

Jugaad Meets Disruption: Do More with Less for More

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ABSTRACT

Successful new product development and launch are among the most important yet difficult challenges an organisation encounter. New goods that are innovative, responsive to customer suggestions, regarded to be technically higher, developed within budget, and introduced before the competition provide the company a genuine competitive advantage. The idea of "Jugaad," which is based on frugal innovation, and disruptive innovation are homogeneous in that they both aim to challenge established standards in order to provide significant, scalable solutions. With an emphasis on how resource-constrained circumstances encourage creative techniques that significantly increase value for underserved consumers, this study examines the relationship between Jugaad and disruption. Based on the idea of "doing more with less for more," this study explores how Jugaad - disruptive inspired strategies might result in groundbreaking innovations that completely transform markets and business structures. This study presents a basic model of the New Product Development process that utilises the attributes of both innovation techniques through five stages. This model will give insight on how Jugaad and Disruptive innovation strategies can be availed by creating a new product which will fulfil the desired basic requirements of underserved communities in emerging countries.

Key words: Jugaad innovation, Disruptive innovation, New Product Development Model

INTRODUCTION

India's economy is one of the fastest-growing in the world, and the manufacturing sector is a key driver of this expansion. Building materials, autos, textiles, electronics, chemicals, and medicines are just a few of the diverse industries that make up India's industrial sector. One of the main reasons for the expansion of the industrial sector in the nation is the size of its labour force. India is a desirable location for international corporations wishing to establish industrial plants because of its inexpensive labour. According to the survey of Indian Brand Equity Foundation (IBEF) projects that by 2025, India's manufacturing industry expected to generate \$1 trillion USD, or 25% of the nation's GDP (Mindworks Solutions Pvt. Ltd., n.d.).

Successful new product development and launch are among the most important yet difficult challenges an organisation encounter. From a strategic perspective, new goods that are innovative, responsive to customer suggestions, regarded to be technically higher, developed within budget, and introduced before the competition give the company a genuine competitive edge (Calantone & Cooper, 1979). Early product launches and the capacity to create them with the goal of meeting the expanding demands and desires of customers are two of the companies' differentiators. The industry is

encouraged to continue developing new products because the product lifecycle is becoming shorter (Santos et al., 2017). The high-end consumer market is often the focus of India's industrial sectors due to the increased profit margins, brand awareness, and innovation potential it provides. Nevertheless, this approach frequently excludes the sizable, high-consumption communities in the lower-end market. Despite having less money, these communities however it has significant cumulative demand. Customers in cities and rural areas should be treated equally. Customers may easily spot marketers who primarily target urban consumers, a practice known as "urban myopia," and it will have lasting repercussions (Paninchukunnath, 2010). Organisations that have urban myopia continue to ignore markets outside of cities. Businesses will fail if they keep their urban myopia. They need to change their attention from just large cities to rural and semi-urban ones (Paninchukunnath, 2013). A marketer must operate at all levels of the rural-urban continuum in order to address the requirements of everybody involved in the most creative and balanced manner possible. Brand war is a losing game from the perspective of strategic marketing in a highly competitive environment such as the majority of metropolitan markets. Market followers make up the majority of businesses in such a market. New markets are being created by competition in a developing market. India is an emerging market that offers marketers the potential to create new markets (Paninchukunnath, 2013). Developing goods and services suitable for India's impoverished urban and rural populations continues to be a top target (Prabhu & Jain, 2015). To satisfy the needs of sub-urban and rural communities, manufacturers should adopt a few form of product development strategy of merging Disruptive and Jugaad innovation ideology. The idea of "Jugaad" is to innovate while being frugal, using scarce resources to provide effective and useful solutions. It reimagines traditional business models and procedures to provide greater value with fewer resources and reach a wider audience when combined with disruption. In emerging countries, where financial difficulties and resource limitations need innovative solutions, this synergy is especially pertinent. Through the integration of disruptive technology and frugal innovation, organisations can attain sustainability, inclusivity, and scalability. This strategy not only meets the demands of underserved markets, but it also paves the way for worldwide competitiveness in a market that is changing quickly.

INNOVATION

Innovation is all over the place today. All the organisations mention the term "Innovation" in their vision, mission, agenda, objectives etc. Anything can be considered innovative as long as it involves finding new methods to add value for consumers, suppliers, staff, shareholders, or even the general public (Paninchukunnath, 2013). Additionally, innovation is a business activity rather than an administrative one. Every element of a firm, including manufacturing, sales, marketing, and finance, is necessary for participation in innovation (Mariwala, 2012). Innovation as an end result emphasizes better return (Kahn, 2018). According to Brown (2008), Deep understanding of what people need and want in their lives, as well as what they like and dislike about the way specific products are made, packaged, marketed, sold, and supported, which results from direct observation, is what propels innovation.

One widespread misconception is that some people and organisations think that an innovation must be dramatic and entirely new; little, gradual innovations don't qualify. This notion is flawed since radical innovation is very arduous, may call for specialised resources, and encompass a major amount of risk which is more than incremental innovation. By permitting minor successes for pushing towards major ones, incremental innovation and radical innovation help to balance the innovation effort. Innovation is not a twofold occurrence; successful organisations recognise that it happens along a spectrum that ranges from small, incremental changes to large, dramatic innovations (Kahn, 2018). According to Rasool et al. (2018), innovation is thought to be the most crucial element for businesses to obtain a competitive edge and experience economic growth. There are two kinds of innovation that usually takes place in organisations: process innovation and product innovation (Neely et al., 2001). According to Neely et al. (2001), process innovation is the application of advanced or enhanced methods to convert inputs into outputs throughout manufacturing and distribution in order to attain high quality and low cost. Conversely, product innovation is the process of developing, and introducing a new or enhanced product or service to the market in order to please external users, or customers. Products with comparable features and specifications are produced by the well-established and extensively used innovation models and frameworks (Kim and Mauborgne, 2005). In this paper, a new product development model is created by the integration of disruptive and jugaad innovation strategies focusing on bringing a new product that will enable the manufacturers in developing countries especially India to innovate some goods and services which uplift the standard of living of sub-urban and rural consumers.

NEW PRODUCT DEVELOPMENT MODEL

New product development (NPD) literature emphasises how important it is to introduce new items to the market in order to maintain success. It has been widely shown to have a major impact on profit margin, play a big role in company's plan, and assist organisations grow (Booz, Allen & Hamilton, 1982). Studying NPD and the mechanisms underlying its emergence is crucial since new products are the source of employment, economic upgradation, technical growth, and improving standard of living (Bhuiyan, 2011). Due to its time-sensitive nature and high financial and human resource requirements, managing the NPD process has become important for businesses. The most challenging fact is the failure rate of new products that is between 25 to 45 %, and the majority do not even make it to market. (Crawford, 1987; Cooper, 2001). According to Booz, Allen, and Hamilton (1982), out of every seven novel product ideas, roughly four get into developmental process, one and a half are introduced, and just one is successful.

The actions taken by businesses throughout the emergence and implementation of new products constitute the NPD process. Bringing a new product to market takes a number of stages, beginning with an initial idea generation that is evaluated, created, examined, and released (Booz, Allen & Hamilton, 1982). Since the paper focuses on the process model for the creation of new products which can be developed by integrating disruptive and jugaad innovation strategies, few process models have been listed in Table 1 related to both innovation strategies.

Table 1. Existing New Development Models

Sources	Existing process models						
Booz, Allen, and Hamilton (1982)	New product strategy development	Idea Generation	Screening and Evaluation	Business Analysis	Development	Testing	Commercialization
(Schilling & Hill, 1998)	Opportunity identification	Concept development	Product design	Process design	Commercial Production		
(Cormican & O'Sullivan, 2003)	Analyse environment and identify opportunities	Generate innovations and investigate	Plan project and select sponsor	Prioritise project and assign teams	Implement product innovation plan		
(Rothwell and Zegveld, p. 50).	New need	Idea Generation	New technologies	Implementation in markets			
(Dulal & Binkele, 2021)	Recognizing opportunities	Evaluating Opportunities	Exploiting opportunities				
Giovana, Behr and Marcolin (2018)	Understand the Market and Identify Gaps	Define the Value Proposition	Leverage Innovative Technologies	Redesign the Value Chain	Focus on Scalability and Adaptability	Test, Validate, and Iterate	Launch and Scale
(Frankenberger et al. 2013)	Initiation	Ideation	Integration	Implementation			
Wirtz and Daiser (2017)	Strategic market proposition	Innovative value proposition	Design and implementation of new capabilities	Prototyping	Market introduction and positioning	Scaling and diffusion	Sustaining and Evaluation of innovation

<i>Osterwalder and Pigneur (2010)</i>	Understand the purpose	Identify Customer Segments	Define the Value Proposition	Mapping out the channel	Plan Customer Relationships	Outline Revenue Streams	Analyse and Iterate and Implemetat ion
<i>(Rasool et al., 2018)</i>	Market Observation s	Latent Needs	Customer Value	Idea Generation	disruptive potential scale		

DISRUPTIVE INNOVATION

Disruptive innovation has the power to completely upend whole industries and alter how company functions. Innovation is described as the utilisation of emerging technology to change performance measurements and ultimately drive out established rivals (Danneels, 2004). Many have argued that established companies are unable to create innovative solutions in their current environments (Assink, 2006; Yu and Hang, 2010), and they have highlighted the necessity of establishing distinct units (Christensen, 1997) that will directly compete with the company's current units, posing a threat to its established market. The market changing to a new paradigm in what is refer to as the "tornado" of adoption is when disruptive innovation really starts to take shape. Soon after the tornado starts, the majority of potential consumers in the market have drastically changed the way they behaved in the past, with the expectation that the new paradigm will yield equally significant rewards (Thomond et al., 2002).

It begins by satisfying the unmet demands of a new or niche market. Its performance attributes are initially not valued by mainstream markets, despite being highly regarded by customers in niche markets. Customers in the mainstream market and rivals see the innovation as inferior because they value distinct performance attribute sets (Thomond et al., 2002). Investment in the product, service, or business strategy to improve its performance is made possible by the adoption of niche markets. It can then increase its customer base and develop or penetrate new niche markets. Occasionally, a small number of businesses will try to market differently or upend their own business strategy. Netflix is an excellent example of this; it first disrupted the market by introducing online movie rentals and improving user experiences. After that, they started to disrupt themselves by going into media and subsequently manufacturing process (Lindgren, 2018). Another example is Apple, which revolutionised the Walkman, CD, MP3 player, and record store industries with the introduction of the first iPod media portable player. They subsequently unveiled their own business model with the launch of iTunes, a music marketplace and media library (Anthony & Putz, 2014).

JUGAAD INNOVATION

It has become increasingly apparent that the majority of Indian invention is different from the convectional approach to innovation in three respects. According to Prahalad (2012), Indian innovators are generally very frugal with their inventions. They are competent at cutting expenses at each step of the innovation process, from generating concepts to producing goods and services to marketing them. Second, Indian innovation is often unplanned, executed by networks and organisations that integrate technological and market experience, as opposed to being planned and sequential. Last but not least, Indian innovators typically take an inclusive approach to innovation. In particular, they often create solutions for historically underserved communities (George, Nicholson, & Corbishley, 2015).

Indians are innate leaders in frugal ideas. Given their large population, extreme social and economic disparities, and "jugaad system," which means "do the best with what you got". They are experts at creating ephemeral yet practical solutions out of scarce resources. Most Indians are generally frugal, and frugal innovation is highly prevalent too (Paninchukunnath,2013). The Hindi word for a temporary patch or creative solution, "Gandhian" or "jugaad" (pronounced "joo-gaardh"), is occasionally used in place of "frugal" in India. This straightforward method can occasionally be a form of disruptive innovation (Paninchukunnath,2013). It is an improvised solution that is frequently the result of extremely limited resources and requires creativity and resourcefulness.

The term "frugal" means to practise or be characterised by economy, such as using money or material resources, living frugally, not being expensive, being meagre, etc. It comes from the Latin word "frglis," that means "virtuous" or "frugal." The majority of rural consumers are low-income consumers, and frugal innovation produces high-quality, utilitarian, and low-frills items that are also reasonably priced. Frugal innovation can also be termed as "Constraint-based" innovation (Paninchukunnath, 2013). The three primary traits of jugaad innovation are inclusiveness (Prabhu & Jain, 2015), flexibility (Sarasvathy, 2001), and frugality (Prahalad, 2012). By cutting expenses without sacrificing quality and offering simple items that customers truly want, the frugal aims to accomplish more with fewer resources for more people. The ability to swiftly adjust to shifting conditions, customer demands, and limitations demonstrates the jugaad's flexibility. Jugaad always makes sure that innovations are useful and accessible to a wider range of individuals, especially underserved populations.

WHAT IF JUGAAD MEETS DISRUPTION

If innovation does not benefit consumers, suppliers, workers, shareholders, or even society as a whole, it is meaningless (Paninchukunnath, 2013). The primary objective of this study is process innovation, which refers to the application of improved or novel techniques to transform inputs into outputs throughout manufacturing and marketing in order to attain higher standards and lower expenses (Neely et al., 2001). There is a myth that invention usually takes place in large R&D labs, where team members engaged with innovating execute planned approaches to innovation. A thorough understanding of the customer's problem, however, is essential to Jugaad and disruptive innovation. Always begin by addressing the customer's issue before moving on to the solution because the process of innovation is not linear (Paninchukunnath, 2013). In most of the emerging countries large MNCs and companies focus only on high-end market consumers while eliminating the needs and demands of the major consuming community in low-end markets. It will be challenging to create new goods that they want, especially in developing countries like India, where the majority of the population lives in rural and suburban regions with the country's population of over 1.43 billion. In India, 400 million people live off the power grid, 600 million are unbanked, and over 800 million people do not have access to healthcare (Paninchukunnath, 2013). Jugaad and disruptive innovators create inclusive business models to service these millions of underserved and marginalised people, whereas most firms consider these marginal sectors to be unprofitable (Paninchukunnath, 2013). Indian innovation has been positively impacted by certain infrastructure shortcomings. They have driven entrepreneurs to embrace new technologies and make a significant leap. India's enormous population creates market niches that, if tapped, can assist businesses in lowering costs so they can engage in mega production, or large-scale production. A product must appeal to several market segments, each with slightly distinct needs, in order to sell in significant quantities. Successful companies that have successfully transformed India's challenges into opportunities include Logitech in China and Samsung, Tata, and GE Healthcare.

For emerging economies, a combination of disruptive and jugaad innovation is essential because it unlocks their enormous growth and development potential while addressing their particular problems. Emerging economies frequently struggle with a lack of infrastructure, scarce resources, and sizable populations that are underserved. Even though jugaad and disruptive innovation work well together in emerging economies, there are still a lot of obstacles to overcome, including low accessibility and ability to pay, a lack of necessary infrastructure, poor access to health, low levels of training and expertise, high pollution levels, and insufficient legal structures and policies (Sharma et al., 2023).

Disruptive and Jugaad innovation has their own advantages while developing a product respectively. When creating a new product for the market, disruptive innovation and jugaad innovation take rather different approaches, have different goals, and use different applications. By launching goods that are initially straightforward, reasonably priced, and available to underserved or untapped consumer niches, disruptive innovation seeks to reshape markets. Due to scalability and technical developments, these products gradually change to compete with and overtake traditional industry leaders. In order to guarantee long-term sustainability and market revolution, disruptive innovation development usually entails a large upfront contribution in R&D. Jugaad, on the other hand, has its roots in thrift and ingenuity and arises from the necessity of finding quick fixes for pressing issues using few resources. Jugaad innovations are frequently grassroots efforts that use improvisation and local knowledge to produce practical, affordable solutions for areas with limited resources. They put speed ahead of refinement, frequently eschewing traditional R&D procedures to provide fast repairs, in contrast to disruptive advances. Jugaad innovation concentrates on solving local problems, frequently without an initial vision for wider market disruption, whereas disruptive innovation seeks to develop scalable technologies that

reshape industries. Because of this, disruptive innovation is by nature scalable and transformative of the market, while jugaad innovation is practical, localised, and has an instant impact. Both strategies are crucial for product development, particularly in emerging nations where jugaad innovation meets pressing, situation-specific needs while disruptive innovation can lead to long-term growth and market expansion. By synchronizing the various differences in adaption disruptive and jugaad innovation, an entrepreneur can achieve in creating a new product which will serve the underserved population in emerging countries mainly the sub-urban and rural areas explained in Table 2

Table 2. SIMILARITIES BETWEEN JUGAAD AND DISRUPTIVE INNOVATION

ASPECTS	SIMILARITIES
Focus on Affordability	Both innovations put a high priority on developing goods that are accessible to low-income group and should be reasonably priced (Paninchukunnath,2013); (Christensen et al., 2011); (Prahalad and Mashelkar, 2010).
Market Inclusivity	Developing products that are easily available and affordable for marginalised markets is the primary concern (Prabhu & Jain,2015); (Gupta, 2012); (von Hippel, 2005)
Simplicity in Design	Both concentrate more on product design simplicity, cutting down on complexity to save costs and enhance accessibility (Danneels, 2004)
Initial Niche Markets	Before branching out to main stream markets or customers, both start with niche or underserved markets (Christensen, 1997); (Govindarajan and Kopalle, 2006b); (Thomond et al., 2002)
Innovation Ecosystem Impact	Both encourage ecosystem innovation by motivating others to come up with complimentary ideas or develop innovative ways to solve problems (Radjou et al., 2012); (Bower and Christensen 1995)
Customer-Centric	Both strategies create solutions that are specific to the issues that the audience they are targeting faces in the real world (Christensen, 1997); (Paninchukunnath,2013)
Resource Use	Both innovations always try to reduce waste and make innovative use of existing assets in order to maximise resources. (Govindarajan & Trimble, 2012); (Garud and Karnøe 2003)

Combining jugaad and disruptive innovation is essential for developing new products because it combines creativity and frugality with market transformation and scalability, allowing for the production of cost-effective, significant, and long-lasting solutions. As jugaad innovation concentrates on finding quick, local solutions with few resources, it is perfect for situations with limitations like low infrastructure, capital, or technological capabilities. It promotes workable, affordable

solutions that directly serve neglected or disadvantaged markets. On the contrary, disruptive innovation expands to these grassroots efforts by offering scalable, technologically advanced solutions that have the potential to upend established market leaders and completely transform entire sectors. While developing into strong, scalable solutions that have the potential to revolutionise markets, they enable new products to meet pressing, real-world demands.

This synergy is especially crucial for emerging economies, where resource optimisation, affordability, and inclusion are critical factors. Jugaad's capacity to address local problems and disruptive innovation's capacity to establish new value networks can be used to help firms build goods that not only satisfy consumers' immediate needs but also transform entire industries, guaranteeing long-term growth and sustainability.

PROCESS MODEL INVOLVED JUGAAD AND DISRUPTIVE INNOVATION

A thorough, strategic strategy is necessary to assure the success of developing a new product and entering into a new market. The process starts with a thorough analysis of market gaps, competition offerings, and customer wants. This information serves as the foundation for developing creative new concepts. Following that, a feasibility study examines the concept's viability by examining its technological, financial, and regulatory aspects. The product goes through iterative testing and development after validation, using user feedback to improve quality and usefulness. The conventional emphasis on the features of the product is insufficient. Instead of purchasing a single set of features, customers get a collection of advantages that include both the actual product and its expanded service offers (Dhebar, 1995). It takes more than just awareness of the problems to generate a steady stream of new goods; specific expertise, abilities, techniques, mindsets, problem-solving techniques, and management styles are required (Bessant & Francis, 1997b). The new product development by the firm is basically depends on the minor and major changes in the preferences of the consumers and also the market knowledge hold by them towards the upcoming new products which is being well explained in the figure 1 by (Wind & Mahajan, 1997).

Cooper and Kleinschmidt (1986) observed that there are thirteen steps involved when making a new product and looked at how these steps relate to whether the new product succeeds or fails. They came to the conclusion that establishing and adhering to a new product process model is essential for new product achievement after identifying a significant difference between new product unsuccessful and successful attempts in relation to the completeness of the NPD process. 54.8% of successful new product launches went through nine or more stages in the NPD, compared to 38.2% of new product failures. They found that over one quarter (23.6%) of failed goods followed five or less of the 13 phases in the NPD, compared to 4.8% of new product breakthroughs (Cooper and Kleinschmidt,1990).

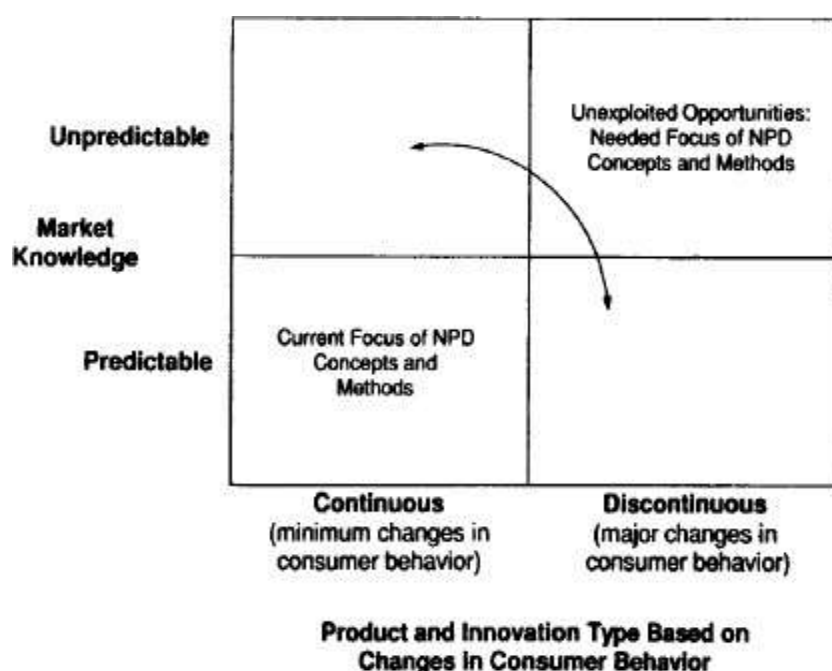


Figure 1. The Current and Needed Focus of NPD Based on Innovation Type And Market Knowledge

Source: Wind & Mahajan (1997)

Some crucial phases in the process of new product development may have a special impact on the breakthrough of the final product. Because the knowledge and information acquired from predevelopment activities like preliminary market and technical analysis may lower expenses and issues in the later, riskier, and more costly development and post-development stages of NPD, they are essential. The testing and assessment stages are also crucial since they offer insightful pre-commercialization input that could lower the likelihood of subpar new product performance. This study developed a new product development model by integrating the features and strategies of jugaad and disruptive innovation. Combining these two innovation strategies will enable an entrepreneur to serve the desired products demanded by the low-end consumers.

In this study, the new product development process consist of five stages: i) Market Orientation includes need and initiation of product involving the criteria of jugaad and disruptive innovation, Ideation comprises of Idea Generation and product design framework, Evaluation contains Organisation capabilities, development of products and Prototyping & Market plan, Implementation consist of Manufacturing scaleup and commercialisation and finally validation contains Post launch review and maket monitoring illustrated in Figure 3.

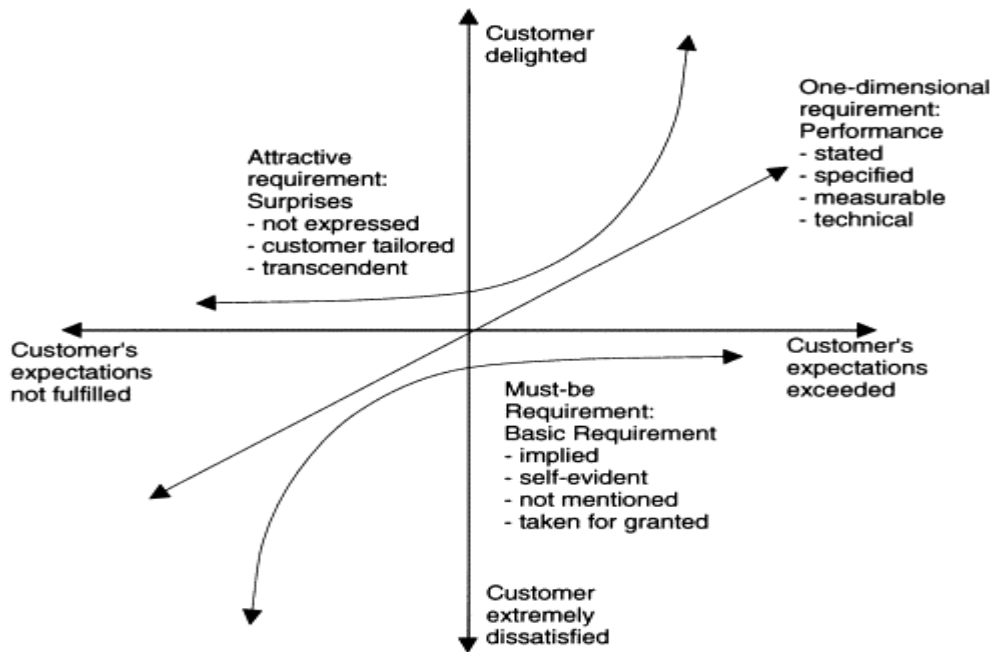
MARKET ORIENTATION

Market orientation focusses on the procedures and activities required to attract and keep consumers by consistently assessing their needs and preferences, all while having a noticeable and measurable impact on business success (Uncles, 2000). Identifying the needs of the customers It involves establishing customer satisfaction as the cornerstone of all organisational operations, including marketing, service delivery, product development, and corporate strategy (Kohli & Jaworski, 1990). Three key components are highlighted in this strategy: interdepartmental collaboration, competitive awareness, and customer emphasis. By putting the requirements of their customers first, companies may use behavioural analysis, market research, and customer feedback to learn more about their wants and make sure their products are useful and relevant. In order to successfully differentiate goods and services, competitor awareness involves keeping an eye on market developments and examining competition approaches.

NEED AND INITIATION

Numerous opportunities for distinctiveness arise from identifying and meeting desirable requirements. When a product only meets the one-dimensional and must-be standards, it is viewed as average and can be used interchangeably (Hinterhuber et al., 1994). Identifying and prioritizing the desires of the customer can be done by using KANO's model of customer satisfaction. The model makes it clear which characteristics are essential, which will generate competitive advantage, and which will captivate customers by classifying them into Must-Be Needs, Performance Needs, and Excitement Needs. Entrepreneurs can able to concentrate on customer-centric ideas according to this classification, which guarantees that the final ideas meet fundamental requirements while allowing for creativity (Matzler et al., 1996). The Kano Model ensures that customer desires and preferences are at the cutting edge of product development, even though it is typically associated with the idea generation phase. Its insights can also be used to the prototype process. Businesses can produce goods that not only satisfy consumers but also exceed their expectations by utilising the approach at both phases, which will improve their performance in the market. Since this study mainly focus on the underserved community in the low-end market, the basic needs and requirement has to be taken into consideration more.

Figure 2. KANO'S Model



Source: (Matzler & Hinterhuber, 1998)

In low-end markets, disruptive innovation techniques play a crucial role in discovering desired products for underserved clients by concentrating on developing accessible, inexpensive, and useful solutions that are customised to meet their unique requirements and limitations. By removing unnecessary features and complexities that raise expenses without providing value to these clients, these techniques put an emphasis on simplicity and cost-effectiveness. As already specified, KANO's model analysis can be adopted to identify what customers actually expect in the new product.

CHARACTERISTICS OF DISRUPTIVE INNOVATION WITH RESPECT TO NPD MODEL:

From Disruptive innovation perspective the product should begin meeting the fulfilled demands of an emerging or niche markets. The range of performance features, which are highly valued by niche market customers, are not immediately appreciated by mainstream markets.

Customers and competitors in the mainstream market value distinct sets of performance attributes, therefore the innovation is viewed as inadequate. Adopting a niche market allows for better performance of a product, service, or business strategy through investment. This allows for the establishment of new niche markets and increased customer base (Thomond et al., 2002). Therefore, KANO's model explained in figure 2 helps to understand the basic features that customers will expect in a product, which will enable the entrepreneurs to produce products that would fulfil their desires.

The disruptive innovation performs poorly in the key performance metric that mainstream consumers place the highest importance on. A new niche market may be created if the new product performs better in another arena. It might also be less costly and simpler to use. Disruptive innovation progressively improves its primary aspect, eventually winning over mainstream consumers who had previously rejected it (Schmidt & Druehl, 2008b). Price-conscious consumers are the primary focus of disruptive innovation (Christensen and Raynor, 2003). Both low-end and new-market disruptions result in low-end encroachment; the only distinction is whether the encroachment happens right away in the case of a low-end disruption or after the new product has expanded into a new market and been improved to appeal to the older product's low-end customers (in the case of a new-market disruption) (Schmidt & Druehl, 2008b).

CHARACTERISTICS OF JUGAAD INNOVATION WITH RESPECT TO NPD MODEL:

Jugaad innovation prioritises creativity over traditional approaches in order to achieve maximum value with limited resources (i.e., doing with more less) (Radjou and Prabhu, 2014). Jugaad uses the ability to think beyond the box,

frequently under limits, to provide effective and inventive solutions. This innovative method thrives in adversity, transforming obstacles into possibilities by repurposing accessible materials or reinventing current processes. Weyrauch and Herstatt (2017) has determined that frugal innovation must meet three key requirements. They include a major decrease in expenses, an emphasis on essential features, and an enhanced degree of performance. Jugaad was established on six guiding concepts by Radjou et al. (2012). When adhered to, these guidelines can produce successful innovations in complex contexts like emerging economies. The ideas are as follows: i) Look for opportunities in undesirable circumstances. ii) Get more done in less time. iii) Act and think flexibly. iv) Keep things easy. v) Add the margin in. vi) Listen to your intuition. The fifth principle pertains to marginal consumers, who are currently underserved. Affordable solutions are required to service them. According to Radjou et al. (2012), using the six principles listed above could assist enterprises anywhere in the world in innovating and growing in a highly dynamic, hypercompetitive market. Therefore, Entrepreneurs should follow these principles and concepts if they want to develop a product that should serve the needs of an underserved community in an emerging economy. Apart from these principles, the Jugaad innovation should be frugal (Prabhu & Jain, 2015), flexible (Saravathy, 2001) and inclusive (Prahalad, 2012). While introducing a new product, it prioritises frugality, allowing entrepreneurs to provide cost-effective solutions adapted to the individual needs of the target market, even with limited resources.

IDEATION

In a competitive marketplace overloaded with similar offers, a distinctive idea helps a product stand out, catching consumer attention and interest. It fulfils unmet requirements or solves difficulties that present goods do not address, consequently adding value to customers' experiences. A innovative idea ensures that the product not only succeeds in its first introduction, but also helps to the company's growth and flexibility in a continuously changing market.

IDEA GENERATION

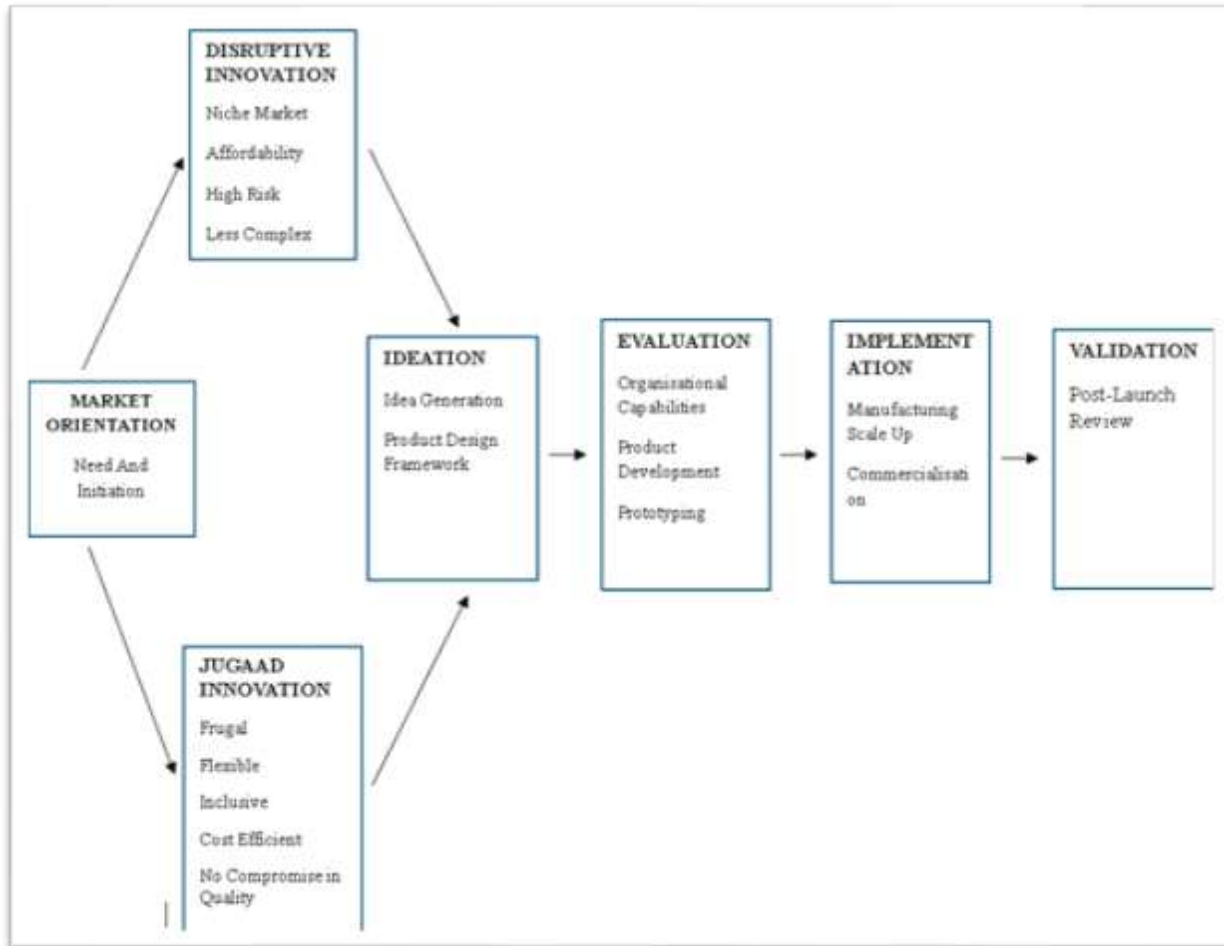
One of the most significant yet difficult challenges that entrepreneurs confront is the creation and launch of successful new products. From an economic standpoint, the company gains substantial competitive benefits from new products that are closely matched with market preferences, have perceived technological superiority, are manufactured within budget, and are released before rivals (Calantone & Cooper, 1979). A new product must satisfy consumer expectations for new features, improved quality, and competitive pricing in order to gain significant and quick market penetration (Schilling and Hill, 1998). The idea generation stage, which begins after developing a clearly defined New Product Strategy for NPD, is when product ideas are sought to accomplish corporate objectives. A physical idea's conception, growth, and maturation are all included in the idea generating process (Bhuiyan, 2011). The organisation must define markets and categories according to the New Product Strategy it wants to target, as well as generate and nurture ideas wherever they arise in order to take advantage of the prospects that have been identified. According to Booz, Allen, and Hamilton's (1982) research, a company must generate at least seven concepts before developing a winning one. Griffin (1997) estimates that 15.2 outcomes require an average of 100 ideas. The company may get new ideas through formal R & D, external sources (such as rivals, suppliers, and customers), and internal sources (such as managers and employees). The most common methods for coming up with ideas include gap evaluation, morphological evaluation, and prototyping (Crawford 1997). When combining Jugaad and disruptive innovation strategies, the idea generation stage focusses on developing cost-effective, resourceful, and radically new solutions for the neglected low-end market. It starts with gaining a thorough grasp of this demographic's requirements, restrictions, and goals through empathy-driven methodologies such as ethnographic study and community participation. Jugaad principles emphasise the use of local resources, resourcefulness, and improvisation to provide cost-effective solutions to critical problems that do not rely on expensive technologies or infrastructure (Paninchukunnath, 2013). Jugaad is a social concept. An excellent example would be The Aravind Eye Hospital. An outstanding illustration is the Aravind Eye Hospital in India.

PRODUCT DESIGN FRAMEWORK

After the idea generation stage, the idea screening process will begin. From that process, the required idea, which will be beneficial to the customers would be chosen for further steps. When combining Jugaad innovation and disruptive innovation, the product design framework stage focusses on building a minimalistic, user-centred, and scalable solution for the underserved low-end market.

Unlike product development, the creation of a stream of new goods requires a different set of competencies, expertise, procedures, attitudes, problem-solving systems, and management ideologies. It also requires understanding of the challenges.

Figure 3. New product Development Model



Disruptive and jugaad innovation requires a basic and smaller R&D team that will be able to function with few resources available and any area convenient for them, regardless of big laboratories and heavy equipment. (Bessant and Francis, 1997). To maximise efficiency and minimise waste, the design process should prioritise simplicity, making use of locally accessible materials, modular components, and multi-functional designs. The design framework should include scalability and adaptability, allowing the product to evolve and serve to neighbouring markets or larger consumers over time. This method, which combines frugality, innovation, and pioneering thinking, ensures that the product is not only affordable but also capable of producing substantial effect and driving market change.

EVALUATION

ORGANISATIONAL CAPABILITIES

The new methods laid out to address the target group in emerging markets include innovations that embrace cheap manufacturing costs and widely available resources (Govindarajan & Trimble, 2012). Therefore, to be sustainable, idea of new product should consider the full value chain. Another benefit of low-cost goods is that they may encourage increased consumption (Rosca et al. 2018). Budget allocations should emphasise frugal approaches throughout the development process, beginning with R&D, where funding should be directed towards iterative, low-cost prototyping, using regional expertise, and utilising economical testing settings to save costs.

Internally, the organisation must cultivate a culture of resourcefulness, inventiveness, and experimentation, allowing teams to think outside the box and adopt economical problem-solving approaches. According to Leonard-Barton (1992), when creating a new product, the company should consider four aspects of core competencies: organizational structures, technological infrastructure, workforce knowledge and skills, and values and norms. Cross-functional teams (Teece et al., 1990) with various expertise should be encouraged to iterate quickly, with a focus on rapid prototyping and minimal viable products (MVPs) designed for the underserved market. Compared to established markets, new rivals' markets tend to have a more diverse customer base and distinct key success factors.

Externally, the organisation must establish strong relationships with stakeholders, such as grassroots innovators, non-governmental organisations, government agencies, and micro-entrepreneurs, in order to capitalise on local knowledge, resources, and distribution networks.

PRODUCT DEVELOPMENT AND PROTOTYPING

When a product's features, such as its design, service, or support, meet certain customer requirements, value is created (Kambil et al., 1996). Accordingly, Value propositions, which are commonly employed in marketing literature, are closely linked to the values that a company offers to customers in order to satisfy their needs (Anderson et al., 2006). For the company's internal usage, a value proposition is about customers and has to specify precisely what the organisation hopes to offer the consumer (Lanning, 2000). It establishes how businesses operate by concentrating their efforts on providing the greatest possible customer service while making a profit (Barnes et al., 2009). From the viewpoint of a customer, it explains the issue, the resolution, and the value (Chesbrough and Rosenbloom, 2002). In accordance with the concepts of Jugaad and disruptive innovation, the product development stage seeks to provide a product that is simple, reasonably priced, beneficial, and that is customized to meet the particular requirements and limitations of underserved low-end markets.

Cooper (1993, 1999, 2001) states that reducing development time is an important competitive weapon that gives companies an edge since it speeds up profit realization and reduces the chance that the market or competitive environment will have changed by the time the product is introduced.

The new product team may proceed on to the development stage, which entails tasks including creating a prototype, increasing volume, and testing marketing, if the business ideas for the new product meet company goals. Instead of selling or purchasing the idea, the program and project manager now work together to bring the product to market on schedule, within budget, and in accordance with the necessary standards (Bhuiyan, 2011). This phase is the last and makes thorough verification of the project as a whole, including the manufacturing, marketing, and economic viability of the product (Cooper & Kleinshmidt, 1987). This phase is essential since it can spot flaws that might cause the market to fail, which might drastically lower the chance of a launch failure (Urban & Hauser, 1993).

IMPLEMENTATION

MANUFACTURING SCALE UP

At this point, assessing the customer's level of interest, like, preferences, and desire to purchase as well as figuring out the features, benefits, and aspects of the product that they find appealing are all dependent on their acceptance of the product. The product must function properly in the development department or lab, but more crucially, it must function properly when a customer uses it. (Bhuiyan, 2011). The purpose of testing is to comprehend how the product works in the end-user situation. Products that are completely unique to the market should undergo beta testing since there is no database to gauge consumer acceptance (Bhuiyan, 2011). The changes brought under the prototyping process have to be properly scrutinized and the final product should go to the market for sales.

COMMERCIALIZATION

A substantial portion of the marketing and NPD literature has addressed the issue of first-mover advantage (Golder and Tellis 1993). The timing of the launch of the new product has been a relevant problem. Businesses introduce their new goods as soon as they are ready, disregarding the optimal time to launch, because many sectors are under so much pressure to expedite NPD.

In certain businesses, the time of the new product launch is decided by the yearly or biannual trade exhibitions, leaving no other choice. However, management frequently has the choice of when to launch their product. The latter scenario presents excellent prospects for the advancement of modelling techniques and marketing research for the timing of the launch of new products (Wind & Mahajan, 1997). While Markides (2006) states that launching the product at the ideal moment is insufficient to capture the market. The ultimate winners take several actions that transform the market from a niche to a mainstream market in addition to carefully planning their market launch.

VALIDATION

POST-LAUNCH REVIEW

When introducing a product to the low-end market using a combination of Jugaad and disruptive innovation, the post-launch review stage places a strong emphasis on affordability, adaptability, and ongoing learning to improve the product and increase its effect.

Measures such as user happiness (Rathore & Ilavarasan, 2019), adoption rates, and operational difficulties are monitored in order to assess its impact and market fit. In traditional approach, the success of product launch is measured using market surveys involving only a limited number of users, which leads to subjective conclusions.

Iterative upgrades and community-resonant solutions are prioritised through feedback loops that involve users and community members. Analysing the product's operational and financial sustainability is another aspect of the post-launch analysis that helps pinpoint areas for strategic reinvestment or cost cutting. A business's total sales or profits from recently launched products are frequently expressed in absolute terms (Brenner, 1994) or in relation to total revenue or profits (John and Snelson, 1988). Eventually, this phase guarantees that the product adapts to market needs, establishes its value proposition, and establishes the groundwork for long-term expansion and market disruption.

IMPLICATION AND CONCLUSION

Most of the big giant MNCs focus more on high-end consumers for their profitability and sustainability in the market. These organizations have, for the most part, given little attention to the people, who live in slums in Indian cities as well as smaller tier two and three towns and rural areas (Prahalad, 2009). Even while these groups' purchasing power and aspirations are modest on an individual basis, they are substantial when taken as a whole. Making basic goods and services available to these groups can greatly enhance their quality of life by raising their earning potential and improving their opportunities (Alvarez et al., 2015). This study mainly focuses on how Entrepreneurs with their innovative idea can improve the living standard of the people in underserved parts of India by developing essential products at affordable prices by synchronizing disruptive and Jugaad innovation strategies.

Jugaad is rooted in Indian ethos, emphasising improvisation and solving specific-time needs of the customers, while disruptive innovation focuses on developing accessible solutions by displacing the existing players and aims for long-term sustainability. Even though both innovations have different approach in their application in developing a product the integration of these have a great advantage.

They will definitely pave the way for scalable technologies that tackle issues like inequality, poverty, and affordability. This combination challenges institutions to reconsider traditional resource-intensive approaches in favour of ones that emphasise effectiveness, sustainability, and wide-ranging societal impacts. Businesses may satisfy the needs of marginalised communities, promote inclusive growth, and save costs all at once by adopting this approach.

FURTHER RESEARCH

This study has given the basic framework of developing a new product using a New Product development process model. This can further be extended to particular sector for developing a particular product. The study fully focused on implementing the new product using jugaad and disruptive innovation strategies and failed to depict the challenges that will be faced in the implementation. The study can also be widened to look into the social and environmental sustainability of these strategies, analysing how they support global development objectives and are consistent with the ideas of the circular economy. Cross sectoral analysis can also be done by applying these strategies to healthcare,

education, and renewable energy, showcasing how to maximize value creation while minimizing costs and resource consumption. The study can be extended to evaluate the product's successful market reach based on financial reach (Break even, IRR, ROI, and margin) and market reach (consumer acceptance, customer happiness, revenue growth, market share, sales in units, and market opportunity).

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