

[Chrisanthi Avgerou](#)

IT as an institutional actor in developing countries

Book section

Original citation:

Originally published in Krishna, S and Madon S. eds (2004) *The digital challenge : information technology in the development context*, Aldershot, UK : [Ashgate Publishing](#), pp. 46-62.

© 2004 Chrisanthi Avgerou

This version available at: <http://eprints.lse.ac.uk/2580/>

Available in LSE Research Online: August 2007

LSE has developed LSE Research Online so that users may access research output of the School. Copyright © and Moral Rights for the papers on this site are retained by the individual authors and/or other copyright owners. Users may download and/or print one copy of any article(s) in LSE Research Online to facilitate their private study or for non-commercial research. You may not engage in further distribution of the material or use it for any profit-making activities or any commercial gain. You may freely distribute the URL (<http://eprints.lse.ac.uk>) of the LSE Research Online website.

This document is the author's submitted version of the book section. There may be differences between this version and the published version. You are advised to consult the publisher's version if you wish to cite from it.

CHAPTER 3

Krishna, S. and Madon, S.
*The Digital Challenge: Information
Technology in the Development Context*
Aldershor, Ashgate (2003) pp 46-62

IT as an institutional actor in developing countries

Chrisanthi Avgerou

London School of Economics

Houghton Street

London WC2A 2AE

C.Avgerou@lse.ac.uk

Abstract

This paper discusses IT as an institutional actor, which comprises artefacts and techniques as well as industries, legislation, and is supported by powerful 'rational myths' about its value in contemporary society. Moreover, it is suggested that IT has been gaining strength by its alliance with other powerful institutions. In the advanced industrialized societies the most prevalent such alliance is 'management', as a way of thinking about organizations and organizing, as practicing organizational governance, and as an industry in its own right. In developing countries IT is often aligned with the powerful institution of 'development', which is seen here as an ideology supported by a network of international organizations, professionals and industries. The paper demonstrates this particular concept of IT with examples taken from the literature of IS in developing countries. It then discusses the significance of this perspective for IS research and points out some consequences for practice.

IT as an institutional actor

Introduction

In a recent article in the journal of *Information Systems Research*, Orlikowski and Iacono (2001) list four different ways IT is conceptualised in the research that has been published in that journal. Namely, IT has been viewed as a computational mechanism that executes an algorithm or follows the logic of a model, IT is considered a tool that contributes to certain outcomes; IT is conceptualised by proxy, i.e. in terms of some particular aspects assumed important enough to be taken as surrogate measures, such as invested money; IT is seen as an ensemble of technical artefacts and socio-economic structures and activities.

In this paper I discuss a particular perspective of IT as an ensemble of technical and social entities; I suggest seeing IT as an institutional actor. Specifically, I consider IT as a heterogeneous actor that involves artefacts with certain functionality 'black boxed', professional practices, as well as industries, policies and regulations. I use here the notion of institution mainly as elaborated by organizational theorists to mean historically developed patterns of social actions and relations, which have acquired a taken-for-granted meaning, value, and significance and are not subject to technical/rational considerations (Powell and DiMaggio 1991). Institutions are established, sustained, and change through a mix of technical, symbolic, and political mechanisms. To consider something as an institution means to pay attention to such aspects as the myths and visions that have captured the imagination of its participant actors, the mechanisms that perpetuate the norms of actors behaviour, the regulatory regimes that support what is considered to be normal behaviour, the fads and fashions that circulate imaginary modes of existence as a necessity, as well as the subjugated voices either whispered or loudly shouted in opposition to the dominant legitimate structures and practices.

The study of organizations as institutions point out institutional features formed either at the macro-societal or at the organizational levels of analysis. Within an organization the circumstances of its genesis and establishment, the visions of

powerful personalities of past leaders, its perceived mission, its patterned routine everyday activities, its fragmented improvisations, and its power dynamics are elements seen at least as important as its explicitly and declared rational decision making and action processes that apply formal technical expertise. Within the broader social context institutional forces include communities' cultural aspects such as the sense of collective identity, social structures such as trade union shaping and representation of collective interests, cognitive shaping mechanisms such as education, professional training, and media influences, and regulatory frameworks such as fair competition national and international legislation.

Institutional analysis points also to the interrelation among institutions. Organizations such as the competing firms of an industry, their supplier and client enterprises, and the financial and service companies that support them influence each other, forming 'organizational fields' of similar practices and structures. More generally, the historical context of a particular society comprises multiple interacting institutions, either mutually re-enforcing each other, or in a state of friction. Historically, IT has been institutionalised internationally in close alliance with management, that is with a particular rationality of organizing which emerged as an institution in its own right in the contemporary advanced economies of Western societies. Moreover, the institutionalisation of IT in developing countries in particular has been associated with the institutional forces of 'development' as a distinct ideology of desirable conditions of life worldwide, and a set of international and national organizations that put such an ideology in action.

The structure of this paper is as follows. I first discuss the micro and macro-level aspects that comprise the institutional character of IT, management and development. I then examine some of the implications of the alignment of IT with management and development for the IS implementation efforts made in the setting of organizations in developing countries. I draw examples from the literature and I use a case study conducted for the purposes of a postgraduate dissertation at the London School of Economics (Toukan 2001) to demonstrate such implications .

Finally, it has often been suggested that research concerning IT in developing countries should go beyond mere theorizing. While I believe that theoretical analysis is of paramount importance in order to understand the complex issues of IT innovation in the contemporary conditions of globalization, I share the opinion that

the pressures faced by developing countries in a fast changing world create an obligation for academics to derive, when possible, practical lessons from theoretical analysis. Thus, in the concluding section of this paper I discuss the consequences of the institutionalist analysis for the communities of IS research and practice.

The institutional character of IT, management, and development

IT as an institution

From an institutional point of view, IT is not seen as a set of material products functioning according to the technical rules embedded in their physical components, but as such products being part of social networks and embedded in social institutions. From such a perspective it is significant that IT has captured the hopes and fears of people in their professional roles as well as in their personal lives. IT occupies a central position in the discourse of socio-economic change, such as on postindustrial society (Bell 1973), information society (Webster 1995) or globalization (Giddens 1990). Such discourse provides an underlying rationale about the value of IT innovation, indeed so powerful that it creates a sense of inevitability regarding IT innovation. Although the merits of particular information systems may be fiercely contested within organizations the generic value of continuous IT innovation has become a 'rational myth'.

In the study of information systems a stream of studies has contributed to the understanding IT innovation as a combination of technical tasks and social negotiations, which some authors examined as processes of institutionalisation, see for example (Silva and Backhouse 1997; van der Blonk 2000). Even technical tasks to a large extent serve institutional purposes rather than constituting a formal/rational way of addressing technology innovation. Two examples suffice here to demonstrate this point, the use of methodologies in systems development practice and methodical evaluation (Avgerou 2000). There has been little research on the extent to which systems development methodologies contribute to building systems that serve better the needs of an organization. But the effort to systematize technical practice with methodologies made possible the professionalization of systems development by assigning technical roles such as the analyst, the designer, the project manager, or the programmer with predefined skills (Avgerou and Cornford 1993). They are used for training of large numbers of 'experts' required to sustain a booming industry. They

established rules of 'good practice' to develop a system, without having to assess results. Indeed, it is well known that formal information systems evaluation is rarely practised, and when it is practised it may be only to legitimize decisions on systems development which are already made on the basis of intuition and often vested actor interests, rather than the technical merits of a particular IT innovation (Farbey, Land et al. 1993).

Following further the institutional perspective, IS research in the 1990s many authors elaborated on concepts and theories for the study of IT as embedded in an organization's internal institutional setting. They pointed out the way IT implementation and use is part of the situated sense making and enactment of the roles people assume in their everyday life in the organization (Walsham 1993; Ciborra and Lanzara 1994; Suchman 1994; Orlikowski 2000). This stream of research, has linked IS research with social theory and now constitutes a highly visible, and hopefully influential, direction in IS studies, see for example [Orlikowski in MISQ].

Less theoretical attention has been given in IS research to the way the embedded in organizational practice IT is linked with macro-institutional characteristics of IT. Such macro-level institutional aspects of IT include the formation and spread of the rational myths that sustain and promote its ever more pervasive spread in all domains of human activities and all localities, the legitimate objectives and practices of organized social entities dedicated to its diffusion, the professional norms, the macro-level power dynamics among various industrial and political/administrative entities and the various coercive mechanisms deployed by them.

There is, of course, a substantial literature on the macro-level processes that are implicated in IT innovation and diffusion in other fields, mostly in economics and government policy. Drawing from such studies, King *et al* (1994) list a number of sources of institutional forces at the macro-societal innovation. They include government authorities; international agencies; professional, trade and industry associations; research centres; trend-setting powerful domestic or multinational corporations; financial institutions; labour organizations; and religious institutions. Such entities –institutions in their own right – exert influence or enact regulation that affect market supply and demand.

Of these, particular attention has been given to national government policy. In most cases such policies have a double concern to assist the exploitation of the industrial potential in producing technologies and services, and to promote the use of the new technology in order to achieve beneficial economic and social effects. A mutual reinforcement of innovation in production and use is assumed: the development of a local IT industry enables widespread and innovative usage of technologies, while the demand that is created from widespread use is also beneficial for the local industry.

Addressing the action of particular types of organizations, such as government agencies, in the macro-dynamics of innovation does not necessarily imply recognition of institutional forces. Most policy analyses guiding government action on technology innovation are exercises of technical economic theory, as for example many of the chapters in the volumes (Dosi, Freeman et al. 1988; Foray and Freeman 1993).

In contrast, institutional analyses of macro-level innovation processes elaborate on the social, cultural and political aspects of the entities involved. One such example is the literature that emphasizes the significance of cultural conditions, such as trust and socially acquired tacit knowledge, for the cumulative learning involved in successful 'national systems of innovation' (Lundvall 1988; Lundvall 1992). Another example is the study of R&D initiatives launched by national and international government agencies as networks formed by the mobilization of powerful actors (Callon, Laredo et al. 1997). The political dimension of the macro-level institutions of ICT innovation has been prominent in the history of innovation of most countries and regions. A good example is the friction between the two government agencies that have orchestrated ICT innovation in Japan in the last three decades of the twentieth century (King, Gurbaxani et al. 1994). Another case with clear political dimensions is the launching of collaborative R&D programmes in Europe, analysed by Cram (1997).

What, however, is less often attempted is to link the internal institutional processes of IT innovation in specific organizational settings with macro-level institutional analysis of ideology, normativity, coercion, and large scale power dynamics. The situated organizational analysis of IS do not usually trace the logic of actors behaviour to their lives beyond the organizational boundaries and do not consider the way the route of an innovation process is imagined, legitimated, imposed, or enforced by extra-organizational forces.

There are some notable exceptions. Swanson and Ramiller have argued that institutional forces play a significant role in shaping the perception of organizational opportunities for the exploitation of IT, what they call an 'organizing vision' (Swanson and Ramiller 1997). Information systems innovation is partly a matter of interpretation of the potential benefits and risks entailed by a technology for the organization concerned, and partly a matter of sharing a vision about such potential with a wider inter-organizational community. Various forces contribute to the formation of common visions about IT uses and associated organizational changes. Among them Swanson and Ramiller include the rhetoric and interventions of macro-level institutions, the practices and language of information systems professionals, the practice of business and management.

The more systematic studies of linking organizational with broader institutional forces are found in the literature of IS in developing countries. A stream of contextualist research has emerged, which associates local action with broader institutional forces, see for example (Madon 1993; Walsham 1993; Bada forthcoming), and it is to this tradition that this paper is intended to contribute.

Management as an institution

Management too has an institutional character. One of the most prevalent features of organizations in the western world at the beginning of the 21st century is that they are governed through a particular professional rationality oriented towards efficiency in a free market environment. Management is taken-for-granted as a rational way of steering action not only in business organizations, but increasingly also in any other social domain. Unlike other forms of governing, for example through the command of the proprietors of organizations, or through a system of political command, management is considered the most suitable way to promote the fundamental principles of economic growth in the capitalist system, mainly efficiency and continuous innovation.

In organizational theory and management studies, it is assumed that management emerged as the dominant feature of modern organizations because of its fitness to the capitalist economic system, and gained its prevalence because of its proven superiority in relation to alternative forms of governing (Chandler 1962; Chandler 1969). Institutional analyses challenge this view, and show management as a

system of meanings that has been created through the course of specific historical events. Such an institutionalist view is substantiated best by Shenhav (1999). He studied the American manufacturing industry in the period between 1880 and 1932, to answer the question how did professional managerial rationality become the almost undisputed way of running business organizations and, more recently, an all pervasive rationality for reforming non-business organizations, such as state administration, or military services. The answer, his analysis suggests, lies in the efforts of mechanical engineers to enhance and safeguard the interests of their professional position situated in the American political context of the turn of the 19th century.

In effect, in the USA mechanical engineers managed to secure their expertise on machines as an appropriate basis of organizing business organizations, in particular large corporations. The principles of systematization and standardization, first established – against voices of opposition – as the ‘rational’ way to produce mechanical parts, gradually won legitimacy as appropriate means for organizing work efficiently. Shenhav’s research of the major engineering journals of that period provides evidence that making the engineering principles the ‘scientific’ principles of organizing did not happen smoothly. It faced opposition within the circles of engineers, and, more importantly, by the business owners. It also took place against serious and long lasting labour unrest.

Shenhav attributes a critical significance for the establishment of engineering principles as the core logic of professional management to two political characteristics of the American social context: exceptionalism and progressivism. Exceptionalism refers to the American nationalist ideology of the 19th century, which entertained a belief of uniqueness and superiority stemming from the circumstances of the late creation of the country on principles of ‘rationality’, liberalism and democracy and the values of affluence and broad opportunity. Shenhav argues that the engineering professionals both reinforced and capitalized from this ideology. They sustained the view that American manufacturing was superior to that of Europe in terms of worker productivity, machinery, and organization of business.

Progressivism was a widespread ideology in the first 17 years of the twentieth century, aspiring to revitalize the democratic values and restore equality through a pragmatic culture of pursuing efficiency, expertise, and systematic organization. It was believed that America could avoid political conflict and serve the needs of all.

The progressivist ideology legitimized the roles of professionals, and engineers were well positioned to present their expertise on systematization and efficiency as tools capable to take industry beyond chaos and to create prosperity for all. In short, progressivism allowed the engineering instrumental rationality to expand to human, social, political and economic affairs. Management systems were seen as solutions to labour unrest and political instability. Organizations could be engineered and perfected as mechanical systems. And this is what Frederic Taylor did with 'scientific management'.

Thus, what resulted from the social contest within a particular political culture was reified as a rational practice of universal validity. Concepts, such as efficiency, maximization, standardization, that were promoted by a social group trying to claim legitimacy for their expansion into taking charge of organizing activities acquired the status of objective, rational organizational norms. Since the 1980s there has been a strong tendency throughout the world to transfer managerial rationality in all kinds of organizations, including government administration, the military, and agencies such as universities which have had their own organizational logic. Public management became a platform for public sector reform in most countries (Heeks 1999; Lane 2000). The message Shenhav's institutionalist analysis puts forward is that governing organizations on the basis of modern management was neither technically/rationally developed, nor is one that necessarily leads to better outcomes over alternative ways of governing. Non-management governed organizations are not necessarily rationally inferior, but suffering a diminishing legitimacy within the context of an international economy under the hegemony of the USA.

Development as an institution

It is perhaps less innovative and surprising to point out the institutional character of development. Not only there has been a long lasting controversy among the radically different 'paradigms' that have been proposed for economic development (Hunt 1989), but there have been critical analyses of development from political and cultural perspectives too, see for example (Amin 1990; Escobar 1995; Gardner and Lewis 1996). Yet, development that takes as a desirable model the industrialized nations of North America and Europe and assumes that any society of the world must 'catch up' with them is undoubtedly the dominant ideology under which technologies and expertise are mobilized.

An international network of organizations, such as the World Bank and USAID, highly influential in terms of financial and technical resources, is the most visible carrier of the logic that all societies of the world should adopt the economic, political and cultural values and practices of western modernity. Direct political and economic backing by a few powerful nations makes them vulnerable to criticism, and suspicion of intention. But, there is also a great deal of generally accepted as well-meaning academic and voluntary work that accepts the premises and assists in the implementation of the development dream: development economists, development planning specialists, policy analysts, and more recently, IT theorists. Ferguson (1990), quoted in (Gardner and Lewis 1996), captures the perspective of development such people take with the following observation:

‘Like “civilisation” in the nineteenth century, “development” is the name not only for a value, but also for a dominant problematic or interpretive grid through which the impoverished regions of the world are known to us. Within this interpretive grid, a host of everyday observations are rendered intelligible and meaningful’.

In short, the institutionalisation of development amounts to taking for granted the striving to achieve certain socio-economic conditions.

IS innovation through institutional alliances

The institutions of IT, management, and catch-up-development are closely associated. Because of this intertwining, IT is not transferred to developing countries as artefacts and abstract information processing techniques. It is inseparable from ideas of how modern organizations should be governed, what kind of organizations are suitable for the contemporary world, and towards what imaginary ideal a local society at large should change. Even countries that have indigenous capacity to manufacture IT, to set up their telecommunication services and construct their technology applications, such as India, the global institutional links of IT to management and development are ever present.

The alliance of the IT and management institutions is clear in the co-dependence of their development. In many countries information systems training takes place predominantly in business schools, emulating the American curriculum. Ever since the early 1980s the information systems literature has adopted the discourse of management, shifting focus from engineering-oriented research agenda to addressing

business-oriented concerns (Avgerou, Siemer et al. 1999). Relatively little is written about information systems in organizations that are not governed by a managerial rationality. A business management/IT discourse is ubiquitously used by IS practitioners, irrespective of the organizational setting of the IT innovation. For example, IS practitioners in the national university of Zimbabwe come to think and act 'strategically' by trying to work out a 'portfolio of computer-based applications that assist [the] organisation execute its business goals. This involves searching for applications with a higher impact on the organisation and applications that have the ability to create an advantage of the organisation over its competitors' (Dlodlo and Ndlovu 2000). Such is the influence of the modernization view of development that centres around a free market mode of organizing and the international business management/IT discourse that it is not questioned whether it is appropriate to think of a national university in a developing country as a competitive business organization.

At the same time, management became increasingly dependent on the rational myth of IT. Widely influential new ideas in the literature of management, such as business process re-engineering and e-commerce are centred on IT. The rationalization vision that underlies management has been strengthened by accommodating the efficiency potential of the computer and telecommunications and has been translated into a vision of perpetual innovation.

Management and IT are no longer constituted only as functions of the formal organization. They have been externalized, developed a corporate status, and constitute a thriving consultancy services multinational industry. With continuous management innovation, linked with IT best practice in software and implementation services, such as enterprise resource planning (ERP), organizations rely increasingly on outsourcing. The interaction between and co-development of these two institutions under the influences of business studies and computer science and the multinational services industry constitutes a geographically disembedded institutional field, the kind of flow of clusters of ideas, good practice norms and skills, and supporting technologies that tend to underlie contemporary globalization.

The literature provides ample evidence of the extent to which IT innovation is taken for granted as a necessity for development, see for example (Talero and Gaudette 1995). There seems to be little doubt regarding the developmental role of IT, even in the poorest countries of the world. Earlier concerns relating to unemployment,

opportunity costs, and dependency have disappeared from the mainstream discourse on socio-economic development and IT. In contemporary development reports the low diffusion of computers and telecommunications in desolate regions such as Sub-Saharan Africa is used as one of the main indications of their plight. International aid institutions, through funding, educational and regulatory influence, take it as part of their mission to assist poor countries to decrease their ICT gap from the ever faster innovating industrialized countries. A few impressive examples, such as the modernization of the economy of Singapore and the innovation initiatives of Malaysia, became icons of success.

An example that shows clearly the link between the development institution, management and IT is the series of information systems projects aiming to improve the efficiency, accountability, and responsiveness of public organizations in several sub-Saharan African countries discussed Cain (1999). Such projects took place within the overall interventions of international agencies to reform the economy and public sector of aid recipient countries, known as 'Structural adjustment programme', SAP for short. They determined the pathology of the dysfunctional public organizations in management terms and set 'public management' targets, including downsizing, accordingly. 'Computerised personnel' information systems were launched as instruments for the implementation of such SAP targets. In other words a particular vision of development, a particular mode of efficiency oriented organizing, and a particular way of perceiving the potential value of IT converged to determine the legitimacy and mobilize the resources of particular IS projects. It could, of course, be otherwise. There are alternative diagnoses of Africa's worsening socio-economic conditions in the second half of the twentieth century, and many have been sceptical and critical of SAP interventions in that continent. In particular, analyses have pointed to deep-rooted social and political problems, for which management rationalization may not be the most suitable feasible strategies, see for example the papers collected by Lewis (1998). Theoretically it is well known that IT could be mobilized to serve objectives other than downsizing (Zuboff 1988), but in the last two decades on the twentieth century its institutional forces were well positioned to make it serve the problematization of SAP and efficiency oriented management interventions. Indeed, there is little institutional capacity – training, professional skills, corporate

knowledge – for IS to be mobilized for purposes of social and political change, if that alternative view of Africa's problems were to be adopted.

Awareness of the institutional character of IT and the way it is intertwined with the institutions of management and development sheds light on some of the problems experienced in IS innovation projects in developing countries (Heeks forthcoming). The point of this analysis is not to reveal conspiracies of contemporary globalization, but to understand the forces within and beyond the immediate setting of IS projects that influence their initial conception and the course of action they comprise. The argument put forward is not that the institutional alliance of IT management and development within the contemporary global context is de facto undesirable, but that this international institutional setting very often clashes with or distorts knowledges, aspirations, and behavioural norms sustained by the local institutional context within which IS innovation initiatives are attempted.

Thus, this institutional view suggests that IS innovation is better achieved in environments that are conducive to the techno-managerial development ideology that sustains IT as a disembedded institutional force. Environments with other institutionalised rationalities are more likely to experience difficulties in sustaining the IS innovation process and achieving its declared objectives. Such environments are likely to include government administration institutions which have not institutionalised a functioning variation of 'public management', family owned, unprofessionally managed business firms, organizations with complex missions, which are not necessarily in harmony with the managerial economic rationality, such as health, education, and human development. The example of a USAID funded project in the health care sector of Jordan can illustrate some of the institutional clashes that frustrate the innovation process (Toukan 2001) in a public sector context.

Toukan's case study presents and discusses an ongoing effort to introduce a computer based Health Management Information System (HMIS) conceived in 1998 within a broader five-year project aiming at improving access to and quality of primary health care services. The HMIS component has sought to strengthen Jordan's planning capacity for primary health care services by improving the collection, analysis and use of primary health care data. Indeed, inadequate accounts data was first identified in 1994 by a World Bank study to be at the root of health sector inefficiency and unequal services distribution in the country. Toukan notices, however, that the Ministry of

Health did have routine monthly data collection processes from health centres, via district health authorities, to the Ministry. These were considered unreliable, and more importantly they had little effect in the running of the health care system. Despite long standing indications of geographic discrepancy of primary health care workload per district, resourcing decisions for health care centres remained a political matter. Specifically, it is the parliament that decides to open or close a health centre.

The HMIS project team comprised an American technical advisor and a local technical assistant, various local system engineers and expatriate consultants on a sporadic temporary basis, and administrative support staff. The USAID funded HMIS team had its counterpart at the Ministry of Health (MOH). An HMIS working group, comprising health directors from various districts and staff of the Ministry's Information centre, was established to participate in the system's design and implementation, in identifying information requirements, management needs and reporting priorities.

Two and a half years later, while reaching the end of its budgeted schedule, the HMIS project was implemented in only seven out of the total 270 health centres and on rented computers, because the system's hardware had not yet been delivered by the vendors.

Such a delay, as well as a series of departures from the initial vague plans and improvisations that the project team devised during information determination, design and training are neither surprising, nor necessarily problematic. Accounts of delayed IS development are frequent in the IS literature. Moreover, the idea of IS innovation as a planned and well-controlled process has been effectively challenged as unrealistic in the IS literature (Ciborra and Associates. 2000). IS design, implementation, and use should more accurately be seen and more effectively be pursued as a process of situated action embedded in the social setting of an organization. From such a situated perspective, the technical/rational prescriptions of business-strategy-aligned systems development and project management are contrasted with the tortuous, fragmented and often highly political dynamics of innovation action in the context of an organization. Indeed, the narrative of Toukan's case suggests that IS practitioners and health care professionals and officials were adequately flexible and resourceful to nurture and create conditions of hospitality for the new system. For example, compensating for the vagueness of initial system requirements, training sessions were

taken as opportunities of contact with end users and offered insights for revising initial specifications and reworking the system prototypes. Nevertheless, this case suggests three particular complications, which are not usually addressed by situated IS analyses.

First, the project had to satisfy two lines of authority, whose fundamental value principles about development and organising were not in agreement: the local bureaucratic structures of the health services, and the USAID mission. These clashed on several issues. Initially, the USAID mission, consistent with its general policy of promoting administrative decentralization, favoured a system to address the planning requirements of the 12 governorates of the country, excluding the central decision makers from the system's reporting flows. This created friction with the Ministry of Health, in effect attempting to circumvent technically the current power structures.

Second, from the initial conception of the project the USAID mission wished to focus exclusively on improving the quality of reproductive health services, which is another area of concern and policy for this development agency. The aid recipient negotiators of the Ministry of Health shifted the emphasis of the project to primary health care instead. Nevertheless, after analysis specifications were drawn and the first prototypes were built a new USAID mission director raised the family planning issue again and asked for the specifications to be changed.

Third, USAID regulations require all project hardware above \$5000 to be purchased by US manufacturers, and a subcontractor was appointed in the US responsible for procurement. In effect, there were three organizations involved in acquiring hardware for this system in addition to the project team: the Ministry of Health, which was unhappy with this restriction, the USAID mission with its own bureaucratic procedures to monitor implementation of its policies, and the procurement agency.

Overall, as Toukan summarises, the HMIS improvisations were enacted at the meeting point of three organizations: 'Central to this is the organisational structure, administrative culture, and infrastructural capacity of the MOH. The process was also significantly influenced by the rationale of the USAID and the corporate culture of the firm that implemented it'. The three organizations had different governance structures and cultures, and different interests regarding the computerization project. Mutual suspicion of intention plagued the implementation of the project. The Ministry of

Health was critical of the corporate headquarters' push for appointing short term consultants from the US, suspicious that assistance funds are wasted for expatriate salaries and inappropriate advice rather than delivering tangible output such as hardware, software and training. The USAID mission, was determined to curb centralisation and did not have much patience for the bureaucratic labyrinth of the Ministry of Health.

Conclusions: consequences for research and practice

In summary, the main consequences of the institutionalist perspective suggested in this paper for IS innovation in developing countries are as follows:

- IS projects cannot be adequately understood and addressed as technical/rational initiatives to derive the information requirements of efficient and effective functioning of organizations and to deliver technical artefacts to that end. Such a view of IS projects, traditionally perpetuated in IS training and professional discourse, is an abstraction of much more complex situations, in which the purposes to be served by the 'information requirements', and the necessity and the form of the technical artefacts themselves are shaped either through long-term and subtle institutionalisation processes or by explicit negotiations.
- In the contemporary setting of most IS projects in developing countries, the purposes served by IT innovation, and the organizational changes pursued are shaped in a struggle between local historically developed and deeply rooted institutions and the disembedded alliance of international IT, management, and development institutional forces. There is, of course, a plethora of initiatives that either explicitly or implicitly are undertaken as alternatives to the institutional forces that convey the ideology of western modernization for development and organising. These are not discussed in this paper – and indeed have not been researched extensively – but it could be argued that analyses of the institutional character of IT is equally relevant for such cases, if naïve instrumental assumptions about technology are to be avoided.
- Such a perspective suggests the need for situated analysis of IS innovation, to understand the innovation events in their setting. In the 1990s a

research stream has elaborated on the theoretical and methodological aspects of situated studies of IS innovation and organizational change. However, the institutionalist analysis that sees IT, management, and development as a global disembedded alliance suggests the need to expand the situated analyses beyond the event in its immediate setting, and beyond the 'here and now' action. It suggests the need for developing contextualist research approaches that consider the broader social dynamics that sustain particular imaginaries about IT and particular courses of innovation action as legitimate or not. Also, it suggests the need for expanding the situated analyses to consider history, the past experiences that render certain imaginaries and actions as legitimate and others as not.

These points are setting a direction for further research. They lead to a research agenda for contextualist studies that can produced insights on the complex processes pursued in IS innovation in developing countries. Such research can explain the difficulties faced by IS projects, the failures reported in the literature, and the successes that become exemplary case and provide much needed basis for optimism and perseverance. It can also reveal some aspects of contemporary globalization. To the extent that IT and telecommunications are central mechanisms for globalization, the processes involved in IT innovation, and explanations for the currently grossly uneven IT spread are at the core of understanding the emerging situation of globality.

It is more difficult to derive from this analysis practical lessons without falling into the trap of naïve instrumental advice that negates the very argument about the significance of institutionalisation processes. For this analysis understand professional practice not as a technical/rational exercise conducted by disinterested individuals or teams, but as modes of intervention in a socio-organizational setting by technical/rational means legitimated through institutional forces, such as training, the supporting industry, etc.

Nevertheless, the opposite conclusion, that institutional forces determine the behaviour of passive actors in equally misguided. Institutions should not be thought as monolithic entities with sweeping effects of streamlining agent's action. They should rather be seen as continuously reformed as a result of their members' actions and under pressure from other institutions of their environment. Institutional contexts can be changed or overcome by reflexive agents. Moreover, as the analysis above

suggests, IS innovation in developing countries tends to be a case of conflicting institutions, as it involves the coming together of disembedded and local institutional forces. Management is not strongly institutionalised in all countries, and therefore corporate IS/management actors are confronted by alternative institutional formations in different parts of the world and different sectors.

A basic lesson for reflexive practitioners that can be derived by the institutional analysis, therefore, is to loosen the reliance on a-contextual formal packages of expertise, to question the validity of the mainstream professional jargon, which for example converts all organizations to competing businesses, sees only CEOs and 'customers', and to attempt hermeneutic processes for situated analyses. It is also reasonable to recommend that understanding the domain within which the innovation intervention is made should be incorporated into professional practice. This requires the development of appropriate contextualist analysis tools, since according to the institutionalist view, tools and techniques are significant for professional conduct, for symbolic as well as functional purposes. This is an area, perhaps, of fruitful collaboration of practice and academia.

Moreover, it is important to recognise as professional and strengthen capabilities for situated action, sensitised to and prepared to address the consequences of the conflicts between the disembedded with the local institutions. There is a need for inventiveness, flexibility, and patience to engage in negotiations, or wait for the negotiations of others to reach some agreement. Perhaps more controversially, a new mode of professional situated conduct requires readiness to abandon a missionary role. Faith in the intrinsic value of technology-led interventions in an organization and the goodness of the developmental purpose they imply bears the risk of imposing, rather than being an intermediary in the struggle of social change.

Such 'lessons' amount to the suggestion of a change of role and conduct for IS professionals from putting the potential of IT in good use for an organization to taking part as intermediaries in the shaping of organizational and social change. While 'enlightened' individuals may consciously adopt such a role through engaging in reflexive situated action, an effective shift towards such a practice requires the de-institutionalisation of existing professional norms and the institutionalisation of a new basis of IS professionalism. This is, hopefully, what theoretical studies such as this paper, linked with the educational activities of academia, can contribute to practice.

References

- Amin, S. (1990). Maldevelopment: Anatomy of a Global Failure. Tokyo, United Nations University Press.
- Avgerou, C. (2000). "IT and organizational change: an institutionalist perspective." Information Technology and People **13**(4): 234-262.
- Avgerou, C. and T. Cornford (1993). "A review of the methodologies movement." Journal of Information Technology **5**: 277-286.
- Avgerou, C., J. Siemer, et al. (1999). "The Academic Field of Information Systems in Europe." European Journal of Information Systems(8): 136-153.
- Bada, A. O. (forthcoming). "Local adaptations to global trends: a study of an IT-based organizational change programme in a Nigerian bank." The Information Society.
- Bell, D. (1973). The coming of the Post-Industrial Society. New York, Basic Books.
- Cain, P. (1999). Automating personnel records for improved management of human resources: the experience of three African governments. Reinventing Government in the Information Age: International practice in IT-enabled public sector reform. R. Heeks. London, Routledge: 135-155.
- Callon, M., P. Laredo, et al. (1997). Technico-economic networks and the analysis of structural effects. The strategic Management of Research and Technology: Evaluation of Programmes. M. Callon, P. Laredo and P. Mustar. Paris, Economica International: 385-429.
- Chandler, A. D., Jr. (1962). Strategy and Structure: Chapters in the History of the Industrial Enterprise. Cambridge, MA, MIT Press.
- Chandler, A. D., Jr. (1969). "The structure of American industry in the Twentieth century: a historical overview." Business History Review **43**(255-281).
- Ciborra, C. and G. F. Lanzara (1994). "Formative Contexts and Information Technology: Understanding the Dynamics of Innovation in Organizations." Accounting, Management and Information Technology **4**(2): 61-86.

- Ciborra, C. U. and Associates., Eds. (2000). From Control to Drift. Oxford, Oxford University Press.
- Cram, L. (1997). Policy Making in the EU. London, Routledge.
- Dlodlo, N. and L. Ndlovu (2000). A critical evaluation of the information technology strategy: a case study at NUST. Information Flows, Local Improvisations and work practices, Cape Town.
- Dosi, G., C. Freeman, et al., Eds. (1988). Technical Change and Economic Theory. London, Pinter.
- Escobar, A. (1995). Encountering Development. Princeton, Princeton University Press.
- Farbey, B., F. F. Land, et al. (1993). IT Investment: a Study of Methods and Practice. Oxford, Butterworth-Heinemann.
- Ferguson, J. (1990). The Anti-Politics Machine: 'Development', Depoliticisation, and Bureaucratic Power in Lesotho. Cambridge, Cambridge University Press.
- Foray, D. and C. Freeman, Eds. (1993). Technology and the Wealth of Nations, The dynamics of constructed advantage. London, Pinter.
- Gardner, K. and D. Lewis (1996). Anthropology, Development and the Post-Modern Challenge. London, Pluto Press.
- Giddens, A. (1990). The Consequences of Modernity. Cambridge, Polity Press.
- Heeks, R., Ed. (1999). Reinventing Government in the Information Age: International practice in IT-enabled public sector reform. London, Routledge.
- Heeks, R. (forthcoming). "Information systems and developing countries: failure, success and local improvisations." The Information Society.
- Hunt, D. (1989). Economic Theories of Development. London, Harvester Wheatsheaf.
- King, J. L., V. Gurbaxani, et al. (1994). "Institutional factors in information technology innovation." Information Systems Research 5(2): 139-169.
- Lane, J. E. (2000). The Public Sector: Concepts, Models and Approaches. London, Sage.

- Lewis, P., Ed. (1998). Africa: Dilemmas of Development and Change. Boulder, Colorado, Westview Press.
- Lundvall, B.-Å. (1988). Innovation as an interactive process: from user-producer interaction to the national system of innovation. Technical Change and Economic Theory. G. Dosi, C. Freeman, R. Nelson, G. Silverberg and L. Soete. London, Pinter: 349-369.
- Lundvall, B.-Å., Ed. (1992). National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning. London, Pinter.
- Madon, S. (1993). "Introducing administrative reform through the application of computer-based information systems: a case study in India." Public Administration and Development **13**: 37-48.
- Orlikowski, W. J. (2000). "Using technology and constituting structures: a practice lens for studying technology in organizations." Organization Science **11**(4): 404-428.
- Orlikowski, W. J. and C. S. Iacono (2001). "Research commentary: desperately seeking the "IT" in IT research - a call to theorizing the IT artifact." Information Systems Research **12**(2): 121-134.
- Powell, W. W. and P. J. DiMaggio, Eds. (1991). The New Institutionalism in Organizational Analysis. Chicago, The University of Chicago Press.
- Shenhav, Y. (1999). Manufacturing Rationality: The Engineering Foundations of the Managerial Revolution. Oxford, Oxford University Press.
- Silva, L. and J. Backhouse (1997). Becoming part of the furniture. Information Systems and Qualitative Research. A. S. Lee, J. Liebenau and J. I. De Gross. London, Chapman & Hall: 389-414.
- Suchman, L. (1994). "Working relations of technology production and use." Computer Supported Cooperative Work **2**: 21-39.
- Swanson, E. B. and N. Ramiller (1997). "The organizing vision in information systems innovation." Organizational Science **September/October**: 458-474.

- Talero, E. and P. Gaudette (1995). "Harnessing Information for development: A proposal for a World Bank Group vision and strategy." Information Technology for Development **6**: 145-188.
- Toukan, O. (2001). The reality of expatriate information systems practice in developing countries: the case of a Health Information System in Jordan. Information Systems. London, London School of Economics.
- van der Blonk, H. C. (2000). Institutionalisation and legitimation of information technologies in local contexts. Information Flows, Local Improvisations and Work Practices, Cape Town.
- Walsham, G. (1993). Interpreting Information Systems in Organizations. Chichester, John Wiley.
- Webster, F. (1995). Theories of the Information Society. London, Routledge.
- Zuboff, S. (1988). In the Age of the Smart Machine. New York, Basic Books.