

2. Basic Patterns and Tools for Lean Startup and Lean Innovation

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[http://st.inf.tu-dresden.de/
teaching/saab](http://st.inf.tu-dresden.de/teaching/saab)

- 1) The Innovator's Toolbox
- 2) Change Patterns
- 3) Lean Innovation
- 4) Lean Canvas
- 5) Other Canvases
- 6) Innovation Processes

Literature

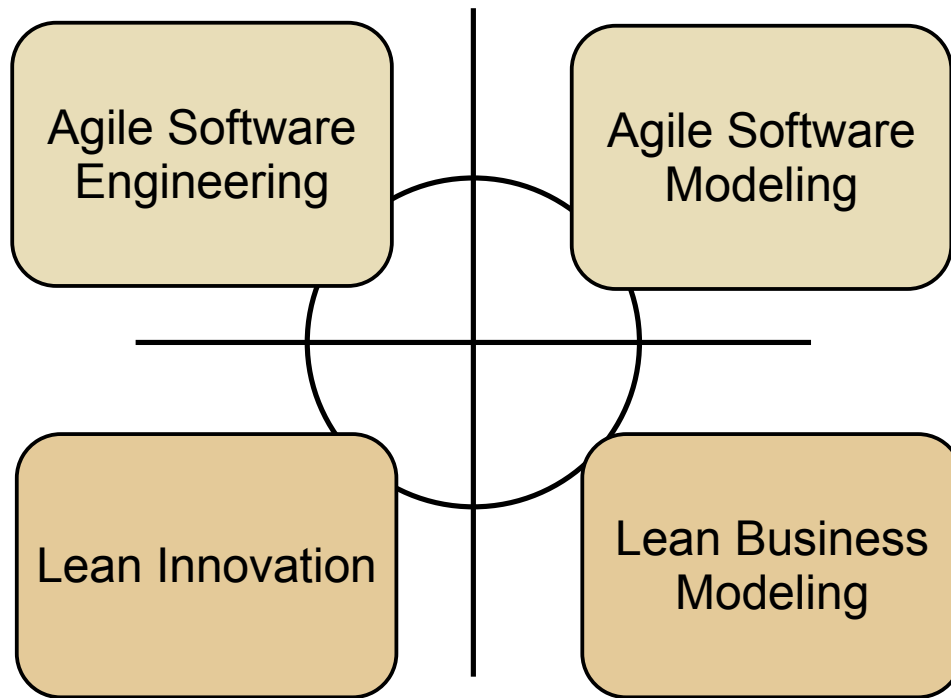
- ▶ [Osterwalder-PhD]
http://www.hec.unil.ch/aosterwa/PhD/Osterwalder_PhD_BM_Ontology.pdf
- ▶ [Carlson-Wilmot] Curtis R. Carlson, William W. Wilmot. Innovation. The Five Disciplines for Creating what Customers Want SRI International. Crown Business, US, 2006
- ▶ [Oddoy] Manuel Oddoy. Softwareentwicklung mit natürlicher Sprache (“Lean Modelling”), Belegarbeit, TU Dresden, Jan. 2014. Supervised by Christian Wende, www.devboost.de
- ▶ [Korger] Christina Korger. Organisierte Software-Startups mit kollaborativen Canvases. Großer Beleg. TU Dresden, 2014.
 - <http://nbn-resolving.de/urn:nbn:de:bsz:14-qucosa-160539>



2.1 The Lean Innovator's Toolbox

Lean = ^Agile – what does this mean?

Lean or Agile Innovation or What?

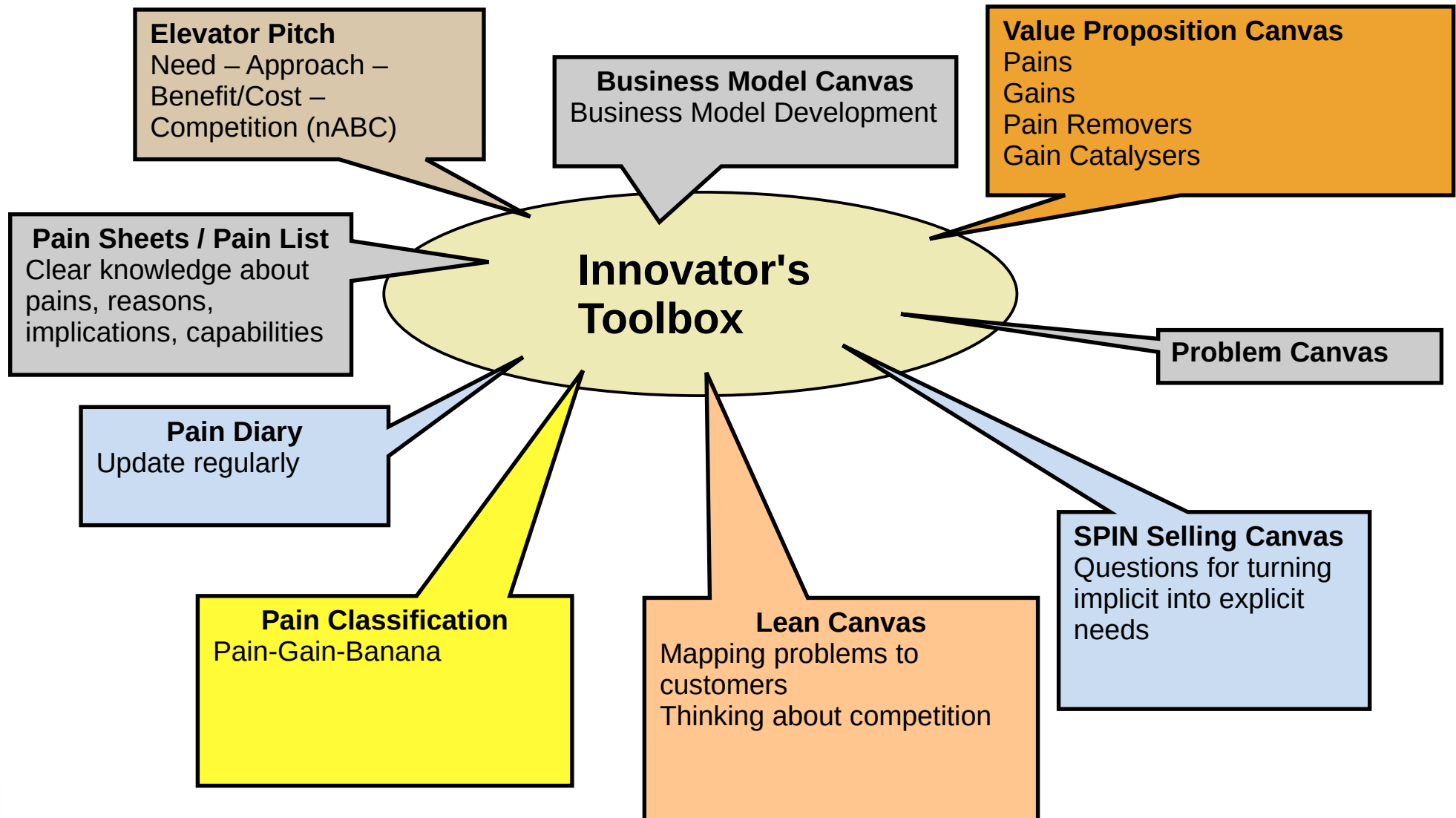


The Lean Innovator's Toolbox

- ▶ Every lean innovator needs a toolbox for his products or services he develops
 - Several important artefacts (lean models) are assembled. He/she should know them by heart.
- ▶ In the course, we will discuss these artefacts and how to mature them.
- ▶ The innovator's toolbox
 - NABC Elevator Pitch template
 - Working with Canvases
 - The Business Model Canvas
 - The Value Proposition Canvas
 - The Lean Canvas
 - The Lean BMC
 - The Personal BMYou
 - The Requirements Engineering Canvas
 - Problem and Pain Diary

Q1: The Lean Innovator's Toolbox

- ▶ Every innovator should have the following artefacts present and mature them over time



Change Patterns the Lean Innovator has to Know and the Opportunities in the SWOT Analysis

External

▶ Society

- Finding new governance rules and laws (Sarbanes-Oxley, certifications)
- Change of government, also in other countries (Wende, Treuhand...)

▶ Nature

- Times of the year

▶ Technology

- New technology (innovation waves, disruptive technology,...)

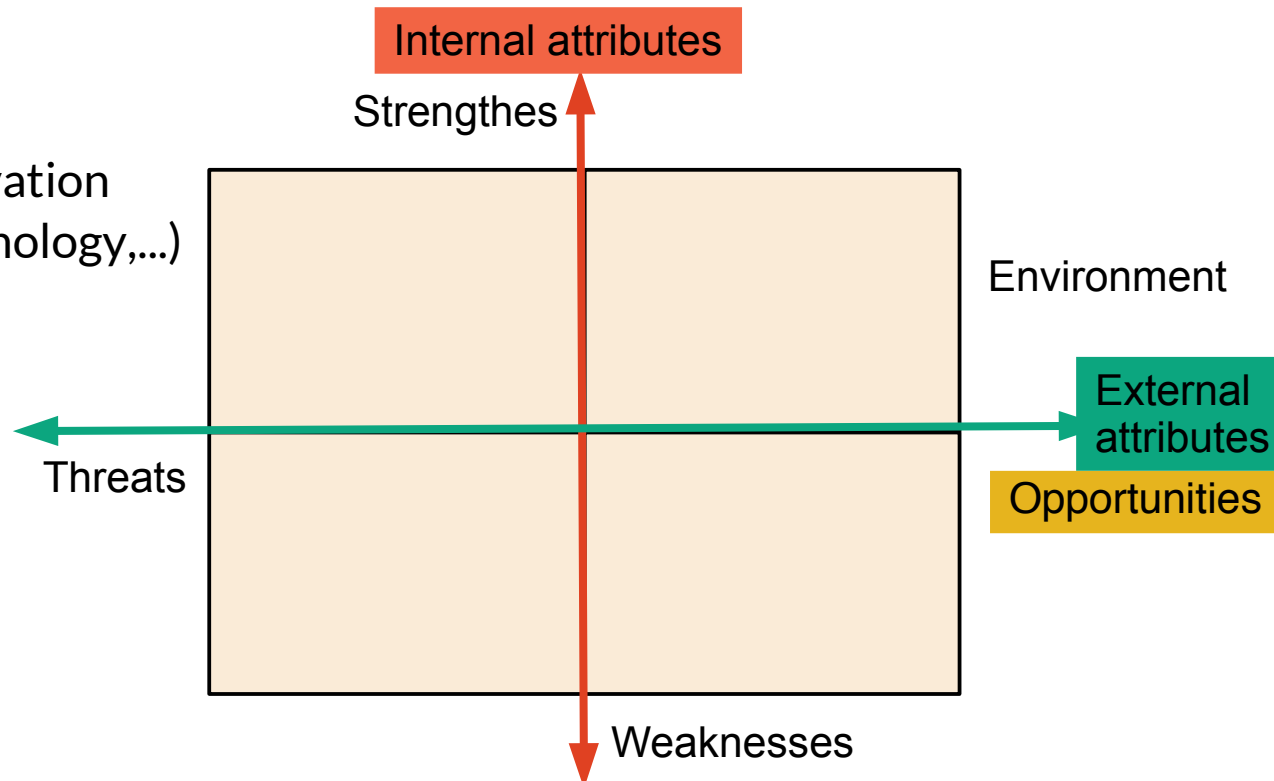
▶ Economics

- Commodity pattern
- Economic cycles

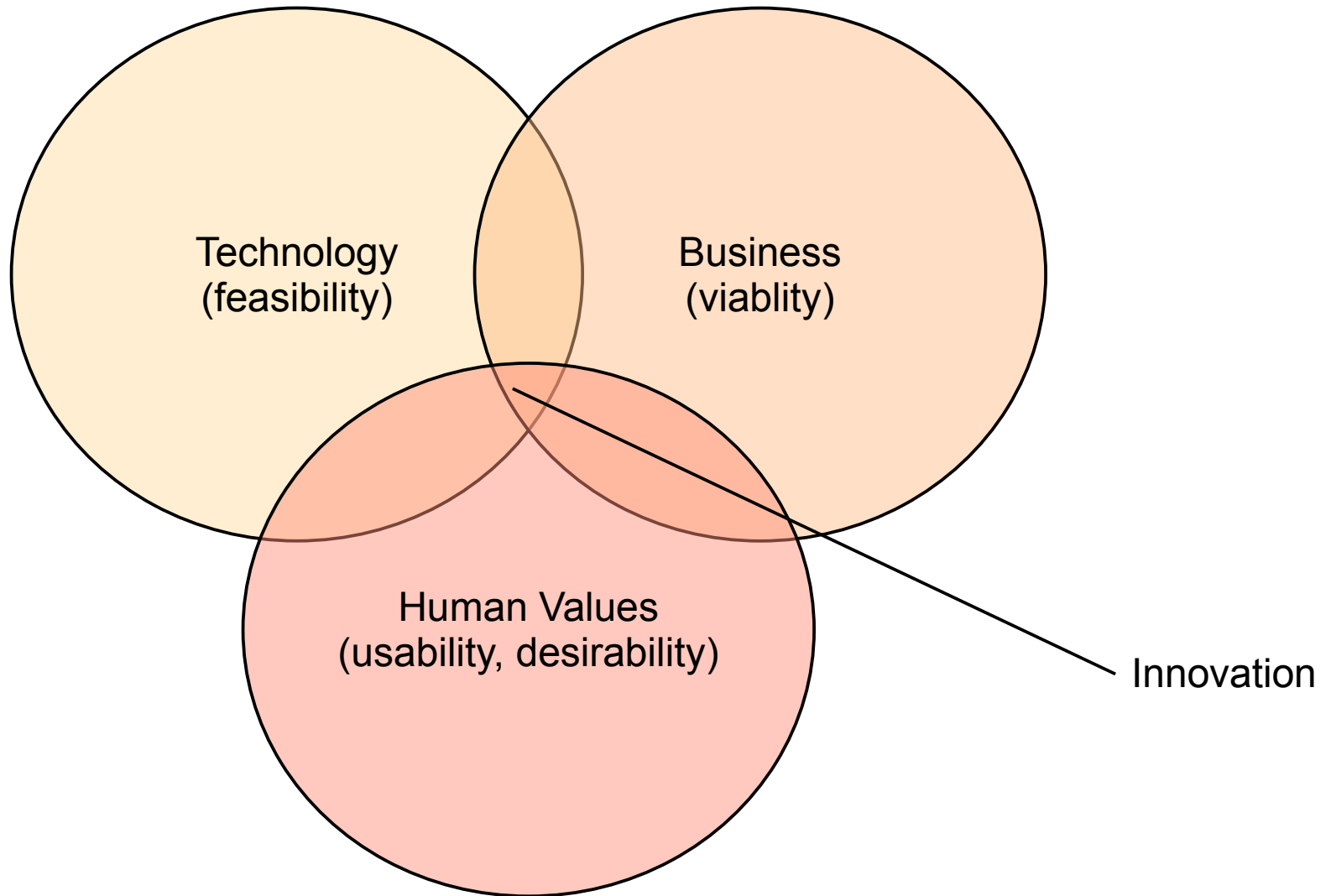
Internal

▶ Supplier changes

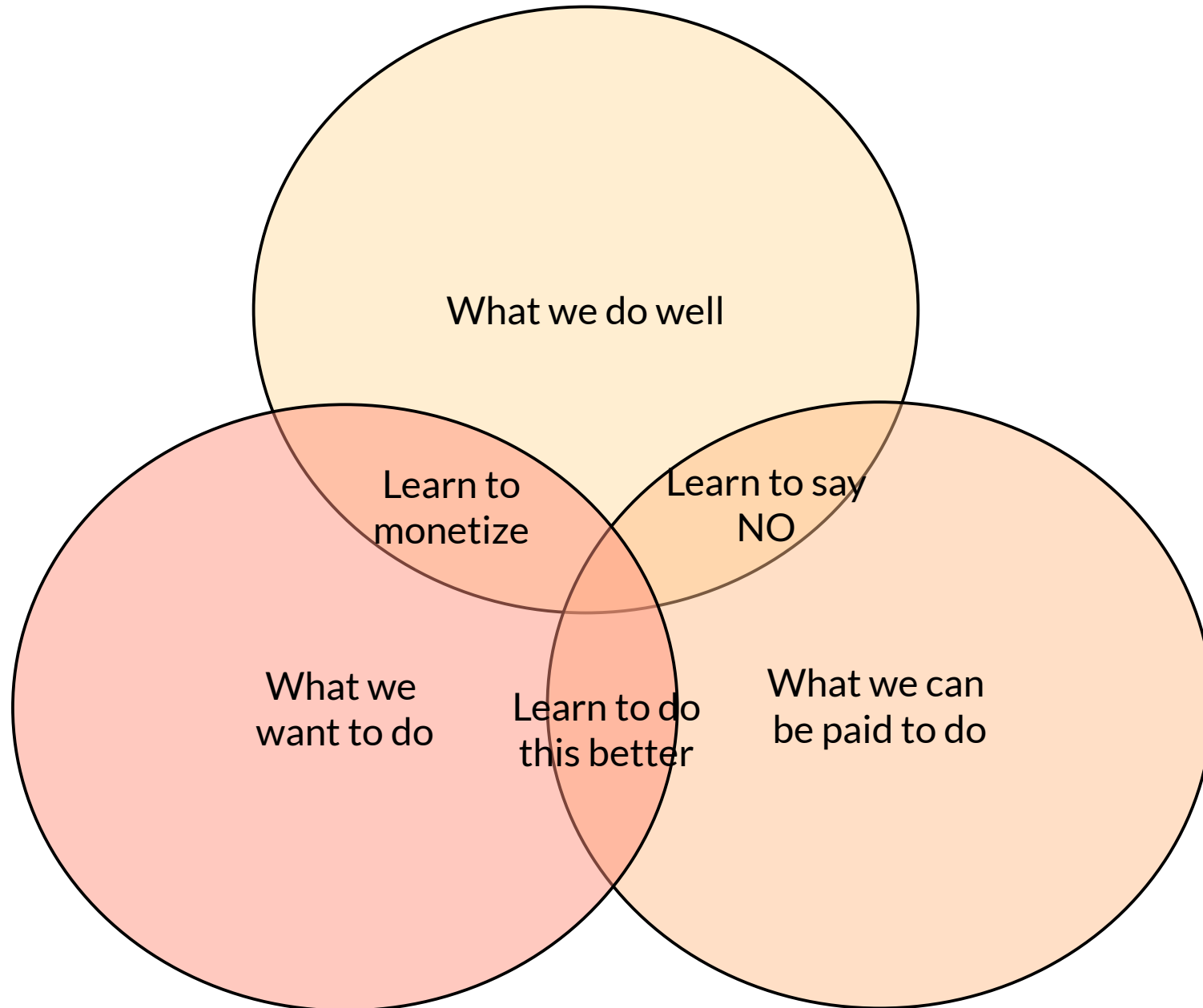
▶ Patents expire



The Stanford Triple Match for Innovations



Bud Caddell's Triple for Innovators





2.2 Overview on Lean Startup and Lean Innovation

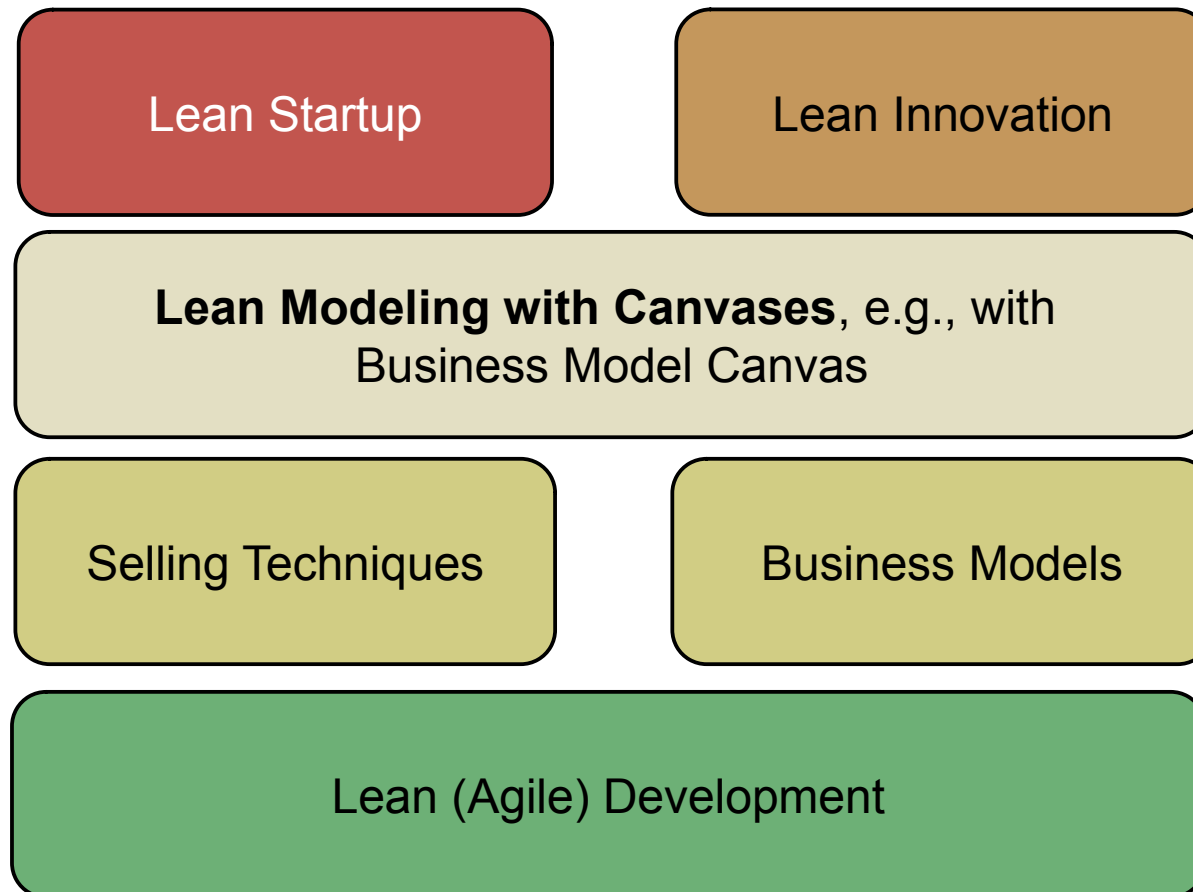
3 Process Steps to Lean Innovation and Startup

- ▶ Find a relevant problem
- ▶ Find a relevant product or service
- ▶ Find a scaling business model



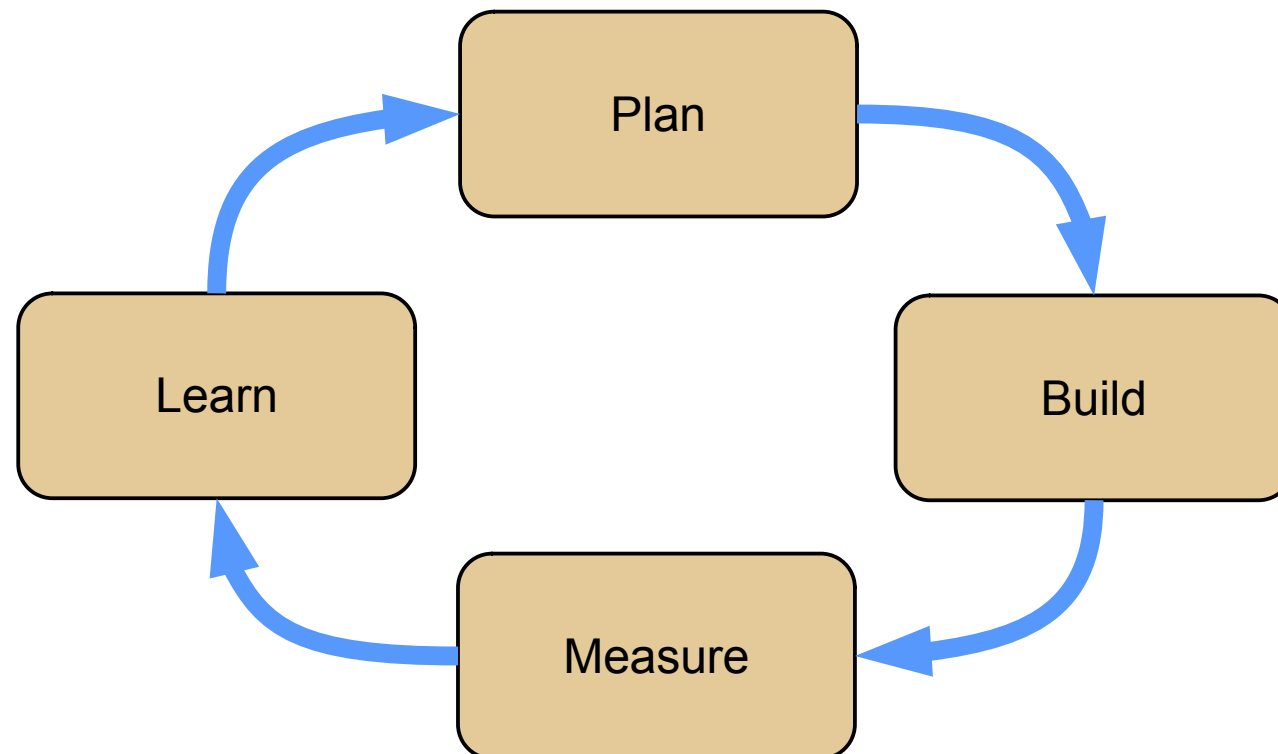
Lean Innovation Process in this Course

- ▶ The **lean innovation process** prototypes early to get early feedback (feedback-oriented process)
- ▶ **Insight: Business can be modeled and metamodeled**



The Lean Innovation (Startup) Spiral Model

- ▶ Instance of “Scientific Method” of Bacon and PDCA (Plan-Do-Check-Act)
- ▶ Plan - Build - Measure - Learn - cycle [Maurya, Ries]
- ▶ Developing “Business Model Canvases” containing “Customer Hypotheses”
- ▶ The “Learn” - “Plan” - “Build” - “Measure” Cycle is a variant of the Scientific Method and the PDCA.



Business Model Generation with BMC Osterwalder/Pigneur

15 Software as a Business

► CC-BY-SA:

http://www.businessmodelgeneration.com/downloads/business_model_canvas_poster.pdf

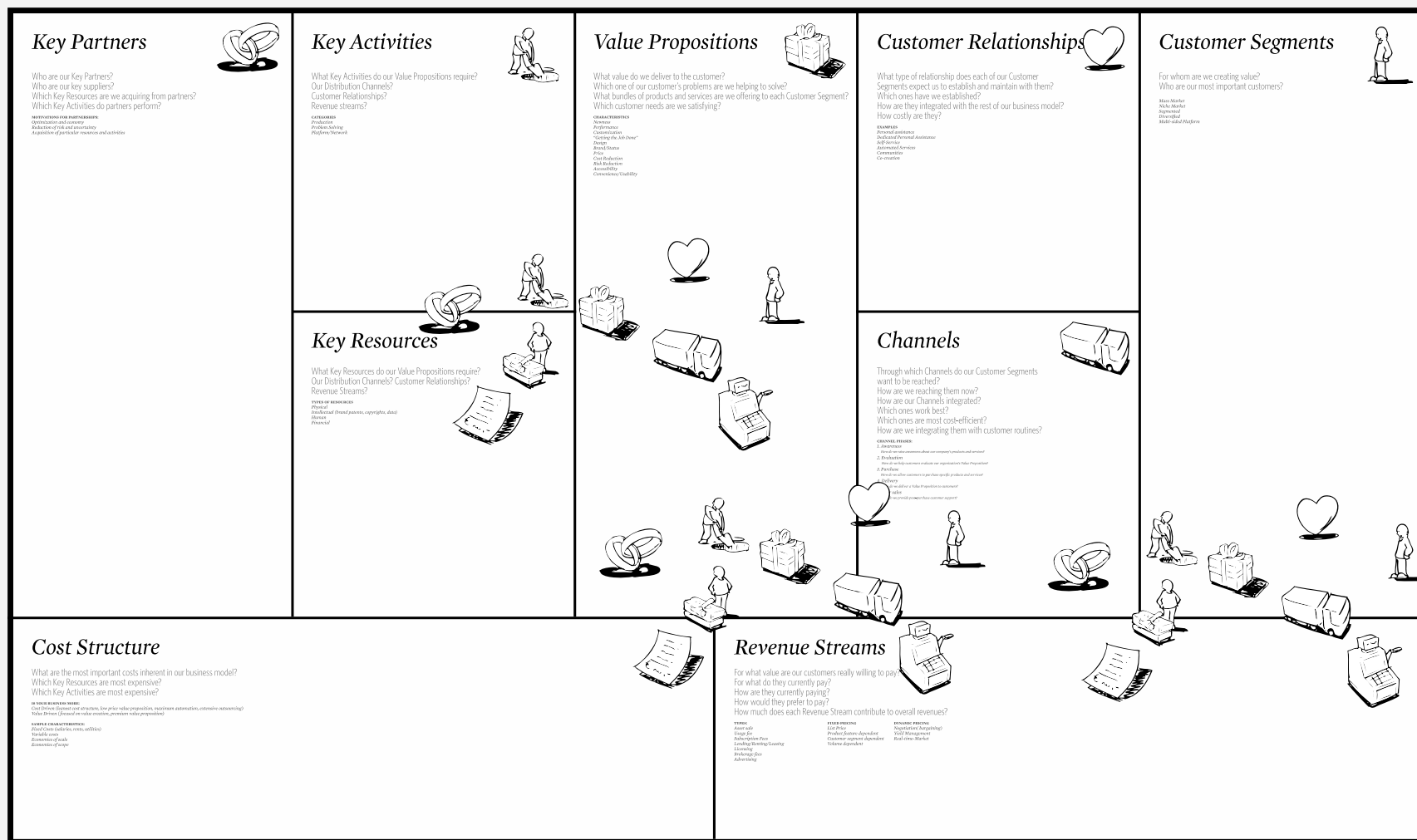
The Business Model Canvas

Designed for:

Designed by:

On: Day Month Year

Iteration: No.

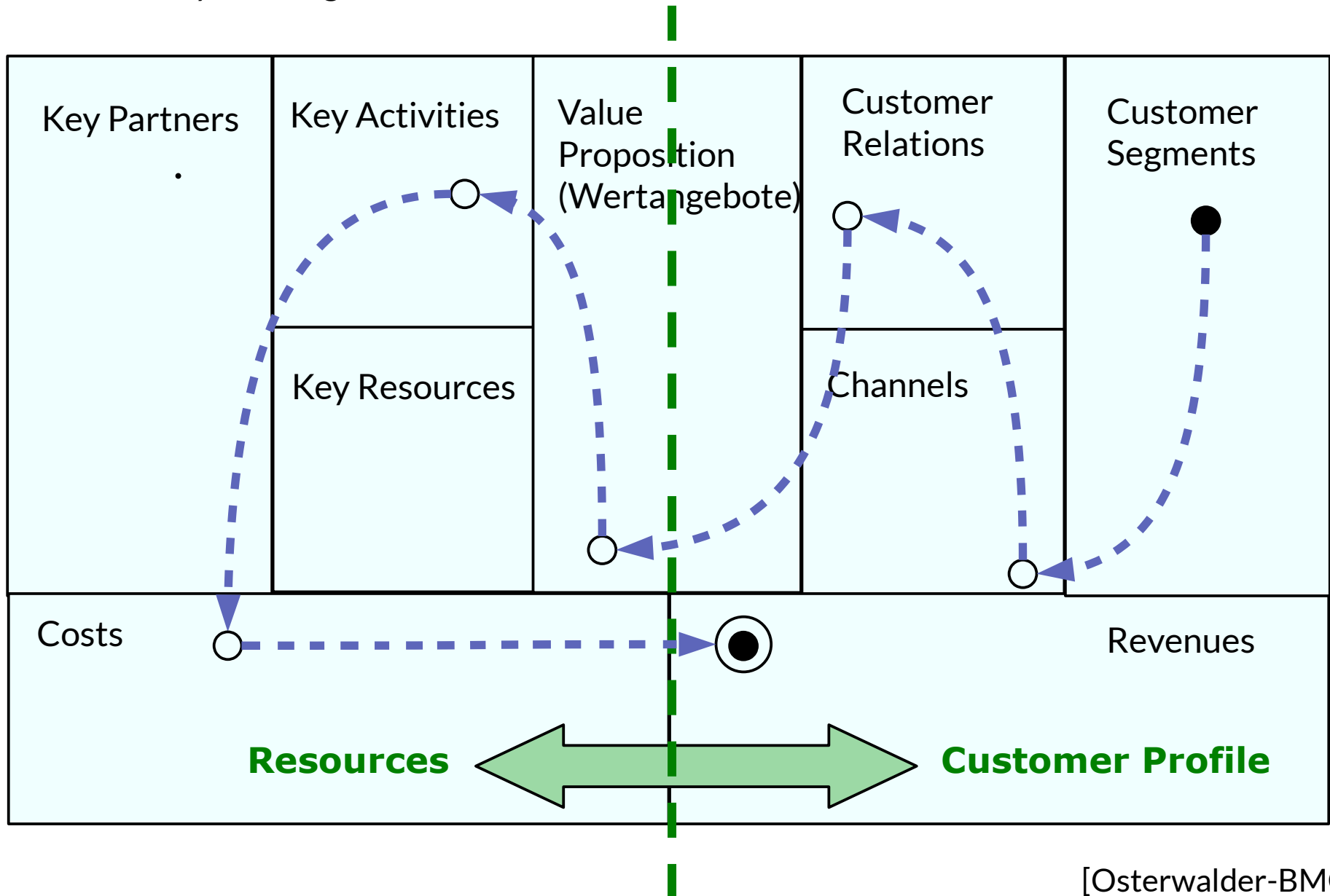


Business Model Analysis with the Business Model Canvas

- ▶ **Business model development** creates business models
 - For start up and placement of new products
 - [Osterwalder/Pigneur] suggest to split the business model in 9 parts, divided by input, output, and in between
- ▶ Input (Resource) Side
 - Cost vs Profit
 - Estimate costs! Cost leadership?
 - Estimate break-even point!
 - Distinguish cash flow and profit
- ▶ Middle: Value Proposition and Pain Killing
- ▶ Output Side (Customer Side)
 - Target customer group
 - Companies? End customers? [champagne]
 - Selling directly or via distributor?
 - Channels
 - Market entry strategy
 - Segmentation of the market

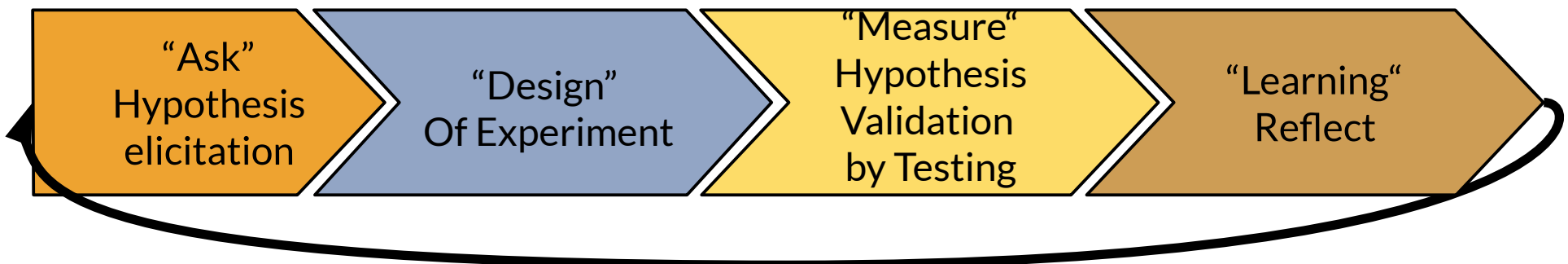
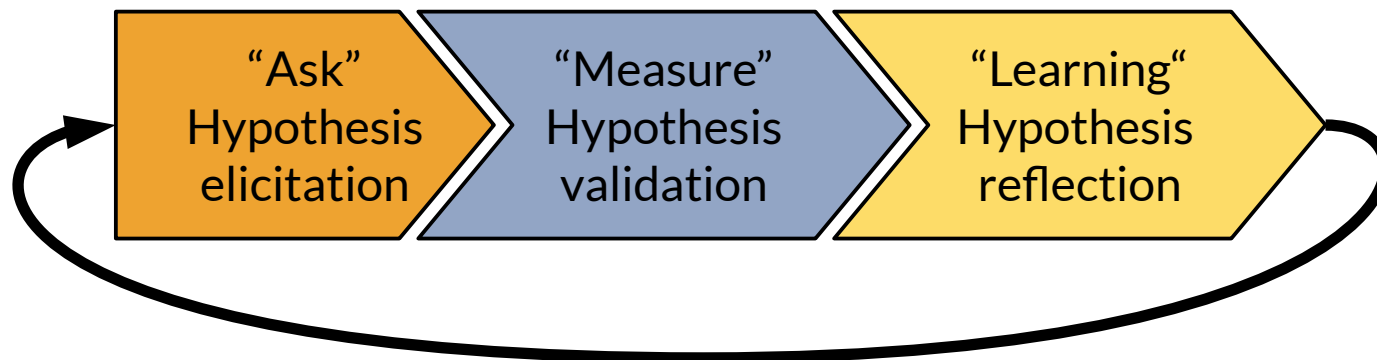
Business Model Canvas Process

- ▶ Basically from right to left



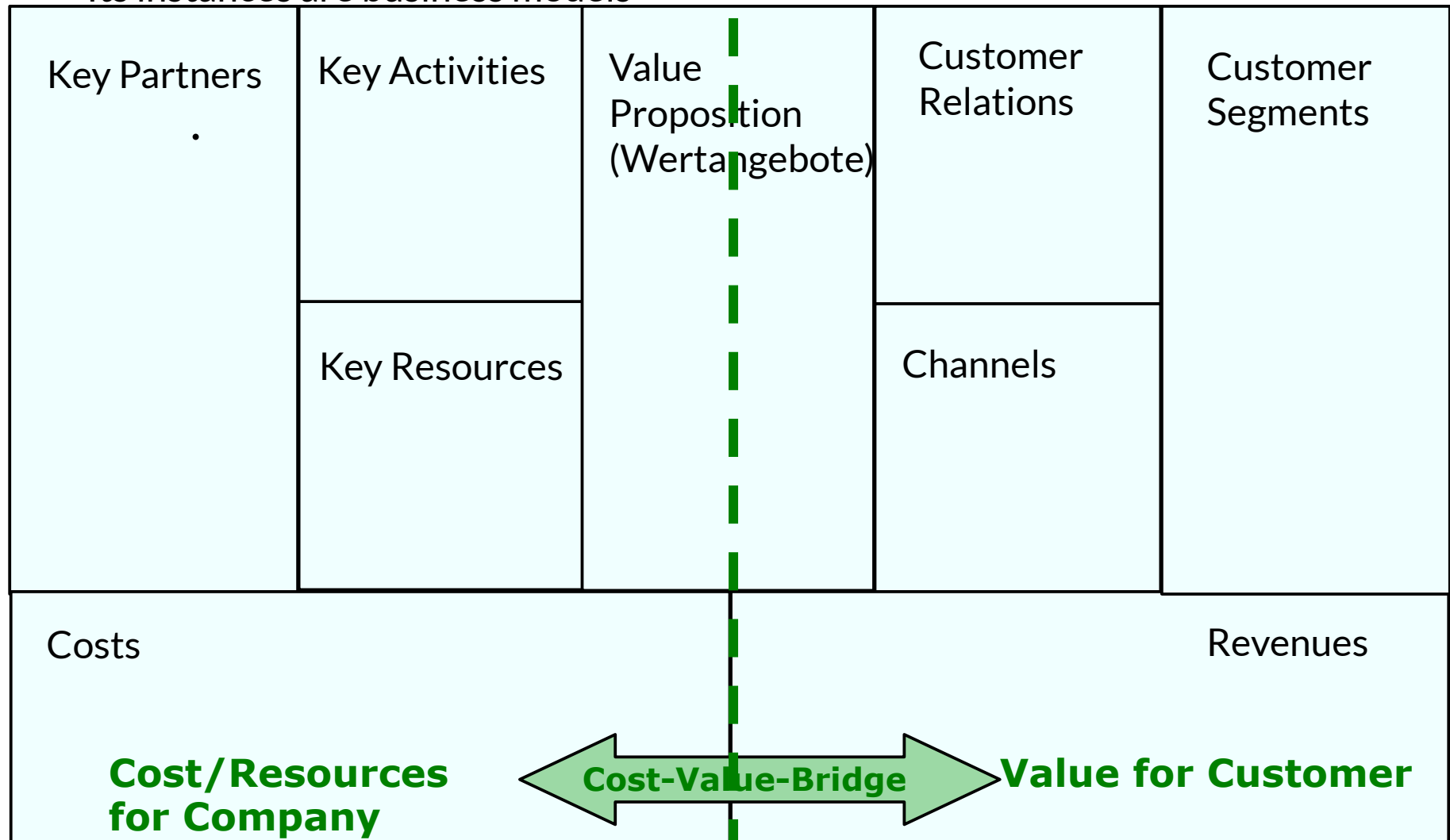
Lean Innovation: Customer Modeling (Blank/Dorf)

- ▶ **Customer Analysis (Customer Modeling)** is a variant of business model development that creates a trustworthy, realistic model of the customer of the product, his pains, his gains, his desires, her stakeholders, ...
- ▶ During customer modeling, **customer hypotheses** are proposed in form of BMC and validated (BMC Cactus).
- ▶ The “Ask” - “Measure” - “Learning” Cycle is a variant of the Scientific Method and the PDCA.



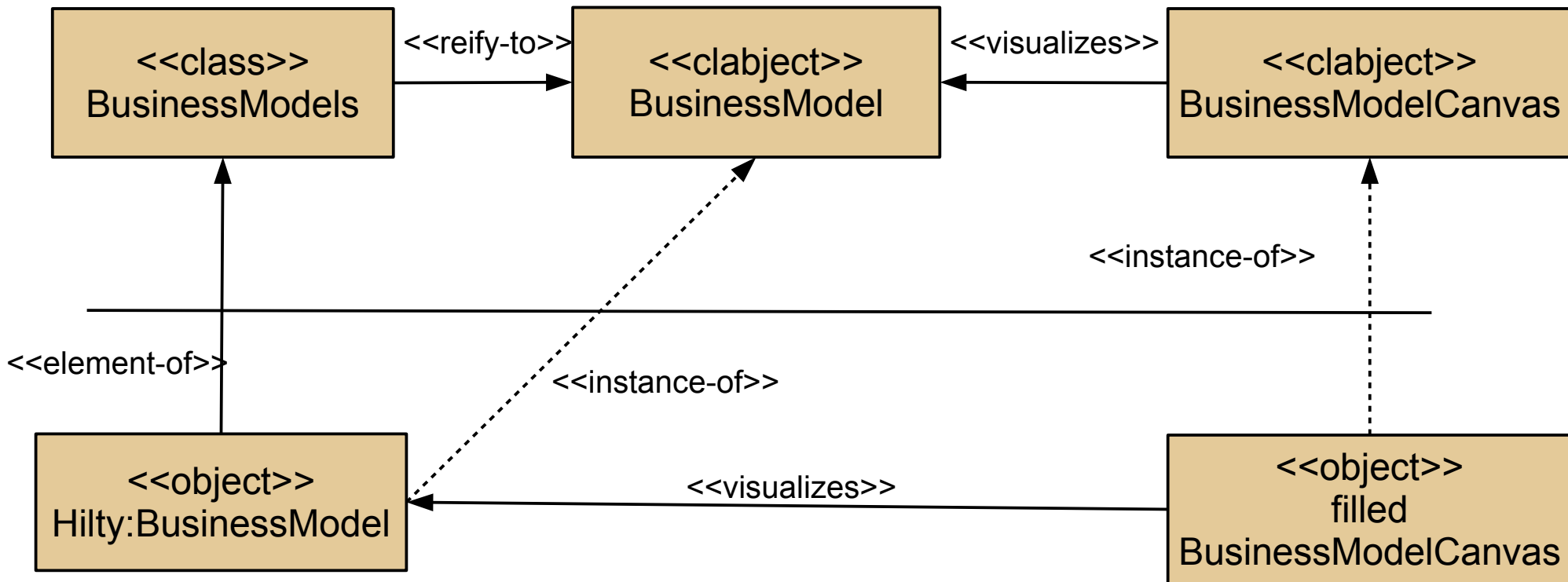
The Model Aspect of Business Model Canvas

- ▶ BMC is based on a simple metamodel of business models
- ▶ Its instances are business models



Metamodels and the BMC

- ▶ One of the central insights of BMC is that a canvas is a *model* following a *metamodel* [Osterwalder PhD]



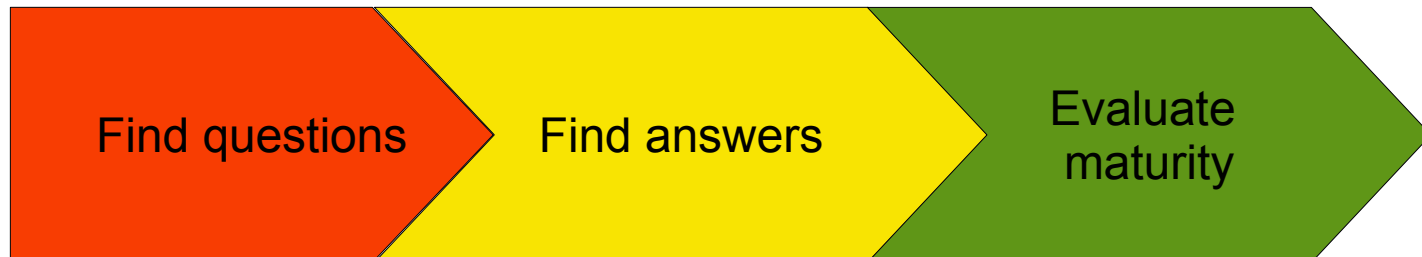
Instruments for Filling Canvases

- ▶ Paper and Notes
- ▶ App
 - <http://www.businessmodelgeneration.com/canvas>
 - <https://strategyzer.com/app>
- ▶ Google docs
 - <http://scrumology.com/how-to-create-a-business-model-canvas-in-google-docs/>
- ▶ **Fridolean platform (LINC)**
 - Nested canvases
 - Live editing of canvases
 - Linked with RocketChat to discuss online
 - Linked with codiMD to live-edit documents

A **canvas** is a form to collaboratively brainstorm a model.

Simple Process to Work with Canvases

- ▶ Finding answers to the fields of a canvas is easier, if you have defined questions before
 - Some canvases, like the BMC, state pre-defined questions. You can use
 - the “Honest Serving Men” of Kipling
 - The SWOT analysis (strengthes, weaknesses, opportunities, trends)
 - The CoTIQQ analysis (cost, time, quality, quantity)
 - The BeNiSiLo analysis (better, Nicer, Simpler, Longer-lasting)
- ▶ Answers can be quite unrealistic and immature
 - Evaluate maturity of fields by
 - Asking experts
 - Check cross-constraints
 - Evaluation of metrics



Different Purposes of Canvases

- ▶ A **canvas** has different purposes. It is a model with a metamodel, so it inherits the benefits of the language of its metamodel

Bridging Worlds

- Partner – Customer (BMC)
- Problem – Customer (LC)
- Pain – Pain killer (VPC)

Brainstorm Canvas

- Structured process for excellent elicitation
- Finding answers to the questions

Question Canvas

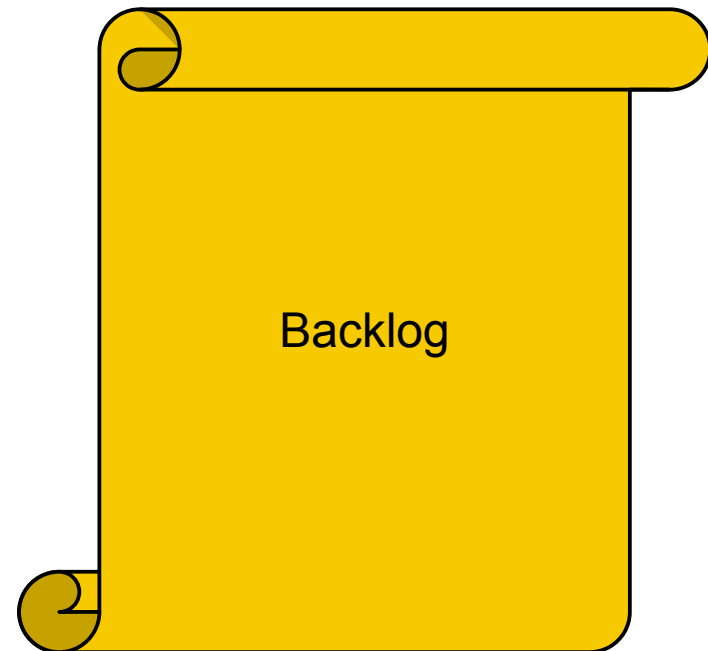
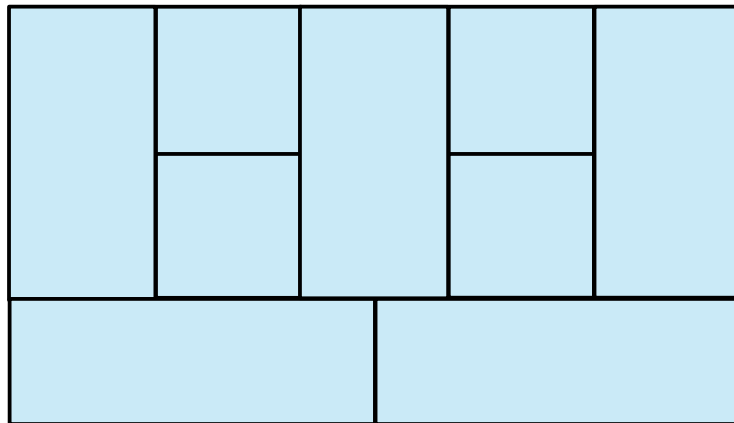
- To generate questions for interviews with customers and stakeholders

Structured Process

- Use the experiences of metamodels others have collected for you

Agile Working with a Canvas

- ▶ Every canvas is linked to a **backlog of agenda (to do) items**
 - Empty fields to be filled (Initial filling of the backlog, in filling order)
 - New questions to be answered
 - New answers to be discussed
- ▶ Backlogs are burned down in **canvas sprints (question sprint, answer sprint, valuation sprint)**
 - BMC sprint
 - LC sprint





2.3 Value Proposition Analysis

Value Proposition (Pain-Gain Analysis) for the Customer

- ▶ **Value proposition analysis** finds a *real problem (pain)* of the customer, or a *real win (gain)*. It is a subprocess of Business model development.

Make sure your innovation is a ***pain killer*** and not just a ***vitamin***.

David Ladd, venture partner at Mayfield Fund
[Carlson/Wilmot]

Pain killers are too dangerous, you only get them on prescription – but we have a large set of ***vitamins***.

[Swedish pharmacist, when Aßmann asked for Korodin
Kreislauftropfen]

[Ein Unternehmer] hat einen Spürsinn für das, was die Leute brauchen oder zu brauchen glauben.
Urs Wälterlin. Weit weg im Outback.]

Value Proposition Cycle (Hughes-Chafin)



Hughes, G. D./ Chafin, D. C. (1996): „Turning New Product Development into a Continuous Learning Process”, in: Journal of Product Innovation Management, Jg. 13, S. 89-104.

Birgit Verworn, Cornelius Herstatt. Modelle des Innovationsprozesses. September 2000. Arbeitspapier Nr. 6.

TU Hamburg-Harburg. http://www.tuhh.de/tim/downloads/arbeitspapiere/Arbeitspapier_6.pdf

“Pain-Gain” Value Proposition Canvas [Osterwalder]

- ▶ Gains
- ▶ Pains
- ▶ Customer Jobs
- ▶ Gain Creators
- ▶ Pain Relievers
- ▶ Products and services

Download for personal use

http://www.businessmodelgeneration.com/downloads/value_proposition_canvas.pdf

Background:

<http://businessmodelalchemist.com/2012/09/test-your-value-proposition-supercharge-lean-startup-and-custdev-principles.html>

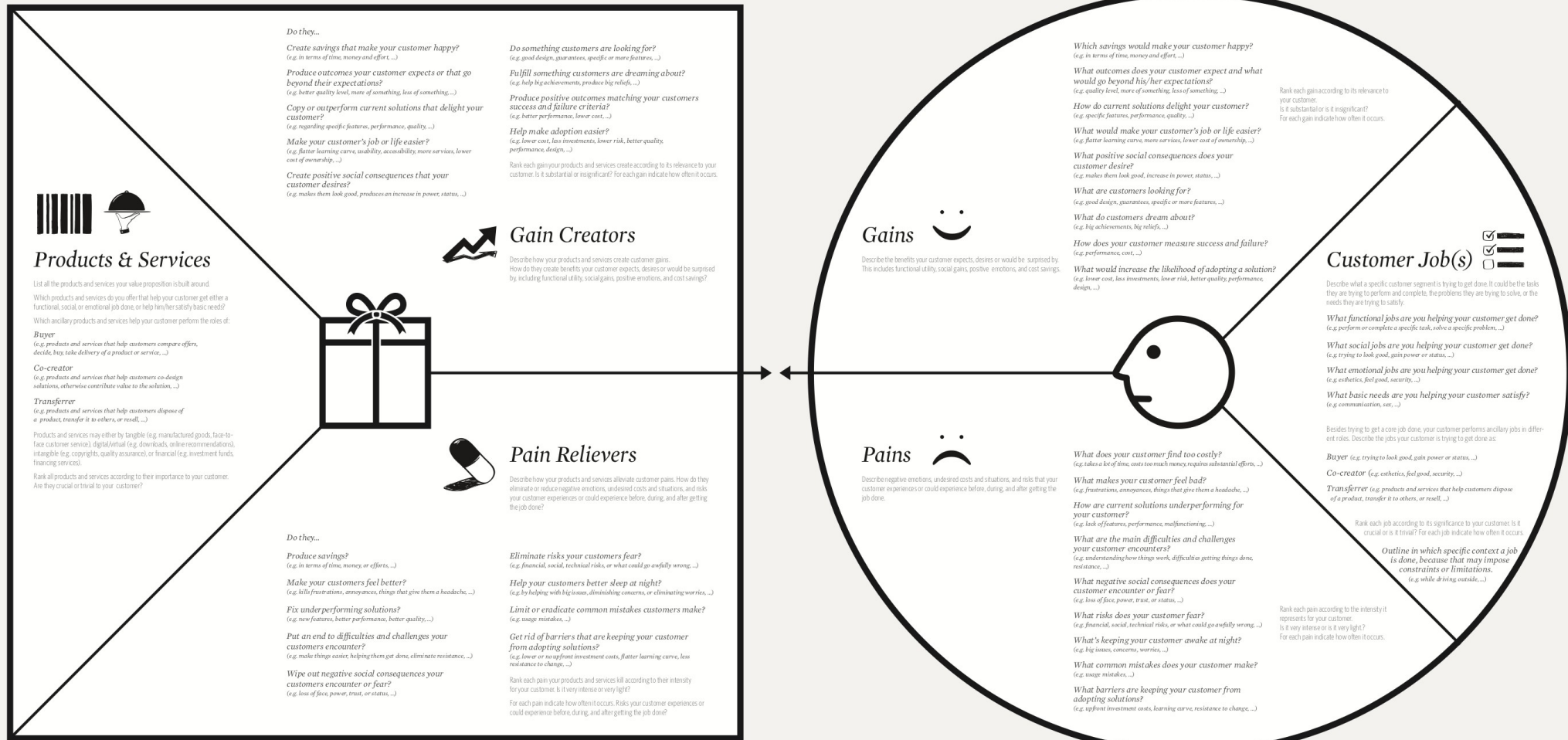
The Value Proposition Canvas

Designed for:

Designed by:

On: Day Month Year

Iteration: No.



Value Proposition

Create one for each Customer Segment in your Business Model

Customer Segment

www.businessmodelgeneration.com

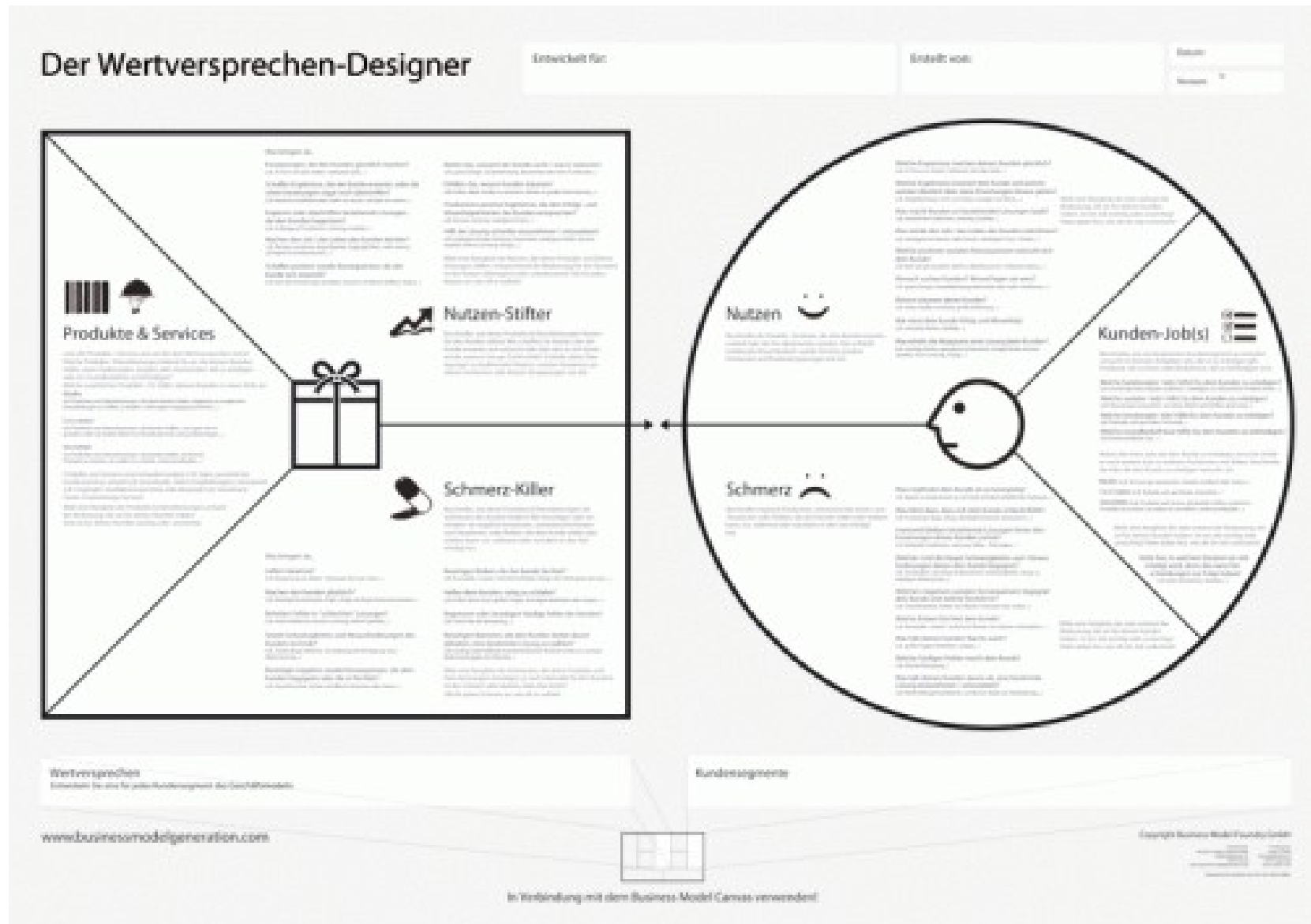
Use in Conjunction with the Business Model Canvas

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<http://businessmodelalchemist.com/>

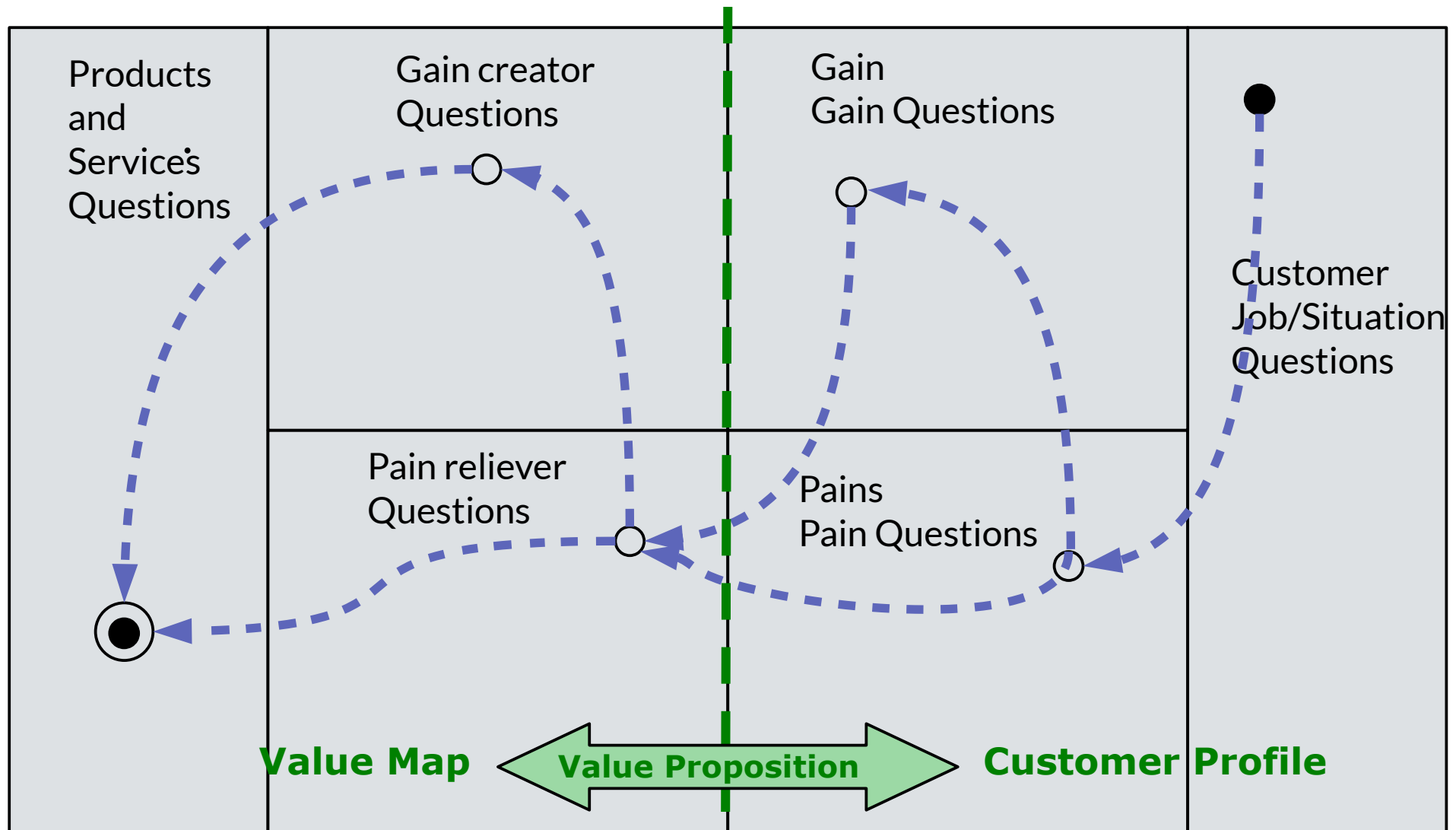


[http://geschaeftsmodellcoach.de/assets/Bilder/_resampled/resizedimage501353-valuepropositiondesignergif.gif](http://geschaeftsmodellcoach.de/assets/Bilder/_resampled/resizedimage501353-valuepropositiondesignergif)

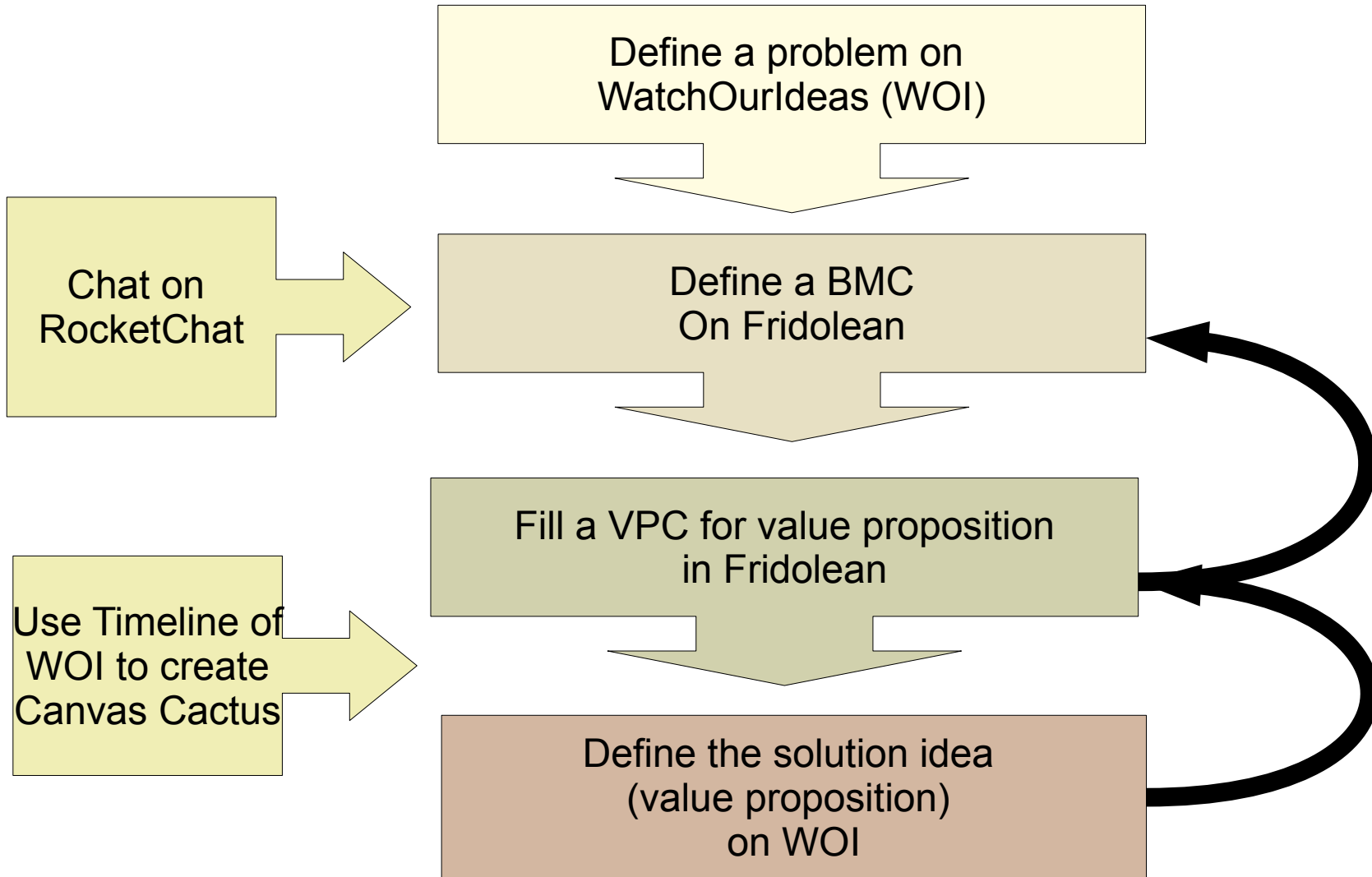


VP Canvas Process

- ▶ [Osterwalder-OPC] VPA uses a canvas to map the customer pains and gains to products and services
- ▶ The VPC defines the field “value proposition” of the BMC



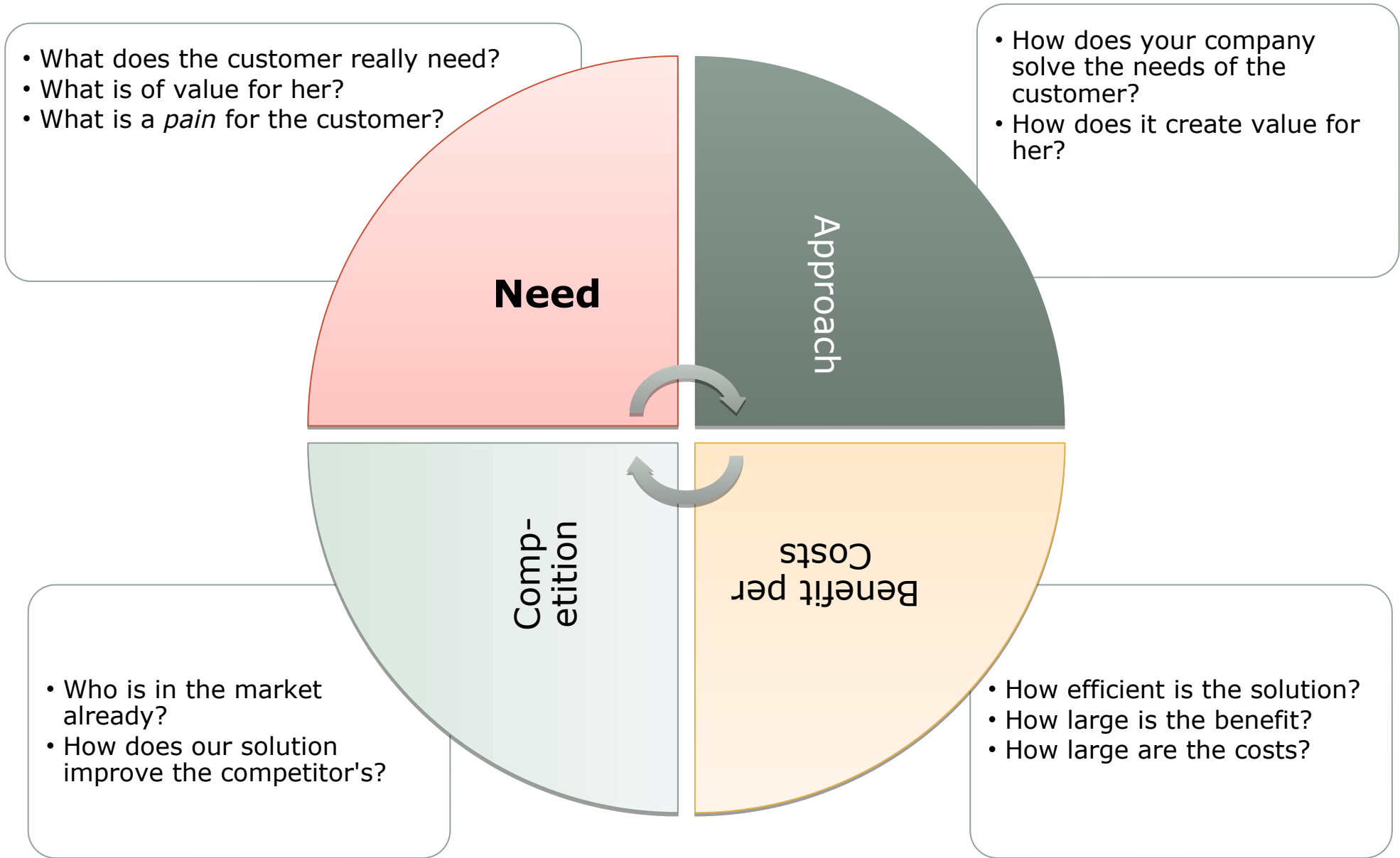
BMC-VPC Innovation Workflow on LINC



2.3.2 Value Proposition Analysis with nABC

- NABC is a fantastic 4-step scheme for summarizing your idea for a new product or service.
- Learn it by heart, it will change your life.

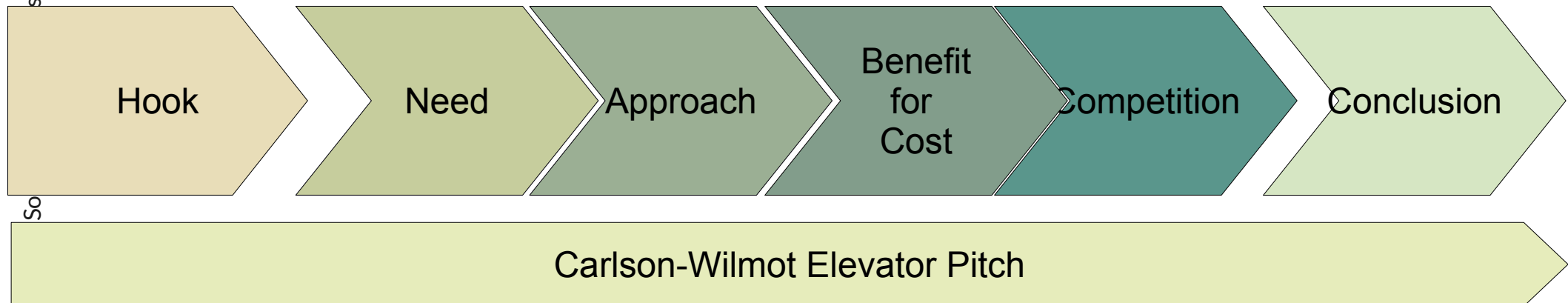
NABC Analysis [Carlson-Wilmot]



NABC Elevator Pitch

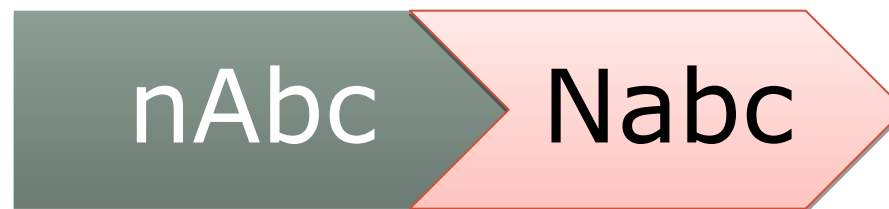
- ▶ An **elevator pitch** is a 2-minute speech about the value proposition (problem-solution analysis) of your PhD thesis project
 - You should be able to tell it an important investor in an elevator (2 min)
- ▶ It combines a problem solving pattern such as NABC with a hook, a gripping introductory remark
 - You may use any other pattern, too

ss, © Prof. Uwe Aßmann



Exercise: Application

- ▶ For preparing your next application for a job,
- ▶ Analyze the future employer with NABC
 - What are his needs?
 - What is your approach?
 - What is his benefits?
 - Who are your competitors?
- ▶ Learn the answers for these questions by heart, to be able to present them in the interview!

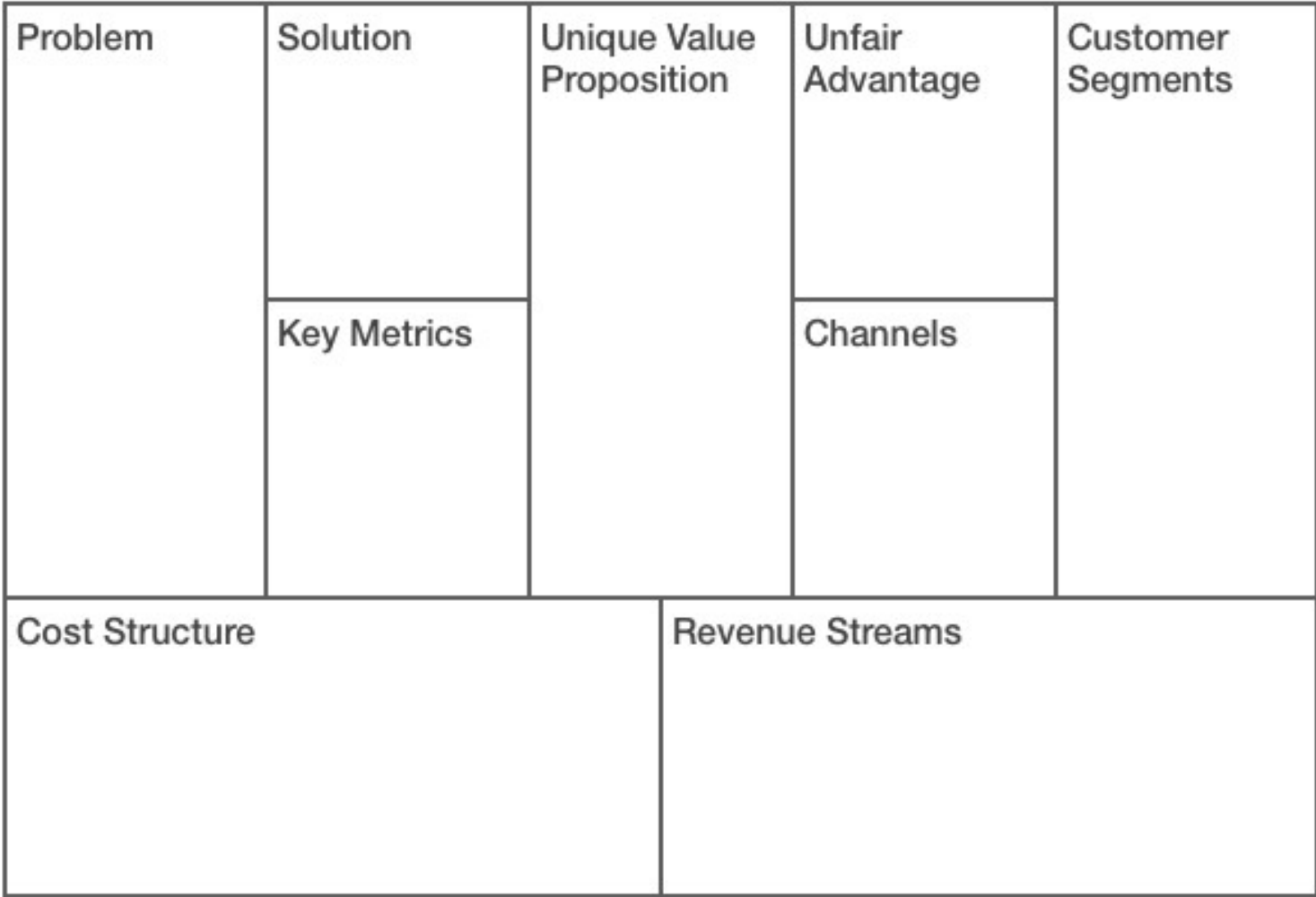




2.4 Lean Canvas

- An important variant of the BMC for problem-solution analysis
- Combining BMC and VPC

Lean Canvas [Maurya]

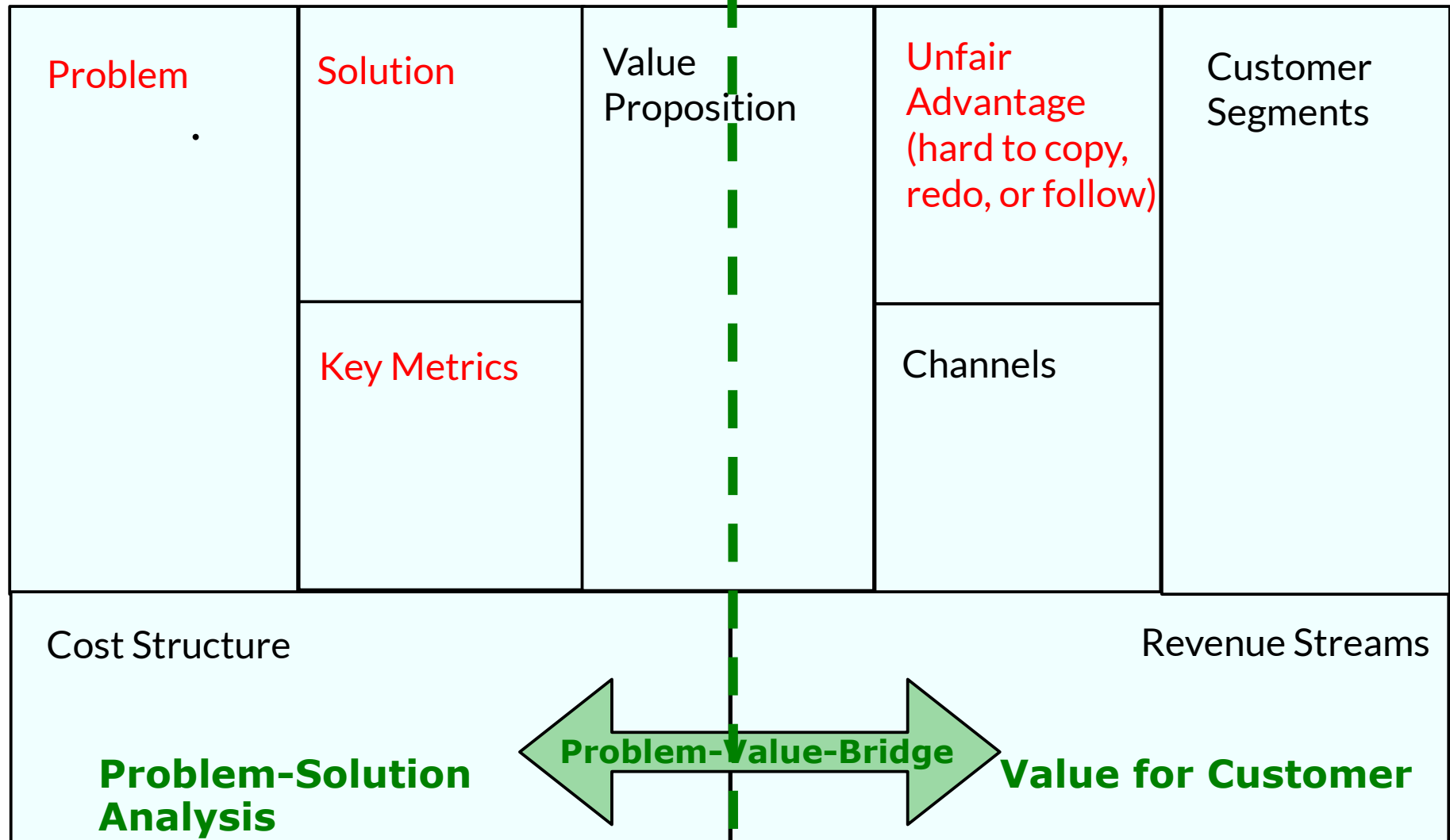


Lean Canvas is adapted from The Business Model Canvas (<http://www.businessmodelgeneration.com>) and is licensed under the Creative Commons Attribution-Share Alike 3.0 Un-ported License.

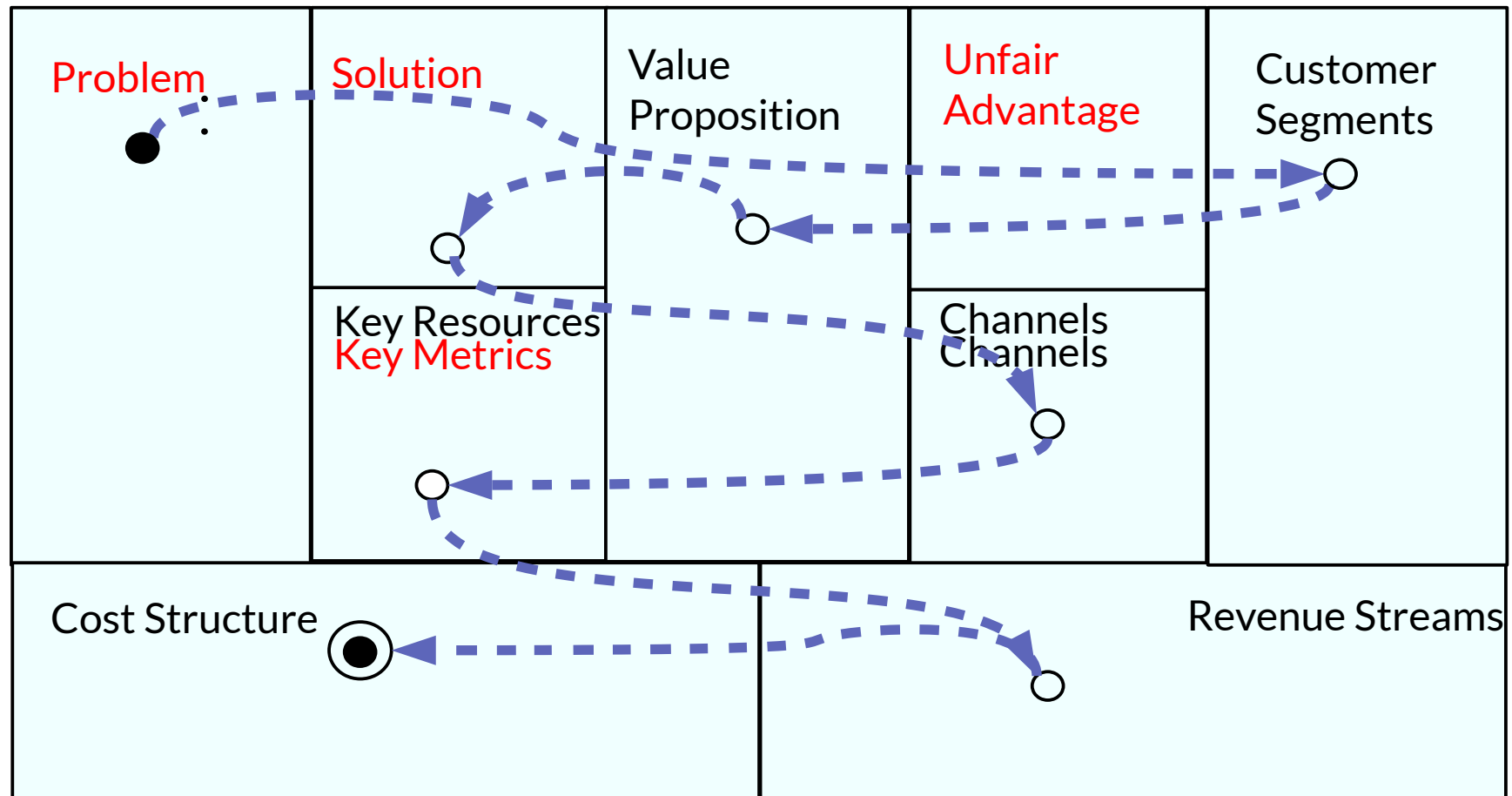


Lean Canvas [Maurya] [<http://leancanvas.com/>]

- ▶ The Lean Canvas substitutes the Cost Subcanvas by the Problem-Solution-Key-Metrics Subcanvas
- ▶ The Lean Canvas supports Problem-Objective-Solution-analysis (POA)

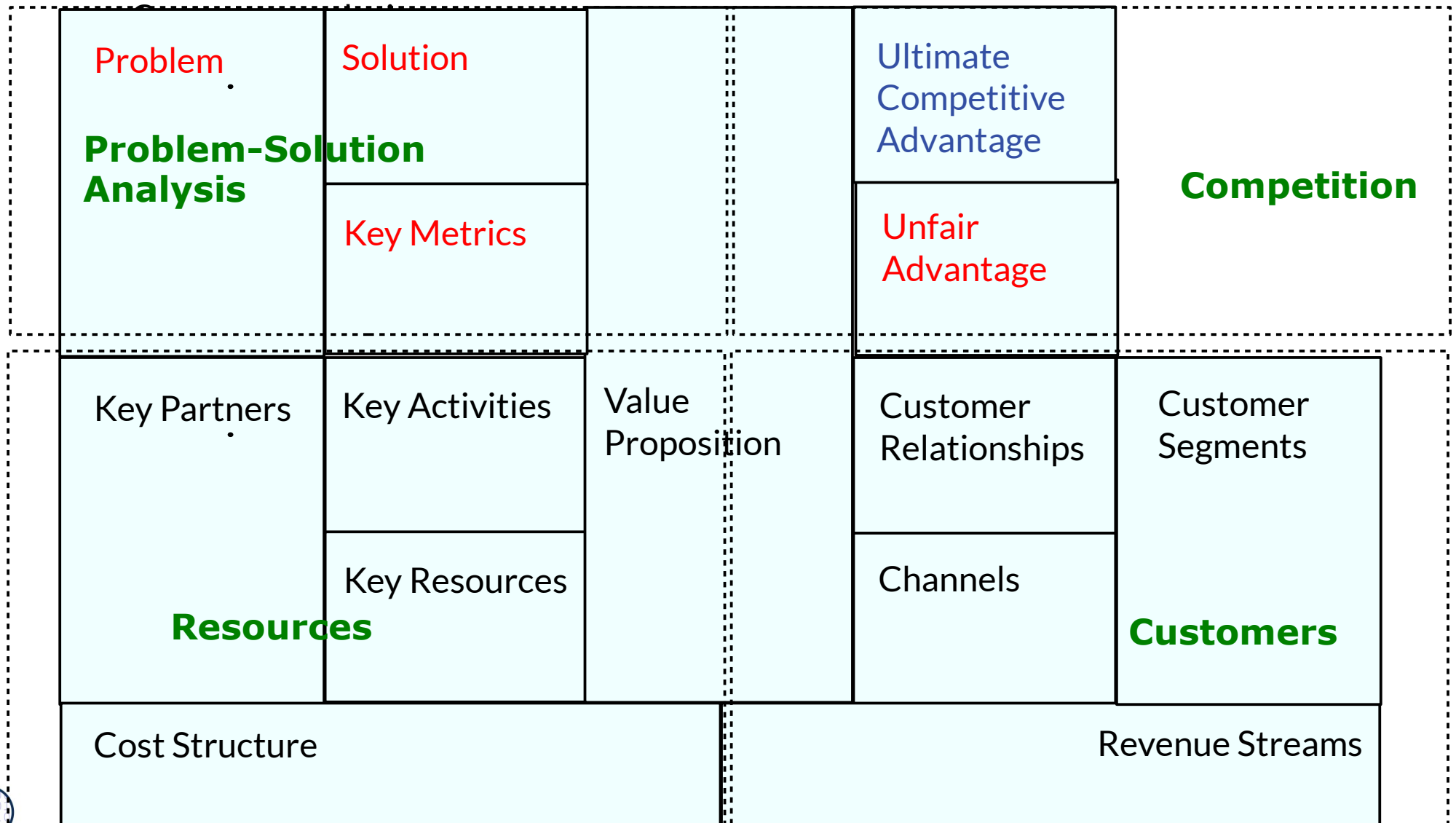


- ▶ The Lean Canvas substitutes the Cost Subcanvas by the Problem-Solution-Key-Metrics Subcanvas
- ▶ The Lean Canvas supports Problem-Objective-Solution-analysis (POA)
- ▶ The fill order is top-down outside-in

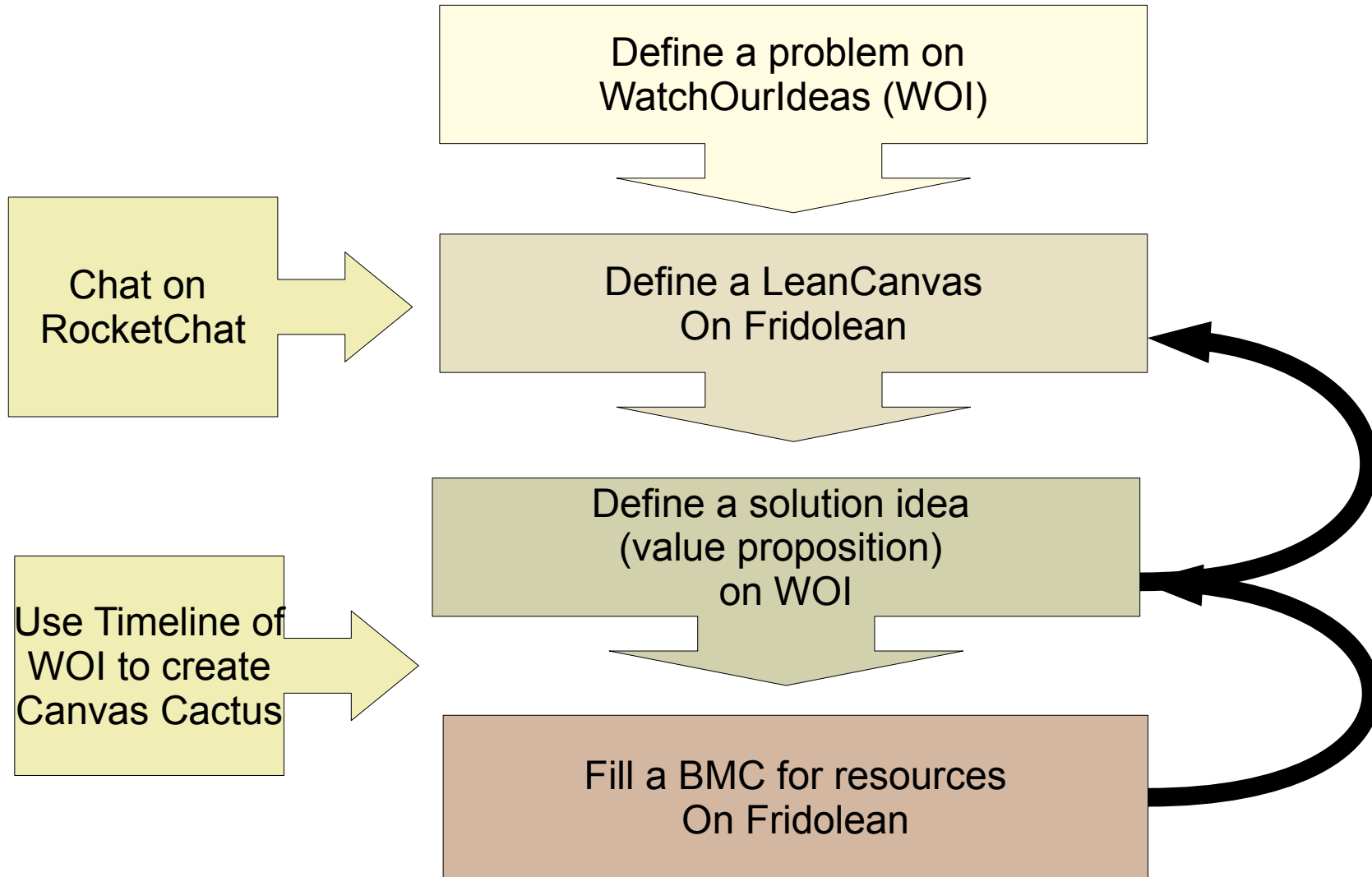


Lean Canvas Combined with BMC (Lean Business Model Canvas, LBMC)

- ▶ The Lean Canvas and the BMC can be unified by adding the subcanvases
- ▶ The LBMC supports Problem-Objective-Solution-analysis (POA), Competition analysis,



Lean Canvas Innovation Workflow on LINC





2.5 Other Canvases

Change Patterns and the Opportunities in the SWOT Analysis

External

▶ Society

- Finding new governance rules and laws (Sarbanes-Oxley, certifications)
- Change of government, also in other countries (Wende, Treuhand...)

▶ Nature

- Times of the year

▶ Technology

- New technology (innovation waves, disruptive technology)

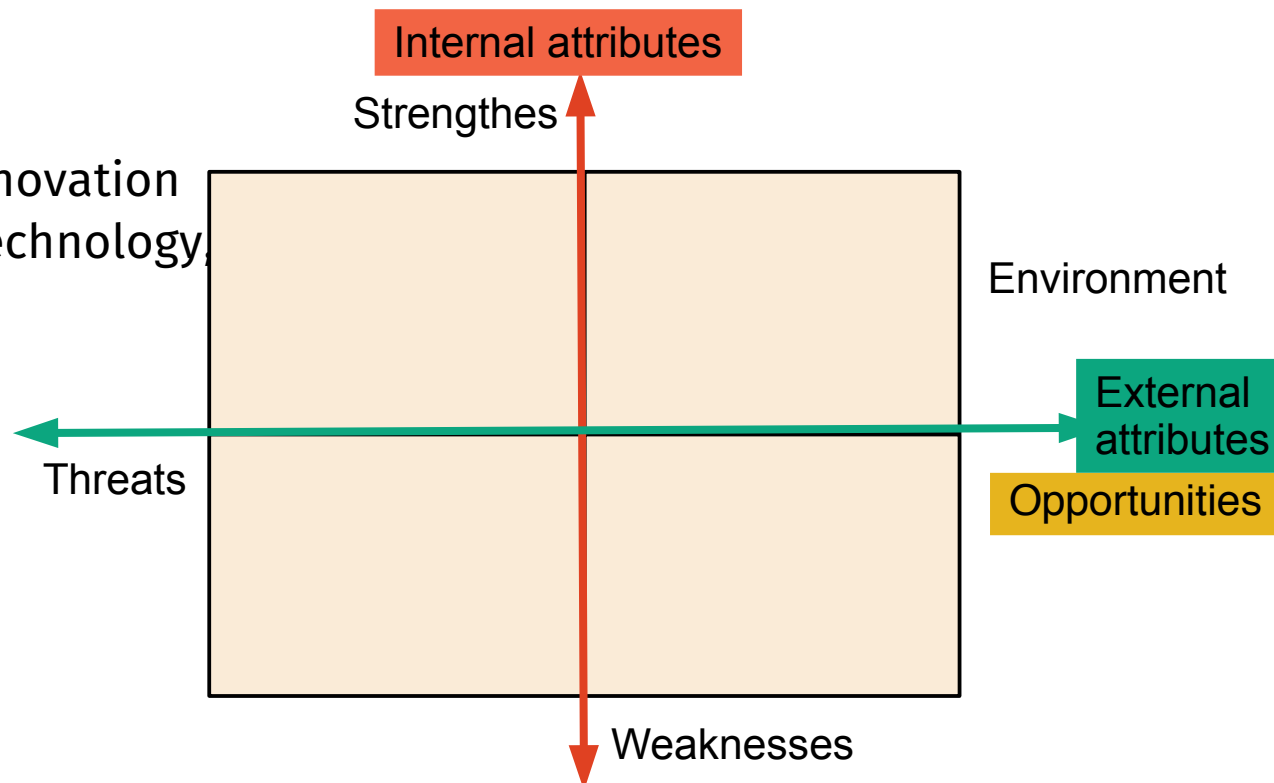
▶ Economics

- Commodity pattern
- Economic cycles

Internal

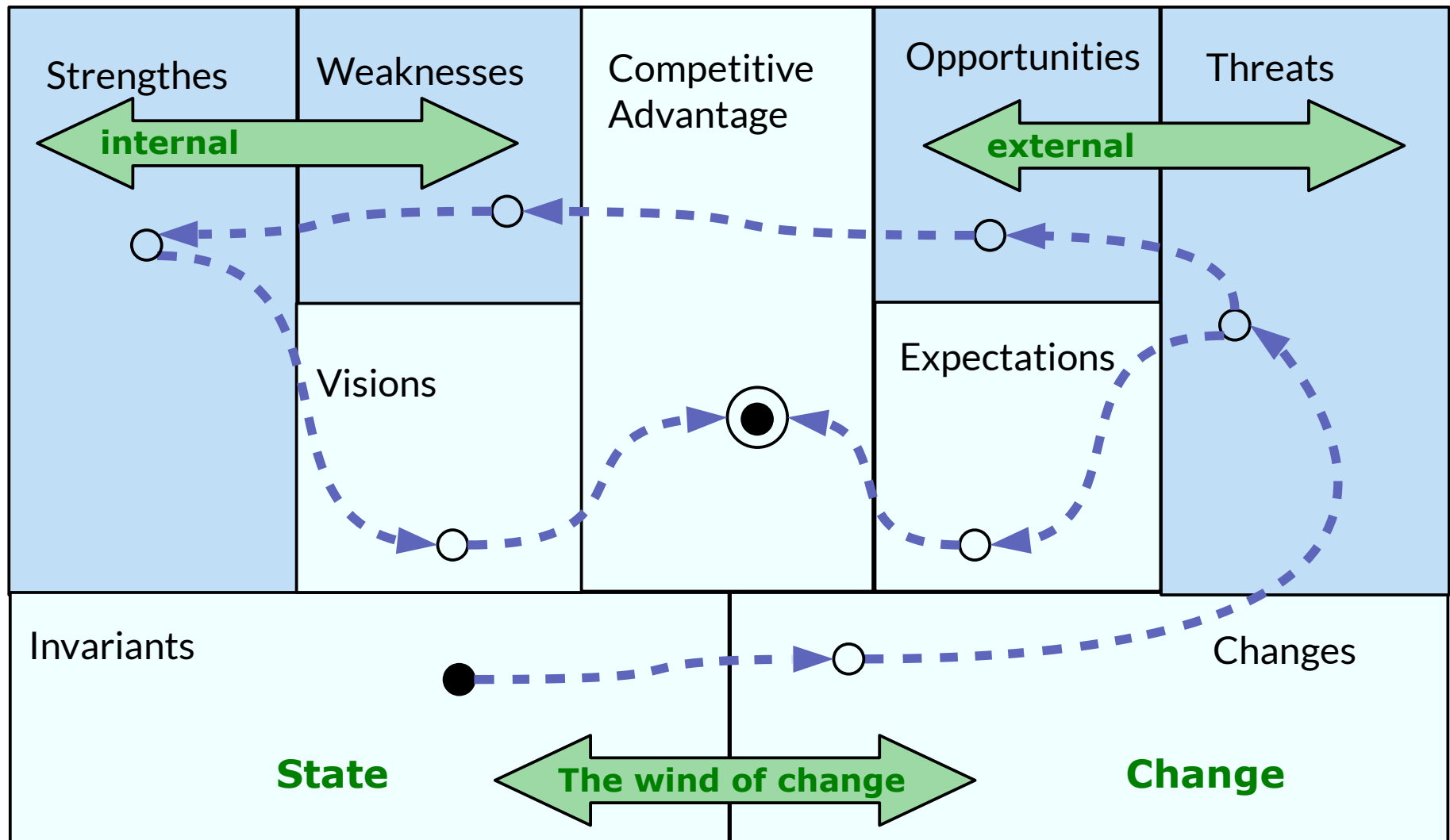
▶ Supplier changes

▶ Patents expire



SWOT Change Canvas

- ▶ Derived from SWOT



Lean Change Canvas

- ▶ <http://agileconsulting.blogspot.de/2012/08/lean-change-part-1-combining-kotter-and.html?m=1>
- ▶ <https://canvanizer.com/new/lean-change-canvas>

Lean Change Canvas Brainstorm your organizational transformation

<p>Urgency Top 3 drivers, and what needs to change</p> <p style="font-size: 48px; text-align: center;">1</p> <p>Capability of Org to Execute:</p>	<p>Target State Strategic pillars, common enablers, etc</p> <p style="font-size: 48px; text-align: center;">5</p>	<p>Vision Single compelling statement that describes what the "destination" looks like</p> <p style="font-size: 48px; text-align: center;">3</p> <p>Key Behaviours:</p>	<p>Communication 2 way path of communication</p> <p style="font-size: 48px; text-align: center;">4</p>	<p>Change Recipients Who is impacted by the change</p> <p style="font-size: 48px; text-align: center;">2</p> <p>Guiding Teams:</p>
<p>Success Criteria Change will stick when:</p> <p style="font-size: 48px; text-align: center;">5</p>		<p>Action Key methods used to implement change</p> <p style="font-size: 48px; text-align: center;">8</p>		
<p>Required Investments Constraints around time, cost, and effort Commitment from recipients, leaders, and change agents</p> <p style="font-size: 48px; text-align: center;">7</p>			<p>Wins Moral Performance Capability</p> <p style="font-size: 48px; text-align: center;">6</p>	



Strategic Change Canvas

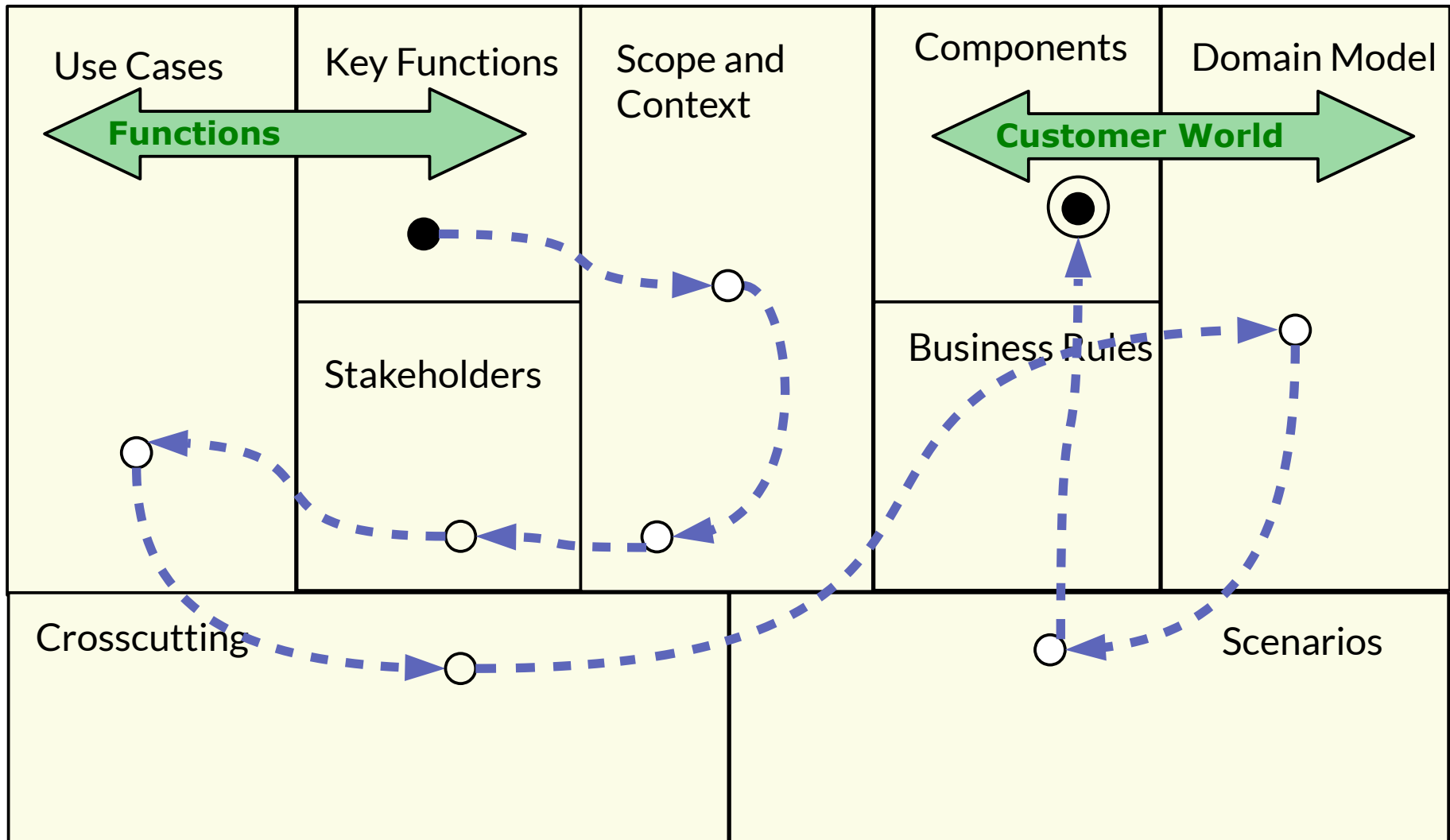
STRATEGIC CHANGE CANVAS

VISION: WHAT IS THE VISION FOR THIS CHANGE?			IMPORTANCE: WHY IS THIS CHANGE IMPORTANT TO OUR ORGANIZATION?		
SUCCESS MEASUREMENTS: HOW WILL WE MEASURE SUCCESS?			PROGRESS MEASUREMENTS: HOW WILL WE SHOW PROGRESS TOWARDS OUR VISION?		
WHO AND WHAT IS AFFECTED?: WHAT PEOPLE, DEPARTMENTS AND PROCESSES NEED TO CHANGE IN ORDER TO REALIZE OUR VISION?					
HOW WILL WE SUPPORT PEOPLE?: WHAT ACTIONS WILL WE (THE CHANGE SPONSORS AND CHANGE TEAM) DO TO SUPPORT PEOPLE THROUGH THE CHANGE?					
WHAT IS OUR PLAN? OPTIONS: A LIST OF POSSIBLE EXPERIMENTS	-1 MONTH EXPERIMENTS LIKELY TO BE INTRODUCED IN ABOUT A MONTH	NEXT THE NEXT MOST IMPORTANT CHANGES TO INTRODUCE	PREPARE EXPERIMENTS BEING PLANNED AND VALIDATED	INTRODUCE EXPERIMENTS IN PROGRESS	REVIEW EXPERIMENTS BEING REVIEWED



Requirements Engineering Canvas (ReqEC)










- ▶ [Oddoy] suggested a canvas to engineer requirements



Business Model You Canvas (BMYC)

- ▶ The BMYC is a canvas for your personal life and career development, inspired by the BMC. <http://businessmodelyou.com/>
 - http://www.ideogram.us/BMY_preview/Business_Model_You_preview.pdf

▶ Name: _____'s *Personal Business Model Canvas*

Who helps you (Key Partners) 	What you do (Key Activities) 	How you help (Value Provided) 	How you interact (Customer Relationships) 	Who you help (Customers) 
	Who you are & what you have (Key Resources) 		How they know you & how you deliver (Channels) 	
What you give (Costs) 		What you get (Revenue and Benefits) 		



Personal Value Proposition with the Personal BMC (BMYC)

[<http://businessmodelyou.com/>]

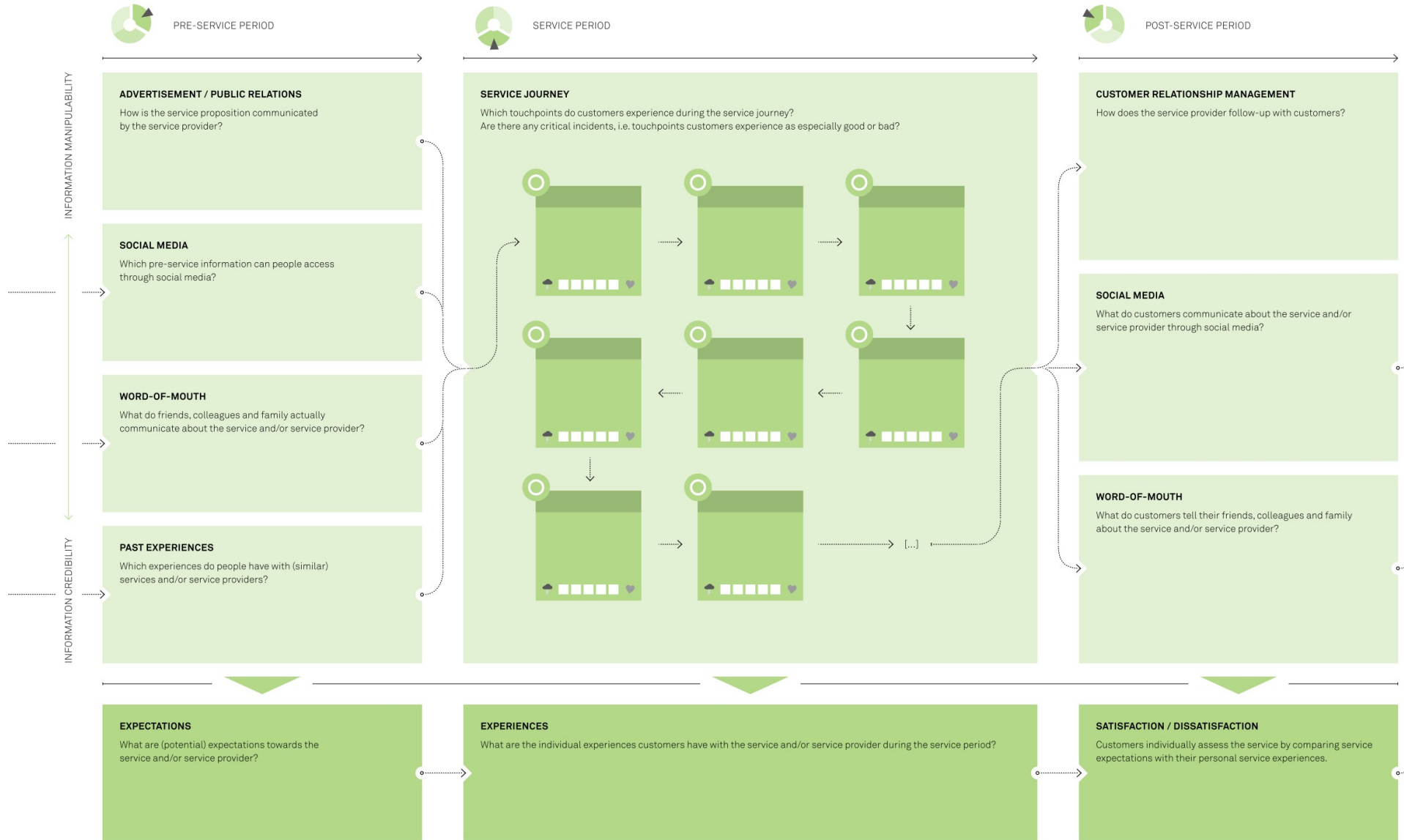
- ▶ The BMYC is for the development of your career and yourself

Key Partners Who helps You?	Key activities What do you do?	Value Proposition How do you help?	Customer Relationships How do you interact?	Customer Segments Whom do you help?
	Key Resources What you are and have		Channels How do they know you? How do you deliver?	
Cost Structure What do you give?			Revenue Streams What do you get?	

Customer Journey Canvas for Services

The Customer Journey Canvas

Persona Service Service Provider Design Team

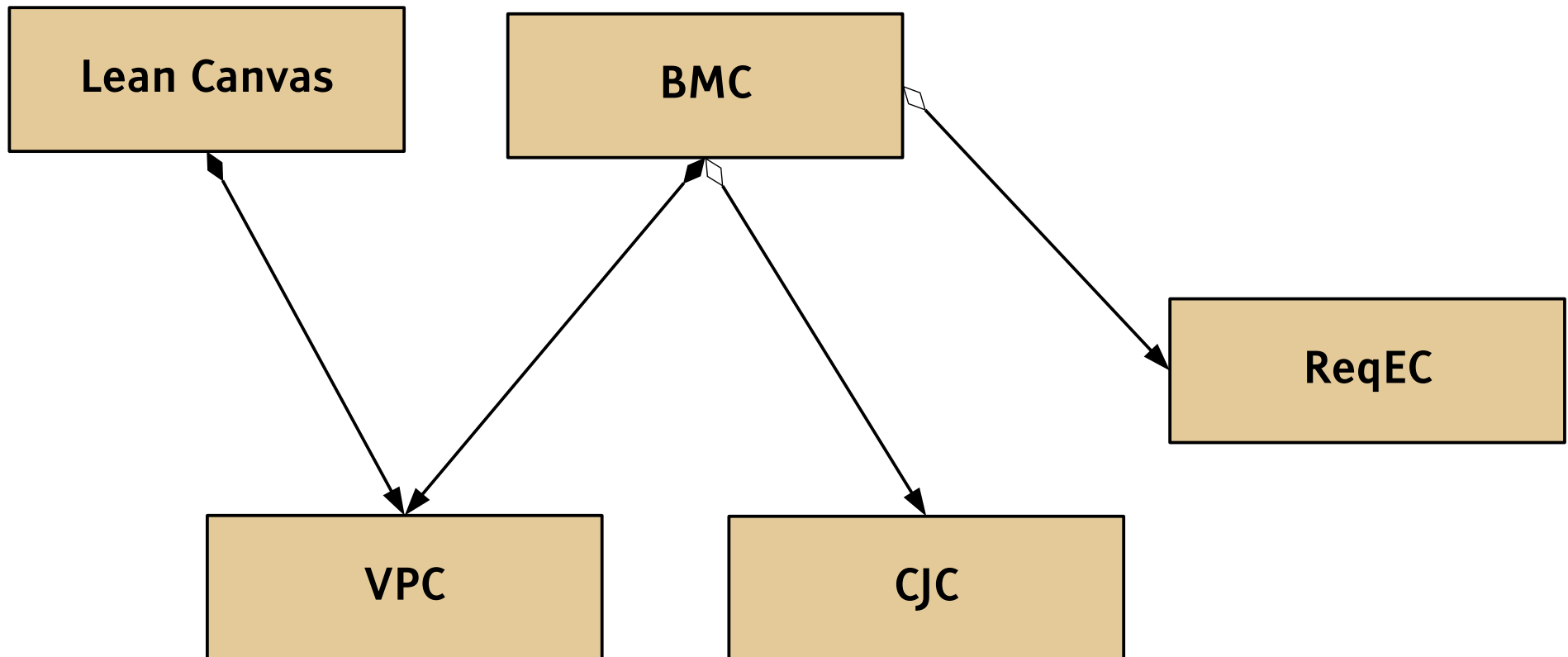


Customer Journey Canvas for Services (CJC)

- ▶ Service design is very important for young companies (→ chapter “Business models”)
 - A lightweight way to create business and customer relations
- ▶ CJC allows for brainstorming about all **customer touchpoints**, contact points with the customer during the service
 - <http://thisisservicedesignthinking.com/>
- ▶ <http://www.servicedesigntools.org/tools/8>
- ▶ On this website, you may edit several canvases, also the CJCS
 - <https://canvanizer.com/choose-canvas>

The Dependency Structure of Canvases

- ▶ Some canvases are subcanvases of others.
- ▶ Here is a metamodel excerpt
- ▶ How would you maintain a cactus for all these canvases?

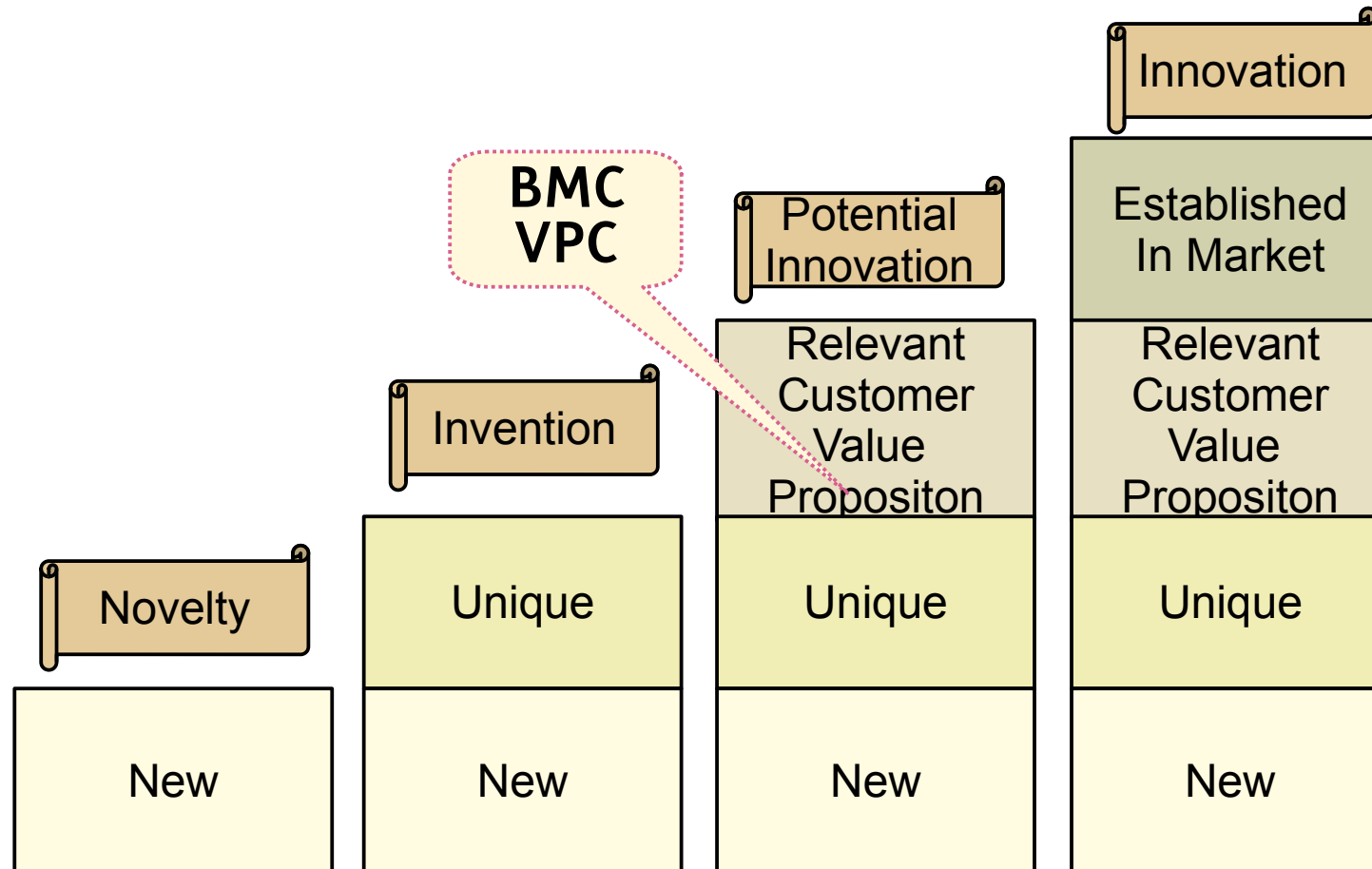


2.7 Innovation Processes

- Innovation processes are systematic ways to generate innovations in a company or in a startup

The Steps to Innovations (Bosch Thermotechnik)

- ▶ [Fit für innovation, Arbeitskreis 1. <http://www.fitfuerinnovation.de/>
- ▶ http://www.fitfuerinnovation.de/wp-content/uploads/2011/07/Fit_Fuer_Innovation_AK1.pdf]
- ▶ Innovations need several conditions:



Innovation Process acc. to [Scholtissek]

- ▶ Idea generation with idea generation techniques
 - Idea management mit Idea Management Systems (IMS)
 - Idea labs and workshops
 - House-of-Quality – Idea matrix crossing requirements and ideas
- ▶ Innovation planning
 - Marketing concept
 - Market analysis
 - Idea Detailed Analyse with Questions acc. to Scholtissek
- ▶ Prototyping (realizability)
- ▶ Piloting
 - Market research about customer acceptance
 - Test phase
- ▶ Commercialization
 - Introduction to market

BMC
VPC

BMC
VPC

ReqEC

VPC

VPC

Idea
Generation

Innovation
planning

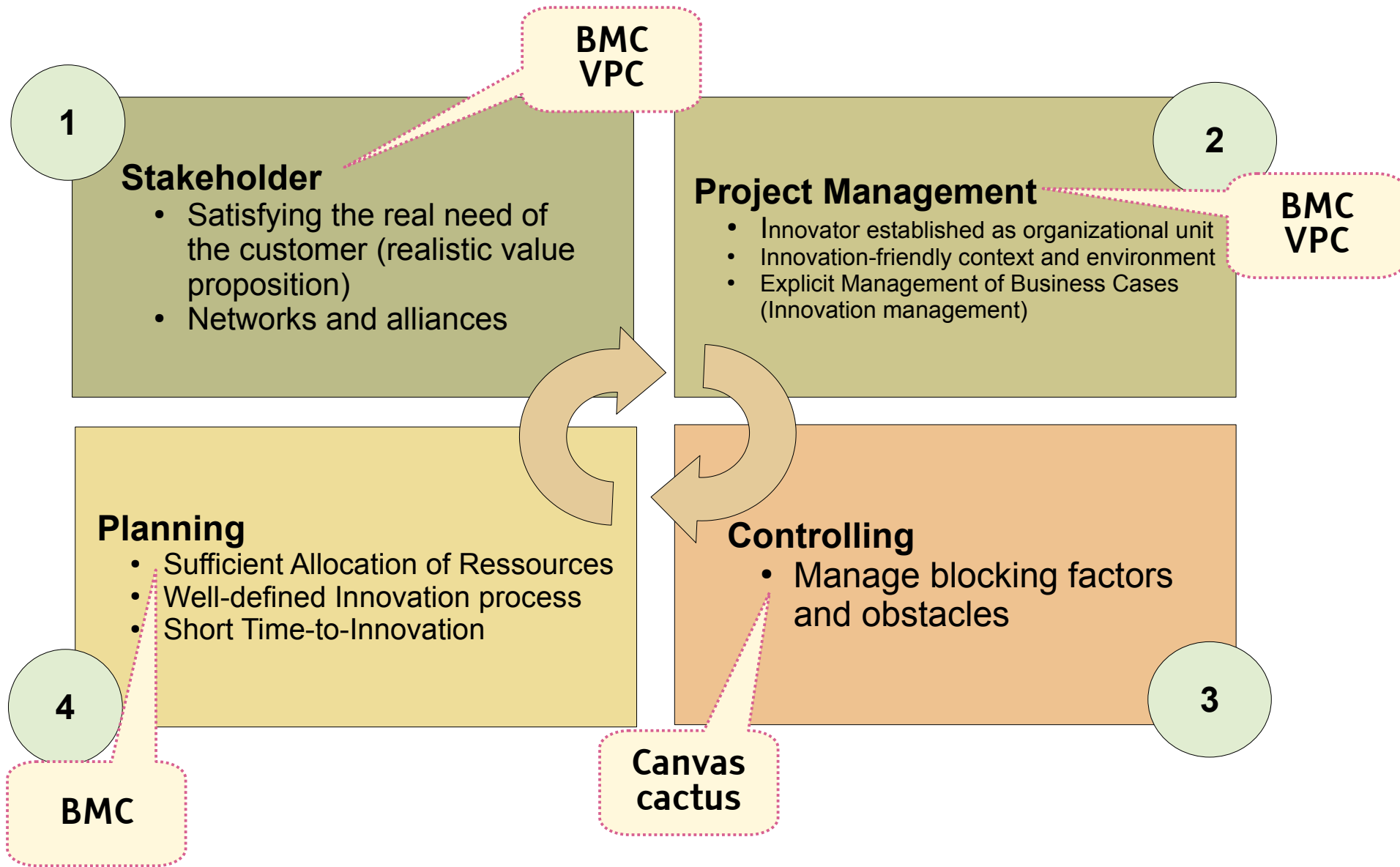
Prototyping

Piloting

Commerci-
alization

Scale

Success Factors of Innovations acc. to [Scholtissek]

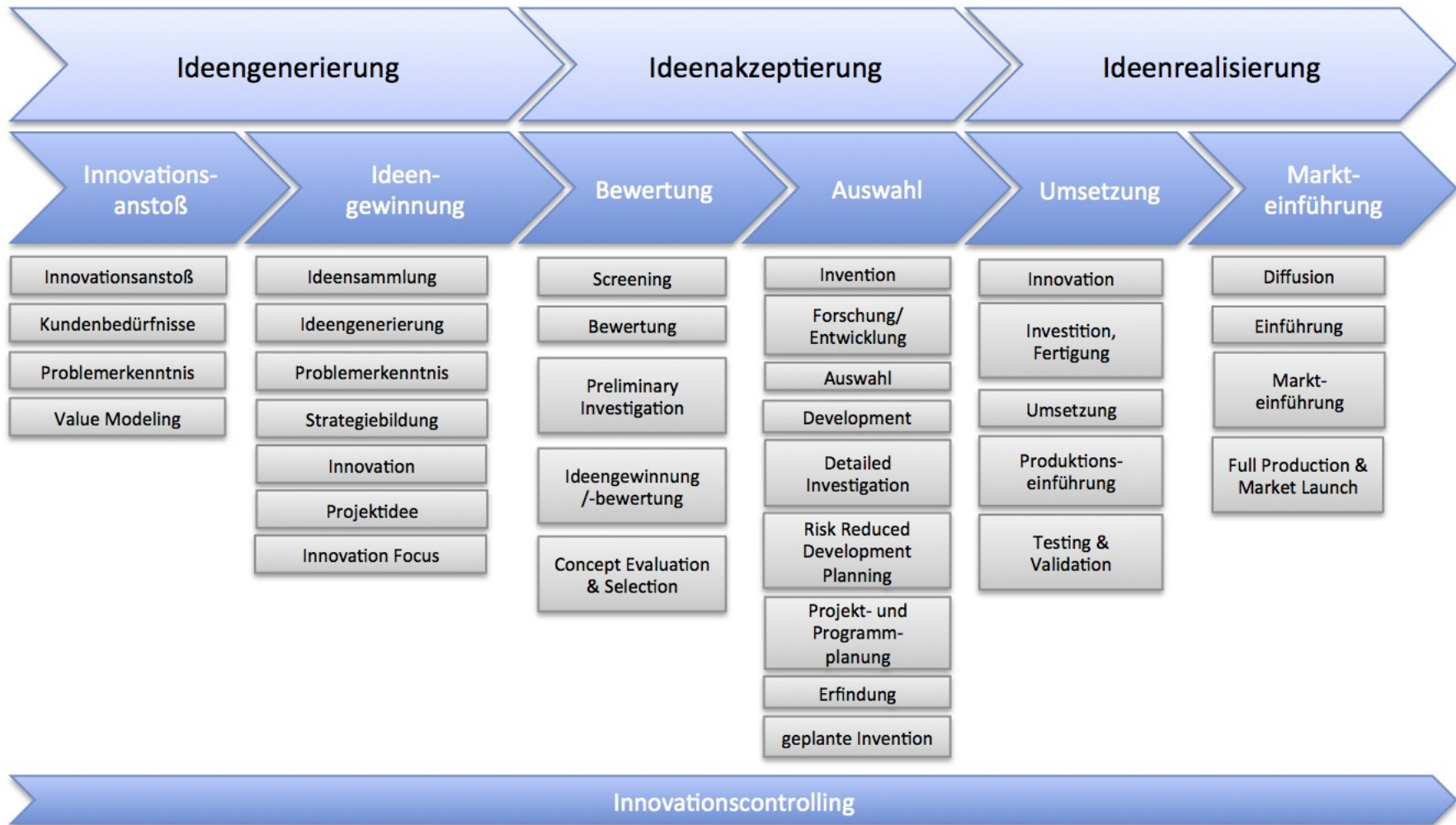


Statistical Innovation Metrics (-KPI) acc. To [Scholtissek]

- ▶ Metrics for Idea Generation
 - Number of Innovation Ideas of employees
 - **Number of filled or matured canvases**
 - Number of ideas per process step
- ▶ Metrics for efficiency of innovation (utility, investments vs cost per innovation)
 - Turnaround of the new products in the last years
 - Rise in market share due to the new products
 - Cost reduction by process innovation
 - Cost for research and development in relation to turnaround
- ▶ Time of Innovation Process (Time-to-Innovation)
- ▶ Distribution on innovation types
 - Product, process, business model innovation, etc.
 - Evolutionary, revolutionary, disruptive

Innovation Process of Project Open4Innovation

Sebastian Eichler. Evaluation von webbasierten Innovationsplattformen und Konzeption einer geeigneten Softwarearchitektur für Open Innovation. Diplomarbeit. Fakultät Wirtschaftswissenschaften, TU Dresden, August 2011.



The End

- ▶ How are BMC and VPC related? Describe how to do a BMC-VPC innovation workflow on LINC.
- ▶ What is the difference of a canvas and a metamodel?
- ▶ Explain the three phases of canvas filling.
- ▶ How do you create questions for a canvas? Explain one of the instruments to get ideas.
- ▶ Why is pain important in the VPC?
- ▶ Why is change important for business?
- ▶ Explain the LeanCanvas. What is different to BMC?
- ▶ Describe how to do a Lean Canvas innovation workflow on LINC.
- ▶ Why is the Lean Startup process a specific innovation process?
- ▶ Why are canvases models?
- ▶ Which canvas you would recommend for Volkswagen in its 2015 crisis?