

Application of Design thinking in business model

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April 2022

Abstract :-In this paper we would briefly discuss about the application of design thinking in business model.

Introduction:-Design Thinking is an iterative process in which we try to understand the user, challenge assumptions, and re frame challenges in order to find new tactics and answers that aren't immediately obvious based on our current level of understanding. Simultaneously, Design Thinking offers a problem-solving strategy based on solutions. It is both a way of thinking and working as well as a set of practical techniques. Design Thinking revolves around a deep interest in developing an understanding of the people for whom we're designing the products or services. It helps us observe and develop empathy with the target user. Design Thinking helps us in the process of questioning: questioning the problem, questioning the assumptions, and questioning the implications. Design Thinking is extremely useful in tackling problems that are ill-defined or unknown, by re-framing the problem in human-centric ways, creating many ideas in brainstorming sessions, and adopting a hands-on approach in prototyping and testing. Design Thinking also involves

ongoing experimentation: sketching, prototyping, testing, and trying out concepts and ideas. There are many variants of the Design Thinking process in use today, and they have from three to seven phases, stages, or modes. However, all variants of Design Thinking are very similar. All variants of Design Thinking embody the same principles, which were first described by Nobel Prize laureate Herbert Simon in *The Sciences of the Artificial* in 1969. Here, we will focus on the five-phase model proposed by the Hasso-Plattner Institute of Design at Stanford, which is also known as d.school. We've chosen d.school's approach because they're at the forefront of applying and teaching Design Thinking. The five phases of Design Thinking, according to d.school, are as follows:

Empathise – with your users
Define – your users' needs, their problem, and your insights
Ideate – by challenging assumptions and creating ideas for innovative solutions
Prototype – to start creating solutions
Test – solutions
It is important to note that the five phases, stages, or modes are not always sequential. They do not have to follow any specific order and can often occur in parallel and repeat it-

eratively. Given that, you should not understand the phases as a hierarchical or step-by-step process. Instead, you should look at it as an overview of the modes or phases that contribute to an innovative project, rather than sequential steps.

Business Model Design :- The goal of business model design is to outline how a company generates, delivers, and collects market value. Awareness how a business model can be established to characterise a new endeavour requires an understanding of the interrelationship between those three components. Entrepreneurs use the ideation component to develop new products or services with a compelling value proposition for target client categories, with the goal of potentially creating a new market. The value fulfilment mechanism is defined by the actions and procedures that must be completed in collaboration with partners and suppliers in order to send the product or service to customers. Finally, when customers pay for the product or service that contributes to the revenue stream, the organisation captures value. The key of business model design is putting this value generation cycle into action. The Company Concept Canvas is a useful tool for prototyping a business model.

Business Model Canvas :- The Business Model Canvas is a strategic management tool that uses an ontology developed by Alexander Osterwalder² to describe, construct, and invent business models. The Business Model Canvas is a visual representation of the key characteristics that characterise how a company develops, delivers, and captures value. The canvas can be created using pa-

per prototyping approaches, in which each piece is represented by note cards that can be quickly changed during the design process³. The tactile aspect of this technique encourages cooperation and immediate input, resulting in a shared vision for business model creation.

Value proposition:- Value Propositions are the products or services that will provide value to customers based on novelty, performance, risk reduction, cost efficiency, customization, or other desired outcomes on the Business Model Canvas. Customers will pay for an enterprise's solution that solves a problem or meets a specific demand for these reasons, and they serve as the foundation for Revenue Streams.

Customer Segments :- Customer Segments identify the target market which realize benefits from Value Propositions that are specifically designed that intended audience. Each segment will have a corresponding level of profitability so it is important to understand how this impacts the business model design.

Customer Relationships :- Customer Relationships define the nature of the ongoing engagement between the enterprise and customers. They define the frequency of interaction as well as the mechanisms by which customers will derive value from doing business with the enterprise.

Channels :- Channels are the distribution modes by which demand for products and services is generated in target Customer Segments as well as how fulfillment is delivered.

Revenue Streams :- Revenue Streams capture the options and mechanisms by which Customer Segments pay for products and ser-

vices. Options may include flat fees, subscription models or auctions. Payment mechanisms may involve online portals, mobile applications, or retail locations.

Key Activities :- Key Activities are the business processes and operations required to support the business model. These processes may involve partners, suppliers and alliances to deliver the value to customers. Operations include platform capabilities required to support the data and interfaces to enable the collaboration between these organizations as well as customer-facing channels.

Key Resources:- Key Resources are the physical and digital assets used to provide capability for the various components in the business model. Resources needed to fulfill demands in Key Activities, Channels, Customer Relationships and Revenue Streams should be considered to ensure value is created, delivered, and captured efficiently. The resources may involve intellectual property, financial instruments, and human capital.

Key Partner :- Key Partners indicate suppliers, service providers, and alliances that support Key Activities and Key Resources to deliver on the Value Proposition to Customer Segments.

Cost Structure :- The Cost Structure describes the fixed and variable expenditures required to support Key Activities and Key Resources. It is important to consider whether the business model is cost or value driven. A cost-driven business model is more concerned with efficiencies such as automation and price-based value proposition. A value-driven business model is focused on maximum value creation offered by a premium

value proposition.

Design Process :- Starting a new venture within the enterprise for business model innovation begins with a mobilization of team consisting of intrapreneurs, enterprise architects and executives from existing business units. Executives from these business units work together with enterprise architects to identify shared services and data that would support the new ventures. Intrapreneurs initiate the ideation activities to identify possibilities for new value propositions for Customer Segments.

The team next seeks to understand the viability of the value propositions by conduct market research and identifying how they can take shape with new products and services. These activities require the team to analyze customer contexts and feedback to gain a deep understanding of the needs and problems that present an opportunity. This particular part of the design is covered in greater detail in the next section.

In the design phase, the elements of the business model are discussed and defined with the innovation team. Business model prototyping is the key activity to experiment with various designs on the Business Model Canvas. The team can use post-it notes on a wall in the design room to rapidly change the elements in the Business Model Canvas. Different versions of proposed business model prototypes can be evaluated to determine best fit and optimal viability for the target Customer Segments. Other factors such as Key Resources and Key Activities can be assessed to support Channels, Customer Relationships, and Revenue Streams. The deliv-

erable from this design phase is a Business Model Canvas that has been selected with the highest evaluation determined by the innovation team. In fact, it is in the design phase that enterprise architects begin the process of mapping the business model to an operating model. Enterprise architects collaborate with Entrepreneurs to identify the data and processes to enable the elements in the business model.

A plan to deploy the selected Business Model Canvas is then developed to begin delivering the Value Propositions in the market. The plan should include a roadmap to keep Key Partners synchronized with the deployment timeline and to ensure dependencies will be met. Enterprise architects work with Key Partners to facilitate the integration of services and data to enable the processes in the new business model design. Entrepreneurs also begin working with Channels to drive demand for the offerings in the target Customer Segments.

Design Thinking for Business Model Design

Using design thinking to structure the process and philosophy guiding the business model innovation can produce breakthrough results. Design thinking is composed of several mindful spaces intended to drive generative production of ideas and insights while driving towards a focused value position all based on the initial empathy developed for the users. The value position is so compelling as to drive massive adoption by users, thereby creating significant market value.

In the Empathise space, the objective is to become immersed in the users' world. The

Entrepreneurs will lead in this space. Some of the key steps that can be incorporated in this space include the following:

1. Ask open questions to reflect any negativity on the user's status quo.

2. Ask open questions to reflect on any specific bad experiences the user may have gone through.

3. Ask your user to act out the current experience. Observe any gaps, difficulties, or breakdowns.

4. From user quotes and defining words, infer thoughts and beliefs.

5. From user actions and behaviors, infer feelings and emotions.

6. Fan out and expand the problem space by honing the questions being asked the user.

7. Look for deeper signals from the market or community of users

In the Define space, the objective is to re-frame the problem space by identifying latent user needs or discovering novel insights. The intrapreneur working with designers will define a POV and value statement that contribute to the Value Proposition in the business model design. One way to think about this step is developing market fit. In this sense, the Customer Segments and Customer Relationships come into focus. Some of the key steps that can be incorporated in this space include the following:

1. Explore what the apparent needs of the market or community of users.

2. Explore what the latent, deeper needs of the market or community of users.

3. Develop insights via inferences from the exploration.

4. Look for emotional cues and signals.

5. Zoom in and zoom out on the exploration from community to user, user to community.

6. Change the perspective by reframing the initial problem set.

7. Draw and sketch thumbnail visions to drive further design.

8. Design the problem.

9. Define the problem statement.

In the Ideate space, the objective is an intense generative production of possibilities to meet an existing or unrealized market need based on the problem statement. In this space, intrapreneurs collaborate with enterprise architects to determine what resources are available to deploy for the new product or service. Technology and partners will be key factors in this ideation as well as enterprise platforms. Key Activities, Key Resources, Key Partners, and Channels are defined in the ideation.

1. In ideation, the first thing is to unlearn what you know.

2. Be attentive and ready for new ideas.

3. Brainstorm by storming preconceptions using inquiry that questions the status quo.

4. Connect the dots.

5. Connect ideas across existing solutions or enterprise services already deployed in the market.

6. Connect ideas by associative logic or analogy.

7. Connect ideas by using stories, patterns of behavior useful to reach an outcome.

8. Connect ideas leveraging synchronicity to create meaning for the user. 9. Create focus and start to synthesize the new business model.

10. Get feedback from executives and intended market or community of users.

In the Prototype space, the objective is to build to think. The emerging business model can be modeled using paper prototypes. The product or application delivering the value to the user can also be modeled paper prototyping. The intrapreneurs and enterprise architects can also build the prototype business model using the Business Model Toolbox application mentioned earlier. It is important to understand that there is a dual design process involved in creating the new business model based on the product or service that has been defined up to this point. It is also key to begin to define how the Cost Structure and Revenue Stream components in the business model are factored into the prototyping.

1. In Prototyping it is key to build to think.

2. Use role playing to prototype new behaviors.

3. Use storyboarding to draw out new experiences.

4. Draw and create paper prototypes of the product or application.

5. Draw and create lo-fi mockups of new product or application.

6. Prepare to test these paper cutouts with users to get feedback.

7. Synthesize a breakthrough.

8. Seek feedback from enterprise executives on the business model prototype.

9. Align business model components with the product or service prototyping. Use the Business Model Toolbox application to capture refinements.

The Test space objective is to get market or user feedback on the new product or ser-

vice. This set of activities also involve validating business model hypothesis based on that feedback. A critical component is to test out the Value Proposition such that Revenue Streams and Cost Structure factors in the prototype are validated. This is the crux of business model innovation – will the new product or service delight the user such that adoption will drive growth for the new venture

1. Build the prototype. Perhaps use a 3D printed model for testing if a product is involved.

2. Test the prototype. If necessary, use cutout prototypes in early testing to refine the product.

3. Gather feedback from the users.

4. Track what delights the users. Are business model hypothesis being validated by the user.

5. Track refinements suggested by the users. Be ready for the users to help you innovate!

6. Collect the data. Analyze and improve the design.

7. Visit any previous design thinking space as needed to refine the design until the product or service along with the corresponding business model is ready to be deployed as a new venture.

8. The output of the design thinking process are a new business model and a product or service that will deliver value to the market or community of users via the new venture. An operating model that is well-suited to the new business model characteristics can now be identified.

9. In the next part of the series, several classes of operating models will be intro-

duced. A mapping strategy will be described to assist with the identification of the operating model based on the business model design.

Conclusion:- The purpose of this study was to explore how design thinking is applied to business model innovation in automotive OEMs and to develop a theoretical framework incorporating DT into the BMI process

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