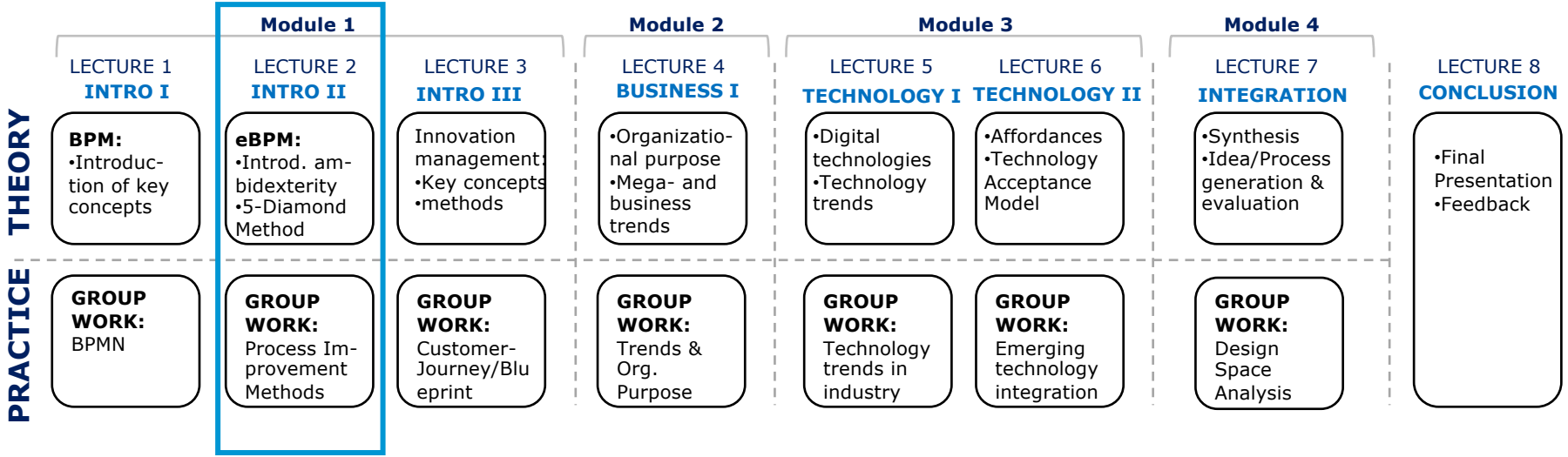
Explorative BPM: Lecture 2

Introduction to explorative BPM

Lecturer:

Encouraged by ERASMUS+ (EU Funding 2018-1-LI01-KA203-000114
„Reference Module Design for Explorative Business Process Management“)

Today: Lecture 2 – Introduction to explorative BPM



Questions to be answered

What is exploitative and explorative BPM?

What are exploitative BPM methods?

How can explorative BPM be structured?

Learning from
Organizational Ambidexterity

Exploitation		Exploration
Improvement of existing products, services, and processes through delivery skills and control		Innovation of products, services, and processes through discovery skills and experimentation
Associated with…		
mechanistic structures, routinization, control and bureaucracy, mature markets and technologies, problem-focused		organic structures, improvisation, autonomy and chaos, emerging markets and technologies, opportunity-focused

OA is described as an organization's capability to engage in and balance both exploitation and exploration for managing organizational change in turbulent environments.

(Tushman and O'Reilly 1996; He and Wong 2004)

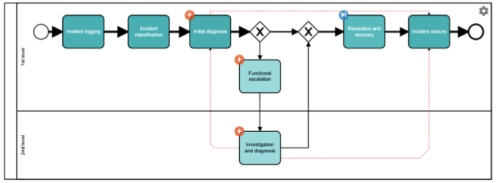
Let‘s consider two companies….

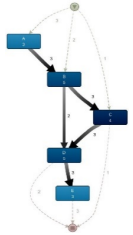
Random Pizza

Domino's

Focus of BPM at Random Pizza

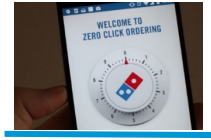
- **Reduce variation in business processes**
  - "We want 7 olives on every pizza, not 8 nor 6!"
- **Reducing waste in business processes**
  - "How can we reduce the time it takes to get the flour from the storage room?"
  - "How can we minimize the pizza delivery boy's idle time?"
- **Ensure compliance of business processes**
  - "We want the pizza to be payed first before it is being prepared. However, it seems like we usually start baking right away."
- **Analyze business process data**
  - "It seems like at peak times the unfinished pizzas queue up in front of the oven. Maybe we need a second one."





Focus of BPM at Domino's

Graphics from dominos.com.au



Zero-Click Ordering

By opening an app, the pizza is ordered

SMS Ordering

Ordering a pizza by sending an emoji

DRU: Autonomous delivery robots

On-Time Cooking

Pizza will be baked once the customer is close to the pick-up location

Delivery Guarantee

Algorithm checks whether 20min delivery is possible, free pizza if it takes longer

Image from https://www.dominos.com.au/about-us/technology

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Role of BPM in Contrast

Random Pizza

- Aims for…
  - Operational excellence
  - Error and cost reduction
  - Data-driven process analysis
  - Inside-out perspective
  - Problem-driven

→ BPM as a necessity

Exploitative BPM

- Aims for the same as Random Pizza, plus…
  - Innovation
  - Tomorrow's revenue
  - Create customer experience
  - Outside-in perspective
  - Opportunity-driven

→ BPM as driver of competitive advantage

Explorative BPM

→ Both roles of BPM are important to be successful!

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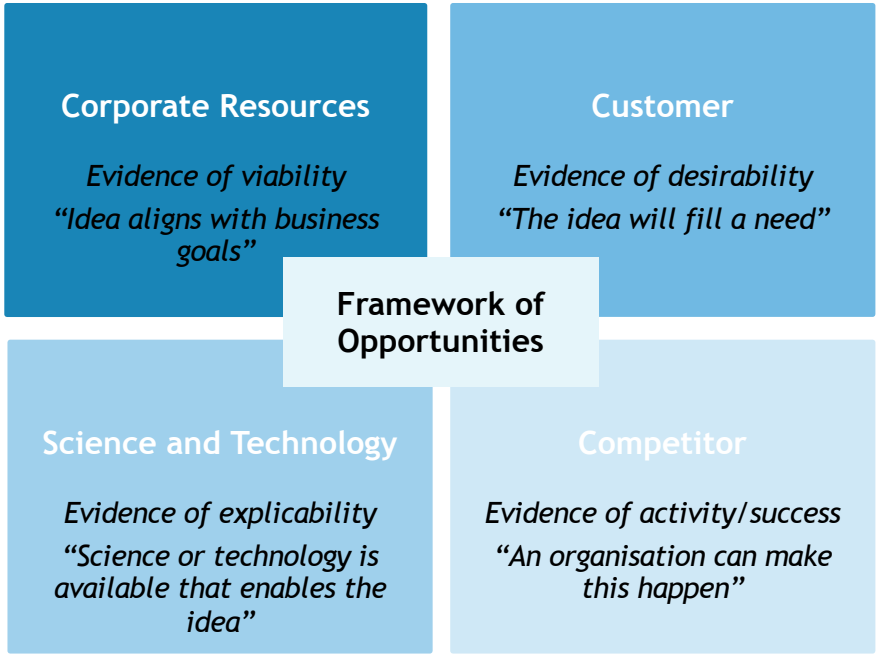
Three dimensions of process change

Three dimensions of process change			
Trigger	Problem-driven		Opportunity-driven
Action	Improve existing process	Reengineer existing process	Create new process
Value Proposition	Same value proposition	Enhanced value proposition	New value proposition

What is an opportunity?

What is an Opportunity?

> ***Opportunities*** are possible actions that an organization may take to introduce ***innovative products, services, or processes*** to an industry or economic marketplace.



(Kirzner 1973; Rosemann et al. 2019 (working paper)); Schumpeter 1942)

Characteristics of Explorative BPM

Three dimensions of process design

Three dimensions of process design			
Trigger	Problem-driven		Opportunity-driven
Action	Improve existing process	Reengineer existing process	Create new process
Value Proposition	Same value proposition	Enhanced value proposition	New value proposition

Characteristics of Explorative BPM

Typical combinations for explorative and exploitative BPM	
Exploitation	(1) Problem + Improve existing process + Same value proposition (2) Problem + Reengineer existing process + Same value proposition (3) Problem + Improve existing process + Enhanced value proposition (4) Problem + Reengineer existing process + Enhanced value proposition
Exploration	(1) Opportunity + Reengineer existing process + New value proposition (2) Opportunity + Create new process + New value proposition

(Gridold et al. 2019)

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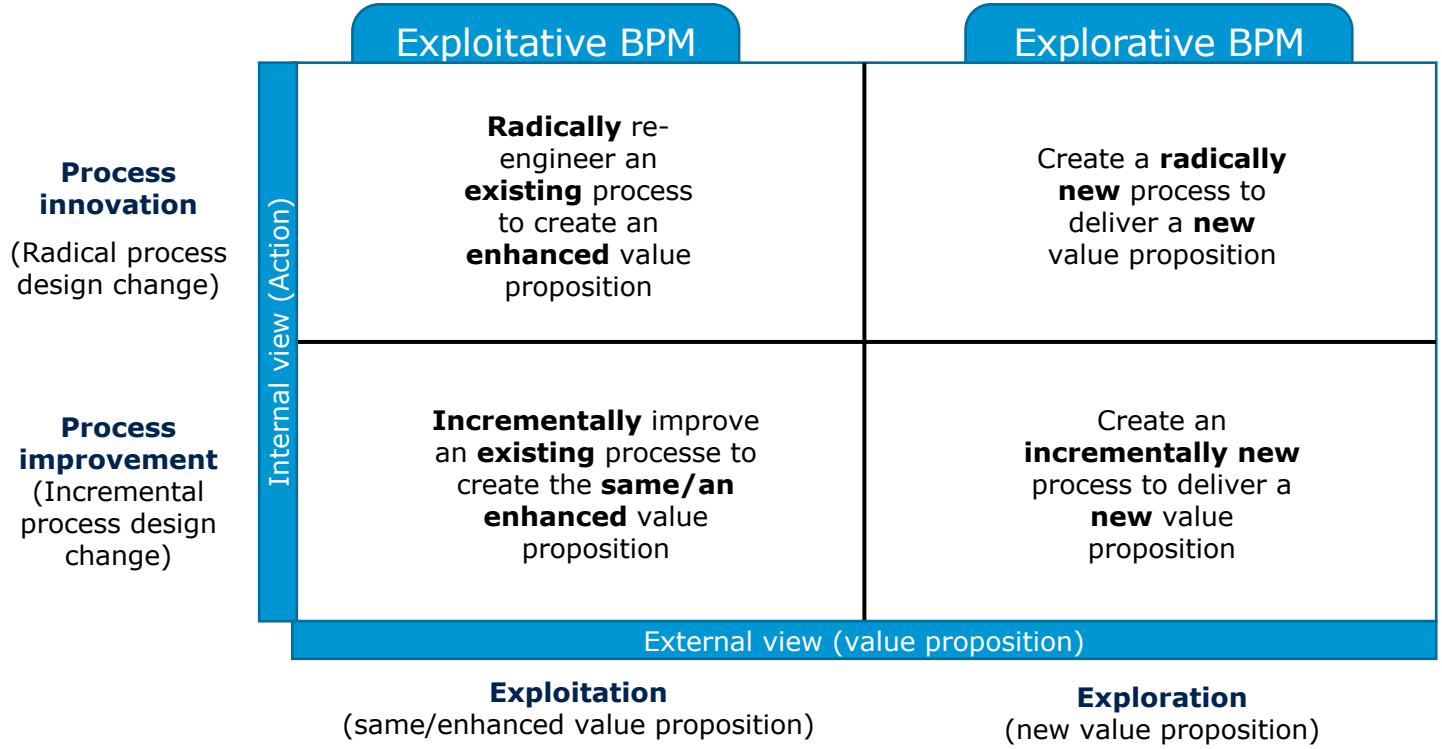
Defining of Explorative BPM

Explorative BPM is *the* ***continuous process*** *of* ***questioning underlying business logics*** *– i.e. the established understanding how value is generated – and* ***integrating innovation opportunities*** *(both in terms of business and technology)* ***into business process work****, even if there is no perceived pressure to do so.*

Explorative BPM refers to the offering of ***new value propositions*** *through the* ***reengineering of existing processes or the creation of new processes.***

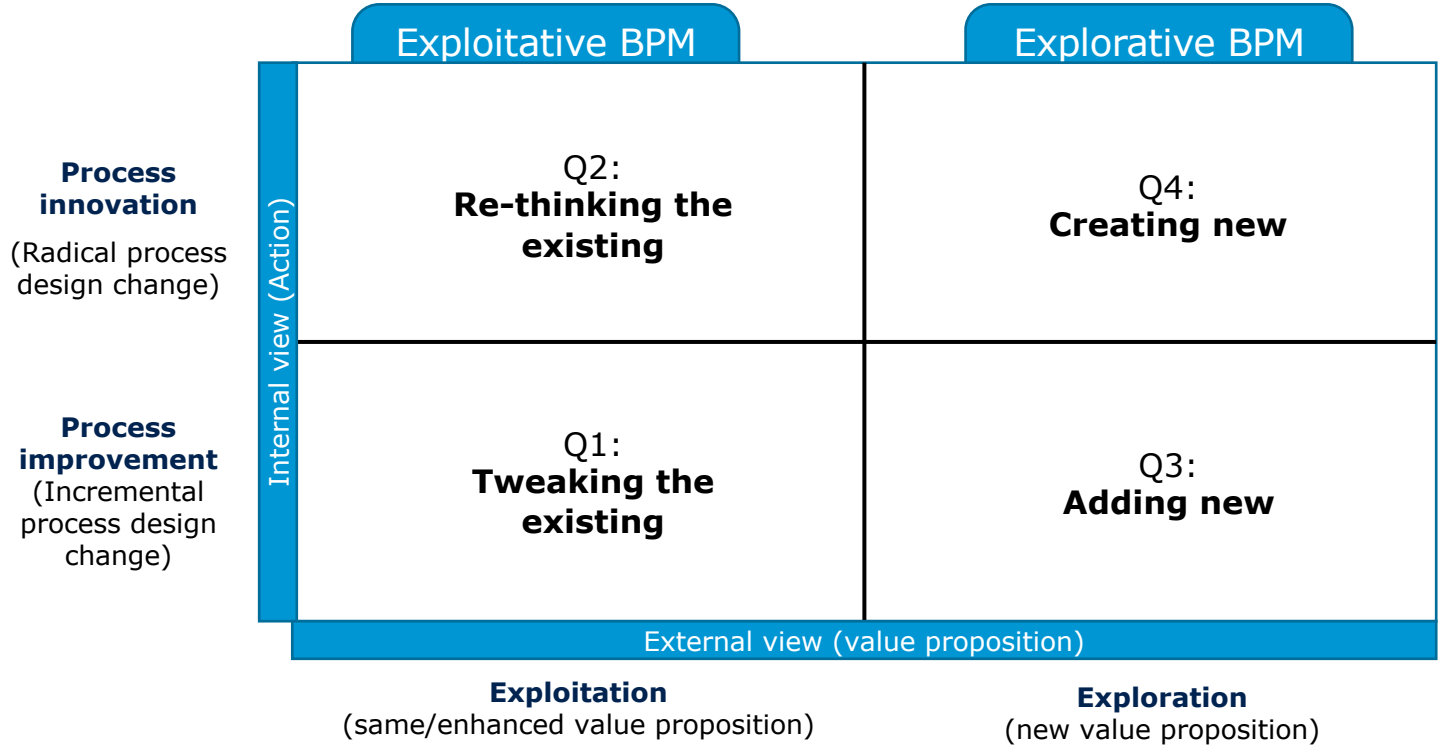
(Grisold et al. 2019)

Process Design Matrix (contd.)



Process Design Matrix

Process Design Matrix (simplified)



Process Design Matrix

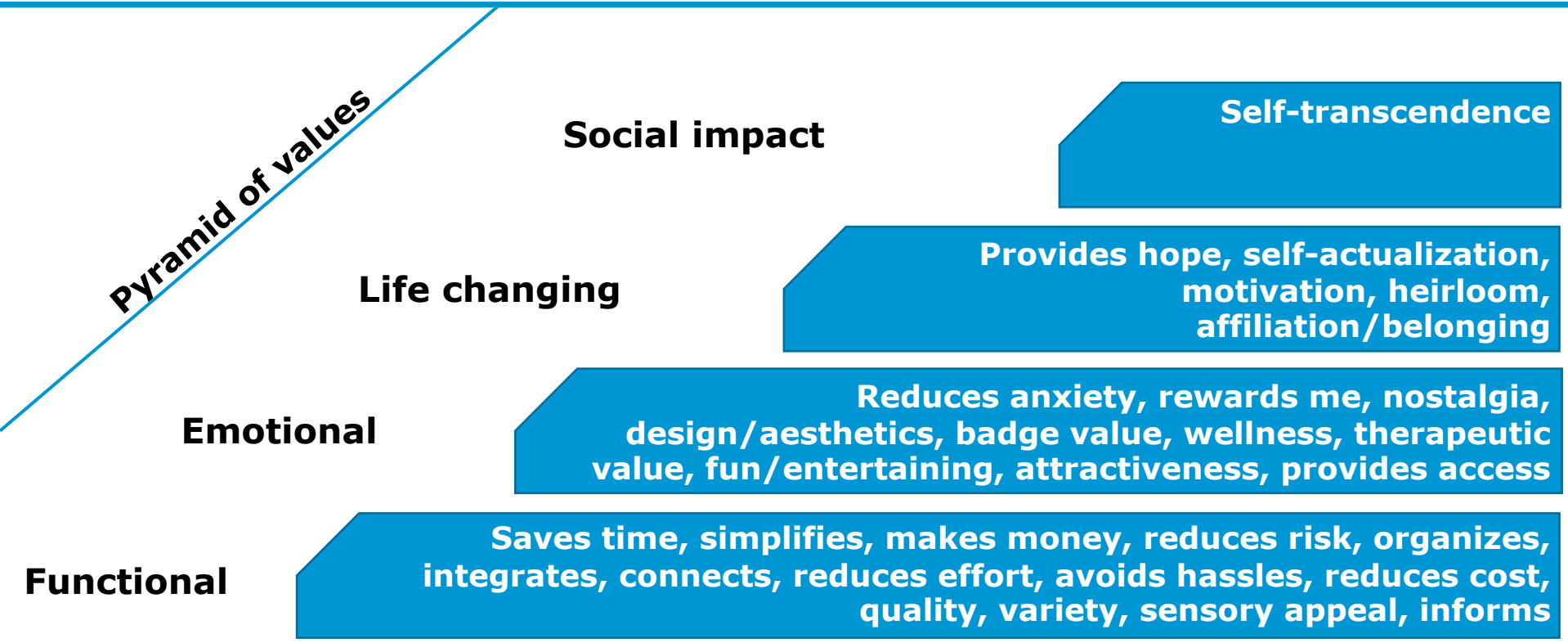
Process Design Matrix

	Same value	New value
Innovation		?
Improvement		
	Exploitative	Explorative

…can you think of other examples?

Image from https://www.dominos.com.au/about-us/technology

What type of customer value exists?



Almquist et al. (2016)

Questions to be answered

What is exploitative and explorative BPM?

What are exploitative BPM methods?

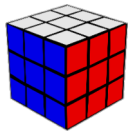
How can explorative BPM be structured?

What is a method?

- A method refers to the **well-defined sequences of activities** that, if carried out proficiently, yields **predictable results** (Checkland 1981)
- Methods as a whole or its subordinate activities may make **use of techniques** (Kothari 2004). A *technique* is a prescribed procedure to conduct a specific activity (Brinkkemper 1996)
- Distinguish between **research methods** and **practical methods**
- Methods build on **previously gained experience** and research on **how this desired state can be reached** in an **effective, rigorous, and reliable way** (Malinova et al. 2019)

…can you think of examples for practical or research methods?

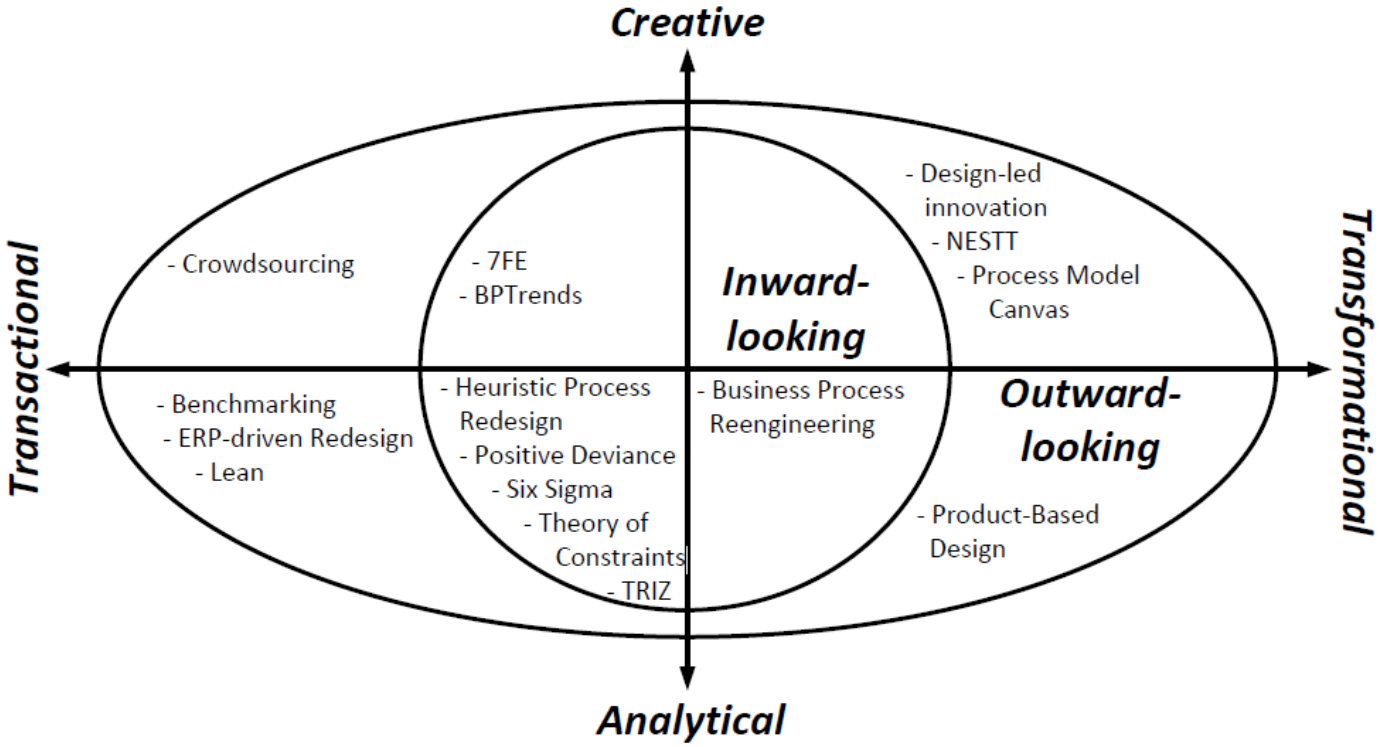
White cross → White corners → Yellow cross → … → Yellow edges → Orient corners



(Checkland 1981; Kothari 2004; Brinkkemper 1996; Malinova et al. 2019)

The Redesign Orbit

A spectrum of Business Process Redesign Methods

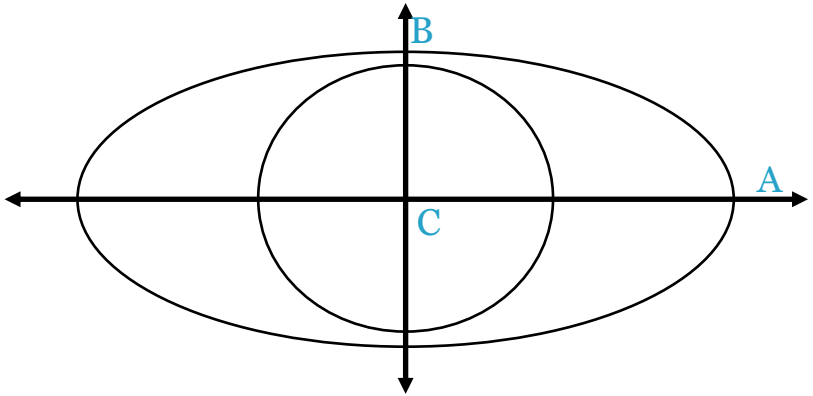


The Redesign Orbit: A spectrum of Business Process Redesign Methods (Dumas et al. 2018)

The Redesign Orbit

The three axes

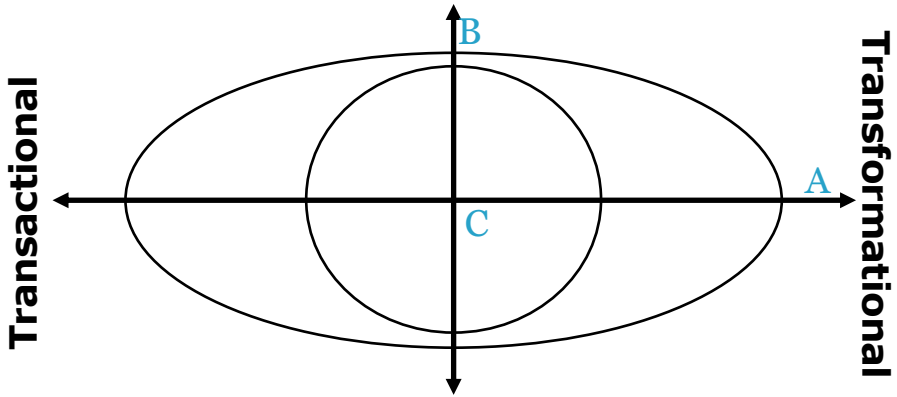
- The three respective axes in this Redesign Orbit concern the
  - **A. Ambition** behind the method
  - **B. Nature** of the techniques it embodies
  - **C. Perspective** it assumes on the business process



The Redesign Orbit

Ambition

- The three respective axes in this Redesign Orbit concern the
  - **A. Ambition** behind the method refers to the magnitude of change the process redesign seeks to bring about.



The Redesign Orbit

Nature

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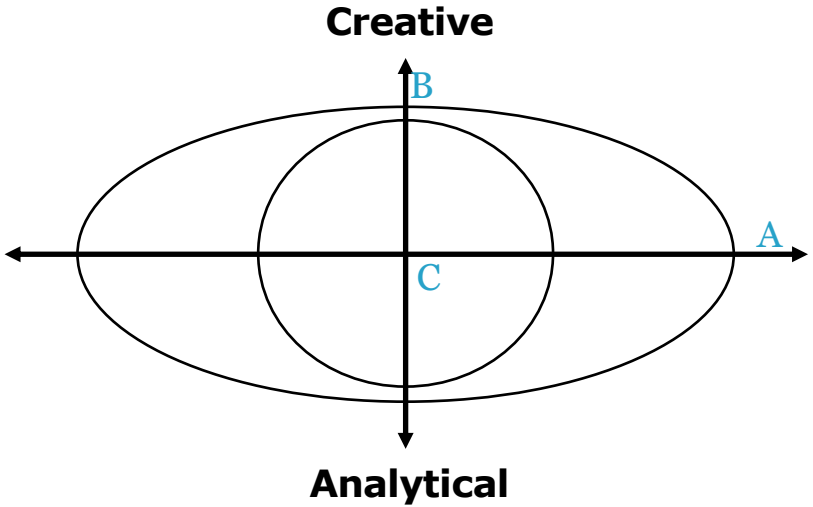
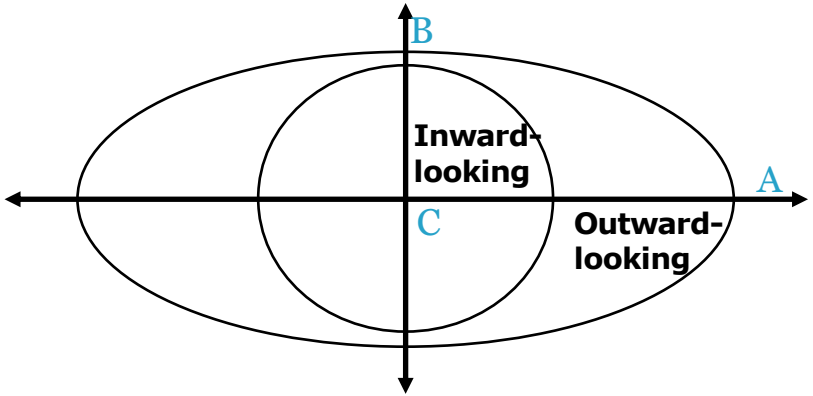


The Redesign Orbit

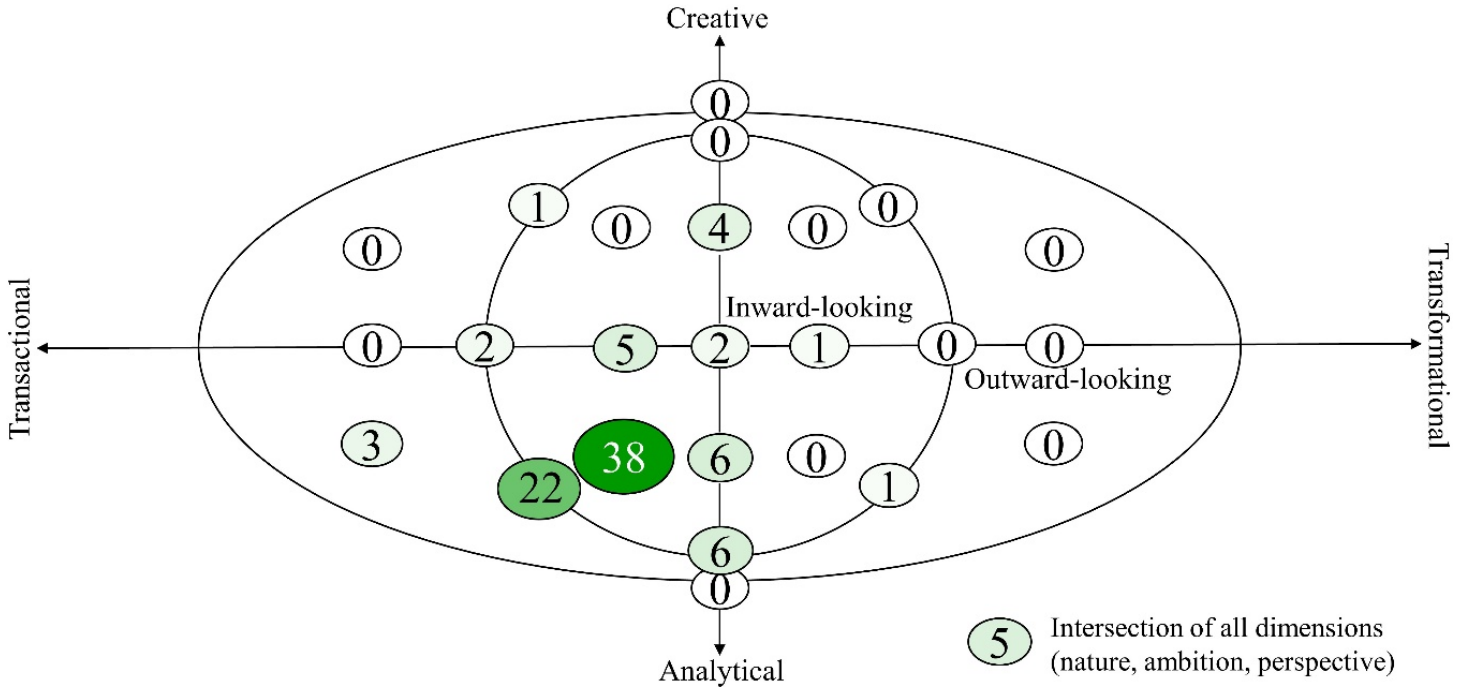
Perspective

- The three respective axes in this Redesign Orbit concern the

C. Perspective it assumes on the business process – the perspective taken by the redesign method

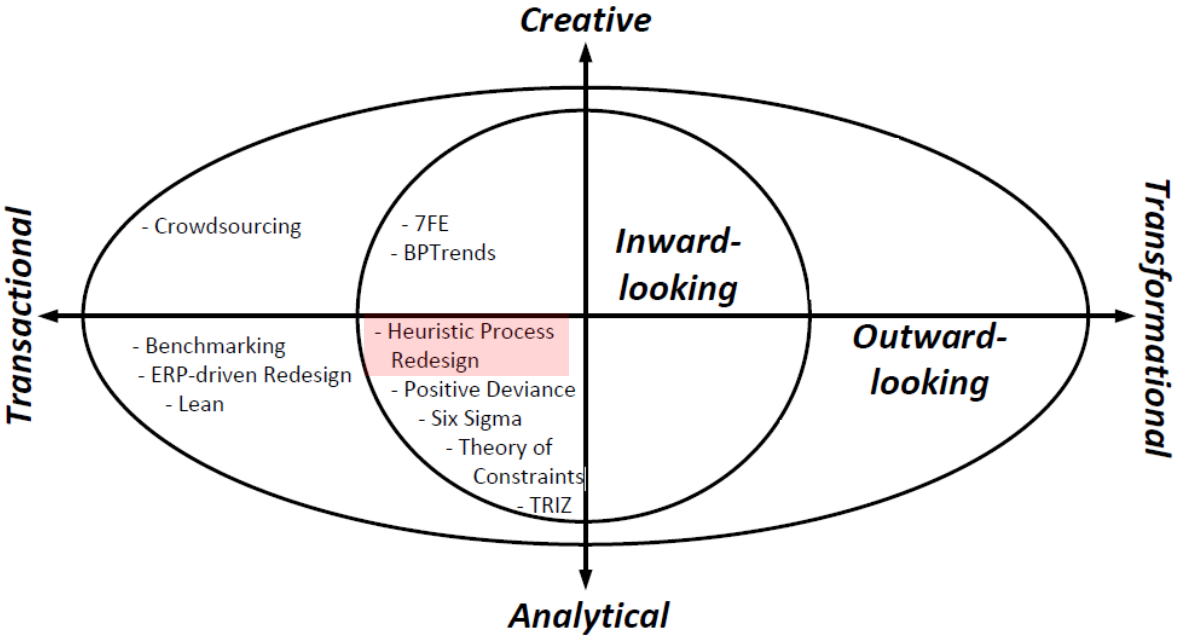


Allocation of available BPM Methods on the Redesign Orbit



(Gross et al. 2018)

Overview of Transactional Methods



Heuristic Process Redesign

Redesign heuristics can be seen as rules of thumb for deriving a different process from an existing one

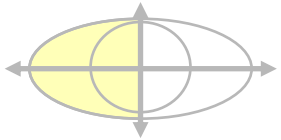
- Starting point is an existing business process
- Systematic consideration of wide range of redesign principles
- What is a heuristic?
  - Problem solving approach that intends to find a (sufficiently) good, but not necessarily optimal solution to a problem, while the optimal solution is impossible (e.g. not all information available) or impractical (e.g. too many possible solutions) to find.
- In total 29 redesign heuristics available, which are known to bring about improvements along the particular dimension of the performance goal in question (see Devil's Quadrangle)

Time	Cost	Quality	Flexibility
Parallelism Case-based work	Activity elimination Empower	Empower Triage	Flexible assignment Centralization

List of eight redesign heuristics allocated to their corresponding dimension of performance goals

Heuristic Process Redesign

The three stages

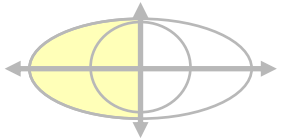


Three stages for Heuristic Process Redesign:

1. **Initiate**
    1. Understand as-is situation
    2. Set performance goals
        - The Devil's Quadrangle is a great asset to this end
2. **Design**
    1. List heuristics
    2. Consider the heuristics interplay
    3. Depict scenarios
3. **Evaluate**
    1. Experts

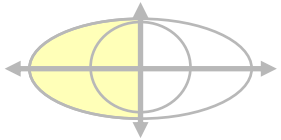
} The actual redesign

Example Redesign Heuristics



- **Parallelism**
  - "Consider whether activities may be executed in parallel"
- **Case-based work**
  - "Consider removing batch-processing and periodic activities from a business process"
- **Activity elimination**
  - "Eliminate unnecessary activities from a business process"
    - E.g., control (v. more faults in the outcome)
- **Empower**
  - "Give workers most of the decision-making authority instead of relying on middle management"
    - Time decreases, however quality is compromised

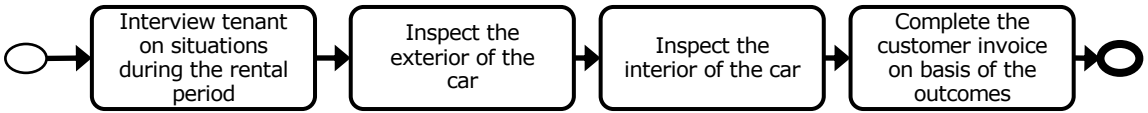
Example redesign heuristics



- **Triage**
  - "Consider the division of a general activity into two or more alternative activities"
    - Design activities that are better aligned with resource capabilities which improves quality, but affect cost
- **Flexible assignment**
  - "Assign work in such a way that maximal flexibility is preserved for near future"
    - Most specialized person to assign first (v. less job satisfaction and unbalanced workload)
- **Centralization**
  - "Treat geographically dispersed resources as if they are centralized"
    - Use of an IS to assign resources, better time, more flexible

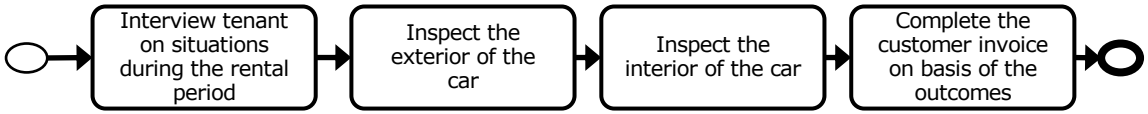
Exercise

- Imagine a hypothetical car rental agency called *Frequenz* which wishes to improve the business process that takes care of collecting rental cars on their return.
- They wish to improve the process from both **time** and **quality** perspective.
- The existing business process involves four major steps:
  a) An interview with the tenant on situations during the rental period
  b) An inspection of the exterior of the returned car
  c) An inspection of the interior of the returned car
  d) The completion of the customer invoice on the basis of the outcomes of a, b and c

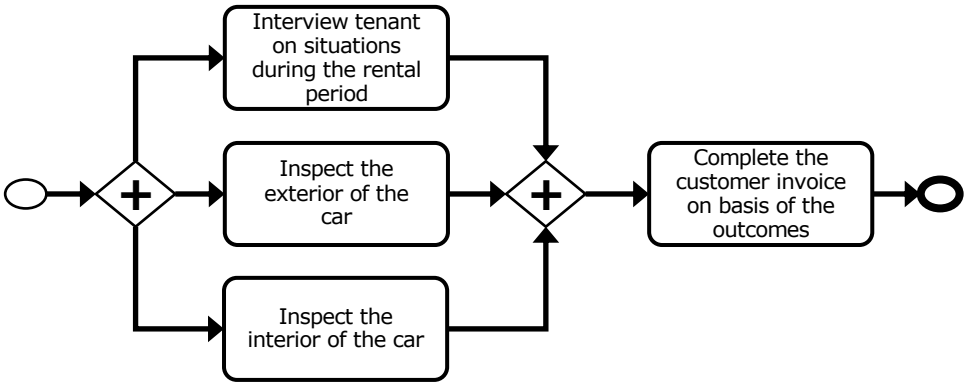


Exercise

Improve the Time

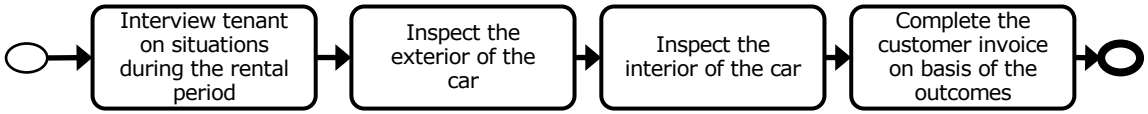


- To improve the time of the business process, Frequenz would need to consider the **parallelism** redesign heuristic.

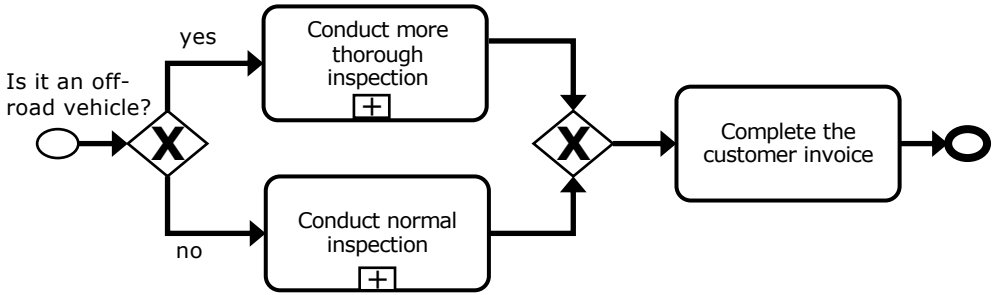


Exercise

Improve the Quality

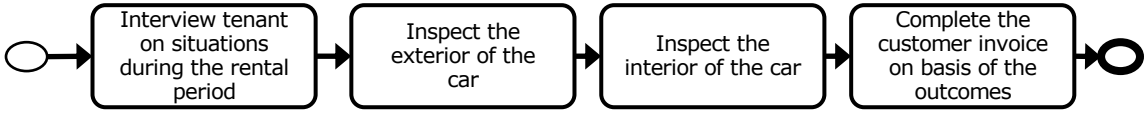


- To improve the quality of the business process, Frequenz would need to consider the **triage** redesign heuristic.
  - Split an activity into alternative versions.

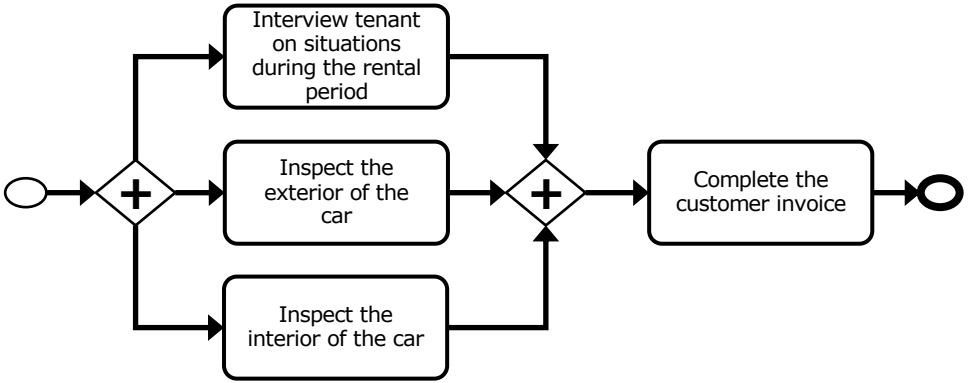


Exercise

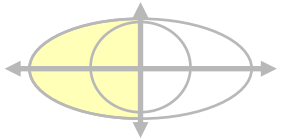
Improve the Quality



- To improve the quality of the business process, Frequenz would need to consider the **case assignment** redesign heuristic.
  - One participant carries out all steps, such that information gathered during (a) could be used to improve activities (b) and (c).
- However, this will interfere with the parallel execution of the activities.



Full List of Redesign Heuristics

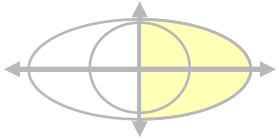


- Customer Heuristics
  - Control relocation, contact reduction, integration
- Business Process Operation Heuristics
  - Case types, activity elimination, case-based work, triage, activity composition
- Business Process Behavior Heuristics
  - Resequencing, parallelism, knock-out, exception
- Organization Heuristics
  - Organizational structure:
    - Case assignment, flexible assignment, centralization, split responsibilities, customer teams, numerical involvement, case manager
  - Organizational population
    - Extra resources, specialize, empower
- Information Heuristics
  - Control addition, buffering
- Technology Heuristics
  - Activity automation, integral technology
- External Environment Heuristics
  - Trusted party, outsourcing, interfacing

➢ For detailed explanation of each redesign heuristics please read the corresponding chapter 8 from the book "Fundamentals of BPM"

(Dumas et al. 2018)

Product-Based Design



- **Characteristics** of that particular product (or the service) are used to determine what the process **should look like** which results in a new business process
- **Analytical** in nature since it relies on a formal, almost purely **algorithmic way**, of developing a new business process
- The goal is to **completely renovate a process**, which makes it a **transformational method**
- It is **outward-looking**, because it takes the product, that the business process aims to deliver, as a central stage
- By **ignoring the existing business process** and just **considering the features of the product**, it becomes feasible to develop the **leanest, most performative process possible**

Product-Based Design

Example

- To be able to produce a red, electric car with four wheels, you must:

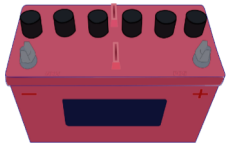
Produce or purchase the wheels

1

Assemble the wheels to the chassis

2

Insert the battery



3

Paint the car red

4

- If not sure in what order these things need to take place exactly, identify some logical dependencies.

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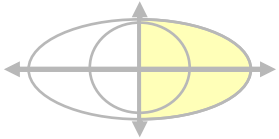
Product-Based Design

Stages



- It has been specifically developed to design processes that produce informational products (e.g. decisions, proposals, documents, permits).

- The most important stages of Product-Based Design are the following:

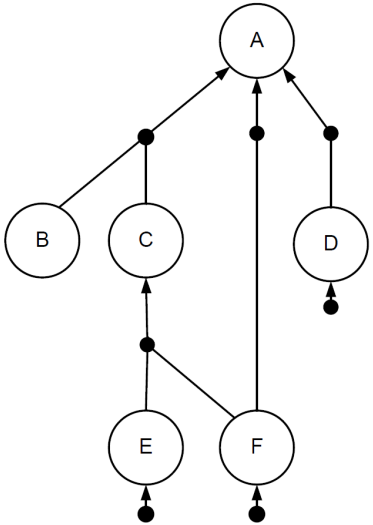
1. **Scoping**
   - Selection of the business process to be redesigned, identification of performance targets and identification of limitations to be taken into consideration for the final design
2. **Analysis**
   - Decomposition of the product into information elements and their logical dependencies in the form of a *product data model* and diagnosis of the existing business process, if any, to get data significant for the new process design
3. **Design**
   - Based on performance objectives, the product data model, and estimated performance figures, one or more designs are derived that best match with the design goals
4. **Evaluation**
   - Process designs are verified, validated with end users, the estimated performance of the process designs is analyzed in more detail and after the assessment by the commissioning management, the most favorable design is selected to be implemented

Product-Based Design

The Product Data Model

- In the analysis phase, sources are gathered that may shed light on what producing a particular product exactly entails. The purpose is to identify:

1. **Information elements**: the pieces of information that are needed at some stage in creating an informational product
2. **Dependencies between information elements**: insights into which pieces of information are needed to derive other pieces
3. **Production logic**: the way information elements can be combined to arrive at new information.

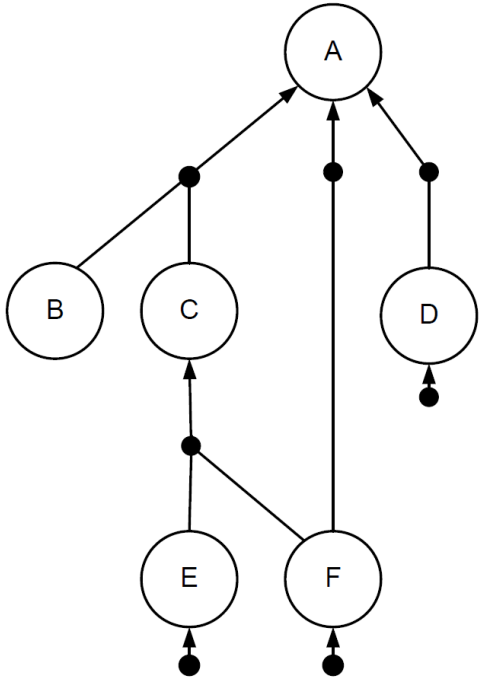


Product Data Model

Example

- Hiring process of helicopter pilots by a Dutch Air Force.

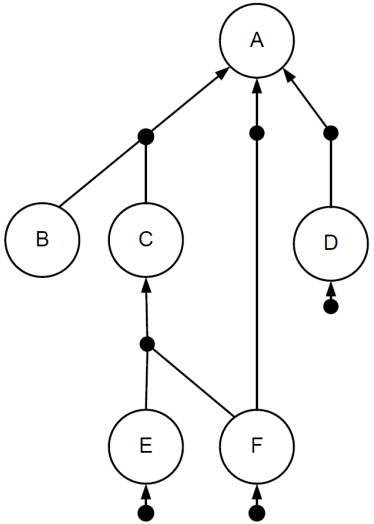
A. The candidate's suitability to become a helicopter pilot
B. The candidate's psychological fitness
C. The candidate's physical fitness
D. Latest outcome of tests on candidate in the previous two years
E. Quality of the candidate's reflexes
F. Quality of the candidate's eye-sight.



Product Data Model

Derive a process model

"A process design is nothing more than determining what the preferred way of traversing a product data model is from bottom to top"



- Information elements are created in activities, if they are not yet available
  - E.g. activity 'Check physical fitness' for information element 'physical fitness'
- There is usually more than one way of traversing through the product data model
  - Activities can be sequential in different orders, parallel…
- The resulting process design depends on the objective(s) (reduce time, save costs…)

…why is the method transformative yet exploitative?

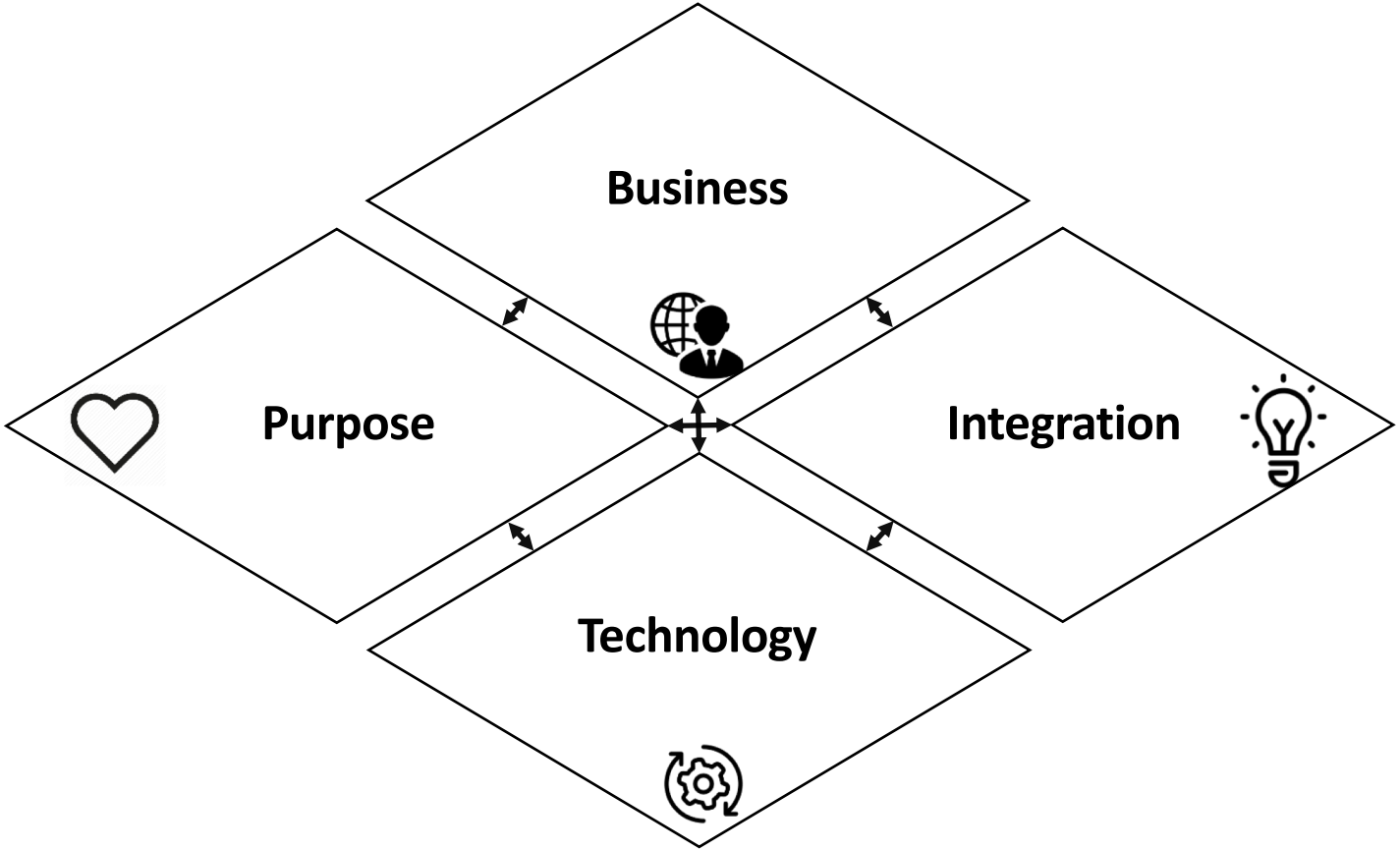
Questions to be answered

What is exploitative and explorative BPM?

What are exploitative BPM methods?

How can explorative BPM be structured?

Five-Diamond-Method for Explorative BPM: Overview



About the interaction of Divergent and Convergent thinking

Definition

Creative thinking seems to involve **2 components**: **generation of novelty (via divergent thinking)** and **evaluation of the novelty (via convergent thinking**).

In **divergent thinking**, there is much **searching in various directions**. This is most clearly seen when there is **no unique conclusion.**

In **convergent thinking**, there is usually **one conclusion** or answer that is regarded as unique, and thinking is channeled or controlled in the direction of that answer.

In practical situations, divergent thinking without convergent thinking can cause a variety of problems including reckless change.

Cropley (2006) & Guilford (1956)

Example for Divergent and Convergent thinking

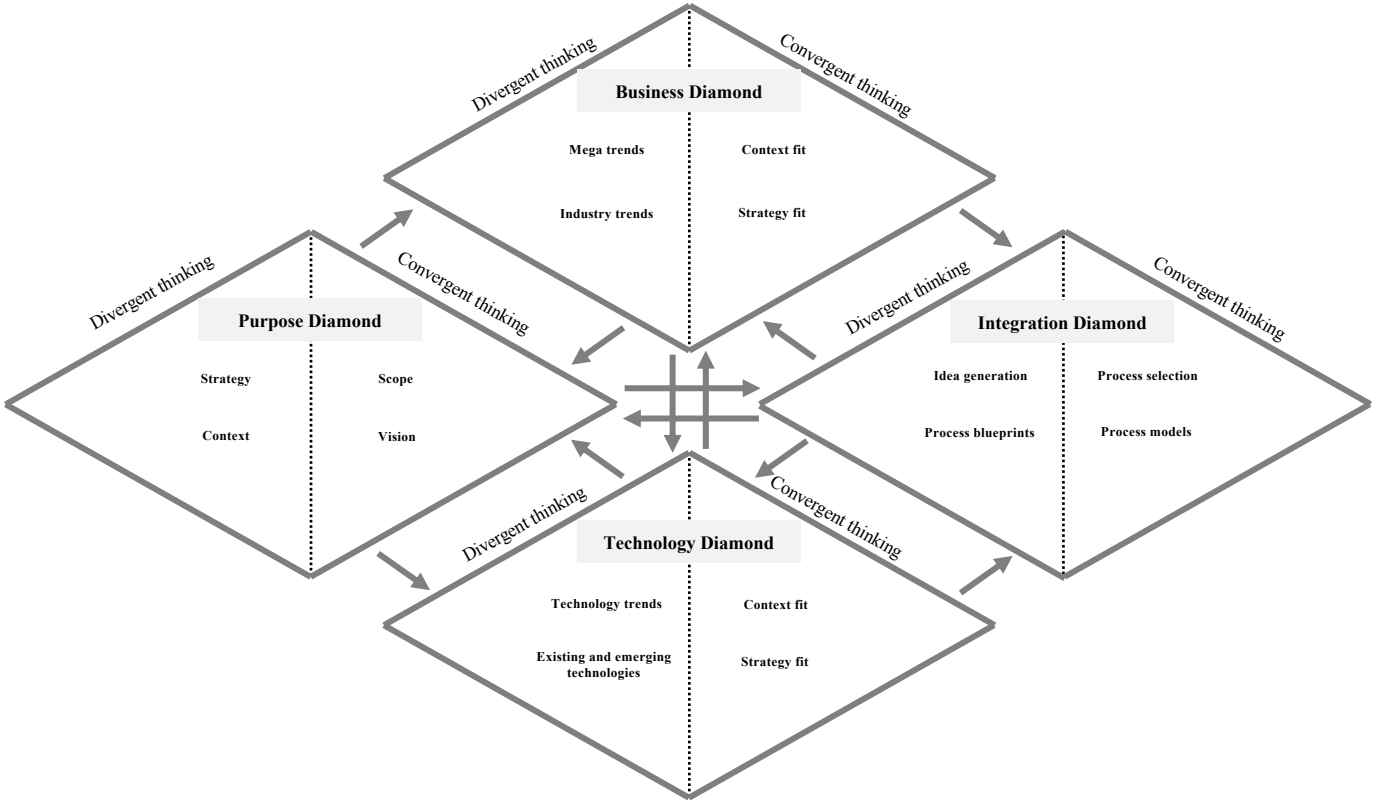
Divergent Thinking

- You live 5 kilometers away from the office and want to commute to work – what options do you have?

Convergent Thinking

- What would be the best option (in which context)?

Five-Diamond-Method for Explorative BPM: Detailed view



Answered Questions

What is exploitative and explorative BPM?

→ *Builds on the idea of organizational ambidexterity*

→ *… **integrating innovation opportunities** (both in terms of business and technology) **into business process work…***

What are exploitative BPM methods?

→ *E.g. Heuristic process-redesign & Product-based design*

How can explorative BPM be structured?

→ *By the application of the Five-Diamond method*

→ *Guided by the concept of divergent and convergent thinking*

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(Dumas et al. 2018)