

# From Technology to a Business Offer: An Approach based on Design Innovation towards a workaid for Technologists as Startup Entrepreneurs

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**Abstract**—Technology has a critical role to play in fulfilling a certain human need. But technologists often look for guidance to take the technology to market. This is where a perspective through Design Innovation can aid to convert the technology into a Business Offer, which is the first step for the technologists as Startup Entrepreneurs to go to market.

Design Innovation is at the core of the intersecting dimensions of human desirability, technological feasibility, and financial viability. It is harnessed through the practice of creativity based Design extending to Innovation. Design Innovation addresses the entire realm of technology intervention fulfilling a human need through the respective business offer.

A business offer is aimed at a certain target population segment. And a business offer has certain proposition in terms of what it would do for the target population. Converting a technology into business offer would require both identifying its target segment as well as articulating its proposition.

By introducing the perspective on Design Innovation, it provides for the required guidance and approach for technologists, as they endeavor to go to market as Startup Entrepreneurs. This paper is about developing this approach based on Design Innovation, in adherence with Design Research Methodology.

**Keywords**—Design Innovation, Technology, Business

## I. INTRODUCTION

With Startups gaining traction in the recent past, there is an increasing expectation from Technologists to move towards Entrepreneurship. The push from government with a renewed focus and attention on Entrepreneurship is adding to this expectation. But Technologists often look for guidance and an approach, to take the technology to market. This paper is about aiding the Technologists with an approach in their endeavor towards Entrepreneurship.

Technology has a critical role to play in fulfilling a certain human need that exists in the market. But unless a given Technology is converted into a Business Offer, it is not ready to go to market. This is where a perspective through Design Innovation can aid to convert a given Technology into a Business Offer, which is the first step for the technologists as Startup Entrepreneurs to go to market.

The scope of this paper consists of developing an Approach based on Design Innovation, in adherence with Design Research Methodology. The developed Approach is for use by Technologists as they attempt to go to market. The Approach aids in converting the given technology into a Business Offer. The scope of the Approach briefly extends further to Business Offer, in order for the Technologists to be successful Startup Entrepreneurs.

The description on creativity based Design is included in this paper to differentiate the practice vis-a-vis design in other disciplines. A definition on Innovation is included, as these words are often interpreted differently.

With regard to organizing the various sections of this paper, Creativity based Design extending to Innovation is described initially. It is followed with the dimensions of Design Innovation and the derivation of an Approach for converting a Technology into Business Offer. Later, Design Research Methodology with its elaborate stages of study is adhered with, to further substantiate the Approach that has been developed. An elaborate illustration on applying this Approach is included, followed by Summary and Conclusion.

## II. CREATIVITY BASED DESIGN AND INNOVATION

Human creativity refers to production of novel and appropriate ideas in any realm of human activity [1]. Design refers to human capacity to shape and make our environment in ways without precedent in nature, to serve our needs and give meaning to our lives [2].

### A. Creativity based Design extending to Innovation

The design practice that is described in this paper refers to harnessing human creativity as part of undertaking a design activity. Unlike other design disciplines with respective subject domains at their core, creativity based Design practice, has human creativity at its core. Further, by virtue of its characteristic, creativity based Design can extend to Innovation [3]. The corresponding visual is depicted in Fig. 1, wherein focus of this paper is on Design Innovation.

The linkages between Human Creativity and the associated Design Practice extending to Innovation are shown in Fig. 1. Extending these linkages further is Entrepreneurship, which is not covered in the scope of this paper.



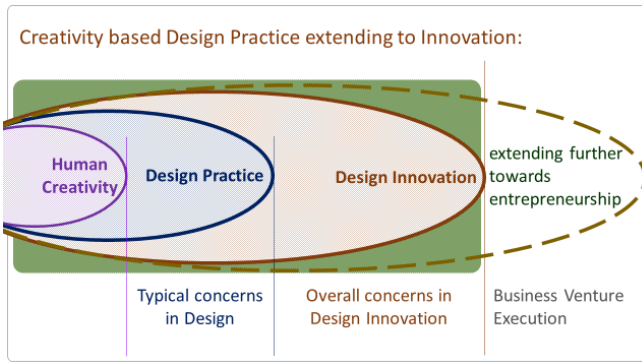


Fig. 1 Creativity based Design Practice extending to Innovation - Adapted

### B. Dimensions of Design Innovation

The context of Design Innovation refers to combining the practice of creativity based Design with Innovation. The multidisciplinary definition of Innovation refers to transforming the ideas in order to differentiate successfully, when taken to the market [4]. Thereby, there exists a common theme between Design and Innovation in the form of shaping and transforming of the ideas.

The visual in Fig. 2 refers to typical concerns in practice of Design versus the overall concerns in Design Innovation. Thereby, it refers to the combined practice of Design Innovation at the core of its intersecting dimensions. The various dimensions are identified with the respective interrogatives namely What, How, and Why? These dimensions further refer to Desirability, Feasibility, and Viability respectively [5]. The detail for a Business Offer from a given Technology is derived based on these dimensions. It is described in the next sub-Section.

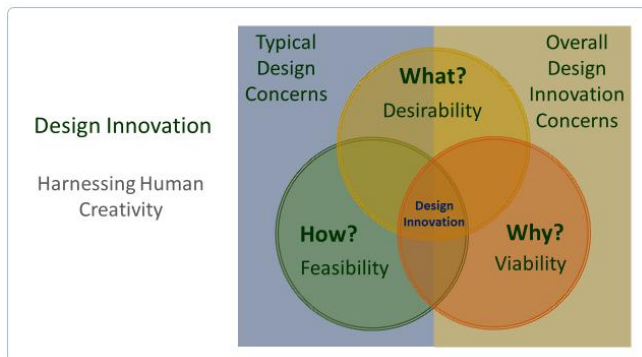


Fig. 2 Interrogatives and Dimensions in Design Innovation - Adapted

### C. Derivation of an Approach for Business Offer

Further depiction in Fig. 3 consists of details of the intersecting dimensions namely, human desirability, technological feasibility, and financial viability. Design Innovation is at the core of these intersecting dimensions.

Of all these, the dimension on Feasibility is where a given Technology resides. It is this dimension to which the developed Technology can be mapped. In the absence of a given Technology, the possibility of feasibility doesn't arise. Hence this dimension is the basis upon which a Technologist can start off, having a given Technology in hand.

The dimension on Desirability refers to the human need that supposedly gets fulfilled with the aid of the given Technology. Thereby, this dimension refers to the target

population segment whose need the given Technology would supposedly fulfil.

Accordingly, the intersection between the dimensions of Feasibility and Desirability represents the Business Offer aimed at the respective population segment, with the aid of the given Technology.

Similarly, the intersection between the dimensions of Viability and Desirability represents the proposition of the Business Offer in terms of what it would do for the target population segment. The proposition can also refer to the financial basis upon which the target segment can own the Business Offer.

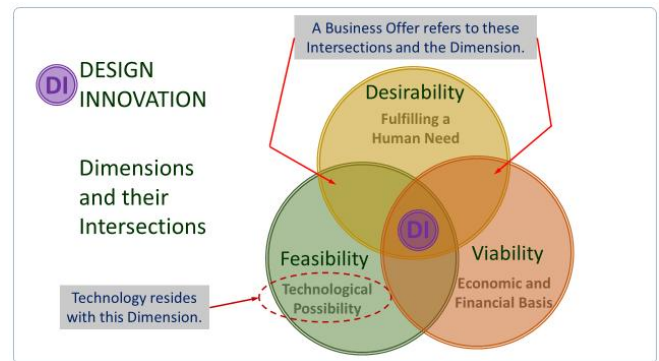


Fig. 3 Intersecting Dimensions of Design Innovation - Adapted

Overall, it is inferred from this derivation that converting a Technology into Business Offer would entail identifying its target population segment and articulating its proposition. The dimensions of Design Innovation have aided in this derivation. Subsequent study in adherence with Design Research Methodology further substantiates this derivation.

### D. Standard Phases of Design Practice

Creativity based design practice has six standard phases or stages, namely: Understand, Observe, Point of View, Ideate, Prototype, and Test [6]. These are shown in Fig. 4 and further elaborated in the sub-Sections. These phases serve towards adapting the derived insight on Innovation into creativity based Design practice, as a worksheet for detailing purpose.

A brief description on each of these phases is given here. The example illustration in Section VIII makes use of these.

#### 1) Understand

This phase is aimed at understanding the given context in which the 'entity in focus' is supposed to be effective.

#### 2) Observe

This phase is aimed at observing the nuances of the given context wherein the 'entity in focus' is supposed to be effective (or supposed to be appropriate).

#### 3) Point of View

This phase is aimed at arriving at a perspective based on the understanding and observation of the given context. This perspective or point of view forms the basis for further working, to address the given context.

#### 4) Ideate

This phase is aimed at brain-storming to come up with various and several ideas that can address the given context with the associated point of view.

#### 5) Prototype

This phase is aimed at coming up with alternative interventions, that are capable of addressing the given context with the associated point of view.

#### 6) Test

This phase is aimed at validating the alternative interventions that are meant to address the given context.

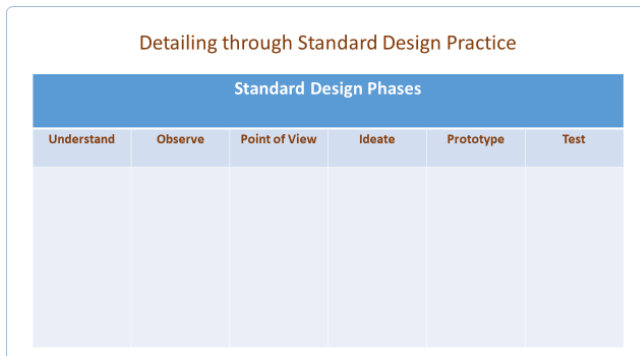


Fig. 4 Standard Phases of Design – Typical worksheet for detailing purpose

### III. RESEARCH APPROACH BASED ON DRM

The research approach [7] adopted in this paper is based upon the stages in Design Research Methodology (DRM). The various stages in DRM are shown in Fig. 5 namely: Research Clarification (RC), Descriptive Study-I (DS-I), Prescriptive Study (PS), and Descriptive Study-II (DS-II).

The stages on RC and DS-I consists of review of literature on creativity based Design, Design Innovation, and Business Model. The stage on PS includes a comprehensive study by relating the insight from this literature, for enhancing the Design practice to enable Innovation. This insight is further adapted into creativity based Design by leveraging the standard phases of its practice. As part of DS-II, the enhanced Design practice is verified against the derivation in previous sub-Section II, for an elaborate Approach to convert the given Technology into a Business Offer.

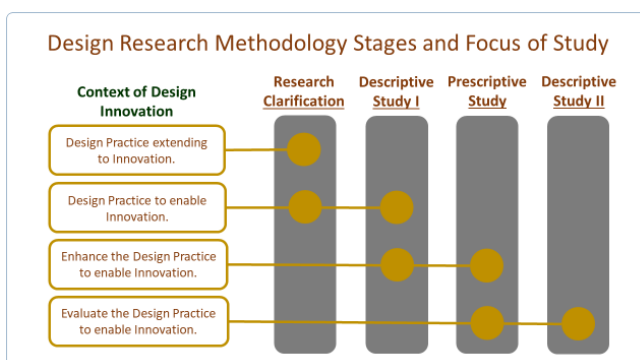


Fig. 5 Context of Design Innovation and Study Focus as per DRM - Adapted

Each of the DRM stages are briefly described here. And the study that is undertaken in each of these stages is elaborately described in the subsequent Sections IV to VII.

#### 1) Research Clarification (RC)

The literature on Creativity based Design and Design Innovation is reviewed to arrive at the clarification about the practice with respect to Innovation. Currently, it is not in its practice scope.

#### 2) Descriptive Study-I (DS-I)

The literature on Business Model is reviewed to understand its various perspectives, as the Business Model of a firm contributes to its success in the market. The derived insight from this literature is adapted, to enhance the existing Design practice for Innovation.

#### 3) Prescriptive Study (PS)

The insight derived from the study on Business Model literature is suitably leveraged to enhance the existing Design practice for Innovation. The insight includes the key business component thread namely: Business Offer – Target Segment – Value Proposition. The standard phases of Design are proposed to be leveraged, to detail each of these elements.

#### 4) Descriptive Study-II (DS-II)

As part of evaluating the enhanced Design practice for Innovation, it is verified against the derived Approach presented in sub-Section II, to convert Technology into a Business Offer.

### IV. DRM STAGE: RESEARCH CLARIFICATION

The relationship between Design and Innovation is described in terms of Design as the core function of Innovation and Innovation as the main driving force in the economy [8]. This description aims at building a Design oriented framework on the basis of theory of Innovation. It offers two explanations on Design Innovation: Innovation in Design and Innovation by Design.

‘Design as an element of Innovation’ can give rise to a methodology for evaluating Design emphasis and Design focus in Innovation [9]. As part of this work, the dimensions of Design namely, visceral, behavioral, and reflective, are studied from their respective contribution to Innovation.

The linkage between Design and Innovation is described through a framework that can facilitate discussion about contribution of Design to Innovation [10]. It includes the discussion on value of Design as well as its social and economic input to Innovation. The framework is put forth by way of open discussion on strategies for change, new firms / entrepreneurs, and designer citizen.

The perception on Innovation has shifted from better efficiency to better fit with user, thereby it implies Design Innovation as creating user value [11]. Based on the study of successful innovations, 4 principles were identified for practicing Design Innovation. The framework for Design Innovation process consists of 7 modes, organized along 2



dimensions. Several tools for use were listed for each of these modes, while undertaking 'Design Innovation'.

'Holistic Approach to Design Innovation' describes three stages for Design Innovation, namely Research, Design, and Innovation [12]. The stage of Innovation is taken as the application phase wherein Research (analysis) and Design (synthesis) are made use of. This study is aimed at developing a model for holistic Design approach.

A model for 'Human Centered Design Innovation' has dimensions based on Market and Technology [13]. It aims to understand the relationship between User Research and Design Innovation. Its objective is to understand how user research is conducted and applied in a given innovation situation.

A key reference for this study is a publication consisting of extensive review of the design studies literature spanning 30 years, between 1984 to 2014 [14]. Through this publication, its authors have tried to address the relationship between Design and Innovation. Their findings include the role of Design in Innovation as well as the factors that contribute to Design / Innovation associations. Its authors have introduced the notion that Design has become the language of Innovation.

Their principal findings (reproduced here) with respect to the roles played by Design in Innovation and the contributions these roles make, are the following: 1) Design to differentiate 2) Design for the introduction and adoption of innovations in the market 3) Design to transform ideas into concepts 4) Design as research 5) Design as a creative, generative thinking process 6) Design as techniques to articulate ideas and to integrate concepts, people, and functions 7) Designer's contribution to Innovation.

Their study points to the claims by several authors that Design is a fundamental component of Innovation, and there are a few explicit descriptions of how Design actually contributes. They present their analysis with a caveat that there is a need to define the roles that Design plays in Innovation more explicitly. As part of Design facilitating adoption of innovations in the market, the authors cite instances wherein aesthetics are seen as Design Innovation. As part of designer's contribution to Innovation, they have found several authors who have highlighted the skills that designers use in practice. This is attributed to the designer's abilities and passion to drive an idea to conclusion. Often designer's use of visual tools reduces misinterpretation, thereby it can improve Innovation decision making. The authors of this key reference remark that the contributions designers can make to Innovation is a topic whose scope is far wider than the insights they have offered in their paper.

Overall, the current state-of-art of Design Practice is aimed at shaping and making artefacts that are useful and meaningful. Thereby, the current state-of-art of Practice enables the Designers to come up with artefacts that are novel and are of value. But the existing Practice, does not go beyond and majority of the Designers cease to operate further.

## V. DRM STAGE: DESCRIPTIVE STUDY-I

Business Model is a discipline or subject matter wherein one can find insight on Innovation (or creation of value). Such insight can be adapted into the practice of creativity based Design, towards an effort to strengthen the practice for

Innovation. The review of this literature consists of various perspectives on Business Model by a few renowned authors.

### A. Business Model Elements

Business Model Generation [15] puts forth the most popular approach called Business Model Canvas. It consists of 9 elements (namely, Value Proposition, Customer Segment, Customer Relationship, Channel, Key Partners, Key Resources, Key Activities, Cost Structure, and Revenue Streams) which are to be detailed, in order to describe the Business Model of a firm. The Canvas elements augment the Business Offer of the firm, as shown in Fig. 6.

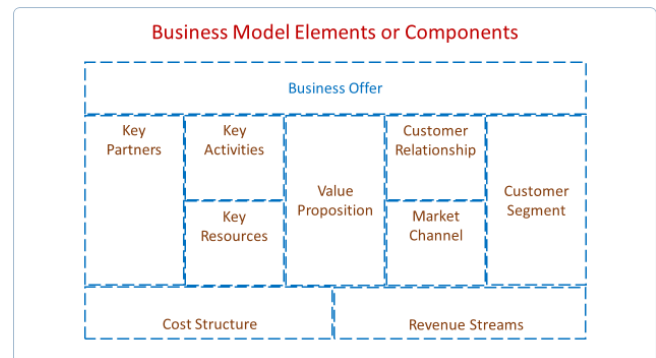


Fig. 6 Business Model Elements overlaid with Business Offer – Adapted

It is a general practice among business firms to describe these elements as part of their preparedness to go to market. Its elements are adapted for this study, as shown in Fig. 6.

### B. Business Model Functions

Chesbrough [16] describes a Business Model in terms of six functions. He wrote extensively on Open Business Models and proposed a framework to detail the maturity (6 levels) of a business firm in terms of its Business Model. He states that a business firm with a superior Business Model and inferior Business Offering would do well compared to a business firm with an inferior Business Model and superior Business Offering. One can infer from his writings that the function of a Business Offering is to carry certain potential value, whereas the function of a Business Model is to aid in realizing this value. Accordingly, this perspective puts forth an emphasis on value realization from the proposed value. The six functions of a Business Model as stated by him are briefly reproduced here, for ready reference purpose.

- Articulate the Value Proposition or the value created for user by the Offering.
- Identify the Market Segment or the users for whom the Offering is useful.
- Define the structure of the value chain that is required by the firm to make and distribute the Offering.
- Specify revenue generation mechanism and estimated cost structure and profit potential of the Offering.
- Describe the position of the firm within the value network.
- Formulate the competitive strategy to hold advantage by the firm.

Chesbrough goes on further to state that the same Technology taken to market through different Business Models will yield different economic outcomes. He makes an observation that while businesses make extensive investments for exploring technologies, they often have little ability to innovate business models through which the technologies are taken to the market.

### C. Business Model Components

Johnson et al [17] describes a Business Model in terms of four key components, which in turn consists of the following detail. The authors describe Value Proposition in combination with the intended Customer Segment. The required business structure and process is included by way of key resources and processes. Their emphasis on business viability reflects in the suggested effort to detail the overall profit formula. Their description is reproduced below:

- Customer Value Proposition
  - Targeted Customer, What the Offering would do, How the Offering is sold
- Profit Formula
  - Revenue Model, Cost Structure, Margin Model, Resource Velocity
- Key Resources
  - People, Technology, Products, Equipment, Information, Channel, Partnership, etc.
- Key Processes
  - Processes for delivering Value Proposition, rules and metrics, norms, etc.

Overall, this perspective sums up ‘creation of value’ (or innovation) with an emphasis on profit formula and business execution. This perspective upholds the core business thread namely Business Offer, Value Proposition, and Customer Segment.

The insight from literature study on Business Model consists of these various perspectives and what each of those perspectives offer for innovation (or creation of value). The learnings include the key business component thread namely Business Offer, Value Proposition, and Target Segment.

The contribution in this study consists of leveraging and adapting this insight, for an approach to enable Innovation through Design practice.

## VI. DRM STAGE: PRESCRIPTIVE STUDY

As part of DRM stage on Prescriptive Study, a comprehensive study is undertaken to enhance the Design practice for Innovation. Insights from the literature study on Business Model (as part of Descriptive Study-I) were adapted towards domain knowledge. The domain knowledge provides for the content and context for its use and application.

As part of task clarification, the requirements while enhancing the Design practice for Innovation, are arrived at based on the analysis of various perspectives of Business Model. These perspectives include Business Model Elements, Business Model Functions, and Business Model Components.

A comparative analysis on the description of various perspectives of Business Model refers to its emphasis on Customer Segment and Value Proposition of the Business Offer. The key business component thread is considered to be: Business Offer – Customer Segment – Value Proposition. Accordingly, from Fig. 6 on Business Model Elements with Business Offer, the elements on Customer Segment and Value Proposition are focused upon for further detailing. The respective focused element is shown in bold line, whereas other elements are shown in dashed line in the visuals shown.

### A. Focus on Business Offer

The Fig. 7 depicts a visual (from Fig. 6) with a focus on Business Offer shown in bold line. The standard phases of design (shown in Fig. 4) are leveraged to detail it further.

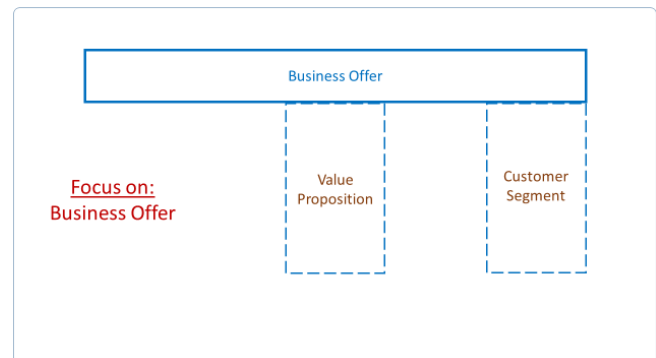


Fig. 7 Focus on Business Offer

### B. Focus on Customer Segment

The Fig. 8 depicts a visual (from Fig. 6) with a focus on Customer Segment shown in bold line. The standard phases of design (shown in Fig. 4) are leveraged to detail it further.

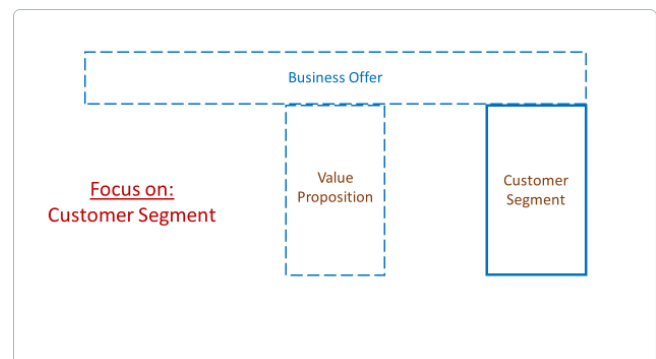


Fig. 8 Focus on Customer Segment

### C. Focus on Value Proposition

The Fig. 9 depicts a visual (from Fig. 6) with a focus on Value Proposition shown in bold line. The standard phases of design (shown in Fig. 4) are leveraged to detail it further.

The developed Approach has focus on the key component thread namely: Business Offer – Target Segment – Value Proposition. As stated earlier, this is the first step for the Startup Entrepreneur, to go to market. But in order for the Startup Entrepreneur to be successful in the market, preparedness beyond the Business Offer is required. It includes, appreciation for the Business Offer by the Target Segment and access to the Business Offer for the Target Segment. Both these refer to the Business Model elements namely: Customer Relationship and Market Channel,

respectively. Accordingly, these would require focus by the Startup Entrepreneur.

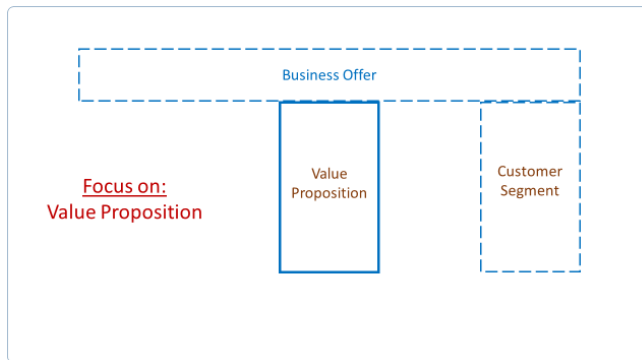


Fig. 9 Focus on Value Proposition

#### D. Focus on Customer Relationship

The Fig. 10 depicts a visual (from Fig. 6) with a focus on Customer Relationship shown in bold line. The standard phases of design (shown in Fig. 4) are leveraged to detail it further.

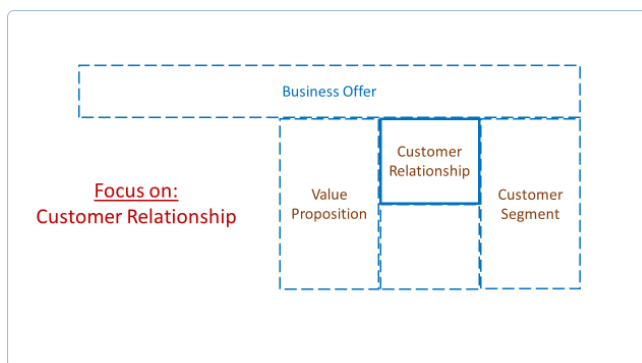


Fig. 10 Focus on Customer Relationship

#### E. Focus on Market Channel

The Fig. 11 depicts a visual (from Fig. 6) with a focus on Market Channel shown in bold line. The standard phases of design (shown in Fig. 4) are leveraged to detail it further.

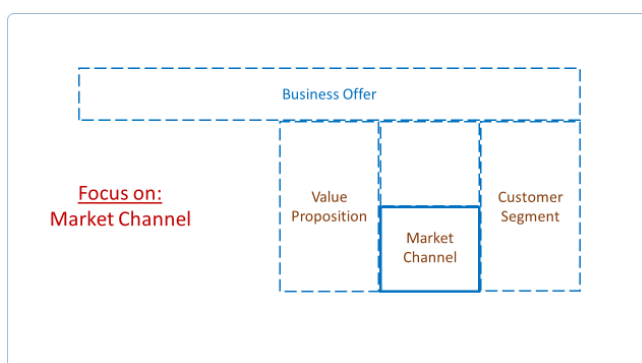


Fig. 11 Focus on Market Channel

### VII. DRM STAGE: DESCRIPTIVE STUDY-II

This stage is about validating the developed practice for its ability to enable Innovation. Since the Approach is already derived based upon Design Innovation in Section II, the developed practice as per DRM is verified against it.

According to the perspective on Business Model Elements, Customer Segment and Value Proposition are

critical for the Business Offer. According to the perspective on Business Model Functions, Value Proposition and Market Segment are critical for the Business Offer. According to the perspective on Business Model Components, Customer Value Proposition and Target Customer are critical for the Business Offer. These were described in Section V.

As per the derivation from Design Innovation, Target Segment and Business Proposition are critical for the Business Offer. This is identical to the above insight from the various perspectives on Business Model. Hence this study in adherence with DRM stages, validates the derivation for Business Offer, which is based upon Design Innovation dimensions.

Here is another verification illustration by way of applying the developed Approach to itself. Accordingly: the Offer is the developed Approach; its target segment is Technologists who are aspiring to be Startup Entrepreneurs; its proposition is that it would serve as a work-aid for Technologists to convert their respective Technology into a Business Offer, as they endeavor to go to market.

Further to it: in order for this Approach to be accessible for the Technologists, it is being published in a technology journal. The target audience for this journal being Technologists, who are also the target segment for the developed Approach, the chances for its appreciation by them are better. The proposed Approach serves towards preparedness by Technologists, as they aspire to be successful Startup Entrepreneurs.

### VIII. EXAMPLE ILLUSTRATION

An example illustration to convert a typical Technology into a Business Offer is described in this Section. The intent of this example is solely to illustrate the Approach developed in this paper: 'From Technology to a Business Offer'. For confidentiality reasons, the details of the Technology are kept very brief. It is developed by an Academic Department in an Indian Institute of Technology. The credit for developing this Technology (and its associated patent protection) entirely goes to that Academic Department. The authors of this paper has no involvement with it, whatsoever.

This Technology is about converting packaging material such as thermocol into fiber strands. It consists of a chemical solution developed by the Technologists. When thermocol material is put into this solution, it gets converted into fiber strands or threads. This fiber can be further used to develop useful artefacts.

Often the packaging material becomes a waste, once the shipment is delivered. If a Technology exists to turn this waste into useful material, it is indeed a business opportunity. This illustration consists of detailing the key business component thread, namely: Business Offer – Target Segment – Value Proposition. The standard phases of design (described in sub-Section II) are leveraged to arrive at this detail.

The starting point for this exercise is the fact that certain Technology is existing and it is available to convert thermocol waste into fiber strands, as a form of raw material. Now the intent is to make use of this raw material and come up with useful artefacts that can be taken to the market as a Business Offer. It should have certain Value Proposition aimed at a certain Target Segment. Further it should also address the challenges of Customer Relationship and Market

Channel. The enclosed work-sheets are expected to demonstrate its working detail in a systematic manner, for the benefit of Technologists.

#### A. Focus on Business Offer

The Fig. 12 depicts a visual with a focus on Business Offer. The standard phases of design (shown in Fig. 4) are leveraged to detail it further.

Detailing through Standard Design Practice					
Detailing: Focus on Business Offer					
Standard Design Phases					
Understand	Observe	Point of View	Ideate	Prototype	Test
The raw material in the form of fiber strands is available. It has certain physical characteristics in terms of tensile strength, softness, handling and workability, smell, color, etc.	Uniqueness of this fiber strands raw material in terms of its strength and workability to make certain household items and artefacts for daily use at affordable cost within the given localities, etc.	For the context in which there exists a business prospect for this fiber strands raw material, think of a perspective in which there exists a possibility for undertaking a business venture.	Conduct a session on brainstorming about the various items and artefacts that are possible to make with this raw material. Design Thinking workshops are ideal for this session. Collect as many ideas as possible.	Some of the ideas can be shaped with the help of designers. The artefacts could be floor cleaning items, tabletop cleaning or hand cleaning napkin or paper towel items, and so on.	Make the possible items physically using the fiber strands raw material and test their usage in actual context of wiping a floor, or cleaning a table after meal, or wiping the hands, etc.

Fig. 12 Work-sheet for detailing with a focus on Business Offer

#### B. Focus on Customer Segment

The Fig. 13 depicts a visual with a focus on Customer Segment. The standard phases of design (shown in Fig. 4) are leveraged to detail it further.

Detailing through Standard Design Practice					
Detailing: Focus on Customer Segment (Target Segment)					
Standard Design Phases					
Understand	Observe	Point of View	Ideate	Prototype	Test
Having thought about the various Business Offers that are feasible, now the task is to figure out, to whom these offers would possibly make sense, in terms of population segments.	Since the offers are made from converted waste material, it is likely that these items would have certain inherent qualities that may not appeal to certain population segments.	For the given context, arrive at a population segment to whom the Business Offer would appeal and make sense. The segment could be low income to middle income group population.	Conduct a session to brainstorm and fine tune the target segment. Arrive at as many segments as possible with differentiation in terms of their liking, look and feel, pride and honor, and so on.	Narrow down on the customer segment with whom the Business Offer items can be tried out. There can be multiple population segments to whom a variety of offers can be showcased.	Take the Business Offer items to the selected population segments and check for the acceptance in terms of usability, handling, physical appeal, how long it would last, and so on.

Fig. 13 Work-sheet for detailing with a focus on Customer Segment

#### C. Focus on Value Proposition

The Fig. 14 depicts a visual with a focus on Value Proposition. The standard phases of design (shown in Fig. 4) are leveraged to detail it further.

Detailing through Standard Design Practice					
Detailing: Focus on Value Proposition (Proposed Value)					
Standard Design Phases					
Understand	Observe	Point of View	Ideate	Prototype	Test
Having arrived at the Business Offer and Target Segment of population, now the task is to understand the context and articulate what the Business Offer would do for the Target Segment.	Since the raw material is produced from thermocol waste, it is likely that the items produced from it has specific characteristics such as oil absorbing property, single use, etc.	With its unique properties as the basis, arrive at a perspective around which the business proposition can be articulated. For instance, oil absorbing capacity, or items that are cheaper, etc.	Conduct a session to brainstorm on the variety of propositions, keeping in view both the Target Segment and the Business Offer. It is about offering differentiation vis-à-vis competing offers in market.	Firm up the propositions in terms of napkins that remove oil from technicians' hands in a service station, or cleaning mats for kitchen floors with oil spillage, etc. It could be in terms of low prices as well.	Demonstrate the proposition to the prospective segment by undertaking field trials in the market. Refine further the proposition articulation and fine tune the associated segment.

Fig. 14 Work-sheet for detailing with a focus on Value Proposition

The example illustration demonstrates the usage of the Approach, with the aid of the detailed work-sheets. Given the Technology to convert thermocol waste into fiber strands, the example illustration so far describes further working in terms of how to arrive at the respective Business Offer and its corresponding Target Segment and Value Proposition.

#### D. Focus on Customer Relationship

The Fig. 15 depicts a visual with a focus on Customer Relationship. The standard phases of design (shown in Fig. 4) are leveraged to detail it further.

Detailing through Standard Design Practice					
Detailing: Focus on Customer Relationship					
Standard Design Phases					
Understand	Observe	Point of View	Ideate	Prototype	Test
Primarily the task here is about making sure that the target segment is able to accept, but not deny, the proposition of the offer that it is true. To understand the nature of the target population in terms of their culture, etc.	Target segment can down play the proposition, though it is attractive, for its own reasons that one may not know about. It could be that the population segment is ignorant, or willfully deny, and so on.	To have a perspective about a reasonably fair relationship with Target Segment that can make them understand and accept the proposition so that they would appreciate it.	Brainstorm session in terms of an impression that one would make on the population segment. It could be empathetic, service oriented, relation based on trust, and so on.	Decide on the market activities and the resources to nurture the intended relationship with target population segment. And the time it takes so that the timing for market launch of the offer is known.	To test the activities and resources if it would result in the intended effect when the offer is taken to the market. Field trials are part of this exercise so that any corrections can be incorporated into the activities.

Fig. 15 Work-sheet for detailing with a focus on Customer Relationship

#### E. Focus on Market Channel

The Fig. 16 depicts a visual with a focus on Market Channel. The standard phases of design (shown in Fig. 4) are leveraged to detail it further.

Detailing through Standard Design Practice					
Detailing: Focus on Market Channel					
Standard Design Phases					
Understand	Observe	Point of View	Ideate	Prototype	Test
The context is about market entry with the given Business Offer. It could involve market barriers, partners who can help, market regulators, competition in the market, and so on.	Look for the competing offers and differentiation that we have got with our Business Offer. If there are no competing offers, it is likely that there is no market for it. To check these first.	Arrive at a perspective that makes the market entry smooth. It could involve support from partners and government too. Supply chains could be the key to access the offer.	To do a session on brainstorming for understanding the market nuances in terms of competition, partners, supply chains, product distribution, dealers and sales outlets, stores, etc.	To arrive at the activities and resources to undertake market entry with or without the aid of partners. To firm up on dealer network and ensure the offer is available in stores.	To test the activities and resources through field trials. To make corrections wherever required in terms of new partners, dealer and distribution network, servicing aspect if needed, and so on.

Fig. 16 Work-sheet for detailing with a focus on Market Channel

The example illustration extends the working detail in terms of Customer Relationship and Market Channel. Together, it prepares the respective Technologists in their endeavor to go to market.

One can infer from this illustration that there exists sufficient detailed working in terms of converting a given Technology into a Business Offer. And creativity based Design practice can be applied to arrive at those details. This exercise can be undertaken as a group activity of the Technologists team, by leveraging the standard phases of Design practice. The standard phases of Design being generic and common, it is possible for Technologists to apply these and arrive at the corresponding detail, as they attempt to go to market and become successful entrepreneurs.



## IX. SUMMARY AND CONCLUSION

Often Technologists look for guidance and approach in their aspiration to become Startup Entrepreneurs. Unless the respective Technology that they have developed is converted into appropriate Business Offer, they are not ready to go to market. In this paper, an Approach on: 'From Technology to Business Offer' is developed based on the Design Innovation dimensions. This Approach is further substantiated with a study, in adherence with Design Research Methodology.

This Approach consists of detailing the key business component thread namely: Business Offer – Target Segment – Value Proposition. Further to it, design preparedness with regard to Customer Relationship and Market Channel would aid in making the Business Offer accessible and appreciated. The standard phases of creativity based Design are leveraged to detail these further.

This Approach can help Technology Startups by way of design preparedness in their endeavor to go to market and be successful. It is needless to state that these are the minimal aspects that one should account for, before venturing on a business Startup.

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