



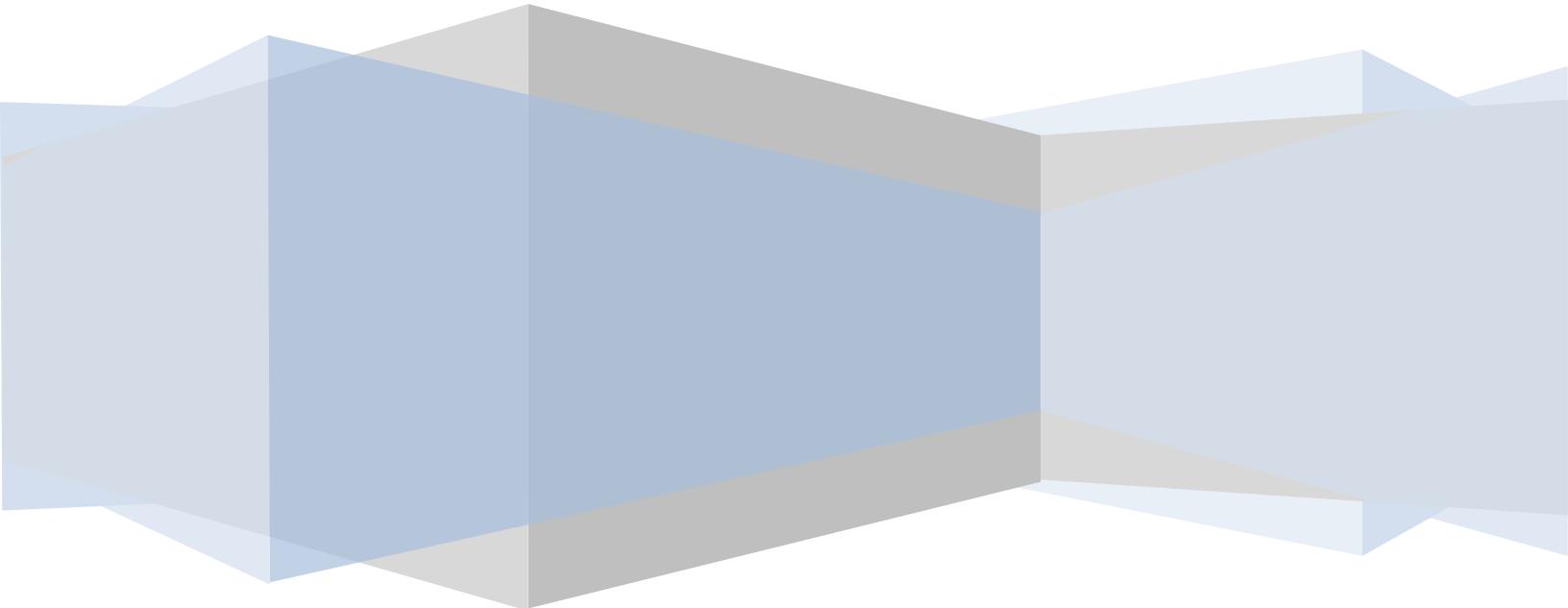
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Strategic ICT Toolkit

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1 Introduction

The Strategic ICT (SICT) Toolkit has been developed by The University of Nottingham to provide a self-analysis toolkit to help Higher Education Institutions (HEIs) to analyse, assess and develop their strategic use of information technologies.

The Joint Information Systems Committee (JISC) and the Leadership Foundation for Higher Education (LFHE) commissioned the SICT project toolkit to support senior decision-makers in developing towards more strategically directed ICT deployment. This project has drawn on the experience, insights and existing practices of a representative sample of 20 HEIs to develop a self-analysis toolkit to stimulate this understanding and support institutional development.

For more information on the background to the project visit the [JISC Strategic ICT Toolkit Website](#)¹

1.1 The importance of institutionally integrated and aligned ICT strategy and activities

The UK Higher Education (HE) sector is experiencing, and will continue to face major challenges as a result of political, socio-economic, demographic and technological pressures. The necessity for institutional leaders and senior management to deliver clear institutional vision and corporate strategy has never been greater. Information and Communications Technology (ICT) continues to be acknowledged as a major factor in organisations realising their aims and objectives and consequently, ICT has an important role in the mobilisation of an institution's strategy.

However, although highly deployed there is growing evidence that ICT does not always add sufficient 'value' to an institution either operationally, or strategically in providing the capacity to realise the changing needs of today's HE institutions (HEIs).

We define the maturity of strategic ICT as a measure of how well ICT is integrated and aligned with the enterprise wide institutional strategy and therefore able to deliver maximum value and agility. An institution's Strategic Plan may require ICT to support the delivery of operational, strategic or transformational objectives.

Strategic ICT is Information and Communications Technology services that are delivered across a University as part of a defined ICT Strategy that is aligned and integrated with the Institutional Strategy.

A mature ICT strategy allows an institution to be more agile in meeting strategic demands within appropriate timeframes.

¹ JISC Strategic ICT Toolkit Web site, [The Strategic ICT Toolkit](#)

Key findings from our research have included:

- organisations that deploy techniques to achieve stronger engagement with the strategic technology agenda are substantially more successful in delivering against their corporate goals²;
- by improving the integration & alignment of strategic ICT to corporate strategy HE institutions will:
 - improve their ability to realise institutional vision & goals
 - provide more agility in response to institutional diversification, growth and development
 - improve student, staff and partner experiences with greater enterprise capability
 - enable greater sharing of knowledge and resources across the enterprise
 - improve communications
 - increase ICT value
 - improve ICT cost control

It is important to recognise that institutions attract a unique profile each having their own market position, strengths, issues and ambitions for the future. We found that there is no single approach to formulation and implementation of strategic ICT in the HE sector.

However, there are elements and practices that we can learn from and use to develop a more mature and effective approach whilst maintaining an institution's unique profile, that will in turn deliver greater ICT value and business benefits.

1.2 Using the Strategic ICT Toolkit

The strategic ICT toolkit is designed to be of relevance and practical use to senior management who are influential in the formulation, implementation and use of strategic ICT. This includes members of the institution's senior management team, all senior decision-makers with local responsibility for the strategic use of ICT within their own faculties, schools, departments or teams and the senior ICT management team.

Today's senior decision-makers understand that ICT is underpinning almost every process in an institution and they recognise that by deploying it correctly they can enhance a wide range of practices across teaching, research and administration. By engaging in the development of strategic ICT senior decision-makers are ensuring that their needs for problem solving and facilitating positive change, through the use of ICT, are recognised and integrated within the institutional strategy. The result is a more mature and effective deployment of ICT across the institution and for senior managers this can increase investment benefits in costs, efficiency and the quality of data and services available.

It is expected that through the use of the toolkit individuals will be able to develop more constructive alliances, to have available improved knowledge and insights into ICT and its

² IT Governance, How Top Performers Manage IT Decisions Rights for Superior Results, Ross & Weill

value to the institution and therefore be better positioned to improve decision making relating to institutional and ICT strategy.

The objective of this SICT toolkit is to consolidate the research and knowledge available and present this in the most useful way in the context that each institution starts from a different position and requires varying information and guidance by which to champion their own journey in maturing their strategic alignment of ICT.

The SICT toolkit is structured to provide flexible access across three key areas illustrated below:

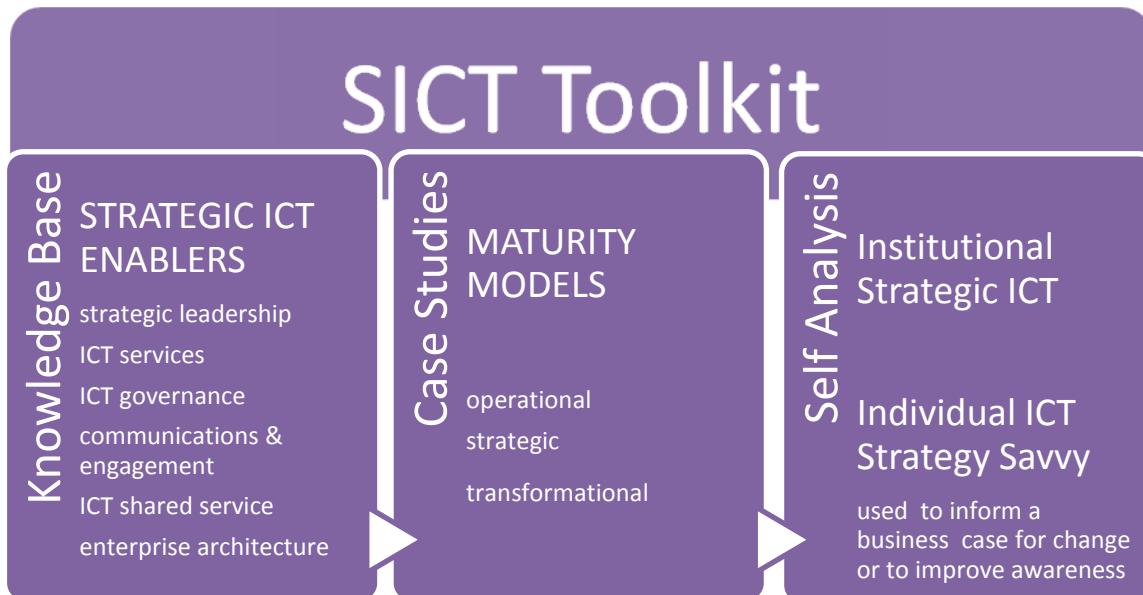


Figure 1 - Strategic ICT Toolkit Structure

- **A knowledge base** of information that provides awareness of the factors that impact and influence an institution's strategic use of ICT and ultimately therefore, the value that is gained from its deployment. We have identified these areas as key 'enablers' of strategic ICT;
- **A set of case studies** drawn from institutions within the HE sector with models of operational, strategic and transformational maturity. They illustrate the different context set by institutions for ICT to provide operational, strategic or transformational support. The University of Nottingham, who completed this project, undertook research, during early 2010, with 20 institutions from across the UK HE sector;
- **Self-analyses** across the two perspectives of **Institutional Maturity** and an individual's disposition to strategic ICT, called '**Individual ICT Strategy Savvy**'.

Institutional strategic ICT self-analysis

The maturity of an institution's strategic ICT is analysed using the key enablers of strategic ICT as identified within the knowledge base. This self-analysis uses a structured method to measure an institution's current maturity and guides the analysis of alternative approaches to maturing strategic ICT. By careful exploration and consideration with management, as appropriate for the scope and objectives an institution chooses to address, the project will be able to inform a business case for changes that will improve strategic ICT.

Individual ICT strategy savvy self-analysis

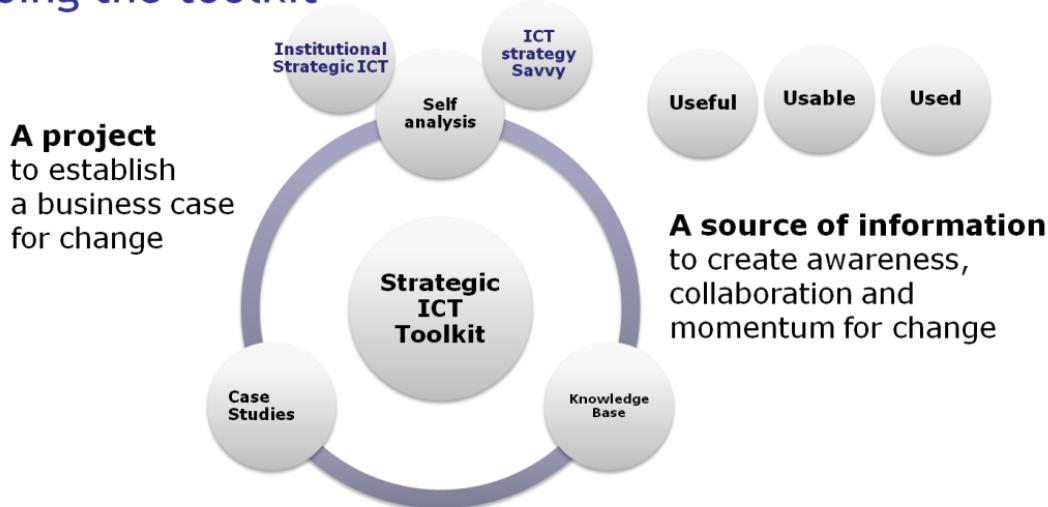
The self-analysis is specific to an individual and uses a questionnaire to assess their disposition to contribute, engage in and undertake activities, within their institutional role, that supports strategic ICT maturity. The questioning technique is used further to identify and develop actions that will generate improvements. It is an optional tool to complement and be considered in addition to an institution's maturity model.

The toolkit is structured to be able to support institutions in a number of different approaches that they may take to investigating and improving their strategic alignment of ICT to institutional strategy. It is not intended to be read end to end nor is it a tool to assess the 'value' or 'quality' of a specific solution or service.

The Toolkit is a strategic resource that seeks to support institutions in exploring and improving their approach to the formulation and implementation of ICT that is aligned to institutional strategy. It questions, analyses and provides a knowledge base of information and good practice. It can

- be used in a structured, managed project for the institution, or part thereof, for which there is an institutional strategy to improve ICT strategy alignment
- or to analyse an individual's ICT strategy savvy
- or as a source of information to improve awareness.

Using the toolkit



2 Knowledge Base - Making Strategic ICT work for your Institution

The UK HE sector is a mature public sector that operates from a background of great history and tradition that is embraced within its governance and management.

The use of ICT is widely accepted as essential and a significant factor in the strategic development of today's HE institutions. Its deployment across an institution's teaching and learning, research and professional services is complex and attracts major capital investment and operational budgets. With ICT embedded across an institution the need to align and integrate ICT strategy with institutional strategies becomes of immense importance.

Figure 2 represents a generic map of Institutional strategies and their relationship with ICT strategy. In practice, these strategies normally exist in their own right although some institutions favour including ICT as inherent within individual strategies.

Information and Communications Technology (ICT) is the term now widely used to cover all the computing and telecommunications in an institution, whether used for research, teaching and learning or administration.

[The Leadership Foundation for Higher Education](#)

For more information on our definition of ICT visit the Glossary section.

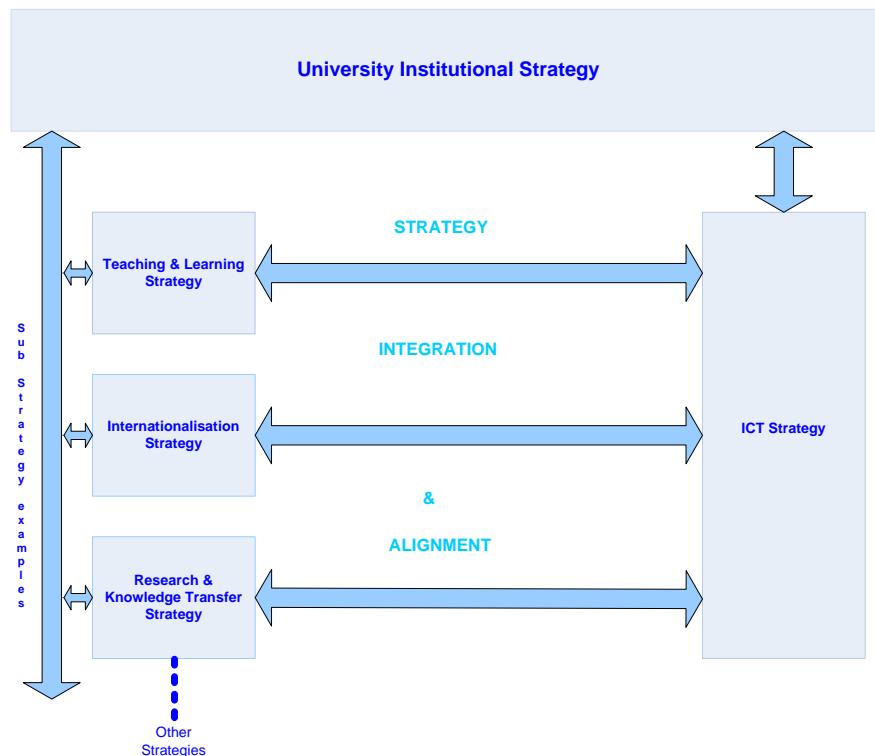


Figure 2 - The alignment of ICT and other institutional strategies

Our research interviews and field tests confirmed institutions' commitment to ICT as a key asset and its governance and management but highlighted the need for improved governance to meet the complex organisation and management structures of HEIs.

2.1 The process of ICT strategy formulation in HEIs

Our research confirmed that strategy formulation is often top down with the Vice-Chancellor or equivalent identifying the vision and ethos that is then enriched by the institution's senior management team creating the draft strategy.

From this impetus the institution strategies are developed, this may include an ICT strategy. It is in this area that the heterogeneity and characteristics of institutions attract different approaches.

Given that ICT is embedded across an institutional enterprise we sought to define the processes and the current practices for ICT strategy formulation and implementation and their relationship to institutional strategies. The SICT toolkit draws on the project research into strategy formulation and implementation in HEIs, as well as international research and the substantive information previously gathered in the Duke and Jordan² studies completed on behalf of the JISC and LFHE. This information focuses on institutional awareness, current practice, recognised good practice in ICT strategy and the issues arising in its integration with institutional strategies.

Our findings are presented using two generic models to illustrate the integrated or disjoint ICT strategy formulation practices in relation to corporate strategy. These are adapted from Duke & Jordan's models and illustrated below. We refer to these models of strategy development as either the integrated or the disjoint model.

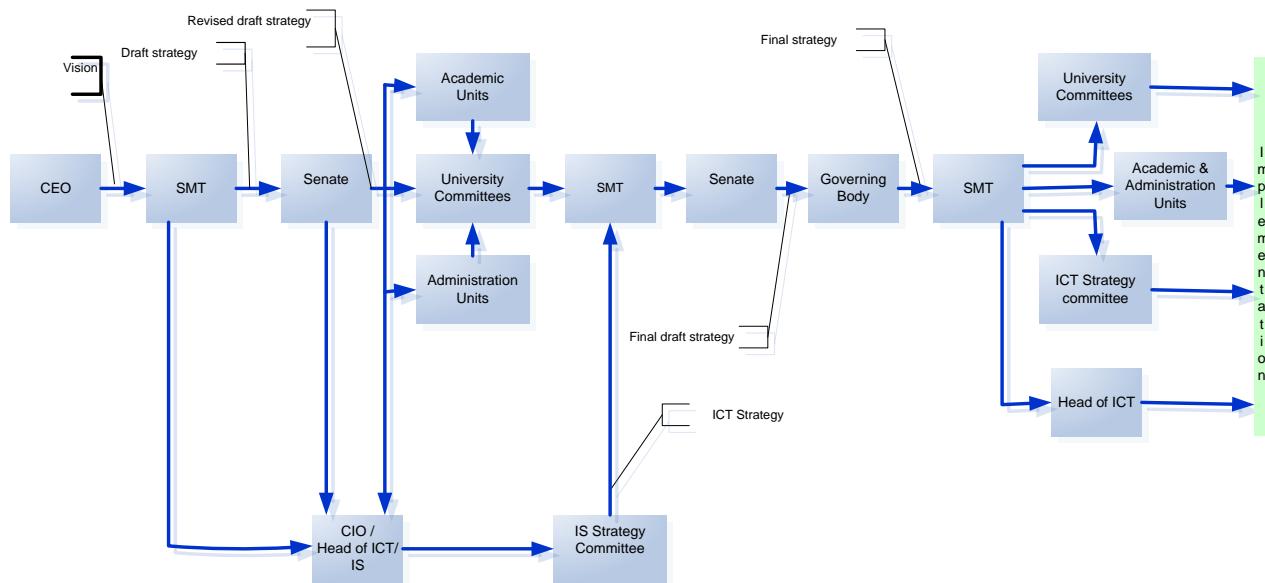


Figure 3 - Integrated ICT strategy model, (adapted from Duke & Jordan)

The integrated model illustrates the development of ICT strategy co-ordinated with the development of the institutional strategies. The draft strategy that is prepared by the Senior Management Team (SMT) is used to focus and drive the development of institutional strategy through the heads of business units, across teaching and learning, research and administration.

ICT is effectively another business thread across the university but in order to produce the ICT strategy major consultation is undertaken to ensure that the ICT needs of the individual business units are jointly understood, developed and included within the ICT strategy. The ICT strategy is developed from the overriding institutional vision, academic and business unit requirements and with the professional expertise and vision of the ICT or Information Services unit. This generally occurs through the management and approval of an ICT strategy Group, normally, although not always, chaired by the Chief Information Officer (CIO) or equivalent senior ICT/IS manager.

The ICT strategy is normally submitted for approval as a specific strategy document although we found some institutions that held ICT within the business unit strategies. In summary, this approach is top down and supports institutional strategy alignment as all ICT needs are included within a single strategy and it allows implementation using operational planning and management against the strategy.

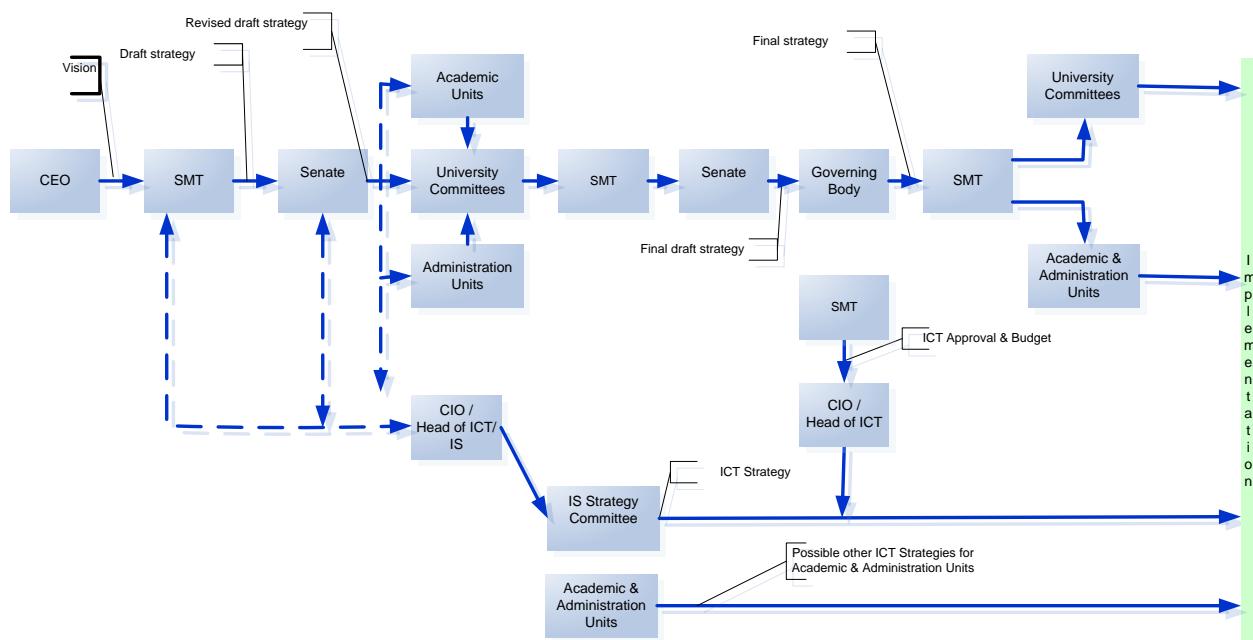


Figure 4 - Disjoint ICT strategy model, (adapted from Duke & Jordan)

The disjoint model shows the ICT strategy developed across the central and academic units resulting in a number of ICT strategies that may not be integrated within the institutional strategy development processes and timescales. This approach is not integrated or formally aligned but can provide a visible set of ICT strategies for implementation through operational planning and management. We can use this model to illustrate the relationship of multiple strategies and even unplanned ICT on corporate strategy alignment and within operational implementation planning and management.

Duke & Jordan³ identified the fundamental differentiator between these models as, 'ICT and other key functional strategies come out of the corporate strategy and have as their overriding purpose the delivery of corporate strategy, or

if the functional strategies are developed in a parallel process which takes cognisance of the overarching strategy but has additional independent aspirations and purpose.'

Our research into twenty institutional strategies confirmed that the level of detail within draft and approved corporate strategies varied considerably. Again there is no correct approach but we observe that this may have an influence on the balance of detail between strategy, and operational planning and implementation developed within different frameworks and timescales.

2.2 The challenges that strategic ICT needs to address

A university's corporate strategy is the blueprint for its current and future business. Part of the formulation and implementation of ICT strategy is to ensure that the foundations on which ICT is delivered are sufficient to facilitate the level of ICT that will meet those corporate objectives. In considering this it is important to be aware of the challenges that today's institutions face. These typically include:

- The institution lacks agility and is unable to meet strategic demands within appropriate timeframes.
- Business processes, systems, information and resources lack integration and are less efficient and cost effective
- Business process are duplicated reducing efficiency
- Data exists in 'silos'. Without integration data is frequently rekeyed, duplicated and misaligned. Information is sometimes known to be inaccurate and unreliable
- Timely and accurate management information is unavailable impacting on effective decision making
- Meeting new regulatory or reporting requirements is a major effort
- Lack of rationalisation and integration causes staff and students to contend with unnecessary duplication and complexities

These challenges sometimes led to senior management being unable to identify where and if the institution gets good value from investment in ICT systems.

³ A study for the JISC into the integration of technology into institutional strategies, Duke & Jordan <http://www.jisc.ac.uk/media/documents/programmes/jos/strategicdevelopmentfinalreport.pdf>

2.3 The Enablers

The toolkit uses the Duke and Jordan strategy models, adapted and previously defined, and a number of key 'enablers' that we believe to be important in influencing the maturity of an institution's ICT strategy.

We have define 'maturity' as a measure of how well ICT is integrated and aligned with the institution-wide strategy and therefore able to deliver maximum value and agility. The toolkit presents the findings against these enablers to aid usability and, without being prescriptive, to provide a framework to assist in an institution's self-analysis.

The enablers of strategic ICT are illustrated as follows:

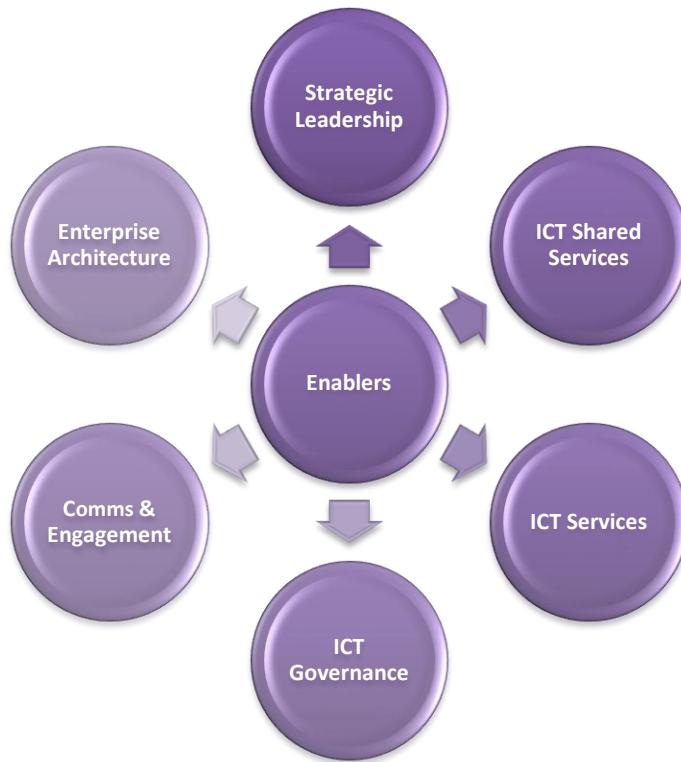
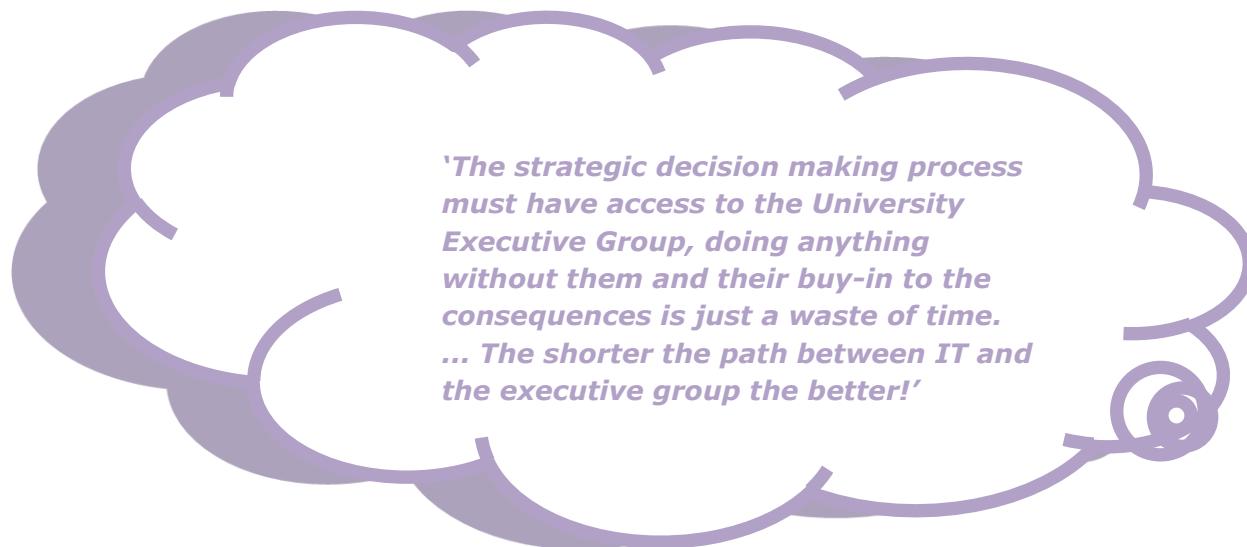


Figure 5 -Enablers of strategic ICT

2.4 Strategic Leadership

2.4.1 Introduction

Strategic leadership provides the vision and articulation of an institution's mission and ethos. The Vice-Chancellor or equivalent creates this vision and the organisational structure through which it will be achieved. Although this vision may and does vary considerably in content and detail from one institution to another it is the catalyst by which the institutional strategy for both current and future needs will be developed by the management team and approved by the governing body.



The development of the ICT strategy, that is either held within the institutional strategy or documented separately, will reinforce and help realise these institutional plans. There are a number of issues that affect an institution's ICT strategy development and implementation and which the senior management team have the opportunity to influence within their chosen approach to ICT.

Now consider these key questions:

- Does your institutional mission require transformational change, strategic development or operational efficiency?
- What do you believe are the key imperatives and constraints to achieving alignment of ICT and institutional strategy?
- What is your horizon for institutional planning? How compatible is this with the planning of strategic ICT?
- How does the senior management team measure the success in ICT alignment against strategy?

2.4.2 How is the structure of a HEI reflected in the ICT strategy?

The management and structure of HEIs are represented by two key models:

The **federal** model, epitomised by the traditional collegiate institutions, allows a substantial amount of responsibility and autonomy in the running of a university. The actual level of self-governance exercised by the colleges varies greatly among institutions, ranging from nearly autonomous colleges in completely federated institutions to dependent colleges that are integrated with the central administration itself.

The **unitary** model provides for a centralised institution where the typical governance structure allows the senior management team greater strategic management and control. This model lends itself to the processes of developing strategic ICT.

In contrast, the federal model with differing expectations for autonomy and management collaboration may expect and need to initiate and drive strategy development independently to meet their own specific agendas. This presents a more complex model but still an opportunity for aligned ICT strategy if supported by appropriately designed and deployed enablers.

Whilst our research found examples of both the integrated and disjoint models for strategy formulation further discussions with institutions acknowledged that ICT implementations outside of the formal strategy occurred moving the majority of institutions, of both the federal and unitary, to the disjoint model.

The differences in operational practice and decision making within the federal institutions were seen to be of great importance and to relate to both heritage and the value of academia and were found to be well embedded within the cultures. Each institution will need to understand and identify how it perceives ICT and what is required from strategic ICT, for the institution and in the context of the existing federal planning and implementation before it may, if appropriate, create a more integrated approach to strategy.

2.4.3 What is the horizon for strategic planning and review?

Our research found strategic planning, in most cases, to span a horizon of three to five years. ICT strategies were identified, under the overall strategy, and reviewed on an annual basis. Further strategic and operational plans, representing different threads from the overall strategy were shown to be active documents used in the planning; monitoring and control of ICT related business projects and services.

ICT can enable transformation or be an operational tool depending on your institutional needs and the positioning of ICT within the institution. We found that most institutions are using ICT as an operational enabler to improve the quality and provide the most cost effective services. Some senior ICT management interviewed saw the role of ICT to contribute to the vision and articulation of how ICT may provide more strategic support and even the means to achieve transformational change within institutions.

The ability of ICT to transform an institution is of great importance as political, economic and technological pressures continue to impact on the HE sector. Historically, there are many examples of institutions using ICT to support different modes:

- operational support of student lifecycle administration to improve quality, efficiency and lower costs
- strategic support through on-line marketing, enquiries and applications to increase student applications
- transformational support to provide on-line and blended learning over the internet to transform the traditional course delivery model.

Duke & Jordan⁴ provided further evidence, 'that research was seen as a particular area where ICT had been transformational. Several universities were clear that ICT had changed the nature of much research (such as use of extremely large data sets or extremely large numerical models) and one noted that major investment in ICT for research could be a research enabler (for example, in High Performance Computing research).

⁴ A study for the JISC into the integration of technology into institutional strategies
<http://www.jisc.ac.uk/media/documents/programmes/jos/strategicdevelopmentfinalreport.pdf>

There is evidence that ICT plays a vital role in the sustainability and agility of an institution but there is also growing support that planning cycles need to be rethought to enable this,

John Voloudakis wrote in the Educause review⁵,

'Having given the subject of strategic planning much thought, many corporations, authors, and academics are moving beyond linear, multiyear planning efforts and are instead focusing on the need for flexibility. The result is the "adaptive enterprise." IBM Corporation refers to "on-demand business." Gartner Inc. describes "the real-time enterprise." Whatever it is called, the essential message is that organisations need to rethink how they plan for the future. They need to focus on their strengths and build capabilities to rapidly adapt to changes in customer demand, market dynamics, shifting technology, and other unforeseen events.'

Similarly, as the subject of the [Higher Education Leadership Summit 2010 | The Leadership Foundation for Higher Education](#)⁶, 'Leading the Agile University, Innovation, Creativity Technology', the agenda was set for a focus on agility and sustainability.

This was seen as paramount as Universities face the challenges of operating within an increasingly competitive market, absorbing major new strategic priorities such as internationalisation as well as working with and benefiting from new stakeholders from business and the wider community. In addition, institutions must also deal with and turn to their advantage, the rapid developments in ICT which have the potential to change the way in which learning and research are carried out.

2.4.4 Should ICT strategy be integrated within business strategies?

Our interviews confirmed that most institutions are producing ICT strategies that consolidate the ICT requirements for the institution. Some institutions are subsuming their ICT into functional or business unit strategies. Interviewees felt the success of this was variable and more dependent on the business management's commitment to ICT and engaging in detailed consultation with their Chief Information Officer (CIO), or equivalent role.

Where ICT has been successfully subsumed or integrated with institutional strategies it has been seen to be achieved with the contribution from a Chief Information Officer, or equivalent senior ICT professional, and strong cross institutional consultation.

2.4.5 Should ICT strategy be integrated or disjoint with the corporate strategy?

Our research interviews highlighted an acknowledgement of the current pressures and benefits that an integrated strategy could deliver. Support for disjoint strategies was found to be more concerned with individual business unit success, independence and responsive capacity. However, an integrated strategy, allowing improved ICT planning and resourcing

⁵ Educause Review, Hitting a Moving Target: IT strategy in a Real-Time World, John Voloudakis, <http://www.educause.edu/EDUCAUSE+Review/EDUCAUSEReviewMagazineVolume40/HittingaMovingTargetITStrategy/157964>

⁶ LFHE Higher Education Leadership Summit 2010, <http://www.lfhe.ac.uk/evt-crs-prog/prevousevents/heleadershipsummit2010/index.html>

can provide an opportunity to deliver improved ICT services that can overcome negative arguments.

The premises for academic autonomy, and the local responsibility for ICT, are understood and ICT requirements for research projects provide an example of such a case. However, there are also arguments for greater integration highlighted by an example of compromised student experience resulting from the proliferation of different systems that students are required to engage with.

Strategic ICT requires an integrated and harmonised approach to the demands and needs across an institution for the benefit of the institution. Such an approach must receive and understand the case for exceptions, but at an enterprise level not via autonomous actions. This can be better achieved through governance and improved communications assisted by a Chief Information Officer (CIO).

2.4.6 Should ICT services be centralised or devolved?

All 20 institutions we interviewed provided some central services for the infrastructure and professional administrative services. The provision of ICT services, often provided through IS Services, a converged service of ICT and Library Services, provides for the professional management and support of services critical to the operation of institutions.

Historically, there has been an acceptance that central ICT services should support the infrastructure and professional services business requirements whilst the academic areas establish their own ICT deployment. Institutional strategy has already provided the impetus for more integrated ICT in the definition of the student life cycle. With the student life cycle having touch points across areas of marketing, student services and academic schools there is evidence of the greater use of integrated, shared services delivered from central services.

Our research identified an institution, included as a case study, providing high quality ICT services in direct alignment with the institutional and ICT strategy. Historically devolved services and resources have been drawn back under the management of central ICT resulting in improved throughput and quality as well as cost savings.

Another collegiate institution has responded to the central and devolved needs by providing two levels of service, enterprise services that are standard across the institution and shared services that are optional. A third layer of services may be provided within individual business units completing the use of both devolved and central services.

Budget allocation and approval for ICT services covers the central services across the institution to provide infrastructure and support and the provision of professional services that are specific to a specific business requirement and its implementation. The use of capital and operational budgets allocated and approved against strategic ICT projects was seen to provide an accurate approach to ICT funding.

2.4.7 How can a Chief Information Officer (CIO) help?

The role of the CIO provides a critical interface between the business and ICT. The appointment of a CIO, or recognition of an equivalent senior manager acting in this role, reinforces an institution's and the Senior Management teams' commitment to technology.

The differentiating characteristic of a CIO is the ability and enthusiasm to work with and through the wider community of institutional management to realise institutional objectives. They are able to focus and mobilise technology to meet institutional strategy whether that be transformational, strategic or operational.

The role is pivotal in both strategic planning and the management and implementation of ICT solutions. Using strong governance and management, more harmonised communications and awareness of ICT, a CIO is able to increase institutional confidence in ICT and create a more agile and responsive ICT capability.

More information is available on the CIO in [A Framework for the CIO Position](#)

[\(EDUCAUSE Review\)](#)⁷ and in, ICT Services, the role of the CIO, Section 2.5.2

Skills needed by a Chief Information Officer (CIO):

- **A business focus**
- **Strategic thinking**
- **Political 'nous'**
- **Strength in change management**
- **Ability to exploit ICT potential for business benefit**
- **Good communications**
- **Ability to 'smell' danger**

Society of Information Management (SOCITM)

2.4.8 How should compliance to strategic ICT be achieved?

Compliance is an important factor in achieving institutionally aligned ICT. It is important to recognise an institution's ambitions for strategic alignment and having defined the scope offer an approach that both governs for and encourages compliance.

Governance provides the framework for investment approval and the appropriate progress monitoring and reporting of projects and services. But it is additional ICT activities, local initiatives without strategic ICT approval, that threaten the integrity of an institution's strategic ICT. Development without architecture is an exception process that aims to ensure all initiatives are identified and justified even though they may not be part of the strategic ICT agenda. Again visibility and awareness provide support for institutional alignment.

In this respect the Chief Information Officer, or equivalent, can have a dual role of ensuring the appropriate audit of ICT investments and in providing additional support to win the hearts and minds of those senior management deploying ICT outside of the strategic agenda.

⁷ A Framework for the CIO Position (EDUCAUSE Review),
<http://www.educause.edu/EDUCAUSE+Review/EDUCAUSEReviewMagazineVolume39/AFrameworkfortheCIOPosition/157942>

2.4.9 How can the Senior Management Team (SMT) improve its contribution to developing strategic ICT?

The importance of ICT to the success of HEIs has grown to reflect the mission critical role that ICT plays in its operational capacity and its ability to support institutional agility, sustainability and transformation.

This demands that ICT is high on the agenda of the SMT, where business vision and strategy development may require an insight and understanding of ICT. The Dearing Report⁸ recommended '*that higher education institutions should develop managers who combine a deep understanding of Communications and Information Technology with senior management experience.*'

However, despite this our research reveals that there are still relatively few managers with this range of experience within or supporting the SMTs. There are some alternative approaches to injecting more experience and understanding of ICT that the SMT can consider:

- supporting and encouraging the use of Leadership Foundation development programmes by senior management team members and aspiring senior managers to increase awareness and understanding of the ICT issues and good practice within HE.

Current LFHE courses are listed below and full details are available at [The Leadership Foundation for Higher Education, Supporting Individual Leaders](#)⁹

- The Agile University
- Senior Strategic Leadership, Leading in Challenging Times
- Preparing for Senior Strategic Leadership, Meeting the Challenge
- Future leaders Programme
- Head of Department Programme, Making Change Happen
- appointing a Chief Information Officer or equivalent senior ICT manager onto the SMT to distil the required levels of ICT knowledge within strategy discussions. ICT personnel are reputed to communicate less well as a result of their technical vocabulary but today's ICT professionals and specifically Chief Information Officers are able to articulate business solutions and contribute to business discussions using their wealth of experience
- encouraging appropriate consultation and communications channels, between the Senior Management Team and Chief Information Officers, or ICT senior management, to support ICT awareness
- encouraging the use of appropriate horizon scanning activities to support the visioning within institutional corporate planning. By involving CIOs, or other appropriate ICT senior management an institution gains valuable input and contribution. The process of strategic planning and management is clearly presented

⁸ The Dearing Report 1997, <http://bei.leeds.ac.uk/Partners/NCIHE>

⁹ The LFHE, Supporting Individual Leaders, <http://www.lfhe.ac.uk/support>

in the [JISC infoNet, The Importance of Strategy](#)¹⁰ ; it highlights the importance of environmental scanning.

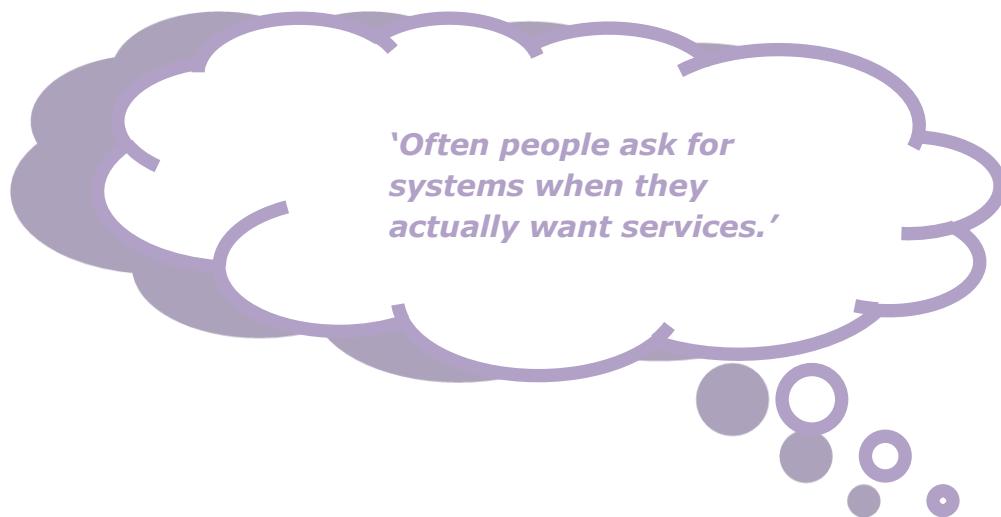
The toolkit offers further supportive information that explores the other enablers of strategic ICT as well as providing case studies and good practice advice. The self-analysis framework will allow your institution to model its strategic maturity in the deployment of ICT and follow a process for the investigation and assessment of business changes that will create improved maturity.

The S-ICT self-analysis project outcome is intended to inform the preparation of a business case for change.

¹⁰ JISC InfoNet The Importance of Strategy infoKit, <http://www.jiscinfonet.ac.uk/infokits/strategy>

2.5 ICT Services

2.5.1 Introduction



The role of ICT Services and its relationship with its enterprise wide institution is highly influential in the quality of and success of institutional ICT. Historically ICT services are often, though not in all cases, associated with an institution's infrastructure and seen from the institutional perspective as responsible for the technical delivery of ICT. However, in order to support an institution in realising its business objectives, by delivering strategic ICT that is aligned and integrated with institutional strategy; ICT services must also align itself to the institution. This includes the 'hard' interfaces involving for example governance, as well as the 'softer' interfaces such as communications and engagement.

Now consider these key questions:

- Does your institution have a senior manager with overall management responsibility, understanding and awareness of all strategic business requirements for ICT?
- Can you map the communications and reporting lines from all sources of ICT to the senior management team?
- How effective is the path to and frequency of support and reporting of ICT to the senior management team?
- Centralised or devolved ICT. Which is the best approach for your organisational structure and whv?

2.5.2 The role of a Chief Information Officers (CIO) or equivalent Senior ICT manager

The role of a CIO provides a critical interface between the business and ICT. The appointment of a CIO, or recognition of an equivalent senior manager acting in this role, reinforces an institution's and SMT's commitment to technology.

A CIO combines a keen understanding of institutional business needs and a perspective of users' needs, with the experience and knowledge in the mobilising ICT to meet those needs.

Brian Hawkins from Educause examines the role of the CIO in [A Framework for the CIO Position \(Educause Review\)](#)¹¹ and emphasises the need for institutions to clearly understand the unique opportunities created by the role, the ICT needs, and the management commitment required to support the cross institutional role of a CIO.

The differentiating characteristic of a CIO is the ability and enthusiasm to work with and through the wider community of institutional management to realise institutional objectives.

¹¹ A Framework for the CIO Position (EDUCAUSE Review),
<http://www.educause.edu/EDUCAUSE+Review/EDUCAUSEReviewMagazineVolume39/AFrameworkfortheCIOPosition/157942>

They are able to focus and mobilise technology to meet institutional strategy whether that be transformational, strategic or operational.

Without exception those institutions we interviewed with a CIO, or equivalent role, believed that the CIOs had added to the formulation of institutional strategy and enhanced communications and awareness between the business units and ICT services.

Our research found that the formulation of ICT strategy is led by the CIO, or other equivalent senior ICT management, who stated that their objectives include:

- understanding the business requirements, developing the ICT strategy and budgetary information to support the requirements
- introducing an informed vision of how ICT strategy could support transformational change by horizon scanning and strategic planning.
- management and planning of ICT including policy and practice development, planning, budgeting, resourcing, training etc.

Effective management reporting line

The appointment of a CIO to the Senior Management Team is seen by many throughout industry as critical to their success. Based on the research from the Strategic ICT project and other research into this area, such as Duke & Jordan, a CIO appointment in UK HEIs is rare. However, we were informed that a direct reporting line into a member of the Senior Management Team who acts with the commitment and willingness to engage with the strategic ICT issues is seen as essential.

Respondents stated that an institution's decision in this area should in no way change the collective responsibility of the SMT to work collaboratively with the CIO and their appropriate institutional domains to maximise the institution's effective use of technology and ensure the success of the institution's ICT strategy.

Established support to SMT and other strategy development functions

The Dearing report¹² recommended the development of managers that combine experience and an understanding of ICT with senior management experience. The importance of ICT to institutions and the nature of strategy formulation, as previously documented, magnify the requirement for this combined expertise within the SMT. Again the unequivocal findings from the research confirmed that the Senior Management Teams rarely include the

A Chief Information Officers (CIO) should be:

- **a member of the senior management team**
- **a manager of the technology and other information resources,**
- **the individual responsible for IT planning**
- **the individual responsible for the development of new system**
- **the individual responsible for policy development, and**
- **a participant in the overall institutional strategic planning processes**

William H Gruber, Educause

¹² The Dearing Report 1997, <http://bei.leeds.ac.uk/Partners/NCIHE>

desirable levels of expertise and understanding to address subjects that frequently include underlying ICT issues.

The horizons that CIOs work against, spanning both business and ICT, position them perfectly to support the SMT by providing additional expertise and insights. However, our research found senior ICT management are concerned they are not included in relevant meetings, and consultation was neither sufficient, or frequently enough to support senior management and the development of strategy.

An institution may need to consider whether the existing governance culture allows a CIO, or similar professional, to sufficiently communicate and influence the existing institutional decision making.

2.5.3 How can ICT Services help?

There exist a number of alternative but not mutually exclusive approaches to providing ICT services.

Gartner's¹³ work on the future of IT organisations explores the future of a 'Type Z' organisation, where ICT is dispersed across an institution and states their perspective for HE as follows:

'In many universities, the central and departmental IT organisations concentrate on providing the infrastructure (the "heavy lifting" as one university IT professional described it) and operating the financial and administrative systems. All the novel, research-related IT is done in the departments and faculties by academics and students. This frequently results from the desire of those people to control directly the technology that's an indivisible part of their work. It also arises from the schismatic political and governance culture that's common in many universities. So while the use of Type Z contributes well to the creativity and advanced exploration that universities need, the silos of information and processes that arise from lack of coordination and standards create barriers that threaten long-term viability, because they impede the cross disciplinary research where the great majority of new ideas arise. Therefore, such Type Z situations have neutral benefits overall, although they have the potential to be highly positive if the coordination problems are solved or to be disastrous if they are not.'

This raises the same question again; what is the most effective ICT services structure to provide strategic ICT across the institution?

Our research identified a number of alternative organisation and management structures used by institutions as described under Strategic Leadership. We found that these variations

ICT Services provide:

- ***ICT governance and management***
- ***ICT service delivery including infrastructure and operational support***
- ***Development and implementation of ICT services***

¹³ Gartner Symposium/ITxpo 2008

influence the ICT services structures, management and practices that support the formulation and delivery of strategic ICT.

In summary these include:

- **Federal or Unitary models:** The management and structure of HEIs are represented by two key models; the federal model, epitomised by the traditional collegiate institutions and the unitary model providing for the centralised institution. These models are important because they indicate who will deliver services to which business groups and where strategic collaboration across stakeholders is likely to be required.
- **Centralised or devolved ICT services:** Services are delivered from a single function or devolved within the institution.

Our research noted the source of ICT Services in relation to the organisation structure. Overall ICT services must be able to provide for the management, development and support of the infrastructure, information systems and services required by the university

We found that institutions had differing ICT Service structures, providing services either from a centralised ICT department or through devolved services, as represented below:

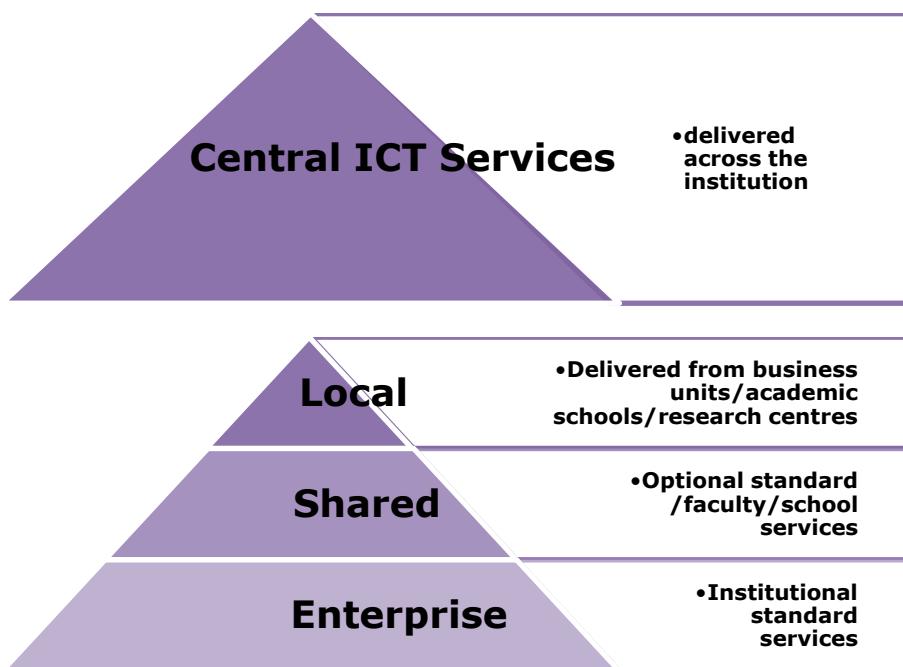


Figure 6 - ICT services models, for central and shared/local services

A centralised model is simpler and provides advantages in the governance and management of ICT services that have been proven to deliver cost savings, quality improvements and an improved visibility of ICT deployment at an institutional level. Universities need to determine their own provision of ICT services based on institutional needs and, whilst in some instances the requirement for specialised local delivery of ICT services is justified with

no detrimental impact to the delivery of strategic ICT, others if closely examined may be more difficult to justify.

Our research has sought to understand the different models and combinations that are in place but we observe that good practice will need to be implemented in a manner to reflect and align with the different institutional structures. The structure, leadership and governance of institutions are complex but these can be aligned to work positively in delivering strategic ICT:

The creation of a robust ICT governance structure was recognised within our research as critical to the ability to deliver strategic ICT. Whilst HE makes wide use of technology the often disjoint nature of ICT strategy formulation threatens the alignment of ICT to institutional strategy and therefore undermines its strategic use.

Each institution will have specific, though possibly less visible, source(s) of ICT services depending on their federal / unitary and centralised / devolved structure. In order for an institution to be able to align and integrate its ICT strategy the governance and management of ICT should be considered at the institutional level.

Our research has recognised that these variations in structure and ICT service provision are often considered fundamental to both the development and the day to day operations of universities. However, in order to embrace the development of more strategic ICT the needs and practices of these varied sources of ICT services could be explored and the structures and mechanisms for ICT alignment reviewed. In some instances, such as ICT strategy and use in research, there may be less need for alignment in contrast to instances across university administration where significant benefits may be obtainable.

In summary, there should be, as a minimum, some rewarding level of ICT expertise and knowledge involved within strategy formulation and implementation. The channels to achieve this have been identified as:

- Governance of strategy formulation and implementation
- A Senior Management Team that includes some professional expertise and understanding of ICT
- A Chief Information Officer, or equivalent senior ICT/IS manager undertaking the role, supporting the Senior Management Team in institutional strategy formulation and leading the appropriate ICT strategy.

The Service based approach

In order to meet today's institutional objectives for agility and sustainability ICT needs to be delivered with consideration and efficiency in the context of the whole institution. ICT deploy various approaches and methods to achieve this including Enterprise Architecture (EA), Shared Services and Service Oriented Architecture (SOA). Some are technical in nature others are business change techniques such as Enterprise Architecture. The underlining principle behind each of these techniques is that the business has requirements that can be defined as a requirement for 'services' rather than a predefined solution. By defining a requirement in this way ICT are able to draw on all their available resources and techniques

to identify what is often a more cost effective and innovative solution. This provides benefits to users, ICT and at an institutional level through more integrated solutions with improved data integrity and improved business processes.

Key ICT roles and cross institutional communications

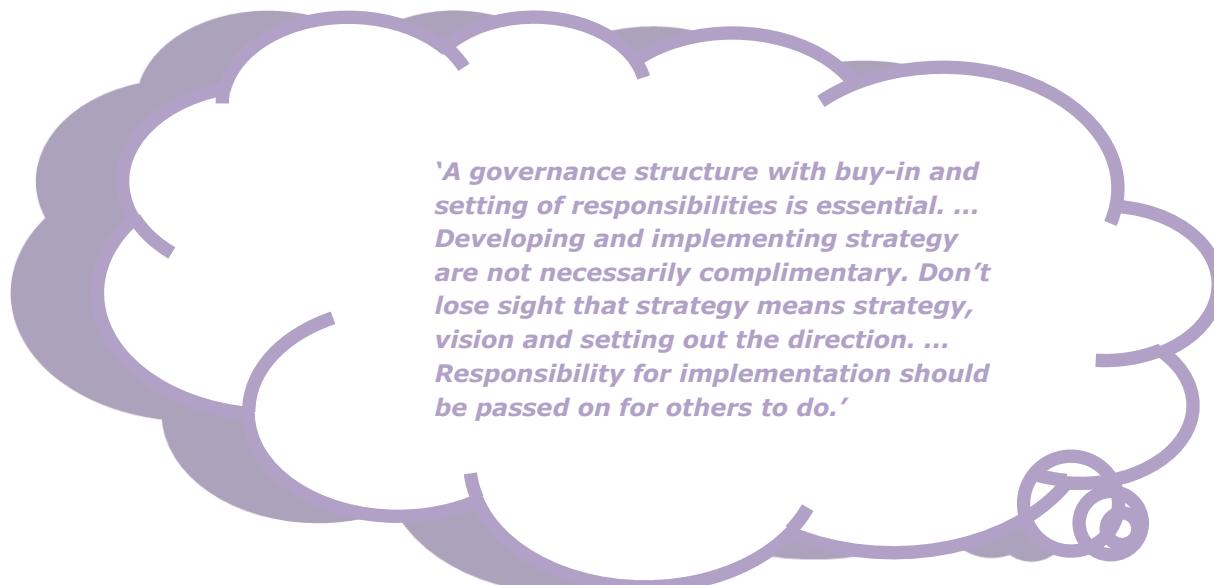
The idea of a Chief Information Officer within organisations has been developed over decades but the increased emphasis on communication and business understanding is now giving weight to developing different strands of expertise to address business and technology. Our research identified a variety of roles and techniques that are focused on establishing close communications across the user community and a greater understanding of their business requirements. CIO's are using business analysts, account managers and enterprise architects to improve communications, identify business needs and business process improvements. The approach allows an institution to build a better definition of current and future ICT requirements which in turn enables greater agility and sustainability.

This in turn provides management with improved information from which to build a more robust and capable ICT services organisation with well matched and skilled resources and infrastructure all supported by policies, frameworks, standards and compliance that ensure consistency and quality.

2.6 ICT Governance

2.6.1 Introduction

ICT is one of the key assets of an institution. ICT – the people, processes, infrastructure and information - is embedded across the institution creating an enterprise wide community of owners and stakeholders. As a major investment ICT is expected to deliver value and has been found to deliver greater 'value' for an institution when used as a strategic enabler rather than being influenced by a stream of diverse tactical initiatives.



International research by Weill & Ross revealed that top performing organisations manage their ICT with governance structures that harmonise enterprise objectives and structures with performance goals and metrics. But, although ICT governance is now recognised as the most influential factor in realising 'value' from ICT there is no single model that fits all and each institution will need to develop its own ICT Governance to meet its unique requirements.

Now consider these key questions:

- **What is your institutional ICT governance structure?**
- **What are your institution's drivers in formulating ICT strategy?**
- **How does the institution manage changes in strategy and exceptions from strategy?**
- **How does the institution align institutional strategy and budgets with ICT strategy and budgets?**
- **How does the institution assign responsibility and**

Both the JISC and LFHE have commissioned research to support the understanding and development of ICT governance. Of particular note is the Framework for Information Systems Management and Governance Self-assessment Toolkit¹⁴ commissioned by JISC and developed by the University of Strathclyde, which we seek to complement by further considering alignment and integration.

¹⁴ A Framework for Information Systems Management and Governance, Self -Assessment Toolkit , <http://www.ismg.ac.uk/LinkClick.aspx?link=906&tabid=845&mid=8865>

2.6.2 What is ICT governance?

Weill and Ross¹⁵ have published research on ICT governance that provides a definition and framework. This is useful to support an improved understanding of ICT governance and to illustrate how it can be used to better alignment ICT with institutional strategy.

They define IT governance as '*specifying the decision rights and accountability framework to encourage desirable behaviour in the use of IT. The complexity and difficulty of explaining IT governance is one of the most serious barriers to improvement.*'

They state that ICT governance is about who makes decisions while management is about making and implementing the decisions. They assert that effective ICT governance will answer three questions:

- What decisions must be made
- Who should make these decisions
- How are they made and monitored.

The following are extracts and adaptions from Weill and Ross, IT Governance¹⁶:

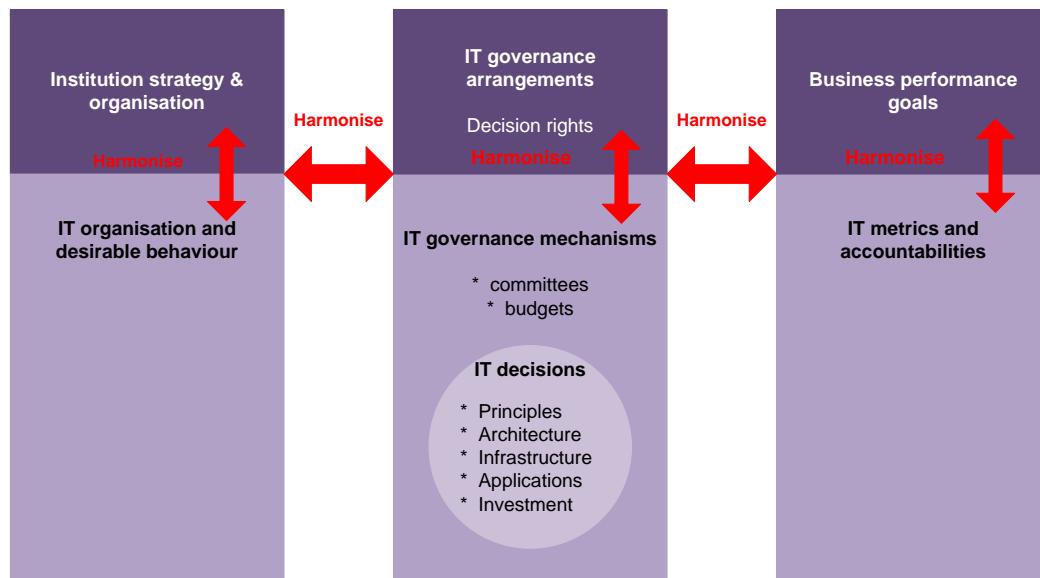


Figure 7 - ICT governance framework, from Weill & Ross IT Governance (adapted)

¹⁵ IT Governance, How Top Performers Manage IT Decision Rights for Superior Results, Ross & Weill, 2004

¹⁶ IT Governance, How Top Performers Manage IT Decision Rights for Superior Results, Ross & Weill, 2004

As part of their research Ross and Weill have put forward a generic framework showing the design considerations for ICT governance. The framework diagram illustrates the requirement for harmonisation of institutional strategy and organisation with ICT governance arrangements and the institutional performance goals.

The institutional strategy, ICT governance arrangements and performance goals are enacted through the ICT organisation and desirable behaviours, ICT governance mechanisms and performance metrics, respectively.

Weill and Ross suggest that there are five interrelated ICT decisions that should be considered together with the decision making structure and the following diagrams have been adapted from their work to illustrate a HEI governance framework:

Key ICT Governance Decisions		
1 ICT principles <i>High-level statements about how ICT is to be used in the institution</i>		
2 ICT architecture decisions <i>Organising logic for data, applications, and infrastructure</i> <i>These are captured in a set of policies, relationships and technical definitions.</i> <i>They ensure the desired institution and technical standards and levels of integration are achieved.</i>	3 ICT infrastructure decisions <i>Centrally co-ordinated, shared ICT services that provide the foundation for the enterprise's ICT capability</i>	5 ICT investment and prioritisation decisions <i>Decisions about how much and where to invest in IT, including project approvals and justification techniques</i>
	4 Institutional applications needs <i>Specifying the institutional need for purchased or internally developed ICT applications</i>	

Figure 8 - ICT governance decision, adapted from Weill & Ross, IT Governance

The institution is required to decide the governance arrangements for each key decision area. The harmonising of each decision making group will significantly affect the decisions and outcomes and is therefore able to effect strategy alignment. The groups or governance archetypes have been categorised as:

Institutional monarchy	Senior institutional managers
ICT monarchy	IT specialists
Feudal	Each faculty, school, department or section making independent decisions
Federal	Combination of central institutional and faculty, school, department or section with or without ICT professionals
IT duopoly	ICT group and one other group (institutional management or academic/administrative people involved)
Anarchy	Isolated individual or small decision group

These archetypes are used below to illustrate an example governance structure:

An example of the ICT governance decision making structure									
ICT Principles		ICT Architecture		ICT Infrastructure Strategies		Institutional Application needs		ICT Investment	
input	decision	input	decision	input	decision	input	decision	input	decision
Federal	Federal	ICT monarchy	ICT monarchy	Duopoly	ICT monarchy	Duopoly	Federal	Duopoly	Business monarchy
ISC	SMT ISSG CIO	AG	ISSG CIO	AAL	ISSG CIO	AAH AAL	ISC CIO ISSG	ISC ISSG	SMT CIO

Examples of groups used by institutions are included as mechanisms for governance in the above diagram :

<i>SMT</i>	<i>Senior Management Team, Management Board</i>	<i>ISSG</i>	<i>Information Systems Strategy Group</i>
<i>ISC</i>	<i>Institutional Strategy Committees</i>	<i>AG</i>	<i>Architecture Group</i>
<i>CIO</i>	<i>Chief Information Officer, Director of Information Systems or equivalent role</i>	<i>AAH</i>	<i>Academic/ Administration, Deans, Head of School, Department, Sections</i>
		<i>AAL</i>	<i>Academic/Administrative Liaison</i>

Figure 9 - ICT governance decision making, adapted from Weill & Ross, IT Governance

In this way a governance framework for HE could be represented as shown in the following example:

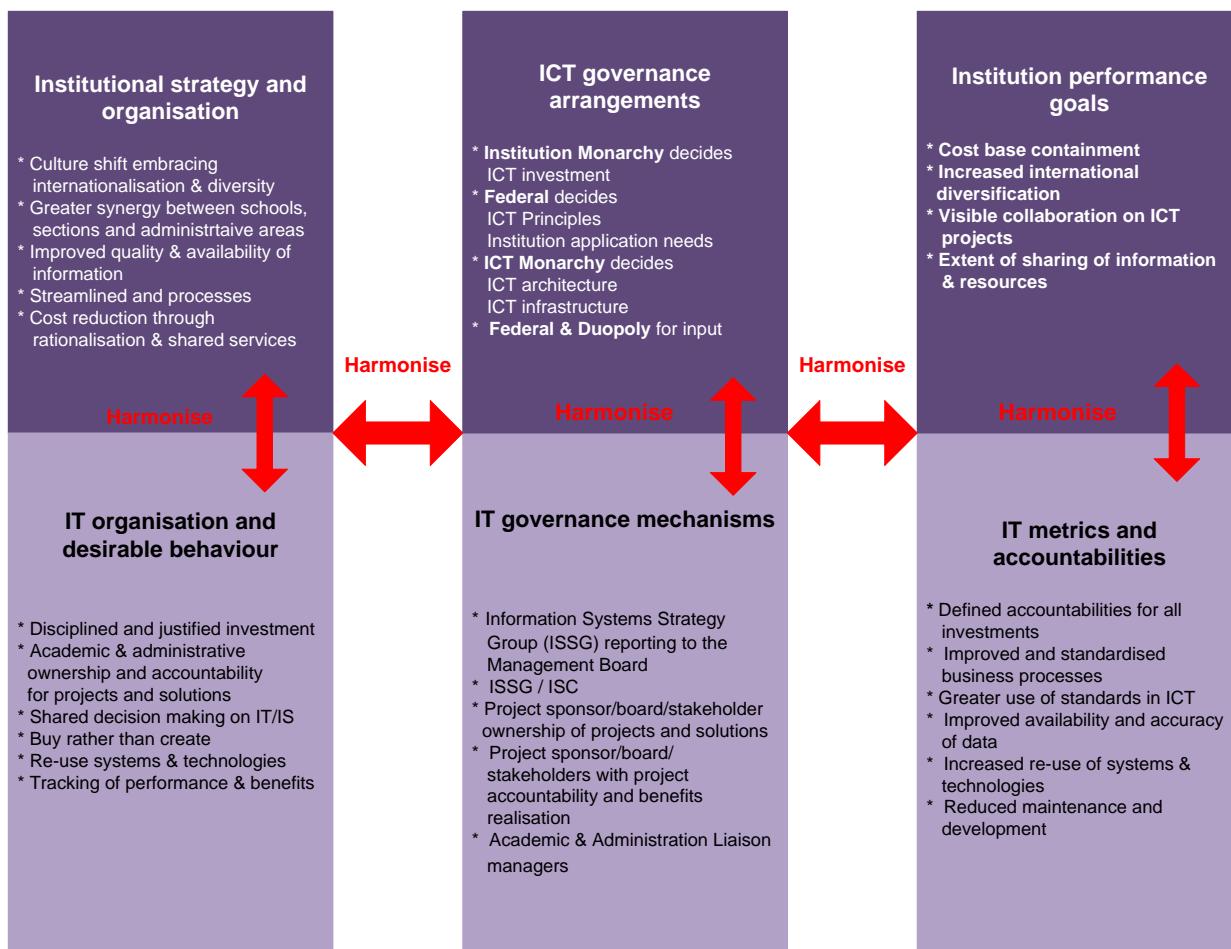


Figure 10 - ICT governance framework example for HE, adapted from Weill & Ross, IT Governance

2.6.3 How can ICT governance help?

Good ICT governance is the foundation for delivering strategic ICT as it:

1. Aligns ICT with Institutional strategy:

It provides clear and visible decision making at the appropriate level of senior management, and with ICT embedded across the institution, encourages more responsible and accountable business management, creating focus, understanding and improved delivery against goals. Alignment can deliver cost reductions, improved quality of the student experience, strategies for growth and strategies for diversification.

2. Integrates structural requirements:

Institutional structures and ICT services are harmonised to allow improved delivery of institutional goals. A less fragmented and more integrated approach to the use of ICT will deliver improved quality of information from the rationalisation and sharing of services.

3. Integrates business and technology for ICT value:

Involves professionals, from teaching and learning, research, administration and ICT, resulting in improved decision making and buy-in for ICT changes.

4. Provides a mechanism for understanding the use and opportunities for ICT:

Improved visibility and accountability for ICT allows institutions to learn from their current ICT experience and encourage improvements for the future. Mechanisms for allowing exceptions to strategy ensure a clear argument; value and justification are visible and understood.

5. Improves budgetary control and return on investment:

Improved harmonisation between institutional goals and ICT accountability and performance measures improves budgetary control and value. Measures of success are defined as service levels and as evaluation criteria for projects.

6. Improves selection and use of new technologies:

It supports ICT in balancing technological advancement against business priorities and return on investment (ROI).

2.6.4 How is ICT Governance used in HE?

The variations in institutional structures, the different cultures influencing management styles and the ubiquitous nature of ICT within every HE institution leads to wide ranging differences in ICT governance. However, our research findings can be used to highlight the practices that have been found to improve the delivery of strategic ICT. We present these findings across four areas:

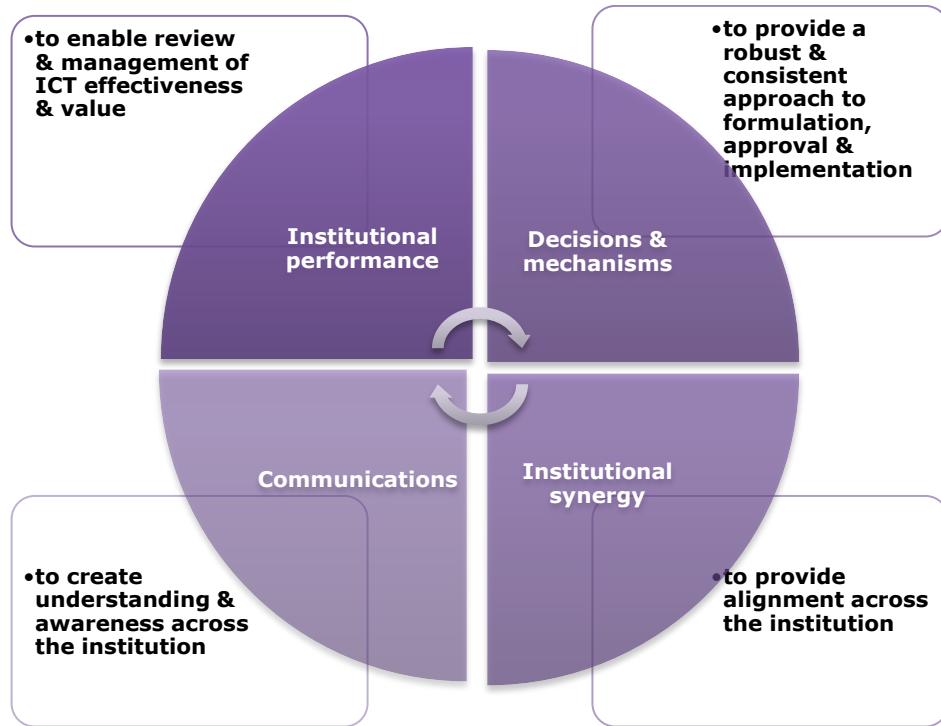


Figure 11 - ICT governance practice and impact

Institutional synergy

The growing importance of ICT in supporting institutional strategy and the need to provide agility requires that an institution is able to have a clear institution-wide view of both current use and future requirements for ICT. Institutions have achieved this by:

- The formulation of a documented and approved institution-wide ICT strategy. (Some institutions are formulating separate IT and IS strategies)
- The cross reference of the ICT strategy to reinforce alignment to the institutional strategy
- Using a process for review and updating of the strategy.

The horizon for institutional planning is changing and the ICT strategy needs to reflect this as a working document. To become more flexible and agile it must synchronise with institutional strategic planning and change.

One institution exhibiting well aligned ICT strategy commented

'it is important to understand why any new investments have not been previously identified within the strategy.'

The synergy required for the alignment of ICT and institutional strategies across strategic and operational planning and reporting is concisely illustrated by the following example of an institution's strategic alignment map.

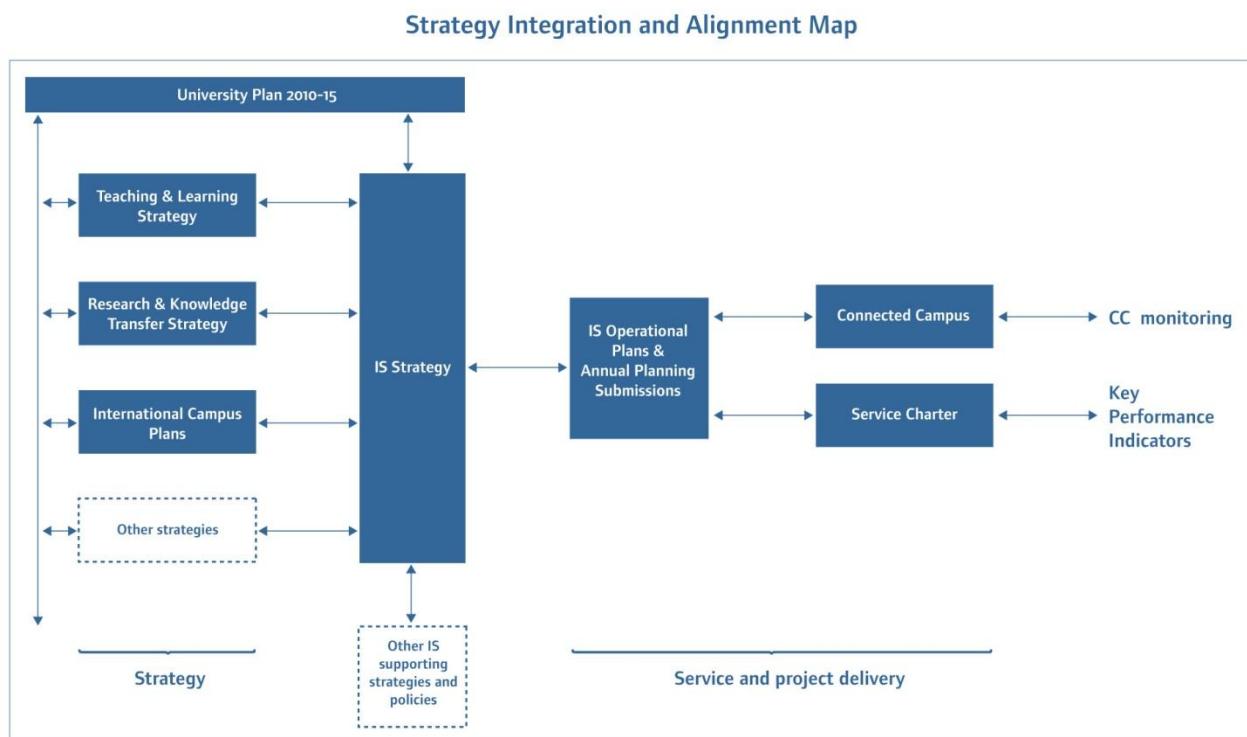


Figure 12 - Example of Strategy Integration and Alignment Map

Governance decisions and mechanisms

With deployment of ICT across teaching and learning, research and administration areas this requires a co-ordinated institution-wide ICT governance structure to accommodate an institution's management and ICT delivery structures.

Well aligned examples from our research exhibited some or all of the following:

- The ICT strategy was approved and implemented by a governing committee made up of senior management, Chief Information Officer or an equivalent role, together with representative management from across the institution. This supports institution wide awareness and buy-in. We found this committee to exist under various differing titles and we shall refer to it as the Information Systems Strategy Group (ISSG).
- Decision making in relation to Portfolio Management was improved by introducing the use of a Portfolio Decision Making Matrix that identified the appropriate positioning of services and solutions as 'bleeding edge', 'leading edge', 'on a par', or 'lagging behind'.
- ICT strategy formulation was conducted with institutional-wide consultation involving senior managers and unit heads
- The ICT strategy was approved by the Senior Management Team
- All ICT investment was approved by the Information Systems Strategy Group
- Capital and operational budgets were allocated and approved by the Information Systems Strategy Group
- An exception process was established (development without architecture). This ensured that exceptions to strategy were visible and if agreed proceeded against a approved business case which provided greater understanding and feedback on the value and cost of exceptions
- ICT principles, policies and standards defined and adhered to. These assist in better decision making and management. It is expected that these will facilitate better investment proposals, progress reporting and measurements for value and ROI and therefore support improved accuracy and availability of information to assist decision making and management.

Governance communications

Communications have always been accepted as key to the successful delivery of ICT projects. However, the ability to address and balance the priorities within strategic planning intensifies the need for communications between institutional management. In addition to consultation on strategic requirements there are other techniques that have been found to enhance institutional awareness and buy-in to strategy:

- Obtain Senior Management Team buy-in and promotion of ICT governance
- Use Committees across the institution to add awareness and create influence
- Use a Chief Information Officer and a compliance function to own and promote ICT governance
- Identify and try to win over management who don't comply
- Provide a portal or other home for ICT governance information to ease its use and assist in visibility.

•

Governance performance

Governance allows for the measurement of performance in two areas:

- Services performance
Definitions for ICT service levels, and project progress reporting provide both project and operational management and reporting to the Information Systems Strategy Group (ISSG) and Senior Management Team. Service levels defined and agreed as part of the ICT governance were found to be actively used for service communications and monitoring. However, interviewees commented that more work was required to establish improved metrics and reporting in relation to project progress and final delivery against objectives
- Performance against institutional strategy
This is a quick assessment for the senior management team to gain a measure of how well ICT governance is delivering ICT services that meet the core institutional strategic objectives. Each senior manager will have his or her own perspective which will inform against an overall assessment. Our research did not find any HE examples of this in practice to provide further feedback.

The assessment typically requires:

1. the definition of a set of strategic objectives or outcomes. For example cost effectiveness, transformation, business improvement or agility.
2. each member of the management team to assess for their domain
 - a. the importance of each of the outcomes
 - b. the influence of governance on the success of each of the outcomes
 - c. where and why is governance effective
 - d. where and why is governance less effective?

The information provides an additional and visible measure of performance as a basis for senior management discussion and review of governance.

Although frequent change in ICT Governance is not desirable governance is specific to institutional structure and management and should be regularly reviewed to ensure that it continues to meet an institution's unique requirements.

2.7 Communications & Engagement

2.7.1 Introduction



'..the ICT strategy needs to support the business strategy – that's absolutely true, however the ICT strategy can also help inform and drive the overall strategy and we've got some examples of that as well.'

Communications and the sharing of knowledge are already part of the culture and an asset within UK HE.

However, with ICT embedded across an institution its strategic planning and implementation presents additional communication challenges. An institution's history, culture and ambitions help model its unique profile and this must be understood and embraced within its communications and ICT governance in order to realise successful institutional alignment.

Now consider these key questions:

- **How does the senior management team perceive ICT within your institution and what do they believe to be their key imperatives in relation to ICT related business?**
- **What is the reputed role and contribution of ICT across your institution?**
- **How can senior decision makers be supported and encouraged in contributing to the use of strategic ICT?**
- **How can ICT best engage with and develop more**

2.7.2 How can communications and engagement help?

There are a number of actions that are understood to enhance the engagement of senior management and therefore improve strategic ICT alignment:

- The work of the Chief Information Officer, or equivalent role, in enhancing Senior Management Team communications involving ICT so that information is more easily understood and expressed in terms of business requirements and solutions
- The understanding and buy-in of the Senior Management Team to the value of ICT and ICT governance
- The promotion by the Senior Management Team of ICT governance and its benefits to senior management
- The role of existing and appropriately informed committees across the institution to add ICT awareness and create influence
- The role of a CIO, or equivalent role, as an advocate of ICT and governance.
- Market the collaboration and success in delivering ICT services.
 - Much of the good work undertaken in achieving ICT success is not visible within an institution. It is therefore useful to 'market' the activities and achievements, simply expressed and illustrating the collaborative approach and provision of ICT as a service
- The use of compliance checking and working with management who don't comply to try to get their buy-in, commitment and compliance
- The use of a portal or some repository for ICT governance information to ease its use and assist in visibility.

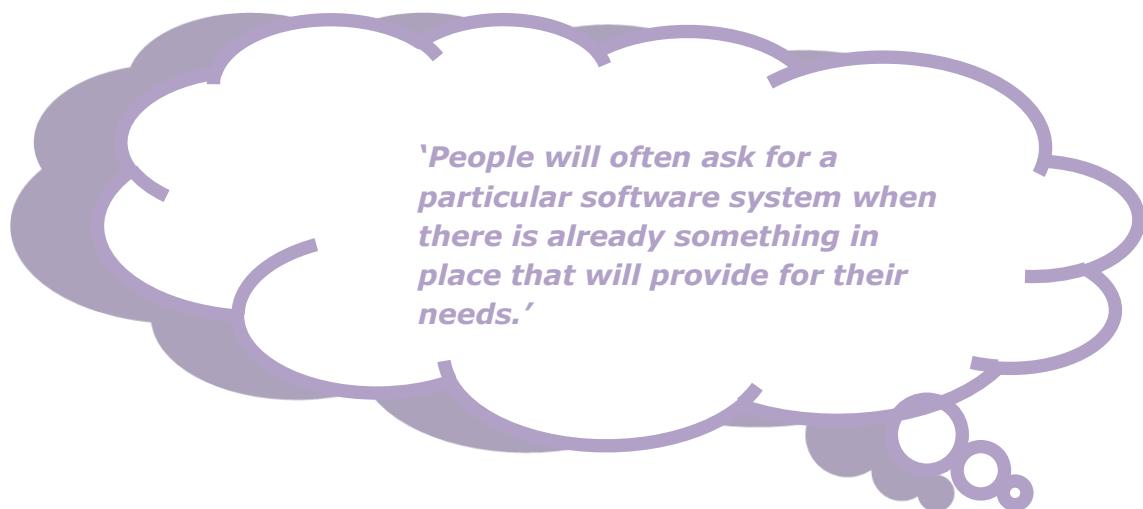
2.8 ICT Shared Services

2.8.1 Introduction

Shared Services (SSs) have been in use since the 1980s and were originally deployed to create cost savings and improve efficiency by convergence of services from different organisations or parts of organisations to one source of the shared service.

JISC's understanding of shared services is 'institutions co-operating in the development of and delivery of services, so sharing skills and knowledge, perhaps with commercial participation'.

JISC Briefing Paper, Shared Services in UK further and higher education (2008)



A Shared Service is just one of a number of strategic sourcing options that an HEI can chose. It takes different forms but is normally operated through the creation of an internal or external consortium or joint venture that is able to work together in establishing common core services that are used by its members. The creation of a consortium, or joint venture, by which members have stakeholder influence and share commercial operating costs is not the same as outsourcing which involves external suppliers providing such services for profit. However, definitions vary and SSs are often implemented in a combination with other procurement approaches such as outsourcing. Today SSs are seen as one of a number of ways in which HEIs can become more agile and sustainable.

Now consider these key questions:

- **What ICT services are currently 'Shared' within your institution?**
- **What business services are in use that may be relevant or support business requirements elsewhere within the institution?**
- **What is the quality of institutional data? Why?**

2.8.2 How can Shared Services (SSs) help?

Since the Gershon Review¹⁷ government strategy has included the use of SSs. All of the funding councils are committed to supporting their sectors in seeking cost savings through shared services.

The Higher Education Funding Council for England (HEFCE) commissioned a report from KPMG¹⁸ into [Shared Services in the Higher Education Sector](#) that found that there is potential for HEs to secure sustainable efficiencies including both economic benefits and service improvements.

HEFCE believe there are real opportunities for institutions to benefit through the use of shared services. Figure 13 overleaf is extracted from the HEFCE Circular 20/2006¹⁹. It illustrates the different types of services and resulting benefits that can be realised.

¹⁷ Gershon Review of Government Operations for Expenditure & Efficiency, 2005

¹⁸ Shared Services in the Higher Education Sector. Report to HEFCE by KPMG, July 2006
http://www.hefce.ac.uk/pubs/rdreports/2006/rd15_06/

¹⁹ HEFCE Circular 20/2006 Shared services: the benefits for higher education institutions
http://www.hefce.ac.uk/pubs/circlets/2006/cl20_06/

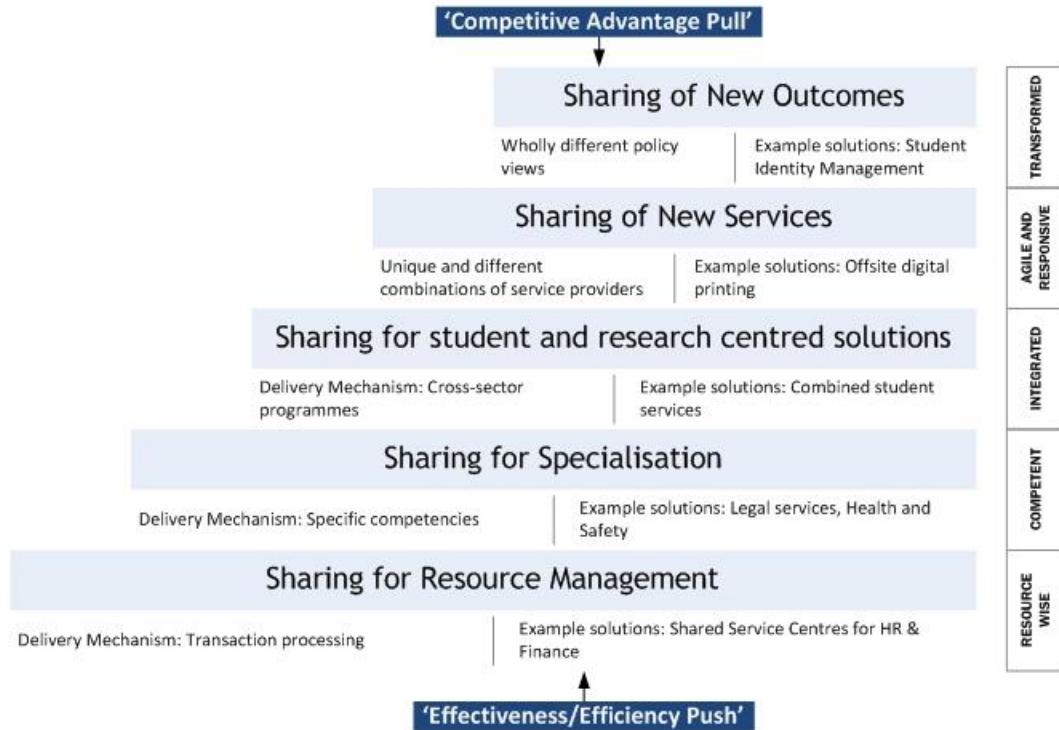


Figure 13 - HEFCE Circular 20/2006, extracted

Opportunities to benefit from SSs can be found wholly within an institution or by the collaboration and delivery with another organisation or joint venture organisation.

The argument for successful SSs is that by the convergence or streamlining of an institution's or institutions' functions, including technology and business functions, the services can be delivered more effectively and efficiently. Such savings allow the opportunity to redirect resources to student and partner facing activities. Further benefits may also accrue where integration or synergy can be achieved within SS solutions, such as may be found between Student Management and Finance Systems. Given the sectors strong collaborative approach, the process of review and business change as part of the design of the SS, can also add further value through consultation with other institutions.

Although the models and possible business solutions for SSs are extensive the competitive nature of the HE sector may limit future SS solutions. More obvious opportunities are seen to be available in, for example, administration and those areas less critical to the market position of an institution than the areas of research and teaching and learning.

As we consider the opportunities within an institution the shared services approach may also be relevant to the sharing of functions, rather than applications in line with service oriented

The service-oriented approach is a software design method. It identifies functions common to a number of different applications and separates them out as reusable service modules that can talk to each other.

The service-oriented approach results in a Service Oriented Architecture (SOA) or Enterprise Service Architecture (ESA).

approaches (soa), Service Oriented Architecture (SOA) and the e-Framework Programme led by JISC. The e-Framework Programme aims to co-ordinate service-related work in other programmes and share the developments using a knowledge base. More information can be found at [JISC e-Framework Programme for Education and Research](#)²⁰

JISC have published a number of reports²¹ on SSs and the findings confirm that about a third of responding institutions have at least one shared service with benefits being sought through:

- Continuity and resilience of service
- Raising quality and adding value to existing services
- Securing cost savings and sustainable efficiencies
- Releasing staff time for more customer facing activities
- Improving system scalability
- Ensuring improved and more up-to-date systems
- Gaining competitive advantage
- Ability to offer otherwise unsustainable services
- Levering transformation
- Collaborating with other institutions and improved cooperation.

2.8.3 How are shared services used in HE?

Although the current number of shared services in HE is small there are some successful examples, ranging from national bodies running infrastructure services such as the JISC itself, to consortium type arrangements between institutions sharing a mix of services, and to research and teaching arrangements amongst institutions. Examples of successful models include:

- Universities and Colleges Admissions System (UCAS)
- The JANET Network. Its success was recognized by winning the shared services category of the e-Government National Awards 2007
- Research Councils UK (RCUK) Shared Services Centre Project – probably the largest shared service initiative in the sector and providing economies of scale by covering all seven Research Councils, HR, payroll, finance, procurement, IT, telecommunications and grants processing.

Shared service models within an institution are proving equally successful in providing additional and improved services and lowering costs. For example: Relationship Management solutions - procured at an enterprise level may be configured and implemented across functions such as marketing and enquiries, applications, alumni and partnership management. The benefits accrue in the quality and sharing of data, lack of duplication, as well as implementation and operational cost savings.

There is clearly a range of different SS models and potential services that can be developed within the HE sector. However, these can be complex and their exploration and

²⁰ JISC e-Framework Programme for Education and Research,
<http://www.jisc.ac.uk/whatwedo/programmes/eframework.aspx>

²¹ JISC Study of Shared Services in UK Further and Higher Education Reports 1,2, and 3, April 2008,
http://www.jisc.ac.uk/whatwedo/programmes/programme_10s/ssprev

development using a business case and business process change management techniques will help in realising sound business opportunities. JISC provide guidance for managers considering shared services within their [JISC InfoNet Shared Services infoKit](#)²²

2.8.4 Next Steps

Investing in Shared Services (SSs) is a significant and measured investment decision for senior management. However, there is much information and support for institutions to improve awareness of shared services and to support its introduction and effective use.

- A [HEFCE : Circular letters : 07/2010 - Allocation of funding for shared service activities in 2010-11 through the University Modernisation Fund](#)²³ informed heads of HEIs of the allocation of funding for shared service activities and outlined the future strategy emphasising the work of the:
- [JISC Flexible Service Delivery Programme](#)
The JISC Flexible Delivery Programme commenced in 2009 and is currently helping over 30 universities implement streamlined, flexible and/or shared provisions of administrative and student services that will allow greater institutional efficiency and agility.

Other information available for awareness and guidance includes:

- [JISC e-Framework Programme for Education and Research](#)
The Programme commenced in 2005 and is now an international joint initiative by JISC, Australia's Department of Education, Science and Training (DEST), and other international partners. The primary goal of the e-Framework is to facilitate technical interoperability within and across education and research through improved strategic planning and implementation processes. As previously referred it is a framework and knowledge base, available through the [e-Framework web site](#)²⁴, that seeks to ensure visibility and access across a wider membership and associated programmes.
- [JISC e-Framework Briefing Paper](#)²⁵
- [JISC InfoNet Shared Services infoKit](#)
Shared services, implemented with a clear understanding of an institution's business requirements and change management strategy is another enabler of improved institutional performance and agility. This JISC briefing paper provides practical guidance in its identification, planning and support through all aspects of the project.

²² JISC InfoNet Shared Services infoKit <http://www.jiscinfonet.ac.uk/infokits/shared-services>

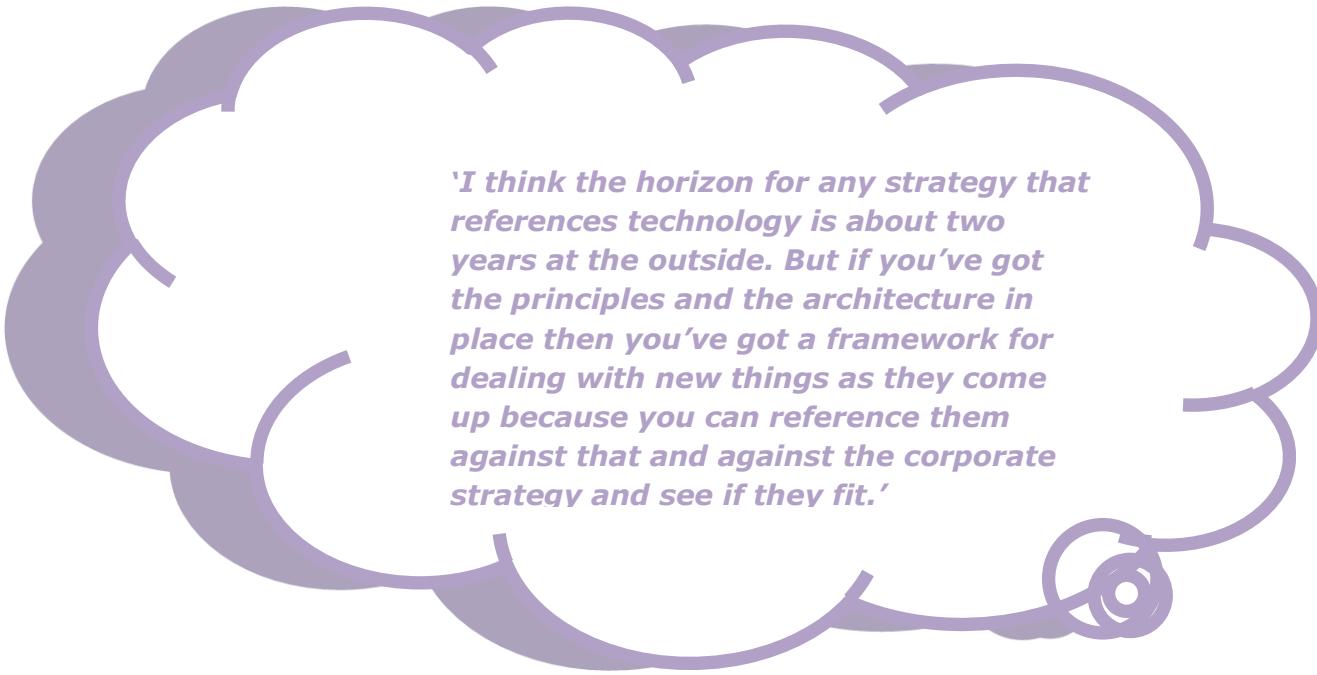
²³ HEFCE : Circular letters : 07/2010 - Allocation of funding for shared service activities in 2010-11 through the University Modernisation Fund, http://www.hefce.ac.uk/pubs/circlets/2010/cl07_10

²⁴ JISC e-Framework web site, <http://www.e-framework.org/>

²⁵ JISC e-Framework Briefing Paper,
http://www.jisc.ac.uk/publications/briefingpapers/2006/pub_eframeworkbp.aspx

2.9 Enterprise Architecture

2.9.1 Introduction



'I think the horizon for any strategy that references technology is about two years at the outside. But if you've got the principles and the architecture in place then you've got a framework for dealing with new things as they come up because you can reference them against that and against the corporate strategy and see if they fit.'

Enterprise Architecture (EA) is a high level, strategic technique designed to help senior managers achieve business and organisational change. It provides an evolving, dynamic way of describing and aligning the functional aspects of an HEI, its people, activities, tools, resources and data/information, so that they work more effectively together to achieve its business goals. Enterprise Architecture also seeks to achieve desired future change through design. It holds that by understanding existing information assets, business processes, organisational structures, information and application infrastructure (the 'as is' state) it is possible to 'do something different', something new and innovative (the 'to be' state).

Enterprise Architecture has been successfully used in the commercial sector for over 15 years and is now developing momentum within HE as an important management instrument in supporting institutions to meet their strategic goals. A critical factor in the successful implementation of Enterprise Architecture is the support and commitment at an institutional level through the senior

'Enterprise Architecture: a coherent whole of principles, methods and models that are used in the design and realisation of an enterprise's organizational structure, business processes, information systems and infrastructure.'

*Definition from Lankhorst M et al,
Enterprise Architecture at Work, 2005*

management team sponsorship and involvement. Without this it is unlikely that such an 'enterprise' wide initiative, that requires the buy-in and involvement of management and staff across the institution, will succeed.

Now consider these key questions:

- **Are senior decision makers prepared to accept changes necessary to contribute to institutional and ICT strategic alignment? What benefits will stakeholders realise from this type of change?**
- **What current activities are undertaken to facilitate greater understanding and development of shared services?**
- **What hurdles must your institution overcome to enable greater sharing of services and data?**

2.9.2 How can Enterprise Architecture (EA) help?

Our premise defines that institutions need to integrate and align ICT with corporate strategy. This indicates a need to be able to understand and deliver corporate objectives and business requirements; to be able to communicate and develop solutions for the institution, across the entire institution. A key enabler in this process is Enterprise Architecture. Enterprise Architecture can facilitate a high-level understanding of the HEI as a holistic entity; that takes into account its structure, products, operations, technology, and the web of relations tying these together. This is achieved by working, thinking and communicating at the institution level.

One way of understanding this better is to consider where Enterprise Architecture fits as a management process. Lankhorst et al. (2005) depict Enterprise Architecture within a pyramid of management processes as illustrated overleaf.



Figure 14 - Enterprise Architecture as a management instrument @Springer-Verlag, Berlin Heidelberg²⁶

At the top of the pyramid is the mission of the institution – the reason it exists. Beneath this is the overall vision and strategy of the enterprise. These should be translated by senior management into a series of strategic goals that take the institution from its current position (often referred to as the 'as is' state) to a future scenario (known as the 'to be' state).

The development of more detailed strategies that will support these goals is an important business process that must take intelligence from the business and ICT professionals. Translating these goals into changes to the business processes, day-to-day operations and ICT systems are where Enterprise Architecture delivers real value.

However, Enterprise Architecture must still be part of an overall framework that allows the business, through its culture, people and processes, to formulate the appropriate strategy. The commitment of senior management and role of the Chief Information Officer in bringing together the approach and resources is critical, as is the contribution of ICT professionals with the experience and skills to consult, analyse, communicate and document business processes by fully engaging with staff, students and partners.

The primary purpose of using Enterprise Architecture is to understand information assets, business processes, organisational structures, information and application infrastructure as a means to designing business and institutional change. In the long-term the objective for an institution is to utilise Enterprise Architecture at an enterprise level to support complete business visibility and agility. However, like any other change the issues are complex and the important priority for Enterprise Architecture is that it should be aligned with

²⁶ Lankhorst, M. et al, (2005). This diagram is subject to copyright. All rights are reserved, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilm or in any other way, and storage in data banks. Duplication of this publication or parts thereof is permitted only under the provisions of the German Copyright Law of September 9, 1965, in its current version, and permission for use must always be obtained from Springer. Violations are liable for prosecution under the German Copyright Law.

institutional goals. Therefore the journey of adoption may focus on specific business areas and require a period of time to achieve a more joined up architectural definition of the institution. Enterprise Architecture requires strong governance to establish business and systems compliance with the enterprise architecture as well as continuous assessment and enforcement of compliance. There is a need for, 'development without architecture', a governance mechanism designed to provide clear decision making and a waiver from the Enterprise Architecture compliance path for business requirements and systems that can justify, via a well formed and documented business case, exclusion from Enterprise Architecture. The value of this is in ensuring, 'rogue', business and system changes do not compromise the integrity of the institutional architecture and therefore the robustness and agility of the institution.

For more information on Enterprise Architecture see [JISC Doing Enterprise Architecture, Enabling the agile institution](#)²⁷.

2.9.3 How is Enterprise Architecture used in HE?

We found that those universities that have invested in Enterprise Architecture are confident that they are realising enormous benefits. The flexible application of Enterprise Architecture enables a university to target the scope and objectives of their Enterprise Architecture initiatives to align with strategic priorities and we found its use reflected this with top down use for enterprise, and bottom up use for defined areas within an HEI or the specific business systems being addressed.

Some examples include:

1. An institution is using Enterprise Architecture, to support transformational change by their institutional rebranding and using on-line courses to change the provisions for teaching and learning and attract new student groups. Enterprise Architecture was used to identify and communicate the current and future requirements and model the changes required.
2. Another institution is using Enterprise Architecture to support major review of ICT provisions with the objectives of:
 - aligning the business strategy and ICT provision
 - increasing institutional efficiency through less waste and duplication of data
 - documenting and providing transparency for the IT landscape
 - increasing the institutional agility whilst reducing costs
 - preparing for a Service Oriented Approach (soa).
3. A heavily de-centralised and federated university has achieved improved data management, efficiency and cost savings within research by identifying common services and architectures to support research, introducing automation and provide integration with teaching and administration. The institution used a

²⁷ JISC Doing Enterprise Architecture, Enabling the agile institution, <http://jiscinfonet.ac.uk/flexible-service-delivery/ea/doing-ea.pdf>

bottom-up approach using Enterprise Architecture in the context of producing a virtual research environment.

Other universities have achieved significant business process improvements by using Enterprise Architecture to identify current processes, model alternatives and allow improved assessment of new solutions:

4. A more centralised post 92 university implemented a case management solution to provide student services for complaints, welfare, disabilities and grievance management replacing multiple solutions and reducing the duplication of processes. By taking an Enterprise Architecture approach the institution was able to demonstrate that a single technical system could deliver a number of different services, avoiding unnecessary investment in multiple technical solutions and service complexity.
5. An external examiner appointment system has been implemented to replace multiple faculty solutions improving the use of resources and reducing duplication of processes and data.

2.9.4 Next steps

Investing in Enterprise Architecture is a significant and measured investment decision for senior management. However, there is much information and support for institutions to improve awareness of Enterprise Architecture and to support its introduction and effective use.

In 2008, JISC funded a twelve month pilot programme of projects to explore the applicability of Enterprise Architecture. The findings gave further weight to the argument for Enterprise Architecture and the report [Unleashing EA: Institutional Architectures and the value of joined up thinking](#) is available at http://www.jisc.ac.uk/media/documents/techwatch/jisctsw_ea_synthesis.pdf

Part of JISC's role is to facilitate inter-institutional activities and in relation to EA there are two key initiatives:

- **The International e-Framework Initiative**, which receives significant funding from JISC, has been established to help higher education and research take advantage of the opportunities offered by the service-oriented approach.
- **JISC InnovationBase**
More recently, JISC has funded the InnovationBase (IB) – a 'knowledge repository' that holds information on how higher education institutions function, in particular their work processes, roles, systems/applications and various artefacts that support these. The IB has been developed as a complementary service to the e-Framework, providing a high level view of the lifecycles of business processes within HE. Its development is being managed by the IB Development Team (split between Manchester University and University of Southampton), who are part of the wider JISC Community Engagement Team (CET). The IB is seen as having the potential to

offer HE staff working on Enterprise Architecture with a convenient way to share models and to work together on architecture-related issues.

JISC Enterprise Architecture (EA) Practice Group

The JISC Enterprise Architecture Practice Group is a new network for practitioners and managers from higher and further education institutions who are using, adopting or interested in the Enterprise Architecture approach to support strategic change and improvement. Its aim is to help institutions and their Enterprise Architecture champions move more rapidly and successfully in 'doing EA', by sharing knowledge, experience and challenges from real projects.

For more information go to <http://www.jiscinfonet.ac.uk/flexible-service-delivery/ea/eapg>

3 Case Studies

3.1 Institution A – Strategic Maturity

Institution Profile

Institution A is a major UK research-intensive university with a global reputation for academic excellence. The University is led and managed by the Vice-Chancellor and the Senior Management Team (SMT) who operate to a set of principles and agreed project related responsibilities. The SMT's remit is to exercise an integrated overview of the University's policies and resources through implementation of the Strategic Plan.

The University's information environment is provided, maintained and developed at the institutional level by Information Systems and Services (ISS) and the University Library, with different governance arrangements regarded as appropriate to each of them. The University sees no apparent benefit, at present, in service or value for money terms, in converging Library and IS Services; they are managed separately but work very closely together for the benefit of researchers, teachers, learners and the wider university community. While working closely together as service units on both strategic development and specific projects, both ISS and the Library operate in a number of partnership arrangements with other academic units and services within the University and externally. Given the pervasive nature of the information environment, the development of effective collaborative arrangements is seen as extremely important.

The Role of ICT

ICT plays a strategic role within the University as it is considered a 'pervasive institutional resource' and the Vice-Chancellor includes meetings on IT as top table items on his agenda.

ICT is provided through a central ISS function that supports and enables research, teaching and learning and the business of the University. The Director of ICT has an extensive IT background gained from the commercial sector and an excellent understanding of how his department can drive the University's current business as well as how it can be an active contributor of innovation in the future. He undertakes the role of a Chief Information Officer and reports to the Registrar.

Strategy Formulation & Implementation Process

Strategic planning is driven from the top as the institution's vision and mission are used to identify and develop a number of institutional objectives that are categorised by core functions, structures and corporate activities.

The Director of ICT is the central designer of and contributor to the Information Systems and Services (ISS) strategy and is also in charge of its implementation. He works with the

Head Librarian in drafting the strategy which is validated through the Teaching and Learning, and Research Committees before approval by the Senior Management Team. In addition, the Director of ISS engages in consultation and orientation meetings weekly to ensure understanding and integration of the needs across the institution.

Maturity, Strengths and Constraints

The strengths of the strategy formation process are its clarity, integration, accountability and ownership, i.e. the clear decision-making process regarding the strategy formation and the allocation of tasks to people who hold the relevant knowledge.

A relative weakness is the lack of an institutional approach regarding the evaluation of strategy implementation. While there is a tracking of financial performance against targets, there is no measure for strategic achievement.

Institution A is one of the more advanced UK HEIs in its recognition and development of ICT as a transformational enabler. It can be seen to have achieved a strategic level of maturity in its formulation and delivery of strategic ICT, with some evidence of a 'transformational' approach being present.

Developing maturity

The key areas the institution has identified to enable greater maturity include:

- Introducing institutional and functional performance measures using Key Performance Indicators (KPIs)
- Introducing performance measures against strategy implementation
- Improving awareness of ICT-related issues across the University administrators and academics
- Improving the ICT staff's contribution to institutional strategy
- Evaluating the impact of cloud computing.

3.2 Institution B – Operational Maturity

Institution Profile

Institution B is a specialised, research intensive UK University in which teaching and research are integrated and undertaken in an environment and culture of applied innovation. The University aims to be the first choice for students and clients worldwide in teaching and research in selected areas of engineering, applied science and management. It is positioned between traditional universities and business and industry to provide postgraduates with further professional development and graduate awards.

It has a collective vision and strategic direction resulting from its devolved and empowering organisational style. The Council has responsibility for the strategic direction of the institution, approval of major developments and the receipt of regular reports from executive officers on the day to day operations of the University. A senior management team, representing senior management across the university, and including the Director of ICT develop and approve strategic plans.

The Role of ICT

ICT services are provided by the centralised IT department which consists of three designated areas, infrastructure (network and servers), the service team (service desk, repair, training), and applications (support for IS, HR, research information services).

The Director of IT heads the central IT services department and has responsibility for the formulation and implementation of ICT strategy. A Chief Information Officer (CIO) role does not exist.

Strategy Formulation & Implementation Process

The ICT strategy is also formulated and approved by the senior management team, which includes the Director of IT. The IT staff and senior management from the schools and service departments are consulted, often within senior management meetings.

By embedding the ICT strategy within the institutional strategy formulation and approval process the university is seeking strategic alignment. The plans are formulated for a three year period although it is recognised that the changing nature of the current higher education and institutional climate does not support long-term planning.

The IT department draw up annual operational plans which in turn are approved by the senior management team.

Maturity, Strengths and Constraints

There has been much effort and achievement in centralising ICT services so that, 'we can optimise the use of our resources and help to create more coherent strategy across the university.' Some devolved ICT is still in use and is excluded from the centralised ICT strategy.

In examining the alignment of strategy there appears to be potential for clearer institutional strategic objectives to facilitate ICT strategy formulation. The clarity within the institutional strategy was seen to impact on the detail and alignment of the operational plans as well as IT's ability to provide horizon scanning and the identification of relevant new technologies.

The importance of communications and buy-in from the senior management team was identified as essential in following through with successful implementations. More communications with stakeholders has been sought to improve implementations and operational performance.

Institution B can be seen to have achieved an operational level of maturity in its formulation and delivery of strategic ICT.

Developing maturity

The key areas the institution has identified to enable greater maturity include:

- Improving the awareness and potential role of ICT in strategy formation at executive and senior management levels
- Possible use of an ICT strategy committee which consists of more ICT professionals or managers with extensive ICT expertise
- Application of clear KPIs to measure success/failure of ICT projects
- Improving the strategic plan and review timescales.

3.3 Institution C – Operational Maturity

Institution Profile

Institution C is a large, internationally renowned UK collegiate university with a devolved institutional structure. Within the federation academic departments are located centrally and are not affiliated with any particular college. Colleges arrange the tutorial teaching and well-being for their undergraduates.

The Role of ICT

ICT is understood to be critical to the continued success of the university. It is provided by a devolved ICT framework through the respective structures within divisions, faculties, departments, colleges and central administration. The framework provides local ICT support with autonomy and is complemented by centrally provided, optional standards based shared services and enterprise wide services.

The Director of ICT is uniquely placed to oversee the complete picture of ICT within the University. The role oversees internal business units responsible for the delivery of ICT facilities, training, support services, library services and computing resources.

The ICT Committee represents the devolved collegiate ICT requirements.

Strategy Formulation & Implementation

An ICT committee provides a single point of governance for ICT across the collegiate University. It determines a strategy and policy framework for the collegiate University, and reviews the scale, quality and cost effectiveness of ICT services. It is establishing an ICT framework to enable centrally and locally provided services to work together efficiently, reliably and cost effectively. Its membership represents the entire university on ICT related matters and provides a consultative framework for ICT strategy formulation and decision making and a separate arm for strategy implementation. Budgetary approval for ICT is vested in the committee and in certain cases additional more senior committees.

The chair of the committee reports to the Registrar but there is no formal integration of ICT to institutional strategy.

The introduction of the ICT committee and the formulation of a Strategic ICT plan has required changes in governance and produced a broader engagement of university staff in ICT related issues.

Performance measures for the success of the ICT strategy and its implementation have been defined to include improvements in services, quality and cost-effectiveness of new services, the sharing of best practice and the prioritisation and adequate resourcing of central ICT services within a contained budget.

Maturity, Strengths and Constraints

As a collegiate University with a devolved institutional structure the provision of ICT is complex. A central provision of services is not possible as the majority of IT staff operate locally from colleges and halls. The strengths of the University's approach to strategy formation and implementation are its attempts to drive centralisation, where appropriate, the use of consultation procedures to determine IT priorities and investments and its move towards collaborative work environments.

The institution is constrained by its structure, fragmented structure of ICT service provision and the absence of any strategic process alignment between institutional and ICT. Although a senior institutional role exists in the director of ICT there is currently no member of the senior management team with extensive ICT expertise and experience or holding a Chief Information Officer role.

Overall, it may be concluded that institution C maintains an operational level of maturity in its formulation and delivery of ICT, with some evidence of changes to produce a more strategic approach.

Developing maturity

The key areas the institution has identified to enable greater maturity include:

- Aligning and synchronising the strategy formulation processes between the institution and ICT
- Developing the ICT strategy and continue to review and maintain its accuracy
- Continuing to develop centralised shared services where appropriate benefits are identified
- Improving the translation of strategic ICT imperatives into ICT deliverables.

3.4 Institution D – Operational Maturity

Institution Profile

Institution D is a 1994 group research led UK university with a commitment to building a university which is both successful today and keeps a firm eye on the long-term.

As Chief Executive of the University, the Vice-Chancellor exercises considerable influence upon the development of institutional strategy, the identification and planning of new developments and the shaping of the institutional ethos. The Pro-Vice-Chancellors, who are senior members of the academic or academic services staff appointed to assist the Vice-Chancellor, and the senior academic and administrative officers all contribute in various ways to this aspect of the work, but the ultimate responsibility for what is done rests with the Vice-Chancellor. This senior management team of mainly academic members does not include a Chief Information Officer or manager with extensive expertise and experience in ICT.

The Role of ICT

The university operates a converged service for Library and ICT and the director of Information Services has overall responsibility that includes ICT systems, Library and corporate information and communications services. As the director of a converged service he is responsible for information systems strategy, policy and compliance.

The institution operates devolved ICT that includes centralised ICT including all administrative computing with each faculty operating independent ICT support teams.

Strategy Formulation & Implementation Process

An information systems strategy group oversees policy and assigns budgets against an information services divisional strategy (ISDS). ICT strategy is drawn from and aligned to the corporate plan and is formulated and approved by education and research boards using strong consultation across the institution.

However, local ICT investments are made outside of strategy and improvements in governance, compliance and consultation are being sought to reinforce policy and support a more strategic approach to ICT.

The strategy is across a five year period and implementation of such a longterm plan is problematic within the more rapidly changing needs of the institution and ICT.

Maturity, Strengths and Constraints

A strength of the institutional ICT strategy lies in its alignment to institutional strategy and the thorough consultation across the institution. However, the frequency of the planning and review processes impact on institutional agility.

Also the absence of combined ICT and management expertise within the management team impinges on ICT decision making and the opportunities for early consideration of emerging ICT technologies.

Institution D exhibits a strong commitment to improving ICT compliance and services through the management of centralised services and localised support teams.

Overall, it may be concluded that institution D maintains an operational level of maturity in its formulation and delivery of ICT.

Developing maturity

The key areas the institution has identified to enable greater maturity include:

- Improving the frequency of ICT strategy formulation and review to allow for new and changing institutional needs to be formally included within strategic plans
- Improving ICT knowledge and awareness within senior management strategy meetings
- Improving ICT governance
- Exploring the opportunities for local support teams to work within the centralised management framework to improve standards and compliance.

4 Introducing Self-Analysis and the Tools Available

The JISC ICT Toolkit provides self-analysis across the two perspectives of institutional maturity and an individual's disposition to strategic ICT, called 'ICT Strategy Savvy'. These are addressed separately and may be used independently of each other.

The Strategic ICT Toolkit is available on-line at

<http://www.nottingham.ac.uk/gradschool/sict/> or as a pdf document at

http://www.nottingham.ac.uk/gradschool/sict/documents/Strategic_ICT_Toolkit_V3.pdf and in each case is supported by two additional spreadsheets to assist entry and the generation of the:

- Institutional strategic ICT self-analysis
- Individual ICT strategy savvy self-analysis

Use the following links to download the spreadsheets:

- ***INSTITUTIONAL STRATEGIC ICT self-analysis***
http://www.nottingham.ac.uk/gradschool/sict/documents/SICT_Self_Analysis_Tool_v3.xls
- ***INDIVIDUAL ICT STRATEGY SAVVY self-analysis***
http://www.nottingham.ac.uk/gradschool/sict/documents/SICT_Strategy_Savvy_Tool_v3.xls

Section 5 provides the information to support the approach to institutional strategic ICT alignment as follows:

5.1 Introduction

5.2 Plan and initiate your project for institutional strategic ICT alignment

5.3 Self-analysis

- provides a download for the institutional self-analysis tool
- provides the questions within the self-analysis tool for information only

5.4 Review the opportunities for improvement in strategic ICT alignment

5.5 Review the alternative improvements and develop a business case for change

Section 6 provides the information to support the approach to individual ICT strategy savvy as follows:

6.1 Introduction

6.2 The background for ICT Strategy Savvy self-analysis

6.3 Self-analysis

- provides a download for the ICT strategy savvy self-analysis tool
- provides the questions within the self-analysis tool for information only

6.4 Review the opportunities for improvement in ICT Strategy Savvy

6.5 Define the way forward

4.1 Strategic ICT (S-ICT) Toolkit Deployment

This section describes the different options for deploying the S-ICT toolkit within your own institution. It will focus on actions 2-4 from the list of S-ICT actions below.

Action 1 – Planning, preparing and initiating your project

Action 2 – Setting the scene for potential participants

Action 3 – Exploring the toolkit

Action 4 – Completing the questionnaire's

Action 5 – Analysing and coding the results

Action 6 – Completing a review of your maturity, investigating opportunities for improvement and making recommendations.

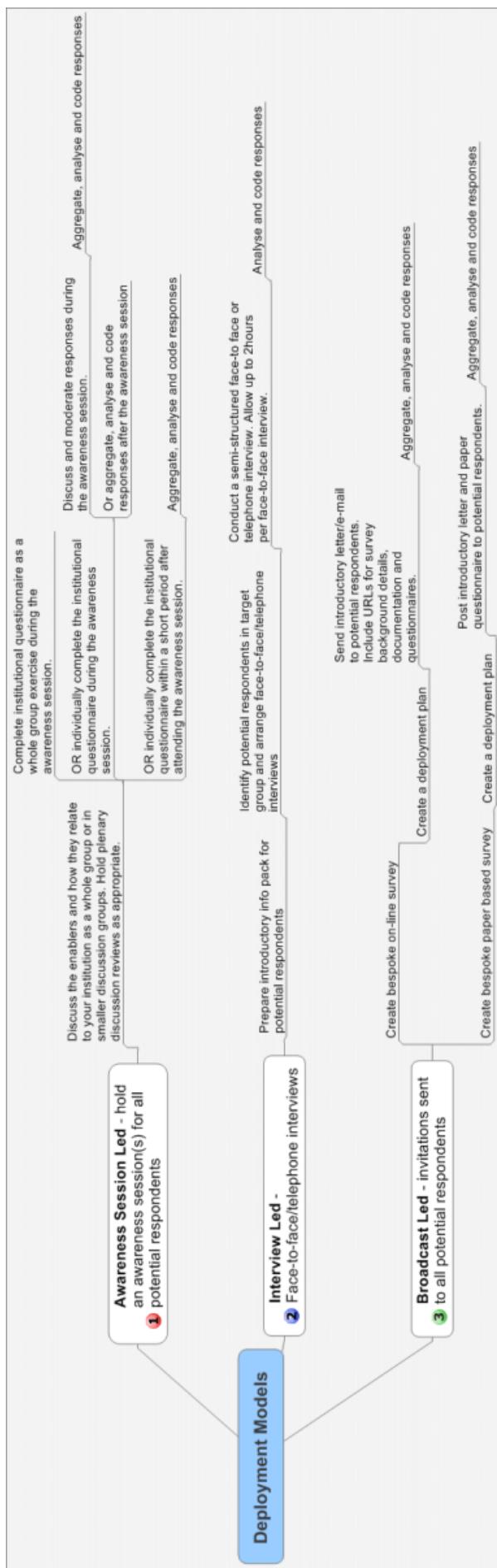
Action 7 – Developing a detailed business change definition, seeking approval as appropriate and presenting a business case for change.

The S-ICT field test institutions identified a number of methods for deploying the S-ICT toolkit either across their entire institution or across a selected academic or business area. The suggested deployment techniques vary considerably. Some are most suited to obtaining a broad view from a wide range of respondents, whilst others are better suited to situations when it would be better to spend more time with a smaller cohort to obtain a deeper richer picture. Many field institutions chose to place their questionnaire's online; either in the original spread sheet form or delivered via online survey tools such as Survey Monkey. This enabled a more efficient and reliable end-to-end respondent engagement process and simplified the data collection, coding and analysis tasks that followed.

There are three primary S-ICT toolkit deployment models:

1. Awareness session led
2. Interview led
3. Broadcast led

When you are selecting your deployment model you need to consider your own available time and your respondent's time, the physical location of your respondents, and their existing levels of strategic institutional knowledge. The mindmap overleaf provides a generic illustration of each deployment option.



5 Institutional Strategic ICT Self-Analysis and Improvement Framework

5.1 Introduction

The institutional self-analysis section of the SICT Toolkit offers a review of your institution's current maturity in deploying strategic ICT. It may be completed to generate an assessment for the institution, or any part thereof, as defined by your project scope.

A set of questionnaires, organised by strategic enabler, are available for completion selectively by enabler or in total. The full questionnaire will take about 30 minutes to complete. No prior preparation is required but should you wish to refine or change your input you can revisit and revise your self-analysis later. Should you feel unable to answer a question the knowledge base for the appropriate 'enabler' will explain the context further and you can investigate your institutional position to assure accuracy or use the 'don't know' option.

The maturity is reported at the institutional level supported by the selected 'enablers'. In addition, the self-analysis is used to identify opportunities for institutional development and improvement together with an indication of good practice. An objective of this analysis is to provide feedback on maturity that identifies areas for further investigation within the subsequent stages of your project. The self-analysis part of the SICT Toolkit is flexibly structured to complement your chosen project methodology from project initiation to close.



* These activities lend themselves to facilitated discussions or workshops

The approach is based on your definition of scope, objectives and issues and supported by analyses of current maturity that will identify and inform areas for your project investigation and review. With a project sponsor and stakeholders to reflect your scope and objectives the project can establish the preferred opportunities, recommendations for change and inform a business case for change.

Alternatively, the self-analysis tools contained in sections 4 and 5 can be used selectively to generate a range of maturity analyses with suggestions as to where there may be potential for improvements. So if you just want a quick interactive assessment go to section 5.3, otherwise the following will inform your project.

5.2 Plan & initiate your project

As with any project setting clearly defining your scope and objectives are essential.

Defining these for the strategic alignment of ICT is challenging. Information and communication technologies support almost every activity within an institution and although already embedded alignment is about further harmonising the planning and deployment of ICT related activities in order to fulfil the institutional vision and goals.

Strategic ICT projects will normally inform change at an institutional level but the approach can be varied and set according to your institutional priorities.

The nature of this type of cross institutional project requires clarity in planning and the engagement of key management who identify with and agree recommendations for change. We recommend that your project initiation should also include:

1. Defining the scope of this project.
Examples are:
Across the institution, within a faculty, across professional services
2. Identifying the project sponsor, stakeholders and a communications plan
3. Defining the goals, objectives and deliverables
4. Defining the opportunities, issues and challenges
5. Defining any constraints and assumptions.

5.3 Assess your current level of maturity

5.3.1 Perspective

The self-assessment offers a perspective on how the institution is harmonising its people, processes and resources in order to deliver ICT that is aligned and able to meet the institution's strategic goals.

To achieve this we will ask a series of questions to ascertain the institution's position on the 'enablers' that have been identified as influencing strategic alignment. Maturity will be measured by establishing levels of awareness, commitment, use and experience as well as realised benefits and measures of success against each 'enabler'. In addition to your answers you should offer evidence to support your response either as text or as a hyperlink to supporting documentation. This is designed to assist you in compiling relevant materials to support the project improvement process.

Your answers will reveal your current position and indicate where there are areas for improvement. The toolkit will support the self-assessment process by introducing focus and engagement within each area in order to identify improvements specific to each institution's unique profile.

The SICT Toolkit defines maturity of an institution's strategic ICT at one of three levels, each profiled as follows:

1. TRANSFORMATIONAL

- ✓ Agile University
- ✓ Strong focus on institutional needs
- ✓ Strong horizon scanning, anticipating and developing institutional needs using aligned ICT
- ✓ Using ICT to drive business innovation
- ✓ ICT strategy is highly integrated and aligned with institutional strategy
- ✓ Strong integrated institutional & ICT governance

2. STRATEGIC

- ✓ Not an Agile university but able to deliver against some strategic needs
- ✓ Mature operational capabilities with high dependence on ICT
- ✓ Good business alignment between institutional needs and ICT
- ✓ ICT supports institution at a business process level
- ✓ Delivers good ICT value when measured against service delivery rather than institutional ICT value

3. OPERATIONAL

- ✓ ICT is supporting institution operationally
- ✓ Reliable and satisfactory performance from IT and IS functions, delivering good service levels
- ✓ ICT is managed to contain costs
- ✓ Few, if any, institutional ICT initiatives

Profiles for institutions will vary and will always be subject to extremes in their specific characteristics but the toolkit uses a scale of 0 - 60 to offer a general maturity assessment.

Maturity Level	Scale range
TRANSFORMATIONAL	51 -60
STRATEGIC	35 - 50
OPERATIONAL	0 - 34

The following radar diagrams illustrate examples of maturity.

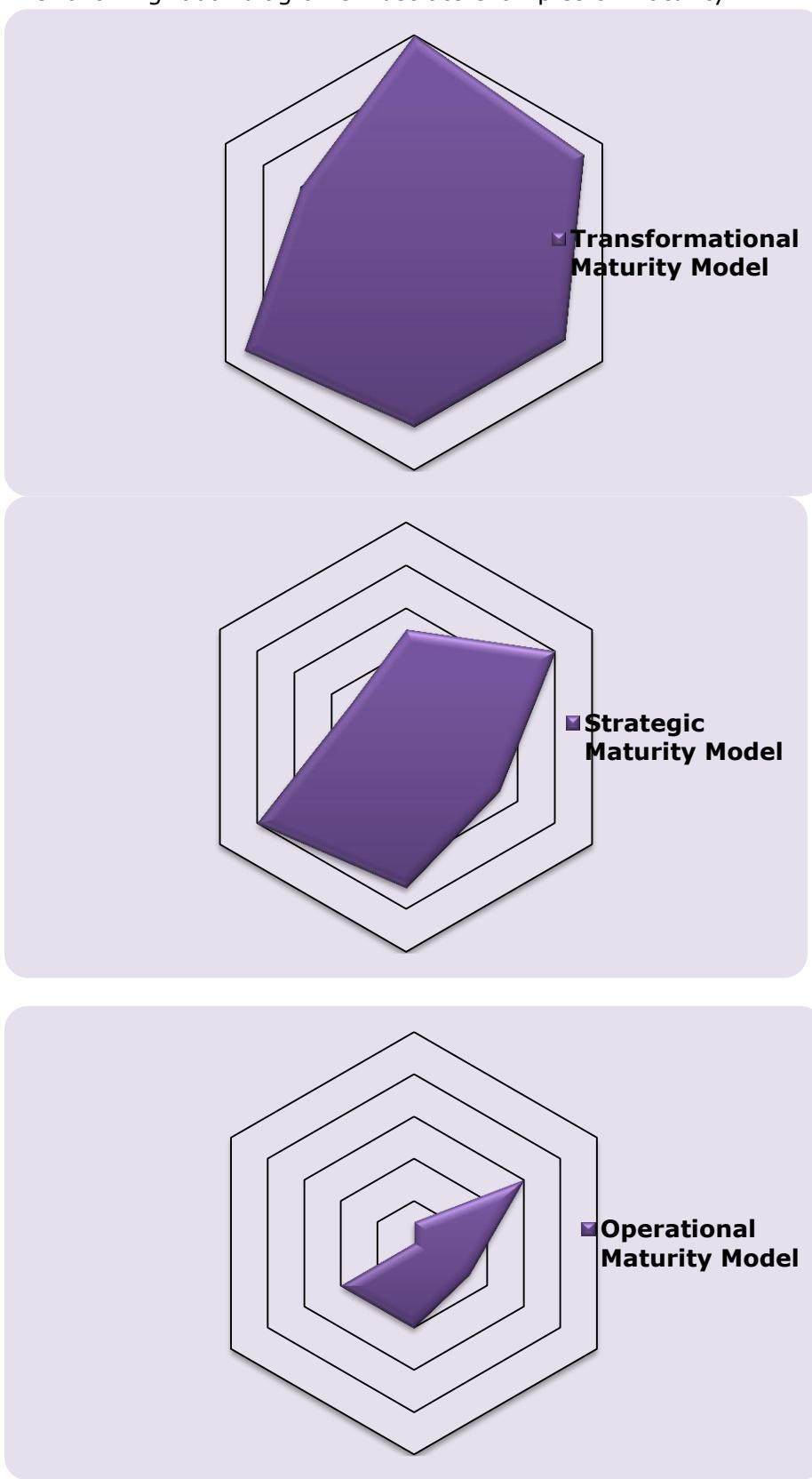


Figure 15 - Examples of Maturity

The following sections illustrate the questions that are used for self-analysis.

**To complete the self-analysis use the following link to download the
*INSTITUTIONAL STRATEGIC ICT self-analysis***

http://www.nottingham.ac.uk/gradschool/sict/documents/SICT_Self_Analysis_Tool_v3.xls

Having downloaded and completed your self-analysis go to

Section 5.4, Review your maturity and opportunities for improvement, to review your self-analysis results.

5.3.2 Self-assessment for Strategic Leadership

This section contains the self-assessment questionnaire for Strategic Leadership. The questionnaire asks a number of questions to ascertain, '**how the SMT have applied their management and support to harmonise and align the institutional and ICT strategies, organisation, governance and performance?**'

Strategic Leadership		Evidence for your response					
Answer the questions for the 'domain' that you are analysing e.g. Institution, Business Services		Strongly Disagree	Disagree	Don't Know or N/A	Agree	Strongly Agree	
1	Your Senior Management Team (SMT) communicate effectively with institutional committees regarding ICT issues?						See section 2.7.2 within the toolkit knowledge base for help regarding this question.
2	The Senior Management Team (SMT) includes a Chief Information Officer (CIO), or equivalent senior ICT professional amongst its membership?						See section 2.4.7 within the toolkit knowledge base for help regarding this question.
3	The Senior Management Team (SMT) includes at least one member who combines a deep understanding of communication and information technology with senior management experience.						See section 2.5.2 within the toolkit knowledge base for help regarding this question.
4	The ICT Strategy Group, or equivalent group, includes a member of the Senior Management Team (SMT).						See section 2.6 within the toolkit knowledge base for help regarding this question.
5	The Senior Management Team (SMT) are able to communicate the ICT governance structure effectively to everyone involved in managing ICT related teams including both key service providers and key users.						See section 2.6.2 within the toolkit knowledge base for help regarding this question.
6	The Senior Management Team (SMT) promotes the importance and value of ICT governance.						See section 2.6 within the toolkit knowledge base for help regarding this question.
7	A Chief Information Officer (CIO), or equivalent senior ICT manager, is actively involved in supporting the Senior Management Team (SMT) during institutional & ICT strategic planning.						See section 2.4.7 within the toolkit knowledge base for help regarding this question.
8	A Chief Information Officer (CIO), or equivalent senior role, champions the consideration of relevant new technologies within strategic planning.						See section 2.4.7 within the toolkit knowledge base for help regarding this question.
9	A Chief Information Officer (CIO), or equivalent senior ICT manager, regularly communicates with senior institutional management.						See section 2.4.7 within the toolkit knowledge base for help regarding this question.
10	The senior management team clearly understand their role and responsibilities in the planning of new solutions involving ICT.						See section 2.4.9 within the toolkit knowledge base for help regarding this question.

5.3.3 Self-assessment for ICT Services

This section contains the self-assessment questionnaire for ICT Services. The questionnaire asks a number of questions to ascertain, '**how strongly ICT Services, across all sources, constitutes a capacity to meet the institutional needs in the formulation and delivery of ICT aligned to institutional strategy?**'

e.g. Institution, Business Services	Evidence for your response				
	Strongly Disagree	Disagree	Don't Know or N/A	Agree	Strongly Agree
1 The institution deploys a Chief Information Officer (CIO), or an ICT professional in an equivalent role.					See section 2.5.2 within the toolkit knowledge base for help regarding this question.
2 The Chief Information Officer (CIO), or equivalent ICT professional, has an effective reporting line into a member of the Senior Management Team (SMT).					See section 2.5.2 within the toolkit knowledge base for help regarding this question.
3 The institution's ICT infrastructure, resources, skills and expertise are adequate to meet the current and identified future ICT needs.					See section 2.5.3 within the toolkit knowledge base for help regarding this question.
4 ICT Services supply services and complete projects to established and accepted institutional ICT policies and standards.					See section 2.5 within the toolkit knowledge base for help regarding this question.
5 Devolved ICT services exist within the institution.					See section 2.4.6 & 2.4.8 within the toolkit knowledge base for help regarding this question.
6 Devolved ICT services deliver approved strategic ICT work.					
7 Devolved ICT Services supply services and complete projects to institutional ICT policies and standards					
8 Devolved ICT budgets exist and actual costs are identified and tracked.					See section 2.5.3 within the toolkit knowledge base for help regarding this question.
9 The ICT Services team has established and maintains strong communications with institutional service users.					See section 2.5.1 within the toolkit knowledge base for help regarding this question.
10 ICT Services actively review developing technologies and contribute to institutional planning at a strategic level.					See section 2.5.3 within the toolkit knowledge base for help regarding this question.
11 Success criteria and performance measurement are being used and communicated.					See section 2.7.2 within the toolkit knowledge base for help regarding this question.

5.3.4 Self-assessment for ICT Governance

This section contains the self-assessment questionnaire for ICT Governance. The questionnaire asks a number of questions to ascertain, '**how strongly is the ICT governance supporting the formulation and implementation of ICT strategy that is aligned to the institution strategy?**'

ICT Governance		Evidence for your response					
		Strongly Disagree	Disagree	Don't Know or N/A	Agree	Strongly Agree	
1	The institution has a documented ICT strategy, or equivalent document.						See section 2.6 within the toolkit knowledge base for help regarding this question.
2	The ICT strategy has been approved by the appropriate institutional ICT governance committee and by the Senior Management Team (SMT).						
3	The ICT Strategy Group, or equivalent group, is made up of management who represent all institutional stakeholders in ICT.						
4	ICT strategy includes a clear articulation of the institutional objectives for ICT.						
5	ICT strategy includes the architectural requirements for integration and standardisation, and the infrastructure requirements for the desired ICT capability.						
6	ICT strategy includes a clear definition of the institutional application needs and includes the investment prioritisation and budgets.						
7	ICT strategy formulation includes consultation with senior institutional management who are stakeholders in ICT systems.						
8	The ICT strategy cross-references to other institutional strategies.						
9	All institutional and devolved ICT is included within the ICT strategy.						
10	All institutional investment in ICT is approved through the appropriate ICT governance committee.						

Continued on next page

ICT Governance self-assessment continued:

ICT Governance		Evidence for your response				
		Strongly Disagree	Disagree	Don't Know or N/A	Agree	Strongly Agree
11	There is a exception process to approve and maintain visibility of ICT investments outside of the documented strategy.					
12	The institution has measured the value of ICT governance in meeting institutional ICT requirements.					
13	ICT strategies are regularly reviewed and updated in line with institutional strategy changes.					
14	The ICT Strategy Group, or equivalent group, oversees the implementation of ICT strategy and receives periodic progress reports on ICT services and projects under its remit.					
15	The ICT Strategy Group, or equivalent, reports periodically to the senior management team on progress on ICT services and projects under its remit.					
16	All investments are subject to a business case approved by the ICT Strategy Group, or equivalent institutional group.					
17	Approved projects have clear objectives and success criteria. Projects are subject to detailed progress monitoring and reporting.					
18	Post implementation reviews are completed for projects to establish and report on achievement against objectives and success criteria.					

5.3.5 Self-assessment for Communications and Engagement

This section contains the self-assessment questionnaire for communications and engagement. The questionnaire asks a number of questions to ascertain, '**how strongly is the institution deploying its communications and engagement techniques to support the formulation and implementation of ICT strategy that is aligned to the institution strategy?**'

Communications and Engagement					Evidence for your response	
	Strongly Disagree	Disagree	Neutral	Don't Know or N/A	Strongly Agree	
1 The Senior Management Team (SMT) communicates ICT issues effectively to all members of the management team.	<input type="checkbox"/>	See section 2.7 within the toolkit knowledge base for help regarding this question.				
2 The Senior Management Team (SMT) promotes the value and governance of ICT.	<input type="checkbox"/>					
3 ICT strategy is visible and clearly communicated across the institution to all personnel responsible for its deployment.	<input type="checkbox"/>					
4 The Chief Information Officer (CIO), or equivalent senior ICT manager, is a visible and active advocate for ICT & strategic planning	<input type="checkbox"/>					
5 All institutional senior management clearly take ownership of their responsibilities and accountability in planning and implementing new solutions involving ICT.	<input type="checkbox"/>					
6 ICT services communicate well with their 'customers' , as appropriate for the delivery of customer services.	<input type="checkbox"/>					
7 Institutional management communicate well with ICT services in their role as the 'customer' of ICT services.	<input type="checkbox"/>					
8 Good communications have ensured:						
a <i>Business requirements are clearly understood.</i>	<input type="checkbox"/>					
b <i>Strategy communications and decisions benefit the institution rather than the individual, academic or professional departments.</i>	<input type="checkbox"/>					
c <i>ICT solutions meet specific business requirement.</i>	<input type="checkbox"/>					
d <i>ICT solutions meet strategic institutional need.</i>	<input type="checkbox"/>					
e <i>Projects and services are measured for success against pre-determined success and performance criteria.</i>	<input type="checkbox"/>					

5.3.6 Self-assessment for Shared Services

This section contains the self-assessment questionnaire for Shared Services. The questionnaire asks a number of questions to ascertain, '**How is the institution addressing Shared Services across the institution in response to developing more institutionally aligned ICT?**'

Shared Services		Evidence for your response				
	Answer the questions for the 'domain' that you are analysing e.g. Institution, Professional services	Strongly Disagree	Disagree	Don't Know or N/A	Agree	Strongly Agree
1	The Senior Management Team (SMT), excluding members who are ICT professionals, have an awareness of shared services.					
2	The Senior Management Team (SMT) have a commitment to encouraging the use of shared services, as defined by the institution, whenever appropriate.					
3	All areas contributing to the delivery of ICT services have a commitment to shared services.					
4	The institution is seeking to identify opportunities for shared services within the institution from the top down e.g. CRM					
5	The institution is seeking to identify opportunities for shared services within the institution from the bottom up e.g. Student services					
6	The institution is operating some internal shared services.					
7	Projects deploying shared services have achieved benefits in:					
a	<i>Efficiency & cost reductions</i>					
b	<i>Integration (e.g. student experience & staff experience)</i>					
c	<i>Institutional agility (e.g. CRM use of information)</i>					
d	<i>Transformational change (e.g. achieving a new capability or service)</i>					
8	Success criteria and performance measurement for shared services are being used and are visible.					

5.3.7 Self-assessment for Enterprise Architecture (EA)

This section contains the self-assessment questionnaire for Enterprise Architecture. The questionnaire asks a number of questions to ascertain, '**if and how the institution has developed the use of EA?**'

Enterprise Architecture (EA)						Evidence for your response
		Strongly Disagree	Disagree	Don't Know or N/A	Agree	
e.g. Institution, Professional services						
1	The Senior Management Team (SMT), excluding members who are ICT professionals, have an awareness of Enterprise Architecture (EA).					See section 2.9 within the toolkit knowledge base for help regarding this question.
2	The Senior Management Team (SMT) have a commitment to the use of Enterprise Architecture (EA).					
3	ICT Services have a commitment to the use of Enterprise Architecture (EA).					
4	Devolved ICT services have a commitment to Enterprise Architecture (EA).					
5	Institutional management have a commitment to using Enterprise Architecture (EA).					
6	The institution has a, 'development without architecture', exception policy.					
7	The institution employs ICT professionals with Enterprise Architecture (EA) experience.					
8	The institution is training its ICT professionals in Enterprise Architecture (EA).					
9	The institution is deploying Enterprise Architecture (EA) on a cross institution architecture initiative, top down.					
10	The institution is deploying Enterprise Architecture (EA) on multiple projects, bottom up.					
11	The institutional experience and capability in Enterprise Architecture (EA) is adequate to meet our current needs.					
12	The institution is active in Enterprise Architecture (EA) professional practice groups.					

Continued on next page

Enterprise Architecture self-assessment continued:

Enterprise Architecture (EA) Answer the questions for the 'domain' that you are analysing e.g. Institution, Professional services		Strongly Disagree	Disagree	Don't Know or N/A	Agree	Strongly Agree	Evidence for your response		
13	Projects deploying Enterprise Architecture (EA) have achieved benefits in								
a	Cost reductions								
b	Business process improvements								
c	Rationalised & improved data management								
d	Increased sharing of services								
e	Transparency of ICT landscape to aid institutional agility								
f	Transformational change								
14	Success criteria and performance measurement for the benefits of Enterprise Architecture (EA) are being used and are visible.								

5.4 Review your maturity and opportunities for improvement

Having completed the self-assessment, using the downloaded spread sheet, a radar diagram will be produced which illustrates the institution's overall maturity profile and category.

An example of the diagram generated within the spread sheet is:

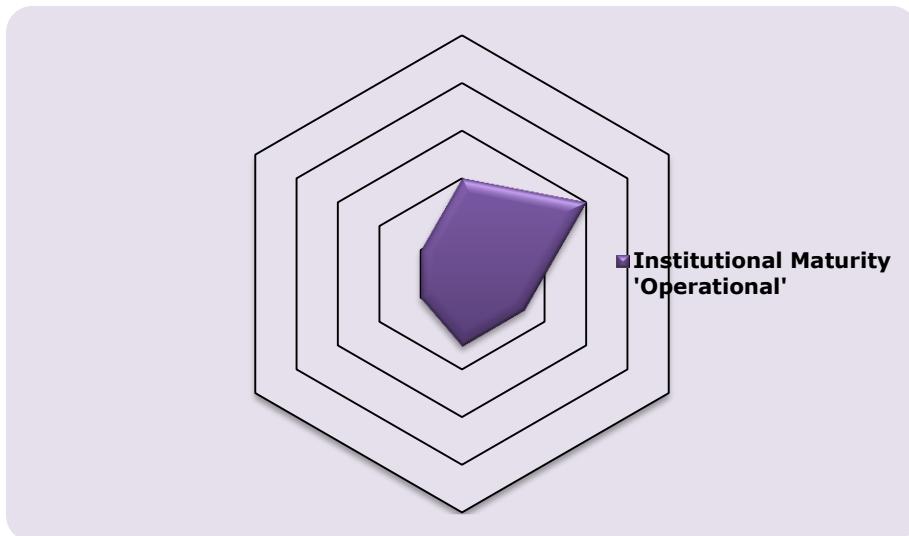


Figure 16 Institutional maturity profile

Your institution's maturity profile, allows you to compare your assessment against three example profiles of transformational, strategic and operational maturity, illustrated by, **Error! Reference source not found..**

The profiles provide a visual perspective using a scale of 10 to indicate maturity in each 'enabling' area as well as the net sum providing overall maturity. The profile is a self-analysis and is clearly dependent on the accuracy of the information provided. However, it provides the starting point by defining, **where the institution is now**, and a framework for your investigation and improvement activities.

Next consider, **where does the institution want to be?** Your own project brief and initiation documentation will support this and allow you to identify and confirm with more details:

- the scope of the review, either institutional or specific to a defined area
- the objectives, that must in themselves be aligned with the institutional strategy as institutions will have different priorities
- your key drivers for maturity*
- the issues that are to be addressed*

* these may influence the priority that your project wishes to place against specific 'enablers' such as Enterprise Architecture or Communications and Engagement.

The institution's current maturity profile and the following 'reviewing' information can now be used to develop your specific opportunities for improvement. The scale of this review will be dependent on your terms of reference for the project but the framework provides a checklist. This activity is often enhanced by the use of facilitated workshops for groups considering the analyses and improvements.

Use the enablers as a framework to develop:

1. a definition of current organisation and practice
 - a. associate the issues and benefits with the current mode of operation
2. proposals for improvements referenced against the current practice where appropriate
 - a. define the improvement objectives and success criteria
 - b. define the proposed structures, resources and practices
 - c. associate the issues and benefits that can be realised by implementing the improvements
 - d. assess the impact of change

To support this we provide by enabler, the knowledge base, your self-assessment and the review summaries with indicators of good practice, which we have evidenced as being successful.

These opportunities may identify alternative approaches that the institution may consider to achieve their desired maturity before agreeing and recommending the way forward.

5.4.1 Reviewing Strategic Leadership

The Senior Management Team (SMT) has a critical role in ensuring the integration and alignment of ICT with institutional strategies and without their support it is unlikely that any successful alignment can be achieved.

The self-assessment seeks to identify if and how the SMT have applied their management and support to harmonise and align the institutional and ICT strategies, organisation, governance and performance.

The key indicators of this include:

1. The senior management team
 - a. drive integrated strategy formulation from the top down to include an institutional ICT strategy, (some institutions may also use an Information Systems strategy)
 - b. includes at least one member with a deep understanding of communications and information technology provided through a Chief Information Officer (CIO) or Type 42 manager. The SMT maintains a strong reporting and communications line with a CIO, Director of ICT Services, or other equivalent ICT professional
 - c. supports and promotes the value of ICT in delivering institutional service requirements

- d. supports the Chief Information Officer (CIO), the director of ICT director, or other equivalent ICT professional in recognising and developing the most effective ICT structures and resources.
2. A governance structure is in place that:
- a. is communicated and promoted across the institution by the SMT
 - b. includes an integrated process of strategy formulation and implementation including all institutional ICT strategy.
 - c. Integrates devolved ICT and organisational structures within the ICT governance to support harmonisation Devolved ICT services are justified by providing more benefit to the institution than the alternative supply through central ICT services.
 - d. includes an ICT strategy group, representing the institutional senior management, that approves all ICT investments
 - e. the formulation process includes extensive consulting between the CIO/ICT staff and the institutional senior management across academic and professional services
 - f. compliance and exception processes are in place.
3. Horizon scanning is in place and includes considering the potential of any relevant technological innovation
4. Strategy, change and review processes are aligned with ICT strategy
5. A culture where institutional senior management share and communicate to develop strategy to the benefit of the institution rather than component parts or individual agendas.
- More information is available within the knowledge base with particular reference to:
- Section 2.4 Strategic Leadership and Section 2.6 ICT Governance
- Good Practice**

The following are considered good practice in strategic leadership:

Strategy formulated from the top down

Ensuring a deep understanding of communications and information technology within the SMT by including a CIO or Type 42 manager

Strong ICT governance across the institution

Cross institution consultation and communication within strategy formulation

In addition, details of courses that support senior management are available with full details at [The Leadership Foundation for Higher Education, Supporting Individual Leaders](#)²⁸

- The Agile University
- Senior Strategic Leadership, Leading in Challenging Times
- Preparing for Senior Strategic Leadership, Meeting the Challenge
- Future leaders Programme
- Head of Department Programme, Making Change Happen

5.4.2 Reviewing ICT Services

It is essential that ICT Services are correctly structured, resourced and integrated within an institution to enable the deployment of ICT that is aligned with institutional strategy.

Institutions deploy a number of different ICT management and service structures which have been influenced by the structure and management of the institution. The key institutional models include federal, epitomising the collegiate institutions and the unitary model providing for centralised institutions. In addition, centralised or devolved ICT services are used.

The self-assessment seeks to identify if ICT Services, across all sources, constitutes a capacity to meet the institutional needs in the formulation and delivery of ICT aligned to institutional strategy.

The key indicators of this include:

1. The sources of ICT services are the most effective and appropriate for the institutional structure and needs:
 - a. multiple sources of ICT services have been justified in delivering against local ICT needs. The drive for institutional agility is placing additional importance on how ICT strategy is formulated and implemented. If institutions are to be agile and deliver ICT value at an institutional level, all sources of ICT services must be strategically aligned. This allows the identification and implementation of shared services rather than individual solutions. More complex service structures for ICT may be justified but these should be reviewed in the light of current day institutional objectives. Institutions require the appropriate governance in place that will accommodate all ICT service structures, and harmonise institutional and ICT strategy formulation and delivery.

A large centralised institution re-evaluated its devolved ICT services structure and subsumed the resources within central ICT services achieving improved services quality and standards compliance as well as improved productivity.

²⁸ The LFHE, Supporting Individual Leaders, <http://www.lfhe.ac.uk/support>

2. The deployment of a Chief Information Officer (CIO), or equivalent senior ICT professional fulfilling the role of CIO:
 - a. a CIO working across the institution to establish the visibility and understanding of the current and future business needs. The manner and complexity of this will again be dependent on institutional structures and management. Our research found that large commercial organisations develop this commitment to reflect their structures and may use a CIO hierarchy and reporting structure.
 - b. a CIO enhancing communications and encouraging the institutional activities and initiatives that contribute to institutional and ICT strategies
 - c. a CIO encouraging a cultural change. If the institution considers its requirements for services, as opposed to individual systems, more strategic solutions can be used to deliver the service
 - d. a CIO supporting the Senior Management Team in ICT awareness and informed decision making. The CIO role is able to enhance the technological and business knowledge available for horizon scanning activities
3. The capacity of ICT services is adequate to meet the current and future requirements of the institution as defined and developed from its institutional strategy
4. ICT services work with senior management and users across the institution to develop more cost effective ICT solutions to requirements for business and ICT services
 - a. by focusing on requirements as 'service requirements' and exploring the alternative ways it may be delivered ICT are deploying more cost effective and innovative approaches.
 - b. Further support for this approach is provided through EA and establishing shared services.

More information is available within the knowledge base with particular reference to:

Section 2.5 ICT Services and Section 2.6 ICT Governance

Good Practice

The following are considered good practice in ICT Services:

Deployment of a Chief Information Officer, or equivalent ICT professional in this role

Effective communications between the SMT and senior ICT management

Effective 'consulting' across the senior management of the institution

ICT service structures in place to meet the institutional needs

5.4.3 Reviewing ICT Governance

ICT Governance provides the management framework for harmonising institutional strategy and structures with performance goals, measures and accountabilities.

Institutions deploy a number of different ICT management and service structures which have been determined by the structure and management of the institution. The key institutional models include federal, epitomising the collegiate institutions and the unitary model providing for centralised institutions. In addition, centralised or devolved ICT services are used. ICT governance is key in ensuring that all ICT organisational structures and ICT service structures are integrated in the formulation and delivery of institutional ICT strategy.

The self-assessment seeks to identify how strongly the ICT governance is supporting the formulation of strategy and the delivery of ICT services across the institution.

The key indicators of good ICT governance include:

1. ICT governed within a single integrated governance framework
 - a. all ICT services, centralised or devolved are included
 - b. all ICT is subject to business case formulation and approval
2. The existence of an ICT strategy, or equivalent document:
 - a. formulated from the institutional strategy and with consultation from senior management across the institution
 - b. approved by a governance group or committee that includes senior management who represent all institutional ICT stakeholders and the CIO or equivalent senior ICT management. This supports institution wide awareness and buy-in.
 - c. approved by the SMT and institutional governing body
3. The ICT strategy includes:
 - a. institutional objectives for ICT
 - b. architectural requirements for integration and standardisation
 - c. infrastructure requirements for ICT capability
 - d. institutional application needs
4. Approved investment prioritisation and budgets
5. All investment proposals are subject to approval but exception processes exist for the approval and management of some specific ICT investments. If an institution is using EA a Development Without Architecture approval process is available to maintain visibility and the integrity of an institution's architecture
6. ICT strategy is aligned with institutional strategy development and review
7. Projects and services are subject to clear objectives, performance criteria and service levels
8. Implementation of strategy is overseen by the Chief Information Officer, reported to the ICT governance committee and the SMT

More information is available within the knowledge base with particular reference to:

Section 2.6 ICT Governance

Good Practice

The following are considered good practice in ICT Governance:

The formulation of a documented and approved ICT strategy. (In some cases an institution may formulate institution-wide IT and IS strategies)

The scope of the ICT strategy is institution-wide

The ICT strategy is cross-referenced to reinforce alignment to the institutional strategy

ICT strategy formulation includes consultation with institutional senior management

ICT strategy and investment is approved and implemented by an ICT Strategy Group made up of senior management, Chief Information Officer or an equivalent role together with representative management from across the institution.

All ICT investment is approved by an ICT Strategy Group, Senior Management Team and governing body

Capital and operational budgets are allocated and approved by an ICT Strategy Group and approved by the Senior Management Team

A Development Without Architecture process is in place

Definition, principles, policies and standards are in place to assist in better decision making and management.

The Chief Information Officer, or equivalent ICT professional has overall responsibility for ICT. Definitions for ICT service levels, and project progress reporting are in place with project and operational reporting to the ICT Steering Group and the Senior Management Team

Effective communications and engagement between senior institutional management, the Chief Information Officer, ICT Services and the SMT are in place to enhance governance

Performance measures based on the contribution of ICT to meet institutional objectives and measures of success are being developed

ICT governance is reviewed as appropriate for institutional change

5.4.4 Reviewing Communications and Engagement

The importance of communications and engagement between the senior institutional management has been identified in all aspects of ICT strategy development and implementation.

Although these have been highlighted within each 'enabler' the impact of communications justifies its special consideration and development.

The self-assessment seeks to identify how extensively an institution is developing its communications and engagement techniques with reference to strategic ICT.

The key indicators of this include:

1. The buy-in and communications of the Senior Management Team (SMT):
 - a. to promote the value of ICT and ICT governance
 - b. to communicate effectively on ICT matters with institutional senior management
2. The actions of existing and appropriately informed committees across the institution to add ICT awareness and create a positive influence for institutional collaboration
3. A Chief Information Officer (CIO), or equivalent senior ICT professional undertaking this role:
 - a. to enhance SMT communications involving ICT so that information is more easily understood and expressed in terms of business requirements and services
 - b. to be an advocate of ICT and governance
 - c. to take responsibility for compliance checking and to work with management who don't comply to try to get their buy-in, commitment and compliance

Good Practice

The following are considered good practice in Communications and Engagement:

Communications and engagement across the institution create greater understanding of business requirements, ICT services and ICT governance. These include:

the SMT buy-in and promotion of ICT and its governance

Committees across the institution that add awareness and create a positive influence for ICT collaboration

A CIO working as an advocate for ICT

A CIO taking responsibility for the audit of ICT governance and actively working to encourage compliance

A portal or other repository for ICT governance information.

4. ICT strategy and governance information is visible and clearly available to appropriate senior management
 - a. a portal or some repository for ICT governance information provides easy access and assists in visibility
5. Communications between ICT Services and ICT service users are clear and professional
 - a. all management understand their responsibilities and accountability for ICT.

More information is available within the knowledge base with particular reference to:

Section 2.7 Communications & Engagement and Section 2.6 ICT Governance

5.4.5 Reviewing Shared Services

Shared Services have been identified as one of a number of ways in which institutions can become more agile. As such the opportunities offered by shared services, with typical benefits of streamlining and greater efficiency, should be considered within an institution's strategic planning.

There are different approaches to shared services that may be explored and those most deployed in the HE sector include:

- Sharing of specialist services delivered through third parties to different universities
- Sharing of services that are provided within the institution.

The use of Enterprise Architecture for business and organisational change supports the identification and development of shared services.

The self-assessment seeks to identify if and how an institution has deployed Shared Services across the institution in response to developing more institutionally aligned ICT.

The key indicators of this include:

1. The Senior Management Team and institutional senior management have an awareness and commitment to the use of Shared Services:
 - a. by taking an approach that identifies the need as a service the Chief Information Officer is able to lead the evaluation of the most effective solution from possible alternatives. Such a process may deploy Enterprise Architecture to communicate and document the requirement in the wider institutional context and identify a Shared Service solution.
2. ICT Services:
 - a. maintain an awareness of the UK HE Shared Services market
 - b. deploy Enterprise Architecture and a structured approach to evaluating the most effective solution. Shared services may be developed from the top down, an example of this has been found for Customer Relationship Management. Other requirements for services have been identified through the cost effective sharing of existing solutions such as Student Management.

- c. other sources of ICT Services collaborate in the identification and evaluation of Shared Services
- 3. Institutions have identified the business benefits in using Shared Services

More information is available within the knowledge base with particular reference to:

Section 2.8

ICT Shared Services

Good Practice	
The following are considered good practice in Shared Services:	
Obtain senior management's buy-in and engagement with the vision and implementation of shared services	
Use horizon scanning to identify and explore opportunities for shared services within the institution and across the sector	
Develop a business case in the context of institutional & ICT strategies	
Identify the current & future business requirements as a service requirement	
Identify clear performance objectives and measurements for both the implementation and on-going operation of the service	
For external shared services develop a business process change strategy including shared services governance and accountability, risk management and partner communications and management.	

5.4.6 Reviewing Enterprise Architecture

The alignment and integration of institutional and ICT strategies requires a visibility, understanding and definition of business requirements that can be communicated and shared. Enterprise Architecture provides a strategic technique that supports senior management in achieving the visibility and definition that is necessary for business and organisational change.

The self-assessment seeks to identify if and how an institution has developed the use of Enterprise Architecture across the institution.

The key indicators of this include:

1. The SMT are aware and committed to the use of Enterprise Architecture
 - a. as a business tool Enterprise Architecture can help senior management across the institution. A consistent technique will assist in developing cross institutional communications improving awareness and informed decision making.

2. Enterprise Architecture governance is in place
 - a. greater integration of strategies and ICT requires an understanding and definition of the business functions across the institution. This is not something that can be achieved quickly but various approaches are being used to develop this institutional definition. Whilst it can be developed from the top down as a strategic project other initiatives are developing the definition in response to business priorities for business and organisational change.
 - b. by including Enterprise Architecture within ICT governance an institution is applying a consistent approach to Enterprise Architecture within the institution and maintaining the integrity of the institutional definitions that are being developed.
 - c. exception processes, such as 'Development Without Architecture', are used to maintain visibility and integrity whilst allowing an alternative approval and implementation strategy.
3. Enterprise Architecture is used consistently by ICT services and other sources of ICT
4. Participation in user groups, such as the JISC Enterprise Architecture (EA) Practice Group
 - a. The JISC EA Practice Group is focused on the use of EA in the UK HE sector and as such is developing the practices, creating a user community and sharing information that will strongly support institutions in moving forward with EA.
5. Institutions are seeking to identify the benefits in using EA for both the institution and within the projects themselves
 - a. This develops an improved understanding of business benefits and project performance.
 - b. The performance measures and benefits also help the Senior Management Team in assessing the value of ICT against their business goals.
 - c. Proven success and benefits can be communicated to senior management to encourage involvement and compliance.

Good Practice

The following are considered good practice in enterprise architecture:

Obtain senior management buy-in and engagement with the project and EA work

Use EA to enable and empower stakeholders, ICT personnel and senior management

Set-up appropriate governance of the EA process

Deploy business architects and EA practices consistently to build and maintain the architectural integrity of the institution

More information is available within the knowledge base with particular reference to section 2.9 Enterprise Architecture (EA).

5.5 Review the alternative improvements and develop a business change definition

The project initiation has provided the overall scope and objectives of the improvement project.

By analysing the institution's maturity the project has drilled down into the enablers that are the key areas of opportunity to influence and improve maturity. Dependent on the project scope and self-analysis a number of improvements will have been identified and the project will now have an understanding and definition of the improvements and changes that are relevant.



The priorities of the institution and project, in terms of scope and drivers for change should again be considered against the findings of the self-analysis and improvement opportunities. The project is then able to recommend which potential improvements, for which enablers, are to be included in order to meet the project objectives.

Agreed potential improvements can be defined in more detail, signed off and used to inform a future business case for change. Depending on their complexity and scale they may require definition in terms of processes, activities and resources together with timescales, costs and risk assessments.

6 Individual ICT Strategy Savvy Self-Analysis

6.1 Introduction and perspective

The JISC ICT Toolkit provides self-analysis across the two perspectives of institutional maturity and an individual's disposition to strategic ICT. The institutional self-analysis uses the key enablers of strategic ICT and provides a maturity assessment and guidance for improvement for the institution. However, with ICT embedded across an institution, it is important to recognise the imperative role of management, individually and working as a management team to support the success of aligning and integrating ICT strategy with the institutional strategy.

To support management in this area the toolkit provides a means to assess how, 'ICT Strategy Savvy' individual members are in their roles and provides guidance in improvement through self-analysis.



'ICT Strategy Savvy' is a characteristic of an institution and its management; and an indication of management behaviour in enabling strategic ICT to be aligned and integrated with institutional strategy.

The ICT strategy savvy section of the SICT Toolkit is offered as an optional tool to complement and be considered in addition to an institution's maturity model. The self-analysis is specific to an individual and uses a questionnaire to assess their disposition to contribute, engage in and undertake activities, within their institutional role, that supports strategic ICT maturity.

It is of relevance and will assist those senior management who have the opportunity to lead, contribute or influence the formulation and implementation of strategic ICT within their institution.

The self-analysis is designed to assist senior management in recognising the importance of their contribution and engagement and as such different self-analysis questionnaires are provided for each of the role groups as follows:

Senior Strategic Leaders and those preparing for senior strategic leadership,

Heads of Departments (HoD), leading and managing academic, research or support teams,

Chief Information Officers (CIOs), Directors of IT/IS or an equivalent role within IT/IS,

Senior Information Services (IS) professionals, typically covering library, ICT and related activities.

The self-assessment should be completed to provide an individual representation of your disposition to contribute within the overall institution, or part thereof. As such the profile definition should state your role and its scope.

For example a member of the senior management team or a CIO would define their profile as at an institutional level whereas a Head of Department would be profiled at a departmental level unless they held any other strategic responsibilities.

This profiling is relevant if the institution or part thereof wishes to establish how ICT Strategy Savvy a management team is within a defined scope.

Examples are:

- The Senior Management Team
- ICT Strategy Steering Group
- IT/IS department
- Faculty or School
- Business unit or Department

In this case the set of self-assessments could be consolidated as well as compared individually to assist in understanding and developing 'team' improvements in management disposition to aligning institutional and ICT strategy.

6.2 How we analyse ICT strategy savvy

The knowledge base within the ICT Toolkit documents the key enablers and good practice that are the foundations of mature strategic ICT within any institution. Whilst recognising that the profile of any institution is unique and the management roles are specific, the knowledge base provides a source of information and good practice that is relevant in considering ICT strategy savvy.

In order to assess how ICT strategy savvy you are a self-analysis questionnaire uses the perspective of your disposition to and engagement with strategic ICT in the context of your role.

The questionnaire focuses on the following key areas:

Role	The role defines the institutional context
Opportunities	This illustrates your exposure and opportunities to be involved and contribute to strategic ICT
Awareness	Your awareness of the key factors that influence strategic maturity
Commitment	Your commitment and actions in supporting strategic maturity
Effective qualities	Your effectiveness in deploying the personal qualities necessary in developing more strategic ICT maturity
Communications & engagement	Your relevant communications and engagement within your domain and the institution
Empowerment	Your personal empowerment from ICT and your attention to your users empowerment
Impact	Your actions that impact on the institution's strategic ICT

In addition to your answers you are able to record evidence to support your response as text or a hyperlink. This is designed to assist you in compiling relevant materials to support the project improvement process.

The steps to complete a self-analysis are:

1. Download the ICT Strategy Savvy spreadsheet
2. Select the worksheet appropriate for your personal role
3. Complete the selected worksheet questionnaire

4. The self-analysis will be generated on the worksheet, under your questionnaire
5. Print and save your worksheet for future reference
6. Examine the self-analysis in conjunction with Section 2, the *Knowledge Base - Making Strategic ICT work for your Institution*
7. Document and review your self-analysis to identify actions for improvement if appropriate.

6.3 Assess your Individual ICT Strategy Savvy

The following sections illustrate the questions that are used for self-analysis.

**To complete the self- analysis use the following link to download the
Strategy Savvy Self-Analysis Tool**

http://www.nottingham.ac.uk/gradschool/sict/documents/SICT_Strategy_Savvy_Tool_v3.xls

Having downloaded and completed your self-analysis go to **Section 6, Improving ICT
Strategy Savvy** to review your self-analysis results.

6.3.1 Senior Strategic Leaders

Strategy Savvy - Senior Strategic Leader

Answer the questions for the 'domain' that your scope of strategic involvement covers. E.g. Institution or department and enter below

Name:

Role:

Domain:

Strongly Disagree
Disagree
Neutral/Don't know
Agree
Strongly Agree

Evidence for your response

See section 6.1 within the toolkit knowledge base for help regarding this sections.

Opportunities to contribute to strategic ICT

- 1 I am a member of the senior management team.
- 2 My role influences the formulation of institutional strategy and sub-strategies that will realise the institutional vision.
- 3 My role includes the support and briefing of the senior management team in appropriate strategic issues.
- 4 Strategy is formulated top down from the institution's vision.
- 5 The institutional vision embraces current day success and the agility to develop and be successful in a changing environment.
- 6 The senior management team recognises that ICT is a key asset of the institution.

Awareness of strategic ICT

- 7 I recognise ICT as a major asset of the institution.
- 8 I combine a deep understanding of Information and Communication Technology with senior management experience.
- 9 I understand why and how the institution seeks to align and integrate its institutional and ICT strategies.
- 10 I can articulate the ICT governance arrangements.
- 11 I can articulate the relevant strategy & targets for business process improvement.
- 12 I only support business cases that include well considered institutional and ICT strategy with justified investment and documented responsibilities and accountability.

Senior strategic leaders continued:

Strategy Savvy - Senior Strategic Leader		Strongly Disagree	Disagree	Neutral/Don't know	Agree	Strongly Agree	Evidence for your response
Commitment to integrating ICT with institutional strategy							
13	I participate in the formulation of ICT strategy within the confines of ICT governance arrangements.						
14	I participate in business strategy discussions and give consideration to the implications and opportunities for ICT to be deployed strategically.						
15	I am meticulous in representing the institution, department or unit to the senior management team. I represent and communicate strategic and operational performance, needs and issues including ICT.						
16	I use clear and documented responsibilities and accountabilities for achieving strategies that deploy ICT.						
17	I can articulate the respective roles and responsibilities of institutional business and ICT management in managing existing systems and implementing new services to achieve improved business benefits.						
18	I encourage staff commitment to strategic ICT through their involvement, assigned responsibilities and training.						

Senior strategic leaders continued:

Strategy Savvy - Senior Strategic Leader Answer the questions for the 'domain' that your scope of strategic involvement covers. E.g. Institution or department and enter below		Evidence for your response				
		Strongly Disagree	Disagree	Neutral/Don't know	Agree	Strongly Agree
Assess your personal effectiveness against those qualities that support the development of institutionally aligned strategic ICT:						
19	I'm a visionary in my field able to contribute to the strategic development of the institution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20	I'm a resourceful manager able to contribute to the operational development within appropriate areas of the institution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21	I possess strong leadership abilities. I am able to incorporate policy with operational demands and balance the needs of institutional strategy with departmental priorities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22	I have strong leadership abilities that draw on business experience and knowledge with an awareness of ICT and a willingness to explore its most effective deployment against institutional strategies.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
23	I combine strong communication skills with the ability to lead, contribute or facilitate at all levels within the institution and ultimately obtain commitment and buy-in.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
24	I have the ability to form alliances and build relationships, internally and external to the institution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
25	I work collaboratively and effectively with staff and management across the institution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
26	I am a logical thinker who is flexible, receptive to other people's views and can make difficult decisions in the best interests of the institution.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
27	I use computing facilities extensively for personal activities such as social networking and on-line services.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
28	I use computing facilities extensively in my working environment for services such as communications, professional networking and information management.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
29	I am an advanced user of computing facilities, methods and tools as an integral part of my role and responsibilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Senior strategic leaders continued

Strategy Savvy - Senior Strategic Leader		Strongly Disagree	Disagree	Neutral/Don't know	Agree	Strongly Agree	Evidence for your response
Communicating & engaging in strategic ICT							
30	I communicate my support of strategic planning and encourage a culture of innovation and change, aligning and continuously developing institutional and ICT strategy.						
31	I facilitate on-going communications and collaboration between ICT and the wider institution to enable the formulation of strategic ICT that realises and stretches institutional vision and goals						
32	My leadership and collaborative approach empowers staff to actively contribute to strategic ICT.						
33	My staff understand the value and role of ICT within our institution.						
34	My departmental staff engage positively with ICT Services as part of business and process improvement programmes.						
User empowerment from ICT							
35	I have confidence in the reliability and quality of institutional ICT.						
36	The quality and portfolio of services provided by ICT Services meet institutional requirements.						
37	I monitor the users/my employees confidence in, and performance of institutional ICT.						
Impact and improvement							
38	I use performance measures to assess the delivery of strategic ICT against institutional strategy. I share these measures and lessons learnt with senior management and ICT management.						
39	I receive ICT service level performance reports and review these regularly as a means of assessing delivery against targets. I share these with senior management and other relevant parties in order to improve future performance.						
40	I support compliance with ICT governance that includes strong ICT principles. Examples of such principles may be relating to enterprise systems and exceptions, application portfolios and information ownership and management						
41	I support business process improvement as a stage in establishing clear and improved business requirements prior to the sourcing of systems or services						
42	I support the role and delivery of innovation as part of business improvements that may include ICT						

Strategy Savvy - Senior Strategic Leader

Answer the questions for the 'domain' that your scope of strategic involvement covers. E.g. Institution or department and enter below

Strongly Disagree
Disagree
Neutral/Don't know
Agree
Strongly Agree

Evidence for your response

Identify any personal actions that may enhance your opportunities to contribute to strategic ICT

- 43** Identify any desired personal development activities that have the potential to improve integrated ICT and institutional strategy

- 44** Identify any personal untapped competencies or opportunities to contribute to improving strategic ICT

6.3.2 Heads of Department

						Evidence
						Strongly Disagree Disagree Neutral/Don't know Agree Strongly Agree
Strategy Savvy - Head of Department or Unit						
<p>Answer the questions for the 'domain' that your scope of strategic involvement covers. E.g. Institution or department and enter below</p> <p>Name: _____</p> <p>Role: _____</p> <p>Domain: _____</p>						
						Opportunities to contribute to strategic ICT
						<i>See section 6.1 within the toolkit knowledge base for help regarding this sections.</i>
1	My role includes the overall responsibility or management of business processes, systems or services					
2	My role includes the opportunities to influence business change and identify business improvements					
3	My role influences the formulation of the institutional strategy or sub strategies					
4	My role includes communications and engagement to support the formulation of the appropriate ICT strategy					
5	My role includes the support and briefing of the senior management team in appropriate strategic issues					
Awareness of strategic ICT						
6	I understand why and how the institution seeks to align and integrate its institutional and ICT strategies					
7	I can articulate the ICT governance arrangements					
8	I can articulate the strategy & targets for business process improvement, standardisation and integration					
9	I only support business cases that include well considered institutional and ICT strategy with justified investment and documented responsibilities and accountability					
Commitment to integrating ICT with institutional strategy						
10	I attend briefings on the implications and opportunities for ICT within the institution and industry					
11	I participate in business strategy discussions and give consideration to the implications and opportunities for ICT					
12	I participate in the formulation of ICT strategy within the confines of ICT governance arrangements					
13	I have clear and documented responsibilities and accountabilities for achieving strategies that deploy ICT					
14	I can articulate the respective roles and responsibilities of institutional and ICT management in managing existing systems and implementing new services to achieve improved business benefits					
15	I encourage staff commitment to strategic ICT through their involvement, assigned responsibilities and training					

Head of department or unit continued:

						Evidence				
						Strongly Disagree	Disagree	Neutral/Don't know	Agree	Strongly Agree
Strategy Savvy - Head of Department or Unit <p>Answer the questions for the 'domain' that your scope of strategic involvement covers. E.g. Institution or department and enter below</p>										
Assess your personal effectiveness against those qualities that support the development of institutionally aligned strategic ICT:										
16	A visionary in my field able to contribute to the strategic development of the institution									
17	A resourceful manager able to contribute to the operational development within appropriate areas of the institution									
18	Strong leadership ability, able to incorporate policy with operational demands and balance the needs of institutional strategy with departmental priorities									
19	Strong management ability that combines business experience and knowledge with an awareness of ICT and a willingness to explore its most effective deployment against institutional strategies									
20	Strong communication skills with the ability to lead, contribute or facilitate at all levels within the institution and ultimately obtain commitment and buy-in									
21	Strong ability to form alliances and build relationships, internally and external to the institution									
22	Strong ability to work collaboratively and effectively with staff and management across the institution									
23	Logical thinker who is flexible, receptive to other people's views and can make difficult decisions in the best interests of the institution									
24	I use computing facilities extensively for personal activities such as social networking and on-line services									
25	I use computing facilities extensively in my working environment for services such as communications, professional networking and information management									
26	I am an advanced user of computing facilities, methods and tools as an integral part of my role and responsibilities									
Communicating & engaging in strategic ICT										
27	I support strategic planning and its alignment institutionally and with ICT strategy									
28	I support on-going communications and collaboration between ICT and the wider institution to enable the formulation of strategic ICT									
29	My leadership and collaborative approach empowers staff to actively contribute to strategic ICT									
30	My staff acknowledge the value of and feel empowered by the use of ICT									
31	My departmental staff engage positively with ICT Services as part of business and process improvement programmes									

Head of department or unit continued:

Strategy Savvy - Head of Department or Unit <i>Answer the questions for the 'domain' that your scope of strategic involvement covers. E.g. Institution or department and enter below</i>							Evidence				
							Strongly Disagree	Disagree	Neutral/Don't know	Agree	Strongly Agree
User empowerment from ICT											
32	I have confidence in the reliability and quality of ICT										
33	The quality and portfolio of services provided by ICT Services meet institutional requirements										
34	I monitor and take appropriate action as a result of the users confidence in, and performance of, ICT										
Impact and improvement											
35	I support compliance with ICT governance that includes strong ICT principles. Examples of such principles may be relating to enterprise systems and exceptions, application portfolios and information ownership and management										
36	I support business process improvement as a stage in establishing clear and improved business requirements prior to the sourcing of systems or services										
37	I support the role and delivery of innovation as part of business improvements that may include ICT										
38	I require post-implementation reviews and disseminate lessons learnt amongst relevant parties in order to improve future performance										
Identify any personal actions that may enhance your opportunities to contribute to strategic ICT											
39	Identify any desired personal development requirements										
40	Identify any personal untapped competencies or opportunities to contribute to improving strategic ICT										

6.3.3 Chief Information Officers (CIOs), Directors of IT/IS or equivalent senior roles

							Evidence
							Strongly Disagree
							Disagree
							Neutral/Don't know
							Agree
							Strongly Agree
Strategy Savvy - CIO, Director of IT/IS or equivalent senior role							
<p>Answer the questions for the 'domain' that your scope of strategic involvement covers. E.g. Institution or department and enter below</p> <p>Name: <input type="text"/></p> <p>Role: <input type="text"/></p> <p>Domain: <input type="text"/></p>							
<p>Opportunities to contribute to strategic ICT</p> <p>See section 6.1 within the toolkit knowledge base for help regarding this sections.</p>							
1	The senior management team has given its full commitment to my role as Chief Information Officer (CIO), or equivalent director of IS/IT, within the institution						
2	I am a member of the senior management team						
3	My role includes the support and briefing of the senior management team in ICT issues						
4	My role includes leading the formulation of the institution's ICT strategy						
5	I am responsible for all ICT functions across the institution						
Awareness of strategic ICT							
6	I understand why and how the institution seeks to align and integrate its institutional and ICT strategies						
7	I can articulate the ICT governance arrangements						
8	I can articulate the strategy & targets for business process improvement, standardisation and integration						
9	I only support business cases that include well considered institutional and ICT strategy with justified investment and documented responsibilities and accountability						

Chief Information Officers, Directors of IT/IS or equivalent senior roles continued

Strategy Savvy - CIO, Director of IT/IS or equivalent senior role <i>Answer the questions for the 'domain' that your scope of strategic involvement covers. E.g. Institution or department and enter below</i>						Evidence
	Strongly Disagree	Disagree	Neutral/Don't know	Agree	Strongly Agree	
Commitment to integrating ICT with institutional strategy						
10 I lead relevant briefings on the implications and opportunities for ICT within the institution and industry						
11 I participate and articulate the implications and opportunities for ICT within business strategy discussions						
12 I champion the development and use of comprehensive ICT governance for the institution						
13 I lead the formulation of ICT strategy within the confines of ICT governance arrangements						
14 I have clear and documented responsibilities and accountabilities for achieving strategies that deploy ICT						
15 I can articulate the respective roles and responsibilities of institutional and ICT management in managing existing systems and implementing new services to achieve improved business benefits						
16 I encourage staff commitment to strategic ICT through their involvement, assigned responsibilities and training						
Assess your personal effectiveness against those qualities that support the development of institutionally aligned strategic ICT:						
17 A visionary of the role of ICT and its potential contribution within the institution						
18 Strong leadership ability, able to incorporate policy with operational demands and balance difficult resourcing priorities within the institution						
19 Strong communication skills with the ability to lead, contribute or facilitate at all levels within the institution and ultimately obtain commitment and buy-in						
20 Strong ability to form alliances and build relationships, internally and external to the institution						
21 Strong ability to work collaboratively and effectively with staff and management across the institution						
22 Logical thinker who is flexible, receptive to other people's views and can make difficult decisions in the best interests of the institution						

Chief Information Officers, Directors of IT/IS or equivalent senior roles continued

Strategy Savvy - CIO, Director of IT/IS or equivalent senior role <i>Answer the questions for the 'domain' that your scope of strategic involvement covers. E.g. Institution or department and enter below</i>		Evidence				
		Strongly Disagree	Disagree	Neutral/Don't know	Agree	Strongly Agree
23	I use computing facilities extensively for personal activities such as social networking and on-line services					
24	I use computing facilities extensively in my working environment for services such as communications, professional networking and information management					
25	I am an advanced user of computing facilities, methods and tools as an integral part of my role and responsibilities					
Communicating & engaging in strategic ICT						
26	I am an advocate for ICT and strategic planning across the institution					
27	I support on-going communications and collaboration between ICT and the wider institution to enable the formulation of strategic ICT					
28	My leadership and collaborative approach empowers management to actively contribute to strategic ICT					
29	Institutional management and users acknowledge the value of and feel empowered by the use of ICT					
30	Institutional management engage positively with ICT Services as part of their business and process improvement programmes					
User empowerment from ICT						
31	I have confidence in the reliability and quality of ICT					
32	The quality and portfolio of services provided by ICT Services meet institutional requirements					
33	I monitor and take appropriate action as a result of the management and users confidence in, and performance of, ICT					

Chief Information Officers, Directors of IT/IS or equivalent senior roles continued

						Evidence				
						Strongly Disagree	Disagree	Neutral/Don't know	Agree	Strongly Agree
Strategy Savvy - CIO, Director of IT/IS or equivalent senior role										
Answer the questions for the 'domain' that your scope of strategic involvement covers. E.g. Institution or department and enter below										
Impact and improvement										
34 I champion compliance with ICT governance that includes strong ICT principles. Examples of such principles may be relating to enterprise systems and exceptions, application portfolios and information ownership and management										
35 I assess the institution as achieving TOTAL compliance in the development and use of ICT against the ICT governance requirements										
36 I support business process improvement as a stage in establishing clear and improved business requirements prior to the sourcing of systems										
37 I champion the role and delivery of innovation as part of strategic ICT										
38 I require post-implementation reviews and disseminate lessons learnt amongst relevant parties in order to improve future performance										
Identify any personal actions that may enhance your opportunities to contribute to strategic ICT										
39 Identify any desired personal development requirements										
40 Identify any personal untapped competencies or opportunities to contribute to improving strategic ICT										

6.3.4 Senior Professional IT/IS staff

						Evidence
						Strongly Disagree
						Disagree
						Neutral/Don't know
						Agree
						Strongly Agree
Strategy Savvy - Senior IS or IT Professional						
<p>Answer the questions for the 'domain' that your scope of strategic involvement covers. E.g. Institution or department and enter below</p> <p>Name: _____</p> <p>Role: _____</p> <p>Domain: _____</p>						
<p>Opportunities to contribute to strategic ICT</p> <p style="text-align: right;">See section 6.1 within the toolkit knowledge base for help</p>						
1	My role includes the management of implementation or on-going delivery of ICT services					
2	My role includes the support and briefing of senior management in ICT issues					
3	My role includes contributing to the formulation of the institution's ICT strategy					
4	My role includes the support of departments, schools or units through an understanding of their needs, the identification of improvements and innovative new solutions that increase service efficiency and effectiveness as well as institutional agility					
Awareness of strategic ICT						
5	I understand why and how the institution seeks to align and integrate its institutional and ICT strategies					
6	I can articulate the ICT governance arrangements					
7	I can articulate the strategy & targets for business process improvement, standardisation and integration					
8	I have broad experience in preparing business cases that include well considered institutional and ICT strategy with justified investment					
Commitment to integrating ICT with institutional strategy						
9	I collaborate with other institutions and HE groups to attain an informed level of knowledge to deploy in developing new or improved services					
10	I consult and collaborate across the institution to develop an understanding of and create awareness of the ways in which improvements and new services achieve benefits					
11	I contribute within business discussions with authoritative knowledge and facilitate an open and receptive approach to others contributions whilst ensuring the relevant 'business' rather than technical language is used.					
12	I lead or support relevant business briefings on the implications and opportunities for ICT within the institution and industry					

Senior Professional IT/IS staff continued:

Strategy Savvy - Senior IS or IT Professional Answer the questions for the 'domain' that your scope of strategic involvement covers. E.g. Institution or department and enter below		Evidence				
		Strongly Disagree	Disagree	Neutral/Don't know	Agree	Strongly Agree
13	I participate and articulate the implications and opportunities for ICT within business strategy discussions					
14	I support the development and use of comprehensive ICT governance for the institution					
15	I participate in the formulation of ICT strategy within the confines of ICT governance arrangements					
16	I have clear and documented responsibilities and accountabilities when formulating or implementing specific ICT strategy streams					
17	I can articulate the respective roles and responsibilities of institutional business and ICT management in managing existing systems and implementing new services to achieve improved business benefits					
18	I encourage user and ICT staff commitment to strategic ICT through their involvement, assigned responsibilities and training					
Assess your personal effectiveness against those qualities that support the development of institutionally aligned strategic ICT:						
19	An accomplished IS or IT professional who adds value in understanding and improving the institution's business solutions and services					
20	An accomplished IS or IT professional who adds value in understanding and improving the institution's technical ICT solutions					
21	An accomplished IS or IT professional who adds value in understanding and managing institutional programmes that may include business case formulation, procurement, change, implementation and internal and external service delivery management					
22	Agile and adaptive in taking on and managing new ideas, technologies and methodologies within the business and ICT					
23	Creative and able to 'think outside the box' whilst ensuring outcomes and solutions are strategic and provide quality services					
24	Strong management ability, able to incorporate policy with operational demands and balance difficult resourcing priorities within the institution					
25	Strong communication skills with the ability to lead, contribute or facilitate at all levels within the institution and ultimately obtain commitment and buy-in					

Senior Professional IT/IS staff continued:

						Evidence				
						Strongly Disagree	Disagree	Neutral/Don't know	Agree	Strongly Agree
Strategy Savvy - Senior IS or IT Professional										
<p>Answer the questions for the 'domain' that your scope of strategic involvement covers. E.g. Institution or department and enter below</p>										
26	Strong ability to form alliances and build relationships, internally and external to the institution									
27	Strong ability to work collaboratively and effectively with staff and management across the institution									
28	Logical thinker who is flexible, receptive to other people's views and can make difficult decisions in the best interests of the institution									
29	Aware of the role of all the following organisations, in supporting improved strategic alignment of ICT: JISC, LFHE and JISC EA Practice Group									
30	Aware of the role of all the following in supporting improved strategic alignment of ICT: ICT governance, Shared Services, Software as a Service, Service-Oriented Architecture and Enterprise Architecture									
31	I use computing facilities extensively for personal activities such as social networking and on-line services									
32	I use computing facilities extensively in my working environment for services such as communications, professional networking and information management									
33	I am an advanced user of computing facilities, methods and tools as an integral part of my role and responsibilities									
Communicating & engaging in strategic ICT										
34	I positively promote the value of ICT, our services and our successful collaborations across the institution.									
35	I support on-going communications and collaboration between ICT and the wider institution to enable the formulation of strategic ICT									
36	I am aware of the need to communicate with departments, schools and units in their respective business language and deploy techniques in support of this.									
37	My collaborative approach empowers management to actively contribute to strategic ICT									
38	I believe institutional management and users acknowledge the value of and feel empowered by the use of ICT									
39	Institutional management engage positively with ICT Services as part of their business and process improvement programmes									

Senior Professional IT/IS staff continued

Strategy Savvy - Senior IS or IT Professional <i>Answer the questions for the 'domain' that your scope of strategic involvement covers. E.g. Institution or department and enter below</i>							Evidence
	Strongly Disagree	Disagree	Neutral/Don't know	Agree	Strongly Agree		
User empowerment from ICT							
40 I have confidence in the reliability and quality of ICT							
41 The quality and portfolio of services provided by ICT Services meet institutional requirements within defined constraints							
42 I monitor and take appropriate action as a result of the management and users confidence in, and performance of, ICT							
Impact and improvement							
43 I obtain compliance with ICT governance that includes strong ICT principles. Examples of such principles may be relating to enterprise systems and exceptions, application portfolios and information ownership and management							
44 I propose business process improvement as a stage in establishing clear and improved business requirements prior to the sourcing of services or systems							
45 I see delivery of innovation as part of strategic ICT							
46 I use post-implementation reviews and disseminate lessons learnt amongst relevant parties in order to improve future performance							
Identify any personal actions that may enhance your opportunities to contribute to strategic ICT							
47 Identify any desired personal development requirements							
48 Identify any personal untapped competencies or opportunities to contribute to improving strategic ICT							

6.4 Improving ICT Strategy Savvy

By analysing how ICT Strategy Savvy you are, you are assessing your personal contribution and providing a profile for self analysis and improvement. This activity is often enhanced by the use of facilitated workshops for groups, or mentors or coaches for individuals undertaking this activity.

In order for Strategic ICT to be effective in enabling institutional agility and sustainability it needs the collaborative efforts of its management and their mobilisation of the staff to achieve change. The following analyses and questions are a framework for improving your level of ICT strategy savvy and your institutional impact on strategic ICT.

Having completed the self-analysis, using the downloaded spreadsheet, a bar diagram illustrates your individual disposition profile.

The following is an example of an individual ICT strategy savvy self-analysis:

Strategy Savvy Self-Analysis Results	Disposition	Maximum
Opportunities	8	10
Awareness	8	10
Commitment	6	10
Attributes	3	10
Communications & Engagement	3	10
User Empowerment	6	10
Impact & Improvement	4	10
Maturity Profile of 54%	38	70



The disposition profile provides a visual perspective using a scale of 1 to 10 to indicate maturity in each area, as well as the net sum providing overall disposition. The profile is a

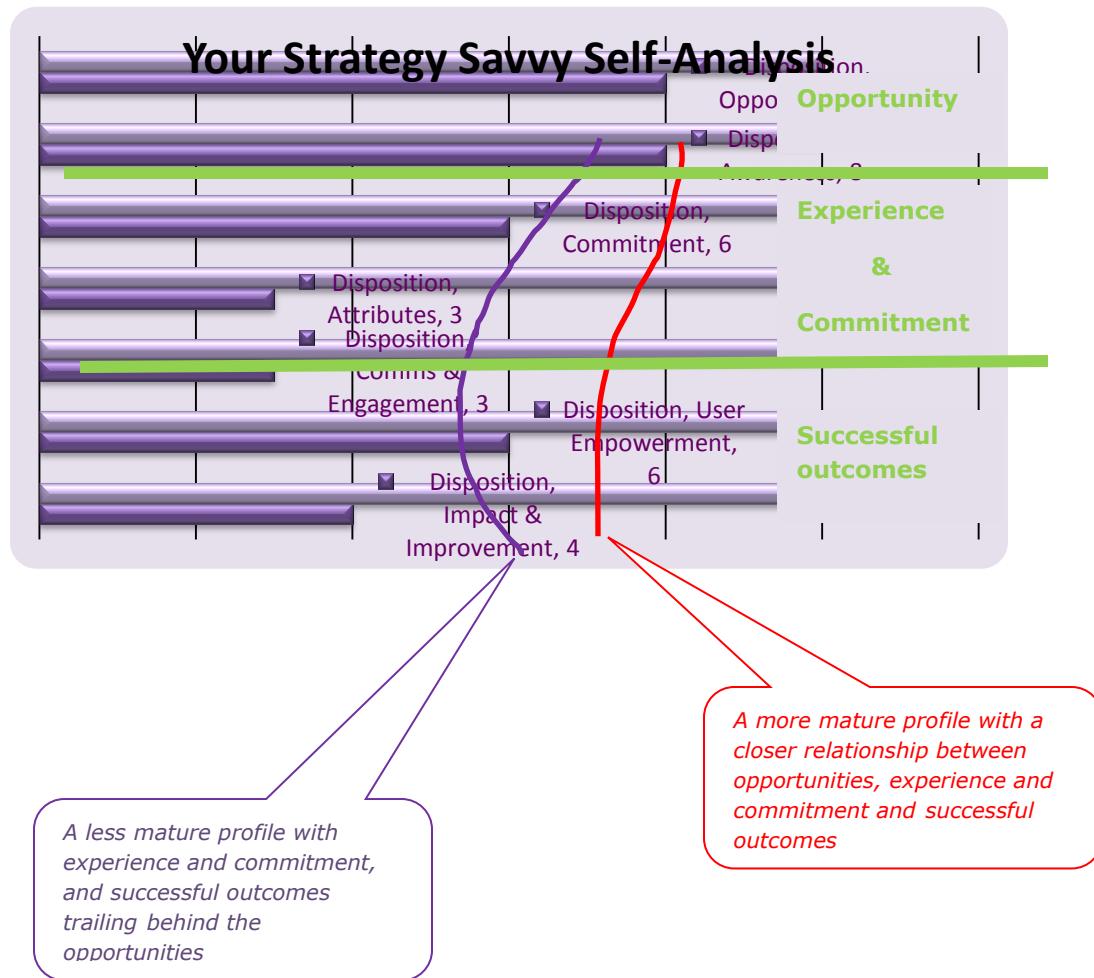
self-analysis and is clearly dependent on the accuracy of the information provided. However, it provides the starting point by defining, **where you are now**, and the profile for your consideration and development.

The profile is presented by category which provides you with the opportunity to examine, question and formulate your specific assessment and improvement actions.

The example profile of ICT Strategy Savvy disposition can be interpreted as follows:

	Disp.	Max.	Profile Description
Opportunity	8	10	Within the scope of their role the individual has strong opportunities to contribute and influence strategic ICT
Awareness	8	10	They maintain a good awareness of the factors that are involved and will influence strategic ICT
Commitment	6	10	The individual illustrated a moderate commitment to participating in the relevant activities
Attributes	3	10	But shows a relatively low self-assessment of their effectiveness across the qualities that will be called upon in their role and relevant activities
Communications & Engagement	3	10	The low assessment of communications illustrates a low level of relevant communications that will impact on the wider relationships within individual units, institutionally and also with ICT
User Empowerment	6	10	User empowerment is moderate and indicates the individual's opinion of the success and contribution of ICT as well as their pro-activeness in striving for higher user empowerment
Impact	4	10	The assessment for impact illustrates that this individual is moderately active and visible in assessing and taking actions that will lead to improvements in the maturity of strategic ICT
In Summary	38	70	Overall 54%

In considering the ICT strategy savvy profile it is important to also consider the dependency between the assessment areas. Although we can strive for straight 10's in reality success will come from increasing opportunity and awareness and utilising the commitment and effectiveness of management to achieve success as illustrated below:



Now use your own profile, the following questions and the toolkit knowledge base to examine your personal self-analysis and consider:

1. **What can I learn about my current situation from this self-analysis**
2. **What can I take forward and apply to my own activities**
3. **What can I share and apply to my activities with others**
4. **What can I share and propose as changes for a way forward with others.**

6.4.1 Role and the opportunities

What can you understand from your profile of opportunities?

Your score reflects whether you feel you are assigned the responsibilities and accountabilities that enable a contribution to strategic ICT.

The opportunity score is the baseline from which effective activities are enabled

Now consider these key questions and points:

- Are you building on the key strategic goals of the institution?
- Consider how effectively your strategy formulation integrates ICT and specifically if improvements could be made to improve this
- Does your management and governance structure support your efforts appropriately? How could it be improved?
- Does your role match your and others perceived needs for involvement in the formulation or implementation of strategic ICT?

What would you change and how is it justified?

6.4.2 Awareness

What can we understand from your profile of awareness?

Your score reflects whether you feel you have sufficient awareness to enable a contribution to strategic ICT.

Now consider these key questions and points:

- What is your perceived value of ICT based on, could it be improved and how?
- Do you feel sufficiently informed to address the opportunities and challenges of supporting the development of more strategic ICT? Identify experiences and issues that are relevant
- Consider your role and the need to brief and be briefed by others in the areas of integrated ICT. Would a greater personal understanding of ICT, in appropriate and relevant business terms, benefit your efforts? Identify experiences and issues in being briefed or briefing others
- Could the communications channels, activities and timescales for sharing knowledge be improved
- Consider your awareness and compliance with ICT governance. Do you believe that improvements could be made in the process or communications of governance and if so how and why?

What would you change and how is it justified?

6.4.3 Commitment

What can we understand from your profile of commitment?

Your score reflects the level of commitment that you are directing to strategic ICT.

Now consider these key questions and points:

- Consider how you participate in the formulation or implementation of ICT strategy. Is it in the most effective timescale and way? If not consider why and how it could be improved
- Consider your contributions to ICT strategy formulation or implementation. Have these been successful or problematic? Explore why and the associated benefits and issues.
- Do you feel that you contribute, within an appropriate management structure from senior management team representation through to unit management and ICT management, in sharing and disseminating appropriate strategic and operational ICT knowledge?

What would you change and how is it justified?

6.4.4 Effectiveness of relevant personal qualities

What can we understand from your profile of effectiveness?

Your score reflects your assessment of your identified personal qualities that contribute in the pursuit of strategically aligned and integrated ICT.

Now consider these key questions and points:

- Consider each area and highlight your successes and problems in relation to contributing to strategic ICT. Are there areas you could learn from and develop further?
- Are there qualities that you could deploy more widely?

ICT strategy alignment is complex and challenging and draws on a wide range of management and skills. The LFHE provides a wealth of support that includes management and strategy development.

6.4.5 Communications and engagement

What can we understand from your profile of communications and engagement?

Your score reflects how you assess your communications and engagement across the institution, including with other senior management, staff and ICT professionals.

As management we are able and responsible for creating a positive and receptive attitude towards ICT.

Now consider these key questions and points:

- Consider how you support strategic ICT and encourage a culture of innovation and change. What communication methods are successful? Are there areas that could be improved?
- What are the current objectives and methods of communications between ICT and institutional departments/ units. Can we enhance these and how?
- Can the attitude and enthusiasm for ICT be improved and how?
- Are you able to improve communications between the department/ unit and ICT? How?

What would you change and how is it justified?

6.4.6 User Empowerment

What can we understand from your profile of user empowerment?

Your score reflects whether how you feel about ICT and how you manage others' attitudes to ICT.

Again positive attitudes will better support the activities and commitments necessary for ICT strategy alignment.

Now consider these key questions and points:

- Are you personally empowered by ICT. If not you should consider the issues and how your confidence and belief in ICT, as one of the key assets of an institution, can be raised.
- Similarly, consider how you monitor your ICT services and ensure users are empowered by ICT

What would you change and how is it justified?

6.4.7 Impact and Improvement

What can we understand from your profile of impact and improvement?

Your score reflects your management and success in using high impact activities that improve the quality and strategic alignment of ICT.

Now consider these key questions and points:

- Consider your use of key performance measures and indicators in the following areas and if improvements in monitoring, reporting and communications are appropriate:
 - Strategic Success. How do you measure how well ICT has supported the defined institutional strategy within your domain.
 - Operational Success. How do you measure how well ICT meets the service levels within your domain
 - Implementation Success. How do you measure the success of ICT projects in delivering the pre-defined goals and success criteria
 - What communications and actions do you take as a result of performance monitoring and control
- Consider your compliance within ICT governance. If you have not complied, consider why in the light of

What would you change and how is it justified?

6.5 Summarising your findings and the way forward

Having considered your profile and examined the areas that are most relevant to you it can be useful to document your way forward in the following way:

- 1. What can I learn about my current situation from this self-analysis?**
- 2. What can I take forward and apply to my own activities**
- 3. What can I share and apply to my activities with others**
- 4. What can I share and propose as changes for a way forward with others.**

More information is available within the toolkit knowledge base and from the Leadership Foundation for Higher Education.

In addition, details of courses that support senior management are available at [The Leadership Foundation for Higher Education, Supporting Individual Leaders²⁹](#)

The LFHE courses for senior leaders include:

- The Agile University
- Senior Strategic Leadership, Leading in Challenging Times
- Preparing for Senior Strategic Leadership, Meeting the Challenge
- Future leaders Programme
- Head of Department Programme, Making Change Happen

²⁹ The LFHE, Supporting Individual Leaders, <http://www.lfhe.ac.uk/support>

7 Glossary

7.1 Information Communications and Technology, ICT

The LFHE define Information Communications and Technology, ICT, as 'the term now widely used to cover all the computing and telecommunications in an institution, whether used for research, teaching and learning or administration'. It embraces all the technology and applications together with information, processes and people used to communicate, and to create, disseminate, store, and manage information.

Some examples of ICT solutions include email systems, networks, learning environments and student administration systems.

The definitions within the field of ICT have changed over time as the scope of computing and technology has broadened through the integration of other technologies and the recognised importance of areas such as communications. Within our research we found institutions use a variety of terms including IT, IS and for the purposes of this toolkit we refer to these as ICT but seek to provide further definition by our illustration below.

The opportunities and impact that ICT has to support institutional strategy can be illustrated by defining its major constituent parts as:

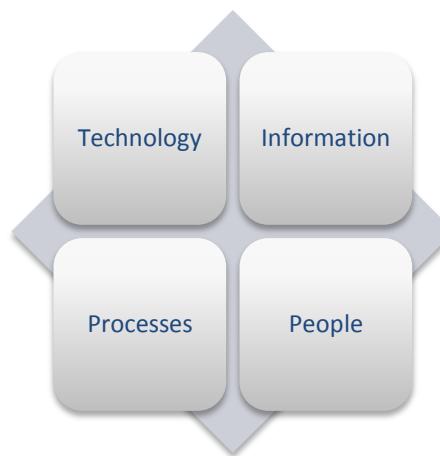
Technology: the technical infrastructure and applications that are installed and configured to deliver an institution's ICT requirements. Examples include email systems, virtual learning environments and student administration systems.

Information: the data that is captured, secured, used, communicated and managed as defined by the institution's specific requirements to meet their needs.

Processes: the underlying processes that are followed within the institution and which support and form part of the institution's ICT solution to a defined requirement.

People: the people (students, staff and partners) together with their knowledge and skills that are involved in the application & use of ICT.

In the context of HE, 'Information Systems' and 'ICT' are both used to define the scope of information technology requirements across research, teaching and



learning and professional services administration.

7.2 Other terms

Term	Description	Other terms used
CEO	Chief Executive Officer	Vice-Chancellor
CIO	<p>Chief Information Officer</p> <p>The most senior manager who is responsible for the institution's information and communications technology strategy and implementation</p>	
Cloud Computing	<p>The provision of dynamically scalable and often virtualised resources (e.g. networks, servers, storage, applications, and services) as a service over the Internet. Cloud computing services often provide common business applications online that are accessed from a web browser, while the software and data are stored on the servers.</p>	
CTO	Chief Technology Officer within ICT function responsible for technology	
Director of ICT	<p>The most senior ICT manager with responsibility for the Information and Communication Technology function and may undertake CIO functions</p>	<p>Director IT</p> <p>Director of ICT Services</p>
EDUCAUSE	<p>EDUCAUSE A non-profit association based in the United States whose mission is to advance higher education by promoting the intelligent use of information technology. There are currently more than 17,000 active members.</p>	
e-Framework	<p>The e-Framework for Education and Research is a joint initiative by JISC, Australia's Department of Education, Science and Training (DEST), and other international partners. Its primary goal is to facilitate technical interoperability within and across education and research through improved strategic planning and implementation processes, via a service orientated technical framework.</p>	

Term	Description	Other terms used
Governing Body	Governing body of the institution	Senate Council
ICT Strategy Group	Institutional committee responsible for formulating and approving the ICT strategy	Information Strategy Steering Group
ICT Strategy Savvy	A measure of an individual's disposition to contribute in maturing an institution's strategic ICT	IT Savvy
IT Governance	A useful definition is by Wim Van Grembergen ³⁰ , 'IT Governance is the organisation capacity exercised by the board, executive management, and IT management to control the formulation and implementation of IT strategy and in this way ensure the fusion of business and IT.'	ICT governance
JANET Joint Academic NETwork	<u>Joint Academic NETwork</u> The network dedicated to the needs of education and research in the UK. It connects the UK's education and research organisations to each other, as well as to the rest of the world through links to the global Internet. JANET(UK) manages the operation and development of JANET on behalf of JISC for the UK Further and Higher Education Funding Councils.	
JISC Joint Information Systems Committee	Joint Information Systems Committee. JISC is an independent advisory body that works with further and higher education by providing strategic guidance, advice and opportunities to use ICT to support learning, teaching, research and administration.	
LFHE Leadership Foundation for Higher Education	A company established by UUK and GuildHE providing a dedicated service of support and advice on leadership, governance and management for all the UK's universities and Higher Education colleges.	
Shared Services	Institutions cooperating in the development and delivery of services, sharing skills and knowledge, possibly with commercial	

³⁰ Wim Van Grembergen, "Introduction to the minitrack: IT Governance and Mechanisms,35th HICSS conference, <http://computer.org/proceedings/hicss/1874/track8/187480242.pdf>

Term	Description	Other terms used
	participation. Such services include student records, finance, library management etc.	
SaaS Software as a Service	A software distribution model in which applications are hosted by a vendor or service provider and are made available to customers, on demand, over a network, typically the Internet. The supplier manages the process in a secure central location. No software is installed on the premises of the purchaser.	
SMT	Senior Management Team The most senior management group within the institution	Vice-Chancellor's Senior Management Team
soa Service-oriented approach	The service-oriented approach is a software design method. It identifies functions common to a number of different applications and separates them out as reusable service modules that can talk to each other. The service-oriented approach results in a Service Oriented Architecture (SOA) or Enterprise Service Architecture (ESA).	
SOA Service Oriented Architecture	Provides a set of principles of governing concepts used during phases of systems development and integration. Such architecture will package functionality as interoperable services that a number of different organisations may integrate or use.	
Strategic ICT Strategic Information and Communications Technology	Strategic ICT is Information and Communications Technology services that are delivered across a University as part of a defined ICT Strategy that is aligned and integrated with the Institutional Strategy. A mature ICT strategy allows an institution to be more agile in meeting strategic demands within appropriate timeframes.	
Type 42 manager	The Dearing Report made a recommendation that defined type 42 managers as HE managers 'who combine a deep understanding of Communications and Information Technology with senior	

Term	Description	Other terms used
	management experience.'	

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JISC InfoNet The Importance of Strategy infoKit, http://www.jiscinfonet.ac.uk/infokits/strategy
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