Topic:
‘Product Engineering’-led Technology Entrepreneurship

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Product Engineering with ‘Design-first’ approach in Techno-Entrepreneurship

- Product Engineering supports systematically creating innovative products that can penetrate a sluggish market with fascinating offerings, allowing businesses to be sustainable, with ‘innovation’ at its core.
- It sustains innovation, by focusing consistently on feeding the market with quality products and disruptive innovations to drive growth.
- Design, the discipline of solving problems, waxes distinct competitive advantages, and the process can be applied to a technology venture.
- Every wing of the business is meant to solve certain problems for individuals concerning products or services and in doing so the design oriented (design-driven or HCD Centric Design Thinking) businesses financially tower above others.

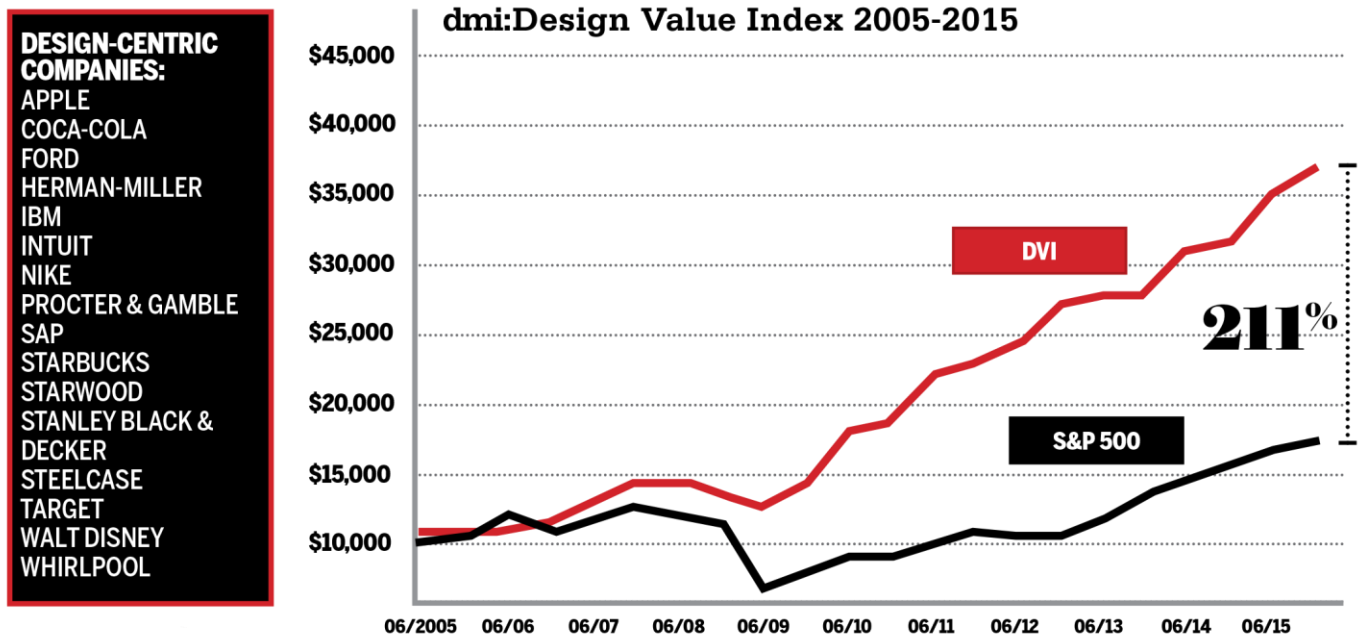
- 30% have a designer founder
- 85% have founders/ top-execs address design decisions
- 87% believe ‘design’ is rather important
- all agree that ‘design’ matters

According to a recent survey, in start-ups http://2016.futureof.design/)

Extraordinary Performance by Design-led companies

Design-led companies have maintained significant stock market advantage, outperforming the S&P by an extraordinary 211%.

- Based on survey by the Design Management Institute (dmi)



DMI and Motiv Strategies analysed the performance of US companies committed to design, as an integral part of business strategy, for assessing its impact on stock value over a ten-year period in 2015.

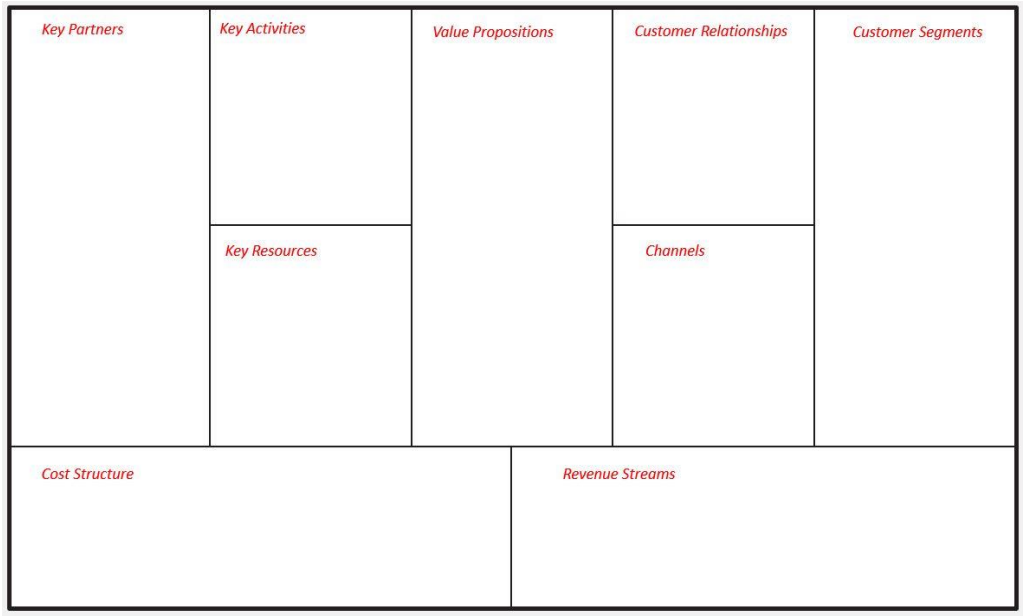
(Fig: Credit: Design Management Institute, dmi.)

Business Model Canvas (BMC)

- **BMC** is comprised of **four major parts**, having the **key piece at the middle** of the 'Canvas', depicting what the enterprise is doing (offering) and why does it matter to potential customers and is called **'Value Proposition'.**
- The **right part**, of the one-page Canvas, deals with the **customer-related aspects**, in three sections; (i) who they are, (ii) what relationship the venture has with them and (iii) how will the enterprise reach them.
- The **left part, of the Canvas** deals with creating ideas and plans for translation, in three sections, concerning (i) what key partners would the venture need, (ii) what activities and (iii) what resources would the venture require to give shape to the new concept.
- **Bottom part of the canvas** deals with most decisive financial questions in two sections (i) how much will be the cost to produce accordant to select idea and (ii) how will the business make money (Revenue/ Profit) from it.

In the context of a new business, it is aimed to bring better clarity with the use of a tool, known as 'Business Model Canvas (BMC)', proposed by Alexander Osterwalder, which is a flexible design-delving template containg nine sections.

Business Model Canvas



- **Value Propositions:** resultant from the' products/ services' that create value for a customer segment.

- **Revenue Streams:** capturing value for the business at price customers will pay.

- **Cost Structure:** presents all costs 'incurred' to operate a business model.

- **Customer Segments:** groups of people/ organizations the business aims to reach
- **Channels:** how the 'value proposition' is reached through communication, distribution, and sales Channels.
- **Customer Relationships:** acquiring and retaining customers; context of closer involvement for customised products.
- **Key Resources:** are the most important assets required to offer and deliver the 'value proposition: Product and service'
- **Key Activities:** are the most important activities a business needs to perform satisfactorily.
- **Key Partnerships:** describes the network of suppliers and partners that suffuse external resources and activities.

Profit: Comes from the difference between the 'Total Cost' in the Cost Structure and the total Revenue.

Focus on ‘Value Proposition’ and Design

- The ‘Value Proposition’ part is first set with the foremost :

  (i) what’s the ‘grand’ idea?

  (ii) what is the problem being targeted, and need it meets?

  (iii) in what way is the problem being solved and are there good alternative solutions?

- To ensure, that the need is correctly identified and understood, for which designing is embarked for, the steps of Design Thinking (DT); ‘empathise’ and ‘define’ may be adhered to.

- The attributes of the defined problem will be the cue for the ‘value proposition’ and also the MVP (Minimum Viable Product).

The **‘value proposition** generally contains

(a) Target user (type)

(b) User needs; the problem being solved

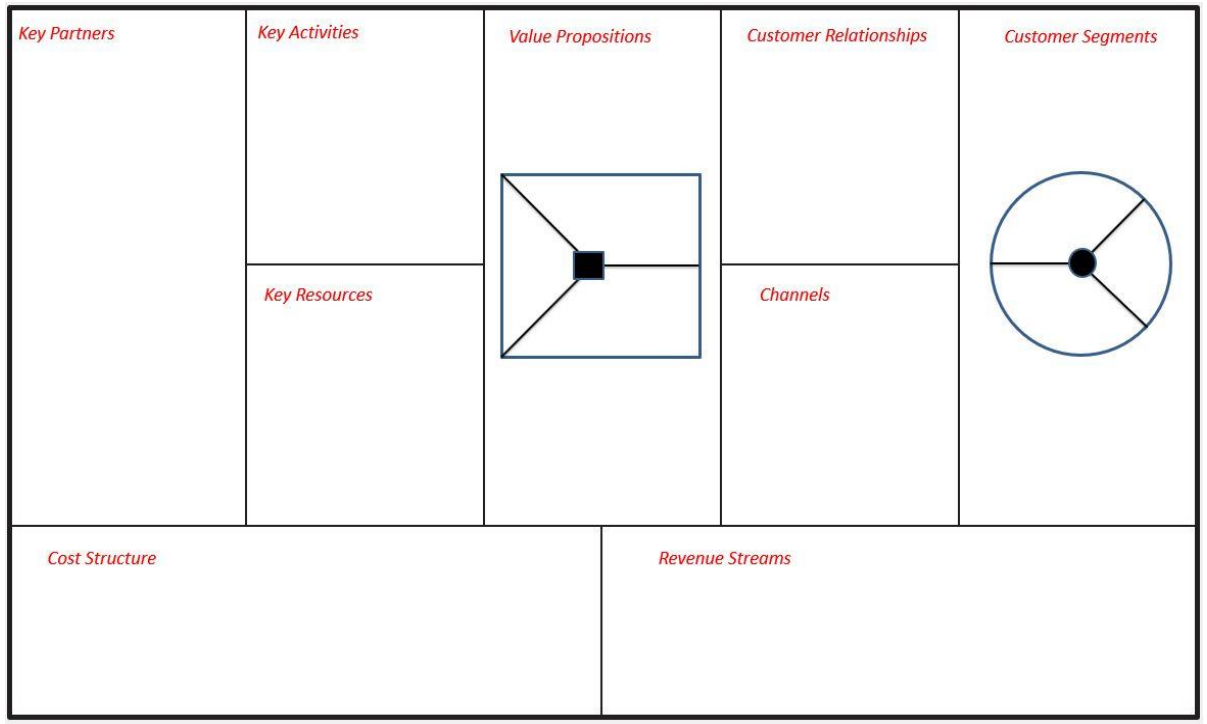
(c) In which category the grand idea falls in (market segment/ product type),

(d) How does it benefit and solve problem

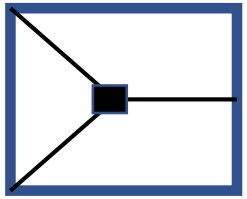
(e) Who are the competitors, and

(f) How it is differentiated due to its innovativeness.

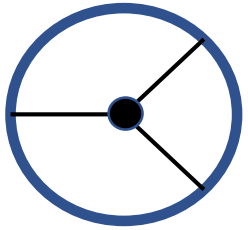
Business Model Canvas and Value Proposition Canvas Elements



The 'value proposition' is to be embedded in a viable business model to capture value for the business venture and to carry out this exercise one may use the 'Business Model Canvas', a tool to illustrate how the venture creates, delivers, and captures value. These two organically integrate where the 'value proposition' acts as a plug-in to the 'Business Model Canvas' allowing the 'techno-preneur' to zoom into the details of how values are being created for customers.

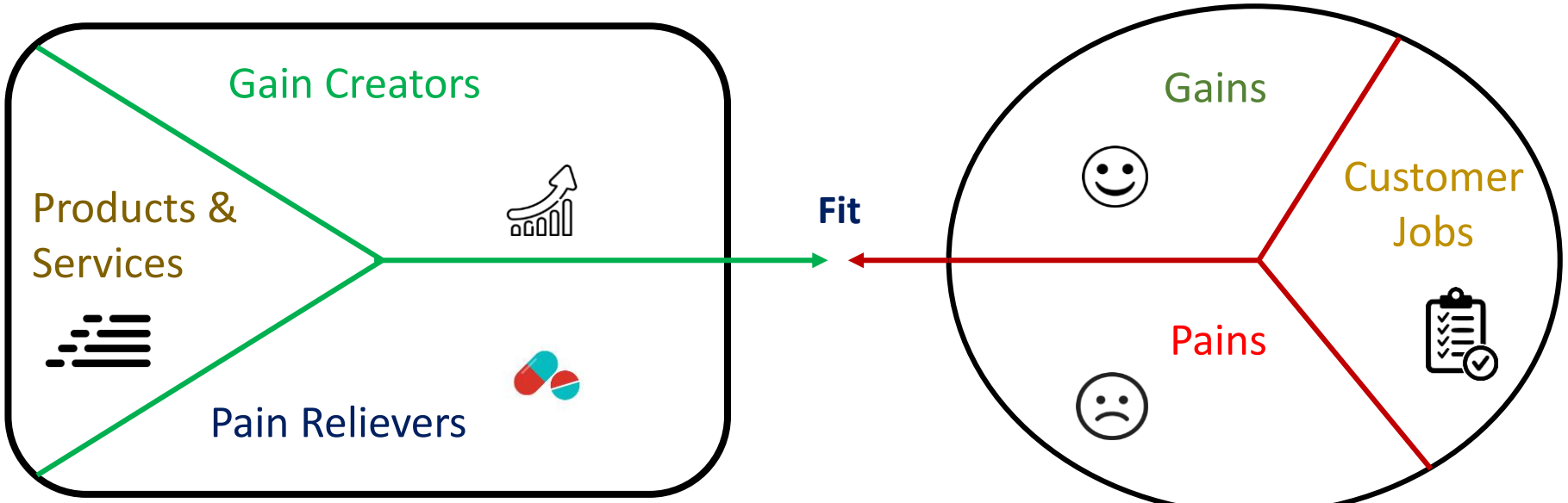


Value (Proposition) Map



Customer Profile Map

Value Proposition Canvas



Value Map

Customer Profile Map

Value Proposition Design aids in

- Gaining clarity on the patterns of value creation by way of organizing information regarding customers need (jobs to be done, pains, and gains)
- Getting the venture-team aligned for leveraging the experience, skills and energy with shared language in creating value for the customers and business.
- Reducing the risks of failure and saving time by painstakingly testing the important hypotheses intrinsic to the product/ venture ideas.

- Overriding purpose is to Design, test, and deliver to meet the needs of the customers precisely
- Product Engineering team resorts to 'Value Proposition Canvas' a tool, apt for this purpose.

Value Proposition Canvas (VPC)

❖ **The Value (Proposition) Map** outlines the features of a specific 'value proposition' in the business model in a structured and meticulous way, categorising into **'Products and Services', 'Pain Relievers', and 'Gain Creators':**

- **Products and Services:** the items around which the 'value proposition' is built.
- **Pain Relievers:** how the products and services abate customer pains.
- **Gain Creators:** how the products and services sets forth customer gains.

❖ **The Customer (Segment) Profile** addresses a particular customer segment in the business model in a structured and explicit manner, **breaking the customer (problem-solution) 'Fit' down into 'Jobs-to-be-done', 'Pains', and 'Gains'.**

‘Customer ‘Jobs’ , Pains and Gains

- **‘Customer Jobs** (‘Jobs-to-be-done’) ‘verbalises’ what customers are trying to get done in their context.

- **‘Pains’** characterise awful outcomes, risks (undesired potential outcomes), and obstacles pertained to customer jobs

  - Pain severity can be extreme or moderate perceived by a customer, like ‘customer jobs’ can be important or insignificant.

- **‘Gains’** illustrate the outcomes desired to be achieved or the concrete benefits sought by the customer.

Customer ‘Jobs’ are mainly three types

- **Functional jobs:** When customers try to accomplish a specific task or solve a particular problem (example: grind spices or save contact in mobile phone)
- **Social jobs:** When customers crave to look good or gain status/ power (example: to look classy as a consumer or be perceived as tech-savvy)
- **Personal/emotional jobs:** When customers quest after a specific emotional state, such as feeling good or secure (example: achieving the feeling of safety in using a gas-oven or peace of mind with smoke-alarm).

Customer Gains

- **Required gains:** are those without which a solution wouldn't work (example: **the most basic expectation** that one can make a **call with a smartphone**).
- **Expected gains**: are rather basic which one **commonly would expect from a solution,** even if it could work without them (example: since **Tesla** introduced electric vehicle, the usual expectation **would nicely-designed and look stylish**)
- **Desired gains:** are those that go **beyond what one expects from a solution but would love** to have it if possible and usually customers would verbalise if queried (example: **Laptop computer to be seamlessly integrated with customer's other devices**)
- **Unexpected gains:** are those that go **beyond customer expectations/ desires (surprise)** and they wouldn't verbalise if queried (example: Before the introduction of **touch screens by 'Apple'** customers hardly thought of it as part of a phone.

With reference to 'Gain', a customer may perceive something **essential or nice to have**

the way for **'pains'** it is **'extreme' or moderate.**

Fit:

- The business achieves the first fit, the ‘problem-solution fit’ when customers are excited as for the ‘value proposition’ that materialises when,

  - the key ‘jobs-to-be-done’ are addressed,
  - extreme pains gets mitigated, and
  - essential gains are created, the customers look for.

- It is to be tried relentlessly to find and maintain ‘Fit’ and striving for it is the essence of successful value proposition design.

- **The First Fit:**

- The **first ‘Fit’ (Problem-solution)** eventuates with the precise identification of relevant pains, gains and ‘jobs-to-be-done’, that the business reckon on as addressable through the ‘value proposition design’

- Multiple alternative value propositions are prototyped to evolve with the ones that produce the best ‘fit’. However, this ‘Fit’ as perceived to be as achieved is not yet proven and still remains as the progress document.

Three Stages of ‘Fit’

- After the **Problem-Solution Fit (First Fit)**, the next steps in this regard are to find evidence that customers appreciate the value proposition or else it is to start over again with designing a new version, the quicker the better with rapid prototyping and for that to check:

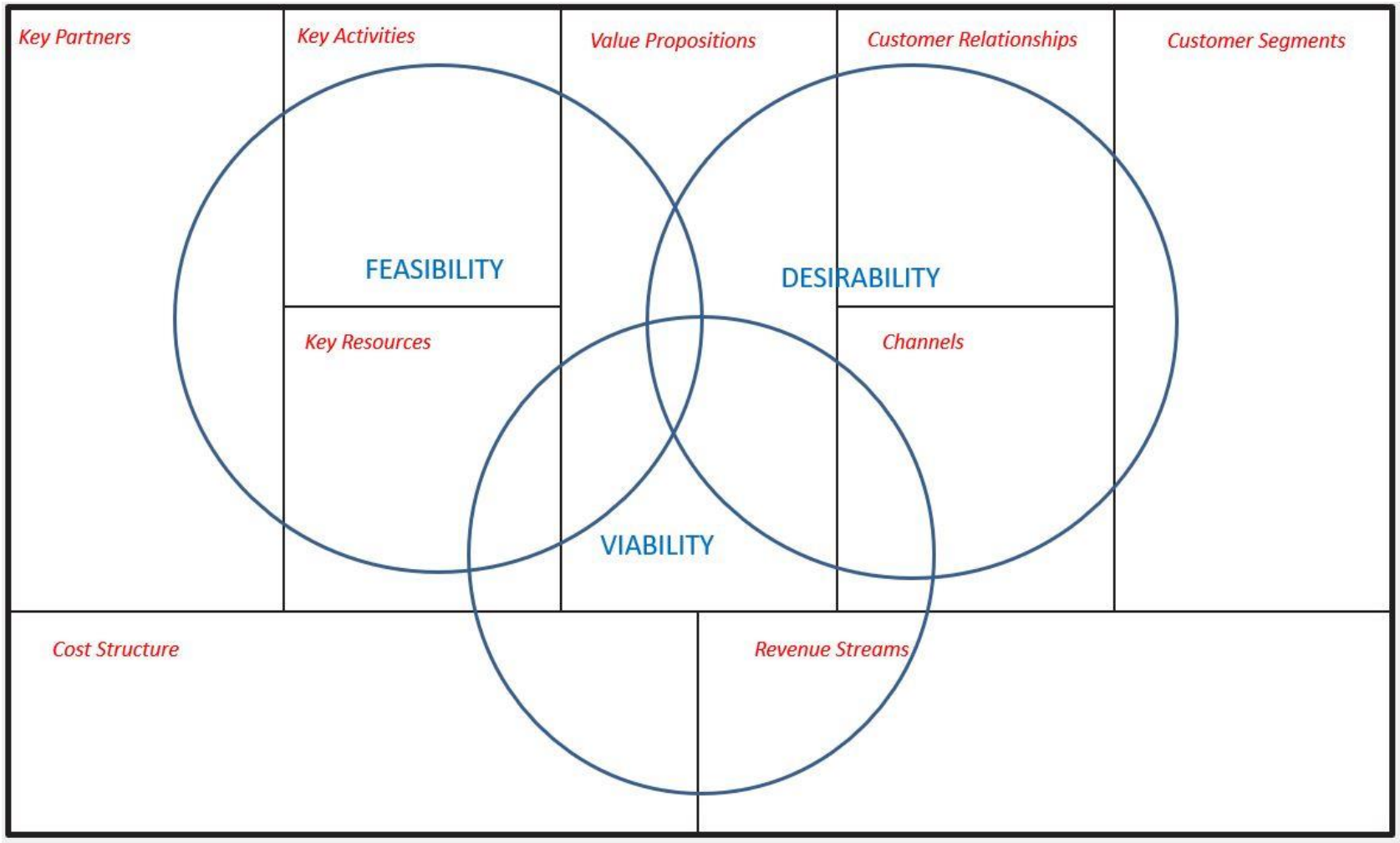
- The **second ‘Fit’ (product-market)** eventuates when customers favourably or positively respond to the ‘value proposition’ and the offerings gain traction in the market.

- **The third ‘Fit’ (business model)** eventuates when the model is scalable and profitable.

- **Iterative process to match Value Proposition and Business Model:**

  - The quest for ‘business model fit’ necessitates rigorous back and forth between designing a value proposition that creates value for customers and a business model that creates value for the business. An iterative

Value Proposition for Innovation on Business Model Canvas

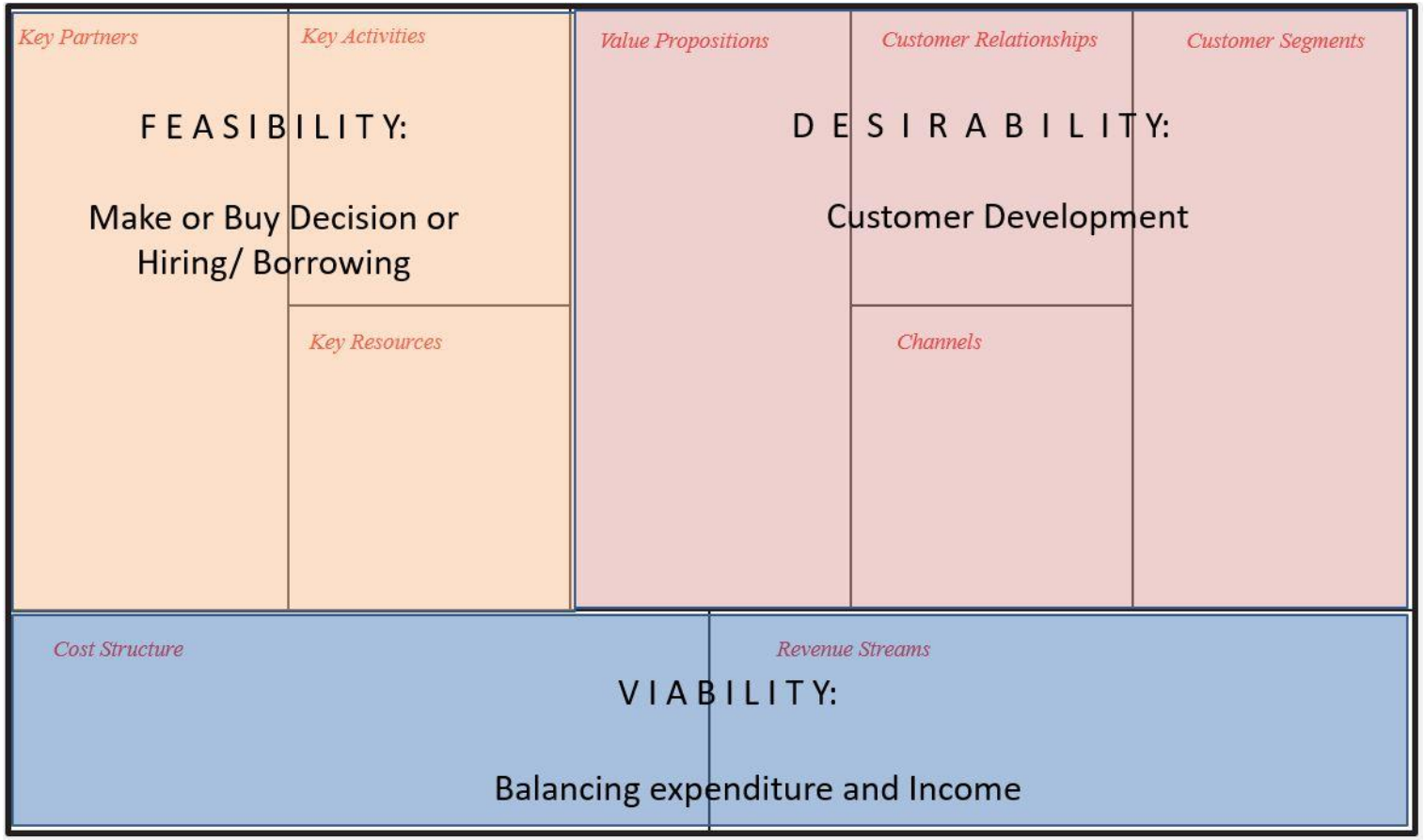


Innovation happens at the intersection of:

- **Desirability,**
- **Feasibility, and**
- **Viability**

- IDEO Design Thinking Precepts

Business Model Canvas and Design Thinking Perspectives: A Visualisation



Customer Development comprises of:

- Customer Discovery
- Customer Validation
- Customer Creation
- Company Building

'Customer discovery' is about the 'Problems', 'Solutions', 'Price', and 'Go-to-Market' Hypothesis.

❖ **‘Plans for Translating the Idea’**:

❖ Looking at the left part in BMC, it is intended to appraise about (a) what resources, (b) activities and (c) partners would the venture need to actually launch the product.

- The major question is whether the co-founders themselves are able to build the product or will it need to hire people for doing it in-house or to off-load the development or manufacturing work to other firms. They are called ‘key partners’.
- A ‘stakeholder mapping’ is usually handy in this process and an example-diagram provides an illustration of its tenets.

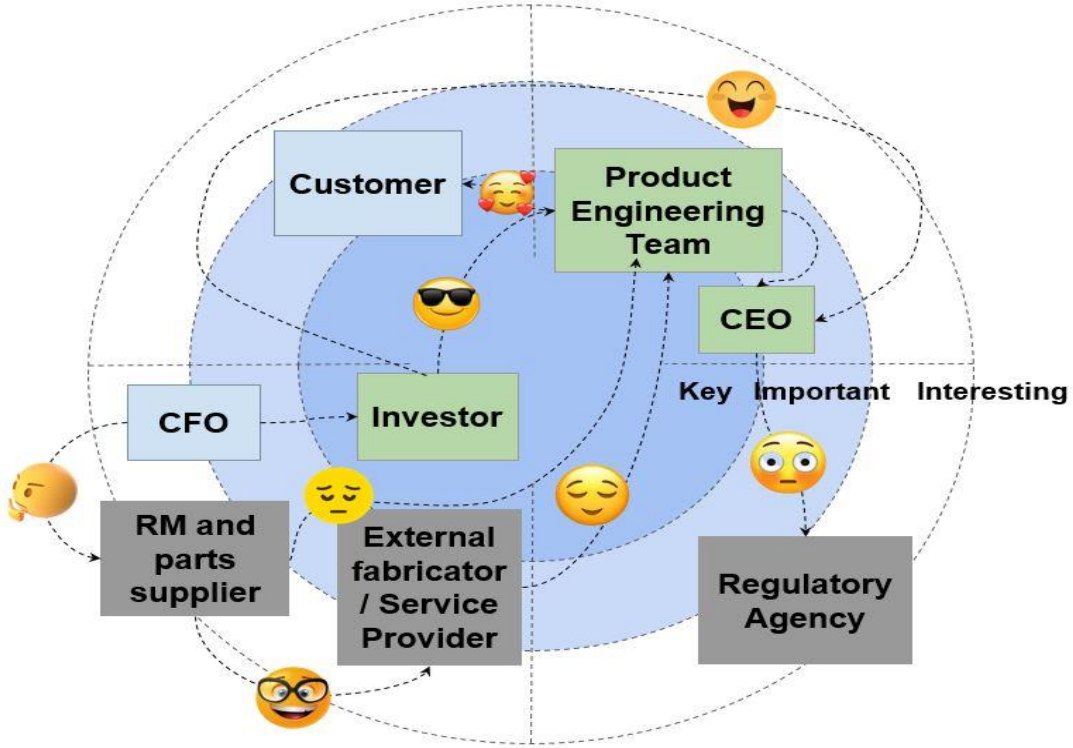
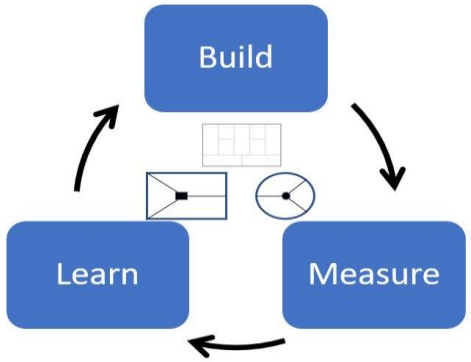


FIG. Stakeholder mapping

❑ An elaborate discussion on preparing ‘Stakeholder Mapping’ has been kept outside the scope of present discussion keeping the objective of the present discourse in view, which eventually, is to create the prototype of the ‘grand idea’.

Lean Startup

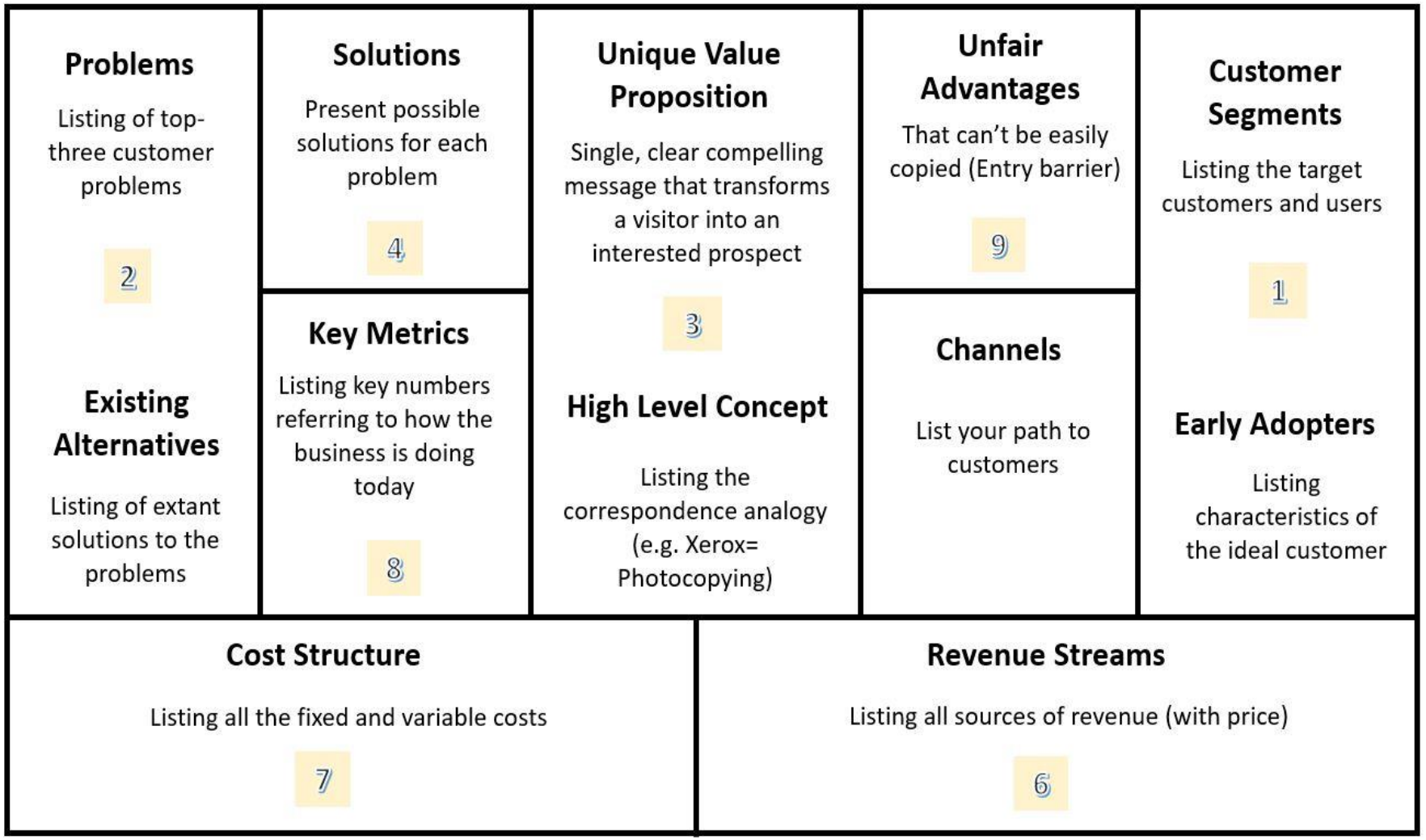
- In the early stage, a prototype is often in the form of a ‘Minimum Viable Product (MVP)’, which is the embodiment of the ‘Idea’ to obtain quick feedback from the early customers and several iterations of it may have to be undertaken to meet the need.
- The crucial task, is to create tangible/ physical model only with the core features so that functioning and characteristics of product can be verified.
- The product engineering team/ startup would aspire for as much input as possible quickly (where rapid prototyping comes in), and going back to the drawing board at the earliest with revisions, to improve it.
- Such feedback based revisions and testing of the prototype (MVP) may be required to be done multiple times.



Build-Measure-Learn (B-M-L) loop, Proposed by Eric Ries for ‘Lean Startup’ becomes quite useful here.

- The B-M-L loop helps save money, time, and resources. By starting with a minimal version of the product, ventures can test it out in the market before making big investments in developing or producing. This allows to quickly identify potential issues before they become expensive mistakes.

Lean Canvas: Entrepreneur's Perspectives focused on Product Engineering and Design with Unfair Advantages



To examine the venture issues more from an entrepreneur's perspective, Ash Mourya has proposed a 'Lean Canvas' that focuses on the offerings with an emphasis on 'Unfair Advantages' (for Competitive Advantage)

THANK-YOU