RETHINKING PROJECT MANAGEMENT GOALS AND METHODS TO SUIT SERVICE SYSTEMS

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Extended abstract

Industrial economies of the past are now moving towards becoming service-intensive, creative and knowledge-based economies that incorporate human creativity and social capital as the basis of value creation and productivity improvements. Moreover, they are radically transforming the manner in which they design, deliver and operate, thereby creating new services and market opportunities. Further, the fact that services are varied, have unique attributes — such as intangibility, heterogeneity, perishability, and inseparability (simultaneous consumption and delivery) — with the customer as a provider of input, make them complex in nature and difficult to understand and analyse. This has inspired a flurry of activity in government, industry and universities. There is now a growing recognition of the need for transdisciplinary research and new business models to propel innovation in services, commonly referred to as Services Science — an interdisciplinary cross-functional stream that brings together engineering, social sciences and management. In addition, business success is becoming less associated with tangible outcomes, embedded value and physical transactions, but more reliant on intangible resources, relationships, networks and co-creation of value. In the unfolding global economy, supply chains and value networks play a crucial role, and service organisations have to find innovative ways for attaining sustainable competitive advantage. Beyond this direct economic contribution, service industries have an ongoing role to deliver considerable indirect embodied value to goods production.

Transformations in organisational structures and relations can imply changes in some or all of the mechanisms used to govern projects. Moreover, there is a growing consensus that project managers have to be more strategically instrumental than before in transforming organisational practices and processes when accomplishing project objectives. Underpinned by changing dynamics, project management objectives are becoming difficult to understand. The old norms of the triple constraint of time-cost-quality in managing competing project requirements in order to deliver products, services or infrastructure are not sufficient. Projects are becoming increasingly subject to unparalleled risks, uncertainty and complexity, thus making it difficult for project managers to govern projects in line with changing strategic objectives and imperatives.

Recent trends in project management research and practice is driving organisations and their project managers to take a holistic approach to managing projects. The development of program and portfolio management standards by professional project management associations such as the Project Management Institute (PMI) and the Association for Project Managers (APM) has pushed project management beyond the sphere of just implementing what was authorised by the organisation. There is also increased emphasis on project governance and organisations are setting up Project Management Offices (PMO) and steering committees to ensure that projects deliver the intended benefits to the organisations and stakeholders. Project managers of megaprojects are now being

trained to deal with complexity in such projects. Recently, the International Council on Systems Engineering(INCOSE), the PMI and the International Society for the Systems Sciences (ISSS) have agreed to work together to develop competencies required by project and program managers to deal with complex projects.

While project managers are being taught to look at projects holistically through systems approaches such as systems dynamics, soft systems thinking and viable systems in postgraduate programs (such as the one taught at the University of Technology Sydney), they are not being taught about the emerging science of service systems. It is for this reason that in this paper we conceptualise the service science ecosystem as seen through a project manager's lens.

Additionally, there is a push to compete through new services and service innovation, creation of knowledge, products and services enabled through technological advancements, online communities of companies and consumers, and adoption of distributed co-creation; all of which are still in their infancy — and so is their project management. Thus, a major challenge faced by contemporary project managers is to develop knowledge and understanding of complex service ecosystems and their functions. In other words, why are the new breed of project managers disconcerted about service science ecosystems, and what do they need to know and why? This paper enables us to disburden project management from its longstanding theoretical heritage, discusses recent research challenges in this field and proposes a new framework for project management.

INTRODUCTION

The contribution of services to the gross domestic product of several countries in the world is steadily increasing, and industrial economies of the past are now moving to becoming service-intensive, creative and knowledge-based economies that incorporate human creativity and social capital as the basis of value creation and productivity improvements.

Moreover, service industries are radically transforming the manner in which they design, deliver and operate, thereby creating new services and market opportunities. Further, the fact that services are varied, have unique attributes — such as intangibility, heterogeneity, perishability and inseparability (Sampson, 2001; 2007) — with the customer as a provider of input as per Froehle and Sampson's (2006) Unified Services Theory (UST), as well as an operand and operant resource (Vargo & Lusch, 2006), makes them complex in nature and difficult to understand and analyse. Increasingly, services are a result of working and collaborating in networks, also referred to in the literature as "service systems" (University of Cambridge Report 2008: 6) or service value networks (SVN) (Basole & Rouse, 2008; Agarwal & Selen, 2009). All this has inspired a flurry of activity in government, industry and universities. There is a growing recognition of the need for transdisciplinary research and new business models to propel innovation in the services, commonly referred to as Service Science — an interdisciplinary cross-functional stream that brings together engineering, social sciences and management.

In this context, project management scholars and practitioners need to rethink how their methods can be effective in an increasingly service-dominant logic being adopted by the firms that they serve. According to Morris and Geraldi (2011: 20), project management emerged from a technical focus in the 1950s and '60s with a strong emphasis on managing technical issues. However, towards the 1970s and '80s, due to the failure of several projects to meet their goals and objectives, the emphasis changed to '*management of projects'* (Morris 1994). It became evident that to manage projects successfully more attention needed to be paid to their business and social contexts. Morris and Geraldi (2011) also suggest that the time has come for projects to be analysed at the institutional level. While these authors have pointed out several theoretical frameworks that can be applied to rethink project management in the institutional context, they do not include '*service science'*. It is in light of this research gap that we focus on project management with the lens of the emerging field of service science.

Service landscape

Spohrer and Kwan (2009: xx) refer to the International Labor Organization (ILO) report released in 2007, and state that:

> *… for the first time in human history there were more service jobs (40%) than agricultural jobs (39.6%) and nearly double those of manufacturing jobs (20.4%) … Over the past thirty years a growing number of academics and practitioners have begun to study "service" as a distinct phenomenon, with its own body of knowledge and rules of practice. The growth of service value in society is undeniable*.

Goods-dominant to service-dominant logic

No doubt, services are intrinsically people-intensive industries and, despite rapid growth in labour productivity, the services sector is the source of most global job growth over the past decade. In 2009, the ILO report shows a further increase in employment in service to 42.5%, while agriculture dipped to 35% and manufacturing grew slightly to 22.5%. Moreover, a large and increasing proportion of economic activity, in particular in the developed countries, comprises the delivery and consumption of services. It is in this ever-increasing context of services that we examine the difference between goods-dominant (G-D) and service-dominant (S-D) logic to see whether current project management methods and practices are suited to meet the requirements of this emerging S-D logic based on the work by Spohrer & Maglio (2009) as summarised in Appendix A.

Further, Lusch and Vargo (2006: 408) compare the traditional marketing mix versus S-D logic as shown in Table 1:

Traditional marketing mix (largely tactical)	**Service-dominant logic (largely strategic)**
Product	Co-creating service (s)
Price	Co-creating a value proposition
Promotion	Co-creating conversation and dialogue
Channel or distribution (place)	Co-creating value processes and networks

Table 1 – Marketing Mix versus S-D logic

As evident from Table 1, there is the ever-increasing importance of co-creation. Vargo and Lusch (2006: ix) defined services as: "*the application of competencies (knowledge and skills) for the benefit of another party"*. Accordingly, service is the application of competencies for the benefit of another party, and embedded within is the notion of mutual service provisioning, rather than the exchange of goods per se.

Services — their reliance on intangible resources, networks, and co-creation of value

Business success is becoming less associated with tangible outcomes, embedded value and physical transactions, but more reliant on intangible resources, relationships, networks and co-creation of value. In the unfolding global economy, supply chains and value networks play a crucial role, and service organisations have to find innovative ways for attaining sustainable competitive advantage. Beyond this direct economic contribution, service industries have an ongoing role to deliver considerable indirect embodied value to goods production and hence collaborators and supply chain partners are seen as integral to services as an end-to-end service delivery system, which comprises both services and goods. This argument has been further developed in the context of service networks by Agarwal & Selen (2011a: 1169), who have defined service as "*the application of competencies (knowledge, skills and experience) of the stakeholders, whereby customers provide themselves, or provide significant inputs into the service production process and in the best case are transformed by the simultaneous consumption — the experience"*.

Next, we examine the foundations of traditional and emerging project management tools and techniques.

Project management concepts

Traditional project management

Traditional definitions view a project as "*a complex sequence of activities to deliver clearly defined objectives ... and the goals and the method of achieving them are well understood at the start of a project, or at least at the start of it execution stage*" (Turner & Cochrane, 1993: 93).

Currently, project management knowledge used by professionals and taught in universities, such as the University of Technology Sydney (UTS), which is a pioneer in project management education, follow the body of knowledge set by professional associations such as the Project Management Institute. The most commonly used is called the Project Management Body of Knowledge or PMBOK (PMBOK 2008), which is now in its fourth edition. There are other bodies of knowledge published by professional associations such as the Association for Project Management (APM) and Japanese Project Management Association (JPMA). While there are variations between these standards, all such methodologies generally follow P-D logic, project scope is more or less clearly defined at the start of a project (with provisions for change), and the project is expected to be delivered on time within budget and of acceptable quality.

The 'iron triangle' of time, cost and quality is often used as a measure of success in traditional project management. It is assumed that by following a well-defined project management methodology success can be assured. However, many questions are now being asked about how project success is determined (Ika, 2009). In general, projects do not co-create value with customers but deliver value that can be easily translated into project objectives serving as a scope document for the project. Henceforth, the outputs of the project are treated similar to a product which is delivered to meet set specifications and accepted through rigorous inspection and testing — leading to variety in outcomes.

Nature of project management is changing

Transformations in organisational structures and relationships can imply changes in some or all of the mechanisms used to govern projects. Moreover, there is a growing consensus that project managers have to be more strategically instrumental than before in transforming organisational practices and processes when accomplishing project objectives. Underpinned by changing dynamics, the project management objectives are becoming difficult to understand. The old norms of a triple constraint of project scope, time and cost in managing competing project requirements in order to deliver products, services or infrastructure are not sufficient. Project are becoming increasingly subject to unparalleled risks, uncertainty and complexity, thus making it difficult for project managers to govern these projects in line with changing strategic objectives and imperatives.

Recent trends in project management research and practice is driving organisations and their project managers to take a holistic approach to managing projects. The development of program and portfolio management standards by professional project management associations such as the Project Management Institute and the Association for Project Managers has pushed project management beyond the sphere of just implementing what was authorised by the organisation. There is also increased emphasis on project governance, and organisations are setting up Project Management Offices (PMOs) and steering committees to ensure that projects deliver the intended benefits to the organisations and stakeholders. Project managers of megaprojects are now being trained to deal with complexity in such projects. Recently, the International Council on Systems Engineering (INCOSE), Project Management Institute (PMI) and International Society for the Systems Sciences (ISSS) have agreed to work together to develop competencies required by project and program managers to deal with complex projects.

Why PM methods need to be re-examined in light of service systems

As identified earlier, although product (deliverable) and price (cost) are important aspects of managing projects, channel may also be relevant from the point of view of the locations from which

projects are being carried out (especially in global projects), and the network of relationships that need to be managed effectively to manage projects.

Status of project management as per S-D logic

Vargo et al (2008) point out the difference between product- or goods-dominant logic and service-dominant logic in terms of value creation, which has become a point of concern in project management literature (Besner and Hobbs, 2006, Winter & Szczepanek, 2008;). Table 2 below summarises how current project management methods primarily follow G-D logic and not S-D logic.

	G-D logic	S-D logic	Status of Project Management
Value driver	***Value-in exchange***	***Value-in use or value-in-context***	
Creator of value	Firm, often with input from firms in a supply chain	Firm, network partners, customers	Follows G-D logic
Process of value creation	Firms embed value in "goods" or "services", value is added by enhancing or increasing attributes	Firms propose value through market offerings, customers continue value-creation process through use	Recent emphasis on benefits/value management. Moving towards S-D logic
Purpose of value	Increase wealth for the firm	Increase adaptability, survivability and system well-being through service (applied knowledge and skills) of others	Predominantly G-D logic unless the benefits include those stated in S-D logic
Measurement of value	The amount of nominal value, price received in exchange	The adaptability and survivability of the beneficiary system	Adopts G-D logic in commercial projects
Resources used	Primary operand resources	Primarily operant resources sometimes embedding them in operand-resource goods	Follows G-D logic
Role of the firm	Produce and distribute value	Propose and co-create value, provide service	Mostly follows G-D logic
Role of goods	Units of output, operand resources that are embedded in value	Vehicle for operant resources, enable access to benefits of firm competencies	Movement towards S-D logic due to concern for benefits/value management
Role of customers	To 'use up' or 'destroy' value created by the firm	Co-create value through the integration of firm-provided resources with other private and public resources	Moving from G-D logic to SD logic especially in large Private Public Partnership (PPP) projects.

Table 2- Adapted from Vargo et al (2008: 148)

Project management techniques to manage project variety and uncertainty

No two projects are identical. This implies that there is variability as well as variety in projects and, as Turner et al (2010: 26) suggest, "*Contingency theory is just as important for the management of routine organizations as the Contingency Perspective is for the management of projects*".

Turner and Cochrane (1993) identified that projects are heterogeneous. As the use of project management spreads to a variety of industries it is clear that their goals/objectives can be attained by a variety of methods. This implies uncertainty in the goals in the scope defined by the client, as well as uncertainty in the methods used by the project manager. Hence, project management scholars and practitioners became concerned on how to adapt project management methods to cater to the levels of uncertainty in product and process delivery. This requires different ways of managing, and the goals-and-method matrix is one typology adopted by project managers for this purpose, as shown in Figure 1.

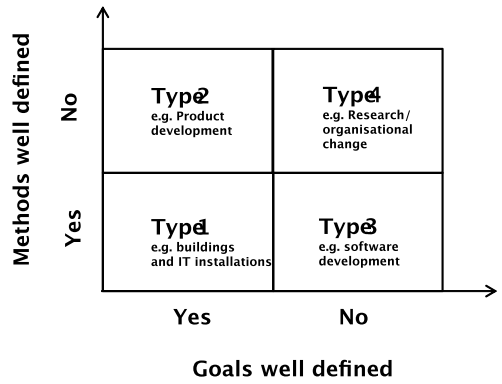

Figure 1- Goals-and-methods-matrix (Turner & Cochrane, 1993)

The second typology of projects caters for levels of differences, ranging from the familiar to the completely unknown, which Turner et al (2010) classified as runners, repeaters, strangers and aliens. What this tells us is how the projects have variability as distinct to variety and how contemporary project managers are subjected to these uncertain and volatile conditions on an ongoing basis.

Alignment of capabilities with type of project

Another important research to develop a project categorisation system on behalf of the PMI was carried out by Crawford, Hobbs and Turner (2006). In their paper, the authors argued that as projects are becoming increasingly important to delivering organisational strategies, the capabilities required of their project managers should be able to cope with the types of projects being handled. Aaron Shenhar and his co-researchers (Shenhar et al, 2007) carried out a series of research projects linking project management to business strategy, where they investigated why different projects require different strategies (Patanakul & Shenhar,2007:157). They recommended that to successfully manage projects, modern project managers and team members should develop a strategic mindset; that the strategies used should be contingent on specific situations; and while projects can be managed with a combination of strategies the project team should identify which strategy needs to be emphasised.

Examples of evolving methodologies for managing complex projects

Increasingly, project managers are being taught to look at projects holistically through systems approaches such as systems dynamics, soft systems thinking and viable systems in postgraduate programs (such as the one taught at UTS); they are not being taught about the emerging science of service systems. It is for this reason that in this paper we conceptualise the service science ecosystem as seen through a project manager's lens. But before we do that, we provide some industry examples of different methods of managing projects.

Agile project management

One of the recent attempts to adapt project management to become more customer-oriented or customer-focused is the development of agile project management to deliver better software projects as information technology (IT) projects became notorious for continuously falling behind schedule and budget (Standish Report 1995). The Standish Report (1995) showed a deep concern for IT project failures and suggests that:

> *In the United States, we spend more than $250 billion each year on IT application development of approximately 175,000 projects. The average cost of a development project for a large company is $2,322,000; for a medium company, it is $1,331,000; and for a small company, it is$434,000. A great many of these projects will fail. Software development projects are in chaos, and we can no longer imitate the three monkeys — hear no failures, see no failures, speak no failures.*

The report further added that:

> *On the success side, the average is only 16.2% for software projects that are completed on time and on-budget. In the larger companies, the news is even worse: only 9% of their projects come in on-time and on-budget. And, even when these projects are completed, many are no more than a mere shadow of their original specification requirements.*

Although IT project success improved, concerns about project success still remained in 2009, and the Chaos Report (2009) stated that:

> *This year's results show a marked decrease in project success rates, with 32% of all projects succeeding which are delivered on time, on budget, with required features and functions ... 44% were challenged which are late, over budget, and/or with less than the required features and functions and 24% failed which are cancelled prior to completion or delivered and never used.*

The agile manifesto was developed in 2001 by a group of seventeen concerned software developers to develop 12 principles to deliver better software from a community of representatives who had used several adaptations to improve software development projects, such as extreme programming, SCRUM, adaptive software development, crystal, feature-drive development, pragmatic programming and a group of others who wanted better processes (Manifesto for Agile Software Development, 2001). The twelve principles that govern a variety of methods used in agile project management as per the (Manifesto for Agile Software Development, 2001) are:

1. Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.
2. Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.
3. Deliver working software frequently, from a couple of weeks to a couple of months, with a preference to the shorter timescale.
4. Business people and developers must work together daily throughout the project.
5. Build projects around motivated individuals. Give them the environment and support they need, and trust them to get the job done.
6. The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.
7. Working software is the primary measure of progress.
8. Agile processes promote sustainable development. The sponsors, developers, and users should be able to maintain a constant pace indefinitely.
9. Continuous attention to technical excellence and good design enhances agility.
10. Simplicity — the art of maximizing the amount of work not done — is essential.

11. The best architectures, requirements, and designs emerge from self-organizing teams.
12. At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behaviour accordingly.

The 12 attributes of agile project management above are indicative of a definite movement towards an S-D logic orientation. Although agile project management started in software projects, it is now finding applications in other areas, PMI conferences now have several sessions on agile project management and recently PMI has introduced agile project management certification — an increasingly popular project management method.

Dynamic project management

While agile project management methods are introducing new ways to manage projects, there are some examples in the literature that point to how project management methods can evolve to follow the S-D logic. An example is the development of Linux (open source software), through a loosely formed organisation between various actors involved in developing the software (Cornfrod et al., 2010). A study of the development of Linux using Actor-Network Theory shows that technology can be used to replace formal organisational rules and structures in the coordination and governance of complex activity systems in such projects. Open source software projects offer a unique opportunity to explore problems of coordination and distributed organising in spatially dispersed settings, where project membership is fluid, participation is volatile and the coordination of a highly complex task seems to rely on minimal organisational structures.

Another example where no rules and methods were followed in a project is the case study of information systems development reported by Bansler and Havn (2003). Here improvisation was omnipresent and the goals and methods seemed to be changing. The project was not guided by a preconceived plan or a systematic method; instead, it was informed by hunches, relied on ad-hoc solutions and involved a considerable amount of experimentation and trial and error. Project managers trained in project management methods following P-D logic, however, might find it hard to relate to this notion of improvisation, as they are used to a regime of hard performance measures that do not allow for experiments.

The new PM framework

As evident from the above examples, project management goals, methods and scope — i.e. project context and purpose are increasingly fluid, dynamic and complex. In addition, through the use of technology, the management of formal organisational rules and structures allows for loosely coupled arrangements between various actors where membership is fluid, participation is volatile and coordination structures supporting such project management activities rely on minimal governance arrangements.

Pasian, Sankaran and Boydell (2011) explore the dynamics of project management capability in undefined projects. Building on the Goals-and-Methods-Matrix by Turner and Cochrane (1993), Pasian et al (2011) hypothesise and empirically demonstrate that context-specific values, specialised bodies of knowledge, customer participation, third-party influence, and tacit relationship factors such as trust, attitude and motivation including creativity are fundamental attributes of an undefined project typology. E-learning projects are examples of one such project type that demonstrate how project management capability fits in with type 3 projects as categorised by Turner and Cochrane (1993), and yet need to be supported by flexible processes, practices and other enablers. This brings us closer to the two examples of agile and dynamic project management discussed earlier.

Undoubtedly, there is a push to compete through new services and service innovation, creation of knowledge, products and services enabled through technological advancements, online communities of companies and consumers, and the adoption of distributed co-creation; all of which are still in their infancy — and so is their project management. Thus, a major challenge faced by contemporary

project managers is to develop knowledge and understanding of complex service ecosystems and their functions. In other words, why are the new breed of project managers disconcerted about service science ecosystems, and what do they need to know and why?

Appendix B highlights how the ten academic principles of service science are seen as being applicable to project management. More appropriately, one can classify projects in certain industries, like banking and healthcare as exhibiting S-D logic behaviours and practising underlying values of the S-D logic (Vargo & Lusch, 2006, and 2008), UST theory (Froehle and Sampson, 2006) and Service Value Networks (Agarwal & Selen 2009, 2011b; Basole and Rouse, 2008) all in tandem.

According to Normann and Ramirez (1994) and Normann (2001) value is coproduced between actors in a value constellation rather than a linear value chain. From a service science perspective, Ing (2008) points out that the value constellation perspective recentres its attention onto the interactions between parties, as coproduction of an output. This implies that allocation of activities and tasks involved in value creation, when applied to projects, will entail the dimensions of time and space, explicitly or implicitly, and hence need to be captured and understood. Therefore, in accordance with Ing's (2008) definition of offering to its client base, the offering that a project manager makes to its client from a service science lens can be crafted as "*an offering [that] 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 [project manager] and customer [project managers client] – and potentially, subcontractors – the shape of the delivery package could be different in every instance*" (Ing, 2008, p.158). With this in dropback, we see Turner & Cochrane (1993) Project types 2, 3 and 4 as having extended their boundaries as shown in Figure 2. Further, Type 4 project also present a cascaded structure of project management subcategories classified originally as traditional Type 4 (Turner & Cochrane, 1993), followed by agile and dynamic project management types which operate within the overarching space as shown by the checked shaded area in Figure 2. The new expanded type 4 topography from a project manager's lens not only caters for the coproduction of an output from a service delivery perspective but is underpinned by agile and dynamic workspaces when subjected to volatile and dynamic situations.

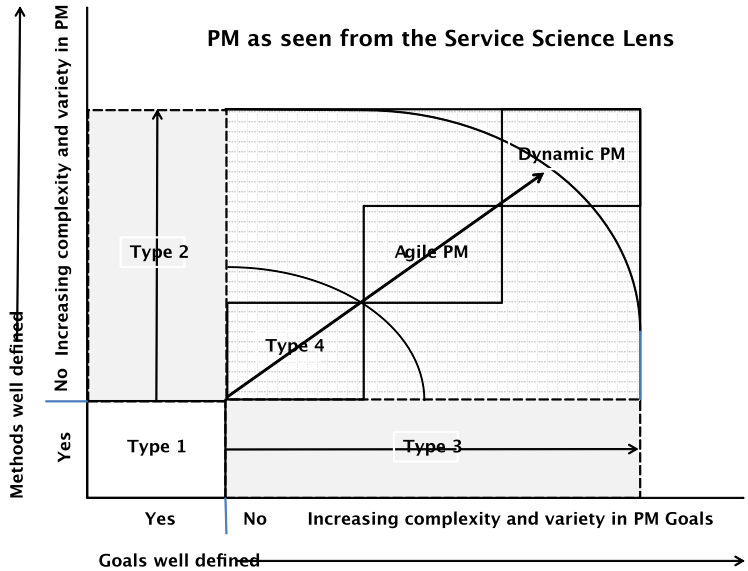

Figure 2: Project Management as seen from the Service Science Lens

Implications, future research and conclusion

This paper enables us to disburden project management from its longstanding theoretical heritage, discusses recent research challenges in this field, and proposes a preliminary framework that broadens the scope of project management and allows for management of uncertainty and complexity for future project management using the service science lens. This paper accentuates the importance of project management, in particular addresses the issues and challenges from project management perspective, and highlights the fundamental principles leading to the development of the new classification 'Project Management as seen from the Service Science Lens' concept. Further research and evidence is required to support this framework and work is in progress.

Appendix A: Service Systems and Projects – A comparison

Service Systems	Projects
Spohrer & Maglio (2009)	
Service systems are value-co-creation configurations of people, technology, value propositions connecting internal and external service systems, and shared information (e.g., language, laws, measures, and methods).	Projects create value (probably not co-create yet) at the moment) involve people, use technology and do have value propositions in terms of benefits. Information sharing is critical to projects. Information asymmetry can cause moral hazards.
Service science combines organization and human understanding with business and technological understanding to categorize and explain the many types of service systems that exist as well as how service systems interact and evolve to co-create value.	Project management requires organizational and human understanding with business and technological understanding
service-dominant logic may be the philosophical foundation of service science, and the service system may be its basic theoretical construct	Projects yet to align with this philosophy.
Before the development of globe-spanning trade and technology networks, service was usually performed in close contact with a client. Today, the more knowledge-intensive and customized the service, the more it depends on client participation and input, whether through clients providing labour, property, or information via organizational or technological value chains (Sampson and Froehle 2006).	These changes have affected how projects are managed.
Service science is the study of service systems, which are dynamic value co-creation configurations of resources (people, technology, organizations, and shared information). These four categories of resources are significant because they include resources with rights (people and organizations), resources as property (technology and shared information), physical entities (people and technology), and socially constructed entities (organizations and shared information).	Projects depend on resources as well. These resources with rights could apply to projects
Bringing a broad range of services to market involves specialists in organizational change (human factors), business design (management and economic factors), and technology design and implementation engineering factors).	Project management is beginning to realise the importance of change management. Projects do involve design as integral or preceding activities
Outsourcing involves many areas of the business (e.g., finance, legal, business operations, IT operations, human resources), and each provides information for the contract, including metrics to be monitored and verified.	Projects use subcontracting which is similar to outsourcing. IT projects us outsourcing.
Entities within service systems exchange competence along at least four	Projects do help improve the competence of customers to share

dimensions: information-sharing, work sharing, risk-sharing, and goods-sharing.	information effectively and manage their risks. Sometimes projects deliver products that increase customer's competence.
Often, information-sharing dominates in business consulting, work-sharing dominates in outsourcing, risk sharing dominates in insurance, and goods-sharing dominates in renting.	Project teams, especially subject matter experts, play the role of consultants and often project risks are mitigated through insurance.

Appendix B: Service Systems and Projects – the ten pillars (Spohrer & Kwan 2009)

This table identifies the ten academic discipline pillars of service science which are important to managing and governing projects.

Service Systems – the ten academic pillars	Project Management – Importance of the ten pillars
History: Economics and Law Evolving	Governance mechanisms apply to projects
Marketing: Customers and the Quality Measure	Quality is extremely important while marketing is getting more prominence.
Operations: Providers and the Productivity Measure	Public Private Partnership projects such as BOOT (Build Own Operate and Transfer) projects have operations included in projects
Governance: Authorities and the Compliance Measure	Paramount to success of project management
Design: Competitors and the Sustainable Innovation Measure	Often projects are innovative in themselves creating a new product or service. Organizations with projects as their main business – contracting firms have to worry about competition.
Anthropology: Privileged Access and People Resources	Often people are earmarked as experts in projects and move into a project team when required.
Engineering: Owned Outright and Technological/Environmental Resources	Many large projects require engineering offices for support. Environmental issues could become a major issue in environmentally sensitive projects
Computing: Shared Access and Information Resources	A necessity in projects.
Sourcing: Leasing/Contracts and Organization Resources	Leasing and contracting are very common on large projects
Futures: Strategic Investment & Management	From an organizational perspective projects could play a significant role as a strategic investment

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