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Contents

Offerings as Commitments and Context: Service systems from a language action perspective

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Abstract

The rise of the service economy contributes to turbulence in today's world of business. This paper responds to the call for a new science of service systems with an approach based in the language-action perspective.

This understanding of service systems is founded on the concepts of offerings and co-production developed by Richard Normann and Rafael Ramirez. It is extended with a model of conversation for action by Fernando Flores and Terry Winograd, and a commitment management protocol by Stephan Haeckel.

Commitments to four types of obligations based in language-action are described, and placed in a larger context of peripheral events, language and action.

Key words: service systems, offerings, co-production, language-action, commitments, context

Introduction

The nature of businesses in the 21st century has changed. In developed countries around the world, the contributions of agriculture and manufacturing have gradually trended down with shifts towards a "new" service economy. For many organizations and institutions, this turbulence portrays and environment where "the ground is in motion" (Emery and Trist 1965). In measures of economic output, the delivered form of products has decreased while services increase, and end products composed of material content has decreased while information content increases (Apte, Karmarkar and Nath 2007). The service sector makes up 60% to 80% of the economy in developed countries (Wölfl 2005). A significant portion of the value-added in these economies is now from ICT capital (OECD 2007). In measures of economic inputs, intellect and talent – as creative class occupations that exercise post-secondary education – in the "new" service economy generates wealth disproportionately in comparison to manufacturing jobs and hourly-paid service roles (Florida 2007).

Consider three concrete examples where the manufacturing paradigm has been impacted by advances in technology:

❑ *Financial services*: Banking and insurance "products" have always been intangibles, but used to be associated with physical branches or local offices. As the number of branches and local offices decline, connections between customers and agents have migrated to

electronic communications (e.g. Internet, mobile telephone). Mergers between companies have brought down walls separating the services of savings, investments and protection against future risks. The pursuit for a greater "share of wallet" has resulted in relationship marketing becoming a key focus for leading businesses.

❑ *Media and entertainment*: Mass communications (i.e. television, radio and newspapers) in the late 20th century adapted to alternative channels of physical distribution (e.g. videotapes and DVDs, audio cassettes and compact discs, bulletin boards and fax). Ubiquitous broadband access and the on-demand availability of digital content (e.g. Flash video, MP3 audio, blogging) content has challenges businesses to rethink the value of assets and their distribution.

❑ *Information technology solutions*: The computer industry is a continuing case study in value migration. The primacy of hardware as the primary source of value in the mainframe era was revolutionized by personal computing. Software and applications are now challenge by the rise of free/libre and open source alternative. Custom systems integration services have given way to global service providers, networked together over the Internet.

Examples can also be cited in manufacturing-oriented enterprises, where subcontracting and outsourcing of service functions have been common. All of these changes as contributed significantly to growth in the "new" service economy.

This "new" service economy does not operate with the same linearity as time as exhibited in the seasonal cycles of agriculture. It does not operate with the same linearity of building up products in goods manufacturing. Understanding a new *science of service systems* has called for a new perspective.

A service system can be defined as a dynamic configuration of resources (people, technology, organisations and shared information) that creates and delivers value between the provider and the customer through service. In many cases, a service system is a complex system in that configurations of resources interact in a non-linear way. Primary interactions take place at the interface between the provider and the customer. However, with the advent of ICT, customer-to-customer and supplier-to-supplier interactions have also become prevalent. These complex interactions create a system whose behaviour is difficult to explain and predict (IfM and IBM 2008)

The ability to dynamically configure (and reconfigure) resources marks the difference between a business organization that continues to adapt and transform the ways it creates value, and a business organization that becomes irrelevant to society.

Much progress has been made in reorienting thinking on services businesses. As a complement to approaches rooted in business design, marketing and operations, a language-action perspective – with roots in computer science and phenomenology – is proposed. At a micro level, the language-action perspective describing conversations that direct and coordinate the behaviour of parties to agreements.

The next section frames social interactions in the context of service systems, and reviews some recent contributions to developing a new science. Then, the language-action perspective is reviewed, and extended to describe commitments to various types of obligations. Since one commitment can be

directly related to another commitment, and indirectly to other language and actions, linkages and impacts to the larger context are considered. In conclusion, the potential contribution of the language-action perspective to a science of service systems is reviewed.

Service systems dynamically reconfigure coproduction with offerings as platforms

The three concrete examples illustrate how service systems now rapidly reconfigure at the customer interface, and behind the scenes.

- ❑ Financial services used to treat classes of customers equivalently, providing standard offerings. Banks offered chequing, savings and commercial accounts; insurers would bear risks of death and major accidents. Today, financial service companies converse with their customers to better understand specific needs, so that a portfolio of potential financial services can be tailored. Behind the scenes, the lead financier finds others to participate in syndicates to underwrite exposures.

- ❑ Media and entertainment in the 20th century was centred on delivery on a broadcast or publishing schedule. The advent of CDs, videotape and DVDs enabled time-shifting. Now, watching and listening media is on demand over broadband Internet. Each audience member can select content according to his or her own taste and channel of convenience.

- ❑ Information technology solutions in the mainframe age were mostly oriented towards a single hardware provider. The rise of interoperable software now allows businesses and individuals to choose a technology platform appropriate to needs, and integrate software modules from commercial and open source providers to suit specific needs.

Each of the examples above reflect a change from a push-oriented, back-to-front product-centred supply chain, in favour of a pull-oriented, front-to-back service demand fulfilment. In the next section, the value coproduction is described in terms of non-linearity in the interactions within value constellations. Then, the enablement of reconfiguring coproductive resources in an age of ubiquitous ICT (information and communication technologies) is described in a framework of offerings as interactions including physical products, services and infrastructure, and relationship.

Value is coproduced between actors in a value constellations rather than a linear value chain

Exchanges between actors – either as individuals or organizations – can be viewed from a larger network perspective. Viewing a service system as *complex* has deep implications in systems theory. The value chain perspective a provider and a customer as essentially independent, as ownership and production of an item is handed off from one party to the next. In contrast, the value constellation perspective recentres attention onto the interactions *between* parties, as coproduction of an output.

> From [the] value constellation perspective, value is co-produced by actors who interface with each other. They allocate the tasks involved in value creation among themselves and to others, in time and space, explicitly or implicitly. This opens up many opportunities for defining relationships between actors and reassigning activities. If we look at a single relationship in a co-productive system (for example, that between customer and supplier) this view implies that the

customer is not only a passive orderer / buyer / user of the offering, but also participates in many other ways of consuming it, for instance in its delivery. Etymologically, consumption means value creation, not value destruction; this sense of consumption is inherent in the "value constellation" point of view. Furthermore, as actors participate in ways that vary from one offering to the next, and from one customer / supplier relationship to the next, it is not possible to take given characteristics for granted: co-producers constantly reassess each other, and reallocate tasks according to their new values of the comparative advantage each other to have. (Normann and Ramirez 1994, p. 54)

In systems theory, coproduction (as in a value constellation) is contrasted to producer-product (as in a value chain). Coproduction is expressed as "*the* most critical concept" in purposeful systems (Ackoff and Emery 1972, p. 23). It's not sufficient for a business to just produce a product. A customer has to participate in the process, at least by receiving it.

What is new is not co-production, but the way it now expresses itself in terms of role patterns and modes of interactivity. The characteristics of today's economy naturally reshape co-productive roles and patterns. The distinction between "producer" and "consumer", or "provider" and "customer" is ever less clear as the business landscape takes more of a "service" mode. (Normann 2001, p. 96)

Appreciating coproduction – as an alternative to producer-product – is core to the definition of the service economy when approached as a science of service systems. Metaphorically, a bus system operates as producer-product when it operates its routes without picking up any passengers, failing to serve its essential function to riders. A taxi system can't operate unless the passenger is a co-producer, giving the driver a destination. The bus system as a make-and-sell model is in contrast with the taxi system as sense-and-respond model (Haeckel 1999). This view on coproduction has been compared with the literature on service dominant logic, and found to be complementary (Michel, Vargo and Lusch 2008).

The concept of coproduction is foundational in the redefinition of a business system away from products and services, towards offerings in a business model.

Offerings are interactions that provide benefits in the form of (a) physical product, (b) service and infrastructure and (c) interpersonal relationship

The definition of an *offering* has evolved. It was first centred on assets and resources:

... the production, or rather co-production, of value in the emerging service economy is manifested in offerings, to which several actors contribute by performing specific activities. The offering is the physical and 'in-person(s)' embodiment of assets made up of knowledge and experience, in themselves the result of myriad activities performed by many people dispersed in time and space. Assets and resources imply the storage of activities which have been configured for a particular purpose, for a particular actor in a given location at a given time. [....] [... in] the final analysis, whether customers buy a 'product' or a 'service', they really buy access to resources. (Normann and Ramirez 1994, pp. 49-50)

Offerings as commitments and context

As the concept of coproduction has strengthened, the definition of offering has recentred on the interaction between actors, rather than assets and resources accessed by the actors. This has provided a path from the prior benefits associated with physical products, services, and information, to an extension with the addition of interpersonal relationships

> ... the *offering* is here defined as 'a limited set of focused human interactions which can, and is intended to, generate positive exchange and customer value.' This definition acknowledges that the offering can provide benefits to the customers not only in the form of physical products, but also in the form of service transactions, and/or usable or new information. Normann and Ramirez (1984) argued that in any case, obtaining value from a good always also required the service and information aspects of the offering. No such thing as a 'pure good' exists. Nor is there such a thing as a 'pure' service, which can be valued independent of the use of a good.
>
> Defining the offering as a set of interactions extends the Normann and Ramirez view of an offering to also include access to -- or enhancement of -- *relationships.* These relationships may be formed in the selling and buying activities, or later, as customers use the offerings with others. Particularly in industrial marketing, such relationships are normally .now an explicit part of the 'package of benefits' that the purchaser gets access to upon acquiring an offering. (Ramirez and Wallin 2000, p. 58)

An offering can be illustrated as a delivery package in three dimensions: physical product content, service and infrastructure content, and interpersonal relationship (people) content. Since the offering is a coproduction of the supplier and customer – and potentially, subcontractors – the shape of the delivery package could be different in every instance.
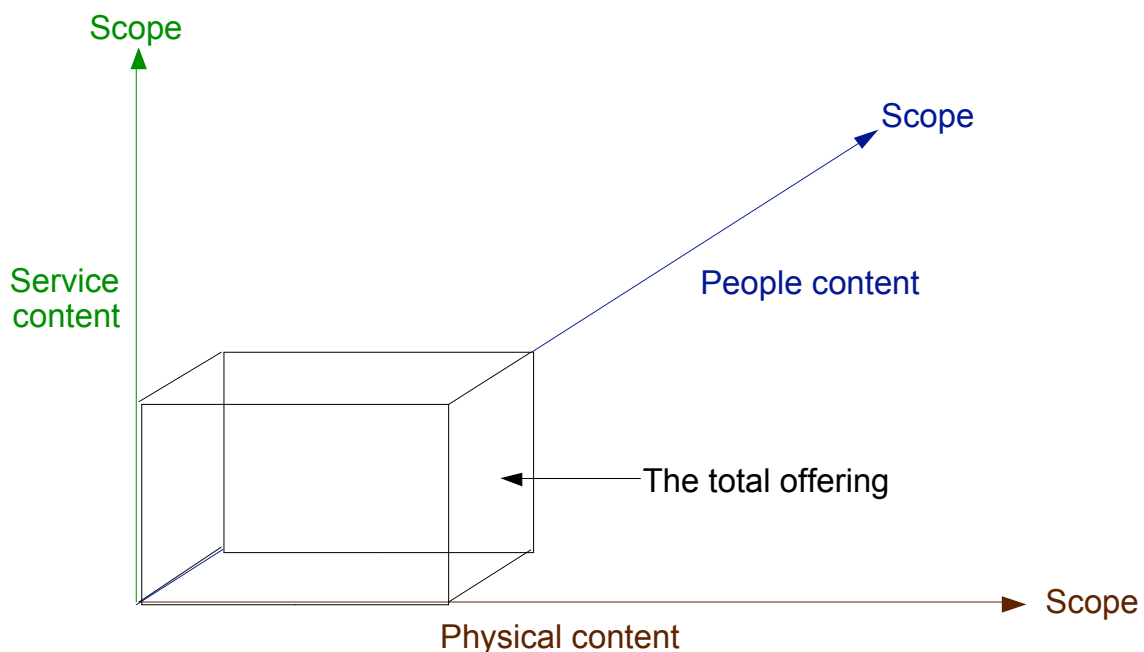

Figure 1. The three-dimensional offering [following Ramirez & Wallin (2000), p. 58]

> ... it is useful to examine the offering in terms of a three-dimensional activity package (Figure 3.2). The three axes are *hardware* (or the 'physical product content' of the offering), *software* (the

'service and infrastructure content'), and *'peopleware'* (the interpersonal relationship or 'people content').

❑ The physical content of the offering consists of elements such as the core product, the packaging, the quality and dependability of the good and its material components, the product range, etc.

❑ The service content includes distribution, technical support, product modifications, customer training, on-line advice, troubleshooting, warranties and other trust-supporting insurance aspects, information brochures, brand reputation, complaint handling, invoicing, integrated information systems, etc.

❑ The people content covers issues like long-term partnerships, interpersonal trust, reputation, human resource co-development, etc.

... different customers will emphasize different axes of the offering. (Ramirez and Wallin 2000, pp. 58-59).

The language here is tricky. The definition of an *offering* includes service content. Expressing the offering as a part of a *service system* logically makes service content a part of a service system. A service system includes goods, services and relationship.

Since the service system can include multiple interactions between actors, specifying an offering may require clarification of *which* interaction(s) is/are in current focus. An offering can be seen as either an input or an output:

Offerings are the *output* produced by one (or several) actor(s) creating value -- the 'producer' or 'supplier' -- that becomes an *input* to another actor (or actors) creating value - the 'customer'. (Ramirez and Wallin 2000, p. 47)

Thus, in studying a service system – just as in studying any system – specification of the boundaries of the system of interest provides landmarks on which a collaborative inquiry can be based.

With this foundation on service systems established, our focus can turn to frameworks focused on business interactions, approached from a communications perspective.

The language action perspective frames social interactions as series of speech acts

The language action perspective has roots in cybernetics thinking, as Fernando Flores worked with Stafford Beer in Chile in the early 1970s. It makes linkages between language and action, providing a foundation on which information systems can be designed.

The language-action perspective, as its name suggests, rests on two key orienting principles. The first is its focus on linguistic communication as the basis for understanding what occurs in information systems. Ultimately *all information is communication*: not an abstract system of bits and bytes but a means by which people interact. The second principle is that *language is action.* Through their linguistic acts people effect change in the world. (Winograd, 2006, p. 73)

An appreciation of the development of the language action perspective can be developing by tracing its history. Firstly, the origins in phenomenology and computer science by Fernando Flores are reviewed. Application of the theory in business management is then described, as the commitment management protocol proposed by Stephan Haeckel. The body of work continues with development of language action as a skill for innovation.

Conversations for action follow speech acts in repeatable patterns

Circa 1980, while computer science was exploring artificial intelligence, research into *decision support systems* was developing in parallel. As a contribution to understand "what do people do in an office?", a linkage was made between action and communications. By recognizing certain forms of speech as commitments, organizational breakdowns could be modelled and remediated.

> Let us use the insights gained into the relationship between commitments and action to analyze organizations. For this purpose we make the following assertions:
>
> ❑　Organizations exist as networks of directives and commissives.
>
> ❑　Break-downs will inevitably occur and organizations need to be prepared for them. In the process of coping with break-downs, whole new networks of directives and commissives are triggered. [p. 102]
>
> ❑　The process of division of labour may be considered a cultural heritage of ways to cope successfully with anticipated break-downs. This has been a constant concern for managers. (Flores and Ludlow 1980, pp. 102-103)

A customer makes a request to a potential supplier as a *directive*. At the supplier, a customer service representative conventionally acknowledges the request with a *commissive* that it will be fulfilled. That commissive may trigger a series of internal commitments amongst individuals in other functions to carry out distributed action. If the business system (e.g. a service system) is well-designed, each party who has taken on a commitment should be able to ensure smooth completion of the required actions. If organizational breakdowns occur, and are not then remediated to preclude future recurrences, dysfunction may manifest to a degree that it becomes apparent to external parties such as customers.

As the theory become better developed, more attention was placed on the enablement through information technology. The speech acts and resulting states were described more rigorously:

> ... we will consider in some detail the network of speech acts that constitute straightforward *conversations for action* -- those in which an interplay of requests and commissives are directed towards explicit cooperative action. [....]
>
> We can plot the basic course of a conversation in a simple diagram like that of Figure 5.1, in which each circle represents a possible state of the conversation and the lines represent speech acts. This is not a model of the mental state of a speaker or hearer, but shows the conversation as a 'dance.'
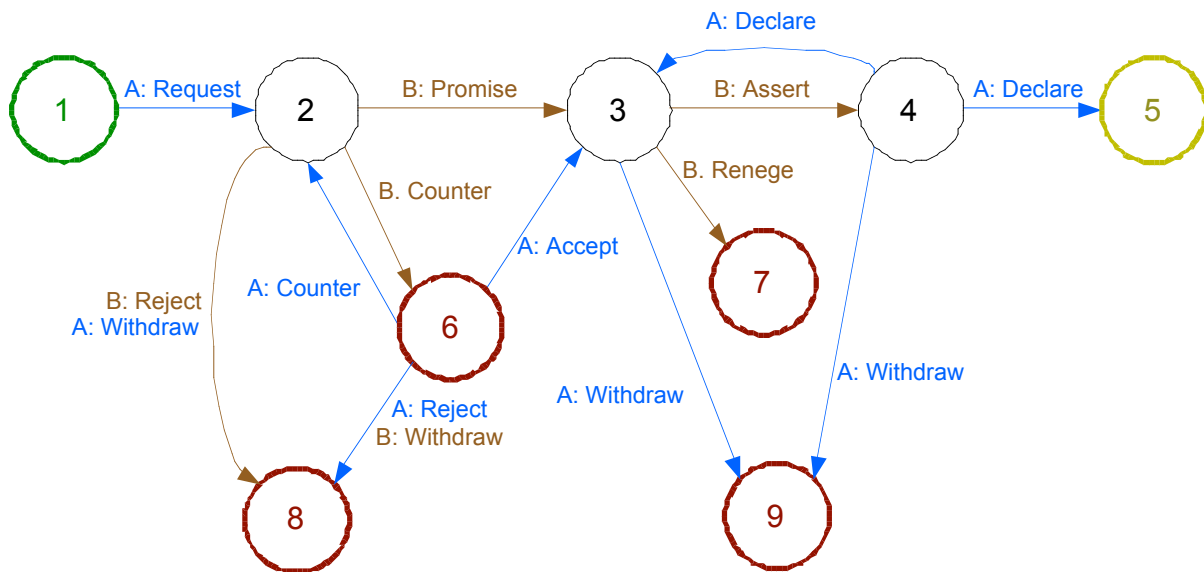
A: Declare

| 1 | A: Request | 2 | B: Promise | 3 | B: Assert | 4 | A: Declare | 5 |

B. Counter

B. Renege

A: Accept

A: Counter

B: Reject
A: Withdraw

6

7

A: Reject
B: Withdraw

A: Withdraw

A: Withdraw

8

9

Figure 2. The basic conversation for action [following Winograd & Flores (1986), p. 65]

The lines indicate actions that can be taken by the initial speaker (A) and hearer (B). (Winograd and Flores 1986, pp. 64-66)

An initial request includes conditions of satisfaction, to which a potential supplier can take action with a speech act. Each act changes the state of the conversation for action, leading either to a successful completion or a breakdown. The contribution of this model to computer science was the clear partitioning of action – coupled with language – conducted by human beings, and the structuring of communications appropriate to designing the supporting information technologies.

The publication of this model led to significant discussion in Computer Supported Cooperative Work journals. Concern arose about management control of workers, potentially approaching Foucault's model of discipline and punishment when control is too heavy-handed. The impact of technology on organization was a concern, "for technical systems it is the computer scientist (presumably assisted by organizational development consultants and the managers who employ them) who is now cast into the role of designer not only of technical systems but of organizations themselves" (Suchman, 1994). Responses included that, in large enterprises, "the use of explicitness makes possible coordination of kinds that could not be effectively carried out without it." (Winograd, 1994).

Organizations can be coordinated through commitments to roles and accountabilities

In the 1990s, Haeckel saw that management as *command-and-control* didn't reflect the realities of the rise of the knowledge worker (Cortada 1988) and the market driven organization (Day 1999). Senior executives lead in setting organizational context with definition of the business design of the enterprise, while empowering business professionals with accountabilities devolved situationally. Empowered professionals can coordinate their own structures of action with clarity, in a protocol of *who owes what to whom*. The management hierarchy should only be invoked in irreconcilable cases of breakdowns:

By coordinating the dynamics of who owes what to whom and detecting breakdowns early on, leadership can manage the interactions without interfering with the actions of empowered and accountable people. [....]

Organizational responsiveness comes from giving individuals and groups the freedom to behave in ad hoc ways to respond to unforeseen circumstances. Because followers know more than leaders do about how to respond, it makes no sense for managers to define their subordinates' behaviours in advance. It is the ends -- not the means -- that matter. As the discussion of high-level business designs emphasized, specifying outcomes, rather than the activities undertaken to produce them, is the essence of adaptive system design. In a sense-and-respond organization, roles make commitments to one another to produce outcomes. These inter-role commitments are the interactions that matter most and must be managed. For this reason, organizational roles are defined in terms of accountability for commitments to particular outcomes, rather than in terms of activities. (Haeckel 1999, p. 142)

As a complement to the formalization of conversations for action, outcomes and acceptance of accountabilities when taking a role are emphasized as governance:

In the sense-and-respond governance system, a commitment is an agreement between two parties to produce a defined outcome and to accept that outcome if it meets the conditions agreed to. One party, the supplier, takes responsibility for producing the outcome. The other party, the customer, must accept the outcome it if meets the conditions of satisfaction. Accountability is established by this interaction. It is a personal acceptance of the consequences of making a commitment. Accountabilities exist only in connection with commitments between people. A person must be accountable to someone, which means no one can be generically accountable for sales, manufacturing, or quality. For the same reason, no process, machine, or system can be accountable for anything. Accountability arises from an agreement between two people about who-owes-what-to-whom. (Haeckel 1999, pp. 142-143)

Describing commitments as protocols reflects the desire for adaptiveness. The meaning of *protocol* has linguistic roots as the *first pages* -- think of first steps -- in a larger set of procedures or rules. The approach is not to create an exhaustive representation for every potential path and contingency, but instead to capture the essential features of a desired future state so that action can proceed.

Every commitment involves a supplier and a customer. The terms identify the provider recipient of any specified outcome and so can refer to two parties within an organization internal supplier responding to an external customer. [….]
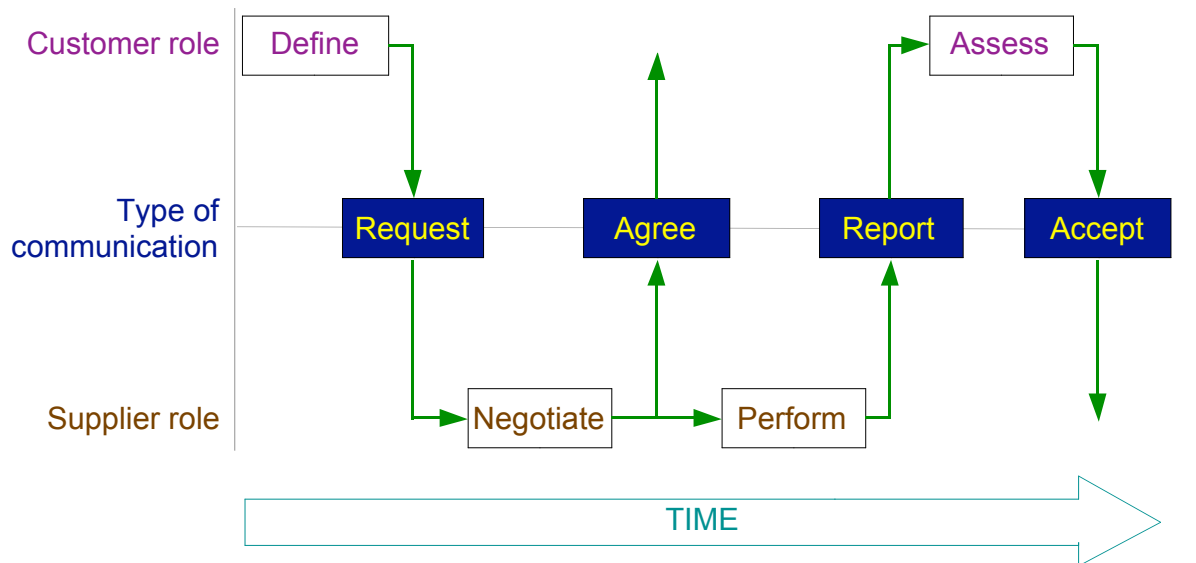
Figure 3. The Commitment Management Protocol [following Haeckel (1999), p. 244]

The vertical arrows represent the speech acts separating the task stages of a commitment. [….]

The specific positioning of the speech acts allows a process designer to affect the amount of risk associated with a particular commitment. Making a commitment, for example, (*agree*ing) immediately after receiving a request, and without negotiating the subordinate commitments on which its fulfilment depends, invites some risk. [....] But if the request will always be a standard one carried out successfully many times before, the risk will be minimal, and designing for an immediate agreement is reasonable. If, on the other hand, the request is unprecedented, the supplier will want to minimize risk by positioning the agreement closer to the report of completion and adding subsidiary protocols in the negotiation phase to charter a feasibility study or development of a prototype. In especially high-risk circumstances, the supplier may even choose to carry out tasks normally not carried out until the perform phase, such as conducting a feasibility study, before agreeing to the commitment. (Haeckel 1999, pp. 243-244)

The formal recording of commitments that individuals should take on in roles can be limited to the most significant. However, as parties find that clarity helps to accelerate desirable outcomes while minimizing communication breakdowns, they may begin to recognize the patterns in their speech and more carefully articulate verbal agreements.

The language-action perspective has continued to develop as an area of research

The language-action perspective, as a field of study, has continued to develop (Weigand 2006). While much of the emphasis in the research continues on human-computer interaction, language action has also been recognized as a skill that can be used as a path to business innovation. As alternative to theoretical and empirical frameworks, language action can be applied as a generative framework on which personal skills contributing to innovation can be developed. Coming from a practice-oriented, phenomenological foundation, innovation is seen both as an individual and group predisposition.

Our main claims are:

❑   Innovation occurs when a group or community adopts a new practice.

❑   Invention and innovation are two different skill sets

❑   The language-action perspective helped identify seven practices that constitute the innovation skill set.

❑   Anyone can learn the innovation skill by mastering the seven personal practices. [p. 52]

In the popular view, innovation is the product of the fertile, creative mind, the work of the "lonely genius": a cognitive process. Our framework shifts the emphasis to interaction. Innovation means not only that a group or community adopts new practices of interaction, but the way to arrive there is through seven kinds of interaction with those groups and communities. (Denning and Dunham 2006, p. 52)

The seven practices are:

❑   sensing possibilities,

❑   envisioning new realities,

❑   offering new outcomes,

❑   executing plans and actions

❑   adopting new practices,

❑   sustaining integration,

❑   leading, and

❑   attending to somatics.

Consistent with the practices of world disclosing (Spinosa, Flores and Dreyfus 1997), the practices are not cognitive, but expressed in the world with others. This reflects the communicative nature of innovation, and its linkages to collective action.

With the common systems foundations in both offerings and in language action described as two complementary bodies of knowledge, developing a blend presents an opportunity to make a contribution towards a new science of service systems.

The offerings of a service system can be characterized by types of obligations

Offerings and language action both take an interactional perspective. Offerings emphasize on the package of physical product content, service and infrastructure content, and interpersonal relationship content between co-producers. Language action focuses on communications and the way the world is changed through collective action. The interactional perspective, however, is sometimes easy to overlook.

As a way to make the interactions more concrete, obligations are categorized into four types. These categories may not be comprehensive or exhaustive. They are presented as a way to surface everyday

interactions as conscious language action. Recognizing the four types also may also help to clarify shared paths and directions, as well as mutual exclusions of path not taken.

Obligations can be formalized as commitments to deliverables, process, capabilities and/or relationships

In business interactions, commitments are commonly made in (at least) four types of obligations. These are depicted in Figure 4.

Commitment to a deliverable ?produce | Commitment to a process ?follow | Commitment to a capability ?provide | Commitment to a relationship ?contribute
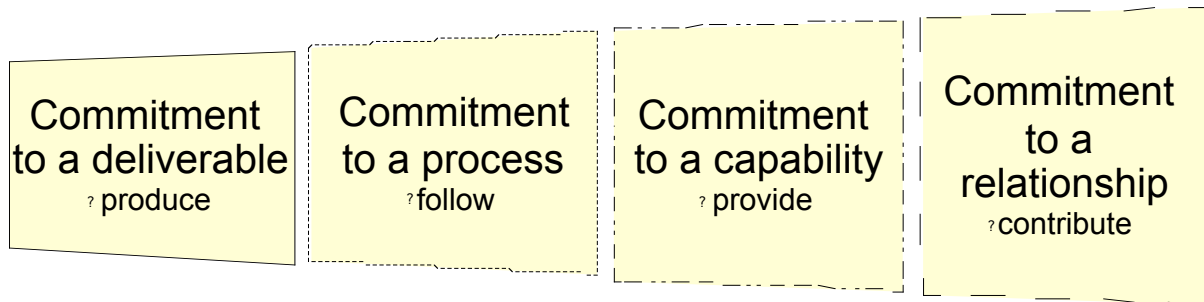
Figure 4. Commitments to four types of obligations

The four types of obligations have different orientations towards ends, means, and time horizon:

A *commitment to a deliverable* obliges the supplier to *produce* an outcome – as either a tangible or intangible change in the world – at some point of time in the future. The emphasis on an end and a fixed date may include some specifications of quality on the product. The means by which the outcome is produced is generally left to the discretion of the supplier, unless the customer wishes to include some additional conditions of satisfaction. A commitment to a deliverable is common when the end can be well defined, and both parties have aligned expectations on the future state. Most purchases are conveyed through a commitment to produce a deliverable.

A *commitment to a process* obliges the supplier to *follow* a specified procedure or method. The sequence of steps is normally clear, although progress through interim states may be contingent on other actors or events. Embarking on a process suggests some alignment on expectations of potential future states, but the final end may be uncertain until the commitment is completed. A commitment to a process is common when parties have a desire to resolve an issue that requires deliberation or learning on the way. A legal proceeding or a binding arbitration requires that parties agree to a commitment to follow a process.

A *commitment to a capability* obliges the supplier to *provide* resources on demand, over a period of time. An instance of capability provided may include producing a deliverable and/or following a process. The capability may be invoked many times, once, or not at all. The commitment to provide a capability can be a mitigation of a risky and/or improbable event, against which the customer desires insurance. Conditions of satisfaction may specify levels of quality on deliverables, and/or levels of performance on process. A commitment to provide a capability has a specified start date and end date. Higher uncertainty on the expected need to draw on the capability in the future may be reflected by the supplier setting a shorter duration or higher price for the obligation. Such a commitment may be renewed with different conditions of satisfaction and/or different levels of

resources as experience is gained. A function outsourced from a business represents a commitment to provide a capability. Much of the business inside a company involves a sponsor chartering a capability as resources that the internal organization can seamlessly draw upon. Shared services across a business – e.g. procurement, shipping, real estate – are more efficiently operated when centralized, but business unit leaders usually dislike the overhead associated with maintaining such staff.

A *commitment to a relationship* obliges parties to *contribute* resources towards mutual benefits over a period of time. The benefits may be jointly attained and then distributed from a pool, or attained by each party asynchronously. The duration of the commitment may be expressed explicitly or implicitly. An explicit duration may specify the benefits, contributions, capabilities, processes and deliverables. An implicit duration may be simply a favoured predisposition based on a shared history. The predisposition can evaporate as one or both parties find less in common or demonstrate a preference for inconsiderate action or alternative partners. A commitment to contribute to a relationship can be enacted by an individual on his or her own behalf, or as an agent of an organization. Actively being a part of a family or a kinship is a commitment to contribute to a relationship. In a business organization, an officer of the company can make a commitment to contribute to a relationship with another business, with the obligation enduring beyond personnel changes.

An offering can contain one or more types of obligations in a bundle. Ownership of a physical product is most naturally transferred as a deliverable. The coproduction of services most naturally follows a process. Access to resources such as infrastructure is most naturally privilege to a capability. The more frequently these preceding types of commitments are repeated or replicated, the more likely an interpersonal relationship between parties is likely to develop. When actors participate jointly in more than one offering, the distinction between a portfolio of uncoupled offers and a system of coupled offerings may require clarification.

Commitments can be explicitly linked to other upstream or downstream commitments, and be impacted by unanticipated linkages

When commitments are of the same type (e.g. all commitments to produce deliverables) or distinctly separable (e.g. a failure to produce a deliverable does not impact providing a capability), language action can be straightforward. When one type of commitment is associated directly or indirectly with another, confusion can ensue. Figure 5 illustrates how a commitment may be regarded as independent of others, cascaded (i.e. one becomes an entry point to a network of other commitments) or chained (i.e. one commitment has an output that is a direct input to another).
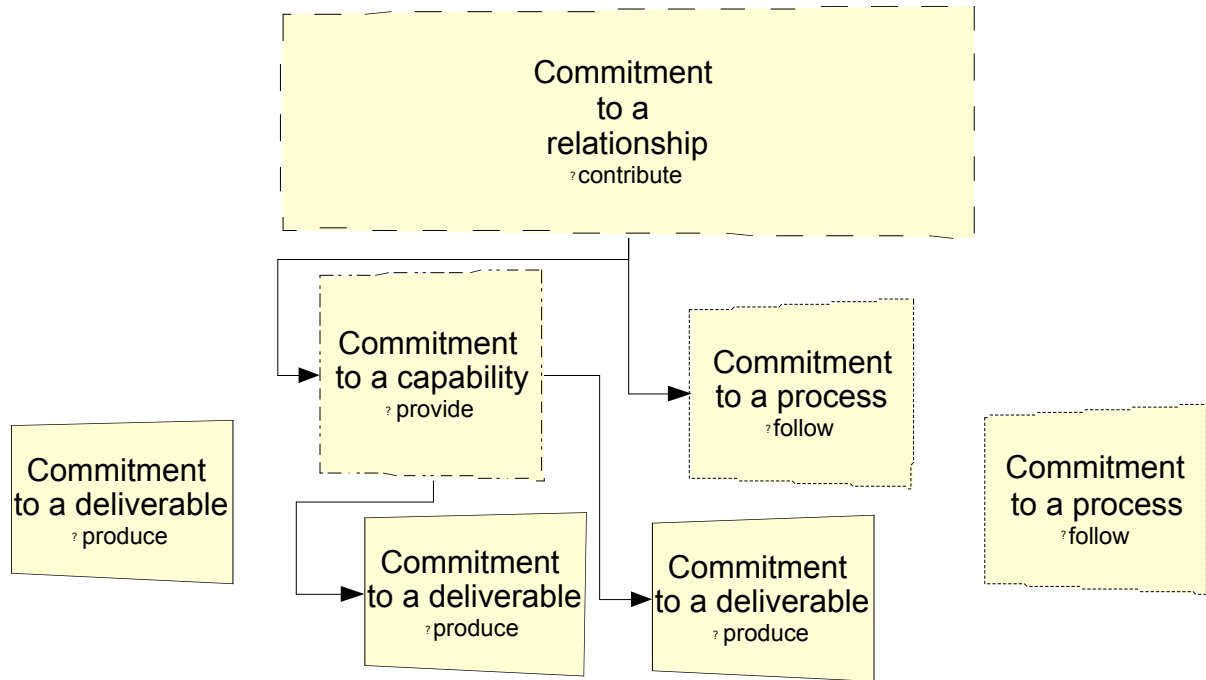
Figure 5. A commitment may be independent of others, or cascaded and chained

As an example, a commitment to produce a deliverable can be transactional, standing alone. In a deeply involved service system, co-producers may contribute to a relationship in which commitments provide to capabilities are made in advance, followed by instances of commitments to produce a deliverable or to follow a process. If the value of the relationship does not endure mutually, there may still be sufficient trust for commitments to follow a process. Some tangled commitments from the three concrete examples follow.

❑   Financial services have largely become electronic, so face-to-face service is mostly superfluous. A retail banking customer lost his ATM card on his way to an overseas business trip, effectively disabling his capability to withdraw cash. Over the telephone, the bank's relationship manager offered a creative solution, to cross-register a credit card issued by the bank as an alternative ATM card. Granting ATM privileges immediately was an extension of the commitment to contribute to a relationship, while maintaining a commitment to provide a capability (withdrawal of cash) as well as commitment to follow a procedure (authentication and validation of identity).

❑   Digital music, as provided in the entertainment industry, has debated the merits and demerits of digital rights management (DRM) over the past few years. In the past, sale of the physical compact discs (CDs) as a deliverable included a license for the customer to enjoy the music for personal use, but not for redistribution. As peer-to-peer distribution over the Internet has become common, different companies have chosen different paths. One direction, licensing DRM-free downloads per song, represents a commitment to provide a capability, as music on demand. An alternative direction is to enable subscription to an entire music catalogue over a fixed period of time, as a commitment to contribute to a relationship. Customers may prefer one method over the other, but it's not clear that all record labels support both methods for all of their assets.

❑   International airline reservations and operations are continually refreshed by information technology solution providers. Since downtime impacts both the airline and IT providers, they generally are wedded in commitments to contribute to a relationship. Following the 9/11 attacks on the World Trade Center, bookings on commercial airlines fell off, and took many years to recover. During this period the airlines, as customers, were unable to fulfil their part on commitments due to lack of revenues. The information technology providers had to choose between redeploying their resources towards sectors with more immediately profitability, or deferring payment for their ongoing infrastructure and development in the interest of a future relationship.

As important as the types of commitments in which actors actively choose to coproduce are the types of commitments where they choose to remain independent. Committing to a relationship has benefits, but it expands the offering as increased overhead and added complexity. Contracting unencumbered commitments to deliverables or to process may be more expedient and save energies for initiatives with potential for higher value coproduction.

Language-action may be influenced by language decoupled from action, and action decoupled from language

The foundation for commitments is the language action perspective. However, there is language conveyed outside of commitments, and action that takes place that does not directly impact coproducing actors. Figure 6 maps out a larger content in which language action occurs.
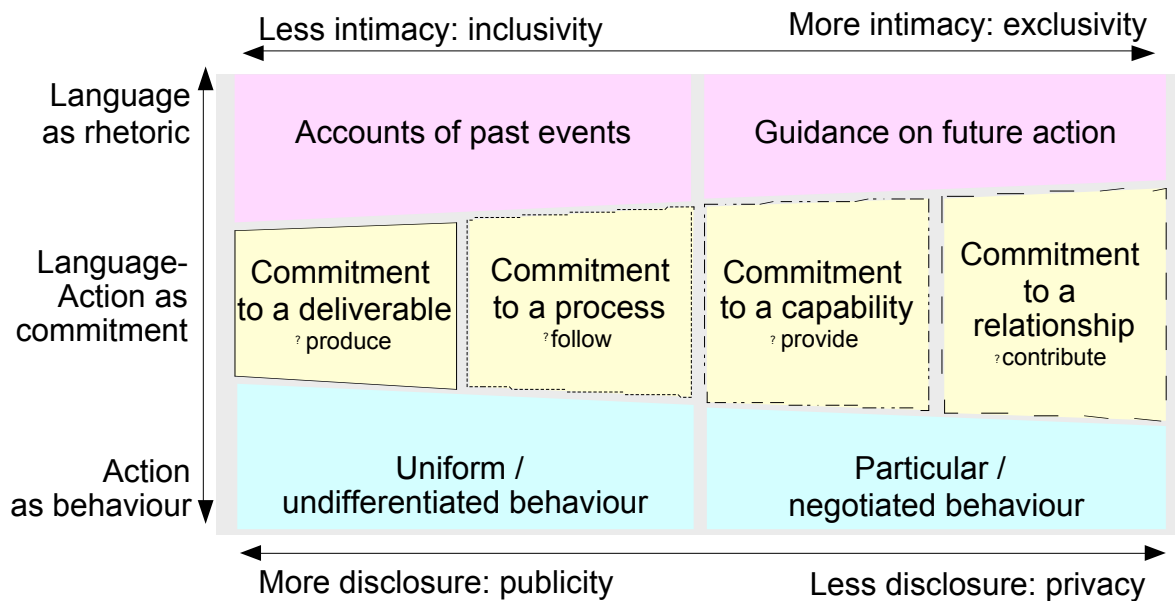

Figure 6. Language-action in a context of language and action

On the vertical axis, *language action* is positioned at the midpoint. At the top of the axis is *language as rhetoric*. This includes general communications from an actor, target for public knowledge to parties without an intimate involvement, e.g. press releases. The word rhetoric is not chosen as a negative term, but merely to decouple it from action.

> In its traditional meaning, rhetoric refers to the formal field of study that examines how language is used to shape the way people think and act – a study that needs to be properly understood as one of the central concerns of effective management. [....]

> It exists everywhere and on many different levels – from individual conversations to entire systems of thinking and speaking. Rhetoric is something that can be used and abused, but it *cannot* be avoided. Rather, it constantly serves to frame the way we see the world. (Eccles and Nohria 1992, pp. 9-10)

In particular, partners and close associates should expect to receive privileged communications. They may take the content purely as informational, and may not take immediate action with that knowledge. However, since even the most intimate partners can't read the mind of the other, it's possible that some relevant communications may be overlooked. In these cases, the listener may have only the interest of a disinterested bystander, or may choose to inquire about more details through familiar channels.

At the other end of the vertical axis is *action as behaviour*. A business may operate in many segments and interact with many other customers and subcontractors. All action may not be explained by conversation, either due to lack of perceived relevance or confidentiality constraints with other actors. Thus, even close partners may be left to infer the meaning of unarticulated actions. In some cases, the inferences may be incorrect, and may or may not be corrected at a later time.

The horizontal axes are dimensioned with different labels, but placed in parallel as they correlate. The upper axis is a scale of *intimacy*, and the lower axis is a scale of *disclosure*. To the left, language and/or actions have *less intimacy* as all are welcomed to encourage *inclusivity*, and *more disclosure* occurs through *publicity*. To the right, language and/or action have *more intimacy* as *exclusivity* is extended to a privileged few and *less disclosure* results in *privacy* amongst closest associates.

On the horizontal dimension, a commitment to a deliverable usually suggests an observable change in state in the world that can be observed publicly. A commitment to a process or a capability is less visible. A commitment to a relationship can be difficult to interpret even by the direct participants, and can be totally opaque to outsiders.

Language as rhetoric (i.e. uncoupled from action) is more durable looking backwards, as *accounts of past events*. As the accounts are picked up by the media, they become public history or conventional wisdom. When language as rhetoric is *guidance on future action*, there are always conditions and contingencies that make guidance on future action better in discussion with friendly associates rather than public declarations.

Action as behaviour, when completely transparent to all, tends to lead towards *uniform / undifferentiated behaviour*. When one customer or subcontractor sees a series of actions producing identical outcomes, observing something different can generate dissonance. When action as behaviour is not explained to a private and exclusive group of close associates, *particular / negotiated behaviour* can be disclosed in depth as required, according to concerns of the observing parties.

Considering the map as a larger system, commitments occur in a context of other commitments, but also within a larger context of language as rhetoric and action as behaviour. The number of

commitments to deliverables should be expected to be larger in number when compared to commitments to relationship.

Almost as important as the content within a commitment are factors not included in that commitment, related commitments, or excluded from language and/or action in the larger world. As offerings require the coordinated coproduction from multiple parties, smaller packages may be desirable as simpler packaging of physical products, services and infrastructure, and interpersonal relationships. A basic offering may be developed to satisfy the essential needs of a larger number of co-producers, and then augmented with features established in negotiated order (Parhankangas, Ing et al. 2005).

Conclusion: Contribution towards a science of service systems

This article began with a challenge to contribute towards a new science of service systems. Service systems thus require a foundation that will span the breadth of resources involved: people, technology, organisations and shared information. In these interests, the history and development of definitions of offerings and commitments were presented and combined in a new framework with four types of obligations.

A benefit of making a distinction between the types of commitments – i.e. to deliverables, process, capability and relationship – is an untangling of obligations toward offerings and their associated coproduction amongst customers, suppliers and subcontractors. The framework is extensible from the definition of a system in the small, to a large system that includes the many complex interactions between actors.

Additionally, the foundations in language action and commitment management protocol include the possibilities of unanticipated events and both related and unrelated commitments to impact successful completion of obligations. The possibility of breakdowns and remedial activities should be seen as natural.

This approach to understanding social interaction in business provides rigour and insight into the new service economy, as well as endeavours in the prior manufacturing and agricultural paradigms.

Acknowledgments

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