Casting off the chains

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The Value Shop and the Value Network are two additional models of value creation. Managers need to re-think some familiar strategic insights.

The world has changed. From 1960 to 1999 manufacturing companies' share of GNP in the US, as well as its workforce, fell from 30 per cent to 15 per cent, with the consequence that such businesses are now a minority of the S&P500. Banks, transportation, building, healthcare, research pharmaceuticals and other services companies have taken over.

Strategic models of the world, however, have not changed. When managers develop strategies for their companies, they still use the tools and language of the manufacturing organisation – most commonly the concept of the Value Chain (see Figure 1), introduced by Michael Porter. His seminal work, *Competitive Advantage: Creating and Sustaining Superior Performance*, (Free Press 1985), argued that you could create sustainable competitive advantage by tailoring your Value Chain to your competitive strategy. A large number of prescriptions for good strategic management were developed.

The question managers now need to ask themselves is where these strategic prescriptions come from – and whether they still are valid. Does the Value Chain accurately portray value creation in the new firms of the S&P500, and should managers of these firms follow the standard Value Chain ideas?

In this article, we offer two additional models of value creation – the Value Shop and the Value Network. We will show how they make description of the value creation process easier and can offer insights into what drives the true new economy, an economy where value is created by knowledge and where networks have been opened to competition.

Key Messages

- The value chain as a strategic model is less well adapted to companies that do not produce physical products.
- We present two additional models: Value Shop (companies that solve problems) and Value Network (companies that mediate interaction).
- For each of these models, we describe the competitive economics and detail management prescriptions.

The call for new models

The Value Chain is an excellent model for describing and analysing manufacturing companies. Describing value creation as a series of sequential steps that transforms raw materials and components into products, it has been fundamental in highlighting the importance of supply chain integration. It provides managers with workable insights, which have shaped corporate strategy for almost two decades. It has helped managers make fundamental strategic decisions about activity outsourcing, location, technology and co-ordination within the organisation and with customers and suppliers.

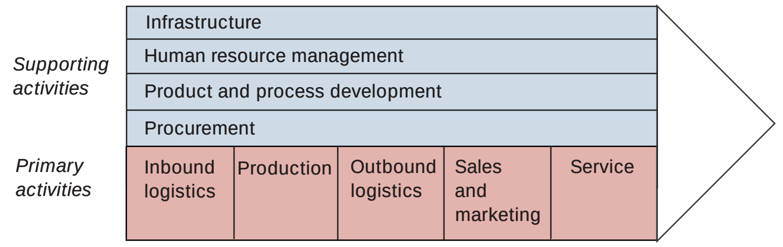
However, anyone who has tried to use the Value Chain to

describe a telecommunications company, a bank, a hospital or a consulting firm has experienced difficulties in categorising activities and drawing useful conclusions about strategy. It is not obvious what are the inbound and outbound logistics activities of a bank, for example (customers put their money into bank accounts, but may have a mortgage at the same time – meaning that customers are suppliers as well), or that the products of a telephone company have any 'built-in' value created by the production process itself (after all, the value of a connection is determined by whom you call – not, normally, by the quality of the call in and of itself). It is doubtful whether costs are reduced or value increased by consulting firms trying to mimic the production line of a manufacturing firm. Customers often resent being treated to standardised solutions, and feel uncomfortable with experts that are inexpensive. Why is this? It is because these firms fundamentally create value for their customers in a different way than what the Value Chain actually describes – and thus, no amount of creative force fitting by consultants and analysts will result in any valid insight from the resulting diagram. Managers need new models that accurately portray what goes on in their companies, models of value creation that are linked to the economics that drive the performance of their firms.

The good news is that a lot of progress has already been made in the economics area. The Nobel prize in economics for 2001 was awarded to George Akerlof for showing how the classic laws of the market do not apply when one party knows more than another (in technical terms, when there are information asymmetries), and to Michael Spence and Joseph Stiglitz for showing what strategies the participants can use to overcome the information asymmetries. Unique asymmetric knowledge is at the heart of the consulting business – good consulting companies excel both at creating it and at profiting from it.

In a different area, Berkeley researchers Michael Katz and Carl Shapiro have shown how markets behave differently when customers depend on each other to get the full value of a product. The phenomenon has become widely known as a network effect and is frequently referred to as pertaining to dot-coms, the software industry, and video games.

Figure 1: The Value Chain



Source: Porter, M.E., (1985), *Competitive Advantage: Creating and Sustaining Superior Performance*, New York: Free Press.

Our interest is in a less celebrated type of firm for which 'network effect' is probably the only reason for their existence. They are the mediators of the economy that organise all of the, frequently mundane, transactions of everyday life. The services are not new but our understanding of the relevant economics is new. Perhaps, equally important, these businesses have recently been deregulated: what used to be institutions and private or public monopolies have been competing over the last decade in deregulated markets. Managers of these firms need to question whether the tools and models of yesterday's manufacturing corporation apply.

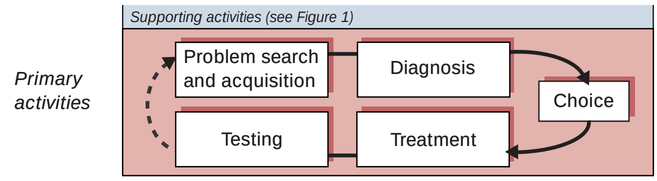
Value chains, shops and networks

Value Chains compete in a production economy, where the emphasis is on selling as many products as possible with the highest possible margins to the right customer segments (where a segment is a group of customers sufficiently similar that a specific production or marketing activity is warranted). The primary activities, those that directly create value for the customers, are: Inbound logistics, Operations, Outbound logistics, Sales and Marketing and (post purchase) Service. An excellent Value Chain company invests in product and process development that improves its cost or differentiation position. It improves price, quality, performance and features of their new and existing products in the areas important to the chosen segments. The managers strike in their strategy a balance between cost and differentiation resulting from cost economies of scale and scope. The cost leader incorporates as much differentiating features as possible without sacrificing the cost position. The differentiator carefully meets the demands of the chosen segments and economises on costs where this does not affect the differentiating features of the product. Much time and effort has gone into studying this type of firm. We do not purport to add to the knowledge about the manufacturing firm.

However, an increasing number of companies create value by using knowledge to solve problems for clients. The Value Shop model (see Figure 2) describes the value creation in these firms as consisting of activities related to diagnosis; development, testing and choice of alternative solutions; implementation and evaluation. More broadly, the Value Shop describes consulting companies, engineering companies, law firms, hospitals and research pharmaceuticals.

These Value Shops compete in the knowledge economy. Value is created on a case-by-case basis by identifying and solving problems on behalf of customers. Just like the Value Chain, the Value Shop has primary and secondary activities. The primary activities are: 'Problem finding and acquisition' (problem identification, diagnosis and case contracting); 'Problem solving' (development and evaluation of alternatives); 'Choice'; 'Implementation' (of the chosen alternative) and 'Monitoring and Evaluation' of the results. These activities are not sequential, but interruptible and recurring in the sense that if a chosen

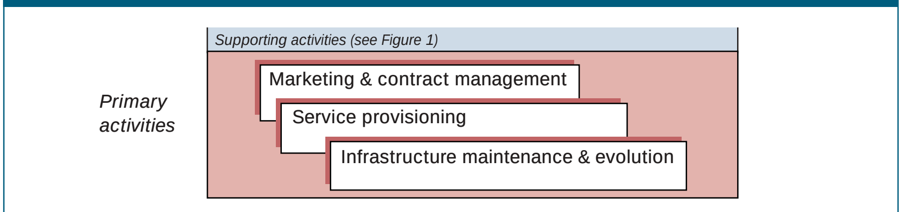
Figure 2: The Value Shop



approach does not resolve the problem, a new round is started, usually with different resources committed. A doctor, for instance, will initially try simple and inexpensive diagnostic methods and treatments – and then scale up both diagnostics and treatments until the patient is well or no longer a patient.

A third, and large category of companies creates value by allowing customers to exchange goods, information and capital. We call these companies Value Networks (see Figure 3). These are the stock exchanges and brokers, of course, but also other financial services, telecommunications companies, airlines, credit card companies, parcel services and other transportation companies. Many dot-com companies – both living and the recently deceased – are and were Value Network companies.

Figure 3: The Value Network



Value Networks compete in a network economy, where value is created by linking customers together through the contract set and infrastructure. A Value Network company competes on the size of its network, the degree to which the nodes (mostly, customers) have exchanges with each other, and the types of exchanges that can be organised. In other words, the Value Network company competes by balancing scope of network with the range of services.

Telecommunication providers, banks, parcel services and stock exchanges collectively organise and assist their customers in exchanging goods, information, cash or ownership. Just like Value Chains and Value Shops, they have primary and secondary activity categories. These reflect those of a club – and, indeed, some of them have a history of being clubs. 'Promotion and Contract Management' recruits members and manages contracts that determine member privileges and obligations, e.g. size of credit lines, or bandwidth and the cost associated with use. 'Service Provisioning' assists customers in making the exchange, be it of money, information or goods. 'Infrastructure Operation' maintains access points and basic capacity. Contrary to Value Chains and Value Shops, there is no sequence between the activities – they are performed and developed in parallel.

Why are these Value Networks and Value Shops companies interesting now? Besides the move away from manufacturing, there are other reasons: Value Networks and Value Shops have previously not been in the public eye either because they have not been large enough or because they have tended to be regulated. This is changing. Previously, Value Shop companies tended to be closely held in partnership arrangements, regulated (such as hospitals), and small scale, so that their value creation logic largely escaped the notice of management theorists. The consolidations in consulting, health care and investment banking and the experimentation with new ownership structures such as Accenture's move from partnership to listed company have made these firms more visible. Deregulation of the telecommunications, finance and airline industries has made these firms' competitive dynamics visible – and has highlighted both the difficulty in executing strategies and the time it takes before an industry understands its own dynamics.

Managing the shop and network

The differences in value creation logic and the basic value elements of the different models have ripple effect implications for profitability management, marketing management, and the management of efficiency and technology.

- **Managing profitability**

The typical Value Chain firm seeks product profitability as an intermediate step toward company profits. Value Chain analysis starts by relating costs accrued in key activity categories to product units as they pass through the transformation and logistic chain. Products are made from components, for which more fine-grained Value Chains can be constructed.

People profitability is the key to Value Shop profitability – so much so that in large consultancies like McKinsey, four of five criteria used to evaluate partners are people-oriented. The cost of people is not accrued, nor is their value developed, through a sequential transformation process. Value is made available to customers by using the organisation's people and resources to solve a customer's problem. A Value Shop creates valuable people through explicit training and by choosing projects that develop their experience. Corporate training constitutes a large portion of the premier consulting companies' investments. It is closely co-ordinated with on-the-job development of people, with junior people attached to seniors in an apprenticeship relationship. As people become more valuable the cost of using them increases through the promotion system – typically, a Value Shop takes people from junior to senior professional roles. Strategically, the assessment of what projects the firm will take on is guided by the learning opportunities they represent, by the impact they will have on the reputation of the firm and operationally by the billing ratios they offer for different categories of available personnel. Strategic goals are tied to long-term competence development rather than particular product-markets. Decisions about what projects to take on is a senior professional function, not something that can be assigned to a specialised Sales and Marketing activity. A good project is one that provides learning opportunities, reputation building and billing of available personnel. A good market is a group of customers who can use related competences and where the value of good solutions greatly exceeds the cost of providing them. The value of effective heart surgery greatly exceeds the cost, as does the value of good strategic advice for a large corporation, or a quality audit to the stockholders.

Network profitability is key to Value Networks. Costs come from acquiring members for the network and from operating the infrastructure and the services that connect them. Value is closely tied to both the size and the composition of the network. A high proportion of fixed costs makes allocation of costs to particular units of service difficult. This means that profitability on individual connections takes a back seat to profitability of the whole network (or, at least, significant sub-networks). Differentiation and to a certain extent service development frequently involves pricing differently. It is in Value Network companies that we find strategic pricing of individual connections determined by their impact on the overall network. Airlines call this yield management, telecommunications companies offer complicated subscription plans, and some banks have network-specific fee structures.

Customers want connectivity – but it does not always pay to provide it yourself, and the decision of how and whether to do so can be extremely complicated. Compatibility with other networks increase connectivity, but can also increase cost. Southwest Airlines, a very successful US budget airline, operates a very efficient network, which is incompatible with the other carriers. The incompatibility lies in the company's use of smaller, secondary airports, not used by other carriers. This incompatibility lowers the company's airport fees and the need for expensive interconnect processes and systems. For this reason Southwest works well if you can stay inside their network for the entire trip. Southwest started out servicing mostly single city-pairs. As their collection of airports expands, so does the connectivity of their network, allowing customers to reach more destinations.

Customers benefit from being able to 'connect' to the nodes they are interested in. Firms and consumers mostly exchange goods, information, money and ownership with a limited network of compatible customers as part of performing their daily business. Value Network companies make these existing exchanges as fast, painless, efficient and reliable as possible. Network size increases the probability of a desired node being available through a particular network, but strategies that go for sheer size immediately can be very expensive.

A large portion of the network effect can be captured if Value Network firms initially recruit the customers that are more connected than others. This is key to overcoming the barrier that network effects represent in the initial roll out of a new service because it makes service valuable earlier than it would otherwise be. Really good networks, in addition to servicing existing relationships well, allow customers to increase their network of personal and business relations. They maximise the value of network effects by recruiting new customers based on the advantages they offer to the other, existing customers.

eBay, for instance, was very successful converting a small community of Pez collectors into the dominant online auction network. The New York Stock Exchange benefited from increased access, via telegraph, to an established trading community when it became the leading US stock exchange. Some members may contribute significantly more to the network effect than others – for instance, the electronic bill payment service CheckFree (a subsidiary of Intuit) had to recruit major payment recipients, such as utilities or credit card companies, in their network in order to be interesting to consumers.

- **Managing the market**

Value Chains manage the market by promoting their brand – customers' expectations about the product – into segments of similar customers. They position product properties, price and distribution channels to match their chosen segments. Strong brands extend the chain into the mind of the customer. The analysis of customer needs and product design is done separately from the production and sale of individual products. Value is made available to customers by possession of the product. A good product is one for which there is a large market of customers who can use the same design and still have a high willingness to pay for it.

Value Shops manage the market by promoting their reputation – the customers' expectation about what kind of problems the company can solve. Their approach is: "Let the seniors do the talking."

In a Value Shop, marketing and sales is the start of the value-creation process, not the end. It initiates and defines the job to be done, as opposed to the way Value Chains sell a product designed in a product development activity, produced in operations and shipped to the customer by outbound logistics. For this reason successful Value Shops pick their problems carefully. They cultivate relationships with clients by investing in understanding their problems and by finding ways to tailor the firm's activities to the problem at hand. Senior personnel conduct this dialogue – in fact, to quote Bjørn Ivar Danielsen, a former senior partner in the consulting firm Accenture: "This is the only business where you are promoted to salesman." The reason is simple: nothing is more dangerous to a Value Shop than the young consultant or aggressive salesperson who comes back to the organisation after having committed to solving a problem it cannot or should not solve, or a problem which will tie up expensive resources in repetitive non-learning activities. Similarly, nothing is more convincing to a prospective client than a lawyer, investment banker or engineer who appears to understand the client's specific predicament, as opposed to one who pushes previous cases not quite seeming to fit.

In the Value Shop, Reputation is King. The better firm is the one that can combine the attraction of good cases with mobilisation of the right competence. Reputation both facilitates and is built from this. People with important problems want to ensure that they are being solved by the best available competence. For important problems like heart surgery, corporate tax management, and choice of firm strategy, the payoff to the client from small increases in the competence applied to their problem far outweighs the increased cost – knowledge is expensive because the cost of ignorance is huge. However, since the provider cannot demonstrate the solution and there may not be second chances, the reputation and past experience is often the customer's only guide when choosing which firm to work with. Furthermore, reputation gives access to the building blocks for competencies – smart people and challenging problems. The people with the most promise want to work with the most promising firm.

Reputation can both be built and be acquired by association. If your firm is too small or a problem too specialised to have the competence in-house, make sure it is available through a networking relationship that allows access to people – e.g. from a university or by sub-contracting with or referring to a specialist. True knowledge management is about the acquisition and proliferation of competent people, not about large databases. For instance, the value of

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access to graduates from a top business school is much higher than access to its library. Successful Value Shops, in addition to assuring that all visible jobs end well – whatever it takes – also engage in pure reputation-building activities. These can include large-scale empirical studies with prestigious research institutions, such as McKinsey's highly publicised 2001 study on productivity of technology conducted with the Brookings Institution. While the results are publicly available (and hence of no direct competitive advantage to the firm itself) they signal quality, both to prospective recruits and clients.

Value Networks manage the market by promoting 'netspectations' (customers' expectations about whom they can interact with via the network). They do this by changing network size and composition to create the 'club' into which the members they want, want to join. In some networks, the nodes are the customers themselves and the connections are their interactions with each other – telecommunications, for example, or payment services. In other cases, such as with airlines or other forms of transportation, the customers are themselves moved through the network – and the nodes in the network that need to be recruited are the destinations. In both cases, new nodes are recruited both for their revenue potential but also for what they do to the revenue potential of the other nodes.

To recruit the right member set (i.e. nodes in the network) managers may need some 'strange attractors', offerings that in the initial phase attract a viable community from which recruitment of the larger network may accelerate. What initially attracts customers may not be what they ultimately pay for – but it has to be interesting or useful to the customer long enough to create the network. These attractors can be cash, of course (such as payments for landing slots at congested airports), but they often take the form of a killer community, a killer product, or killer content. eBay, the Internet auction firm, was developed to serve Pez figure collectors who wanted to trade their gems (killer community). Intuit's electronic checking network came from an inexpensive personal account balancing software package called Quicken (killer product). Customers to AOL's chat-rooms were initially recruited by exclusive material about celebrities and the ability to post messages to them – both exclusive access to the replies and the chance that a question receives a comment (killer content). But it may be necessary to repeat the process: AOL, for instance, may have needed Time Warner's content to draw a crowd to get a viable broadband network up and running.

Central nodes can also be leveraged. UPS, the transportation company, has its main switching hub in Louisville, Kentucky. The centrality of this location in the network has attracted a number of consumer electronics companies to move their repair facilities there, using UPS to transport the faulty wares there and quickly repair them and send them out again. The presence of many of these high-volume customers means that UPS can offer better services, such as 4am pickup for same day delivery – and the bond between UPS and its customers is further strengthened. Once a network business has gathered its crowd, it can turn on the network effects – and they can be formidable.

Drawing a crowd is difficult, particularly if the draw has to be the crowd itself. The key innovation challenge to Value Network firms is finding diffusion mechanisms by which the firm can avoid paying for new members outright – thus becoming a financial black hole. The 'eyeball factor', attracting attention to the firm itself, is of little value. The key is building customer expectations with respect to who can be reached through your network; make the customers look through your firm – not at it. Marketing in the face of network externalities is hard. When network effects do not work for you they work against you – a lesson experienced by many now deceased dot-com companies in their scramble to capitalise on largely imagined network effects.

An important difference between Value Networks and Value Chains is that Value Networks manage customer communities rather than segments. A community is a group of people that are compatible – they do, or want to do, something together. A segment, however, is a group of people who are similar in some measurable dimension, such as age, income, geography. Only in special cases do these groupings overlap. Scandinavian teenagers constitute both a community and a segment. They have the world's highest consumption of short text messages (a Value Network service) and 'cool' Nokia phones (a Value Chain product.) Communities are for Value Networks what segments are for Value Chains – but many Value Network companies misunderstand this, and look for demographic filters rather than patterns of interaction when going into new markets.

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- **Managing efficiency and technology**

Managing efficiency – doing things right – takes on a different nature in the Value Shop and the Value Network than in the Value Chain.

The Value Chain is an efficient producer – a machine for reducing the cost of operations through large scale and capacity utilisation. Large scale normally drives down average cost, but customers value more highly differentiated products that are targeted to meet their selective purchasing criteria. This introduces a cost and differentiation trade-off: lower the scale of each product to meet differentiated demand, or increase scale to reduce cost per unit. Historically, operations were sheltered against demand fluctuations by inbound and outbound logistics buffers, at great warehousing costs. Just-in-time technologies allowed for dramatic reductions in intermediate storage without compromising the capacity utilisation of operations. Flexible manufacturing technologies allow higher product variation without high setup costs. The technologies combined provide both cost and differentiation improvements to the firm.

The Value Shop is an effective problem solver, a machine for understanding the problem and mobilising the resources necessary to solve it. The managerial trade-off is between the breadth of problems the firm can solve and the depth of specialty that they can offer. A small law firm, for instance, may face the trade-off in terms of practicing general business law or being a specialist in a particular area, such as corporate taxes or intellectual property. Smaller project teams are better than large both in terms of cost and value, given that the team is big enough to handle the job. A large pool to draw resources from increases both the breadth and depth of problems that the firm can handle. The key resource to be utilised is competence. Costs are mostly variable. The hierarchy is used for knowledge leverage. Managing a Value Shop is about making good choices not only about what to do, but also about the appropriate resource level. Quality control is exercised through training, certification and review. Operational co-ordination is not a management activity as in a Value Chain – it is achieved by mutual lateral adjustments among team-members with equal access to data. For instance, hospital management is not about co-ordinating what happens during surgery, but about deciding who will be in the operating theatre and what resources they can call on. Hierarchy allows junior people to work on complex problems with discussion of approach and review of results by seniors, who will also be on call should something unexpected happen. The cost of co-ordination increases with team size. Top management is responsible for developing organisation structures that minimize the size of teams, but maximize the resource base from which they can be drawn.

How do owners amass a residual value in Value Shops with so few tangible or structural assets? Smart people will figure out what their market value is and demand it. It is hard to lock people in. At the same time, the firm cannot give all the market value to their best employees – it has to make a profit for the owners. To reconcile these two demands, valuable employees are given an option to increase their future value to offset the difference between what they are paid and their current market value. The firm can do this by offering increased skills, experience, and access to knowledge infrastructures or increased legitimacy. Value Shops use growth to align incentives. Growth enables profits to accrue to senior partners (owners) by the same mechanism as the game of pyramid. However, there is a need to keep the momentum going even if market growth stops. Value Shops allow people to spin out and create their own pyramid if growth is insufficient. A Value Shop that does not churn new recruits literally gets old – and, in the long-term, poor.

Excellent Value Shop companies solve difficult problems, i.e., problems that are unique, complicated, important – hence ones that the customers are willing to pay for. This is illustrated by the old story about the computer specialist who was asked by a cost-conscious customer to specify a $10,000 invoice for a one-hour on-site visit. The answer: $100 for the changing the code, $9,900 for knowing what to change. Value Shops driven into price competition will not get out of it by frugality. Customers with a serious problem will not necessarily welcome the least expensive problem solver. Moreover, cost is a quality attribute of the solution – good engineers or doctors are generally expensive. The relevant measure is not the per-hour charge, but how their knowledge influences the total value or cost of the solution.

Table I: Chains, Shops, Networks and what they do

	Manufacturing	Problem solving	Intermediation
Activities	*Value Chain*	*Value Shop*	*Value Network*
Technology	Long-linked	Intensive	Mediating
Manage	Products	Projects	Networks
Create and combine	Components	Competencies	Connections
Perceptual real-estate	Brand	Reputation	Netspectations
Scale gives	Cost efficiency	Competence mobilisation	Connectivity
Maximise ...	Capacity utilisation	knowledge leverage	Network yield
... by optimising	Component flow vs. product variation	Knowledge depth vs. knowledge breadth	Reach (no. of connections) vs. Richness (no. of relations per connection & quality of connections).

Value shops use technology to improve diagnosis and evaluation of alternative solutions. Enabling team member collaboration through collaborative technologies is an important part of this. Good Value Shops use and develop technologies to improve their problem assessments with better diagnostic instruments. Examples can include hardware such as tunnelling microscopes in biotech, seismic ships in oil-exploration and MRI scanners in medicine. It can mean software and methods of analysis in less technical fields. They also use technology to simulate consequences before having to take costly action as in intelligent CAD systems, prototyping and reservoir simulation or scenario analysis. The competitive firm has better means-end knowledge of how possible solutions will affect the client's problem, whether it is the impact of medical treatments, design parameters of electronic circuitry or choice of technology for an e-commerce system. There are many sources of uncertainty – available technology may be imperfect, or its effects insufficiently understood. A good Value Shop can quickly discard fruitless branches of search for solutions and move onto others. It must overcome the traditional manager's preference for people to complete what they've started.

The Value Network is an extensive connector, a machine for establishing connections and providing services to support the exchanges customers want to make across them. The managerial trade-off is between reach (network size) and richness (capacity and services), between whom you can connect and what you can do for them. Large network size increases connectivity measured in nodes (frequently customers) that can be reached. Capacity increases speed of exchange. The major costs are associated with attracting customers to increase the value of membership and building the infrastructure and services to carry customer exchanges. Costs are predominately fixed. Managers must manage the revenue yield of the whole network, not the individual connections – in other words, manage 'forest' yield rather than 'tree' profitability. There are three principal strategies for doing so.

- The first is to optimise pricing – what the airline industry calls yield management. Efficient airlines price seats continuously in response to the expected value of a particular flight with sophisticated statistical models that calculate the value of a particular flight. As early as in 1990, American Airlines could change their seat prices several million times a day. The yield is managed by optimising the network as opposed to treating each of its links as a separate service. In the words of Terry Butfield, former CIO of British Airways: "We almost went bankrupt selling products called flights - then we recognised that the role of a flight was to feed the whole network." The London-Paris flight is far more valuable as a part of the New Delhi – Paris route than as a stand-alone product. As part of that route it offers superior connectivity over competing flights in terms of terminal and timing. Service should be priced for value, not marginal cost, and service provisioning should be used to differentiate even if the basic product is the same. Virgin offers superior comforts to its Upper Class customers. This has little effect on the overall cost of its service, but does wonders in segmenting the market.

- The second strategy is to increase the number of relations that can be facilitated over a network. The attractiveness of a network is greatly affected by complementary networks, and network companies can increase the value of their own services by stimulating good activity in complement-networks. Catalogue shopping helps Visa, AOL and FedEx, for example, because catalogue shoppers use these for payment, browsing and transportation. The value of the services provided by an Internet Service Provider increases when the telephone company – another network – invests in DSL or mobile internet access. Many network companies, however, do not understand the symbiotic relationship with other networks, and see them purely as competitors. The US railroad industry lost out to the trucking industry during the 1980s and early 1990s until it understood that its services complemented those of truckers and started offering TOFC (moving truck trailers on railroad cars) and similar services. UPS, formerly a competitor of the railroads, is now the largest purchaser of railroad capacity in the US.

- The third strategy is to internalise transactions. A bank or financial service company, recruiting customers such that transactions take place within its own customer set, does not have to pay transfer fees to other networks. Citicorp, a Value Network company, and Motorola, a Value Chain, successfully organised an internal network of Motorola companies and suppliers that provided cost reductions of more than $6.5m annually. An airline with the right set of landing rights, e.g. South West Airlines, can keep customers travelling within its own network and does not require interconnection with others. A telephone company whose customers mostly call each other have zero marginal costs on calls. Cost per connection is also driven by the size and composition of the customer set.

There are difficult trade-offs between these three strategies. Interconnecting with other networks increases value because your customers can reach further, but if interconnect traffic is high relative to internal traffic it reduces the freedom to manage yield. For instance, none of the global airline alliances, with the possible exception of Star Alliance, have managed to do yield management well across companies, resulting in confusion as to who actually makes money. When you cannot achieve network effects within your own network, you can seek alliances that allow interconnection (your customers can interact with other networks' customers, as with land-line phones and bank transactions) and roaming (your customers can use other networks' services, such as with ATM cards or mobile phones). Alliances can create first mover advantages that are relatively stable, since they lock up the most attractive partners, leaving the rest to link up to form incomplete networks. It does not pay to be late to join – witness the power of the Star and One World alliances in airlines.

Conclusion – the value of perspective

Strategic frameworks are not one-size-fits-all recipes for what to do. They need both to be differentiated enough that they fit the company one seeks to analyse, and general enough to facilitate abstractions. In our experience, many companies have applied industrial models – the foremost being Michael Porter's Value Chain – to companies that have a different value creation logic.

Applying Value Chain logic to network firms can do harm. It can create undue focus on product profitability rather than the lifetime value of the customer, it creates a focus on market share rather than coverage of customer to customer interaction, and it wrongly segments customers into groups that look alike (say, the teenage market or people in a certain income bracket) rather than groups in which the customers interact with each other through the mediating company (such as extended firms or extended families).

Applying Value Chain logic to problem solving firms (Value Shops) can also do harm. It can create undue focus on standardisation rather than knowledge development, drive the organisation into cost-based rather than value pricing, and significantly undermine efforts to build and exploit processes of organisational learning. Many a high class consulting company has become a victim of its own growth, turning itself into a 'sweat' shop renting out relatively low-priced workers applying standard techniques by the hour and alienating customers who feel their unique problems are misunderstood. Many a hospital has misguidedly focused on measures of local efficiency at the expense of a value measure for patient well-being.

The world has indeed changed. By providing the two additional models and some examples of their managerial and strategic implications, we hope managers will have a tool to aid their understanding of how value is created in their companies and to better understand this changed world.

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