
The Consumerisation of IT

A question of freedom versus control

Dale Vile, Freeform Dynamics Ltd, October 2011

One of the hottest debates in the IT industry at the moment is around the use of personal technology and personal internet service accounts for work purposes. But is there business benefit to be gained by granting employees the flexibility to use what they like and pay for it themselves? And how can the potential be unlocked without creating unintended consequences?

Key Points

The 'consumerisation of IT' is real, and it's not just about 'hot' gadgets

Feedback from over 1,600 participants in a recent online study confirmed that many organisations are seeing 'unofficial' use of personal technology and consumer internet services for business purposes within their workforce. But it's not just about shiny Apple kit as some would have us believe. Activity spans a range of different devices, the most prominent of which are home PCs and Windows based notebooks. Instant messaging and social media particularly stand out as services.

Many employers are wary of the trend, but their ability to control it is limited

Around half of organisations are not in favour of employees using personal equipment and services for work, primarily because of concerns around security, data protection, compliance, and support. This doesn't prevent such behaviour, however, even when it is formally banned. One of the biggest impediments to control is the fact that senior managers are often the ones that are most interested in having the freedom to use what they want, and saying "No" to this group is hard.

Personal device use for business is more prevalent in highly mobile workforces

The more mobile workers you have, the more likely you are to see personal equipment being used for business. Those on the road or working nomadically can potentially benefit significantly from the use of smartphones and tablets, but these are often not supplied by the employer. Where they have been deployed, anecdotal feedback suggests a degree of frustration with older equipment that looks very limited alongside modern devices. These factors encourage the use of personal equipment.

Despite user enthusiasm, the business benefits are often hard to pin down

Top of the list of perceived consumerisation benefits is increased employee satisfaction, but few see this impacting the recruitment and retention of talent. Only one in five overall cite significant productivity benefits. This is put down to a combination of employee distraction, compatibility related challenges to do with non-standard devices, and increased downtime because of difficulties supporting unmanaged equipment – all of which offset the typical user perceived benefit.

A clear need exists for policy, process and better IT operations

Many organisations are lacking basic policy and process to define what is and isn't permitted, and ground rules for the safe and productive use of personal equipment and services are frequently lacking. Such gaps need to be addressed for the potential value to be fully realised. From an IT perspective, ensuring that security, access, application and management infrastructure is up to the job is important, and techniques such as desktop virtualisation can have an important role to play.

The study underpinning this report was designed and executed by Freeform Dynamics. Feedback was gathered via an online survey of 1,604 IT and business professionals from the UK, USA and other geographies. The study was sponsored by Microsoft.



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Introduction

One of the most heated debates among IT and business professionals at the moment is whether employees using their own equipment for work purposes is a good or a bad idea. Whether it's home desktop machines, notebook computers, tablets or smartphones, people often spend a lot of money on personal technology, then for a variety of reasons want to connect it up to the corporate network and use it to help them do their jobs.

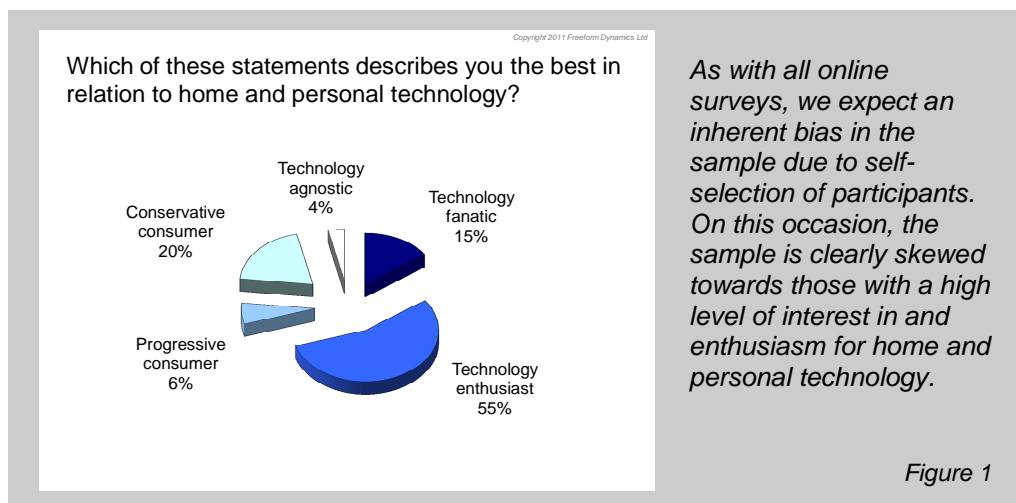
In this report, we explore the use of personal devices for business, along with the related practice of employees accessing personal email, social media and other accounts while at work. Together, these represent the two main aspects of a phenomenon that many are currently referring to as the 'consumerisation of IT'.

Along the way we'll look at the nature and level of activity, motivations and drivers, unintended consequences, and the practicalities of managing potential costs and risks.

Research input

Much of our discussion is based on the findings of a research study completed in September 2011. During this, 1,604 IT and business professionals provided feedback via an online survey. This covered their own use of personal technology for work, as well as consumerisation related activity observed across their organisation's workforce as a whole. This report focuses on the latter as it is the broader consumerisation trend in mainstream business that really matters.

Details of the survey sample, which was made up predominantly of IT professionals, are presented in Appendix A. As with all online studies, we must bear in mind when looking at the results that participants are self-selecting, which means that those with more of an interest in or knowledge of the area being investigated are more likely to respond. Given that use of the latest gadgets is a big part of the consumerisation discussion, our sample here is not surprisingly biased towards technology enthusiasts (Figure 1).



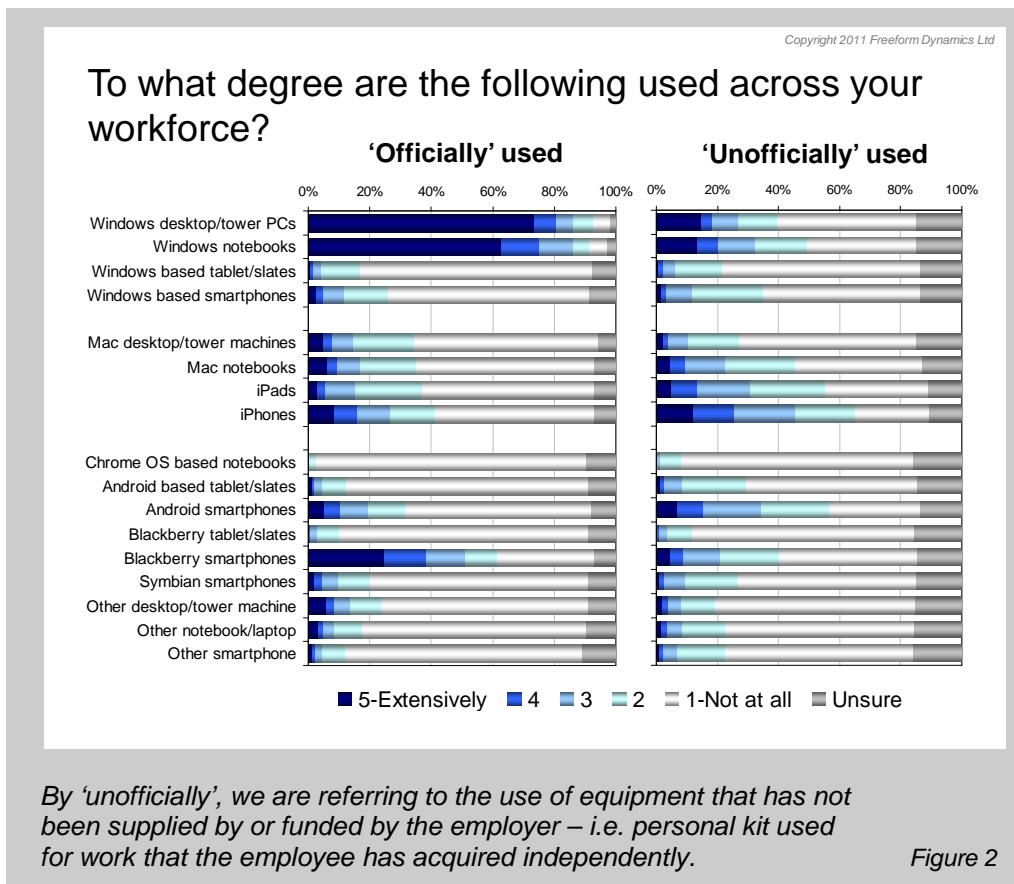
It's important to bear this in mind for two reasons. Firstly, we would anticipate our survey sample to lean more towards the positive aspects of consumerisation than the general population of IT and business professionals, so the pros are likely to be exaggerated and the cons suppressed in some of the results we will be looking at. Secondly, numbers relating to absolute levels of activity cannot be taken as necessarily representative of the business community as a whole. Respondents are more likely to be working for organisations in which consumerisation is more established, and their general level of technology enthusiasm may well colour perceptions.

None of these factors, however, affect the conclusions we present, which are largely derived from comparative analysis. With that, let's start out by looking at the basic question of the kinds of technologies that are being used officially and unofficially in a business context.

Official versus unofficial technology use

When consumerisation is discussed in the media and by pundits, the tendency is either to talk in the abstract, or to go to the other extreme of focusing just on 'hot' and heavily promoted devices. This can lead to a very assumptive or distorted view of the world and the risk of overlooking the breadth of activity that is taking place. The reality is that consumerisation is about a lot more than the iPhone and the iPad.

Rather than risk misunderstandings by falling into the same traps, let's therefore start out with a very specific look at the types of equipment that are being used in a business context, contrasting 'official' with 'unofficial' activity (Figure 2).



Given how much there is on this chart, let's pull out some of the more important observations:

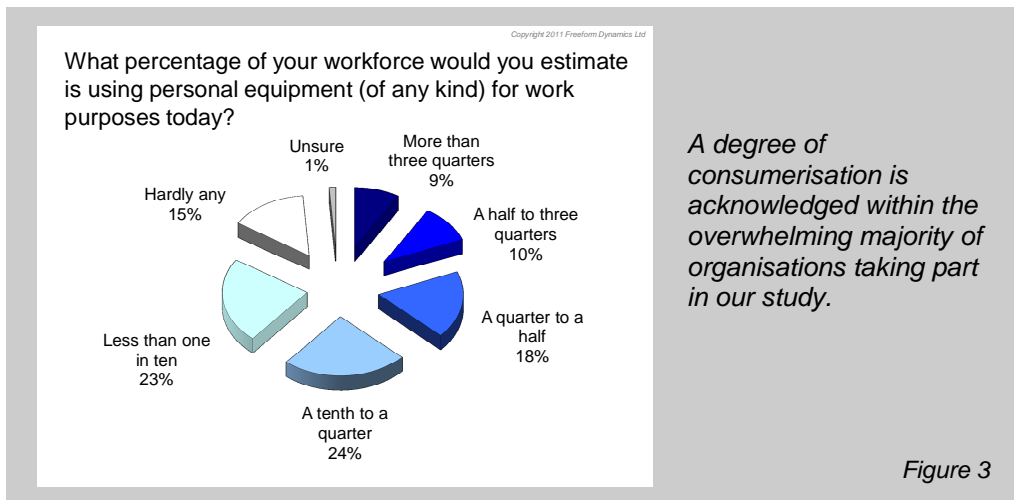
- Microsoft Windows dominates the client computing landscape as far as official business use is concerned, with RIM BlackBerry way out in front when it comes to the formal deployment of smartphones.
- Official use of Apple equipment appears to be at a limited but respectable level. Having said this, we again need to be wary of self-selection as evangelical Apple users are always particularly keen to participate in surveys on desktop and mobile technology.
- Beyond Windows, BlackBerry, OS X and iOS based devices, the landscape in relation to official activity is pretty fragmented. Linux PCs (which account for most of the 'Other' categories), along with Android and Symbian smartphones, are obviously present, but at relatively low levels.
- Turning to the 'unofficial' side of the chart, all device form factors are represented, confirming that the personal equipment aspect of the consumerisation phenomenon is real (we'll look more the aggregate level of activity in a minute).

- The use of personal desktop/tower PCs is consistent with employees frequently logging onto the corporate network or manipulating business data using home computers.
- Apple MacBooks, which receive a lot of attention in the media when consumerisation is discussed, are clearly being used unofficially for business. The evidence, however, suggests that the use of personal Windows notebooks for work is significantly higher.
- The fact that BlackBerry based smartphones don't figure that highly for unofficial use is probably partly due to lower personal appeal, and partly down to the fact that many business users are issued with BlackBerry devices by their employer anyway.
- Android smartphones are popular personal devices for use at work, but the iPhone stands out the most in this category. Even making allowances for the Apple evangelism effect, the iPhone is clearly leading the mobile consumerisation stakes, with the iPad coming up strongly.

So when we pull all of this activity together, what does the aggregate picture look like?

Overall levels of personal device use

Looking across all equipment categories, a degree of consumerisation is acknowledged within the overwhelming majority of organisations represented in our study; indeed only 15% said there was little or no use of personal devices being made for work purposes (Figure 3).



Even taking any sample bias into account, we can safely conclude that the consumerisation phenomenon is becoming pervasive among mainstream businesses.

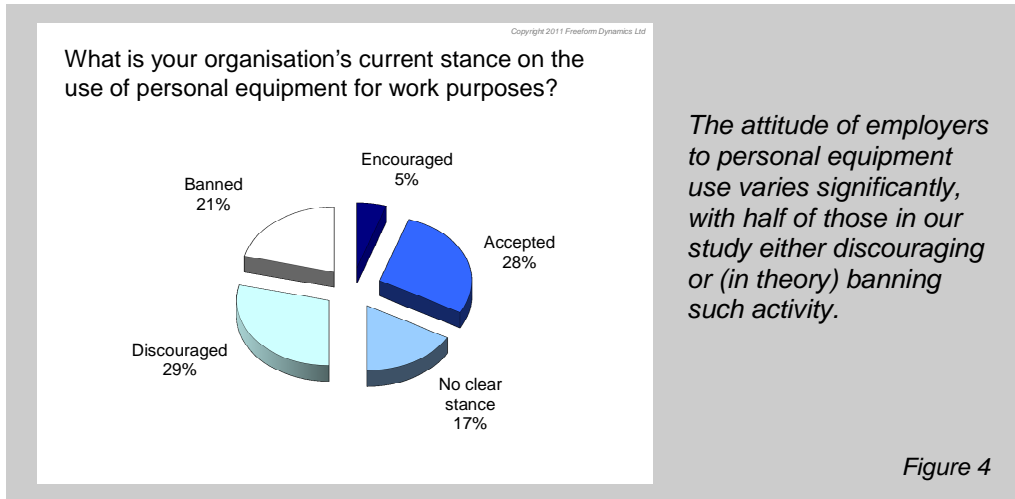
The ease with which very sophisticated and highly capable equipment can now be bought in the High Street is obviously a big enabling factor here; so too is the way in which we buy personal devices, which has changed people's attitude to technology.

Go into any electrical retailer or mobile phone outlet and you are presented with a vast array of choice. PCs, notebooks, smartphones and tablets of all specs, sizes and price points are available, creating a general expectation of always being able to match technology options to our specific personal needs and preferences. And having chosen a device that is just right for you, why not take advantage of that 'best fit' in a work context?

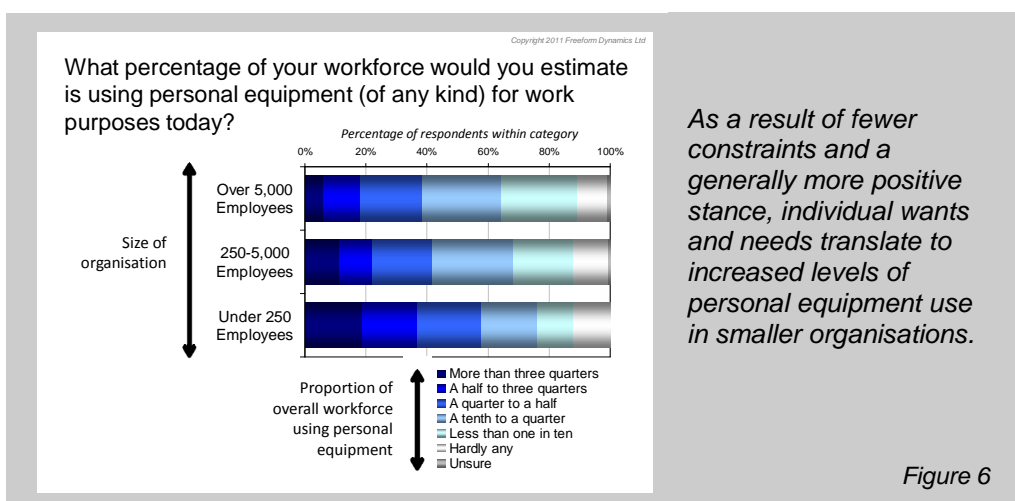
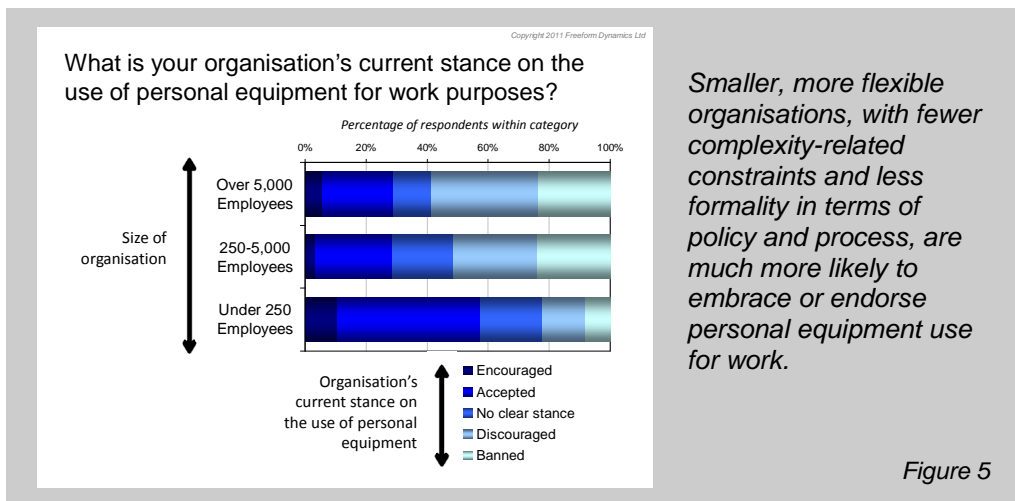
But how keen are employers to embrace employee choice and freedom?

Employer attitude versus employee action

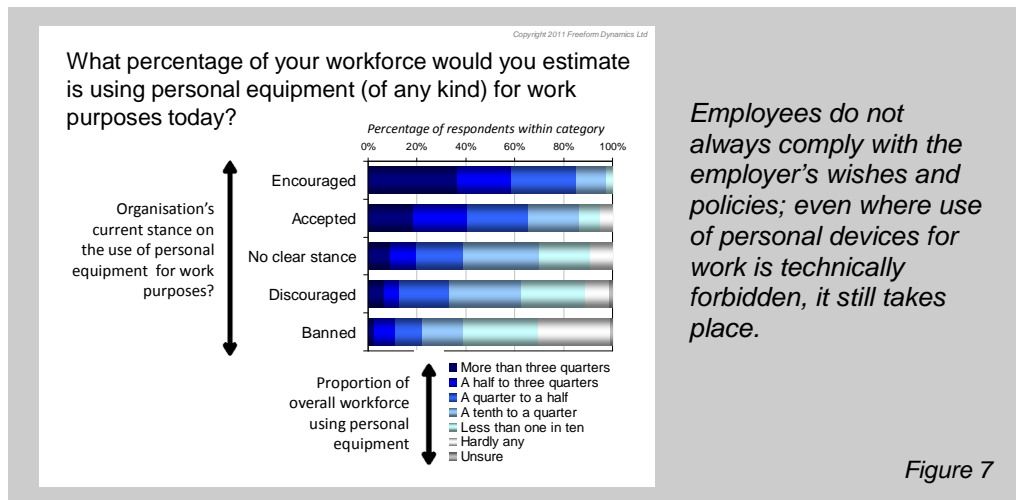
The attitude of employers to personal equipment use varies significantly, with a third embracing or endorsing it to one level or another, half not being keen at all, and the remainder having no clear stance on what employees should or shouldn't be doing in this area (Figure 4).



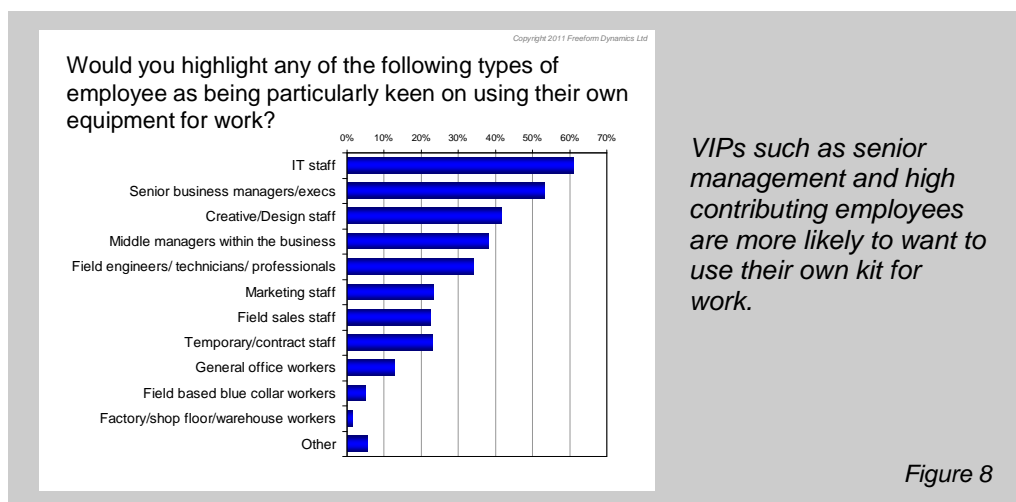
Breaking this out by organisation size, smaller enterprises with more flexibility, fewer complexity-related constraints and less formality, are more likely to embrace or endorse personal equipment use for work (Figure 5), and this is reflected in higher levels of actual activity (Figure 6).



However, across all organisation sizes, employees often do not conform to their employer's wishes; even where use of personal kit for work is discouraged or banned, it still often happens (Figure 7).



And when we look at which types of employee are most likely to be keen on using their own devices for business, some pretty influential people stand out, to whom saying "No" is not going to be an option (Figure 8).



This is borne out by a lot of the freeform feedback received from respondents, such as these comments relating to senior managers (the most frequently mentioned anecdotally):

"In our environment, some senior executives and some associates will insist on what they want the company to provide in the way of communications devices".

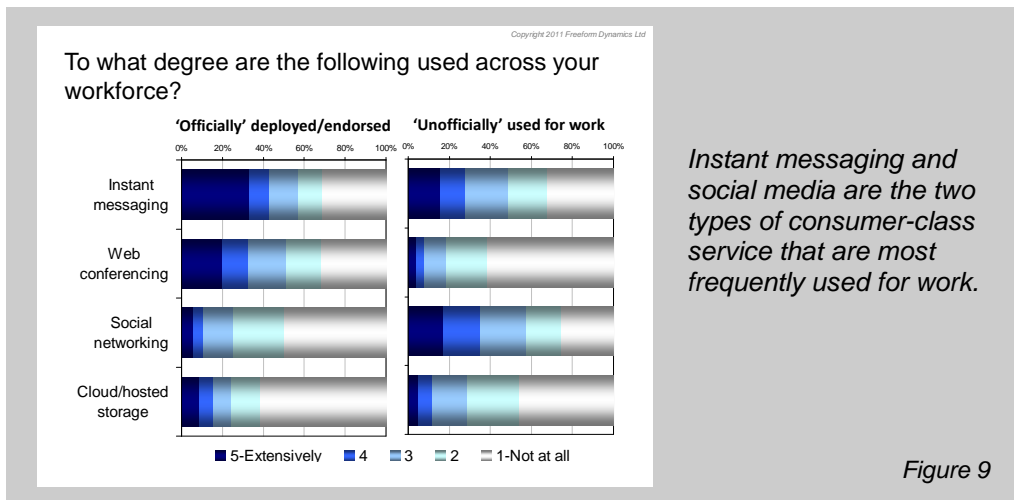
"Senior management will change or overrule the rules as needed".

But as we said earlier, consumerisation is not just about devices – the use of personal internet service accounts for work purposes is another way in which users are acting unilaterally.

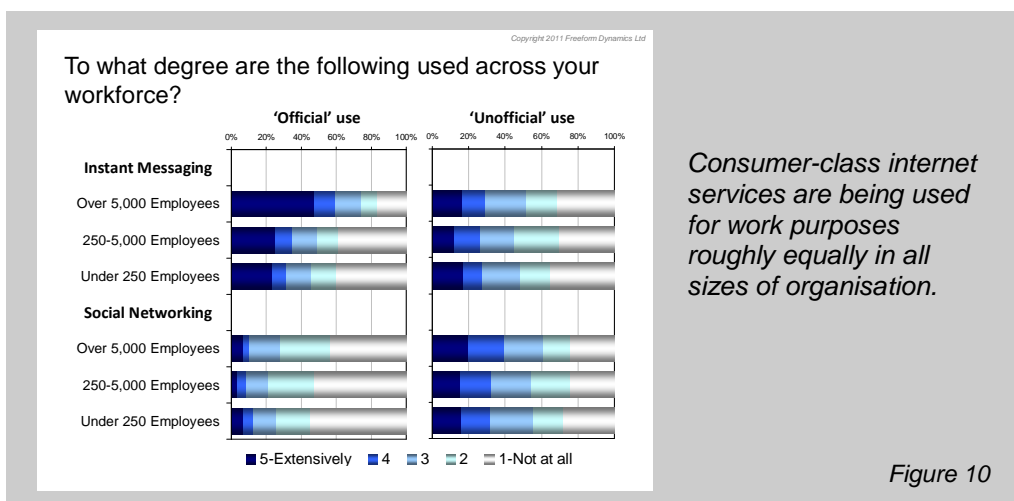
Use of personal internet service accounts for work

As consumers, a whole host of services are available that allow us to communicate with each other and to store and exchange information – often for free, enabled by the advertising-funded business models of public service providers. Some obvious ones include instant messaging, social networking, web conferencing and online storage.

Even though such services have often been primarily designed for use by consumers, there is evidence from the study that this does not deter employees from using them for work purposes (Figure 9).



Unlike our previous observation with regard to personal equipment use, however, we see little variation in activity here by organisation size, as illustrated when we break out adoption of the two services most frequently used unofficially - instant messaging and social networking (Figure 10).



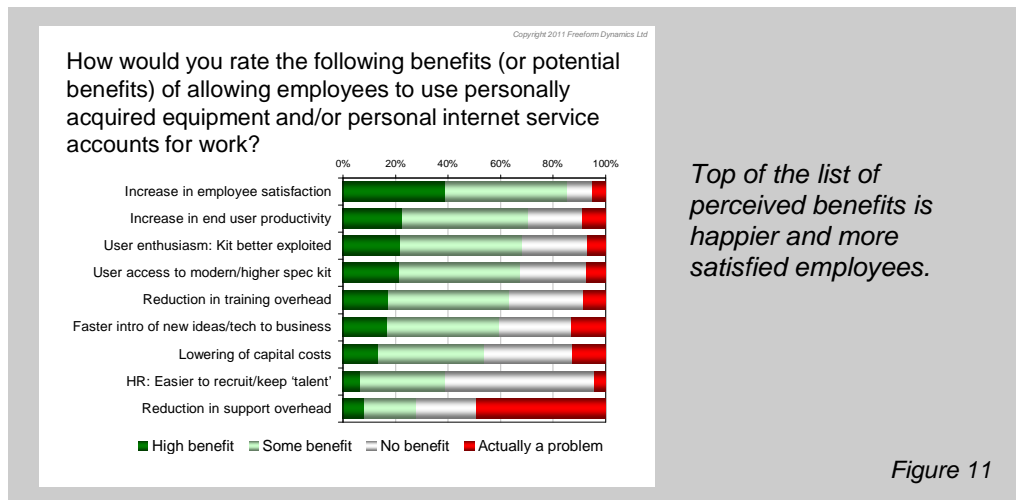
The need for the kind of networking and collaboration facilities represented by some of the services we are looking at here is arguably more acute in complex and distributed larger environments with employees spread across multiple locations, often working in virtual teams¹. This cancels out the 'flexibility effect' we often see associated with smaller organisations.

On a specific point, it is worth noting that connecting up physical equipment is often dependent on IT involvement in larger organisations, whereas anyone with a web browser can access their favourite internet services (so long as the organisation hasn't put strict network level access control and content filtering measures in place). This is likely to be another factor contributing to the differences we are seeing when analysing the two forms of consumerisation by organisation size.

But whether it's use of personal equipment or internet services for work, apart from personal interest, what is it that drives consumerisation? More specifically, are there any tangible benefits?

Exploring the perceived benefits

Top of the list of perceived benefits is more satisfied employees. Almost 40% of respondents in our study highlight this as a big factor, with most of the rest acknowledging at least some benefit in this area (Figure 11).



What underpins this perceived satisfaction increase is interesting to consider. Some of the other benefits highlighted will clearly be playing a role here, as they can be thought of as removing the 'friction' between the employee and the technology/solutions they use to do their job. Being able to use 'better' kit that also suits your preferences, especially if it has good styling and a desirable brand, will enhance the 'feel good' factor, as will the ability to use your favourite internet services such as Facebook, Skype, Twitter, Dropbox and so on while doing your job.

Despite the satisfaction driver, however, it is interesting that few seem to regard consumerisation as being that significant when it comes to recruiting and keeping good people, which brings up the obvious question of what's in it for the employer.

Looking at the above list, no single compelling factor leaps out as being a primary source of significant tangible value to the business – i.e. there is no apparent 'killer benefit'. The most frequent positive option selected by respondents in each category is 'Some benefit', which is a pretty lukewarm response in the context of the way the question was asked during the survey.

On the specific question of increased productivity, the picture is no different. Few (one in five) are willing to commit to the notion of big benefits here, which is noteworthy as a positive impact on productivity is often touted by consumerisation advocates as the prime justification for giving employees freedom to choose their own technology and services. So what's going on here?

The productivity debate

It is not uncommon to hear employees saying that they are using their own devices for work simply because the equipment provided by the employer is old, out of date, or otherwise not up to the job. In situations like this, it is difficult to argue with the benefit that can be realised through the employee funding superior equipment, as illustrated by feedback of the following kind:

"I have personally funded a laptop that is more reliable (and therefore I can always do my job) than the corporate funded options".

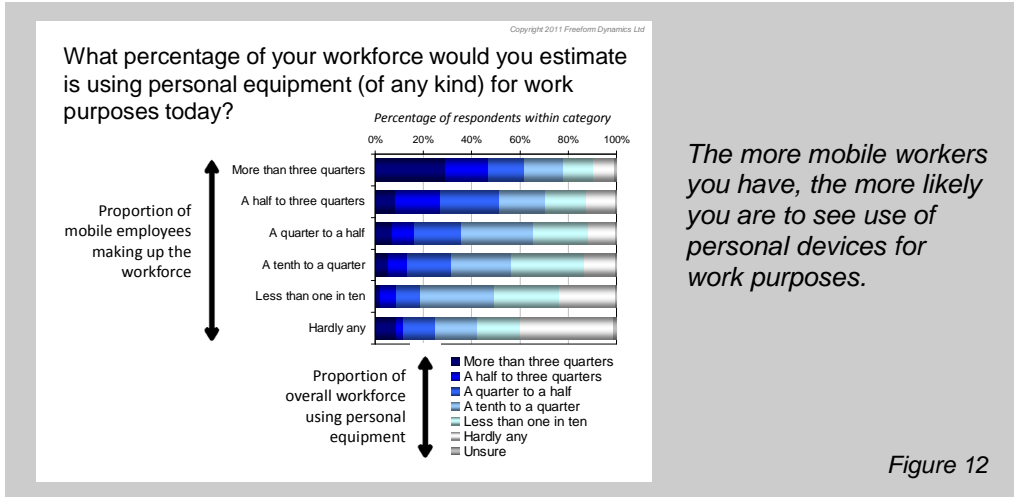
"I use my own kit when it's faster/better than that provided by my employer, but eventually I get better kit from my employer and use that until it is superseded by my kit, and round it goes".

There is, perhaps, a call to action here for employers to make sure that the equipment used by key contributors within the workforce is kept reasonably up to date, otherwise smart workers will use the initiative you presumably pay them for to work around the limitations.

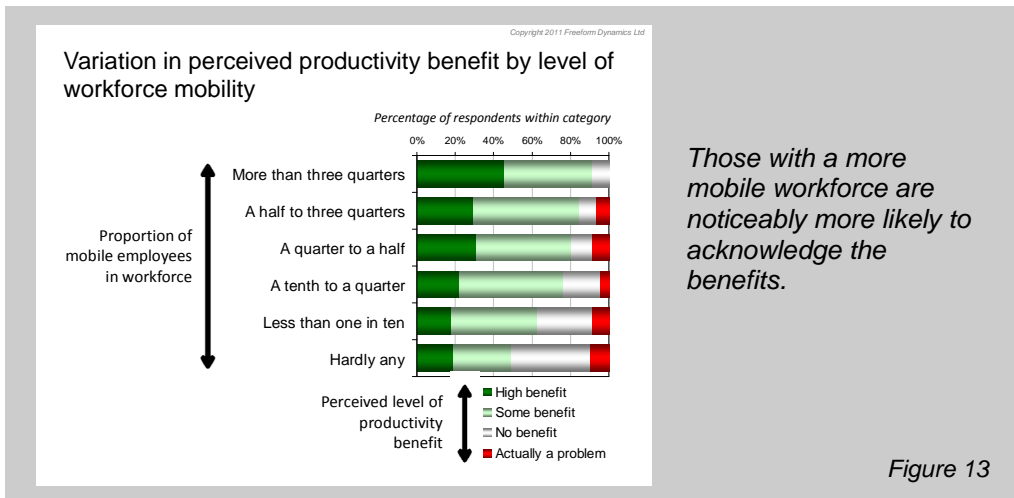
However, there is a much bigger factor that trumps everything else when it comes to drivers for use of personal equipment for business, and that's mobile working. Those on the road or working nomadically can potentially benefit significantly from the use of smaller form-factor 'instant-on' devices such as smartphones and tablets, and we already know (from Figure 2 previously) that

official rollout of such equipment is still relatively limited. Anecdotally, we then pick up a degree of frustration with corporately deployed handhelds, which can often look quite limited compared to modern touch screen smartphones. There is, for example, quite a bit of old BlackBerry kit out there.

These factors are behind one of the most striking correlations we see in the data, which is the link between the level of workforce mobility and the degree to which personal kit is used. The more mobile workers you have, the more likely you are to see this form of consumerisation (Figure 12).



But is personal device use by mobile workers enhancing productivity as much as it could? Well, benefits in this area are more likely to be cited where there's a higher degree of mobility, but many are still non-committal on whether significant value is being realised (Figure 13).



In case you are wondering, though we haven't shown it here, if you plot the equivalent chart purely for those that are seeing a high level of personal device use, it looks pretty much the same – i.e. there is little difference between perception and reality. This begs the question of why so many only see a marginal productivity benefit.

Some of the anecdotal feedback gathered during the survey articulates very clearly why the productivity argument is not always straightforward. The first point made is that distraction and time wasting can sometimes offset any potential efficiency gains. The premise here is that employees using personal devices and services cannot get away from personal communications and other personal activity while working. As one respondent put it:

"The smartphone on the desk in front of your monitor is a common distraction, and it takes discipline to ignore chatter from friends. Yes, the argument is that

productivity should be improved in other ways, but in my experience having your head down over the smart phone has yet to improve anyone's productivity here".

The mention of discipline in this comment is very important, and equally applies to the use of personal internet service accounts. We'll leave you to make your own judgement about how much of a challenge this distraction factor might be in your workforce.

Meanwhile, this next comment sums up another factor that can easily undermine potential productivity gains:

"Initially the consumerisation of IT seems good for users, but in the end they almost without fail back themselves into a corner and need IT to solve their problem. They tend NOT to think in terms of 'systems' or wide-scope solutions, rather they only want to solve their personal problem-of-the-moment, and the needs of the organisation are at best secondary".

To put this last comment into context, organisations over the years have tried to standardise different aspects of IT for a variety of reasons. One of these is to enable effective access systems, and another is to allow efficient collaborative working. The danger with consumerisation is that employees end up using different hardware, software and services, which may in turn be based on different standards, protocols, data formats, and so on. This can create disjoints and another kind of friction as users discover that you can't just point any web browser at business systems and expect it to work, or open and edit documents effectively on any device.

Having spent significant sums of their own money on equipment, users often downplay such things as minor inconveniences, and reiterate the upside ("at least I can now access stuff on the road"). But when you see the hoops people jump through with converters, utilities and convoluted mechanisms for simply manipulating an office document that someone has sent them, then consider the additional work created for the document originator when edits are unreadable or have destroyed any formatting, it's clear that freedom and flexibility are a double-edged sword.

And with the best will in the world, no helpdesk operation can maintain expertise in all of the latest consumer gadgets, applications, utilities and services that users might adopt. Providing the same level of support when things don't work or go wrong to minimise downtime and distraction can be a big challenge:

"Support is hard enough when everyone is on standardised kit, if we had to support a rainbow of devices bought from high street retailers, how on earth would we keep our SLA's".

But if support is not provided, then the risk of an overall productivity hit to the business is high, especially if personal equipment becomes regarded as essential for an employee to do their job, and in particular when the employee is a 'hard to say no to' senior exec:

"What about when you can't do any work today because your hard drive has packed up, you have to take your PC back to the retailer?"

"Support contracts need to be considered with personal kit. If someone buys a cheap laptop and it breaks and they've 2 days + to get it resolved, that's a cost to the business."

We'll look at some of the ways of managing all this when we come on to policy and best practice a little later. Meanwhile, it's important to note that productivity is not simply a question of whether the individual employee perceives an improvement; the important consideration is whether the business as a whole becomes more or less efficient and effective. Employees, particularly those enamoured with highly desirable personal devices, are probably not in a good position to make an objective judgement on this – which can make things tricky when those individuals are senior managers.

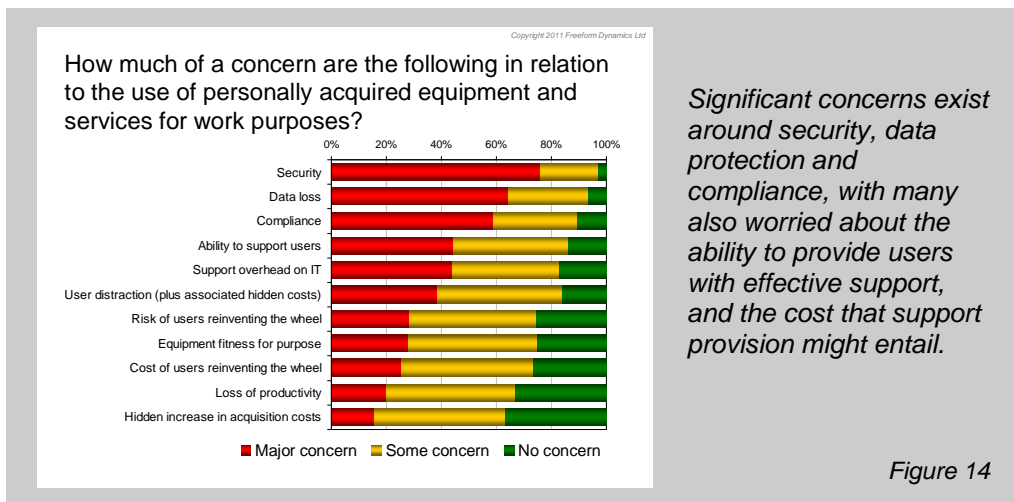
But the productivity debate is just the start of the challenges that need to be considered.

Perceived challenges

When organisations proactively select and deploy solutions, they conduct proper due diligence, and make sure whatever is taken on board can be secured and managed effectively, and that it interoperates with the infrastructure, systems and processes already in place. OK, so perhaps this doesn't always happen as thoroughly as it should, but at least basic checks and balances are conducted based on a consideration of cost, risk and business value before decisions are made.

When employees are selecting technology and services unilaterally, they are not really in a position to make similar assessments. As per some of the comments we saw previously, they often don't care that much beyond their own immediate needs and wants. Even if they do try to be responsible, they simply don't know what they don't know in terms of interoperability, future proofing, data protection, security and so on. They also may not be aware of the organisation's obligations with regard to regulatory compliance around information management, privacy, auditing, etc.

It is therefore not surprising that significant concerns exist in areas such as these (Figure 14).



Looking behind this chart, while we haven't shown it here, larger organisations are more sensitive to some of these issues, especially the top three.

Some of the challenges with security, data protection and compliance stems from the fact that consumer class solutions, whether they be hardware, software or services, are often not designed to cope with the level of rigour expected in a business environment. Even if solutions are inherently 'securable' and 'protectable', actual security and protection often relies on them being configured appropriately or on third party software being installed to handle things like encryption, anti-malware, intrusion protection, and so on. The question is then whether users can be trusted to implement appropriate measures, whether they know what they should be doing or not, and most IT professionals are aware that there is little doubt about the answer:

"With several unknown pieces of kit, usually smartphones and netbooks logging into the wireless network every day, users don't even consider basic security or data protection".

This is clearly a headache for IT staff charged with securing the network:

"From a personal perspective it's great to be able to use consumer kit at work but from an ops/security perspective it's a nightmare".

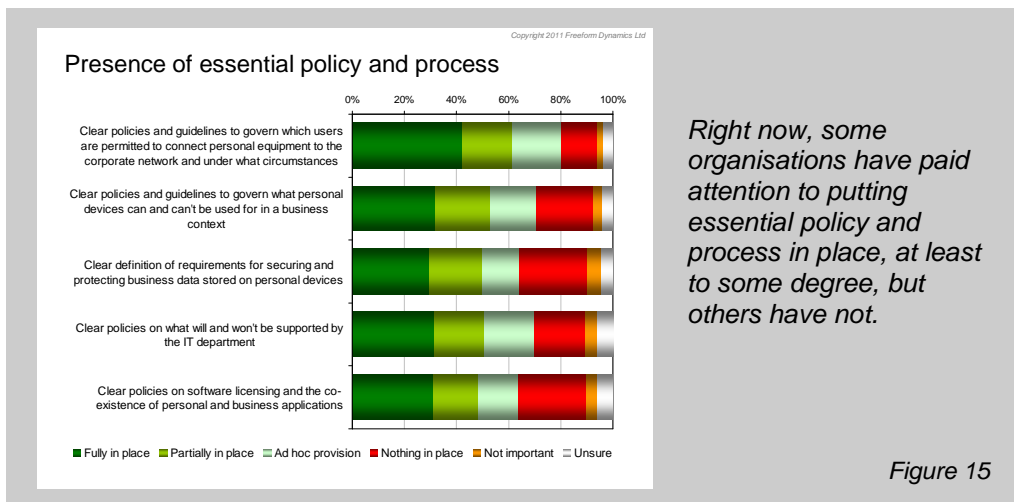
"Everyone wants to bring their iPad or personal laptop onto the organisation's LAN. This is a problem for various reasons: AV management, policy distribution, DHCP, security. How can I successfully manage to keep intruders out, proprietary data in, malware out, and purchased software in if I don't have control over the machines that are accessing my network?"

“Personally selected devices are increasing the security complexity for the IT department which will increase cost and vulnerability”.

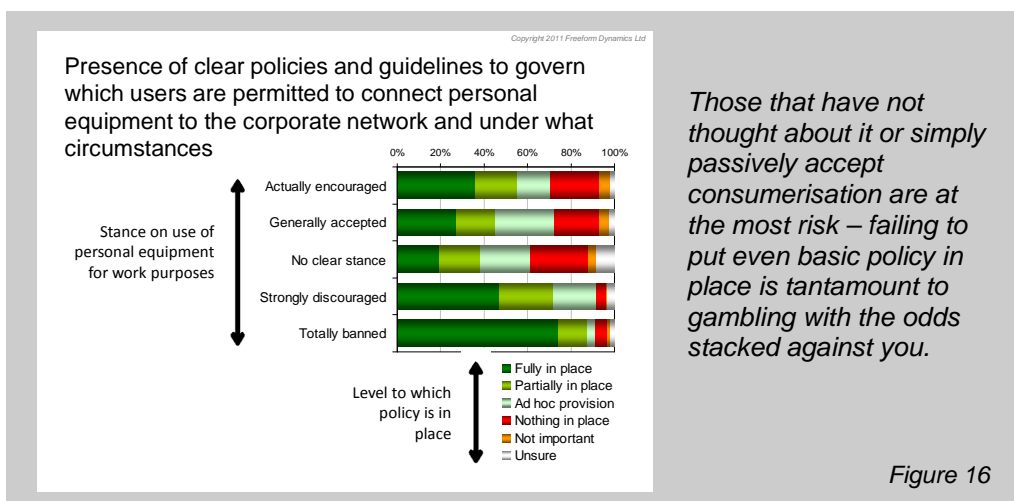
This last comment touches on the issue of cost in relation to security specifically, but we can see from the above chart that cost and overhead on IT support in general are called out as issues by many respondents. So does this mean organisations have the choice of hiring more IT staff, diverting IT resources from core activities, or living with the increased risk? Well, that depends on how the problem is approached from a policy and process perspective.

Relevant policy and process

Challenges and risks only become real issues if you don't deal with them appropriately. Fortunately, when it comes to consumerisation, there are measures that can be put into place to help with this. A good starting point is policy and process to deal with what's permitted and what's not, along with rules and guidelines for ensuring that personal equipment and services are used as safely, securely and cost effectively as possible (from a business perspective). Right now, some organisations have paid attention to this to varying degrees, but others have not (Figure 15).



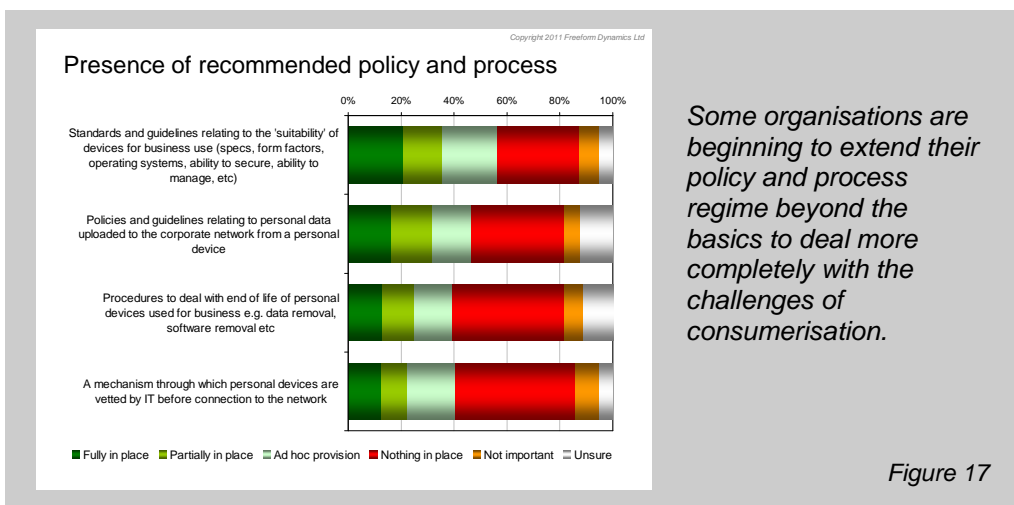
Looking at the variation, we might expect those that have embraced consumerisation to be in a better position than others – after all, given everything we have discussed, it might seem a little reckless to just encourage employee freedom without laying out some basic ground rules and putting in place some basic measures. However, this is often not the case, as we can see if we take the first and most fundamental of the policies from the above list as an example (Figure 16).



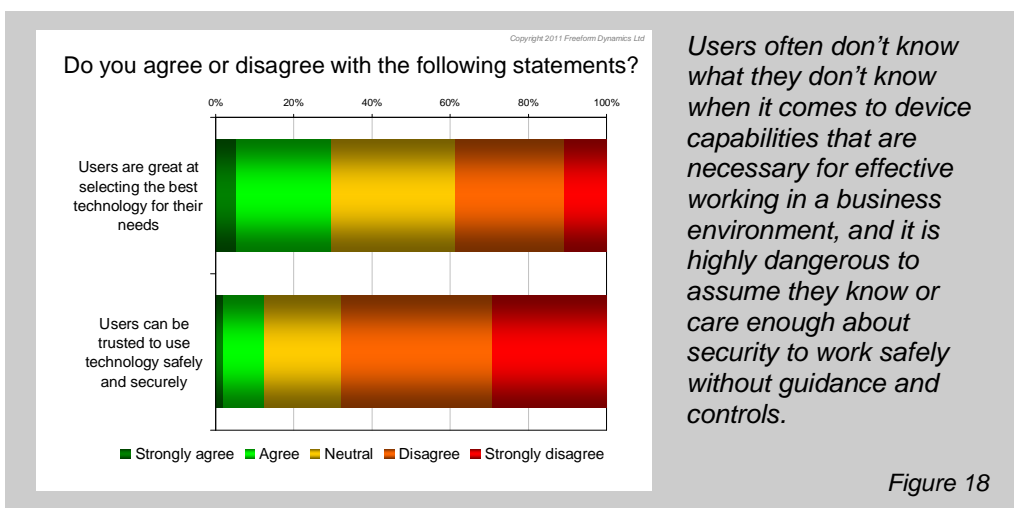
Apart from highlighting that quite a few organisations seem to be granting employees freedom and flexibility, then simply hoping for the best rather than proactively managing the way in which personal devices are used, the shape of the chart (as we look from top to bottom) is also quite revealing.

This shape is consistent across all policy and process areas (not just the one we are showing in Figure 16), which tells us that those with more of a more conservative or wary stance are ironically likely to be in a much better position than more liberal or enthusiastic organisations to cope with the consumerisation trend safely and efficiently. Having said this, we can see from the first bar at the top of the chart that those actually encouraging consumerisation are more likely than some to have put necessary policy in place. The entities running the real risk (second and third bars) are those with no clear stance (17% of the survey sample, as we saw earlier from Figure 4), and the sizeable group that simply passively accepts the consumerisation trend (28% of our sample). There is a clear call to action here for some organisations.

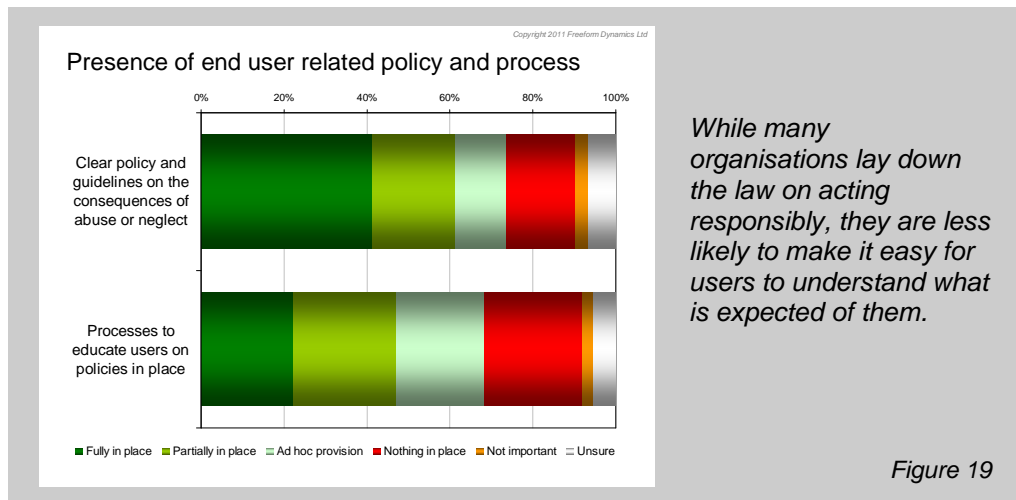
Moving beyond what we might consider essential, there are a number of other areas in which clear policy and/or process are recommended to manage cost and risk. These tend to be less well covered across the board (Figure 17)



When putting in place an appropriate policy and process regime, it is important to pay attention to what is often the weakest link in the chain – i.e. the user (Figure 18)



However, despite an appreciation that user judgement cannot always be relied on, many organisations simply lay down the law without providing associated guidance (Figure 19).



Looking across these last few charts, we can sum things up by saying that quite a few organisations have policy in place - often written into employment contracts - that deals with the expectation for employees to act responsibly, but in the context of consumerisation it's not very clear on what that actually translates to.

Couple this with a frequent weakness in communicating to users the policies and processes that are in place, along with generally what's expected of them when considering the use of personal solutions, and there are a lot of accidents waiting to happen out there.

Impact on IT infrastructure and operations

Unless you are working in a very rigorous environment in which senior managers are as bound as anyone else to conform with any ban on the use of personal equipment and services, it's probably safe to assume that consumerisation is something that will need to be dealt with sooner rather than later from an IT infrastructure and operations perspective.

If you are in any doubt about this, just check around the organisation. The chances are you will find examples of at least one or two senior or politically strong (i.e. highly paid) individuals either flouting the rules or having been granted an exception to connect up their favourite device. Exceptions have a habit of setting precedents, especially when human nature says that people will show off their gadgets to others, and before you know it, you have a general trend.

Apart from the policies and processes we have already discussed, there are a number of ways in which IT professionals can take steps to deal with consumerisation more effectively. While many participants in our study still had a mind-set of resistance, quite a few others were more accepting. These provided suggestions on the kinds of requirements and measures that may be relevant for those wishing to construct a consumerisation-ready IT environment. There is no room to present the high volume of feedback we received, but the following suggestions are based on the main points that came through particularly strongly:

1. Pay attention to security and access

Consumerisation puts greater demands on your access infrastructure from a control and security perspective. Whether it's personal equipment being hooked up over the office LAN/WLAN, or coming in over an internet connection, your access infrastructure ideally needs to be able to cope with unmanaged devices from a detection and policy enforcement perspective. The basic idea is to restrict what employees can reach and do depending on the nature and configuration of the equipment they are using and the way they are connecting.

If this kind of access control is not possible or is deemed overkill, an alternative is to put mechanisms in place to ensure that employees only use equipment and software that meets certain pre-requisites in terms of capability and configuration. If this means dropping your own

security software or management agents onto a device before use, then make sure users understand that. A good trick is to provide clear instructions to users for more popular devices or operating systems (there are not as many of these as you might imagine – the 80/20 principle applies), then have a mechanism in place for others to be dealt with individually.

2. Take advantage of desktop virtualisation techniques

Many problems can arise as a result of a single device being used for both personal and business activity. There are, however, ways to keep the two separate.

This can be achieved through the use of various desktop virtualisation techniques. The most familiar option here is 'session-based' virtualisation, i.e. the thin client model originally popularised by Citrix in the 90's. This allows a business-related subset of the desktop environment to be run on the server where it can be fully managed by IT. Advantages include breadth of device support as well as improved security and compliance, as the thin client element (e.g. the Citrix Receiver) is available for a wide range of device types.

Related techniques such as Virtual Desktop Infrastructure (VDI), Application Virtualisation and Desktop Partitioning (running multiple operating system instances on one machine) can also be useful for home PCs, notebooks and some tablets. The advantage of virtualising applications or setting up a local virtual machine for business use is that unlike thin client and VDI approaches, offline use is fully supported for disconnected working. It is beyond the scope of this report to go into more details on desktop virtualisation, but plenty of material is available in this area².

3. Aim for mobile device-agnosticism wherever possible

At the time of writing, there are four broad approaches to dealing with the proliferation of mobile device types. The first is the aforementioned session based virtualisation approach, which is particularly useful for making Windows based solutions available through thin clients. The second is to adopt a generic 'lowest common denominator' web-based approach – basically, make applications available through a browser interface that is tolerant of restricted screen real estate and different browser types.

The drawbacks with these first two approaches are a dependency on a stable and fast enough connection, and, quite frankly, often a sub-optimal experience for the user, which brings us to the third approach. This is to build native 'apps', i.e. optimised front end applications that are able to hook into back end application and services. These can deliver a good user experience, but as anyone who lived through the 'client server' revolution of the 90's will appreciate, the downside is that you can end with lots of client software. Worse case is one solution for each application/device/OS combination, all needing development, maintenance and support.

The fourth approach is based around the idea of frameworks that allow applications to be defined once, then deployed to run in a 'somewhat optimised' manner on multiple devices. These frameworks support a number of execution models (native, browser-based, etc), but we expect the industry to get behind HTML5, which supports both connected and disconnected modes of operation. This will drive things in that direction over time as a target for runtime.

The main point is to make applications as device-agnostic as possible. Most organisations are likely to use a combination of the above approaches to achieve this.

4. Review your monitoring and management capability

One of the most dangerous types of activity is that which you don't know about. We have touched on monitoring from a network access perspective, but when personal equipment is being used it helps to keep control if you can interrogate devices to find out what resides on them in terms of software and data; indeed it may even be necessary for compliance purposes.

Both proactive and reactive device management capabilities can then help with security, compliance and support. An important part of this is the ability to 'push' software, patches, policy settings and data to devices, and the capability to wipe or disable devices (or components/data on them) when they are lost or decommissioned from business use.

Monitoring the use of internet services may also be advantageous if you want to go beyond putting usage policies in place. Whether you take steps to block access to certain services or audit activity on them (again this might be necessary for compliance purposes) will depend on your environment and what's allowed in terms of local privacy legislation.

This list, and the policies and processes discussed earlier, by no means represent an exhaustive treatment of this fast moving area, but what we have outlined should at least form a reasonable baseline of ideas and considerations.

Conclusion

The genie is out of the bottle, and consumerisation is here to stay. Regardless of the fact that business benefits are often difficult to pin down, the powerful force of human nature is already in play. Many employees want the freedom to use their own devices and services for work, and often feel quite strongly about it. Given that this applies to senior decision-makers as well as the broader workforce, it's going to be less a case of 'whether' you accept consumerisation, and more one of 'to what extent' and 'on what terms' for most organisations.

But the business benefit is likely to shape up better over time, along with a lessening of the risks and overheads. The swings and roundabouts of consumerisation with regard to productivity are currently a reflection of businesses being caught up in the consumer-oriented battles between major players such as Apple, Google, RIM and Microsoft. These are all about land-grab, territory protection, revenue lock-in, and encouraging a continuous turnover of devices, services, apps and accessories. Things like openness, interoperability, future-proofing, security, privacy and manageability that matter most to businesses don't figure that much in the games being played.

As time goes on we expect at least some providers of consumer equipment and internet services to become more business-friendly; indeed this is already starting to happen. Meanwhile, it is important that businesses, and IT departments in particular, take steps to meet both employees and suppliers half way.

Drawing lines in the sand by putting in place unambiguous policy and process so users understand what is and isn't acceptable is an important part of this, as is revisiting the aspects of IT infrastructure and operations we have outlined. This will not only allow costs and risks to be better managed, but will also, hopefully, remove some of the frustrations experienced by employees around access and interoperability, turning improved productivity from an ill-defined justification for user freedom into a tangible business reality. The potential business value is there in theory, especially for those with a highly mobile workforce, provided an effective environment is created.

And unlocking the value in a more tangible way is important because when you net everything out, there is no getting away from the fact that businesses will incur a range of incremental costs as a direct result of the consumerisation trend – i.e. it's going to cost money to manage it.

With this in mind, we hope that our discussion in this report will be of use to those working through the practicalities in this often emotive and politically charged area, and we would like to finish by thanking all of those who participated in our study. Your feedback and insights have been greatly appreciated.

References and further reading

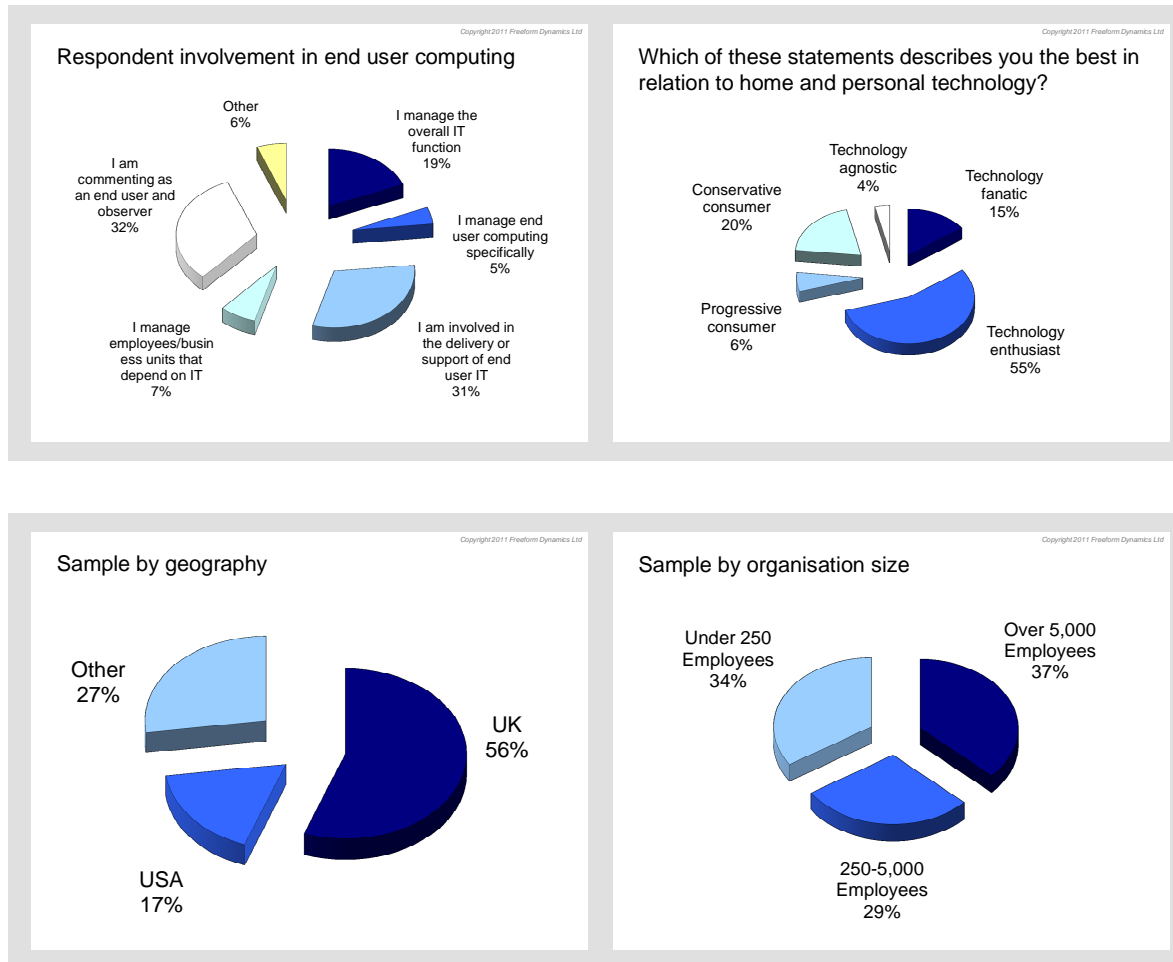
1. **End User Productivity Revisited** (Research Report)
Getting the most out of supporting technologies
<http://www.freeformdynamics.com/fullarticle.asp?aid=1367>
2. **Evolution of Desktop Service Delivery** (Smart Guide Mini-Book)
Aligning client computing and virtualisation technologies with business needs
<http://www.freeformdynamics.com/fullarticle.asp?aid=1287>

Both of these are available for free download from www.freeformdynamics.com.

Appendix A: Study Sample

Feedback was gathered via an online questionnaire published on *The Register* news and information site (www.theregister.com). The respondents, totalling 1,604, were IT and business professionals representing a good cross section of job functions and working in a range of different industry sectors.

The sample distribution was as follows:



A note on methodology

The web survey approach used in this study is subject to the 'self-selection' principle, which basically means that people with a greater knowledge of or interest in the topic are more likely to have responded.

Such self-selection does not undermine the analysis we have presented here as we have focused on the relative emphasis of different perceptions and types of activity. Indeed, in fast moving areas it is often useful to investigate the views and behaviour of those that are ahead of the curve. It does, however, mean that it would be inappropriate to regard any of the statistics we have used as a representation of the absolute level of need or activity across the business community as a whole.

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