

Barriers to the effective use of Web technologies by community sector organisations

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Abstract: Worldwide, considerable attention and research has been directed by governments to the relationship between the non-profit sector and community building, and to the role of ICT in that relationship. Many see this in terms of the non-profit sector having a role in reducing the digital divide to the benefit of marginalised and disadvantaged members of the community and in contributing to the creation of a more inclusive information society (O'Donnell 2001, Athena Alliance 2002, Craig et al 2003). However, if the sector is to make a positive contribution towards the achievement of these goals, it must itself be in a position to use ICT effectively, and to realise the potential benefits available to both the organisations themselves and to their audience.

As part of some work undertaken on behalf of the Roundtable on Australian Civil Society (RACS) the Centre for Community Networking Research (CCNR) at Monash University developed the LIAISE framework, a holistic approach to modelling the important elements required for the successful implementation of ICT by non-profit organisations (Schauder et al 2005). This paper uses the findings of a study on the implementation of websites by non-profit organisations in Victoria (Australia) and in Tuscany (Italy), to report on those findings, and to evaluate the LIAISE framework itself.

Keywords: Non-profit organisations, Information and communications technology

Introduction

Worldwide, considerable attention and research has been directed by governments to the relationship between the non-profit sector and community building, and to the role of ICT in that relationship. Many see this in terms of the non-profit sector having a role in reducing the digital divide to the benefit of marginalised and disadvantaged members of the community and in contributing to the creation of a more inclusive information society (O'Donnell 2001, Athena Alliance 2002, Craig et al 2003). However, if the sector is to make a positive contribution towards the achievement of these goals, it must itself be in a position to use ICT effectively, and to realise the potential benefits available to both the organisations themselves and to their audience.

The issue is considered important in both Australia and Italy, but the government response varies between the two countries. Influenced by sustained lobbying by the sector itself and participation in the World Summit on the Information Society (WSIS), the Australian Government has been keen to stress the potential for broad improvements in operational outcomes and productivity, including: work process review improvements; the centralisation of client and business information; skills transfer; and the transformation of service delivery (DCITA 2005a, 2005b, 2006). Quite independently, a number of enabling organisations have been established to assist the non-profit sector in its take-up of ICT, including Infoexchange (<http://www.infochange.net.au>) and Community Information Strategies Australia (CISA – <http://www.cisa.asn.au>), and there are a variety of joint initiatives targeted at specific groups, such as the VCOSS/Monash University *Doing IT Better* project (Stillman 2007), and the NCOSS/NSW Government *Better Service Delivery Program* and the NCOSS IT Strategy Project (NCOSS 2007).

The Italian government has a similar belief in the role of the non-profit sector in building social capital and in using the sector to deliver services. Its strategy has been to support and promote the use of ICT through relevant research and education, targeting the modernisation of public administration, particularly in the areas of tourism, education, e-Health, reducing the digital divide, and developing disadvantaged areas such as the South (OECD 2005). Although non-profit organisations are heavily involved in some of these programs as partners in service delivery and can expect to benefit from that involvement, they are not, at the national level at least, the direct target of specific interventions. As in many other areas of public administration in Italy, however, the implementation of national policy tends to be played out at the level of local government and many local administrations have developed community-based networks or civic networks, often as a means of reinvigorating public administration, and of facilitating new forms of communication between local government, business, non-profit associations and the public (Mele & Forghieri 2002, Apuzzo 2003, Berra 2003). Support services are also provided by peak bodies within the sector, such as the Legacoop Toscana (League of cooperatives in Tuscany at <http://www.legacooptoscana.coop>) and ARCI (<http://www.arcifirenze.it>).

Issues of take-up

Unfortunately, there have been surveys and investigations in a number of countries which bear out the fact that, although there has been widespread take-up of ICT by the non-profit sector, effective use has been more difficult to achieve (see, for example, Burt and Taylor (1999), Surman (2001) or Schauder et al (2005)). These have served to identify the factors that limit the ability of non-profit organisations to realise the potential of ICT, which can be summarised as follows:

- Negative attitudes to ICT and limited appreciation of its benefits, particularly by senior management and management boards leading to an inability to incorporate technology into a relevant strategic vision. (Surman 2001, Wyatt 2001, Burt & Taylor 1999)
- Limited access to unbiased professional knowledge to assist strategic and technical planning (Surman 2001, Ticher et al 2002, Schauder et al 2005)
- Lack of resources and a lack of predictability in funding – especially in terms of meeting other organisational priorities (Surman 2001, Wyatt 2001, Barraket 2002, CCNR 2003, Schauder et al 2005)
- Lack of understanding of technology needs, including meaningful support, training and general technical support, and an unwillingness to accept realistic levels of ICT expenditure by many funders including government (Surman, 2001, Ticher et al 2002, Schauder et al 2005).
- Limited internal technology skills and knowledge (Surman, 2001, Barraket 2002, Ticher et al 2002, CCNR 2003)
- Limited availability of technical staff (Surman 2001, Ticher et al 2002)
- Insufficient project management skills and staff capable of providing strong direction, whether the work is undertaken in-house or outsourced (Ticher et al 2002, DCITA 2005b).
- Lack of support and training (Burt & Taylor 1999, Wyatt 2001, Barraket 2002, Ticher et al 2002, Schauder et al 2005)

A model for the sector

Generally speaking, the approach taken by studies into the use of ICT by non-profit sector organisations has been to describe the potential benefits, then the barriers and then to suggest a list of strategies to overcome those specific barriers. However, some reports have placed

more emphasis on seeking to identify common success factors. For example, one discussion paper listed the following success factors:

1. need for a clear business case for each project and need to align ICT to overall strategy and organisational objectives
2. value of strategic partnerships and key stakeholder organisations working collaboratively together
3. ability to connect with the stakeholder community
4. relationship with ICT suppliers and developers
5. need for professional project management (DCITA 2005b)

The work of the Roundtable on Australian Civil Society (RACS), formed to provide input to the WSIS process, took a different approach in that it did not just propose strategies for overcoming specific barriers, it also proposed the LIAISE framework (see Figure 1), developed by the Centre for Community Networking Research (CCNR) at Monash University. The LIAISE framework was an attempt to synthesise the important elements required for the successful implementation of ICT by non-profit organisations and to provide a more holistic approach (Schauder et al 2005).

LIAISE Framework

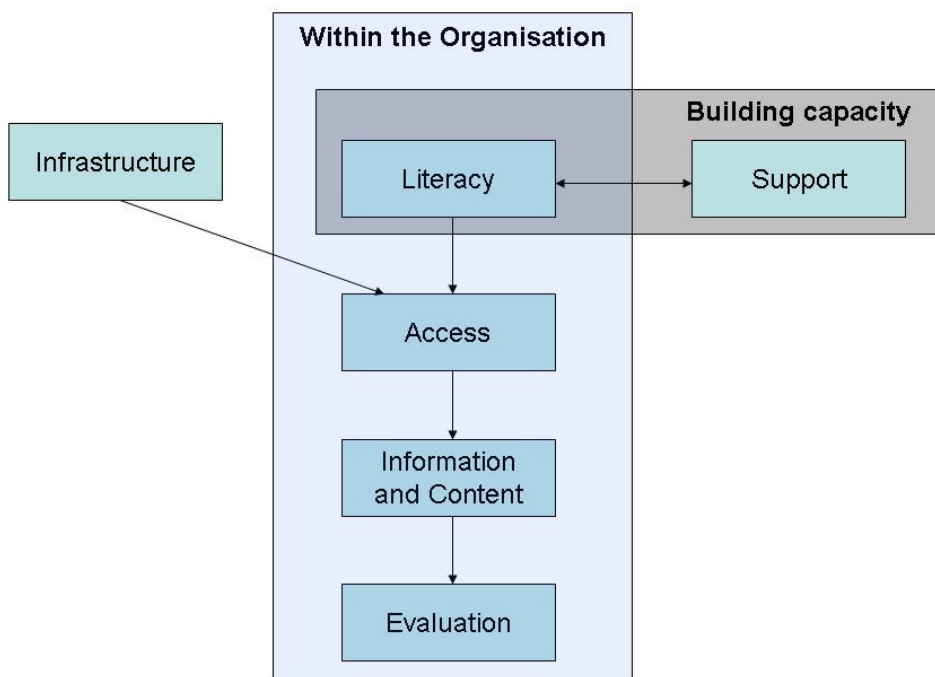


Figure 1. The LIAISE Framework (Source: Johanson et al 2006)

LIAISE	LIAISE description	Barriers identified in surveys
Literacy	Knowing how to access ICT Knowing how to use ICT	Negative attitudes to ICT and limited appreciation of its benefits, particularly by senior management and management boards leading to an inability to incorporate technology into a relevant strategic vision. Limited access to unbiased professional knowledge to assist strategic and technical planning
Information and content	Knowing how to find information using ICT Being able to communicate using ICT Delivering content using ICT	Limited internal technology skills and knowledge. Insufficient project management skills and staff capable of providing strong direction, whether the work is undertaken in-house or outsourced
Access	Having the resources necessary to access ICT effectively	Lack of resources – especially in terms of meeting other organisational priorities
Infrastructure	The infrastructure in place to access ICT	
Support	Technical support services for ICT Knowledge support services for ICT (knowing how to set up, use, and maintain systems), or Contracted support services	Lack of understanding of technology needs, including meaningful support, training and general technical support, and an unwillingness to accept realistic levels of ICT expenditure by many funders including government, often taking the form of short-term funding and an insensitive policy environment, driven by silo interests, Limited availability of technical staff. Lack of support and training
Evaluation	Knowing how to evaluate the success of ICT	

Table 1. The LIAISE framework and barriers to ICT take-up

This paper uses the findings of a study on the implementation of websites by non-profit organisations in Victoria (Australia) and in Tuscany (Italy), to report on the findings of the study, and to evaluate the LIAISE framework itself.

Methodology

The methodology adopted for the study was based on a number of comparative case studies which were analysed using grounded theory techniques based on the constructivist approach proposed by Pidgeon and Henwood (2004) and Charmaz (2006). The initial task of both case study research and the use of grounded theory is to collect rich data as a starting point for the subsequent analysis. This was done by means of interviewing key actors within participating organisations, examining the web sites of those organisations and collecting extant documents produced by or about the organisations being studied. The case studies serve to highlight specific contexts, and to take into account the influence of these contexts, whether they be social, cultural, political, technical or physical. Social network analysis was also used to provide a conceptual framework for the analysis, because it can be used to examine the support networks that provide the ideas and resources - strategic advice, professional and technical support, funding, training etc - that enable community-based organisations to implement and sustain technological applications. The combination of the two techniques was chosen because it facilitates triangulation, thus allowing for a more rigorous analysis.

Nine Victorian organisations and eight Tuscan organisations were included in the study. These represent a cross section of the non-profit sector, showing variation in size, location, and sector of operation. The organisations were approached to participate, with a request that interviewees be qualified to discuss the aims, history and issues associated with their use of ICT in general, and their implementation of Internet technologies in particular. Some twenty-four people were interviewed, eleven in Victoria and thirteen in Tuscany.

Information was collected in three broad areas: basic demographic and organisational data; existing use of computing, and network relationships. The data collected relating to the use of automation included: a brief history of automation and its role within the organisation, a description of significant ICT projects or applications; and more detailed information relating to the development of websites, for example, data describing objectives, sources of technical and strategic advice; benefits/outcomes; and factors affecting sustainability.

After the data was collected, in keeping with the grounded theory method, it was used to identify and define emerging concepts which, in turn, were mapped onto the LIAISE framework. This served to add detail to the concepts expressed within the framework, to tease out some of the implications to an extent not achieved in the original framing, and to highlight specific issues that were not adequately dealt with by the framework.

Findings

1. Literacy

In the LIAISE model, **literacy** refers to a knowledge of how to access ICT and how to use ICT. Within an organisation, this could also be expressed as having an understanding of the capabilities of ICT and possessing the skills to realise those capabilities.

Key findings

- Almost all organisations had access to staff or volunteers skilled in using a variety of office software and the use of the Internet. Several had access to people with desktop publishing skills, but only a small number had access to well-developed technical IT skills.
- Few organisations had adequate or regular training programs, and most expected staff to pick up skills on the job. Fewer still seemed to be aware that training in ICT skills was an ongoing process. A lack of resources was the most frequently cited problem with regard to the provision of training, but the low priority assigned to the provision of training was usually a reflection of overall priorities.
- The ability and understanding of members of boards and management committees is important because of their role in evaluating performance and influencing priorities and future directions. A number of organisations expressed frustration at the lack of knowledge about ICT possessed by some board members, because their lack of knowledge had negatively affected the development of strategy and appropriate resource allocation.
- Because of a dependence on a limited number of people, staff, and to some extent, board member turnover has real potential to disrupt non-profit organisations, and the potential risk thus posed often limits the range and function of technology implemented.
- Project management skills are clearly important. At a minimum, the most successful projects had not only made a decision to identify a single point of management so that all efforts could be co-ordinated, but also provided the person responsible with the authority and the resources necessary to carry out their duties.
- Many organisations had decided to limit the functionality or the content of their websites, because of: a lack of resources to manage the additional features and keep them up to date; or a belief that their users could not effectively use the additional features. This can be an appropriate strategy if the website has limited aims and serves a clear purpose for the organisation, but restricting the functionality of the organisation's website can be problematic if the organisation has more ambitious plans for using ICT.
- Some interviewees reported that, although their organisations had access to external sources of advice, they were not sure that they had managed to obtain the best information possible. Such fears impact on the ability to plan strategically because staff do not know when they have all the relevant information, and this is of particular concern when the proposed technologies need to interface with existing applications.

Although the organisations investigated in this study had mostly managed to establish websites that met at least some of their needs, a lack of access to external sources of advice was generally acknowledged as a constraining factor. The problem for small organisations in regional areas is that such strategic advice often comes from the same businesses or organisations that provide technical support. Getting independent advice or, in extreme cases, any advice, can be a problem. What is generally available, in both Victoria and Tuscany, are organisations dedicated to helping non-profit organisations in the use of ICT. It is interesting to note that interviewees in Tuscany made constant reference to them as sources of ideas and support, whereas those in Victoria rarely did.

Thus, issues related to **literacy** can be broken down into at least three areas: the technical skills necessary to implement and run a specific application, technology and/or project management skills, and the ability to formulate strategy. It should be noted that each of these may be at least partially addressed by outsourcing, but that outsourcing cannot be properly managed in a absence of internal skills.

2. Information and content

The **information and content** component describes the ability of an organisation to actually enact particular applications of ICT. Some aspects, particularly those related to an inability to harness the skills necessary to implement applications, have also been discussed under **literacy**.

Key Findings

- Organisations had concerns about their ability to make interactive discussion groups work and the ways in which that would reflect on their sites and organisations. These concerns were often sufficient to stop them from even trying to implement such features.
- Despite the technical ease of creating discussion groups and forums, and some notable successes, it is clear that there remain some difficulties in using such features to engage users, in terms of both the nature of the communications style and the resources required to maintain/manage that communication.
- Only two organisations had attempted to implement some form of shared creation information resource. In general, both organisations were successful, but commented that there were some difficulties in convincing external parties to contribute on a consistent basis. Where features or shared resources are dependent on the active contribution of people external to the organisation, for example, the staff of member organisations, those people also need to be trained and must share an awareness of the importance of the task and business priorities.
- Few of the organisations investigated had implemented any e-commerce functionality, with most being hesitant because of concerns relating to perceptions of technical difficulty, the ability of the organisation to accommodate e-commerce within existing practice, and the attitude and behaviour of users.
- Many organisations had difficulty in the effective presentation of their content as the degree of functionality or the volume of information grew, because of inadequate information management and design skills. These problems usually did not appear when their website was first created, but typically arose as the volume of content increased or as organisations sought to add new features, leading to problems with the original design.

The most common problems in relation to managing information arose from an inability to manage the presentation of large amounts of information while still presenting a clear and easily understood interface. Quite apart from the issue of having the technical skills to develop **information and content** for their websites, it is clear that the organisations investigated also face a number of broader challenges which relate to the presentation of functionality and content in a manner that is effective for their users. In part, those challenges derive from the new online environment, where norms of behaviour and practice have not yet been universally absorbed and those involving some sort of interactivity with an audience outside of the direct control of the organisation. While most organisations stated that their websites were established to facilitate communications, the Italian organisations placed a particularly heavy emphasis on this aspect and, in general, had been much more successful at it.

3. Access

In terms of the LIAISE model, **access** refers to having access to the resources necessary to implement ICT applications.

Key Findings

- The three most commonly cited resources are funding, staff and time. While the availability of such resources is an enabling factor for the implementation of ICT, non-profit organisations often consider themselves resource poor, and so talk about them in terms of their absence rather than their presence, in terms of constraints rather than enablers.
- Several interviewees mentioned bidding for government contracts or applying for special-purpose grants in the hope that could obtain side benefits in terms of resources or additional capacity. Although this type of one-off, short term funding can be effective, there can be risks in supplementing resources and managing what are essentially ongoing administrative operations using short term contracts or special government funding because, depending on how those resources are applied, they can lead to problems of sustainability.
- In some circumstances, for example where online donations can be solicited or subscriptions facilitated by placing them online, ICT can be used to increase the resource base.
- Many organisations attempt to make the existing resource base more productive by automating suitable tasks such as staff management. Other activities in this regard relate to the sharing of ideas, the promotion of collaborative activities and lead to efficiencies through the shared use of resources.
- Time was generally described as a separate resource that is lacking, but this was usually shorthand for a more specific problem, such as a lack of staff resources. Where websites have a definite role, finding time to manage them does not seem to be an issue. Rather, it is the organisations that haven't been able to identify a specific mission for their website, and have consequently assigned it a low priority, that report this as a problem.
- Using volunteers was often seen as a way of increasing available staff time (or human resources) but in many cases they also represented a cost, as volunteer schemes were not always directly attuned to need and volunteers did not necessarily have appropriate skills.
- A lack of suitable skills within a region, although an infrastructure problem in terms of the LIAISE model, can place pressure on the resource base by increasing the cost of acquiring those skills.

Despite the fact that most organisations considered that the use of ICT brings with it considerable potential for the improved exploitation of their resource base, the most commonly-held view was that of ICT as a cost to the organisation. There appears to be an inbuilt tension in distributing funds between mission-related and administrative tasks. These tensions show up particularly in relation to the use of resources for administrative tasks, for example those related to technology, the result of which is that many organisations are reluctant to commit scarce resources to ICT. However, if organisations neglect the funding of core administrative tasks because they are trying to direct all of their income to campaigns and directly mission-related tasks, then they will suffer in terms of sustainability. It is a question of balance – if the organisation is not sustainable, it cannot achieve its mission.

4. Infrastructure

Infrastructure refers to the preconditions, such as access to reliable broadband and access to knowledgeable local suppliers, which are external to an organisation, but necessary for the successful implementation of ICT. **Infrastructure** can also refer to the capabilities of the

intended audience. This could perhaps best be described as user literacy and is strongly connected to the concepts of the digital divide and 'effective use' of ICT.

Key Findings

- Access to reliable broadband services in rural and regional areas of both countries is a limiting factor in the development of online services, but appears to be diminishing in importance.
- The limited availability of bandwidth can act as a significant restraint not just because of the technical problems in connecting to the Internet, but also because the poor quality of access can act to limit the development of computing skills and the understanding of the potential of such services. Such access problems affected both member organisations and the general public, and impacted on the design of websites because they impacted on perceptions of what would be useful from the perspective of its users.
- Most organisations had ready access to local hardware and software suppliers, with few concerns in relation to acquiring equipment and basic software. However, issues related to the quality of support available were mentioned occasionally. For example, some interviewees commented that local IT firms often lacked sophisticated skills.
- Problems associated with specific groups of users were also mentioned by a number of organisations. Although many users are comfortable with technology, many struggle, including some migrant groups, the disabled, and people from socially or economically disadvantaged groups. On the other hand, experienced or enthusiastic users can be seen as a driving force which may lead to the implementation of more advanced features.
- What emerged from the interviews is that, when there is a clear primary audience contained in a restricted geographic area, traditional media strategies are generally the most effective for disseminating information and providing publicity. The Internet is more effective when the audience is more geographically dispersed, and when the currency of the information is important or there is recognised value in other interactive features.

In summary, interviewees in both countries suggested that there was a distinct lack of skills in the communities they served that acted as a barrier to the development of more advanced online services. This is no doubt true for organisations in urban areas as well, but the digital divide is stronger in rural and regional areas and so a lack of skills potentially has a stronger impact in those areas. In such a context, it is clear that the development of website needs to be seen as a complex, ongoing process, not just a one-off implementation, in which the functionality of the website can grow with the capabilities of the intended audience. It is a process which needs to be carefully managed, so as to provide services that, while recognising the limitations of the users' environment, leads to an improvement in that environment, and so to improved outcomes for the organisation and its members alike.

5. Support

The availability of **support** is necessary for the ongoing functioning of all but the most basic ICT applications. In the LIAISE framework, **support** covers anything from the provision of basic hardware maintenance to the maintenance and updating of operational software and websites. It could also include major software / website redesign, and the development of ICT strategies. Although to some extent these issues have already been considered as part of **literacy**, there is no hard and fast boundary.

Key Findings

- All of the organisations investigated had outsourced at least some aspects of their hardware and software support. Organisations that maintained a close relationship with their suppliers had fewer problems in maintaining their websites. Organisations which had a specific maintenance contract were much more likely to be satisfied with their support arrangements and be capable of providing effective, continuous services.
- The use of sole traders can be problematic because it forces reliance on a single person who may become unavailable for any number of reasons. The approach of one organisation, to insist on complete site documentation not only insures it against that risk but also allows it to move to a more responsive or appropriate company should that prove desirable.
- Several of the organisations investigated had implemented Content Management Systems (CMSs). Using a CMS can provide significant advantages for organisations with a limited skill base, because the separation of content and design elements and their use of standardised templates removes the need for technical skills on a day-to-day basis. However, it was found that the use of a CMS did not eliminate the need for access to technical skills completely because, as websites grew, they often had to be redesigned to maintain easy access to their content.
- The most intractable problems occurred in relation to areas in which multiple suppliers needed to interact to deliver a particular service. Frustration with the technological interfaces between suppliers was mentioned by a number of interviewees.
- There are numerous organisations in both Australia and Italy which provide ICT support services to non-profit organisations. It is interesting to note that those in Italy made constant reference to such organisations as sources of ideas and support, and that the Italian organisations investigated, in general, were more likely to keep their websites up-to-date, and so were more likely to project a positive image through those websites.

What makes for good support? Three characteristics were commonly identified as being important when dealing with suppliers: cost, trust and experience. These characteristics could be manifested in a variety of ways, but it was important that the organisation providing support was responsive to need and had staff with the appropriate skills. One other consideration emerged as important. Many organisations expressed a preference for using local suppliers, in part because it was assumed that local suppliers were more likely to possess the first three characteristics, and partly because of a desire to support local business. However, the desire to support local suppliers was quickly bypassed when those local suppliers were found wanting.

6. Evaluation

Evaluation refers, quite simply, to having the ability to evaluate the success, or otherwise, of a particular application or service.

Key Findings

- Almost all organisations collected information as to how their websites were being used. Such information took a variety of forms, including usage statistics and requests for further information. Many organisations kept track

of how many users visit the site, and what is popular with them and what is not, and this influenced decisions they made about their sites.

- User feedback, in a variety of forms, was taken to be a guide to whether a website was meeting its aims, however, most interviewees noted that direct feedback tends to be minimal.
- In evaluating what had been achieved, most interviewees talked in terms of the website meeting organisational goals and user needs. Most organisations look for broader benefits that could be attributed to the use of its Web service, for example productivity improvements, or improved services to members or the public, however, this did not result in organisations conducting formal evaluations.
- The website's cost to the organisation was considered important in evaluating its performance. This does not just mean the cost of setting it up in the first place, although that was commented on by a small number of those interviewed. Most often, it reflected the cost in resources in achieving an effective, ongoing presence. That is, a website might achieve ongoing benefits for the organisation, such as a higher profile for the organisation or increased membership, but it could not be considered a success unless it placed more than minimal strain on organisational resources.
- In connection with the idea that the website must reflect positively on the organisation, the sense that it was important for a website to be up-to-date, or to be seen as being up-to-date, came through strongly in every interview in both countries. Whether the organisation managed to achieve this or not seemed to have a significant impact on satisfaction levels.

Responses that relate to the issue of evaluation can be organised around two broad themes. The first relates to the success of the site – typically evidence of usage, engagement of the intended audience and some positive outcomes. The second theme relates to the ability to manage the site, for example, the ability to keep it up-to-date, or the ability to present certain information and/or features in a coherent manner, without creating a strain on the organisations resources.

Conclusion

The general theme of this paper has been to explore the ways in which the effective use of ICT can contribute directly to the benefit of organisations, their members and their broader constituency. More specifically, it has attempted to evaluate the suitability of the LIAISE framework.

In analysing the data collected, it appeared that the LIAISE framework did indeed provide a good fit in describing the issues from the viewpoint of the organisations, and to a significant degree it provides a validation of that approach. There may be three exceptions to this however, all of which can be included in existing elements, but all of which are to some extent masked by them:

- Little emphasis is placed on the role of an organisation's goals in implementing a particular technology. In this context, goals are not just targets to be achieved: the clarity with which they are conceptualised and articulated can have an important impact on the organisation's ability to achieve those goals. This is particularly true where sophisticated technological applications are involved.
- The framework does not explicitly provide for the identification of user needs and capacity, the ability to analyse and match those needs, and to provide leadership in building user capacity.
- The framework does not explicitly refer to the importance of information and support networks, but includes these as elements of other categories.

What has emerged from this analysis is that ICT, except for the most simple applications, is not something that can currently be packaged and bought 'off the shelf'. The most successful organisations in terms of using ICT are those that have invested the necessary resources in planning and sustaining their use of it. ICT is complex. If it is worth implementing, it needs to be well thought through, to be recognised as important to mission and properly resourced. Doing it on the cheap not only means it won't be used effectively but runs the risk that it will represent an additional cost to the organisation.

Acknowledgement

This paper is based on research supported by the Australian Research Council.

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