

## **EXPLORING THE SYNERGISTIC NATURE OF COMBINATIONS OF VARIOUS FUNCTIONAL FLEXIBILITY OF MANUFACTURING ORGANIZATIONS**

**Somen Dey and R.R.K. Sharma**

Department of Industrial and Management Engineering  
Indian Institute of Technology Kanpur  
Kanpur, India  
[somen@iitk.ac.in](mailto:somen@iitk.ac.in) [rrks@iitk.ac.in](mailto:rrks@iitk.ac.in)

### **Abstract**

Manufacturing organization as an entity is a combination of various functions ranging from production or operations, finance, marketing, human resources, R&D or innovation. For the successful running of a manufacturing organization, all these functions needs to be aligned, coordinated and implemented in for the achievement of common goals of the organization. Functional flexibility is one of the essential aspects which equips the organizations to deal with uncertain and dynamic environments. It is also interesting to learn that there exists evidence of synergistic relationships between the various functional flexibilities within an organization. These relations if properly identified and studied can be exploited further for gaining competitive benefits for the organization.

### **Keywords**

Finance, marketing, human resources, R&D, synergistic

#### **1. Introduction**

Manufacturing organizations are continuously dealing with environments characterized by uncertainty and dynamism. Flexibility has to play its role in this changed environmental scenario. All the essential functions within the organization's domain must be flexible enough to deal these situations. These functions include manufacturing/operations, marketing, finance, human resources and R&D or innovation. Various situational evidences also point out that there may exist synergistic relations among various functional flexibilities. The present study attempts to explore the flexibility dimensions of the various functions of a manufacturing organization and tries to establish the synergistic relationships existing between the various functional flexibilities with manufacturing/operations. These relationships could be identified and exploited further in various circumstances for the competitive benefits of the organization.

#### **2. Organizational strategy**

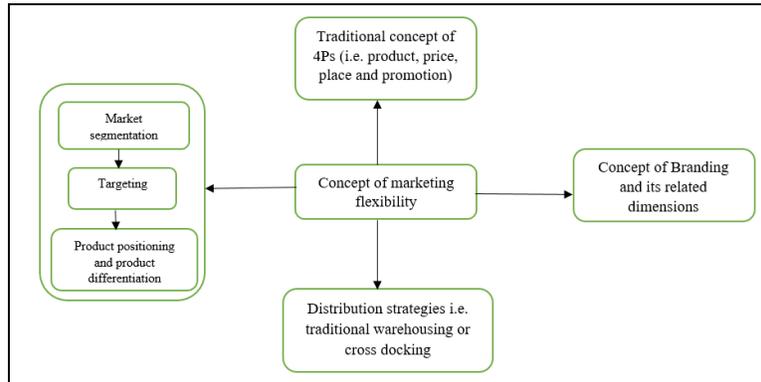
Defender or cost leader (Miles and Snow, 1978; Porter 1980) are stable type of organizations with a limited product range catering to a narrow segment of the market. These organizations compete on price or high quality and are the lowest cost producers in the industry. They make efficient use of production and distribution of goods and services. Technological efficiency is highly emphasized as a result of which production, finance and engineering dominates marketing and R&D functions.

Prospector or differentiator (Miles and Snow, 1978; Porter 1980) are the type of organizations that continuously search for new market opportunities. They focus on products highly valued by consumers. A few elements of differentiation are pricing and product. They use different manufacturing technologies to develop a variety of different product range. Marketing and R&D dominates finance and production.

#### **3. Investigation of the synergistic nature existing between the different functional flexibilities (marketing, financial, human resources, research and development) within a manufacturing organization**

**3.1 Marketing flexibility:** It refers to the ability of an organization to enter and leave the markets, and to position itself within the existing and new markets. A marketing flexible organization gains competitive advantage as a result of its ability to change and reposition itself rapidly within the competitive global markets (Shalender and Singh, 2014). From the exhaustive review of marketing literature, it is evident that

marketing flexibility is a multi-dimensional concept (Figure 1) depending upon a number of factors described subsequently in the following sections.



**Figure 1:** Dimensions of marketing flexibility

Marketing flexibility depends essentially on **4Ps namely product, price, place and promotion** (Adler, 1967). Product or mix flexibility provides the manufacturer with the ability to make multiple variants of products on the same facility and capacity, and the ability to relocate the capacity between different products in response to the realized demand (Goyal and Nestessine, 2011). Product mix flexibility is one of the major weapons to handle environmental turbulence, unpredictable demand and uncertain conditions prevailing in market. Price flexibility or concept of dynamic pricing is a pricing strategy in which businesses set flexible prices of products based on current supply and market demands, competitors pricing policy and several other external factors. Place flexibility or physical distribution flexibility is defined as a firm’s ability to quickly add or subtract the operating places or locations according to the opportunities or threats arising out from changing environmental conditions. Promotion flexibility equips the organization to effectively and efficiently manage the promotion mix tools like advertisements, promotions, direct marketing etc. to communicate and persuade about the value proposition to the customers (Kotler and Armstrong, 2008).

### 3.1.1 Concept of Branding or brand

Brand is an accumulation of emotional and functional associations. It is a promise that the product will perform as per customer’s expectations. It shapes customer’s expectations about the product. It gives particular information about the organization, goods or service, differentiating it from other competitors in marketplace. Brand carries an assurance about the characteristics that make the product or service unique. A strong brand is a means of making people aware of what the organization represents and what its offerings are. Brands are different from products in a way that brands are “what the consumers buy”, while products are “what concern/companies make”. For a consumer, brand can signify a number of attributes which includes source of the product, manufacturer of the product, lower risk, less search cost and quality symbol. To a seller, brand means basis of competitive advantage, way of bestowing products with unique associations, way of legal protection of products unique features, sign of quality to satisfied customer and means of financial returns. The brand function in marketing is composed of several dimensions which makes branding a multi-dimensional construct.

Brand is essentially influenced by its **country of origin (COO)** that headquarters the brand’s manufacturer (Ahmed and D’ Astous, 2008) which can be critical in terms of consumer attitudes and behaviour towards the brand and its performance in various markets (Koschate-Fischer, Diamantopoulos and Oldenkotte, 2012; Pappu, Quester and Cooksey, 2006; Verlegh, Steenkamp and Meulenberg, 2005). Previous research has also established that COO affects brand perceptions (Hsieh, Pan and Setiono, 2004; Lee and Ganesh, 1999) and purchase intentions (Diamantopoulos, Schegelmilch and Palihawadana, 2011). Some authors have also suggested that brand’s COO is affected by economic, sociocultural and political-legal aspects (Leonidou, Palihawadana and Talias 2006; Papadopoulos, Heslop and Bamossy, 1990). The entire idea of COO can be separated into country of brand origin (BO), country of design, country of parts and country of manufacture (COM) (Pharr, 2005). Country of manufacture can change more frequently as companies seek competitive advantages from new production facilities’ locations. Due to the current complexity in globalized business world, COM serves as most relevant attribute contributing to COO dimension (Allman, Fenik, Hewett and Morgan, 2016).

**Brand image** is the current view of the customers about a brand. It can be defined as a unique bundle of associations or a set of beliefs held about a specific brand within the minds of target customers. In short, it is nothing but the consumers' perception about the product. It is the manner in which a specific brand is positioned in the market. It should highlight an organization's mission and vision, personality, promise to the consumers and competitive advantages. On the other hand, **Brand identity** stems from an organization, i.e., an organization is responsible for creating a distinguished product with unique characteristics. It is how an organization seeks to identify itself. It represents how an organization wants to be perceived in the market. An organization communicates its identity to the consumers through its branding and marketing strategies. A brand is unique due to its identity. Brand identity includes following elements i.e. brand vision, brand culture, positioning, personality, relationships, and presentations.

**Brand Positioning** can be defined as an activity of creating a brand offer in such a manner that it occupies a distinctive place and value in the target customer's mind. It involves identifying and determining points of similarity and difference to ascertain the right brand identity and to create a proper brand image. It ensures that all brand activity has a common aim; is guided, directed and delivered by the brand's benefits/reasons to buy; and it focusses at all points of contact with the consumer.

**Perceived Quality** is an essential determinant of brand image or brand equity as proposed by many authors (Granroos, 1982; Parashuraman et al. 1985; Zeithaml et al. 1996; Aaker, 1991, 1993, 1996; Michell et al., 2001). It is highly subjective in nature based on the consumers' judgement about a product, which is mostly influenced by his personal experience, specific needs and consumption situations (Zeithaml, 1988).

**Advertising** is a very strong tool of external brand communication (Mukherjee and Shivani, 2016). It is a very essential element of promotion and has strong influence on brand equity or brand image (Villarejo and Manuel, 2005). The positively perceived advertisement influences consumers' perception towards products and significantly minimizes the negative feelings consumers have towards a brand (O Cass et al., 2004; Kempf and Smith, 1998).

**Word of Mouth** is a very powerful behaviour and greatly influence the consumers (Bansal and Voyer, 2000; File et al., 1994; Murray, 1991; O'Cass and Grace, 2004; Keller, 2007). It is trusted by people over advertising or other sponsored marketing tactics (Buttle, 1998; Bansal and Voyer, 2000).

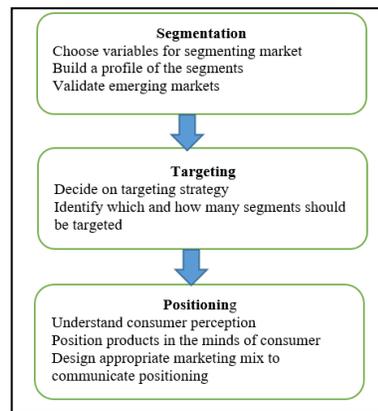
### **3.1.2 Distribution strategies (traditional warehousing and cross docking)**

Effective distribution mechanisms forms an important functional dimension of marketing function. The success of marketing function depends on delivering the right product to the right customer and at the right time when demand arises. Two important distribution strategies i.e. Traditional warehousing (Li et al., 2008; Yan and Tang, 2009) and Cross docking (Gallego et al., 2007; Li et al., 2008) are most prevalent in today's distribution supply chains. The selection is made based on the product characteristics and market demand (Benrqa et al., 2014). Product segmentation aims to segment or differentiate the products based on its features and this is helpful for organizations to determine which distribution strategy is more adapted to their products and markets. Traditional warehousing is a widely used distribution strategy where suppliers and retailers keep stock at their distribution centres (DC). Products are first received and stored at the DC, and shipped to the respective destination or customers as and when request or order comes. The inventory is stored in the DCs of the supplier and retailer and is moved to the stores through the supply chain as per demand arises. In this strategy, the major functions of DC are receiving, storage, order picking and shipping (Van Belle et al., 2012). In cross docking strategy, the DCs operate as transfer points to harmonize the continuous physical flow of products through the supply chain with least storage. In comparison with traditional warehousing strategy, in a cross docking strategy the DCs operate as inventory coordination point (Shakeri et al., 2012; Waller et al., 2006). There is one end to end process to replenish the stores serving the customers. The unconstrained demand of all stores is aggregated at the retailer headquarters and sent to the supplier. The supplier DC sends exact quantities to the retailer DC, which acts as a cross docking platform where information and physical flows are synchronized across the supply chain. Products which are more sensitive in terms of delivery times, have a short life cycle, high value and is characterized by unpredictable demand are more suitable for a traditional warehousing strategy whereas products which are more functional with a stable demand, long life cycle and have a low value are suitable for a cross docking strategy (Lee et al., 2006).

### **3.1.3 Market Segmentation, Targeting, Product Positioning and Product differentiation**

It is obvious that to be successful, a product must occupy an explicit, distinct and proper place, in the minds of potential and existing consumers, relative to other rival products in the market. Product positioning is the tool to achieve the mentioned result (Ostaseviciute and Sliburyte, 2008). Product positioning is about visibility and recognition and what the particular product represents for a buyer. In the current market scenario characterised by the intensiveness of rivalry and competition, buyers have a greater choice, identification and understanding of a

product's intrinsic values becomes crucial. The concept of market positioning seeks to place a product in a certain position in the minds of perspective buyers or target customers (Etzel, Walker and Stanton, (1997); Ries and Trout (1986); Kotler (2006); Armstrong (2006); Fill (2006); Ferrel (1997); Lamb, Hair and Mcdaniel (2004)). Marketers use a position strategy to distinguish their firm's offerings from those of rivals and to create promotions that communicate the desired position (Boone and Kurlz, 2001). Fill (2006) states that positioning therefore is a sequence of activities which forms the core part of marketing strategy. Market segmentation and target marketing are prerequisites to successful positioning. Grancutt, Leadley and Forsyth (2004) presented a STP model (Figure 2) which serves to find and define the desired customer who want a particular product and able to acquire it through segmentation (S) and targeting (T) and positioning (P) serves for placing the product in the desirable position in the minds of target consumers. Selection of product positioning and repositioning strategy is one of the most crucial points and depends on a list of factors i.e. product features, price, quality, product class dissociation, user, competitors, benefit, heritage or cultural symbol, application (Fill (2006); Kotler (2007); Armstrong (2004); Doyle and Stern (2006); Boone and Kurz (2001)). Doyle and Stern (2006) suggests the following repositioning tactics i.e. introduce a new brand, change existing brand, alter beliefs about own brand or competitive brands, introduce new attributes or find a new market segment suitable enough for the brand.



**Figure 2:** The STP Model (Grancutt, Leadley, Forsyth (2004))

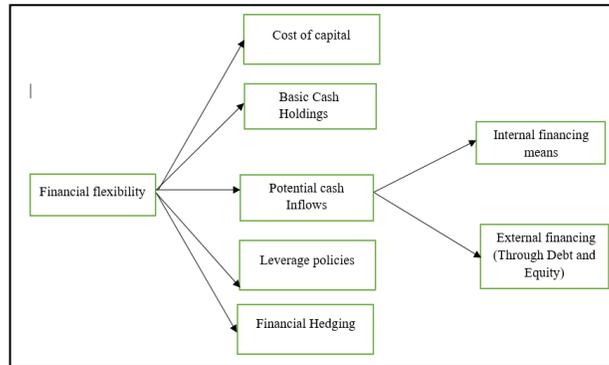
**3.2 Financial flexibility** of organizations or firms has been interpreted by various authors in different ways. A few significant definitions or views about the nature of financial flexibility are listed below (Table 1) which certainly throws light to understand the concepts and several aspects of financial flexibility.

<b>Definitions</b>	<b>Authors</b>
Financial flexibility is considered as one of the most important determinants of <b>capital structure decisions</b> in organizations as interpreted by most of the managers.	Graham and Harvey (2001); Bancel and Mittoo (2004); Brounen et al. (2004)
Financial flexibility are related to the future ability and need of the firms <b>to raise external funds and restructure its financing at lower cost.</b>	DeAngelo and DeAngelo (2007); Gamba and Triantis (2008); Byoun (2008)
Firms with financial flexibility enjoy <b>easier access to external capital markets</b> to meet the funding needs arising from unanticipated earnings shortfalls or new growth opportunities and to avoid situations of suboptimal investment and poor performance.	Myers (1984); Myers and Majluf (1984); Froot et al (1993); Ozkan et al (2013);
<b>Leverage (low) and cash holding (moderate or high)</b> decisions are the indicators of financial flexibility and can better cope with earnings shortfalls, avoid underinvestment.	Billet et al. (2007); Byoun (2008); Lins et al. (2010); Campello et al. (2010); Opler et al. (1999); Billet and Garfinkel (2004); Almeida et al. (2004); Acharya et al. (2007); Faulkender and Wang (2006); Dittmar and Mahrt-Smith (2007); Kalcheva and lins (2007); Harford et al.

	(2008); Riddick and Whited (2008)
Some studies adopted the view that firms can attain financial flexibility through both their <b>debt financing</b> and <b>cash holding policies</b> .	DeAngelo and DeAngelo (2007); Gamba and Triantis (2008); Byoun (2008)
Financial flexibility of firms is directly linked to <b>firm's performance</b> .	Baron and Kenny (1986); Denis and McKeon (2009); Chun-Ai Ma and Yanbo Jin (2016); Marchica and Mura (2010)
Companies use financial flexibility in forms of <b>spare debt capacity</b> to meet large positive shocks to the investment opportunities and to preserve debt capacity for future years.	Denis and McKeon (2009); Jong, Verbeek and Verwijmeren (2011)

**Table 1:** Literature review on financial flexibility

From the exhaustive review of literature, it is evident the financial flexibility of organizations is dependent on some significant financial parameters viz. cost of capital, cash holdings, cash inflows, leveraging policies and financial hedging which is enumerated in Figure 3.



**Figure 3:** Determinants of financial flexibility

### 3.3 Human Resource flexibility (or concept of flexible human resource management)

Human resources forms the working capital or strength of any manufacturing organization. Their skills and effectiveness acts as a prominent driver for sustainability, growth and performance of the organizations. The flexibility issues of human resources links to competitiveness and stability of the organizations under environmental uncertainty and turbulence. From the review of extant literature, various dimensions or aspects of human resources flexibility are identified and described. Spiegelaele et al. (2013) gave three essential dimensions of labour flexibility: functional, contractual and financial or wage flexibility. The authors defined labour flexibility to the ease with which the disposition of labour power can be adjusted to ever changing demands. Functional flexibility refers to the degree in which companies can swiftly redeploy their staff in various functions to meet the changing demands (Atkinson 1984; Atkinson and Gregory 1986; Atkinson and Meager 1986; Atkinson 1994). Benders (1990) suggested that the functional flexibility can be achieved by two ways: first by deploying multi-skilled workers and implementing forms of job rotation within the plant; and second by deskilling the job functions in order to increase the interchangeability of workers. Contractual flexibility addresses the degree of flexibility employers and employees face regarding the employments contracts. Employment contracts covers the aspects of hiring and firing, regulations on using temporary, part time or agency employment contracts. Financial or wage flexibility covers the degree to which the salary of employees changes over time, depending on economic, company and individual performance. Most of the work on flexibility-oriented HR systems is studied under two aspects: Resource-oriented HRM subsystems or resource flexibility and Coordination-oriented HRM subsystems or coordination flexibility (Sanchez, 1995; Stinchcombe, 1990; Volberda, 1998; Wright and Snell, 1998; Collins and Clark, 2003; Huselid, 1995). The resource flexibility-oriented HR subsystems or resource flexibility refers to the range of HRM practices that together enable a firm to acquire and develop human resources for a wide range of alternative uses. The coordination flexibility-oriented HR subsystems refers to the range of HR practices that together enable a firm to redeploy those resources effectively and quickly to multiple activities (Chang et al., 2013). Do, Yeh and Madsen (2016) gave the concept of organizational adaptable culture and related it to human resource flexibility. Adaptability culture encourages innovation within organization motivate employees to learn new skills and take risks (Woodman et al. 1993).

Organizations with adaptable culture reform themselves to meet market demand by using the dynamic capabilities. An adaptability culture focuses on external environment by being responsive and flexible (Daft, 2007). Denison et al. (2014) refers adaptability to employees' abilities to understand the customer requirements and develop or learn new skills in response to the demand change. Adaptability culture is highly related to technological advancement and job adjustment. Martin et al. (2009) gave a framework of labour flexibility based on a resource based view (RBV) approach. According to RBV approach, resource flexibility is a multi-dimensional concept and comprises of intrinsic flexibility i.e. a resource applicability to different situations, modification flexibility or the extent to which a resource can be easily transformed (malleable or amenable) with low cost and in less time to be applied in a new situation and relational flexibility, which facilitates the combining of one or more resources. The authors defined labour flexibility into intrinsic labour flexibility, modification labour flexibility and relational labour flexibility on the lines of RBV. Intrinsic labour flexibility implies that employees are able to work on different tasks and under diverse circumstances and that the cost and time needed to mobilize the employees for new roles are a minimum (Van der berg and Van der velde, 2005). These kind of workforce are usually multi-skilled and possesses a wide range of competencies which includes abilities like leadership skills, problem-solving abilities etc. (Macduffie 1995; Riley and Lockwood 1997). Modification labour flexibility indicates the extent to which the workforce characteristics are easily changeable or malleable. Malleability is analysed in terms of employee skills and behaviour (Boudreau and Ramstad 1997; Wright and Snell 1998; Breu et al. 2001; Bhattacharya et al. 2005). Skill malleability refers to how easily and quickly employees obtain the abilities needed to carry new tasks (Maurer et al 2003). Wright and Snell (1998) sees employee behaviour as scripts which are sequences of routines followed by employees in their jobs. Behavioural malleability as conceived by the authors refers to adjustments in these routines to face new job challenges. Relational labour flexibility indicates the ease with which individuals can be coordinated and grouped to work together towards common goals. It resembles the idea of collectivism or social capital (Weick and Roberts 1993; Youndt and Snell 2004). It leads to employee mobilisation into cooperative tasks (Forsythe 1997; Breu et al. 2001).

### **3.4 Research and development (R&D) or innovation flexibility**

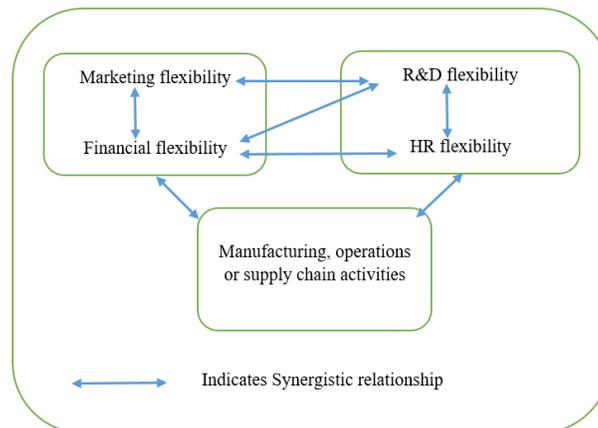
Innovation has been regarded as a crucial factor for an organization's evolution and survival in a dynamic and uncertain environments (Lazonick and Prencipe 2005). Firms with innovative capacity can respond quickly to environmental changes and can perform better than non-innovative organizations in turbulent environments (Miles and Snow, 1984; Brown and Eisenhard, 1995). Innovation can be classified in various ways based on perspective of the study (Damanpour and Gopalkrishnan, 1998). The framework given by Henderson and Clark (1990) categorized innovation into four broad types i.e. **Incremental innovation** having minor improvements in function and form or gradual and lesser degrees of change. This type of innovation is usually market-pull oriented and it adopted by firms that are good at gathering, disseminating and responding to intelligence from the marketplace (Kohli and Jaworska, 1990). **Radical innovation** where both form and function undergo major changes. In other words, radical innovation refers to fundamental changes made to existing practices in the activities of an organization (Knight, 1967; Normann, 1971; Damanpour and Gopalkrishnan, 1998; Hage, 1999; Subramaniam and Youndt, 2005). It is often technology-push oriented (Dosi 1988; Workman 1993; Green et al. 1995) and has the capability to change existing market structures (Veryzer, 1988). **Modular innovation or component innovation** refers to significant improvements/alterations in function due to change in technology, but no change in form. **Architectural innovation** refers to minor changes in technological function but significant alteration of linkages and hence form. Basu (2014) gave a framework linking the various product-market strategies and innovation types. The author used Ansoff's (1957) framework (Table 2) which relates the different characteristics of product-market to the strategies to be adopted.

<b>Product-market strategy</b>	<b>Innovation type</b>	<b>Activities and benefits</b>
Market penetration strategy	Incremental innovation	Adding incremental values to existing set of activities to get expected profits
Product development strategy	Modular innovation	Adding or replacing new activities (components) to get more than expected results
Market development strategies	Architectural innovation	Changing sequence of activities (reconfiguring components) to get more than expected results
Diversification strategies	Radical innovation	Completely redesigning activities-may or may not get expected results

**Table 2:** Product market strategies and innovation type- a fit framework (Basu, 2014)

Another significant classification is based on product versus process innovation. Product innovation is connected to the generation of new ideas which is reflected in the changes of product features (Prajogo and Ahmed 2006). Process innovation refers to innovations in the ways that an organization conducts its business such as techniques for producing or marketing goods or new practises developed internally. Process and product innovation may interplay with each other. Traditionally, manufacturing firms focused on developing new technologies in house and applying them in their own products (Calantone and Stanko, 2007). Over the past few decades, these closed innovation strategies have been substituted because many firms across industries now acquire or share a considerable volume of their technologies from external sources (Cohen and Levinthal, 1990; Tsai and Wang, 2008). In the current era of increasing inter-firm technology transfer, Henry Chesbrough coined the term open innovation to contrast with closed innovation strategies (Chesbrough, 2003). Open innovation is a paradigm that assumes that firms can and should use external ideas as well as internal ideas, and internal and external paths to market, as the firms look to advance their technology. Innovating with partners by has its own risks and reward. The boundaries between a firm and its environment have become more permeable; innovations can easily transfer inward and outward. Inbound open innovation refers to inward technology transfer. It describes the practice of leveraging the discoveries of others because firms need not rely exclusively on their own R&D (Chesbrough and Crowther, 2006). Outbound open innovation refers to outward technology transfer, and it suggests that firms can look for external organizations with business models that are suited to commercialize a technology exclusively or in addition to its internal application (Chesbrough and Crowther, 2006). Thus, outbound open innovation points to actively pursuing external technology exploitation, which refers to the commercialization of technological knowledge exclusively or in addition to its internal application, e.g., out-licensing (Lichtenthaler and Ernst, 2006). Van de Vrande et al (2009) linked the concept of technology exploration and exploitation to inbound and outbound practices.

#### 4. Research Framework and Hypothesis Development



**Figure 4:** Schematic representation of the synergistic relationships existing between functional flexibility

From the exhaustive review of literature and subsequent understanding of the functional flexibility existing within the manufacturing organizations, it is evident that there exists synergistic relationships between the various functional flexibility (Figure 4). Hence we hypothesize:

**H1:** For cost leader or defender type of organizations, financial flexibility and manufacturing flexibility will be binding.

**H2:** For differentiator or prospector type of organizations, marketing flexibility and research and development flexibility will be binding.

The area of flexibility and its measurement even for the domain of manufacturing and for all functional areas of management, has little clarity and in this situation contingency theory may come into the picture where case study based research is most suitable. The prescription depends on case to case basis as a general theory is yet to be established.

## 5. Conclusions

Functional flexibility is an essential aspect of any manufacturing organization. Identification of the synergistic relationships between the various functional flexibilities is essential as these relations could be exploited in the interest of the organizations to meet the environmental uncertainty.

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## **Biographies**

**Somen Dey** is currently pursuing his Ph.D. in the Department of Industrial and Management Engineering, IIT Kanpur, India. He obtained his B.Tech (hons) degree in Production and Industrial Engineering from NIT Jamshedpur and Master of Engineering (M.E.) degree in Production Engineering from Jadavpur University, Kolkata. His primary research interests includes optimization of manufacturing systems, manufacturing strategy and supply chain management. He was the recipient of the 'Best Track Paper Award' in operations management at the IEOM Morocco conference 2016.

**Prof (Dr.) R.R.K. Sharma** is Professor and former Head of Department of Industrial and Management Engineering, Indian Institute of Technology, Kanpur, India. His research interest includes operations management, operations research and manufacturing strategy. He has written 140 research papers in international journals and conferences.