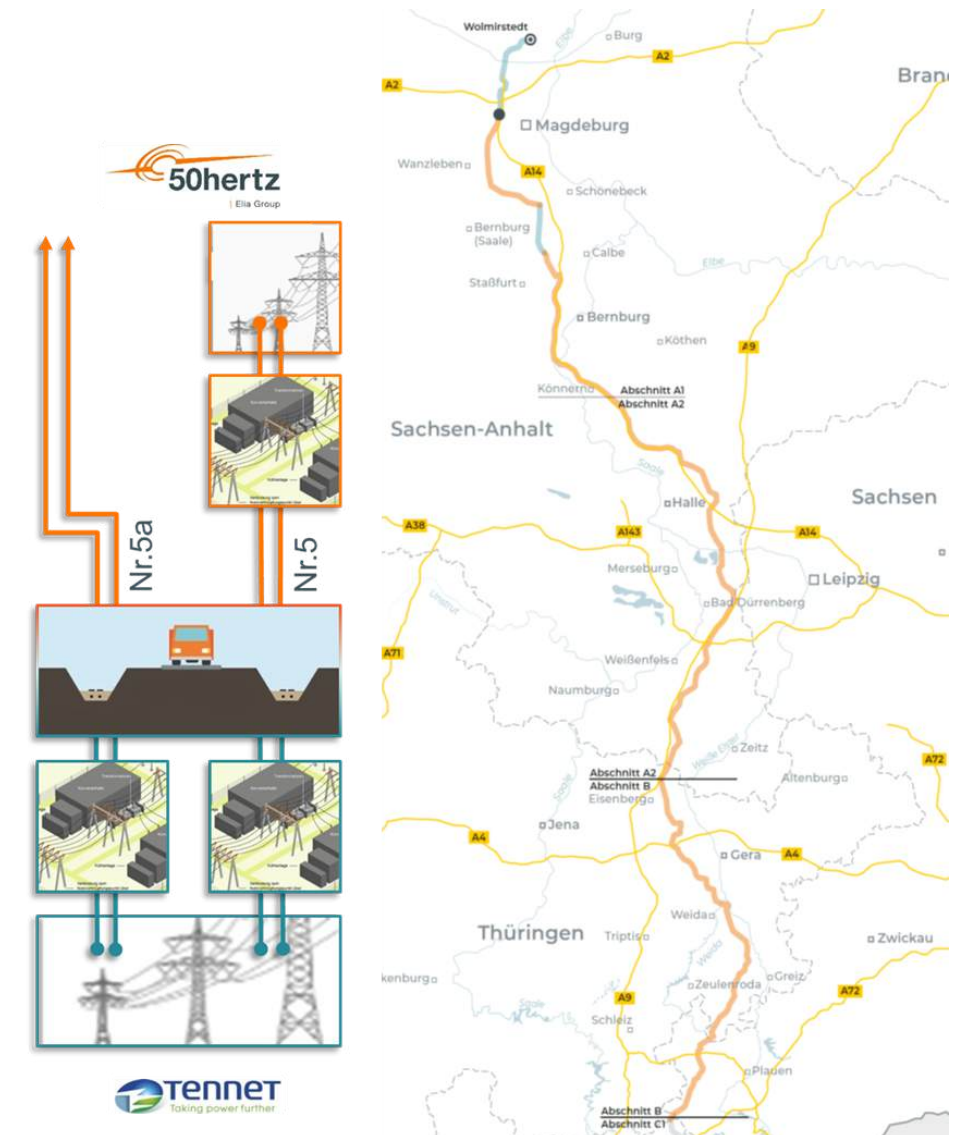
3 external planning
partners
3 construction
teams



Part of larger
Programm (+4,5bn€)
and Portfolio
Organisation (+10bn€)



Project volume:
3.0bn €



About the SuedOstLink

The scale from 50Hertz planning to the construction ground:



Towards the agile construction working model

Why agile?

Because of the size, timeline and nature of tasks

Complexity and Scale of the Project:

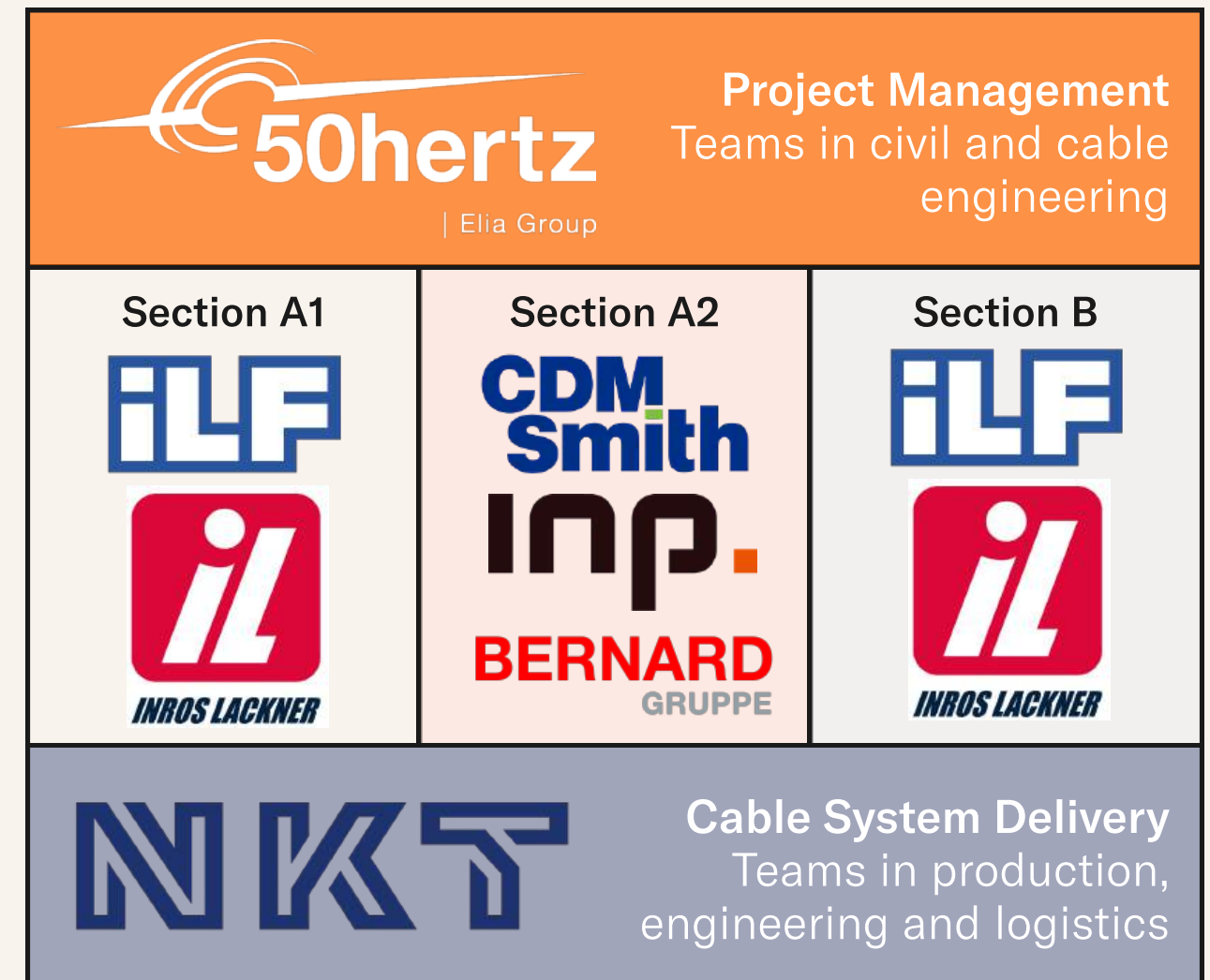
- Collaboration with over 200 team members, multiple partners in a pioneer project never done before
- Parallelization of interdependent tasks such as permitting, tendering, execution planning

Tight Timeline for Establishing Collaboration:

- Only 1.5 years to bring together all partners and finalize the product
- Quick rebuild of effective working relationships to overcome existing collaboration barriers.

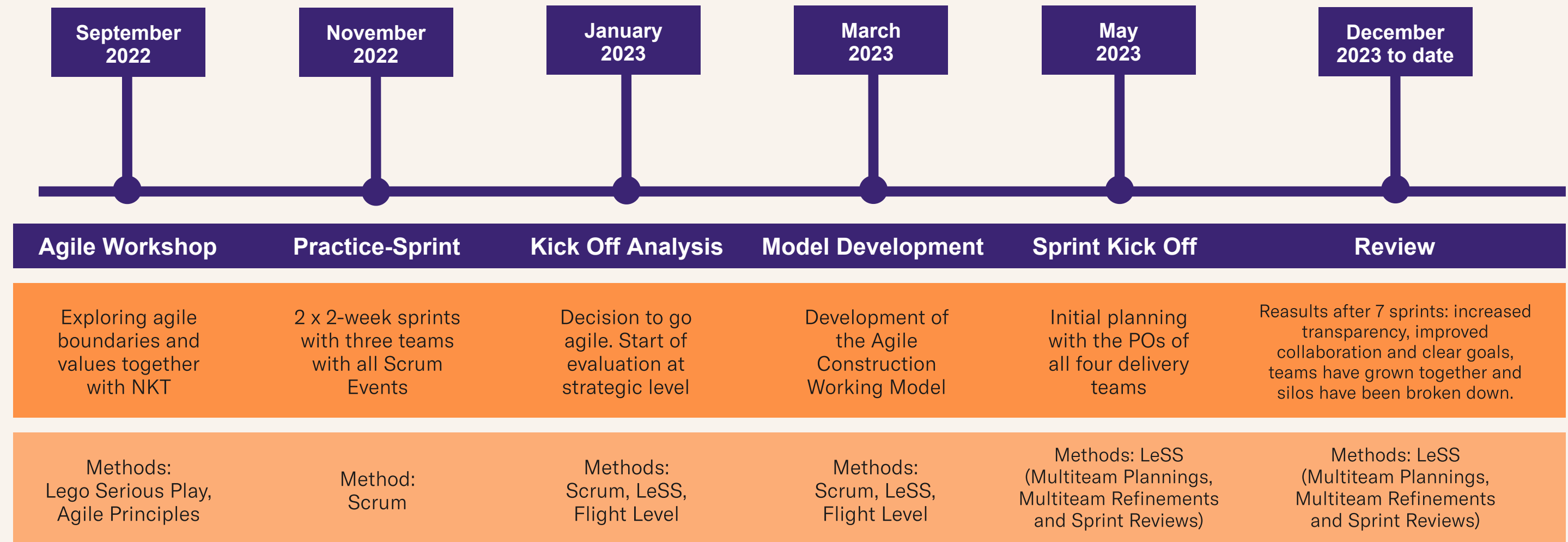
Nature of the Tasks:

- Engineering of technical projects requires iterative adoption based on new information.
- In practice, the teams had to start and adapt as they progressed, making quick refinements through feedback from various reviews



Agile Journey

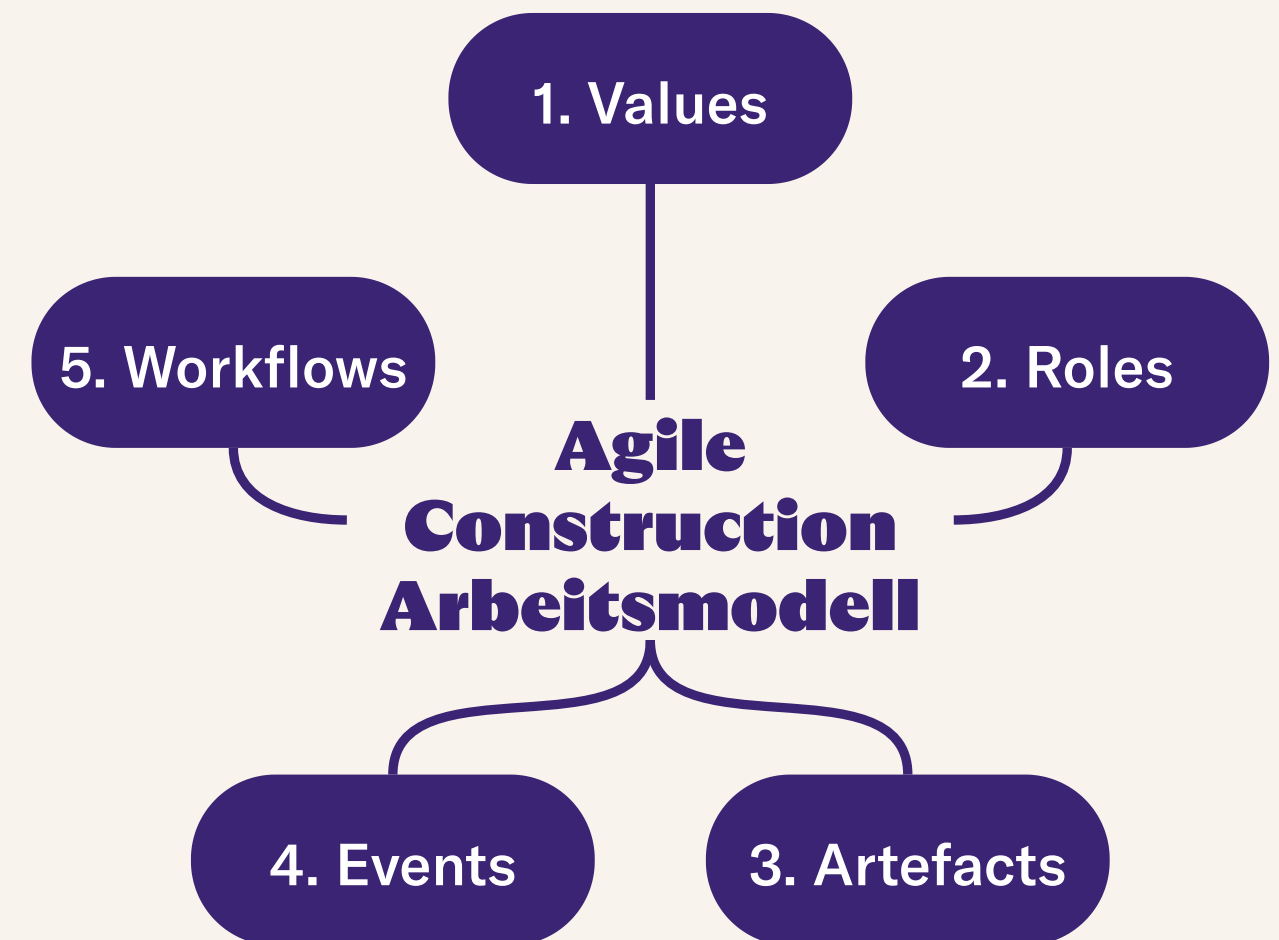
From one Workshop to Large-Scale Scrum Implementation:



Constructing a working model

From one Workshop to a Large-Scale Scrum Implementation

1. **Values:** We began with workshops and realized, the five core values of Scrum are best. Later we implemented LeSS principles like Systems Thinking and Lean Thinking.
2. **Roles:** We introduced roles focusing on Product Owners, Agile Masters, and Experts. Carefully tailored to fit the construction context. Later additional roles helped to bridge Agile Boundaries: Scouts, Buddies and Community Membership
3. **Artifacts:** We integrated the one Product Backlog logic, individual sprint backlogs, and did our best to define product increments. We faced translation challenges but achieved sprinting towards common project goals.
4. **Events:** The key events that brought clarity and feedback were our Multiteam Sprint Plannings, Multiteam Refinements and Sprint Reviews. We made sure to invite stakeholders, management and clients to Refinements and Reviews.
5. **Workflows:** We created flexible guidelines rather than strict definitions. Influenced by both LeSS principles and Scrum, we focused on how teams and partners interact. Following “individuals and interactions over processes and tools” allowed for a level of adaptability that was suitable for the ever-changing nature of construction projects.





LeSS Practitioner Trainings with teams and partners

the challenges

From Tradition to Agility

We faced several challenges:



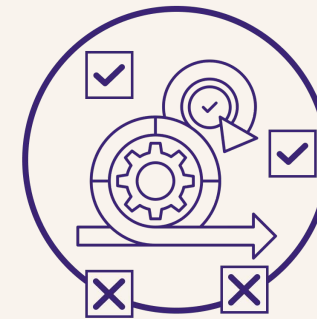
Industry Culture

- A fully defined scope and contracts have shaped the culture in construction and infrastructure for decades.
- The introduction of collaborative working methods was tough because culture is difficult to "unlearn".



Respect the contracts and build trust

- A contract-focused culture conflicted with the agile need for flexibility and adaptation.
- Shifting to collaborative methods required trust between all parties because existing contracts did not provide regulation for a agile working environment



Agile Boundaries

- The integration was challenging because introducing agile methods clashed with non-agile areas operating traditionally.
- Synchronizing agile and non-agile teams required extensive communication.
- Agile a perceived black box for management



Rapid Scaling needed

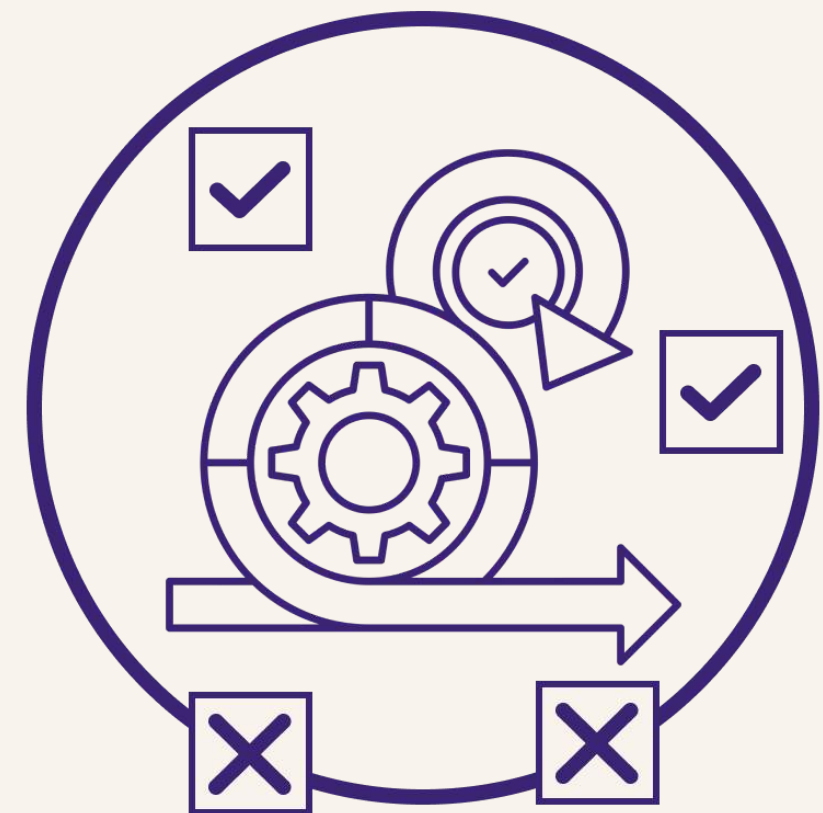
- The size of the teams and number of partners required scaled structures from the very beginning.
- We had to adapt the working model on the fly, making changes as we progressed, rather than having a fully developed working model from the start.

A Hack to bridge Agile Boundaries

Roles that inspire exchange in a Matrix Organization

- **Scouts:** The task of a scout is to help shape and communicate standards for various disciplines with the working levels of the programme.
- **Buddies:** A buddy is the link between the delivery team and the scouts. They are responsible for the flow of information on both sides so that the necessary PMO disciplines are dealt with.
- **Communities:** to help foster cross-functional learning and encourage collaboration across boundaries, helping break down silos that are common in matrix organizations.

	Delivery Team Produktion	Delivery Team A1	Delivery Team A2	Delivery Team B
Scheduling	...	...	...	...
Risk Management	...	...	...	...
Budget Management	...	...	...	...
Contract Management	...	...	...	...
Quality Management	...	...	...	...
Document Management	...	...	...	...
Technical Topics	...	...	...	...



Rapid Scaling

Engineers are curious by design

"Engineers are just keen to do things!"

- rather than just working theoretically engineers are keen to develop prototypes and try things out.
- Even difficult feedback and repeated losses of sprint goals couldn't stop the teams.

Core principals of engineering

- At the core of engineering is learning iteratively on the process and constantly improving.
- Instead of wanting to plan everything perfectly, the decision was made to test the model in practice and then adapt it based on experience.

Curiosity led to a pull effect

- Other teams joined our Refinements and Reviews to learn
- We implemented a weekly Agile Open Hours for everyone to join that was highly frequented.



Learnings from LeSS Principles

(1) Large-Scale Scrum is Scrum (3) Transparency (9) Lean Thinking

(1) Large-Scale Scrum is Scrum

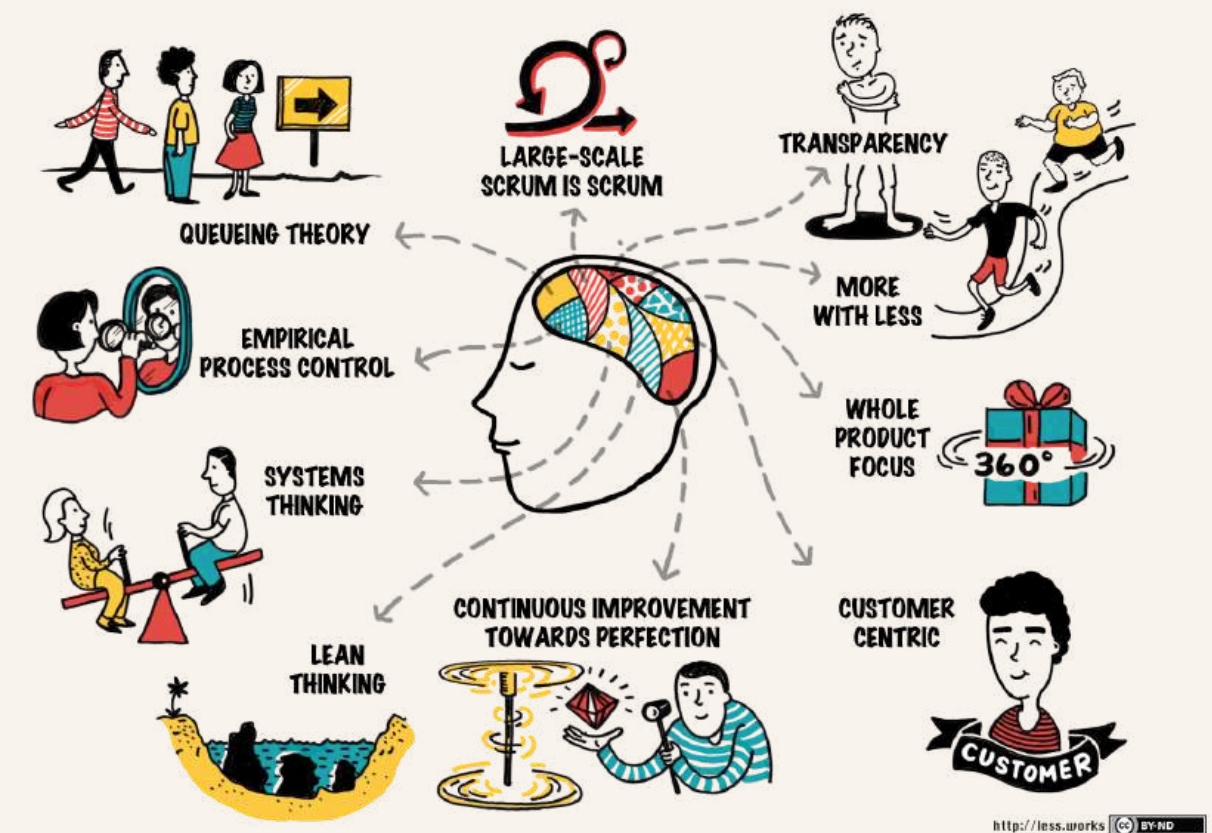
- Challenge: scaling scrum while keeping its core principles intact across four teams and multiple external partners.
- Learning: practice sprints were crucial to understand scrum and later the CLP was key for a strong foundation.

(3) Transparency

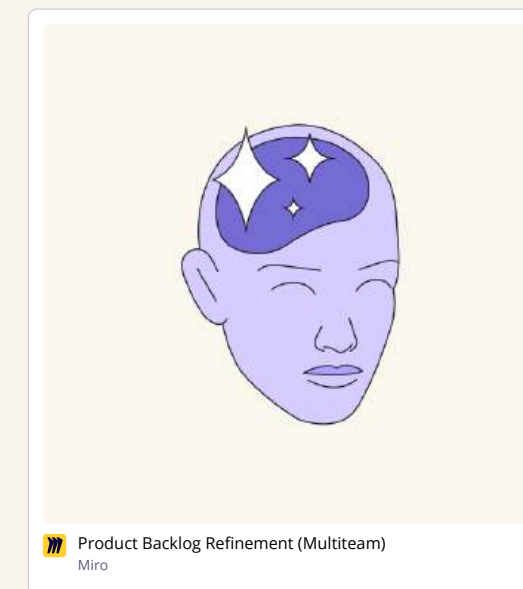
- Challenge: building trust across teams and partners allowing for informed decisions.
- Learning: The multiteam events ensured that all teams and partners were able to see the real state of the product

(9) Lean Thinking

- Challenge: Avoiding waste—whether in terms of resources or unnecessary meetings
- Learning: Lean thinking helped us to implement effective events for the construction ground.



Demo



Don't use
this slide

please use frames
from the live demo of
Thorben so that this
slide is not readable...

make sure that this
part is not readable/
too small to read

SBL A1 - Weiterentwicklung SOL Steuerungsterminplan

1. **Anforderungen:** Als Terminmanager des Projektes möchten wir qualitativ hochwertige und aktuelle Steuerungsterminpläne der Abschnitte zur Steuerung des Programms erhalten, um die Lesbarkeit und Vergleichbarkeit der einzelnen STP untereinander (Programm zu Baumanagement, sowie über die Abschnitte hinweg) zu erreichen.
2. **Einschränkungen:** Terminpläne befinden sich teilweise noch im Aufbau, noch nicht alle stehen in P6 zur Verfügung. Die Terminpläne der NU liegen noch nicht vollständig vor. Schnittstellen müssen teilweise noch identifiziert werden.
3. Welche **Kriterien** müssen erfüllt sein, um das Arbeitspaket gemäß Definition of Done abzuschließen?
 - a. Kriterium 1: Alle abgestimmten Standards sind enthalten bzw. umgesetzt worden
 - b. Kriterium 2: Alle Schnittstellen sind identifiziert und eingearbeitet
 - c. Kriterium 3: Im Steuerungsterminplan sind alle Ist-Termine abgebildet. (Single source of truth)
4. **Flow Map:** Anhänge und Links
 - d. Dokument Terminplanstandards: [DC Links SOL Externe Plattform - Terminmanagement - Alle Dokumente \(sharepoint.com\)](#)
5. Welche **Tests** müssen durchgeführt werden, um die Erfüllung der Kriterien zu prüfen?
 - e. Test 1: regelmäßige Qualitätsprüfungen, Plausibilitätschecks
 - f. Test 2:
6. **Abhängigkeiten** zu anderen Teams, Projekten, Programmen und Aufgaben:
 - g. Abhängigkeit 1: Terminplanstandards sind von allen Terminmanagern des BM der jeweiligen Abschnitte umzusetzen.
 - h. Abhängigkeit 2: Schnittstellen sind zwischen allen Input- und Outputgebern für die Aktualisierung der Terminpläne abzustimmen.
7. Inhaltlich **Freigabe** durch (Name) unter Berücksichtigung der Definition of Done.

Terminplanmanagement Arbeitspaket Tag Attach File

Item Relations

+ Add Relation

Child items

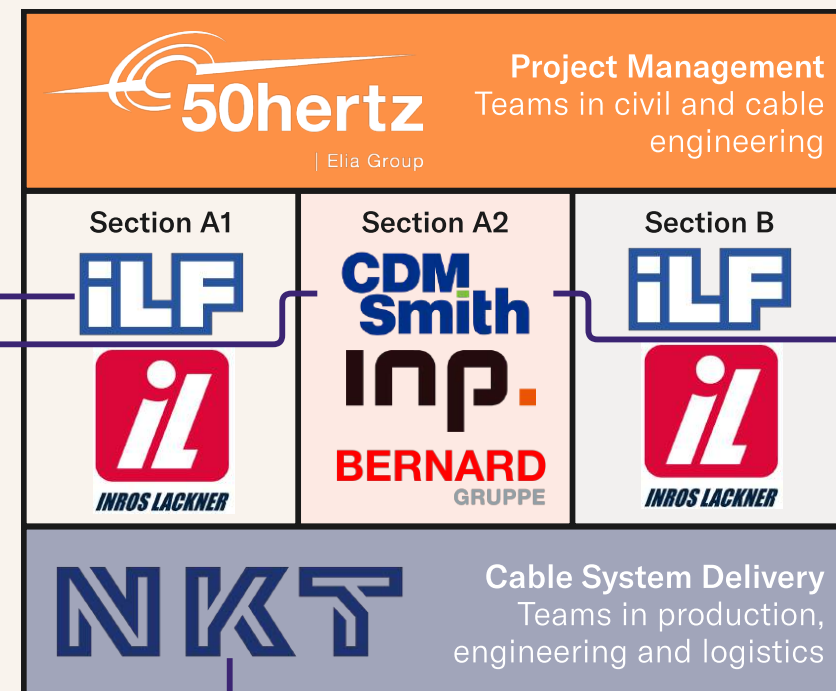
- ✓ A1 - Start Überarbeitung STP II auf Basis festgelegter Standards 2024-09-26 DW
- ✓ A2 - Start Überarbeitung STP II auf Basis festgelegter Standards 2024-09-26
- ✓ B - Start Überarbeitung STP II auf Basis festgelegter Standards 2024-09-26 TI CK
- ✓ A1 - EU-Notfallverordnung - Restriktionen prüfen 2024-09-26 DW

Feedback and Achievements

What our partners saying about being agile in construction:

"The sprint reviews should be emphasized: they have an immensely positive effect, I think it's perfect and I think it's great that it's so transparent and that we're involved!"
Michael Richter, ilf

"In the beginning, I thought that we have 3 years of work in front of us. That we managed that workload in 1,5 years is heavily due to the agile collaboration we build"
Georg Breitsprecher, CDM Smith



"Collaboration has improved significantly. And Teamhood (Task Management Tool) helps us a lot to understand what the current status of the work is!"
Giulia Cristofari, CDM Smith

"The integration into the planning process of your teams is a real improvement!"
Patrick Komischke, NKT

"There is a noticeable improvement in cooperation!"
Fabian Meisenbacher, NKT

A huge thank you to our teams

Without them, this would not have been possible!



Connect with us 🙌

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read the blogpost:

newworkhero.es/en/agile-construction-working-model

