

# **Managing service-based institutions in a context of unpredictable, complex change**

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## **Abstract**

Services constitute over 50% of the Gross Domestic Product of most nations of the world and appear to be characterised by unprecedented complexity, unpredictability and rapid change. The traditional management paradigm of scientific management, that has in many respects assumed a life of its own and became inherent in succeeding generations of management theory evolution, thinking and practice, would appear to no longer be effective for dealing with an unpredictable and continually changing global services economy. This paper is directed at exploring the services economy from an institutional management perspective, based on a multi-disciplinary review of the contemporary literature. The purpose of this paper is to determine how management theory and practice has evolved in order to remain appropriate in a very competitive, unpredictable and constantly changing global services economy. It is suggested that insights gained from the literature may serve to inform contemporary services management theory and practice. An important finding emanating from the literature is that the management approach adopted needs to be appropriate for the context in which service systems are deployed. A scientific management approach appears to be better suited for ordered contexts, while a complex adaptive systems methodology for complex services encountered is deemed to be more appropriate.

## **Key phrases**

*complex adaptive systems; services economy; scientific management; services dominant logic, servitization, T-shaped skills*

## **1. BACKGROUND**

“The biggest barrier to effective organizational change is the persistent and widespread use of an outdated and psychologically unsophisticated theory – Fredrick Taylor’s 19th century model of Scientific Management”. Sluyter 2011:2-3.

Sluyter’s (2011:2-3) introductory statement would appear to assume that scientific management theory is hardly effective for dealing with a contemporary environmental context of unprecedented change, yet it would seem to have almost assumed a life of its own, having become ingrained in succeeding generations of management thinking and practice. It is suggested by Sluyter (2011:2) that most leaders find themselves therefore thrust into the responsibility for leading change without the benefit of adequate preparation therefore.

Following a similar train of thought, Suchman (2011:11) argues that the way we think about organisational change makes a big difference in the way people approach the management

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thereof and the success that they achieve. Advocated by the researcher is a relationship-centric approach that integrates a variety of theories and perspectives including complexity science and positive psychology (Suchman 2011:11). It is an approach, that Suchman (2011:11) maintains, is based on the emergence, evolution and management of patterns that occur everywhere in nature. Implied in the relationship-centric approach, advocated by the researcher, is the notion that outcome patterns emerge through a process of mutual sense and decision making and consequent perceived appropriate responses to emergent contextual conditions and situations. It is an approach that is seen as being dynamic and on-going in nature.

A complex adaptive systems approach, or as previously alluded to the relationship-centric approach, undoubtedly stands in sharp contrast to the more traditional scientific management approach that has its origins in the research and writings of Frederick Taylor, over a hundred years ago. An important facet of the theory underpinning scientific management is its mechanistic paradigm, which seen in its industrial era context assumes a logical metaphor of management (Suchman 2011:13-14). Speaking before the United States committee investigating systems of shop steward management, Taylor made the following insightful statement (Hodgetts 1979:12):

“Now, in its essence, scientific management involved a complete mental revolution on the part of the working man engaged in a particular establishment or industry – a complete mental revolution on the part of these men as to their duties towards their work, towards their fellow men and towards their employers. And it involves the equally complete mental revolution on the part of those on the management’s side – the foreman, the superintendent, the owner of the business, the board of directors – a complete revolution on their part as to their duties toward their fellow workers in the management, towards their workmen, and toward all of their daily problems. And without this complete mental revolution on both sides scientific management does not exist.”

Merely changing the business systemic domains in themselves, although dramatic at the time, was of lesser consequence, it was the change in thinking and mental representations of management that were advocated by Taylor that had such a major influence in reshaping the management paradigms of the time. Taylor’s writings and philosophy captured the attention of management and researchers alike at the time in question, and resulted in him being attributed the title “the father of scientific management” (Hodgetts 1979:12).

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Over a century after the publication of Taylors “Principles of Scientific Management”, Evens and Homes (2013:3) contend that “despite the complexity and operational uncertainty that organizations now face, instead of designing work systems where knowledge and service workers have the freedom to apply knowledge and skills at the point where it is most needed, organizations have become obsessed with maintaining tighter control in the false assumption that this will be more productive”. It would seem that trends in managing contemporary institutions, within uncertain and complex contexts, reflect both traditional and complex adaptive service systems approaches, as well as mutation variations thereof.

In the ensuing sections these management approaches are explored within the literature and analysed on a thematic-basis in order to gain an understanding and insight of emerging services management trends as applied by business and industry in gaining an advantage in a highly competitive and turbulent global services economy.

One of the most fundamental changes that has taken place since the industrial era that influenced Taylor’s thinking, philosophy and writings, is the emergence of the global services economy. To, in a slightly different sense, re-paraphrase Taylor, it could well be argued that the emergence of the global services economy in effect necessitates again a complete mental revolution on the part of those involved in managing the “servitization” of the economy. As noted by Hales (2013:15), however, despite persistent claims of the demise of scientific management, Taylor’s ideas still “cast a long shadow over the theory and practice of management”. In the ensuing discussion the theme of the literature review relates to the emergence and characterisation of the global services economy and how it differs from the Taylor’s industrial contextual worldview.

## 2. THE SERVICES ECONOMY: MANAGEMENT CONSIDERATIONS

“Service industries are now the largest contributors to employment and gross domestic product in most countries” Desmet, Van Looy, Gemmel & Van Dierdonk 2013a:5

According to Fitzsimmons, Fitzsimmons and Bordoloi (2014:3) “we are witnessing the greatest labor migration since the industrial revolution. The migration from agriculture and manufacturing to services is both invisible and largely global in scope”. Seen in the context of the introductory statement by Desmet *et al.* (2013:5) it may be concluded that the services economy has become the dominant sector of the global economy. In the early 1900s only three (3) out of ten (10) employees in the United States were employed in the services sector, by 1950 services accounted for 50%, and currently 80 % are employed within what has become the services economy (Fritzsimmons *et al.* 2014:3).

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The World Economic Forum's (2013a:89) Global Competitive Index indicates that 68% of the 148 nations reviewed reflected a services sector economic component of over 50% of their Gross Domestic Product (GDP). In the case of South Africa the services sector accounts for 67% of the country's GDP. This research-based evidence supports the introductory claim made by Desmet *et al.* (2013a:5), as well as the contention by Fitzsimmons *et al.* (2014:3), that a migration has taken place from a predominantly industrial, manufacturing to a service orientated global economy. Seen in the context of this reality an important question posed is the nature of this services economy and the most appropriate means of managing service-based institutions.

Adam Smith, one of the founding fathers of economics as a science, is cited by Desmet *et al.* (2013a:5) as stating in his book "The Wealth of Nations" that labour was only productive if it increased the value of the item for which the labour was employed and he consequently concluded that "the services of priests, lawyers and doctors, as well as labour in trade were not productive". Marx and Lenin at the time in question are also cited by Desmet *et al.* (2013a:5) as having a similar view, which the researchers contend explains why former Socialist countries previously tended to attribute little attention to the services sector of their economy.

## 2.1 Services dominant logic

An important aspect that assumes pertinence within a "services-dominant" (S-D) logic is the need to think more clearly about the concept of "service" and its role in value creation, exchange and competition (Lusch, Vargo & O'Brien 2007:5). Within the traditional industrial era of scientific management, based on a "goods-dominant" (G-D) logic, it would appear from the preceding discussion that the value addition of services activities are hardly attributed any form of priority. Within S-D logic by contrast Lusch *et al.* (2007:5) accentuate the notion of a co-creation of value that brings the role played by clients and related stakeholders into consideration. A logic that is philosophically grounded in a commitment to collaborative processes with customers, partners, and employees that brings into question significant management laden considerations is suggested (Lusch *et al.* 2007:6).

In S-D logic, it is contended by Gemmel and Van Looy (2013:25) that value creation is linked to a relationship-oriented perspective that stands in contrast to a G-D transaction-centred logic. The latter assumes units of output as the central component of exchange and value creation (Lusch *et al.* 2013:6) which has its genesis embedded in the era of scientific management (Vargo & Lurch 2004:324). The G-D logic, it is contended by Lusch *et al.*

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(2007:6), stems from Adam Smith's (1776) normative work on how to create national wealth through the "production" and export of surplus tangible commodities. Value is thus derived in exchange of exported surplus, as inherently implied in the transaction-oriented perspective.

This contrasts with the S-D logic of value derived from use, which assumes interaction between service employees and clients in the co-creation of value (Gemmel & Van Looy 2013:25). Fritzsimmmons *et al.* (2014:77) similarly suggests that the client in many instances of service delivery is not a passive bystander, but in effect is frequently actively involved in the co-production of the services rendered. From a management perspective the two views of value creation therefore differ, the G-D logic focusing on value-in-exchange and the S-D logic emphasis being on value derived in use.

## 2.2 Services characteristics and value creation

Services and their underpinning logic have a number of distinctive characteristics that differentiate them from products, namely intangibility, inseparability, heterogeneity, simultaneity, variability, perishability, and the inability to own a service (Fritzsimmmons 2014:15-16). Collectively these characteristics imply a context of complexity, from a management perspective. The lack of physical evidence implicit in intangibility, for instance, increases the level of uncertainty confronting clients when needing to select between competing services rendered by service providers (Palmer 2011:7-8). The presence of the client in the service encounter brings into contention aspects of servicescape design not traditionally a consideration in a manufacturing management context (Fritzsimmmons *et al.* 2014:15).

Inseparability occurs where the service provider is human, as would be the case with a medical practioners, or a machine such as an ATM, the service can only be rendered if the service provider and the client interact (Palmer 2011:9). In this sense clients are co-creators of value (Grönroos & Ravald 2011:5) which has definite implications in terms of service quality considerations. The quality of service rendered entails a subjective assessment of value creation "in use" and ambiguity is attached to the expression "value creation" itself, as it is used without nuances independently of context and perspectives, resulting in confusion and misinterpretations (Grönroos & Ravald 2011:5). In effect each service encounter is unique in context and the preserved service rendered, which from a management perspective, implies significant difficulties.

Vargo, Maglio and Akaka's (2008:145) conceptualisation of innovative "value-creation configurations of service systems" are deemed to be a hardly static, but dynamic value creation configuration that "depends on interdisciplinary knowledge and skills, integrating

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across technology, business, social, and demand innovations". At the very core of service driven strategy, it would seem, is therefore a dynamic and innovative integrated value-configuration of services enabling systems.

Owing to the interactive nature of simultaneous service production and use, value creation could be described as being emergent in nature, implying that no two service encounters would be the same in all respects. Lusch and Vargo (2011:1298) attest to the fact that value creation occurs only if the intended beneficiary determines that benefit has been derived and consequently therefore experiences value from the interaction that has taken place.

It is therefore suggested that value in use patterns emerge through the interaction that takes place between the service provider and the client, these may be either be experienced in a positive or negative light. At best negative aspects of the patterns that emerge can be addressed to give rise to new emergent patterns of value creation that are more in line with client expectations. As noted by Palmer (2011:10) variability in service enactment thus becomes a complex issue of management in ensuring value consistency.

The reality that services are simultaneously created and consumed in itself presents management with significant challenges, as it implies an inability to inventory services as a buffer to absorb fluctuations in demand (Fritzsimmmons *et al.* 2014:15). Few services face a constant pattern of demand through time, with considerable variations frequently encountered in practice (Palmer 2011:12). Traditional manufacturing systems designed to deal with supply and demand will consequently not work in dealing with the complexity of service delivery.

The preceding discussion gives credence to the notion of services being complex in nature, from a management perspective. The management systems and practices that evolved within a traditional scientific management era will also appear to be not all that effective in dealing with these challenges. Yet in practice there is an emerging trend of moving towards providing clients with a business solution that is directed at offering clients with a bundle of products and services (Fritzsimmmons 2014:18), the objective being to gain a competitive advantage in a services marketplace that is both very turbulent and very competitive. As a result many manufacturing institutions are now offering clients a bundle of products and services resulting in what has become to be determined a process of servitization. Servitization and its management considerations are briefly dealt with in the ensuing section.

### 3. SERVITIZATION

“Modern corporations are increasingly offering fuller market packages or ‘bundles’ of customer-focussed combinations of goods, services, support, self-service, and knowledge. But services are beginning to dominate. This movement is termed the ‘servitization of business’.”  
Van der Merwe and Rada 1988:314

The concept “servitization” has its genesis in the introductory extract from a paper published by Vandermerwe and Rada (1988:314). It constitutes a strategy directed at focusing on “customer responsiveness as a strategic priority, rather than standardization” (Bowen, Siehl and Schneider 1989:80), thereby implying a major difference between traditional manufacturing strategies, based on standardisation of products offered to clients, and a service based strategy of customisation. Desmet, Van Dierdonck, Van Looy and Gemmel (2013b:431) also attest to the fact that increasingly manufacturing institutions are offering an integrated package of products and services to clients and this, according to the authors, necessitates a need for a new mindset and ways of doing things.

The traditional view is one of services, such as installation, repairs, maintenance and after-sales services, as an add-on to the product, while the more contemporary view is one of providing clients with integrated business solution (Desmet *et al.* 2013b:431). It is, however, stressed by Visnjic, Neely and Wiengarten (2012:5) that “while manufacturing firms continue to embrace servitization in growing numbers, the literature remains undecided on the characteristics of a successful service strategy ... as well as organizational implementation”. Following through on this trend of thought, Visnjic *et al.* (2012:5) claim that “servitization implies the innovation of an organisation’s capabilities and processes so that it can better create mutual value through a shift from selling product to selling product–service systems”.

A key aspects therefore emanate from the literature in relation to servitization is the offering to clients of a customised bundle of products and services that present them with a complete business solution that met their specific needs. Undoubtedly, such a service customisation presents management with a host of complex challenges as each service encounter embodies unique considerations that need to be addressed. Rajala, Westerlund, Murtonen and Starck (2013:66) contend that value from a client perspective emerges from a spectrum of client and service provider interactions, which collectively shape the client’s service experience, therefore assumes pertinence in this regard.

#### 3.1 The transition to an integrated product/service system

The transition from a product-centric manufacturing to an integrated product – service system, quite clearly necessitates taking cognition of technology and human systemic

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considerations. With this in mind it needs to be noted that the European Commission (2007: Internet) defines service economic activities as a combination of technology, knowledge and highly skilled employees to provide a service to the market. Further of relevance is the European Commission's (2007:Internet) view of knowledge intensive services as constituting a catalyst for innovation driven rejuvenation of industrial manufacturing sectors. In exploring the concept "technology", Burgelman, Christensen and Wheelwright (2006:2) in a similarly sense construe that it refers to the "theoretical and practical knowledge, skills, and artefacts that can be used to develop products and services as well as their production and delivery systems".

The description quite evidently raises the issue of the human aspects involved, such as skills, knowledge, and expertise required for integrating a product manufacturing and service delivery value stream into an integrated servitization framework. Hoogenhout (2010:49) in researching the formulation and implementation of a servitization strategy came to a similar conclusion, namely that a T-shaped skills profile was required in practice, yet more often than not such profiles were not readily available within traditional manufacturing orientated institutions. T-shaped people are described as having an in-depth understanding of their professional discipline (vertical component of the "T"), while reflecting a wide range of experience and understanding of disciplines associated with service science (horizontal component of the "T") (Hoogenhout 2010:12).

Hoogenhout's findings (2010:14) findings also suggest that organisational culture has a fundamental role to play in the servitization process. Desmet *et al.* (2013b:436) similarly maintains that servitization implies that staff will increasingly come into direct contact with clients, which will necessitate "changes in employees' skills as well as behaviour".

A research study conducted by Du Plessis (2010:62) quite pertinently revealed that as the servitization process unfolded, it became apparent that the traditional value system that had evolved within the manufacturing institution needed to change to accommodate a client centric approach, as opposed to one merely supporting excellence in the design and manufacture of the products manufactured by the institution.

### **3.2 Servitization: Culture emergence**

The trend that also appears to emerge from the servitization research undertaken by both Du Plessis (2010:63) and Hoogenhout (2010:41) is one of an emergent culture, as the servitization process unfolded. The culture that emerged was in effect one that supported both a manufacturing and a client-centric services operation directed at a co-creation of



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value. The two differing cultural orientations and the need for both, it is suggested by Du Plessis (2010:62) “is reflected in the owners decision to split the two functions of manufacturing and services into two separate entities, each with a cultural identity that would be more conducive to their operational settings”.

Within a management context, although an extensive body of literature in relation to the concept “organisational culture” exists, much of this assumes a scientific management approach that is rational deductive in nature and implicit is the notion of linear causality, which infers that the concept may be managed (Weeks 2007:120).

Nurturing a servitization culture in terms of a more postmodern perspective, however, would imply a need for focusing on the nature of the interactions within the institution and the contextual conditions within which they take place as they are central in shaping the culture that emerges. In this regard it is interesting to note that Dayaram (2005) claims that “most South African organisations are still managed within a Western linear ‘cause-effect’ paradigm” and Seel (2000) suggests that this approach tends “to encourage a rather mechanical view of culture change”. Ingrained within scientific management thinking is the view that cause-effect relationships can be determined and consequently managed.

Snowden (2013:Internet) is a researcher who appears to endorse the view of culture as an emergent property, as may be seen from the researcher’s assertion that “culture arises from actions in the world, ways of doing things which may never be articulated, and which may not be capable of articulation. In effect culture is always complex, never complicated. So it follows that cultural change is an evolutionary process from the present, not an idealised future state design ... Culture is an emergent property of interactions over time”.

Within a servitization context, at best, management may attempt to influence the emergent culture through their active engagement in the servitization process, but the final outcome is not predictable as it is deemed to emerge through group interaction during which new values, beliefs, understandings and ways of doing things will surface. The golden thread winding its way through this literature review is the realisation that servitization embodies human elements of complexity that will tend to taken into consideration from a management perspective.

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#### **4. CONTEXTUAL DETERMINANTS THAT DEFINE THE SERVICES MARKETPLACE: MANAGEMENT IMPLICATIONS**

“The world increasingly resembles a global marketplace where integration across traditional borders is evident in almost every dimension of life. The daily news demonstrates growing worldwide integration across boundaries, like time or national borders that once seemed immutable, and in academic fields the boundaries between disciplines like management, finance, marketing and other fields also have become more fluid”. Parker 1998:x

The time-honoured concept of boundaries has characterised many aspects of traditional enterprise management, yet as reflected by Parker’s (1998:x) introductory contention these are increasingly becoming far more blurred, fuzzy and fluid in a more contemporary institutional setting. The World Economic Forum (2013b:16) in a similar sense postulates that the boundaries of physical and digital worlds are melting at unprecedented rates leaving many decision makers unprepared to deal therewith.

##### **4.1 A hyperconnected world**

It could be argued that the World Economic Forum’s (2013b:10) assertion that “the global financial crisis revealed the interconnected nature of the world’s economies” serves as evidence of the extent to which national service markets have become integrated within a larger global services marketplace and economy, that is characterised as being volatile in nature. It is in fact pertinently stated by the World Economic Forum (2013c:Internet) that “we live in the most complex, interdependent and interconnected era in human history – a reality we know as the hyperconnected world”.

A central tenet of a hyperconnected services marketplace is its extreme turbulence, unpredictability, competitiveness and landscape of discontinues change that collectively serve as logic for it being defined as being complex. Benedettini and Neely (2012:Internet), based on an extensive review of the literature, identified 76 factors that categorise service science as conceptually being complex in nature. Key factors being the difficulty to determine and monitor services outcomes patterns, heterogeneous client needs and expectations, rapidly developing technologies, and networks of interacting agents in services rendering processes (Benedettini & Neely 2012:Internet), to but list a few. The services economy has become not only one of permeable boundaries and networks of interconnectivity, but it has also engendered a complex landscape that requires new skills, knowledge and expertise to navigate.

Citing Drucker, Bennet and Bennet (2004:4) describe the shift from industrialisation to one of engendering an information and knowledge society. Powell and Snellman (2004:199) go on to describe it as a greater reliance on intellectual capabilities than on physical inputs or

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natural resources. Technological innovations in particular, according to Powell and Snellman (2004:214), necessitate changes in the skills required within a contemporary service-based marketplace. As previously alluded to this skills description has been termed as being a “T-shaped” people profile. Just what skills need to be included in the horizontal component, however, appears to be not all that clear.

#### **4.2 The need for a culture of learning**

It would appear from the preceding discussion that an ability to deal with complex systems, contextual uncertainty and institutional resiliency would certainly constitute aspects of the horizontal skills components. Thomas and Brown (2011:9) would undoubtedly add to this by suggesting that in such a context of relentless complex change an ability to engender a culture of learning would be an indispensable leadership attribute.

Thomas and Brown (2011:18) portray this new type of learning as a cultural phenomenon that takes place without books, teachers or classrooms, but requires environments that are bounded yet able to provide complete freedom of thought and action within those boundaries. In effect learning could be deemed to be emergent, conceptually of particular pertinence in a world where the emerging future is rather different from that in the past. Snowden (Undated:Internet) in fact claims that “trying to design long-term policy initiatives on the assumption that the future is fully knowable, is a dangerous mistake”.

Two elements are encapsulated within this learning culture, a massive information network providing unlimited access to learning and a bounded environment that “allows for unlimited agency to build and experiment with things within those boundaries” (Thomas & Brown 2011:19). Snowden (Undated:Internet) concurs in this regard in stating that “modern approaches to decision-making focus on creating multiple, low risk, low cost, parallel safe-fail experiments”. Suggested therefore is the need for a culture of learning that is intricately woven into the fabric of an enterprise, it indeed permeates nearly everything that is done in managing complexity within a services driven ecology (Thomas & Brown 2011:19-20).

From a complexity management perspective, the leaning process described stands in contrasts to the traditional scientific management, mechanistic approach accentuating formal training and instruction (Thomas & Brown 2011:35). Envisaged is the need to engender a culture of learning and the creation of learning environments (Thomas & Brown 2011:35).

Unlike a more traditional view of culture, as being more directed at stability, a culture of learning is far more dynamic in responding to environmental variables (Thomas & Brown

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2011:37). While the traditional view has been one of creating a sense of stability and incrementally adapting processes to deal with required changes, the more contemporary approach as suggested by Thomas and Brown (2011:43) is all about embracing change and the possibilities it presents. Mbeki's (Weeks & Weeks 2010:597), contention that a "culture of learning ... means a culture of silent reflection, of deep thought, of curiosity and questioning, of exploration and examination" would in a sense seem to reflect this process of on-going emergent learning.

There are instances when service marketplace events evolve into a "game changer" and the marketplace is never the same again (Green 2011:1). Taleb (2007:xvii) terms these to be "black Swan" events that tend to be outside the realm of management's regular expectations, yet have an extreme impact on business operations. The key to managing such complexity, according to Green (2011:2), is not just mounting an effective response; it entails simultaneously dealing with the psychological impact on all concerned, which could entail shock, fear, panic, disbelief, denial and grief. It is reasoned that a response is required to contain the situation's impact on the enterprise and its operations (Green 2011:4: Kurtz & Snowden 2003:469).

Even minor initial unpredictable events can rapidly evolve into a major catastrophic consequence due to the non-linearity and complex nature of the numerous interactions that take place, necessitating the need for a sense of resiliency by building a degree of redundancy into the system (Nafday 2009:195,197). The decision model, articulated by Kurtz and Snowden (2003:469), in this chaotic space is to act quickly and decisively, to reduce the turbulence; and then to sense immediately the reaction to that intervention so that we can respond accordingly is clearly a far cry from the mechanistic reductionist, analytical models of the scientific management era.

### **4.3 A change in traditional management thinking**

The description that emerges from the presiding discussion is the need for a change in traditional management thinking in order to effectively enable an enterprises leadership to manage the complexity and, in some cases, the chaotic conditions inherently associated with services management encounters within specific contexts.

These contexts range from ordered predictable environments to complex and even chaotic ontologies. Snowden (2005:1), in fact, distinguishes between three ontologies, namely that of order, complexity and chaos, that can be used in analysing services management within the contexts that emerged within the preceding discussion. The very intrinsic nature of

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services science itself, from a management perspective, tends to necessitate a complex adaptive systems approach.

The determinants that define the marketplace further add to its characterisation of uncertainty, turbulence, competitiveness and complexity. The literature therefore reveals a need for managing the effects of contextual disturbances in service delivery, implying a need for experiential learning and an adaptive systems management orientation. Stacey (1992:104,115) argues that traditional management mental models, based on past experience of a far more ordered context, need to be questioned and new emergent mental models developed that are more effective for managing complexity.

Bennet and Bennet (2004:20) present a similar view by stating that managers historically have been trained in rational thought and causal analysis and consequently try to understand complex phenomena in the same way. The researchers go on to assert that in complex systems this simply will not work. Snowden, (2005:3) in presenting a multi-ontology sense making framework, argues that different approaches are legitimate but within boundaries, and that methods and tools that work in one ontology do not necessarily work in another. It is thus necessary for management to know which ontological domain they are operating in, and what transitions between domains they wish to achieve. In the ensuing discussion these three ontologies as they apply to services management in the marketplace will be explored.

## **5. CONTEXTUALLY DETERMINED APPROACHES TO SERVICES MANAGEMENT**

Three domains of order, complexity and chaos emerged from the preceding discussion as contexts that require different service management approaches. As seen, of these the domain of complexity assumes particular relevance and will be dealt with in greater detail. In practice complex systems are far more difficult to manage in that they are inclined to engender unexpected patterns of interaction and outcomes are consequently difficult to predict with any degree of certainty (Sargut & Mc Grath 2011:70).

In sharp contrast Snowden and Boone (2007:70) characterise ordered domains as stable with clear cause-effect relationships that are easily discernible. Simple ordered services environments, properly assessed, require straightforward management principles that are in line with traditional scientific management thinking and practice. Front line service workers and management in a simple ordered contextual environment are more than capable of independently handling any issues that may arise and indeed, those with years of experience also have deep insight into how the work should be. While management in a simple context

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must sense, categorise, and respond to a situation, those in a complicated ordered context must sense, analyse, and respond, as there may be multiple right answers and an analysis to find the best solution may be needed (Snowden & Boone 2007:71).

Stacey (1992:63) describes chaos as constrained instability; a combination of order and disorder “in which patterns of behaviour continually unfold in unpredictable but yet similar familiar, yet irregular forms”. Clear-cut connections between cause and effect, the researcher suggests, are lost in the unpredictable unfolding of events (Stacey 1992:65). Searching for right answers or best solutions within such conditions, it is argued by Snowden and Boone (2007:74), would be pointless. Management must first *act* to establish some form of order, then sense where stability is present and from where it is absent, and then respond by working to transform the situation from chaos to complexity. Clearly the objective is to move from a chaotic to complex domain of management, while maintaining a sense of resilience.

McManus, Seville, Brunson and Vargo (2007:1) describe resilience as a function of an organisation’s situational awareness, management of keystone vulnerabilities and adaptive capacity in a complex, dynamic and interconnected environment. Taking assertive action provides the institution with tangible evidence of emergent outcomes or patterns that, if favourable, can be supported or, if unfavourable, disrupted. McManus *et al.*’s (2007:1) situational awareness correlates with Weick and Sutcliffe’s (2007:17,148) concept of “mindful management”, namely “early detection of the unexpected” and taking appropriate action. It is an interpretation that gives meaning to Walker and Salt’s (2006:xiii), description of resiliency as the capacity of a service system to absorb the disturbance and still retain its basic function and structure. It is contended that at its very core situational awareness emanates from enterprise wide discussions, understanding and detection of systemic deviation from existing boundary conditions.

Managing services-based organisations in complex ontologies is premised on a systems approach. Cilliers’s (1998:3) sketch of complex systems and their characteristics are often cited within the literature and undoubtedly serve as an excellent point of departure in any complex adaptive systems research study. Frequently, cited is the reference to complex systems consisting of a large number of elements (Cilliers 1998:3) or, as conceptualised by Axelrod and Cohen (1999:4), agents with an ability to interact with their environment or other agents. These agents may be people or even business institutions (Axelrod & Cohen 1999:4).

The interaction is fairly rich in nature and of a non-linear nature resulting in small causes and large outcomes (Cilliers 1998:4). Axelrod and Cohen (1999:8) contend that when multiple

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agents are adapting to each other the result is a co-evolutionary process, a concept inherent in service encounters between service providers and clients. Complex systems are characterised by Cilliers (1998:4) as open systems, enabling interaction within a broader bounded environmental setting under conditions far from equilibrium. They have a history and in evolving through time their past is co-responsible for their present behaviour. Most of these characteristics are encountered within the literature in any analysis of complex adaptive systems theory and the discussion is directed at providing a sensitisation and awareness as to the characteristics concerned.

Spohrer, Maglio, Bailey and Gruhl (2007:72) define a service system “as a value-coproduction configuration of people, technology, other internal and external service systems, and shared information (such as language, processes, metrics, prices, policies, and laws)”. It is a definition that would seem to infer a systems configuration with a large number of interacting agents in the co-creation of service delivery and consequently a tendency for complex patterns of interaction.

The non-linearity of many of these interactions may give rise to unexpected and unforeseen consequences and trail-and-error-learning which could well result from such interactions (Axelrod & Cohen 1999:2). Snowden and Boone (2007:74), in a similar sense, assert that a complex domain requires a more experimental mode of management. The researchers quite pertinently further contend that “leaders who try to impose order in a complex context will fail, but those who set the stage, step back a bit, allow patterns to emerge, and determine which ones are desirable will succeed”.

Kurtz and Snowden (2003:469) note that people have a high capacity for awareness of large-scale emergent patterns that can be perceived but not predicted, a phenomenon referred to as “retrospective coherence”. The decision model in this space, the researchers suggest, is to create probes to make the patterns or potential patterns more visible. Management can then identify the patterns and respond by stabilising those patterns that are found to be desirable and disrupting those found to be detrimental for effective services delivery (Kurtz & Snowden 2003:469).

## **6. CONCLUSIONS**

The complex adaptive systems approach with its accent on identifying and managing emergent patterns, by means of fail-safe experimentation is well suited for service systems design. The insights gained from the literature in managing service-based institutions within

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complex contexts could also serve as a basis for further research and providing management of services institutions with an insight into complex adaptive systems management.

The specific nature of the context in which the services encountered is managed would from the literature review appear to act as a determinant as to the most appropriate methodology to adopt, namely either a traditional scientific management or a complex adaptive systems approach. It needs to be noted that both ordered and complex situations can exist simultaneously in managing the services enterprise and therefore both management approaches may assume relevance at a point in time.

Management of services institutions consequently need to gain a contextual awareness and understanding of the respective management approaches for each of the operational domains concerned. They also need to be able to identify the nature of the context they are dealing with. An important finding emanating from the literature is the tendency for service systems to be more complex in nature, yet it would appear that scientific management-based approaches are still being adopted and this could account for the difficulties encountered in practice. It is recommended that the insights gained from the literature be evaluated by means of case studies to provide more concrete evidence as to the validity of the theory. Such a more extensive study is, however, outside the scope of this paper.

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