

The role of the central IT Services organisation in a Web 2.0 world

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1. EXECUTIVE SUMMARY

What is a 'Modern IT Working Environment'? What does it mean for the individual and the organisation? In a world that's changing much faster than Universities, what should we be considering to help prioritise resources and effort in realising the Modern IT Working Environment? A conceptual framework has been developed and successfully employed to help frame discussion of these issues amongst University staff.

The challenge presented was how to communicate the notion of a 'Modern IT Working Environment' in a simple and consistent way to all areas and levels of an organisation (the University), in such a way that it represents current and future strategic drivers and at the same time show the practical everyday needs of the individual. A conceptual framework was developed and successfully employed in a variety of organisations to facilitate communication and discussion on these issues. It places in context the evolving nature of internal and external services and how they impact on 'chore' and 'core' work tasks of the individual. It also provides a simple illustration of the factors that senior managers need to consider when planning and prioritising institutional resource, for example with regard to technology procurement/development versus training/education, in order to meet the service requirements of individual staff and students.

1.1. Background

Cardiff University has embarked on a major programme of change spearheaded by a significant investment in technology. Technology is viewed as a fundamental enabler for business change, but its value and role with respect to other University services has tended to be less well appreciated. Many staff and students throughout the institution had acquired a false impression of the programme as being technology driven, rather than strategically driven in response to business requirements. So the framework was developed to address this confusion and promote discussion around the existing and future challenges staff and students were facing, and also portray the vision and the strategic alignment of the programme at an organisational level.

1.2. Conclusions

The framework and associated presentation has been found to be relevant and useful to many different types of audiences internal to the University as well as to external business organisations it has been presented to. From a senior manager's point-of-view it helps clarify the range of influences impacting on strategy as well as the action plans that need to be developed. Individual staff and students gain a better appreciation of what constitutes their working environment and consequently the nature of their requirement for internal and external services.

2. ARE WE READY? WEB2.0, SOCIAL NETWORKING AND THE UNIVERSITY

The Google Generation, those who have been born into the Internet age, are arriving at university and college with particular expectations of what technology can do for them. They expect immediate, seamless, anytime/anywhere access to a vast range of increasingly personalised information sources and social networking tools. They may also have little idea of the boundaries between the institution and the wider Web because their practice of use does not recognise boundaries, adhere to organisational affiliation or respect traditional norms of ownership.

At the same time there are increasing pressures on universities to operate their businesses more efficiently, cope with greater administrative burdens and compete at an international level in both teaching and research. The clever and intensive use of information and communication technology is widely seen as one way of responding to these new demands.

Cardiff University's senior management recognised that to deliver the kind of transformational change the university required would need the development of a new generation of ICT systems. In tandem with the emerging overall strategic approach for the development of a 'leaner' university, Information Services (known as INSRV at Cardiff) was asked to develop a complementary strategy over the course of 2003 and 2004. This strategy concentrated on three main areas:

- Excellence Today: maintaining excellent day-to-day operations and services
- Creating New Futures: business transformation and change management
- Developing INSRV: consolidating key competencies and handling long-term future developments

The Creating New Futures strand is key in the context of business transformation and has four strategic sub-strands: Library Strategy, Advanced Research Computing, Pathfinding, and the *Modern Working Environment* (MWE).

3. REALISING THE 'MODERN WORKING ENVIRONMENT'

The MWE, personally led by the Vice Chancellor, has seen a massive programme of service-based infrastructure development and is regarded as a key strategic initiative for the development of the university. The primary goals of the MWE are to assist in the overall effort to reduce waste, free up time for academic researchers, improve day-to-day processes and reduce manual administration. The extended vision is for paperless office systems and the introduction of electronic workflow across the university—hiding the complexity of the back-office systems. From the outset, technology has been viewed as a fundamental enabler of business change, however, its value and role with respect to other university services has been less well understood and appreciated.

A major driver in the development of the MWE, has been the rapidly changing expectations of the users of information services. As the digitally native, socially networked students of the Google generation entered the university system, the Cardiff senior management team wanted to be able to fulfil the requirements that they felt students would have in terms of the way technology and information access should operate. We presented ourselves with a significant communications challenge in trying to raise awareness and explain the broad sweeping implications of the programme. The key issues were:

- What does a 'Modern Working Environment' mean for the individual and the organisation?
- In a world changing faster than universities, what factors need to be considered to help prioritise the allocation of resources and effort?

In response to these questions, a conceptual framework and visual model was developed and then successfully employed to communicate the notion of a 'Modern Working Environment' in a simple and consistent way; it was then used to help promote discussion across all structures within the university. The aim was to bring about a common understanding of what was being undertaken and why, and to enable staff and students to see themselves in relation to what the university provided for them as an organisation.

There was an awareness that staff and students might view the programme as being something solely about technology rather than as a strategically driven initiative in response to business requirements. The framework and model was used to ground the programme and promote discussion around the existing and future challenges staff and students were facing. It also helped portray the vision and strategic alignment of the programme for senior management.

4. THE MWE FRAMEWORK AND MODEL

There was a need to provide a 'big picture' overview of the MWE to better communicate its scope and relevance to different stakeholders. It was important that we were able to explain the significance of the external drivers for change, in such a way that it was possible to represent current and future strategic drivers and incorporate the practical everyday work and resulting requirements of the individual.

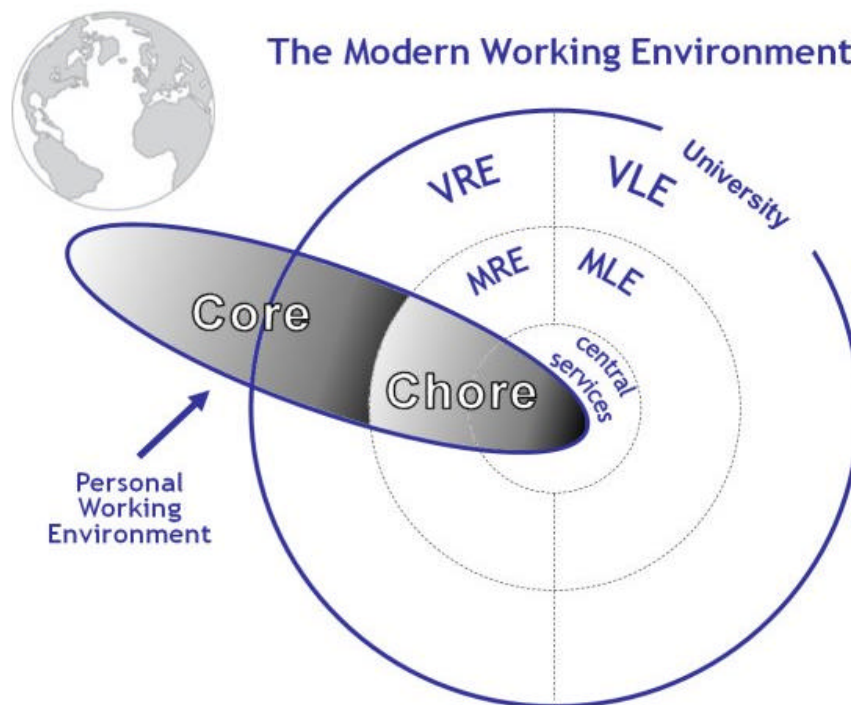


Figure 1. This diagram shows the components of the model used to represent the Modern Working Environment. It consists of Central Services, the Managed Research Environment (MRE), the Managed Learning Environment (MLE), the Virtual Research Environment (VRE) and the Virtual Learning Environment (VLE). These are shown as layered spectrum of university services. The Personal Working Environment (PWE) is illustrated as a layer of 'core' and 'chore' work activities overlapping these services and extending into the external world of third-party services.

4.1. Services

The modern working environment will not be realised through ICT alone. This is an important message for the organisation and internal service providers alike. Staff and students will not necessarily feel empowered to change working practices if all they receive are new tools. Technology adoption must be complimented by the provision other kinds of services:

- Content: data/information presented as rich physical and digital media artefacts
- People: sources of knowledge, expertise and specialist skills/attributes mediating and facilitating learning
- Activities: business processes; work tasks performed on behalf of someone else

It is important that we appreciate the need for an integrated approach to making services available to support work activities. Each kind of service is traditionally sourced from a different department or section within the university, further highlighting the need for good internal communication and governance. This issue becomes even more challenging when it comes to deciding whether and how to facilitate access to external services. Universities are notoriously slow to recognise and adapt to external drivers and opportunities; the more traditional the university – the slower the rate of adoption. Whilst technological advances, in the form of social networking and Web2.0 tools, may be the most obvious artifacts of change, the growth in the amount and delivery method of content, the emergence of people with non-traditional skillsets, and the increasing availability of business process modeling tools, the emergence of service orientated architectural approaches in delivering services, and new ways of modeling and shaping the organisation (enterprise architecture) is happening just as fast.

There is in addition both a threat and an opportunity presented by the increasing availability and versatility of externally sourced content, tools, people and business processes.

4.2. The organisational view

The model shows the organisation as a distinct entity, bounded from the world of third-party services. This was intended; the object was to surface discussion about the significance of external factors and how they might impact on what the organisation provides for its members. Within this bounded space, a layered view of university services is presented. At its centre are the functions concerned with enabling and supporting the institution's primary business processes, such as the mainstay systems concerned with finance, human resources, procurement, infrastructure, estates, etc. Building upon these are collections of services that have traditionally been targeted at specific communities within the University, i.e., learners, teachers and researchers.

From the University's perspective much of the successful working of the organisation depends upon efficient and reliable provisioning of central business processes. Commonly, these are what define the most important functions the 'organisation' performs. They are also the kinds of things all educational and research organisations do. They are the common denominator in terms of University services used by its members. Providing such services as Human Resources, Finance, Estates, Procurement, policies, guidelines, telecommunications, email, file storage, etc. They are the things that most, if not all, members of the organisation are reliant upon either directly or indirectly.

4.3. The MLE and the MRE

The next layer in the model represents University services intended to represent services provision to support administrative and management work activities. The UK's Joint Information and Strategy Committee (JISC) introduced the concept of a Managed Learning Environment (MLE) as something functionally distinct from the Virtual Learning Environment (see references). The Managed Research Environment (MRE) has not attracted the same degree of interest from the research community as the MLE has from educators; it supports the administrative and management work tasks of the researcher. No definitive descriptions exist of what technologies these systems encompass, and there continues to be debate over what kinds of activities they support. However, for the purposes of this model the MLE and MRE are used as a collective label to identify **all** university services supporting administrative and management activities in their respective domains.

4.4. The VLE and the VRE

Like the MLE and MRE, virtual learning environments (VLEs) and virtual research environments (VREs) have been recognised and discussed for some time (see references). Conventionally, these terms have been used to refer to collections of technology related services used by staff and students to help with **core** work activities resulting directly from their primary work role, i.e., performing the kinds of tasks that produced the end products associated with learning, teaching and researching. For the purposes of this model these terms are used to encompass **all** services, not just technology, that might be used to help perform work tasks in each of the respective domains.

In practice, it is often difficult to distinguish between work activities where the purpose is for administrative or management reasons from those that are concerned with the main purpose of the

job role. For the purposes of the model, the terms MLE, MRE, VLE and VRE are used to indicate the work activities that are enabled by different services.

4.5. External services

Beyond the bounded space that represents the closed working environment of the university, is the external world of services provided by third-party businesses, organisations and individuals. More than ever before we are witnessing dramatic growth in the availability and utility of content, tools, people and business processes from sources which are not directly controlled or mediated by the university.

In the past, service providers within the University have performed a **brokering role** where, on behalf of the university, they have assumed responsible for identifying, procuring and managing access to external services. This is no longer the case. The world is now changing much faster than most organisation are capable of handling, and universities and their members are now accessing and consuming services directly and expecting them to work in concert with what is provided internally.

The challenge is to understand how the university can quickly realise the benefits of emerging external services. This requires effective internal communication processes and governance structures to achieve the agility necessary to bring about rapid business and organisational change.

There remains a significant but changing role for university service providers - managing service level agreements and the legal aspects of contractual arrangements with external providers, but perhaps of greatest importance - an educational and steering role.

The aspiration of the MWE programme was to deliver new internal technology solutions. The reality is that many staff and students are already making extensive use of external tools and other services. Most commonly for social and entertainment purposes, but increasingly for work related activities as well. Many large corporations have realised the benefits from the adoption of Web 2.0 tools, in some circumstances they have extended the internet into the organisation by removing restrictive controls on usage, in other cases internal tools have been "ported" into the organisation and barriers left in place. In a University, the concept of barriers and restrictions is not well-received. The service-provider as a gatekeeper and enforcer is rapidly becoming an unacceptable way of working. Increasingly, the service-provider must become a broker, a facilitator, an enabler - knowledgeable of the best external services, working in partnership with the users and able to see how these new services can be consumed within the organisation.

External services may compete with, compliment or replace similar services available internally. Increasingly it's more about being able to leverage completely new capability and opportunity. What has changed dramatically is the ability of individuals and groups 'within' the university to identify and acquire directly external services. This is perhaps most noticeable where technology is concerned, but is the same for content, people and business processes.

4.6. The 'Personal Working Environment'

In the model, the work performed by an individual learner, teacher or researcher is represented as a layer that overlaps the different kinds of services; in effect this is representative of their 'Personal Working Environment' (PWE). Most significantly, it extends beyond the boundary of the university to access and make use of external services. Although, a simple illustration, this is perhaps one of the most powerful messages conveyed to senior members of the university, i.e., the reality is that its members are and will increasingly make use of services provided from external providers. Social networking and Web 2.0 type tools are obvious examples of how these developments are freeing up and empowering how the individual performs their work. No longer are people constrained to using proscribed internal university services. The reality is that members of the university are independently accessing external services.

This is a wake up call for universities and raises many contentious issues concerning the future strategic planning of services, and potentially raises questions about the very nature of the university itself. The world is changing much faster than they are. Advances and availability of new technology will always happen faster on the outside of the university than can be delivered internally; a complete reversal for the central IT Service which often led the outside world in terms

of innovation. This raises significant issues across the whole spectrum of internal service provision within the university concerning how it will manage its business and approach organisational change in an agile and forward-looking way.

Administrative and management (**chore**) tasks are enabled through the use of central services and the MLE or MRE. In comparison, work activities arising from someone's primary (**core**) work role are supported through the use of the VLE or VRE and, most significantly, by accessing services external to the organisation. In practice, work is often a complex interplay between core and chore type activities. A person will want to be able to access and use services from across the complete spectrum as well as anything considered to be of value from third-party providers. Ideally, people want to be able to access services in a seamless fashion regardless of where and when they are available. The model has usefully served to highlight the need for a holistic view and approach within the university to delivering services in order to meet requirements when performing complex work activities.

An example of the need for this approach was revealed when talking to researchers about the process of producing and submitting a grant application. This is a highly involved interplay between core and chore type work activities requiring the use of all kinds of service from both internal and external providers. Discussions with this client group will lead to business processes being reviewed and workflows being then put in place that will ensure involvement for all those who need to engage with the process in a timely and efficient way.

Many traditional universities still have the legacy of distinct organisational structures and fairly rigid communications and governance processes. The complex mix of services presented to the client groups is therefore often the responsibility of separate directorates, departments or sections. Internal service provision can unfortunately be fragmented. This not only makes it difficult to achieve the level of integration and coherence required across internal services, but also the organisational agility necessary to be able to modify and adapt service provision in response to external drivers and opportunities. The model when demonstrated to other service providers draws them into a consideration of how they might also wish to present their service offerings.

The MWE programme has implemented technology solutions that impact across the whole spectrum of services, from hardware infrastructure to central business processes, the development of workflow solutions, the introduction of new communication and collaboration toolsets, the consideration of file storage requirements and also the procurement of replacement Finance and Human Resource systems. It has delivered portal solutions with the objective of delivering bespoke information environments for research, learning and teaching; as well as social networking tools used to facilitate internal communication, content sharing and collaboration within each domain. Virtually no area of internal service provision has been left untouched by the introduction of MWE technologies. However, this has brought into sharp focus that fact that many equivalent solutions and alternative opportunities have emerged outside of the university. A number of challenging questions begin to emerge.

- Does the university continue to provide services similar to those that are available externally, expecting staff and students to choose to use them in preference?
- Do universities even have the necessary resource to keep pace with the rate of development externally?
- Can universities compete in terms of costs and reliability with some externally-hosted services and systems?
- How does the university capitalise on the potential utility of external services yet at the same time manage its business effectively, dealing with security, privacy, identity and intellectual property issues?

The model has also been used to illustrate how teams, groups and communities of people may use services by showing multiple overlapping PWEs. Intersections can be used to reveal common use of services, for example in the use of collaborative workspaces, and file sharing and social bookmarking tools. The message is that not only do we need to consider integrated provision for the individual; we also need to work to understand how internal and external services might be used collectively to facilitate group and team working. This has been identified as a key issue in the context of facilitating interdisciplinary research.

5. BUSINESS AND ORGANISATIONAL CHANGE

Adoption of **core and chore** as terminology in internal discussion is now commonplace. It is of course simplistic but people are now considering the relevance of services for administrative/management tasks separately from the services that they require for their primary work roles. It is beginning to create opportunities where conversations are focused on the direct relevance of services. The intersection of requirements for services is now more easily displayed and the relevance of them is understood. The need for workflows to ease the complexities of working in a highly structured organisation becomes more apparent.

The basic model has been used to illustrate some of the major internal challenges the university faces, such as balancing resource dedicated to procuring, developing and implementing new technologies and related solutions, compared to that directed at communication, training and education to help people change how they work using any and all kinds of service. The argument has been presented that this way of thinking leads to a completely new way of approaching service-provision within an organisation as focus moves away from service-delivery from organisational silos, towards a more holistic look at the content, people and more especially - activities that consumers (staff and students) require.

6. SUMMARY AND CONCLUSIONS

A conceptual framework was developed and has been successfully presented in a variety of organisations to facilitate communication and discussion on the issues generated by massive technological infrastructural change. It places in context the evolving nature of internal and external services and how they impact on 'chore' and 'core' work tasks of the individual. It also provides a simple illustration of the factors that senior managers need to consider when planning and prioritising institutional resource, for example with regard to technology procurement/development versus training/education, in order to meet the service requirements of individual staff and students.

The need to highlight the importance of cultural change has emerged. This presents itself through the need to change attitudes, beliefs and values before there will be sustained behavioural change. People need to understand "why and how" - to instill a sense of purpose and direction - before they will engage with a change programme as large as the MWE. Technology is only one part of the picture. The model can provide a rationale to then explore the cultural change necessary for successful adoption.

The framework of the model has been successfully employed in a wide variety of educational and business settings to facilitate discussion related to strategic planning and prioritisation. Presentations have been well received by representatives of Monash University, Saint Petersburg University, University of British Columbia, IBM Research Laboratories (Ireland) and a major UK retailer - the John Lewis Partnership. In all cases the value of the model is seen to be as a tool in presenting to senior management how IT can be a strategic enabler for the organization.

From the senior manager's point-of-view the range of influences impacting on strategy as well as the action plans that have needed to be developed can be more readily seen. Individual staff and students gain a better appreciation of what constitutes their working environment and consequently the nature of their requirement for internal and external services. It also enables gaps in service provision to be easily identified.

It has proven to be an effective approach for engaging senior management and decision makers with the key issues concerning technology investment and deployment in the University; serving to stimulate debate around the role of IT related services in enabling organisational change. One of the most useful aspects of the framework is the way it manages to co-represent both the individual and the organisation. The service provider often finds it difficult to see how their service is consumed by the user; the user often doesn't have the big picture of how all the individual services fit together as hopefully they should. It therefore provides a stage to open discussion about service orientated architecture with both service owners and users.

Whilst evidence of the value of this framework is circumstantial and anecdotal, feedback has been consistently positive from different divisions within Cardiff University and from other organizations as well. It is clear to us that through this approach complex and abstract concepts have been more

readily understood. However, early feedback revealed that the graphical representations used to communicate the framework did not work for everyone. In response, concrete illustrations and examples, tailored to the particular interests and concerns of the audience, have been incorporated into presentations to help make them more meaningful and relevant. As a result, there has been a noticeable improvement in audience engagement and discussion.

In our experience the approach has proven useful to many different types of audiences within the University. From a senior manager's point-of-view it helps clarify the range of influences impacting on strategy as well as help them develop action plans to address deficiencies. Individual staff and students gain a better appreciation of what constitutes their working environment and consequently the nature of their requirement for internal and external services. The framework has proved most useful in priming discussion of these issues between the senior management team, and also between senior managers and representative user groups.

7. REFERENCES

The MWE, INSRV and Cardiff - presentations and discussion <http://blogs.cf.ac.uk/mwe>

JISC Virtual Research Environments Programme
<http://www.jisc.ac.uk/whatwedo/programmes/vre1.aspx>

(2006) Creating a Managed Learning Environment. JISC infonet: Applied Infokit
<http://www.jiscinfonet.ac.uk/InfoKits/creating-an-mle>

Jos Boys (2002) Building MLE in HE: project review. JISC Review of the 7/99 JISC-funded projects
<http://www.jisc.ac.uk/whatwedo/programmes/buildmlehefe/lifelonglearning/review.aspx>

RePAH: Research Portals in the Arts and Humanities. A user analysis project.
<http://repah.dmu.ac.uk/report>