



Agility in Business: Emerging CART Dimensions

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NEW PERSPECTIVES IN BUSINESS

The philosophy of business agility has emerged as an important strategic tool for firms to beat the increasing competition in the emerging businesses in the twenty-first century. The competitive performance of the firm is significantly driven by the changing customer needs. Agility in business influences the performance of a firm with increasing complexities in governance, innovation, and competitiveness strategies. Effective implementation of strategies with business agility needs firms to develop abilities on business sensing, flexibility, speed, and responsiveness. These attributes allow firms to co-create and coevolve with customer-centric strategies in a changing environment and respond rapidly to the complexities by reconfiguring their business tactics (Zhou et al., 2019). Managers working with agile business strategies need to be quick in responding to challenging business situations. Agile business processes involve easy

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adjustment of plans and strategies for responding swiftly to new opportunities and the emerging challenges. While doing business with the social media channels, companies work in the interactive digital environment, which demands implementation of flexible business strategies in view of the crowd behavior and social consciousness of customers. Agile methodology is an alternative to Waterfall methodology—the rigid, top-down approach to project management that most firms follow. The agile business strategies focus on the following management perspectives to increase the process speed and quality of deliverables to create value:

- Flexibility to meet business challenges.
- Social and interactive business campaigns of products and services
- Proactiveness to crowd opinions, collective intelligence, and changing social conventions.
- Numerous small experiments to explore new business and increase consumer outreach in existing business.
- Encouraging group community behavior within target business.
- Driving co-creation, coevolution, and reverse accountability in managing customer-centric innovations.
- Engagement of stakeholders and transparency in business process.

The broad goals of agile business include improving the speed, predictability, transparency, and adaptability to changing business scenarios. Managers working with agile business strategies benefit from continuous feedback on products and services by the customers and stakeholders that allow the managers flexibility in developing strategies to adapt to changing business scenarios. Working in an agile business environment is a team approach within the firm. The basic manifesto of agile business encompasses core values and principles that are crucial for achieving performance through co-created and coevolved business strategies. These values and principles are managed and delivered by the teams, through various agile approaches such as standups, sprints, and *Kanban* boards. *Kanban* is a Japanese approach for an agile project management tool designed to visualize execution of strategies and maximize efficiency for delivering desired outcome. *Kanban* boards use cards, columns, and continuous improvement to help technology and service teams commit to the right amount of work, and get it done. This method has six core practices:

- Visualize workflows.
- Narrowing the work-in-progress spread.
- Manage workflows.
- Make processes explicit and streamlined to optimize cost and time and reduce the incidence of risk.
- Establish feedback loops, and
- Ensure continuous improvement.

Companies engaged in agile business practices grow as learning organizations and develop abilities to learn behavioral perspectives of consumers and exploit business knowledge to respond to changing business scenario (consumer preferences, competition effects, disruptive innovations, etc.) promptly and efficiently. In implementing agile business strategies, firms need to effectively deliver value and inculcate loyalty among stakeholders. Most studies on agility focus on the agile business approach involving co-created and coevolved supply chains and production systems. Agile business represents a lean and flexible business management approach based on an array of customer-centric practices aimed at developing compliant and acquiescent business approaches. Notably, agile business encourages a firm's inclusive teams (inducting customers and stakeholders) to work together on common objectives centered on the problems, needs, and desired solutions of customers and stakeholders. Periodical update on the customer needs, preferences, and opinions on various business touch points (business-mix elements and value perspectives) help companies optimize their agile business operations. Accordingly, effective customer engagement, sustainable value, and higher business demand can be achieved by the firms (Xu et al., 2018).

Organizational context, in which the 5T elements are managed, determines the business management approach based on an array of practices over the traditional business. Commonly, agile business practices encourage team culture on common objectives centered around the customers' needs. In the agile business process, teams periodically evaluate the efficiency of the process and eliminate redundancy to align and optimize business operations accordingly. Accordingly, companies practicing agile business strategies can achieve higher customer engagement and value and an increased ability to adapt to business uncertainties, and change stimulate speed toward business demand (Gera et al., 2019). Consequently, agile business strategies need to focus on quick response to customer-centric innovation and competitive action. Business agility

is thus focused on the changing customers' needs and expectations, and flexibly coordinating business objectives by employing resources appropriately. Broadly, it is the ability of a firm to develop business strategies tactically at short notice and to adapt to changing business conditions to sustain the business competition effectively (Hagen et al., 2019).

To evolve and practice agile business in business-to-business or customer-centric business segments, companies need to understand the agile ambience, core management perspective, methodology, core areas to be attended, and the selected value-based moves. The ambience for agile business consists of team-based operations with flexible decision to manage the changing consumer preferences within a predetermined period and stay proactive and responsive to the business. The specific attributes of agile business are inclusivity and reverse accountability (customer engagement and role in agile governance), which help companies to encourage agile teams to participate in co-creation of products, services, brands, and business strategies along with the customers and stakeholders. The co-creation will be meaningful for the companies if the problems, needs, and probable solutions are meticulously explored by the agile teams, customers, and stakeholders. In addition, a systematic approach to integrate 5Ts comprising task, time, target, thrust (force), and trust (among the stakeholders and team members) empowers the agile teams to work with the agile methodologies including Scrum, Sprint, Kaizen, and Kanban. Companies also use the current agile technologies and software to analyze the data and conduct qualitative analysis of consumer perceptions, emotions, and the degree of satisfaction. Companies adapting to agile business practices need to ensure the effective implementation of change management in the organization and encourage continuous learning as an organizational tool to gain competitive leverage.

Most companies use tactical approaches to explore opportunities by conducting rapid business appraisal (RBA) and participatory business appraisal (PBA). The RBA and PBA analysis helps companies make value-based decisions instead of usual data-driven decisions. The agile business decisions are also benefitted by the crowd behavior and collective intelligence. Besides the stakeholder engagement, such crowd and stakeholder engagement in agile business helps companies to launch effective agile campaigns based on the user-generated contents and collective intelligence. The implementation of agile business approaches is managed in

a project environment with effective monitoring and periodical evaluations. One of the major challenges in managing agile business projects is controlling the scope creep with a flexible business philosophy. The core areas in the agile business include finance and human resource management. Some key indicators such as cost, time, risk, investment, and profit constitute the financial matrix, which helps in managing value-based moves such as customer touch points and Go-to-Business strategy.

The agile business is largely team based and can be designed, developed, and implemented with technology applications and interactions with the customers and stakeholders. Agility principles suggest removing all work silos and hierarchies and setting flexible collaboration across a team along with the stakeholders. In this process, team members should exhibit inclusiveness in the project and stay involved in working with the various stages of developing and implementing agile business strategies. Team meetings, and corporate and social communication channels are used to encourage collaboration during the strategy development and implementation process. Large companies with data-driven approach set effective agile business campaigns. Agile business firms encourage new experiments for boosting the team's performance and rely on data for measuring and adjusting their efforts. Agile business teams use sprints cycle which allows teams to tackle smaller amounts of work within the sprint timeframe and produce continuous release of work. A sprint is a short, predetermined period followed by the scrum teams to complete a set of planned tasks. Sprints are used as popular agile methodologies supported by software to carry out planned tasks.

It has been observed over several experiments across different companies and business ecosystems that agile business practices have leveraged the speed of delivering value among the stakeholders and other business players. This is achieved through transformations in organizational structure, horizontal work culture (teams administration), and collective implementation of agile business activities. Agile organizations prefer to empower small, cross-functional teams and provide autonomy to explore creativity, flexibility, and applied thinking in business activities and overcome conventional working practices. This allows the teams to complete tasks without delays caused by dependencies. Flexibility is one of the explicit benefits of agile business. It manifests most strongly in the way agile business teams use iterative planning to deliver viable work instead of blindly following a predetermined business plan. Agile business is, thus, a situation-based business planning, and in this approach, continuous

learning and tactical strategies account for larger success than a meticulous strategic plan. Agility in business can be better understood by the companies through rapid business appraisal (RBA), which gives an overview of the stakeholder needs, competitive strengths, weaknesses, opportunities, and threats. In addition, RBA also provides a map of tactical moves of competitors, disruptions, and temporal growth perspectives to support critical thinking, integration, and decision orientation of the firms. Based on the RBA analysis, the agile business companies may develop participatory business action (PBA) blueprint by constituting teams and tasks. Agile business teams should explore KPIs from low-risk experiments, which influence each task in the tactical grid of cost, time, risk, and performance. Agile business teams are built around small tests to prove or disprove assumptions, measure results, and improve campaigns over time. Such a linear path of agile business helps teams make analytical decisions on the taxonomy of campaigns to be planned and delivered.

Business agility allows the firm to identify and understand latent needs and motivates managers to adapt a business program at the grassroots in each geodemographic arrangement. The business-sensing elements of agility stimulate firms to identify opportunities and threats in a given business situation and redesign existing business programs to suit business needs by taking into confidence the stakeholders and key partners. Accordingly, business programs can be developed to enhance flexibility and speed of business operations. It is also necessary for the firms to build motivated and responsive corporate teams to engage stakeholders and key business partners in implementing agile business programs. Agile business practices have proved to be successful for many firms in deriving high business performance and growth in a competitive business ecosystem (Khan, 2020). Agile business capability of a firm aligns with turbulent business environments to simultaneously influence performance against competitors. It is a proactive, responsive, and flexible way to manage business programs with agility. In addition, agility involves both proactively creating changes and rapidly sensing and responding to the available and hidden opportunities and threats. Nonetheless, agility is a domain-specific concept and firms may largely rely on customer-based processes to manage products and services in a competitive business ecosystem (Zhou et al., 2020).

SOCIAL LEARNING

Social learning has major implications on behavioral transformation and alignment in view of the social, technological, and business interventions, which reveals that social learning is a conscious effort between society and individuals. The learning portfolios and approaches vary across global and local communities. Crowd-driven diffusion of knowledge based on the experiences (user-generated contents) within the community and corporate efforts delivers collective intelligence as a major source of social learning. The learning platforms have been evolving with the advancement of information technology. Consequently, digital social media channels have become popular since the early twenty-first century with the growing support of video and photo interactive tools. The user participation in the various technology-driven communication tools has caused high advanced network propagation over the conventional communication workstations such as radio, television, and print media channels. The broad effect of social learning reveals that social learning promotes co-creation and coevolution of business and society relationship by generating common value system and social intelligence. In addition, social learning disseminates new trends of ethnicity and helps in developing community brand development.

Social learning is nurtured with individual and group cognition and develops perceptual semantics on thematic learning through various access points to the learning tools. The thematic learning is built on the perceived and shared experiences on innovation and technology, sustainability, circular economy (inducing reusability and latent economic value), utilitarian and hedonic perspectives, and compatibility with social values and lifestyle. The cognition and perceptions contribute significantly to the perceived and acquired emotions like arousal, merriment, and melancholy. Most consumers tend to develop self-image congruence and perceptual semantics to express their emotions and explore solutions for the implicit needs through participating on the social media channels inquisitively. The social institutions manage diffusion of knowledge under various categories including acquired, pooled, and interrelated information.

The exponential growth in the number of social media users has led businesses to explore efficient ways of managing network business and stay omnipresent in the digital business space. Businesses have adapted to this new normal and focused on digital business models that provided competitive opportunities to create customer value through the social

media business channels. Combined with the increasing access to Internet in the emerging business and the popularity of social media business, the relationship business has gained traction rapidly and most customer-centric companies could enhance their business share. The power of the social media ecosystem has been amplified due to the leverage of convenience business against the traditional business practices. This is evident in the case of Facebook (FB), which turned to be a popular platform for business products, promoting brands, managing relationships, sharing experiences, and diffusing corporate communications with the customers. A company can post varied business contents on their FB page to inform customers about upcoming innovations, products, and current promotional offers. Social media serves as a bidirectional communication channel, which enables firms to obtain direct feedback from existing and prospective customers. In a cross-communication drive, FB Fan pages are also used to disseminate special discount coupons, share information about promotions, and organize competitions with prizes for customers, which have been found to be effective and supportive to the growth of business of a company (Chawla & Chodak, 2021).

The increasing usage of digital social networks has encouraged societies to evolve with purpose-led growth in the fields of entrepreneurship, empowerment, socio-economic upliftment, health, housing, and consumption to augment the value and lifestyle. Global interactions have evolved on a commonplace to explore business opportunities through co-creation. Over time, there have been many firms that have benefited from the social intelligence, collaboration, and co-creation of frugal and social innovations to leverage businesses in competitive marketplace. In this process, knowledge sharing among networked individuals has significantly helped in value-based decision-making involving customers and stakeholders. The shared and pooled knowledge is viewed as the open flow of information between individuals or groups, which expands to crowd as the interactions among people of common interests agglomerate beyond the social niche. Knowledge sharing in a crowd environment is considered as collective intelligence. It is a key component in organizational development for most firms following the inclusive business philosophy and engaged in co-creating new knowledge to achieve common goals. Such open, distributed, and largely voluntary knowledge sharing provides benefits to the consumer communities and niche communities in terms of democratized dissemination of knowledge. Social intelligence, thus, addresses co-creating social strategies, maneuvering complicated social

settings, interacting with others, and connecting business practices to various social situations. Social intelligence is a multifaceted construct reflecting the ability to analyze explicit and implicit social cognitions and respond appropriately to social behavior. While these fundamental cognitive and behavioral traits address the core social intelligence perspectives, there exists a paucity of research in wide variety of associated factors that contribute to conventional and digital social intelligence (Nguyen et al., 2019; Rahim, 2018).

Social intelligence analysts in large companies often report exclusively to a single department such as communications, business, or strategy. That can make analysts settle toward the approved pattern of thinking within their function, potentially limiting the span of insight toward making appropriate strategies on the consumers' relationship with the company. Analysts should also evaluate a variety of underlying perspectives from social media to establish internal checks and balances for keeping the integrity with such public involvement. In some cases, leniency in the information checks across social networks and may lead adversely to whistleblowing against the company. General Electric employed a social media approach to gather ideas about what it called a "social" airplane, offering prizes with Virgin Airlines for the best insights. The company enlisted a community with several followers of its eco-imagination Twitter account and organized conversations around key topics using hashtags.¹ This global network had produced thousands of ideas that had not been discussed or published elsewhere. Some focused on green topics, such as the use of solar panels and electric vehicles in engine-manufacturing operations and of LED lighting on aircraft. Participants also suggested giving each flight its own hashtag for conversations or allowing airlines to send messages directly to passengers when their rows were boarding.

In addition to social intelligence and collective intelligence, competitive intelligence also significantly affects the business decisions of firms. Competitive intelligence is a systematic and ethical process of data management, which encompasses collection and polling of information, arraying and analyzing of information, and validating external business information that impacts and affects corporate plans, decision-making, and processes of manufacturing and operations. Though competitive

¹ A word or phrase used in micro-blogging and social-networking services, such as Twitter, that is preceded by a hash mark (#) and identifies a category of interest and facilitates a search for it.

intelligence embeds several phases of information management, it evolves broadly within the four phases comprising planning, collection, analysis, and dissemination of information. In the planning phase, firms tend to establish the collection and analysis of information on a predetermined charter by distributing information categorically. Accordingly, the firms in planning phase define the attributes of information to be acquired, its reference period, and the quality of data. Firms ensure the quality of data through a rigorous formal process, which includes identification of data variables, selection of spatial and temporal indicators, and validation of competitive information, to learn about the competitor strategies and various perspectives of consumer behavior. However, social institutions play significant role in nurturing the cultural heritage, which is reflected in the individual behavior. Such institutions include family, education, and political structures, and the media affects the ways in which people relate to one another, organize their activities to live in harmony with one another, teach acceptable behavior to succeeding generations, and govern themselves.

Most enterprises rely on social intelligence and business analytics for developing appropriate strategies for risk management and toward building a base for decision support. A large numbers of customer-generated product reviews often contain information about competitors and have become a new source of mining competitive intelligence. Firms engaged in developing social and sustainable technologies learn the relative weaknesses and strengths of their own products, and design competitive products and campaigns (Xu et al., 2011). Comparison of stakeholder opinions is a precious information source for the enterprises to identify the relative strengths and weaknesses of their products and services. The risk and threats of competitors to the enterprise need to be analyzed by the small and medium enterprises to develop design-to-business business strategies for their products and services. Mining such comparative opinions needs qualitative analysis due to the large amount of customer reviews and their informal style of opinion documentation. Most firms in the global business place tend to adopt a more focused business strategy and focus on realizing how the effect of interplay between premium and low-cost rivals on achieving business share and profit can be minimized. Companies today must learn how to take on low-cost competitors in the large consumer segments, develop inimitable business tools, develop organizational leadership, and build sustainable stakeholders (Ryans, 2010).

Broadly, the shift from conventional- to new-generation socio-technological structure and development modeling can be delineated as the helix effect in business. The core of the helix lies in disaggregating the traditional management hierarchy into two separate, parallel lines of accountability—equal in power and authority, but philosophically holding a new perspective. Successfully adopting the helix requires a transformational leadership, customer-centric business philosophy, and co-designing business models. Convergence of a talent infrastructure and the shifts in management mind-sets lay the foundation of helix, which emerges out of entrepreneurship education and bottom-up business economy that many businesses do not currently possess. The helix concept has been managed discreetly in some social technology enterprises, which serve as feeder companies to the large industries. It is often challenging for small companies to adapt to a structural business model over the traditional family-based organizational structure. Relatively larger companies also tend to replace complex matrix structures and redesign organizations and their decision-making processes. The helix effect helps the enterprises move ahead quickly to exploit new business opportunities. In the helix process, transformative leadership drives value creation and augments objectives, discusses business priorities, and improves performance against the goals and targets (Smet et al., 2019). The clear distinction of enterprise management and leadership helps in constructing the helix with agile structures. However, organizational and business transformations in small companies are more challenging as compared to the large corporations due to *command and culture* disintegration. Moreover, the complex nature of the transformational necessitates in an organization often increases its overhead costs and administration process.

As the firms become tensile against the business uncertainties and predicable risks, their abilities stem out of collective intelligence (Boder, 2006) and customer engagement in categorical business processes of product development, manufacturing, business, advertising, and customer communication. In the largest companies, customer values are largely determined by shared customer perceptions, experience, and potential business ideas. The analysis of collective intelligence not only opens a new range of business opportunities for companies, but also helps in exploring reverse innovations (evolved in niche or remote destinations) that have the potential for commercialization. Commercializing a reverse innovation is a disruptive leap to hit a commercially established product in the target business. Reverse innovations demand organizational insights

into how a new product could drive an impact in emerging businesses (Rajagopal, 2016b). Customer engagement in the emerging firms today is instrumental to value-based business modeling and exploring customer-centric business opportunities. Consequently, customers, stakeholders, and leaders hold the power to respond to major business shifts and let firms grow with the collective intelligence and necessary social interventions (Christensen & Overdorf, 2000).

CART ATTRIBUTES

A firm has to overcome many challenges, such as conventional social and cultural environment and inculcate institutional consciousness among the employees, stakeholders, and customers, in adapting to the agile business approaches. Generating institutional consciousness must focus on co-creating new *Concepts*, develop customer-centric *Application* (user value) of business strategies, support *Research* at the grassroots of business on existing problems, needs, and possible solutions (PNS factors), and ensure *Transformation* in business practice (CART). Driving agility in business through CART attributes face several challenges in carrying out innovations. These challenges include managing the resources efficiently, handling operations risk, marketability, and cost and time overrun. Entrepreneurs often face market failures and piling-up of sunk cost due to radical and experimental innovation approach. Such endeavors cause risk rollouts throughout the project leading to abort the innovation untimely, which develops serious cognitive dissonances among entrepreneurs (Rajagopal, 2016a, 2016b). The role of CART drivers in inculcating agility in business organizations is illustrated in Fig. 23.1.

The CART attributes and push and pull factors are jointly led by the firm, society, stakeholders, collaborators (firm with strategic partners), and customers (including the crowd canvas) as illustrated in Fig. 23.1. Progressive firms with an agile business philosophy invest time and resources in developing new concepts on business proximity with focus on changing social, cultural, and behavior perspectives of customer, stakeholders, employees, and business partners. The changing concept of corporate social responsibility (CSR) of firms has been adapted to the radically changing matrix of problems, needs, and probable solutions (PNS). Consequently, firms today are engaged with consumers and communities to identify the minimum viable segments (MVS) to nurture their business as hubs in competition. To stay customer centric, most

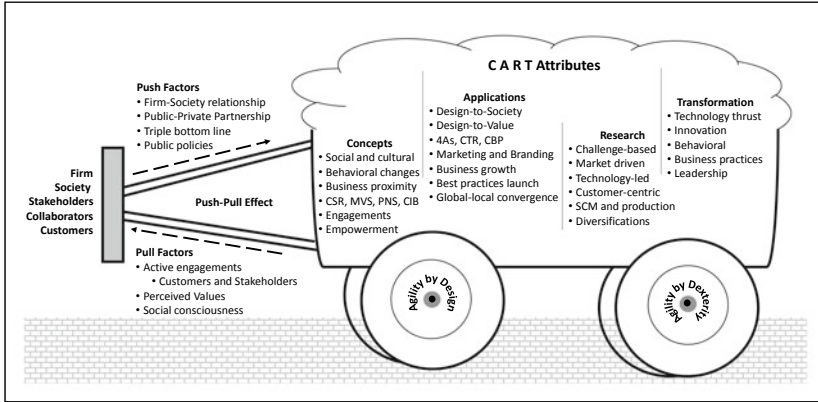


Fig. 23.1 Attributes of CART Factors (Source Author)

successful multinational companies are exploring crowd behavior to gain creative inputs through collective intelligence and develop competitive leap over the rivals in the business environment. Such disposition of business firms tends to integrate crowd, innovation, and benefits (CIB) in the corporate policies. Such strategies of global firms share lessons within the industry and business ecosystem of customer and employee engagement by empowering them in decision-making.

In the CART attributes, discussion on concepts is followed by the implementation of conceptual pioneering strategies (Applications), which are largely experimented at the grassroots level by integrating design-to-society (social proximity of firms) and design-to-value (perceptual values of consumers and stakeholders). Most firms pilot test their strategies that are developed conceptually through the 4As factors comprising awareness, attributes, affordability, and adaptability among consumers. However, firms must analyze meticulously the impact of cost-time-risk and cost-benefit-performance matrices to support profitability in marketing and branding. Success of such experiments with new concepts enhances business growth and develops local–global convergence or vice versa as illustrated in Fig. 23.1. Consequently, emerging firms can derive best practices out of the experiments such as the lean strategy of Toyota, or faster cycle product development of General Electric Company.

To convert concepts into implementable projects (applied concepts), it is necessary for firms to engage in challenge-based research. The

rising challenges can be identified in PNS factors, socialization of brands, frugal or reverse innovation, and co-creation of designs, products, and marketing strategies. Collaborative research with academics, entrepreneurs, and industry would be useful in developing market-oriented, technology-led, and co-created innovative supply-chain management strategies. The challenge-based research significantly supports exploring and experimenting the new diversification strategies for marketing and business. A linear integration of new concepts, applications, and research leads to transform the design thinking, manufacturing, marketing, and consumption trends through shifts in innovation, technology, and behavioral perspectives of consumers over time. Such commitment to change management needs agile leadership and business practices.

The CART attributes broadly support the agility in business practices both by design (convergence of C4 factors including crowd, consumer, community, and company) and by dexterity (employee skills, corporate practices, and engagement in strategic thinking). Besides the factors associated with agility by design and dexterity, the push-pull factors also significantly affect agility in business. Relationship between firm and the society, public private partnership in social and sustainable perspectives, and managing the triple bottom line (people, planet, and profit) are the vital push factors for agility in business. However, public policies on environment, social benefits, and national economic contributions of firms also push the CART attributes to achieve agility in business among firms. The pull factors that affect agility in business are driven by active customer and stakeholders' engagement, perceived values, and social consciousness.

Empowering the stakeholders and employees helps in exploring creativity and attraction toward new technologies, which boosts market competitiveness, business performance, and power economic growth. Successful firms empower these people and entrust them the creative lead, innovation, and business growth. However, accommodating the complex and chaotic nature of the competition with creativity and innovation is a complex phenomenon, while increasing the efficiency, improving quality, and raising productivity largely depend on the organizational work-culture and employee relationship.

Agility and agile transformation are the two facets of business, and both are correlated with business performance. Besides design-driven and technology-oriented business strategies, the business competition of the twenty-first century is largely driven by social stimuli, behavioral shifts

in consumption, and crowd intervention. Therefore, the cutting-edge of business strategies across the geodemographic segments is widely influenced by the individual and group behavior, collective intelligence, and neuro-centric emotions. People (crowd) tend to disseminate persuasive messages, which aim to alter the attitude of consumers and the overall consumption behavior. Besides many operational elements, agility in business is primarily linked to the social and economic postulates of consumer behavior. The change of mind among consumers is induced by self- and social concepts that govern the business strategies, technologies, and end-user values to leverage business competition. In addition to customer satisfaction, the majority of business operating models are mainly driven by corporate values by *putting the people first* and agility to adopt the revised norms quickly.

INNOVATION AND TECHNOLOGY

Innovation and its commercialization are the top priorities for every emerging enterprise, and to achieve success through frugal and radical innovations, firms must put as high energy and investment into business new offerings as they do in generating them. Commercializing innovation and business innovative products and services are central to strategic decisions and sustainable approaches rather than merely tactical functions of acquiring and retaining customers, as many firms tend to practice today. The full, business-growing power of the business strategies for both frugal and radical (disruptive) innovations are penetrated ambidextrously in the upstream and downstream markets through social media and collective intelligence. Nonetheless, the major focus in commercializing innovation is to co-create and coevolve businesses by engaging customers and stakeholders. Such a business strategy would help firms in developing value-based stakeholder-led decisions to gain benefits over the competitors. Understanding the PNS factors and consumption drivers, identifying customers, and working with the go-to-business approach offer several competitive benefits to the firms to business innovative products irrespective of their scale of business. It is also important to explore and analyze the consumption ecosystem congruent to the innovations, especially those that support the breakthroughs. Therefore, firms need to be included in development discussions earlier in the innovation process and must be engaged in implementing the tasks of project charter (Yohn, 2019).

The technology business grid has several factors that pose conflicts and challenges to the innovation and technology development firms during different levels of process. The complexity grid comprises twelve commonly observed points of conflicts, which has independent effects of each point as well as in a matrix form. The conflict points in the grid include ideation, resources management, process management, capabilities and competencies, technology business, growth and next generation innovation and technology issues, involvement, organizational policies, operational efficiency, competitive decision, business environment, and organizational culture, all of which nurture the innovation and technology development projects in the firm. Firms face many conflicts during the innovation process on business of the technology-led products and the existing business environment. Moving innovation and technology to next generation is also not an easy step-up, as firms often get snared in the unwise competitive decisions to push the innovation and technology-led products in business.

The frugal innovation with focus on PNS factors and achieving economies of scale has significantly contributed to the social and economic development within the niche. Consequently, disruptive innovation has increasingly become a core attraction to the large firms to collaborate, converge, and commercialize (3Cs) not only to motivate business alliances, but also to build the business strategy cube. The business strategy cube has triadic business strategies comprising design-to-business, design-to-society, and design-to-value perspectives. Such micro-macro business alliances within various social development sectors including health, housing, energy, transportation, and machinery and robotics across sectors have bridged economics to engineering and technology. This change is occurring as most firms in the world are facing contemporary challenges such as intense global competition, increased business volatility, the constantly changing consumer demand, and shortened product lifecycles. Such socio-economic and business conditions have driven disruptive innovation and disruptive innovation-based entrepreneurship to resolve social challenges, which are increasingly becoming a strategic means for achieving sustainable company growth and competitiveness. The concept of disruptive technology can be either necessarily radical, frugal, or superior to the existing technology. A challenge-based research design is generated through a process of social, economic, and political negotiation and value-based stakeholder focus. Accordingly, low-cost technologies with high perceived use value and ease

of use perception become to serve the social and economic needs, survive, and prosper. However, penetration of social innovation and technology is slow, which causes delay in adoption and jeopardizes their success (Si & Chen, 2020).

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