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Summary

A major part of the work of British social workers in childrens' departments is interacting with one of a number of instantiations of an IT system known as the Integrated Children's System (ICS) that implements both record keeping and reporting functions. After a relatively short time in operation, the implementation of the system is now regarded as deficient and, disturbingly, there is a body of evidence to suggest that the impact of the implementation has all too often been antithetical to core social work values and ambitions. This article will provide a short review of the evidence and thereafter focus on the front-end processes and documentation that drove the development of the original system. It will also comment on recent government attempts to overcome the problems with ICS and posit a simpler, cheaper and more effective solution.

The existence of ICS and the fact that it resembles systems developed for industrial application is symptomatic both of a lack of trust and of the idea that statistical reporting and local micro-management are the keys to better child protection. The article does not address these issues in detail but, hopefully, the suggestions set out here will, if implemented, enhance good practice and the professional satisfaction of social workers charged with child welfare. In the longer term the content could also provide a platform for IT support that will respond to a much needed change in governmental attitudes towards social work.

This article describes the mistakes made in developing a specific computer system for child-care. It can be regarded as a case study in how not to develop such systems and how much of the functionality associated with children's social work can be implemented very easily. Although the article is based on

one system that is extant in two countries it has a much more general context, both in terms of care provision and international applicability. In international terms reported concerns about inappropriate child care IT systems are not confined to the UK, as can be seen, for example, in the case of Canada, (Baines, 2004) and Australia (Burton and Broek, 2009). In terms of general applicability many of the observations and recommendations made here in relation to ICS could similarly apply to future chronicling systems adopted across adult social care and other areas, such as probation work and health care.

Introduction

ICS is one of a trio of databases (Dowty, 2008) promoted by the British government in order to achieve some of the primary aims and objectives of the green paper 'Every Child Matters' (HM Treasury, 2003). Two of them *ContactPoint* and *Ecaf*, are for the use of all practitioners whereas ICS is for social care staff only. Essentially the databases consist of a set of business and computer processes that are all but mandated for use by social service authorities as an electronic record of each child's contact with social care. They consist of information on the assessment, planning, intervention and review of interactions between individual children's departments, other relevant agencies, the child in need and others such as family members. It was intended that ICS would be supported by a comprehensive IT system that provided record keeping and reporting functions.

The imposition of ICS across England and Wales has been achieved by means of both stick and carrot. The stick has been in the form of legislation (Children Act 2004, ss.12 & 29) and separate circulars for both England and Wales, and the carrot by means of partial grants towards the cost of development, procurement and installation. However, recent guidance seems to step back from mandatory directions and confirms the possibility that social service authorities—in England at least—may be free to strive for alternative and perhaps better solutions. LAC Ref: 1706090002 (June 2009) states:

The measures set out in this circular do not alter in any way the responsibility of local authorities to ensure that statutory requirements are complied with in the exercise of their children's social care functions. Compliance with statutory duties in relation to work with children in need remains a professional responsibility of children and families social workers, managers and their local authority. However, the policy principles make clear that it is the responsibility of local authorities to determine how their ICT systems can be used to support the delivery of children's social care services, and that the key test of those systems should be that they support effective practice and improved outcomes for children, young people and their families.

The circular refers throughout to 'national specifications' for ICS. This refers to the technical and business requirements for ICT systems which comply with the ICS model. Many of these specifications reflect duties imposed in legislation (including those set out in regulations), and the statutory guidance issued by the department on the proper performance of those duties. The national specifications are intended to help local authorities and system users to comply with their legal duties and the statutory guidance. Local authorities are not, however, required to comply with the ICS specifications as such. If local authorities choose not to implement the ICS system, they must assure themselves that they and their staff comply with their

statutory obligations in the delivery of children's social care services in a way that is consistent with the statutory guidance, and that they can demonstrate that they do so.

In Wales, child care law is diverging from that of England (Rees, 2010) with the degree of a mandatory requirement being less clear, in that no equivalent circular has been published in Wales. The most recent Welsh circular simply states that social services authorities are expected to comply with ICS Implementation Guidance by the end of April, 2010 (WAG 23/2008). However, of particular concern in the Wales context is the lack of central funding for Welsh language ICS developments.

The Nature and Application of ICS

It is worth stating at this point that this article is not a luddite tract. Computer systems have a major potential for reducing administrative burdens, and implement *broad* standardization, rather than the micro-standardisation embodied in the source documents produced by the DCSF for ICS developers, has many advantages. Computerisation provides a standard set of concepts and vocabulary, provides for staff mobility and enables the development of a single, functionally powerful IT system rather than a set of functionally poor systems that are developed for a collection of local circumstances.

But it is within the context of a system that has been seen to have failed that this article addresses the future of IT-based systems for children's social work. Although much of what we describe is directed at ICS, our conclusions have ramifications for any human-centred systems that are concerned with chronicling.

A useful introduction to ICS for the technically minded is Harbird (2006); a prescient document which pointed out a number of potential difficulties. The genesis of ICS and its problems is well documented for example in Shaw *et al* (2009) and in Wastell *et al* (2009) and does not bear repeating here. It was intended to:

- Reorganize child welfare in the United Kingdom;
- Provide a standard set of processes, a standard set of computer programs that support the processes and a common database that holds data that is generated from the processes;
- Provide a framework which enabled the interchange of information between the relevant agencies involved in the interaction with a child in need.

The model used by the Department for Children, Schools and Families (DCSF) which acted as a proxy customer, was an industrial one that has had success within commercial IT, such as stock control, product marketing and customer relationship management (Havey, 2005). Such applications are characterized by data that is exact—for example the amount of stock within a warehouse and the price of a product—and an absence of large amounts of variable length textual data. The Welsh counterpart to the DCSF is the Children's Health and Social Services Division—the Division has been represented in planning and development discussions. In the remainder of this article we will use the abbreviation DCSF to describe both the English and Welsh entities.

A good example of the problems of not standardizing, at least in broad terms, is the failure of the C-Nomis system. This was intended to chronicle the interaction of young offenders within the justice system. One of the major reasons for the failure of this £690m project was the fact that many functional differences were incorporated into the system, reflecting

differences in practice between agencies, such as local probation departments (National Audit Office, 2009). It was also true of the Libra system for computerising magistrates courts (National Audit Office, 2003) which went 300% over budget and was 16 years late. The Libra project was eventually rescued by a systems developer who produced standard descriptions of the way that magistrates and their staff work.

The trick with standardization is to develop a system which has broad core functionality, but then can be amended with little effort to local circumstances and which is not supported by rigid process models. This is one of the main thrusts of the solution detailed later in this article.

Problems with the ICS

There have been a number of documented practical problems with ICS but some academic writers have also expressed more fundamental concerns. The practical problems include: an atomisation of information leading to the inability of social workers to see the bigger picture; a large amount of form filling leading to major restrictions on the time that social workers can devote to important processes such as home visits; a rigid approach to the processes involved in a human-centred activity, for example an insistence on inviolate time scales such as that associated with an initial assessment; an inability to document a chronology and implementations that impose a further time overhead on social workers over and above those associated with form filling (Broadhurst *et al*, 2009; Wastell *et al*, 2009; White *et al*, 2009; UNISON, 2008). As one local authority's systematic review of the assessment and care management services for children concluded (a comment provided by a Principal Officer of a systems review team from Wales that is currently re-engineering ICS):

The Council has identified strong evidence that ICS leads to the fragmenting of the assessment process, is time-laden for social workers in inputting and accessing information, is duplicatory in inputting sibling information and, in tandem with performance timetables, appears to promote a 'production line' mentality rather than provide an opportunity for reflective practice. In regard to fragmentation, the organisation of information on ICS separates the child from their family and significant others and does not give the practitioner a coherent and integrated 'whole' view of the family and important relationships and events. Whilst it is possible to gain the 'whole view' this requires additional time and effort and adds to the social workers already sizable bureaucratic workload.

A further fundamental concern is the questionable legality of aspects of the process. Young people themselves have expressed a degree of ambivalence over their private information being available to other people without their consent (Fontin, 2009); such sensitivity is understandable and legitimate given that ICS records have replaced the child protection registers formerly kept by all authorities in England and Wales. Careful consideration and monitoring of what information is included is therefore necessary. As a leading writer on child care law has pointed out, litigation in relation to child protection registers has established that a decision to place a child on a register is open to judicial review: it must be supported by evidence, including a balanced account of the parents' side of the story (Williams, 2008). This is particularly difficult to establish using the current instantiations of the ICS computer system.

Another more general fundamental concern is that the form-ticking nature of the process is inimical to a proper reflection of the complexity of the decision making process, particularly where conflict arises, as for example, when a social worker disagrees with a management decision (Davey and Bigmore, 2009)

Not surprisingly, a recent and comprehensive review of the many problems with government-based IT (Goldfinch, 2007) came to an important conclusion which seems apposite in this context namely that the

Aims for information technology should be modest ones, and in many cases the risks, uncertainties and probability of failure mean that new investments in technology are not justified.

The main aim of this article is to point out that many of the short to medium-term problems that have been encountered with the IT component of ICS can be solved by relatively simple technological means and that such means enable an easy response to long-term change such as changes in government or government policy.

The Development of the ICS

Developing a modern computer system is a complex process. It involves a developer talking to a customer or set of customers and examining customer documents (requirements analysis), writing down what a system should do (requirements specification), designing the system in terms of modular building blocks (system design), implementing the system using some programming language (programming) and then validating the system (testing).

One of the key determinants of an IT project is the skill that the developer brings to the first two processes. Many projects have failed because of insufficient attention being paid to requirements at the front-end of a project. Because of its importance, requirements analysis will typically take up to 30% of the resources of an IT project (Sommerville, 2006). It involves a number of processes in which an analyst will examine existing documents and interview staff involved in a current system. A good example of a government system where poor requirements lead to failure was the Libra magistrate's court system. A second gateway review by the government in February 2002 found there were 'too many mistakes early in the life of the project' including a poor analysis of requirements (Courts' Libra system 'is one of the worst IT projects ever seen', *Computer Weekly*, 30th Jan 2003).

In a written answer in the House of Commons the then Secretary of State for Children Schools and Families provided a description of the process of requirements analysis that was carried out in the early stages of the ICS. This is a classic description of how the requirements phase of a human-centred IT project *should* be conducted

The ICS requirements were originally produced as part of the Quality Protects Management Information project, by a team comprising Department of Health (latterly, following machinery of government changes, Department for Education and Skills) officials, local authority officers, and academics working in collaboration. Frontline social workers and managers were involved in development through consultative workshops and local trialling of materials. Commercial suppliers of children's social care systems were also consulted and informed.

In order to learn about the processes involved in the provision of children's social care services the Department of Health consulted with local authorities and policy specialists. This enabled them to structure the broad information requirements in a logical, systematic way.

The requirements have been subsequently updated by the DCSF, through a collaboration of policy and practice advisers with frontline social work experience and contracted specialists with knowledge of the production of industry-standard

requirements documentation. The most recent requirements have taken account of technical queries raised at earlier stages by local authority officers, and were partly informed by a dedicated workshop with a number of local authority officers involved in ICS implementation. *Commons Hansard 17 June 2009 Written Answers*

Given this description: that of a classical user-centred analysis, it is somewhat surprising that ICS failed.

The DCSF provided a number of documents that formed the requirements specification. A number of these ensured that the ICS was shackled from the early days of the project to the point where the software produced can be regarded at best as flawed and at worst not fit for purpose. The four key documents or document sets are detailed below.

A Statement of Business Requirements. This was a short (6 page) document that provided a good high-level view of what the ICS should do. In terms of quality it matches many of the initial requirements documents that are provided to IT consultants

ICS Minimum Compliance Criteria. This was effectively an expansion of the previous document. Each business requirement was split into sub-requirements and criteria specified for each requirement. For example business requirement *D31* specified that:

Each child's record includes a unique identifier and has provision for recording similar identifiers used in other applications as is appropriate to support integrated working across agencies.

and was associated with sub-requirements 'Each child's record includes a unique identifier' and 'and has provision for recording similar identifiers used in other applications as is appropriate to support integrated working across agencies'. Many of the sub-requirements resemble this form and are merely cut-and-paste repetitions of each requirement. There is also a set of criteria including for *D31* 'The system should have the capability of recording at least three identifiers' and 'The identifier must be unique to that child within ICS within the LA'. In order for a local authority to receive funding for the ICS the developed system had to satisfy these criteria.

The term 'business requirement' is revealing; throughout the DCSF documentation describing the development of the ICS there is a theme that what was being developed was not very different from an IT system that would be used by a bank, building society or retail chain.

A set of exemplars. These were forms that demonstrated the documentation that should be completed by the user of ICS and stored in a database. They are categorized as: general records, child protection forms, core assessment records, child or young person in need planning and review documents, assessment and progress records for looked after children and ICS Outputs for Court. There were 32 of these documents. A typical exemplar was the core assessment record for a child aged 5 to 10 years which contained no less than 26 different forms.

ICS Exemplars: Common Principles. This was the shortest document. It effectively stated that the exemplars were not to be modified except in trivial ways, for example changing the order of data boxes in a form or using the exemplars to capture extra information.

There were a number of examples within these documents and other documents that totally constrained developers in such a way that they could only develop a heavy-duty, industrial system for the ICS. First, the document *ICS Exemplars: Common Principles* mandated a set of exemplars. Each exemplar was split up into forms and virtually instructed the

developer to atomise the ICS data input so that they could be presented as computer-based input forms.

Second, developers were allowed access to very large process and data models which were in total 400 pages in length. Such documents are used in industrial software projects as front-end specifications. The data model described the relationship between entities such as 'Service User Plan', 'Service User Need' and 'Service User Need Summary'; this document implied that the developers should use a relational database system suited to industrial and commercial applications. Where a relational database is a collection of tables that are related to each other by virtue of the fact they share common data/

Third, in the *ICS Minimum Compliance Criteria*, the DCSF littered the document with sentences and phrases that dictated an industrial system, for example the fact that an 'IT system' should be used and that a database should be employed that was record-based.

By specifying the forms that should be used as mandatory, by mandating an IT system and by issuing heavy industrial data and process specifications, the DCSF directed the developers of the ICS to use technologies and techniques which were suited to industrial software development. Such forms-based programs, employing relational database technologies, while excellent for processing exact data such as the number of items in stock at a warehouse or the balance of a bank account, are not well suited to the processing and storage of the large amounts of unstructured text associated with chronicling.

Because of these directives the ICS system was developed as a standard management information system whereas the DCSF specification should have made clear that it bore many similarities to an interrupt-driven, real-time diary system which was life-critical in that the excessive time taken to fill in the forms leads social workers to ignore important work with children in need.

In any IT system there is a balance between providing management information and providing a useful artefact for staff who are working at the front line. The focus on industrial software development ensured that the information reporting aspect totally dominated its use by social workers.

Developers who worked to these forms cannot be blamed for deficiencies in the resulting systems that were produced—all they did was implement what they were given by the DCSF acting both as a proxy customer and a front-end developer.

Before leaving this section it is worth saying that social workers should not regard themselves as a special case: chronicling systems similar to ICS have had a very poor success rate. For example, the National Offender Management Information System (C-Nomis) was intended to document the interaction that occurs between an offender and other agencies such as the local probation service and prison authorities. The project was initially budgeted at £234m, but eventually consumed close to £700m before it was cancelled (National Audit Office, 2009). The project was condemned by the Commons Public Accounts Committee as a 'shambles' and lacking even a 'minimum level of competence'. Of the overall spend, something like £160m could not be accounted for.

Another example is that of the British National Health Service (NHS) is currently being computerized—a major part of this programme is a chronicle of a patient's interaction with the NHS, the project was initially costed at £2.3b; the latest estimate is that it will cost £12.6b. The project was meant to deliver a patient chronicle by 2004; very little progress has been made on this.

Reasons for the Failure of ICS

Social work literature has more than adequately detailed the results of the failure of ICS, for example Wastell *et al* (2009). There are two facets to this failure: *political* and *technical*. The *political* imperatives that gave rise to the ICS focus on management information rather than coal-face utility have been more than adequately documented in works such as Seddon (2008) and Barber (2007) that deal with the general effect of a form of command and control government and Garrett, (2009) which focuses on children's services. Here, an emphasis on data and quality metrics has given rise to a political view of a number of professions—including children's social work—that overemphasises data collection and management information over client interaction.

The *technical* contribution to the failure of ICS can be ascribed to the use of two terms in the DCSF documentation provided to those who were to implement the system. The terms are 'database' and 'record'. Each has a different meaning depending on whether they are uttered by an IT expert or a lay person. When, for example, a *social worker* refers to a child's record, what is being referred to is a collection of documents and data that refers to a child. When an *IT expert* refers to a record, the reference is to a specific computing term, that is, a fixed length collection of data and text held in the memory of a computer, such as, data and text associated with an initial referral or a core assessment.

When a *lay person* refers to a database, what is normally referred to is a collection of unstructured documents that are stored in a number of files. The *IT* interpretation of the term is that of a collection of fixed length IT records which are logically linked, for example by having the same reference number and, almost invariably implemented in a relational database system..

The DCSF's references to records and a database led to the atomisation that lies at the heart of many of the problems with the ICS system. Two examples illuminate this. The first is that a major complaint made by social workers was that it often took an inordinate amount of time to edit text to fit into fixed-length boxes in ICS forms. This was a consequence of the fact that fixed length records were stored in an industrial database. The second example is that the user of ICS is faced with a panoply of isolated forms for providing data on a child, with many forms having a one-to-one relationship with fixed-length, independent records held in a database.

If these two implementation terms had been removed from the DCSF requirements documentation it would have provided a much bigger solution space for IT developers—a space that encompasses the solution that we describe in the remainder of this article. It certainly *could* have allowed the tick box approach exemplified in ICS but, at the same time, it would have enabled a easier transition to the less prescriptive systems allowed by the DCSF circular of June 2009.

DCSF Improvements to the ICS

The DCSF responded to worries by social workers, unions and social work academics by issuing the following guidance in December 2009 *ICS Guidance Note: Improving the Usability of ICS systems*. It contained:

- Tutorial material about usability in the context of a computer system; this reflects current orthodox views about human-computer interaction as, for example, found in iconic texts such as Sharp *et al* (2007). This material is effectively a collection of technical views about usability that have been rewritten for a lay audience.

- A list of problems and the overall reasons for these problems. The latter include the local IT infrastructure, the actual ICS system in use and errors in the national ICS specifications. In one of the most damning parts (Figure 1) of the document there are many examples of poor usability; these are listed in a later section of this article. Taken as a whole, Figure 1 of *ICS Guidance Note: Improving the Usability of ICS systems* indicates a system with many major problems.
- A process modelled on the APIR social work methodology (Assess, Plan, Intervene and Review) which would enable children's departments to identify deficiencies, prioritize them and then interact with suppliers in order to remedy them.

Quite rightly, the document does not provide any suggestions on specific functional changes since several implementations of the ICS are extant. However, the existence of this guidance document indicates that the view of the DCSF is that the system in its current state is capable of being rescued, and that this can be achieved by a number of relatively small changes. This is at variance with Figure 1 of *ICS Guidance Note: Improving the Usability of ICS systems* which indicates a large number of major problems that are normally associated with a failed system.

An Alternative and Better Remedy

The recommended alternative in this article to that of modifying the current systems is radical and follows advice given in Goldfinch (2007): that the customers of public systems should be pessimistic about the development and achievements of computer-based systems and that such systems should be modest in their scope. The proposal is to gradually decommission current versions of ICS and switch to a simpler system which contains word-processed files.

The remedy detailed in this section is based on an analysis of latent errors that were discovered by a close reading of the inquiry by Lord Laming (Laming, 2003) into the death of Victoria Climbié (Munro, 2005). The errors that were documented in the report were back referenced to latent error conditions and then transformed into a requirements specification that detailed the broad properties of a chronicling system. (Ince, 2010a).

Microsoft Word, the word processor of choice for most computer users, contains facilities whereby forms can be included on word-processed pages and where versions of word-processed documents can be saved as text files that can be analyzed by simple text-processing program code, for example, to provide spreadsheet data for local and statutory reporting. This can be done automatically. One of the authors carried out a modification to their version of *Microsoft Word* to create both a normal word-processed document and a text-based copy of the document suitable for computer processing. It took ten minutes of programming. For a technical description of this solution see Ince (2010).

All the interactions with a child in need could be placed into a single word-processed document starting with bureaucratic details, any referral documents and the initial assessment. The document would be held centrally with the normal security procedures in place so as to ensure that only those authorized to look at the document are allowed to do so. There are two ways that social workers could interact with the *Word* document that chronicles a child's interaction with a children's department: either by keeping a local copy on their laptop and periodically copying it to a central computer (server) or by accessing a single copy held on the server using a network connection. The former, however, imposes major security requirements.

In order to validate our solution the remainder of this section details the problems described in *ICS Guidance Note: Improving the Usability of ICS systems* and how a single word-processor solution would overcome virtually all of them. Some of the problems we describe are also those detailed in publications such as Broadhurst *et al* (2009), Wastell *et al* (2009) and (UNISON, 2008). It also takes into account the results of an assessment of pilot ICS projects carried out by the University of York (Bell *et al*, 2007).

It is worth reproducing the system deficiencies—which the DCSF refers to as ‘business effects’—that are set out in the DCSF guidance note, that is, lost time due to error chasing, rework; delays to casework; time spent in administration rather than on working with children and families; a lowering of morale; retention and motivational issues; increased cost due to error chasing and additional training; duplication of work; users building in short cuts leading to poor practice; non-compliance with statute or data returns; processes not shared across an authority; users reverting to other systems such as *Microsoft Office* (as you will see later we do not regard this as a problem but as a viable solution); wasted time spent on training; work slowed down; key facts being lost; patterns being lost; opportunities to share data between professionals hindered; and best practice not shared.

In the remainder of this section an outline is provided of how a word-processed solution would address many of these problems and implement the ICS minimum compliance criteria. We use the term *local solution* to describe an organization where social workers keep word-processed documents on their own computer, or a shared computer, and upload the current version of the file on to a central computer, known as a server. We use the term *central solution* to refer to the central storage of the child record and its access via a remote connection. Here the interaction would be via a network connection—either at the office or via an internet connection at home. It is worth stressing that many of the improvements, although technical in nature, return the narrative forming process back to the user.

- *Slow page loads.* Using a local solution, the speed at which a word-processed document is displayed would be a fraction of a second. For a central solution in which a local area network would be used, the speed would be comparable to that of the local solution.
- *Slow data saves.* Similar remarks hold for *Slow page loads*. Speed would be that normally associated with the closing down a word processor.
- *Time-outs.* Using a local solution, time-outs would not occur. For a remote solution, using a word-processor, a time-out would be a very rare occurrence.
- *Data loss.* It would be exceptionally rare for data to be lost during an interaction with a word-processor. The normal backup procedures that would be instituted at a local authority would cope with data loss at a system level and the use of an autosave facility at the word-processor level would also solve this problem. This would hold for a local or for a central solution.
- *Inability to use outside office.* Either a local or central solution would allow working outside the office. The central solution would require a connection to be established using the internet. There are security ramifications associated with use outside an office that would need to be addressed,
- *Unwieldy form design.* This is described as problems with viewing, printing and inputting. Printing would use the normal print facilities of *Word*, viewing would be the same.

- *Non-intelligent functionality.* It is not clear what this term means. If it means that ICS implemented functions that are not relevant to the work of the social worker then a word-processor solution would enable the user to easily ignore them.
- *Issues around undo.* An undo is an action that undoes a previous action, for example cancelling the insertion of text at a certain point. *Word* has an effective undo function that allows you to easily rescind one or more sequential actions.
- *Issues around autosave.* Modern word-processor programs have an autosave function which automatically saves the data or document that is currently being worked on. If an interaction between a user and a system is interrupted, for example by a hardware problem, the data or document can be retrieved from the state it was previously in when the last autosave was started. All word processors, including *Word*, have such a function.
- *Number of clicks to achieve task.* Using a word-processor would minimize the number of clicks, in that a task, such as creating a core assessment, would mainly involve the sequential insertion of text into a word-processed document. There would be no requirement to click buttons, open up new windows or close windows.
- *Inability to have multiple windows open all the time.* A word-processor such as *MS Word* is capable of keeping a number of windows open at the same time.
- *Problems with workflow.* Because ICS is configured around a number of windows, the user is forced into a rigid workflow. This problems all but disappears when a single word-processed file is used.
- *System generated messages.* Users have complained that these are too numerous and that they clutter up in-boxes. A word-processed solution would be capable of generating these messages, but it would be a technical solution, not a solution to the timing constraints that ICS is based on.
- *Screen design.* There are few details on this weakness in ICS. All that can be said about a word-processed document is that such screens can be changed very much more quickly than with conventional software technologies in response to user feedback.
- *Problems with multiple records.* This is related to other issues detailed here: *Too much data*, *Atomisation of data* and *Number of clicks to achieve a task*.
- *Form design issues.* This is related to the *Screen design* issues above.
- *Issues with process design.* This is related to *Problems with workflow*.
- *Issues with guidance.* Users do not understand the guidance accompanying the forms. A word-processor solution would not help here.
- *Too much data.* There are two aspects to this: the ‘data’ that is associated with unstructured text normally associated with chronicling and the data associated with management reporting and statutory requirement reporting. For the latter category a word-processor such as *Word* would not solve this problem: data is required for activities such as case reviews, internal audits, external audits, statutory returns and inspections. Whether ICS processes and generates too much management data is an issue outside a technical solution. For the ‘data’ associated with chronicling a

word-processor eliminates the duplication that occurs within the industrialised ICS system.

- *Atomisation of data.* Because data is segmented across forms in ICS it is fragmented. A single word-processed document would overcome this problem.
- *Difficult to share outputs.* Word-processed documents are easily printed, can be placed on a web site, and even downloaded to personal digital assistants, such as the *iPhone* or to an e-Reader. Furthermore, word-processed documents can be easily viewed concurrently by a number of users.
- *Inability to change easily.* Systems using industrial software technology such as ICS are difficult to modify. For example, there has been an increase in system change costs from 50% in 1982 to over 90% of the original cost of a system in the nineties (Erlikh, 2000; Lientz and Swanson, 2002). The format of a word-processed document is much easier to change.
- *Poor system design.* In the document *ICS Guidance Note: Improving the Usability of ICS systems*. This is described as having to go to multiple places to see the whole picture. A single, word-processed document that contains all the interactions with agencies, the child in need, and others, would not suffer from this problem.
- *Non standard way of working for a social worker.* It is a general principle of usability that a computer system should be presented to a user in such a way that they are able, as much as possible, to use the skills gained through their experience of other systems. ICS was novel to many social workers as it represented a heavy-duty, forms-based, industrial interface based on multiple windows. A word-processor and the attendant operations that would be required, such as, scroll to another position, cut and paste and close down, would be familiar to anyone who had used office software.

It is worth pointing out that the remedy suggested here still requires IT development. It would be foolhardy and irresponsible to suggest that social workers should simply be given the latest version of *MS Word* and then told to get on with it. Development would involve the creation of *Word* templates that describe form documentation, such as the outcome from an s47 inquiry, the notification of an adult who could threaten a front-line worker and the initial assessment record.

It would also require the development of text processing programs that accessed the stored text of a *Word* document to produce reports, summaries and reminders. However, the development would be considerably smaller than that required for previous versions of ICS. As an example, one of the authors developed a template for the initial assessment in 2 hours and program code that produced summary results from it in 5 hours. The author in question is an infrequent programmer; a professional programmer would probably spend far less time.

A prototype system that can act as a model for a replacement for an ICS-compliant system has been developed by one of the authors. Such a system has been estimated as costing something approaching £50k. This is much smaller than the typical cost of a current ICS system, which has ranged from £300k to £750k.

Technical Problems and Practice Issues

What the ICS systems represents are not only a *technical* view of a human-centred process, but also a concrete and expensive (£30m+) memorial to a breakdown in communication between government and the social work profession of the sort eloquently articulated in O'Neill (2002). An example of this is the fact that a problem detailed in the *ICS Guidance Note: Improving the Usability of ICS systems* is that there were too many messages (reminders, deadlines, prompts) informing social workers that deadlines were being missed - which clutter up the in-boxes of social workers. An interesting footnote is that in evidence to the Victoria Climbié inquiry, the chairman of the Audit Commission complained that social workers were sticking too rigidly to timetables so that case conferences were being held prematurely, with a consequent damage to the quality of the assessment and decision making (Munro, 2005).

More recently research on sexual abuse and therapeutic services in Northern Ireland came to similar conclusions in that it provided evidence to suggest that therapeutic work was being undermined by undue emphasis on timetables (Bunting *et al*, 2010) p32.

Another example is that in the context of services for deaf children and their families that implementation of ICS has mitigated against a more preventative approach (Young *et al*, 2010).

The problems with ICS *could* be seen as a collection of technical issues, whereas it is really a symptom of lack of government trust leading to requirements inflexibility and then technical inflexibility. Instead of relying on guidance on best practice about priorities and timescales being implemented in local authorities, the DCSF has enshrined rigid timings in the ICS, and then mandated program codes to carry out a form of technological nagging.

While the recommended technical solution to a number of problems with the ICS should ensure that many of the identified problems with the system are reduced, it does nothing to address the root causes of its development: the view that social work can be industrialized, and that the problems that were graphically highlighted by the Victoria Climbié and Baby P tragedies can be solved simply by statistical reporting and local micro-management. It does, however, provide a much more flexible platform if change occurs, ranging from minor change such as modifications in statutory reporting to major change, involving a considerable easing of the straitjacket that current ICS implementations places on social workers and their managers.

It is also worth pointing out that configuring a social services system around a set of core documents—some of which can be modified for local circumstances—and using these documents in the light-touch set of management processes that are normally extant in a well-organised, competently managed children's department, would reflect the fact that social work is a profession and, at the same time, provide much needed computer support. Social workers are not just routine professionals who carry out the tasks they are asked to do but are, rather, reflective practitioners who perform their job by innovating. From that perspective, as Lymbery and Postle (2007) properly point out, any apparent reluctance of social workers to engage too optimistically with technology in daily practice can be seen as healthy resistance.

Generality and ICS

ICS is an example of a chronicling system. Such systems can be deployed in a number of areas. For example, they are capable of being used by social workers who are responsible for the well-being of the elderly and infirm, by probation officers and others responsible

for offenders, by workers responsible for the physical and mental health of individuals in the community, and by teachers exercising both an academic and pastoral role.

What all of these workers share is that their work is a mix of narrative forming and information reporting, with the former being dominant. The failure of the IT system associated with ICS is a warning to those who wish to develop support systems which combine both narrative formation and management reporting; that is, that a heavy-duty approach involving commercial software such as relational database management systems, while adequately addressing management reporting, virtually eliminates narrative formation.

A second general point is that because industrial system tools have failed in the case of ICS, there should not be a collective dismissal of the use of IT for support in children's social work and other areas where chronicling is a facet of work. We describe a solution that balances out both narrative formation and reporting, in that forms are embedded within a single word processed document—a solution that can be employed generally.

Moreover, we describe a solution that can be moulded to individual circumstances in that while many templates will be generic, for example a template for an initial referral, a children's department can develop further templates that would be specific to their organisational structure and the community they serve.

Our approach is general and not just confined to children's social work. The same approach can be deployed in many other areas where reporting and chronicling co-exist and where, hopefully, the mistakes made with ICS would not occur.

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