

Business-to-Business Value Drivers and eBusiness Infrastructures in Financial Services: Collaborative Commerce Across Global Markets and Networks

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Abstract

This paper examines the value drivers and e-business infrastructures for collaborative commerce across two distinct types of business-to-business governance arrangements in Financial Services, i.e., (a) electronic markets and (b) electronic networks. This paper addresses the changing dynamics underlying global trading communities as they evolve towards greater reach and range of services for the participants.

The results of this study indicate that both e-markets and e-networks adopt multiple value drivers focusing on operational and service excellence, and customer added-value. Furthermore, within global trading communities, traditional e-markets - loosely-coupled - are evolving towards collaborative - more tightly coupled - networks, whereas traditional (closed) networks are evolving toward more dynamic trading. The implications for theory, practice, and future research are discussed.

Keywords: Collaborative Commerce, Electronic Business, Governance, Global Financial Services, Markets, Networks.

1. Introduction

The pressures of today's economy have provided drivers for evolving e-business technologies, extended supply chains, global e-markets, collaborative networks, and an increasing knowledge intensity and sensitivity for time-to-market by customers [26,27]. Organizations confronted by such a demanding environment need to innovate and invent new ways of creating value, consequently requiring enhanced and extended business processes and e-business infrastructures [27]. The competitive power in this environment lies with a collaborative network of business partners who bring the specific capabilities to bear. Financial service institutions are at the forefront of this global revolution, in which collaborative, IT-enabled business transactions and interactions amongst suppliers, customers and partners

develop into global business-to-business (B2B) trading communities. In this dynamic environment, *collaborative commerce* has emerged as a business imperative to remain competitive.

A recent international study by Deloitte & Touche indicates that many executives regard collaborative commerce as critically important to their business [13]. Collaborative commerce, or c-commerce (CC) is the next evolutionary step beyond the process of selling and/or buying goods or services over the Internet. While e-commerce focuses on efficient transactions, CC focuses on developing collaborative relationships and providing new revenue opportunities by enabling organizations, and networks of organizations, to bring innovative products and services faster and cheaper to the market [25].

CC enables collaboration beyond traditional, predefined trading partners to innovative ways of solving business problems, by capturing complementary competencies in meeting customer demands in an efficient and flexible manner [15]. CC is more than a transaction exchange; it is an intellectual-capital exchange [3]. To realize CC, organizations need to implement collaborative (electronic) business platforms and strategies. As relationships form, their collaborative nature should be built into the governance structures used to organize those relationships, without jeopardizing the strategic flexibility that is characteristic of CC nets [16].

This paper is structured as follows. In section 2, the research design and research questions are introduced. The third section describes the theoretical background of this study and discusses the conceptual model. The cases of CC are described and analyzed in the fourth section. The paper concludes with an outline of the lessons learned and directions for future research.

2. Research design and questions

While there is overwhelming evidence of the rise, fall and rise of electronic markets and networks, concerted and empirical efforts to understand the migration toward CC is lacking. Weill & Vitale [27] conclude that we are

now experiencing a second wave in the rejuvenation and migration towards electronic business. Moreover, there is a fundamental need for business-relevant empirical research. From a research perspective, the challenge is how to develop frameworks and management tools that organize and guide research efforts, and provide relevant insights and practices for understanding and managing the IT-enabled business transformation.

The main research objective of this study is to gain an in-depth understanding of the design and dynamics of CC, and develop an empirically-validated model on IT-enabled business infrastructures and governance mechanisms of CC. The main questions underlying this study are:

- *What are the dominant value drivers across B2B governance arrangements?*
- *How do e-business infrastructures differ across e-markets and e-networks?*
- *What are the dynamics underlying global financial service communities?*

Due to the contemporary, contextual and dynamic nature of CC, and the lack of a cumulative research base, a case study research design was deemed appropriate [31,1]. The specific research design is an exploratory multiple case study design. Two CC initiatives were selected in the Financial Services Industry, involving Cargo Community Network (CCN) and Bank of America (BoFA). These cases were selected because of their role in global financial services, their durable successful operations, and their different B2B governance arrangements. CCN started as an electronic network, whereas BoFA started with Ariba designed to be an electronic market.

3. Theoretical background

With CC becoming a fundamental imperative in an increasingly global and electronic financial services industry, organizations need to (a) emphasize (internal and external) collaboration in every aspect of e-business, with a customer-centric focus; (b) organize governance mechanisms that build collaborative behavior and strategic partnerships; and (c) position e-business infrastructure as an enabling capability [6, 27].

Based on the theory of contextualism [17], the foregoing elements are arranged in a conceptual model (Figure 1). The theory of contextualism suggests the need to study elements of context, content and process when studying organizational strategies and business models. The context describes the B2B value drivers, whereas content captures the type of governance mechanisms applied. The e-business infrastructure defines the range and reach of processes for CC. In the following sections, each of these elements is described.

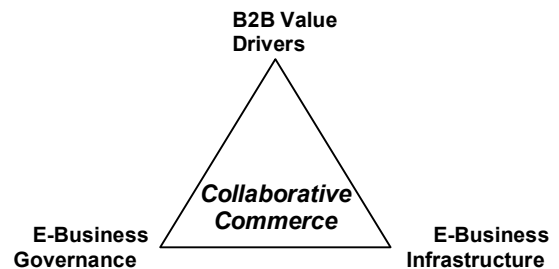


Figure 1. Conceptual model.

3.1. Business-to-business value drivers

Traditionally, organizations have focused on achieving competitive advantage through either a cost-centered or customer-centered strategy. Today however, organizations in global, hypercompetitive, digitally-interconnected environments, need to be simultaneously innovative and customer-focused, and excel at operational excellence and efficiency [27].

Different frameworks have been put forward depicting various value drivers that contemporary organizations may pursue. Treacy & Wiersema [23, 24] present a model of value disciplines, including, operational excellence, product leadership, and customer intimacy. Based on Quinn & Rohrbaugh [19] and Buenger et al. [2], Peterson [16] provides a framework of competing value drivers, indicating that organizations face different value propositions, which may change over time due to internal and external influences and experiences (Figure 2).

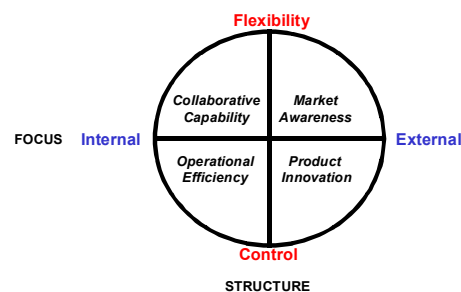


Figure 2. Competing Values Drivers (Peterson, 2002).

The model distinguishes two dimensions. *Structure* represents a preference for (a) stability and control, or (b) flexibility and change. *Focus* describes whether an organization seeks internal synergy versus external competitiveness. These dimensions form four competing value drivers:

- *Operational efficiency* focuses on improving process efficiencies, streamlining work-flows, maintaining high productivity, ensuring reliable performance, minimizing risks and work disruptions;
- *Collaborative capability* focuses on sharing scarce - information and knowledge - resources, developing human resources, building partnerships, and attaining (inter-) enterprise-wide synergies;
- *Product innovation* focuses on innovation in products, services and processes, acquiring innovative and advanced technologies, and strategic experimentation;
- *Market awareness* focuses on adaptability and responsiveness to new and unexpected market demands, flexibility in taking on new tasks, and customization of products and services.

3.2. E-business governance

Studies on (inter-organizational) governance are rooted in different theoretical perspectives, known as Transaction Cost Theory (TCT), Network Theory (NT), and Resource-Based Theory (RBT). In the form of TCT [29], governance is referred to as an institutional framework in which the integrity of transactions is decided through either markets, hierarchies or networks (Figure 3). Advancements in IT, have extended these alternative forms towards electronic markets, electronic hierarchies, and electronic networks [12].

According to *Transaction Cost Theory* (TCT), hierarchy is the most efficient governance structure in case of great uncertainty, high transaction frequency and high asset specificity. In the case of standard investments in relation to transactions (low asset specificity), the market mechanism is most efficient. However, in the case of medium asset specificity and high transaction frequency, TCT advocates a hybrid approach between market and hierarchy, i.e. ‘a move to the middle’ toward networks [4].

TCT is, however, often criticized for its entire focus on economic issues, failing to address social issues, e.g., relationships and competencies, which are essential to understanding the emergence of (electronic) networks and CC [20].

From a *Network Theory* (NT) perspective, an organization’s interaction with other players is an important factor in the development of new resources and skills. The assumption entails a change in focus away from how an organization structures its internal resources, towards how an organization positions its activities and resources with respect to activities and resources in the environment [8]. NT makes an essential contribution to the understanding of the dynamics of inter-organizational relations by emphasizing the importance of collaborative relationships between organizations, the build-up of trust through positive long-term relations, and the mutual

adjustment of routines and systems that is essential to e-business and CC.

Organizations in a network develop various kinds of relationships. Larsen [10] distinguishes between (a) technical relationships, attached to the technologies applied by the organizations, (b) social relationships in the form of personal trust, (c) administrative relationships resulting from adjusting administrative routines, and (d) legal bonds in the form of contracts between organizations.

Networks are simultaneously stable and dynamic, formal and informal [22]. New relations are established, and old relations come to an end; some relations are formal, others are informal. Existing relations will also change over time. Thus, a network has a dynamic nature that does not seek an optimal state of equilibrium, but is in a constant state of movement and change. Collaboration develops as a consequence of the stakeholders’ mutual interest in collaboration, and is based on shared understanding and trust developed through socialization [16].

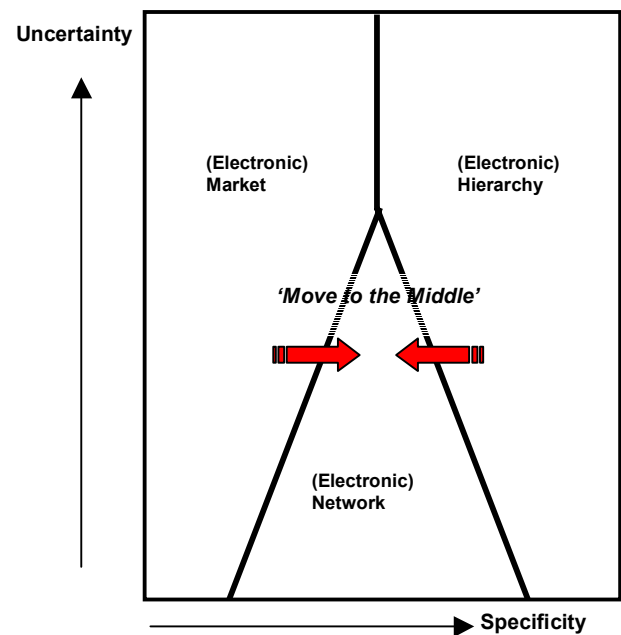


Figure 3. Governance mechanisms and the ‘move to the middle’. [4, 12, 29]

According to NT, network relationships are a valuable resource. The idea of looking at (networks of) organizations as bundles of heterogeneous resources and capabilities is rooted in *Resource-Based Theory* (RBT) [14, 28, 7]. Resources are defined as stocks of available factors that are owned or controlled by the organization, whereas capabilities refer to an organization’s ability to deploy resources to affect a desired end [7]. An organization’s resources and capabilities include all financial, physical, human, and organizational assets used

by a firm to develop, manufacture, and deliver products or services to its customers.

Resources and capabilities can create a sustainable, competitive advantage if they are (a) valuable, (b) scarce, (c) rare, (d) non-imitable, (e) non-tradable [7]. Resources and capabilities that are rare, difficult to imitate and valuable are called strategic assets or core competencies [10]. Examples of strategic assets include, fast product development cycles, establishment of buyer-seller relationships, access to exclusive distribution channels, and short order cycle time. These are all critical elements in CC.

It is important to emphasize the complementarity of these theoretical perspectives (Table 1). TCT focuses on finding the most efficient governance structure under given situational conditions, while NT focuses on sharing (tacit) capabilities in network relations with external partners. RBT focuses on competence building within and across the boundaries of the organizations.

Table 1. Characteristics of governance theories.

Characteristics	Transaction Cost Theory	Network Theory	Resource Based Theory
Assumptions	Bounded Rationality, Opportunism	Bounded Rationality, Power, Trust	Bounded Rationality, Trust
Orientation	Efficient Governance Structure	Dynamic Relational Governance	Resources & Assets
Focus	Transactions	Relations & Reputation	Competencies & Capabilities

Application of TCT to CC focuses on whether the governance mechanism is able to minimize the transaction costs. CC involves a relatively high degree of asset specificity in the form of tacit knowledge, and a relatively high degree of uncertainty due to co-development of products with partners, and personalized customer interactions. NT and RBT perspectives focus on the collaborative, socially-embedded relationships among organizations, in which resources and capabilities are (co-) developed and shared.

3.3. E-business infrastructure

The development of value-adding partnerships with suppliers - e.g., financial service providers -, offering a wide range of services covering both invoicing and payment services, raises the importance of first creating inter-organizational information sharing and business flexibility. Implementing next generation collaborative solutions requires both standardized and flexible e-business infrastructures (eBI) to share information across

products, services, locations, companies and countries. These standards can be set by both supplier or purchaser, depending on size and market power.

The concepts of *reach* and *range* [9, 26] describe the scope of such an eBI (Figure 4). Reach refers to the locations and actors - suppliers & buyers - the service architecture is capable of connecting electronically. Range refers to the service functionality - inform, interact, integrate, infuse - that can be accomplished and shared seamlessly across each level of reach. A large reach and range portrays increased architectural adaptability, and signifies the capability to simultaneously perform multiple electronic transactions across various locations and actors.

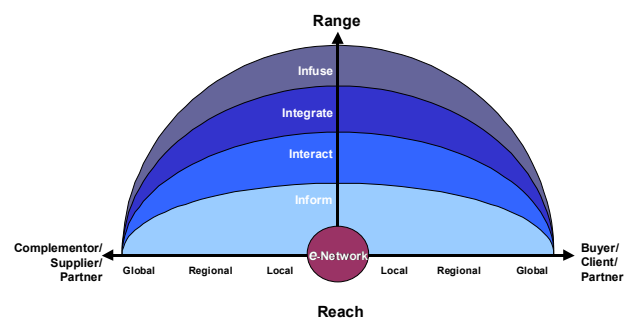


Figure 4. Reach and range of e-business infrastructures [5].

4. Case study results

In the following sections, the case studies are described (Section 4.1) and analyzed (Section 4.2).

4.1. Case study descriptions

4.1.1. Cargo Community Network (CCN) While companies around the world are slow on taking up electronic billing presentment and payment (EBPP), one early convert is Cargo Community Network (CCN) in Singapore. CCN started operating a cargo community system in 1992, and is operational in Singapore, Malaysia, the Philippines and Indonesia, with plans to expand to other countries. Through Spectrum, a comprehensive PC-based airfreight management system, CCN now links over 500 of cargo agents with 21 airlines, simplifying and streamlining the process of booking cargo space. Spectrum also allows connections to 15 overseas cargo community systems (CCS) in 20 countries worldwide. The connectivity means that members communicate electronically with other cargo agents in these countries, spanning Asia, Australia, Europe, North America, United Arab Emirates and Africa.

After the initial implementation of the e-procurement hub with Spectrum, CCN installed an EBPP invoice system called EPIC (E-commerce Payment and Invoicing for Cargo) with the help of Deutsche Bank and its db-bills package in 2000. It currently handles US\$600 million of transactions a year. With EPIC, when an airline sends an invoice, it sends a data file to CCN where invoice details are transferred to the relevant cargo agent to be reconciled against a purchase order. The details are also passed on to Deutsche Bank, which sends a bill over the Internet to the cargo agent requesting authorization to pay it.

The approved invoice returns to Deutsche Bank, which creates a debit-on-demand - an instruction to the cargo agent's bank to pay an agreed amount on an agreed date. When the funds are released, Deutsche Bank transfers them to an account at the airline's bank and sends a reconciliation file to be uploaded into the airline's accounting systems (Figure 5).

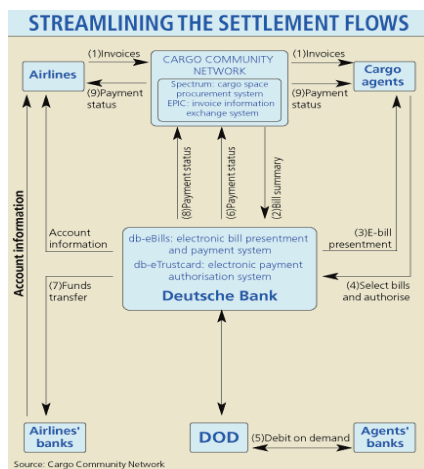


Figure 5. Flow of CCN e-settlement system.

An additional expansion for EPIC is the ability to receive e-invoices. Users can now look forward to receiving other types of Civil Aviation Authority of Singapore (CAAS) e-invoices with the introduction of Web*EPIC. Since early 2001, CAAS has been sending e-invoices including carpark invoices, utility invoices and rental invoices through EPIC (E-commerce Payment and Invoicing for Cargo). CAAS has taken EPIC further to include the following: statements of account, credit notes and other miscellaneous invoices.

Web*EPIC, the Internet version of EPIC, has been ready for use from January 2002. Recipients of bills are able to retrieve CAAS invoices on the Internet, through any ISP (Internet Service Provider). With the increasing adoption and acceptance of Internet in today's business world, Web*EPIC provides a more convenient way of retrieving invoices. With Web*EPIC, CAAS is able to send e-invoices and financial documents to reach the

airlines and its shop tenants located at the airport terminals. The airlines will be able to receive e-invoice such as LPA (Landing, Parking and Aerobridge), and the airport tenants will be able to retrieve e-invoices such as concession invoice and other bills. CCN, together with CAAS are exploring the implementation of the second part of EPIC-e-payment. This payment portion will enable the CAAS bill recipients to pay electronically, all on a secured and tested e-payment system.

CCN has also selected the world's largest network operator, Equant, to design and develop its Cargo Portal, which will be branded as CCN-Exchange. CCN-Exchange also will allow cargo agents and freight forwarders to place Requests For Quotations for cargo space to be fulfilled by the airlines. The application, based on BEA Web-Logic Personalization Server, will allow CCN to target airlines, cargo agents, freight forwarders and, in the future, shippers, through the Internet. The move is designed to provide greater reach for CCN to market its products, including schedules, cargo bookings, space availability and track-and-trace capabilities.

4.1.2. Bank of America (BofA) The strategy of building out financial services to multiple B2B e-markets figures prominently in alliances between banks and e-commerce providers. Bank of America's (BofA) Marketplace is a paradigm for a bank-developed B2B offering: The e-procurement solution is designed to initially cater to the bank's two million business customers, 80% of which are small businesses. BofA is active in e-marketplace building, including an online marketplace offering home-buying, financing, maintenance and improvement services to consumers (Homestore.com), and an investment in the Corporate Real Estate Exchange (CREX) Consortium, a voluntary association in which participating members agree to consider the excess space of other consortium partners when seeking space on the market.

Built using technology from Ariba, a San Francisco-based B2B software provider, the Marketplace initially will provide BofA's small-business customers access to the bank's "preferred suppliers" at negotiated contract prices. BofA will expand the offer to include additional value-added products and services, plus develop vertical communities to serve the buying/selling needs of customers in specific industries. BofA and Ariba are also partnering and headed toward delivering these same financial services to Ariba's marketplace customers. Delivered as open Ariba B2B Commerce Services, these financial services will target horizontal and vertical marketmakers, marketplace participants and individual buying organizations, whether they are using the Ariba platform or other solutions. This ubiquitous engine will provide businesses of all sizes with expanded payment and finance options and automated information flows for all types of purchases, from computers to capital

equipment to tons of steel. The system will integrate with EDI (electronic data interchange) and XML, and will use a variety of payment instruments.

The BofA deal is not exclusive with Ariba and is only the first in a multistage effort to finance the supply chain. Buyers and sellers will also need clearing and settlement services like credit card, automated clearinghouse (ACH), wire transfer and foreign exchange (FX). Businesses also must be able to receive data transmitted through e-markets to their bank and then integrate that information with their enterprise resource planning (ERP) systems. BofA is the leader in wire transfers, processing US\$650 billion daily through more than 120,000 wire transfers globally. BofA also leads the industry in deployment of B2B digital certificates and is a founding member of Identrus, a global authentication consortium.

The Marketplace also will serve as a portal for BofA's banking services. In addition, BofA will be a buyer on the Marketplace, using the Ariba technology to automate its own procurement practices. The alliance will gather BofA's roughly \$7 billion in yearly worldwide purchasing from outside suppliers and streamline the bank's procurement process. The Marketplace eventually will enable BofA's business customers to buy and sell to each other using various pricing schemes, from online catalogs to exchanges that employ bid/ask pricing or auctions. Customers will be able to access these services through desktop PCs or wireless Internet appliances.

Complementing the Ariba e-commerce platform will be a BofA-built "financial services engine" supporting Marketplace participants. Scheduled to become available this year, the financial services engine is designed to supply the payment and settlement needs of e-markets. BofA aims to use open standards and Internet-based technologies to be able to use this e-commerce payments engine to connect to electronic marketplaces of all types and sizes, providing the final link that will forge a true end-to-end e-commerce process.

Because of its open architecture, the financial services engine can be used by any B2B e-market, not just the Marketplace. BofA will be offering this e-commerce

platform to other market makers or corporations that want to integrate e-banking services with their own procurement platforms. The initial BofA rollout began in late 2000 in the US MidAtlantic States, and gained over 1 million new customers in its first year, leading to 3 million business customers.

4.2. Case study analysis

4.2.1 B2B value drivers While CNN and BofA operate in different markets under different governance arrangements, the results indicate that both cases are driven by comparable value drivers, involving, customer-centric service innovation, seamless and synergetic supply chain operations, and value-adding, opportunity-creating partnerships (Table 2). Interestingly, while traditionally organizations would focus on a single value proposition, the results indicate that these two cases are driven by multiple competing value propositions to improve flexibility and efficiency.

In terms of differences in value drivers, BofA provides more general services in comparison to CCN, which focuses on the provision of specific services to specified actors. A distinguishing and differentiating feature is the specificity of the product and service innovation. Whereas CCN is characterized by high product specificity (involving e.g., an Integrated Freight Management Operations System, an NT based software which provides a linkage to freight forwarders' in-house systems facilitating their transmission of Air Waybill Data, and Cargo Manifest Declaration, and services to electronically assign Neutral Air Waybill NAWB stock numbers to freight forwarders), BofA's products and services are more general, and thus less specific (involving, e.g., lines of credit, merchant services, and online banking).

The differences in the (specificity of) B2B value drivers have an impact on the (dynamics of) e-business governance arrangements and e-business infrastructures. This impact is analyzed and discussed in the following sections.

Table 2. B2B value drivers at CCN and BofA.

Focus Structure	External		Internal	
Control	Product Innovation		Operational Efficiency	
	BofA: The bank is able to offer a <i>wide range</i> of services at negotiated prices to a mass market of small customers, creating economies of scale in pricing and economies of scope in product breadth.	CCN: The network provides <i>specific</i> products and services to a specified group of collaborators.	BofA: This settlement engine will provide businesses of all sizes with expanded payment and finance options and automated information flows.	CCN: The settlement process provides a reconciliation method to streamline disputes and track changes in the orders.
Flexibility	Market Awareness		Collaborative Capability	
	BofA: The agreement with Ariba gives BofA visibility with Ariba's customers as well as its own.	CCN: Partners include hundreds of cargo agents with 20 airlines, simplifying and streamlining the process of booking cargo space. It currently handles US\$600 million of transactions a year.	BofA: Building the financial services engine allows the bank to build partnerships with both Ariba, and to create a portal for other BofA banking services for other types of customers.	CCN: Sharing of resources amongst the players has allowed CCN to also build CCN-Exchange, which provides CCN with a greater ability to collaborate on other industry issues such as scheduling and availability.

4.2.2 E-business governance

From a TCT perspective, the CCN network was created on the basis of finding the most efficient governance structure under given situational conditions. The bank's role is of a neutral third party, authorized for remittance and dispute mechanism needs. While creating a value-added network (based on its core competencies and relational capabilities) for agents and cargo air handling of support services, it enables collaboration with other CCS in different global regions. Originally created as an electronic network, CCN is moving to expand its reach by offering its products and services to other markets, thereby moving towards a more market-based governance arrangement, characterized by (relatively) less specificity in its products and services.

BofA, originally and an e-market place, on the other hand, provides an NT perspective, with the focus on developing competencies in network relations with external partners. Not only does the Bank create the Marketplace, it also has participated in real estate e-markets as well as other e-market ventures, utilizing its core competency in financial services to leverage other partners' skill sets. Both parties focus efforts in a variety of competence building activities (reach and range) within and across the boundaries of these evolving organizations, thereby clearly providing evidence of an RBT perspective. From a TCT perspective, BofA is moving towards (relatively) more relationship-specificity (following the collaborative capability value driver) in enabling a dynamic trading community.

Interestingly, these cases can be seen to be evolving from their original state - as either an e-market or an e-network -, towards a move to the 'market-network intersection' (Figure 6). While CCN shows a network-to-market transition, BofA illustrates a market-to-network transition. This is *not* a 'move to the middle', but an expansion toward electronically-enabled, dynamic open networks (eDONs), in which *collaborative networks* and *electronic commerce* mesh into *Collaborative Commerce*. eDONs are characterized by the multiplexity of embedded technical, organizational and social relationships, enabling strategic collaboration among organizations. The access to complementary resources is an important asset, in which intangible assets (tacit knowledge and capabilities) play a pivotal role in developing and sustaining competitiveness of a (network of) organizations.

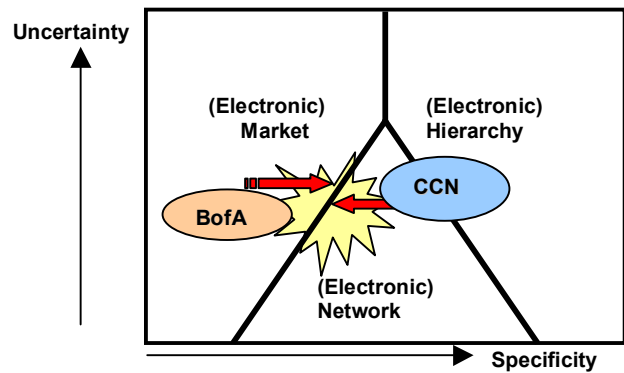


Figure 6. Transitions in E-Business Governance at CCN & BofA: Emergence of Collaborative Commerce.

4.2.3. E-business infrastructures

With regard to the eBI, the results indicate that CCN and BofA differ in the level of reach and range of e-financial services provided. Whereas BofA provides simpler - more general - services to a wider group of actors across multiple locations, CCN provides complex - more specific - services to a limited set of actors across different locations (Figure 7). This is consistent with the difference in value drivers and the transitions in governance mechanisms, i.e., more complex services are more likely to be provided across a limited, specified set of actors. The more generic and general the services are, the more likely it is that these services are provided across a wider group of actors.

The case studies indicate that the implementation of CC solutions requires a complex eBI, involving relatively high reach and range. In the case of CCN, there is a clear transition towards increasing the market-customer reach, whereas BofA is increasing its product and service range. Both cases are evolving towards a strategically flexible CC infrastructure.

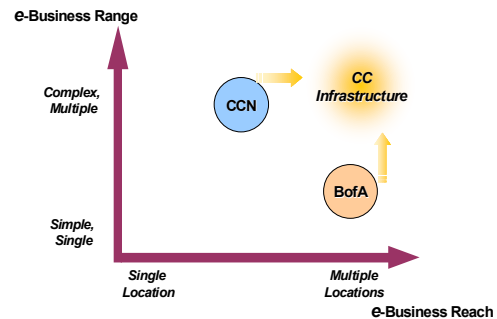


Figure 7. E-business infrastructure at CCN and BofA, and the shift toward CC infrastructures.

5. Conclusions & directions for future research

The objective of this study was to gain an in-depth understanding of the design and dynamics of Collaborative Commerce (CC), and develop an empirically-validated model on the value drivers, governance mechanisms, and business infrastructures of CC. While we recognize the limitations of this study - exploratory research design with limited external validity -, the findings do hold important lessons for theory development, IT management, and future research.

With regard to the first research question - *What are the dominant value drivers across B2B governance arrangements?* -, this study indicates that organizations in market-based (e-markets) and collaboration-based networks (e-networks) have multiple competing value propositions, including customer-focused innovation, seamless network operations, and value-adding, opportunity-creating partnerships. A key differentiator across e-markets and e-networks is, however, the complexity and specificity of products and services. Consistent with the TCT perspective, low (product) specificity is associated with more market-based networks, whereas higher (relationship) specificity is associated with a network-like structure.

How do e-business infrastructures differ across e-markets and e-networks? This study indicates that e-markets are more likely to be characterized by a high reach and low range, i.e., being able to connect a wide(r) reach of actors and locations, yet with less complex and specific product offerings and services. In contrast, e-networks are more likely to be characterized by a low(er) reach and high(er) range, i.e., interconnecting a specific group of actors and organizations, and providing more complex and specific product offerings and services.

With respect to the third research question - *What are the dynamics underlying global financial service communities?* -, the results provide preliminary evidence of an expansion toward electronically-enabled, dynamic open networks (eDONs), in which traditional e-markets - loosely coupled - are evolving towards collaborative - more tightly coupled - networks, whereas traditional (closed) networks are evolving toward more dynamic trading. The expansion involves the hybridization of electronic commerce and collaborative networks into CC.

This transition is explained by combining TCT, NT and RBT perspectives, thereby providing a multi-theoretical lens for understanding the design and dynamics underlying CC in global financial service communities. Whereas the 'move to the middle' hypothesis (Clemons et al., 1993) is based

predominantly on a transaction-cost perspective, our study indicates that the 'expansion toward eDONs' hypothesis is informed chiefly by a resource-based-network perspective.

It is, of course, necessary to expand beyond a few successful case studies to also examine unsuccessful implementations that have failed, and how drivers and implementation issues differ between those that continue to thrive and those that have disappeared. Future research could focus on the quantification and statistical analysis of the relationships between value drivers, governance mechanisms and eBI. A longitudinal research design would also provide evidence for causality, and provide empirically-relevant insights for managing the architectural transformation, and the migration toward viable eDON models and sustainable CC environments.

A proposed model for future research is graphically illustrated in Figure 8. The proposed research model describes the strategic context, the design and the strategic performance of CC. The strategic context depicts the business value drivers and the (potential) IT capabilities that impact the design of e-business governance mechanisms and (realized) e-business infrastructure flexibility, which subsequently result in (achieved) levels of IT performance and business value.

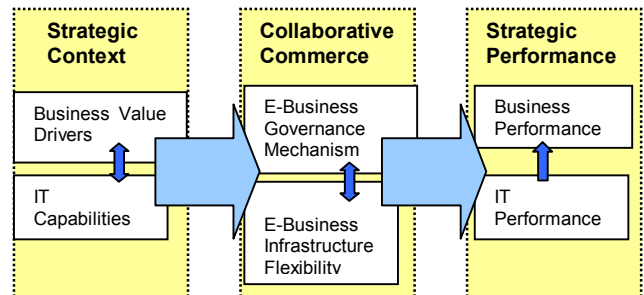


Figure 8. Proposed model for future research.

Based on this study, the proposed research model hypothesizes that business value drivers (multiple value propositions) and IT capabilities (connectivity and interoperability) will impact the type of (transition in) governance mechanism and the resulting flexibility (reach and range) of the e-business infrastructure. The match between the e-business governance mechanisms and the (required and realized) e-business infrastructure flexibility is hypothesized to influence the business value realized from CC. The strategic performance and business value of CC consists of an 'IT performance' component (e.g., actual connectivity, availability, reliability, and scalability) and a 'business performance' component (e.g., business process improvement, product innovation, intellectual capital, revenue per transaction,

average transaction value, transaction value growth rate, seller/buyer satisfaction).

Though exploratory in nature, the results of this study hold important implications for the management of e-business. These initial findings can be tailored to executive guidelines for aligning the business value propositions with the types of governance mechanisms used, and the capability of (current and future) e-business infrastructures. One can implicitly assume that IT management understands and is cognizant of the business value drivers, develops both internal (with business) and external (with IT vendors) partnerships to develop and deliver the required e-service architecture. However, despite more than four decades of managing IT, this remains, a critical concern in many companies. With the advent of complex electronic business environments, the importance and relevance of internal and external collaborative relationships will only increase. More than technology, true collaboration is based coming on together, working together, and staying together.

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