

 Open access • Journal Article • DOI:10.1108/09564231011066105

Solutions offerings : A critical review and reconceptualisation — [Source link](#)

Fredrik Nordin, Christian Kowalkowski

Institutions: Stockholm University, Linköping University

Published on: 10 Aug 2010 - Journal of Service Management (Emerald Group Publishing Limited)

Topics: Conceptual framework

Related papers:

- [Rethinking Customer Solutions: From Product Bundles to Relational Processes](#)
- [Managing the transition from products to services](#)
- [Evolving to a New Dominant Logic for Marketing](#)
- [Organizing for solutions: systems seller vs systems integrator](#)
- [Servitization of business : Adding value by adding services](#)

Share this paper:    

View more about this paper here: <https://typeset.io/papers/solutions-offerings-a-critical-review-and-4j6k9emj1d>

Linköping University Post Print

Solutions offerings: A critical review and reconceptualisation

Fredrik Nordin and Christian Kowalkowski

N.B.: When citing this work, cite the original article.

Original Publication:

Fredrik Nordin and Christian Kowalkowski, Solutions offerings: A critical review and reconceptualisation, 2010, Journal of Service Management, (21), 4, 441-459.

<http://dx.doi.org/10.1108/09564231011066105>

Copyright: Emerald

<http://www.emeraldinsight.com/index.htm>

Postprint available at: Linköping University Electronic Press

<http://urn.kb.se/resolve?urn=urn:nbn:se:liu:diva-58554>

Solutions offerings: a critical review and reconceptualisation

Fredrik Nordin, Stockholm University, Sweden

Christian Kowalkowski, Linköping University, Sweden

Abstract

Purpose – To offer a critical analysis of the literature of solutions offerings; to provide a new conceptual framework, incorporating dimensions that can distinguish between different kinds of solutions, and connect their different characteristics.

Design/Methodology/Approach – A critical review of the relevant literature, both 28 contributions identified in a search of three major databases and a range of other published work for the broader perspective, illustrated by real-world examples.

Findings – There is no unanimous and rigorous definition of solutions, but rather a number of often broad and generic descriptions that could be applied to a wide array of different offerings, if not generically.

Research Limitations/Implications – The sample of subject-specific contributions to the literature may not have been sufficient, and a wider selection of keywords to identify them might have captured a richer variety of concepts and opinions.

Originality/Value – This structured and critical review contributes to the literature on services and solutions, by developing a conceptual framework as a basis for future studies and current management strategy.

Keywords Solutions, services, customisation, integration, literature review

Paper type Conceptual paper

Acknowledgments

The authors thank the two anonymous reviewers for their comments on a previous version of this paper, and are grateful for the financial support of the Jan Wallander and Tom Hedelius Foundation and the Swedish governmental Agency for Innovation Systems (Vinnova).

Introduction

Across industries and markets, firms marketing products and services are increasingly offering ‘solutions’, to enhance the potential for value-creation and thereby improve competitiveness and profitability. In the aviation industry, for instance, Rolls-Royce has coined the term “power by the hour” to describe their outcome-based contracts for aircraft engines and other avionics products. Likewise, General Electric, Pratt & Whitney, Snecma, and other power systems companies have made the strategic change from just selling products and associated services to offering their airline customers outcome-based contracts in which payments are tied to flying hours.

Matching this real-world development, a plethora of literature has appeared over the past decade on ‘integrated’, ‘customer’, ‘business’ and ‘total’ solutions. Regardless of the terminology, it predominantly depicts and defines a solution as a bundle of products, services and software (Wise and Baumgartner, 1999; Galbraith, 2002; Brady et al., 2005a), which can solve customer-specific problems (Miller et al., 2002; Davies et al., 2006; Sawhney, 2006; Ceci and Prencipe, 2008), and are relatively broad and complex offerings focused not only on technical integration but also on the total usage context (Shepherd and Ahmed, 2000; Tuli et al., 2007).

In our opinion, much of this literature suffers a number of shortcomings. For instance, with a few notable exceptions (Matthyssens and Vandembemt, 1998; Tuli et al., 2007), a solution is described as a product-service bundle that is customer driven and derived from explicit customer needs at a specific point in time. It is argued that the provider should react to these needs ‘from the outside in’. Furthermore, many studies assume that customers are able to articulate their total problems and needs clearly, which is often not in fact the case. Nor is the reactive mode of operation always the most appropriate route to gaining

competitive advantage (Normann, 2001; Narver *et al.*, 2004; Eggert *et al.*, 2005). As Jacob and Ulaga (2008) and Kowalkowski (2008) have very recently argued, the literature furthermore seems rather normative in nature, inclined towards descriptions by business consultants of success stories, without explicit links to theoretical perspectives at a higher level of abstraction. Although Sharma *et al.* (2002) noted that more than 60 percent of the largest publicly traded firms in the USA Fortune 100 firms already claimed to offer solutions, Day (2004) questioned whether they were in fact doing so to any significant extent, or their claims were “merely a fashionable statement of intent” (p. 18).

Given these shortcomings, more critical and theoretical investigations of the solutions concept are called for, developing conceptual models that are grounded both in more generic theoretical frameworks and in empirical investigation. The need for more and better research was recently emphasised by Jacob and Ulaga (2008), who pointed especially to “the lack of concurrence in the marketing literature on the salient dimensions of a customer solution” (p. 251). This is where this conceptual paper can make its contribution.

More specifically, our purpose is to critically analyse the subject-specific literature, and derive on that basis a modified conceptualisation of ‘solutions offerings’, incorporating dimensions that distinguish between different kinds of solutions and linking aspects of solutions together. We draw on three streams within the literature: problem management (e.g. Jonassen, 2000), service management and service marketing (e.g. Grönroos, 2008) and purchasing management (e.g. Lindberg and Nordin, 2008). The limitations of previous conceptualisations are highlighted and illustrated by real-world examples from different industries, as the departure point for development of our own reconceptualisation.

Scope and coverage of the literature review

To generate a valid overview and critique of the literature, it is necessary first to identify the constituent elements of the concept of a service offering, as the template for the review. A meta-review of existing review articles (Anderson *et al.*, 1989; Johne and Storey, 1998; Croom *et al.*, 2000; Perea y Monsuwé *et al.*, 2004; Edvardsson *et al.*, 2005; Nordin and Agndal, 2008) provided a useful selection.

First, we analyse what the literature has to say about the contents of solutions: that is, the definitions and description of the central *dimensions* of solutions. Second, we search for the suggested reasons for developing and offering solutions: that is, the *antecedents* of a solutions offering. Third, we review the solutions *process*: what is said in the literature about the related problem-solving process. Fourth, the *outcome* of solutions is the final focus of our critical review. Collectively, these constructs provide an approach to the literature that is both general and comprehensive, embracing a broad spectrum of issues related to causes, substance and process. By examining these aspects of the solutions literature from the perspective of the more theoretical and generic literature of marketing and problem management, for instance, it is possible to identify common patterns and limitations in the literature. Real-world examples illustrate our argument.

To locate the literature specifically relevant to solutions offerings, we searched the Proquest, Emerald and Business Source Premier databases for articles in English in academic journals. A purpose-designed list of keywords drove the search, chosen to identify those dealing with the topic of interest, according to our understanding of the term ‘solutions’. They were: *integrated solutions*, *business solutions*, *full services*, and *customer solutions*. This resonates with the view of ‘offerings’ taken by Grönroos (2008), based on the logic of service as value-supporting processes that include goods, services, information and customer-provider interactions.

Lists of references in the selected articles were scanned to identify more potential sources. The overall outcome was a collection of 27 articles considered relevant to our purpose, to which we added one textbook chapter (Sawhney, 2006), referenced by Tuli *et al.* (2007) and by other frequently-cited articles. These key sources of the raw material for our reconceptualisation are identified in Appendix 1.

The search and review were not limited to any particular industry or market, even though most of the articles are primarily concerned with business markets and manufacturing industries. It is nevertheless conceivable that keyword searching missed some articles that deal with solutions offerings but use different terminology. It may also have excluded some recent publications not yet cited in the existing literature.

Characteristics of solutions

Several different definitions and variants of solutions were found in the reviewed literature, only a few authors confining themselves to the term *solution*. Table 1 summarises the characteristics described or implied in that literature. The remainder of this section elaborates on those extracts, and discusses the inferences drawn.

Take in Table 1

For instance, Miller *et al.* (2002) define solutions as “integrated *combinations* of products and/or services that are usually *tailored* to create outcomes desired by *specific clients* or types of clients” (p. 3; our emphases). Other authors add an adjective, to specify more clearly the kind of offering they are describing. Sawhney (2006) discusses *customer solutions*, defining them as “an integrated combination of products and services customised for a set of customers that allows customers to achieve better outcomes than the sum of the individual

components” (p. 369). Brady et al. (2005a) are one of several users of the term *integrated solution*, which they define as “bringing together of products and services in order to address a customer’s particular business or operational requirements“ (p. 572). This integration aspect of a solution is also pinpointed by authors who do not explicitly include it in their terminology. Some who do define this type of offering merely as a *combination* or *bundle*, rather than the integration of products and services into the kind of seamless offering in which, as Brax and Jonsson (2009) put it, the sum provides more value than the individual parts. Hax and Wilde (2001) use the term *total customer solutions* to describe the kind of broader offerings that can solve most if not all of customer’s needs. This is a complex notion, since ‘total’ is hard to define, not least by customers. As a senior executive from Ericsson noted, “You say that you have total solutions, but I am afraid that we don’t have any total problem”. Foote et al. (2001) describe *high-value solutions*, which are apparently intended to solve “a *complete* customer problem” (p. 84). The description ‘complete’, however, carries with it the same difficulty as ‘total’. In a similar vein, Davies et al. (2007) define *high-value* integrated solutions as tailored combinations of products and services that address the specific needs of large business and government customers. The wide scale and scope of these offerings seem to distinguish them from offerings of a lower value. Others, however, add this qualifier without specifying exactly what is different from other offerings. Matthyssens and Vandembemt (1998) identify a *proactive* solution, a variant that is not just about responding to customers’ problems in a reactive manner, but also about a “proactive sensing of hardly explicit client specifications” (p. 346).

While most authors limit themselves to focusing on one type of solution in their articles, a few compare and contrast a couple of categories at least. Galbraith (2002), for instance, distinguishes between *vertical* and *horizontal* solutions, the former being industry-specific and the latter generic, across several customer categories. By way of illustration, Sun

Microsystems develops and delivers a horizontal solution in the form of a human resources portal that can be accessed across different industries, while IBM, by contrast, is involved in the development of such industry-specific vertical solutions as *e-Agency*, which puts the agency network of an insurance company on the Internet (Galbraith, 2002). Vertical solutions thus require a more customer-centred organization than do horizontal solutions. Dunn and Thomas (1994) developed a hierarchy of buyer-seller relationships, ranging from transactional selling to partnership solutions, through product solutions and business solutions. In their view, a *product solution* consisted of a product augmented by applications and services, a *business solution* combined multiple product solutions to address a business problem, and a *partnership solution* linked multiple business solutions across the corporation.

In addition to the definitions of ‘solution’ found in the reviewed literature, several other terms also focus on offerings of the solutions type without using the word itself. Markeset and Kumar (2005) discuss *functional products*, defined as “delivery of performance” (p. 54), by which they mean that the customers do not buy the industrial product, system or machinery, but instead buy such performance criteria as drilled metre per shift or volume per hour. Stremersch et al. (2001) define a *full service* as “a comprehensive *bundle* of products and/or services, that fully satisfies the needs and wants of a customer related to a specific event or problem” (p. 1).

Often, solutions are defined as any combination or integration of products, services and software, which, essentially, does not extend the early definitions of systems selling (Mattsson, 1973; Hannaford, 1976). Because this view is inherently product-centred, with the solution basically taking the form of a complex, augmented good, and given the strongly product-centric paradigm still prevailing in many research communities, there has been a shortage of research on solutions originating in such service sectors as software and banking. The tendency to ‘productification’ in many industries means, in the financial sector for

example, that tailored banking solutions for commercial and private customers are marketed as product packages rather than solutions. On the other hand, Cova and Salle (2008) argue that more recent solutions approaches, recognising solutions as co-created by the supplier and the customer, have diverged significantly from the systems selling strategies developed in the 1970s.

To sum up, solutions are often described as relatively wide offerings that cover most if not all of customers' needs, which explains the addition of such qualifiers as 'full' or 'total'. Many authors consider that 'solutions' are by definition adjusted to customer-specific needs, or even tailored. Others, such as Galbraith (2002), recognise the existence of more and less customer-specific kinds of solutions. It is worth noting that customer-specific solutions are not necessarily the same as tailored solutions, but only a few authors differentiate among forms of customisation, which should probably be seen as one of the most central characteristics of solutions. Those forms are defined in the broader literature as ranging from pure standardisation through 'customised standardisation' to pure customisation (Lampel and Mintzberg, 1996). The pure form of customisation is a strategy of designing and delivering products and services from scratch for each individual customer, while customised standardisation describes one in which the final product is assembled from a predetermined set of standard components. The main difference between these variants of customisation is the position of what Rudberg and Wikner (2004) call the customer order decoupling point, or the level at which forecast-driven or standardised processes are separated from customised processes. In other words, customisation may occur at different positions in the value chain, and be more or less profound.

Antecedents of solutions

Several of the subject-specific articles suggest one or more external or internal drivers of the adoption of a solutions-based strategy, although few have this as their main research focus.

Table 2 summarises those implied antecedents.

Take in Table 2

The external factors relate primarily to an *increasing customer demand* due, for example, to financial pressure, changing customer business, and the problems experienced by customers on account of rising levels of technological complexity (Miller et al., 2002). Stremersch *et al.* (2001) argued that customers increasingly sought solutions, as opposed to goods or services that only partially solved their needs. Though recent empirical evidence in the broader literature shows that companies across industry sectors are selling augmented service offerings at a higher rate than before (Fang *et al.*, 2008; Gebauer, 2008; Kowalkowski, 2008), the arguments for the provision of such extended services tend not to be backed up by any figures. The lack of data makes it difficult to estimate the current extent and possible future growth of the solutions business. It is also unclear if customers demand solutions to get more benefits for the same money or if the primary driver is the pressure or wish to reduce total cost. Although Brady (2005a) reports that there are indeed several examples of buyers having started to buy solutions, it has also been reported recently that many buyers find it too costly and risky to do so (Agndal *et al.*, 2007), and therefore adjust their procurement practices towards a ‘transactional’ rather than ‘relational’ orientation, in which suppliers are kept at arm's length (Lindberg and Nordin, 2008). Such an approach does not fit neatly with buying solutions offerings, and for that reason many customers prefer to buy more standardised and less extensive offerings.

A second external antecedent of the purchasing of solutions is the *commoditisation of technologies*, with its corresponding reduction in profit margins from sales of goods and basic services (Windahl and Lakemond, 2006). Differentiation from the competition by offering solutions to customers can be seen as a way of escaping the “commodity magnet” (Stremersch *et al.*, 2001). It is hard to deny that commoditisation is occurring in general, and the phenomenon is emphasised in the subject-specific literature by Brady *et al.* (2005a). It is also one reason for the growth in the number of so-called EMS (Electronic Manufacturing Services) providers in the electronics contract manufacturing industry, which exploit the economies of scale in manufacturing as a service to such manufacturers as Ericsson and IBM. These service firms have recently expanded their offerings into design, testing and support services. Commoditisation also implies that the move towards solutions is not driven by external forces alone but also by internal factors. For instance, such vertically-integrated companies as Alstom and Siemens, are trying to drive the market towards solutions, according to Tuominen *et al.* (2004), in an attempt to maintain their competitiveness despite the trend to commoditisation. This development in the operating environment also allows systems integrators without in-house manufacturing capabilities, such as the global professional services firm Atkins and Cable & Wireless, to offer solutions to their customers (Davies *et al.*, 2007).

A few authors, such as Miller *et al.* (2002), suggest that the *capabilities of providers of solutions offerings* are a further central reason for the existence of such offerings. Those might be, for instance, international connections or product knowledge. By exploiting such capabilities, service providers can generate outcomes for their customers that would not otherwise exist, and thereby become a more strategic business partner.

A potential antecedent not often mentioned in the subject-specific literature is that an increasing number of companies are driven by different kinds of *non-economic values*, such

as concern for the environment. One example is Norrgavel, a Swedish furniture manufacturing firm that seeks to provide furniture that is not only beautiful and functional, but is also manufactured in an environmentally responsible way (Nordin, 2009). In building their business around such core values, the company seeks to solve an existential concern among many contemporary consumers. In our opinion, this is also a kind of a solution, albeit different from the technical solutions typical of the literature. Other authors, in the subject-specific and broader literatures, point to a more purely economic impetus towards solutions: that service contracts enjoy *longer life cycles* and generate *greater total revenue* than making and selling products alone (Wise and Baumgartner, 1999; Davies, 2004; Ceci and Prencipe, 2008). Such explicitly economic motives will almost certainly drive strategy towards increased service provision, but larger revenues should not be confused with larger profit margins. For example, whereas Ericsson's income from the acquisition and operation of networks previously owned and managed by telecommunications companies has indeed been very large, their profit margins have been relatively low. The potential for cost reduction also motivates customers to outsource this type of business. For companies such as Ericsson, this line of business generates cash primarily because they are in a position to exploit the economies of scale (Davies, 1996).

The solutions process

The question of how solutions are implemented and problems thereby solved is addressed by only a few of the subject-specific articles reviewed. Table 3 summarises their perspectives on the answer.

Take in Table 3

The solutions process is often described as *starting with a customer problem* (Sawhney, 2006). Among such problems is the integration of an increasing number of technologies, physical components and services (Davies *et al.*, 2006). The concerns from which solutions are built may, as Matthyssens and Vandenbempt (1998) observe, be articulated by customers with varying degrees of precision. Bonney and Williams (2009) argue that the process of selling solutions does not begin with “a customer’s specification of formal and discrete product requirements” (p. 1033) but rather with investment of more time and effort on the provider’s part to identify the problem, before it can be addressed. The broader literature distinguishes between ‘well-defined’ and ‘ill-defined’ problems (Mayer and Wittrock, 1996) or ‘well-structured’ from ‘ill-structured’ (Jonassen, 2000). Problems that are well defined or structured contain a description of all the relevant elements and may be solved by the application of a limited number of regular and structured rules and principles identified in the broader literature, such as means-ends analysis, ‘working backward’ and ‘analogical reasoning’ (Hershey and Walsh, 2000). The solutions are comprehensible to the problem solver, with clear connections between the nature of a problem and the decision choices available.

Amabile (1983) identified an ‘algorithmic’ sub-set of the well-structured problem, in which there is a known formula or path to the solution. An example from the real-world is, arguably, the standardised fixed-price, materials-handling solutions provided by Toyota. Instead of buying their trucks and auxiliary services, an increasing number of customers opt for a rental solution in which Toyota guarantees levels of uptime for the equipment (Kowalkowski, 2008).

Ill-structured problems, on the other hand, contain elements that are unknown, have multiple solutions or none at all, and therefore demand a significant degree of judgment in the problem-solving. The broader literature asserts that they will vary with respect to: the number

of issues, functions or variables involved in the problem; the degree of connectivity among those components; the nature of the functional relationships among them; and their stability over time (Funke, 1991). A further consideration is how clearly, and how reliably components are represented (Jonassen, 2000). Problems also vary in terms of how they are communicated to problem solvers, and perceived by them. Among other things, this depends on the prior problem-solving experience and familiarity of the problems solver with the problem (Hershey and Walsh, 2000).

Amabile (1983) again identified and named a sub-set: heuristic problems, where there is no clear or easily identifiable path to the solution, meaning that educated guesses, trial-and-error and intuitive judgments based on experience are required to solve them. A real-life case example is the solutions provided by BAE for intelligent defence systems and others characterised by a high degree of technological uncertainty or novelty. The heuristic process by which such a problem is solved by a solutions provider, ranging from the more clear-cut to the more complex, will thus be strongly influenced by the nature of the problem.

Another distinction to be made is whether the process is *linear*, a rational and step-wise problem-solving sequence, or *iterative* and emergent, with a significant degree of interaction between the provider and recipient of the solution. Sawhney *et al.* (2006) are among those authors in the subject-specific literature who describe the process as a relatively linear one, beginning with an analysis of a customer problem and ending with the identification of products and services that will be needed to solve the entire problem. Brady *et al.* (2005b) emphasise, however, that this process should be preceded by informal discussions with existing or potential customers, so that the providers begin to understand their customers' strategic needs and priorities. In other words, the responsibility for the outcome is shared and customers and providers work jointly to plan, implement, and monitor the solution. This view is consistent with the assertion by Hershey and Walsh (2000), in the

broader literature, that the process works backwards from the provider of the solution thinking about the customer's desired outcome to the necessary products or services. Brady *et al.* (2005b) define four phases of the linear problem-solving process as strategic engagement, value proposition, systems integration, and operational service.

Other contributors to the subject-specific literature emphasise, more or less explicitly, the *iterative* nature of a typical solutions process, with frequent interactions and more long-term relationships between customers and providers, and a significant degree of trust. Tuli *et al.* (2007), representing this group, assert that customers frequently have a limited understanding of their own business needs, and cannot readily articulate them to a supplier. A more relational process is thus appropriate. Being a solutions provider is, they argue, about recognising a customer's broader requirements, including the implications of its internal operating processes, its labour situation, and its business model. The iterative solution process consists of four steps, in their view, each of which is a customer-supplier relationship in itself: definition of requirements, customisation and integration, deployment, and post-deployment support.

The nature of the solutions process in a given situation is very likely to be significantly influenced by the antecedent of the process: that is, the nature of the problem to be solved. Though a few authors do state their assumptions concerning the nature of the problems to be addressed, there is a surprising shortage of any connection to the more generic frameworks for problem management. This shortcoming of the literature has implications for the kind of customer relationship that is feasible during problem solving. Generally, the close and collaborative *modus operandi* is seen as a prerequisite for successful solutions (Matthyssens and Vandenbempt, 1998; Hax and Wilde, 2001; Stremersch *et al.*, 2001; Brady *et al.*, 2005a). It is even argued by Tuli *et al.* (2007) that solutions should by definition be regarded as ongoing relational processes, while Hobday *et al.* (2005) discuss the intimate

involvement of buyers in the innovation and integration processes leading up to the development of solutions. These characteristics are, however, probably more valid in the case of solutions connected to ill-structured problems and heuristic solutions than to those involving the well-structured and algorithmic alternatives. Furthermore, although the solutions process can usually be broken into distinct steps (Brady et al., 2005a; Tuli *et al.*, 2007), the activities within each phase need to be carried out in a more iterative manner if the solution involves a high degree of heuristic problem solving.

In spite of the issues raised in this examination of the solutions process, few references were found in the subject-specific articles reviewed to the seemingly very relevant literature of problem management, as exemplified by Amabile (1983), Funke (1991), Mayer and Whittrock (1996) and Jonassen (2000).

Outcomes of solutions

Table 4 summarises the perspectives in the subject-specific literature on the outcomes of a solutions offering.

Take in Table 4

Given the meaning of the word *solution*, the outcome would seem to be a *solved problem*, which is consistent with the terminology of, for example, Sawhney (2006). This creates a very definite, or positivistic, impression that it is abundantly clear when a problem has been solved. A solution to a problem is, however, intimately related to the character of the problem and to the process of arriving at the solution. Well-structured problems have much clearer solutions than ill-structured problems, to which there can be multiple solutions, as Jonassen (2000) has observed in the broader literature, and which demand significant

judgment in deciding whether or not a solution has been achieved. Moreover, the general literature emphasises that such attributes of services as their intangibility make them difficult to specify and measure (Fitzsimmons *et al.*, 1998; Lindberg and Nordin, 2008). In this sense, services and solutions are less structured than products and commodities, and therefore require more judgmental evaluation of outcomes. The fact that the very word itself has several dictionary definitions (the answer to a problem, an explanation or clarification, a breaking up or coming to an end), leaves considerable room for different interpretations and conceptualisations of both the term and the outcome.

One of the more general perspectives on solutions outcomes was provided by Miller et al (2002), who saw the outcome as being to “*make life easier or better* for the client” by taking over some of its ongoing operations, or integrating products and services to deliver an especially useful outcome. Similarly, Johansson et al. (2003) called an outcome “the total business value delivered”, and Tuli et al. (2007) more recently defined the goal of a solution as to “satisfy a customer’s business needs”. Both descriptions implicitly limit solutions to business markets, as do most in the literature reviewed. Yet solutions may also be offered to consumers, and the dichotomy between business and consumer marketing is often artificial (Dant and Brown, 2008; Fern and Brown, 1984). The view of solutions as offerings aimed at solving end-to-end customer problems advanced by Sawhney et al. (2006) is certainly more precise and all-encompassing, but also limited by its implicit assumption that customers can explicate their problems, which is by no means always valid. For example, new technology and generally increasing complexity make it less likely that customers have all the skills required to explain their specific problem. Furthermore, as Fine and Whitney (1996) observed in the broader literature, extensive outsourcing of activities to suppliers in many industries has made customers significantly dependent on their suppliers for the necessary understanding.

Customers may thus find it difficult not only to articulate their problems but also to identify qualified solutions providers.

The more general concept of *customer value* is a frequently cited outcome, for example by Dhar *et al.* (2004). Though it is not always made clear exactly what constitutes that value, four of the contributions to the subject-specific literature do provide formal definitions. For instance, Matthyssens and Vandenbempt (1998) defined superior customer value as explicit service quality and a proactive total solution, plus the timely, empathic design of new services. Hax and Wilde (1999) saw the ultimate goal as the betterment of customer's economic situations. Others have emphasised the value to the provider in, for instance, improving sales margins (Stremersch *et al.*, 2001) or securing more stable revenue streams than is possible from sales of capital goods (Brady *et al.*, 2005b). However, these outcomes parallel the general benefits of infusing services into the manufacture and delivery of products as described for instance in the broader literature by Oliva and Kallenberg (2003) and Kindström and Kowalkowski (2008), and do not fully distinguish solutions from other forms of service offerings. Furthermore, from a service perspective, the literature typically asserts that the co-creation of value-in-use is central to all offerings (for example: Normann, 2001; Grönroos, 2008; Vargo and Lusch, 2008), not only to solutions offerings. In addition, the outcome is not only the end result of the solutions process, but the *ongoing value* created in the customer's usage throughout the process (Tuli *et al.*, 2007).

It is important to note that, if solutions are seen as inherently customised, the outcomes are not generic but unique to the situation. Yet Normann and Ramirez (1994) argued, in the supply-chain context, that the aim of solutions is in one way or another to make life easier or better for customers by relieving them of some responsibility or enabling them to do something new, or both. Outcomes of solutions can thus range from solving consumers' known or articulated problems over time (Sawhney *et al.*, 2006) to enabling them to achieve

what Woodruff (1997) calls “peace of mind”. For example, an aircraft operator buying a power-by-the-hour solution from Rolls-Royce does not have to be concerned about the availability of aircraft, and can instead focus on the operations enabled by the solution. Customers’ peace of mind derives from the fact that they are not merely focusing on economic and functional benefits, but increasingly also on social, ethical and environmental values (Inglehart, 1990; Norman and MacDonald, 2004), and the emotional dimensions of value (Barnes, 2003). An increasing number of companies, such as the Australian and Swedish furniture firms Koskela Design and Norrgavel, seek to provide solutions that offer their customers higher-order value beyond the direct, functional qualities of the products offered (Nordin, 2009). However, peace of mind alone does not make an offering a solution; a basic taxi service offers peace of mind to the user but lacks many other attributes of a solution, such as integration, long-term orientation and a wide range of possible options.

A reconceptualisation of solutions

The four aspects of solutions reviewed, discussed and critiqued in the previous sections can be integrated into the conceptual framework shown in Figure 1. This reconceptualisation is intentionally somewhat simplified, since it presents a relatively complex system characterised by intricate interactions between different aspects of solutions. It includes the sometimes conflicting views of different authors concerning what constitutes a solutions offering. Though we do not present the relationships between the different aspects of solutions as propositions, the bold-face links indicate correlations. For instance, different types of antecedent are expected to have different degrees of correlation with types of solution and outcome. With these caveats in mind, our reconceptualised framework should be seen as a starting point for the development of a solutions theory, rather than an end in itself.

Take in Figure 1

Discussion and implications

Though the subject-specific literature reviewed reports a great deal of research into the design and delivery of solutions offerings, it contains no rigorous and unanimous definition of 'solutions'. Rather, the individual contributions offer a number of often quite broad and generic descriptions that could apply to, if not all, at least a wide array of different offerings. Some authors have relatively distinct perspectives on solutions, and many qualify the term with a prefix that distinguishes the particular kind of offering on which they are concentrating from other kinds. In future research, the solutions framework in Figure 1 should therefore be developed to distinguish different kinds of offerings explicitly, and to suggest more clearly how different combinations of characteristics, antecedents, processes and outcomes relate to each other, and may be more or less feasible in practice.

With that proviso, the framework it presents builds on a thorough review of the subject-specific literature, describing the many elements of the 28 individual contributions and discussing their conceptual limitations. If we accept that there are indeed many different kinds of solutions, it would be timely to develop our conceptual framework further by examining in more detail the logical and causal links among types of antecedents, solutions and outcomes. It could also be interesting and productive to focus on differences between industries and markets, such as high-technology versus low-technology and business-to-business versus business-to-consumer.

A second issue to be addressed in future research is the assumption that, regardless of the type of solution and the sorts of values it aims to create (economic, technical, social, and so on), there are a number of characteristic that apply to all types of solutions, some of which also apply to other forms of offerings. According to Johansson *et al.* (2003) and Sawhney (2006), three such universally applicable elements seem to be high degrees of customisation,

technical-operational integration and customer-market integration, regardless of whether the solution is unique or based predominantly on standardised modules. Thus, it is not the bundling of offerings *per se* that characterises solutions; integration needs to deliver better customer outcomes than the sum of the individual components. According to Tuli *et al.* (2007), potential further contributions to the strategic differentiation of solutions offerings may be long-term orientation, significant investment in relationship-building, and an iterative nature (as compared to most other offerings), which go beyond the requirement definition and systems integration phases. Though the literature may sometimes point to these aspects of solutions, many studies are product-focused – for instance, Ceci and Principe (2008) – and fall back on more limited views of solutions as linear processes, product-service bundles and responses to expressed customer needs.

Furthermore, some discussions in the literature fail to make the distinction between solutions offerings and industrial services, for example by arbitrarily interpreting the after-sales services identified by Oliva and Kallenberg (2003) as solutions. Even if one could argue that solutions are merely a complex variety of services, treating them as a distinct subset has advantages. Such a perspective would obviously mean that specific characteristics should be unique to particular solutions, and not apply equally to other forms of offering. The definition of a solution by Tuli *et al.* (2007) as “an ongoing, relational process of defining, meeting, and supporting a customer’s evolving needs” (p. 5) hints at the characteristics that would be relevant to future studies focused on this issue. However, one might argue that such a specific, dynamic and relational view does not distinguish solutions from other types of services. From the services perspective adopted by Normann (2001) and Edvardsson *et al.* (2005), it is applicable to all forms of service regardless of whether or not they are solutions offerings or something less extensive. As Vargo and Lusch (2004) argue, the normative marketing goal should be customisation and the maximisation of customer involvement in the creation of

value. Nevertheless, according to Brady et al. (2005a), what seems to be a necessary condition for solutions (and is in accordance with service logic) is the positive balance between information messages given by the firm and received by the customer, and the responsibility shared among provider, customer and other possible resource integrators. This view is supported by studies of asymmetrical information exchange, such as that by Mascarenhas *et al.* (2008), which highlight the dangers of an imbalance between information given and received. Even if some solutions do not require formal strategic partnerships, they do demand long-term, multi-level relationships and commitment, equality in knowledge sharing and balanced information exchange. Clearly this is not the case in all relationships.

Two final and more specific issues that we believe deserve further attention but have not yet been explicitly addressed are how pricing differs between an archetypal solution offering and other types, and how risks are managed. For solutions, the provider's charges are often based more on the customer's value-in-use than on the monetary exchange value. Specifically, the process-orientation of solutions implies that pricing policy is linked, to varying degrees, to outcomes delivered to the customer. The price can be fixed, such as when a fixed fee is charged for a given level of availability, or dynamic, as in a 'gain-sharing' arrangement with payments directly linked to the customer's business performance (Kowalkowski *et al.*, 2009). Thus, compared to other pricing models, charges for solutions delivered seem to be a better reflection of a customer's actual value-creation. A fruitful topic of future research studies is therefore the link between pricing models and the various types of solutions offerings. Furthermore, the provision of solutions requires the provider to take managed risks and, consequently, often features a risk-based contract (Cornet *et al.*, 2000; Cova and Salle, 2008). Another opportune avenue for further research would thus be an investigation, in the solutions context, of risk management and mitigation.

Collectively, the emergence of marketing and management research studies of solutions offerings, the vagueness and inconsistency of definitions of solutions, the lack of depth and theoretical sophistication in many prior studies, and the lack of distinct typologies open up several interesting avenues for future research. On a more general note, that shortage of theoretical sophistication may be partly remedied by drawing on the broader and more theoretical studies, such as those relating to problem management by Amabile (1983), Funke (1991) Mayer and Whittrock (1996) and Jonassen (2000) or to service-dominant logic by Vargo and Lusch (2008).

References

- Agndal, H., Axelsson, B., Lindberg, N. and Nordin, F. (2007), "Trends in service sourcing practices", *Journal of Business Market Management*, Vol. 1 No. 3, pp. 187-207.
- Amabile, T. M. (1983), "The social psychology of creativity: A componential conceptualization.", *Journal of Personality and Social Psychology*, Vol. 43 No. 2, pp. 357-376.
- Anderson, J. C., Cleveland, G. and Schroeder, R. G. (1989), "Operations strategy: A literature review", *Journal of Operations Management*, Vol. 8 No. 2, pp. 133-158.
- Barnes, J. G. (2003), "Establishing meaningful customer relationships: why some companies and brands mean more to their customers", *Managing Service Quality*, Vol. 13 No. 3, pp. 178-186.
- Bonney, F. L. and Williams, B. C. (2009), "From products to solutions: the role of salesperson opportunity recognition", *European Journal of Marketing*, Vol. 43 No. 7-8, pp. 1032-1052.
- Brady, T., Davies, A. and Gann, D. M. (2005a), "Creating value by delivering integrated solutions", *International Journal of Project Management*, Vol. 23 No. 5, pp. 360-365.

- Brady, T., Davies, A. and Gann, D. M. (2005b), "Can integrated solutions business models work in construction?", *Building Research & Information*, Vol. 33 No. 6, pp. 571-579.
- Brax, S. A. and Jonsson, K. (2009), "Developing integrated solution offerings for remote diagnostics", *International Journal of Operations & Production Management*, Vol. 29 No. 5, pp. 539-560.
- Ceci, F. and Prencipe, A. (2008), "Configuring capabilities for integrated solutions: Evidence from the IT Sector", *Industry and Innovation*, Vol. 15 No. 3, pp. 277-296.
- Cornet, E., Katz, R., Molloy, R., Schädler, J., Sharma, D. and Tipping, A. (2000), *Customer Solutions: From Pilots to Profits*, Booz Allen & Hamilton, New York, NY.
- Cova, B. and Salle, R. (2008), "Marketing solutions in accordance with the S-D logic: Co-creating value with customer network actors", *Industrial Marketing Management*, Vol. 37 No. 3, pp. 270-277.
- Croom, S., Romano, P. and Giannakis, M. (2000), "Supply chain management: an analytical framework for critical literature review", *European Journal of Purchasing & Supply Management*, Vol. 6 No. 1, pp. 67-83.
- Dant, R. P. and Brown, J. R. (2008), "Bridging the B2C and B2B research divide: The domain of retailing literature", *Journal of Retailing*, Vol. 84 No. 4, pp. 371-397.
- Davies, A. (1996), "Innovation in large technical systems: The case of telecommunications", *Industrial and Corporate Change*, Vol. 5 No. 4, pp. 1143-1183.
- Davies, A. (2004), "Moving base into high-value integrated solutions: a value stream approach", *Industrial and Corporate Change*, Vol. 13 No. 5, pp. 727-756.
- Davies, A., Brady, T. and Hobday, M. (2006), "Charting a path toward integrated solutions", *Sloan Management Review*, Vol. 47 No. 3, pp. 39-48.
- Davies, A., Brady, T. and Hobday, M. (2007), "Organizing for solutions: Systems seller vs. systems integrator", *Industrial Marketing Management*, Vol. 36 No. 2, pp. 183-193.

- Day, G.S. (2004), "Commentary on 'evolving to a new dominant logic for marketing'", *Journal of Marketing*, Vol. 68, January, pp. 18-27.
- Dhar, R., Menon, A. and Maach, B. (2004), "Toward extending the compromise effect to complex buying contexts", *Journal of Marketing Research*, Vol. 41 No. 3, pp. 258-262.
- Dunn and Thomas (1994), "Partnering with customers", *Journal of Business & Industrial Marketing*, Vol. 9 No. 1, pp. 34-40.
- Edvardsson, B., Gustafsson, A. and Roos, I. (2005), "Service portraits in service research: a critical review", *International Journal of Service Industry Management*, Vol. 16 No. 1, pp. 107-121.
- Eggert, A., Ulaga, W., and Schultz, F. (2005), "Value Creation in the Relationship Lifecycle: A Quasi-Longitudinal Analysis," *Industrial Marketing Management*, Vol. 35, No. 1, pp. 20-27.
- Fern, E. F. and Brown, J. R. (1984), "The industrial/consumer marketing dichotomy: A case of insufficient justification", *Journal of Marketing*, Vol. 48 No. 2, pp. 68-77.
- Fine, C.H. and Whitney, D.E. (1996), "Is the Make-Buy Decision Process a Core Competence?," Working Paper # 3875-96. Cambridge, MA: MIT Center for Technology, Policy, and Industrial Development.
- Fitzsimmons, J. A., Noh, J. and Thies, E. (1998), "Purchasing business services", *Journal of Business and Industrial Marketing*, Vol. 13 No. 4/5, pp. 370-380.
- Foote, N. W., Galbraith, J. R., Hope, Q. and Miller, D. (2001), "Making solutions the answer", *The McKinsey Quarterly*, Vol. 3, pp. 84-97.
- Funke, J. (1991), "Solving complex problems: Exploration and control of complex systems", in R. Stemberg and P. A. Frensch (Ed.). *Complex problem solving: Principles and mechanisms*, Lawrence Erlbaum Associates, Hillsdale, NJ, pp. 185-222.

- Galbraith, J. R. (2002), "Organizing to deliver solutions", *Organizational Dynamics*, Vol. 31 No. 2, pp. 194-207.
- Gebauer, H. (2008), "Identifying service strategies in product manufacturing companies by exploring environment–strategy configurations", *Industrial Marketing Management*, Vol. 37 No. 3, pp. 278-291.
- Grönroos, C. (2008), "Service-Dominant Logic revisited: Who creates value? And who co-creates?", *European Business Review*, Vol. 20 No. 4, pp. 298-314.
- Hannaford, W. J. (1976), "Systems selling: Problems and benefits for buyers and sellers", *Industrial Marketing Management*, Vol. 5 No. 2-3, pp. 139-145.
- Hax, A. and Wilde, D. (1999), "The delta model: adaptive management for a changing world", *Sloan Management Review*, Vol. 40 No. 2, pp. 11-28.
- Hax, A. and Wilde, D. (2001), "The delta model—Discovering new sources of profitability in a networked economy", *European Management Journal*, Vol. 19 No. 4, pp. 379-391.
- Hershey, D.A. and Walsh, D.A. (2000), " Knowledge versus experience in financial problem solving performance," *Current Psychology*, Vol. 19 No. 4, pp. 261-91.
- Hobday, M., Davies, A. and Prencipe, A. (2005), "Systems integration: a core capability of the modern corporation", *Industrial and Corporate Change*, Vol. 14 No. 6, pp. 1109-1143.
- Inglehart, R. (1990), *Culture Shift in Advanced Industrial Society*. Princeton University Press, Princeton, New Jersey.
- Jacob, F. and Ulaga, W. (2008), "The transition from product to service in business markets: An agenda for academic inquiry", *Industrial Marketing Management*, Vol. 37 No. 3, pp. 247-253.
- Johansson, J., Krishnamurthy, C. and Schliissberg, H. (2003), "Solving the solutions problem", *The McKinsey Quarterly*, Vol. 3, pp. 117-125.

- Johne, A. and Storey, C. (1998), "New service development: a review of the literature and annotated bibliography", *European Journal of Marketing*, Vol. 32 No. 3, pp. 184-251.
- Jonassen, D. H. (2000), "Toward a design theory of problem solving", *Educational Technology Research and Development*, Vol. 48 No. 4, pp. 63-85.
- Kindström, D. and Kowalkowski, C. (2009), "Development of industrial service offerings - A process framework", *Journal of Service Management*, Vol. 20 No. 2, pp. 156-172.
- Kowalkowski, C. (2008), *Managing the Industrial Service Function*. Doctoral Dissertation, Linköping University, Linköping, Sweden [available online at liu.diva-portal.org/smash/record.jsf?searchId=2&pid=diva2].
- Kowalkowski, C., Brehmer, P.O. and Kindström, D. (2009), "Managing industrial service offerings: requirements on content and processes", *International Journal of Services Technology and Management*, Vol. 11 No. 1, pp. 42-63.
- Lampel, J. and Mintzberg, H. (1996), "Customizing customization", *MIT Sloan Management Review*, Vol. 38 No. 1, pp. 21-30.
- Lindberg, N. and Nordin, F. (2008), "From products to services and back again: Towards a new service procurement logic", *Industrial Marketing Management*, Vol. 37 No. 3, pp. 292-300.
- Markeset, T. and Kumar, U. (2005), "Product support strategy: conventional versus functional products", *Journal of Quality in Maintenance Engineering*, Vol. 11 No. 1, pp. 53-67.
- Mascarenhas, O., Kesavan, R. and Bernacchi, M. (2008), "Buyer-seller information asymmetry: challenges to distributive and corrective justice", *Journal of Macromarketing*, Vol. 28 No. 1, pp. 68-84.
- Matthyssens, P. and Vandenbempt, K. (1998), "Creating competitive advantage in industrial services", *Journal of Business & Industrial Marketing*, Vol. 13 No. 4/5, pp. 339-355.

- Mattsson, L.-G. (1973), "Systems selling as a strategy on industrial markets", *Industrial Marketing Management*, Vol. 3 No. 2, pp. 107-120.
- Mayer, R. E. and Wittrock, M. C. (1996), "Problem-solving transfer", in D. Berlinert and R. C. Calfee (Ed.). *Handbook of educational psychology*, Macmillan, New York, pp. 47-62.
- Miller, D., Hope, Q., Eisenstat, R. and Galbraith, J. (2002), "The problem of solutions: Balancing clients and capabilities", *Business Horizons*, Vol. 45 No. 2, pp. 3-12.
- Narver, J.C., Slater, S.F. and MacLachlan, D.L. (2004), "Responsive and Proactive Market Orientation and New-Product Success," *Journal of Product Innovation Management*, Vol. 21 No. 5, pp. 334-47.
- Nordin, F. (2009), "Transcendental marketing: A conceptual framework and empirical examples", *Management Decision*, Vol. 47 No. 10, pp. 1652-1664.
- Nordin, F. and Agndal, H. (2008), "Business service sourcing: A literature review and agenda for future research", *International Journal of Integrated Supply Management*, Vol. 4 No. 3/4, pp. 378-405.
- Norman, W. and MacDonald, C. (2004), "Getting to the bottom of "triple bottom line"", *Business Ethics Quarterly*, Vol. 14 No. 2, pp. 243-262.
- Normann, R. (2001), *Reframing Business - When the Map Changes the Landscape*. Chichester, UK: John Wiley & Sons, Ltd.
- Normann, R. and Ramirez, R. (1994), *Designing Interactive Strategy: From Value Chain to Value Constellation*, John Wiley & Sons, Chichester.
- Oliva, R. and Kallenberg, R. (2003), "Managing the transition from products to services", *International Journal of Service Industry Management*, Vol. 14 No. 2, pp. 160-172.

- Perea y Monsuwé, T., Dellaert, B. G. C. and de Ruyter, K. (2004), "What drives consumers to shop online? A literature review", *International Journal of Service Industry Management*, Vol. 15 No. 1, pp. 102-121.
- Rudberg, M. and Wikner, J. (2004), "Mass customization in terms of the customer order decoupling point", *Production Planning & Control*, Vol. 15 No. 4, pp. 445-458.
- Sawhney, M. (2006), "Going beyond the product, defining, designing, and delivering customer solutions", in R. F. Lusch and S. L. Vargo (Ed.). *The Service-dominant Logic of Marketing: Dialogue, Debate, and Directions*, Sharpe, New York, NY, pp. 365-380.
- Sawhney, M., Wolcott, R. C. and Arroniz, I. (2006), "The 12 different ways for companies to innovate", *Sloan Management Review*, Vol. 47 No. 3, pp. 75-81.
- Sharma, D., Lucier, C., and Molloy, R. (2002), "From Solutions to Symbiosis: Blending with Your Customers," *Strategy and Business*, Vol. 27 No. 2, pp. 38-43.
- Shepherd, C. and Ahmed, P. (2000), "From product innovation to solutions innovation: a new paradigm for competitive advantage", *European Journal of Innovation Management*, Vol. 3 No. 2, pp. 100-106.
- Stremersch, S., Wuyts, S. and Frambach, R. T. (2001), "The purchasing of full-service contracts: An exploratory study within the industrial maintenance market", *Industrial Marketing Management*, Vol. 30 No. 1, pp. 1-12.
- Tuli, K. R., Kohli, A. K. and Bharadwaj, S. G. (2007), "Rethinking customer solutions: From product bundles to relational processes", *Journal of Marketing*, Vol. 71 No. 3, pp. 1-17.
- Tuominen, M., Rajala, A. and Möller, K. (2004), "Market-driving versus market-driven: Divergent roles of market orientation in business relationships", *Industrial Marketing Management*, Vol. 33 No. 3, pp. 207-217.

- Vargo, S. L. and Lusch, R. F. (2004), "The four service marketing myths: Remnants of a goods-based, manufacturing model", *Journal of Service Research*, Vol. 6 No. 4, pp. 324-335.
- Vargo, S. L. and Lusch, R. F. (2008), "From goods to service(s): Divergences and convergences of logics", *Industrial Marketing Management*, Vol. 37 No. 3, pp. 254-259.
- Windahl, C., Andersson, P., Berggren, C. and Nehler, C. (2004), "Manufacturing firms and integrated solutions: characteristics and implications", *European Journal of Innovation Management*, Vol. 7 No. 3, pp. 218-228.
- Windahl, C. and Lakemond, N. (2006), "Developing integrated solutions: the importance of relationships within the network", *Industrial Marketing Management*, Vol. 35 No. 7, pp. 806-818.
- Wise, R. and Baumgartner, P. (1999), "Go downstream: the new profit imperative in manufacturing", *Harvard Business Review*, Vol. 77 No. 5, pp. 133-141.
- Woodruff, R. B. (1997), "Customer value: the next source of competitive advantage", *Journal of the Academy of Marketing Science*, Vol. 25 No. 2, pp. 139-153.

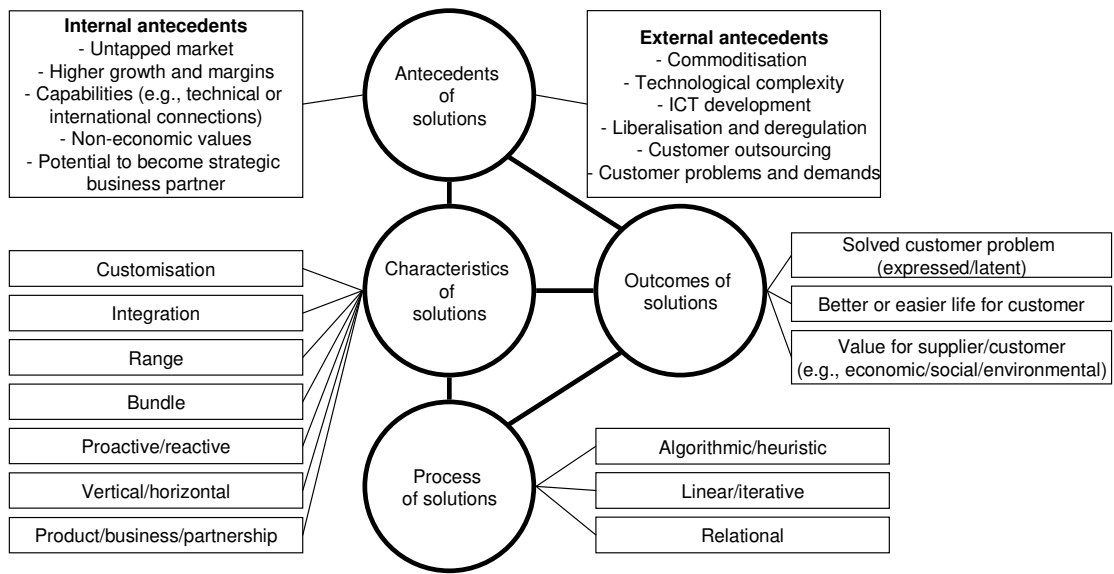


Figure 1. A solutions framework.

Table 1. Current descriptions and characteristics of solutions

<i>Source</i>	<i>Extract</i>
Dunn and Thomas 1994	Partnership solution: multiple business solutions linked across the corporation. Business solution: multiple product solutions linked to address a business problem. Product solution: product plus application and services.
Hax and Wilde 2001	A wider offering of products and services that satisfies most if not all the customer's needs.
Stremersch et al. 2001	A full service is a comprehensive bundle of products and/or services, that fully satisfies the needs and wants of a customer related to a specific event or problem.
Galbraith 2002	Personalized packages of service, support, education, and consulting. Solutions can be horizontal or vertical and they may differ in scale and scope, and degree of integration between their components.
Miller et al. 2002	Integrated combinations of products and/or services that are unusually tailored to create outcomes desired by specific clients or types of clients. Solutions have both an <i>integrative</i> and a <i>customisation</i> aspect. They require a supplier to understand and perform key parts of a client's business better than the client itself.
Johansson et al. 2003	Degree of integration (both commercial integration, combining products and/or services, and technical integration, i.e., physical interoperability of components) and degree of customisation.
Davies 2004	Product and service components that are customised and priced according to a specific customer's needs. Two dimensions: Scope of systems integration (single- and multi-vendor systems) and spread of industrial activities (vertically and horizontally integrated firms).
Windahl et al. 2004	Physical products and services are combined to provide a specific outcome fulfilling the customers' need. Customisation needs to be combined with well-defined modular structures to achieve economies of scale at the component level.
Brady et al. 2005a	Integrated solution: bringing together of products and services in order to address a customer's particular business or operational requirements.
Sawhney 2006	Two key dimensions: degree of integration (market and operational) and degree of customisation.
Davies et al. 2007	Develop standardized 'solutions-ready' components, that can be combined and recombined at much lower cost than solutions comprised of entirely customised components.
Ceci and Prencipe 2008	Integrated solutions means the provision of bundled services and products. Customers with low levels of sophistication require simple, low-tech, standardized solutions that are easy to maintain and use. In contrast, highly sophisticated customers have more complex needs that generally require high-tech, customised solutions.

Matthyssens and Vandenbempt 2008	Technical application integration and business process integration.
--	---

Table 2. Current views on the antecedents of solutions

<i>Source</i>	<i>Extract</i>
Shepherd and Ahmed 2000	Decreasing technology and product life-cycles, tightening margins, and increasing commoditisation of product components.
Hax and Wilde 2001	Companies seek an intimate and deep customer understanding and relationship, and to develop an integrated supply chain that links them with key suppliers and customers.
Stremersch et al. 2001	Industrial firms increasingly demand ‘turnkey’ solutions to problems.
Miller et al. 2002	Pressures from declining margins for manufactured products, and demands from powerful customers wanting to outsource to focus on core competencies. The attractiveness of solutions growth opportunities and profit margins. In short, a solutions surplus synthesises a value proposition that creates especially desirable outcomes for clients – with a unique capability to deliver those outcomes.
Davies 2004	Strong East Asian competition in high-volume manufacturing, stagnating product demand, and a growing installed base of products. Liberalisation and privatisation of former state-controlled sectors, such as telecoms and railways
Windahl et al. 2004	Slow growth and declining margins, changes in markets and customers, IT-based technologies offering new opportunities.
Windahl and Lakemond 2006	Firms that have traditionally focused on selling products, spare parts and services face difficulties with increasing competition and declining margins.
Matthyssens and Vandenbempt 2008	Commoditisation erodes the competitive differentiation of companies and often leads to a profit squeeze.

Table 3. Current views on the solutions process

<i>Source</i>	<i>Extract</i>
Shepherd and Ahmed 2000	Companies have to focus on user processes and operations, instead of their own products and spare parts.
Foote et al. 2001	Managers need to start not with a product but with a desired outcome for a customer.
Miller et al. 2002	Client-capability tensions require ongoing and intense interactions between strong, client-facing front-end units and strong, capability facing back-end units.
Davies 2004	Buyers of capital goods are entering into long-term partnerships with their suppliers. Suppliers have to control the channel to the customer.
Brady et al. 2005b	A four-stage process: 1. strategic engagement phase: pre-bid activities 2. value proposition phase: bid or offer activities 3. systems integration phase: project execution activities 4. Operational service phase: post-project activities
Brady et al. 2005a	Delivering integrated solutions to meet customer needs involves specifying, designing, constructing, financing, maintaining, supporting and operating a system throughout its life cycle.
Sawhney 2006	Solutions design (begins with an analysis of a customer problem and ends with an identification of products and services that will be needed to solve the entire problem) and market integration.
Davies et al. 2007	Solutions selling: 1. provide an in-depth analysis of a customer's business 2. identify and diagnose problems in a customer's organisation 3. offer solutions based on its experience of working with a number of customers facing similar situations 4. coordinate the integration of components into a solution.
Tuli et al. 2007	A solution is an ongoing, relational process of defining, meeting, and supporting a customer's evolving need, or a set of customer-supplier relational processes comprising 1. customer requirements definition, 2. customisation and integration of goods and/or services 3. their deployment 4. post-deployment customer support all of which are aimed at meeting customers' business needs.

Table 4. Current views on the outcome of solutions

<i>Source</i>	<i>Extract</i>
Matthyssens and Vandembemt 1998	Superior customer value: explicit service quality, proactive, total solution, and timely, empathic design of new services.
Hax and Wilde 2001	Improve customer economics and horizontal linkages in the components firm.
Miller et al. 2002	Solutions are about outcomes that make life easier or better for the client.
Stremersch et al. 2001	... offering full-service contracts will reduce competition due to the lower level of price transparency in the market, leading to higher margins.
Johansson et al. 2003	Total business value delivered.
Brady et al. 2005b	Providing combinations of products and services that create unique benefits for each customer, and developing new ways for components to work together as an integrated whole to increase the overall value.
Sawhney et al. 2006	To solve end-to-end customer problems.
Tuli et al. 2007	The purpose of a solution is to satisfy customer needs.
Ceci and Prencipe 2008	From the firms' point of view, offering a solution means solving a customer's problem; from the customers' point of view, buying an integrated solution represents outsourcing some activity and thereby focusing their own resources on their core business.
Matthyssens and Vandembemt 2008	To achieve non-price-based customer value addition.

**Appendix 1: Subject-specific publications selected for review:
key inputs to the reconceptualisation**

<i>Year</i>	<i>Author(s)</i>
1994	Dunn and Thomas
1998	Matthyssens and Vandenbempt
1999	Hax and Wilde
2000	Cornet <i>et al.</i> ; Shepherd and Ahmed
2001	Hax and Wilde; Foote <i>et al.</i> ; Stremersch <i>et al.</i>
2002	Galbraith; Miller <i>et al.</i> ; Sharma <i>et al.</i>
2003	Johansson <i>et al.</i>
2004	Davies; Windahl <i>et al.</i>
2005	Brady <i>et al.</i> (a); Brady <i>et al.</i> (b); Hobday <i>et al.</i> ; Markeset and Kumar
2006	Davies <i>et al.</i> ; Sawhney; Sawhney <i>et al.</i> ; Windahl and Lakemond
2007	Davies <i>et al.</i> ; Tuli <i>et al.</i>
2008	Ceci and Prencipe; Cova and Salle
2009	Bonney and Williams ; Brax and Jonsson

Note : for full details, see References