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Employers get up close and personal

Companies used to fret when staff brought their devices to work but now they acknowledge its impact on innovation, writes Paul Taylor

panies and found its way into the consumer market only months, or even years, later. Times change and the rapid advances in semiconductors coupled with the bring your own device (BYOD) trend, cloud computing and mobility have turned old models on their heads. This has opened the door to the so-called "consumerisation" of corporate IT, in which the technologies used in everyday life have been adopted by businesses.

"There was a time when the devices with. we were given at work were much more advanced and user-friendly than the clunky, slow devices we used at home," says Thomas Davies, Google Enterprise's European director. "That

hirty years ago, most innova- technology, where falling costs and tion in IT happened in com- the proliferation of affordable laptops, tablets and mobile phones allow users to experience computing more powerful than the ships we sent into space in the 1960s."

Mr Davies adds: "The consumerisation of IT is an unstoppable force sweeping through businesses of all sizes and industries, driving innovation as well as cost savings. Workers don't want to be captives of their IT department. They want to work the way they live and use the devices they are familiar and comfortable

Many of the tablets and smartphones that are bought as gifts this holiday season are likely to end up doing double duty as workplace tools. Underlining this, a report published



Double duty: some of the devices being bought as holiday season gifts will be used at work and home Illustrations: Oivind Hovland

UK-based research firm, forecasts that the number of employee-owned smartphones and tablets used in the enterprise will exceed 1bn by 2018. This represents almost 35 per cent of the total installed base of consumer owned tablets and smartphones.

Traditionally, corporate IT departtime is long gone thanks to consumer last week by Juniper Research, a ments often frowned on the use of before the credit crunch forced a big

blind eye to "shadow IT" – personal WiFi hotspots, external hard drives and other paraphernalia set up inside corporate firewalls by frustrated but technology-savvy workers.

That was the case at General Motors, the Detroit-based carmaker,

personal devices at work, but turned a restructuring. "One of the challenges we had was that there was a lot of doing IT outside of IT - or shadow IT," says Randy Mott, who became GM's chief information officer in 2012. "Our approach has been to bring that back into IT," he says. "We are

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New categories of gadget are making the 'internet of things' a reality Page 4

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The Connected Business

Workers cannot be left to their own devices

Bring it yourself Letting employees use their personal gadgets at work can cause problems but they are surmountable, writes *Jane Bird*

spreading fast, be it mobile phone, tablet, laptop or other electronic gadget.

For organisations, BYOD can save money, improve productivity and enhance staff loyalty. But there are sometimes hidden costs, and the practice can compromise security. Here is how to reap benefits while minimising risk

• **Positives** Letting people use their own devices saves money by avoiding the need to buy hardware. It can also reduce software costs, because employees can use free apps such as Dropbox for business tasks.

Nor need you invest in expensive video conferencing facilities as several free services are available on mobile devices

This has clear benefits for large global organisations, says Donald McLaughlin, director of UK and Ireland collaboration sales at Cisco. "But

he trend to bring your own logical barriers to entry for small and device (BYOD) to work is medium-sized companies, meaning medium-sized companies, meaning they can now punch above their weight in the tech stakes," he says. BYOD has further benefits for home

workers or employees on the move, helping them stay in touch with colleagues and access corporate data.

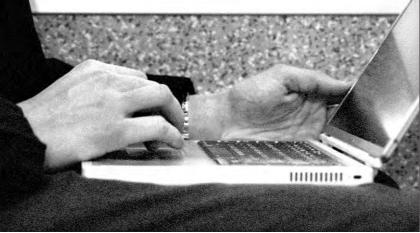
Training costs come down because people are already familiar with their devices. If they need help, they can often get it from free self-service support communities online, lessening the load on IT helpdesks.

BYOD is good for morale. Empowering people to manage their own work practices strengthens the respect they have for their employer, Mr McLaughlin says

'Underlying a BYOD policy is the fact that the employees are in control.

This is particularly appealing to younger employees who have grown up with mobile technology and expect to be working with the latest generation of products. For them, the flexi-





it also significantly lowers the technobility of being able to bring your own Morale booster: younger employees like the flexibility of BYOD

tant than the size of their salary, says Mr McLaughlin.

"As devices become more and more integral to our daily lives, this desire for flexibility is only set to increase."

• Negatives One of the main challenges is managing the growing list of hardware and operating systems, says Hardeep Singh Garewal, European president of ITC Infotech, the IT services company.

"It is no wonder that IT managers are feeling overwhelmed by the need to provide business applications across operating systems such as Windows, iOS, BlackBerry RIM and Android," he says.

There are also increased security risks. In addition to leaving a laptop on a train or in a taxi in the course of business travel, employees might lose their devices socialising at the weekend or on holiday abroad.

This could compromise customer contacts, intellectual property and confidential internal documents, damaging the business and potentially breaching data protection legislation. In some cases BYOD actually costs money rather than saves it, says Stuart Lynn, chief information officer of Sage UK, a software company. Being responsible for more than 2,500 employees at the company, he says he has looked "long and hard" at BYOD. "But I have decided against a full implementation at this stage, because there are a number of hidden costs and challenges." These include the burden of additional devices on the

company's infrastructure. Network speed can suffer, Mr Lynn says, and ultimately companies may need to buy new network kit to manage the fact that people are using the network more and accessing it via WiFi rather than a wired connection. There is also the problem of who pays for what, for example, separating

personal calls and data access from work-related activity. This is seen as a problem for smaller enterprises and has a huge potential impact on com-panies with thousands of employees, Mr Lynn says.

• Management Mobile device management (MDM) software helps handle BYOD by controlling access to data and applications for a vast range of devices. It can enhance security by restricting what people can do on

device to work is often more impor- their devices. This enables them to be used for day-to-day activities, while creating additional barriers to performing more crucial tasks, says Darren Anstee, solutions architect team manager at Arbor Networks. "IT teams should also use security software to detect suspicious or malicious behaviour, such as unusual data transfers inside the organisation," he says. Another basic but essential defence is to encrypt data, says George Anderson, product marketing director at Webroot, the internet security company. "This is a simple process but it means that, even if data or a device get into the wrong hands, only those with the necessary deciphering encryption keys can access it.'

Some organisations are adopting a compromise to BYOD known as choose-your-own-device (CYOD). This allows employees to select from a specified range, reducing the support burden while providing some freedom and flexibility. Either way, user edu-

'If you bring your private life to work, you should accept some rules, but vou win out overall'

cation is vital, says Mr Anderson, as people often do not understand the risks, and prioritise convenience over security.

Malcolm Marshall, UK head of cyber security at KPMG, says staff should be encouraged to think of BYOD as a sort of "social contract". If they want to bring their laptops to work, they have to agree to use specified disk encryption and security settings when running their employer's app, he says.

"If you bring your private life to work, you should accept some rules, but you win out overall. Think of it as a mandatory health check by doctors and healthy food in the canteen.'

Ultimately, the success of BYOD hinges on whether managers and staff trust each other. Employers should not regard it as an excuse for employees to spend more time on Facebook, says Cisco's Mr McLaughlin.

"Instead, it should be seen as an opportunity to create and foster a mature, trusting relationship between the employer and employee.

Lines blur between work and pleasure

Managing mobiles

Staff need to follow sensible procedures out of the office, says



ates its own software, while popular appeal to sell the approaches to working practices and security.

maintaining consistent benefits of common secure access to work data.

When a company has a Many companies will find lot of young employees, it portal is invaluable will be pushing at an open the guardian of company door. The UK recruitment policy. Dedicated software company SThree, for example, has a workforce that is global, mobile and youthful. These characteristics persuaded Garry Lengthorn, IT services director, to wrap internal technology in a very secure encrypted service that appears on smart-

road. During working hours 80 per cent of its employees are with clients and away from its 58 offices around the globe, so mobile devices are essential for the Chicagoheadquartered consulting

AT Kearney's 3,200 staff

"Our view is that mobile spend a lot of time on the phones and tablets can be used as long as they access data through our mobile gateway but this service has not been extended to laptops because they pose a whole different set of challenges.' he says

Case study AT Kearney navigates policy and people issues

through an elaborate sign-on and verification procedure to guarantee security.

The ownership of all proprietary and client data is formally assigned to AT Kearney and staff grant the business the right to delete any information remotely if

While a business needs to

"We explained what we

terms of accessing data. We

could and could not do in

do not monitor texts and

other personal messages,

he says. Staff understand

business, passwords and

deleted. Obviously, this ability

Ultimately, Mr Laughhunn

to remove data remotely is

accepts that AT Kearney

that if they leave the

stolen

Michael Dempsey

Whether employees use their own phones, tablets and laptops or those supplied by the company, a good mobile device management (MDM) policy is a must.

MDM tends to revolve around security, which dogs every attempt to shift the focus on to other questions. It is true that a corporate environment can be exposed to malware if staff with personal devices do not follow sensible procedures outside office hours. But other issues need to be taken into account.

that For companies choose to buy their own equipment, the first question is which devices to go for.

The BlackBerry came to symbolise mobile access to email before many other digital devices existed. But the arrival in 2007 of Apple's iPhone and the widespread adoption of many flavours of smarthave knocked phone the business environment sideways.

organisations Some loyal, citing a remain software environsecure ment that allows companies partition business usage of and personal device, automatically the



Lockdown: security is vital to device management

block to a successful MDM policy. BlackBerry corporate software lets managers set access levels and decide what material is appropriate for web browsing.

Then comes the issue of paying for the devices. Negotiating one single contract for the smartphone usage of hundreds of staff can mean significant savings.

When Nigel Carpenter, chief information officer of the Canadian Diabetes Association, decided to issue BlackBerry smartphones for remote data access by staff, he tied this to "a very attractive corporate plan"

Mr Carpenter did a deal on data usage tariffs which he says will save the notfor-profit organisation C\$200,000 over three years. Once the devices are in

Photodisc addressing a big stumbling use, the advantages for both employers and workers are virtually taken for

granted. Mobile devices are sold on the simple proposition that they will make life easier. Checking emails and accessing websites while on the go makes a huge difference to staff productivity. Few companies can afford to ignore the edge that a fully connected workforce offers

That in turn means sorting out how to accommodate a clutch of different devices, each of which oper-

Companies need to know the relevant law in different iurisdictions

from companies such as Centrix Software filters employee access through a gateway. An appropriate threshold can be set for each user, determining what individuals can open and how much they can

download. Whether an organisation builds a bespoke route or buys into an existing product, the portal marks the line where users should know they are entering the working world and businesses can feel secure about a mobile workforce.

While security is the most important external challenge, another that needs to be considered is data protection. Legislation is high on the agenda throughout the world and global companies need to know the relevant information law in different jurisdictions.

Finally, there are people questions to consider. For an MDM policy to work it has to be accepted by the device users and not just imposed from on high. IT planners have changed their approach radically over the past decade, and most are now very competent at explaining why a particular policy is needed. Smartphones represent the latest step in the democratisation of technology and

phones as an app. The logic was that young employees wanted to work via their iPhones, while Mr Lengthorn wanted to retain the security features he had valued when SThree was full of BlackBerry users.

As the BlackBerry population declined, an app from US software house Good Technology was installed to create a space in which his MDM policy could be deployed. Young staff can work in a familiar way, while SThree maintains full, but unobtrusive, control.

No employee stays forever, so as soon as a device is connected to a corporate network the employer has to deal with its owner or user's eventual departure. Can data be deleted remotely? How are pass-

words to be changed? How will this affect any personal material the employee might have on the device? Being clear about policies around this is the key foundation of an MDM policy in bring-your-own-device а

smart companies use that environment. group's work.

What the company has had to decide is the degree to which it will allow staff to use their own devices at work. With business consultants sworn to protect client confidential material at all costs, John Laughhunn, AT Kearney's chief technology officer, had to produce a mobile devices policy to keep a lot of parties happy.

The group issues staff with three varieties of its own approved Lenovo hardware. Chosen for reliability and a global repair and replacement service offered by the PC maker, these provide a heavy desktop-suitable laptop, a standard laptop or a lightweight notebook

"If one of our consultants travels from London to Hong Kong and has a problem with a machine we can swap it for another one in the office or Lenovo can fix it,' Mr Laughhunn explains.

So far so mobile, but what about the devices that belong to staff?

Mr Laughhunn has built an online portal behind which AT Kearney offers a digital haven for the smartphones and tablets that are owned by staff but which are also used for work. He has slammed the door shut or any employee-owned laptops.

Most software vendors necessary stipulate that business-wide remove data if an employee licences apply only when the software is running on a leaves, this power can create device that is owned by the unease. Mr Laughhunn licensee, says Mr Laughhunn. concedes that some staff So allowing personal asked whether the company laptops into the group's IT would be able to monitor world could create their own calls and inadvertent breaches of the messages. This prompted an licensing regime as programs exercise in clear spilled on to unlicensed communication

hardware. Then there is security. "Our clients trust us with so much information," says Mr Laughhunn, "and some require asset tracking." So AT Kearney must be able to identify exactly where any device hosting client data is. company information will be Smartphones can register their location but in this context the personal laptop critical if a device is lost or begins to look like a liability

By contrast, the internal regime for using smaller mobile devices lets Mr Laughhunn

T

sleep at

night. AT

Kearney

can use

staff

their

smart-

phone

via the

must

pass

to log on

portal but

relies on its own people. "Technology can limit routine problems and protect from external threats but the rest comes down to every employee being responsible and sensible.

Michael Dempsey

John Laughhunn: 'Our clients trust us with so much information'

Employers get up close and personal

Continued from Page 1

[doing this] not just from the standpoint of governance but also because it provides us with the opportunity not just to do it more cost effectively but to do it better and to make sure we do it more consistently."

In the past many IT professionals looked askance at the proliferation of laptops, smartphones, tablets and other consumer devices many of them Apple 'i' devices - that have found their way into offices as part of the BYOD trend.

They used to view such equipment – particularly that linked to corporate networks, with or without company approval – as with BYOD is to develop

support nightmare. Finance "BYOD schemes do carry departments, often mistakenly, saw an opportunity to save money.

BYOD officially will make Fifty-seven per cent of the enterprise safe," says employees engage in some David Emm, a senior secuform of BYOD, according to rity researcher at Kaspera recent study by Ovum, a sky Lab, the Russian antivi-UK-based market research rus software company. "Employees will probably firm, commissioned by the data services company Logistill bring their own devices

calis UK and published late to work and, even if they last year. Significantly, 18 can't be used to access a per cent of respondents said corporate [virtual private their employer's IT departnetwork], they could be ments did not know they used to photograph documents or other items that using personal devices, while 28 per cent should not be known pubsaid their IT departments licly, or record meetings."

ignored it. Security experts argue that the best way to manage the risks associated a security threat and a a comprehensive policy. staff the security precau-

were

tions to take if they are inherent risks but this using any device, including doesn't mean that avoiding their own, to access corporate data, for example password-protecting the device. "Communication is key," says Mr Emm. Google's Mr Davies

agrees. "A BYOD approach can make sense for smartphones and tablets, provided the user is willing to let their employer apply the appropriate corporate policies to the device, for reasons of security, compatibility and cost efficiency.

"It's also worth pointing out that if businesses He adds that organisaencourage staff to use webtions need to ensure that based services to store, security is seen as everyaccess and share informaone's responsibility. They tion, the security concerns of BYOD are curtailed. If should communicate to all everything is stored in the

cloud instead of on the device, and the device is simply a window to the web, there is no risk of data loss if mislaid or stolen. Any cached data or credentials can be erased remotely and with ease.

Importantly, IT experts say consumerisation is not just confined to hardware or BYOD, but more about a broader philosophy. "It is about the whole user experience," says Tod Pike, senior vice-president of Samsung's enterprise business division. "Employees want to work with, and interact with technology at work in the same way they do at

home.' Ellis, executive Steve vice-president and group head of the Wells Fargo

wholesale services group, agrees. "It's not just about technology, it is about helping our customers," he says; "we spend a lot of time on the people side." His IT team has helped pioneer what the US bank-

Percentage of employees taking devices to work

design" - an app development approach designed to ensure that an app looks good and works well across a range of different devices and operating systems, including the tablets that Wells Fargo employees use internally

employees who take personal devices to work typically prefer to use consumer apps such as Gmail, Skype and Dropbox, rather than their heavyweight corporate counterparts. "Employees like the simplicity and elegance of consumer apps," says Aaron Levie, chief executive of Box, the cloud-base file services group.

A study published last month by Mobiquity, a mobile app developer, found that up to 60 per cent of the 1,000 employees it surveyed at big US companies abandoned apps developed inhouse because of their poor user interfaces. A quarter of respondents said their productivity declined when apps that run on them.

Research suggests that using corporate apps. Conversely, recruitment specialists sav younger employees will often avoid employers that are too strict about BYOD and consumerisation.

Perhaps most importantly, company IT leaders who have adopted a progressive approach towards consumerisation say the single biggest advantage may be its impact on inno-

vation. Consumer technology moves much faster than traditional corporate IT and that means companies quickly benefit from the accelerated product refresh cycles associated with consumer devices such as tablets, smartphones and the

ing group calls "responsive 57%

The Connected Business

CIOs face standoff as digital rivals ride into town

Management Chief information officers may need to reinvent themselves with demand for CDOs rising sharply, reports Maija Palmer

he corporate IT world these days reads a bit like the plot of the classic children's film Toy Story: a key moment comes as Woody, the cowboy doll, grows anxious about losing his status when his owner, Andy, gets a new and exciting Buzz Lightyear action figure for his birthday.

In the business IT version, the part of Woody is played by the chief information officer, while the shiny new addition to the corporate toy box is the chief digital officer.

It is a role that has very recently become popular with companies.

"There are probably about 500 people in the world with that title at the moment," says Dave Aron, fellow at US technology advisers Gartner. "IT strategy, the sort of thing a CIO would have done, would be about how to support the company's business strategy with technology. A digital strategy is almost the opposite: it is about how to change the business to take advantage of new digital opportunities. It needs different skills.

The chief digital officer might look at what the company should be doing on social media, or whether it should adopt a new delivery model or electronic payments system.

Tim Cook, who co-runs the information officers practice at Russell Reynolds, the executive search company, says two years ago only a handful of companies, mainly in the US, had CDOs. Since 2012 there has been a growing demand for people to fill the role, not just from Silicon Valley-style technology-based compa-nies but from "old economy" companies such as mining businesses and manufacturers, too.

According to Gartner, 6-7 per cent of companies have a CDO and that percentage is expected to triple in the next year.

Should CIOs be worried by this trend? Possibly, says George Westerman, research scientist at MIT Sloan's Center for Digital Business. "There is an awful lot of angst in the CIO community, as they feel they could become subordinate to the CDO role," he says

Mr Aron agrees. "It is obviously a worry that the CIO role could atrophy," he says.



It is possible, Mr Cook says, that the chief digital officer could simply swallow up the role of CIO. There are already a few high-profile examples, such as Genevieve Shore at Pearson, owner of the Financial Times, who started off as director of digital

strategy at the Penguin publishing business but has since become CIO as well as digital strategy officer of the parent company.

Similarly, Paul Cheesbrough went from controller of digital media at the BBC to his present role as chief technology officer at News Corp. Or it could be that the CIO role is made much less interesting, with the CIO focusing on keeping legacy IT systems running while the CDO gets to do the big-picture planning. "Organisations that don't get it right

'It is obviously a worry that the role could atrophy' **Dave Aron, Gartner fellow** can get into a situation where the CIO gets to do all the boring stuff and the CDO gets the fun side," says Mr Westerman at MIT Sloan.

Not everyone believes CIOs will slink off quietly into the sunset. In a spirited defence of the role in Computerworld magazine last month, Thornton May, executive director of the IT Leadership Academy at Florida State College, says: "Why do so many people think the CIO is going to disappear just when the party starts to get interesting? The vast majority of CIOs are amazing. They are wicked smart and scary funny... It is ludicrous to believe that by importing a digital shaman (a.k.a. a chief digital officer), an enterprise will be able to realise the full fruits of the technology buffet set before us.'

One possible outcome - and potentially the one that is best for companies - is some kind of equal collaboration between the two roles. Mr Westerman says a strong CIO is ideally needed to balance the CDO and help work out how new digital initiatives can be carried out safely and efficiently.

A joint research report by MIT Sloan Management Review and Capgemini found that companies that embraced digital technologies quickly tended to have higher sales than their peers. However, those that applied more discipline to their digital spending tended to be more profitable.

'The CIO can help the digital people develop the right instincts on spending," Mr Westerman says. Just as Woody and Buzz end up friends at the end of the first *Toy Story* film, organisations such as Starbucks have managed to forge strong partnerships between the CIO and CDO role.

Mr Cook warns that it will not be an easy few years for CIOs. "CIOs need to make sure they are understanding more of the business context. The CIO needs to become the chief insight officer - if they are not providing insight for the business, they become just a utility," says Mr Cook

Mr Aron expresses a similar viewpoint. "For the CIOs who are at the top of their game this is an exciting opportunity," he says. "For those that are struggling this is a worry.'

Employees



Battle lines drawn for control of

sign up with the company store

Enterprise apps

An in-house app market means greater control of BYOD devices, finds Jessica Twentyman

By 2017, one in four organisations will have deployed an enterprise app store, where employees can download company-sanctioned apps to their mobile devices.

That forecast comes from IT market research company Gartner, where analysts see a range of benefits for companies.

"Enterprise app stores promise greater control over the apps used by employees, greater control over software expenditure and greater negotiating leverage with apps vendors," says Gartner analyst Ian Finley.

Some companies have already made a start. At Essilor International, the big French manufacturer of ophthalmic lenses, the domestic sales force has been armed with iPads to 'They start with one take to customer meetings. The apps they need to make Or two apps, but a sale are downloaded from the company's Essi Store, an enterprise app store business start to built with technology from Airwatch, a mobile device management specialist.

The tools available to them there include an electronic catalogue of all the company's lenses, animated presentations that help them market specific kinds of lenses to customers and an internally developed customer relationship management application, Teranga. The latter gives them instant access to details of leads, existing customer accounts and sample contracts, explains Mathieu Ngo, IT project manager at Essilor International.

At the back end, he explains, IT administrative failure. staff can "follow the

the availability of new apps and updates and push the to an employee's apps iPad". The team is working on a project to push apps to Windows 8 tablets and plans new sales force apps for 2014, he says.

Users tend to be comfortable with this kind of set-up, because it mirrors their experience of downloading apps from consumerfocused app stores such as Google Play and Apple's App Store, says Alex Achucarro, head of mobile at Avanade UK, a business technology services company formed as a joint venture between Microsoft and

Accenture. When it comes to IT professionals, he adds, "you're pushing at an open door.' This is "because the widespread introduction of BYOD [bring your own device] policies in organisations has got managers worried about the potential risks and administrative burden associated with making sure that employees are using approved applications, securely, on a vast array of different devices".

other parts of the demand their own'

If enterprise app stores are to compete for the hearts and minds of mobileequipped employees, they need to offer employees the same kind of choice, flexibility and user experience as their consumer counterparts, says Mr Finley at Gartner.

An enterprise app store can help IT departments achieve greater control only if it is widely adopted by employees, he points out. A limited choice of applications will doom the effort to

Eyes down: apps are catching on fast at lensmaker Essilor

it, there is no reason for holiday booking, time sheet user to participate," he submission and expenses apps, as well as an app for says. "They should be able to research a catalogue tracking the balance of of options and make selectheir canteen cash card. tions based on their own "And we are still in the early stages of revolutionispreferences.' A good enterprise app ing the way users interact

store, for example, will enable users to base their choices on feedback from Mr Rai. their colleagues and to provide their own feedback.

At broadcasting company

BSkyB a concerted effort is

under way to increase the

choice of apps available to

employees on the in-house

enterprise app store, My

This store, based on tech-

nology from mobile device

management specialist

MobileIron, was imple-

mented 12 months ago for the use of two groups of BSkyB employees. Sales advisers can download an app that enables them to show the range of programme choices available to potential customers. Engineers, meanwhile, can use apps to track and manage jobs and to place orders.

Apps

But, says Amardeep Rai, solutions architect at BSkyB, "we have seen a cross-department interest in in-house apps that wasn't expected".

Development teams at "Choice is a critical value BSkyB are working on a number of apps down- proposition for an enter- much wider range of apps it, then they're back to loaded, notify users about prise app store. Without for employees, including

the enterprise cloud market

File sharing Fierce competition to become leading service is expected, writes Paul Taylor

Cloud-based file sharing, storage and synchronisation services are at the forefront of the consumerisation trend. They enable they are familiar with.

should need different tools at work from those they use at home," says Ilya Fushman, head of product for business and mobile at Dropbox, best known of the cloud storage providers. "As knowledge workers

are becoming increasingly doing their jobs," he adds. Typically, companies

consumer services that are simple and elegant, or enterprise tools that are cumbersome and difficult to use but secure, says Aaron Levie, chief executive of

Box, a rival provider. "What we did was to balance these two options," he says, providing employees with easy to use tools that still satisfy enterprise security requirements. Box has about 20m users

use the platform to upload files, collaborate, and share content online. "What we're relying on is that we can

Contributors

themselves rushing to cob-Paul Taylor ble together a mobile app Jai Mic that interfaces with older US business technology and back-end technology - an telecoms correspondent Ραι expenses system, for exam-Jes ple," says Mr Achucarro. **Tim Bradshaw** Fre "But if the resulting app is San Francisco correspondent Ad clunky and unattractive and, as a result, no one uses Co Maija Palmer Andrew Baxter Production

Social media journalist

build enough traction, get needed to build a way to this without putting your help people keep their stuff enough of the industry, that we become the de facto separate, but still make platform in enterprise," Mr both sets available from everywhere.' Now he says, a personal

Services designed

for enterprise are

with a suite of new features

including the ability for IT

administrators to share

audit logs and remotely

delete a Dropbox folder

from a computers and

mobile device if the item is

lost or an employee leaves

IT staff can also transfer

"With your new Dropbox

when employees move on,"

says Mr Fushman. "Most

"That gives us a launchoff point into a bunch of Dropbox can be connected other services. It will be to a user's Dropbox for determined in the next year Business account on all their devices. Each Dropbox and a half to two years, because the market is comes with its own password, contacts, settings,

adopting this right now. We need to grow as fast as humanly possible right now, because the opportunity is right now."

Levie says.

Dropbox's Mr Fushman agrees. Along with other services that began by focusing on the consumer market and have ridden the consumerisation wave into the heart of many companies, Dropbox has been investing heavily in its business offerings this year, adding features that enable

sceptical on use of corporate IT departments to oversee and manage file consumer apps distribution and meet regulatory and other requirements. Dropbox for Business comes

Last month, Dropbox launched Dropbox for Business, which added more controls for IT departments, including the ability to create team spaces for sharing and syncing documents and managing accounts through Microsoft's Active Directory.

the company. Explaining the move, Mr Fushman says: "As we got all the files from a former more excited about building user into another team more features for Dropbox member's Dropbox. for Business, we kept running into the same problem: for Business account, you just as people often work at can know exactly what's home, they also want to happening to corporate have their personal files data, take action if something goes wrong, and eas-

with them at the office. "With only one Dropbox, ily continue your business users wound up putting their personal files in their Dropbox for Business. We importantly, you can do all

email james.aylott@ft.com or your usual FT representative. corporate data at risk.

Not surprisingly perhaps, rival file sharing services, such as Intralinks, Egnyte and Workshare that were designed from the outset for business use, still express

doubts. "Dropbox will find it difficult to shake off its reputation as a consumer storage application," says Anthony and files. "It's like having Foy, chief executive of your house keys and your company's key-card on one Workshare, a leading prokeychain and with you at all times," he says. vider of secure enterprise collaboration application.

In addition to single "B2B companies will not be shy in challenging them sign-on, two-step verification, sharing controls and on the security and control of its applications," he adds. the admin console, the new

> "There are so many cases every week where data has been leaked through a consumer storage or file sharing application," says Mr Foy, whose customers are mostly in regulated or semi-regulated sectors, such as law, finance and pharmaceuticals.

> Mimecast, which specialises in protecting data exchanged via email, agrees

> "Sharing enterprise data over consumer cloud file share apps is a significant security, compliance and reputational risk for enter-prises," says the UK-based company. "These services may be good for consumers, but they have not been designed to match the security needs of CIOs. You can't just bolt new 'features' on top of your consumer service and make them work for the enterprise.

The battle lines for control of the corporate market for file sharing services are drawn.

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mobile applications," says It is a pattern that Avanade's Mr Achucarro has observed at many organisations. "They start off with one or two apps, but other parts of the business start to demand their

with the company through

enterprise app store.

developers must focus on

delivering a compelling

experience and a certain

under pressure, they find

"The danger is that

amount of design flair.

square one.

own and the whole effort starts to balloon," he says. That can present problems for in-house software development teams, he says, because employees

in 180,000 companies who have high expectations of an app, whether it is downloaded from a consumer or In other words, software

employees to collaborate more effectively and boost productivity by using simple tools with interfaces "We don't think people

mobile, they're searching not only for devices but also services that 'just work' and let them focus on

have had to choose between

The Connected Business

Smart moves off the phone and on to your wrist

Gadgets Mundane devices are getting more intelligent, says Tim Bradshaw

or much of the developed world, 2013 marked the beginning of a new technological era. More than half the people in North America, the UK, Japan, South Korea and the Nordic countries now own a smartphone, market researchers have concluded. By next year, the rest of western Europe will join that mobile majority. The rise of the smartphone has

already created new winners and losers in the consumer electronics market. According to a November estimate by analysts at US investment bank Canaccord Genuity, Apple and Samsung

captured a "remarkable" 109 per cent of handset industry profits in the third quarter of 2013, a figure that makes sense only if the losses suffered by suppliers such as BlackBerry, Nokia and Taiwan's HTC are counted as "negative profits".

But it is not just their mobile rivals' earnings that Apple's iPhone and Samsung's Galaxy devices have gobbled up. Cameras, music and radio players, alarm clocks, navigation systems, even torches and compasses are now absorbed into a glowing screen.

Yet as smartphones increase in sophistication, they are also enabling new categories of gadget that harness their always-on connection, sensors and processing power. Wearable technology, "smart

home" devices such as lights and security systems, fitness trackers and even toys are all orbiting the smartphone, making connected devices one of 2013's hottest gadget trends.

As innovation in smartphones themselves starts to slow down, the platform that they are enabling is just getting started – even if analysts say mass-market adoption is still years away.

"The nice thing about the internet of things is it's not monolithic," says Rob Chandhok, president of Qualcomm's interactive platforms division, who predicts a "Cambrian explosion" of smart devices.

"I expect wearables to be on a very fast cadence as form factors fall out." Pebble, one of the

best-known independent makers of smartwatches, which raised \$10m on USbased crowdfunding platform Kickstarter last year, said in November that it had sold 190,000 watches in total – impressive for a start-up but hardly the sort of volume that would have Apple rushing its rumoured iWatch to market. As with most

Pebble mainly acts as a way to notify the wearer of incoming messages or other alerts from a Bluetooth-tethered smartphone. The September

launch of Samsung's Galaxy Gear marked a significant moment for the smartwatch market. Although the device has had mixed reviews. the endorsement of the form factor by the South Korean electronics group coupled with persistent rumours that Google, Microsoft and others are all working on similar

watches signalled that

smart watches may not be a niche for much longer. Even Casio's G-Shock now has a Bluetooth connection to receive message notifications - and has the benefit of actually looking like a watch. At the same time as the Galaxy Gear was unveiled, Qualcomm

launched the Toq, a smartwatch that uses its Mirasol screen to showcase the potential of the technology. Unlike the Gear, which needs

charging every day and does not keep its watch face lit all the time, the Toq's screen is always on and the battery lasts for several days. "Being able to do things at a

glance is very powerful," says Mr Chandhok. "I don't want to replicate the smartphone, but I do want to use it to raise things above the noise smartwatches, the level. Notification really only works



dropcom

Clockwise, from left: **Dropcam's Pro** camera, the Pebble smartwatch and Samsung's Galaxy Gear watch

when it's at a

glance.' But Robert Brunner, partner at the design agency Ammunition Group, which works on products such as Beats by Dr Dre headphones, says the appearance of these devices is just as important as what they do. We are in the fashion business," Mr Brunner said at a recent GigaOm conference in San Francisco. "The things that

> people carry and use define us almost as much as the

clothes we wear....Wearable technology needs to understand fashion.'

A similar challenge lies in the smart home market, where devices such as the internet fridge are solutions searching for a problem.

"The magic that we all love of being connected and the things that it does is going, going, gone," Mr Brunner says. "At some point, having running water in your house was amazing. It's no longer just about this magic, it's about what it's actually doing in our lives.

Dozens of new devices have emerged in recent months, from smart locks such as August and Lockitron, which open with a wave of a smartphone, to Philips' Hue lightbulbs, which can be set to match the colour of a photo from a

mobile app, as well as other features. Some are aimed at securityconscious folk: Dropcam's \$200 Pro camera constantly monitors its owner's home, alerting them to movement after they've left the house and letting them watch a live video feed. SmartThings sells kits that enable garage doors to be locked remotely or sends notifications to a phone when the kids get home from school. Large retailers such as Home Depot, Staples and Lowe's are devoting more and more floor space to such products, even though it is unclear how large the market for them is today.

"It takes time for people to embrace connectivity," says Tony Fadell, chief executive of Nest, whose "learning" thermostat and appenabled smoke alarm have attained an Apple-like cult following among early adopters of the "connected home'

"Most people are just jamming things together because that's the fastest thing to do. They don't rethink the experience from top to bottom...Just because it can be connected doesn't mean it should," he says.

Ben Wood, analyst at tech consultancy CCS Insight, sees great potential in smartwatches. but says the connected home is "just too hard for the man on the street right now". The plethora of singlepurpose "point solutions" is still a long way from the joined-up vision touted at trade shows, he says. Amanda Peyton, co-founder of Grand St, a marketplace for creative technology, admits that the "independent, creative, alternative electronics" market is worth just a fraction of the \$1tn consumer electronics market today. "But it is absolutely the fastest

growing of any sector," she says.

"Over the next few years, you will see this section of the market just growing enormously. It's going to cut into some of the existing consumer electronics market, but it's going to grow the whole thing overall.³

Wearables and other "smart" devices might not overtake the smartphone market any time soon but they promise to be a much livelier arena for innovation in the coming years.



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What'll be hot in 2014 Top products to watch out for next year

Paul Taylor predicts likely trends in the tech market



From chat to finance, soon your gadget will run your life

Revenues from games and utilities are soaring, reports Paul Solman

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Apps have become the core feature of every smartphone. Work or leisure, finance or fitness, apps are available for anything you could dream up - and probably some you could not. Mobile app stores recorded 64bn downloads last year, according to Gartner, the research group, with that figure expected to reach 102bn for 2013. Revenues are forecast to soar to \$26bn this year, from \$18bn in 2012.

And it is not just smartphones. The increasing popularity of tablets has opened up even more possibilities for app designers.

Practical tools such as Google Maps and social media such as Facebook are some of the most widely used apps, but games dominate the market. Top paidfor apps for devices that use Apple's iOS operating system include Backflip Madness, Plague, Duck Dynasty and Minecraft, while top free iOS games are QuizUp, MoviePop and the Sony PlayStation companion app. On Android, Minecraft and Rayman Jungle Run feature highly in the paidfor charts, while Jelly Splash and Candy Crush Saga are two of the most

downloaded free games. On Windows Phone, among the most popular paid-for apps are Candy Crush Saga Addict and Talking Cat, although utilities such as WhatsApp and Instagram dominate the

free charts. "About 70 to 80 per cent of revenues on Google Play and iTunes come from games," says Marchos Sanchez, vice-president of global communications at App Annie, a digital market analysis group.

"But it's also interesting that countries that are doing the best socioeconomically are driving the revenues, whereas the Bric countries [Brazil, Russia, India and China] are driving downloads," he adds. "Brazil, for example, has invested a lot in infrastructure so there has been a big increase in downloads from there.'

App Annie's most recent quarterly report revealed that Google Play downloads are about 25 per cent ahead of iOS App Store, with much of the growth coming from increases in Brazil and Argentina.



Blockbuster: the building and adventuring game Minecraft is among the most popular paid-for downloads

ian middle class is driving the country's shift from feature phones to smartphones," App Annie says. The country's yearly smartshipments are phone expected to rise more than 125 per cent between 2013 and 2017, according to figures from IDC, the international research group almost double the average of 65 per cent expected glo-

bally. Outside games, Google Play's top paid-for app is Swiftkey Keyboard, a predictive text system. But some of the most downloaded apps on both

'Messaging is very hot at the moment, but these apps offer much more than that'

Android and iOS are social messaging services such as WhatsApp and BBM, Black-Berry's proprietary service that was launched recently for non-BlackBerry devices. Messaging apps such as Line, WeChat and Kakao Talk, all of which began life in Asia, are also expanding

rapidly. "Messaging is very hot at the moment, but these apps offer more than that," says Mr Sanchez. "A lot of them should be seen as platforms that can even be used for games, so it will be interesting to see how the market

develops ' "I think of it as the ephemeral revolution," says Mr Sanchez. "It started with Twitter and 140 characters, and now everyone has become used to short communications. With Facebook, you have longstanding conversations, kind of time before they will run a permanent record. But your whole life.

"The growth of the Brazil- these new social apps are instant shares - you put them out there and they disappear.' Other apps that are part

of the trend include Snapchat, Instagram and Vine, all of which allow users to send pictures and snippets of video instantly. "I don't know whether we are seeing the beginning of something that will challenge Facebook, but what all these apps have in common is that they are momentary interactions,²

Mr Sanchez says. Another trend could be the crossover between consumer apps and businessbased ones, as people increasingly rely on their smartphones.

Enterprise apps (see article on Page 3) have developed significantly in the past few years, says Mark Mason, founder and chief executive of Mubaloo, a UKbased enterprise app group.

"We have seen the change from what you might call 'vanity apps' to what I call 'app 2.0', where organisations really understand how apps can bring together information from systems to feed to the end user," he says

"Examples include sales people using apps to access up to date information on tablets. Apps can bring together lots of information and a single app can track your day, which is also reflected to some extent in the consumer space."

Indeed, apps can get you up in the morning and get you to work on time. They can keep you entertained and informed on your commute. They can organise your workload and your day, tell you where and what to eat and plan your leisure time.

It could be only matter of