computing
research

RESEARCH
PAPER

The legacy time-bomb:
Why managing legacy applications and data is vital

December 2012

CONTENTS

Executive summary

An exclusive survey of UK IT leaders finds that many organisations are sinking under the weight of hundreds of applications, many of which could simply be retired. However, the survey also reveals a troubling lack of insight into what some of these applications might be and what sensitive data they may refer to.

The result is that some senior IT managers are turning a blind eye to a range of problems, often because they simply don't know what to do. The solution is to implement a methodology and tooling to improve data lifecycle management, moving legacy data to easily accessible archived files and enabling the retirement of unused or outmoded applications.

A waste of space

In an information economy, organisations of every size amass vast quantities of data. Some of this may be of long-term value to the enterprise, but much of it may only be business-critical for a brief period of time. A significant amount of data may also be sitting on legacy applications in the datacentre or elsewhere in the organisation – for example, on individual desktops, or on redundant or little-used servers.

Few people within the organisation know what is on these devices or what some of these legacy applications may be. Indeed, it may be that, thanks to staff turnover, *nobody* knows what all of them are, or whether some of these applications will ever be used again. In the meantime, they are taking up valuable datacentre space and maintenance effort, at a time when data volumes are expanding and the watchword for IT departments is "do more with less".

An exclusive *Computing* survey of over 250 senior IT managers across every sector of the economy finds that, while 36 percent of organisations manage less than 50 applications, the majority of IT leaders are grappling with hundreds. Thirteen percent estimate an estate comprising a staggering 1,000+ applications (Fig. 1).
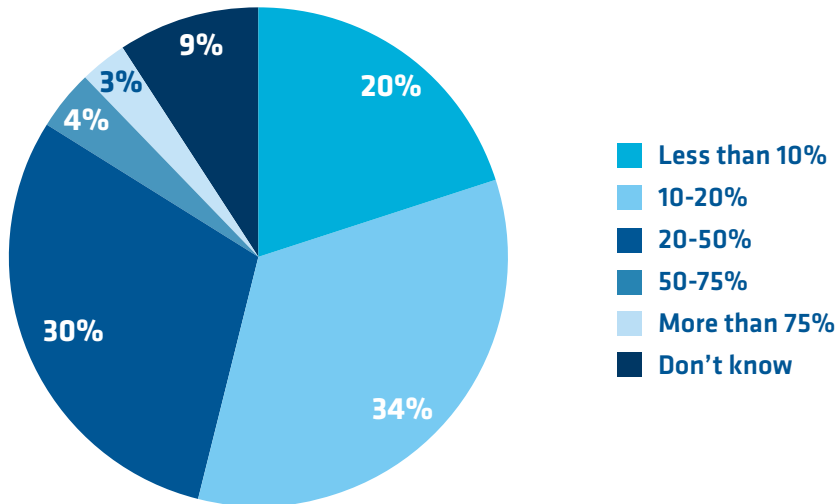
Fig. 1 : Applications and upgrades

How many applications are in your application portfolio?

- 1-50
- 51-200
- 201-500
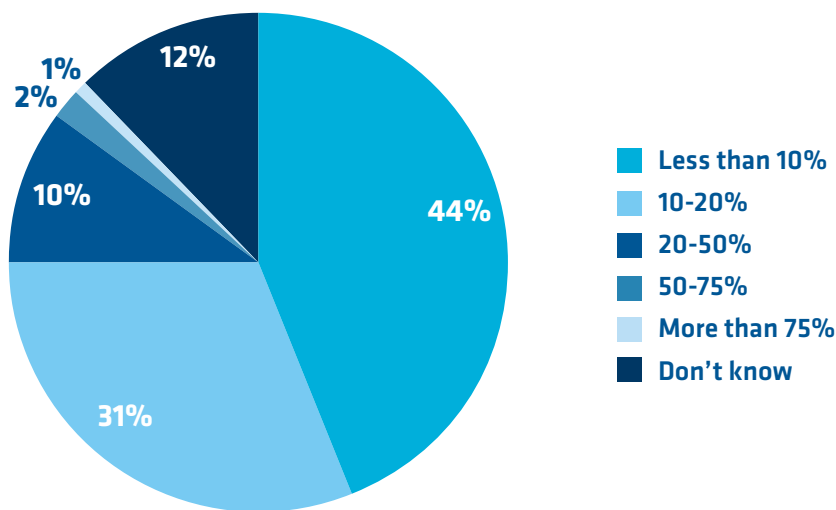- 501-1000
- 1,000+
- Don't know
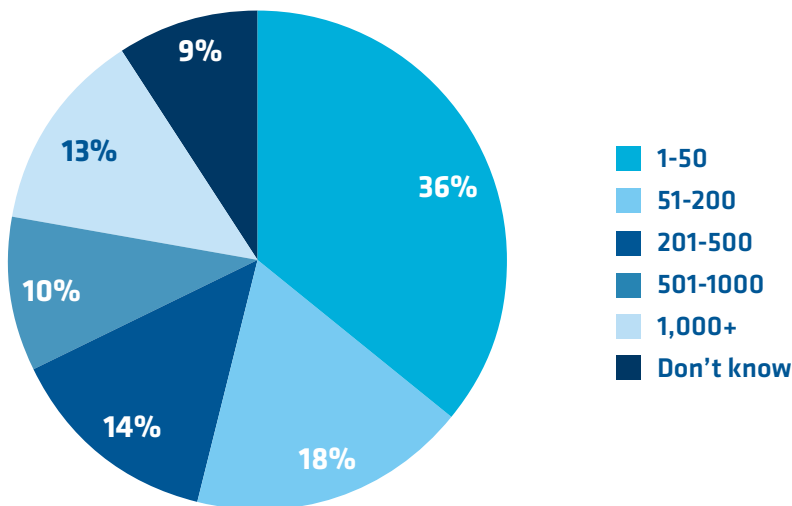
The legacy time-bomb: why managing legacy applications and data is vital

Can you estimate how many of these may typically need to be upgraded in an average year?

Legend:
- Less than 10%
- 10-20%
- 20-50%
- 50-75%
- More than 75%
- Don't know

Values: 20%, 34%, 30%, 4%, 3%, 9%

How many may need to be migrated in the same time period?

Legend:
- Less than 10%
- 10-20%
- 20-50%
- 50-75%
- More than 75%
- Don't know

Values: 44%, 31%, 10%, 2%, 1%, 12%

Worryingly for the organisations themselves, nine percent IT leaders admitted that they have no idea of the real extent of their application estate, suggesting that many of these applications may be dormant, little used or redundant – a problem which is likely to apply to most organisations that have legacy applications.

When asked what percentage of their software estate needs to be upgraded in an average year, one- fifth of IT leaders reported that, typically, it is less than 10 percent of their applications. Thirty-four percent of respondents said that 10-20 percent of applications need annual upgrades, while 30 percent estimated between 20 and 50 percent of their application estate.

Just seven percent of the UK's IT leaders said that more than 50 percent of their application estate needs upgrading in an average year, and (unsurprisingly, given their answers to the previous question) nine percent of IT leaders said that they do not know how many applications need upgrading in this timescale.

Application migration was an even bigger puzzle to the senior IT managers questioned by the survey: twelve percent said that they have no idea how many of their applications need to be migrated in an average year. The remainder could answer the question, however. The survey found that 44 percent of IT leaders say less than 10 percent of applications need to be migrated each year, on average, while 31 percent answered "10-20 percent".

Forty-five percent of the applications that need migration are custom or legacy, said respondents, while eight percent are packaged enterprise systems, such as Oracle or SAP. The remainder (47%) fall into both categories.
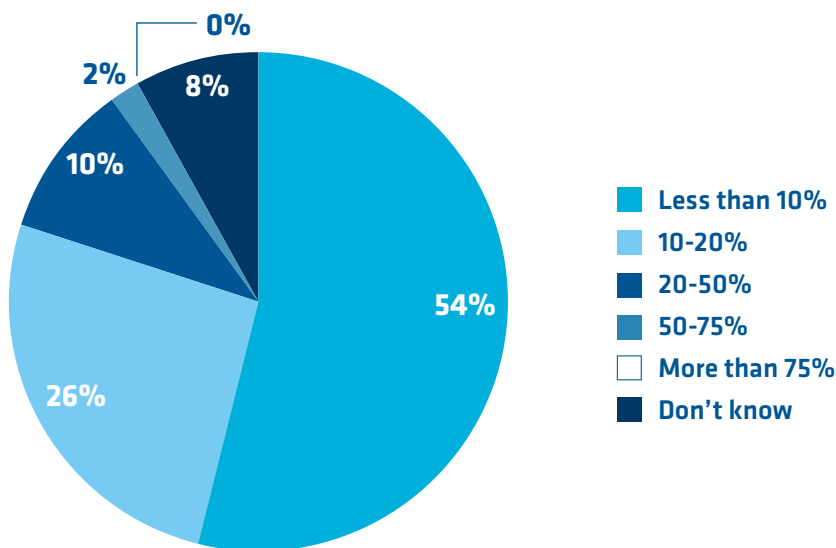
A dead weight

Underperforming, dormant, poorly understood or outmoded legacy IT assets mean two things: risk and cost. Legacy or outdated enterprise applications often incur maintenance costs that outweigh their business value, while the applications themselves may no longer be compatible with current or future IT strategy.

Not only that, but when core areas of the IT estate are virtualised or hosted externally, then it may be that redundant applications and data become part of that process, introducing inefficiency and waste into IT programmes that are designed to strip both of these problems away.

Asked what percentage of their application estate could safely be retired, more than half (54%) of the IT leaders questioned admitted that only up to 10 percent of them could be. Over one-quarter of respondents said that between 10 and 20 percent of applications could be taken out of service, and 10 percent answered that they could shut down between 20 and 50 percent of applications (Fig. 2).

Fig. 2 : Today, how many of your applications could be retired?

Legend:
- Less than 10%
- 10-20%
- 20-50%
- 50-75%
- More than 75%
- Don't know

Pie chart values: 54%, 26%, 10%, 2%, 0%, 8%

However the figures are sliced and diced, it is clear that a large number of organisations are carrying a significant payload of dormant, unused, or in some cases, poorly understood or forgotten applications. This is an ongoing problem for IT leaders. Inevitably, it is also wasteful and inefficient, which means money is being needlessly wasted in terms of the systems and power needed to support lifeless assets.

An average enterprise may have as many as 200 business-critical applications supporting core business processes from the back office to the front, including finance and accounting, HR, customer support, marketing, product development, order management, and so on. Not only that, but application enhancements are often requested by business leaders to drive higher revenues and help the enterprise enter (or better address) new markets.

While many applications need to be upgraded and/or migrated, a great many more, in some cases, could probably be retired, and so help the IT department operate on a leaner, fitter and more efficient basis. In either case, it is clear that IT leaders need much greater insight into their full application and data estate (with all its interdependencies), so that they can see how much of it is critical, how much is useful, and how much may be a dead weight on the enterprise's datacentres.

Asked why they lack insight into which applications are active and which are not, most respondents chose not to answer. However, of those that did, their comments were revealing. One said, "I don't have access to the info". Another said, "uncertain of importance within the company" (presumably referring to the applications, and not to his role in the organisation), while a third said, "I do not have access to that information. I just keep/make things work."

Lightening the load

As with other legacy issues, there are major costs associated with keeping redundant data and applications active unnecessarily, and such problems can only be compounded by organisational changes, such as merger and acquisition. In such circumstances, having insight into, and management control over, the full estate – including legacy applications and data – is vital. IT leaders should establish a coherent policy within the organisation and consider deploying a comprehensive data and application management tool.
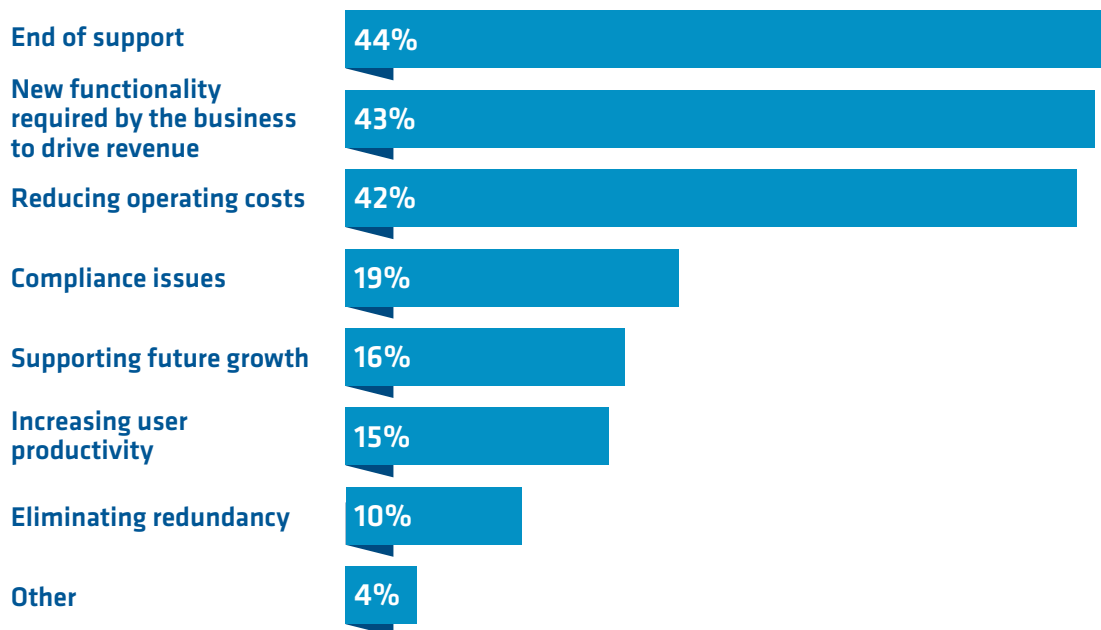
Tackling the problem is part and parcel of future-proofing the enterprise and ensuring the IT function is lean and fit for purpose. As big data rises, it is becoming more and more essential for IT leaders within all types of organisation to manage their IT and data estates better while the problem remains relatively small, and to put better data management regimes in place.

From a technical standpoint, IT leaders and data managers need to understand where data lives. They also need to be able to capture and store data in its original business context. This data may be distributed over multiple applications, databases and platforms and there may be complex, poorly documented relationships between them.

Computing asked the UK's IT leaders to each identify their top drivers for application upgrade, consolidation and/or retirement. In the event, their responses revealed that three elements have a near-equal influence on IT departments' decisions: 44 percent said "end of support"; 43 percent said "new functionality demanded by the business to drive revenue", while 42 percent said "reducing operating costs" (Fig. 3). Taken together, these responses reveal an environment in which IT managers are being asked to "do more with less" for the business, while vendors plough on with their own upgrade cycles in the background.

Other issues, included: compliance; productivity; security; "biased advice from those with a vested interest"; enterprise rationalization; and keeping pace with technology trends.

Fig. 3 : What are the top drivers for application upgrade, migration, consolidation, and/or retirement?

End of support	44%
New functionality required by the business to drive revenue	43%
Reducing operating costs	42%
Compliance issues	19%
Supporting future growth	16%
Increasing user productivity	15%
Eliminating redundancy	10%
Other	4%

*Respondents could select more than one answer.

Are you compliant?

Asked if they had a current or planned initiative that might benefit from application retirement, over half of the UK's IT leaders answered yes.

All IT leaders should think ahead about how to manage application consolidation, redundancy and retirement, and about what policies and tools can help them do this. As data grows and applications multiply, it makes sense to regard managing the redundancy of legacy applications and the archiving of critical data as both a strategic and operational issue for the future.

It is not just a matter of cost and efficient management, but also of governance – as revealed in Figure 3. While it may not be many IT leaders' top concern, regulatory compliance is an issue that cannot be ignored. Data regulations nationally, within the EU and globally are in constant flux and demand that responsible managers have detailed insight into all of the assets that they hold.

Organisations that have to comply with a variety of data retention regulations, such as Sarbanes Oxley (SOX) and others, need to demonstrate continued, application-independent access to the data, sometimes long after the application may be supported by the vendor. Other regulations may apply to safe and appropriate data disposal. In either case, organisations may need external help in order to gain full insight into their legacy data and applications to demonstrate compliance.

It is no surprise that some IT leaders, CIOs and data managers are confused about what is required of them. Regulatory demands that *personal* data retention should be appropriate, proportionate and that data is not held beyond a certain point or purpose can place serious burdens on many types of organisation and industry – obligations that may entail financial penalties and reputational damage should they fail to be upheld.

The legacy time-bomb: why managing legacy applications and data is vital

Asked what the main reasons are for retaining data for longer than its useful life, the UK's IT leaders revealed the fear, uncertainty and doubt (FUD) that, collectively, often follows hard on the heels of the march of technical change and confusing regulatory requirements. Forty-eight percent said that it was because of a general fear that regulations may oblige them to produce the data in future, while 29 percent said that it is because data is so spread around the enterprise that it is too difficult and time-consuming to locate. (The latter, of course, is one reason why junked hardware is sometimes found to contain sensitive information, opening the organisation up to unnecessary security risks.)

One-quarter of respondents said that "We don't know when the data might be useful", and a further six percent admitted that they have no data-discovery tools (Fig. 4).

Fig. 4 : If you retain data for longer than its useful life, what are the main reasons?

Fear over regulations that may require us to produce the data in future	48%
N/A – we don't retain data for longer than its useful life	30%
Data is spread around the enterprise and it is difficult/ time-consuming to locate	29%
We don't know when it might be useful	25%
We have no data discovery tools	6%
Other	5%
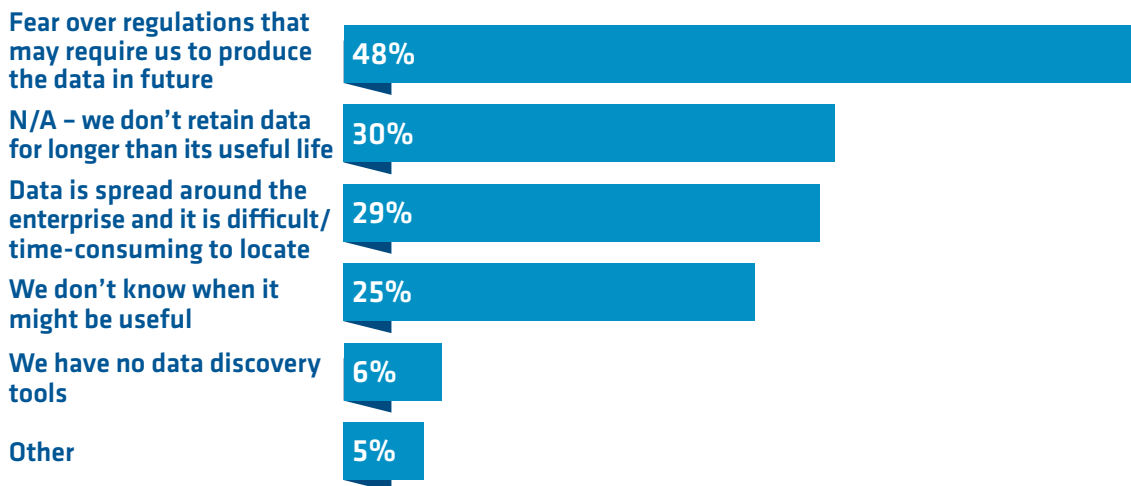
*Respondents could select more than one answer.

For most enterprises, then, this represents a potentially lethal combination of zero desire to throw data away (including data that some regulations demand should be disposed of) and little or no ability to locate it in the first place. In the case of some data types, this may produce more serious problems than simply throwing it away when it is no longer useful – as 30 percent of the UK's organisations do, according to the survey.

Of course, the data-retention landscape varies significantly from sector to sector and from data type to data type, especially when it concerns matters of finance and accounting. In very general terms, however, open datasets (such as anonymised market-trends data) carry little in the way or compliance or security risk, while most organisations should not keep personally identifiable data (PID) longer than is necessary. But before IT leaders can take remedial action they need to know what they have – and what they need. That is a significant challenge.

In short, many organisations have a compelling need to remove complexity and migrate, upgrade, or retire applications and deal with the associated data. Failure to address these issues is a waste of time and resources – and may have negative consequences in terms of future liability.

The *Computing* survey reveals that nearly one-third (32%) of UK organisations admit that the limitations of their current IT and data infrastructures sometimes make it difficult to demonstrate compliance with either data retention or disposal regulations. A further 22 percent are unsure where the problem lies. Forty-six percent of organisations are confident that their IT legacy presents no challenges to demonstrating compliance – but they are in the minority, albeit a large one (Fig. 5).

Fig. 5 : Does your current IT/data infrastructure sometimes make it difficult to demonstrate compliance with data retention/disposal regulations?
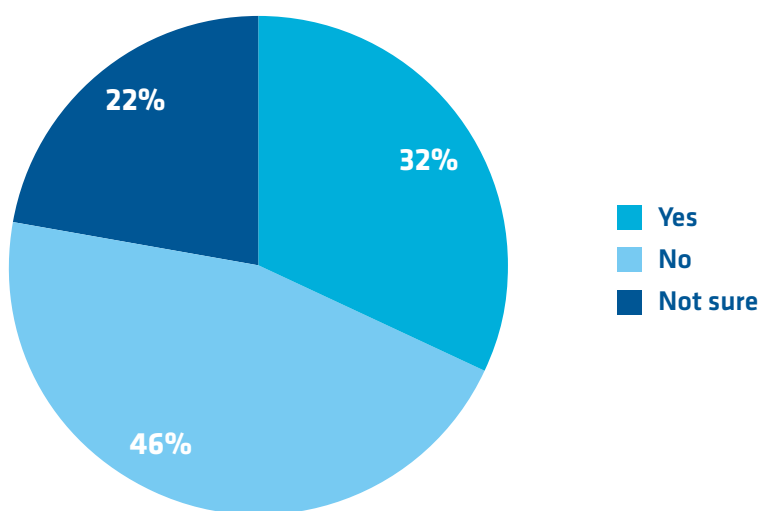
Asked for more information about the challenges they face, one anonymous IT leader said: "Those in charge have never shown any signs of being aware of any such regulations and are too mighty and powerful to listen to any more informed opinion." Another said: "IT is fragmented, with multiple people responsible." Another got right to heart of the problem: "No one knows where all the data is." This is where an active, comprehensive policy combined with data- and application-management tools is essential.

From time to time, most IT leaders will be asked to provide their organisations with access to data that has been retired from active use. So how do they do it? Fifty percent of respondents to the *Computing* survey said that it is via an archived version of the original application. A further 12 percent reported doing this via a BI tool, 10 percent through a browser interface, and others via a variety of storage formats, such as CDs, DVDs and tape backups.

However, once again the number of 'Don't Knows' was stubbornly high: 15 percent admitted that they do not know how to go about it.

Consolidating multiple applications into a single instance and retiring unused applications is the best strategy for IT leaders to adopt. They should also archive data from legacy or redundant applications – in line with relevant regulations – and preserve any archived business object as an historical reference snapshot. This can also achieve the cost savings that all IT leaders need so that they can do more with less.

Clearly, this is not just a technology problem demanding a technology solution. Bringing onboard both data-management policies *and* applications that control (and offer insight into) data growth can help IT leaders decommission redundant applications and consolidate the underlying data in line with regulations. This not only leads to a more efficient organisation and a better-run IT and data estate, but also helps reduce risk by future-proofing the enterprise for explosive data growth.

Conclusion

A better managed, leaner and more efficient and transparent datacentre is a stepping stone to a broad range of future projects that the IT department might choose to undertake – such as internal virtualisation programmes or bringing onboard an external cloud hosting provider, for example.

Properly managed application retirement and real insight into the associated data – and whether it is critical, useful or should be safely disposed of – is something that would benefit all IT leaders. It is clear from the survey that too many of them lack even rudimentary insight into their full application estates and the data that relates to it, and that means risk, inefficiency and waste.

But this is just the big picture of an improved data-management regime. There are day-to-day operational benefits too, in terms of optimised application performance, lower IT costs overall and ongoing compliance with data retention regulations within the organisation's business objectives.

About the sponsor, IBM

IBM is a globally integrated enterprise operating in over 170 countries bringing innovative solutions to a diverse client base to help solve some of their toughest business challenges. In addition to being the world's largest IT and consulting services company, IBM is a global business and technology leader, innovating in research and development to shape the future of society at large. IBM's prized research, development and technical talent around the world partner with governments, corporations, thinkers and doers on ground breaking real world problems to help make the world work better and build a smarter planet.

Contact IBM:

Visit: www.ibm.com/uk