

FuESSE

A joint study on the Future Energy System Systems Engineering needs



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Accelerating the energy transition

To meet the goal of **net-zero greenhouse gas emissions by 2050**, the Netherlands must **scale its electricity grid by a factor of five**.

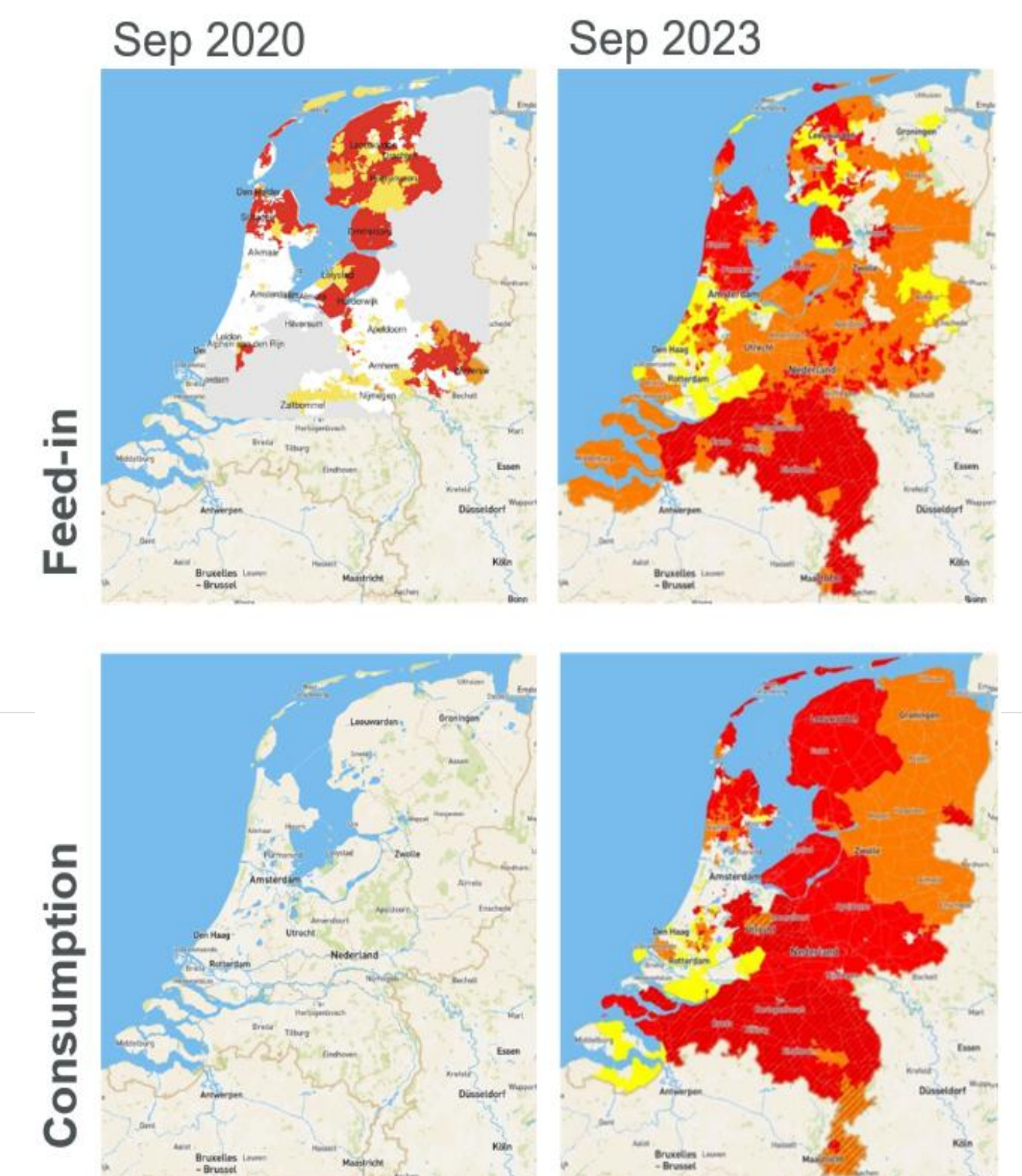
The net congestion requires scaling up and adapting the electricity grid.

Grid operators needs: "Building 3 times more, but 3 times less labor intensive"

"We can no longer afford to work at a pace of 'bottleneck by bottleneck'"

Study questions:

- How to accelerate the creation process, and increase workforce productivity, for the realization of mid and high-voltage stations and their lifecycle-management?
- What can **Systems Engineering (SE)** contribute to accelerate grid expansion and thus the energy transition?



Accelerating the realization of stations: how can systems engineering contribute? Main recommendations

- Further strengthen and harmonize modular building in conjunction with contractors
- Accelerate digitalization and standardization
- Implement early validation and robust quality management
- Invest in the 'systems' competencies of the staff

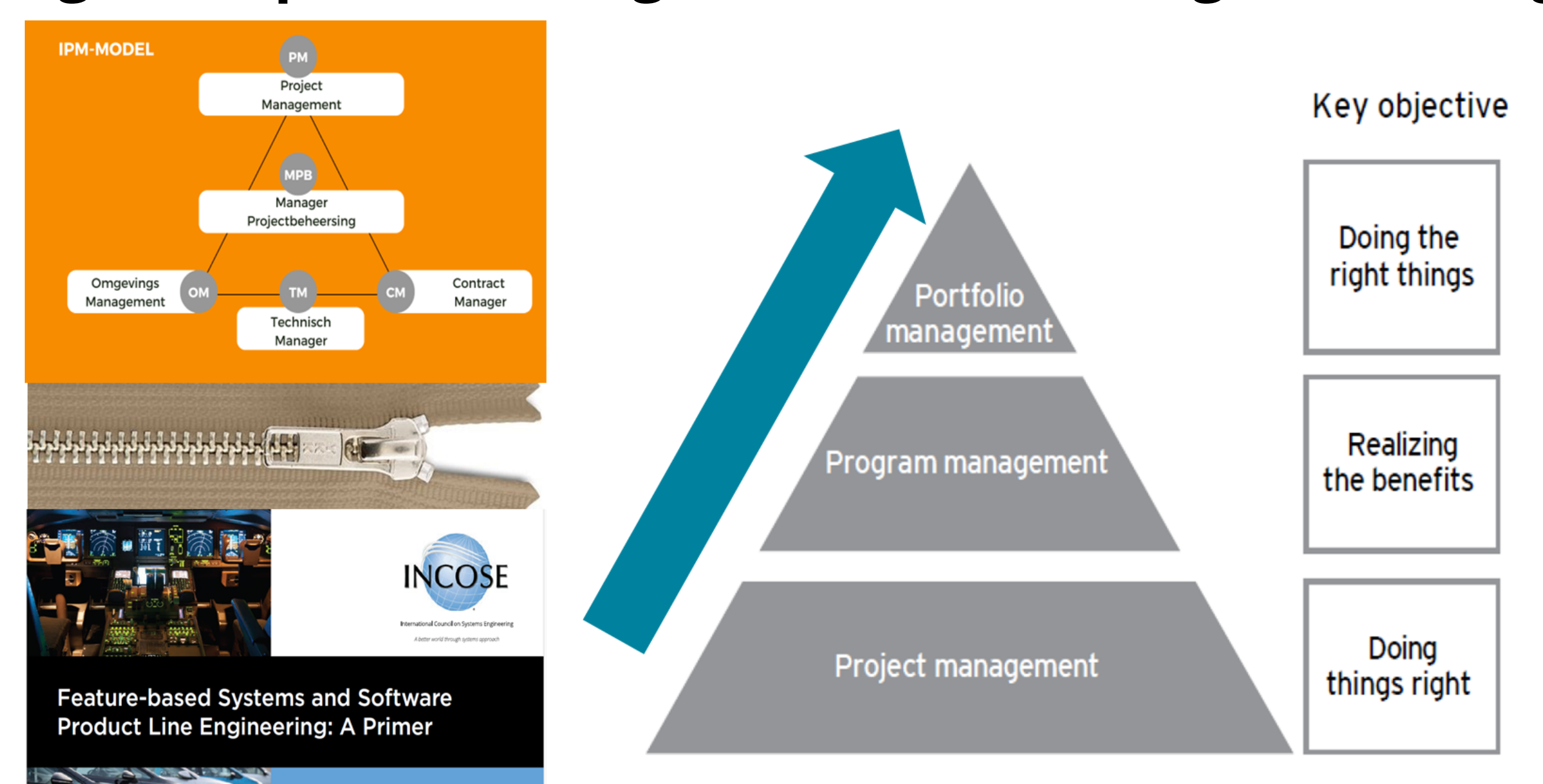
Building faster

Key Success factors towards strategic objectives

Strategic objectives	Success factors
1. Increase of productivity, volume, and throughput	1. Maximize project productivity through organization-wide standardization
2. Seamless collaboration inside own organization and with supply chain	2. Modular building requires a product and project organization with two development process models (one for standard components and one for systems/projects)
3. Improved project quality and outcome reliability	3. Validate as much as possible in advance (except grounding and the station foundation).
4. Enhanced contractor performance	4. Supply chain alignment requires top-down management and defined business KPI's
5. Cost savings	5. Long-term strategy at program and portfolio level

Modular building is a portfolio concern

Largest impact with organisation-wide aligned strategy



Building even more faster and smarter

- Think "BV Nederland"
- Collaborate on common interests
- Acknowledge diversity between DSO's and TSO

Follow-up

- **FUESSE 2025**: Smartening modular building strategies through improved harmonization and collaboration with contractors"
- **IXCESS**: Smarter digital collaboration through standardization of language and information exchange on objects within the energy network

Partners:



Contact

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FuESSE report



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