

Contacts:

Jon Collins
Quocirca Ltd
Tel +44 1285 771433
jon.collins@quocirca.com

Bob Tarzey
Quocirca Ltd
Tel +44 1753 855794
bob.tarzey@quocirca.com

ILM as a Journey Moving Towards Storage as a Service

*Current technology decision making in larger organisations is more dependent on making existing IT platforms as efficient as possible to support business demands, and less on the “next big thing”. However, particularly in storage and information management, there remain weaknesses in the day to day operation of such environments. This report positions **Information Life Cycle Management (ILM)** in the context of infrastructure management as a whole, to yield understanding of where we are today, and how much further there is to go. The research shows that businesses are being more prudent than ever with their IT spending, focusing on delivering an efficient infrastructure and reaping the benefits that this can bring for the business.*

- **This report establishes an index to enable the comparison of different countries and sectors in their progress towards ILM**

To reach the goals of comprehensive ILM, companies need to be motivated to do so, technically prepared to do so and operationally organised to do so. Whether or not companies would consider themselves to be “doing ILM”, steady progress has been made towards all three points, resulting in an overall index marker of 5.2 out of a maximum of 10. The Republic of Ireland fares better than the United Kingdom, with a score of 6.2 over the UK’s 5.1; also the healthcare and utilities sectors, at 5.8, are in advance of the others, particularly the public sector which comes in at only 4.3 on the scale.

- **The business need for efficiency and effectiveness is driving IT projects**

While competitive pressures and market dynamics are the main causes of change for over half of all businesses, they are not looking to change their working practices. With customer requirements changing little, organisations are focusing on how they can improve the provision of services. Organisations are aligning IT strategy in general, and information management strategy in particular, to support their business activities as efficiently as possible, and there is a high level of confidence that such alignments can deliver what is required.

- **We are in the middle of a rationalisation wave of technology spending**

With this emphasis on IT efficiency, over half of the organisations surveyed are looking to reduce their number of data centres. The vast majority of companies – over 85% – are planning to rationalise and consolidate their server and storage environments, and a significant proportion of these have work in progress or have already done so. Also, the majority of companies see server and storage virtualisation as being useful, if not essential to making best use of such consolidated environments.

- **The biggest issues in IT today concern how to access, collate and protect information**

Given that data management understanding is considered as comprehensive by only one third of businesses, it is reasonable that the challenges of finding the right information, and collating it for reviews and compliance requirements, are seen by nearly half as the two biggest issues of today’s IT environments. Equally significant is the need to protect information against unauthorised access or modification.

- **Operational processes for backup and recovery are not being followed comprehensively**

A third of respondents stated that their organisations do not adhere to their backup practices as well as they should, with 8% stating they had no standard procedures in place at all: this is a little worrying, given that the survey was of large and enterprise-scale organisations. Even more worrying was the fact that 30% of backups are being stored in the same building as the data centre. There are, however, signs of progress – the majority of companies say they have some kind of improvement initiative in place.

RESEARCH NOTE:

This report is derived from a study of 258 IT decision makers across the UK and Ireland, with interviews taking place during August and September of 2005. Questions covered the level of business change in organisations, the existing IT environment and the operational processes organisations had implemented to manage their IT, with particular focus on attitudes towards the storage, management and protection of information.

Introduction

In order to be able to meet demand, one must provide some guarantee of supply. There are two parts to this – first, a framework for supply is needed, then the supply processes themselves need to be efficient and effective.

We can apply these fundamental principles of service delivery to how we use technologies to store, manage and serve up information, relative to the changing needs of the business. The generic term for this is Information Lifecycle Management, or ILM. While it has been defined in a number of different ways by different vendors, all agree it is one facet of a greater picture, namely how IT deployment and operations are aligned with whatever are the critical goals of an organisation.

All the same, many end-user organisations have no idea what the term “Information Lifecycle Management” means. This is fair enough – ILM started out as a vendor initiative, as storage companies sought to deliver better value to their customers, they looked to understanding the changing value of information over time, and how this related to where information should be stored. ILM has evolved to mean far more than clever allocation of storage, however, as it is generally accepted that it encompasses the processes companies have in place to manage their storage, as well as incorporating business-facing technologies such as content management.

At the heart of ILM there is a set of reasonably sound principles and practices relating to how information is managed by an organisation. The purpose of this report is not to evangelise ILM but to assess how well these are being achieved, and to create an index of the findings that we can use to compare different organisations and identify potential areas of weakness. For ILM to succeed it must be business driven, to understand this we need to examine 3 areas:

1. **Business drivers to IT change** – and how much organisations appreciate the need to align their business strategies with their IT requirements
2. **Trends in IT infrastructure** – today’s technological context, for both servers and storage
3. **Operational realities** – how well organisations are equipped operationally for ILM

These areas are explored in the sections below. We have then taken a number of key data points from the survey behind this report to construct an index for ILM itself. This breaks down into sub-indices of people, process and technology which map broadly onto the three points above.

This research behind this report was compiled included interviews with 258 senior IT executives across the UK and Ireland.

Business Drivers to IT Change

Corporate Information Technology exists to automate, enable and otherwise support the day to day activities of private and public organisations. This may sound obvious, but there was a time when such organisations seemed to be no more than fronts for their IT systems – the advent of e-commerce companies such as eBay and Amazon, for example, gave a short-lived impression that technology alone was the key to commercial success. It is now generally known that this premise was false, and companies have been regulating their technology buying behaviour accordingly.

With this in mind, it is worth understanding what exactly is influencing business decision making at a strategic level. Figure 1 shows that customer requirements are not seen as changing that much; private sector companies are focusing on what differentiates them from their competition and how best they can grow their markets. It is not about changing what to sell, or to whom; rather, it is about how to sell it. This can vary across sectors – obviously, commercial drivers do not directly apply in the public sector. Different organisations have different demands, as shown in Figure 2. There can be no one size fits all solution, as there are also variations by company size, by region and also by the specific issues a company is facing.

Figure 1 Copyright 2005 Quocirca Ltd

What would you say are the main causes of business change in your organisation?

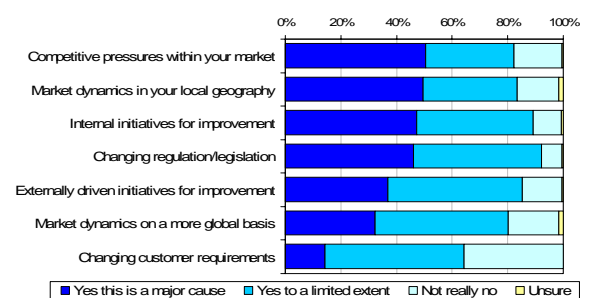
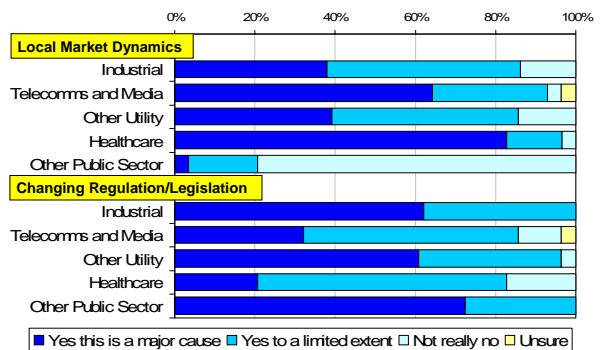


Figure 2 Copyright 2005 Quocirca Ltd

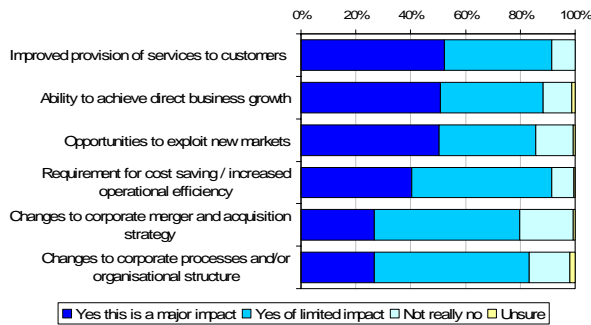
What would you say are the main causes of business change in your organisation? (Selected sectors)



As shown in Figure 2, public sector organisations are less likely to worry about changing market dynamics. For these organisations, changes to regulations and legislation have a far greater impact. For commercial businesses however, the net result is that customer-facing parts of the business are being impacted the most. While customer requirements are not changing, organisations have to work hard at beating the competition through improving the services offered, or growing the markets that have traditionally been targeted (Figure 3).

Figure 3

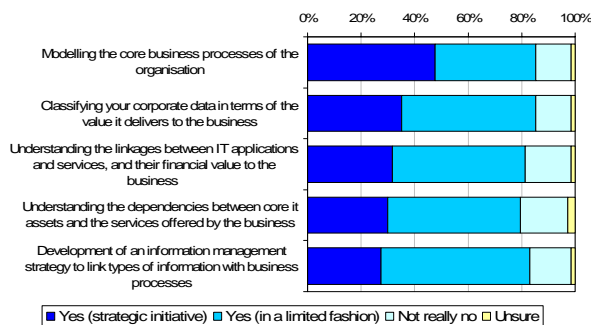
Given these causes of business change, what would you see as their main areas of impact on your organisation:



While respondents noted that they were less likely to change their existing corporate processes, they still recognised that an understanding of these processes offers the most useful linkage between business needs and IT projects. This is illustrated in Figure 4: 47% of organisations have strategic initiatives in place to model these processes.

Figure 4

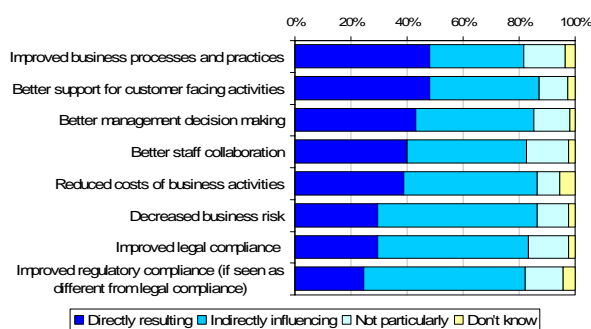
Do you have any ongoing projects or initiatives in terms of the following?



If we look specifically at the business drivers for information management projects (Figure 5), we can see that business process requirements are the main driver, reinforcing the idea that the main goal in information management today is to deliver the right information, in the right form to support business activities. This is further strengthened by the importance attached to supporting customer facing activities. Compliance, interestingly, is at the bottom of the pile. This does not mean that it is unimportant, but it is of more indirect than direct influence to projects.

Figure 5

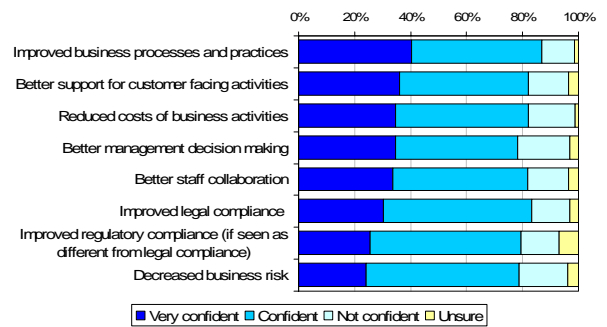
Which business requirements result in projects that relate to how you manage information in your organisation?



Organisations strongly believe IT can help their business, if it is done in a way that aligns with business requirements. As shown in Figure 6, across all the potential responses, about 80% of respondents indicated that they were confident that this could be so. While this is good news for anyone involved in IT, it should be tempered with the fact that today's IT implementations are fully subordinate to business need – the hype-laden adages of the e-commerce age should be firmly consigned to the past.

Figure 6

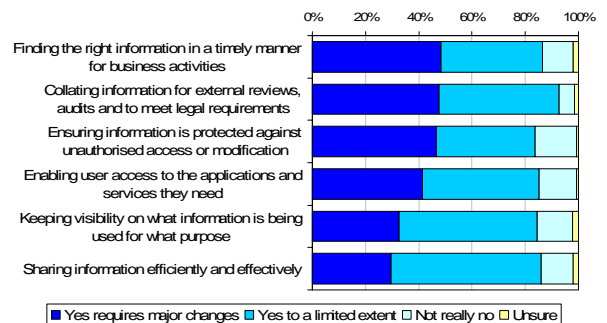
How confident are you that the implementation of such alignments between the IT and business, can lead to:



We can get a clear illustration of this when we ask what are the main issues in today's IT environments. Top of the list are finding and collating information – thirty years of technology innovation are still clearly failing to deliver the basics required by any organisation (Figure 7). If the term "alignment" means "making IT work for the business," there is still plenty to be done, but it won't come from innovation alone.

Figure 7

What major issues do you see in your existing IT environment that you would like to see improved?

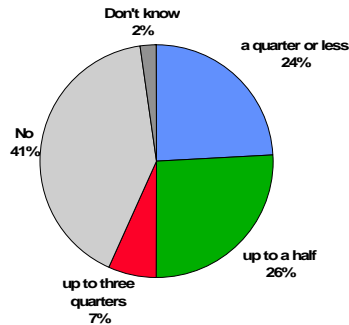


It is therefore perhaps unsurprising that the second most important type of IT initiative (from Figure 4) involves classifying data in terms of business value. This is a foundation level activity, and is ranked more highly than more strategic initiatives such as understanding the financial value of IT services or IT assets, or indeed development of a fully blown information management strategy. We can consider this in terms of dependencies: companies are first concentrating on the basics, before spending too much time on more esoteric activities.

Trends in IT Infrastructure

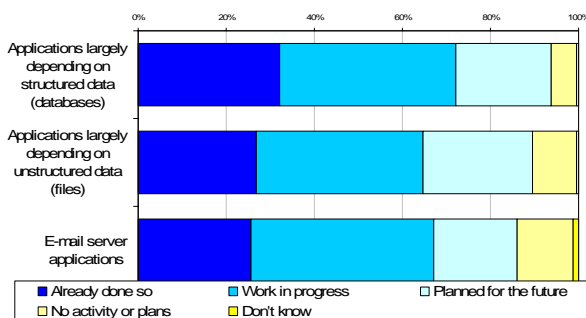
While a standardised technology platform is not a pre-requisite for better IT, it certainly helps. However, this is not an area where most need convincing, as many companies are working on improving the efficiency of their existing environments. We can see this when we look at how companies are consolidating their data centre environments (Figure 8).

Figure 8
Are you planning on reducing the number of data centres you have within the next two years, and if so by what proportion?



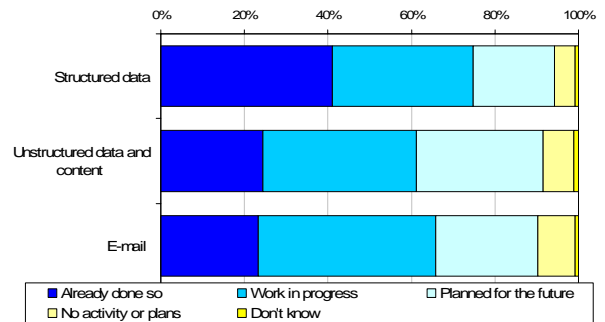
Fifty percent of organisations are reducing the number of data centres they have. Data centre consolidation is a fact of modern IT – when we have asked about more specific forms of standardisation, the figure can be much higher. For example, server consolidation is being planned or implemented for 80% of applications (Figure 9).

Figure 9
Are you consolidating or rationalising your existing server environments to enable more efficient use of server hardware, in any of the following areas?



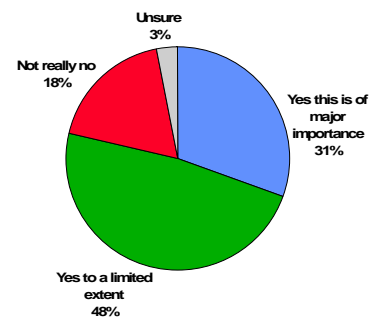
Just as with server consolidation, there is a drive towards consolidation of data storage. In particular, over 40% of companies stated they have already rationalised their storage for structured data, and work is in progress across other data types. According to Figure 10, over 90% of all data storage is planned to be rationalised or consolidated, if this has not already been done.

Figure 10
Are you consolidating or rationalising data storage in any of the following areas?



While there is significant effort going into the rationalisation of infrastructure, the use of resource management facilities such as virtualisation is seeing less interest. From other Quocirca research¹ we have seen how technologies such as virtualisation are an important tool for making the best use of a consolidated infrastructure. This is further supported by 79% of respondents in the current survey who saw server virtualisation as relevant to the success of server consolidation (Figure 11). A more positive view was taken of storage virtualisation, 90% of all respondents see it as relevant to the success of storage consolidation (Figure 12). A third saw it having major importance – we expect this figure to increase over time.

Figure 11
How important or necessary do you view server virtualisation, to successfully take advantage of the benefits of server consolidation?

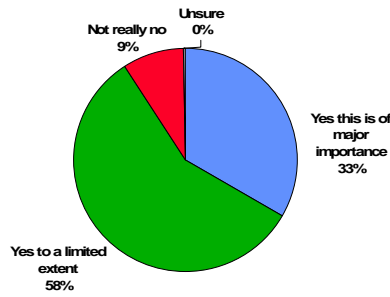


¹ Notably the 6 monthly Grid index survey, the latest edition is available for download from: www.quocirca.com/report_gridindex3.htm

Figure 12

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How important or necessary do you view storage virtualisation to successfully take advantage of the benefits of storage consolidation?



Overall then, companies are working to improve the efficiency of their infrastructure. These developments are not being driven by any vendor-led initiatives; rather businesses are working to improve their own infrastructures, for their own reasons. While this may not be the most interesting of trends, it is putting in place a firm foundation for the future.

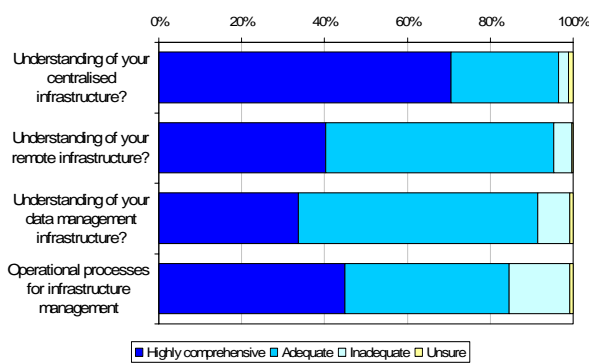
Operational Realities

Having looked at business drivers and infrastructure trends, we turned our attention to how things are looking inside the data centres. While progress is being made on all fronts, IT management is still best characterised as work in progress: for example, only 70% of organisations surveyed said they had a comprehensive grasp of even their centralised infrastructures, and this figure dropped to 40% for remote sites. At 33%, the understanding of the data management infrastructure is even worse (Figure 13).

Figure 13

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How comprehensive would you say/are your:



In other words, our respondents did not feel that they were on top of their infrastructures, from an operational perspective. Given that these are 100m+ companies, the figure of 15% that see their processes as inadequate is worrying.

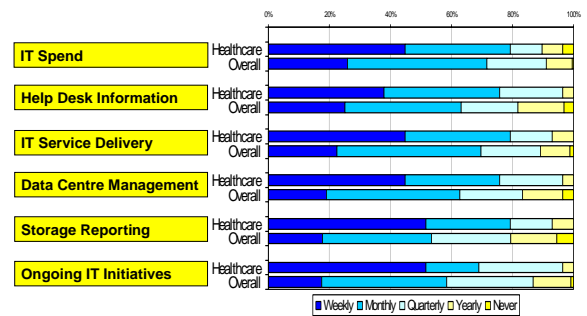
If we look more closely at the data management aspects of infrastructure management, certain sectors fare better than others. Telcos and media companies could clearly do better, and the wooden spoon is reserved for other service industries – travel and transport companies, and the like. We see a similar picture when we ask what reporting takes place from the IT department to senior business managers. Once again storage is less well reported than other areas.

Special mention goes to the healthcare sector, which does seem to be ahead of other sectors when it comes to IT reporting (Figure 14).

Figure 14

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In terms of reporting about IT provision to senior business management, what do business managers expect to see in reports? (Healthcare comparison)



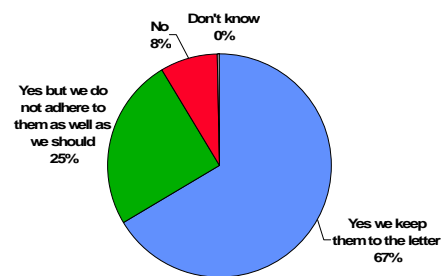
It is interesting that more respondents from the healthcare sector noted they were expected to provide storage reports, than any other type of reports. This may be for reasons of compliance and governance: all the same, the healthcare sector did not demonstrate it was any more in control of its data than other sectors, which begs the question of exactly why the reporting takes place.

Data and storage management processes do not fare very well at all, according to the respondents to this survey. Consider that most fundamental of storage management procedures, for backup and recovery: while 67% of all organisations said they keep to their backup procedures, a quarter admit they could be doing better, and 8% said they had no procedures at all. This is worrying, particularly if we remember that we are only talking about enterprise size organisations: it is equivalent to saying that a third of major companies in the UK and Ireland are risking not being able to recover data, in the event of systems failure, security breach or any other kind of disaster (Figure 15).

Figure 15

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Do you have a standard set of procedures for backup and recovery, and if so, how closely do you adhere to them?

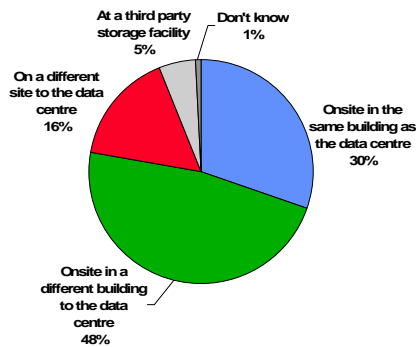


It is also of concern that 78% companies store their backups on the same site as their data centres (Figure 16). Should there be a major incident, there is a high risk that backups may be rendered unusable at the same time as the data that is being protected. Only 5% of companies use a third party storage facility to store their backups.

Figure 16

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Where do you store your backup data?



From an operational perspective, archiving fares even worse than backup: a total of 41% of organisations are failing to follow a procedure, if it exists in the first place (Figure 17). There is less of a continuity risk here, but there will be an efficiency cost given that organisations employ archiving mainly to improve the use of online storage or to reduce the backup window – that is, the time that systems are rendered inaccessible or less usable while a backup is taking place (Figure 18).

Figure 17

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Do you have a standard set of procedures or policies for archiving, and if so, how closely do you adhere to them?

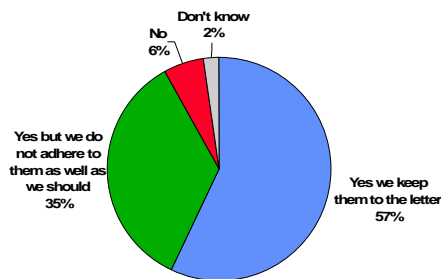
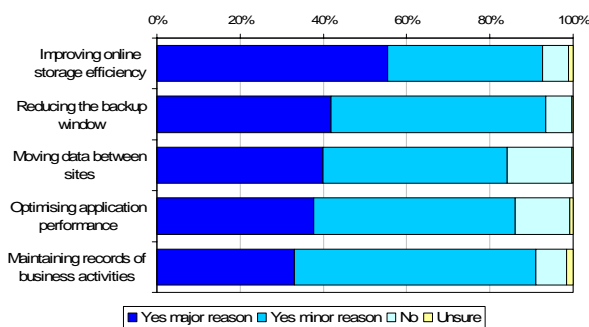


Figure 18

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What are your main reasons for archiving data?

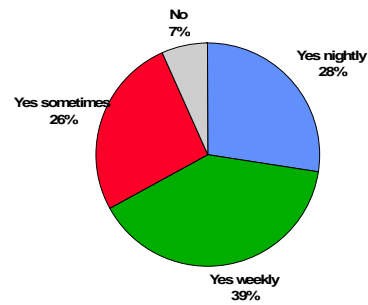


Looking at the reasons for archiving, we can see that there is a broad range of archiving behaviours (Figure 19). This further reinforces the view that a good proportion of archiving is conducted on an ad-hoc basis, as and when it is necessary.

Figure 19

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Do you archive data before you perform backups?

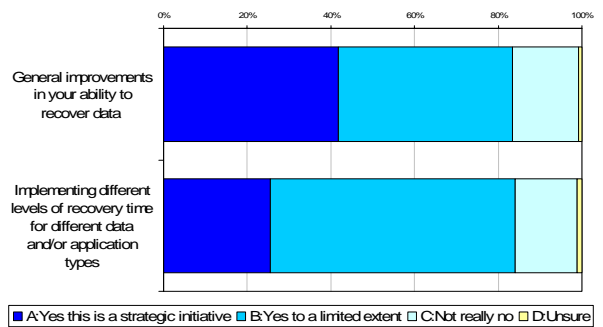


While the operational picture may be gloomy, the upside is that many organisations are looking to improve their backup and recovery processes. For example, over 40% of respondents have strategic initiatives to implement different levels of recovery time, relative to the applications involved. This implies a good level of understanding about data, its classification and use.

Figure 20

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Are you considering changes to how you backup and recover data, in terms of:

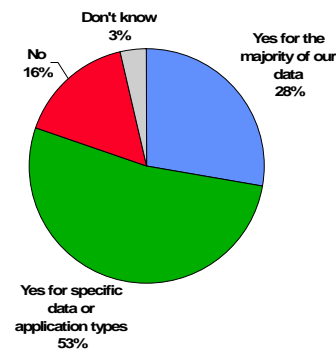


Similarly, a significant number (81%) are implementing some kind of tiering strategy for their storage (Figure 21). A tiering strategy is where a company allocates specific kinds of storage to match with the type and use of its data, for example highly current data may be allocated to more expensive storage and less current data may be moved to cheaper storage.

Figure 21

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Are you implementing a tiering strategy for your storage?



While these are positive signs however, they should not distract us from the current reality – that from an operation perspective an unhealthy proportion of major organisations still have considerable room for improvement.

The ILM Index

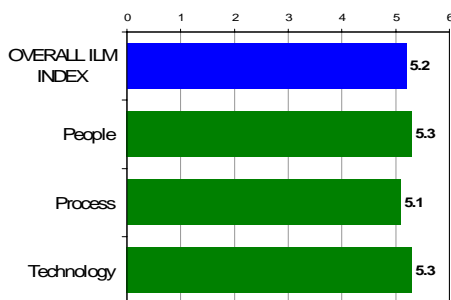
As already discussed, many organisations will not be using the term “ILM”; all the same they may still be progressing towards achieving its goals. The ILM index was derived from a number of research data points from the current survey, not all of which have been represented in this report. Certain questions were designed with options that allow responses to be translated into a numeric score. Scores are then combined to provide three core indices, relating to:

- **People** – whether organisations are motivated for, and acting towards achieving storage management best practice
- **Process** – what operational and managerial processes have been implemented to support the objectives of ILM
- **Technology** – whether companies have the right technical pieces in place for ILM

These indices are then combined further to provide the overall ILM index. Before looking at the numbers, it is important to appreciate the limitations of this kind of research, which is more appropriate for trending and comparison than for absolute measurement. Interestingly (given that a diverse set of data points was selected), there is very little between the sub-indices at this level. The data becomes more interesting as we compare specific findings.

With this in mind, we have arrived at an ILM index of 5.2, out of a potential “Nirvana” maximum of 10. ILM is as much about using existing technologies correctly, as it is about doing anything new, therefore it should come as no surprise that we are already half way there. This should not belie the difficulties companies will have on moving closer to the goal, where the law of diminishing returns applies, and higher level complexities of delivering a service kick in.

Figure 22 Overall ILM Index – September 2005



We can see a more significant difference between the indices of the Republic of Ireland and the United Kingdom. By looking at the sub-indices we can see exactly what is behind this position. While UK respondents were again consistent across the piece, Irish respondents were considerably more motivated and organised for ILM compared to their UK counterparts – perhaps this is due to the relative growth rates of the two economies.

Figure 23 ILM Index Regional Comparison

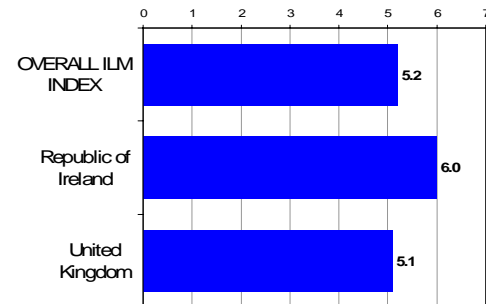
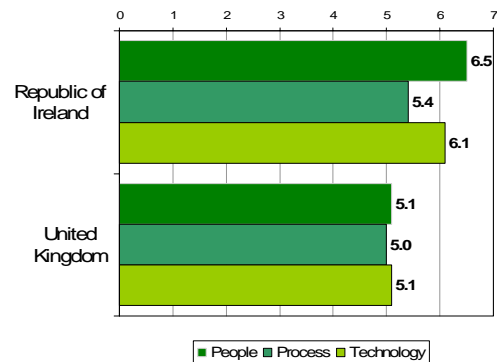


Figure 24 ILM Index Regional Comparison (Sub Indices)



We can see a similar, if smaller difference if we look at company size. While the largest companies are better prepared for ILM, again it is more interesting if we look at the detail. This time we see that it is the technology aspect of larger companies that is the most significant. In other words, their infrastructures are better equipped than those of smaller companies to implement ILM operationally.

Figure 25 ILM Index Comparison by Company Size

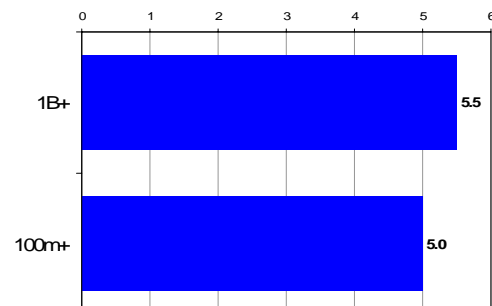
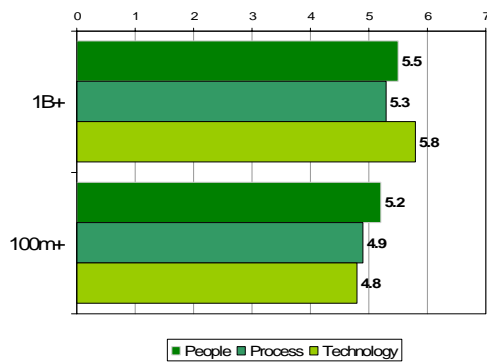


Figure 26
ILM Index Comparison by Company Size



The most interesting comparisons can be made when we look at the indices by vertical sector. As we can see on the overall index, utility companies are ahead, and public organisations lag 1.5 points behind. The reasons for this become clearer when we look at the sub-indices. While the motivation is there to achieve ILM in the public sector, such organisations are being held back considerably by their existing infrastructures. Meanwhile utility companies have both the motivation and the technical capability to deliver, so they should be looking to improve how well they perform operationally.

Figure 27
ILM Index Comparison by Industry

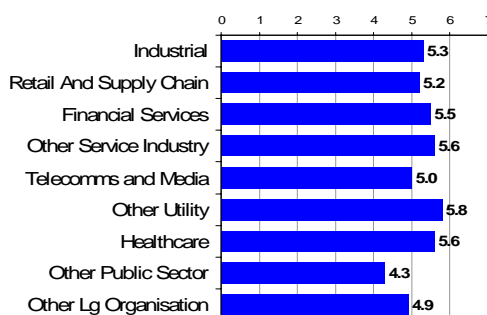
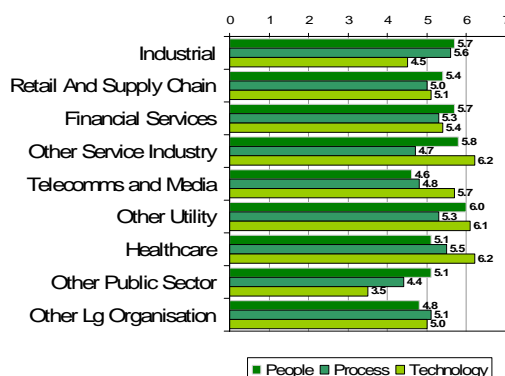


Figure 28
ILM Index Comparison by Industry



Discussion

“In order to be able to meet demand, one must provide some guarantee of supply” we said at the start of this report. On the first count, from an infrastructure perspective there are considerable signs of progress in larger organisations. Following general, unspoken agreement that simplified, homogeneous server and storage infrastructures are preferred to disparate, heterogeneous IT environments, consolidation projects are currently rife – while this is more in hardware than software, there are plentiful signs that the software layer (from virtualisation technologies to straightforward backup and archiving) is following suit.

It is the next level that things look less positive – that is, the processes employed to manage the supply of IT. In this report we have focused on storage management procedures and practices, and the evidence suggests that there is considerable room for improvement. Unfortunately, any weaknesses in the supply side will have a direct impact on the demand side – in this instance, that is how well the storage service can be delivered to the business. The service management capability can only be proportionate to the resource management capability.

In storage terms, achievement of all three equates to achievement of something resembling Information Lifecycle Management, by any definition of the term. There are no absolutes in ILM – rather than a fixed goal or an action plan, ILM should be considered as an evolutionary journey, in which making steady progress towards its ideals is more important than paying lip service to a strategy.

While ILM can never be more than an aspiration, this does not make it any less valid – but even with the best technology in the world, it is worth remembering that for organisations without the operational basics in place, ILM will always remain an unachievable dream.

Appendix A – Interview Sample Distribution

The primary research data presented in this report is from 258 responses, derived from a survey executed in August and September of 2005. The Quocirca primary research team also analysed and interpreted the results and all work was conducted on a completely independent basis. The respondents were broken down by region, industry, company size and respondent type as shown in the figures below.

Figure 29

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Sample by Region

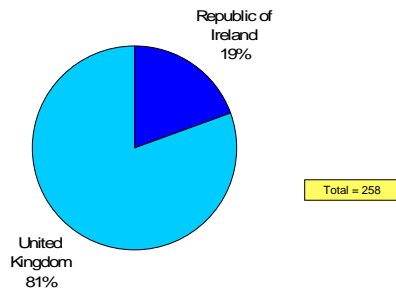


Figure 30

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Sample by Industry

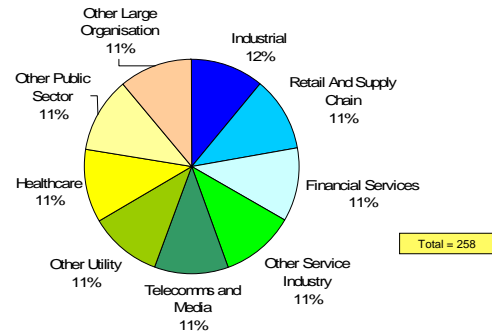


Figure 31

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Sample by Company Size

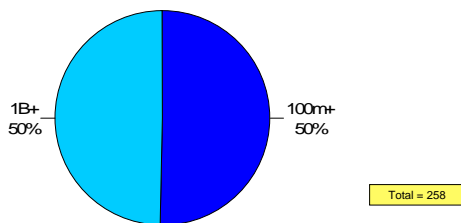
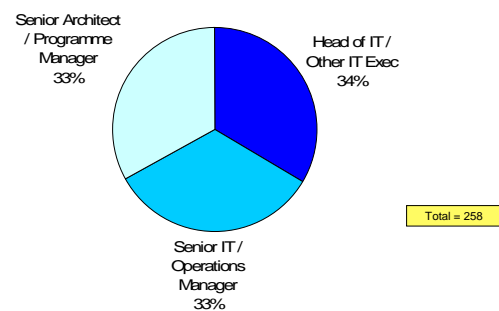


Figure 32

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Sample by Respondent Type



Acknowledgements

This kind of research is crucial to all of us in the business and ITC community – suppliers and customer organisations alike. We would therefore like to thank all of the participants, who contributed so generously towards a better understanding of issues in this important area.

About EMC Corporation

EMC Corporation is the world leader in products, services, and solutions for information storage and its management. We are the information storage standard for every major computing platform and, through our solutions, serve as caretaker for more than two-thirds of the world's most essential information.

What we do

We help enterprises of all sizes manage their growing volumes of information—from creation to disposal—according to its changing value to the business through information lifecycle management (ILM) strategies. EMC information infrastructure solutions are at the heart of this mission, helping organizations manage, use, protect, and share their information assets more efficiently and cost-effectively. Our world-class solutions integrate networked storage technologies, storage systems, software, and services.

Our vision

We're creating the ultimate information lifecycle management company—to help our customers manage and use more information, more easily and effectively. The result? Information with greater business value and at lower management cost.

Information about EMC's products and services can be found at www.emc.com.



About Quocirca

Quocirca is a UK-based perceptual research and analysis company with a focus on the European market for information technology and communications (ITC). Its analyst team is made up of real-world practitioners with first hand experience of ITC delivery who continuously research and track the industry in the following key areas:

- Business Process Evolution and Enablement
- Enterprise Applications and Integration
- Communications, Collaboration and Mobility
- Infrastructure and IT Systems Management
- Utility Computing and Delivery of IT as a Service
- IT Delivery Channels and Practices
- IT Investment Activity, Behaviour and Planning

Quocirca research is always pragmatic, business orientated and conducted in the context of the bigger picture. ITC has the ability to transform businesses and the processes that drive them, but often fails to do so. Quocirca's mission is to help its customers improve their success rate.

Quocirca has a pro-active primary research programme, regularly polling users, purchasers and resellers of ITC products and services on the issues of the day. Over time, Quocirca has built a picture of long term investment trends, providing invaluable information for the whole of the ITC community.

Quocirca works with global and local providers of ITC products and services to help them deliver on the promise that ITC holds for business. Quocirca's clients include Morgan Stanley, Oracle, Microsoft, IBM, CA and Cisco. Sponsorship of specific studies by such organisations allows much of Quocirca's research to be placed into the public domain. Quocirca's independent culture and the real-world experience of Quocirca's analysts, however, ensure that our research and analysis is always objective, accurate, actionable and challenging.

Most Quocirca research reports are available free of charge and may be requested from www.quocirca.com. To sign up to receive new reports automatically as and when they are published, please register at www.quocirca.com/report_signup.htm.

The logo for Quocirca, featuring the word "quocirca" in a lowercase, sans-serif font. The letters "quoc" are in blue, "irca" is in black, and the dot on the "i" is red.

Quocirca Ltd
Mountbatten House
Fairacres
Windsor
Berkshire
SL4 4LE
United Kingdom
Tel +44 1753 754 838

Email info@quocirca.com