

Continuing the Journey: How to bridge the gap between innovation and operation?

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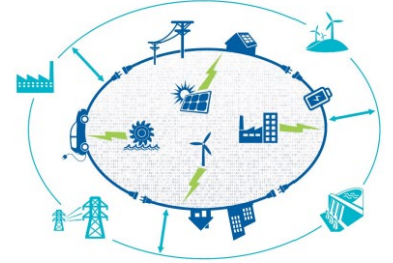
The Elvia logo is located in the bottom right corner of the slide. It features the word "Elvia" in a black, sans-serif font. The letter "i" is replaced by a green dot, and the letter "v" has a green dot above it. The logo is set against a white circular background.

Background – R&D in grid companies

- We participate in many R&D and pilot projects
- Why:
 - The green transition
 - Digitalization and automation
 - Efficiency and reliability
- We must adapt and need to
 - Develop new knowledge
 - Develop, test and pilot new concepts, technologies and solutions before putting into operation to
 - Learn and get experience
 - Improve solutions
 - Reduce risk – failure may have severe consequences for society
- We are financially incentivized through “R&D frame”

Strategi og veikart for overgangen til et fleksibelt og intelligent strømmett

Forfattere:
Gerd Kjølle, Susanne Sandell, Oddbjørn Gjerde,
Maren Istad, Magnus Korpås



Riksrevisjonen i kritisk rapport: Strømnettet er «fullbooket»

Riksrevisjonen slakter arbeidet med å sikre nok kapasitet i strømnettet, og kritiserer energiminister Terje Aasland (Ap) og hans departement for ikke å ha gjort nok.



CINELDI
Centre for intelligent electricity distribution
- to empower the future Smart Grid

 Centres for
Environment-friendly
Energy Research

NVE varsler skjerpede krav til beredskap i kraftforsyningen

16.10.2025 11:22:14 CEST | [Norges vassdrags- og energidirektorat \(NVE\)](#) | Pressemelding

Del      

En kartlegging fra NVE viser at kraftsystemet i Norge er godt rigget for å håndtere værhendelser, men ikke sabotasje. Framover vil NVE derfor stille krav om at kraftselskapene skal være bedre forberedt på sabotasje og samtidige angrep.

The innovation process - simplified

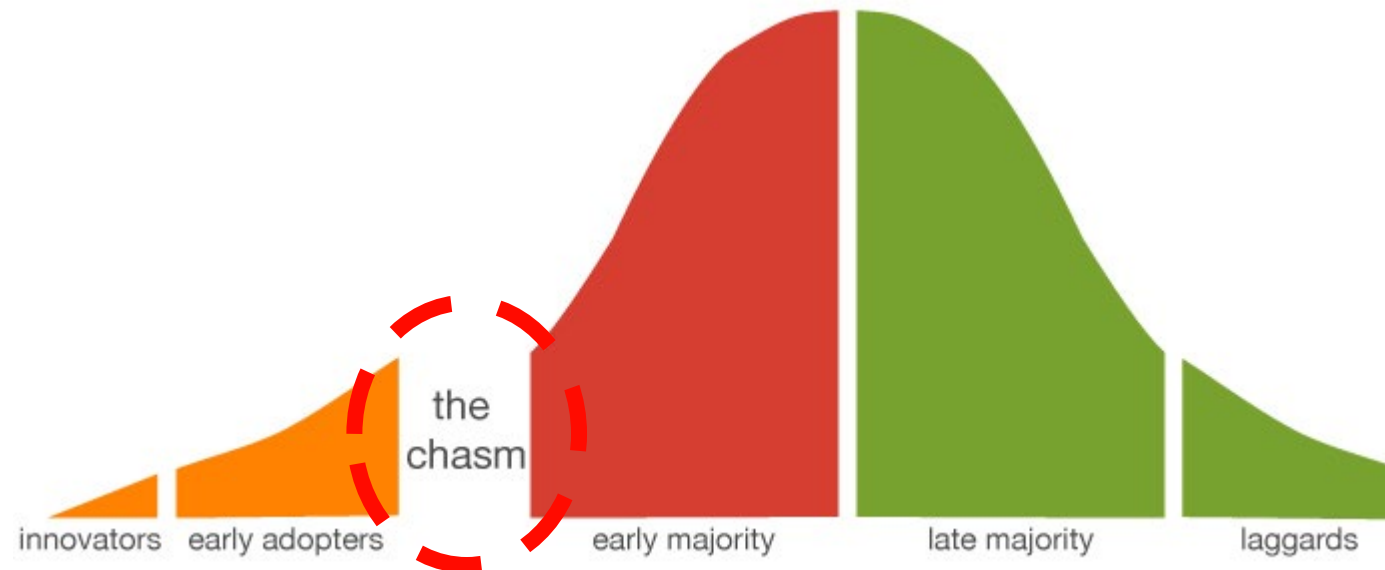


- Many projects succeed in the first two stages – fewer in the last
- Many innovations die before operation
- “Innovation has no value until it’s implemented”

RESEARCH	9	ACTUAL SYSTEM PROVEN IN OPERATIONAL ENVIRONMENT
	8	SYSTEM COMPLETE AND QUALIFIED
	7	SYSTEM PROTOTYPE DEMONSTRATION IN OPERATIONAL ENVIRONMENT
DEVELOPMENT	6	TECHNOLOGY DEMONSTRATED IN RELEVANT ENVIRONMENT
	5	TECHNOLOGY VALIDATED IN RELEVANT ENVIRONMENT
DEPLOYMENT	4	TECHNOLOGY VALIDATED IN LAB
	3	EXPERIMENTAL PROOF OF CONCEPT
	2	TECHNOLOGY CONCEPT FORMULATED
	1	BASIC PRINCIPLES OBSERVED

“Crossing the Chasm”

- Book by Geoffrey Moore
- Adaptation of Innovation adoption theory “Diffusion of innovations” (Everett Rogers)

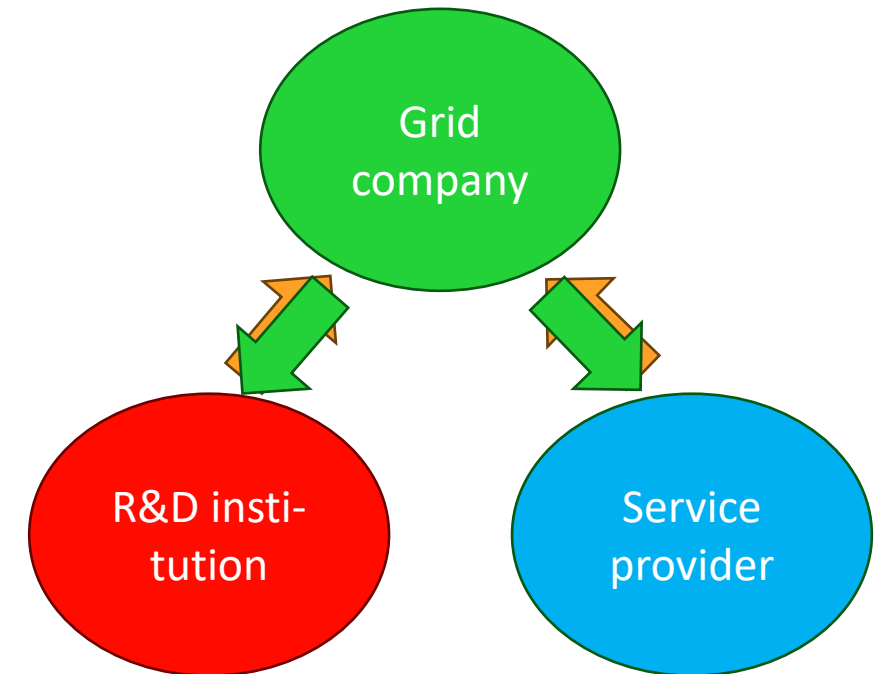




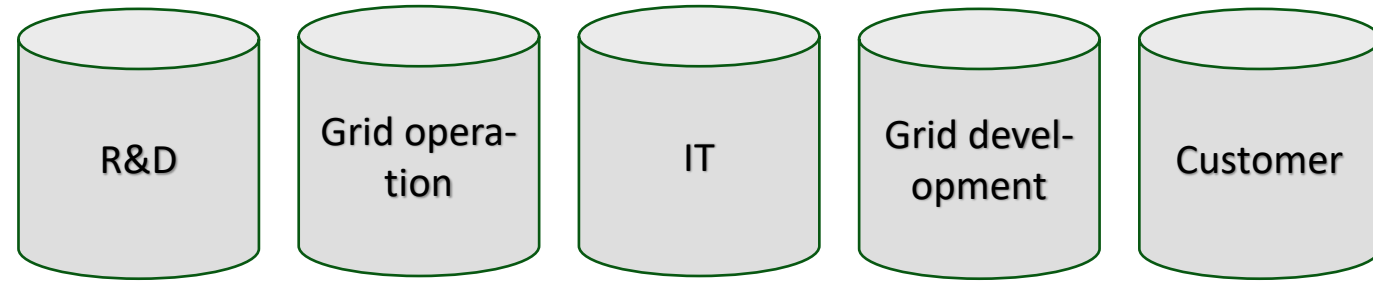
How to cross the chasm and
increase the probability for a
successful transition to
operation?

Project initiation – crucial to get a good start

- The operational aspects must be on the agenda already before the project starts
 - Involve personnel from operation early – experts should be involved already in the project description phase
 - Have a clear idea of the problem to solve and the benefits to achieve
 - Agree on a plan for transitioning from pilot to full operation
- From reactive to proactive project initiation
 - Reactive: We are invited to project proposals by R&D institutions or service providers
 - Proactive: We define which problems we need to solve and actively initiate project proposals



During the R&D project

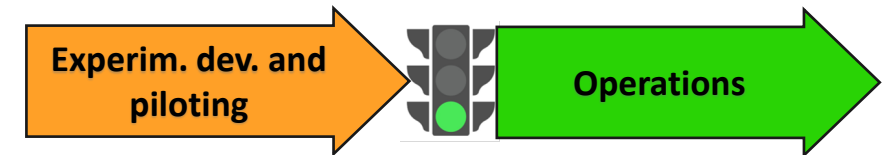


- **Involvement and anchoring**

- **Involve personnel from operation and focus on operational issues continuously** – may involve several divisions and departments
- **If software is part of the solution**, ensure that the architecture fits the grid company's IT-strategy
- **Take the procurement aspect into consideration early** – tender process may be needed before operation – can not be tied to a vendor in the pilot project
- R&D project must have a joint understanding about what **Exploitation** means – not only take the results and initiate new R&D projects, but to commercialize and operationalize

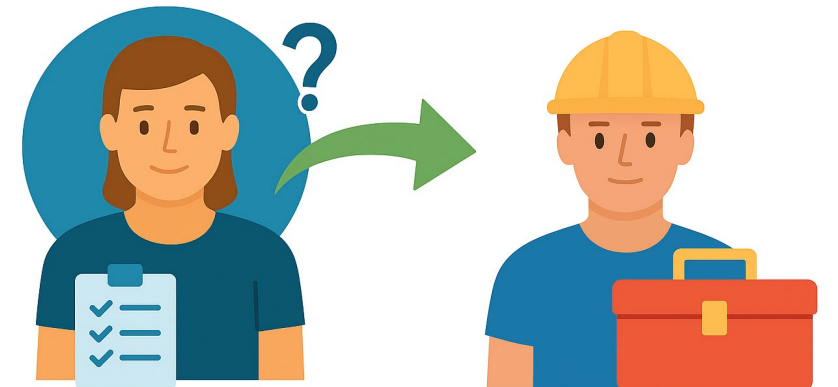
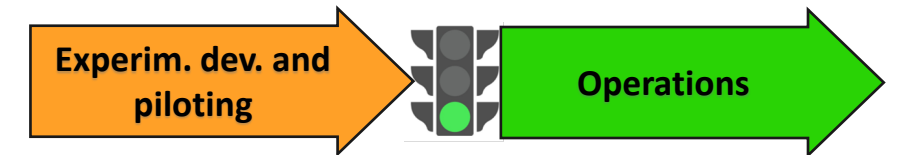
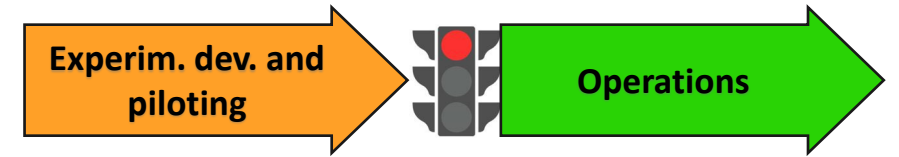
- **Planning before pilot**

- **Make basic risk assessments early on and define decision gate** with predefined criteria for whether to continue to operation or stop – helps focusing on the right issues during the project
- **Develop an implementation plan before the pilot starts**
- **Create an 'operations manual' during the project, not after**



From pilot to operation?

- In case decision is “no”:
Exit plan needed to prepare for worst case scenario where decision is not to start operations
 - Will ensure a smooth stop
 - Must include how to delete data, dismantle sensors etc.
- In case decision is “yes”:
Transition plan needed to prepare for operation
 - Establish a project organization for the transition project and allocate resources with clear responsibilities
 - Revise the implementation plan and define the scope for what to move on with and what not
- Both plans should be worked out during the project



The benefits must be clear to everyone involved



For the management:

- Business case needed to get a “yes” (investment decision)
- Many benefits are difficult to quantify
- Grid companies are monopoly regulated (with revenue cap) → cost reduction focus
- Benefits may realize outside grid company, e.g. connecting a new industrial facility gives marginal increased revenue for the grid company, but large benefits for the industrial company and for society



For operational personnel:

- Transition project often comes on top of normal work
- Easier to motivate to extra job effort if they see a clear benefit
- “The more complex the greater the benefit must be”

The organization must be ready for operation

- Ownership in operations must be clearly defined
- Competing priorities must be dealt with
- Cultural aspects must be handled:
 - 'Not our responsibility'
 - Resistance to change
- Competence: Training, documentation, routines etc. must be in place



The technology must be ready for operation

- Project participants often technology optimists – exciting to work with cool technology
 - Too optimistic – the devil is in the details
 - The product must be sufficiently mature
 - Often lack of robustness
 - «Childhood diseases»
 - Often pilots on a limited area. Does the solution scale?



Summary

R&D and pilots are just the beginning – value is created in operations

Involve every aspect of operations early

Define decision criterias and transition plans

Ensure that the organization and technology are ready for operation



Thank you for your attention

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