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A Review on Value Chain Analysis as a Strategic Cost Management Tool

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Abstract: Strategic Cost Management is a stratum of cost accounting that has been a decisive area of decision making in the corporate houses now-a-days. Cost controlling and reduction are the vital areas of discussions in any corporate organizations. The key idea of this literature is to intensify the understanding of value concept and to elucidate the position of value to generate a chain that endow with a fundamental structure for the development of goods or services in an industry. The thought of value under value chain analysis is versatile and intricate. The study has been divided into different parts including a brief on Value Chain Analysis followed by the Primary and Secondary activities involved in the chain. The Technology involved in primary activities has been elucidated. Further, the activities of Competitive Advantage including the Cost advantage and Differentiation have been explained followed by the Linkages, and Interrelationships, existing system's Accounting challenges to Value Chain Analyses and Outsourcing and the Value Chain System as a whole. The study concludes with select Value Chain cases snippets.

Key Words: Cost Management, Competitive Advantage, Strategic Cost Management, Technology, Value, Value Chain Analysis

JEL Classification: E23, L11, L15, L21, M11, M30, M40,

1.1 Introduction

The concept of the Value Chain has been introduced by Michaele Porter in 1985 in his book titled Competitive Advantage. "Value chain analysis is a method for decomposing the firm into strategically important activities and understanding their impact on cost behaviour and differentiation." (Hergert & Morris, 1989)

According to the Value Chain Analysis methodology, Competitive Advantage is analysed by dividing the value creation process of the firm into separate activities which contribute to the firm's relative cost position and encourage differentiation.

Porter's guidelines for dividing the value creation activities:

- Have different economics
- Have a high potential impact on differentiation (value)
- Represent a significant or growing proportion of cost

1.1.1 Characteristics of Value Chain Analysis

The characteristics of Value chain analysis, a strategic planning tool, include:

- Emphasis on identifying the source of sustainable competitive advantage
- Insistence on the importance of complex linkages and interrelationships
- Identification of generic strategies which must be pursued consciously and coherently in the different value creating activities.

1.1.2 Value Chain Analysis - Mechanism

The value chain mechanism is divided into two-levels, these levels being Primary activities and Support activities. It is generalistic in nature.

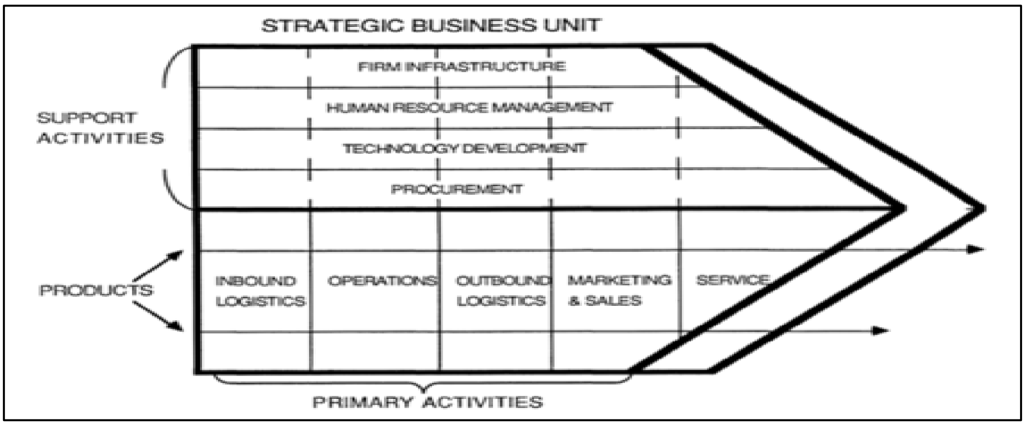


Figure 1: The Value Chain diagram

Primary activities

Those activities which directly facilitate value creation and bring value to the customers. These activities deal with physical products. The five generic primary activity categories of the value chain are (Porter, 1985: 39-40):

- Inbound logistics: Activities related to receiving, storing, and disseminating inputs to the product.
- Operations: Activities related to converting the inputs into the finished product.
- Outbound logistics: Activities related to collecting, storing, and physically distributing the product to the buyers.
- Marketing and sale:. Activities related to providing a means by which buyers can purchase the product and inducing them to do so.
- Service: Activities related to providing service to enhance or maintain the value of the product.

Support activities

Those activities which enable and improve the performance of the primary activities. These activities only affect the value delivered to the customer up to the extent they affect the performance of primary activities. The generic support activity categories of the value chain are:

- Procurement: Activities performed in the purchasing of inputs used in the value chain.
- Technology development: Activities that can broadly be grouped into efforts to improve product and process.
- Human resource management: Activities including recruiting, hiring, training, developing, and compensating personnel.
- Firm infrastructure: Activities including general management, planning, finance, accounting, legal, government affairs, and quality management. (Stabell & FJeldstad, 1998)

2. Review of Literature

A company, to gain competitive advantage, must differentiate itself. Value chain is a method in which a firm's strategically important activities are broken down to review their impact on cost and differentiation (Hertati & Sumantri, 2016). The firm decides whether to adopt a cost or differentiation strategy on the basis of its resources, capabilities and its distinctive competencies (Hutaibat, 2011). Once identified, the value chain activities operate in a cohesive manner and are interdependent of each other. These activities form linkages amongst each other (Sultan & Dr. Saurabh, 2013). Value from the chain is achieved from the tangible as well as intangible aspects of the entire chain. The tangible aspects include the financial flows and informational flows among many others and intangible aspects include managerial and entrepreneurial abilities (Barber, How to measure the "value" in value chains, 2008). With constant changes in the competitive environment, there is a need to find different ways of using value chain costing and find various perspectives on value chain accounting to optimize internal and external resources (KIRLI & GÜMÜŞ, 2011).

3.1 Technology and the Value Chain

Technology is an integral part in any value creating activity today. Technological variations impact competitive advantage either to completely enhanced levels or by adding configurations to the existing Value chain to the extent that the technology affects cost driver or differentiation.

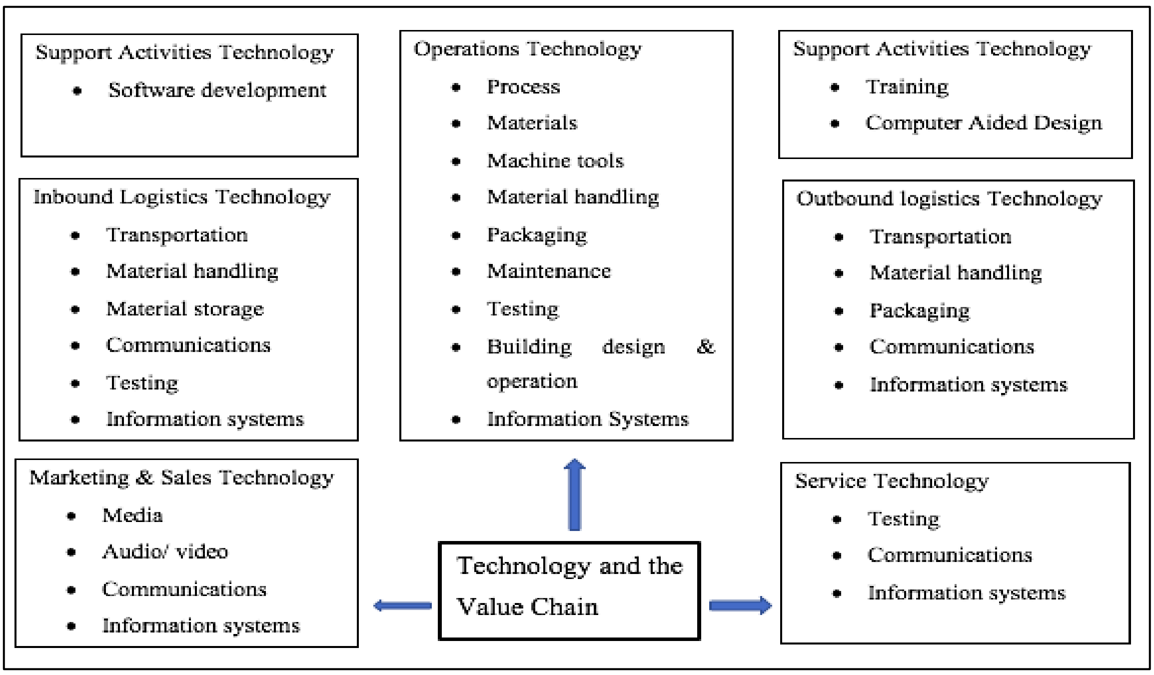


Figure 2: Technology used inPrimary & Support Value Chain Activities

3.2 Cost Advantage and Differentiation

There is always a trade-off between Cost Advantage and Differentiation.

The objective of Cost Advantage is to analyse the occurrence of costs and then reducing them as much as possible. This reduction could be done at individual levels or by making modifications like enhanced production process, distribution channels, sales approach, etc. in the value chain. The stronger the cost control compared to the competitors the better it is.

The objective of Differentiation is to focus on those activities which are associated with core competencies and capabilities so as to perform better when compared to their competitors. Differentiation is the uniqueness of the company which helps in reaping benefits by modifying individual value chain or by changing the entire value chain by the use of one of the following ways: forward integration to perform new functions once performed by customers, backward integration for greater input control. The main key to product differentiation is Creativity.

There are a few drivers which are common to both, Cost Drivers and Differentiation Drivers.

Table 1: Cost drivers related to value chain activities

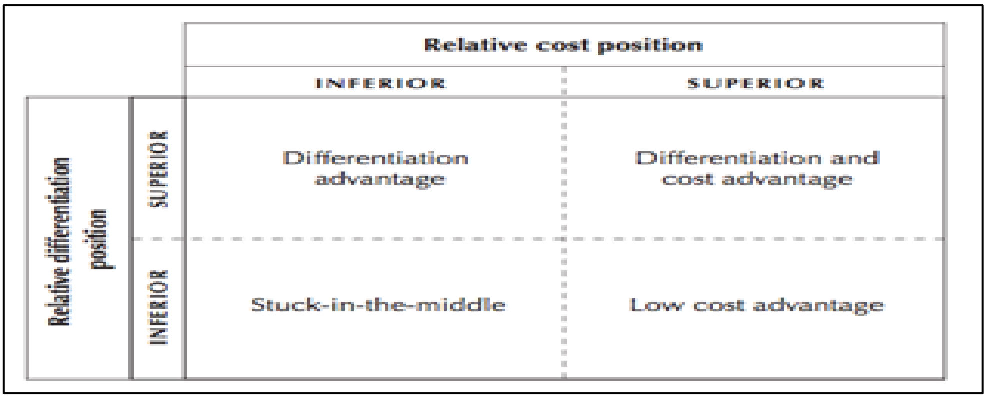
	Cost drivers	Definition
1	Economies and diseconomies of scale	Impact of scale on the costs of performing an activity. Increasing complexity can lead to diseconomies.
2	Learning and spillover	Reduction in costs of performing an activity due to experience. Learning from the experience of others is called spillover.
3	Pattern of capacity utilization	High fixed and change over costs provide opportunities for joint optimization of production, logistics and marketing.
4	Linkages	The cost of an activity is related to how other activities are performed within the same value chain and in the chains of suppliers and buyers.
5	Interrelationships	An SBU may be able to benefit from sharing scarce resources with another SBU within the same firm.
6	Integration	Vertical integration may reduce transaction costs, but at the expense of flexibility and scale. Buying goods or services that were sourced in-house is particularly difficult.
7	Timing	There are circumstances in which it pays to be the first mover. In others, it is better to be a follower.
8	Discretionary policies	Decisions by the firms, not related to other cost drivers, influence the cost of an activity. Eg: product specification, technology, etc.
9	Locational	The skills of the labour force, access to transportation, etc, all affect costs.
10	Institutional	Government incentives, union power, regulation of all sorts, have a major impact on costs.

(Hergert & Morris, 1989)

Differentiating factors

1. Policies and decisions
2. Linkage amongst activities
3. Timing
4. Location
5. Interrelationships
6. Learning
7. Integration
8. Scale
9. Institutional factors

Porter (1980) argued that a business can develop a sustainable competitive advantage based on cost, differentiation, or both.



(Theory and Practise of Online Learning)

Figure 3: Developing Competitive Advantage

4. Linkages and Interrelationships

The cost of performing an activity will often be influenced by the way in which others are performed. Joint optimization can be done with activities relating to Strategic business Units, Activities of buyers and suppliers and other activities performed by related SBUs. There will always remain a potential for optimization between the above activities which needs to be seized.

Within the value chain context, a Vertical integration strategy becomes appropriate if the benefits of extending the chain of activities for a firm (avoiding the costs of using the market, enhanced value creation, improved security of throughput, better coordination of activities) are greater than the costs (reduced strategic flexibility, added over- heads, out-of-pocket costs).

When interdependencies between activities of the same corporation are recognized, their effects are mediated through allocations (for services) and transfer prices (for components or products). Apart from these crude tools, the analyst will either have to turn to model building and statistical analysis to capture the effects of interdependencies, or to use an approach such as Kilmann's (1983) for estimating misdirected conversion costs and generating optimal organizational relationships.

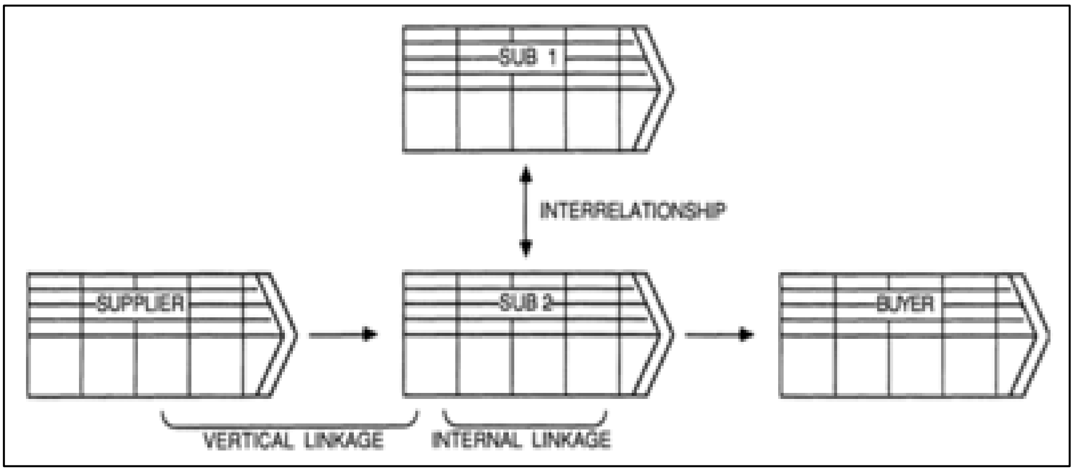


Figure 4: Linkages and Interrelationships

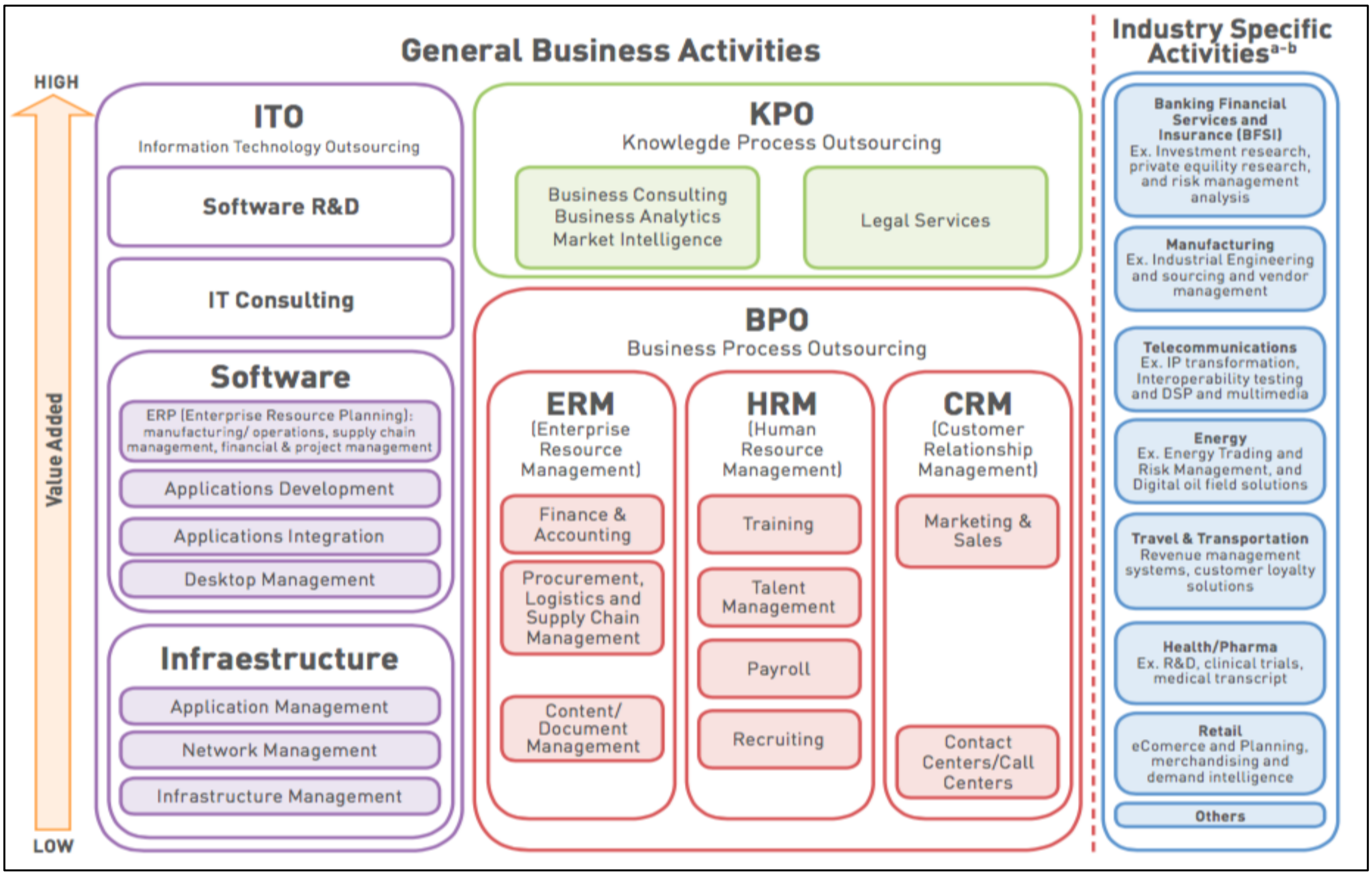
5. Challenges in using Accounting data for Value Chain Analysis

1. It occurs when the firm is not organized around the SBUs and the accounting system does not recognize SBUs as a dimension for data accumulation.
2. Cost Accounting data: There is no obvious correspondence between core activities defined in the value chain and responsibility centres defined in accounting systems.
3. Cost Accounting data: Identifying the constituents of buyer value and then accumulating costs, revenues and assets around these cost objectives.
4. The Accounting systems assume independence of subunits, rarely collect the information for coordinating, and optimizing different activities (Porter, 1985: 61) and when this is not the case, rudimentary tools are used for modelling interdependencies.
5. Cost Accounting data: The cost centre budgets are likely to be a poor reflection of the economics of performing an activity. This is compounded by the inability of the cost accounts to quantify the cost drivers, and the likelihood that the accounting conventions used for internal purposes have been mandated by external reporting authorities.

6. Outsourcing Value Chain Activities

There are two kinds of activities an organization performs, these being: Upstream and Downstream activities. The Degree of Vertical integration defines their extent. Specialization and outsourcing go hand in hand. As organizations specialize, their executives choose to outsource the rest of the activities. SWOT Analysis has an important role to play in deciding what to outsource. These are the considerations being made while choosing the same:

- A comparison on the basis of the Cost & Effectiveness of performance between the organization and its supplier.
- Nature of the activity, i.e. Core activity or other
- Risk involved in terms of investment, etc
- Opportunity for business process improvement such as reduction in lead time, higher flexibility, reduction in inventory, etc.



(Gereffi & Fernandez-Stark, 2016) **Figure 5:** Outsource Services for General Business Activities – Value Chain

7. Value Chain System

A larger system containing the value chains of upstream and downstream stakeholders of the organization, was titled Value system by Porter.

- Organization with higher degree of vertical integration: Will better manage the upstream and downstream activities when compared to a firm with a lesser degree of vertical integration.
- Anorganization's success in developing and sustaining competitive advantage: Is affected by the organization's ability to manage its Value chain system.

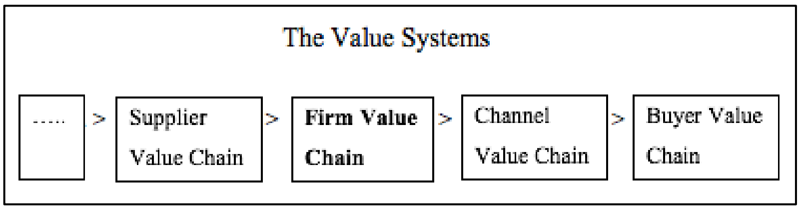


Figure6: Value Chain System

8. Conclusion

Value Chain Analysis is a complex and an industry specific phenomenon which has evolved over the period of time. Implementing Value chain analysis is highly complex in nature due to the difficulty and the differences that exist between the Value Chain Analysis requirements and the existing organizational methods and records. However, integrating the two on similar lines can enable organizations work smartly reaping greater profits. Value Chain Analysis is divided into multiple parts. An organization's Value Chain consists of Primary, and Secondary activities which are further divided into various sub parts. The Technology involved in primary activities include Support Activities, Inbound Logistics technology, etc. The activities of Competitive Advantage have been divided into Cost Advantage and Differentiation which have various Cost and differentiation drivers under them. Linkages and Interrelationships along with Vertical integration have been mentioned. Existing Accounting practices result in challenges in Value Chain Analysis due to various reasons. Outsourcing includes decision making technique by Porter so as to what components are to be outsourced. The study concludes with select Value Chain cases snippets. In the Strategic management literature, Value Chain Analyses is regarded as a core analytical tool, therefore its value cannot be undermined, only has to be further developed and practised.

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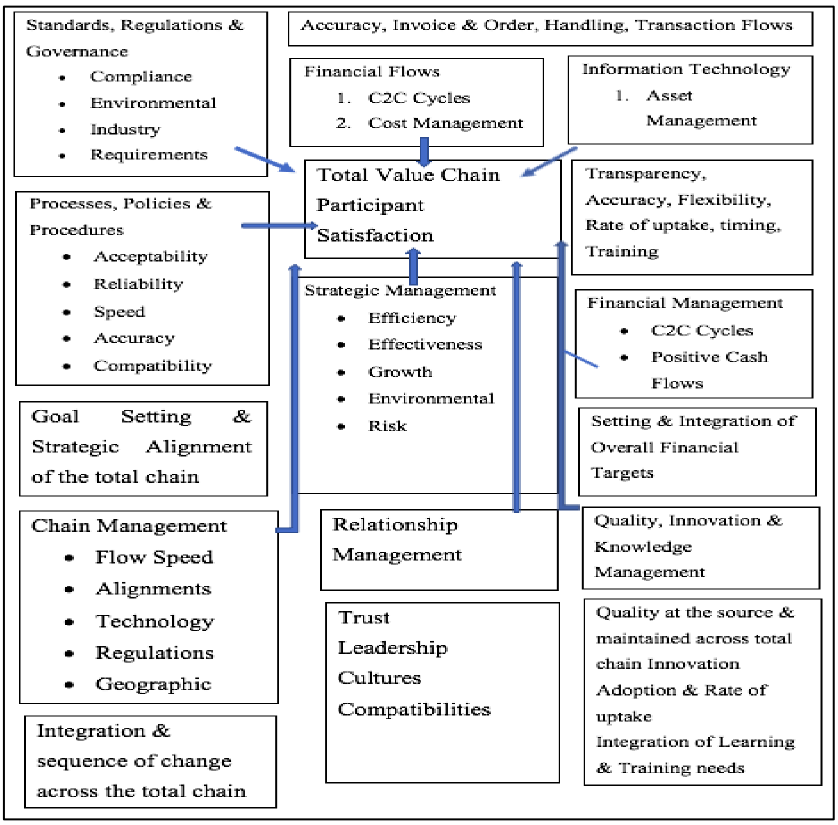
Annexure:

Case based Value Chain Analysis

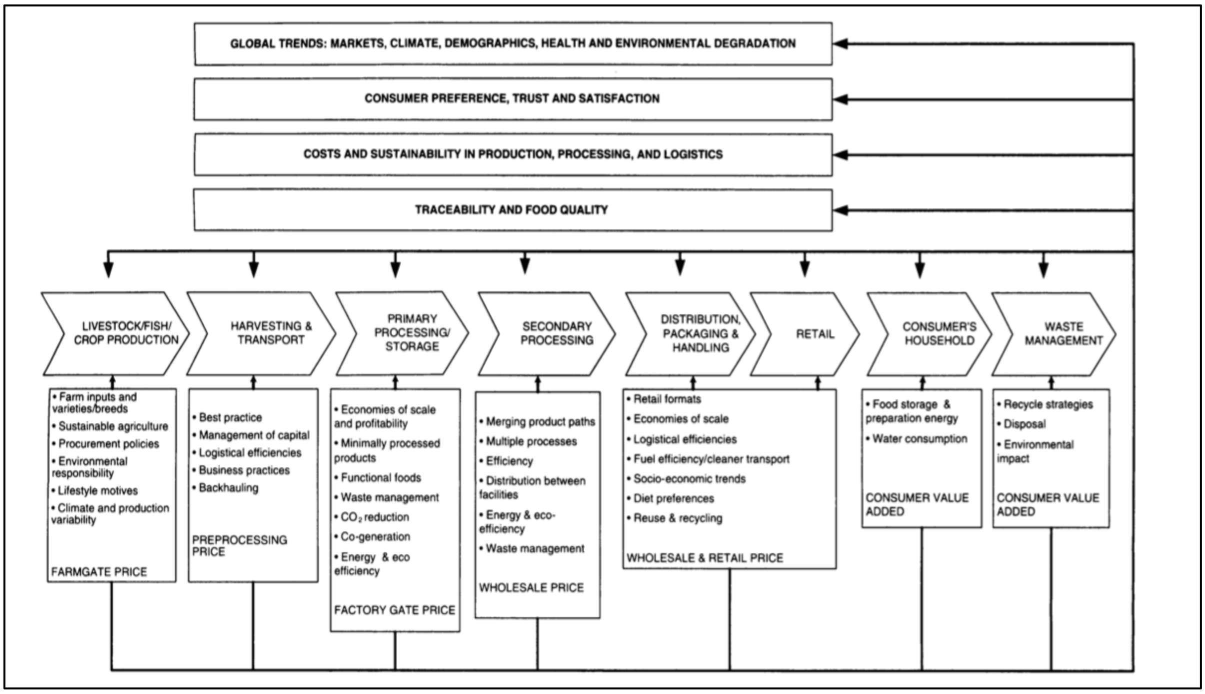
This section contains case summaries based on Value Chain Analysis

BSC Value Chain



(Barber, How to measure the "value" in vlaue chains)

General Agriculture Value Chain



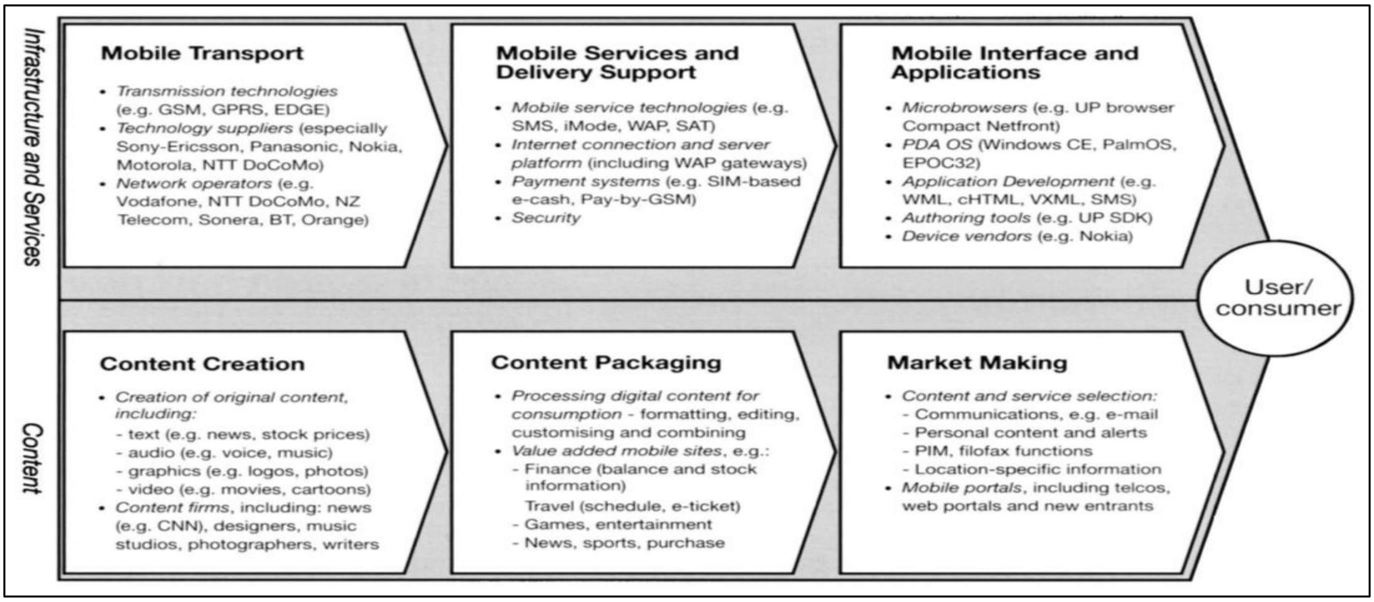
(Higgins, et al., 2010)

Value Chain – Hindustan Aeronautics Ltd

Infrastructure Acquire capital, perform accounting, legal approvals, and administrative task for each activity					
Human Resource Management	Recruiting, hiring, training and compensating the staff.	Ensuring attraction of the best brains to the firm and they stay abreast about the latest in the field.	Recruiting, hiring, training and compensating the staff.	Ensuring most effective communicators are hired who can do techno-sales.	
Technology Development	Train and help the company to identify the best technologies available and suitability of the same for HALs use.	Indigenously develop technology to create the parts locally for a longer time and at cheaper rates. Evaluate and suggest the technology partners for manufacturing.	Reduce transportation cost at highest security.	Help make technological presentations specially for comparisons with other vendors	
Software Development	Develop software for cost and quality regression for vendor selection Software for Quality control and monitoring	Develop software for quality control during assembling. Software for engineering design and aids to assembly services	Software for quality control	IT enabled Marketing research	Logging and maintaining database of issues and fixes. Mechanism of query registration and resolution
Procurement	Negotiation of contracts for technology. Material and components from Indian and international companies.	Procure best-suited technology and site at cheapest price. Insure continuous and economical supply of services and up gradation of plant	Procure most economical means of distribution.	Procure most economical means of communication	Economies service.
	Technology selection - Evaluation and finalization of technologies, materials and components. Vendor selection - Evaluation and finalization of suppliers (includes country decision)	Research and development activities. i.e. developing new models for better efficiency, speed, passenger comfort etc. Develop and manufacture parts of the planes owned by Indian during their lifetime. Manufacture new with the defense partnersDesign and manufactures planes itself.	Shipment and transportation to buyer site (critical for exports) Ensuring delivery of its products and services in an efficient and discreet manner.	Marketing HAL products and services to defense, civil and foreign customers. Liaise with Govt. and Defense agencies to understand their policies and requirements	Maintain, overhaul, service and repair planes of all Indian defense services irrespective of its make and kind. Repair and maintenance services for its products. Customer interaction for its services.
	In Bound Logistics	Operations	Outbound	Marketing logistics	Services

(Das & Salwan, 2013)

M Commerce Value Chain



(Barnes, 2003)