

Chapter 38

Value chain management in fisheries

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Value chain analysis and its management is a strategic planning tool used in analyzing the value chain of a company or sector or a product. Initially, it was used to assess the process of a company or single unit. Then, it was visualized as a holistic and integrated framework in upgrading the activities of companies as a whole with the coordinating efforts of the various units or sub-systems. It is useful in improving the existing system or through introducing a new component in the system.

Value chain

The word 'value chain' was first introduced by Michael porter in his book 'Comparative Advantage' during 1985. Value chain is defined as "*the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final customers, and final disposal after use*".

Value chain comprises of full range of activities required to bring a product or service from the stage of conception, production and distribution to consumers (Kaplinsky and Morris, 2001).The study on value chain is intended to achieve comparative advantage through cost minimization and attaining consumer satisfaction. It is the preliminary step in the mapping of market (FAO, 2006).The value chain can be analyzed using Value Chain Analysis (VCA) through either quantitative or qualitative tools or both.

Supply chain versus value chain

Supply chain covers the activities of the downstream flow of activities from source (supplier) to consumer. But, value chain flows reverse i.e., from consumer to supplier. This is also referred as 'demand chain', as consumers are the source of value and the demand is created due to value. The focus of supply chain is on upstream activities i.e., integrating the supplier and producer and improving efficiency. While value chain focuses on downstream activities such as consumer

satisfaction. The supply chain is on reducing costs and increasing efficiency in operation and value chain is towards innovative product development and marketing.

Value chain studies are the integrated approach which involves value addition at each stage. This is in reverse to the traditional studies, which was mainly on production concepts alone. The ultimate aim of value chain studies is to identify cost effective value chain for the actors separately or for the whole value chain. A value chain has mainly two components viz., actors and activities.

i. Actors: Actors are the drivers of the value chain who are the major driving force in operating the value chain. Ex: Suppliers, producers, wholesalers, retailers.

ii. Activities: A typical value chain consists of activities such as design, production, marketing, distribution and support to the final consumer.

Based on the number of actors, their interactions and interlinkages, value chain can be as classified into simple or complex.

Simple and complex value chain

Simple value chain comprises of input supplier, producer, wholesaler, retailer and consumer with single channel only. It doesn't have interactions and inter-linkages among the actors. But, in practice, value chain is too complex and very difficult to manage. The simple value chain is illustrated and presented in fig. 1.

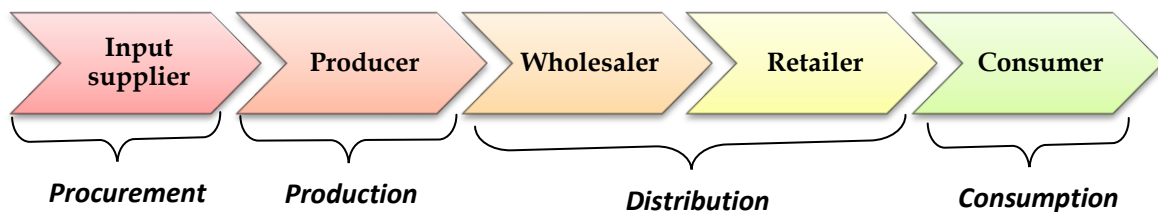


Fig. 1. Illustration of simple value chain

The complex value chain is presented in fig. 2.

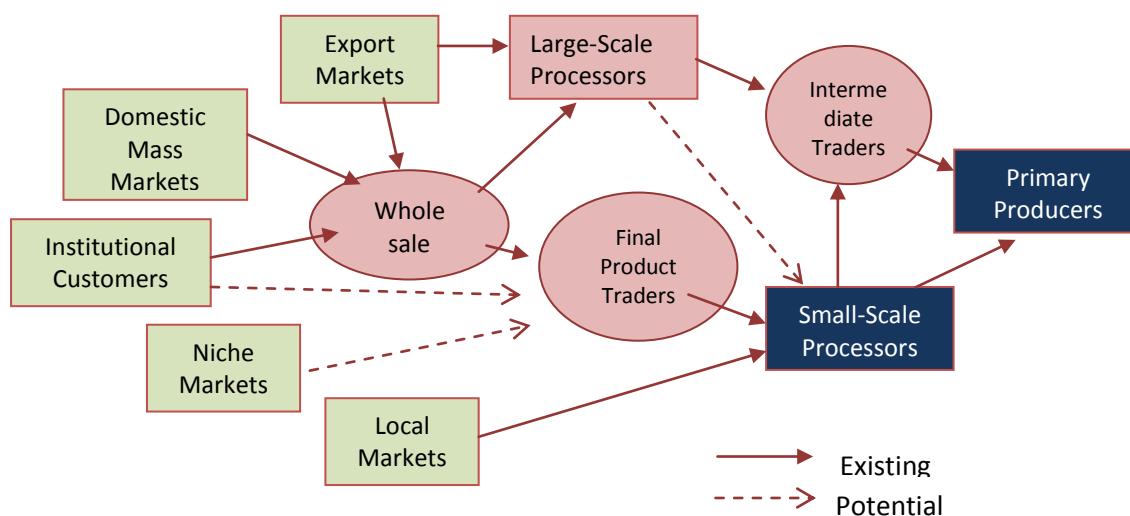


Fig. 2. Illustration of complex value chain

Complex value chain comprised of two or more chains with many actors involved in variety of activities. There is often interactions and inter linkages among actors with many final destinations. Like other sectors, fish value chain is also complex. There are vast differences in performance of value chain at the field level (Fig. 4).

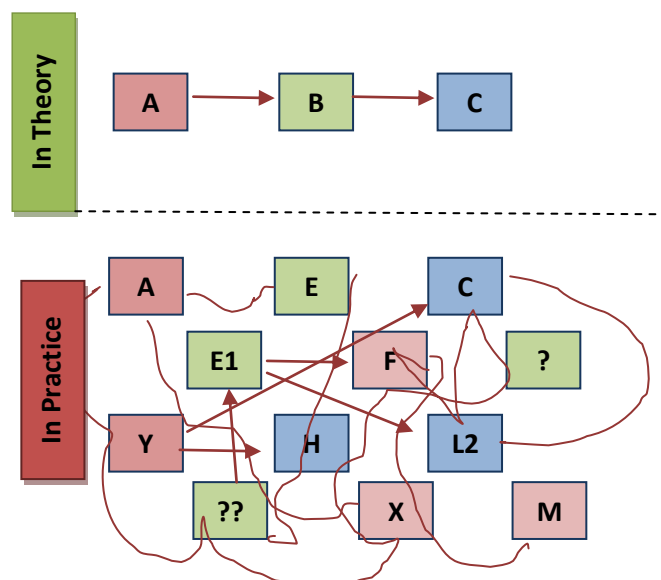


Fig. 3. Value chain: Theory and practice

Value chain analysis in fisheries

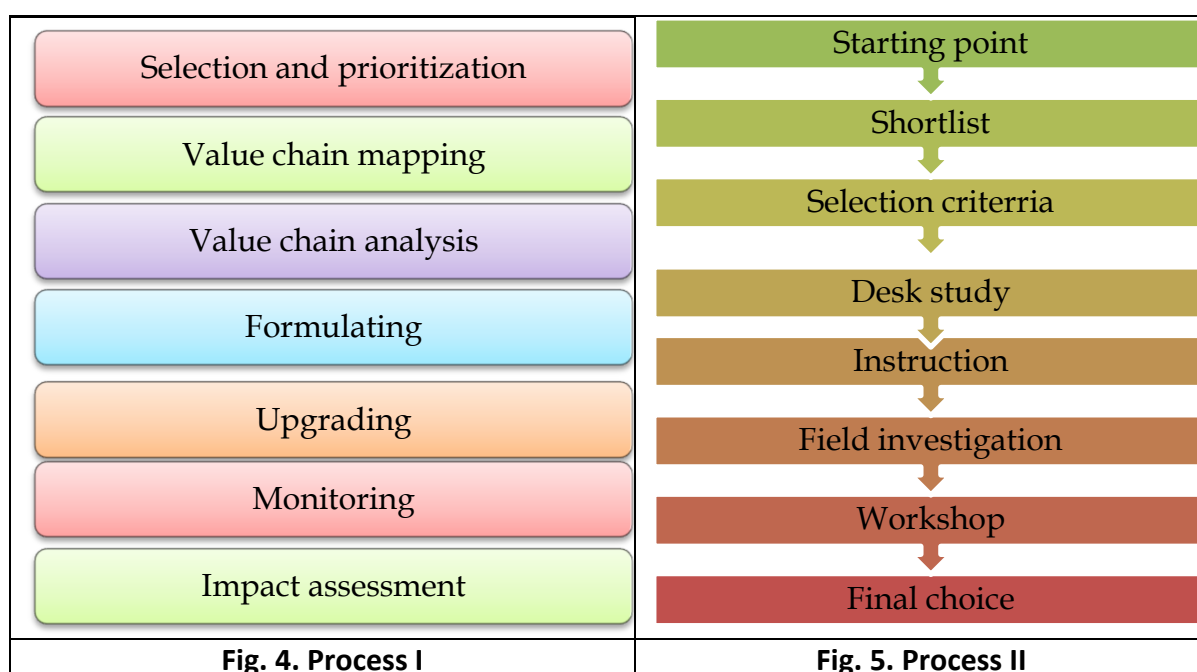
Value chain in fisheries is used as a managerial tool to reduce processing costs and improve quality and productivity of the product and reduces distribution cost. The advantages of studying value chain in fisheries are,

- i. Increase the producers' share
- ii. Minimum cost of the processes
- iii. Increase the efficiency and effectiveness of the actors
- iv. Eliminate the unwanted processes i.e., non-value addition
- v. Quality assurance in product development
- vi. Ensure consumer satisfaction

The value chain approach is a useful practical tool towards assessing the status of development of fisheries and aquaculture. It also analyzes the opportunities and constraints for future development. It is useful for the key actors such as fishers, managers and policy makers towards streamlining their activities in a cost effective way.

Steps involved in value chain process

The process of value chain analysis involves number of sequential steps. The steps used in selection of value chain analysis was discussed by two authors has been presented in fig. 4 & 5.



Source: CRFM, 2009

Fig. 4& 5. Steps in value chain analysis

Process I: The process starts with the selection and prioritization followed by value chain mapping and analysis. After the value chain analysis, the formulation, up gradation and monitoring was carried out. The final step is for assessing the impact of the value chain.

Process II: This process follows eight steps comprising of three phases. There are,

- i. Preparatory phase – includes three steps i.e., starting point, short listing and criteria selection.
- ii. Data collection phase – includes three steps i.e., desk study, instruction and field investigation.
- iii. Concluding phase – includes two steps work shop and final choice.

The steps for selecting the value chain are mainly based on author's discretion without diluting the objectives of study. The typical value chain includes the steps viz., own value chain, customers value chain, potential cost advantages and potential value added for the consumer.

Methodology for undertaking value chain research

The methodology for assessing the value chain was formulated by using the steps involved in value chain analysis (Fig. 7).

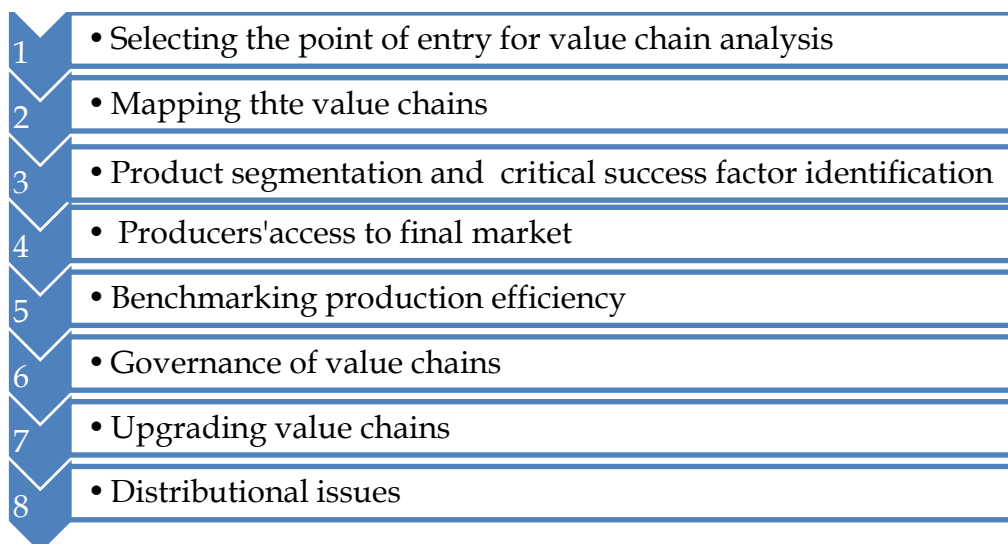


Fig. 7. Methodology used for value chain analysis

The methods for carrying out the value chain research include selection of point of entry, mapping and analysis. The benchmarking, governance, upgradation of value chain should also be assessed. The identification of distribution and impact issues are also part of the methodology. The steps in implementing the value chain approach in

fisheries include a value chain mapping, stakeholder mapping and detailed strategies for addressing the challenges and constraints.

Tools used in value chain analysis

The data required for the analysis can be collected using either quantitative or qualitative or both. The questionnaire or interview schedule is used for collecting the quantitative data. The qualitative data can be collected through semi-structured questionnaire and focus group discussion. The data collected were analysed using various econometric tools viz., means, proportions, ranks, factor analysis, cronbach’s alpha and regression analysis. These analyses are used to find out the dominant actor and activities in terms of cost and value. The tools used for data collection and data analysis in value chain analysis are presented in Table. 1.

Table. 1. Tools used in value chain analysis

Data collection tools	Data analysis tools
I. Quantitative tools	I. Means, proportions and ranks
i. Questionnaire / interview schedule	II. Factor analysis Eigen values Chi-square values Kaiser-Meyer-Olkin (KMO) Barlett’s Test of sphericity
II. Qualitative tools	III. Cronbach’s Alpha
i. Semi-structured interview ii. Focus group discussion	IV. Regression analysis

Approaches in value chain analysis

Earlier value chain studies were concentrated on tradition approach. In this approach, the focus was mainly to economic dimension. The social, behavioural and institutional dimensions were focused separately without any interconnectedness. While, new approach is a holistic and integrated approach with inter connection of all the dimensions together (Social, economics, behavioural and institutional dimensions).

Value chain in Fisheries and Aquaculture

The typical seafood value chain (Marine fisheries) is given in fig.8.

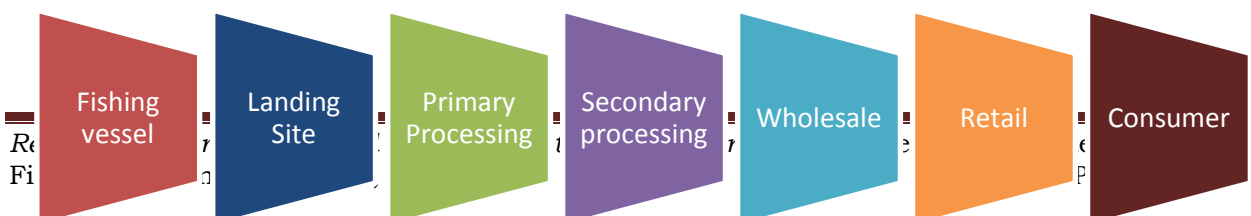


Fig. 8. Typical seafood value chain

The fish value chain usually starts at harvesting stage at sea, and then the catch is brought to landing sites (centres). After processing, the fish is marketed by wholesalers to retailers and finally it reaches to the end users (consumers).

The value chain of inland fisheries (aquaculture) showed a varied chain. Generally, in aquaculture, the chain starts at hatchery i.e., brooding stage and followed seeding, nursery and growth, trading and finally reaches the final consumer (Fig. 9).

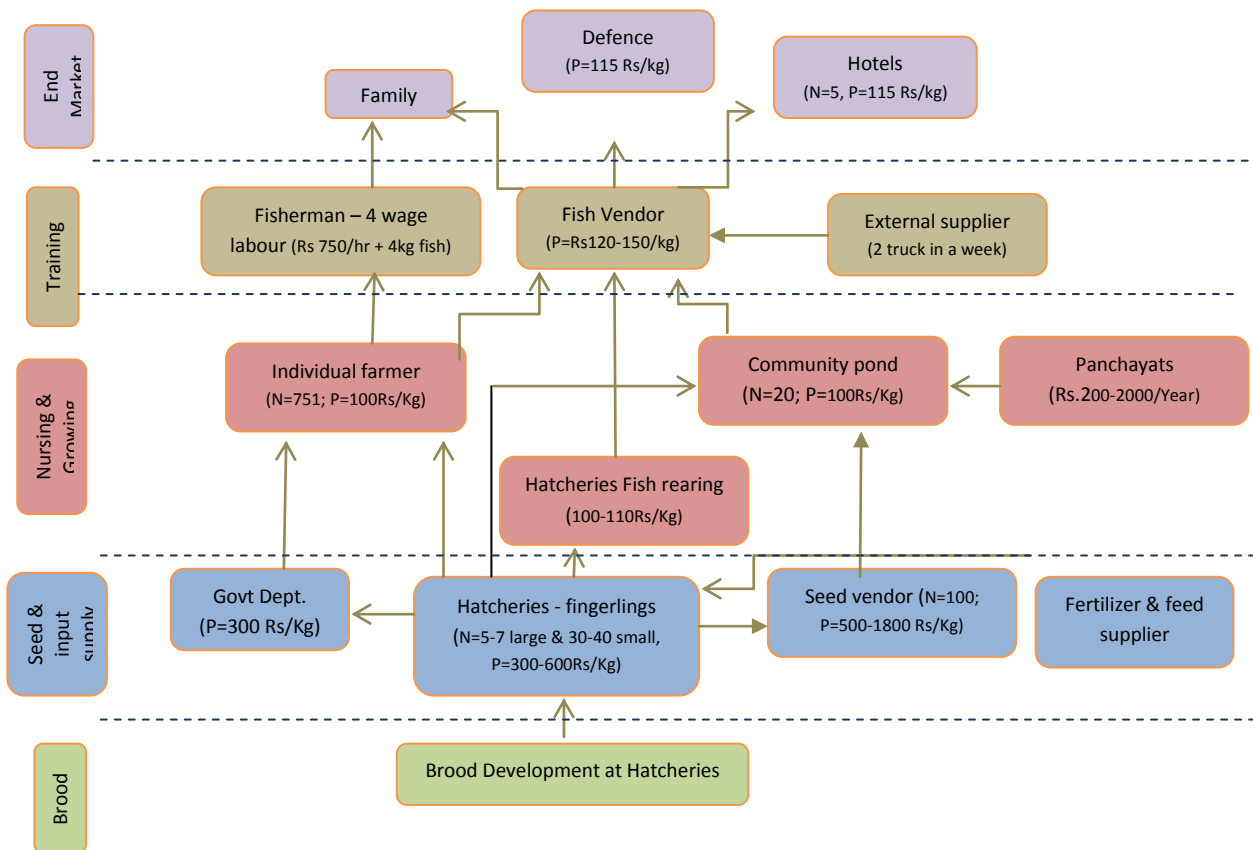


Fig. 9. Value chain of inland fisheries

There would be variation in length and actors of the value chain based on time, region and resource availability. The value chain in fisheries and aquaculture could be improved by focus on the following aspects. There are,

- Sustainable resource management

- Increasing production level
- Improving the quality and safety of products
- Ensuring co-operation among value chain actors
- Better consumer service
- Minimizing the transactional costs
- Capacity building and technology assimilation

Porter's value chain approach

Porter's VCA is a popular approach developed during 1985 (Fig.10). The model is an integrated framework comprised of two activities i.e., primary and supporting activities. Primary activities are directly concerned with product development or service delivery. And, each primary activity is linked with the support activities towards improving the efficiency and effectiveness of the system.

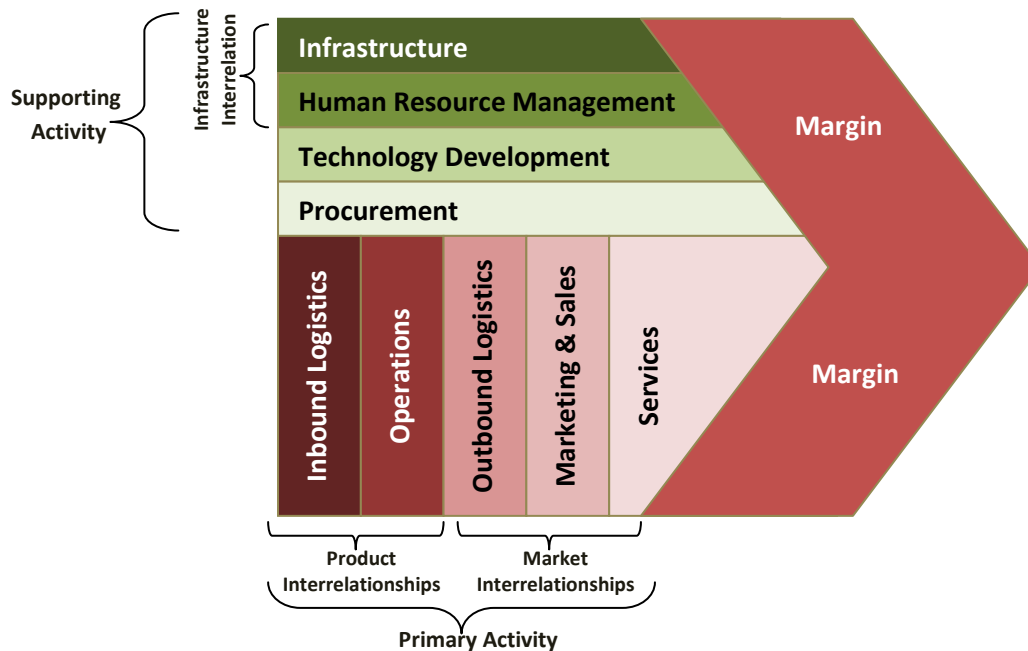


Fig. 10. Porter's value chain model, 1985

Primary activities: Includes five main areas viz., inbound logistics, operations, outbound, marketing and sales,

Support activities: Includes procurement, technology development, human resource management and infrastructure. The term 'Margin' is the profit margin that depends on the activities linked with the value chain (Porter, 1985).

Global value chain (GVC)

Global value chain emphasizes on the incorporation of local production to the global markets.

Table2. Dimensions of Global Value Chain

Dimensions	Description
Input – output structure	Process of transforming raw materials into final products
Geographical consideration	Identification of lead firm/ country in the global scale
Governance structure	How the VC are controlled (way of controlling and co-ordinating actors)
Institutional context	Institutional set up in which VC is embedded
Upgrading	dynamic movement within the value chain by examining how producers shift between different stages of the chain

The governance of GVC depends on various dimensions. The input-output structure, geographical consideration, governance structure, institutional context and upgrading are the various dimensions through which the local production can be improved towards linking with the global value chain (Table. 2).

Types of governance in the GVC

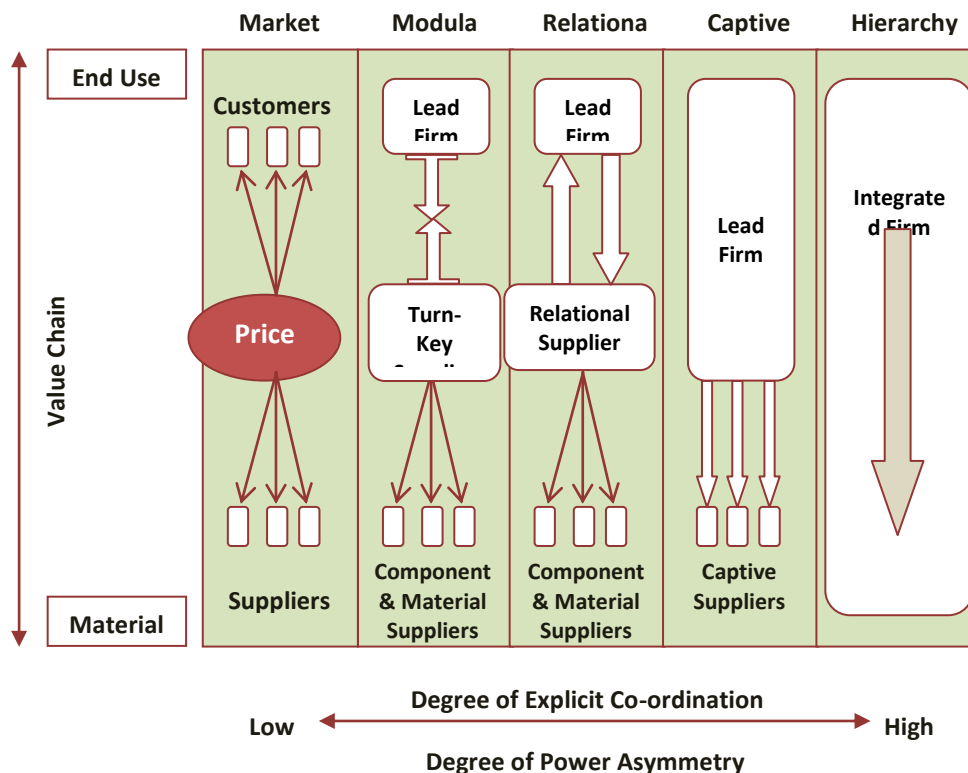
The governance of GVC depends on the degree of co-ordination and power asymmetry. There are five types of value chain governance viz., market, modular, relational, captive and hierarchy.

Issues in the VCA

The VCA is controlled by various constraints and issues. There are,

- Infrastructure facilities
- Input supply
- Credit facilities
- Quality and safety standards
- International regulations
- Middlemen intervention

The management of value chain would be possible through up gradation. It can be upgraded by improving the process, product, changing the functional positions and move out to a new value chain.



Source: USAID

Fig. 11. Types of value chain governance

Further reading:

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