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Developing Hierarchy of Strategic Crystal Elements in Telecom Service Provision Business

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Abstract

After deregulation and consequential opening up of telecommunication service sector, this business does not enjoy anymore the comfort of a captive monopoly business, cost plus regime, assured profits and a captive consumer base. Today the sector is known for intense competition, rapidly changing technologies, consumer needs/expectations and shifting loyalties. The strategic planning methods which worked for a relatively stable business environment of past are no longer suitable and the sector requires a flexible approach to strategy making. Strategy formulation, by analyzing the Flowing Stream Strategy Crystal elements, provides a flexible framework. This paper attempts to first understand the elements of the strategic crystal which are in play in telecommunication service provision business and then develop hierarchies among these elements using Total Interpretive Structural Modeling (TISM). The hierarchies so developed help in understanding the relative importance as well as the inter-relationships of various factors and forces which help in strategy development in this fast changing industry.

Keywords: Continuity forces; Change forces; Customer factors; Enterprise factors; Flowing stream strategy crystal; Total interpretive structural modeling

Introduction

Many strategy researchers have advocated managing continuity along with change for better outcome. Based on this belief, many strategy theorists also state that strategy is better managed when change is effected in the organization taking into account the continuity elements. Development of hierarchical relationships among strategic crystal elements is one of the steps in implementing the strategic framework based on this belief. Telecom service sector has continuity and change forces associated with it (which are the independent macro variables of this framework). These independent macro variables affect the strategic outcome variables which relate to what customer's and the management expectations are from the telecom service provider company. These are the dependent macro-variables which define outcomes for the customers and the management of service provider company. Thus, there are four sets of variables, namely, independent macro variables related to continuity and change forces of the enterprise, and the dependent macro variables related to strategic factors of the customers and the enterprise. These four macro variables constitute the strategic crystal elements of flowing stream strategy framework [1,2].

In the beginning of the paper, the theoretical background has been dwelt upon. The micro variables of these macro variables of strategic crystal of telecom service provision business have been described. Thereafter, modelling of individual strategic crystal elements has been done using a technique called TISM [3].

Theoretical Background

Strategy should be the means by which an organization is able to achieve and sustain success. In the past, the business environment used to be relatively stable and not so turbulent due to fast changing technologies/customer needs, regulatory shifts, and competition. During stable times, strategies could be framed using a planned approach around *continuity*. However, the effect of uncertainty or rapid changes in the environment has been that it is no longer possible to pre-plan prior to execution. Depending on the uncertainty in the situation, the organization will need flexible strategies, that is, be prepared for the change in the business environment on account of strategic surprise [4].

Organizations cannot abruptly change from the current state to a desired future state. Growth strategies should take into account continuity aspect of the organization such as organizational processes, structures and employees existing skill set [5]. The concept of managing continuity along with change for better organizational performance has been around for a while for strategy making and deployment. The celebrated authors Collins and Porras [6] in their widely acclaimed book, *Built to Last,* have stated that a great company's secret of continued success is its ability to manage continuity and change. Taking this line of thinking forward Sushil [1] has propositioned that strategic management of change can be better leveraged by consciously managing the vital and desirable areas of continuity along with change. In recent years, the flowing stream strategy framework which is based on the concept of managing continuity and change concurrently has been well researched and applied across various domains [7-9].

Implementation of flowing stream strategy framework in telecom service sector domain also requires managing continuity and change simultaneously. Application of the framework will therefore require identification of continuity and change forces pertinent to telecom sector on one hand and the identification of desirable strategic outcomes on the other. Strategic recommendations will be possible only when firstly these variables are known for the telecom service sector and then the intra and inter-relationships among them. The relationship aspect is brought out (in the concept of flowing stream strategy crystal) in the next section and this paper is about determining the intra-relationship aspect (Figure 1).

Flowing Stream Strategy Crystal

The continuity and change forces represent the current reality of the organization, whereas the strategic factors consisting of customer and enterprise factors depict the composition of the strategy. These four components and their relationships lead to crystallization of the flowing stream of the enterprise and are portrayed as flowing stream strategy crystal (Figure 1).

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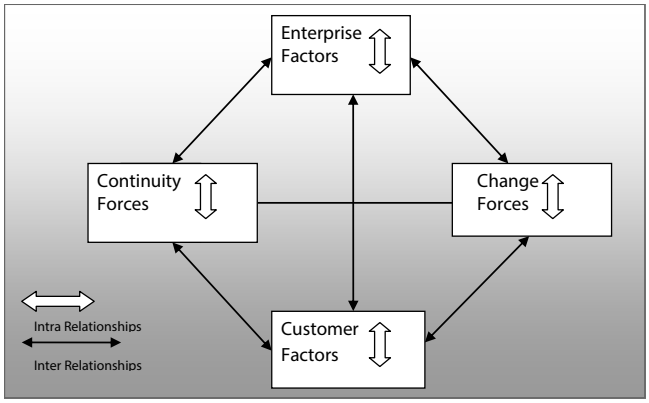

Figure 1: Flowing stream strategy crystal.

The 'flowing stream strategy' deals with strategic flexibility to synthesize the paradoxically opposite forces of continuity and change. Analysing this relationship crystal reveals not only the strategic change actions of 'reduce/raise' some factors, but also specifies which factors need to be 'maintained/nurtured' to take advantage of continuity.

For a understanding strategy development using flowing stream strategy crystal, the strategy practitioner needs to know first the micro variables relating to *change* and *continuity* forces as well as strategic factors (*customer* factors and *enterprise* factors). These strategic crystal elements of telecom service business are described in the next section.

Strategic Crystal Elements in Telecom Service Sector

Following strategic crystal elements namely continuity and change forces as well as strategic enterprise and customer factors relevant to the telecom service sector have been identified and validated [10].

Continuity forces

The ongoing and current business operations of a company are pushed by certain forces resulting into a momentum of its own for the organization. These forces which provide continuity to an organization differ from sector to sector. Following continuity forces of telecom service provision business have been identified and validated.

Existing infrastructure: The telecom companies have asset base consisting of cable ducts, buried copper cable, telephone exchanges, underground optical fiber transmission cables and equipments, microwave towers, satellite ground stations, submarine cables and cable landing stations and so on. All these constitute a heavy continuity flywheel.

Current customer base: Telecom operators have varying customer base depending on their market share. Having a large customer base is a desirable continuity force. The company can utilize their customer base in selling them additional value added services, think of innovative ways in which to make attractive offerings to them.

Core competencies: Core competencies are key continuity force in making strategic decisions regarding future line of business. A company needs to develop core competencies relevant for the business. It also needs to keep in mind that it does not hive off a part of business, the core competency of which is crucial for remaining business.

Organization's structure, system, processes and people: Many a times organizational transformation requires changes into their existing structure, system, processes and people. Successful organizations are careful while committing to such changes. Existing practices and their simplicity plays an important role in devising developmental and growth strategies.

Expertise in existing technology: Organizations generally acquire expertise on the existing domain technology in the present. The organizations, therefore, would want to exploit fully the existing technology before moving on to a new technology.

Organization culture: Organization culture not only exists in organizations but also plays a crucial role in shaping behavior in it. Organization culture is what integrates an organization and acts as a glue by means of customs, rituals and practices. Culture change needs to be managed in a gradual manner by a continuous process of learning and developing.

Company's ownership aspect: There are varied ways in which companies are owned. It also depends on the country's rules and regulations. Consequently some are privately owned, some are owned by governments and some are widely held by global corporations and so on.

Change forces

Every organization, by and large, is subjected to forces of change due to social, political and technological reasons. Telecom service provision business is known to be subjected to many such change forces specially due to rapidly changing technology, globalization and convergence of voice, data and video. Following change forces of telecom service provision business have been identified and validated.

Competition: Competitors are instrumental in forcing companies to change their marketing strategies, come up with innovative plans and offerings, lower their price and improve their brand image.

Emerging new technologies: Telecom sector is known for its fast changing technologies and it has impacted telecom service business greatly. Convergence of computers and communication technologies has unleashed great change forces in the way telecom business is done.

Governmental and regulatory telecom policies: Deregulation and subsequent policy changes by governments in their telecom markets have affected the telecom businesses in most of countries.

Globalization: Opening up of telecom sector in the developed countries acted as a catalyst in deregulating the telecom services in the developing countries. The telecom companies of the developed world have participated in big way in growth of telecom business in developing countries.

Changing customer needs: The customer, because of availability of alternate service, has become very demanding. His needs are changing continuously because of changing technologies and inherent possibilities therein.

Mergers and acquisitions: Intense competition in the sector has created a natural requirement of consolidation among the companies. The resulting merger and acquisition activities bring in forces of change on the individual entities getting merged or acquired.

E-Business processes: All companies need to automate their processes to gain competitive advantage in the market place. An effective online e-business capability across the company business operations (billing, provisioning, sales and service, planning, procurement etc.) helps in reducing costs and revenue growth. At the same time, implementation of new e-business processes involves change management efforts of serious magnitude. The companies undertake business process engineering (BPE) exercise to plan and implement e-business processes.

Customer factors

It is now well accepted proposition that customer is the king in the marketplace. The companies which can conquer the heart and mind of its customers will end up as winners. It is very important for any company to really know what its customers want. In this paper such customer centric factors have been considered strategic in nature. Following customer factors of telecom service provision business have been identified and validated.

Product price: Intense competition has made it possible for the customer to be choosy about his service provider. Price is one important factor on which customer relies while choosing a service provider. One of the basic strategies a new entrant employs while entering the market is to offer competitive price to lure customers of the competitor. Plenty of evidence is available in the literature which shows that price is an important customer factor.

Quality of telecom service: The customer gets highly annoyed if the service quality of the provider is not good. There are many quality dimensions of telecom service such as speech quality, extent of network coverage, promptness in fault repair service, billing credibility, and speed of product provisioning. The customers think about changing their service provider and often do, if the companies do not pay attention to their quality parameters

Product/rate plan innovation: It is important for the service provider to bring out new rate plans and innovative products on a regular basis. This way the provider positions itself as being different from others. The company is often required to meet conflicting objectives of offering a simple, sensible and useful product at low price. This often proves to be big differentiator in the choice of a service provider by the customer.

Brand image of the operator: Consumer has become very much brand conscious. The brand image of an operator communicates to the customer as to what value he can expect from the brand. The customer attaches a level of expectation from the product or services of the company depending on the brand image he has come to associate with the company. Most often (and especially in Indian context), the consumer makes the switching decision on his operator based on its brand image. The telecom services companies, therefore, are required to strengthen their brand image and preserve it.

Identification of enterprise factors

The management of a company is responsible to its shareholders. There are certain parameters which any management monitors to check the health of the company. These enterprise factors (strategic in nature) are important to the management as they determine shareholder's value. Following enterprise factors of telecom service provision business have been identified and validated.

Market share: Market share is an important parameter, which tells as to what is the relative position of a telecom operator in the market place. This parameter, consequently, also reveals the company's relative strength in the market relative to the competitors.

Customer satisfaction: Customer satisfaction is associated with the response of the customer as a result of his experience with the product or service in relation to his experience with the same over a period of time. The customer, generally, has certain standards/expectation of service quality associated with the service which he compares with actual service delivered.

Average revenue per unit (ARPU): ARPU, in simple terms, means the earning of the operator per subscriber per month. It also signifies as to what category of the subscribers (high end or low end) is associated with it. Whether the company products are rated highly by the customers is revealed by this parameter when it is compared with the ARPU value of its competitors.

Earnings before interest, tax, depreciation and amortization (EBITDA): EBITDA is a measurement of a company's operating profitability. As it excludes depreciation and amortization, EBITDA margin provides an investor with a cleaner view of a company's profitability. Higher EBITDA indicates that the company is running more profitable operation compared to its competitors.

Compounded annual growth rate (CAGR): CAGR is a compounded rate of growth of a number (say investment) over several years. This term is useful in comparing growth rates (in terms of say revenue, number of subscribers added etc.) in the same industry or across industries. CAGR (in the context of telecom service industry) is used as an index to indicate as to how a particular service provider is performing vis-à-vis industry or its competitors.

Network rollout and product/services innovation speed: Speed of network rollout determines as to how fast the operator can tap its potential customers. The first mover advantage accrues to an operator which launches its service first. Thus, this parameter is a critical company performance parameter.

Productivity per employee: Employees of a company constitute a major input cost of a telecom operator. At the same time these very employees generate the revenues. Their talent, motivation level, and commitment to the company are very important for its profitability and survival in the market.

Interpretive Modelling of Strategic Crystal Elements

After determination of the micro-variables related to strategic crystal elements, namely, continuity forces, change forces, strategic enterprise factors; and strategic customer factors, relevant to Indian telecom service sector, the next logical step is to study as to how various forces and factors interact or affect each other. This is required to bring greater clarity on interplay of various micro variables of strategic crystal elements.

Interpretive structural modelling (ISM) is a process that transforms unclear and poorly articulated mental models of systems into visible, well-defined models useful for many purposes. Identification of structure within a system is of great value in dealing effectively with the system and better decision making [11,12]. These, however, lack an interpretation of the embedded object or representation system. An interpretive structural model known as TISM, however, gives the interpretation as well for the contextual relationships amongst the elements of structural model. TISM, therefore, is an innovated form of ISM; it has been used in this paper for determining the hierarchical relationships among the crystal element variables.

Total Interpretive Structural Modelling

Determining the micro variables and its verification (described in the previous sections) firms up as to what these forces and factors are for the domain of study. Now the next important issue is to ascertain 'how' these micro variables are interrelated and 'why' they interact in a particular manner. This exercise of examining interrelationship of continuity forces has been conducted using TISM, proposed by Sushil [3]. In the basic process of TISM, the micro variables of a strategic crystal element are determined first. Thereafter, the contextual

relationship namely, how the micro variable 'A' will influence/enhance micro-variable 'B' is determined. Then the interpretation of the contextual relationship stating how or in what way micro variable 'A' will influence/enhance micro variable 'B' is developed. This way, by interpreting both the nodes and links in the structural model, an interpretive structural model is upgraded as a TISM.

Methodology adopted for TISM

The steps of the basic process of TISM are briefly outlined as follows.

• Define contextual relation and interpretation of micro variable of a particular strategic crystal element.

• Carry out pair-wise comparison of these micro variables by a group of relevant executives 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 micro variables of that particular strategic crystal element.

• Graphically represent the interpretive relationships in the form of a TISM and interpret the relationships.

These steps have been followed in the subsequent sections to construct TISM for all the elements of strategic crystal, namely, the continuity forces, the change forces; the strategic enterprise factor; and the customer factor.

TISM for Identified Strategic Crystal Elements

In this section, firstly a survey questionnaire has been developed using theoretical backdrop of TISM. This draft questionnaire was thereafter tested with a few experts having knowledge of deploying TISM template in the field as well as academicians. Thereafter, the template was finalised and distributed among more than 75 senior telecom executives of various telecom operating companies. 31 responses were received from those who were served the templates through email and personal visits. It was a big challenge to obtain responses to these templates as TISM template for these four sets of variables, namely, continuity forces, change forces, enterprise factors, and customer factors is not a simple yes or no type questionnaire, but where one had to give interpretations for Yes type of relationships. This, therefore, took lot of time and persuasion. Thereafter, all the Yes responses were collected and significant relationships only placed in the interaction matrix. Thus, in total, there are four sets of TISM questionnaire, one each for continuity forces, change forces, enterprise factors, and customer factors. These are placed in Appendices I to IV. Based on significant responses, the interaction matrix giving significant relationship interpretations as well are given in Appendices V to VIII. Only those relationships have been counted significant where more than 75% of the respondents have given similar strong interpretations. TISM has been thereafter developed, the details of which, along with interpretation models and synthesis, is provided in the following sections for all the four set of variables.

TISM for continuity forces present in Indian telecom service sector

The reachability matrix for the continuity forces based on the final interaction matrix (Appendix-I) has been worked out in Table 1.

The summary of iteration steps in partitioning the reachability matrix into various levels for continuity forces is contained in Table 2.

Based on the level partitions and interpretive relationships (as observed in the final interaction matrix), a final TISM for the continuity forces has been prepared and presented in Figure 2.

	CN1	CN2	CN3	CN4	CN5	CN6	CN7
CN1	1	1	0	0	1	0	0
CN2	0	1	0	0	0	0	0
CN3	1	1	1	0	1	0	0
CN4	1	1	1	1	1	0	0
CN5	1	1	0	0	1	0	0
CN6	1	1	1	1	1	1	0
CN7	1	1	1	1	1	1	1

Table 1: Reachability Matrix for Continuity Forces.

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

Table 2: Summary of Iteration Steps.

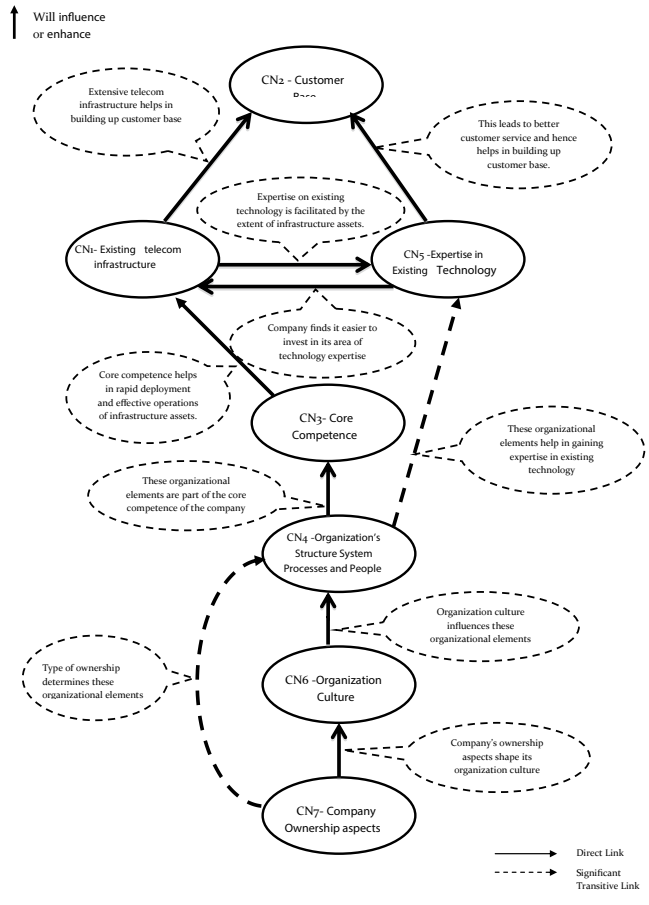

Figure 2: Total Interpretive Structural Modeling (TISM) for *Continuity Forces* of Telecom Service Sector.

Interpreting TISM for continuity forces

The conceptual relationships among the micro variables related to continuity forces have been captured in the TISM (based on the responses received from the telecom experts of various telecom operating companies in India). The seven continuity forces can be distinctly arranged into six levels. It has been observed that the company's 'ownership aspect 'is the most crucial continuity force driving directly the 'organization culture' and transitively the 'organization's Structure System Processes and People'. The other important driving continuity forces emerging from this TISM diagram are 'organization culture',' organization structure system and processes' and 'core competence'. The continuity force of 'customer base' has been noted to be dependent directly or indirectly on all other continuity variables. Further, notable observations are that the 'existing telecom infrastructure' and 'expertise in existing technology' are inter dependent which make sense and are in the middle of independent and dependent variables divide. The analysis also indicates that softer aspects of a company's continuity forces drive the harder aspect of the company continuity forces.

TISM for change forces present in Indian Telecom Service Sector

The reachability matrix for the change forces based on the final interaction matrix has been worked out in Table 3.

The summary of iteration steps in partitioning the reachability matrix into various levels for change forces is contained in Table 4.

Based on the level partitions and interpretive relationships (as observed in the final interaction matrix), a final TISM for the change forces has been prepared and presented in Figure 3.

Interpreting TISM for change forces

The change force related TISM diagram partitions the seven change forces into six distinct levels. The TISM diagram identifies 'emerging new technologies' and 'changing customer needs' as the most important change forces in telecom service provision sector. These two change forces are also inter-dependent. Emerging new technologies make it feasible to cater to changing customer need. Likewise, embrace of emerging new technologies by operators help them in coming out with innovative new products which act as catalyst to forming of new user habits or defining new needs of the customers. These two change forces followed by 'open competition' and 'governmental and regulatory telecom policies' are the important change forces which are driving other change forces. 'Governmental and regulatory policies' are influenced by 'emerging new telecom technologies' and 'changing customer needs' facilitating open competition in the marketplace. Open competition pushes operators to seek strategic global alliances to infuse investment and skills to gain competitive advantage. Globalization leads operators to expand on international scale through mergers and acquisition; e-business process is the most dependent change force which is being driven practically by all other change forces. 'Globalization' is other highly dependent change force and the TISM picture reveals that 'globalization' is dependent on 'emerging new technologies' as it compels operators to seek global partners; governmental rules and regulatory policies facilitate globalization as foreign investments are dependent on the liberal policy/regulatory climate of a country and also changing customer needs force companies to seek global partners who can satisfy their changing customer needs.

	CC1	CC2	CC3	CC4	CC5	CC6	CC7
CC1	1	0	0	1	0	1	1
CC2	1	1	1	1	1	1	1
CC3	1	0	1	1	0	1	1
CC4	0	0	0	1	0	1	1
CC5	0	1	1	1	1	1	1
CC6	0	0	0	0	0	1	1
CC7	0	0	0	0	0	0	1

Table 3: Initial Reachability Matrix for Change Forces.

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

Table 4: Summary of Iteration Steps.

TISM for enterprise factors present in Indian telecom service sector

The reachability matrix for the enterprise factors based on the final interaction matrix has been worked out in Table 5.

The summary of iteration steps in partitioning the reachability matrix into various levels for the enterprise factors is contained in Table 6.

Based on the level partitions and interpretive relationships (as observed in the final interaction matrix), a final TISM for the change forces has been prepared and presented in Figure 4.

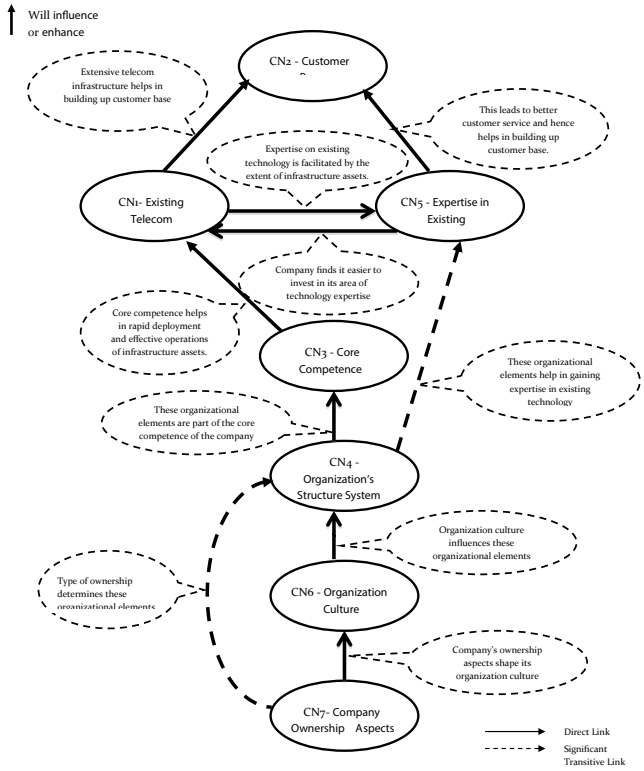

Figure 3: Total Interpretive Structural Modeling (TISM) for *Continuity Forces* of Telecom Service Sector.

	EF1	EF2	EF3	EF4	EF5	EF6	EF7
EF1	1	0	0	1	1	0	0
EF2	1	1	1	1	1	0	0
EF3	0	0	1	1	1	0	0
EF4	0	0	0	1	1	0	0
EF5	0	0	0	0	1	0	0
EF6	1	1	1	1	1	1	0
EF7	1	1	1	1	1	1	1

Table 5: Reachability Matrix for Enterprise Factors.

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

Table 6: Summary of Iteration Steps.

Figure 4: Total Interpretive Structural Modeling (TISM) for Strategic *Enterprise Factors* of Telecom Service Sector

Interpreting TISM enterprise factors

TISM picture related to the enterprise factors reveals that the 'productively per employee' is the most important enterprise factor, driving almost all other enterprise factors. The finding appears to be pragmatic as employee productivity directly aids in speedy network rollout, increased customer satisfaction leading to higher market share. Higher employee productivity gets reflected in increased ARPU leading to higher EBIDTA/revenue. The other two enterprise factors having the relatively high driving power are 'network rollout speed' and 'customer satisfaction'. 'Compounded annual growth rate (CAGR)' and 'earnings before interest tax depreciation and amortization' are the most driven dependent variables. Hard working employees are key to the achievement of financials like EBITDA and CAGR which follow once the human resources of the company ensure customer satisfaction.

TISM for customer factors present in Indian telecom service sector

The reachability matrix for the enterprise factors based on the final interaction matrix has been worked out in Table 7.

The summary of iteration steps in partitioning the reachability matrix into various levels for the customer factors is presented in Table 8.

Based on the level partitions and interpretive relationships (as

	CF1	CF2	CF3	CF4
CF1	1	0	0	1
CF2	1	1	0	1
CF3	1	1	1	1
CF4	1	0	0	1

Table 7: Reachability Matrix for Customer Factors.

Iteration	Reachability Set	Antecedent Set	Intersection	Level
1	1,4	1,2,3,4	1,4	I
2	1,2,4	2,3	2	II
3	1,2,3,4	3	3	III
4	1,4	1,2,3,4	1,4	I

Table 8: Summary of Iteration Steps.

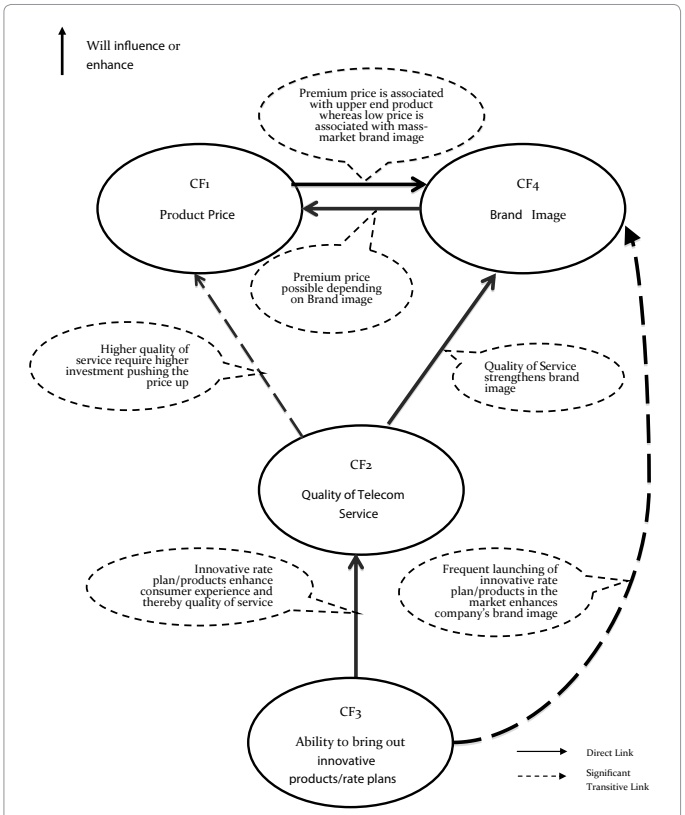

Figure 5: Total Interpretive Structural Modeling (TISM) for Strategic *Customer Factors* of Telecom Service Sector.

noted in the final interaction matrix), a final TISM for the customer factors has been prepared and presented in Figure 5.

Interpreting TISM for customer factors

The TISM diagram for customer factors presents a very interesting picture. It identifies 'innovative product/rate plan' as the most basic of all the customer factors. A company's ability to frequently bring out innovative product/rate plan translates into company's enhanced brand image, apart from giving much better user experience resulting into enhanced quality of service. Higher quality of service not only enables the operator to charge premium price, but also strengthens company's brand image. The product price and company brand image are at the same level at the top of TISM. They influence each other as the company can charge premium price possible depending on brand image. On the other hand, product price influences the brand image as premium price is associated with upper-end product whereas low price is associated with mass-market brand image.

Two customer factors, namely, 'Capability to bring out innovative products/rate plans' and the 'quality of service', out of the four customer factors, appear to be independent micro variable which drive both product price and company brand image.

Conclusion and Future Directions

Total Interpretive Structural Modelling is an improvement over Interpretive Structural Modelling as it incorporates interpretation of each relation of the model. Since the combined knowledge of large number of experts is used to arrive at the interpretive logic of the directional relations, it provides a much deeper insight into cause and effect relationships of directional graphs. The purpose of this paper is to arrive at TISMs in telecom service sector business in the Indian context. This has been arrived at to understand the relative importance of various continuity and change forces as well as enterprise and customer factors. The TISM diagrams not only indicate the level of various forces and strategic factors, but also provide deeper insight in the form of the interpretive logic of the relationship among crucial elements of the interpretive model.

It is observed from the TISM of continuity forces in the Indian context, that the ownership aspect is the most powerful driving force in the telecom service sector, determining the organization structure, system, process and people and core competence meaning thereby that fully Government owned company will evolve into having a different organizational elements and core competencies leading to expertise in existing technology and setting up of telecom infrastructure of the company. The customer base is in turn, the most dependent variable of all the continuity forces present in the organization. If the crucial continuing force such as 'ownership aspect' and 'core competence' 'organizational structure' are burdensome in the company, then it has to ensure that these are done away with or changed in case it wants to build desirable or vital continuity force of 'customer base'. 'Emerging new telecom technologies' and the 'changing customer needs' are the most basic change forces identified by the change force TISM. These, in turn, shape up 'governmental and regulatory telecom policies' leading to 'open competition' in the market place. It is commended that the companies should reckon the impact of these change forces while drawing up their strategies. If there is high impact change forces present, then the company will need to brace up for driven change such as 'E-Business Process', 'Merger and Acquisition' and 'globalization'.

'Productivity per employee' has emerged as the most basic enterprise factor in the TISM of strategic enterprise factor. Increase in productivity per employee results in improvement of all other enterprise factors. 'Network roll out speed' and 'customer satisfaction' are the other important enterprise factors. TISM of enterprise factor spells out that if employee works hard and the company is able to roll out its network fast, customer satisfaction will follow resulting in improved financial parameters such as ARPU, market share, EBITDA and CAGR.

TISM of strategic customer factors reveals that 'product and service innovation' is, rated most highly by the customers, and followed by 'quality of service'. If a company takes care of these two customer factors, then the higher level customer factors of 'product price' and 'brand image' will follow as the interpretive logic/reasoning shows.

The TISM developed in this paper goes on to help the telecom service sector manager to know the interpretive model along with interpretive logic. The level determination of the strategic crystal variables also identify which variable relating to continuity and change forces are important and their relative hierarchical importance. Relationships among various continuity forces along with the explanation of relationship through interpretive logic have been the outcome of TISM's which have come out as a result of this paper. The strategic factors which appear at the lower end of the TISM diagram, namely, productivity per employee, network roll out speed and customer satisfaction need to be paid more attention by the company management to gain high achievement. By being aware of the importance of these factors and the manner in which one is affecting the other, the senior management of the company can formulate their company strategy accordingly decide as to where the company resources and efforts need to be focused.

In the next phase, the strategy researcher can determine the nature and intensity of inter-relationships among various elements of strategy crystal to see first the sector specific effect of these relationships and thereafter come with case specific advice depending on further empirical evidence.

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