

Abstract Number: 008-0634

Abstract Name: Social Capital Impact on Service Supply Chains

Author: Sherry Avery

Address: University of Texas at Arlington

701 South West Street

Arlington, TX 76019

Email: savery@uta.edu

Telephone: 214-529-7056

POMS 19th Annual Conference

La Jolla, California, U.S.A.

May 9 to May 12, 2008

1. Introduction

Supply chain research in operations management discipline has focused on the manufacturing industry. The service industry is vital to the U.S. economy. In the U.S. in 2005 there were 111,490,000 service jobs compared to 22,141,000 manufacturing jobs. 83% of U.S. jobs were in the service industry. The study of the service industry has become increasingly important to the field of operations management. In this paper we will explore the unique challenges to managing a service supply chain and the impact of networks and social capital on the performance of a service supply chain. The article begins with a review of the basic concepts of social capital. Next follows a review of service supply chains. A series of propositions will be presented to test the impact of social capital on the service supply chain.

2.1 Social Capital

The concept of social capital is based on network theory. Networks are a series of relationships, ranging from informal to formal ties. In its most basic definition, networks provide a mechanism to exchange goods, services, and information. Social capital can be exchanged through networks of people and organizations. There are many different forms of networks. Strategic networks are composed of interorganizational ties that are enduring and of strategic significance. Intracorporate networks are groups of organizations operating under a unified identity. A strategic alliance is a group of firms entering into voluntary arrangements that involve exchange, sharing, or codevelopment of products, technologies or services (Gulati 1998; Gulati, Nohria et al. 2000). An industrial district is a network comprising independent firms operating in the same or related market segment and a shared geographic locality benefiting from external

economies of scale (Brown and Hendry 1988). An example of an industrial district is Silicon Valley. Social capital can be exchanged throughout any type of network.

Community studies originally focused on the importance of a social network. Studies found that networks of strong, personal relationships developed over time based on trust, cooperation, and collective action will strengthen communities (Jacobs 1965). Coleman introduced the concept of social capital in 1988. This study examined the impact of social capital on the drop out rates in local high schools and found that the existence of positive social capital decreased drop out rates.

In 1998 Nahapiet and Ghoshal introduced social capital in an organizational setting. They defined social capital as the sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit. Inkpen and Tsang define social capital as the ability of an individual to obtain benefits through membership in social networks or other social structures (Inkpen and Tsang 2005). Social capital is based on the structures of relations between actors and among actors. It facilitates certain actions of actors, both individual and corporate actors. Social capital is embedded within networks of mutual acquaintances. It is simply relationships between and among people. Networks of relationships constitute a valuable resource to exchange social capital (Nahapiet and Ghoshal 1998; Tsai and Ghoshal 1998). A unique attribute of social capital is that it is owned jointly by the parties in a relationship (Burt 1992). No one person has exclusive ownership rights.

There are three types of social capital: structural, cognitive, and relational. Structural is based on network ties, network configuration, and network stability.

Cognitive is shared meaning and understanding between members. It represents shared goals and culture. Relational is direct ties between actors and the relational outcomes of interactions (Nahapiet and Ghoshal 1998). Social capital varies across the different types of networks. Social capital makes it possible to achieve ends that would be impossible without it or could be achieved only at extra costs (Coleman 1988; Nahapiet and Ghoshal 1998). Benefits include privileged access to knowledge and information, preferential opportunities for new business, reputation, influence, and enhanced understanding of network norms (Inkpen and Tsang 2005). Trust plays a key role in the willingness of network actors to share knowledge, based on social judgments and assessment of the cost. Social capital can increase the efficiency of action through minimizing redundancy. It is based on trust. If parties trust each other, they are more willing to engage in cooperative activity that results in further trust being generated. Therefore it serves as a form of governance mechanism. Trust diminishes opportunism and the need for monitoring. It also encourages cooperative behavior, which facilitates the development of new products and processes.

2.2 Knowledge

Social capital can be a source of information. Economists recognize that knowledge is a valuable resource. Knowledge is one of the most powerful engines of production (Inkpen and Tsang 2005). The power of the firm lies in its intellectual and service capabilities (Quinn 1992). There are different types of knowledge. Tacit knowledge knows “how.” Explicit knowledge knows “what.” Social explicit knowledge is objectified knowledge. Social tacit knowledge is collective knowledge. Social capital enables individual and firms to acquire and transfer knowledge through networks.

Knowledge transfer is the process through which one network member is affected by the experience of another. It is facilitated by intensive social interactions (Inkpen and Tsang 2005). There are many advantages of knowledge transfer: (1) Firms acquire knowledge useful in the design and management of other alliances (Lyles 1988). (2) Firms acquire knowledge about an alliance partner that supports the firm's ability to manage the collaborative task (Arifio and Torre 1988). Firms learn with an alliance partner when partners jointly enter a new business area and develop new capabilities. (4) Firms acquire knowledge from an alliance partner by gaining access to the skills and competencies the partner brings to the alliance.

2.3 Resources

Social capital can also be a source of physical resources. Resources can be shared or obtained through network relationships. Tsai and Ghoshal found a positive relationship between resources acquired via social capital and firm performance (Tsai and Ghoshal 1998). A study of manufacturing firms networks found that networks are a source of resources, such as bank loans (Human and Provan 1997).

2.4 Research Studies

Social capital is a prominent research stream in organizational strategy. For example, Tsai and Ghoshal studied a large multinational electronics company and found positive affects due to social capital (Tsai and Ghoshal 1998). Koka and Prescott studied the impact of social capital on the global steel industry (Koka and Prescott 2002). Many studies of entrepreneurship are based on network and social capital theory (Birley 1985; Jarillo 1989). It has been used extensively in entrepreneurship research. Network and

social capital theory is emerging in the discipline of Information Technology (Balijepally, Nerur et al. 2007). The Marketing field has used social capital theory as an explanation of firm performance. A recent study of Chinese businesses found that relationships are a source of resources (Luo Xueming, Griffith et al. 2004).

The field of Operations Management has recently begun to use social capital theory in the study of supply chains. A study of food supply chains in Britain found that social capital of the supply chain helped mitigate business uncertainty (Vasileiou and Morris 2006). A study of U.S. automotive and electronic industries found that strong relationships with suppliers improved supply chain performance (Krause, Handfield et al. 2007). Social capital has a potential to be a rich source of research surrounding supply chains. This is the first known study to specifically review the impact of social capital on service supply chains.

3. Service Supply Chains

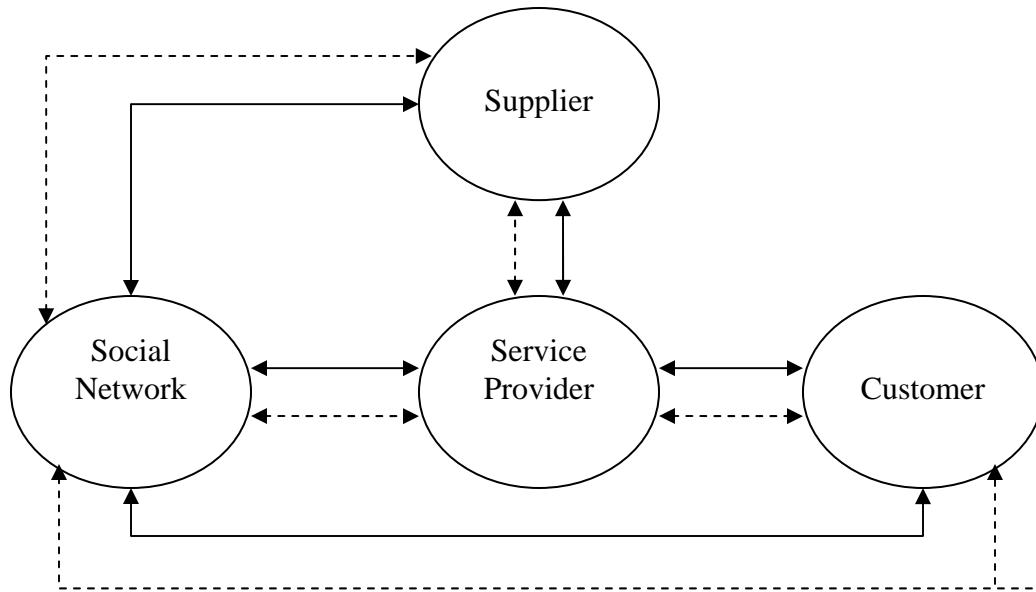
The question arises as to why do we study service supply chains separately from manufacturing. Service operations have unique characteristics not found in manufacturing (Akkermans and Vos 2003). The main source of the uniqueness is the customer involvement in the process. Unique characteristics of services include:

1. Customer-supplier duality. Services act on customers' minds, bodies, and possessions. Customers are required to provide the service. Services are both produced and consumed simultaneously. Therefore, the customers are both a source of input and output. The quality of the customer input can introduce variations and uncertainties in the process. (Fitzsimmons and Fitzsimmons 2006).

2. Perishable. Utilization of capacity is limited to present customer demand (Foster Jr., Sampson et al. 2000). Service businesses cannot build inventory when demand is low. Slack capacity is lost forever. Each empty seat on an airplane, train, or hair salon station represents capacity that is lost forever. Idle time of the workforce is another source of perishability.
3. Heterogeneity. Every customer has unique needs, which requires the services to be tailored to their needs. Again, this introduces variability and uncertainty into the process. (Foster Jr., Sampson et al. 2000).
4. Labor intensive – Services tend to be much more labor intensive than manufacturing (Fitzsimmons and Fitzsimmons 2006). Therefore, labor is often a major portion of the operating expense of a service operation. Uncertainty surrounding demand and variations makes it difficult to forecast staffing. Automation is difficult to introduce in a service environment. For example, a haircut or a physician’s consultation cannot be automated.

All of these characteristics provide unique challenges in managing a service supply chain. A typical service supply chain has fewer levels than a product supply chain. However, the flow of resources and information are intricately intertwined. The service provider is a hub for both the service and supply (Fitzsimmons and Fitzsimmons 2006). Figure 1 illustrates a service supply chain. It shows that the service firm is typically a hub with both suppliers and customers exchanging both resources and information. Social capital is shown as a source of knowledge and resources, which includes both customers and suppliers.

Figure 1: Service Supply Chain



Note: Solid lines denote resources. Dotted lines denote information.

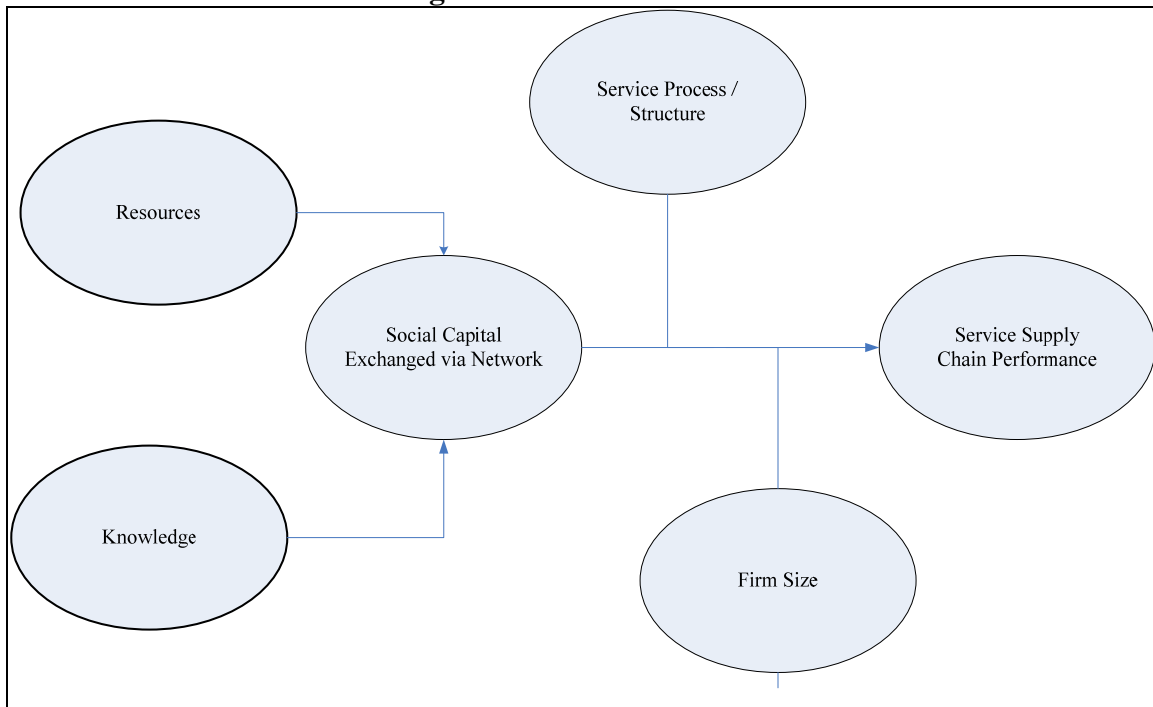
I believe, along with other authors, that the differences between manufacturing and service firms are significant enough to warrant specific studies targeted for service firms. For example a recent study of health care supply chains state the that level of customization of service and degree of participation of the customer provide an overall uncertainty to the basic process (Pitta and Laric 2004). This uncertainty can be addressed through benefits provided by social capital.

4. Social Capital in Service Supply Chains

Service supply chains are uniquely positioned to take advantage of social networks. Many of the relationships are both personal and professional. Service firms tend to use their networks of friends and ‘friends of friends’ to obtain information, customers, suppliers, and even resources. A strong network can result in an improvement in supply chain performance in terms of speed, delivery, cost or quality.

The overall research model is outlined in Figure 2. It portrays social capital as a source of resources and knowledge. The impact is moderated by the firm size and type of service firm.

Figure 2 - Research Model



Resources are defined as physical resources. This could include personnel, raw materials, or capital equipment. Knowledge is information. Information could include information about demand, suppliers, processes, or customers. Service supply chain performance is based on a number of existing metrics. Performance metrics could include on-time delivery, customer satisfaction, and cost. Service process and structure is the type of service organization, such as pure service or quasi-manufacturing. Firm size

is based on small, medium, or large size firms. Typically employee headcount is used as an indicator of firm size. Following is a detailed discussion of these antecedents.

4.1 Direct Effects of Social Capital

We propose that just the existence of social capital will have a positive impact on service supply chain performance. Social capital can be a source of both resources and knowledge. We next propose that the impact of knowledge and resources gained from social capital separately will impact service supply chain performance. This network of resources can help mitigate the risk of potential variations around demand, quality of customer input, and customization.

P1: Social capital has a positive impact on service supply chain performance.

P2a: Social capital provides resources to reduce the risk of uncertainty and has a positive impact on overall supply chain performance.

P2b: Social capital provides information to identify and mitigate uncertainty and has a positive impact on overall supply chain performance

4.2 Service Structure

Various models have been developed to provide a way to understand and research the wide range of service configurations. These models are used to classify and categorize service organizations based on a number of characteristics. This provides a method to understand commonalities in order to learn and search for common experiences and solutions. Table 1 summarizes various classification schemas obtained from operations management literature.

Table 1

Authors	Year	Concept	Classification based on:
Maister and Lovelock	1982	Facilitators of transactions	Customer contact Customization
Chase	1983	Operating efficiency 'technical core'	Customer contact

Schmenner	1986	Labor	Labor intensity Customer interaction/customization
Kellogg and Nie	1995	Strategic, focused on customer influence	Service process “How” Service package “What”

The Maister and Lovelock 1982 model is based on the concept that businesses are facilitators of transactions. Activities performed by service businesses include buying and selling goods and services, like travel agencies, real estate, and employment agencies. Their definition excludes retail institutions that takes possession of a physical product, and then resells it. Their model uses the extent of customer contact and extent of customization in the process. This results in four categories: low customer contact, low customization – factories; low customer contact, high customization – mass services; high customer contacts, low customization – job shop, and high customer contact, high customization – professional service (Maister and Lovelock 1982).

The Chase 1983 model is based on the level of customer contact in providing a service. The presence of the customer in the process is a critical constraint on operational efficiency. The customer contact model states that operating efficiency is a function of the degree to which the customer is in direct contact with the service facility relative to a total service creation time for the customer. The processes to provide a service should be tailored to the level of customer contact. Service systems fall upon a continuum of high customer contact to low customer contact. Contact is the amount of time the customer is in the service system. Theory for the model is based on the technical core. This theory states that the technical core should be sealed off from environmental influences to increase processing efficiency. The model classifies service firms into pure service, mixed service, and quasi-manufacturing. Pure services include hair salons, medical, lawyers, and professionals. Mixed services include branch offices with back office support; such as banks and insurance companies. Quasi-manufacturing services have structures similar to manufacturing. These could include home offices and distribution centers (Chase and Tansik 1983).

The service process matrix developed by Schmenner in 1986 is probably the most commonly used model. This model is based on the degree of labor intensity and the

degree of customer interaction/customization. This results in four classifications. (1) Service factories are low labor, and low interaction/customization. Examples are airlines, hotels, resorts, and recreation. (2) Service shops are low labor and high interaction/customization. Examples are hospitals, and auto repair. (3) Mass services are high labor and low interaction/customization. Examples are retailing, wholesaling, and schools. (4) Professional services are high labor and high interaction/customization. Examples are physicians, lawyers, accountants, and architects (Schmenner 1986).

Kellogg and Nie developed the service process/service package matrix in 1995. Their model addresses unique strategic issues found in service businesses. The model focuses on customer influence, the service process ('how' we create services) and service package ('what' we create.) They do not claim that all services can fit into this matrix, but most can.

Academics have not agreed on a common service process structure classification scheme. There is agreement that there are different types of service firms that have different operating requirements and requires different management strategies. The impact of social capital may vary based on the type of service structure. Pure services have the most direct customer contact which is the greatest source of variation in the process. It is expected that pure services would have the greatest need for a network of resources to meet variations and business uncertainties.

P3: Social capital has a greater impact on pure service supply chains than other types of service structures.

4.3 Firm Size

Entrepreneurship studies have identified that firm size has an impact on resources available to the firm. Often small firms have limited resources. Networks were found to be a source of resources that aided small firms in international ventures (Oviatt and McDougall 1994). Coviello and Munro conducted a study of small software firms entering into an international venture (Coviello and Munro 1997). They found that network relationships were important to the success of the venture. I believe that social

capital is even more important to the overall performance of small service business supply chains than large service business supply chains. Small firms have fewer resources than larger firms; therefore they have to rely on resources obtained through their network.

P4: Social capital has a greater impact on small service firms supply chains than larger firms.

5. Conclusion

Social capital can be an important component of the successful performance of a service supply chain. It can be used to obtain both physical and informational resources. These resources can be used to offset the variability inherent in service operations.

Social capital in service supply chains has the potential to be a valuable and interesting stream of research. The next obvious step is to empirically test the propositions. Future studies could be expanded to include the impact of firm age on social capital. Older firms should have a stronger social capital than younger firms just by the fact that they have been in existence longer. Studies could focus on just one form of service structure or an individual industry, like Health Care. There could be studies based on the different types of social capital to define which is the most efficient in obtaining knowledge or resources. Additional research on social capital could benefit practitioners and further the knowledge base of operations management research.

Citations

- Akkermans, H. and B. Vos (2003). "AMPLIFICATION IN SERVICE SUPPLY CHAINS: AN EXPLORATORY CASE STUDY FROM THE TELECOM INDUSTRY." Production & Operations Management **12**(2): 204-223.
- Arifio, A. and J. d. I. Torre (1988). "Learning from failure: Towards an evolutionary model of collaborative ventures." Organization Science **9**(306-325).
- Balijepally, V., S. Nerur, et al. (2007). "IT Value of Software Development: A Multi-Theoretic Perspective." working paper.
- Birley, S. (1985). "The role of networks in the entrepreneurial process." Journal of Business Venturing **1**: 107-117.
- Brown, J. E. and C. Hendry (1988). "Industrial districts and supply chains as vehicles for managerial and organizational learning." International Studies of Management and Organization **27**(4): 127-157.
- Burt, R. S. (1992). Structural holes: The social structure of competition. Cambridge, MA, Harvard University Press.
- Chase, R. B. and D. A. Tansik (1983). "The Customer Contact Model for Organization Design." Management Science **29**(9).
- Coleman, J. C. (1988). "Social Capital in the Creation of Human Capital." American Journal of Sociology **1994**: 95-120.
- Coviello, N. and H. Munro (1997). "Network Relationships and the Internationalization Process of Small Software Firms." International Business Review **6**(4): 361.
- Fitzsimmons, J. and M. Fitzsimmons (2006). Service Management Operations: Operations, Strategy, and Information Technology. New York, McGraw-Hill/Irwin.
- Foster Jr., S. T., S. E. Sampson, et al. (2000). "The impact of customer contact on environmental initiatives for service firms." International Journal of Operations & Production Management **20**(2): 187-203.
- Gulati, R. (1998). "Alliances and networks." Strategic Management Journal **19**: 293-317.
- Gulati, R., N. Nohria, et al. (2000). "Strategic Networks." Strategic Management Journal **21**: 203-215.
- Human, S. E. and K. G. Provan (1997). "An emergent theory of structure and outcomes in small-firm strategic manufacturing networks." Academy of Management Journal **40**(2): 368-403.
- Inkpen, A. C. and E. W. K. Tsang (2005). "Social Capital, Networks and Knowledge Transfer." Academy of Management Review **30**(1): 146-165.
- Jacobs, J. (1965). The death and life of great American cities. London, Penguin Books.
- Jarillo, J. C. (1989). "Entrepreneurship and Growth: The strategic use of external resources." Journal of Business Venturing **4**: 1330147.
- Koka, B. R. and J. R. Prescott (2002). "Strategic Alliances as Social Capital: A Multidimensional View." Strategic Management Journal **23**: 795-816.
- Krause, D. R., R. B. Handfield, et al. (2007). "The relationships between supplier development, commitment, social capital accumulation and performance improvement." Journal of Operations Management **25**(2): 528-545.

- Luo Xueming, D. A. Griffith, et al. (2004). "The Effects of Customer Relationships and Social Capital on Firm Performance: A Chinese Business Illustration." Journal of International Marketing **12**(4): 25-45.
- Lyles, M. A. (1988). "Learning among joint venture sophisticated firms." Management International Review **28**: 85-97.
- Maister, D. H. and C. H. Lovelock (1982). "Managing Facilitator Services." Sloan Management Review **23**(4): 19-31.
- Nahapiet, J. and S. Ghoshal (1998). "Social Capital, Intellectual Capital, and the Organizational Advantage." Academy of Management Review **2**: 242-266.
- Oviatt, B. M. and P. P. McDougall (1994). "Toward a theory of international new ventures." Journal of International Business Studies.
- Pitta, D. A. and M. V. Laric (2004). "Value Chains in Health Care." Journal of Consumer Marketing **21**(7): 451-464.
- Quinn, J. B. (1992). Intelligent Enterprise. New York, Free Press.
- Schmenner, R. W. (1986). "How Can Service Businesses Survive and Prosper?" Sloan Management Review **27**(3): 21-32.
- Tsai, W. and S. Ghoshal (1998). "Social Capital and Value Creation: The Role of Intrafirm Networks." Academy of Management Journal **41**(4): 464-476.
- Vasileiou, K. and J. Morris (2006). "The sustainability of the supply chain for fresh potatoes in Britain." Supply Chain Management **11**(4): 317-327.