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Computer-based Information Systems and Human Service Organisations: Emerging Problems and Future Possibilities

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Abstract

Computer-based information systems (IS) have been implemented in human service organisations over the last 30 years in the belief that new forms of technology will make the delivery of services more efficient in a number of ways. However, research is emerging that demonstrates that current systems may have unforeseen and unintended consequences for human services practice and may actually impede the delivery of services. In this article, this research is explored and related to examples of problems with information systems drawn from the Australian context to suggest that different forms of IS need to be developed for use in human service organisations. It is proposed that an ethnographic approach to research that focuses on the interactions between individual users in different parts of the organisation and which captures the organisational and social context for these interactions may provide insights to guide the future design of IS.

Keywords: Child Protection; Information Systems; Technology; Human Service Organisations

Since the 1980s, human service organisations have developed and implemented increasingly sophisticated computer based information systems (IS) to record and process information about their activity with service users. Until recently, little attention has been paid to how these systems impact on human service practice but there is emerging research that suggests that, far from being a positive development, the implementation of IS can impede rather than enhance service delivery. The aim of this article is to stimulate debate about the current and future roles of IS in human service organisations, in particular how research that aims to guide their future developed might be designed. Recent research and debate about IS in human service organisations is explored and examples highlighted of how, in the Australian context, IS are contributing to the problems faced by human service organisations. Research and examples are drawn from the field of child protection as this is where the problems with IS have arisen most starkly and publicly, but it is anticipated that the

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general points made will resonate with the experiences of practitioners in other fields of practice.

Before proceeding, some clarification may be required. Many debates about the role of technology in social work have used very broad definitions of computer-based technology, which include electronic forms of communication such as websites and email. The potential of internet-based communication technology has been demonstrated as a means for social workers to assist the practical, social, economic, and political empowerment of service users (Parrott & Madoc-Jones, 2008; Tregeagle & Darcy, 2008) and it is not the aim of this article to question this development in social work practice. In this article, IS implemented within human service organisations are separated, for the purpose of discussion, from communication oriented forms of technology. It is acknowledged though that the distinction between the two is, in practice, increasingly hard to sustain as such systems can overlap and intersect. Throughout the literature and in practice, IS may be referred to as case management systems (CMS), management information systems (MIS), integrated information systems (IIS) and so on (Ley & Seelmeyer, 2008).

The development of increasingly sophisticated IS for implementation in human service organisations has been pursued with considerable enthusiasm by governments keen to invest in technology (Parton, 2008; Parton & Munro, 2007). While it is widely acknowledged that IS have the potential to transform organisations by affecting, at every level, the nature of work practices (Chase, 2008), debate about whether such transformation is progressive has, until very recently, largely been suppressed (Garrett, 2005; Parton, 2008) by the premise that technological developments bring significant efficiency gains which will lead to more investment in frontline services (Leung, 2007; Regan, 2003). Any problems that have emerged with IS have been met with incremental improvements to existing systems or the promise of new improved systems. However, there is emerging research that suggests that current forms and trends in the development of IS can be problematic and there is an urgent need for further research to ensure that future IS can better meet the needs of a range of stakeholders within human service organisations and facilitate the delivery of services.

Research in business organisations has found that the implementation of IS may have unintended and unforeseen consequences when transferred from the testing lab to the workplace (Kling, 1999). Recently, attention has turned to how IS may transform everyday practice in human service organisations (Ley & Seelmeyer, 2008; Senyucel, 2008). Emerging research in the UK in child welfare agencies has demonstrated that IS may contain “latent conditions for error”, which serve to undermine the best intentions of their designers and actually impede rather than enhance the provision of services to clients (Broadhurst et al., 2010; Peckover, White, & Hall, 2008; Pithouse, Hall, Peckover, & White, 2009). The Integrated Children’s System (ICS) in the UK has transformed practice by attempting to formalise and standardise the responses of practitioners to children and families, in ways that might actually increase error in the decision making of practitioners (White et al., 2009).

For example, the ICS has introduced the imperative to make decisions about cases
within strict timelines, which may compete with rather than complement the overall imperative to safeguard children.

Research has also drawn attention to the challenges such systems might pose to ethical practice (Garrett, 2004; Langan, 2009) and whether they serve organisational needs for accountability at the expense of providing services to clients (Tregeagle & Darcy, 2008). Beyond accountability, IS have been described as the apparatus by which the State has extended its surveillance over citizens subject to welfare interventions. The recording of information about individuals on databases and the subsequent sharing of that information across agencies and jurisdictions has been described as a strategy used by the State to subjugate marginalised populations (Brown & Bloom, 2009, cited in Wrennall, 2010). Within human service organisations, IS can be used to control and monitor the activities of frontline practitioners, for example, to ensure compliance with practice standards (Gillingham, 2009; Harris, 1998).

The nature of social work activity has changed with the introduction of IS as accountability has shifted from professional values and identities to organisational and bureaucratic accountabilities (Burton & van den Broek, 2009). Frontline practitioners report that they spend a disproportionate amount of their time on administrative tasks associated with IS systems (Shaw et al., 2009), some estimating this to be up to 80% of work time (Parton, 2008; Gillingham, 2009), which leaves them insufficient time to deal with what is considered the core business of a human service organisation, that is, direct work with clients (Hasenfeld, 1992). As White et al. (2009) described: “The social work office takes on more the appearance of the back office at a bank; needless to say whilst social workers are inputting data, they cannot be out visiting families” (p. 406).

The increasing significance of IS in human service organisations, described as social work’s “electronic turn” (Garrett, 2005), has resulted in the form of knowledge used in practice changing from “social” to “informational” (Parton, 2008). While this shift in the form of knowledge may, to some extent, predate the implementation of IS (Howe, 1996), the use of IS has accelerated this trend as the ability to record and process information has increased. Detailed surface descriptions of what clients do has increasingly replaced depth explanations that draw from psychological and sociological theories to explore and pursue interventions that address why they might be experiencing difficulty (Howe, 1996). Consequently, the complexity of social problems is ignored and simple solutions that revolve around surveillance and risk assessment predominate (Garrett, 2005; Gillingham, 2006; Parton, 2008).

As Stevens and Cox (2008) described, child maltreatment and the provision of services to deal with it is a “complex problem”. The arguments drawn from “complexity theory” that have been applied to articulate the limitations of the use of risk assessment in child protection (Stevens & Hassett, 2007) may also apply to IS. The recording of increasing amounts of information on an IS, however detailed and extensive, is restrictive as the prescribed fields within an IS control and shape the information that is recorded (Aas, 2004; Shaw et al., 2009). A reliance on
the information as presented in a case file for decision making may also encourage “linear” rather than “non linear” thinking as the complex interactions within social and familial systems that create the conditions that can result in child maltreatment are concealed.

More positively, it has been argued that IS can play a crucial role in the promotion of evidence based practice as the information they gather can be used for evaluative purposes (Carrilio, 2007). “Mining” the data recorded by practitioners about their clients and their involvement with them can provide important insights about practice in an unobtrusive way (Epstein, 2001). Recording this information in an electronic information system that has the ability to provide aggregated data through reporting systems can potentially facilitate the “mining” process. However, the reality of using IS to conduct such research might be quite different. As discussed below, the problems with IS and their usage in human service organisations raise doubt about the reliability of the data they can provide for evaluative purposes as it may be incomplete and inaccurate (Shaw et al., 2009).

Concerns about how IS systems affect frontline practice are being addressed in the UK. Professor Eileen Munro has been commissioned by the English government to review child protection services and part of her brief is to address the problems related to the ICS (as discussed above). This is part of a broader concern with the need to reduce the bureaucracy associated with the provision of children’s services (“Eileen Munro must cut red tape”, 2010). However, an acknowledgement that increasingly complicated IS may be problematic has yet to be made by any Australian jurisdictions. In Victoria, for example, a new system, Client Relationship Information System for Service Providers (CRISSP), is being introduced for non government agencies which not only provides functions for reporting performance but which also includes a function for recording individual case management activities (Department of Human Services [DHS], 2010).

In summary, recent research and debate from the UK, USA, and Australia has raised concern that IS may have transformed practice in human service organisations in ways that were not intended or desired. In Australia, there is emerging evidence that current forms of IS, especially in child protection services, have also caused considerable problems.

Emerging Problems: Child Protection Services in Australia

There have been two recent significant and detailed enquiries into the current state of child protection services in Victoria (Ombudsman, 2009) and New South Wales (Wood, 2008), both of which are highly critical of child protection services. Beyond the major criticisms and calls for significant reform, the reports from both enquiries contain significant information about the problems that these states have experienced with their IS.

In 2009, the Victorian Ombudsman used his own “motion power” to conduct an investigation into the child protection system in Victoria as “[c]hild protection has...
been a significant source of complaints to my office over many years” (p. 8). His report highlighted wide-ranging areas of concern, which included the legal system, failure to comply with statutory obligations and internal practice standards, privacy and information management, compliance with privacy legislation, workforce issues, and accountability and transparency in the child protection system. Of pertinence to this article, problems with the IS used within child protection services in Victoria, known as Client Relationship Information System (CRIS), are mentioned in 61 of the 399 points raised in the main body of the report.

In relation to CRIS, the Ombudsman concluded that, “[t]he evidence provided by senior departmental staff is that the introduction of CRIS has not only failed to provide the child protection system with a more effective tool than its predecessor, it has also impaired the Department’s efficiency without providing adequate functionality (2009, Point 36, p. 11). The report provided details about the lack of functionality of CRIS at various levels. At a systems level, problems were noted with tracking caseloads because of the way that CRIS automatically allocates cases to team leaders. This function provides a distorted view of whether clients are actually receiving a case management service. CRIS was also found to lack functionality that would enable the Department to report publicly on its compliance with statutory obligations or internal practice standards. Senior staff commented that they were not confident about the integrity of the data that CRIS was able to produce.

At the level of individuals at the frontline, CRIS was also found to impede the delivery of services. The Ombudsman found that “cumbersome” record keeping practices made it difficult for staff to access important information on CRIS. From the perspective of frontline practitioners, the Community and Public Sector Union’s (CPSU) submission to the Ombudsman stated that “[s]taff report that since the introduction of the CRIS system, workload has increased threefold. Staff find CRIS time-consuming and often unreliable” (Ombudsman, 2009, Point 148, p. 29). Perhaps most poignantly, the CPSU submission goes on to state that “[s]taff feel that the time resources that need to be allocated to keeping CRIS up to date detracts from the time been[sic] able to be spent face to face with clients, ensuring children’s safety” (Point 148, p. 29).

At a management level, regional managers described the administrative requirements of CRIS as “onerous” (Point 144, p. 28), as recording information took considerable time and was “something that a stretched workforce doesn’t really need” (Point 145, p. 28). Another commented that CRIS had “both increased the workload for child protection staff as well as increased the frustration and stress levels for staff, because just nothing is easy on CRIS” (Point 147, p. 28).

The Ombudsman recommended that the DHS commission a “comprehensive and independent review” of CRIS and he noted that enhancements to improve the functionality of the system had been scheduled for mid 2010. However, CRIS has been incrementally enhanced since its inception and it is questionable whether further enhancements will actually improve functionality. A final point that provides some scale to the problem with CRIS is that, as the Ombudsman mentioned, the
projected cost of CRIS was $29 million, but the actual cost has been $95 million to date, and still the system appears to impede rather than enhance service delivery.

In 2008, Justice Wood conducted a Special Commission of Inquiry into child protection services in New South Wales. His findings in relation to the IS were similar to those of Victorian Ombudsman in his conclusion that “DoCS [Department of Community Services] information management technology is not adequately suited for the purpose of supporting workers to assess and intervene in the lives of children and young people, and its complexities and shortcomings continue to be a source of frustration and delay to its staff” (Wood, 2008, p. 3). Justice Wood raised four major areas of concern with the DoCS IS, known as Key Information and Directory System (KiDS): the system was not user friendly, it was difficult to check for history of involvement with the service, it was not a tool that supported reflective practice, and caseworkers were required to spend too much time completing tasks on the system at the expense of spending time with clients.

During 2007 and 2008, as part of a PhD at the University of Melbourne, the author conducted ethnographic fieldwork over three months with child protection practitioners in Queensland (Gillingham, 2009). The focus of the research was on how practitioners, team leaders, and managers used the Structured Decision Making (SDM) tools in their practice, rather than the IS, known as the Integrated Case Management System (ICMS), that practitioners were using. The SDM tools were embedded in the ICMS and some of the 46 participants who were interviewed commented on it as part of the context for their practice. Complaints about the ICMS were similar to those made by participants in the Ombudsman’s investigation in Victoria. Frontline practitioners commented on the time consuming nature of the ICMS: “but they know that ICMS, for example, makes producing a case plan 10 times longer than previously” (Gillingham, 2009, Interview 25); and “Hate ICMS – extremely time consuming to find out information” (Interview 32). They also commented that they “would rather spend time with families” as “trying to do [Structured Decision Making] SDM, and ICMS doesn’t actually help families at all” (Interview 26). The ICMS had changed the priorities of practitioners: “More important to him to have filled in all the forms of ICMS than the child” (Interview 10). The ICMS was also described as “not really helpful at all, [sic] extremely confusing system that takes a lot of training to use, and is not logical” (Interview 1).

The same concerns arose from the author’s experience of using the ICMS to audit 51 case files. Additionally, the reporting systems within the ICMS, which could potentially have provided a wealth of information about the recorded activities of practitioners, stopped working for a period of months shortly after the fieldwork began.

In summary, child protection services in three states of Australia have experienced similar problems with their IS, to the extent that service provision has been impeded. The common themes that the IS are time-consuming for frontline practitioners and do not provide head office staff with the data they require to plan services resonate with the research from overseas that points to the unintended and unforeseen
consequences of implementing IS in human services organisations. It is the author’s contention that, in Australia, the role of IS in contributing to the problems faced by human service organisations generally, and child protection agencies specifically, has hitherto been understated and under-researched. Clearly, there is a need to develop new forms of IS for use in human service organisations, but before considering how this might be done, it is useful to reflect on the history of the development and implementation of IS.

**Historical Influences on the Development of IS**

In order to begin to address the problems identified with current forms of IS, it is important to reflect on how the point has been reached where IS, costing many millions of dollars, have been developed that fail to meet the needs of the range stakeholders within a human service organisation and which impede service delivery.

Underlying the implementation of IS has been the pervasive belief that the development of increasingly complex and costly technology can only be progressive and that such systems are indispensible in a modern bureaucratic organisation. This has been described as a form of “technocratic ideology” (Spratt & Houston, 1999). Shaw et al. (2009) described how the ICS in the UK was developed to improve efficiency in children’s services, based on the belief that the processes of social work could be incorporated and formalised in software. The development of IS has also been shaped by the imperatives of new public management, which demand the quantification of service throughputs and outputs (Harris, 2003; Hugman, 1998) and the demonstration of new and increased forms of organisational accountability (Burton & van den Broek, 2009).

Indeed, it appears that, in the rush to embrace the latest IS, the imperatives of managers and head office staff to gather data have taken precedence (Tregeagle & Darcy, 2008) over those of frontline staff to spend time with clients. A particular challenge in the design of IS in the future will be to address the tension between the different demands of a range of stakeholders within an organisation. The resolution of this tension may be facilitated by reforms to human service organisations that realign them with organisational goals to provide services to clients and emphasise a shift in emphasis in practice back to “relationship based” social work (Lonne, Parton, Thomson, & Harries, 2008). These reforms would involve a critical reappraisal of the kinds and amounts of data that human service organisations are required to collect and report on. It may also emerge from the development of new forms of IS that can demonstrably assist frontline practitioners in their work with clients.

While senior administrators have been more influential than frontline practitioners in the design of IS (Munro, 2004), their development and implementation has mostly been driven by IS providers, who lack essential knowledge about the demands of and priorities in the provision of social services. As Kling noted, “[I]t is unfortunately rare for IT designers to substantially appreciate the working conditions of the people who will be using the systems that they design” (2001, p. 6). This may be because designers
do not have access to work places where technology tends to be reinterpreted according to organisational demands and culture (Orlikowski, 1992). At the same time, the users, or purchasers, of IS have struggled to define their needs when commissioning the development of new IS (Senyucel, 2008). An awareness of the historical influences on the development of IS for use in human service organisations alerts us to some of the challenges of designing them for the future. Strategies for dealing with these challenges are discussed in the next section.

**Future Possibilities**

Research has clearly identified the need for frontline practitioners to be more involved in the design and development of IS (Burton & van den Broek, 2009; Munro, 2005; Sapey, 1997) to ensure that they enhance rather than impede practice. Given the influences on and problems identified in the previous section with the development of IS, how we might involve practitioners in ways that significantly change the current form of IS emerges as a complicated challenge.

Much of the research that has been conducted to try to ensure that IS meet the needs of users has been based on individualistic cognitive models (Lamb & Kling, 2003). For example, research has investigated the factors that affect how IS are used by practitioners, such as IS characteristics (Carrilio, 2005), user characteristics (Carrilio, 2007), and the design of interfaces through which users interact with IS (Stone, Woodroffe, Minocha, & Jarrett, 2005). Research has also focussed on the measurement of the satisfaction levels (Despont-Gros, Mueller, & Lovis, 2005) and acceptance rates of the end users of IS (Zhang & Guiteirez, 2007), which is important in service industries as satisfied employees make for satisfied service users (Au, Ngai & Cheng, 2002).

Unfortunately, though, IS designs that are informed by “user studies” are not always successful when scaled up for use across an organisation (Lamb & Kling, 2003), as they tend to disregard the context for the use of IS, particularly the importance of organisational structure and culture and the complex social systems that comprise human service organisations. In order to bridge the divide between IS providers, purchasers, and users, and develop common understandings about how IS might assist human service organisations to achieve their goals, there is a need for research that not only starts from the perspectives of the end users of IS but which takes account of their roles as “social actors” (Lamb & Kling, 2003). Therefore, research needs to be informed by “social informatics”, defined as “the interdisciplinary study of the design, uses and consequences of information technology that takes into account their intersection with institutional and cultural contexts” (Kling, 1999, p. 1). In the same vein, Orlikowski and Barley (2001) have argued that there is a need for greater interaction between the fields of information technology and organisation studies.
Technology influences how users behave but is itself modified in the course of
day-to-day activity, making how technology is used more relevant for researchers
than the form of the technology (Orlikowski, 2000). The relationship between end
users and IS can be considered as occurring within a sociotechnical system, as each
part of the system affects the other, resulting in particular effects on practice (Fish,
Munro, & Bairstow, 2009; Ley & Seelmeyer, 2008). As Munro (2008) explained:
“An key lesson is to understand how the worker and the artefact interact and how
the resulting performance is shaped by the influence that each has had on the
other” (p. 57).

Orlikowski (1992) developed the “structurational model of
technology” as a means to investigate the interaction between technology and
organisations. “Technologies-in-practice” are enacted as distinctive structures of
technology use, which are “constituted and reconstituted through everyday, situated
practices of particular users, using particular technologies in particular circum-
stances” (Orlikowski, 2000, p. 425). Detailed study of these “technologies-in-
practice” may therefore provide insights that will inform not only how technology
might be developed but also how such changes will affect organisations.

Hollnagel and Woods (2005) have proposed a way to conceptualise the
relationship between individual users and IS. They described how artefacts act as
“tools” when they can be used to amplify the ability of the user to do what he/she
can already do, as “proxies” when they replace the user and as “novelties” when
they do things that humans could never do. The function of an artefact may
change with the expertise and experience of the user, for example, from a “proxy”
to a “tool”. Hollnagel and Woods also drew attention to “accidental users” of
technology, people whose preference would be to find a way of completing a task
that avoids the use of an artefact, but who have no choice. Under such
circumstances, they argued that it is to be expected that problems will arise.
This point may be particularly pertinent to a study of practitioners compelled to
use IS by their employers.

Interpretive and particularly ethnographic approaches have been successfully used
to enhance understanding of practice in relation to IS in business organisations
(Myers, 1999; Orlikowski, 1992; Surendra & Denton, 2009; Tinker, 1998; Walsham,
1995) and more recently human service organisations (McBride, 2008; Broadhurst et
al., 2009). In essence, an ethnographic approach “consists of closely observing
situated activities in their natural settings and discussing them with the seasoned
practitioners, in order to study the competencies involved in the routine performance
of these activities” (ten Have, 2002, p. 7). Such an approach might draw from
microethnography to focus on “the face-to-face interactions of members of the group
or institution under investigation” (Berg, 2001, p. 136) but would also need to draw
from macroethnography to consider the social and organisational context of these
interactions. The overarching concern of both approaches is with “assessing everyday
community life from the perspectives of the participants... [in order that] from detailed examinations of people and their social discourse and the various outcomes of their actions, underlying principles and concepts can be identified” (Berg, 2001, p. 136). As White et al. (2009) concluded, “systems and technologies can be developed which both assist the users in their daily work and achieve desired organisational goals, but without an ethnographically informed, practice near approach, this virtuous circle will not be achieved” (p. 409). However, achieving this virtuous circle poses some challenges.

Through closely observing the activities of a range of stakeholders within a human service organisation, a “thick description” (Humphries, 2008) of their uses of and needs for an IS would be produced. Extracting the salient information from ethnographic accounts to guide the design of IS has, though, been limited by a lack of communication between ethnographers and IS designers (Crabtree & Rodden, 2002). Therefore, the research would need to be interdisciplinary and involve both ethnographers and IS specialists. The interpretation or analysis of this “thick description” would need to be grounded by the stated goals of the organisation, or agency mandate (Jones & May, 1992), and the accepted means for achieving them. As Crabtree and Rodden (2002) suggested, an ethnographic approach might be best configured to assume “an exploratory role in innovative technical research” (p. 2). This approach would go beyond the production of “system requirements” to develop, implement and evaluate, both summatively and formatively, new forms of IS. It would go beyond identifying problems with IS to developing and testing solutions, akin to a form of “technical action research” (Grundy, 1982).

In summary, in order to guide the future design of IS in human service organisations, research is required to generate new understandings of the fit between individuals in various roles within organisations and IS and the organisational context for their use. As Munro (2005) suggested, research needs to start with the question of what frontline practitioners would find useful to their practice. It has been proposed that an ethnographic approach, which focuses on the interactions between individual users in different parts of the organisation and captures the organisational and social context for these interactions, may provide insights to guide the future design of IS. The interpretation of insights for IS design has to be grounded by the goals of human service organisations and supportive of their means for achieving them. Such an approach would also need to be interdisciplinary and draw from the knowledge and skills of both ethnographers and IS specialists.

As mentioned in the previous section with reference to the historical influences on the development of IS, and as Harlow (2003) has argued, the development and applications of IS and ICT more generally, are shaped by their cultural context. Therefore, significant changes to the current form and uses of IS in human services organisations would require a shift in culture to one of genuine inquiry about the possible role of IS, rather than an acceptance of its inevitability in ever more complex
forms. New forms of IS would also challenge current forms and structures of human service organisations.

**Conclusion**

The aim of this article has been to stimulate debate about the current and future roles and forms of IS in human service organisations, in particular how research that aims to guide their future development might be designed. Through the examples given of enquiries into child protection services in Victoria and New South Wales and the author’s research in Queensland, there is considerable evidence that IS in human services organisations, in their current form, are hindering rather than enhancing the delivery of services. There is a recurrent theme that they do not meet the needs of stakeholders, from frontline practitioners to service planners and policy makers. In the myriad of problems faced by human service organisations, particularly child protection agencies in Australia, it has been argued that the problems created by IS have, so far, not been sufficiently acknowledged or successfully addressed. To guide the future development of IS, there is a need for research that can explore and assess the needs of a range of stakeholders within an organisation, but which also considers the organisational and social context of the use of IS in human service organisations. Ethnographic methods, guided by principles drawn from developments in social informatics and structuration theory and combined with a technical action research approach, have been proposed to explore the future possibilities for the design of IS for human service organisations.

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