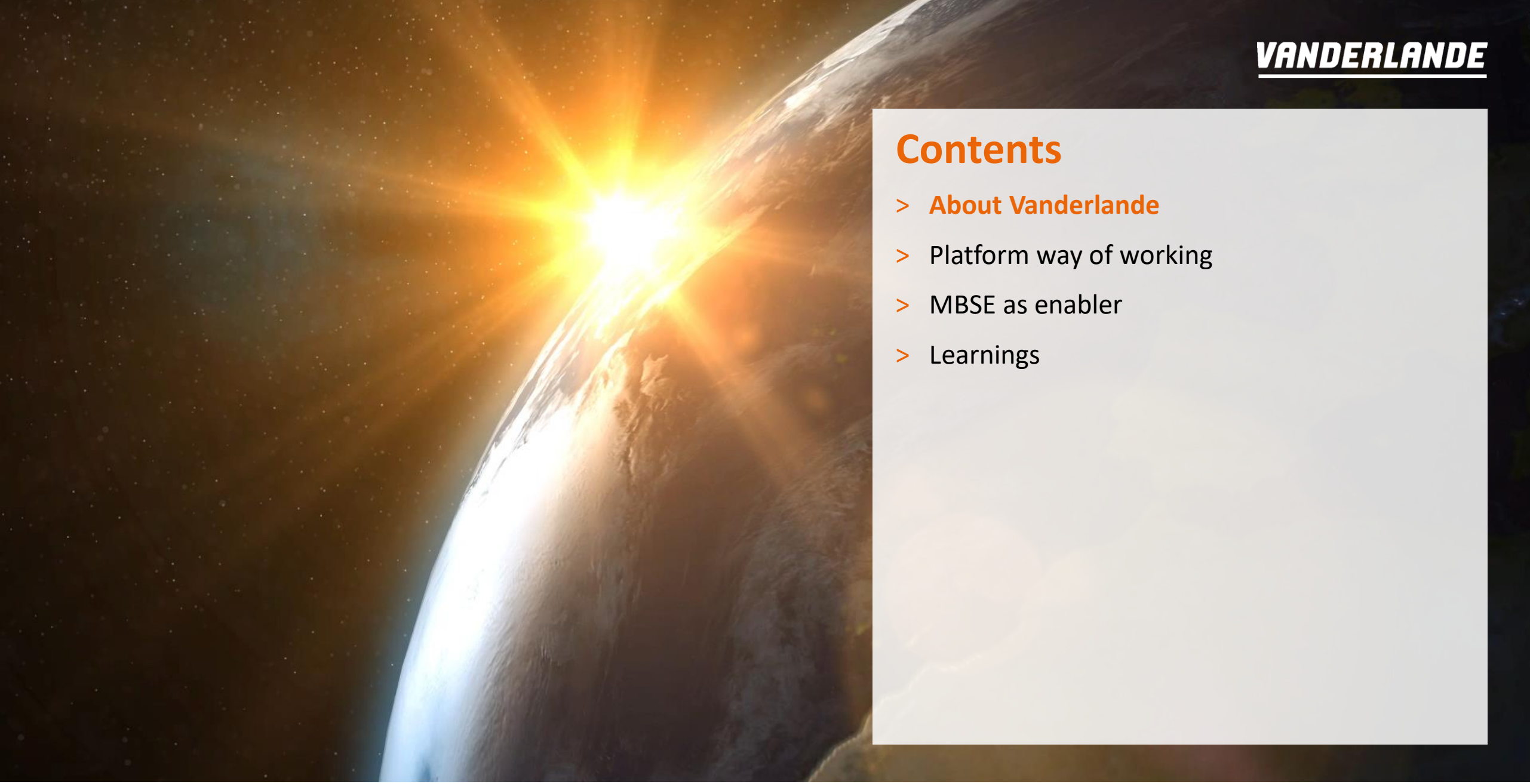
VANDERLANDE

MBSE in a platform driven company

6 October 2020
Maarten Verhoeven



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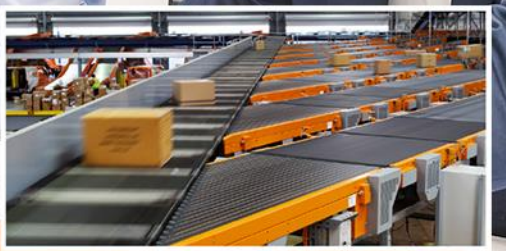
Reliable partner for value-added logistic process automation

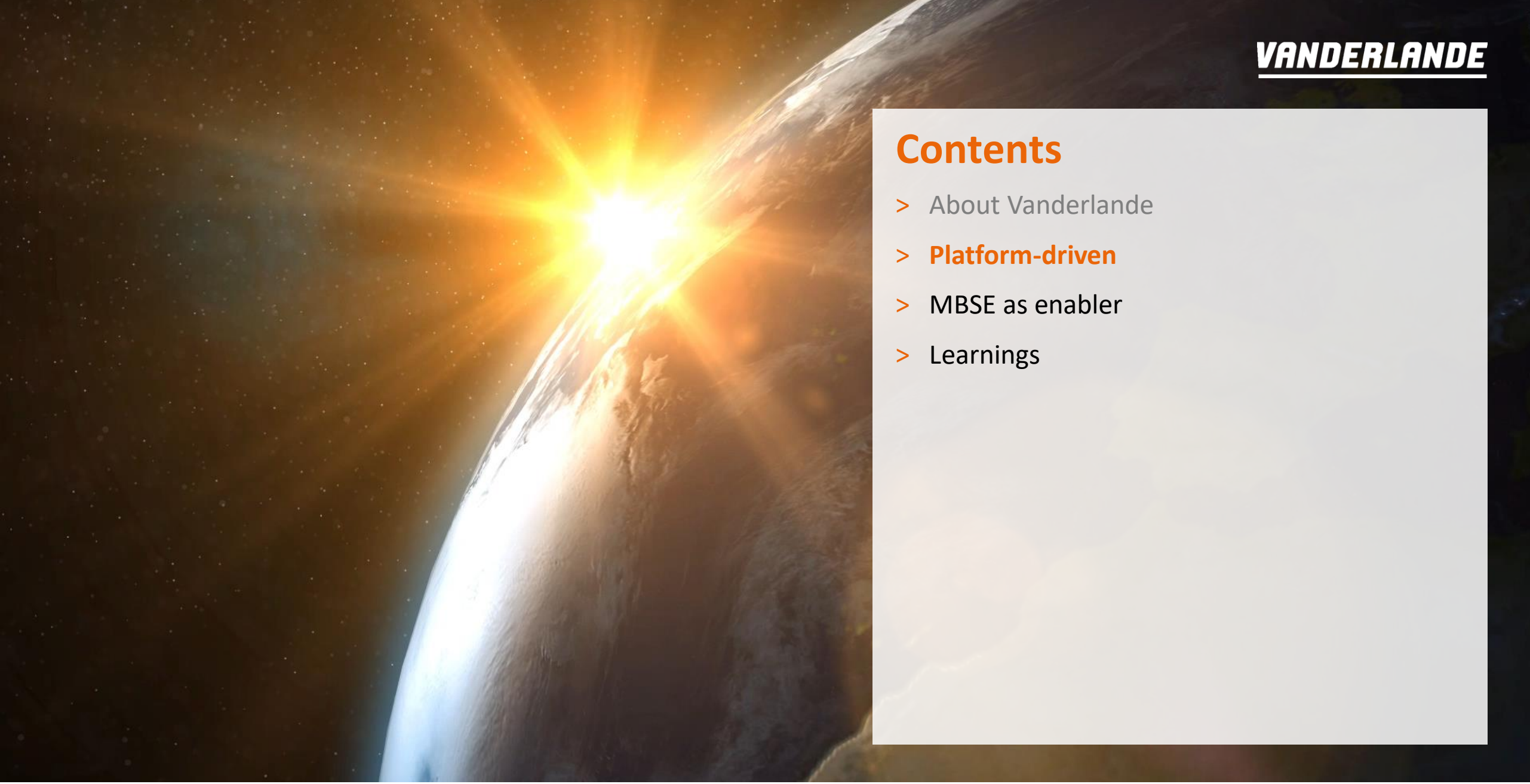
Airports

Warehousing



Parcel

About Vanderlande: Company profile



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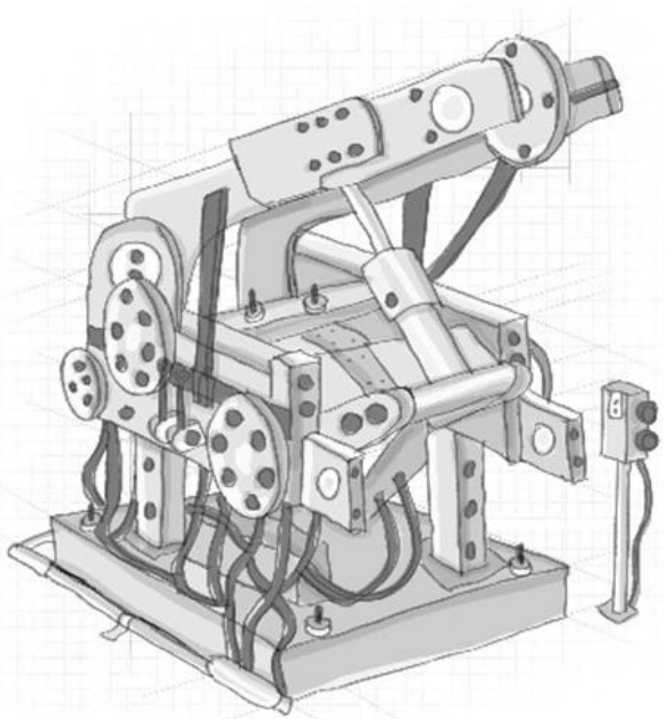
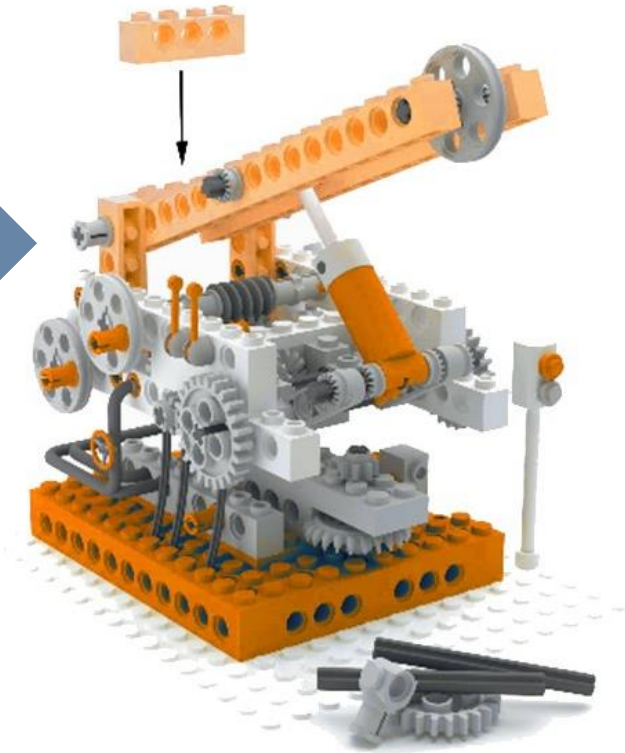
Transformation to a platform driven company

Engineering to order - *project* driven



- Starting point is the **copy of an old reference solution**
- Missing defined interfaces lead to **high engineering effort**
- **High uncertainty in project scope** at contract signing

Configure to order - *platform* driven



- New offers are **configured** using ready-to-use **building blocks**
- **Engineering** focuses on **faster innovation,** rather than reinventing existing solutions
- Modular portfolio **reduces project complexity** and improves **scalability**
- **Shorter lead-times** improve competitiveness
- More stable demand **reduces cost** along the value chain**, improves quality** and enables **services business**

Reference: McKinsey & Company - "Cracking the complexity challenge with smart platform strategies"

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Flexible on the outside
standardised on the inside

16 configuration choices

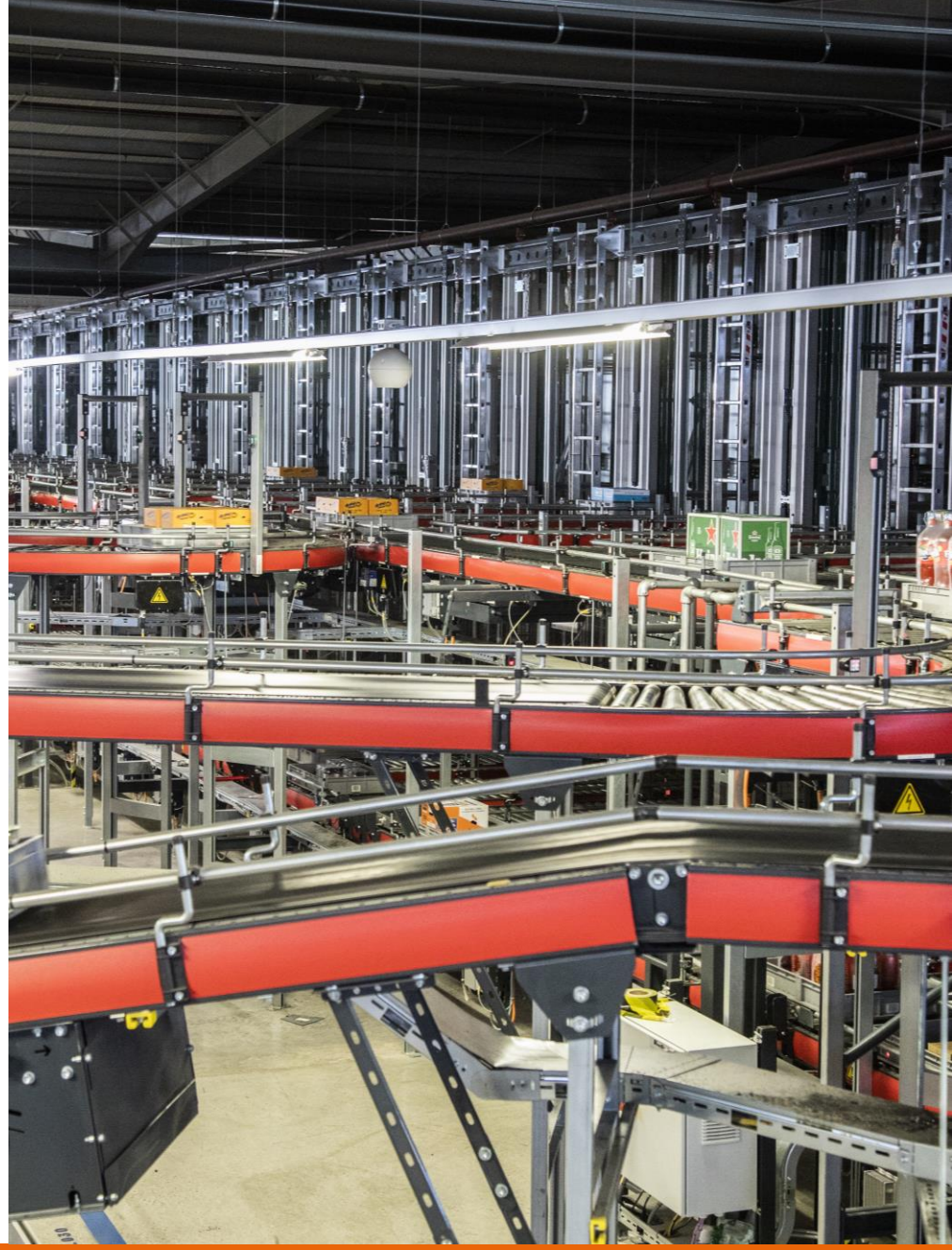
147456

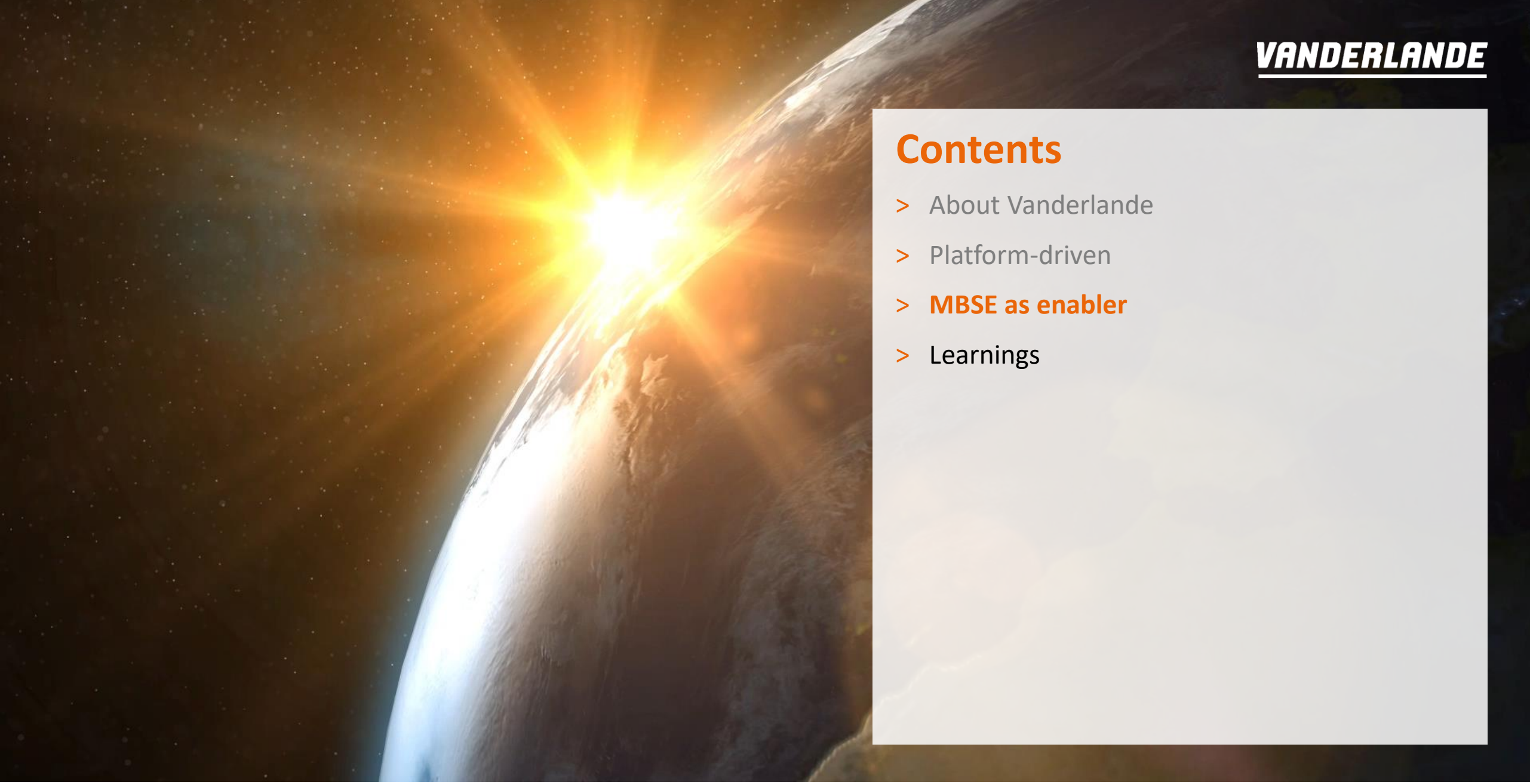
different Goods to Picker modules

Complexity challenges

- A large amount of combinations can be made when configuring a Customer Solution based on a Platform
- Customers tend to have very detailed and specific requirements
- Platform development and Customer Solution delivery are progressing over time

*How to assure that the solutions offered to our customers remain compliant to the **platform** AND to the **customer requirements**?*





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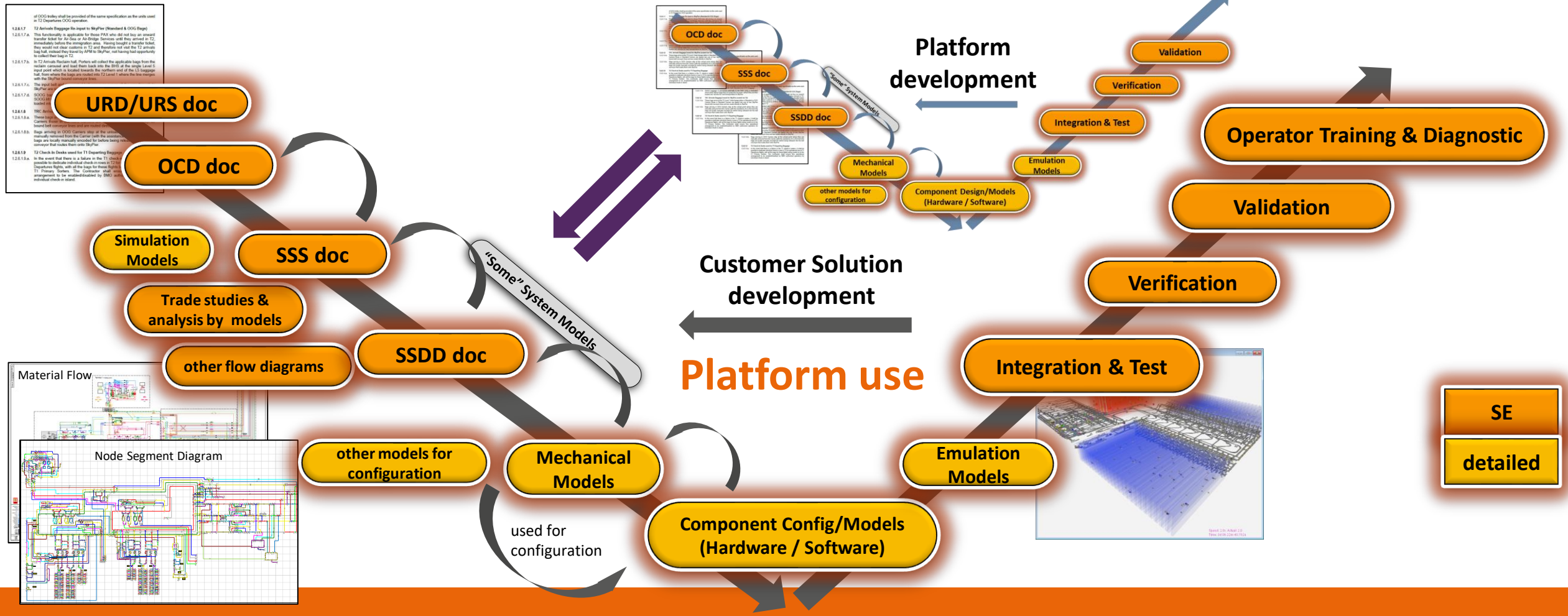
Traditional SE applied in Vanderlande so far

Document based, natural language, informal drawings & models, requirement traceability



The WHY factor of MBSE in Vanderlande

Mapping MBSE vision to Vanderlande vision

Create market leading solutions

Increase agility

Enable configure to order

Reduce lead times

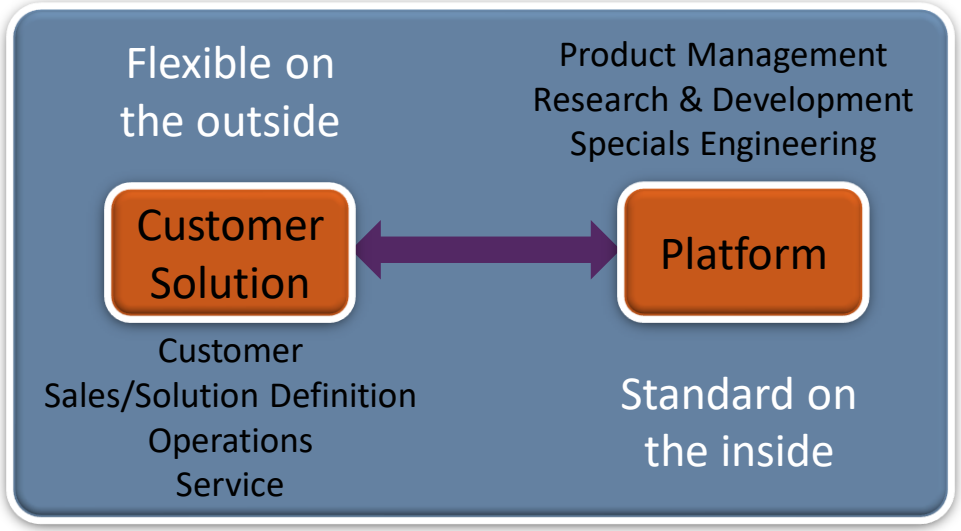
Maximise value, minimise cost

Problem Space

Gap between Sales and Platform creates **heavy load on solution team**

Absence of a common language creates **confusion** for internal and external stakeholders

Onboarding of new people is challenging due to **inconsistent** and **hard-to-find** documentation



Absence of a clear change propagation visibility **reduces reliability** and **increases vulnerability** to **mistakes**

Creating Customer Solution deliverables manually by copy-pasting platform documents is **time consuming** and **inflexible**

Some more problems like **manual works** done during tests and integration etc.

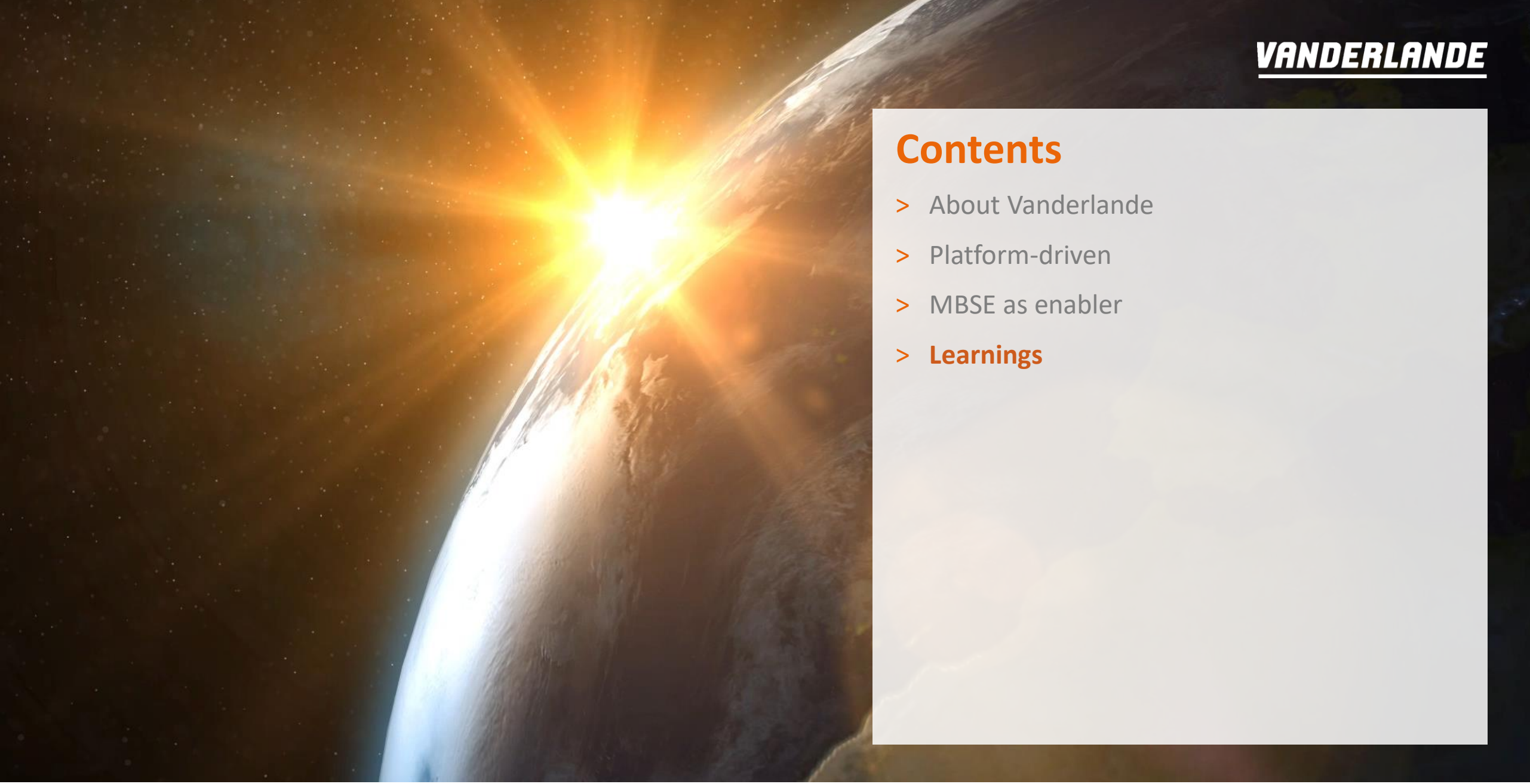
How to solve these with Platform and Customer Solution Models?

Sales will use the **sales configurator** connected to Platform Models

Changes to Platform and Customer Solutions will be **observable** in the models

Deliverables will be **automatically created** from Platform and Solution Models

A taxonomy of the **one language** and **design principles** will be in the models



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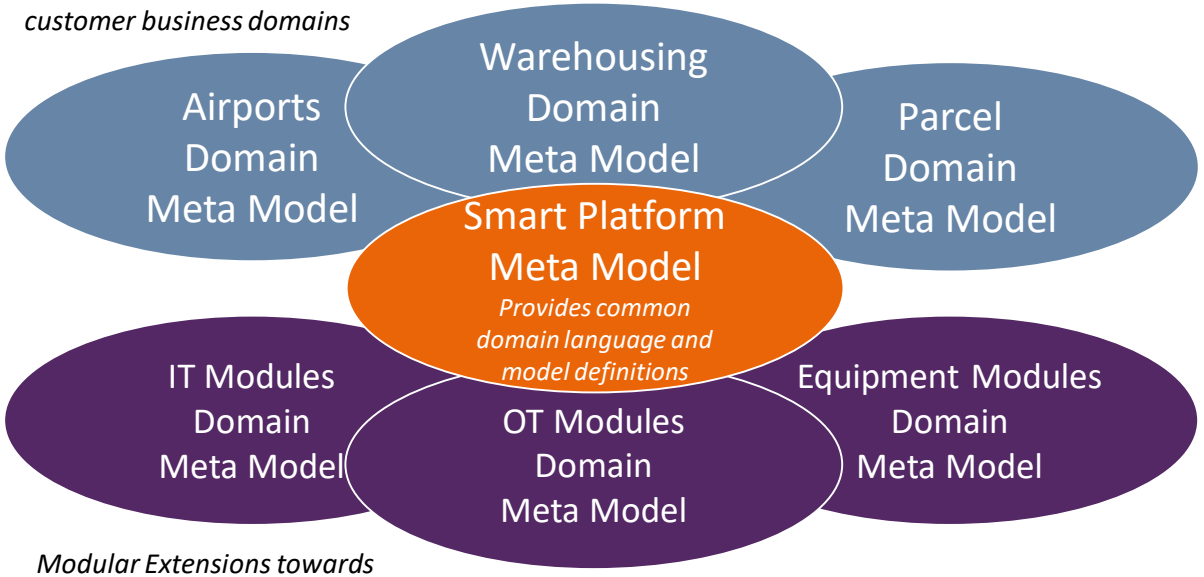
Modular models with common core to provide consistency *and* ownership

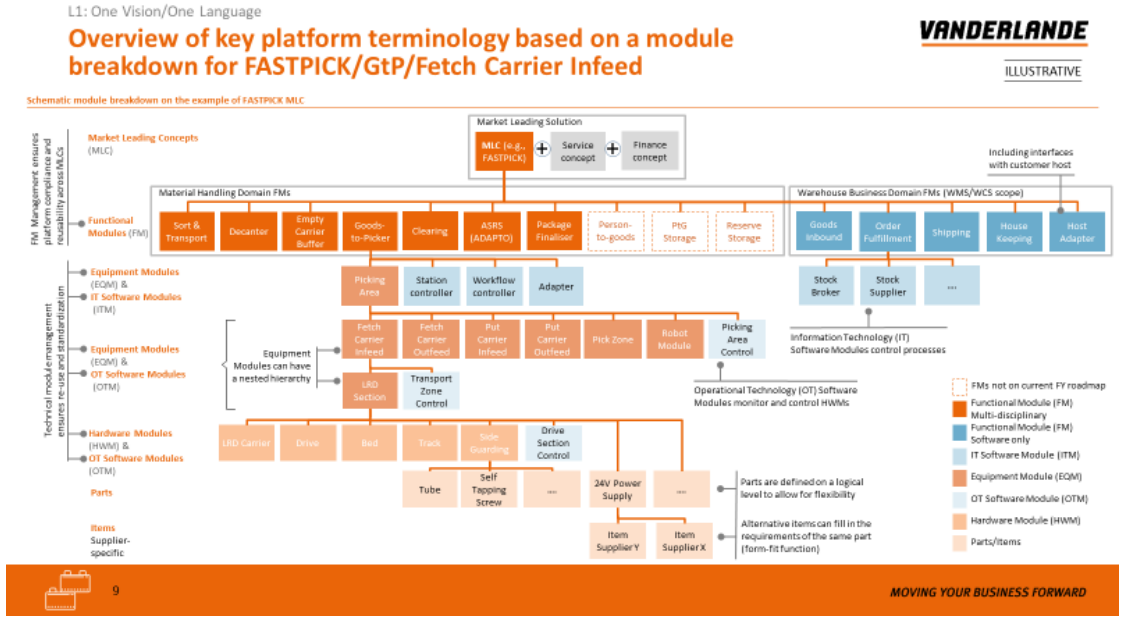
Keep models and their meta models *modular* to encourage ownership and acceptance (Conway's law also applies here)

Smart platform metamodel serves as common core and acts as the glue to provide consistency

Modular extensions towards customer business domains



Modular Extensions towards technology domains



Different System of interest leads to different models

Sales/Solution definition
Operations
Service

MBSE for a Customer Solution
Modelling a system with user needs/requirements, its configuration, its integrated behaviour & structure and additional emergent behaviour

> Fast and easy configuration, validation, supply, deployment and updates of **Customer Solutions** based on the platform building blocks

MBSE to hide complexity

Product Management
Research & Development
Specials Engineering

MBSE for a Platform
Modelling a configurable, modular and reusable asset repository with enablers and configuration rules

> Definition, analysis, development and rigorous test and integration of the **Platform building blocks** and their configuration options

MBSE to manage complexity

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