

Light touch, firm impression

Switch from paper systems to IT but keep to the business process script

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The automation of traditional paper based processes with technology can lead to unnecessary complexity. This leads to increased costs and other challenges which can be avoided if solutions are simple and fit closely to the business task in hand.

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Switch from paper systems to IT but keep to the business process script

Mobile technologies have become cheaper to buy and have greater performance, functionality and capacity than ever before. This can encourage over-complicated products to be used for mobile applications. These will have higher direct costs in maintenance, support or training, and higher indirect costs from the unnecessary complexity of the user experience. This is especially noticeable in the automation of simple, traditionally paper-based, processes. Done well, the use of appropriate mobile technology can pay dividends, but beware the pitfalls.

- **Strong processes exist for good reasons—technology must support, not disrupt, them**
The bureaucracy of paper-based processes is necessary to apply organisational order and control. The security, accuracy and traceability of information captured on paper have to be reproduced and improved by any technology used to digitise any stage of such processes.
- **Process automation should not be accompanied by an increase in complexity**
Paper-based processes are highly portable. They are often used in challenging environments and frequently have to operate without access to power or data networks. This is a simple concept that can be used by almost anyone, anywhere. By contrast, modern IT can introduce many complexities. As a rule, these should be minimised to keep processes simple.
- **Many working environments are a challenge to the effective use of technology**
The use of IT has spread from the back office to the sharp end of all business processes: staff based in the field or in direct contact with customers or clients. Even inside business premises, employees are constantly on the move. They rarely work entirely in one location, and are frequently operating in a hazardous or awkward environment for IT. However, they still need immediate access to IT to support their workload.
- **Business processes must balance control with flexibility and can use technology to do this**
Process-driven organisations consider mobile IT to be vital. Although management and IT staff are generally big users of mobile IT, process-driven organisations are more likely to put it in the hands of frontline staff as well. However, many still want to keep paper-based processes, as they believe that an IT alternative will be expensive, will increase complexity for the user and increase the risk of data being lost or compromised.
- **Training helps, but involving users early and ongoing coaching is valuable too**
Most organisations offer some training in the use of mobile IT, but often at a technical, functional level, rather than about working methods. Providing operational coaching would make the working process more understandable and straightforward for employees. More importantly, involving users earlier in the identification and selection process helps to better match technology to the needs of business and user alike.
- **The ongoing costs of implementing mobile technologies are often underestimated**
Most companies surveyed have deployed different types of technology—from laptops and tablet PCs to smartphones and digital pens. However, too few are really aware of the ongoing costs of maintaining and supporting large numbers of mobile devices. Complicated technology deployments often fail in challenging environments. Alongside poor training this can reduce, rather than increase, productivity. Such factors are not always well recognised.

Conclusions

Many businesses throw IT at problems without fully considering the real needs of the business process or the working conditions of the user. As mobile technology is increasingly used to digitise traditional paper-based processes that were effective but limited, care must be taken to keep unnecessary costs down. Making the right decisions early on in the planning process can pay dividends. By keeping complexity down, while retaining the control benefits of a business process, organisations can deploy mobile technology more effectively as well as reduce bottom line costs.

1. Introduction

All businesses depend on what have traditionally been paper-based processes to manage, control and generate an audit trail of their operations. The use of IT, in particular mobile technologies, has enabled many businesses to automate these processes.

This report looks at the degree to which organisations in the financial services and healthcare industries have taken advantage of such technology, how it is changing the way their employees work and where this might cause challenges.

The research behind this report involved interviews with 300 managers and users from organisations in the UK, USA, France and Germany with 10 or more employees.

It is intended to be read by those who face a similar IT management task in their own organisation, and those who are looking to see how to get best business value from digitising paper-based processes, without adding unnecessary cost or complexity.

Quocirca would like to thank all the participants for their time to take part in the telephone interviews from which the data for this research was derived, and to thank Anoto for its sponsorship of the research.

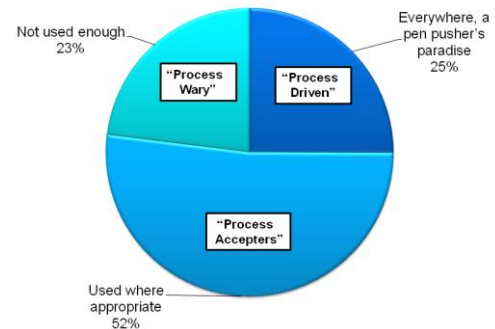
2. Automating business processes

It may be the bane of many workers, who think that they are swamped in unnecessary bureaucracy and paperwork, but many business processes still depend on the controlling influence of passing instructions and information around on bits of paper. This essentially provides resilience against human failure in that the current 'state' of any business process, and its past trail, is at least recorded somewhere.

Some industries, either because of regulations, complex procedures or simple accountability, place more emphasis on such paper-based processes. Across the two industries covered by this research these reasons have much resonance, but still there are those who believe they have gone too far (process driven), or not far enough (process wary) (Figure 1).

Figure 1

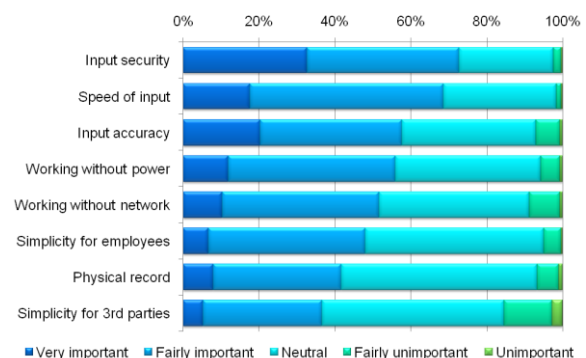
How widespread are paper based processes?



Resorting to the comfort and protection of paper-based bureaucracy has its costs. Too much emphasis on process and procedures not only reduces efficiency, increasing the time an operation takes, but can also result in capturing and distributing information best left hidden, or can cause individuals to cut corners and make errors. This is reflected by the finding that organisations are more concerned about capturing information quickly, accurately and securely than making life simple for their employees or other third parties involved in the these process (Figure 2).

Figure 2

How important are the following to paper based processes?



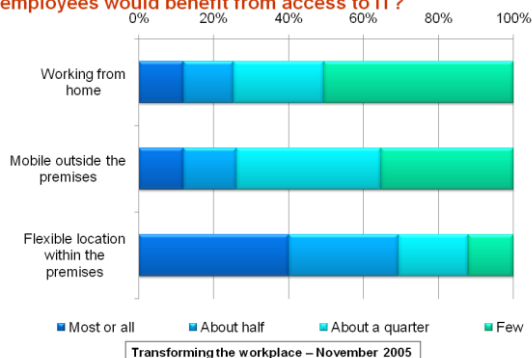
There is some concern about whether a process is limited by technology, as working in the absence of either power and/or connection to an IT network are both seen as relatively important considerations. This is at the root of the demand for more flexible working or employee 'mobility'—allowing the business process to occur where necessary, rather than being dictated to by the needs of certain fixed technologies.

Often, this leads to an emphasis on the mobile technology itself—what type of device, what sort of network is required, what special mobile software, and how much will it all cost—whereas the focus should be on the people and process. This means providing tools that support the tasks that need to be performed, rather than forcing the users and business processes to bend to the technology.

Hardware focus generally starts with the outdoor mobile worker as the “road warrior”—carrying every possible high end technological accoutrement, as if this was the deployment model to aspire to and build the rest of the IT infrastructure around. While an important category of user, there are many others who can and do benefit (or rather the processes they support) from some form of location-flexible access to IT, and this will often be somewhere inside their organisation’s premises rather than outside (Figure 3).

Figure 3

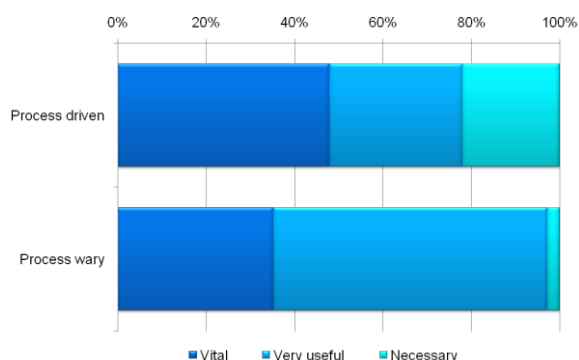
Working other than at a fixed desk – what proportion of employees would benefit from access to IT?



This does not necessarily mean that all desktop computers in the workplace should be replaced by laptops or handheld mobile devices, but it does mean that the ability to participate in business processes—inputting or extracting information—needs to follow employees around as they perform their tasks. This is even more important in a process-driven environment, where suitable technologies have to be used to avoid interrupting operational flow (Figure 4).

Figure 4

How important is mobile IT in the working environment?

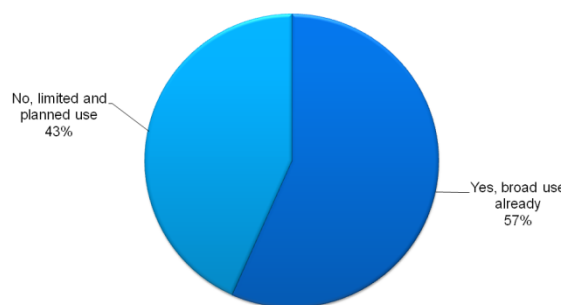


It is in such circumstances that paper-driven processes—bureaucracy to some, control to others—are used the most. Some form of mobile device or mobile access to IT can be used to digitise the paper-based process. If deployed in the right manner, this has the opportunity to make these processes more efficient, smoothing the path of the bureaucracy, while at the same time providing more management information and control. Despite this, even in the tightly regulated and managed healthcare and financial services

industries, the use of IT to digitise paper-based processes still has some way to go (Figure 5).

Figure 5

Are paper processes already broadly automated by IT?



It may be that some current processes are not that effective, and automating or speeding them may only make matters worse, or it may be that there has not been a strong enough argument made for the potential benefits to outweigh the costs. Or it might be that deploying the technology is proving more complex, cumbersome or problematic than was anticipated.

Despite the non-appearance of the much promised “paperless office”, there are many reasons to move on from paper-based processes. Paper is perishable, the information stored on it is difficult to search or compare, and is hard or expensive to share widely. However, it is very familiar and easy to understand, and the ability to use it in the presentation or capture of information is very natural.

The automation of a paper process has to retain the benefits of comfort and simplicity, while digitally capturing the information to insert into wider IT systems. This means that while a traditional keyboard or keypad will be suitable in many applications where long input is the priority, this will not always be the case. Then, stylus and pen-based digital input, signature capture and item selection will be a simpler and more effective proposition, even though this may not conform to an organisation’s existing mobile IT norm.

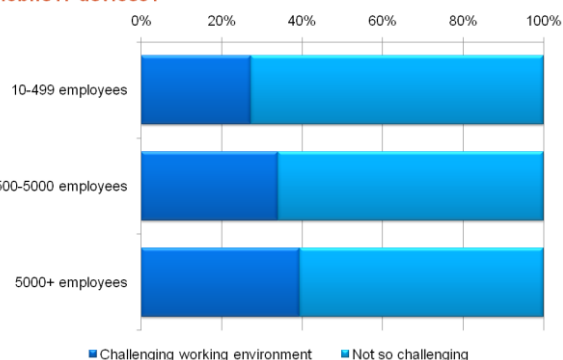
3. Challenges for mobile solutions

The use of IT in a traditional office deskbound environment can be challenging enough, from work surface and chair ergonomics, to lighting, noise and so on. When IT is used on the move, even inside business premises or within a campus, there are many more challenges posed by the environment and by the technology itself.

Not only can the environment pose problems for the user in terms of efficient device usage, but there are many issues facing those who have to manage the deployment of mobile access, from security and audit to asset management and control. These problems scale up with the size of the deployment and around a third of organisations find their environments to be somewhat challenging for mobile use (Figure 6).

Figure 6

How challenging is the working environment for the use of mobile IT devices?



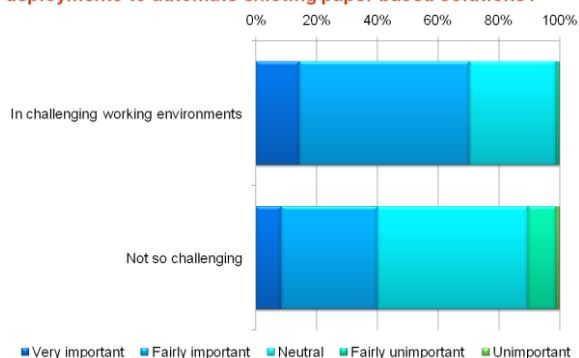
While some of the challenges are based on the constraints and implications of using certain types of mobile technologies—network connectivity, device choices and applications—others stem from the particular needs of the workplace and working processes, such as being able to keep the device clean or dry, or if the operator needs to wear gloves, or can only work single handed.

There will also be environmental issues for those working in hazardous, public or open places where the precise location is not friendly either to the device or to its user.

For some, sticking to a strict business process will be paramount; for example for employee or client safety, or for adherence with codes of conduct or regulations. In these cases demonstrating the process was followed correctly will be very useful, and the need to capture a physical record or audit trail is more important for those in more challenging environments (Figure 7).

Figure 7

How important is a physical record / audit trail in IT deployments to automate existing paper based solutions?

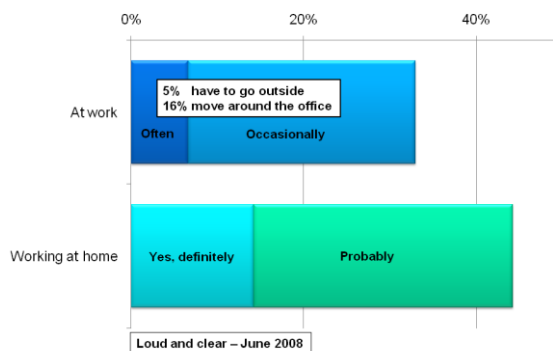


Network connection reliability

A common cause for mobile worker frustration is not being able to establish or remain connected over some form of mobile network: disconnection is a common occurrence in any wireless environment (Figure 8).

Figure 8

Do employees ever have problems getting a mobile signal?



For this reason it is vital that the operation of critical processes are isolated from failures of connection or that the connection and re-connection can be accomplished as quickly and easily as possible, with the minimum user intervention.

Rather than relying on a single form of connection, many mobile solutions will use several alternative wireless networks, such as Wi-Fi, Bluetooth or one of a number of cellular standards such as 3G, EDGE or GPRS. This presents a number of options that can create unwanted complexity, each having an impact on available bandwidth, cost, range or coverage, and security. Organisations should aim to minimise the end user burden by keeping the technology simple and creating standard policies and practices.

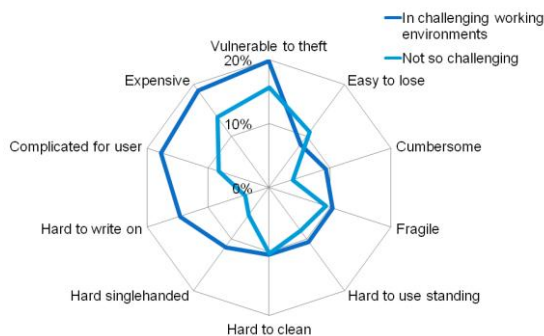
In any case, provision has to be made for the intermittent nature of mobile connectivity. A mobile worker may have to suddenly stop and then restart later due to connectivity issues, as well as other reasons common to all operations, such as when convenient, or when some piece of information sought for has been found. Rather than the mobile connection dictating the pace, some accommodation needs to be put in place, perhaps through caching or on-device storage, to give control back to the worker directly to support the business process, otherwise performance will suffer. This is particularly important in processes where small amounts of information are captured or accessed frequently, as any interruption will delay and distract.

Impact of hardware choices

Although many IT managers might prefer to deploy only one category of mobile device, this is not very effective from a usability perspective and some element of device diversity is desirable to ensure that the right tool is available for each task or type of work. Some hardware features will impact user productivity, and these need to be addressed in the selection and piloting of specific choices. Poor screens, complicated input mechanisms, or forcing the user to sit down or take extra care are going to cause problems even in the least challenging of environments, and be worse still when the going gets tough (Figure 9).

Figure 9

What problems affect the effective use of mobile devices?



Perhaps more importantly, the cost and risk of theft or loss of the device influences the decision as to which hardware should be selected. Some input into the choice—either by individuals or union representation—will help stimulate more responsibility for the mobile solution as it becomes a tool more personalised to worker needs rather than a piece of standard equipment they are compelled to carry because “that’s what everyone has”.

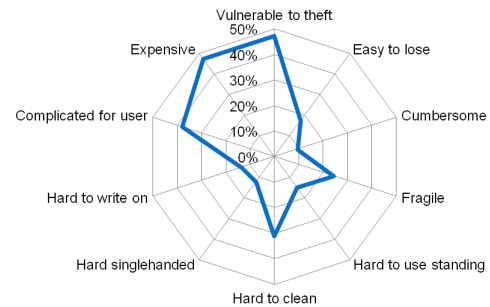
Also some categories of users will be more productive with a specific device type or form of interface. It is hard to see any role that requires the user to wear gloves, for example, to work well with a tiny stylus or with a touch screen-driven interface where extreme precision is required. Similarly, there are environments where keyboards and unsealed connector ports are not conducive to straightforward working as they can trap dust, debris, liquids or bacteria.

A heavy, full-functionality system will appeal to certain workers whereas others will be happier and more effective with a simpler, lightweight and less cumbersome device, which, while less functional, will allow them to more easily get on with the task in hand. Those in highly process-oriented organisations will prefer their mobile technology to be simpler, robust, and essentially not get in the way of the working process (Figure 10).

Essentially, for those in these roles, as for many other workers in fact, the technology plays a supporting, rather than dominating, role in the day-to-day actions of business processes.

Figure 10

What problems affect the effective use of mobile devices for the “Process Driven”?



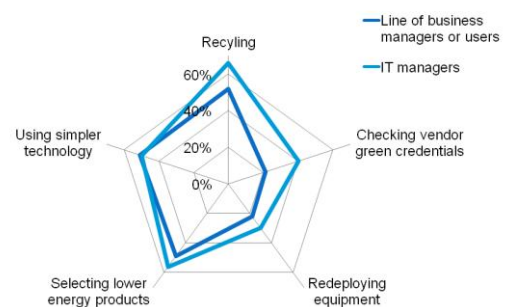
Technology and the environment

Mobile technology, just like IT in general, is coming under greater scrutiny in terms of its impact on the environment. While green issues are climbing up the agendas of many organisations, partly from a mix of employee, ethical and reputational concerns, they are also being driven increasingly by regulation, government and international directives. Despite this, there will always be reluctance to embark on new initiatives that, while worthy, adversely affect the bottom line, and green benefits need to be supported by financial ones.

The environmental issues most often addressed first in any organisation are those related to recycling and power consumption, as these can generally be shown to have a direct financial as well as environmental benefit. (Figure 11)

Figure 11

What top activities are changing as a result of green issues?



Different parts of the organisation are going to be tasked with different objectives, so how they view environmental challenges will vary. IT departments

will be putting the products, and their suppliers, under more scrutiny, and will increasingly have to deal with the end of life of products and the reduction of waste. Line-of-business managers are less likely to be tasked with dealing with these issues, but the idea of using simpler technology is supported both by the business and IT functions. Providing it does not impact the task in hand, keeping IT simple has broader benefits both for the business and the people using the technology, as well as the environment.

Protection

Mobile solutions are particularly vulnerable to loss or theft and security plays a large part in any mobile deployment. An organisation has to protect the mobile devices themselves, the access they permit to the network or central IT systems, as well as data stored on the device or in transit. This can require complex tools which should be selected and appraised against a backdrop of a mobile security policy, based on the business needs. There is no point making some inconsequential information overly-protected if this greatly inhibits its use.

The implementation of security can have a profound effect on user productivity, and care must be taken to ensure that appropriate levels of protection are being applied, and that security procedures do not have a negative impact on the user. Individual employees have an important impact on the effectiveness of security policies and procedures. While most are responsible and want to do the right thing, a significant number will not be so careful or responsible. This is not necessarily a deliberate action since in more challenging environments it might just not be possible to take as much care as elsewhere.

4. Human aspects / impact

Although the working environment has a significant impact, the way in which employees accept, interact with, or resist the deployment of new technology will greatly affect its level of success.

If it aids them in their daily tasks, takes away some of the monotony or contributes towards their self esteem, it will have a positive effect and be supported. If it gets in the way, forces them to work outside of their normal patterns or makes them feel disenfranchised, it will be resisted and ultimately any potential gains from any investment will be lost.

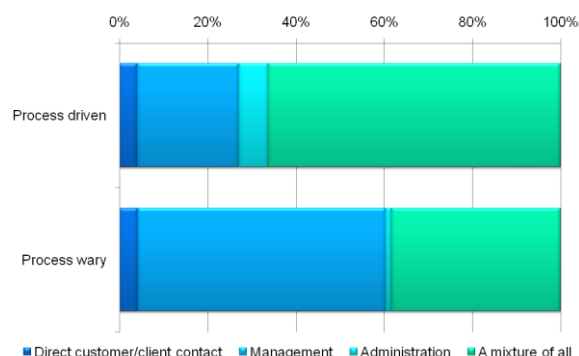
Who gets what?

How much mobile technologies support or add to work patterns will vary between different groups of employees. The biggest longer-term gains are often found in the automation of more mechanical or

repetitive procedures, but many deployments often start with administrative and managerial rather than front line processes. This translates into managerial roles being the first to benefit, although in more process-driven organisations the benefits of broader deployment to other staff are at least recognised (Figure 12).

Figure 12

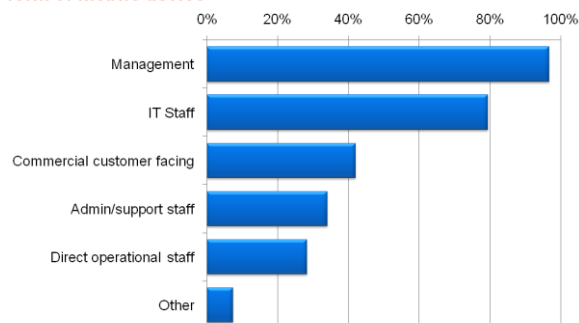
To which roles is mobile IT best deployed?



The problem is that managers tend to be early adopters not because the benefits justify the return on investment, but because these are the people who decide on the justification. The other group most heavily involved in the decision-making process are IT staff, so it is no great surprise that these groups lead in terms of deployment of mobile devices (Figure 13).

Figure 13

What groups of employees currently have access to some form of mobile device



Management and IT staff are unlikely to be the roles where the greatest longer term benefits are realised, but they are groups of a limited size, and could be considered as reasonable guides for piloting wider scale deployments. This would be a mistake, as the needs and workplace circumstances of front line staff are likely to be somewhat different and more challenging than those in supporting IT or managerial roles.

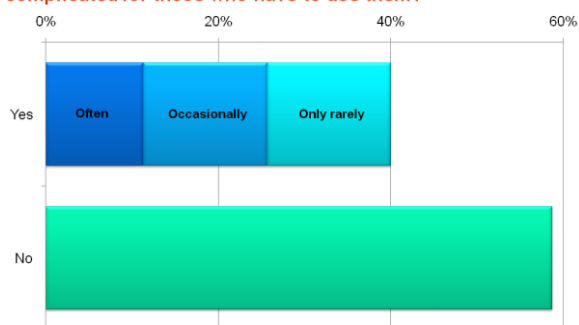
Introducing complexity

Those in front line roles will focus far more attention onto the 'technical' skills required to perform their work—doctors treating patients, financial advisors sharing their wisdom or engineers making design decisions/locating and fixing faults—than dealing with the foibles of what they will see as supporting tools.

Often the technology deployed in these tools seems more complex than it needs to be and that gets in the way of its effective use (Figure 14).

Figure 14

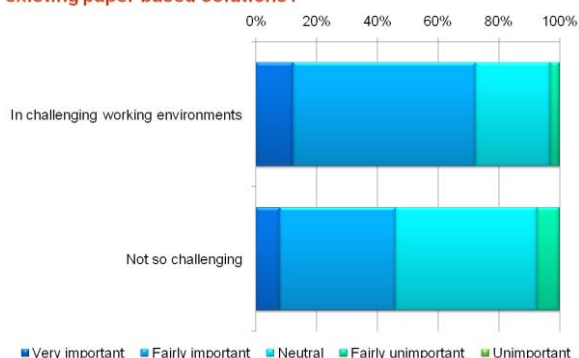
Are there some times when mobile solutions seem too complicated for those who have to use them?



This complexity results not only in potential difficulties in use, but also ups the requirement for training. It is always important for end users to fully understand before and during deployment exactly how the technology will impact them, and what their reciprocal commitment needs to be. When traditional processes are being changed or automated, comprehensive training is even more important, especially in challenging situations or difficult environments (Figure 15).

Figure 15

How important is user training in IT deployments to automate existing paper based solutions?



The value of training

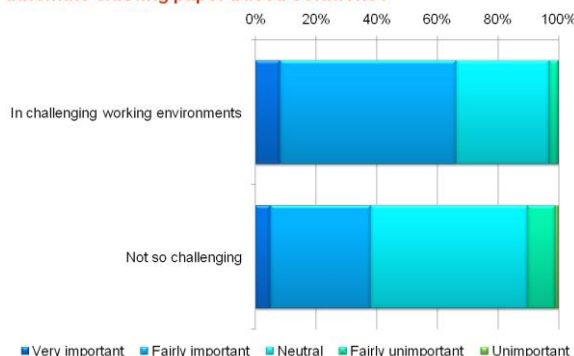
Thorough training and ongoing support is necessary to assist employees transitioning from a paper-based system to some form of mobile technology. It will require upfront counselling to ensure that not only will the modified process work, but also that it will be accepted by staff and any representatives such as unions. In addition to training in basic functionality, there will also need to be ongoing coaching to ensure the new system continues to deliver benefits and not encroach on the employee's ability to work.

The more complex and intrusive the technology, the more training will be required and the greater the cost. In more challenging environments, where workers have many other considerations, the last thing they can afford is to be taking time to learn how

to best use the tools at their disposal. It has to become second nature (Figure 16).

Figure 16

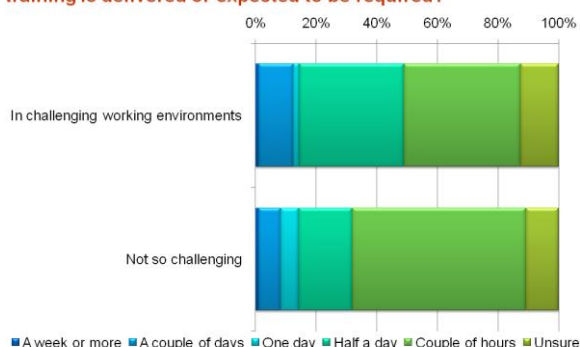
How does the cost of user training figure in IT deployments to automate existing paper based solutions?



Even though getting and keeping staff fully versed in the use of the tools at their disposal is important, very few companies expect users to need more than half a day's training to get to grips with new technologies that will significantly alter their involvement in a business process (Figure 17).

Figure 17

As traditional processes are automated, how much user training is delivered or expected to be required?



It might be that for some organisations the IT department believes it is actually deploying systems that are so simple they require little more than some straightforward explanation of functions. However it is more likely that general technology awareness—for example, “you all have laptops at home, right?”—will lead to assumed familiarity and some corners being cut. Another large risk is that the training will be delivered solely by an IT department and will focus on the technical functionality and not the operational impacts of the use of the technology as part of the business process. Organisations need to better support their workforces in understanding the impact of new systems on their day-to-day working methods.

Keeping complexity down and finding the right solution to best fit the needs of the business process is one way to keep training costs to a minimum, but there is another way—just cut corners. Sadly, in many organisations, especially in more pressing economic times, the training budget is one of the first things to be cut. This is more often than not a false economy as

the consequent losses or inefficiencies, while not measured against the same line items and budgets, will become apparent in the business over time.

5. Hidden costs of mobility

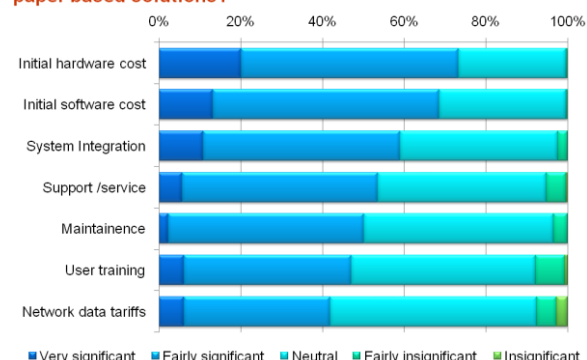
The upfront capital costs of deploying mobile technologies have fallen considerably. While the capabilities and functionality of the middle and upper range devices—laptops, handheld and tablet style computers—have soared while keeping at relatively stable price levels, lower cost alternatives have emerged.

These range from less powerful, low-cost laptops, through to specialised or dedicated companion-like devices. In the consumer world this manifests as portable media players, mobile phones and portable gaming systems. In the business world it has led to special purpose handheld devices—such as digital pens that capture information while they write, or handheld tag scanners with touch screens—with far less functionality and complexity than, say, a laptop computer.

While many upfront costs have decreased, the ongoing cost of mobile working is increasing. Some of the cost increases are clear and obvious as greater mobility translates into greater use of networks and this impacts mobile data bills. Despite falls in some tariffs, many total mobile costs are increasing due to broader deployment, greater individual use and more data-intensive applications. There is also support and maintenance costs which, despite the higher risks—loss, theft or damage—in a mobile working environment, still do not figure as high in the budget assessment as initial capital expense (Figure 18).

Figure 18

How do costs differ in IT deployments to automate existing paper based solutions?



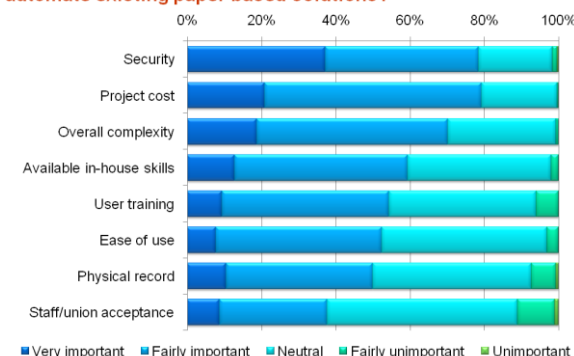
Beyond the direct costs, there are a number of issues that are often dealt with in a limited manner at an operational level, that have an indirect, but significant, cost impact, that is most often only noticed at the top of the organisation. Although, at

this point, any link to the operational issue is hidden or not recognised.

These issues include security, compliance, staff recruitment and morale, impact on working processes and flexibility. As individual items, most are well recognised but their impact on the value to, or indirect cost on, any project is often lost amid the need to look at direct costs (Figure 19).

Figure 19

How important are the following in IT deployments to automate existing paper based solutions?



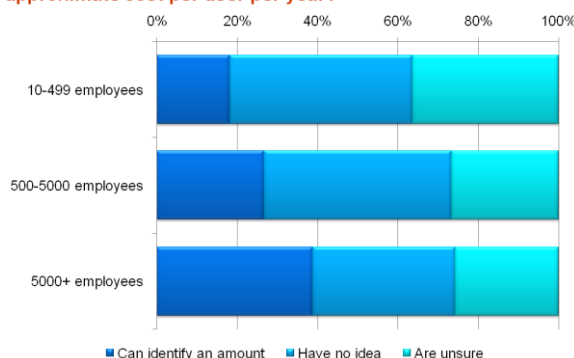
Ultimately this is a mistake that will only affect the organisation later on when it might be too late. Cutting corners in the areas of security, user training, or the fit between technology solution and the business process it is intended to improve, will undermine the total value realised by the investment.

Rather than simply identifying direct costs, a wider understanding of the total value proposition needs to be created, bringing in other benefits being gained or lost and any risks that are being minimised or increased. Only then can a true cost be ascribed to the project and an accurate reflection of the return on investment gained.

One particular area of hidden cost concern is the cost of maintaining a mobile fleet. While many will know how much the upfront cost of any particular device is, the numbers who know the impact of dealing with failures and maintenance costs are few, and in smaller companies the problem is even more pronounced (Figure 20).

Figure 20

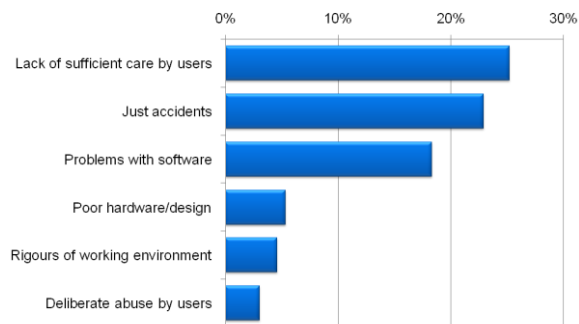
How many know the ongoing cost of failures in terms of approximate cost per user per year?



There are many reasons why mobile devices might fail, but lack of care or attention by those using them plays a big part. This is rarely deliberate on the part of the employee, although it is not unknown for those employees who are dissatisfied with their current device and see that others have been upgraded to later models to force the pace of their own desire for an upgrade (Figure 21).

Figure 21

When faults occur, what are the main reasons for failure?



While few roles have a need for truly ruggedised technology, improvements in hardware design, supported by extensive user direction—through appropriate consultation and effective policies—should minimise the damage of devices being broken or failing.

Similarly, the problems associated with software failures can be addressed by choosing simpler and more dedicated or specialised technology. This has the added benefit of users seeing the device as a 'tool for the job', rather than an indication of status.

6. Conclusion: the value of keeping it simple

In many industries there is pressure for organisations to improve their business processes. Companies are facing increasing global competition that is depressing margins, forcing increased flexibility and shortening product lifecycles in an attempt to meet customer demands. This requires process efficiency and expediency—a light touch.

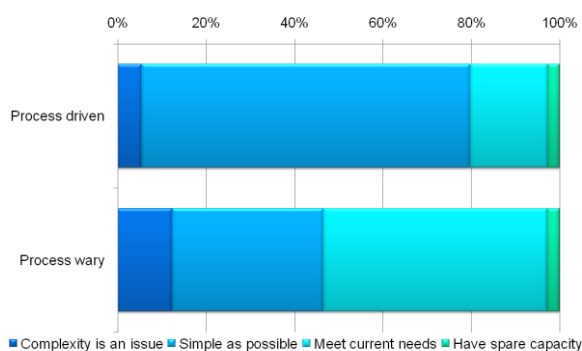
Balanced against this drive, there are the constraints of good governance, acceptable levels of quality or service, employee satisfaction and, increasingly, a more sustainable or greener agenda. Together these support the need for methodical correctness, assurance and durability to ensure a firm impression.

Traditional paper-based processes provide the right constraints but have fallibilities as well as inefficiencies. They are error prone, labour intensive and make it difficult to distribute or process information in a timely fashion.

Automating these processes makes sense, and many different mobile technologies allow information to be captured, processed and used right at the point of need. The challenge in many industries or job roles, where information processing only plays a secondary part, is that much of what IT solutions offer is complex and intrusive. Most businesses, especially those that are process-intensive, would like IT to be as simple as possible (Figure 22).

Figure 22

How should IT solution sophistication align to business need?



Reducing complexity for those at the sharp end of the business process has a number of benefits, both direct and indirect, but may mean an increase in effort either in the infrastructure or in the management processes. The potential benefits are:

- Faster and smoother user adoption
- Improved productivity
- Less technology interference with business process
- Better connection between user and 3rd parties
- Lower ongoing training requirements

- Fewer faults and reduced maintenance
- Improved green credentials
- More complete audit trails
- More permanent records

Simplicity should also mean lower cost devices, although this is not always the case, but, in any event, the savings and additional value generated should outweigh any upfront purchasing costs. When considering any form of IT investment, there are three aspects that need to be well investigated in order to see if the project has merit.

At Quocirca we call this the Total Value Proposition (TVP) and the process allows a rigorous decision-making approach to be applied to all projects without the need for dubious or artificial translation of benefits into monetary equivalents. It investigates the benefits that relate to value creation, risk management and cost reduction.

There will need to be more effort and thought applied upfront to ensure that the most effective solutions are found, and this means:

- Analysing the business process to see how and where technology may align to it
- Involving users at the earliest stage
- Trialling alternative technologies to see which fits best in different roles
- Accommodating a diversity of technical options to ensure best match in each case with the business process
- Training users in process and 'etiquette' rather than just device functionality
- Measuring success in broader criteria than simple total cost of ownership—for example using a TVP analysis

Even in challenging economic times, companies need to stay ahead of competitors and public organisations need to show they are delivering value for money. It is not simply about cutting costs, but efficiency and effectiveness in conducting the regular processes of the business.

Where traditional paper-based methods are used at the edges of business processes, it is generally evident that, at some point, the information captured in the process is fed into some form of central IT system. Automating the point of capture and presentation of information out to the edge using some form of mobile IT makes a great deal of sense, but not if it simply adds cost and complexity.

Providing organisations make a more thorough upfront assessment and understand where the true cost impact lies and where broader benefits can be achieved, they will be in a better position to understand what type of technology should be considered when automating these processes.

Appendix A: Applying a light touch with mobile technology

There are many aspects to selecting and deploying mobile technology solutions, but there are a number of steps any organisation can take to try to reduce the impact that technology has on those trying to make best use of the technology in challenging conditions:

Understand the true cost of any technology – while at a first glance it might seem that giving everyone the same sort of IT irrespective of the needs of their role might keep matters simpler for the IT department, it is rarely the best fit for the users. Giving someone a fully specified laptop because everyone else has one, when all they really need is something simple to display basic information or tick off a checklist, is not sensible. It not only adds to the upfront cost but, more importantly, adds to ongoing maintenance, training needs, risk of theft or loss, and over-complicates the daily working life of the user.

Get early user involvement – not only is it important to get buy-in, but user experience of the challenges of the environment and realities of the working process (which they may already be working around in their own way) will be invaluable. Without user commitment, security is difficult to achieve and the cost of repairs and replacements will grow as some employees will not act in the most responsible way. While this may occasionally be deliberate and cultivating responsible attitudes does need addressing from the outset, it will most often be caused by the technology being a poor match for the day-to-day rigours of the working environment.

Don't be afraid of simpler alternatives – a “road warrior” top specification may work really well for some roles, but others may need something much simpler. If the task only requires straightforward data to be captured and checked off, then the smallest mobile devices make most sense. Active badges or personal communicators can relay location or other vital information and support direct communications, digital pen-based devices will preserve the look, feel and simplicity of existing paper processes, but encompass IT data capture and storage, and mobile handheld computers with scanners will add further functionality. The tool should be the simplest possible to fit the business task, rather than growing in scope to meet bloated IT criteria.

Manage processes, not devices – while the mobile device and its contents—data and applications—need to be managed to safeguard the assets, their operational impact on the working process should be a focus for management attention. This means understanding what threatens the resilience and continuity of the business process—from network coverage issues to users being distracted or diverted by entertainment features on a device—and applying controls and measurement to ensure the business process is meeting its expected objectives.

Don't skimp on training – as well as ensuring users are trained on how to use the functionality of the tools at their disposal, it is important to give guidance and coaching as to how to get the best out of those tools. Automating an existing paper-based process with some form of mobile technology will undoubtedly change the operation in some way, and users that have comprehensive understanding of the limitations and potential of the technology will benefit the most. This all comes at a cost, and the more sophisticated the technology used the more involved, and therefore expensive, the training will need to be.

Realistically assess maintenance – most commercially available off the shelf mobile hardware is reasonably well engineered, but in a challenging environment will have a limited lifetime, especially if users do not give it the utmost care and attention. For many, the technology will be a supporting tool and secondary to the real task in hand, so may not get the care and attention expected by the IT department. Even those who try to look after it will fail on occasion. Frequent failure from the hardships of use should therefore be expected, and factored into the ongoing cost of maintenance or support and operational management time and effort.

Identify green benefits from simplicity – the starting point can be to cascade existing hardware where possible through the user community, and then look for further opportunities to recycle. When starting out on a deployment consider the wider benefits of using smaller, lighter, lower power or simpler technology, not only from environmental aspects, but from the impact that such simplification might have on what the employee has to carry, understand and use.

Tackle the crucial process issues – if the business process revolves around accuracy and speed of input, use this as a primary guide for identifying a solution. If there is a mandatory requirement for a paper trail for audit purposes, that must be in the solution from the outset, rather than an afterthought. The problem is that many companies will have existing IT supplier preferences, procurement policies or product ranges where economies of scale have resulted in greater discounts, and this might lead to selecting solutions based on these existing commercial or technical criteria, rather than starting from the critical business process requirements.

Appendix B: Interview sample distribution

The information presented in this report was derived from interviews with 300 business or IT managers and users with experience in the use of IT to automate traditionally paper-based processes. The organisations selected were in either the healthcare or financial services industries and based in the USA, UK, France and Germany and the interviews were completed in August 2008.

The sample distribution was split as follows (Figures 23 to 26):

Figure 23

Industry

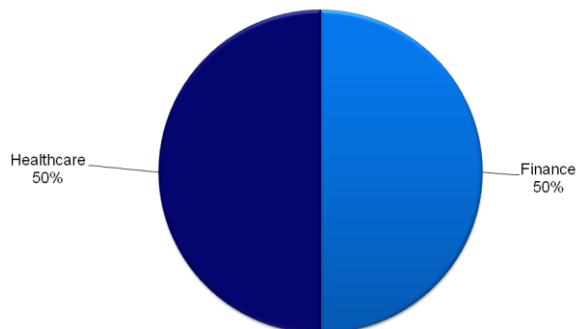


Figure 24

Country region summary

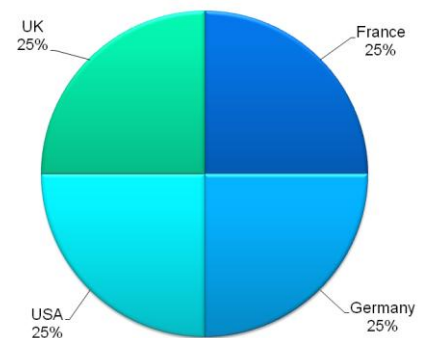


Figure 25

By job role

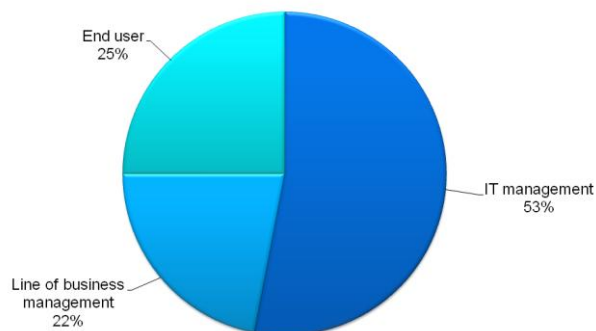
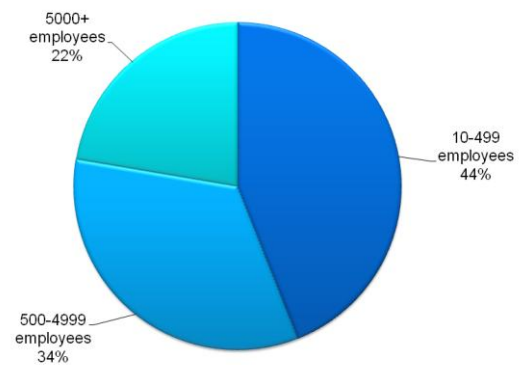


Figure 26

By organisation size



About Anoto

Anoto Group is the company behind and world leading in Digital Pen and Paper technology which enables fast and reliable transmission of handwritten text into a digital format.

Anoto works with a global partner network to create user-friendly forms solutions for efficient capture, transmission and storage of data within different sectors, including healthcare, banking and finance, transport and logistics as well as education.

The digital pen remembers what has been written or drawn on special, dotted paper, and transmits this data back to a PC or server. It writes just like a normal ballpoint pen, but has a tiny infrared camera at its tip, which reads and records the movements of the pen relative to a pattern of grey dots printed on normal paper. The dot pattern can be generated using a standard laser printer.

Digital Pen and Paper allows mobile workers to fill in forms on the move without the need to return to the office and type them up later in the day. Users can either send the data back to the office via Bluetooth and a mobile phone – or wait until they return to their desk to dock the pen and instantly transfer the information. In this way, the technology has helped anyone from doctors and care workers to engineers and field salespeople become more productive, saving time and costs.

The Anoto Group has around 110 employees, offices in Lund (head office), Boston and Tokyo. The Anoto share is listed on NASDAQ OMX Nordic small cap list under the ticker ANOT. For more information: www.anoto.com.

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RESEARCH NOTE:

The information presented in this report is based on a survey of 300 organisations in the USA, UK, France and Germany. It was completed in August of 2008.

Those surveyed were from organisations and businesses in the healthcare and financial services industries with experience of using IT to automate traditional paper-based processes.

Quocirca would like to thank all the respondents to the survey and thank Anoto for sponsoring this research.

About Quocirca

Quocirca is a primary research and analysis company specialising in the business impact of information technology and communications (ITC). With world-wide, native language reach, Quocirca provides in-depth insights into the views of buyers and influencers in large, mid-sized and small organisations. Its analyst team is made up of real-world practitioners with firsthand experience of ITC delivery who continuously research and track the industry and its real usage in the markets.

Through researching perceptions, Quocirca uncovers the real hurdles to technology adoption—the personal and political aspects of an organisation's environment and the pressures of the need for demonstrable business value in any implementation. This capability to uncover and report back on the end-user perceptions in the market enables Quocirca to advise on the realities of technology adoption, not the promises.

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 organisations improve their success rate in process enablement through better levels of understanding and the adoption of the correct technologies at the correct time.

Quocirca has a pro-active primary research programme, regularly surveying users, purchasers and resellers of ITC products and services on emerging, evolving and maturing technologies. 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 Oracle, Microsoft, IBM, O₂, T-Mobile, HP, Xerox, EMC, Symantec and Cisco, along with other large and medium sized vendors, service providers and more specialist firms.

Details of Quocirca's work and the services it offers can be found at <http://www.quocirca.com>

The logo for Quocirca, featuring the word "quocirca" in a lowercase, sans-serif font. The letters "qu" are in blue, "o" is in red, "c" is in blue, "i" is in red, "r" is in blue, "c" is in red, and "a" is in blue.