
Net-Challenge: Innovative Networks of SMEs for complex products manufacturing

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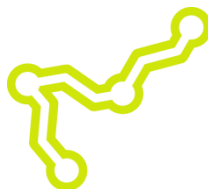
NET-CHALLENGE

INNOVATIVE NETWORKS OF SMEs FOR
COMPLEX PRODUCTS MANUFACTURING

- The Net-Challenge project
- Network Concepts
- The Integrated Framework
- VO Scenarios: Engineer to Order and Configure to Order
- Monitoring and Event management
 - Concepts
 - Objectives
 - Reference process

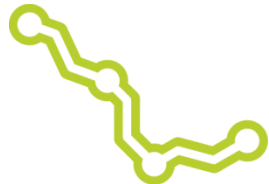
The Net-Challenge project

- Innovative networks of SMEs for complex products manufacturing
- An European Union Research project
- Started 2009, duration 30 months
- 13 partners
 - Project manager in Portugal
 - Research partners in Portugal, Spain, Italy, China, Finland
 - Implementation partners in The Netherlands, Portugal, Italy, Finland
 - Case companies involved; Shoe, Machine and Textile industry



The Net-Challenge – Objective

- **Net-Challenge objective is to develop an integrated Framework**
 - to support SMEs in **creating and managing** successful **non-hierarchical networks** for **complex products** design and manufacturing.
- Non-hierarchical networks:
 - No single organization dictating or defining the rules
 - Collaborative decision making
- Complex products:
 - Large number of components and/or
 - Customized products



Business benefits of non-hierarchical networking

- SMEs will need to establish dynamic and non-hierarchical networks for complex products design and manufacturing, able to assure:
 - quick response
 - fast time to market
 - differentiated offerings
 - competitive prices
- Increase Flexibility
Increase Profitability
Reduce Risk



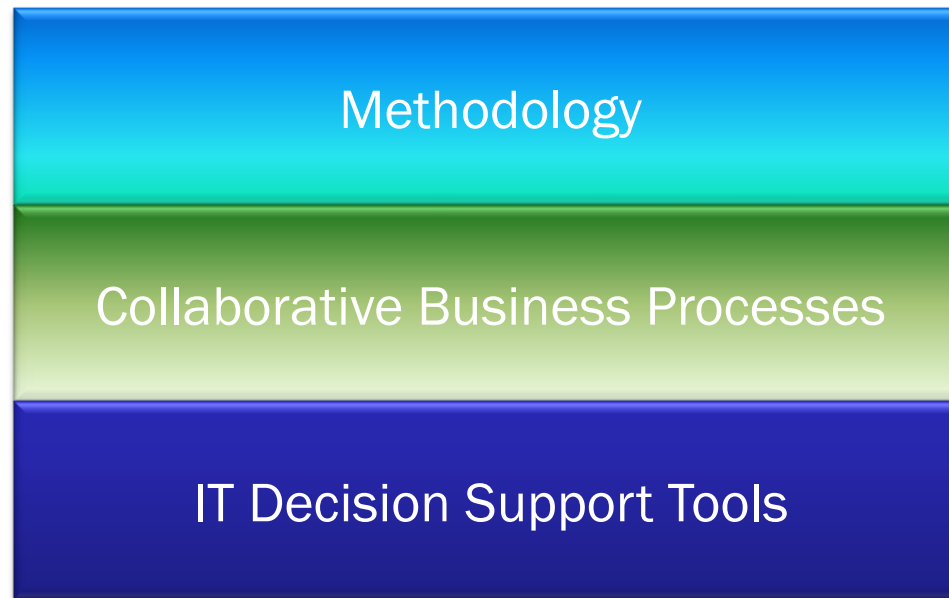
- **Business Community (BC):**
 - group of organizations (Community Members) that are working **in same business field**, and in many cases in the same geographical area, that decide to **collaborate to better compete on the market**.
 - a platform for building **trusts among partners** and also to enhance the **sharing of business information and exchanging knowledge**.
 - Community Facilitator:
 - Responsible for **animating and promoting the networking in the BC** and **implement administrative tasks** (evaluation and admission of new members, based on a pre-established regulation).

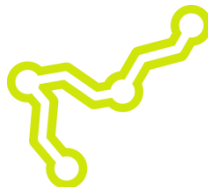
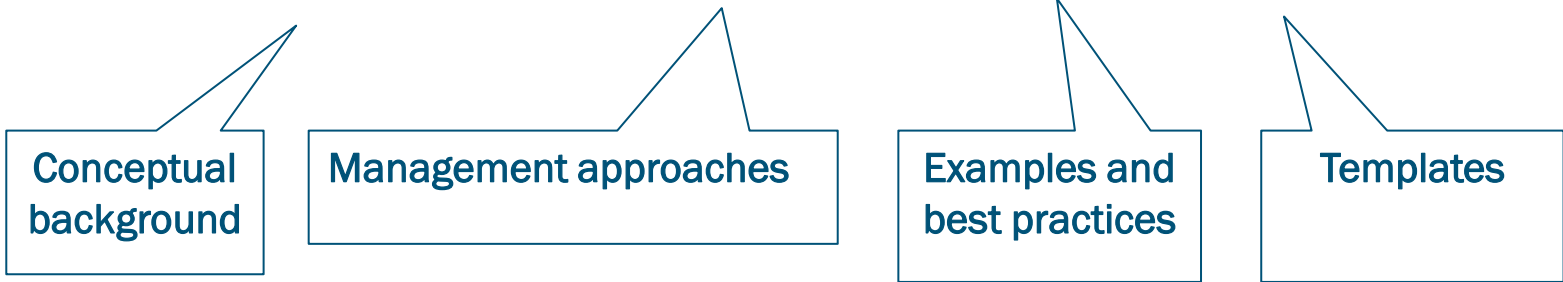
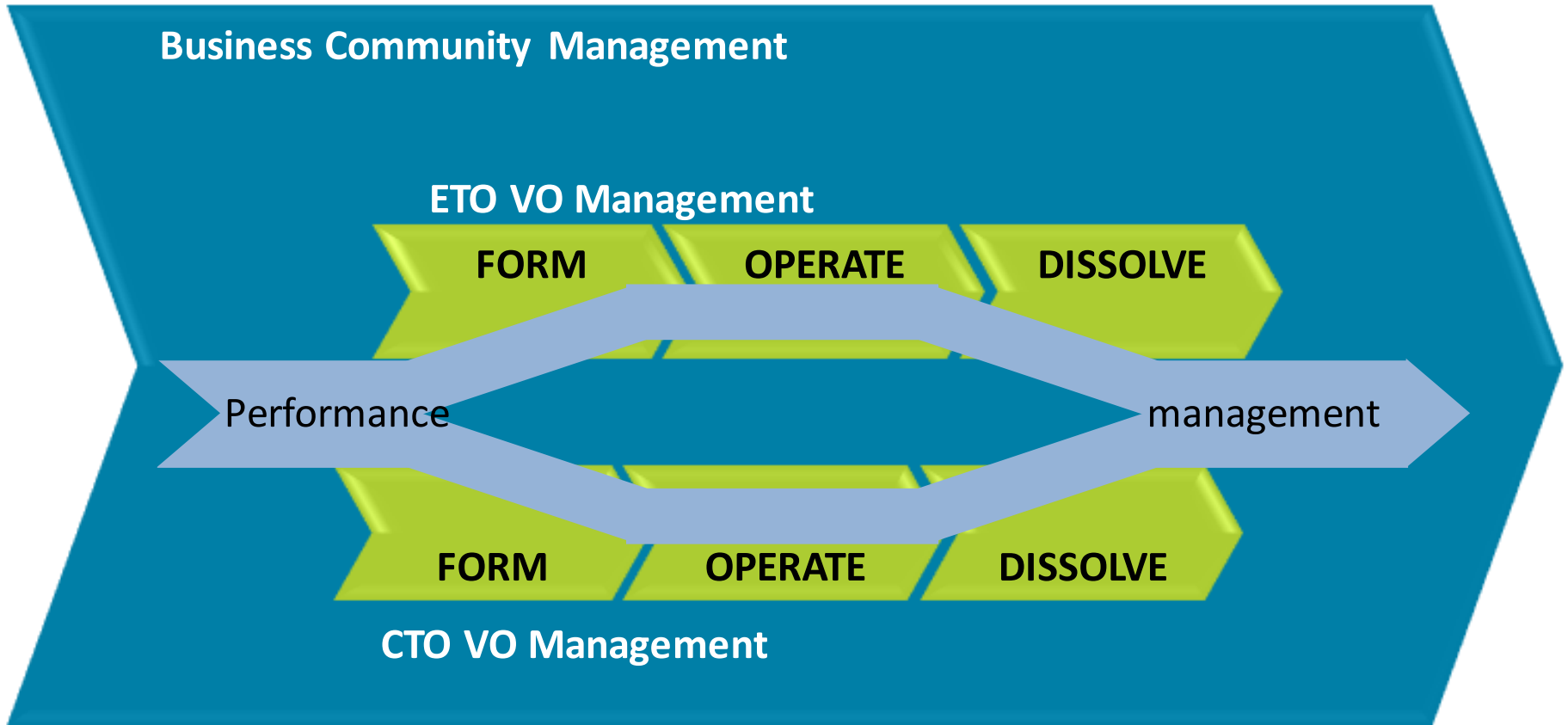


- **Virtual Organization (VO):**
 - group of (legally) independent organizations (VO Partners) that share resources and skills **to respond to specific market opportunities.**
 - **temporary** organisational form that is **dissolved when the opportunity is satisfied.**
 - VO Broker:
 - It is the organization that **identified the Business Opportunity** and is **responsible for the formation of a VO.** Normally is also responsible for coordinating the VO operation and dissolution.

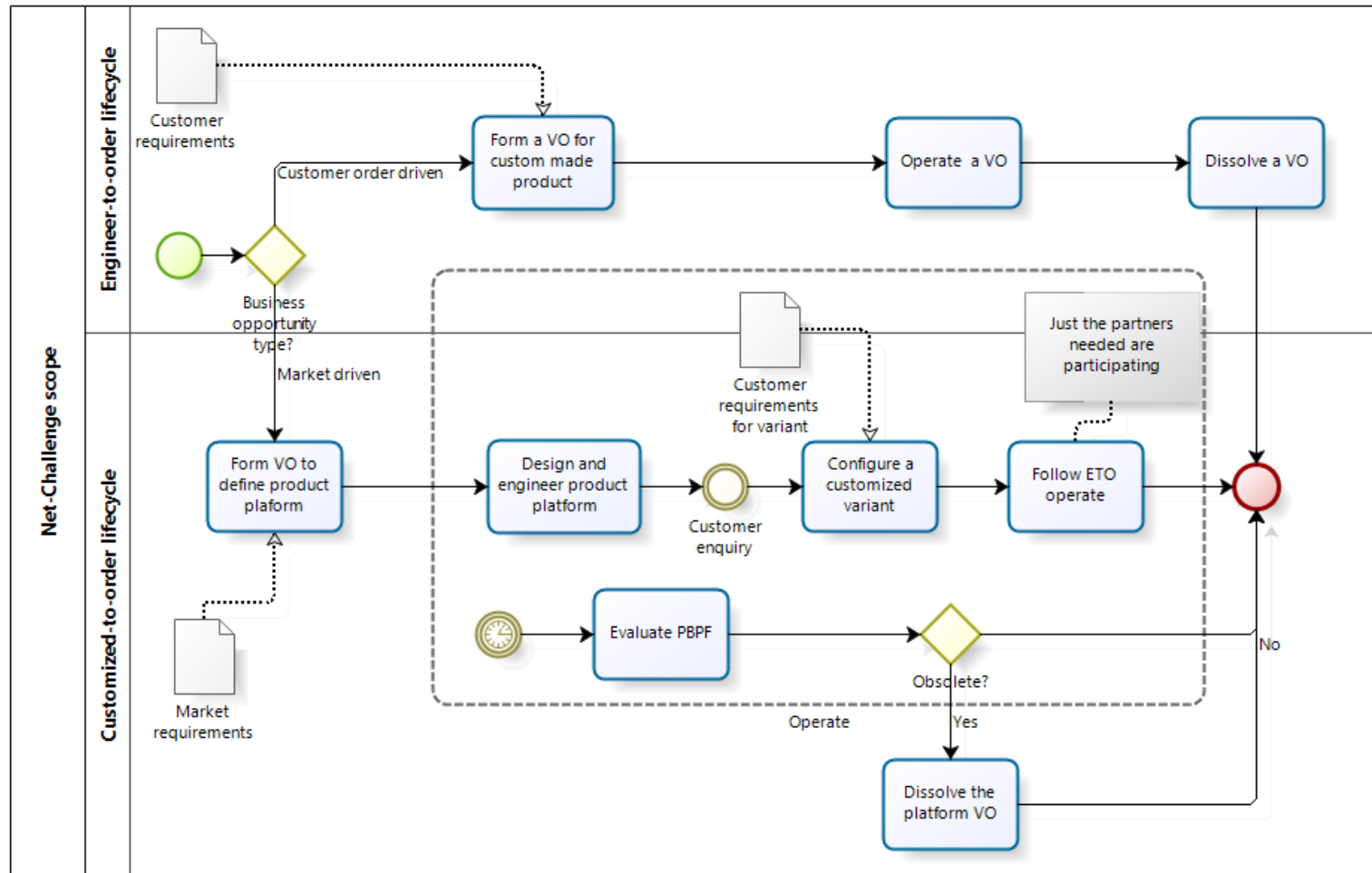


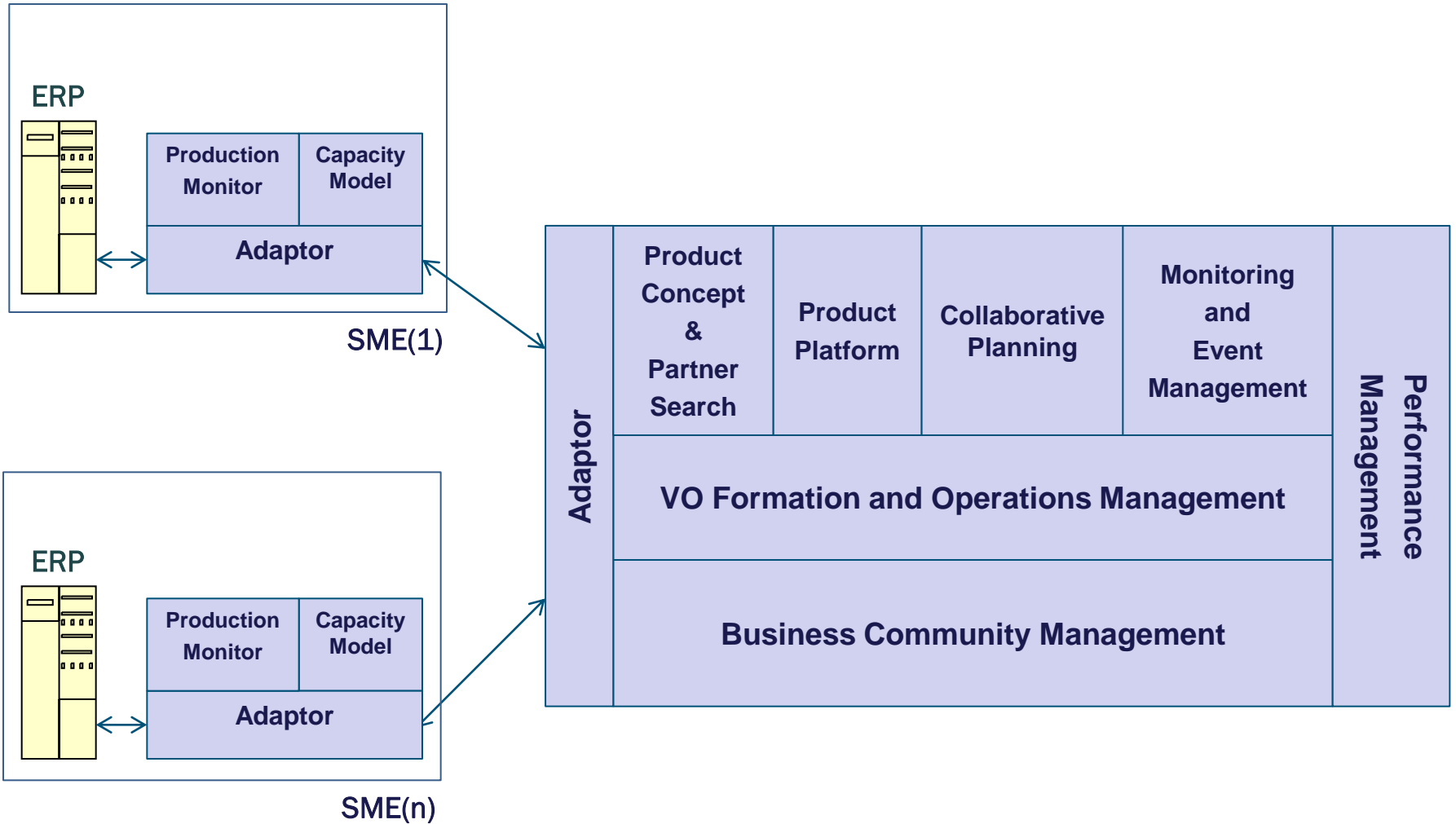
The Net-Challenge Framework includes:





- Provide a reference for SME's to develop specific processes for their networks.





 - Net-Challenge Platform



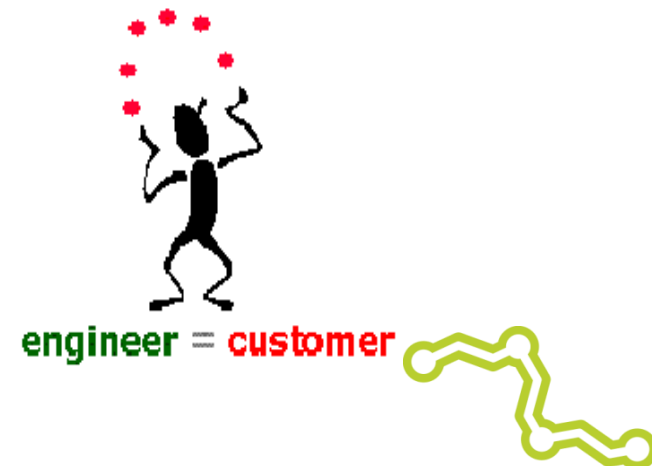
Engineer to Order

- Customer driven approach
- To develop one-of-a-kind product or product group
- Project-based approach for specific kind of product



Configure to Order

- Market driven approach
- To develop stream of product variants (product family) from platform
- Possibility to configure a product variant



Engineer to Order

- Customer wants an unique solution that requires design and engineering activities
- The project is not just an updating of an existing solution but requires specific and new functionalities.
- Order specific engineering services are needed

Configure to Order

- Customer wants to customize existing solutions
 - This needs to be based on a product platform
 - This can require design and engineering activities
- CTO can be an evolution of ETO



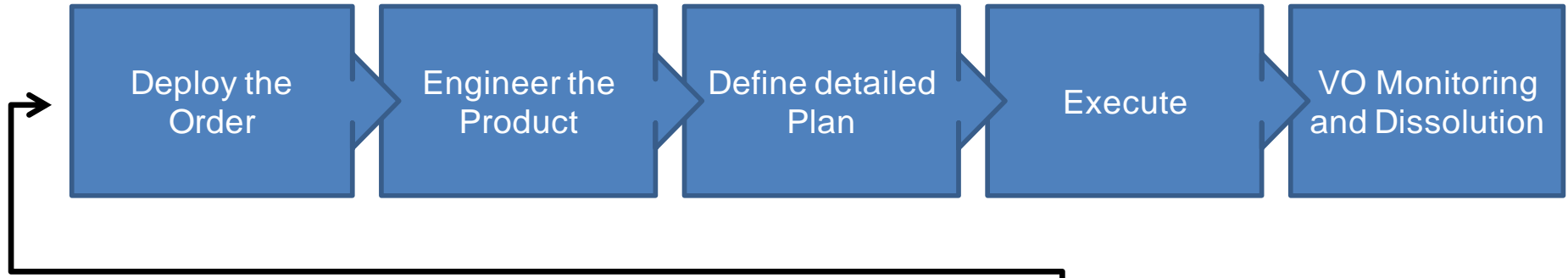
ETO Form



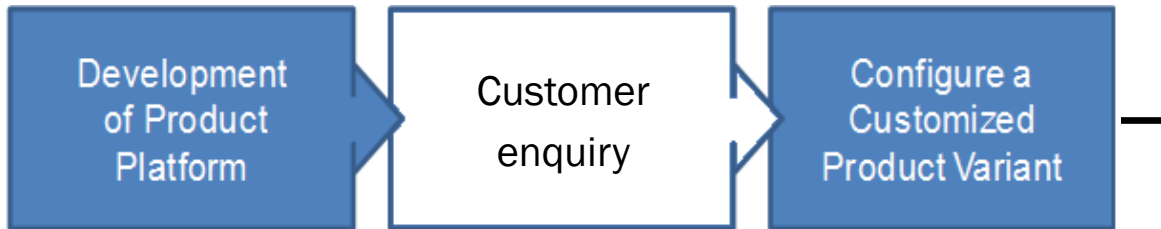
CTO Form



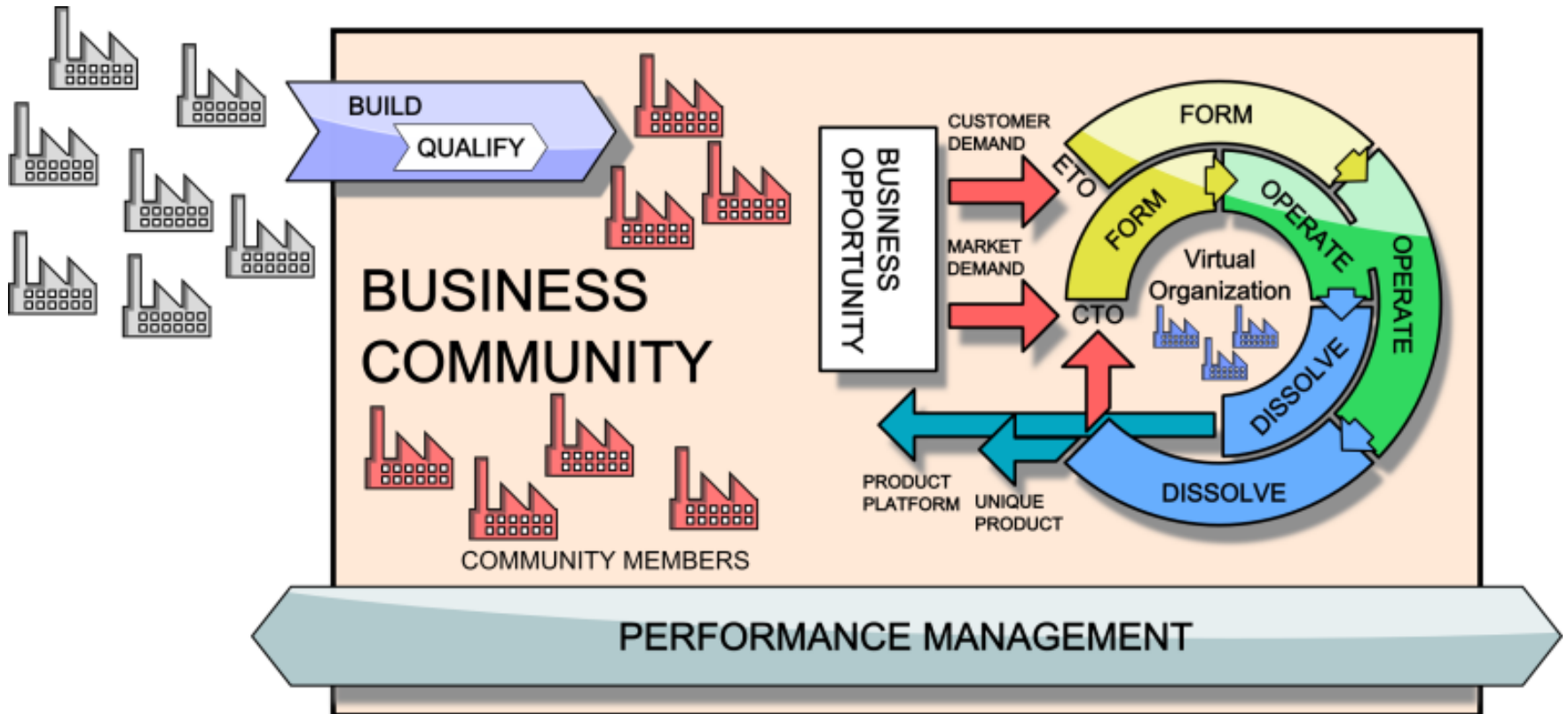
ETO Operate



CTO Operate



BC and VO lifecycle



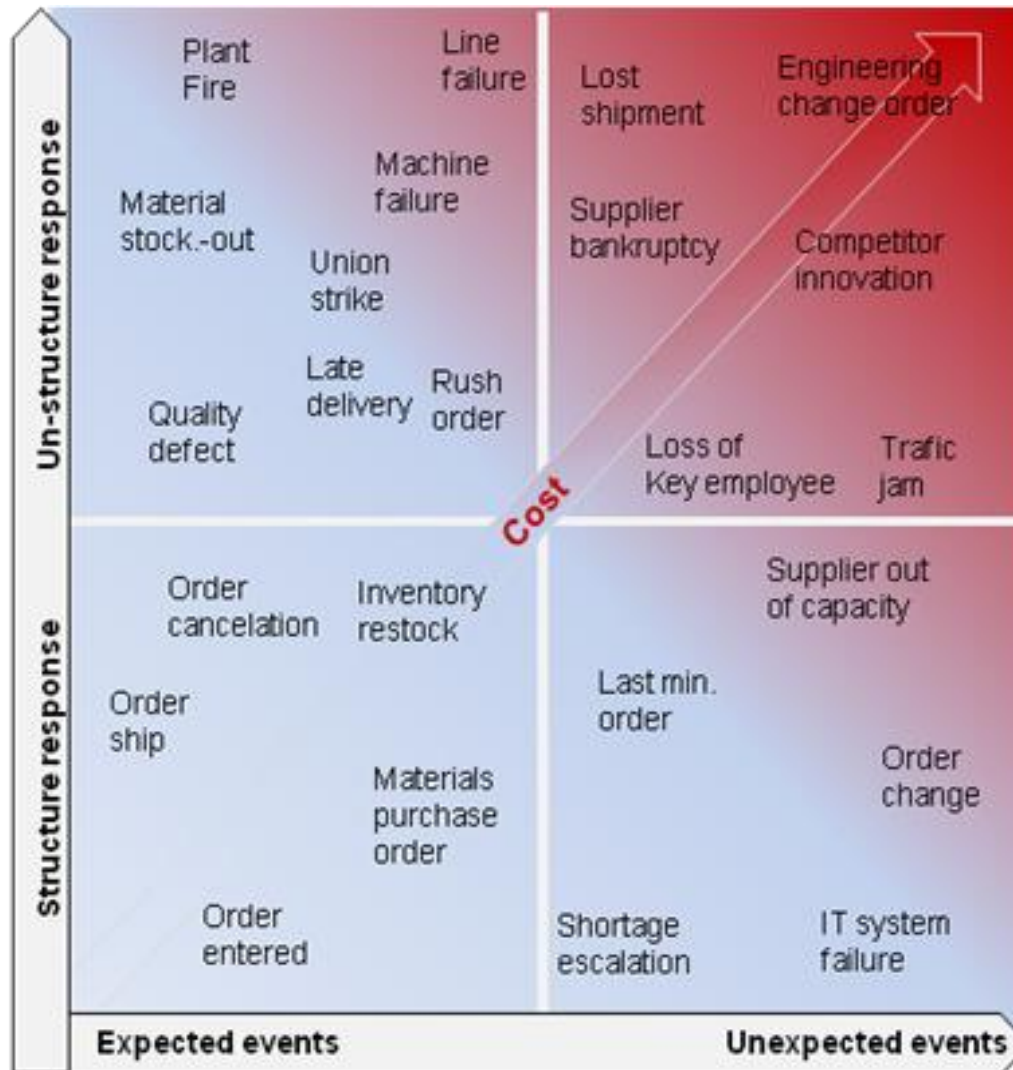
- **An event:**
 - is a deviation from an existing operations plan exceeding a predefined tolerance threshold in a given parameter or an occurrence of a critical problem that may affect the achievements of the operation plans
 - An event may correspond to a risk if it was foreseen.
 - Expected Events / Unexpected Events
- **Event Management:**
 - is the process of defining, identifying, preventing, detecting, analysing and communicating with partners events threatening to disrupt the flow of data, goods or services as well as proposing and executing resolutions and follow-up situations to events to minimize their negative impact.



- In Monitoring, the organisation's production managers analyse progress and possible deviations of the actual values to the planned values.
- In Event management, the identification of events and the planning and execution of counter measures are the key activities.
- Structured responses:
 - counter measures which have been identified by risk management for a risk or which were done in the past.
- Unstructured responses:
 - no counter measures have been identified and, thus, response needs to be planned when facing the event.



Basic classification of events



adapted from (Alvarenga et al, 2003)

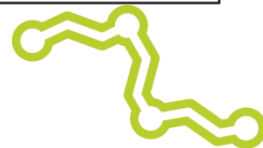
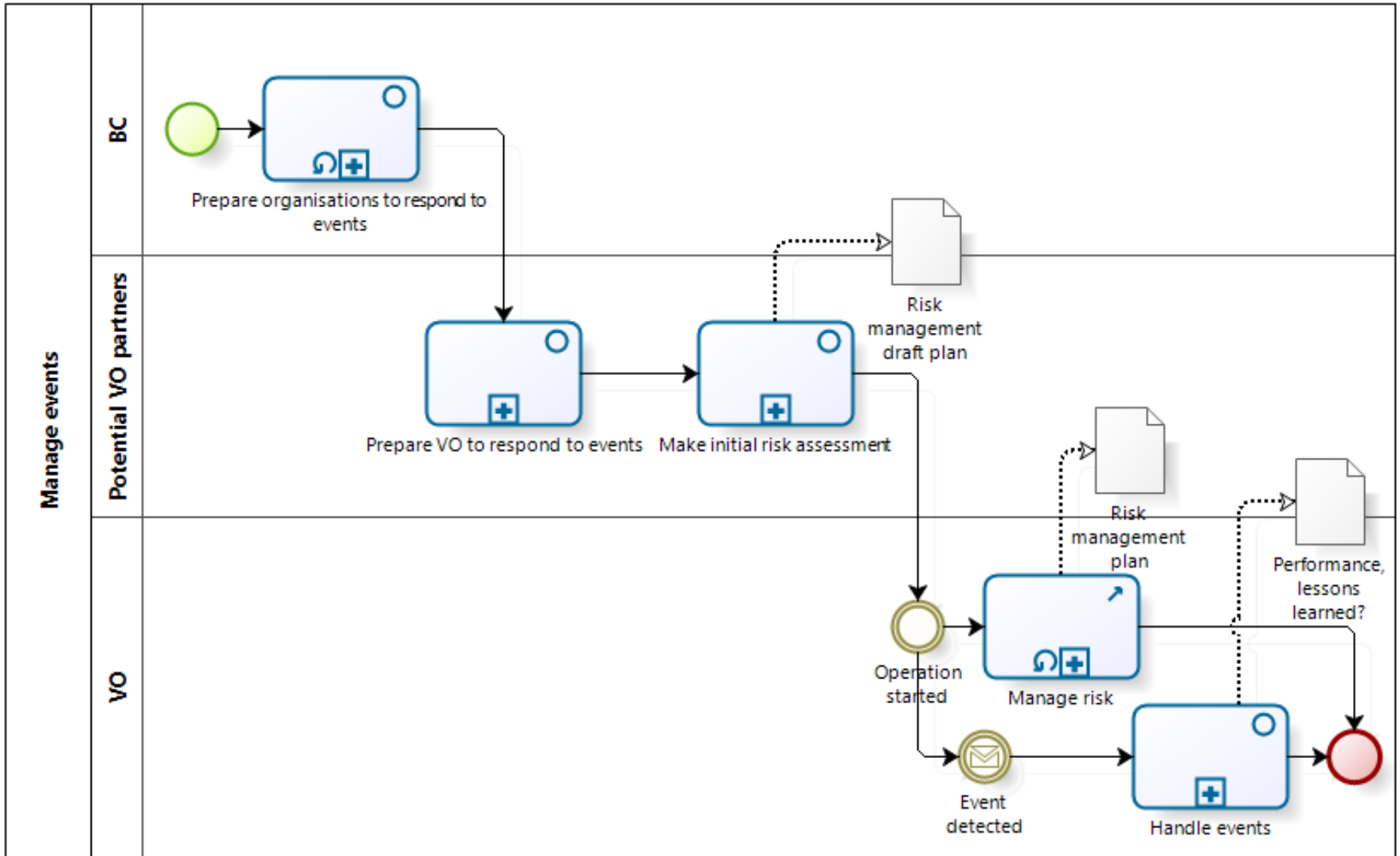


Monitoring and Event management – Objectives

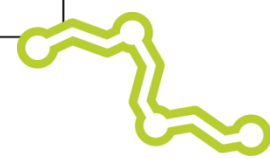
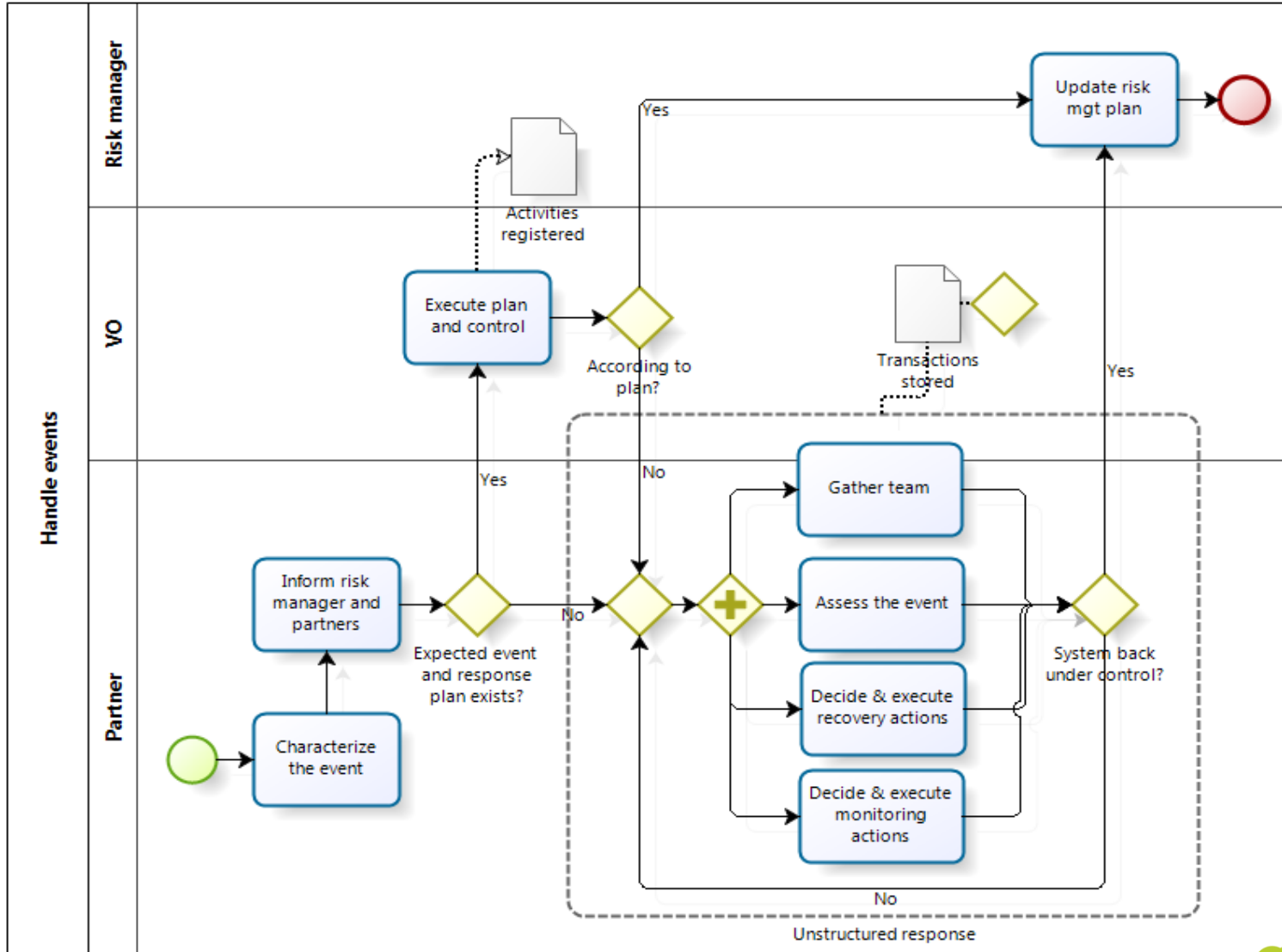
- Problem:
 - In non-hierarchical networks, unexpected events are particularly challenging due to the nature of the connection among members, presence of different organizations, cultures, and processes.
- Keep up the planned level of performance.
- Enhance the preparedness of VOs to minimize the probability and impact of events.
- To make networks more resilient, by managing and mitigating risks.
- Enable effective and efficient response to events.



The Manage events - Reference process



Handle events - Reference process



Thank you!

