INF5120 and INF9120
”Modelbased System development”

Lecture 4: 06.02.2016

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Course parts (16 lectures) - 2017

- January (1-3) (Introduction to Modeling, Business Architecture and the Smart Building project):
- 1-16/1: Introduction to INF5120
- 2-23/1: Modeling structure and behaviour (UML and UML 2.0 and metamodeling) - (establish Oblig groups)
- 3-30/1: WebRatio for Web Apps/Portals and Mobile Apps – and Entity/Class modeling – (Getting started with WebRatio)

- February (4-7) (Modeling of User Interfaces, Flows and Data model diagrams, Apps/Web Portals - IFML/Client-Side):
- 4-6/2: Business Model Canvas, Value Proposition, Lean Canvas and Essence
- 5-13/2: IFML – Interaction Flow Modeling Language, WebRatio advanced – for Web and Apps
- 6-20/2: BPMN process, UML Activ.Diagrams, Workflow and Orchestration modelling value networks
- 7-27/2: Modeling principles – Quality in Models
- 27/2: Oblig 1: Smart Building – Business Architecture and App/Portal with IFML WebRatio UI for Smart Building

- March (8-11) (Modeling of IoT/CPS/Cloud, Services and Big Data – UML SM/SD/Collab, ThingML Server-Side):
- 8-6/3: DSL and ThingML, UML State Machines and Sequence Diagrams
- 9-13/3: UML Composite structures, State Machines and Sequence Diagrams II
- 10-20/3: Architectural models, Role modeling and UML Collaboration diagrams
- 11-27/3: UML Service Modeling, ServiceML,SoaML, REST, UML 2.0 Composition, MagicDraw
- 27/3: Oblig 2: Smart Building – Internet of Things control with ThingML – Raspberry Pi, Wireless sensors (temperature, humidity), actuators (power control)

- April/May (12-14) (MDE – Creating Your own Domain Specific Language):
- 12-3/4: Model driven engineering – Metamodels, DSL, UML Profiles, EMF, Sirius Editors
- EASTER – 10/4 og 17/4
- 13-24/4: MDE transformations, Non Functional requirements
- 1. Mai – Official holiday
- 14-8/5: Enterprise Architecture, TOGAF, UPDM, SysML – DSLs etc.
- 8/5: Oblig 3 - Your own Domain Specific Language

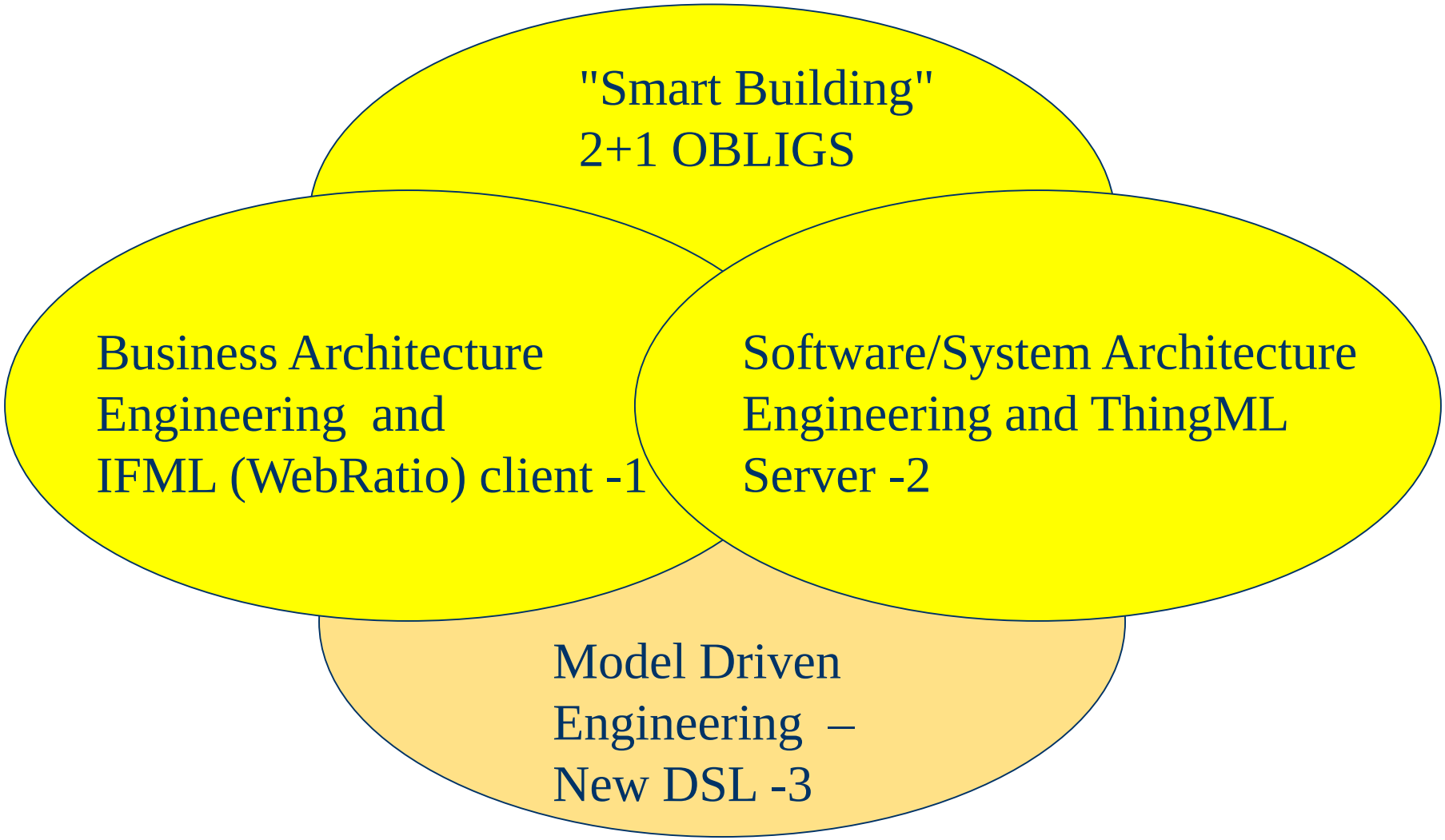
- May (15-17): (Bringing it together)
- 15-15/5: Summary of the course – Final demonstrations
- 16-22/5: Previous exams – group collaborations (No lecture)
- 17-29/5: Conclusions, Preparations for the Exam by old exams
- June (Exam)
- 13/6: Exam (4 hours), (June 13th, 0900)-1300

This lecture, February 6, 2017

Business Architecture, Business Engineering and Business Model Canvas

- Introduction to Agile development
- Introduction to Team management – using Upvawe.io – for Scrum and Kanban
- Business Modeling, Business Engineering
- Lean Startup – Lean Canvas

Course components

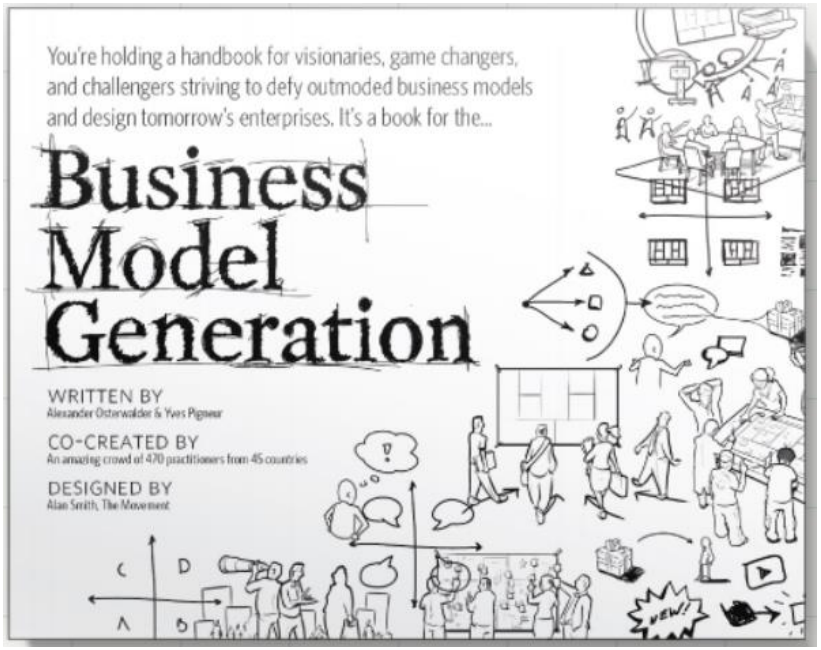


VDMBee tool support (new 2017!)

https://vdmbee.com

(Download and use Chrome Web app)

https://vdmbee.com/home-new/examples/



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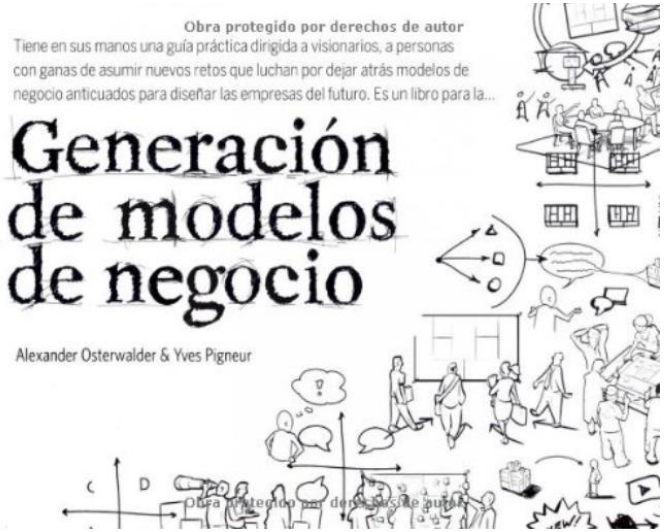
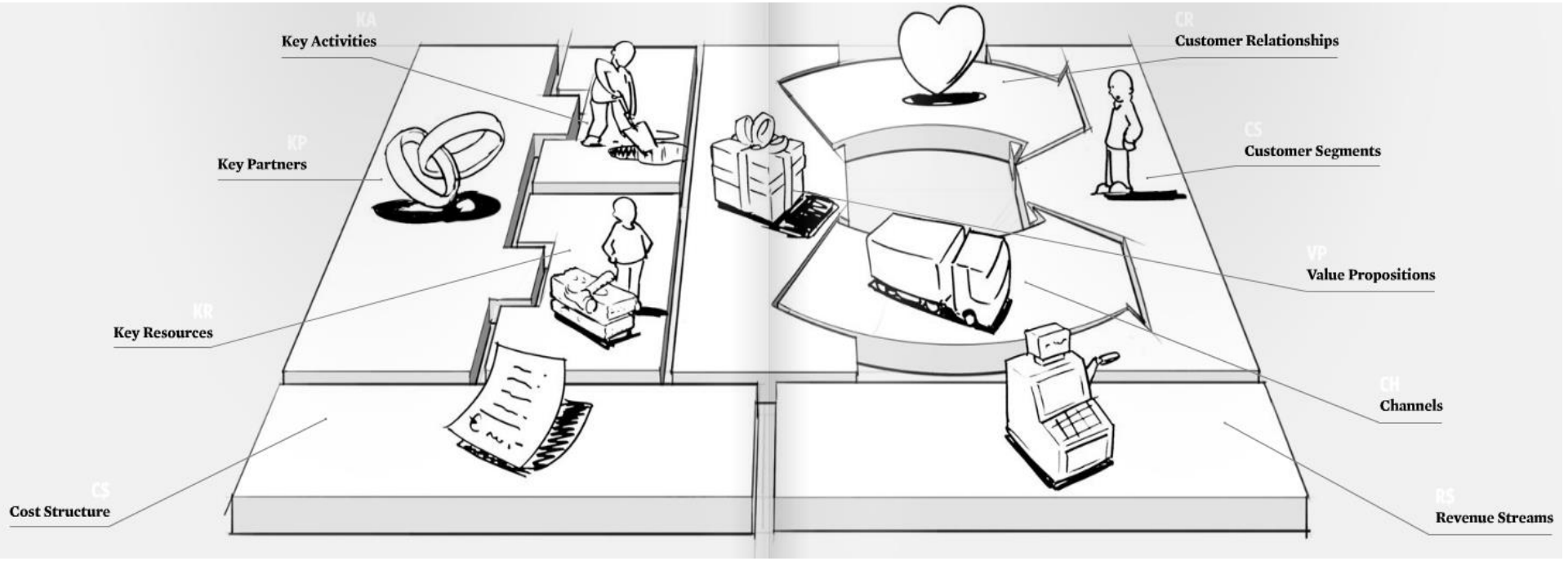


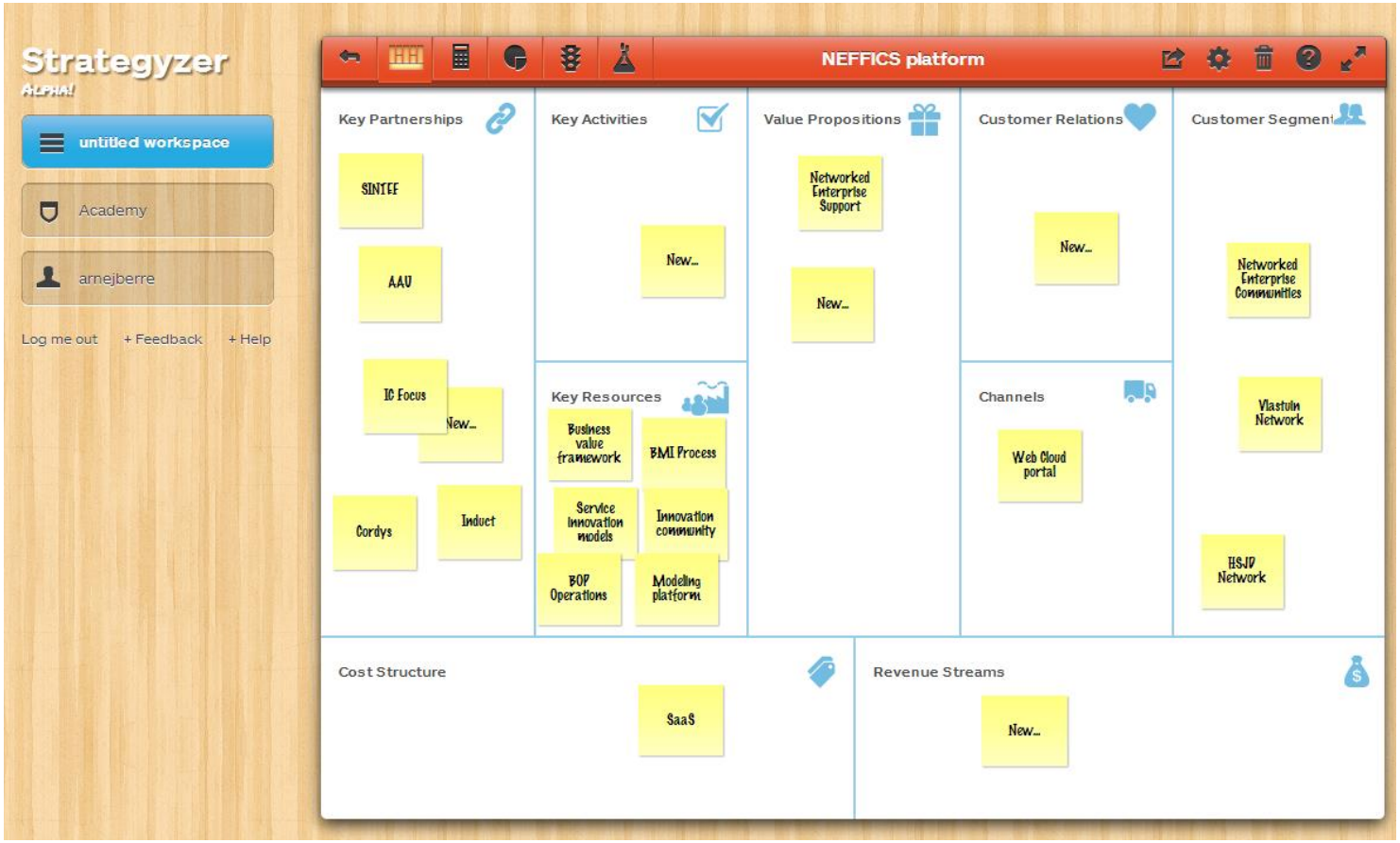
30 languages

Businss Model Innovation

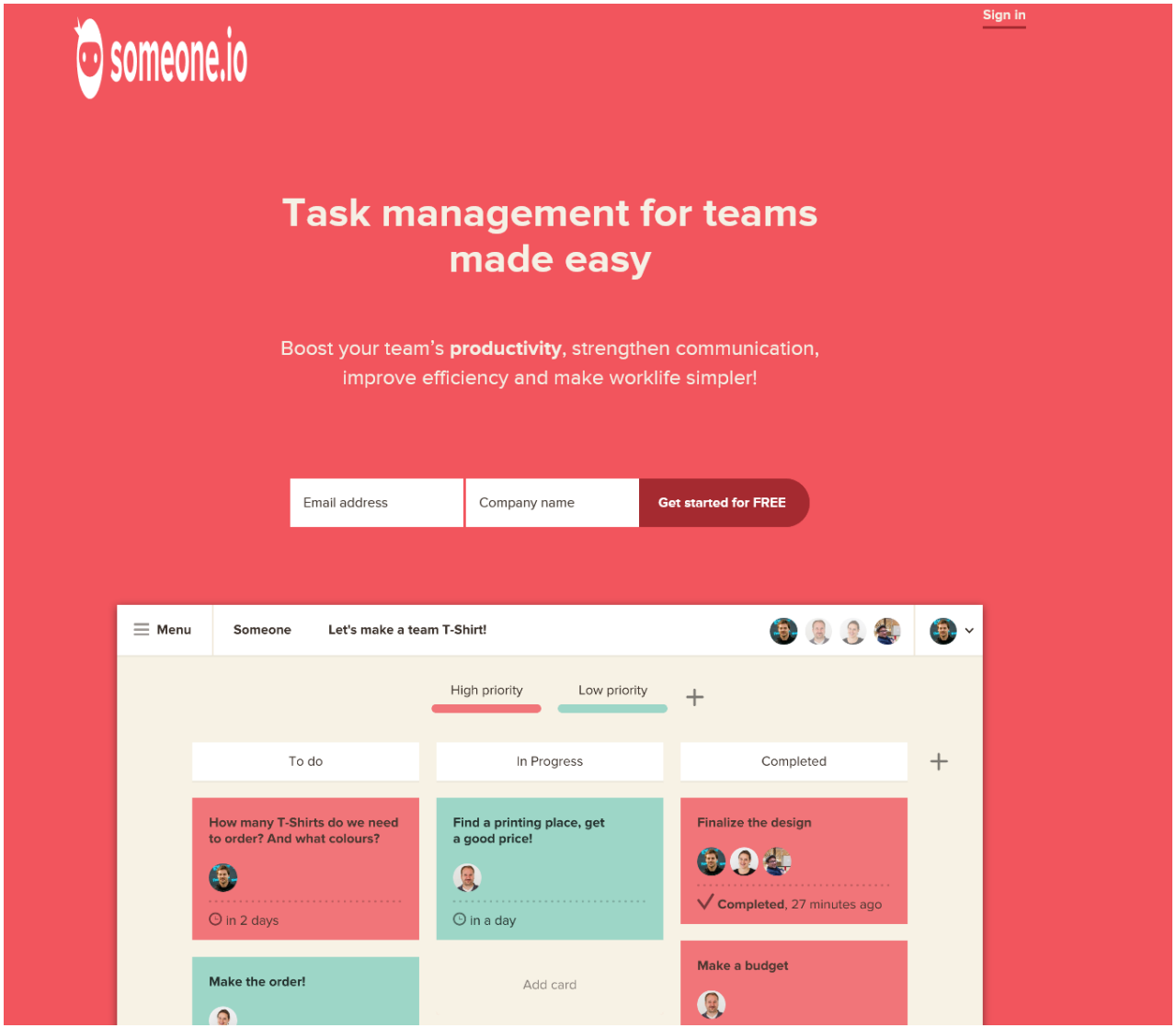
The Business Model Canvas



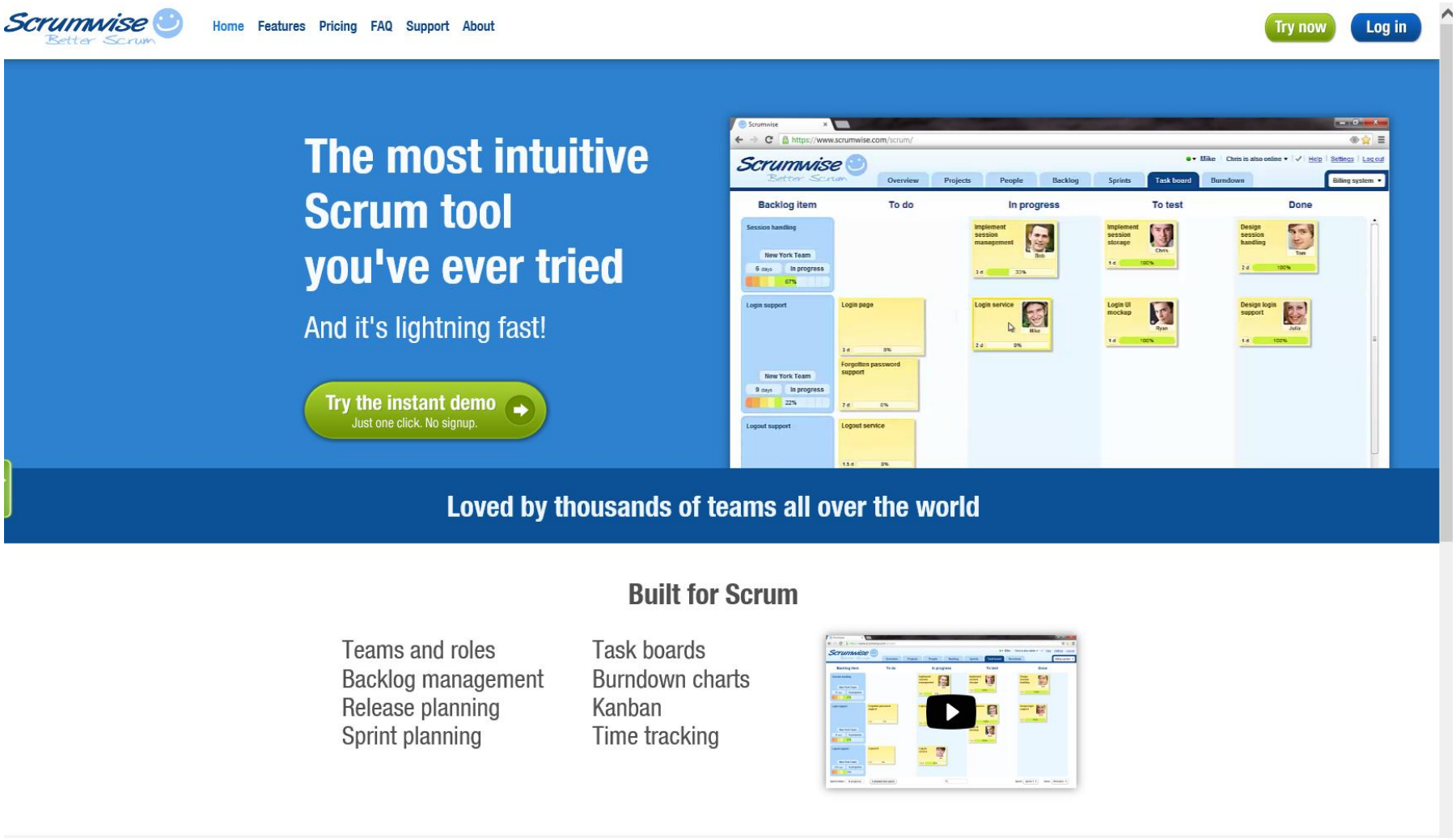
Strategyzer (Osterwalder)



Upwave.io – for Scrum



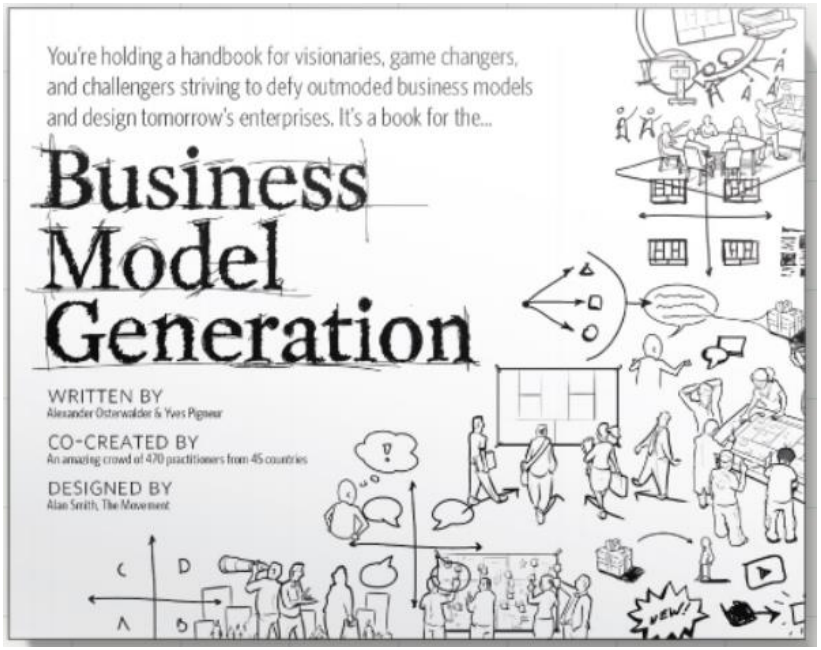
Scrum – Scrumwise.com



Motivation: Business Analysis and Service and Interaction Design – as cooperative disciplines for System Development and Software Engineering

- Software Engineering should not happen in isolation – Requirements Engineering needs to be strongly linked to the disciplines of Business Analysis/Business Engineering and Service and Interaction Design.

- We will learn how we can work with the tools and techniques of Business Analysts (i.e. Business Model and Value Proposition Canvas) and Service and Interaction Designers (Service Design) – to ensure the best possible synergy effects between these and software and requirements engineering tools and techniques.



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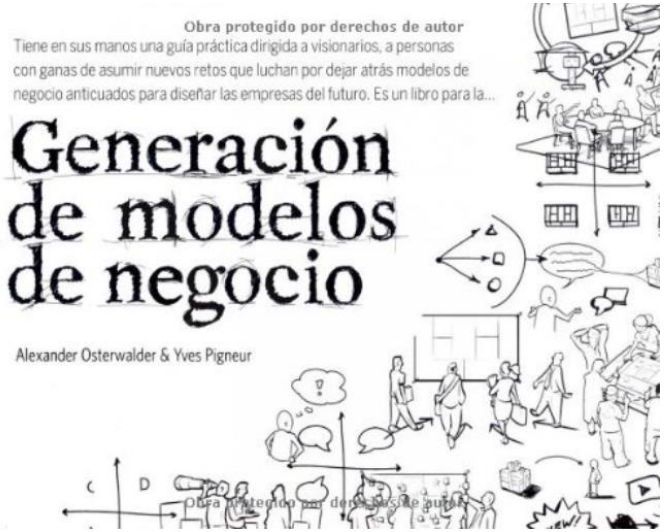
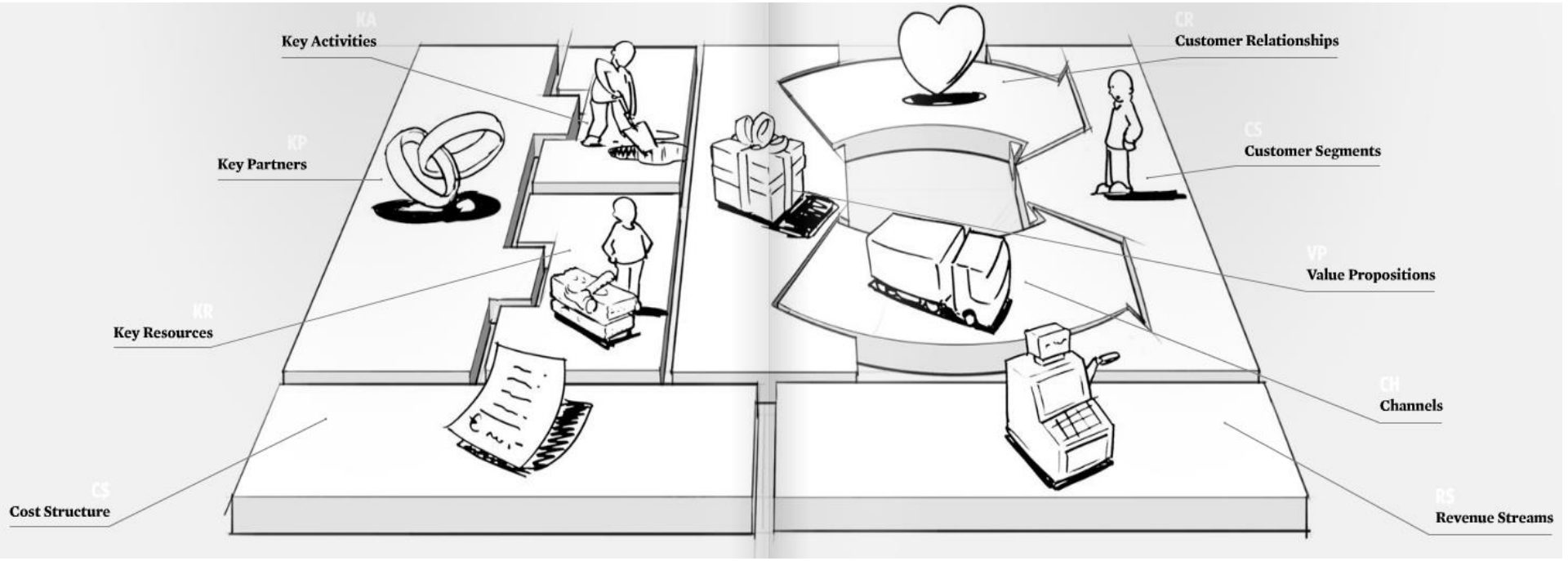


30 languages

Businss Model Innovation

The Business Model Canvas



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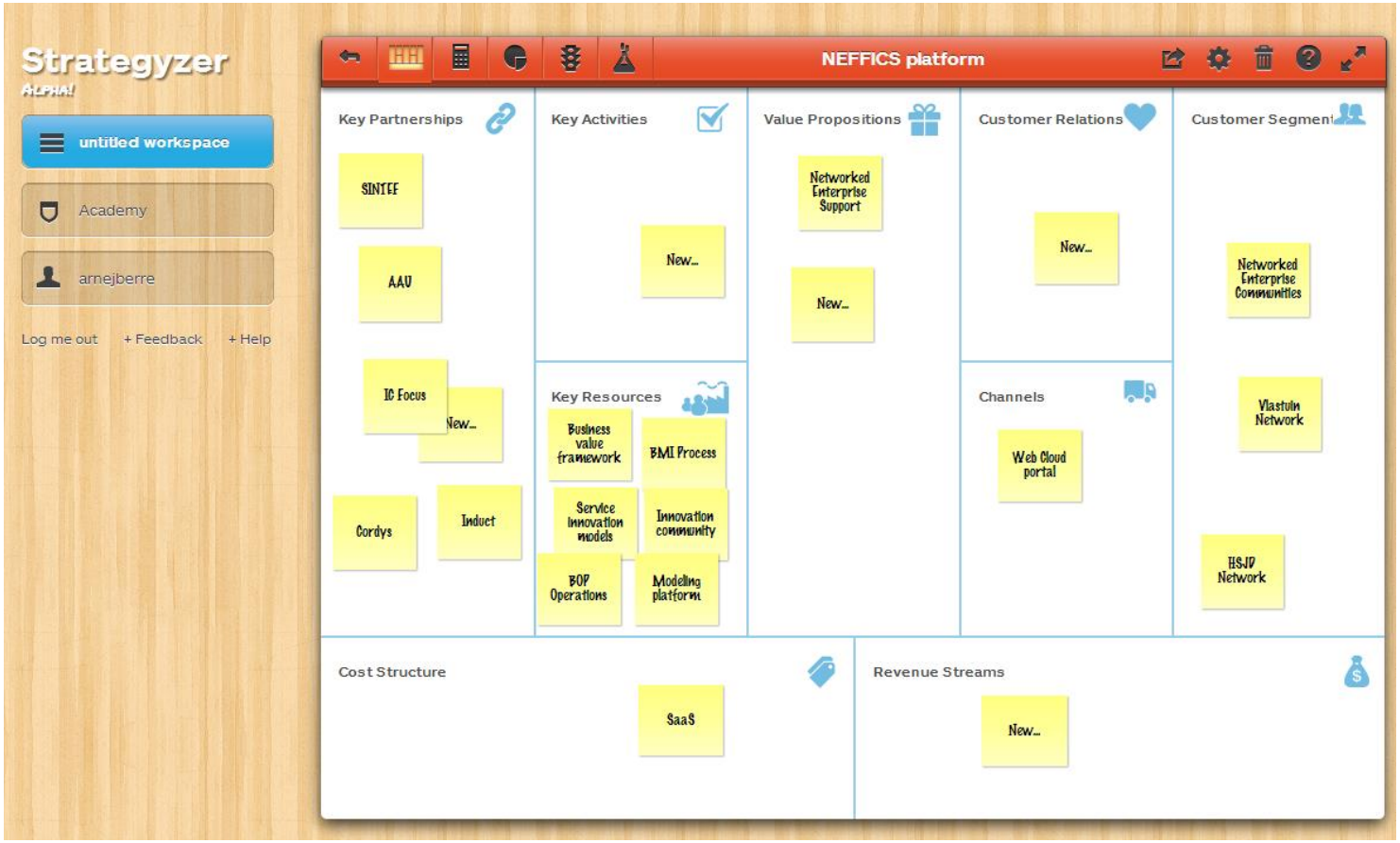
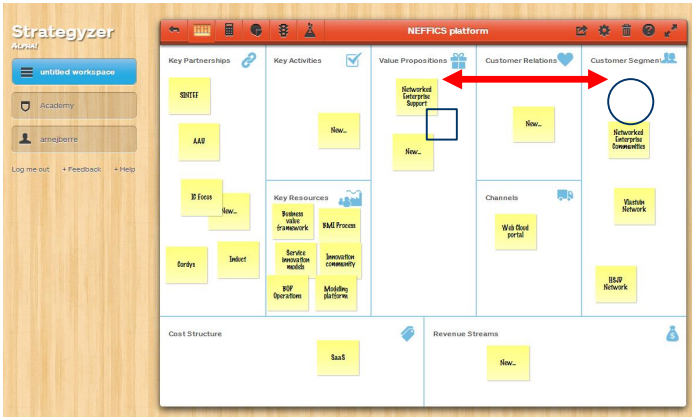
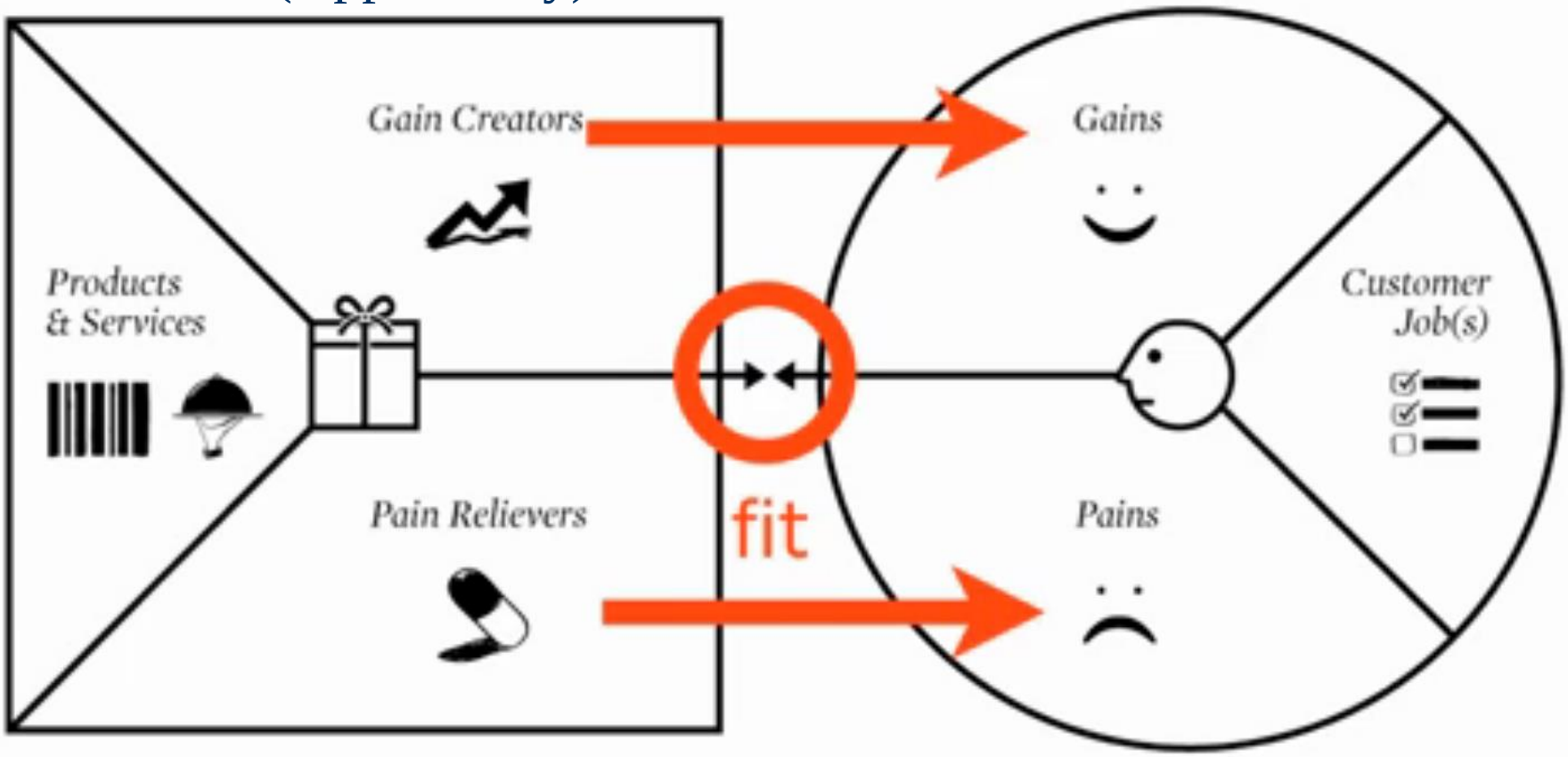


Value Proposition Canvas

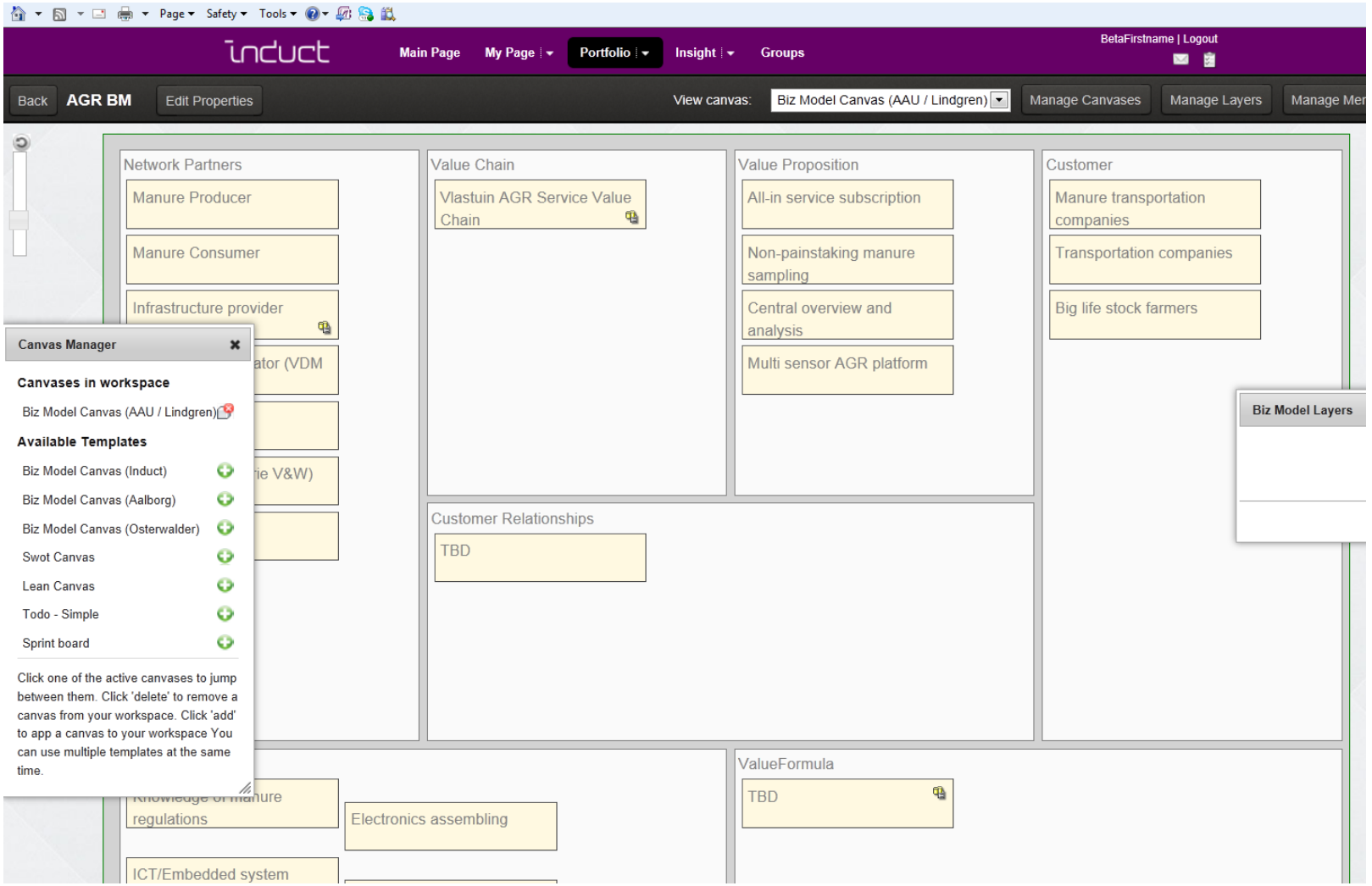


Value offer
(Opportunity)

Value needs (Requirements)



BMI – Canvases/Models



Business Model Canvas and Value Proposition Canvas Resources

- www.strategyzer.com
- http://www.alexandercowan.com/business-model-canvas-templates/
- BizCanvas App for the iPad
- …

Business Model (Definition)

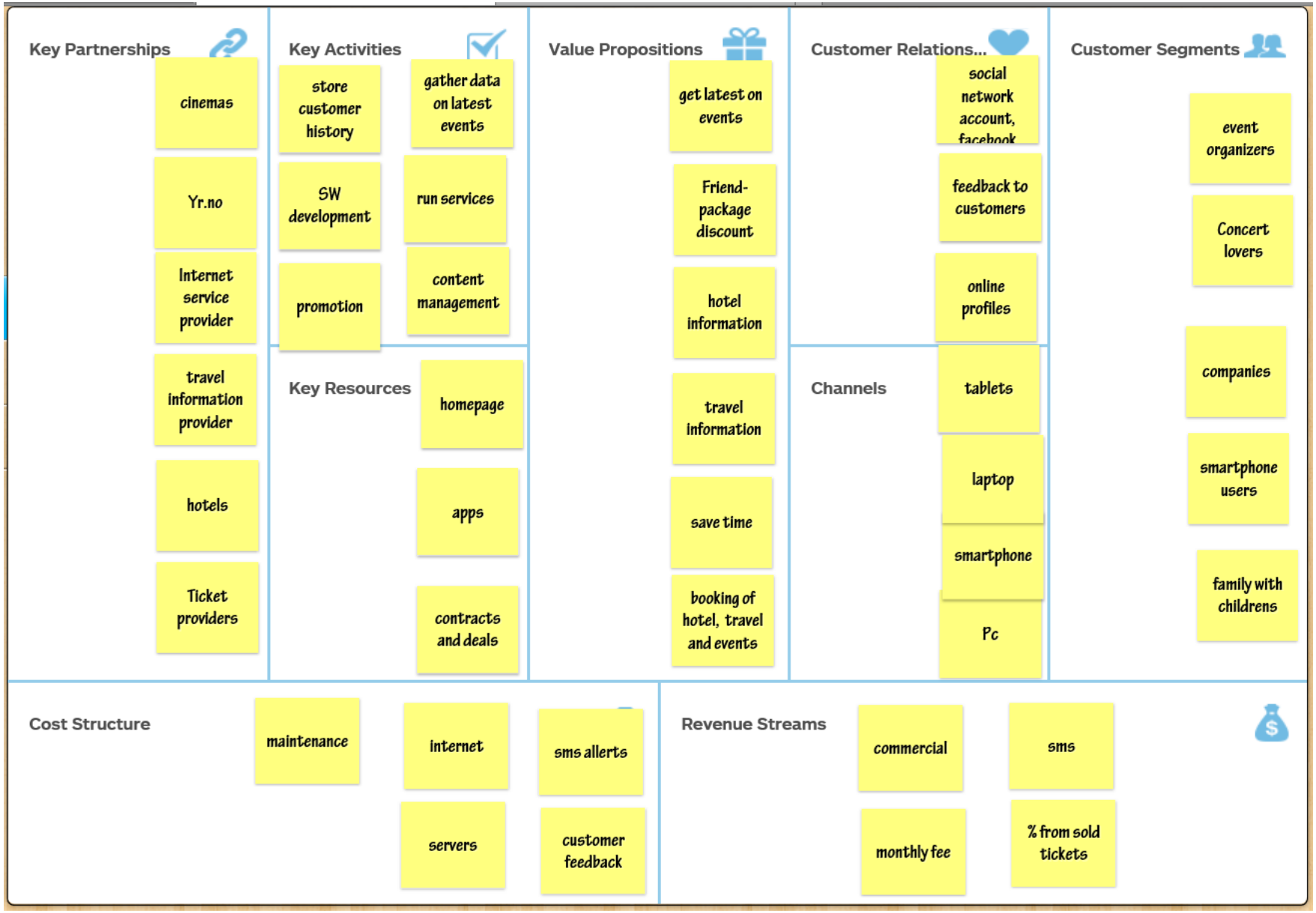
- A Business Model describes the rationale of how an organization creates, delivers and captures value.

Reference examples in the course

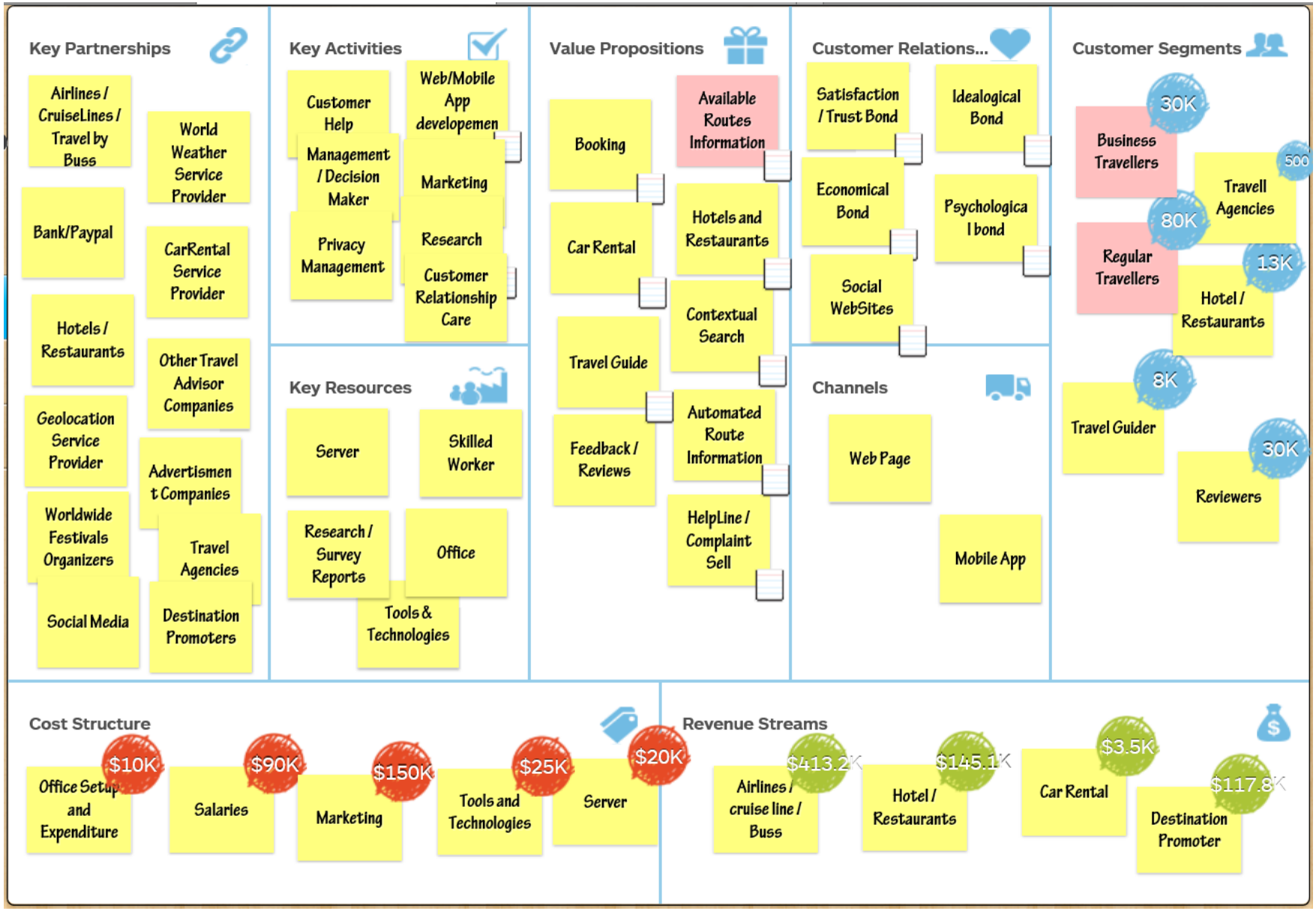
- Concierge: A company with a system/service that offers advice and recommendations to people with respect to current and upcoming events, concerts, exhibitions etc.

- TravelAdvisor: A company with a system/service that offers advice and booking possibilities to travelers

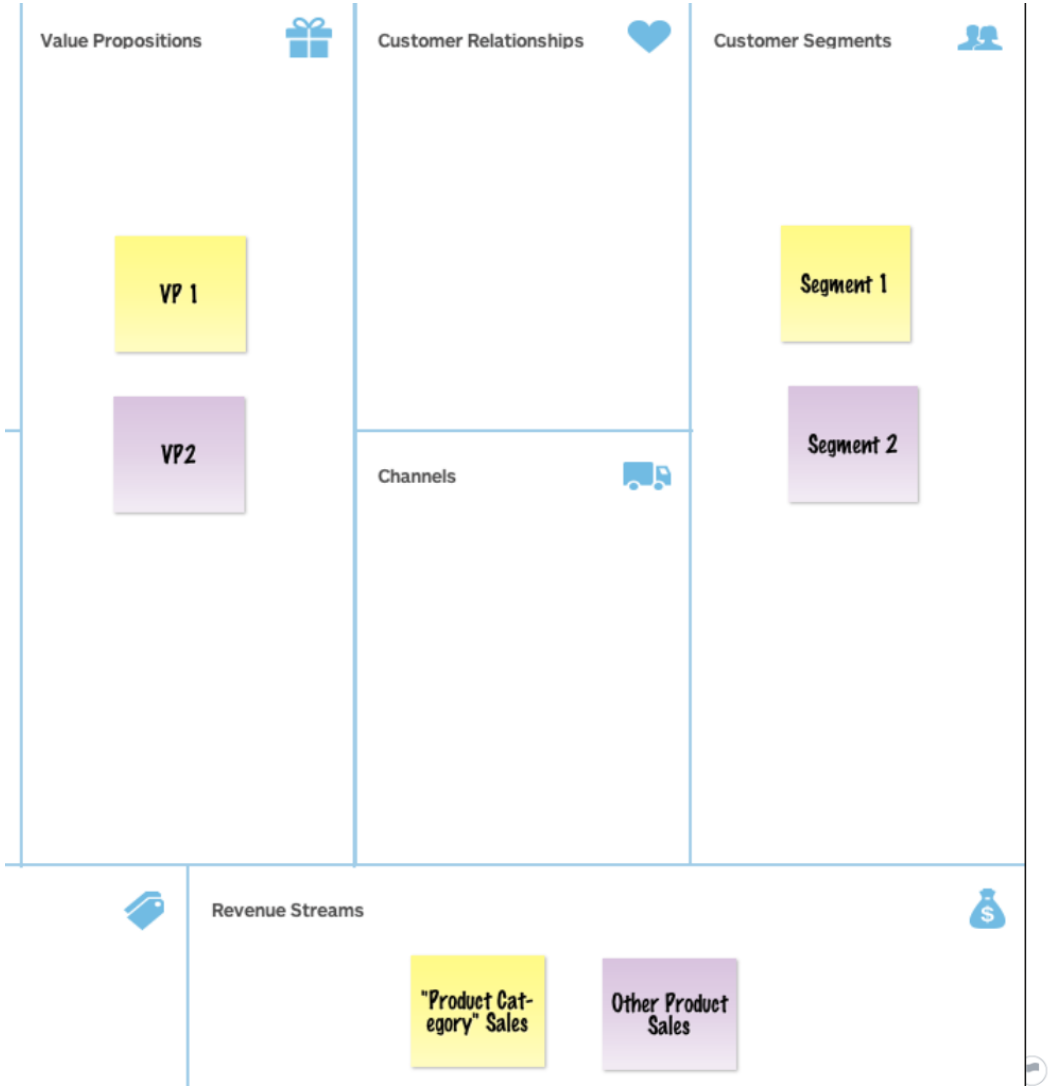
Concierge


Key Partnerships
cinemas
Yr.no
Internet service provider
travel information provider
hotels
Ticket providers
Key Activities
store customer history
gather data on latest events
SW development
run services
promotion
content management
Key Resources
homepage
apps
contracts and deals
Value Propositions
get latest on events
Friend-package discount
hotel information
travel information
save time
booking of hotel, travel and events
Customer Relations...
social network account, facebook
feedback to customers
online profiles
Channels
tablets
laptop
smartphone
Pc
Customer Segments
event organizers
Concert lovers
companies
smartphone users
family with childrens
Cost Structure
maintenance
internet
sms allerts
servers
customer feedback
Revenue Streams
commercial
sms
monthly fee
% from sold tickets

TravelAdvisor



Colours


Value Propositions
Customer Relationships
Customer Segments
VP 1
VP2
Segment 1
Segment 2
Channels
Revenue Streams
"Product Cat-egory" Sales
Other Product Sales

Use of colours (not standardised)

- 1. Relationship

  This is used with the same colors relating to a particular client/customer segment.

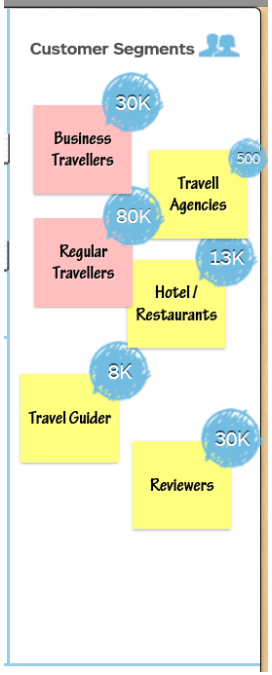
  2. Prioritizing

  This is used to prioritize importance with Green, Yellow & Red markings only. The red notes are distinguished as immediate attention needed.

  3. Distinguishing

  This is a further distinction from the above prioritization by also using a purple note as a higher level purpose (or instructional)note

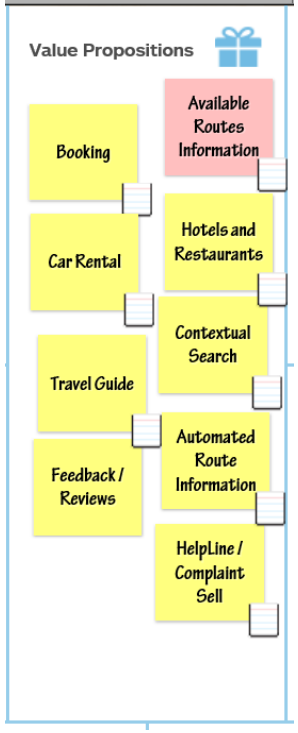
Customer Segments



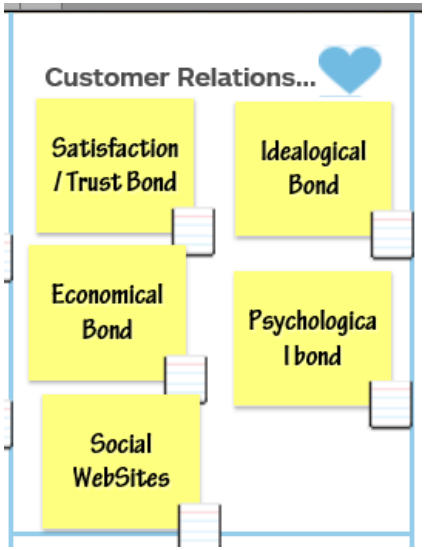
- **The Customer Segments Building Block defines the different groups of people or organizations an enterprise aims to reach and serve**
- Customers comprise the heart of any business model.
- Without (profitable) customers, no company can survive for long
- In order to better satisfy customers, a company may group them into distinct segments with common needs, common behaviors, or other attributes.
- A business model may define one or several large or small Customer Segments
- An organization must make a conscious decision about which segments to serve and which segments to ignore
- Once this decision is made, a business model can be carefully designed around a strong understanding of specific customer needs.

Value Propositions

- **The Value Propositions Building Block describes the bundle of products and services that create value for a specific Customer Segment**
- The Value Proposition is the reason why customer turn to one company over another.
- It solves a customer problem or satisfies a customer need. Each Value Proposition consists of a selected bundle of products and/or services that caters to the requirements of a specific Customer Segment. In this sense,
- Value Proposition is an aggregation, or bundle, of benefits that a company offers customers.
- Some Value Propositions may be innovative and represent a new or disruptive offer. Others may be similar to existing market offers, but with added features and attributes.



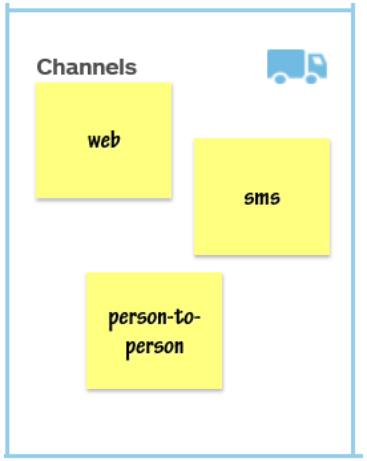
Customer Relationships



- **The Customer Relationships Building Block describes the types of relationships a company establishes with specific Customer Segments**
- A company should clarify the type of relationship it wants to establish with each Customer Segment.
- Relationships can range from personal to automated
- Customer relationships may be driven by the following motivations:

- *Customer acquisition*
- *Customer retention*
- *Boosting sales (upselling)*

Channels



- **The Channels Building Block describes how a company communicates with and reaches its Customer Segments to deliver a Value Proposition**
- Communication, distribution, and sales Channels comprise a company's interface with customers. Channels are customer touch points that play an important role in the customer experience.
- Channels serve several functions, including:
  - *Raising awareness among customers about a company's products and services*
  - *Helping customers evaluate a company's Value Proposition*
  - *Allowing customers to purchase specific products and services*
  - *Delivering a Value Proposition to customers*
  - *Providing post-purchase customer support*

Revenue Streams

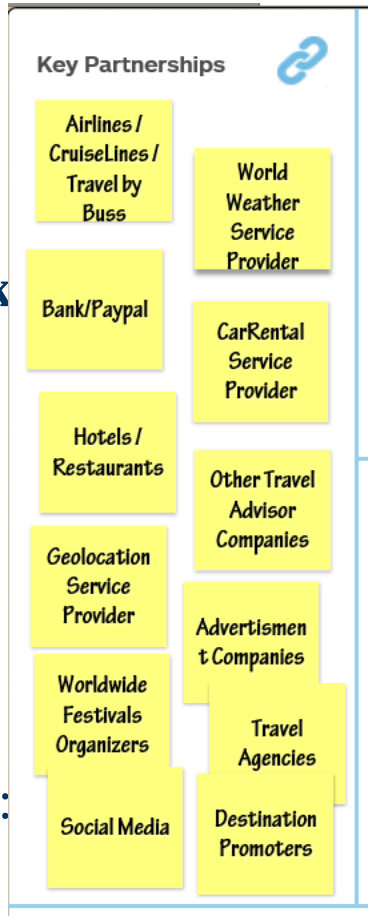
- **The Revenue Streams Building Block represents the cash a company generates from each Customer Segment (costs must be subtracted from revenues to create earnings)**
- If customers comprise the heart of a business model, Revenue
- Streams are its arteries.
- A company must ask itself, For what value is each Customer Segment truly willing to pay?
- Successfully answering that question allows the firm to generate one or more Revenue Streams from each Customer Segment.
- Each Revenue Stream may have different pricing mechanisms, such as fixed list prices, bargaining, auctioning, market dependent, volume dependent, or yield management.

Key Resources

- **The most important assets required to make a busi work**
- Every business model requires Key Resources.
- These resources allow an enterprise to create and offer a Value Proposition, reach markets, maintain relationships with Customer Segments, and earn revenues.
- Different Key Resources are needed depending on the type of business model.
- A microchip manufacturer requires capital-intensive production facilities, whereas a microchip designer focuses more on human resources.
- Key resources can be physical, financial, intellectual, or human.
- Key resources can be owned or leased by the company or acquired from key partners.

Key Partnerships

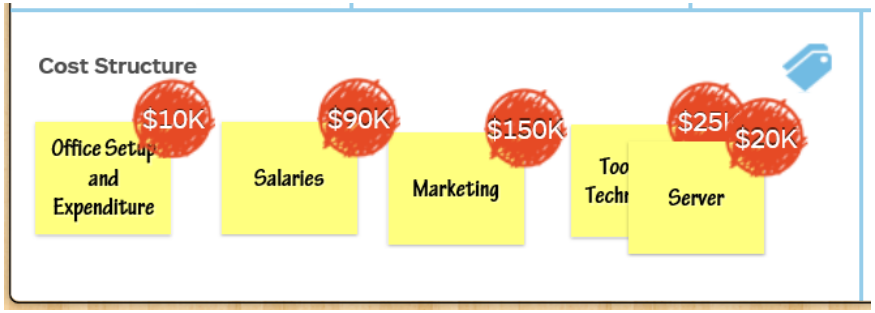
- **The Key Partnerships Building Block describes the network of suppliers and partners that make the business model work**
- Companies forge partnerships for many reasons, and partnerships are becoming a cornerstone of many business models.
- Companies create alliances to optimize their business models, reduce risk, or acquire resources.
- We can distinguish between four different types of partnerships:
  1. *Strategic alliances between non-competitors*
  2. *Coopetition: strategic partnerships between competitors*
  3. *Joint ventures to develop new businesses*
  4. *Buyer-supplier relationships to assure reliable supplies*



Key Activities

- **The Key Activities Building Block describes the most important things a company must do to make its business model work**
- Every business model calls for a number of Key Activities.
- These are the most important actions a company must take to operate successfully. Like Key Resources, they are required to create and offer a Value Proposition, reach markets, maintain Customer Relationships, and earn revenues.
- And like Key Resources, Key Activities differ depending on business model type.
  - For software maker Microsoft, Key Activities include software development.
  - For PC manufacturer Dell, Key Activities include supply chain management. For consultancy McKinsey, Key Activities include problem solving.

Cost Structure



- **The Cost Structure describes all costs incurred to operate a business model**
- This building block describes the most important costs incurred while operating under a particular business model.
- Creating and delivering value, maintaining Customer Relationships, and generating revenue all incur costs.
- Such costs can be calculated relatively easily after defining Key Resources, Key Activities, and Key Partnerships.
- Some business models, though, are more cost-driven than others.
- So-called "no frills" airlines, for instance, have built business models entirely around low Cost Structures.

Business Model Patterns

- Unbundling Business Models
- The Long Tail
- Multi-Sided Platforms
- Free as a Business Model
- Open Business Models

Business Model Design Techniques

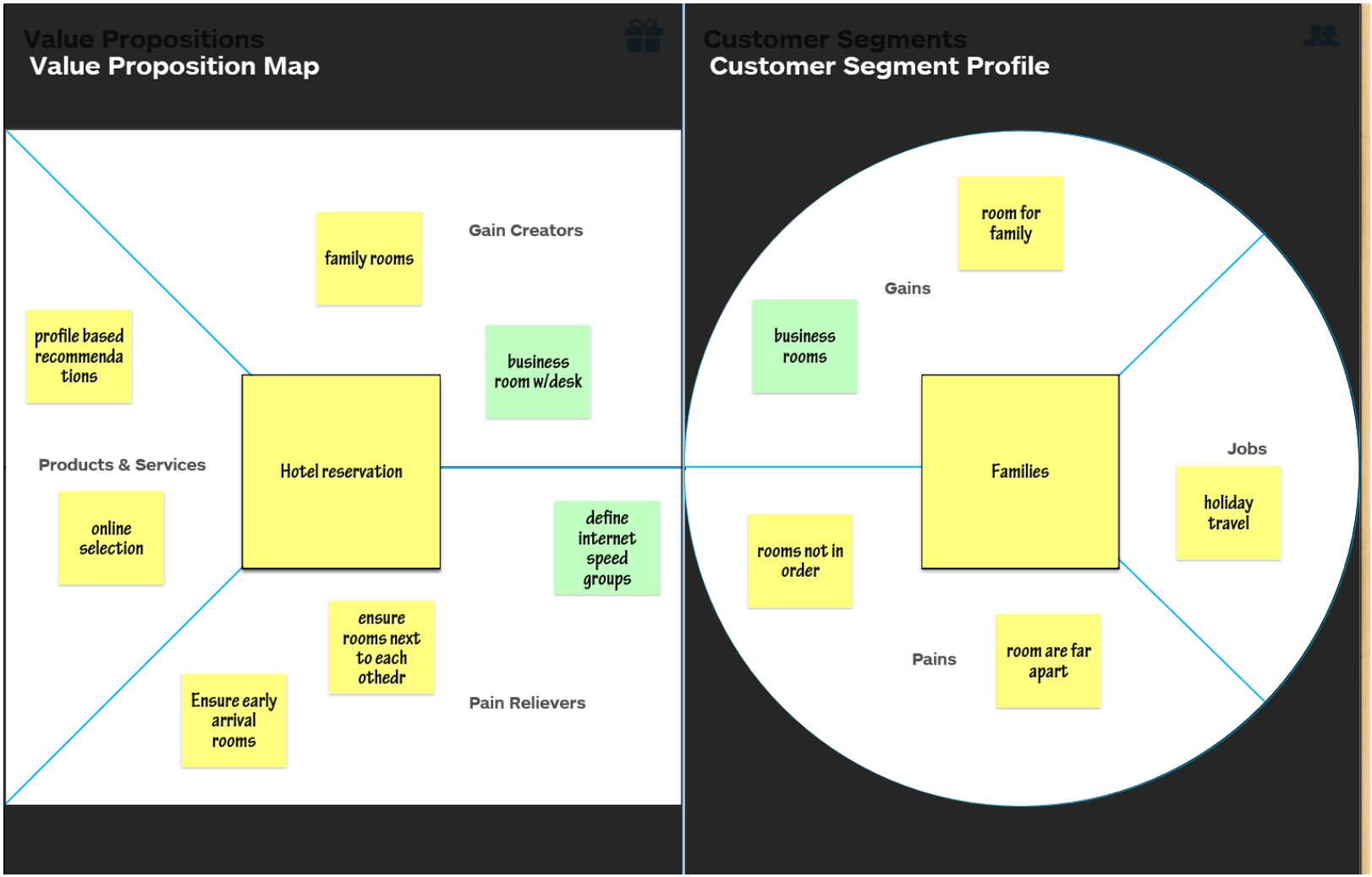
- Customer Insight
- Ideation
- Visual Thinking
- Prototyping
- Storytelling
- Scenarios

Business Model Design Process - Phases

- Mobilize
- Understand
- Design
- Implement
- Manage

October, 2014

Value Proposition Canvas



Customer Profile

- Use the customer profile to visualize what matters to customers.
- Specify their jobs, pains, and gains.
- Communicate the profile across your organization as a one-page actionable document that creates a shared customer understanding.
- Apply it as a "scoreboard" to track if assumed customer jobs, pains, and gains exist when you talk to real customers.

Customer Jobs

- Jobs describe the things your customers are trying to get done in their work or in their life.
- A customer job could be the tasks they are trying to perform and complete, the problems they are trying to solve, or the needs they are trying to satisfy.
- Make sure you take the customer's perspective when investigating jobs.
- What you think of as important from your perspective might not be a job customers are actually trying to get done.'
- Distinguish between three main types of customer jobs to be done and supporting jobs:

Customer Jobs

Functional jobs

- When your customers try to perform or complete a specific task or solve a specific problem, for example, mow the lawn, eat healthy as a consumer, write a report, or help clients as a professional.

Social jobs

- When your customers want to look good or gain power or status. These jobs describe how customers want to be perceived by others, for example, look trendy as a consumer or be perceived as competent as a professional.

Personal/emotional jobs

- When your customers seek a specific emotional state, such as feeling good or secure, for example, seeking peace of mind regarding one's investments as a consumer or achieving the feeling of job security at one's workplace.

Customer Jobs

Supporting jobs

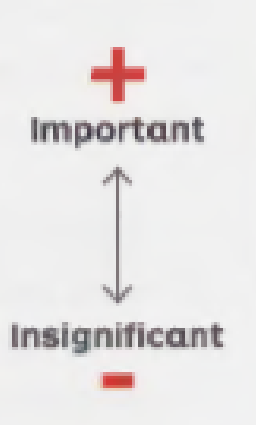
- Customers also perform supporting jobs in the context of purchasing and consuming value ether as consumers or as professionals. These jobs arise from three different roles:

- BUYER OF VALUE: jobs related to buying value, such as comparing offers, deciding which, products to buy, standing in a checkout line, completing a purchase, or taking delivery of a product or service..
- COCREATOR OF VALUE: jobs related to cocreating value with your organization, such as posting product reviews and feedback or even participating in the design of a product or service.
- TRANSFERRER OF VALUE: jobs related to the end of a value proposition's life cycle, such as canceling a subscription, disposing of a product transferring it to others, or reselling it.

Job Context

- Customer jobs often depend on the specific context in which they are performed. The context may impose certain constraints or limitations.
- For example, calling somebody on the fly is different when you are traveling on a train than when you are driving a car. Likewise, going to the movies with your kids is different than going with your partner.

Job Importance



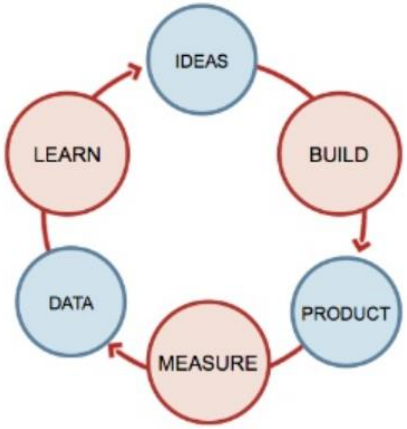
- *It is important to acknowledge that not al/jobs have the same importance to your customer.* Some *matter more in* a *customer's work or life because failing to get them done could have serious ramifications.*
- Some *are insignificant because the customer cares about other things more. Sometimes* a *customer will deem* a *job crucial because it occurs frequently or because it will result in* a *desired or unwanted outcome.*

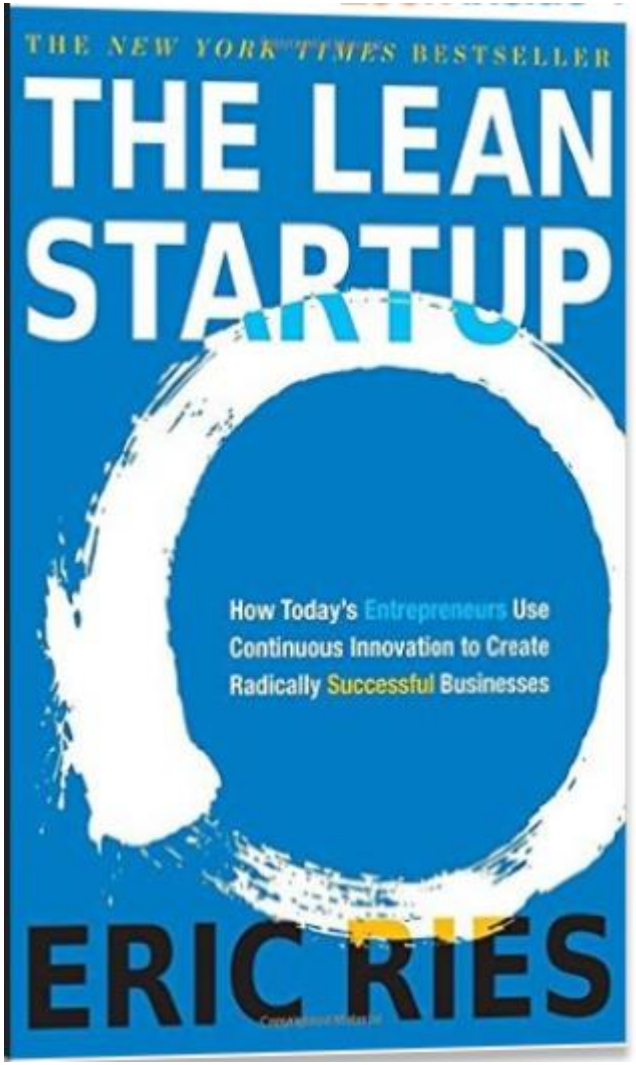
Cohorts and split of customer groups

- Do customers recognize that they have the problem you are trying to solve?
- If there was a solution – would they buy it?
- Would they buy it form us?
- Can we build a solution for that problem?

Lean Startup

The core of Lean is iteration.





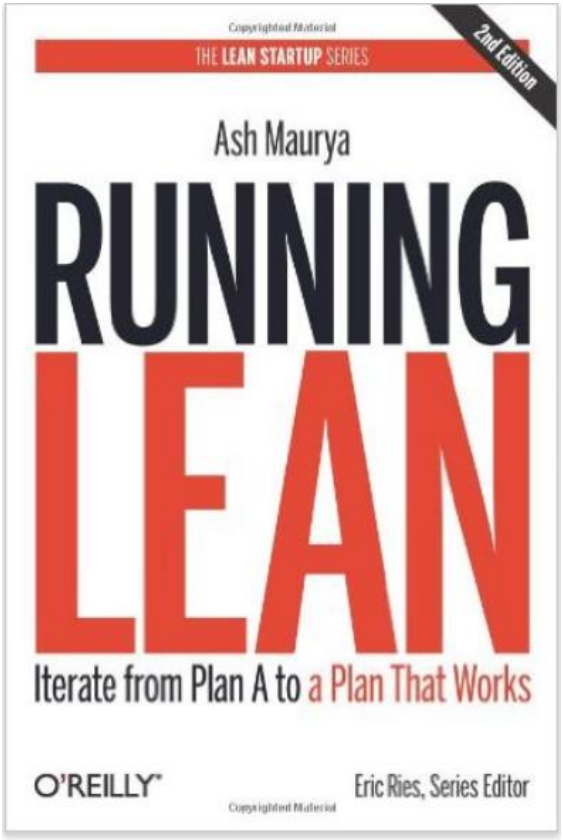
Lean Startup Process

- Validated Learning
- Build-Measure-Learn(minimize time through this loop)
- Innovation Accounting

- Startups often build something nobody wants – it does not matter if they build it on time and on budget …

- Where can we find validation?

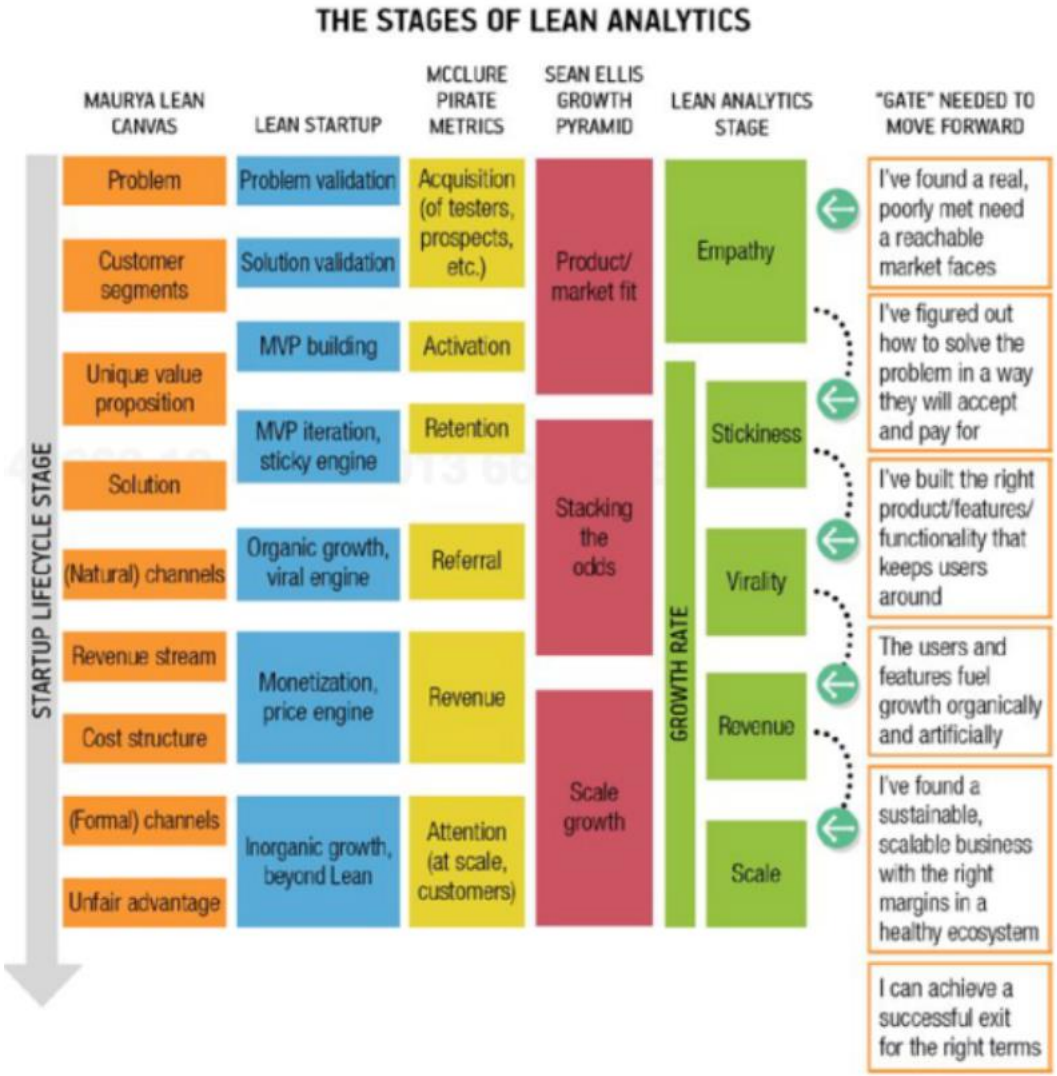
Running Lean



Lean Canvas


Problem
Top 3 problems
Solution
Top 3 features
Key Metrics
Key activities you measure
Unique Value Proposition
Single, clear, compelling message that states why you are different and worth paying attention
Unfair Advantage
Can't be easily copied or bought
Channels
Path to customers
Customer Segments
Target customers
Cost Structure
Customer Acquisition Costs
Distribution Costs
Hosting
People, etc.
Revenue Streams
Revenue Model
Life Time Value
Revenue
Gross Margin
PRODUCT
MARKET

What to Measure ? – Lean Analytics



Test card with measurements (for hypothesis)

Learning Card (Observations and actions related to hypothesis)

Learning Card

Strategyzer

Insight Name

Date of Learning

Person Responsible

STEP 1: HYPOTHESIS

We believed that

STEP 2: OBSERVATION

We observed

Data Reliability:

STEP 3: LEARNINGS AND INSIGHTS

From that we learned that

Action Required:

STEP 4: DECISIONS AND ACTIONS

Therefore, we will

Copyright Business Model Foundry AG

The makers of Business Model Generation and Strategyzer