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Diverse Shades of Flexibility and Agility in Business

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Abstract

Flexibility and agility in business relate with the dimensions of choice and speed at various levels in the conduct of the business. These are required in view of changing business situation, customer needs, market dynamics, competition, and so on. On the other hand, it is facilitated by new organizational designs (structure and processes), leadership, new technology, business innovations, and empowered people.

The paper is intended to clarify multiple perspectives associated with flexibility and agility in conduct of business in a global set up. This objective is achieved through review of literature as well as practice. The multiple connotations identified through such a review are clustered into dominant dimensions of flexibility and agility. A total interpretive structural modeling (TISM) of these flexibility/agility dimensions is carried out to identify their relationship for building a conceptual framework. This is then illustrated by a number of case examples around the identified dimensions and relationships.

Keywords: *Agility, Flexibility, Total interpretive structural modeling*

Introduction

Flexibility and agility in business are emerging as key dimensions of business excellence that encompass the requirements of both choice and speed. Both flexibility and agility have been used, in literature as well as practice, in multiple ways and often interchangeability. The growing need of flexibility/agility in business can be seen from reactive as well as proactive perspectives. A business enterprise is supposed to have reactive flexibility/agility (as adaptiveness and responsiveness) to cope with the changing and uncertain business environment. It may also endeavor to intentionally create flexibility/agility as a strategic change by way of leadership change, reengineering, innovation in products and processes, use of information and communication technology, learning orientation, and so on.

The paper explores and intends to clarify diverse shades of flexibility/agility in business. A review of literature indicates multiple perspectives of flexibility/agility such as adaptiveness to changes in the environment; agility in action; balance in competing opposites; customizing solutions; liberalization from controls; localness in functioning; and responsiveness to customer requirements (Sushil, 2012). In order to synthesize the diverse shades in the form of a spectrum, the baseline is discussed in the form of systemic flexibility (Sushil, 1997, 2000) as a mechanism of managing paradoxes.

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Further, interviews were conducted over a period of time with experts, both from industry and academia, to grasp the broad dimensions of flexibility/agility being espoused or practiced in business organizations. These dimensions have been related to each other in a pair wise manner to generate a hierarchical structure using Total Interpretive Structural Modeling (TISM) methodology (Sushil, 2012b). Finally, a discussion of the hierarchical interpretive structure is provided with case examples to pave the directions for further research and practice of this upcoming business excellence dimension.

Connotations of Flexibility and Agility

The need for flexibility in management, both at the theoretical and practical levels, has been emphasized by researchers as well as practitioners. There are multiple connotations attached with the concept. It implies openness in thinking, adaptiveness to environment, responsiveness to change, versatility of action, contingency, non-rigidity, variability of parameters and specifications, multiplicity of process setting, freedom, liberalization, informal attitude, adjustment, compromise, autonomy of function, agility in action, resilience in systems, elasticity, looseness, customized or tailor made solutions, and broadening of mind. This is only a representative list and many more connotations of flexibility can be identified (Sushil, 2008).

Peters and Waterman (1982) have found in their study that excellent organizations have simple fluid structures with flexible and permeable organizational sub-units and discourage rigid job descriptions. A measure of work group flexibility has been presented by Kozan (1982) where he defined morphogenetic flexibility as flexibility based on structural adjustments such as program change in public agencies and introduction of new technological processes, and steady-state flexibility based on adjustments involving temporary changes in group activities such as using discretion for a temporary deviation from rules. In the operational definition of steady-state flexibility he includes work load variances, input properties variances, and thru-put variances.

The flexiform model of professional service organizations consists of concentric power circles of operational units, unit heads, and governing body respectively. In this model there is a decreasing power toward an increasing authority core. The operational units are loosely structured and have client co-operation (Mills et al., 1983).

A flexible managerial approach has been referred by Baker (1985) with long-term financial planning having a full understanding of the dynamic nature of the business environment. A flexible managerial approach has been in vogue in finance function since long. For instance, revenues expected from projects are estimated at more than one level (pessimistic, most-likely, optimistic) and so the costs. Instead of referring to single budgeted profit figure, a range is referred to. Likewise, budgets are planned at several levels of activity. Such budgets, designated as flexible budgets, estimate costs at several levels of activity. The merit of a flexible budget is that it contains several estimates in different assumed circumstances. Since business activities cannot be accurately predicted, it is a useful tool in real business situations reflecting unpredictable environment.

Goold and Campbell (1987) refer to flexible strategies in their presentation on strategies and styles. Hamel and Prahalad (1987) in their study of global organization in America, Europe and Japan found that successful ones had clear strategic intent with flexible means of achieving the outcome.

The concept has been most extensively applied in the context of manufacturing as ‘Flexible Manufacturing Systems’ and ‘Agile Manufacturing Systems’. Adler (1988) reviewed the flexibility in automation and brought out that economic definition is the most generic one. He identified two key dimensions of flexibility, i.e. process and product and observed conceptual difficulty in

linking them. From engineer's point of view the process dimension seems more exciting, whereas from the societal and managerial point of view the product dimension offers bigger challenges and opportunities.

The influence of process and product flexibility on marketing strategy is discussed by Easton and Rothschild (1988) where they have examined the tradeoff between flexibility and financial efficiency. According to them, flexibility is the ability of a system to take on a variety of forms. Carlson (1989) used the concepts of operational, tactical and strategic flexibility in the context of the theory of the firm. While discussing the strategic success hypothesis, Ansoff (1990) refers to flexible capacity responsiveness seeking to create the environment and seeking novel change. According to him, in case of surprise environments creative action and flexible capability are desired.

Bahrami (1992) described some of the features of emerging flexible organization based on field studies of 37 high-technology firms in California Silicon Valley including ABB, Apple, ROLM, etc. He articulated the building blocks of flexible organizational designs as multi-polar organizations, dualistic systems, front-line organizations, multi talent employees, and semi-permeable boundaries. He refers the flexibility to be a polymorphous concept whose meaning varies according to the situational context. According to him:

> *"Flexibility is a multi-dimensional concept-demanding agility and versatility: associated with change, innovation, and novelty: coupled with robustness and resilience, implying stability, sustainable advantage, and capabilities that may evolve over time."*

The concept of 'Flexibility Management' has been outlined by Armstrong (1993) as a flexible approach to organization management to ensure that the organization will be able to adapt to change, respond quickly to new threats and opportunities, and manage diverse and decentralized operations. He overviews techniques of achieving flexibility as contract based flexibility, time-based flexibility, job-based (functional) flexibility, skill-based flexibility (multiskilling), and organization-based flexibility. He further emphasizes the flexibility as a human resources management activity as developing and implementing flexibility strategies to make the best use of human resources and enable people to learn and apply a wider range of skills.

Storey and Sisson (1993) refer to the 'flexible firm' model developed by Atkinson (1985). This model deals with two groups of employees in the firm, viz., core group and peripheral group. The core group has the functional flexibility and the peripheral group has the numerical flexibility. The numerical flexibility is the ability to adjust the number of workers, or the hours worked, in line with changes in the level of demand, wherein, functional flexibility is the ability to deploy workers over a broader range of tasks in line with changes in the nature of demand (Atkinson and Meager, 1986).

Stacey (1993) refers to installation of flexibility in a real integrative sense. In the flexible organization concept the managers make a choice between short term control and flexibility through self managing teams. According to him:

> *"The flexible organization seeks to resolve the paradox of flexibility and control by choosing a balance that favours flexibility, but flexibility by design so as to reduce the tension. It is this very tension, however, that provides the creative drive of the informal organization".*

Upton (1994) has outlined multiple types of flexibility as product flexibility, process flexibility, operation flexibility, volume flexibility, machine flexibility, routing flexibility, action flexibility, state flexibility, expansion flexibility, design-change flexibility, labor flexibility, and so on. Product flexibility is considered as the ability to change the product being made, while the volume

flexibility is the ability to alter production volumes. He discusses the multidimensional nature of flexibility and draws a useful parallel between the management of flexibility and management of quality. He has defined flexibility as:

> *"Flexibility is the ability to change or react with little penalty in time, effort, cost or performance"*

He has also dealt with the concept of internal and external flexibility, and potential or demonstrated flexibility and has proposed a framework for analysis of manufacturing flexibility in terms of dimensions, time horizon, and elements.

Flexibility became a critical issue as markets became congested and unpredictable. Production had to incorporate product differentiation without sacrificing the economies of scale. The productive flexibility depended on an intrinsic ability to adapt to change. Morales (1994) discussed the notion of 'flexible specialization' that was introduced by Piore and Sable in 1980s as a strategy of permanent innovation: accommodation to ceaseless change, rather than an effort to control it.

Pasmore (1994) while dealing with the issue of strategic change has treated flexibility as the ability to change everything, all at the same time. According to him:

> *"Improving organizational flexibility starts with the recognition that organizational change and human change are one and the same".*

He deals with flexibility at various levels such as flexible people, flexible technology, flexible work, flexible thinking, flexible managers, and flexible organization. While discussing the benefits of flexibility he expressed:

> *"Flexibility becomes the source of competitive advantage, as the company's products, services, and ways of doing business evolve more quickly than the competitions. The organization becomes an industry leader and remains in a leadership position by virtue of its ability to adapt. Examples? Merck, 3M, Procter and Gamble".*

Champy (1994) takes this further in his work on reengineering management, that ". .. is not only to hold two good, contradictory ideas, but to act on them". He reports the contradiction between constancy, and `discontent' by quoting Roberts C. Goizueta, Chairman, and CEO of Coca Cola Company. "At the end of every day of year, two things remain unshakable- Our constancy of purpose and our continuous discontent with the immediate present". Mintzberg (1994) has suggested that managers need not always programme their strategies formally; sometime the strategies must be left flexible, as broad visions, to adapt to a changing environment.

While discussing the emergence of a molecular and flexible organization Ross and Key (1995) expressed:

> *"Just as Henry Ford transferred the logic of mass production to standardized management, we are finding a transfer of logic from mass customization to flexible management today".*

A new era of strategic management of business enterprises is being ushered in. The shift required in strategic management in this era of 'real time fast response' (Miles, 1996) and how the degree of environmental turbulence affects strategy and responsiveness attract many management researchers' attention. Innovation is linked to flexible categorization and resource allocation driven by a market sensitive, adaptive culture (Bruce and Langdon, 1997).

Pascale et al. (1997) emphasized that not top down change prescription but only by combining it with values and belief transformation can change be sustained. Great success strategies fail

when times change because companies fail to put strategy on change list (Christensen, 1997).

Volberda (1998) gave a taxonomy of flexibility considering both variety and speed and classified organizations according to flexibility and controllability. A flexible organization is one that has high degree of flexibility as well as controllability. Sharma *et al.* (2010) revisited the flexibility literature and linked it with organizational purpose.

There has been a growing attention on organizational dynamic capabilities and agility. This is supported by developments in information technology (IT). A study by Lee (2012) has taken a mix of IT exploitation and IT exploration for organizational transformation. Huang et al. (2012) have reported a case study of Haier, a Chinese home appliances major, bringing out the role of IT leveraging competence in enhancing organizational agility. The enhancement in the ability to process information, Haier gained capability to sense and respond to market changes more readily. The principles of flexibility and agility in the context of policy implementation have been deliberated by Gong and Janssen (2012). An empirical investigation of US manufacturing firms depicting impact of strategic sourcing on supply chain agility is dealt by Chiang et al. (2012). Oliveira et al. (2012) have analyzed the influence of leadership style and factors associated to organization agility on project performance.

A brief review reported in this section indicates that a growing concern is voiced on many fronts towards flexibility and agility in business. Since the connotations of flexibility in literature are so varied, it projects a multidimensional view of the nature of flexibility at a generic level.

Systemic Concept of Flexibility and Agility

The systemic concept of flexibility and agility is evolved based on the concept of continuum. The concept of continuum itself in builds two ends or extremes, which usually form a pair of opposites. The concept of pair of opposites is dealt with at considerable length in ancient philosophy. These are considered to be the creation of intellect because of its discrimination, which can exist only in relation to one another. Thinking of one creates the other, which shows their relativity. There are enormous examples of pairs of opposites in life, e.g. good and bad, pleasure and pain, life and death, firm and yielding, above and below, etc. that are both sides of the same reality; extreme parts of a single whole.

In Chinese philosophy these are named as *Yang* and *Yin,* which connote male or bright and female or dark respectively. There is a cyclic interplay of the two; as one of the two reaches its extreme, it contains in itself already the seed of the opposite. There is a dynamic unity of the polar opposites. In a single dimension there is a continuum of *Yin* to *Yang* on which oscillation takes place which in two dimensions is united into a circular motion (Capra, 1976).

In Indian philosophy the enlightenment means transcending the realm of these pairs of opposites and looking beyond. The essence of Indian philosophy looks for the ‘unity in diversity’, which is also the spirit of flexibility.

In modern management, the synthesis or dynamic interplay of the thesis and antithesis is being strongly advocated and is considered to be the viable trend emerging out of the creation of antithesis in management. Ackoff (1981) has expressed:

> *“The Systems Age, as I see it, is a synthesis of the Machine Age and its antithesis, which is still being formulated”.*

Toffler (1986) has also discussed such opposing concepts, e.g. small-within-big is beautiful, and a concept of ‘prosumer’. Moreover, if we decide to attach the modern management with the antithesis we are again becoming rigid leaving the whole range of options available from the

thesis to the antithesis. A similar concern regarding synthesis on decision-making at strategic level is expressed by Jauch and Glueck (1988).

"The human being is a mix of the rational and the emotional. We also know that the environment is a mixture of the analyzable and of chaotic change and pressures. Strategic management decisions therefore are made in a typically human way: using the rational conscious anlaysis and intuitive, unconscious "get", in light of political realities".

It has been clearly shown by the study of Pascale (1990) that successful organizations are characterized by paradox showing integration or fit on one hand and differentiation or split on the other. In the context of field studies of high-technology firms of Silicon Valley Bahrami (1992) refers the emergence of a Bi-modal organization that could accommodate opposing tendencies and yet function as a coherent and cohesive concern. He has observed three types of tensions, viz. centralization versus decentralization, stability versus dynamism, and uniformity versus diversity.

Handy (1994) has given an elaborate treatment of paradox in the world of organizations and calls for finding a balance between many alternatives. According to him "Paradox does not have to be resolved, only managed". The paradoxes to be managed in evolving a flexible organization design have also been discussed by Pasmore (1994), such as ownership and partnership, control and delegation, short-and long-term goals, intrinsic and extrinsic values, commonality and diversity, efficiency and effectiveness, focused and opportunistic, and flexible and inflexible.

More and more researchers are now pointing out the inherent duality in the strategy concept and neither the dooms day nor the panacea views are correct. Possibly this characteristic was always there but in the era of continuous turbulence it is easier to visualize the need for duality of succeeding in today's core business to survive while fiercely innovating for tomorrow. The 'either/or' concepts need to be replaced by 'both/and' conjoint (Koshnik, 1996) 'Sterile dichotomies' and 'old frames' of apparent conflicts need to be synthesized and expanded into new paradigms that explore white space opportunities.

Mckenzie (1996) developed fifteen dialectical frames. According to Flectcher and Olwyler (1997) contrary thoughts need to be encouraged for exploratory learning and strategic opportunism. In diagnosing the paradoxes in organizational strategies, Volberda (1997) considered flexibility as the most valuable strategic option in turbulent environment and proposed a construct of internal and external flexibilities at the operational, structural and strategic levels.

The flexibility in the systemic sense cannot be generated by attaching ourselves to a point on the continuum. The flexibility is generated in the system by virtue of the existence of the continuum. The success lies in making a dynamic balance between the polar extremes.

Thus, the systemic flexibility can be defined as (Sushil, 1997):

> "*Flexibility is the exercise of free will or freedom of choice on the continuum to synthesize the dynamic interplay of thesis and antithesis in an interactive and innovative manner, capturing the ambiguity in systems and expanding the continuum with minimum time and efforts".*

The concept of choice has been used by Merkhofer (1997) to define decision flexibility. According to him, "larger the choice set, that is, the more alternatives available for a decision the greater the decision flexibility".

Maira and Seoth-Mogan (1997) inspired by the approach derived from new insights into the

complexity theory presented the concept of growth flexibility and change flexibility. The view on flexibility in this research is that of versatility to handle conventional opposites like between differentiation and integration.

The proposed concept of flexibility dwells on three central issues of 'continuum', or 'options', 'dynamic interplay' or 'change' and 'freedom-of-choice', which are highly interrelated. The attributes of flexibility are closely linked to these issues creating cohesiveness and harmony in the domain of flexibility. In order to create flexibility first of all we must have a range of 'options'; secondly, we should be prepared to 'change' across these options; and thirdly, the change should not be random but governed by the 'freedom-of-choice' (Sushil, 2000).

Dimensions of Flexibility and Agility

A review of literature and interviews with experts generated various ideas about what flexibility and agility in business might mean to researchers and practitioners. The views expressed by experts have been qualitatively clustered into dimensions by way of content analysis. The dimensions of flexibility/agility that emerged through this process are:

1. Managing paradoxes
2. Ambidexterity
3. Information technology (IT) and business agility
4. Confluence of continuity and change
5. Flexibility in operations
6. Flexibility in business excellence
7. Flexibility maturity

Managing Paradoxes

This is the fundamental understanding that has been reflected in the works of Volberda (1998), Sushil (1997, 2000), and others. Flexibility/agility can be visualized as dynamic interplay and change across paradoxical options in any system such as: centralization – decentralization; globalization – localization; continuity – change, and so on. Rather than the traditional 'either-or' approach, the paradox is to be managed upfront as 'both-and' synthesis of the opposing forces.

Ambidexterity

A similar development has taken place in literature regarding ambidexterity that defines a characteristic of an organization capturing opposite things at the same time. Birkinshaw and Gibson (2004) have linked ambidexterity to high performance of organizations via an empirical study. They have successfully demonstrated it in companies like Nokia, Ericsson, Oracle and Renault. According to them, an organization dealing with only one extreme, i.e. exploitation or exploration may not be as successful as the ones dealing with a confluence of the two.

IT and Business Agility

Off-late, another dimension that is gaining momentum is business agility supported by developments in information and communication technologies. These developments have provided IT agility that ultimately contributes to business agility. Cloud computing, social networking, knowledge based systems, search technologies, mobile transactions and many other developments have facilitated to carry out business in an agile manner to fulfill the requirements of dynamically evolving and turbulent business environment.

Confluence of Continuity and Change

Several researches have pointed to the simultaneous presence of both change and continuity in organizations (Nasim and Sushil, 2011). The notion of continuity and change was popularized in the business press after the work of Collins and Porras (1994), which highlighted that the "ability to manage continuity and change is the secret to an enduring great company". Mintzberg et al. (1998), in their expositions on change, highlighted the need for balancing change with continuity, i.e. the need to achieve change when and where necessary while maintaining order. Pettigrew (2000) reiterated the view that any adequate theory of change is expected to also explain continuity. Bianco and Schermerhorn (2006) also emphasized about co-existent states of both continuity and change that should be allowed by organizational leadership. Many practitioners have also testified and extended support to this idea. A framework for managing confluence of continuity and change is provided by Sushil (2012, 2012a) as flowing stream strategy.

Flexibility in Operations

Flexible manufacturing systems (FMS), agile manufacturing systems (AMS), and flexible supply chains have been a subject matter of interest for quite some time. Flexible work practices at operational level such as flexi-time and flexi-place are *in vogue* in global corporations. Flexibility/ agility in other business operations such as financial flexibility, marketing flexibility, and services flexibility are gaining considerable interest in modern day organizations.

Flexibility in Business Excellence

Business excellence models have traditionally been focused around the issue of quality in business processes. Well established business excellence models such as Malcolm Baldrige and European Quality awards still lack in integrating flexibility constructs in their design and implementation. A review of business excellence models by Gupta and Nagpal, (2011) has indicated a growing concern for including flexibility constructs in business excellence models. How can this be addressed, both at the levels of enablers and outcomes of business excellence, is a moot question to be answered.

Flexibility Maturity

Keeping both flexibility and agility together under the larger framework of flexibility, any business enterprise is supposed to evolve through various maturity levels. There is a need to define new maturity models for business organizations for assessing their flexibility and risk taking capabilities. An organization may climb the maturity of flexibility from operational to strategic on one hand, and organization centric to value network orientation on the other.

Hierarchical Structure of Flexibility and Agility Dimensions

Total Interpretive Structural Modeling (Sushil, 2012b) is used to develop a hierarchical structure of flexibility/agility dimensions, which interprets both nodes and links in the structure. This has been applied by Nasim (2011) in the context of e-government, and by Prasad and Suri (2011) in higher education context. The following steps have been followed for developing TISM:

- Define contextual relation and interpretation of flexibility/agility elements.
- Carry out pair wise comparison of these elements by a group of relevant experts to obtain interpretive logic knowledge base of each paired relation.
- Convert the pair wise comparison data into a reachability matrix and test its transitivity.
- Carry out level partition of reachability matrix to know the hierarchical levels of various elements.

- Graphically represent the interpretive relationships in the form of a Total Interpretive Structural Model (TISM) and interpret the relationships.

The hierarchical interpretive structure of flexibility/agility dimensions is depicted in Figure 1; the reachability matrix and its partitioning are provided in Appendix I.

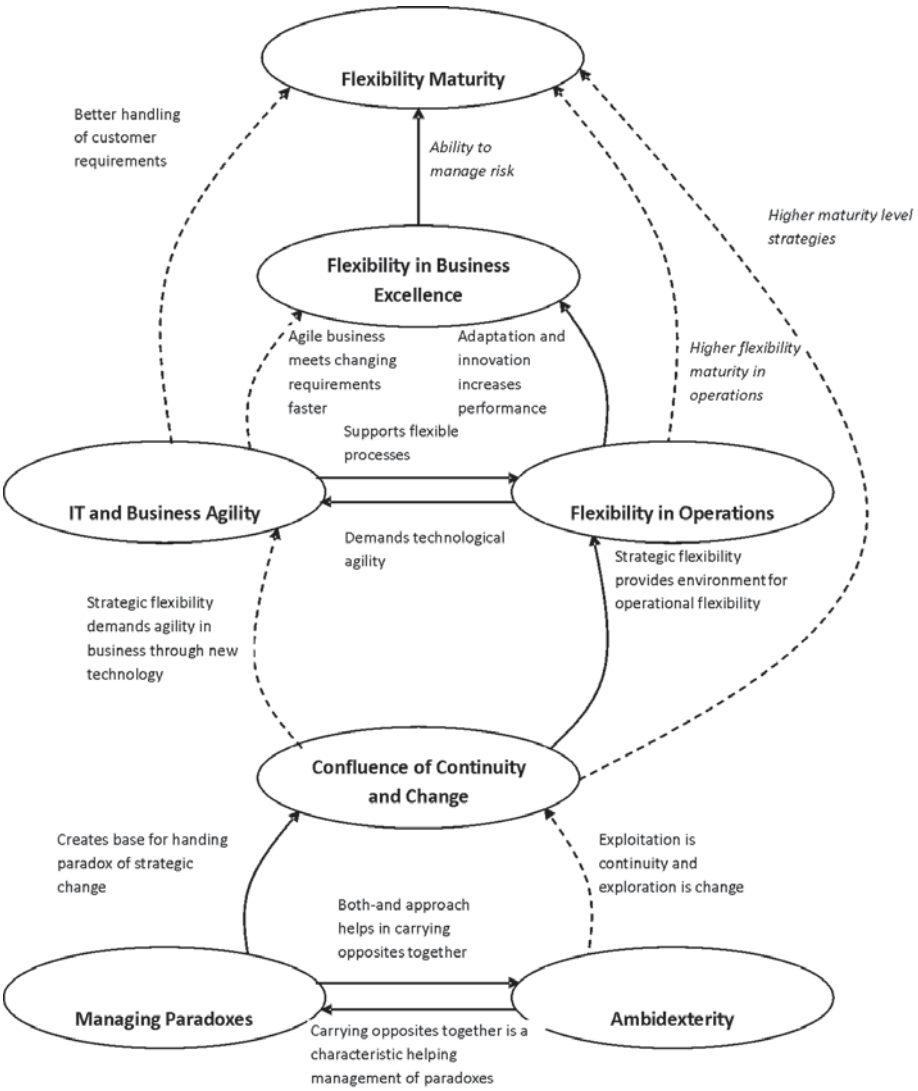

Figure 1: TISM of Flexibility and Agility in Business

Discussion

The interpretation of relationships of diverse shades of flexibility/agility in business (as shown in Figure 1) provides clues for many action points and research directions. First, we would like to illustrate these diverse shades and relationships by way of case examples in practical enterprises.

The management of paradox is effectively carried out by Gillette as a cosmopolitan corporation balancing the paradox of globalization and localization. Gillette managers acknowledge country

differences but still preferred to treat the world as one. In internal functions, of personnel and finance Gillette's systems have followed a consistent framework across the world. Human resource policies were standardized globally to facilitate personnel transfers, with local adaptation.

The case of Apple is a representative example of ambidexterity. Apple has used a combination of exploitation and exploration strategies successfully. It has exploited its Mac platform and explored a mix of products and services via i-Phone and i-Pad. This led to an integration of continuity and change.

Management of continuity and change can be seen in various ways as depicted by Sushil (2012a). Some of the golden strategies followed by leading corporations are: cannibalization (Microsoft from DoS to Windows); extending core competence (Honda in engines and power trains); extending/repositioning the brand (FMCG giant Nestle's brand portfolio); outsourcing (Airtel outsourcing management of network); developing wider technological competencies (ICT companies); creating innovation culture (3M's 15% rule); institutionalizing organizational learning (GE); and offering solutions (IBM from a computer company to computing solutions provider), among others.

Information and communication technologies have created business agility. A typical example is of creation of ecosystems of products, services and applications by technology based organizations like Apple, Google, and Nokia. This is based on 'integrate' strategy of continuity and change. Even the auto companies like Ford are working to evolve ecosystems for business agility with new possible applications. A closely related development is in the area of operations flexibility in manufacturing, supply chains, marketing, and finance, which is dependent on the use of technology in these processes.

Integration of flexibility constructs in business excellence models is of recent interest. In the latest version of European Quality Award, provision of flexibility is explicitly stated in the leadership module. It is stated that leadership should encourage creation of flexibility in organization. However, constructs of flexibility are not well defined and included in the assessment. The next stage would be assessing the flexibility maturity of organizations. It may be noted that most of the past work relates with flexibility at the base level; i.e. flexibility in individual operational processes. Some concerns are visible in flexible supply chains, and strategic flexibility that represent higher maturity levels. Definition of flexibility constructs in business excellence models will help in assessing maturity levels as well.

Conclusion

An evolving framework of flexibility and agility in business has been presented here, which revolves around the concepts of 'continuum', 'dynamic interplay', and 'freedom of choice'. It contemplates the dynamic interplay on the continuum by exercising the freedom of choice rather than attaching ourselves to the ends. The ends of the continuum always act as strong 'attractors' and force the system to stretch in one direction leading to failure. It considers the reality to be dynamic, ambiguous and all embracing. This in a way provides recipe for managing dilemmas, paradoxes, and conflicts.

Such a systemic concept of flexibility is pragmatic as well as ideal, and overcomes the negative connotations attached with the traditional concept of flexibility, i.e. lack of commitment, soft work culture ("*chalta hai")*, and lack of conviction. Instead, it is more challenging and spiritually oriented, and its practice demands higher individual and organizational development.

It requires initiating flexibility and agility in business on the whole spectrum to generate higher business excellence. The process of flexibility and agility assessment on multiple fronts will facilitate climbing up the ladder of organizational maturity.

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Appendix I

Exhibit 1: Reachability Matrix for Dimensions of Flexibility/Agility

	1	2	3	4	5	6	7
1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1
3	0	0	1	0	1	1	1
4	0	0	1	1	1	1	1
5	0	0	1	0	1	1	1
6	0	0	0	0	0	1	1
7	0	0	0	0	0	0	1

Dimensions of Flexibility/Agility:

1. Managing Paradox
2. Ambidexterity
3. IT and Business Agility
4. Confluence of Continuity and Change
5. Flexibility in Operations
6. Flexibility in Business Excellence
7. Flexibility Maturity

Exhibit 2: Level Partitioning

(a) Iteration 1

Dimension	Reachability Set	Antecedent Set	Intersection Set	Level
1	1, 2, 3, 4, 5, 6, 7	1, 2	1, 2	
2	1, 2, 3, 4, 5, 6, 7	1, 2	1, 2	
3	3, 5, 6, 7	1, 2, 3, 4, 5	3, 5	
4	3, 4, 5, 6, 7	1, 2, 4	4	
5	3, 5, 6, 7	1, 2, 3, 4, 5	3, 5	
6	6, 7	1, 2, 3, 4, 5, 6	6	
7	7	1, 2, 3, 4, 5, 6, 7	7	I

(a) Iteration 2

Dimension	Reachability Set	Antecedent Set	Intersection Set	Level
1	1, 2, 3, 4, 5, 6	1, 2	1, 2	
2	1, 2, 3, 4, 5, 6	1, 2	1, 2	
3	3, 5, 6	1, 2, 3, 4, 5	3, 5	
4	3, 4, 5, 6	1, 2, 4	4	
5	3, 5, 6	1, 2, 3, 4, 5	3, 5	
6	6	1, 2, 3, 4, 5, 6	6	II

(a) Iteration 3

Dimension	Reachability Set	Antecedent Set	Intersection Set	Level
1	1, 2, 3, 4, 5	1, 2	1, 2	
2	1, 2, 3, 4, 5	1, 2	1, 2	
3	3, 5	1, 2, 3, 4, 5	3, 5	III
4	3, 4, 5	1, 2, 4	4	
5	3, 5	1, 2, 3, 4, 5	3, 5	III

(a) Iteration 4

Dimension	Reachability Set	Antecedent Set	Intersection Set	Level
1	1, 2, 4	1, 2	1, 2	
2	1, 2, 4	1, 2	1, 2	
4	4	1, 2, 4	4	IV

(a) Iteration 5

Dimension	Reachability Set	Antecedent Set	Intersection Set	Level
1	1, 2	1, 2	1, 2	V
2	1, 2	1, 2	1, 2	V

Exhibit 3: Summary of Level Partitioning

Dimension	Reachability Set	Antecedent Set	Intersection Set	Level
7	7	1, 2, 3, 4, 5, 6, 7	7	I
6	6	1, 2, 3, 4, 5, 6	6	II
3	3, 5	1, 2, 3, 4, 5	3, 5	III
5	3, 5	1, 2, 3, 4, 5	3, 5	III
4	4	1, 2, 4	4	IV
1	1, 2	1, 2	1, 2	V
2	1, 2	1, 2	1, 2	V

Exhibit 4: Diagraph of Hierarchical Relationships