

SOA as a foundation for open, flexible business collaboration

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A storm of business change

The business world is changing rapidly: driven largely by factors arising from the impact of the Internet and the Worldwide Web on consumer and market behaviour, and on business-to-business communications. Organisations are starting to respond to the pressures that arise. The result is an increased focus on ways of co-ordinating and automatically linking business activity and teams within and across organisations. At the same time, the notions and concepts that traditionally helped organisations structure themselves are eroding.

The result is that new strategies and technologies for supporting collaborative activity – both inside and outside organisations – are required in order for organisations to move forward. This report outlines the justification for a new “collaboration fabric”, and explains how application and network convergence, and the power of service oriented architecture (SOA), can help organisations reinvent the way that knowledge-based work gets done.

Three universal forces are affecting businesses...

Regardless of the industry or location in which an organisation operates, across the developed world organisations are today pressurised by three large-scale socio-economic forces:

- **the forces of globalisation.** Increasingly global customer bases, partner networks, supplier networks, and competition, are forcing companies to become leaner and more flexible; focus on what makes them different; and find new ways to deliver sustainable competitive advantage
- **the drive for business transparency.** Regulation is sometimes forced on organisations by governments; but increasingly organisations are also being forced by their customers and investors to provide more information about their processes, the resources they use and the ways in which they interact with their ecosystems and environments
- **the desire to engage effectively with smart, connected markets.** The mass availability of high-speed, always-on communication connections is changing the ways in which consumers, citizens, suppliers, governments and markets interact. Individuals and organisations are increasingly looking to the “online world” for solutions to problems and opportunities before looking to the “offline world”, and spending much more time online – to work, play, share and collaborate. Consumer behaviour and demand manifest themselves differently in this new environment, and private sector organisations are under pressure to connect with these evolved markets in the right ways. In the public sector, government departments are keen to find new ways to engage citizens and provide “joined up” services to them. In this environment, business resources can feasibly be located anywhere: it is possible to consider that “the world is flat” (as New York Times columnist Thomas Friedman says). This global availability of resources presents all organisations with significant opportunities for cost and other strategic advantages, as well as providing challenges to the private sector in the form of global competition.

...and three types of response are being pursued

In response to these pressures, we consistently see three changes in organisations’ business models:

- **The evolution of core business processes to become driven by demand, rather than by supply.** Supply-driven business models and processes, which are structured around “pushing” resources to wherever they are needed, can excel where demand and interest from customers is predictable. However, organisations are realising that customer demand is much less predictable than it might seem, and that it is becoming only less predictable as markets (customers, prospects and particularly competition) move online and become increasingly globalised. Consequently there is a great deal of interest in instead driving business activity from actual customer demand, as it occurs. These “pull” models are a naturally better fit in situations where demand is unpredictable. Rather than trying to tame demand patterns using sophisticated forecasting and planning tools in a “push” model, a “pull” model accepts unpredictability

- **The importance of innovation and changes to the ways it is uncovered and realised.** At the same time as organisations are looking to drive their core activities and processes more directly from actual demand, top-level business priorities are moving from those related to cost-cutting, to those focused on uncovering and applying innovation to drive growth. And what's more, they're looking beyond traditional innovation sources, to considering how they can work with their own employees, and their suppliers, partners, academia and customers (or citizens) to uncover and realise innovations
- **Increasing sophistication in the sourcing of all kinds of business capabilities (not just materials).** In its early days, outsourcing offered a compelling way for organisations to take advantage of the benefits of computerisation in payroll processing, accounting, billing and other high-volume transaction processing activities, without incurring high capital costs. Now, however, there is widespread understanding that it's very difficult to get business value from a simplistic, "blanket" approach to outsourcing technology-dependent business processes. Organisations are realising that outsourcing blindly can lead to a damaging loss of control and direction over key business resources and processes, and are now taking more granular decisions about outsourcing – choosing to work with multiple service providers, each of which is employed to carry out well-defined tasks and processes. By focusing organisations on the importance of orchestrating resources, the move from "push" to "pull" models of business only serves to strengthen this trend, as organisations increasingly drive sourcing decisions based on core competencies.

IT is the anchor in this storm of change

Organisations responding to these pressures are increasingly becoming shaped more by other participants in their ecosystems than they are by five-year organisational strategies. In order to respond to these pressures consistently and competitively over the long term, organisations are looking to become organic, flexible entities, able to change their shape and size according to market conditions and strategic imperatives.

In making these changes, organisations' boundaries are becoming porous, not impermeable. As they actively look to only engage outsiders in core business activities, independently of their location or affiliation, many distinctions between employees, customers, partners and suppliers are disappearing.

Most fundamentally, the upshot of this kind of structural and strategic transition is that the traditional ways of organising people or work – around resources, locations, or departments, for example – start to constrain organisations' ability to implement their strategies. In a world of fuzzy boundaries between employees, customers, partners and suppliers, the old ways of organising work make less and less sense.

This fact itself is showing up in organisations' increasing desire to re-align systems and activities to fit with cross-departmental business processes; and also in organisations' desire to integrate business processes with those of customers, partners and suppliers. In addition, it's showing up in organisations' desire to formalise and place structure around what have historically been rather free-form, ad-hoc business practices.

The pace of change means that trying to do any of this work without the support of IT is foolhardy, to say the least. IT is crucial in enabling all these responses to be realised effectively. Crucially, though, a perspective of business process which focuses on the kinds of highly structured, automated activities already implemented in ERP systems will fail to capture the complexity and dynamism of the kinds of work which most need to be supported.

The new frontier: open, flexible business collaboration

As organisations look to make their business models and processes more demand-driven; uncover innovation from increasingly diverse sources and apply it to drive growth; focus increasingly on core competencies, outsourcing non-differentiating activities to third parties; and additionally, come under increasing pressure to demonstrate good corporate governance and citizenship – the strategic imperative for automated support within organisations is changing radically. The focus of automation is shifting:

- from back-office transactional work, to supporting the highly collaborative, more creative, less structured types of work that yield innovations – moreover, work which is increasingly carried out across organisational boundaries, in virtual “communities of practice”
- from routine, day-to-day business tasks, to supporting collaborative management and strategy-setting work.

Where IT used to be strategically employed to increase organisational efficiency and create opportunities for business scalability by automating repetitive tasks (such as those related to accounting), now it needs to be employed to help organisations seek out competitive advantage and strategic value through innovation. The innovations that are the engine for this value, though, don't come from software: they come from peoples' heads – and those people are increasingly customers, employees, and partners, in addition to small, structured teams of R&D staff. IT's role in this context is to help organisations tease innovations out from these increasingly diverse communities, and help them to flourish.

In making this conceptual leap, the fact that becomes apparent to every organisation doing more than “talking the talk” in supporting competitive differentiation and innovation, is that successful use of IT in this context can only come from a preparedness to enable business and cultural change through IT's use. Without supporting and driving changes to individual and organisational behaviour, the new wave of SOA-related investment being made in many organisations, with the aim of increasing flexibility and supporting innovation, is likely to fail to deliver value.

There are clear connection back to business pressures

The key changes that are happening in business environments all point to a greater need for effective business collaboration. In addition to the straightforward relationship between the new innovation focus and collaboration requirements, as explained above:

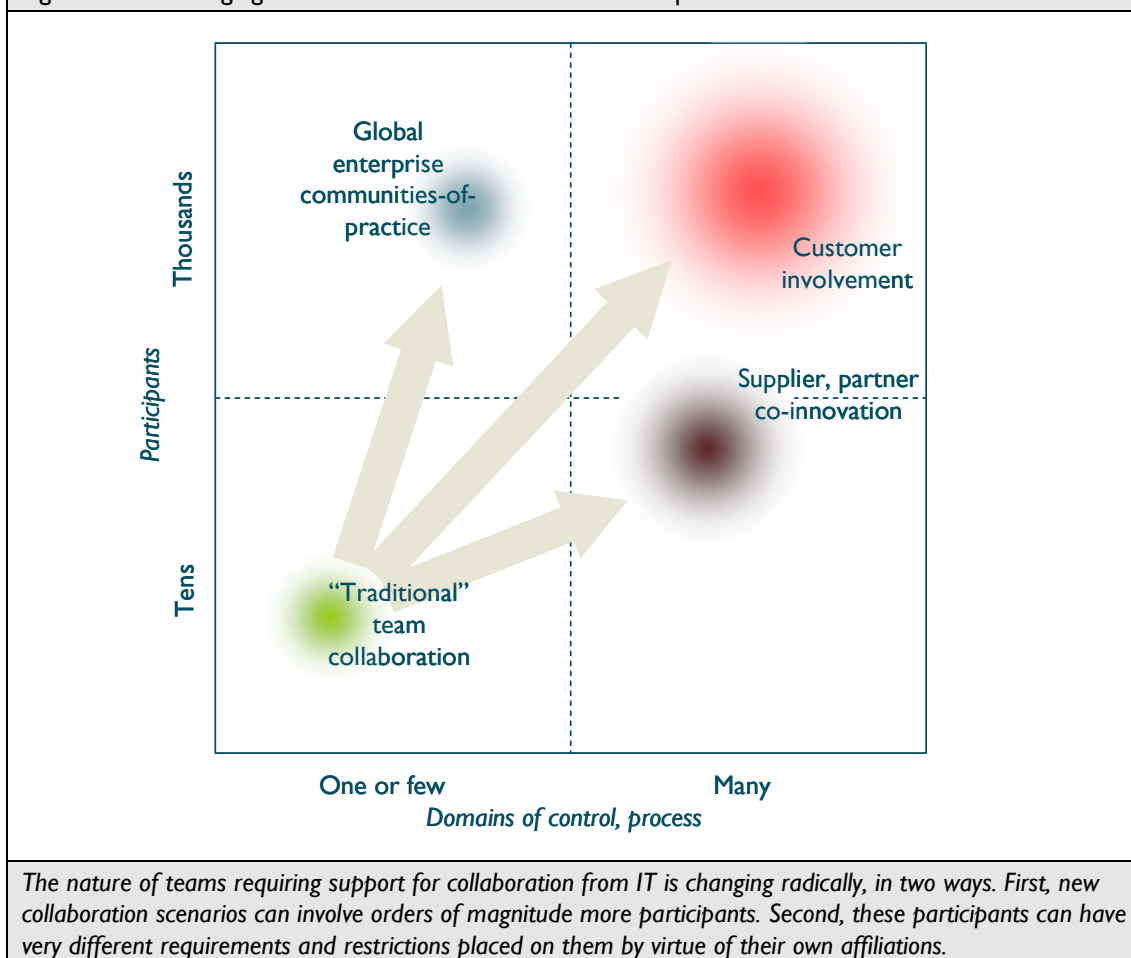
- more sophisticated approaches to sourcing mandate collaborative approaches between organisations and their outsourcing suppliers concerning the impacts of requirements changes; the management of workers' contracts and benefits; project and programme oversight; and so on
- a move toward market-driven business mandates faster and cleaner communication of information, and the open availability of context and tools required for decision-making – across an organisation's functions, and also between organisations and their partners and suppliers. Moreover, market-driven organisations look to build closer customer relationships throughout the customer's buying cycle, which mandates consideration of how customers can be given opportunities to directly influence and participate in decisions concerning product and service innovation.

Supporting these collaboration scenarios is not simply a question of buying a suite of collaboration tools off-the-shelf, however. Effectively supporting today's collaboration scenarios means understanding the ways in which collaboration requirements are changing; taking advantage of some key technology trends; and marrying the art of the possible to the unique needs of your organisation.

New teams, new collaborations

“Collaboration” has been on the business agenda for many years, and the IT industry has responded: products like IBM’s Lotus Notes/Domino and Microsoft Exchange/Outlook were answers to organisations’ traditional collaboration requirements. But as figure 1 shows, the changing nature of teams is changing requirements for collaboration significantly, both in terms of scale and control.

Figure 1: The changing nature of teams and collaboration requirements



As shown in the figure, there are two dimensions to this change, each of which has implications for organisations and the requirements for supporting technology. These are explained below.

A question of scale – and the cost of contribution

First, organisations need to enable orders of magnitude more people to participate in collaborative working. Traditionally, the focus for collaboration has been on tightly-coupled, probably co-located, relatively small teams of co-workers. Now, in supporting enterprise-wide communities of practice and customer co-creation, the focus is shifting to collaborations between potentially hundreds or even thousands of individuals who are unlikely to be co-located.

Here, the question of the *cost of contribution* – the discoverability of collaborative activities and outputs, and the ease of actively participating – becomes critical. In large-scale collaboration scenarios, the contribution made by any one individual is likely to be a much smaller proportion of an overall outcome. If it’s too complicated or time-consuming for an individual to contribute to an activity, it’s likely that they will demur, perceiving that their lack of contribution won’t have a significant effect on the ultimate outcome. This will be particularly likely if the personal value of contributing is not immediately obvious to the individual.

A question of control – and accessibility

Second, organisations need to enable collaboration between people who are acting according to different controls and priorities. Historically, the focus for collaboration was participation within teams which were managed according to one set of rules: most often all participants worked within a single department. Now, in supporting supplier and partner co-innovation and customer co-creation, the focus is shifting to collaboration which has to embrace participants who are influenced and restricted by multiple domains of control and multiple differing processes and practices.

Here, the question of *accessibility* – allowing discriminating access to segments or features of a collaboration activity, supporting multiple participant roles and permission levels, and supporting open and widely-deployed standards – becomes critical. In cross-domain collaboration scenarios, individuals will only contribute if they feel their rights and constraints are being respected and accommodated. In supporting these collaborations there must be as few technology constraints as possible placed on access to activities, from the context of each participant's own environment.

Towards friction-free interactions

So how do we address these issues? From the perspective of the collaboration participant, minimising the cost of contribution and respecting rights and constraints are two sides of the same coin. To be effective, collaboration environments must minimise the interaction friction between individuals, and between individuals and information and supporting services provided by IT. Most organisations aren't there today, but the technology to enable the important changes is now becoming available.

Today's interaction environments are fragmented and siloed

When we look at the interaction environments which shape individuals' contributions to collaborative work today, it's clear that whether individuals are acting on behalf of organisations as employees or as independent consumers, there is some way to go in minimising this friction.

Portal technology and integrated "collaboration suites" are becoming widely deployed, and in some cases organisations are using up-to-the-minute versions of tools in smart ways to make collaboration easier. However when we look at user interaction environments for knowledge workers – those who will typically take a role in uncovering and managing innovation – the vast majority of technology deployments today typically yield fragmented and stovepiped environments. For example:

- Transactional software applications which manage business information (for example, CRM, accounting, and supply chain management systems) are still often deployed with their own unique user interfaces and navigation schemes that are restricted to handling their own "native" information flows
- Where transactional software applications *do* provide interfaces that allow information and business rules to be accessed programmatically, for example from within portals, taking advantage of those interfaces to link business databases to portals, and link applications together for information exchange, requires purpose-built integration middleware and often proprietary integration tools
- Portals have evolved into platforms which are good at aggregating information from multiple applications for analysis and reporting; and providing individuals role-based access to task-based user interfaces for managing application data. They've also evolved into handy front-ends for web content management applications. But most of today's real-world deployments tend to themselves be highly structured and prescriptive, and they don't link into real-time communication and collaboration services
- Collaboration suites combine features from traditionally siloed functionality focusing on aspects of Personal Information Management (PIM) – email, calendaring, task management, contact management – with some real-time communication services (principally, instant messaging and presence management). But these suites tend to be deployed as groups of fixed-functionality applications, even where some open platform services are available "under the hood"

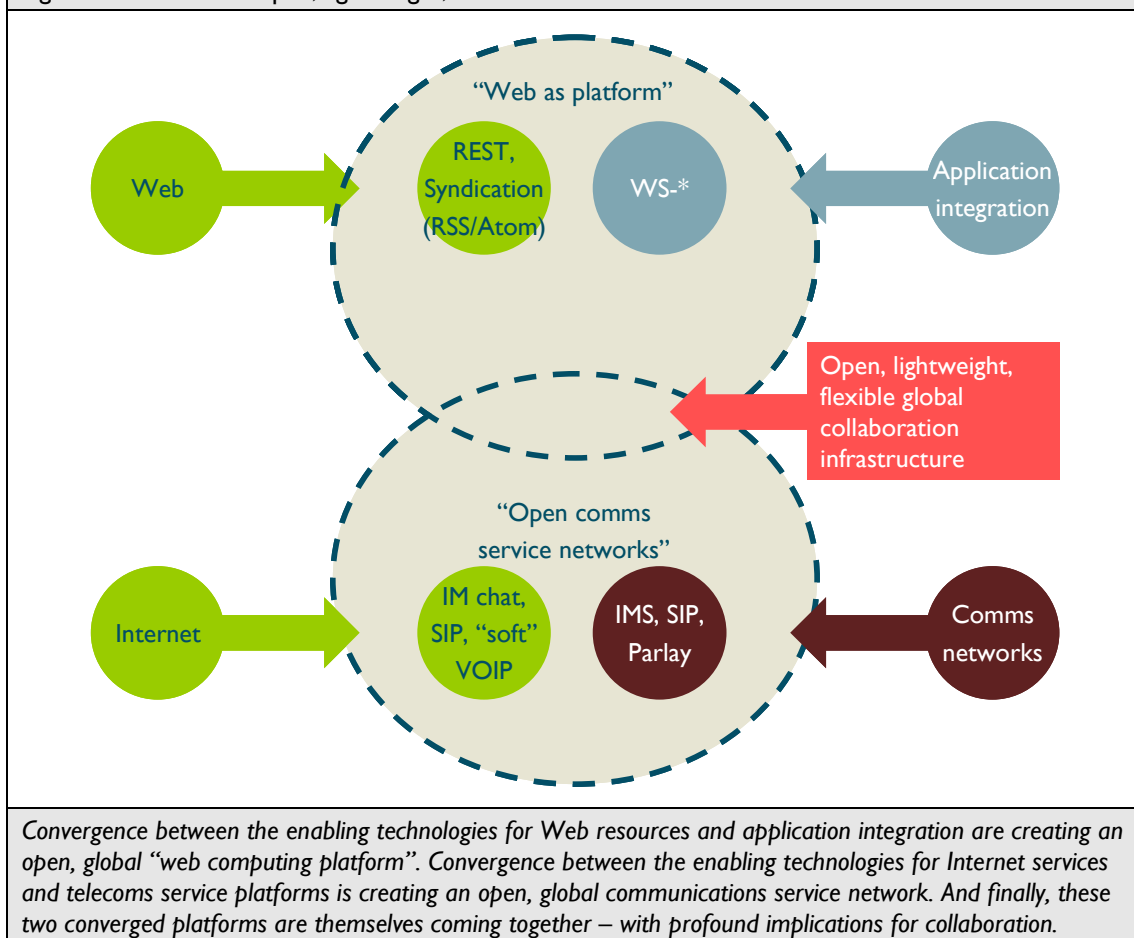
- Web conferencing and collaborative editing environments offer good solutions to large-scale collaboration challenges, but again they tend to be closed and fixed-function.

On top of all this, although increasingly it's true that recent versions of many of these technologies allow for multi-channel and multi-device deployment, the vast majority of the deployed environments created by these tools are in practice optimised for desktop PC usage and access.

However, technology convergence brings new possibilities

However as figure 2 illustrates, recent developments in application integration protocols, Web protocols, IP communication protocols and telecoms network interface protocols have created a global technology platform with the capability to unify access to asynchronous and synchronous text, voice and video person-to-person communications; as well as integrating those communications with open, readily extensible Web-based collaboration spaces.

Figure 2: Towards an open, lightweight, flexible infrastructure for collaboration



In addition, a technology approach which takes advantage of the extensive capabilities of today's web browsers – called AJAX (Asynchronous Javascript and XML) – is increasingly being used to make the user interfaces of web-based applications more dynamic and engaging. Adobe's proprietary interactive interface platforms, which are widely hosted in web browsers, are also being used for this purpose.

The result is a shift towards use of Web technology as the platform for a new generation of open, lightweight collaboration facilities. Organisations can take advantage of this to lower the cost of contribution within, and increase the accessibility of, collaborative spaces.

Examples of this shift include:

- Wikis (websites that allow for quick and easy content editing in-place) are becoming increasingly popular ways to enable collaborative content creation and editing
- Blogs are also becoming popular platforms for individuals to share knowledge. Comments and “trackbacks” provide lightweight platforms for aggregating knowledge within teams
- Web-based “social bookmarking” services (see public services del.icio.us and Digg, and IBM’s Dogear research project for examples) offer lightweight ways for groups of individuals to co-create databases of categorised, quality-rated, documented knowledge
- Information syndication protocols (principally, RSS and Atom) are becoming an increasingly popular method of integrating web content and also underlying application data using loosely-coupled publish-and-subscribe notifications
- Publicly hosted, web-based alternatives to today’s “fat client” collaboration suites which utilise “rich client” technologies for their user interfaces, and open integration standards for information import and export, are becoming increasingly popular among individuals and small businesses
- VOIP applications like eBay’s Skype, Yahoo’s Messenger, Microsoft’s Live Messenger and Google’s Google Talk are all integrated with instant messaging and presence management services.

The mobility dimension

It’s also important not to ignore the increased importance of mobility in collaboration scenarios.

Why is mobility so important? In market-driven businesses collaboration requirements are increasingly likely to have a time-critical element. For example, if a cross-company team needs to collaborate on a task in order to “fire fight” a supply chain coordination problem, time will likely be of the essence. Given knowledge workers’ increasing mobility, it is likely that one or more required participants will only be able to connect to shared resources using a wireless mobile network and a portable device.

Whether collaboration is time-critical or not, in any collaboration scenario that falls outside the boundaries of “traditional” closely-bounded team collaboration, it is folly to place technology constraints which exclude individuals from participating because they aren’t sitting at their usual desk, using their allocated PC. To do so is to artificially raise the cost of contribution.

Luckily, technology is also advancing significantly in enabling individuals to participate seamlessly in collaborative activities regardless of the kind of device and network they’re using to connect to shared resources. There are two elements to this:

- mobile device vendors are getting much better at shipping devices that can access Web-based resources seamlessly. Browsers in phones and PDAs are becoming more sophisticated; data communication stacks are becoming more robust and Internet-friendly
- software vendors including IBM, Oracle, and Microsoft are making aspects of their existing collaboration software functionality available on mobile and portable devices. Reliable email, calendaring, contact management, and instant messaging facilities are all finding their way into mobile workers’ collaboration toolkits. In addition, mobile specialist vendors such as Intellisync and RIM are offering seamless access to established collaboration vendors’ platforms.

Where are we heading?

We're not there yet, but slowly technology evolution is allowing organisations to move from today's world of closed, fixed-function collaboration silos; and towards coherent, integrated collaboration technology platforms. They will use three key web technologies at their heart (syndication, rich client frameworks and XML) as enablers for delivery of horizontal, multi-channel, multi-modal collaboration infrastructure services.

These collaboration technology platforms will be much more suited to the needs of today's and tomorrow's collaboration scenarios. By utilising lightweight, open protocols and open data formats to deliver services from integrated, server-based platforms, they will help organisations minimise cost of contribution and accessibility issues associated with today's emerging collaboration requirements, while at the same time providing centralised infrastructure and information management facilities to serve governance and compliance requirements.

Although they will utilise web technologies, though, these platforms will bear as much resemblance to the majority of today's deployed corporate portals as Swiss Army knives do to sledgehammers.

SOA: providing the right collaboration foundation

There is a conundrum present in the shift that's occurring in the focus of automation, towards supporting dynamic and collaborative practices: a great many of the design assumptions that underpin today's investments in IT and software are a poor fit for the new IT requirements which arise. A Service Oriented Architecture (SOA) initiative can, if done right, bridge the gulf that exists between today's systems and today's business requirements.

Yesterday's IT assumptions need to be revisited

A great many organisations are seriously challenged in supporting this changing focus of automation – because typical IT portfolios fall short in their ability to support organisations' desire to organise around horizontal business processes, and because typical IT portfolios were built in the days when requirements were more stable and automation of behaviour was about encoding highly structured, repeatable tasks rather than enabling dynamic, collaborative working.

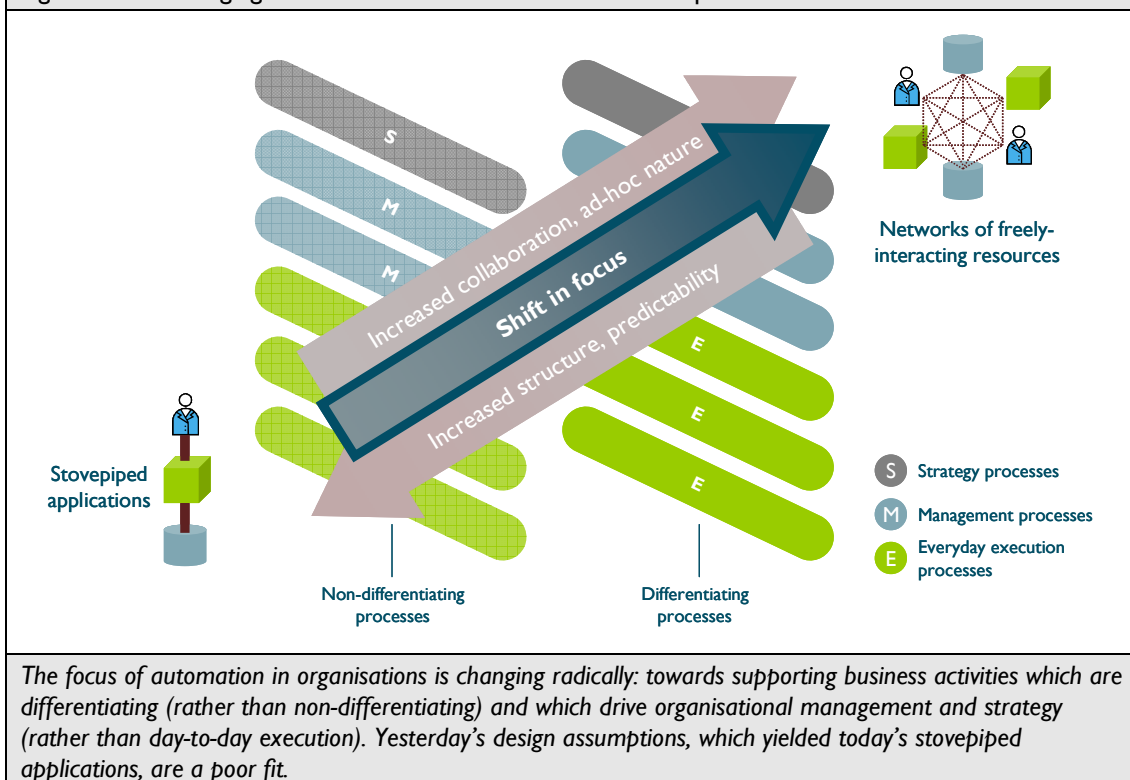
It's still the case that most organisations' IT systems, and the processes baked into them, bear the imprints of previous generations' information systems agendas: they are bounded and influenced by formal, rigid organisational and accounting structures.

As a result, among other things, IT capabilities frequently struggle with:

- **Integration.** When a new system, either purchased or developed in-house, is implemented, significant effort is required to enable it to interoperate effectively with the systems already in place
- **Information exploitation.** Although information to support decision making is abundant, it is often difficult to work with in a timely or convenient fashion
- **Accessibility.** Although underlying network and platform technologies allow universal access to systems, security systems and organisational assumptions reinforce closed user communities
- **Flexibility.** It is often difficult to modify system behaviour in response to ever-changing business requirements, and systems react poorly in environments where change and uncertainty are inherent in access and usage requirements.

All these things conspire to make it difficult to marshal IT capabilities in effective support of cross-organisational business processes and collaborative communities of practice. Put simply, for a great many organisations, IT isn't really doing the job that it now needs to do.

Figure 3: The changing focus of business automation and its implications



As figure 3 shows, when the focus of business automation was non-differentiating processes concerned with day-to-day business operation, highly structured, “stovepiped” software applications which made explicit assumptions connecting databases, business logic and user communities were perfectly acceptable solutions to the problems that presented themselves. Now, however, these designs are a poor fit for the new requirements.

In order to provide more structured IT support for the kinds of collaborative, ad-hoc and quite possibly dynamic business processes that are the major focus for automation today, organisations need to deliver interconnected networks of resources which promote openness and flexibility as first-order design imperatives, and which make as few assumptions as possible about usage.

SOA: separating “what” from “how”

This is where Service Oriented Architecture (SOA) comes in. In exploring the ways in which evolving technologies can help your organisation support the new types of collaborating teams and new collaboration requirements now emerging, it's critical to consider any initiatives in parallel with an evaluation of SOA. That's because SOA, done right, can help CIOs and IT departments embrace the rapid change that's occurring in interaction environments and collaboration requirements, while at the same time offering managed IT capabilities which can be plugged into these new environments openly and flexibly.

When we consider the key requirements that are now being imposed on IT due to large-scale business change (process integration within and between organisations; more structured support for collaborative, dynamic processes and practices; and so on) it quickly becomes apparent that where there is a major mismatch between IT's deployed capabilities and organisations' needs, this comes in large part from systems which commingle two key IT concerns:

- **What** tasks are being automated and what information is being managed by IT resources
- **How** people interact with those IT resources to get work done.

In systems design terms, this is realised in the tight coupling of business logic, data management logic, infrastructure technology and user interfaces which have traditionally been found in software applications.

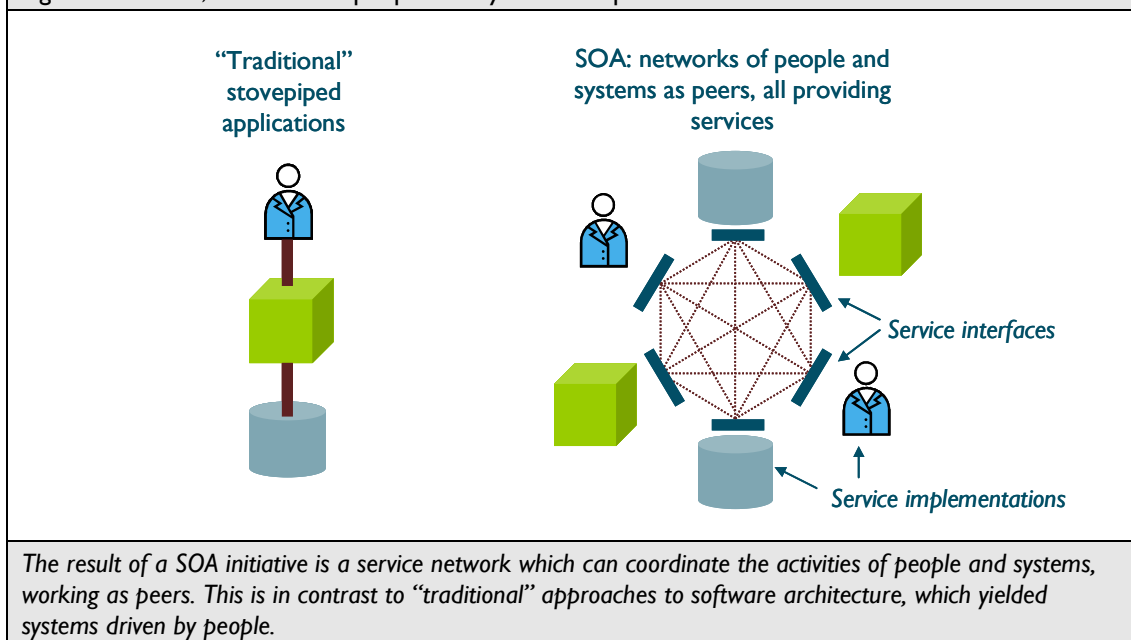
SOA's value to collaboration environments is in helping organisations separate the “what” from the “how” in individuals' interactions with software systems. A well-crafted SOA initiative with the right tools and structures in place can deliver networks of software services that represent business-meaningful interfaces for business tasks and processes, and which can be addressed and interrogated from multiple usage contexts. In this way, a sound SOA initiative sweeps away the tight coupling that so often binds usage activity and context in today's applications and which creates so many problems.

SOA: blurring boundaries between collaboration and transactional systems

As well as limiting today's software applications' ability to provide value to usage scenarios beyond those which were originally “designed in”, it is the tight coupling between concerns in today's IT systems which is at least partly responsible for the gulf which still exists between transactional systems and collaboration environments in deployment. Transactional systems have historically been delivered in support of very particular types of structured task; whereas collaboration environments have historically been delivered almost as “blank canvases” that teams then work on. The result that most organisations live with is two separate software interaction domains: one that provides support for people to work with people; and another that provides support for people to work with information resources.

But because SOA focuses on interfaces and interactions rather than implementations, a SOA initiative can be used to create large-scale business software networks where individual services are delivered by people rather than automated software. In a service network created through SOA, the relationship between individuals and IT systems is not the kind of relationship which comes from “traditional” systems – where IT systems are driven by people. In SOA, networks of people and systems are all peers of each other. IT systems can drive human activity; as well as vice versa. Figure 4 illustrates this.

Figure 4: In SOA, networks of people and systems are peers



Composite applications and collaboration in context

Through the increasingly widespread use of service interfaces as integration points, collaboration environments' blank canvases can be interwoven and pre-populated with information and automated tasks which were historically managed by isolated transactional systems. Likewise, transactional systems' processes can be more easily prised open and extended, in order to weave managed collaborative human activities into them.

This two-way interweaving and pre-population makes what some people call "collaboration in context" possible, and will be the foundation for a new wave of web-based composite applications which bring together both collaborative workspaces and transactional context. This enveloping of collaboration and transactional facilities within easy-to-use, yet open and universal interaction environments is critical to both lowering the cost of contribution, and increasing accessibility, in new collaboration scenarios.

Innovation needs sound business information inputs

There's another respect in which SOA initiatives are crucial to supporting new collaboration models in your organisation, which relates to the business drivers behind the desire for better and broader collaborative working: in particular, the renewed business focus on uncovering and delivering innovation.

It doesn't matter how good an organisation is at marshalling people to think creatively and invent new ways of working, or new products and services, and plans for bringing these to market: without a sound platform on which to build innovation efforts, those efforts will fail. Part of this platform is about how people are organised, incited and empowered. But importantly, it's also about making sure that people have high-quality information at their fingertips. Successful innovation doesn't just come from inspiration: it comes from measurement, comparison, evaluation, testing, and verification. Without the ability to map ideas onto an accurate picture of the environment in which they will eventually set free, an innovation programme is quite likely to do no more than enable your organisation to go bust more quickly.

Providing a high-quality base of business information isn't something you can only do through a SOA initiative – but if you're pursuing SOA correctly, then creating a single, consistent, comprehensive view of key assets such as customers, orders, stock, accounts and so on will likely be a side-effect.

New collaboration technologies + SOA = a compelling business platform

Clearly, an approach to investing in and delivering IT capabilities which maximises the interoperability, composability and flexibility of systems is a critical part of how you can better support today's collaboration requirements: SOA has a major role to play. But focusing on how IT capabilities can be delivered to business organisations as open, flexible, interoperable services will only get you half (at most) of the distance to your destination.

SOA is part of the answer, but serving people means understanding interactions, too

To really serve the needs of today's organisations as they change in line with business pressures, we have to go beyond thinking about how IT services are *provided* to business organisations; to thinking about how to provide structured support for the myriad ways in which individuals will want to *consume services in the context of business activities and practices*.

In other words: an "IT up" view of the problem, which focuses on the role of SOA, has to be complemented with a "business down" view of the ways in which today's businesspeople and teams need to interact with systems and information in order to create business value.

Given the ways in which both business and technology are changing, yesterday's answer – mixed bags of isolated software applications which are confined to supporting predefined sets of structured processes; isolated analysis and reporting engines with their own interfaces; and isolated email and collaboration environments – is just not good enough.

The new collaboration fabric: bringing the threads together

New web-based collaboration tools (blogs, wikis, social bookmarking and so on), developments in web-based user interfaces, and the power of SOA combine to provide a flexible collaboration fabric which is quite unlike the environments which support business collaboration today – and which has the potential to significantly improve IT's support for today's collaboration-dependent business agendas.

Thanks to the open and universal nature of these new tools, both the cost of contribution and the accessibility of collaborative work, which are so important in today's business scenarios, can be dramatically improved. Thanks to the ability of SOA initiatives to enable networks of people, information stores and systems to act as peers, interoperating seamlessly, the collaboration fabric can make collaboration services, contextual information and transactional resources available side-by-side. And thanks to the ability of technology approaches like AJAX to deliver dynamic web-based user interfaces that can be easily customised in use, the fabric can allow individual users to combine the right collaboration facilities with the right contextual information and the right transactional resources, in line with the needs of the particular work situation they find themselves in.

A call to action

With this new collaboration fabric in place, interaction environments can be shaped by the work that people do in practice, rather than being shaped by rigid (and stovepiped) design assumptions. It's still early days for the new collaboration fabric, but it makes sense for organisations to start taking advantage of the opportunities already present. The first step is to analyse the business areas which will most quickly benefit from the technologies that are woven into this collaboration fabric, and start planning some early implementations of the elements which make most sense.

Organisations that do so will be able to more effectively respond to their market environments, engage broad communities in the search for and application of innovation, and find it easier to focus more on the business activities that differentiate them.