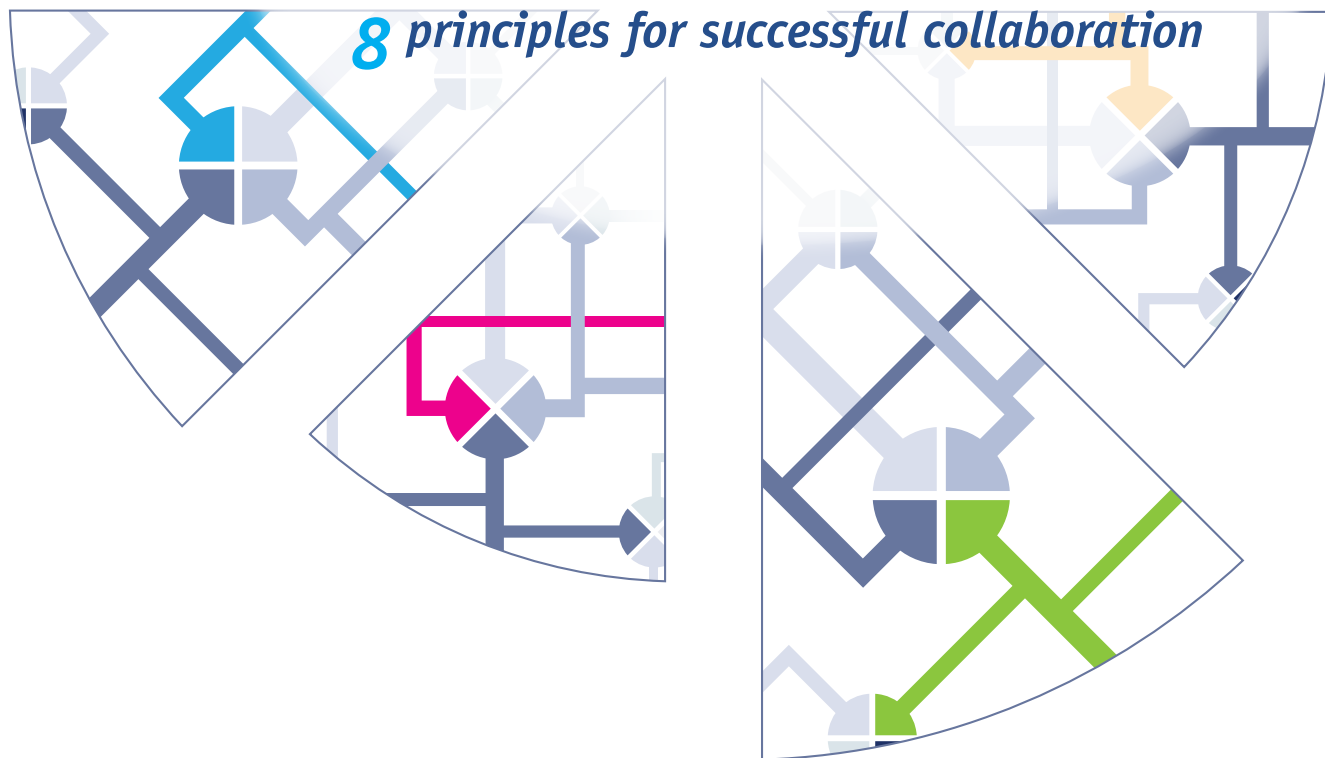


COLLABOR8

8 principles for successful collaboration



*A new report on the future of collaborative work
by Philip Ross*

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Executive Summary

What is Collaboration?

Collaboration can be defined as the process whereby people work together. Traditionally this also meant being together, at the same time and place. Now, with new technology, connectivity and the 'death of distance', collaboration is being redefined as the experience of people working together, sharing ideas, data and analysis to develop collective solutions. What has changed is that people no longer need to sit together in the same space to undertake collaborative work.

This report sets out to look at the rise of collaborative work. It will look at both synchronous and asynchronous working, and review the benefits being derived from early adopters of collaborative spaces. It looks at the drivers of change, from technology and work process, to demographics and sustainability, and defines a set of eight features or principles for the future of collaboration.

Inter and Intra Company Collaboration

There are two types of collaboration – 'intra' and 'inter' company. The most common area so far has been intra company collaboration where people that work for the same employer work together on projects, co-locating in the same facility or connecting across distance so that distributed teams and specialists can work together without travelling the globe.

Now, inter company collaboration will become paramount, where people from different companies need to connect and work together. Connecting people across different geographies, technology and security systems will create its challenges. But it is this area that will see dramatic growth as people increasingly demand collaboration with customers, suppliers and partners.

Emerging Technology

In response, a range of new technologies and solutions are on the horizon. From high definition video conferencing to unified communications and collaboration (UCC) software, a host of developments will accelerate the ability to collaborate

successfully. New standards such as XMPP will allow inter-company networks - buddy lists and presence to be shared and used seamlessly, so that distributed teams across many organisations can in effect become seamless, working and communicating together.

One of the key ingredients in collaborative space is the ability for people to use 'augmented technology' so that collaboration feels like an extension of the natural use of pen and paper. 'Haptics' – the use of touch – will have a profound impact on people's ability to use new collaboration tools as interaction and manipulation of data becomes more intuitive and natural.

In the future we predict the rise of 'smart surfaces' from interactive screens and displays to digital wallpaper and immersive space. These advanced technologies will be used alongside complementary technology such as high definition video conferencing, mobile technology and cloud based services. People will collaborate in highly capital intensive, technology rich rooms but also 'on the pause' as they connect from a variety of destinations from hotel room to the home.

Early Adopters

Companies such as BT, Cundall, Ernst & Young and O2 have already adopted new technology in specially conceived environments to achieve new work process and innovation. And while the impetus for today's generations in the workplace may be speed, travel and sustainability, the next generation still at school or college has been brought up with synchronous experiences learnt through social networking, instant messaging and real time presence. They have all been taught with interactive whiteboards in their classrooms, and use mobile technology as a natural extension of their personas. As they enter the workforce in the next 10 years, a natural migration to collaboration and collaborative work will take place.

“ What has changed is that people no longer need to sit together in the same space to undertake collaborative work. ”

Introduction

Collaboration Defined

According to Wikipedia, the world's encyclopedia, 'collaboration' is a recursive process where two or more people or organisations work together in an intersection of common goals - for example, an intellectual endeavor that is creative in nature - by sharing knowledge, learning and building consensus. So collaboration is a particular type of work activity, involving more than one person.

Knowledge workers need to work together to solve problems. It was Peter Drucker who coined the term 'knowledge work' in his famous 'Landmarks of Tomorrow' publication of 1959 where he defined a mental process rather than physical labour. Knowledge work is both cognitive and social – it requires people to work together but also necessitates individual concentrated time as well.

So collaboration is the process of people working together on knowledge work. It is a process that involves conversation and interaction, allowing people to externalise their own internal thoughts and experiences to make them accessible to others through speech, video, writing and graphic visualisation. These interactions can happen both physically and virtually, either sequentially or simultaneously.

Work Today

But for the majority, work today is predominantly about individual endeavour. In fact surveys of people's occupancy patterns and utilisation in a typical office show some startling results. On average, when you ask people how much time they think they spend at their desk they report 76%. But when an observation study is carried out, the reality is that only about 44% of time is spent at the desk. People no longer sit at their workstations all day. They are in and out of meetings. And they look for space to concentrate and collaborate. Ask almost any company and they report that there are never enough meeting rooms.

Much of today's workplace is still dedicated to individual work, with rows upon rows of identical desks ordered for certain tasks such as computer or telephone work. But a recent survey by Unwired found that all companies reported a lack of available spaces for teams and projects and a growing frustration with an inability to concentrate in open plan offices.

Mismatch in the Office

The wrong space is compounded with new pressures on travel. Once it was acceptable to jump on a plane to attend a meeting or team session. Now the combination of sustainability and cost cutting has resulted in the search for new ways to work across distance. All too often today these rely on an emailed document and a poor quality audio conference; very primitive ways to connect people to work together. Sharing a document or an idea is a challenge. And email 'ping pong' sees documents endlessly iterated as they move between recipients, elongating process and decision making. There is little knowledge of, or understanding of, the potential for new systems and spaces for collaboration in the knowledge economy.

“ The reality is that only about 44% of time is spent at the desk. ”

The Changing Nature of Work and the Workplace

For over one hundred and twenty years our workplace - the office - has been dominated by fixed work with people sitting at individual desks, supervised by people watching them work. Time and motion based on Taylorism was the predominant model. "Work system should be taught to all clerks and close watch kept until they have thoroughly learned it. To ascertain how well they are proceeding, suddenly ask for an eraser or a ruler and see how long it takes for them to locate it." So read the 1926 book *Office management: Principles and Practice* by William Henry Leffingwell.



Early offices were based on individual efficiency, with workers supervised based on the Taylorist principles of the time

And this fixed work was enabled by fixed technology. From the Remington Typewriter and Bell's telephone in the 1880s to IBM's PC in the 1980s, there has always been heavy equipment on desks that has tethered down the office worker. As well as heavy, personal desktop technology, paper and personal files have tied the worker to his or her desk. People store many linear meters of paper and filing each, at or near their desk. In many workplaces, between 15 and 17 % of floor space is given over to storage, and the paperless office has yet to materialise. Yet much is about to change and challenge not just the use of paper but the need to file and store it. 'Digital flow', new display technology, tablets and ebooks will all reduce the 'half life' of paper.

Allocating one person to one desk or office has been the predominant approach to organising work, clustering people by department in a building that represents the static corporate hierarchy. The office has reflected status and power, not role and function. But it has also represented stability and certainty, and for the company inflexibility and sloth. Change was difficult, expensive and slow.

While desks are usually empty, research shows¹ that you can never find a meeting room. Space for teams, projects, M&As, pitches or war rooms are needed but not available. The types of spaces that people will demand for the types of work undertaken in buildings are changing.

1 UNWIRED research report 2008

When people do find a room for a team session, the barriers to collaboration and connectivity are extreme. Complexity to get people onto a network, sharing resources such as a printer or projector are substantial in most workplaces today. And for non-employees with so-called 'alien devices' it can be difficult or impossible to connect and use peripherals such as printers.



The barriers to collaboration are often extreme, here a team trying to share network connectivity and peripherals

And most meeting rooms lack the basic ingredients for successful collaboration. A flip chart or white board is all too often the only provision for capturing creative thought. Meeting rooms today are 'vanilla' – bland solutions with table and chairs and basic audio visual equipment such as conference phone and projector. The approach is 'one-size-fits-all' with little regard to the real needs of people and projects.



Most meeting rooms today are bland or 'vanilla', providing unimaginative space for people to work with each other

A New Paradigm for Team Space

Research from Washington University has found that dedicated project rooms which allowed 'displayed knowledge' resulted in 'latent memory' – an experience that allowed participants in a meeting to remember the process that was undertaken and not just the results or agreed actions recorded. In another study, a leading technology company found that providing dedicated project rooms to software teams accelerated development time by a factor of 10.

The findings point to the trend to allocate rooms for particular projects, so that teams have dedicated space which can provide dramatic advantages to a team as well as a process. Whether for an acquisition, M&A, pitch or project, dedicated space can provide dramatic advantages to a team as well as a process. This approach requires a number of factors to be put in place, from management culture to new workstyles that enable mobility as well as enabling technologies that allow place independent working. It is the first stage on a journey towards 'activity based working'.

New Ways of Working

Most companies have started to experiment with flexible working. Many have introduced the idea of hot desking or desk sharing, with moderate ambition of occupancy efficiency to the extent, for example, that 5 people share say 4 desks. Sharing ratios are often the limit of current thinking, and represent a first step on the journey to a new workstyle.

The term 'hot desking' owes its origin to the Royal Navy that operates the principle of 'hot bunking' where sailors share a bed or bunk on a 24 hour basis – not at the same time of course. And so this approach needs to be questioned as the most appropriate response for knowledge workers in the collaborative economy. All too often they were attempts to save cost - there was little gain for the individual and the spaces created were often poor and unappealing. Now a new approach is evolving.

Space to Work

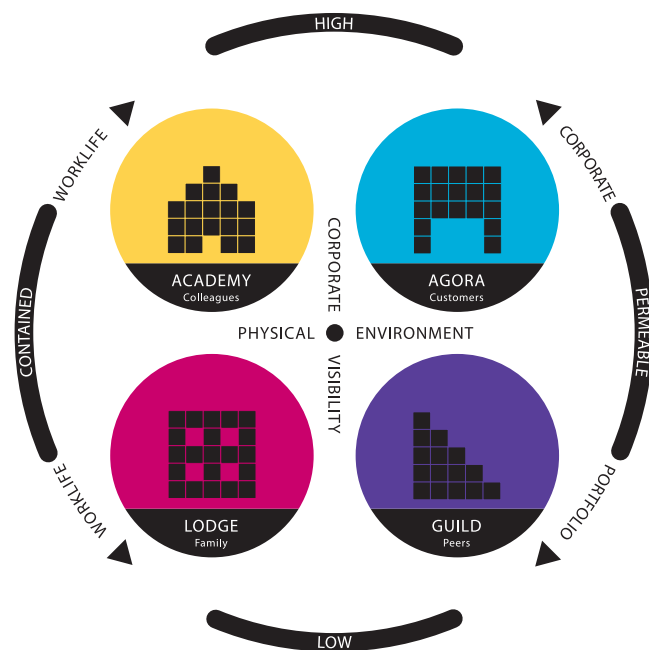
In my book, Space to Work (co-authored with Jeremy Myerson) four key trends were identified for the knowledge company, based on research with over 200 businesses worldwide. These are represented by the diagram and show the tensions at work, between permeable and contained work, and between high and low corporate visibility.

The corporate office becomes an Academy – a place for people that provides choice and empowerment, enabled by technology and an accepting leadership culture. This balances with the Agora – the increasing ability to be effective 'in the field', in front of customers or working from new, third spaces. It means that people have to come back to the corporate office on a less frequent basis and so challenges the need to give them a desk.

The other trends are about new space. Working near the home, in the community, was called Lodge to evoke the period in history when piece work from home, or community based working, commerce and trade were the norm.

A regrouping by people from the same profession was also recognised – the 21st Century Guild. Guild buildings were the first commercial buildings in the world, where people clustered by profession, skill or trade. Now we see a re-emergence of the Guild, as employment by the corporate entity is joined by freelance and independent careers – the portfolio workers that now form a major part of many organisations.

In the diagram below, people find their own balance or equilibrium, based on their profile. But what is clear is that the 'academy' corporate centre will contract, while work in the agora and lodge will increase. But the kinds of space provided by the academy will be different. When people do come into a building, they will do so to be with other people. They will want to interact and collaborate, and so much of the space will be different, providing places for people and not containers for desks and paper.



Space to Work² identified four key trends in the knowledge work economy

² Space to Work by Jeremy Myerson and Philip Ross, published by Laurence King

Third Space

As the Agora grows, space 'in between' the corporate office and home environment - referred to as third space - will grow in importance. People, enabled by mobile technology and new culture, and aware of the need to minimise travel, will increasingly want to work on the pause in third space, dropping in to find space to concentrate and collaborate as well as use specialist technology.

Already, a range of innovative ideas have emerged, from clubs and hubs to serviced offices and public buildings. One of the most interesting third spaces is The Hospital, a club for media executives that was set up and funded by Paul Allen (a founder of Microsoft). Members pay an annual subscription, and have use of a building in London's Covent Garden where they can not only work, meet and eat, but also screen a film, use a recording studio or make a television programme in a full, state-of-the-art studio.

At Regus' Berkeley Square centre, a club workspace has been created to allow people a drop in destination that is flexible, shared and informal. Private work pods are interspersed with soft seating and meeting spaces that people use as if they were in an airline lounge. More formal space can be booked, but for many of Regus' Platinum and Gold card holders, the lounge is exactly what is needed for 'work on the pause'. A professional space to drop into, connect and work.

As mobility increases and people are able to connect 'on the pause' using portable technology, the demand to collaborate across distance will only increase as people find new ways to work together without sitting in the same building.



As people work in new 'third space', for example here in Regus' Berkeley Square club, they will collaborate with colleagues virtually using software and other tools.



The Hospital is a club for media executives in London and provides new spaces for collaboration outside of traditional offices.

“ People, enabled by mobile technology and new culture, and aware of the need to minimise travel, will increasingly want to work on the pause in third space... ”

Activity Based Working (ABW)

As agile working becomes more widespread, companies will begin to adopt Activity Based Working (ABW) as the predominant model for work and the workplace. ABW has as its core premise the basic assumption that a work setting should not be a reflection of the corporate hierarchy or status of the individual, but should reflect the task at hand.

The office is no longer homogenised so that a 'one-size-fits-all' takes workspace to the lowest common denominator. Instead, it is recognised that during any individual's typical working day a number of tasks are performed or undertaken and these are varied and require different tools, approaches and facilities. ABW identifies these tasks and creates bespoke, focused and tailored specialist spaces by task, which varies in design, atmosphere and available resources. People move between different ABW settings during their typical working day.

One of the key tasks that ABW caters for is collaboration. Whether a high tech space with state-of-the-art technology, or a low tech, sparse environment, ABW provides a tapestry of inspiring space, where individuals are free to choose their setting based on the task at hand, their mood, and who they want to work with.

Case Studies of ABW

There have been a number of notable pioneers of Activity Based Working. One of the first was Interpolis, the insurance division of Rabobank, the Dutch bank. In the mid-1990s they took an initial 1500 people into activity based working, and the success of this project has been a model for others:

“ Activity Based Working has as its core premise the basic assumption that a work setting should not be a reflection of the corporate hierarchy or status of the individual, but should reflect the task at hand. ”

Macquarie Group, Sydney, Australia

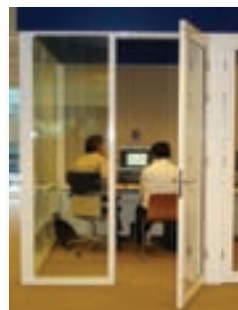
Macquarie Group's new building on Shelley Street in Sydney has adopted activity based working, with over 2500 people sharing a range of spaces that they choose based on a particular activity. The spaces are rich and varied, with a dynamic central street as well as a plaza area on each floor. Everyone carries a laptop and uses wireless technology to connect, so people can work from anywhere. Macquarie has reduced paper by 73% and one of the surprising findings from post-occupancy is that use of lifts (elevators) has reduced by 50% as people choose to walk up the central stairs between floors.



Activity Based Working in one of the Plaza spaces at Macquarie Bank in Sydney

Microsoft, Amsterdam, The Netherlands

Microsoft's new campus at Amsterdam's Schipol airport changes the rules. Nobody has a desk, and the workstyle is activity based working. A range of spaces have been created, from small private cocoons for concentrated work and for on screen working and review by one or two people, to open team tables and private, individual carrels. Everyone uses a laptop, and the space has no fixed phones at all, with Vodafone and Microsoft's Enterprise Voice solution providing converged telephony and messaging that is delivered to a person, not a desk. The workplace is almost paperless, with people printing on average only one page each per day.



Specialist spaces for two person working and team work at Microsoft in Amsterdam

Business Benefits and Drivers

These are the early signs that work is changing. Corporations have begun to adopt new ways of working for a variety of reasons, and report a number of clear cost-benefits and return on investment (ROI) cases:

customer satisfaction and responsiveness	More time 'client facing' is often a result of new work styles, where people need to be back in the office on a less frequent basis. New ways of working results in a more nimble organisation, with faster decision making and accelerated processes.
cost saving and operational efficiency (reduced churn costs)	Reduction of real estate leased by 30% has been achieved in new ways of working programmes. Churn costs have been reduced to near zero.
mobility and flexibility	Introducing the enablers for mobility within buildings means that people are also able to work effectively from other locations.
sustainability and carbon reduction	New ways of working results in less space, and so reduced emissions. With resource management software, space that has not been booked can be hibernated.
competitive advantage and differentiation	New ways of working can provide tangible differentiation and also advantage through lower costs and improved flexibility.
public relations	People in their tens of thousands have made visits to innovative workplaces.
recruitment and retention of staff	A more vibrant work environment has been shown to be a positive factor in attracting talent.
disaster recover and contingency planning	An approach to 'work anywhere' as part of business as usual, also allows a more flexible solution for continuity planning.

The Move from Individual Work to Teams and Groups

Back in 1971, some pioneering work by T Allen³ found that people only communicate within a 30 metre radius inside physical space. Further apart was equivalent to being in totally separate buildings. He studied behaviour of researchers in laboratories, and showed that people closest to each other communicated more. Other studies found that people began to interact when they moved around a physical space or were 'seen' in the office. An 'encounter' can then migrate into a conversation and collaboration experience.

Other studies have shown that knowledge workers spend between 20 and 35% of their time in interactions with colleagues⁴. Most of these encounters have tended to be unscheduled and occur

in hallways, doorways or the famous 'water cooler' moments that are part of folklore in Silicon Valley. These interactions can be intentional, but more often than not they are unintentional – the chance encounters that were seen by many to be essential ingredients for information exchange but also interactions that led to innovation through collaboration.

But these studies were carried out in an age before technology allowed alternatives to physical, co-located experiences. Now, with the adoption of new workstyles, distributed teams and the pressures on travel, it is no longer enough to rely on a water cooler...

³ Allen, T.J. (1971) Communications networks in R&D laboratories. R&D Management

⁴ Reder and Schwab, 1990; Perlow, 1999; Brill et al., 2001

The Changing Nature of Collaboration

A number of changes are underway that are driving a new vision for collaboration.

Information

Today we typically deal with single source information that is usually asynchronous. It is viewed and used 'off line', and typically it is 'flat' – what you see on screen can be output to paper. Tomorrow, people will use information in new ways; it will come from multiple sources that are typically synchronous, real time or 'live', streamed or delivered to new, always-on devices operating with multiple, simultaneous applications. 'Digital flow' will change the nature of the information presented as depth through urls, embedded multimedia and hover information means that what you see on screen can no longer be output to paper.

People

Today most collaboration takes place between people inside the organisation. Cisco estimates that 80% of collaboration is intra company. This will now change dramatically, with Cisco predicting that this figure will reverse to where 80% of collaboration is inter company as people increasingly need to connect dispersed teams.

Context

One of the most interesting changes will be context aware systems and software. Today you have to find information

through search engines and knowledge management software. Tomorrow, contextual systems will not only push the knowledge you need to you at the right time but connect the right people together.

Security

The approach today ensures that people have to remain inside the organisation's firewall. Tomorrow, we believe that security will be more inclusive, selective and fluid, providing the means for the inter company collaboration that will be essential for successful teams.

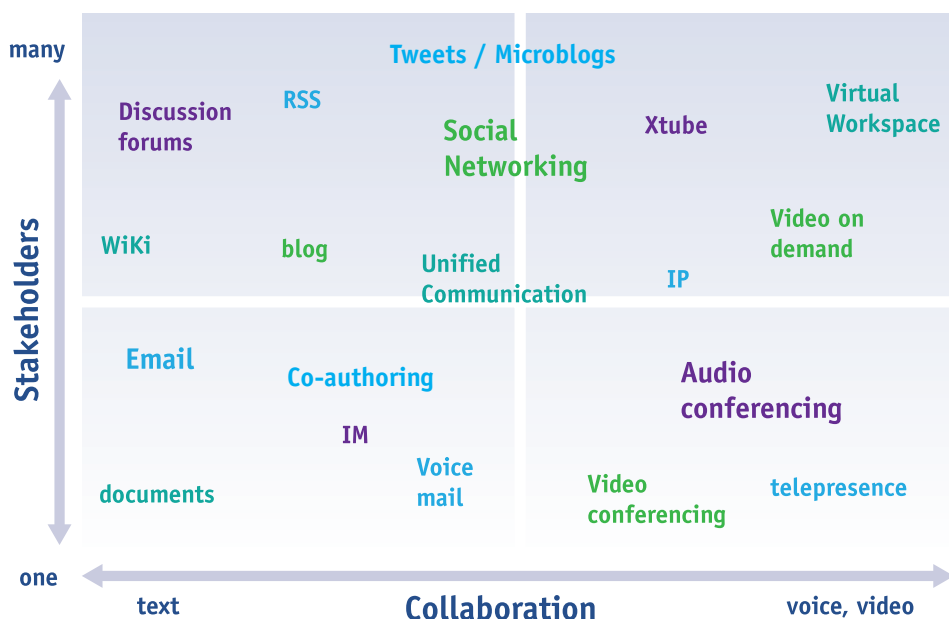
The Evolution of Collaboration

From communication (email) to sharing, then the net (blogs and wikis) and now aggregation (real time authoring) there is a growing complexity in the technologies used between people for collaboration. What was once a debate about sharing documents, has now become far more complicated, with a range of technologies that can be deployed to share both text, voice and video. At the moment they can be categorised by their complexity and the scale of the potential collaboration, from one person to many.

But knowing what tool to deploy for what purpose is not straight forward. A range of options presents a range of challenges, not least in the training and etiquette for a new way to connect and communicate.

Case Study : Boeing

At Boeing, for example, over 27,000 external suppliers collaborated with Boeing's development teams on the Dreamliner project. The company held over 1 million collaboration sessions in 12 months with this 'extended community' using tools such as WebEx and, as a result, have reduced time to market.



The Collaboration Heat Map, Source: Unwired and Cisco

Emerging Technology

What is clear is that there is a range of emerging technology that is set to change the landscape for how we work together both in the same place and across distance. These can all be seen to be transformational technologies, in that they have the potential to alter the nature of how, why and where we work.

Mobility

There are a number of facets to mobility. The key is the combination of a portable device and high speed connectivity. But the mobility roadmap becomes more overcast as cloud computing allows a new dimension to be realised. The delivery of software as a service (SaaS) from remote data centres is ideal for portable devices that have limitations in processing power, storage capacity and battery life. Processing that is done in the cloud leads to the concept of a thin client that can be used by anyone through a 'virtualised desktop environment'. Indeed the concept of 'virtualisation' will apply across fixed and mobile devices, as more of the software needed for work is hosted remotely.

With these tools, and data hosted remotely, a new paradigm will emerge – when people come into a space or building they will do so because they need or want to be there. They will no longer have to 'commute to a container for work' because it houses the corporate computing infrastructure.

Video Conferencing

Video conferencing peaked too early. The adopters of the first systems complained of judder – making participants look and sound robotic. Creating the call was fraught with challenges, and the equipment occupied large, engineered, specialist rooms.

Now much has changed. The rise of high definition video conferencing from the likes of Polycom, together with the high end fixed solutions such as Telepresence from Cisco and Halo from HP has resulted in a new era for video as the experience and quality of collaboration across distance becomes close to being in the same room at the same time.

Driven by travel savings, there has been a wide scale adoption of video conferencing as companies realise that they can connect to customers, the supply chain and colleagues across the globe and experience productive meetings and other sessions.



Cisco's telepresence solution creates a virtual meeting room, bringing people together across distance.

But the rise of video is not just about high end video conferencing. The penetration of lower quality 'web cams' into portable devices such as laptops and mobile phones as well as fixed PCs has led to a huge rise in the use of video for communication and collaboration. From systems such as Skype to corporate tools such as WebEx, people are now getting increasingly accustomed to seeing the person they are speaking to.

Cisco report that 60% of the IP packets on their network are now video, and they predict that by 2012 video will account for the majority of traffic on the public internet. This also represents the huge rise of video as a medium for communication. From the use of YouTube to video casts, people are increasingly familiar with its format and power.

Case Study : Tesco

Tesco, for example, now have an 80 – 90% utilisation of their Telepresence systems and have embraced WebEx collaborative software. They have found that they are saving 2 hours per WebEx user per week and travel costs have been cut by 45%.

“ A new paradigm will emerge – when people come into a space or building they will do so because they need or want to be there. ”

Intelligent Devices and Surfaces

One of the criticisms of new technology is that it forces people to change the way they work. Altering a process, even if it means improving it, has issues to do with acceptance and training. Technology 'laggards' often reject such changes.

But much of the current innovation can be categorised as 'augmented technology' – where people's habits and behaviours are only made better by enhancing what they do, not changing behaviours.

The growth of 'haptics' or touch technology has increased the awareness of the potential for change. The success of the iPhone has led to mass understanding of the power of haptics to manipulate data and manage an interface.



You can now display and interact with digital content using touch interactive tables like these developed by SMART.

People can understand and use haptics without training. It is intuitive and natural, and so provides a strong contrast to the keyboard. In fact the Qwerty keyboard, named after the row of letters in the top left hand corner, was designed to actually slow down touch typists to prevent metal bars colliding. Not a great basis for data entry in a digital age.

Now surfaces will provide multi-touch experiences, and these will be both vertical and horizontal. The use of multi-touch plasma screens as interactive surfaces will make the manipulation of software, documents and data more natural.

Web2.0, Unified Communications... and the Rise of the Jelly Bean

The web has moved from being about 'find and use' to a platform that also allows 'share and expand'. This extension is a natural migration into the world of collaboration, and so much of the so-called semantic web is about shared experiences. As people realise the benefits and added value that comes from sharing, tagging and revealing location information, a new era of collaboration experiences will emerge.

One of the most profound changes that people will experience will be ubiquitous presence indicators – the so-called 'jelly bean' that will start appearing in almost all applications and on all devices. Corporate presence indicators such as 'in a meeting' or 'out of the office' appear today alongside names in address and buddy lists. Tomorrow they will appear within all applications alongside people's details to allow a constant view of colleagues, clients and others in distributed networks.

And the intelligence will extend to a point where the jelly bean is automatically fed by calendars and, in the future, location aware sensors, accelerometers, digital compasses and GPS data from mobile devices.

Contextually aware, geographically located and state driven, these systems will begin to break down the barriers between time and place and also allow in the future the 'engineering' of serendipitous encounters based on people's profile, contextual information and real time location.

As people are brought together to interact, more and more space will be dedicated to this type of activity, together with rich, enabling technology. As social awareness starts to appear within all applications in Microsoft Office, people will have a new awareness and ability to interact and work together.

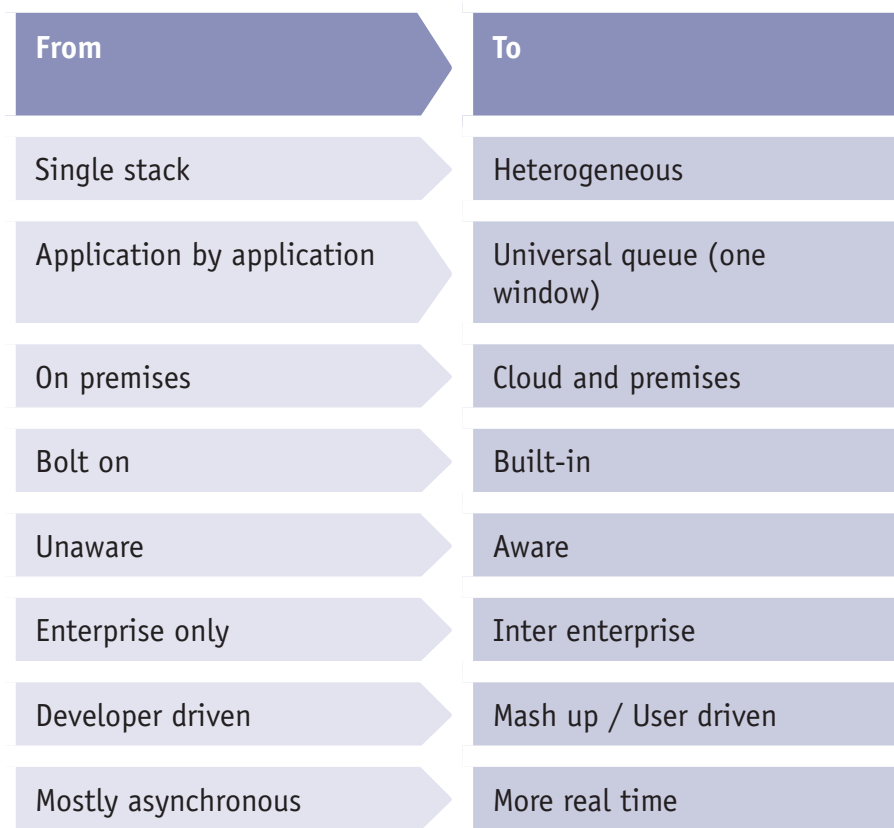
These concepts follow a broader change that is happening as we shift from user centric to people centric software and design. As people experience the personalisation that presents itself in sites such as Facebook, they will demand the same experience in other environments. And we believe that this will extend into physical space as well.

Collaboration

With these enabling technologies, an acceleration in the understanding of the benefits of collaboration will result in a transition for the corporation from the limited, static definition applied today towards a more dynamic and inclusive view of a collaborative future.

The appearance of new tools in future versions of software will accelerate this trend and see a widespread adoption of the principles of collaboration.

Gartner's Collaboration Technology Curve describes the shift as follows:



What is clear is that the rise of collaboration is also part of the gradual shift to the permeable organisation, where activities no longer happen inside a 'walled garden' but connecting 'outside the firewall' with new communities and partners becomes a necessity.

Collaboration Case Studies

With the need for collaboration established, many companies are beginning to experiment with new environments and technology solutions. They are on a journey towards a realisation that much of the future of workspace will be about collaboration.

But it is still challenging to find case studies of true innovation and adoption of not just new technology but new techniques and approaches to collaborative work.

Cap Gemini - Accelerated Solutions Environments (ASE)

One of the early pioneers of collaboration was the consulting firm, Cap Gemini. They created a space called the Accelerated Solutions Environment (ASE) where people could come together, from 50 to 500, and be facilitated to work together.

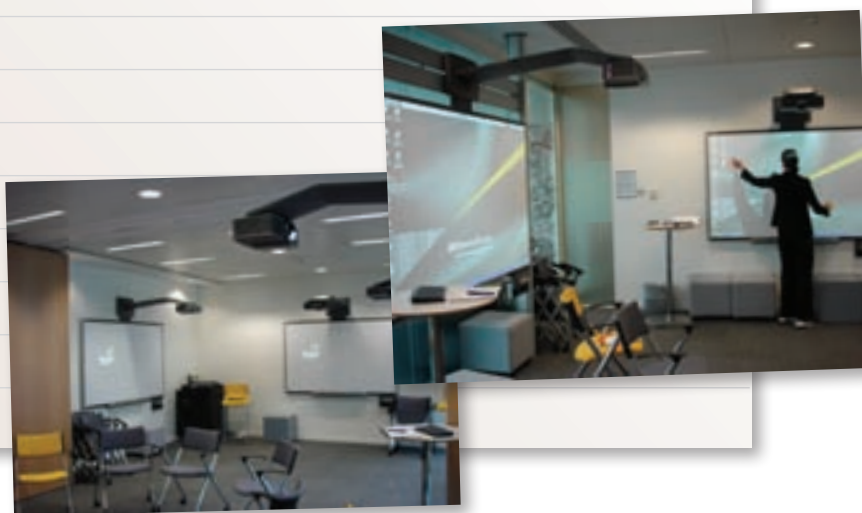
These sessions co-located people, and involved them by creating a series of scenarios and interventions. Ideas and knowledge were captured in the format of the time – post-it notes stuck onto large, moveable boards that helped to demarcate the space and change behaviours through the day.

But with the advances in technology discussed above, new format environments are emerging to allow collaboration and knowledge capture between people in the space as well as those that can participate from a distance.



Ernst & Young - CUBE

As a place for collaboration and teams working together on concurrent tasks, Ernst & Young's space called Cube is an excellent example of advanced technology used in a flexible environment. The space is clear of any fixed furniture and so can be configured as needed for groups or teams. A series of six SMART Board™ interactive whiteboard systems are located around the space, which can be used independently or connected as a series to collaborate on documents and create a sequential process between separate teams.



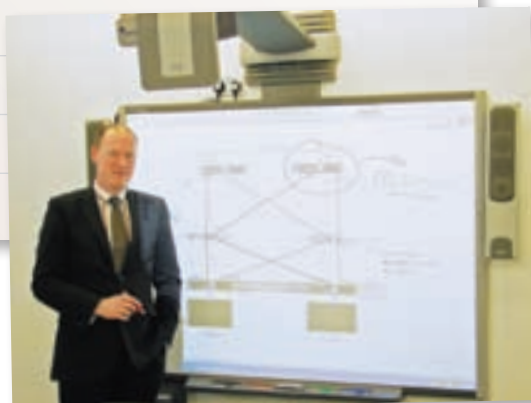
Cundall

Engineering giant Cundall has 500 people working in over 16 countries across the globe. Rather than isolated regional businesses, they wanted to develop the ability to be able to work on documents and drawings simultaneously with colleagues and clients around the world.

Rather than just share slide packs and plans, they wanted to be able to annotate and draw to share ideas – to create the same dynamism and interactivity that they achieved in face-to-face meetings.

A series of 'connected meeting rooms' have been created to link people together using both smart surfaces and video conferencing. People can now set up data conferences, and write in digital ink in a variety of applications such as Autocad, as well as share desktops from wireless laptops. The system, based on SMART Bridgit™ conferencing and SMART Board interactive whiteboards, runs parallel with video conferencing to get a 'three dimensional' experience of collaboration.

Engineers can now view, discuss, amend and manipulate the same engineering drawing in real time and so reduce dramatically the time taken to agree a final version between geographically dispersed teams.



02

The communications company has over 29,000 people working in disparate teams across the globe. 02's very ethos is 'we're better connected', and so collaboration solutions were a key requirement for their new headquarters building in Slough.

One of the drivers for change was the need for better connections between London and Leeds offices, with a desire to reduce travel time and cost. But other imperatives such as reducing time to market also stimulated change.

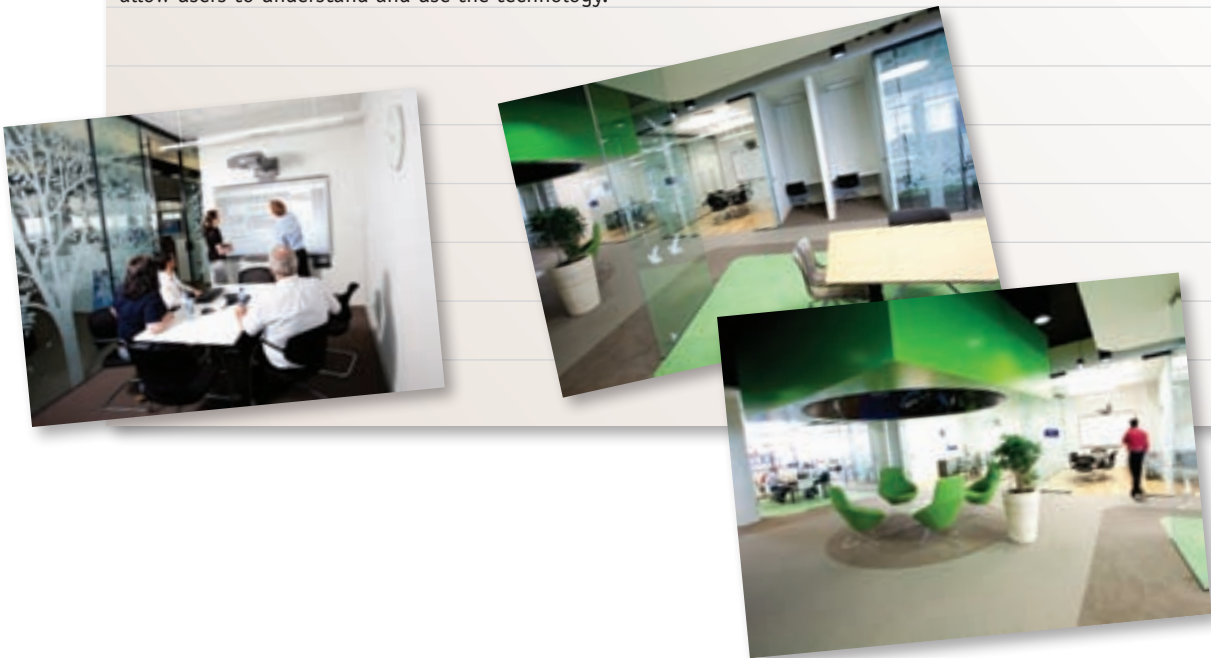
Ease of use was one of the drivers for 02. Their philosophy of 'three touches and go' is one which should apply to all augmented technology solutions – simplicity and an obvious user experience. As Alan Parkin, Programme Manager for Infrastructure Design and Delivery at 02, explained; "we can set up a conference in less than three minutes. SMART's collaboration technology fits perfectly with our mantra of 'walk up and use'. It's really that simple."

This compares to the previous situation where projectors were booked through reception and a lot of time was wasted setting up meeting rooms. Now the 47 rooms have been equipped with permanent, advanced audio visual and collaboration tools. With over 70 SMART Boards in the Slough campus, 02 is holding more than 500 SMART meetings a month using the SMART Bridgit conferencing platform.

cont...

02's new workstyle is called Our Space, and was a radical departure from their traditional way of working. As more team work and ad hoc collaboration is desired, tools have also been incorporated into Our Space areas for impromptu meetings and encounters. 'Huggers' or residents were contrasted with 'Hoppers' who book space when in the office. This mix means that the Slough building is home to 2200 people, but only has 1500 desks.

Change management has also been thought through. Designated 'shapers' from each directorate 'cascade' knowledge to teams through monthly meetings, and a guide book and intranet portal have been created to allow users to understand and use the technology.



BT - Agile Development Centres - BT Innovate and Design (BTID)

BT has created 100 'collaboration stations' around the world for over 2000 developers to work together with advanced technology. With over 3000 BT people involved in development and 12,000 sub contractors, new methodologies were needed to accelerate the time it took to get products to market.

The move to Agile Development introduced the idea of the 'two week sprint' – a faster approach to project process – as traditional ways of sharing information and knowledge such as Wikis were deemed too slow.

"Collaboration on the same thing and the same time was required", explained Bola Oshisanwo, Director of the Agile Development Centre at BT. "We observed that developers stood around white boards and scribbled. We wanted to replicate this but it couldn't be in the same room. So we needed electronic white boards that could be conferenced together."

The collaboration station that BT has set up combines shared desking for developers (a ratio of between 1:2 and 1:5 people to desks has been set) with a collaboration space, focused around a large round table with adjacent SMART Board interactive whiteboard. So that developers could behave naturally in the space, ceiling mounted microphones have been used so that audio and video conferencing can complement software collaboration.

In addition to a SMART Board, 2 cameras have been used, one focused on the collaboration station space, and another on the SMART Board itself. This allows the gestures, pointing and movement of the developer scribbling to be seen by remote collaborators, as opposed to just the annotations, providing a more rounded experience.



cont...

BT found that developers did not use the dedicated high tech telepresence video conferencing rooms. Instead, they wanted the right tools in their space.

The key technologies used for BT's Collaboration Station are:

- Sharepoint
- Wiki
- LiveLink
- Lync
- SMART Bridgit
- SMART Meeting Pro
- Audio conferencing
- Video conferencing



The facility allows people to collaborate across distance, in multiple geographies and time zones. And while today the use has been mainly 'point-to-point', linking two distant spaces together, in the future it will allow 'multipoint' with numerous groups connecting in real time, accelerating processes 24/7 through different time zones.

One of the big benefits has been a reduction in travel. For example, a group of five developers were able to resolve a problem within two days rather than travel to India for five days.

Cisco

Cisco has used Media Net to create and run virtual company meetings. Not only does this create an event at between 1/3 and 1/10 of the cost of a physical event, but it extends the reach of the event by a factor of between 5 and 10 times. Cisco's annual GSX sales conference was traditionally held in Las Vegas for 13,000 people at a cost of \$4307 per person. Last year the event was held virtually at a cost of only \$437 per head, and an additional 3000 people were able to 'attend'. Interestingly participants gave a higher rating for the content than they did at the previous 'physical' event.

As an early adopter, Cisco is an interesting case study in the future for collaboration. For example, in Q2 2009, 100 million minutes of WebEx conferencing were used. And with 700 Telepresence rooms around the world, Cisco has saved a staggering \$250m in avoided travel costs.

In 2009, Cisco realised over \$1.1bn of cost savings, comprised as follows:

- Telecommuting \$299m
- Connected Workplace \$12m
- Virtual Expert \$125m
- Remote Collaboration \$601m
- Sales & Marketing \$15m

In their Bedfont Lakes workplace in the UK, they have been able to increase capacity by 60%, through new ways of working as well as increased work from home. All the tools are now in place to make advanced collaboration a reality.



External Forces

As well as the trends described above, there are two key external forces which will accelerate the move towards collaboration: demographics and sustainability.

Demographics

Today there are for the first time four generations at work together. The newest entrants to the workplace, the Millennial Generation (also called Generation Y), promise to exert more influence than even their Baby Boomer parents. This group, born between 1980 and 2000, is more numerous than the boomers. It is also a generation celebrated for its confidence, its dedication to equality in the workplace, and its keen, global perspective. But most important, the Millennial Generation takes information delivered by digital technology for granted. For them it is intuitive, invisible and essential and the infrastructure that delivers it, ubiquitous. As a social impact, for probably the first time in history, these young people are considered authorities on something that the older generations haven't mastered in the same way.

What are the characteristics of the other three generations?

Traditional Generation

Born between 1928 and 1945, these are the oldest members of the workforce. They tend to exemplify faith in the Institutions, loyalty, willingness to conform, and the importance of hard work. Many of this generation are retired. But a growing percentage is staying in the workforce, offering outstanding knowledge and experience.

Baby-boomers

This group is so large; it is divided into early boomers, born from 1946 to 1954, and late boomers, with dates from 1955 to 1965. Both share a strong emphasis on individuality, youth, and adventure. They are confident in their prosperity because they were raised amidst economic growth. Boomers have humanised the workplace, making it comfortable and encouraging innovation at all levels. They are exploring retirement in interesting ways – They are expecting an extended active and vital work life by working part time, telecommuting or consulting.

Generation X

These born between 1966 and 1977 are typically identified as slackers, winners and cynics. There is tension between them and the boomers. If these children of divorce and day-care had a slogan, it might be a sarcastic, "thank you for the world you're leaving me." But Gen X is also very entrepreneurial. They

were raised in times of idealism and equality, so they lack the social and cultural limitations of their predecessors.

Getting Ready for the Digital Natives – the 'Net' Gen

What is clear is that the next generation (still at school) will be even more radical in their attitudes and approach. The 'net gen' or digital natives have grown up with the internet and use technology in a very different way to other generations. They are learning with the internet, use SMART Board interactive whiteboards in their class rooms and carry with them more computing power than their predecessors had in their workplace. They will be the generation that moves the goal posts – the first to be able to live on line, to read on screen and to be happy with less privacy and the ubiquitous connectivity that still leaves digital immigrants out in the cold.



Children at Teddington School use SMART Board interactive whiteboards, and connected laptop computers as an integral part of their learning.

Travel and Sustainability

Commuting is one of the most challenging behaviours associated with work. It consumes an average of 80 minutes a day per person worldwide according to figures from the Universities of Sheffield and Michigan. Today in London, 24 million trips are made every day. For example, 3 million people use the tube each day, there are 11 million car and motorcycle trips a day and 9.5 million people walk or cycle. A staggering 2 billion bus journeys are made each year.

Bringing an estimated 10 million people into office buildings for work each day at the same time is no longer sustainable. A different set of patterns for work will emerge, based not just on 'home working' but on suburban and polycentric models that change the nature of commuting.

But as these models of dispersed working emerge, and people are increasingly separated from their colleagues, customers and partners, new ways of connecting and collaborating will be needed.

Collabor8 - A Look at Eight Principles for Successful Collaboration



Work Triptic – the collision between people, place and technology creates the potential for innovation that can change the way we work
Source: UnWork.com

To achieve success, we have identified 8 principles for successful collaboration. As the diagram illustrates, the move to a different style of work requires integrated thinking between the three key pillars of any organisation – its people, its workplaces and its technologies. By looking at the mental, the physical and the virtual, a different set of behaviours can be established (such as collaborative work) with new processes supported by innovative infrastructure.

Our 8 principles are as follows:

1. ABW – The Agile Business

People no longer inhabit their offices or corporate desks. Surveys show that in the average workplace, less than 50% of the desks are occupied at any one point in time. A new approach to the workplace is needed, based around teams and tasks and not departments and functions. This approach is called Activity Based Working and it is the future for agile organisations.

To adopt Activity Based Working requires a fundamental rethink of the need for and provision of workspace. It requires a detailed understanding of the workforce – by profiling and identifying discrete cohorts. Typical working days must be mapped and then a range of task based settings with appropriate enabling technologies delivered. The cost benefit is complex, but one of the clear winners will be a reduction of real estate overhead – by up to 30% based on experience.

Corporate agility will become one of the key drivers for

collaboration – speed to market, speed of decision making between dispersed teams and the ability to remove downtime and make better use of expertise will all drive collaborative best practice.

2. Become Less Physical - Migrating to Cloud Computing

Bringing people into the physical remnants of yesterday's order is not collaborative. Desks laden with paper in buildings stuffed with fax machines, computers, servers and software is not a vision of the future.

Companies need to become more footloose, and virtualise their infrastructure so that the office does not represent the corporate DNA. As this moves into cyberspace, people will only come into the workplace for one reason – to be with people. And as occupancy of buildings becomes more fragmented and work disperses, people will need to collaborate and communicate across distance.

The growth of the cloud will have a profound impact on collaboration. On-premise systems will migrate to a range of hybrid solutions, usually blending on-premise voice with external software so that people can connect from anywhere. Tomorrow, we believe that collaboration systems will be cloud based applications as the software is provided as a service (SaaS) to people as and when they need it.

The empty building is the logical conclusion of the journey towards cloud based computing; a building devoid of all infrastructure, software and processing power – in effect people will come into a building only to be with and work with other people. The empty building will be a collaborative space for teams, training, mentoring and socialising. It will represent the corporate brand and provide a narrative space for the business.

3. Adopting Digital Flow

Paper has always dominated work and the workplace. An estimated 17% of floorspace is used to store paper in the office today. And paper is in effect the antithesis of collaboration – it can't be shared - it is analogue and off line. In days past, paper flow was passed between people through the internal post system, with each recipient adding comment in different colours in a slow sequential process that resulted in a collective review. But this process is iterative and laborious, and early commentators cannot see the suggestions of those later in the chain.

Now digital flow is set to change the rules. The previous IT revolution was essentially to turn paper digital – what you viewed on screen could then be re-output to paper and would, to all intents and purpose, look the same. No longer. Now the screen has depth with urls and hover information that cannot be reproduced in two dimensions.

Digital flow will result in a slow death of paper and move people into the digital realm that will naturally encourage interaction and collaboration between documents being developed in on-line, real-time systems.

4. Always On - The Corporate Jelly Bean

One of the drivers of collaboration will be the increasing acceptance of networks, from 'social' to corporate. But there has been a barrier to creating networks between companies. A new standard called XMPP is set to change this, allowing a 'buddy' to be added from another company to internal network lists for example on Microsoft OCS.

Fluid buddy lists will provide presence indicators to show the real time availability of people both inside and outside the corporation. Teams, be they distributed or co-located, will be visible.

The corporate jelly bean means the adoption of a strategy for converged communication and collaboration so that these applications function seamlessly across the enterprise.

5. Web2.0 : Defining a Corporate Folksonomy

Derived from the combination of 'folks' or people and taxonomy or the science of ordering information, folksonomy has become synonymous with social or 'collaborative tagging' – a phenomenon of the so-called 'social web'. In effect it combines the process of tagging or labelling to categorise content by people in a social context.

Web2.0 was moving the internet from an approach based around the activities of 'find and use' to a concept of 'share and expand'. Folksonomy develops these themes and advances the concept of the 'semantic web' to a future where collaboration can become meaningful within a corporate community.

The experience of people using applications such as social bookmarking (Del.icio.us) and social photo sharing (Flickr) shows the acceptance of tagging in the public domain. Corporates need to embrace this and start building the foundations for future collaborative systems.

6. Collabor8 Space

What is clear is that collaborative space, rich in technology, with flexible infrastructure and versatile settings will be a critical success factor. Physical space shapes behaviour, and so by creating the right collaborative space, the behaviours desired for collaborative work can be shaped.



Concept future collaboration space, featuring interactive walls, telepresence, biodynamic lighting and flexible furniture

7. Collabor8 Etiquette

People no longer have the tools to know how to communicate well, let alone collaborate properly. The rise of the audio conference and then video have challenged people to find a new etiquette for communication. Now data conferencing will change the rules again. This is confounded by the other formats of communication that exist today, from formal letter, through fax to email, instant message, text message, web discussion forum, tweet or blog. What medium do you use for what purpose and in what format?

A new guide to collaboration and communication etiquette is needed, together with a new language – the rules need re-writing.

8. Collabor8 Behaviours

The final ingredient to successful collaboration has to be the desire to collaborate in the first instance. The process of interaction requires trust and openness and a desire to work with other people for the common good.

A change management programme needs to be introduced to allow people to understand and identify new behaviours necessary for successful collaboration. Psychometric types suggest that it is often extroverts that dominate team sessions, while introverts find it hard to contribute. Systems for inclusive collaboration and behaviours that allow democratic participation are essential for success.

Futures

We have moved through four phases of collaborative work over the past decades, each with added benefits. First we had basic information sharing, then transactions, followed by interaction and now true web2.0 collaboration.

Where do we go from here?

Immersive Space

One of the key requirements will be specialist space that achieves corporate competitive advantage. Accelerated process environments, 'deep dive' spaces where complexity and modelling can be achieved, highly immersive visualisation environments (HIVEs) where complex stimuli can be identified and understood will all be part of a range of future spaces that will be the destination of much corporate collaborative work.

There are already examples of these futures around the world. For example, the 'iRoom' at the Yang and Yamasaki Environment and Energy Building in Stanford University provides a dynamic, connected environment. And this situation will get more interesting as the leading players in workplace furniture begin to innovate and bring new products to market.

Workplace Innovation Centres

We believe that a new typology of innovation space needs to be developed that creates a place for people to work together. Not a meeting room with its table and chairs, or a lecture theatre or break out space, but a fully equipped, enabled resource that provides a stimulating place for people to be creative and collaborative.

The space has technology within, not just attached to the walls but inside the space, and whole surfaces can become digital and interactive. The space is inclusive and has all functions within it, from print and scan to tea and coffee. People can move



'iRoom' at the Yang and Yamasaki Environment and Energy Building in Stanford University

between collaboration and concentration, while knowledge and ideas are still displayed for reflection and contemplation.

These future spaces will become sought after in the corporation and will begin to grow in importance as the need for solo work at the desk diminishes.

Convergence - Towards UCC (Unified Communications and Collaboration)

We will see a huge rise in collaboration across organisations as the barriers to secure inter company collaboration are lifted. Collaboration will increasingly use both voice and video, alongside intelligent surfaces and devices that allow people the tools to manipulate data and communicate ideas.

Presence and instant messaging will be central ingredients, enhanced by developments such as XMPP and SIP, and these will develop into richer experiences as geo-presence allows not just the state of a person to be displayed but their real time whereabouts as well.

Geopresence will become even more sophisticated with context aware presence – an idea where only the people that it would be useful to see are displayed based on a project, knowledge or communications flow or time zone.

Today's often disparate systems will converge and we predict that a unified communications and collaboration (UCC) suite will become the norm. The advance of corporate presence to include geopresence and context specific presence will usher in a new era of real time communities working on collective solutions – 'collaboration without leaving the document'.



Workplace Innovation Centre, Hampton Wick
www.workplaceinnovation.co.uk

Conclusion

Companies that adopt the 8 principles will derive a range of cost-benefit and competitive advantages. We have seen that collaboration is multi-layered and multi-faceted. But in common is the desire to change the nature of work and how people interact to get faster, better and more rounded results.

The need to collaborate will become paramount in the creative economy where knowledge work will become increasingly important as process-orientated administration diminishes. The combination of technologies, demographics, sustainability and new work will all become factors in a move towards activity based working – a future that is based on what you do and not who you are – and part of a general democratisation of the workplace as web2.0 changes the rules.

Appendices

About the author, Philip Ross

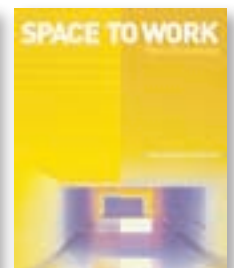
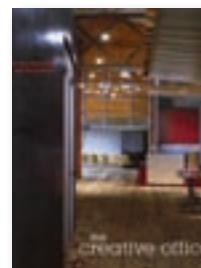
Philip is CEO of the Cordless Group and UnWork.com, specialists in the future of work with an emphasis on the impact of emerging technology on people and their behaviour in the built environment.

He has worked with organisations such as Ernst & Young, Allen & Overy, GlaxoSmithKline, Cisco, McKinsey & Co, Nottingham City Council, PricewaterhouseCoopers, Royal Bank of Scotland, Jones Lang LaSalle and Ericsson on future concepts based on emerging technologies.

Philip has spoken at conferences around the world including the Wall Street Journal Europe CEO Forum on Converging Technologies, alt.office in the USA and Corenet's Global Summits in Beijing, Auckland, Orlando, San Diego and Melbourne. In 1994 he wrote and published The Cordless Office Report and founded Cordless Group.

He has written three books on the future of cities, work and workplace: The Creative Office, The 21st Century Office and Space to Work (all co-authored with Jeremy Myerson). He has also contributed to a number of other books including the Corporate Fool and the Responsible Workplace.

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The Creative Office, The 21st Century Office and Space to work – all by Philip Ross (co-authored with Jeremy Myerson and published by Laurence King)

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Steljes Limited is an innovative technology distributor that sources products from around the world, working with manufacturers to customise and bring their solutions to the UK market through its specialised channel network. The company's innovative solutions enable people to interact and communicate more effectively while working and learning.

The company has been sourcing products from around the world for over 20 years, introducing LCD panels, projectors, plasma displays and interactive whiteboards to the UK market. The company has consistently been the UK's number one supplier of interactive whiteboards and recently increased its UK market segment share to 58.85% in first half of 2010 (source: Futuresource Consulting).

Steljes Group is a privately owned company and has helped companies such as SMART Technologies become market leaders in the UK.

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Unwired is a specialist in the future of work. Through research, forecasting, publishing and events it predicts the way that our patterns of work will change as a result of political, socioeconomic and technological trends.

Unwired was founded in 1996, and has published over 50 research reports, including Creative Places for the BBC, the New Millennials for Nokia and Rio Tinto and Workplace Sustainability.

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