



Improving Management of the IT Project Portfolio

A critical next step in driving benefits realization from IT

January 2011

Colin Ashurst, Durham Business School: colin.ashurst@durham.ac.uk

Alison Freer, Lead & Transform: alison@leadandtransformit.com

Report produced as part of the 'Benefits-led IT' project at Newcastle University.

The project was funded by HEFCE's LGM Fund

For more information visit <http://research.ncl.ac.uk/transform>

Table of Contents

Executive Summary	3
Improving management of the IT portfolio: A critical next step in driving benefits realization	4
Opportunities for improved benefits realization: Examples from participants in the research	5
The research	6
Building on strong foundations: A benefits-driven approach to IT projects	8
Shifting the focus to practices for IT portfolio management	10
Practices for benefits realization from IT portfolio management	13
Building the IT portfolio management capability of an organization	26
Taking the next steps to improve benefits realization	28
References	29

Executive Summary

This paper is one of the outputs from the 'Benefits-led IT' project, which took place at Newcastle University during 2009/11. For more information on the project see:

<http://research.ncl.ac.uk/transform>

We explored current practices for management of the IT investment portfolio at workshops with members of the North East IT Directors Forum and the Russell Group IT Directors Forum. This paper set out the findings from the workshops and builds on a number of previous research projects.

Organisations are starting to adopt IT portfolio management but have not yet developed advanced portfolio management capabilities. We identified a number of specific practices that contribute to benefits realization from the IT portfolio. These practices are discussed in the paper. We also provide a number of suggestions for how organisations can start to adopt the practices to contribute to developing their portfolio management capability.

Higher Education Institutions trying to develop IT portfolio management face a number of specific challenges:

- The relative importance of non-financial benefits (for example improved student experience).
- Decentralized management structures.
- The crucial role of 'knowledge workers' and IT as an 'intellectual technology' where benefits come from a process of ongoing learning and innovation (for example how best to make use of elearning technologies to improve learning outcomes).
- The difficulty of securing academic engagement and leadership for projects.

In summary, there are opportunities for quick wins to build a stronger IT portfolio management capability and this is a crucial aspect of benefits realization from IT.

Please get in touch if you'd like to help us develop these ideas or explore how they could make a difference in your organization.

Improving management of the IT portfolio: a critical next step in driving benefits realization

The IT Director of a large public sector organization took a few minutes time out to reflect on the progress he had made introducing portfolio management and the challenges ahead.

“A key success was to get the ‘top 15’ list of programmes and projects agreed with the Chief Exec and COO. They immediately saw the value in having this clear focus. We’ll use this in the next business planning cycle as part of priority setting. The next step is to get a shared view of how to manage the inevitable changes as business priorities shift and new opportunities are identified.

A second big win was introducing the concept of ‘Exploratory’ projects – it’s really opening up opportunities for innovation. My next challenge is use the portfolio to help shape the approach to each of our projects, so we give ourselves the best chance of succeeding.

It’s been great to see business colleagues using the portfolio model – and not just in relation to IT investments”

Benefits realization from Information Technology (IT) is a crucial issue for organizations across all sectors of the global economy. There are huge opportunities for benefits from innovation and integrationⁱ. Rapidly evolving technologies are providing opportunities for innovation in products, services, and ways of working. The opportunities for integration, and improving cost-efficiency, both within the organization, and across networks of organizations, are also significant. Unfortunately, the situation is not all positive: the failure rate of investments in IT remains too highⁱⁱ. Organizations are not realizing the strategic potential of the huge expenditure being made on IT. As a result, there is a strategic opportunity for organizations that can increase the benefits realized from investments in IT and succeed with both business innovation enabled by IT, and improving integration and efficiency.

Previous work on benefits from IT has explored the link between IT and organizational performance and has established the value of benefits-driven approaches to IT investmentsⁱⁱⁱ. There is now a compelling need for greater focus on management of the IT investment *portfolio* as a critical next step in driving benefits realization from IT. In this article, we draw on a series of research projects we have carried out over the last seven years, and outline important management practices that contribute to benefits realization from the IT investment portfolio. We also set out key steps in developing the IT portfolio management capability of an organization.

Opportunities for improved benefits realization: examples from participants in the research

Practices for the management of the IT investment portfolio emerged as a crucial theme at an early stage of our research (see Table 1 which provides an outline of the seven year research programme). Participants in the research projects provided many examples of how taking a portfolio perspective resulted in improved benefits realization.

The IT Strategy Director of a financial services company highlighted one of the major barriers to benefits realization: selecting the right projects. She and her business colleagues were unable to get approval for a number of projects that they agreed would enable business innovation and help the organization exploit new business opportunities. The rigid, cost-benefit approach to investment appraisal adopted by the organization meant that these projects could not be approved, as there could be no confirmation in advance of the potential benefits from innovation. We will never know what the benefits to the business might have been if they had been able to follow-up these opportunities for innovation within the IT project portfolio.

The IT Director at a public sector agency gave one example of saving \$600k through the initiative of one of his project managers taking a cross-organization view of the project portfolio. The project manager was given the job of kicking off a new project – starting to establish requirements and build engagement with key business stakeholders: the budget for the project was \$600k. She had worked for the organization for some years and had good connections. As a result, she quickly discovered a second project, not connected with the IT function, that was tackling the same issues with a similar budget (\$600k). Through the initiative of the project manager, and the influence of the IT Director, the result was a single, combined project with budget of \$600k – hence the saving of \$600k.

A number of organizations highlighted a third opportunity for benefits realization: from better exploitation of existing systems and information. They had all made substantial investments in enterprise systems, yet there was no investment in continued exploitation of these assets other than reactive help desk and support services. The result, with changing business requirements and the impact of staff turnover, was frustration at the perceived lack of information and lack of flexibility of the systems. One IT Director told us how he had been met with the complaint that 'SAP does not provide the information I need' from a senior business manager. Fortunately, the IT Director had a good knowledge of SAP and did not believe this. He found the right person in his team and had the information available for the business manager the next day. This is just one example of the significant cumulative impact of the lack of knowledge and resulting lack of exploitation of these enterprise systems.

The research

Recent work has provided a definition of IT portfolio management:

'a continuous process to manage IT project, application, and infrastructure assets and their interdependencies, in order to maximize portfolio benefits, minimize risk and ensure alignment with organizational strategy, over the long run'^{iv}

However, previous studies do not explicitly set out the competences and practices that are required to facilitate the management of benefits across a portfolio of projects.

Our aim as researchers was to make a difference and specifically to contribute to the ability of organizations to realize benefits from their portfolio of investments in IT. As a result of discussion with the sponsors, and taking account of our previous research, the following two objectives were defined:

- To identify practices which enable more effective realization of benefits from management of the IT project portfolio.
- To explore how senior managers can approach developing the IT portfolio management capability of their organization.

Our focus in this paper is on the realization of benefits from the portfolio of investments in IT across an organization. The focus on the IT portfolio highlights crucial issues that are not visible when looking at individual projects, or when looking at more general perspectives such IT governance. To increase the benefits realized from IT, top management need to focus on practices for management of the IT portfolio. We have set out a number of management practices that contribute to improved benefits realization. We also identify a number of steps that can be taken to improve the IT portfolio management capability of the organization.

OUTLINE OF THE RESEARCH PROGRAMME

Exploring the adoption of benefits-driven practices for IT investments (2004-6)^v

The project involved case studies of IT projects across 45 organizations, principally from UK, USA and Europe. The research discovered a very low level of adoption of benefits-driven practices. A framework of competences and practices for benefits realization was developed from this research.

In-depth case studies: exploring the benefits realization capability (2005-7)^{vi}

In-depth case studies of 3-4 projects were carried out in each of three organizations. Interviews (10-20 in each organization) and a review of documentation covered the selected projects, and the wider business and IT environment in which they were taking place. The study provided support for the framework of competences and practices, highlighted a range of factors related to the IT portfolio, and provided insights into the challenges of developing the benefits realization capability of the organization.

Exploring benefits realization (2008-9)^{vii}

The project explored the challenges affecting organizations seeking to realize benefits from IT investments and develop their benefits realization capability. Interviews and workshops included 65 business and IT managers. IT portfolio management emerged as a major theme and there was preliminary evidence of the development pathways taken by organization as they developed an IT portfolio management capability.

Portfolio management practices (2009-10)^{viii}

The project started with an in-depth case study of IT portfolio management in one organization. The work involved interviews with a number of directors and members of the IT management team (12 in all) and resulted in a preliminary framework of practices for IT portfolio management. A workshop session involving approximately 20 members of a regional IT Directors Forum provided an opportunity to test out and refine the ideas and specific practices.

Case study – assessment of benefits realization competences (2009-10)^{ix}

The case study tested out the use of the framework of competences and practices as a diagnostic framework to identify priorities for action to develop the benefits realization capability of an organization.

Portfolio management practices (2010)

Workshop session with members of the Russell Group IT Directors Forum (RUGIT) to explore existing practices for portfolio management.

Table 1: Outline of the research programme providing support for this paper

Building on strong foundations: a benefits-driven approach to IT projects

The primary issue we are tackling is enabling organizations to succeed in realizing benefits from investments in IT. These benefits may be for customers; employees; other stakeholders of the organization; for the organization itself and its shareholders. We are following the principles that:

1. IT has no inherent value.
2. Benefits arise when IT enables people to do things differently^x.

This is consistent with the idea of *'technochange'*^{xi}, which states that value is realized from investments in IT when the investment is managed as part of a project or programme of organizational change. Value is realized when the focus is on delivering benefits for stakeholders rather than just on delivery of an IT solution. The shift to a focus on benefits affects the business case^{xii} and the overall lifecycle of the investment^{xiii}.

Benefits realization from IT investments can be conceptualized as an organizational capability that has the purpose of ensuring that investments made in IT consistently generate value. The capability consists of a number of distinct, yet complementary, competences. A framework of organizational competences that contribute to this benefits realization capability provides the foundation for this research^{xiv} (see Figure 1 and Table 2).

Benefits realization competences

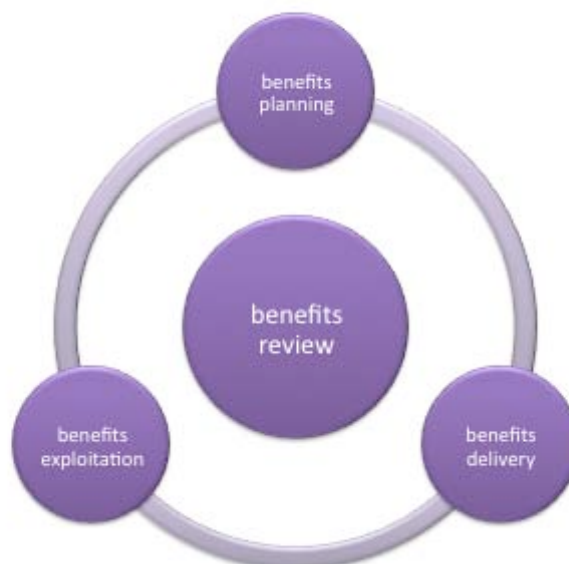


Figure 1: Benefits Realization Competences

Competence	Definition
Benefits Planning	'the ability to identify valuable opportunities for IT investments and to effectively identify the planned outcomes of an IT development project and make explicit the means by which they will be achieved'
Benefits Delivery	'the ability to design and execute the programmes of organizational change necessary to realise all of the benefits specified in the benefits plan'
Benefits Review	'the organization's ability to effectively assess the success of projects in terms of the benefits already delivered and the identification of the ways and means by which further benefits might be realised'
Benefits Exploitation	'the adoption of the portfolio of practices required to realise the potential benefits from information, applications and IT services, over their operational life'

Table 2: Definitions of key competences for benefits realization

The model of benefits realization competences is still at a relatively high level of granularity. One valuable way of adding granularity is by decomposing each competence into a number of constituent *practices*, each of which is underpinned by the skills, knowledge and experiences of organizational employees and sometimes employees of external entities. The concept of 'practices' was central to all aspects of the work. They provided a way to capture and share what people do, 'what works', and as a result provide a valuable starting point for communicating and improving practice. Practices are particularly relevant in knowledge-intensive activities, such as those within IT projects, where much of the effort is based upon the knowledge and experiences of individuals and teams. Table 3 provides further information.

THE VALUE OF PRACTICES

Practices are what people do. From our research, we are evolving a set of practices, which form a 'toolkit' for benefits realization. This toolkit approach enables flexibility; applying the right tools at the right time, adapted as necessary to the specific situation. The tools also provide a common language, which enables improvisation as multi-disciplinary teams work together. The jazz metaphor is a very helpful way to think about teamwork between the skilled professionals involved in benefits-driven IT projects.

The toolkit approach can also be applied to many of the human-centered practices, brainstorming for example, which are such an important part of effective working. We use the framework provided by work on *patterns* as a way of capturing and sharing the rich knowledge involved in practice to build up a toolkit for benefits realization.

Table 3: The value of practices

There is benefit from adopting individual practices in response to the needs of the organization. There is also value in adopting a range of practices as part of a broader programme of action to develop the capability of the organization to realize benefits from the portfolio of investments in IT.

Shifting the focus to practices for IT portfolio management

There are at least three compelling reasons why an explicit portfolio perspective will enhance the benefits realization capability of an organization:

1. Selecting which projects to invest in is crucial as ‘the greatest gains come from doing the right things’^{xv}.
2. Benefits often stem from a number of related projects, rather than a single project.
3. Benefits realization practices need to be nurtured across an organization’s complete IT portfolio.

A framework for the IT portfolio

An important starting point for realizing value from investments in IT is the IT and Change Portfolio^{xvi} (Figure 2). This describes the investments in applications and services (those already in place, those planned and future possible applications), not in terms of technology, but in terms of their role and contribution to business performance. The portfolio enables senior business and IT managers to work together to get a clearer focus on doing the right things: setting priorities and ensuring strategic alignment of investments in IT-enabled change.

There are four classes of contribution to business performance. *Core Operations* systems are those where the IT is so embedded and necessary that if the system failed the organization would suffer extensively, e.g. an airline booking system. In any given industry or sector, the organizations within it will have more or less the same Core Operations portfolio.

Support systems focus on efficiency improvement, and their failure does not have far-reaching consequences, e.g. training records unavailable for a week. Eventually, of course, if the records remained unavailable for a significant period troubles would occur.

Strategic and *Exploratory* are quite different – they both concern themselves with the future. *Strategic* systems are not just very big systems – they are those that genuinely contribute to the business’s plans and strategies. When these are implemented, people will work in very different ways – ways that will confer a competitive advantage, for instance. The system does not deliver strategic benefit – that comes from the change in the way business will be done, but the system is nevertheless crucial to the business change, e.g. integrated international supply chain systems needed for truly global operation.

IT and Change Portfolio

	Strategic	Exploratory
Transformational change / doing new things	<i>critical to achieving strategic objectives</i>	<i>may be important in achieving future success</i>
Improving the current business	critical to existing business operations	<i>valuable but not critical to success</i>
	Core Operations	Support

Figure 2: The IT and change portfolio

Exploratory investments are entrepreneurial IT activity, e.g. prototypes and pilots, of ideas that may confer large benefits. These projects are the basis for innovation. The uncertainty means that large sums of money should not be laid out until some preliminary business experimentation has taken place to explore if the benefits really exist and how they can be realized. The staged investment of a venture capitalist is the approach to take for these investments. Social media (web 2.0) is a recent area where an exploratory approach has been a good fit for many organizations.

In a business value sense, the portfolio charts the benefit life cycle of an IS investment: a promising idea is tested for proof of benefits as an Exploratory activity; if it is worthwhile, it is implemented and confers Strategic advantage. Because it is good, it is copied by the industry and thus is classed as Core Operations. In time, as better IT offerings emerge, the application may migrate to Support.

The portfolio can be used to help review current IT systems and services; to manage current projects; and to explore priorities for future investments in IT. It provides a very powerful basis for bringing together senior business and IT stakeholders to make informed decisions based on a common, business oriented language. Figure 3 represents a portfolio-level perspective of IT systems within an organization.

Using the portfolio: overview of key systems
(an example)

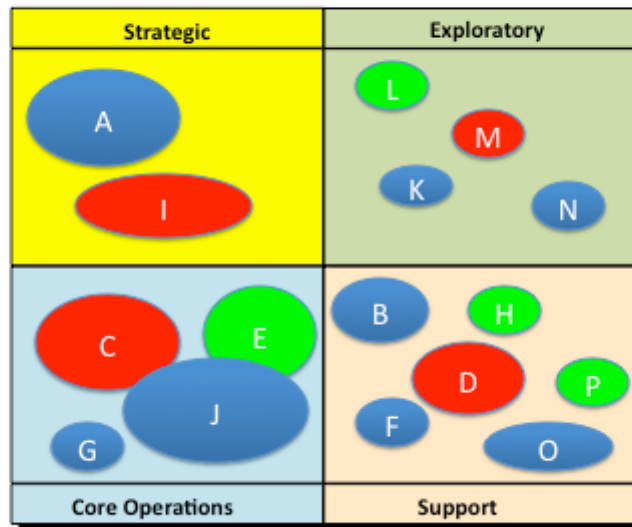


Figure 3: A portfolio-level perspective of IT systems within an organization

A portfolio perspective on Higher Education: ideas from a discussion at RUGIT:-

<p>Identify and access management – when leveraged to provide personalised services e.g. for alumni and high profile visitors (CRM).</p> <p>VLE (how can it differentiate?)</p> <p>Wireless?</p>	<p>Wimba</p> <p>3D printing</p> <p>Second life</p> <p>Online classroom</p>
<p>Student management systems</p> <p>Skye (etc) – do we block it / install it / support it?</p> <p>Identity and access management (security)</p> <p>Wireless</p> <p>Email</p> <p>Desktop</p>	<p>Web 2.0 technologies & applications in the cloud</p>
<p>We noted that applications move over time and that it is important to manage this process. Strategic opportunities often build on a Core Operations foundation – depending on the institutional strategy.</p> <p>The portfolio also provided a basis for exploring where outsourcing might be appropriate.</p>	

Practices for benefits realization from IT portfolio management

In this section, we present a number of key practices for benefits realization from IT portfolio management that were identified during the research. We focus on practices that are of broad applicability and where we have a high degree of confidence in the practice. The practices embed the IT and change portfolio (Figure 2) in the management of an organization and tackle crucial factors in benefits realization. Table 4 provides a summary of the practices.

We are not presenting a portfolio management ‘methodology’ or ‘maturity model’, the practices provide elements of a ‘toolkit’ for benefits realization that is a basis for improvisation and adaptation within organizations. We expect the toolkit to evolve, based on experience, as new practices are identified and further evidence emerges of what works in specific situations.

<p>Benefits Planning</p> <p>1) Developing winners: shared management of a pipeline of opportunities.</p> <p>2) Portfolio-based criteria for investment appraisal.</p> <p>3) Setting priorities: taking a long-term view.</p> <p>4) Ring fence funds for Exploratory projects.</p>	<p>Benefits Delivery</p> <p>5) Governance framework: achieving effective control of the portfolio.</p> <p>6) Portfolio perspective on benefits-driven projects: emphasizing people and skills.</p> <p>7) Managing applications across the portfolio.</p>	<p>Benefits Exploitation</p> <p>8) Benefits ownership review of operational services</p> <p>Note: Participants identified Benefits Exploitation as a priority – but we did not identify well-established practices in this area.</p>
<p>Benefits Review</p> <p>9) Portfolio review – maintaining alignment and control.</p> <p>10) Managing risk – taking a portfolio perspective</p>		

Table 4: Summary of practices for IT portfolio management by competence

Benefits Planning

At one organization the lack of agreed IT strategy was seen as an issue both by senior management and the staff in the IT team:

“we’ve had a few attempts at developing an IT strategy – we still don’t have one that’s approved – we need more buy-in from the business.”

A director emphasized the importance of planning at a portfolio level, and also that it was an area not yet successfully tackled by his organization:

“the key is to have a balanced portfolio – it’s not easily done, and it’s not done at all here.”

A number of other participants took the view that existing systems and services were satisfactory and that the priority was to focus more of the investment in IT on business innovation and change.

A key aspect of Benefits Planning is the strategic alignment of the project portfolio, after all 'the greatest benefits come from doing the right things'^{xvii}. This is the primary focus of the practices we identified.

Practice 1: Developing winners: shared management of a pipeline of opportunities

A key concern of many of the participants reflected the need to focus on 'doing the right things.' In any organization, there are many ideas for projects and the ideas with the most vocal sponsors are not always the best. In many cases, there are problems and opportunities that do not develop into specific ideas and proposals because of lack of knowledge of what is possible. There is far too little resource available to work up every idea into a full business case. So the challenge is to find a way to identify and nurture these ideas and make informed decisions on priorities rather than simply select from the small subset that is pushed forward for consideration.

Organizations tackling these challenges were found to take two complementary steps. Firstly, they had established an opportunity pipeline so that IT and business could work together and explore ideas prior to investment of resources in the development of a full business case. The pipeline needs decision making gates at a number of stages to filter out less promising ideas. Some organizations were using very limited seed corn funds to enable the most promising ideas to be developed further. This idea of using gates is well known but is often only applied to projects in the IT portfolio once the business case is approved. The practice needs to be applied much earlier.

A second focus was based on establishing good relationships so that IT had a 'seat at the table' and were present when business or business unit heads were discussing problems, opportunities or ideas. This is a crucial factor as it enables IT to have an input in terms of what is possible and helps to avoid early rejection of options, or early commitment to inappropriate approaches that would be hard to change at a later stage. Building relationships is an explicit strategy of senior IT management to get out into the business and explore possibilities, elicit good ideas and manage a pipeline of opportunities.

Practice 2: Adopt portfolio based criteria for investment appraisal

Most participants had traditional, financially based investment appraisal criteria with some form of return on investment formula subject to varying levels of approval, based on the size of the project. Many participants found this a challenge, as increasingly projects are required where benefits are not directly financial. This was particularly the case in the public sector (consider: improved patient survival rates and patient experience; improved student experience, learning outcomes; increased research impact), but was not limited to the public sector. The IT Strategy Director at one financial services organization stressed the virtual impossibility of getting projects approved where the motivation is innovation. Consequently, business cases are being adapted to fit existing investment appraisal criteria; for example, estimates of the financial impact of non-financial benefits. In addition, IT investment is being channeled into 'Support' projects where it is easiest to establish a financial case at the expense of more strategic and innovative investments.

Participants noted that *people* take these decisions and the investment appraisal criteria are guidelines to help the people involved. It is important to have investment appraisal

criteria that help people make good decisions. Organizations are now starting to explore a broader set of investment appraisal criteria and to relate these directly to the investment portfolio (see Table 5). For example, a traditional, financially based business case is entirely appropriate for a Support project. If the same approach is applied to Exploratory projects, none will ever be approved, as the purpose of the project is to explore potential benefits and, by definition, it is not possible to put together a robust business case that is well supported with evidence.

A BROADER PERSPECTIVE ON IT INVESTMENT APPRAISAL

Organizations are starting to evolve an investment appraisal scorecard taking into account:

Financial measures: any appropriate measure can be used (NPV, etc). The weighting would be much higher for Support projects.

Strategic alignment: the extent to which the project contributes to the strategic objectives of the organization. This could be given a high weight for a Strategic project.

Organizational risk: the business risk related to the business opportunity and the management of change.

Future options: an investment might create a range of opportunities that could be of value in the future – this puts a value on this flexibility.

Contribution to architecture: the project may contribute services and/or functionality that are of broader value to other projects.

Technical risk: an assessment of the technology risk.

The different factors are weighted according to the element of the portfolio. Financial measures are the key for Support projects. Strategic alignment is the primary focus for Strategic projects. For Exploratory projects, the key is spreading *limited* funds across a range of promising ideas and getting good learning. Who takes the decisions is also important – for Exploratory and Support projects, there are strong arguments that there should be some element of local autonomy and control, even in what is otherwise a centralized governance framework.

Table 5: A broader view of investment appraisal

One participant provided an excellent example of the importance of people in the decision making process and specifically having the right knowledge involved from an early stage. The IT manager stressed the importance of procurement and vendor management and identified major savings that had been achieved:

“They went out to tender. Z was one of two leading suppliers. They realised they had the whip hand. Z used high-pressure sales techniques – the sponsor and manager had no experience of resisting this. The vendor sent up a lot of high profile people. I stepped in and stopped it. I had to convince the directors. Z threatened to sue. I’d been through it before – it didn’t frighten me. I brought in a contract project

manager who'd delivered eight of these. We went out to tender again using his experience. They'd tried to oversell us on licenses by £300k. We also saved £300k on services (from £500k to £200k) and we gained flexibility. It was a shame it wasn't sorted earlier."

Procurement and vendor management are revealed as important factors contributing to benefits realisation, and must be managed at the portfolio level as part of the wider investment appraisal process to ensure that the best possible deals can be leveraged from suppliers.

Practice 3: Setting priorities: taking a long term view

A further significant challenge when considering strategic alignment and priority setting is that there is often no single, clearly defined set of priorities. Several participants highlighted how business unit priorities differed from corporate priorities. There was also a strong belief that the public sector faces particularly high levels of uncertainty, which makes the strategic alignment of the portfolio difficult. These organizations are always vulnerable to imposed changes of objectives and to these changes happening faster than they can deliver change programmes.

Participants generally acknowledged the different time horizons of business and IT planning, with IT often needing to consider 3-5 years or more, which goes well beyond typical business planning cycles. As a result, IT is potentially caught between different versions of business priorities and also has to make a case for a longer-term perspective that is not directly aligned to short-term business priorities. Organization with business control of IT priorities and budgets risk taking short-term decisions with adverse consequences in the long-term.

In this complex area, organizations are adopting a number of practices. In addition to building relationships and developing engagement with business strategy and planning processes at all levels of the organization, forward looking IT organizations are developing an IT strategy including a 3-5 year architecture and technology roadmap so that they are gradually developing a strategic 'digital platform'^{xviii}: *"we're working towards a long term systems roadmap for each system with academic & non-academic colleagues"* (RUGIT).

Practice 4: Ring fence funds for Exploratory projects

Seed corn funds and pilot projects were being used in a limited way by a small number of project participants and represented first steps towards the explicit use of Exploratory projects to enable innovation and to reduce the risk of larger investments. There was a 'skunk works' element to these projects: one IT director admitted he had to use the stationery budget to fund some initial work on a potentially important project. There was also some concern that any failures might be at cost to the credibility of the IT function and to individual careers, so participants were keen to establish more entrepreneurial environment.

Organizations need to make use of the concept of Exploratory projects, and acknowledge that some will fail if they are indeed being used in exploratory, high-risk scenarios. Failure would be a good thing, as it provides an opportunity for learning and it avoids much greater losses on a Strategic or Core Operations project. A small element of budget (5% perhaps) is ring fenced for Exploratory projects and a simple selection process is established. Projects tackle interesting areas with small teams and budgets adopting an agile approach^{xix}. In many senses, this venture capital approach provides funds in tranches

and balances innovation and risk. Table 6 provides examples of practices for an Exploratory project.

Practice	Outline description
Time box	Time boxing is a key practice – working to a deadline for the delivery of each phase and using this focus to enable innovation.
Incremental development / phased delivery	Totally linked with time boxing is the focus on incremental or phased delivery. It results in smaller projects that are easier to manage, provides motivation for the team and is a quicker route to benefits and learning.
Manage trade-offs	The feature – time – resource trade-off is aligned with the time boxed approach. The key driver is to deliver, shifting features to a later release if necessary.
Co-located team	The creation of a physical space for innovation can be vital. It allows sharing of tacit knowledge and effective ways of working with a minimum of paperwork and bureaucracy.
Phased funding	A venture capital model is adopted. Small tranches of funding until there is evidence of benefits and the teams’ ability to deliver.
Entrepreneurial team	The people are key. An entrepreneurial, multi-disciplinary team will make the project succeed. They might break a few rules along the way – just focus on creating the environment where they can innovate and make things happen.

Table 6: Practices for an Exploratory project (examples)

Benefits Delivery

The link between strategy and implementation is often weak:

“There is a lack of leadership and corporate ownership. What isn’t in place is a management framework to oversee the process of how IT should be deployed. We have written a strategy but it needs to be owned by somebody. There have to be priorities, and new requirements have to be considered in the context of the plan. It has to approve projects. The strategy mustn’t go in the top drawer; it must be a working document: it needs to be owned and managed. We need a rolling 3-5 year plan for IT. We don’t have a governance framework that ties in directorates and IT.”

Control over existing projects can also be weak. An HR Director gave an example of a lack of control over the portfolio of projects: *“IT Projects can bounce along for years and no one has got around to delivering anything”*. The IT Manager indicated that there was a clear *‘IT attention deficit’*^{xxx} contributing to the lack of control:

“Project X has been going on for three years, I went to the senior management team – they looked bored after five minutes – either you need to understand it or you need to empower me”.

One project manager indicated the impact of lack of planning and control on resource allocation:

“The trouble is planning, the lack of certainty of dates. I was booked in for a project and it didn’t come through for over a year. You get to the point you never believe a word anyone says. No deadlines are ever met. You need to be able to plan properly.”
As a second project manager noted: *“Who knows what projects are being worked on? Who knows where there are overlaps? There would be big benefits if we knew what was going on.”*

In this situation, there is no portfolio of agreed projects and there are no management practices related to the control of the portfolio. As a result, it appears that progress of projects is not effectively controlled, coherence of the projects is not ensured and there is considerable difficulty in resource planning.

Practices addressing Benefits Delivery include effective governance of the portfolio and a clear portfolio management process.

Practice 5: Establish effective portfolio governance

Management of the portfolio becomes a key driver for benefits realization. It provides a link between strategy and implementation. Phased benefits delivery and an agile approach to projects will tend to mean more, shorter projects and a greater emphasis on learning and evolution of plans. The portfolio approach, and specifically the different types of investments, builds in an improved level of flexibility to enable the organization to respond to changing circumstances.

Participants stressed the importance of establishing effective governance structures for the IT portfolio that bring together different stakeholders, specifically senior business leaders responsible for setting priorities and sponsoring change initiatives, with IT and other professionals involved in delivering the change programmes to realize the benefits. In some organizations, this is a challenge, because of the lack of status of the IT function and lack of involvement of the CIO at the top level^{xxi}.

The governance framework is likely to evolve as the transformation capability develops. For example, a starting point might be to establish effective portfolio-level control over all IT projects. A later stage might be to establish an organization-wide view of investments in change addressing setting priorities (strategy), delivery of benefits through change (implementation) and exploitation of existing systems, services and information.

We also noted that the governance framework must provide scope for flexibility and that the portfolio helps to manage this. For example: *“IT may try to control too much. We created a community approach to mobile applications – drawing on IT provided web services. IT are not supporting the applications themselves”* (RUGIT). The flexibility can allow for different levels of resilience (and cost), but there are barriers: *“Audit Committee take a view that everything has to be resilient. We need to allow different views”* (RUGIT). Table 7 provides more examples of governance from the RUGIT workshop.

It is interesting to note the comment from one participant in relation to a previous attempt at improved governance: *“we tried before but the group wouldn’t take the decisions on priorities.”* This emphasizes that, by itself, establishing a new, formal governance structure will not achieve the necessary improvements. Relationships are key and it is vital to have the right people involved and committed to make it work. One approach is to embed management of the portfolio in existing structures, a number of IT functions had representatives on business unit management teams and were tackling portfolio management in this forum.

Governance – approaches discussed at RUGIT workshop

We view governance as the structure and the principles by which people work. There was a lot of pressure related to business systems so a Business Systems Steering Group was established including the Registrar, CFO and Director of Estates. BSSG handles all requests for development and uses a scorecard to set priorities: top 10, then second & third priority. The scorecard includes: strategic fit; cost; time required; numbers of people impacted. There has been good agreement on the outcome from the scoring. The priorities are reviewed every 6 months. The scoring is now done by IT then reviewed by the steering group.

Business systems projects are headed up by a senior academic.

We engage with academic colleagues, build relationships and create a dialogue. The goal is to become a partner of choice.

We have various subcommittees (Admin, T&L, Research) and one top-level governance group. We need to get away from a wish list of projects and projects in silos not linked to strategy. The admin group brings together IT, Estates, HR etc so that there is a coherent admin strategy with an IT component.

We have an academic led IS Steering Group. There is also a Business Systems governance group. IT governance is embedded in existing Research, T&L bodies. They link into the IS strategy groups and the membership also strengthens links e.g. the VP of Research is on the IS Strategy Group.

We have a Portfolio Executive (university senior management excluding the VC) overseeing all programmes & projects of organizational change including systems projects. Work currently includes re-designing all support processes.

Table 7: Examples of approaches to governance from the RUGIT workshop

Practice 6: Take a portfolio perspective on people and skills to drive benefits realization

Benefits are achieved when a project specifically focuses on benefits realization from organizational change and not just technology implementation. We know that benefits-driven approaches have not been widely adopted and that most projects still have a technology focus. Evidence from the current study suggests that the interaction between the portfolio and the individual projects is a critical opportunity to influence the adoption of benefits-driven approaches and enable benefits realization.

At project initiation, there is a portfolio-level role in finding the right people to be part of the project team, as well as helping to establish an approach to the project that is effective in the context of the investment portfolio. In the HE context, capacity for business engagement can be limited: *“there is limited capacity for academic engagement in projects and programmes – not many are willing and able to be involved – so we just pick strategic projects and focus academic leadership on these”* (RUGIT).

For many projects, particularly Exploratory and Strategic innovation is important. A key question is: *“how do we capture the creativity and entrepreneurial spirit that there is in academic depts.?”* (RUGIT). One approach is to recognise the need for different contributions and to build a team that brings together the required skills: *“Academics can be entrepreneurs – they tend not to be completer-finishers. IT can provide support. There is a journey from project to service – academics are not geared to provide a service – others need to take the ideas forward”* (RUGIT).

In the design and development stages of a project the portfolio perspective also helps consideration of architectural issues. For example, should the project be drawing on existing application or infrastructure services? Should the project be contributing new services that will be used by other projects? Throughout the project, there will be opportunities to share learning with other projects. The source of guidance and portfolio-level control will vary from organization to organization. It may come from individuals in line management positions (for example, the Chief Information Officer (CIO)), or there may be an advisory element to the role of a Project Management Office (PMO). The appropriate model will depend on a range of factors including the experience and management style of the individuals. From a benefits perspective it is vital to ensure there is relevant expertise in benefits-driven approaches in project teams, and that support and advice is available as necessary.

There are a number of additional practices at a portfolio level, related to: developing people with relevant skills; getting people with the necessary skills allocated to projects and in appropriate roles; creating a career development framework that encourages the development of benefits related skills in IT and business professionals; and also sharing practices for benefits realization. In addition, guidance can be provided on adapting the approach taken to a project based on the portfolio. Although practices in these areas are fairly clear from the ‘textbook’, we have not yet observed them in practice and have not included them here.

Practice 7: Use the portfolio to manage application lifecycles

The portfolio helps to explore the management of software applications over time. Most participants in the studies attempted to operate a centralized, monopolistic decision making strategy related to IT application software. One micro-case study highlights some of the challenges. (See Table 8)

The case simply illustrates the more general practice that applications need to be periodically re-assessed from a portfolio perspective. Applications will move around the portfolio as the positioning is related to strategy and competitive positioning. The key is to manage the movement so that the implications for management of the application are assessed and, for example, service levels adjusted accordingly.

APPLICATION LIFECYCLE MANAGEMENT CASE STUDY

A university has a core eLearning system used by 90% of its 20,000 students. It is reliable and effective. However, it looks dated and does not provide Web 2.0 features. A professor in Computer Science has developed a new eLearning system and usage is gradually growing in other departments. It looks up to date and it has some clear functional advantages over the core university system. The system is hosted on a server under the professor’s desk. It is becoming unreliable as usage grows and no one other than the professor can provide support. The university structure is federal, with individual departments having a lot of autonomy, also individual, successful, professors have considerable freedom of action.

The investment portfolio helps to identify a number of possible actions in response to the case study. For example: if the new eLearning system is Exploratory, there might be an opportunity to move it to Core Operations or Strategic by IT taking on the management of the infrastructure; and investing in the core eLearning system to add new functionality to replicate the system; or IT could re-engineer the system to provide a sound basis for further development and production operation.

Table 8: An example of issues in application lifecycle management

Benefits Exploitation

The participants in the studies identified exploitation of existing systems and information as a top priority. Given the relatively little action actually being taken, we suspect the need to ‘sweat the assets’ has been brought into sharper focus by the general economic climate.

Existing systems have generally been taken for granted. Often these are major enterprise systems, such as SAP, where post implementation the emphasis has moved on, leaving a small support capability to resolve specific problems. Participants reported a gradual loss of knowledge from the turnover of IT and business staff, resulting in less of the capabilities of these systems being used and an unnecessary inflexibility in the face of gradually changing business requirements. The loss of knowledge can easily be reinforced due to busyness and bureaucracy, giving the impression of poor systems and a ‘can’t do’ IT function. The example of the IT Director quoted earlier, showing that SAP did have the information required by the senior business manager and that it could easily be made available, shows what a difference attitude and behavior can make.

There is a view that this is a business issue and not IT’s problem. We argue that IT needs to step up and take a lead as this is so important for an organization and the current situation reflects badly on the IT function. Table 9 outlines a number of specific practices from an organization involved in one of our earlier research projects.

Examples of practices for Benefits Exploitation
<ul style="list-style-type: none"> • Regular review of system usage, including an annual end-user survey, is carried out to understand satisfaction; identify problems; explore opportunities; and to provide input into future developments. • An annual user conference is held to provide an opportunity for end-users to share how they are using the system and for good ideas to be communicated. The IT team provides additional input to the conference, based on their work with the solution provider and attendance at the user group meetings that include other organizations using the software. • Regular updates are made to help guides and training courses that address how to get the most value from the system. Help information is provided in the form of a wiki, enabling broad participation in sharing ideas and advice. • Consultancy services are provide to end-users and user departments by the IT function with the aim of tackling specific projects to help them realize additional value from using the system: <i>“we’ll put in time to run a series of short seminars to provide updates on the new features and then we can work 1:1 with people who want specific advice.”</i>

Table 9: Examples of practices for Benefits Exploitation

Practice 8: Establish benefits owners and carry out a periodic review of operational services

Although we discovered very little evidence of consistent practices related to Benefits Exploitation, one organization was starting to establish what appears to be a potentially valuable practice.

The aim is to have clear business owners (often multiple, to reflect the organizational structure) for a specific IT service (or system / business process) and then to carry out a regular review between business and IT to explore if benefits are being sustained and developed. These give an explicit benefits focus to existing service management practices and aim to take into account the rapidly changing organizational context.

Benefits Review

Benefits Review highlights a crucial conundrum: everyone knows it is important to carry out post-implementation reviews of projects, yet they are only rarely carried out. This gap between what we know and what we do^{xxii} is a crucial barrier to the development of the IT portfolio management capability of an organization and we consider it later. Portfolio management needs to ensure that these project-level benefits reviews are carried out regularly and that action is taken as a result.

The research provided participants with an opportunity to reflect on lessons learned, which is a critical element of the Benefits Review competence. One IT Director highlighted how the gap between business and IT affected Benefits Planning:

“The project manager even said to me ‘if I can get rid of all this complicated IT, I can make it deliver’. The project initiation document wasn’t originally shown to me. It said we will do this bit and IT will do the rest. Like we’ll install the ATMs and IT will provide the rest of the bank. The way the PID (project initiation document) was written it was a no-win for IT. I had to beg \$20k to do some studies. To start off I had to use the stationery budget.”

An IT manager saw the need for shift from technology implementation to a greater benefits focus, for alignment of objectives with stakeholders and for explicit change management programmes to deliver the intended benefits:

“There are also things to do about programme management – but we need strategy. Then we need staged projects and stakeholder alignment. Project management is not just about making a machine; it’s about transforming the service. For example, the X project was \$4m, of which \$110k was technology. It involved a huge effort in communication and support. Change management has been a lot more important than the technology.”

It is also important to note how a large business project has a small, but critical IT component, which emphasises the need for the portfolio to encompass all investments in change.

Practice 9: Carry out a periodic review of the portfolio to maintain alignment and control

The IT portfolio represents a significant investment in change. It is also a crucial link between the strategy of the organization and the implementation of change. In the absence of a regular review of the portfolio, there is a risk of loss of control over these investments, and the alignment with business strategy may drift as business priorities change.

A key element of control is provided by half-yearly reviews of the overall project portfolio, which are aligned with the business planning cycle. The reviews, varying between a day and half day, provide an opportunity for an in-depth review of the portfolio. This provides an opportunity to reassess the strategic alignment of projects and to take a broader view of progress and lessons learned.

Initial sessions are likely to identify a range of issues and to help establish an effective governance framework. While there may be opportunities to consider the different constituents of the portfolio (current systems, current and future projects) in different sessions, it is normally helpful to maintain an overview of the entire portfolio. It is important to take a pragmatic approach to the portfolio and the review process. For example, in some cases it may be necessary to start with the IT function and IT projects. Clearly, the goal is to move to consider all investments in IT-enabled change and preferably all investments in change.

Depending on the size and structure of the organization, the portfolio may exist at a number of different levels (e.g. each business unit and the organization as a whole) and reviews should take place at relevant levels. At all these levels, it is important to ensure there is knowledge and expertise in portfolio management, as well as effective engagement from the individuals involved.

Practice 10: Managing risk: take a portfolio perspective

We know a lot about managing risk on IT projects. Just look at any book on IT project management. Unfortunately, a focus on risks related to a specific project misses most of the big issues; for example, as the 'biggest gains come from doing the right things', risk management at a project level can be about trying to succeed with projects that should never have been started.

Once a portfolio view is established, i.e. all projects are allocated to one of the quadrants and a core set of information is available on each project, it provides the basis for a much more strategic approach to risk management. For example: *Core Operations* projects are affecting critical business activities – this can be compared to changing the engine without stopping the car. So there has to be a real focus on mitigating risks. *Exploratory* projects are very different. A risk averse approach would mean that either these projects never take place or that they cost far too much. This is the place for innovation and taking risks – but limiting the potential damage by keeping the budgets and resources small. It also means recognizing that some of these projects will fail - and that is ok.

Taking a portfolio perspective is critical to effective IT risk management. The portfolio provides guidance on the attitude to risk on different projects. It also helps align the overall set of investments in IT with the business strategy – providing a real focus on business opportunities and risk. Risk management becomes a key element of the portfolio management and review process.

Overall picture – a lack of focus on the IT portfolio

Our findings provide support for the importance of IT portfolio management as an element of the benefits realization capability of an organization. We have set out a number of specific practices emerging from the research that will help organizations realize benefits from the IT portfolio.

In almost all cases, participants in the research agreed that managing the IT portfolio, as set out here, had not been a top priority prior to their engagement in the research. Practices had been established because of specific initiatives and in response to particular problems rather than as part of a co-coordinated attempt to develop more effective portfolio management. Table 10 sets out some ideas for making a start with adoption of the practices we have identified.

Competence		Practice	Making a start: some options
Benefits Planning	1	Developing winners: shared management of a pipeline of opportunities.	Pilot the idea opportunity pipeline leading to exploratory projects and business case development with one business unit.
	2	Adopt portfolio-based criteria for investment appraisal.	Pilot a broader scorecard for Strategic projects as part of the next round of business planning.
	3	Setting priorities: take a long-term view.	Review a 3-5 year view of IT priorities with business executives.
	4	Ring fence funds for Exploratory projects.	Approach a suitable planned project as an Exploratory project and assess the benefits / lessons from taking this approach.
Benefits Delivery	5	Establish effective portfolio governance.	Use the portfolio model as part of a review session with the CEO and use that as a way to explore how to develop portfolio governance.
	6	Take a portfolio perspective on people and skills to drive benefits realization	As project reaches initiation ensure key roles are filled taking a portfolio perspective; for example, on the type of project, and ensuring relevant benefits related skills.
	7	Managing applications across the portfolio.	Follow the portfolio review (8) with an internal review of application and service management issues.
Benefits Exploitation	8	Establish benefits owners and carry out a periodic review of operational services.	Pilot a benefits review of an existing key service. Make the selection based on the strength of relationship between IT and the business owner.
Benefits Review	9	Carry out a periodic review of the portfolio to maintain alignment and control.	Carry out a review of the existing portfolio using the portfolio framework and taking a benefits perspective.
	10	Managing risk – take a portfolio perspective.	Following the portfolio review, run a second session focusing on risk: consider specific project risks and the approach to risk, as well as portfolio-level issues.

Table 10: Options for developing portfolio management

Building the IT portfolio management capability of an organization

Exploring how organizations can develop their benefits realization capability is a core element of our ongoing research. Management of the IT portfolio is an element of this wider capability. For the purposes of this article, we have represented the capability as the four competences for benefits realization (Table 2) supported by a number of specific practices. Each organization will be starting from a different position and will need to plot its own path for improvement. Our findings to date suggest that many important practices are very similar from organization to organization so that there is a lot of value in sharing ideas and learning between organizations. The development of improved IT portfolio management, as part of the benefits realization capability, is a process of organizational change, which requires:

- Gradual adoption of a 'toolkit' of practices with an emphasis on building skills and effectiveness.
- Leadership for the development of the portfolio management capability.
- An organizational culture that enables learning.

A first step is to assess the current capability of the organization and set priorities for action based on the current context and role of IT at the individual organization.

Assess the current IT portfolio management capability and set priorities for action

A key motivation for our use of practices is that they provide a way to capture and share good practices, while avoiding a 'one size fits all' approach. To develop the IT portfolio management capability of an organization it is vital to get a good understanding of the current situation and to explore the specific priorities for improvement. It is essential to consider a number of different perspectives and engage the right people in the assessment. Our framework (Figure 4 and Table 11) is designed for use in discussion with senior business and IT management and covers a range of dimensions in order to get beyond a discussion of formal structures and focus on effective practice.

Following assessment of the current situation and agreement of priorities for improvement, the next stage is leadership of a benefits-driven programme of change to develop the IT portfolio management capability of the organization.

**Benefits realisation capability assessment:
identifying the priorities for action**



Figure 4: Capability Assessment

Dimension of the assessment	Key questions (examples – not complete)
Scope and benefits focus	Does the portfolio encompass all IT-enabled change initiatives across the organization?
Strategic alignment	How well does the portfolio reflect the strategic objectives of the organization?
Engagement and relationships	How effective is engagement with management of the portfolio across the organization?
Architecture	How well is the portfolio aligned with the organizational (e.g. business process) and IT architecture?
Capability	Do people from across the organization have a common perspective, language, and set of 'tools' to enable them to work together effectively on IT projects and benefits realization?
Capacity	Is there a good understanding of the capacity of the organization to deliver change?
Learning and innovation	Is there sharing of knowledge / good practices across the portfolio? Are there opportunities for innovation within projects?
Management processes	Are there effective processes and controls in place (evaluation, progress, finances, risk)?

Table 11: Illustration of the capability assessment

Taking the next steps to improve benefits realization

Previous work on benefits realization from IT has largely focused at the project level. The main contribution of this paper is to focus on the management of benefits at the portfolio level, and then identify a number of areas in which portfolio-level practices are emerging and can be adopted to improve benefits realization. The study also makes a contribution to the developing literature on IT competences and capabilities by providing new insights into why it is as important to manage IT projects proactively at the portfolio level, as it is at the individual project level.

Senior IT and business managers wanting to increase the benefits realized from IT in their organization should consider the actions they will take to improve IT portfolio management. We have provided a number of possible starting points in this paper.

References

- ⁱ J. Cash Jr., M. Earl, and M. Robert. "Teaming Up to Crack Innovation & Enterprise Integration," *Harvard Business Review*, 86/11 (November 2008): 90-100.
- ⁱⁱ There is a large literature exploring failures of IT projects. The series of Chaos Reports from the Standish Group (www.standishgroup.com) are widely quoted. For example www.cio.com quoted the 2009 report: "Specifically, 32 percent of IT projects were considered successful, having been completed on time, on budget and with the required features and functions. Nearly one-in-four (24 percent) of IT projects were considered failures, having been cancelled before they were completed, or having been delivered but never used. The rest (44 percent) were considered challenged: They were finished late, over budget, or with fewer than the required features and functions".
- ⁱⁱⁱ J. Peppard and J. Ward. "Unlocking Sustained Business Value from IT Investments," *California Management Review*, 48/1 (Fall 2005): 52-70.
- ^{iv} R. Kumar, H. Ajjan and Y. Niu, Y. "Information Technology Portfolio Management: Literature review, framework & research issues" *Information Resources Management Journal*, 21/3 (2008): 64-87.
- ^v C. Ashurst, N. Doherty and J. Peppard. "Improving the impact of IT development projects: the benefits realization capability model," *European Journal of Information Systems* 17(4): 352-370.
- ^{vi} Ashurst, C. (2008) Business transformation enabled by information systems: lessons from a case study of a city council. Paper accepted at the British Academy of Management conference.
- ^{vii} Ashurst, C. & Hodges, J. 2010. Exploring Business Transformation: The Challenges of Developing a Benefits Realization Capability. *Journal of Change Management* 10(2): 217-237.
- ^{viii} Ashurst C., Freer, A. and Doherty, N (2009) Developing the Information Systems Capability of the Organisation: a Portfolio Perspective. Paper presented at the UK Academy of Information Systems Conference.
- ^{ix} Ashurst, C. and Straker, T. (2010) Practices for benefits realization: a case study. Paper presented at the UK Academy of Information Systems Conference.
- ^x J. Peppard, J. Ward and E. Daniel. "Managing the realization of business benefits from IT investments," *MIS Quarterly Executive*, 6/1: 1-11.
- ^{xi} M.L. Markus "Technochange management: using IT to drive organizational change," *Journal of Information Technology*, 19/1: 4-20.
- ^{xii} J. Peppard, J. Ward and E. Daniel. "Managing the realization of business benefits from IT investments." *MIS Quarterly Executive*, 2007, 6/1: 1-11.
- ^{xiii} Peppard, Ward and Daniel.
- ^{xiv} Ashurst, Doherty and Peppard.
- ^{xv} M. Earl, and D. Feeny, "Is Your CIO Adding Value?" *Sloan Management Review*, 35/3 (Spring 1994): 11-20.

^{xvi} The IT and Change portfolio draws on work by Warren McFarlan (see F.W. McFarlan. "Portfolio approach to information systems," *Harvard Business Review*, 59/5 (Septemebr/October 1981): 142-150) and John Ward and Joe Peppard (see for example: *Strategic Planning for Information Systems* (Chichester, UK: John Wiley & Sons, 2002).

^{xvii} Earl and Feeny.

^{xviii} P. Weill and J. Ross. *IT Savvy: What Top Executives Must Know to Go from Pain to Gain* (Boston, MA: Harvard Business School Press, 2009).

^{xix} J. Highsmith. *Agile Project Management* (Addison-Wesley, 2004).

^{xx} S.Huff, M. Maher and M. Munro. "Information Technology and the Board of Directors: Is There an IT Attention Deficit?" *MIS Quarterly Executive*, 5/1: 55-68

^{xxi} Huff, Maher and Munro.

^{xxii} J. Pfeffer, and R. Sutton, R. "Knowing "What" to Do is Not Enough: Turning Knowledge into Action." *California Management Review* (Fall 1999), 42/1: 83-108.