SERVICE SCIENCE: A SOUTH AFRICAN
INSTITUTIONAL MANAGEMENT PERSPECTIVE

R WEEKS (University of Pretoria: Department of Information Science)

Services is the most rapidly developing sector of the global economy and currently constitutes the major component of the South African economy, presently accounting for 63% of the country's gross domestic product. Increasingly South African institutions are attempting to offer clients a bundle of services and products in order to gain a competitive advantage in a highly competitive services dominant global economy. Seen within this context the objective in this paper is to gain an insight into the nature of the services economy, its impact on an enterprise and the management challenges associated therewith. In so doing specific attention is given to the culture and skills related implications involved in moving from a predominantly manufacturing to a services inclusive operational setting.

Key phrases: Business modelling; Organisational culture; T-shaped people skills; Services economy; Service science; Servitisation

1   INTRODUCTION

"In the early 1900s, only 3 out of every 10 workers in the United States were employed in the services sector. The remaining workers were active in agriculture and industry. By 1950, employment in services accounted for 50 percent of the workforce. Today, services employ about 8 out of every 10 workers. During the past 90 years we have witnessed a major evolution in our society from being predominantly manufacturing-based to being predominantly services-based."

James Fitzsimmons and Mona Fitzimmons 2010:5

The introductory quotation reflects not only the emergence of the services economy as the dominant sector of the USA economy, but also the implication in terms of the number of people employed within this economic sector. Service industries also, for instance, account for 75% of both the gross domestic product (GDP) and

employment in Canada (Micro 2005:1). In a similar vein it is contended by Spohrer, Maglio, Baily and Gruhl (2007:71) that not only is the service sector responsible for most of the world's economic activity, it is also the least studied and understood sector of the economy.

According to the World Economic Forum (2010:63) services account for 63% of South Africa's GDP and according to Wikipedia (2010:Internet) approximately 65% of the working population are employed in services. This reality assumes important significance when seen in the context of South Africa's prevailing high unemployment rate of over 25% (Mail & Guardian 2010:1), which translates into one in four working-age South Africans being unemployed in the first three months of 2010 (Stewart 2010:Internet). It would appear that in order to address the unemployment situation an increasing number of people need to be placed in services related positions, as this constitutes the predominant sector of the economy. Notably, Neely (2007b:1) states that "*already over 70% of people employed in the UK are now employed in the service sector*". If this is anything to go by, South Africa, as a developing nation, is not far behind. This notwithstanding, its institutions certainly need to capture a greater share of the services related opportunities that exist in the global and logical marketplace in order to address the unemployment situation.

Manufacturing still accounts for 15% of the South African GDP (World Economic Forum, 2010:63) and increasingly manufacturers are providing clients with not only products, but a range of services in relation to the products concerned. Oliva and Kallenberg (2003:160), based on their research findings, claim that the "*management literature is almost unanimous in suggesting to product manufacturers to integrate services into their core product offerings*". The rationale for such integration is based on the opportunity for additional revenue generation and the gaining of a competitive advantage.

Mathieu (2001:39) specifically alludes to the challenges confronting manufacturing firms in developing product service systems, as a source of competitive advantage.

Quite pertinently Grönroos (1990:1) claims that the services sector has generated millions of new jobs over the last few decades and has softened the effects of every recession and fueled every economic recovery. Neely's (2007a:1) contention that "*the boundaries between manufacturing and services firms are breaking down across the globe*" needs to be seen in light of the preceding discussion. It is, to a large extent, the result of manufacturing institutions attempting to gain a competitive advantage by offering clients a full range of services in relation to their products, such as installation, maintenance and repairs.

Neely (2007a:1) claims that over half of the "*UK's 300 largest manufacturing firms*" with "*over £1000 billion in sales*" come from firms that "*actually describe their offerings as a combination of manufacturing and service*". The challenges associated with what has become known as servitisation (Vandermerwe & Rada 1988:314), or the provision of services by essentially manufacturing institutions, is however quite substantial and in the ensuing discussion these will be briefly alluded to.

With the preceding discussion in mind, it is not surprising to find that over 70% of the countries cited in the World Economic Forum report reflect a services dominant economy (World Economic Forum 2010:63). An important implication stemming from the emergence of services as a predominant economic sector relates to the nature of the services economy and the implications thereof in managing an enterprise or institution. Key questions that need to be considered relate to the transformation of the institution's business model, the culture implications in moving from a purely manufacturing organisation to one that provides clients with an additional bundle of services as well and, very significantly, the skills implications involved in this regard. These are specific aspects of services management that will be addressed in this paper.

2   THE CONCEPT SERVICE SCIENCE

The concept "service science" is firmly established on a foundation of multidisciplinary perspectives and challenges that arise from the emergence of services as a dominant sector of the global economy. In the IFM and IBM (2008:1)

service science white paper it is suggested that the concept itself is still in its infancy. While this may well be true, it is also true that services and the management thereof stretch over many decades before it became the dominant sector of the economy. What distinguishes the current decade, however, is the complex nature of service systems and the multidisciplinary approach required to gain an insight into the concept.

It is a contention that is supported in the IFM and IBM (2008:4) white paper in stating that whilst research into service can be traced to as early as the 1940s, significant developments were not possible until the late 1970s when service research was broken free from product-centric concepts and theories. The field of service research, according to the white paper, now covers a wide range of diverse areas of interest, including service economics, marketing, operations, computing, human resources management, management, engineering, sourcing and design, to mention a few (IFM & IBM 2008:4). While concurring as to the wide range of perspectives covered by service science Sphorer et al. (2007:72), citing a significant number of researchers, suggest it is directed at gaining an understanding of how an organisation can invest effectively to create service innovations and realise more predictable outcomes.

The preceding discussion attests to the multidisciplinary and complex nature of service science as a field of research and management, as well as the need to gain a greater understanding thereof. Within the confines of this paper it would hardly be possible to cover an extensive ranging spectrum of perspectives relating to service science and the focus, therefore, is gaining an insight into service science from a South African services management perspective. In so doing an accent is placed on the inclusion of services related operations in traditional manufacturing institutions. In the ensuing discussion therefore clarity will first be obtained as to the nature of services and the service economy and with this information serving as background and a source of reference, the concept of servitisation will be briefly dealt with.

Important challenges associated with moving from a manufacturing to services inclusive business model will then be explored after having gained an insight into the concept of servitisation. The importance of this is attested to by Bowen, Siehl and Schneider (1989:78) who claim that "*little scholarly attention has been given to the implications of applying service orientations to manufacturing firms*". Alam and Perry (2002:516) in a similar sense suggest that little research has been undertaken in relation to service development. Alter (2008:71) also claims that the concept of service systems is not well articulated in the literature. As alluded to above the analysis underpinning the discussion assumes a South African perspective and the situation specify conditions that prevail within the country.

3   THE NATURE OF SERVICES AND THE SERVICES ECONOMY

Services are pervasive in nature and this makes them rather difficult to define. They are an inherent aspect of management in a vast number of market segments such as health care, transportation, communication, finance, education, leisure, hospitality, insurance, and consulting. Government services in particular play a critical role in the lives of communities (Fitzsimmons & Fitzsimmons, 2010:5,9,55).

A more extensive view is adopted by Palmer (2004:5) who, citing Levitt, suggests that "*there is no such thing as service industries. There are only industries where service components are greater or less than those of other industries*". This clearly serves to demonstrate the pervasive nature of services as a concept. Assuming a manufacturing connotation, Palmer (2004:4) defines a service as "*the production of an essential intangible benefit, either in its own right or as a significant element of a tangible product, which through some form of exchange, satisfies an identified need*". Of specific relevance in the definition is the reference to the tangibility of products versus the intangible nature of services. Within the literature a number of distinguishing characteristics of services are referenced, all of which play a role in defining the nature of services and consequently the nature of the services economy.

An important distinguishing characteristic of services is that the client in most instances plays a very fundamental role in the service delivery process (Fitzsimmons

& Fitzsimmons 2010:18; Fließ & Kleinaltenkamp 2004:392; Metters, King-Metters, Pullman & Watson 2006:6). The non-ownership and perishability characteristic of services is specifically highlighted by Fitzsimmons and Fitzsimmons (2010:20-21) as an attribute differentiating it from products. The intangibility of services further implies that it cannot be inventoried or stored, nor easily patented, they cannot be readily displayed or examined, thereby complicating the marketing of services, and their simultaneous production and consumption further adds to the complexity of service systems management (Desmet, Van Looy & Van Dierdonck 2003:12,19; Wilson, Zeithaml, Bitner & Gremler 2008:15-16). It is for instance hardly possible to go back in time to correct a poorly delivered service that has been experienced by a client and consequently influenced his or her perception of the institution concerned. These are all factors that play a very pertinent role in shaping the services economy, which distinguish it from the manufacturing sector of the economy.

3.1 TURBULENCE AND COMPETITIVE NATURE OF SERVICES ECONOMY

The services economy is highly competitive and turbulent by nature and gaining a competitive advantage that in itself is near impossible to patent in many instances is short lived. Constant innovation and the establishment of strong relationships with clients are therefore important characteristics of the services marketplace. An important aspect in this regard that needs to be accentuated is that generally service innovation is associated with ideas and concepts, which are difficult, if not near impossible, to patent. It may therefore be inferred that management paradigms associated with services and manufacturing of products have a very different inherent orientation.

Peters (2003:21) suggests that "*we are, in fact, on the verge of the biggest and most profound wave of economic change in a thousand years*". This gives rise to the question as to how prepared South African executives and managers are for dealing with the challenges associated with managing an enterprise within an extremely competitive, disruptive and turbulent global services economy, or as termed by Peters (2003:27) "*the mess*". Traditional management paradigms

associated with the manufacturing economic era are based on a more mechanistic, scientific, rationalistic, analytical, and deterministic perspective. It is a perspective that would seem to stand in contrast to the management paradigms of innovation, exploration, sudden disruptive change and uncertainty associated with an emergent services economy (Weeks & Benade 2008:209).

The nature of services and the highly completive and turbulent nature of the services economy tend to reflect a context of operations which is hardly the same as that underpinning the traditional context that executives of South African manufacturing enterprises have become accustomed to. Clients, for instance, are not expected to become involved in manufacturing operations, yet play an important role in service delivery. This reality implies that the business model of a manufacturing enterprise, that in essence conceptualises the business logic of the enterprise, would differ in nature and design from that of an institution that incorporates services as part of the value proposition that it offers to clients.

The operational blueprint in order to deliver both products and services to clients will also need to be revisited and adapted to reflect the services operational elements and the interaction with production facilities that takes place. Fließ and Kleinaltenkamp (2004:392) accentuate the importance of the development of the blueprint as it serves as "*a picture or map that accurately portrays the service system so that that the different people involved in providing it can understand and deal with it objectively*". Changes in an institution's business model and operational blueprint are aspects specifically addressed in the servitisation process, which will be dealt with in more detail in the ensuing section of this paper.

It may be concluded from the discussion that the emergence of services as the dominant sector of the global economy and the inherent characteristics that differentiate it from the traditional manufacturing economy, collectively necessitate a need for gaining an understanding of the challenges associated with managing the transition from a predominantly manufacturing orientation to one including services as part of the value proposition offered to clients. It is a process that has

become known as servitisation, a term coined by Vandermerwe and Rada (1988:314) in a paper published in the European Management Journal in 1988. The term has subsequently become widely accepted and used in the service science management literature. Within a South African context, knowledge and expertise relating to service system design and management practice often exist in unconnected and diverse fields or silos of research and bringing these together within the overarching concept of service science could be quite advantageous. It would certainly assist in identifying gaps in our current knowledge and skills, as they exist across these silos, in terms of service systems design and management.

4   SERVITISATION

"*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 busines*s."

Vandermerwe & Rada 1988:314

With reference to the introductory quotation by Vandermerwe and Rada, the concept servitisation could be defined as a process of moving from a fundamentally manufacturing enterprise to one that provides clients with an integrated bundle of products and services that collectively meet clients' needs. This collective bundle or as it is termed to be the value proposition offered to clients, forms the core of the business model framework developed by Osterwalder (2004:338).

The term offering, according to Brax (2005:143), is used to denote any physical goods, service, information, or any combination of these that a company can offer to its customers; the total offering thus includes all offerings of a company as an aggregate. In this sense it therefore incorporates both tangible products and intangible services that collectively offer some form of value to clients in order to meet their specific needs. In practice client needs can differ quite substantially and the value propositions offered to clients would consequently need to be customised accordingly. The business model reflects the core elements of the business and

provides staff with a clear understanding of the business logic and understanding of the value creation systems involved. The IFM and IBM (2008:25) service innovation white paper specifically mentions that "*businesses find it difficult to transform from a product to a service business model".* Apparently part of the transitional challenge relates to being able to articulate what a service business looks like and what its constituent elements are.

The key elements that constitute the business model, according to Osterwalder (2004:338), are positioned around the value proposition, which forms the core of the model itself. The elements concerned are described as dealing with infrastructure management, client relationships and the financial aspects of cost, revenue and profit generation. Osterwalder further suggested that analysing the building blocks of a business model helps managers uncover all the issues and relationships that need to be addressed without digging too deep into the details of the processes or systems involved. It in effect provides management and staff with a bird's eye view or a high level understanding of the institution's business logic. The building blocks associated with infrastructure management are deemed to be the partner network, the institutional value configuration or creation component and the capability or key resources on which the business model is built. The relationship pillar also has three core components, each embodying distinctive characteristics, namely:

- the customer segments,
- the channels through which the institution communicates with its customers and through which it offers its value proposition, and
- the types of relationships the institution entertains with each customer segment (Osterwalder 2004:338).

In total these nine building blocks collectively define: who the institution's clients are; the nature of the value proposition offered to these clients; the means involved in value proposition delivery and the partners involved; and the revenue streams and associated costs associated with the delivery. It also clearly articulates the importance of establishing sound relationships with all the key entities involved.

It is hardly difficult to see from this brief description of the business model that moving from a product centric operational setting to one offering additional services to clients, that the very nature or culture of the institution itself will come into question. The culture of the institution is often defined within the literature as "*the way we do things around here*" (Deal & Kennedy 1982:4; Hawkins 1997:419; Tromp 1998:32; Trompenaars & Prud'Homme 2004:14-15), and clearly the very fundamental change in the institution's business model will translate into a change in the way business is transacted and consequently a change in the culture of the institution itself. Managing this change as part of the servitisation process in itself will certainly therefore present management with quite significant challenges. Lessem and Schieffer (2009:118) view culture as a "*meaning giving system of a society*" which in this case translates into the society that constitutes the institution as an entity. The reality of the extended enterprise, with all the partners involved, would seem to imply that the task of engendering a culture reorientation to accommodate a services orientation could be quite a significant challenge.

4.1   A SERVICE BUSINESS FRAMEWORK

Developing and implementing a services business framework, with its accent on establishing a network of sound relationships that are conducive to service delivery, could transalate into being quite a formidable challenge. It is a challenge that is not always taken into consideration in formulating the servitisation strategy. Baines, Lightfoot, Benedettini and Jay (2009:558) concur that the adoption of a servitisation strategy brings with it significant cultural challenges. More often than not the accent and focus in developing the strategy is on the system's operational aspects that need to be put in place, so as to be able to provide clients with the services required.

A recent research study undertaken at the University of Pretoria by Hoogenhout (2011:8) revealed that the culture implications involved in moving from a manufacturing to a service inclusive business model, at a South African enterprise, was so complex that the institution concerned rather opted for establishing a

separate new services entity within the institution concerned. Weeks and Du Plessis (2011:117) in conducting a similar research study found that the institution concerned had in fact established a new services unit in order to get around the cultural difficulties encountered in implementing a servitisation strategy. Notably, Baines Lightfoot, Benedettini and Kay (2009:561-2), citing a number of authors, specifically identify the establishment of a separate services facility as a way to create a service culture without replacing a dominant manufacturing culture.

In terms of his research study, Hoogenhout (2011:8) found that the manufacturing and services units involved embarked on a process of systems integration where a duplication of resources could not be economically justified. Also of pertinence was the lessons learnt in providing clients with installation, maintenance and repair services, these were fed back into the manufacturing system and product design in particular benefited from the information. In the process the importance of relationships, from a services management perspective, has in particular resulted in a gradual culture transformation in what in the past was essentially a manufacturing entity. It is a conclusion that Baines et al. (2009:559) would appear to concur with in suggesting that the downstream provision of installation services require the institution concerned to be service orientated and reflect service related values.

Based on a case study analysis, Baines et al. (2009:559) point out that service management principles are frequently at odds with traditional manufacturing practices. This is certainly a reality uncovered in the research study undertaken by Hoogenhout (2011:8) in that, as indicated above, the institution concerned actually needed to establish a new services entity. As previously alluded to Baines et al. (2009:559), as well as Weeks and Du Plessis (2011:117) similarly recommend the creation of a service-oriented entity and claim that finding appropriate people for the unit is critical to its success. After a thorough literature study, Hoogenhout (2011:8) notes that it was expected that the services department should consist of employees possessing relationship based skills as well as technical skills. Weeks and Du Plessis (2011:120), in terms of their research findings, similary found a need for so

called T-shaped people who had both the technical and relationship management skills required in order to implement the institution's servitisation strategy.

4.2   THE SKILLS AND CULTURE ASPECTS RELATING TO SERVITISATION

In the research studies conducted by Hoogenhout (2011:8), it was found that relationship based skills were to an extent lacking in the institution concerned. Within the factory setting, however, it was found that the service department staff tended to largely interface with independent contractors who undertook the installation and repair functions for end user clients. Technically skilled employees therefore tended to interface with clients who were also technically orientated in nature, namely the contractors, resulting in like minded people interacting and building a solid relationship base.

This unfortunately did not solve the problem, as the contractors in turn now needed to interact with non-technical end user clients and the culture relationship difficulties therefore merely moved down the service value chain (Hoogenhout 2011:8). This seems to provide support for the importance attached to analysing the partnership and channel aspects embodied in the business model framework as accentuated by Osterwalder (2004:338). The marketing function of the institution concerned also still needed to interact with end-users thereby necessitating a relationship based culture orientation (Hoogenhout 2011:8).

Magnusson and Stratton (2000:33) very specifically stress that "*successful service firms are dependent on their company culture and climate*". The key values that these service firms portray, according to Magnusson and Stratton, are innovation, flexibility, customisation and variety. Highlighted by its absence in this list, is the notion of relationship based values, which Hoogenhout (2010:7,8) found to be of pertinence. Magnusson and Stratton (2000:53), however, go on to assert that relationships add yet "*another layer to the services culture*". Significantly, Magnusson and Stratton (2000:90-91) in discussing the issues of culture and skills, as part of the servitisation process, do so under the collective banner of adopting an employee focus.

From the discussion it would appear that culture realignment, as part of the servitisation process, appears to not only be unavoidable but essential. Within the literature various theories and process are presented in relation to culture change, but most offer no guaranteed solutions (Bennet & Bennet 2004:10). It is therefore not surprising to find that researchers such as Munck (2002:23) argues that transforming an organisation's culture constitutes one of the most fundamental challenges confronting an institution's management team.

In contrast to many researchers who claim that culture can intentionally be shaped or managed (Jaskyte 2004:154,156; McCormick 2008:79-83), Seel (2000:2) argues that it emerges as a "*result of all the daily conversations and negotiations between the members of an organisation*". This would imply that the management team in an endeavour to transform an institution's culture need to become active participants in these ongoing conversations and debates. It is also suggested that the institution's culture is a naturally evolving living system and the outcome of the culture formation process can therefore not be predicted with any degree of certainty and this undoubtedly complicates the servitisation process (Bate 1994:136; Bennet & Bennet 2004:15). Indirectly McCormick (2008:78) endorses this view in claiming that "culture for the most part develops in an evolutionary unmanaged process".

The research study undertaken by Hoogenhout (2011:7) revealed that the South African institution's culture evolved as part of the servitisation process, particularly the newly established services unit. The researcher stresses that "*it is an importance that apparently is reflected in the conversations and interactions that take place within the institution and that therefore permeates through to the culture that emerges*". It was further found by the researcher that there appeared to be "*challenges associated with the emergence of a truly services dominant culture*" (Hoogenhout 2011:7). The important thread that appears to surface from the discussion is the unintentional organisational culture formation consequences that stem from the normal day-to-day social interaction patterns and organisational networking that surface within institutions as part of the servitisation process.

The above findings therefore seem to confirm that the services culture required for supporting services delivery actually emerged during the servitisation process as a result of the staff interaction, but it is not without its challenges. Its emergent nature suggests that the culture that emerges cannot be predetermined and instilled within the institution as part of the servitisation process. This serves as an important finding for those South African institutions who intend to embark on a servitisation strategy so as to improve their revenue stream and gain a competitive advantage in the marketplace. It could also be concluded from the discussion that organisations are living networks of human interaction and activity, which implies a need for adopting a social systems construct in dealing with the concept culture as part of the servitisation process.

Servitisation has far reaching effects on the institution. Highlighted in the preceding discussion have been two particularly pertinent aspects, namely the need for taking a holistic view of the key aspects involved in implementing a services strategy by reformulating the institutions business model and taking due cognisance of the culture implications of the servitisation process. The remaining crucial aspect to be analysed and dealt with in this paper relates to the need for skills realignment within the institution. This is deemed to be essential for the successful implementation of the new services orientated business framework.

Seen within the South African context of the existence of a skills paradox where on the one hand large numbers of people are unemployed while a critical skills shortage confronts institutions, this aspect is deemed to be of particular relevance. A common theme that Magnusson and Stratton (2000:52-52) encountered in interviewing managers who had undertaken a servitisation process, was the stress placed on the need for additional services related skills to compliment an existing manufacturing skills base. It is a theme that is reflected in the IFM and IBM (2008:6) white paper, namely that "*the rising demand for service innovation has huge implications for skills and the knowledge base that underpins them*".

4.3   T-SHAPED PROFESSIONALS

Magnusson and Stratton (2000:74) categorically state that one of the primary differences between an industrial product and services based company is the focus placed on employees, whom it is argued form the "*backbone of any service-based organization*". Very pertinently accentuated by the researchers is the need to train employees in customer relationship management. They also conclude on the basis of their research findings that the "*model emphasis in 'employee skills' is the need for companies to change employees' focus from product-orientation to one of solution-orientation*". The solution-orientation emphasis insinuates the need for a collective product service based value offering that meets client needs and consequently both manufacturing and services related skills come into question.

Advocated in the IFM and IBM (2008:19) white paper is the need for what is termed to be so called T-shaped professionals "*who are deep problem solvers with expert thinking skills in their home discipline but also have complex communication skills to interact with specialists from a wide range of disciplines and functional areas*". Research conducted by Mukhtar, Yahya, Abdullah, Hamdan, Jailani, and Abdullah (2009:357) at the University of Kebangsaan, in Malaysia similarly reveals the need for a "*multi-disciplinary skill set to innovate, implement and support services*". They also concur that T-shaped professionals are highly adaptable and are effective members of a multidisciplinary team capable of solving complex multifaceted services related problems (Mukhtar et al. 2009:357). Following a similar line of thought the ensuing statement by Brown (2005:Internet) serves to clarify the need for and the nature of T-shaped people skills:

"*We look for people who are so inquisitive about the world that they're willing to try to do what you do. We call them T-shaped people. They have a principal skill that describes the vertical leg of the T – they're mechanical engineers or industrial designers. But they are so empathetic that they can branch out into other skills, such as anthropology, and do them as well. They are able to explore insights from many*

different perspectives and recognize patterns of behavior that point to a universal human need. That's what you're after at this point – patterns that yield ideas."

It may be inferred from the statement that creativity and innovation in gaining an advantage within a highly competitive services marketplace requires a new mindset, as well as a multi-disciplinary skills base. Underpinning the change is the development of a relationship paradigm of management, the traditional manufacturing paradigm being largely transactional orientated in nature (Oliva & Kallenberg 2003:161). With the nature of skills required for the effective transition from a manufacturing to a services operational setting in mind it is important to note that a Human Sciences and Research Council document, specifically claims that South African universities "*are failing to produce graduates with the range of skills necessary to underpin South Africa's development*" (HSRC 2009:1).

The previous South African Minister of Finance, Trevor Manuel (2006:4), also quite pertinently states that *"South Africa faces an unprecedented shortage of skills",* this while "*the world economy is far more skills intensive today".* In referring to the skills paradox, Manual (2006:4) draws attention to the fact that "*while we have about four million unemployed people, we have about a million vacancies".* If South African organisations are to effectively compete within a very competitive global services marketplace the skills picture presented and the nature of the skills required stand in stark contrast.

5.   CONCLUSION

The emergence of services as the dominant sector of the global and South African economy implies that increasingly South African manufacturing organisations will need to consider the formulation and implementation of a servitisation strategy. The primary objective of such a strategy is directed at enhancing the organisation's revenue generation stream and gaining a competitive advantage in the marketplace. Important aspects of consideration in dealing with the strategy will relate to the development of a new business model that in turn will require a fundamental change in the organisational building blocks that constitute the

business model framework. A primary factor in this regard will be the transition from a primary transactional to a relationship based operational setting that will without doubt imply a culture transformation.

Culture change in this sense will essentially be emergent in nature and the outcome cannot be predetermined with any degree of accuracy. At best management can play a role in shaping the extended relationship network in influencing the discussions and interactions that take place within these social networks. The most fundamental challenge that will confront management, however, will be one of obtaining staff with an appropriate skills profile. The ideal skills profile and the availability of these skills in the South African context, in order to implement a servitisation strategy, tend to stand in stark contrast, thereby seriously impacting on South African organisations' ability to gain competitive advantage and enhance their revenue streams within the global marketplace. Seen in the context of the South African skills paradox this can only aggravate the prevailing unemployment situation in the country.

REFERENCES

ALAM I & PERRY C. 2002. A customer-orientated new service development process. Journal of Services Marketing, 16(6):515-534.

ALTER S. 2008. Service system fundamentals: Work system, value chain, and life cycle. IBM Systems Journal, 47(1):71-86.

BAINES TS, LIGHTFOOT HW, BENEDETTINI O & KAY JM. 2009. The servitization of manufacturing: A review of literature and reflection on future challenges. Journal of Manufacturing Technology Management, 20(5):547-567.

BATE P. 1994. Strategies for cultural change. Oxford: Butterworth-Heinemann.

BENNET A. & BENNET D. 2004. Organizational survival in the new world: The intelligent complex adaptive system. Amsterdam: KMCI.

BOWEN DE, SIEHL C. & SCHNEIDER B. 1989. A framework for analysing customer service organisations in manufacturing. Academy of Management Review 14(1):75-95.

BRAX S. 2005. A manufacturer becoming service provider: Challenges and a paradox. Managing Service Quality, 15(2):42-155.

BROWN T. 2005. Strategy by design. [Internet: http://www.fastcompany.com/magazine/ 95/design-strategy.html?page=0%2C1; downloaded on 2010-4-5.]

DEAL TE & KENNEDY AA. 1982. Corporate cultures: The rites and rituals of corporate life. London: Penguin.

DESMET S, VAN LOOY B & VAN DIERDONCK R. 2003. The nature of Services. **In** Van Looy B., Gemmel P & Van Dierdonck R. (Eds.). Services management: An integrated approach. London : Prentice Hall. pp.1-26.

FITZSIMMONS JA & FITZSIMMONS MJ. 2010. Service Management: Operations, Strategy, Information Technology, 7th edition. London: McGraw-Hill.

FLIEß S & KLEINALTENKAMP M. 2004. Blueprinting the service company: Managing service processes efficiently. Journal of Business Research 57(4):392-404.

GRÖNROOS C. 1990. Service management and marketing: Managing the moments of truth in services competition. Singapore: Lexington.

HAWKINS P. 1997. Organizational culture: Sailing between evangelism and complexity. Human Relations, 50(4):417-439.

HOOGENHOUT W. 2011. The influence a manufacturing organization's culture has on the formulation and implementation of the institution's servitization strategy. Paper presented at the IAMOT 20th International Conference on Management of Technology, Miami Beach, Florida, USA, April 10-14, 2011.

HUMAN SCIENCES RESEARCH COUNCIL (HSRC). 2009. Why South Africa's universities are failing. HSRC Review, 7 (3):1-2 , September.

IFM & IBM. 2008. Succeeding through service innovation: A service perspective for education, research, business and government. Cambridge, United Kingdom: University of Cambridge Institute for Manufacturing.

JASKYTE K. 2004. Transformational leadership, organizational culture, and innovativeness in nonprofit organizations. Nonprofit Management & Leadership, 15(2):153-167, Winter.

LESSEM R & SCHIEFFER A. 2009. Transformation management: Towards the integral enterprise. Burlington: Gower.

MAGNUSSON J & STRATTON ST. 2000. *How do companies servitize?* [Internet: http://gupea.ub.gu.se/dspace/bitstream/2077/2448/1/Magnusson_2000_37.pdf; downloaded on 2011-2-5.]

MAIL & GUARDIAN. 2010. Stats SA: Unemployment rate increases. [Internet: http://www.mg.co.za/article/2010-05-04-stats-south-africa-unemployment-rate-increases; downloaded on 2011-2-7.]

MUKHTAR M, ABDULLAH YS, HAMDAN AR, JAILANI N & ABDULLAH Z. 2009. Employability and service science: Facing the challenges via curriculum design and restructuring. Paper presented at international conference on Electrical Engineering and Informatics 5-7 August, Selangor, Malaysia

MANUEL TA. 2006. Speech to the Institute of Personnel Management, Ministry of Finance Republic of South Africa, 2 October. [Internet: http://www.treasury.gov.za/comm_media/speeches/2006/2006100501.pdf; downloaded on 2011-6-5.]

MATHIEU V. 2001. Product services: From a service supporting the product to a service supporting the client. Journal of Business & Industrial Marketing, 16(1):39-58.

McCORMICK BA. 2008. Whats responsible for business success or failure? Its … the organization‟s culture. Amherst: HRD.

METTERS R, KING-METTERS K, PULLMAN M & WATSON S. 2006. Successful service operations management. Toronto: Thomson.

MICRO. 2005. Meeting the challenges of a services economy. Industry Canada. Micro-economic policy analysis branch bulletin, 10(1):1-25, Winter/Spring.

MUNCK B. 2002. Changing a culture of face time. *In Harvard Business Review on culture and change*. Boston: Harvard, pp.21-36

NEELY A. 2007a. The servitization of manufacturing: An analysis of global trends. Paper presented at the 14th European Operations Management Association Conference, June 2007, Ankara, Turkey.

NEELY A. 2007b. The servitization of manufacturing. Cranfield University. [Internet: http://www.cranfield.ac.uk/sas/pdf/servitization.pdf; downloaded on 6 2011-3-6.]

OLIVA R & KALLENBERG R. 2003. Managing the transition from products to services. International Journal of Service Industry Management, 14(2):160-172.

OSTERWALDER A. 2004. Understanding ICT-based business models in developing countries. International Journal of Information Technology and Management, 3(2/3/4): 333-348.

PALMER A. 2004. Principles of services marketing, 5th edition. London : McGraw-Hill.

PETERS T. 2003. Re-Imagine! Business excellence in a disruptive age. London: Dorling Kindersley.

SEEL R. 2000. Culture and complexity: New insights on organisational change. Organisations & People, 7(2):2-9, May.

SPOHRER J, MAGLIO PP, BAILEY J & GRUHL D. 2007. Steps toward a science of service systems. Computer, 40(1):71-77.

STEWART RM. 2010. South Africa Unemployment Hits 25.2%. Wall Street Journal, Business. [Internet: http://online.wsj.com/article/SB10001424052748703866670457522399 3865587422.html; downloaded on 2011-4-8.]

TROMP PJ. 1998. Creating a meeting of minds: A manager's and facilitators guide to effective collaboration. Johannesburg: Knowledge Resources.

TROMPENAARS F & PRUD'HOMME P. 2004. Managing change across corporate cultures. Chichester: Capstone.

VANDERMERWE S & RADA J. 1988. Servitization of business: adding value by adding services. European Management Journal, 6(4):314-324.

WEEKS R & BENADE S. 2008. Managing a South African organisation within a dual manufacturing and services economy. Acta Commercii, 8:208-218.

WEEKS RV & DU PLESSIS FW. 2011. Servitization: Developing a Business Model to Translate Corporate Strategy into Strategic Projects. 2011 Proceedings of PICMET '11: Technology Management In The Energy-Smart World. IEEE Catalog Number: CFP11766-USB.

WIKIPEDIA. 2010. Economy of South Africa. [Internet: http://en.wikipedia.org/wiki/ Economy_of_South_Africa; downloaded on 2011-5-11]

WILSON A, ZEITHAML AV, BITNER MJ & GREMLER DD. 2008. Services marketing: Integrated customer focus across the firm. Maidenhead: McGraw-Hill.

WORLD ECONOMIC FORUM. 2010. The Global Competitiveness Report 2010-2011. [Internet: http://www3.weforum.org/docs/WEF_AnnualReport_2009-10.pdf; downloaded on 2011-5-11.]