INDUSTRY ANALYSIS

WHY COLLABORATION IS BROKEN

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Collaboration technology does one thing: it facilitates work between two or more people. As collaboration technology has evolved, it has also become increasingly specialized which has led to a fragmented market for capabilities and vendors. There are so many collaboration products with a combination of differentiated features and overlaps that it is becoming impossible to organizations to maintain a rationalized collaboration infrastructure. This has created new issues for collaborative work that include the need for people to work with and master multiple tools, some not even approved for use. It is imperative that organizations recognize the factors related to collaboration failures before they can consider plans and actions to minimize their impact on the productivity and serendipity of their employees, partners and customers.

This report focuses on the deep causes behind collaboration software's failure to meet the expectations of individuals, enterprises and other organizations. Although this report makes several recommendations on how to remedy the broken nature of collaboration, it does not make technical or architectural recommendations. Those topics will be covered in subsequent reports.

Special note: The survey reported in this study is still open. As the data comes in, this report will be updated to reflect current results.

To add your insights to the Serious Insights Collaboration Survey please visit:
http://www.seriousinsights.net/collaboration-survey-page/

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A Working Hypothesis

Collaboration involves two or more people working together toward a shared goal. Collaboration software, therefore, is any software that facilitates the work between two or more people.

That broad definition encompasses dozens, if not hundreds of software products and services that run on desktops, over networks, through cloud services and on mobile devices. The sheer number of collaboration options is one major impediment to effective collaboration. When the tools of collaboration introduce confusion and chaos, that can only aggravate the lack of coordination from already poorly designed collaborative work experiences.

Collaboration technology has failed to provide all the benefits promised by vendors and pundits alike. Although vendors know that changing the way people work is the only path to real adoption, they under invest in the resources required to evolve their customer's work experiences to the next level. Buyers also under invest in incorporating new tools into work experiences, often being content to offer superficial training and introductions that neither encourage nor guide deeper redesigns of existing work. Organizations, and most of the workers most of the time, just let collaboration happen—they accept rather than adopt collaboration technology. Of course, some become advocates and experts, but the numbers are small. This report looks at the major reasons collaboration is broken and suggests several ways that vendors and their customers think through these issues in order to start designing more effective collaboration environments that will help organizations become more agile, more productive and more innovative.

The Lack of Design: Adoption Just Happens

> **Why collaboration is broken:**
>
> Collaboration is rarely implemented as part of a work experience design. The lack of design results in haphazard integration with existing work and inconsistent results.

The buying organization lies at the top of the blame for poor adoption of collaboration systems. Any organization that acquires software and does not adequately invest in adoption beyond deployment is guilty of under investment at minimum, and perhaps mismanagement at the extreme. If information technology (IT) just allows collaboration practices to evolve, evolve they will, but often in silos, partitioned off from the broad community—they will evolve into different and incompatible approaches to work using the same tool, or apply different tools to similar work. There is nothing wrong with evolution, adaptation and agility, but an overly complex collaboration environment, or a misunderstood and underutilized one, neither provides people with an understanding of capability, nor with a standard toolbox that was designed to meet most of their needs.

Even single vendor solutions offer collaboration tools that are so flexible and ill-defined that they fuel a propensity to let people do what they will, which not only fragments the user experience, but may ultimately prove incompatible with work being conducted elsewhere within the organization.

In *Management by Design*, I call this phenomenon out as "just letting work happen." A new tool is introduced and people must figure out how to incorporate it into their work, or not. Resistance to

the adoption of new technology often begins with the failure to dialog about the new capabilities and the potential impact on how people work. Applying design dialog, if nothing else, reveals the hidden assumptions behind the work that is happening, such as an assumption that because a particular tool is deployed and described as being *the tool* (*document management* for instance) that it is *the tool* that people are actually using consistently for that function.

By permitting collaboration to "just happen," people first choose to participate or not, and if they participate, they may do so at many different levels. People may also resist or introduce chaos by using (rather than advocating) for alternative tools or practices. They may make superficial gestures to go along with the project, or they may rethink their work in light of new capabilities in order to enhance the work experience for themselves and others.

The later approach, becoming advocates of change and redesign, is pretty rare in most organizations, though some champions do emerge. More often than not, the majority of people fall into the basic use category, feeling as though they have enough work to do without creating new work by re-creating their routines around new tools.

That is why engaging early with knowledge workers around how they do their work, and helping them design their work experience is crucial to gaining the benefit of the transformative features of collaboration software. This requires an investment of time and a willingness of the organization to accept the sometimes-slow metamorphosis of existing processes into new ones that spread first, and then eventually take hold.

Exacerbating this is the message from some vendors that a narrowly focused tool can be applied to what is clearly a mismatched use because that is the only solution they have to sell.

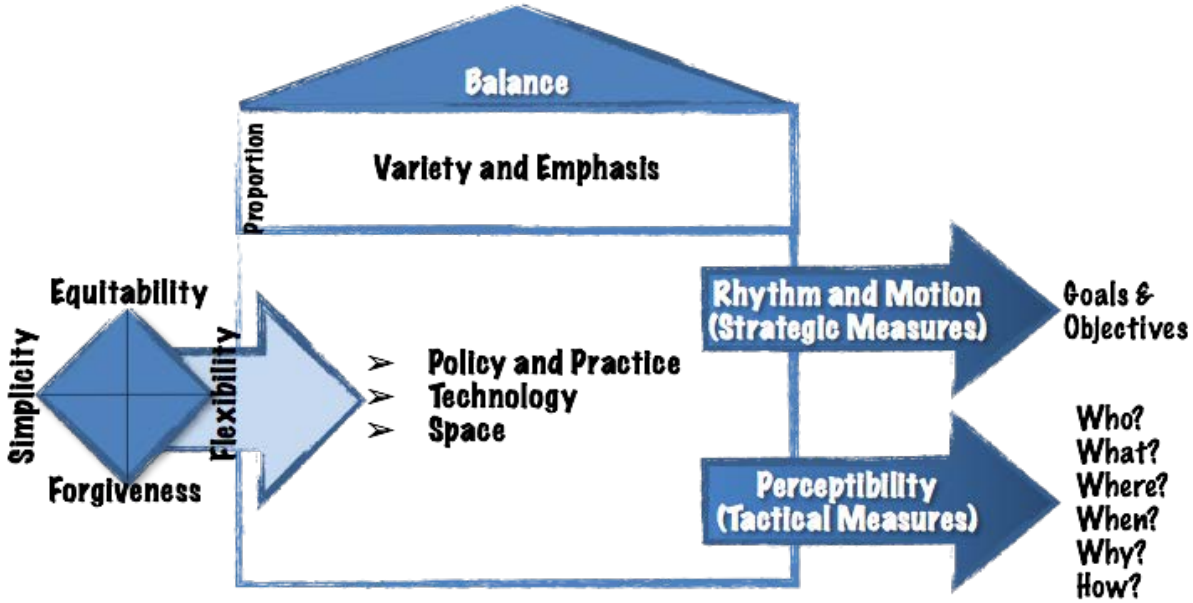


Figure 1. The *Management by Design* Methodology

Anti-Fragility and Design

In Nicolas Nasim Taleb's book, *Anti-Fragile,* the noted decision-making author describes how some things in nature and engineering benefit from chaos and stress. A glass does not benefit from stress. Place enough stress on it, and it shatters. When people exercise, that places stress on muscles, and the muscles grow in strength. "Anti-Fragile" is an important concept in collaboration because there are many places that organizations introduce fragility into their collaboration environments, and therefore, into the organization itself.

It might seem that it would be difficult for the author of a book about designing work experiences to reconcile design with chaos. When describing the components of balance in a work experience, it is critical to include all forms of tension, which is how I describe the way to identify the components. Look for the tension, and those ideas and concepts will be the items that require balance. A typical tension is the one that exists between *time* and *cost*. Increase the *time* and the *cost* goes up. Force a decrease in cost, and you may not invest enough time to create a quality product. You then add a new component, quality, which also must balance with cost. As artist Alexander Calder demonstrates admirably in his sculptures, balance need not be binary. It is possible to balance many things around a single point.

So in exploring balance for a work experience, fragile and anti-fragile are a balancing component. Take a project management system as an example. Just using a scheduling tool would be fragile. A project is about a lot more than dates and times, PERT network and Gantt charts. Projects also require communication. An anti-fragile system would include ways to communicate all of the key information about the project. *Management by Design* defines two primary types of communication: *rhythm and motion* and *perceptibility*. *Rhythm and motion* seeks to align work in a bi-directional way, in this case project work, with the strategy of the organization. Strategy defines the rhythm and the motion of the organization. This is can also be thought of as up-and-down communication.

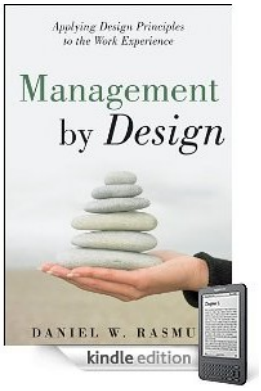
> So the anti-fragile nature of collaboration, in a project, comes from the people and the network associated with the project, not from the software. That being said, the anti-fragile nature of project management, let's call it innovation or just the emergence of better ideas, can't arise if the design for the collaboration environment introduces fragility. That is where *design* comes in.

Perceptibility covers horizontal communication. It is called perceptibility because it manages how others perceive the work being done. Perceptibility asks that all work constantly report it status in terms of who, what, where, when, why and how, and make this available to other teams. Perceptibility not only covers the design of communication, but also auxiliary information flows, such as knowledge management, which typically focuses on the "how" of a project. Knowledge management as a feature of work, however, would be a different, but intersecting work experience.

So what does all of this have to do with being anti-fragile? A project management system, by itself, is fragile because it doesn't include enough communication features. Now, as pointed out in other findings in this report, the project management vendor may well start including blogs, social media,

wikis or any other types of relatively easy to adhere communication tools to its core project management features because they have become easy to do include. The vendor may even embed those communication tools into the product at the project task level so that people can collaborate and communicate about a particular task. That is all well and good on the surface, but let's also say this company managing a project uses an enterprise social networking system—and it doesn't matter which one. What does matter is that the social networking system exists independently of the project management system and does not integrate with it. A system where a vendor has attempted to make their system less fragile, more robust, has inadvertently introduced fragility because they didn't consider that people would need to make choices about where they communicate. As soon as multiple features appear in a collaboration experience, the system becomes more fragile and less productive because people must choose which system to use to communicate what to whom, and they may decide, given the critical nature of some communication, to duplicate it across communication channels, which also decreases productivity. They also may choose not to integrate their communications, leading to fragmented communications which quickly devolve into missing information and under-informed decisions.

Taleb stresses in *Anti-Fragile* is that robustness isn't the same as anti-fragile. Robustness and resilience aren't enough. Those words mean survival or repair to a previous state. Anti-fragile things grow and thrive on stress—they become better, stronger.



So the anti-fragile nature of collaboration, in a project, comes from the people and the network associated with the project, not from the software. That being said, the anti-fragile nature of project management, let's call it innovation or just the emergence of better ideas, can't arise if the design for the collaboration environment introduces fragility. That is where *design* comes in. Rather than over design for a function to the point that there are no degrees of freedom, collaboration work experience designers must design for fluidity, so that as much as possible, the collaboration environment stays out of the way of those using it. As soon as choice is introduced, be it choice of social networking software or more than one way to make a telephone call, fragility re-emerges. That leads to another set of design components: fragility versus redundancy. Some would argue that redundancy supports resilience or robustness, because if a social networking system goes down for instance, people can shift to another system, or fall back on e-mail, and still communicate. At one level that may be true. But work experience design attempts to reconcile the micro of work execution, with the macro of integrated business outcomes. If each time a person wants to communicate, they have to make a choice about which system to use, then the system isn't robust at the micro-level. The micro-level should specify, that for project communications, this is the system of choice, allowing people then to concentrate on what they say instead of starting each communication act with a choice about which tool to use. This then places the stress on the person, who is already anti-fragile, a person who can, in light of that stress, suggest alternatives and innovations. The fluidity of the collaboration experience increases access to the intellectual assets of the people in an organization, whereas the complexity of multiple collaboration tools that do the same thing decrease intellectual cycles.

Those really applying *Management by Design* principles will find that the macro versus micro issue isn't just a single layer. If you look at all work experiences as a single layer, it would hold that you

could, for instance, apply a different file sharing and synchronization technology to different work experiences without conflict. That would be true, if those work experiences existed in complete isolation. But they do not. That is part of the rhythm and motion feature of the methodology—the feature that forces reconciliation with business outcomes. IT, for instance, includes a work experience around managing the IT portfolio. In that work experience, deploying a multitude of file sharing and synchronization tools doesn't make sense, for a number of reasons, chief among them, access control to critical company information, which may also end up on the list of components for project management, especially if a project includes partners and customers. The IT design is part of the organization's strategy, and therefore, influences all work experiences that employ information technology. Access control to information will also likely show up on the balancing tensions list for the project management experience, which further reinforces the relationships. Applying design asks that people think holistically while also paying attention to the details of tasks, including communications.

Management by Design therefore helps organizations facilitate anti-fragile behaviors, critical to inventive collaborations by ensuring that policies and practices, technology and space, don't act as inhibitors to natural anti-fragile elements in the system, like people. Note in collaboration, design should be applied in most cases, not to add new overlays to work that must be accomplished, but rather to invoke simplification of practice by employing technology, which is as much a design choice as creating something entirely new.

Believing "The Cloud Myth"

The cloud, in the abstract, promises simplicity: simplicity of acquisition, simplicity of management and simplicity of use. The first two are relatively true, but the later, is far from true. Collaboration technology, regardless of how it was acquired, still requires purposeful integration with they way people work. Cloud-based collaboration is no more likely to fit seamlessly into workflows and creative acts than any other form of collaborative technology.

Why collaboration is broken: The switch to cloud-based collaboration software simply moves the burden of installation and deployment; it does nothing to improve on adoption or effective use of collaboration software within organizations. Further, the cloud introduces new issues like overtly generic approaches to collaboration, the rapid deployment of new features, functions and interface designs.

The advent of "The Cloud" has created a marketing opportunity for cloud-based vendors to differentiate themselves from on-premise collaboration solutions, which tend to be older and more established, usually from older, more established vendors, though that is changing. One way to differentiate is to talk about ease of deployment. Ease of deployment is a very true claim for cloud-based vendors. In some cases, signing-up for a service is the extent of the deployment. Go into a web browser, authenticate, and start collaborating. Some cloud-based services still require, or at least offer, client applications that requires installation, but that is usually done by the knowledge worker themselves, rather than by IT. Those organizations with tight control of their IT downloads would need to either distribute that client software or modify policies across the network to permit it. Those are likely the most complex deployment options encountered during a

cloud-based service deployment, which is a far cry from IT analysts going PC-to-PC with a CD to install software, or in more modern situations, IT maintaining its own library of approved software on a distribution server that also pushes out approved updates to PCs everywhere.

Once deployment of collaboration software is complete, the design of the work experience is just beginning. It is often the case, especially with smaller collaboration vendors, that they don't offer services beyond resolving technical issues. In the cloud, the work of learning how to work remains with the customer.

The cloud also creates a very different update model than traditional software. Some software updates very frequently, and some of it, especially cloud-based services, can shift in radical ways: features get moved around or abandoned, features get moved into separate apps or interfaces morph into entirely new forms. Unlike traditional services where testing can be conducted, roll-out plans developed and end users apprised of the changes, with cloud-based collaboration services, the vendor pushes the changes into the market, sometimes at the whim of the developers, sometimes as the behest of a venture capitalist. Uncomfortable changes result in at least a temporary loss of productivity, and in some cases, a loss of features that, if relied upon, must be quickly replaced in other ways.

The roll-out of internally "untested" updates usually fail to offer sufficient transparency about the details of an update, so updates must rely on service provider assurances of quality and data protection, which in financial, aerospace and other security-oriented industries, may prove untenable.

This rapid deployment of changes also reflects the cloud-based services propensity to develop very horizontal tools that can be used by a large majority of people for very simple things, but fails when applied to verticals, industries or organizational specific collaboration needs.

Failure to Embrace New Capabilities

Why collaboration is broken: Collaboration software introduces new ways to work, but organizations fail to embrace these new capabilities to fundamentally rethink the way work is conducted, the way communications, co-creation and coordination take place.

Most organizations adopting collaboration tools fail to recognize the addition of new capabilities that may fundamentally change the way work gets done. This is not for lack of evaluation teams ensuring that a collaboration platform includes all of the features asked for by various constituencies around an organization.

The most dramatic example might be a firm that continues to manually process paperwork after acquiring a business process management and forms solution, a type of structured collaboration. If the participants in the process aren't converting most of their processes to workflow with online forms, then they have missed an opportunity to optimize around their new process platform. Much of collaboration software capabilities, however, are subtler. Enterprise social networking can co-exist with e-mail, but if the same messages continue to be pumped across both platforms, the investment of enterprise social networking will likely flounder, as old methods often trump new ones. If, however, entire areas of communication, such as human resources announcements and guidance, end up only streaming through the enterprise social media platform, the platform will be reinforced by meaningful content for which it is the only source.

More complex interactions, like project management, or the co-creation of a document, require their own collaborative efforts to decide which tools are applied how and when, in order to support a business outcome. This "meta" reciprocal view of collaboration required to design for collaboration is itself an issue, because at the fundamental level, many people don't understand how to negotiate the design of work experiences.

Organizations often simply accept new collaboration software, rather than adopting it. Acceptance can be the death knell for software, because for it to add value, it must be used by a wide range of functions for which it wasn't originally acquired, and that means actively pursuing an alignment between capabilities and needs, as well as between capabilities and possibilities.

Capabilities and Needs. There are a wide range of reasons for which collaboration software is procured. After procurement, those reasons will drive the primary adoption investment. As with many tools, the procurement is driven by the need to solve a problem, and a problem usually has an associated cost which results in a nice, tidy return on investment. That narrow view of a tool limits its ability to be effective because those not targeted may remain uninformed about the new capabilities, or see that as "another functions choice," and create a new project to evaluate software in their own domain (or just keep doing what they are doing with existing tools).

Capabilities and Possibilities. It is much harder to look beyond the immediate need to other ways in which software can be used. Unlike many types of software that are designed for functions, or to support a particular line or type of business, collaboration software is primarily horizontal in nature, meaning that the tools can be applied to a wide range of situations. For most people, they already have some "solution" to how to manage data or collaborate in these situations; so new collaboration tools compete or complement existing tools. In light of *Management by Design*, it can be said that when there is no guidance or dialog about the work experience, it is left to the individual to create the best work environment for themselves, which may well prove suboptimal to the rest of the organization.

Organizations must actively engage with post-procurement adoption, not simply deployment. The failure to effectively apply acquired tools greatly reduces their potential impact on the business, as well as potential financial returns related to improved productivity and serendipity.

Lack of Vendor Investments in Practice Sharing and Advisory

Why collaboration is broken:
Vendors don't invest in the sharing of practices for successful deployment and adoptions of their products, and therefore customers are left with the expense of using third parties, building their own training or employing the knowledge from internal or external communities.

When it comes to the effective use of collaboration investments, the vendor community is just as culpable as the buyers of collaborative technology, in that most make very minor investments in the gathering, codification and dissemination of practices in a way that buyers of technology can apply. Further, although many vendors offer professional services for implementations, those services often prove cost prohibitive to all but the largest organizations, the one class of organization that often does conduct its own collaboration research, sharing and knowledge dissemination. Facilitating online communities with self-help is a cop-out. While some organizations may contribute value and discover value, these communities provide guidance that is far from exhaustive, and in some cases, does little more than offer a forum for customers piling on about design, execution or customer service deficiencies, which does neither the vendor nor the customer any good.

Very few vendors offer deep consulting services that assist in the transformation of work experiences. Many offer white papers, videos, user communities, and other documentary guidance, but these offer generic advice at a relatively high level. There is often little done to document and share every particular issue that one customer has been faced and how the issue was resolved.

The on-going 2014 Serious Insights survey on *Collaboration Software Adoption and Use* has found, so far, that 27% of respondents are not provided with any collaboration assistance. See the report graphic "My company provides the following training for collaboration software" for additional information on approaches to training within organizations represented by the respondent pool.

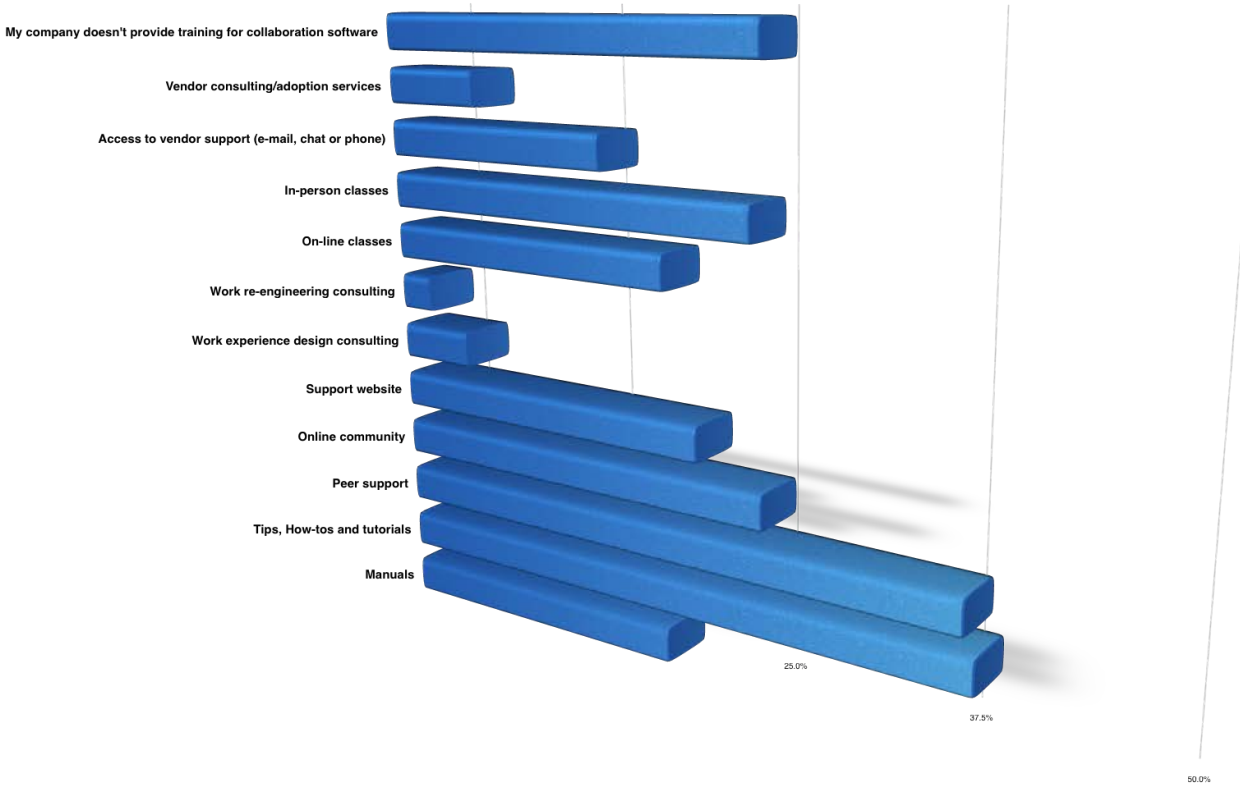


Figure 2: My company provides the following training for collaboration software. From the Serious Insights Collaboration Software Adoption and Use Survey.

Practice sharing and advisory is tightly tied to work experience design. It isn't sufficient to provide generic, untested guidance. The practices being shared need to be industry specific so that people can find those most relevant to their work. More importantly, they need to be suitably detailed so that organizations can align them with their own work and modify them to meet their own needs. Ideally those changes would be fed back into the system so that other customers can learn not only from good practice, but from how good practice adapts when applied.

Evolving Too Fast for Standards

> **Why collaboration is broken:** Collaboration software is evolving so fast that no standards exist for the effective interchange of information between systems leading to disconnected workflows, duplication of content and communications and unmaintainable in-house developed solutions that will also have a difficult time keeping up with existing tools, let alone new ones as they are adopted.

Some collaboration technologies employ standards: e-mail (IMAP), instant messaging (SIP), calendars (CalDAV) and there are many others. Those standards were developed because a common theory of work or data emerged. In the case of calendars, the basic idea of event data has existed for millennia. Many calendar vendors adopted that common view of events, and the similarity of approaches drove the development of a standard, as did the necessity of people to share calendars across domains and across applications. CalDAV has since been appropriated, for instance, by the task management software segment, but because it was not designed for calendar management, it does not work beyond the scope of posting a due date on a calendar. No standard exists for the exchange of task data across systems.

Tasks, as an example, unlike calendars, aren't a generally established form beyond some basic shared characteristics like task name and due date. Many other features, like priorities, the need for start and end dates (common in project tasks), the idea of contexts or the meanings behind flags, differ between systems, if they exist at all. It is perhaps because tasks are perceived as a personal data construct that organizations do not seek standardization, often leaving task management to the individual, or to be negotiated within teams.

Unfortunately, as task management has blossomed, the emergent category can, as often as not, negatively impact productivity as much as improve it. Users must reconcile between systems or manage multiple interfaces across disparate systems.

The rapid development of tools however, includes tools for integration, like Zapier, which links various actions between disparate tools through a proprietary set of interface protocols. This service recognizes the strategic gap available in a standardless market, but it creates its own risk for adopters of the service, which may one day find it acquired and pulled out of the market, failed and shut down, or overwhelmed by demand so that it, to some degree as it does today, only offers integration for certain tools, and those may not be the ones required by any particular organization.

There is no solution to the standards issue, but organizations need to recognize the lack of standards as a driving force in designing work experiences and the subsequent rationalization of tools to support those work experiences. If a standard for task management existed, which client was used, really would not matter. But because there is no standard, the management of task information as just one example, can be a drain on productivity. Consider that across other collaboration experiences, from document management, to team-based real-time collaboration to internal and external communities, and the amount of coordination can quickly outstrip the productive use of these tools for work. That situation can end up narrowing the use of the tools or lead to their abandonment.

Market and Feature Fragmentation

Why collaboration is broken: Analysts and buyers alike have broken the collaboration market into so many functional pieces that it becomes nearly impossible to re-integrate the components in order to design a holistic collaborative work experience.

The collaboration market is fragmenting along a number of fault lines. The most noticeable is the fragmentation based on features. Rather than looking at work coordination, facilitation and communication as the umbrella for the holistic design of work experiences, individual developers have chosen to create tools that offer collaborative features within word processing and other authoring environments, or narrow collaboration features, like enterprise social networking or task management, as stand-alone offerings. These two approaches far outweigh the effort of vendors who attempt to develop and deploy more holistic approaches. This development approach has resulted in the fragmentation of the market, the fragmentation of the work experience and the fragmentation of tools.

The Fragmenting Collaboration Market

The number of technology tools, technologies and platforms that support "collaboration" have proliferated to such an extent, in a mostly standards-free industry, that the use of collaboration tools within and across organizations has become highly fragmented. In addition, the market has fragmented based on various individual features, such as file sharing and synchronization, enterprise social networking, workflow and community platforms. These specializations, while perhaps offering "best in class" feature comparisons do not provide holistic, integrated work environment trade-offs for those evaluating them. Fragmentation forces knowledge workers to personally collect and correlate the information they need, rather than offering them a consolidation of information, feeds and posts through intelligent collaboration infrastructure and architectures (see *Failures of Discovery* below).

This, of course, leads to another symptom of fragmentation; the social or collaboration integrator, or the software firm that brings together various sources into a collaboration portal. These approaches are not the answer to the market's needs, although they may increase the ability of individuals to view information, they often do little to help them interact with it in a meaningful and constructive way.

That fragmentation results in many organizations deploying, or if not deploying, at least finding a way for one collaboration tool to substitute for another. This is most evident in the on-line meeting and enterprise social networking markets. Despite the huge market presence of products and services like Citrix GoToMeeting and Cisco's WebEx, their success makes them the target of smaller firms

that offer either lower-priced alternatives, or new products with differentiated features, creating new, and potentially great rifts, in the collaboration market.

The Fragmenting Work Experience

There are simply too many options. In an ongoing survey conducted by Serious Insights, current results reflect that 70% of respondent organizations had deployed *more than one* brand of realtime collaboration software, with over 44% reporting more than one "collaboration platform" and 41% reporting more than one enterprise social networking platform. Collaboration fails when software or work designs (or lacks of designs) requires people to become the bridge between the tools.

The Fragmentation of Tools

In some cases, specialized software purports to offer a comprehensive approach to a particular business area or concept like knowledge management or learning management, which creates a tool-based fragmentation. To be fair, many current enterprise knowledge management systems are built on top of traditional collaboration platforms like Microsoft's SharePoint or IBM's Notes. But others, like Kana's customer service knowledge management offerings, create functionally specific knowledge bases that integrate with their applications, creating a silo of knowledge that is difficult to mine and integrate into larger, more inclusive systems.

To some degree, this level of fragmentation comes from a sales technique known as solution selling. Solution selling looks at pain points within an organization and attempts to "solve" or eliminate customer pain through the selling of a particular solution. Think aspirin for the headache pain of not tracking document versions, for instance. The sale is designed, as well as the product, to stop that pain as quickly and as profitably as possible. Adding to fragmentation is the fact that buyers often express small pains that when solved, lead to new pain. Few, unfortunately, ever express the total lack of a holistic approach to work as a pain point. Little pains are both easier to describe and easier to solve for.

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That buyers acquire software based on pain points is not surprising, and since they do so, a sell-side model that offers solutions to particular pains is also to be expected. This approach creates new pain points as standalone systems require more technical skill for integration than those already integrated by vendors through their own architectures. It may well be true that "best of breed" systems offer superior features to those integrated into other systems, but often at the cost of knowledge transference outside of the silo that can result in reduced benefit—a reduced benefit often hidden and disassociated with the system of record.

System architects, those whose job it is to ensure that various technology components work together, should intervene, if to do nothing more than educate and warn, when applications threaten to increase system and information disaggregation.

Another aspect of the selling process unduly influencing development is the functional sale. Learning management systems (LMS) are a good example. Rather than selling to IT, learning management

system vendors sell to professionals. And rather than selling to the pain point, (which they aren't beyond depending on the situation), they sell to the benefit. They paint the vision that matches the one the professional has in his or her mind. In the case of an LMS, the comprehensive delivery and assessment system, complete with directory integration, course management, learner tracking and social learning. They may also include a few more collaborative bells and whistles. The problem is, that most LMS products employ their own collaborative features, and if they don't, they cobble together features from various vendors. For the buying organization those features may or may not be tools they already own, and if they are not, they duplicate functionality at minimum, and at worse, they create confusion and extra work as people decide first their context, then the tool they need to use for that context.

Creating Collaboration Software has Become Too Easy

In the early days of collaboration, credibility required at least a tacit proof point that the supplier of the software had some philosophical underpinnings for how people worked together. They needed a theory for electronic work. Given issues with networks, client software deployment and entrenched process cultures based on paper, the opportunity for what was then called "groupware" was enormous, but very difficult to capitalize on. Sellers of groupware had to convince people that not only was their current approach wrong, but that the solution to improved processes and communications was the nascent personal computer.

Collaboration has now become too easy. The basic forms for computer-facilitated work have existed for decades. The Internet has made connectivity ubiquitous and people now, sometimes to their dismay, work with other people almost exclusively through computers. The easy creation of software for collaboration has broken collaboration because:

Why collaboration is broken: The basic features of collaboration offer little mystery to programmers, so creating them is easy. Unfortunately, that has created a plethora of tools focused on incrementally augmenting existing techniques, not adding new value to the collaborative experience. The resulting software is often low cost, and increasingly a service, which makes it accessible to workers with point problems who adopt these low cost offerings via free trials. If the software solution solves a point problem, it may remain, increasing the complexity of the overall software environment, and potentially creating confusion among workers as to which tools to use or how to work across multiple tools.

- Several conflicting models for effective work exist within the software community.
- The price of collaboration software has dropped to the point that organizations can easily procure software from more than one vendor, which then brings the conflicting models into their organization.
- Emergent software often arrives "without theory," meaning that although its creators see an opportunity to transform some aspects of collaboration, coordination or communications, they often do so without a clear understanding of how their software fits into the ecosystem of other products.

Take collaborative task management, which existed inside of Microsoft Outlook/Exchange and within IBM Notes, but although functional, neither of which cornered the market on that particular feature. Creating a list, sharing a task, assigning/accepting dates and tracking completion is a relatively simple feature to create. Thus the market now includes Google Keep, Any.do, Wunderlist, Todoist, OmniFocus, HabitRPG, DropTask, Clear, Remember the Milk, Toodledo, Cheqlist, hiTask, iProcrastinate, Minimalist and many others. These are products for which any person in an organization might reasonably assume he or she will, as some point, receive a task from a co-worker, a partner, a not-for-profit partner, a friend or a relative. And that is just in one class of collaborative software.

Although many of these task management approaches integrate with the lowest common denominator of collaboration software, meaning e-mail for pushing invitations or notifications, at their core, each of these pieces of software seeks to differentiate the task experience through unique visual interfaces, distinctive partnerships and data innovations.

As an example, ThinkBuzan's iMindMap 7, which can also be used for task management itself, has partnered with DropTask. To some degree this kind of partnership is one of mutual convenience and strategic positioning. In practice, this partnership limits choices for the buyers of iMindMap because the ubiquity of task management tools may result in a work situation where DropTask does not meet a need, or more likely, where DropTask is just one solution among a cacophony of task management tools. In the later case, if DropTask does not become a dominant tool, it may also limit the collaborative reach of its partner, iMindMap, among buyers who choose a different task management solution.

Although task management offers an example, other categories, like enterprise social networking, require their own analysis.

Everybody's Gone Social

Social software, at its most basic, streams posts through a shared, time sequenced view of those posts, sometimes called a wall or a feed. The popularity of Facebook and Twitter exposed a gap in enterprise collaboration solutions, and that gap was social engagement. Prior to the advent of enterprise social networking, social systems within enterprises primarily existed within e-mail, and to a lesser extent, within internal forums, communities or on team sites, usually those related to specific projects. The technologies of e-mail and forums, however, often proved opaque and non-inclusive, leading to a politicization that ultimately limited their use as social engagement tools. Although some would argue that the widespread use of e-mail proves it as a social tool, few, if any, would argue that e-mail is a tool that attracts or retains talent within an organization. That is precisely the opposite of the value proposition offered by enterprise social networking vendors, who, beyond touting the productivity gains associated with enterprise social networking, sell it as a tool for engaging employees more directly, and with greater transparency.

There is a problem with enterprise social networking software, however, and that problem is unique to the simplicity of the idea—once the functional aspects of Facebook and Twitter slipped into a social meme, it became apparent to many developers that they could easily reverse engineer those environments, and along the way, add features and enhance security in order to create business-oriented tools. Social media begat enterprise social networking.

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Anything that proves easy to clone ends up with an escalating battle for differentiation that most often leads to a negative return on incremental innovation: the next feature isn't cool enough to really make the next product that special. Given the size of the business population, however, start-ups in enterprise social media were able to find enough traction, either through early customer adoption or seed funding, to create products and fight the differentiation battle.

So the first problem with enterprise social is that it has proven relatively easy to develop a minimum viable product that looks like a Facebook or Twitter with various forms of security, enhancements

for teams, and services that can restrict membership. That ease of development leads to a second issue, that of fragmentation. Most enterprise social networking software offers some form of "freemium" model that allows small groups of people to try the software. Even those that don't offer freemium models offer low-cost models for entry-level users. All of this low-cost software has led to large enterprises that may have many enterprise social networking services running alongside each other, with very little oversight from the information technology department, and very little perceived need for integration by the end user information workers.

Within the vendor suites, their products are rationalized against their own offerings: Salesforce.com's Chatter sits alongside the Salesforce CRM system. Microsoft's Yammer sits beside SharePoint. SAP's JAM, however, sits alongside, and within, various SAP transaction systems. Others, like Jive, bring segmented conversations, access controls and other anti-transparency technologies that belie the inclusiveness of the enterprise social market to serve the security needs of the enterprise. There is nothing stopping Jive, Yammer, Chatter or any other vendors from rapidly adopting the features of their competitors. This creates a huge challenge for IT because the lifecycle of enterprise social networking development has become so compressed that selecting a product based on features or market presence becomes very difficult.

Of course, implementation is everything. Systems within companies like those associated with aerospace or finance, may well need social systems that focus only on teams and technologies within compartments. It could be argued, however, that if compartmentalization is required, perhaps more traditional collaboration tools would be a better fit. We will return to this later in the report. Social systems, however, focused on human resources, facilities and other issues should be much more open, until any conversation crosses a line into the personal (HR policy is a good topic for social networking, a sexual harassment incident is not, except in the context of policy). What these examples demonstrate is that enterprise social networking, in its most basic form, as described at the top of this section, has limits, and that when developers attempt to incorporate the need for limits within the software, it stops looking like enterprise social networking software and more like a collaborative repository akin to a Microsoft SharePoint or EMC Documentum.

The other major fragmentation associated with enterprise social networking comes from the ease of writing social networking software and the lack of interoperability and standards. At this point, with so many vendors fighting for market share, the strategic need for differentiation negates any altruistic motivation for developing a standard. Not until there is a buy-side mutiny and insistence on a standard, or the implosion of the market, will the survivors negotiate their way toward peaceful coexistence.

Consumerization of Collaboration

Task management and enterprise social networking are not the only places where collaboration from consumer tools is meeting the enterprise. The ease of developing collaboration software has also resulted in a wide range of collaborative features in other products, or entire suites of products that compete with established platforms. Google drive and Google apps have made strong inroads into the domain once dominated by Microsoft and its Office suite of products, forcing the tech giant to not only move Office toward a cloud-based consumer model, but to also embrace rival platforms like Apple's iPad as a legitimate host for client applications. The consumerization of collaboration creates

a market where anyone looking for a solution for how two or more people can effectively work together, or where two or more people dislike their current solution, can easily, with little or no money, sign-up for a collaborative service and start using that service immediately.

This "consumerization of IT" also means new versions of software no longer arrive with deployment dates, training schedules, or IT support. Once deployed, new versions of software arrive without notice as updated cloud apps, or with minimal control as updated apps on mobile or desktop machines. It is becoming impossible for large enterprises to manage software deployments for most software, and collaboration software is on the leading edge when compared to more specialized products.

The consumerization of collaboration software also means that IT loses control over what software is deployed, leading to experimentation and adoption of new software often without any IT involvement. In the collaboration market this leads to departments and functions that deploy software that meets their needs, software that then bleeds over as people interact with others in the organization.

Interfaces Have Failed Us

> **Why collaboration is broken**: The assumption that e-mail must be served via an e-mail client and that the operating system dictates the experience are just two assumptions that impede the developers from creating software that is work-centric rather than technology-centric.

One of the reasons collaboration has taken so long to evolve a work experience that could be considered "post-e-mail" involves the abandonment of the e-mail client. Because so much work, and a majority of messaging, until recently, centered on e-mail, the client has provided the accepted approach to how an individual works with messages. The client, not the server, has defined the way people work.

The bolting on of various ancillary functions to the e-mail client, from workflow and task management, to newsreaders, shared file spaces and calendars, only reinforced the centrality of the e-mail client. The e-mail client has become so prevalent that many individuals, when asked which e-mail system they use, will say Outlook, without understanding the underlying server is actually Microsoft Exchange, but that they could just as easily be a cloud-hosted Pop account or Google's Gmail.

This over commitment to the e-mail client suggest an alternative in which e-mail becomes an input to a more socially aware, more integrated client experience, one that abandons e-mail's server-side characteristics in favor of a better, more open collaborative model. Think about e-mail being received via an e-mail protocol, but instead of showing up in an inbox in a mail client, it shuffled off to another system that integrates it with universal post technology. Just because the e-mail client is currently tied to the e-mail server, it does not mean that new mechanisms can be created that detach the two, allowing e-mail to be more fully integrated with other forms of communication in more open and inclusive data structures. The failure to see e-mail as a database with a feed, or a stream of communications versus a tool for managing discrete messages, has kept innovation to incrementally better ways to manage message threads for e-mail rather than ways to create holistically integrated communication interfaces that understand how individuals work as well as how teams work.

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Another place that interfaces fail is in the influence of target platform design with client design. If you look at collaboration software available through Apple's App store for the iPhone or iPad, developers have, for the most part, clearly attempted to conform to Apple's design constraints. Although over time, people can get used to apps on multiple platforms representing themselves differently, the lack of a user-centric approach can be a factor in reducing the adoption and use of platforms as friction increases with platform changes. ThinkBuzan's iMindMind on the PC/Mac client has introduced a unique feature that allows the end user to decide which target platform interface they want to see (the Mac software can look like a PC, or the PC like a Mac). In a customer-centric marketing world, software designed for a platform may create more harmonious aesthetics, but they may also detract from the purpose of the tools, which is to effectively facilitate the work between two or more people.

To some degree, web interfaces offer a way out, offering experiences that transcend the operating system, but those solutions suffer from pulling power away from increasingly powerful devices that can play a critical role in discovery, organization and local editing productivity. The best of breed for collaboration may well be a hybrid.

The Mobile First Fallacy

> **Why collaboration is broken**: Going mobile first means abandoning other collaboration interaction models. Vendors that focus on collaboration further fragment work and the collaboration market by developing tools and experiences that focus on mode rather than the entirety of the end-to-end intellectual process that is collaboration.

There is a movement among nearly all vendors to design for "mobile first." While the mobile use of collaboration is certainly on the rise among many classes of workers, the mobile experience will never be the only experience. When it comes to communications, a mobile first strategy may make sense, but only if communications aren't fragmented. For example, if the e-mail client and the social networking client aren't integrated, let alone instant messaging or chat, then the call for mobile first can be seen as a mobile fail. Taking the same tired silos of features to mobile may provide some jump on adoption early, but it won't provide a lasting engagement model as the mobile device picks up the lingering friction of functional fragments being fit into smaller footprints, with perhaps even smaller thinking.

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A mobile device, be it an ultrabook, a tablet or a smartphone, is a window into conversations and content. It is not a destination in itself. As stated above, the work experience should be driven not be the OS but by familiarity with function. To the best of its ability, a mobile app should let a knowledge worker work in the same way he or she works elsewhere, be it web browser or desktop app. With the exception of screen size, which is a design issue for apps, the mobile experience should not introduce user interface or functional differences, other than those enabled by the mobile device or enhanced by it. This does leave some room for negotiation when it comes to how "standard" an app is. A smartphone, for instance, provides GPS tagging of content. It would make sense that content captured on a smartphone contain as much available metadata as possible. A desktop application, especially one hosted in the cloud, would be less likely to include GPS data, so that functional difference would be seen as a rather passive improvement on a desktop or web-based application. On the other hand, adopting an OS-centric view of an app so that the Android, Apple iOS and Windows Phone apps all comply with the user interface guidelines by those vendors should be considered absurd, regardless of it being the dominant mode of development. When switching from a web-based or desktop experience, it would be preferable that as much of that experience translate to another platform in its entirety, without the platform introducing a new level of acclimation or training.

Being mobile first also needs to mean not being mobile. Yes, airplanes now offer Wi-Fi, and the occurrence of disconnections on the ground is every shrinking, but offline use is crucial. Even cloud-centric Google offers an offline client for its e-mail. The reality is that at some point most people will be somewhere without a connection. If they choose to work, the lack of a connection should not eliminate all possibilities for contributing value, and where those possibilities are constrained, the app should clearly make it known what will work and what will not. The primary warning always, should begin with the fact that all changes in off-line mode, should they be lost due to mobile device loss or damage, will not and cannot be reconstructed prior

to connection and transmission of that work to the appropriate server. Work at your own risk, but if work you must, facilitate that work as best as the app can under the circumstances.

Finally, we need to return to the issue of two people working together on a complex businesses issue. Mobile apps should not simply facilitate communication, or communication related to collaborative documents, but first class interaction with collaboration experiences at the same level as desktops and browsers. Mobile first, if it provides value at all, will realize value by including the entirety of the collaboration experience, not just the elements that look like they may make sense on a mobile device. Features and functions that make sense to the knowledge worker should not be delivered as crippled, sub-optimal versions of the desktop application experience, or worse, a small piece of a larger collaboration need that is lost in the small window of the app that also has small aspirations. When a knowledge worker is forced to return to his or her bigger device to supplement the work conducted on a mobile device, then the mobile model is broken.

Social Networking has Become an Impediment

The ease of creating social networking software is not the only issue that the technology introduces. Until a few months ago, all it took was a business plan with the words *social*, *cloud* and *mobile,* and venture capitalists would start transferring money to a new start-up. It may not be that easy today, but *social*, *mobile* and *cloud* still dominate collaboration to the detriment of other ways of people work together.

Why collaboration is broken: Although social networking has people communicating outside of the Inbox, it really isn't collaboration and the movement to co-opt more sophisticated collaboration features will further fragment the collaboration market and will likely break what is good about social networking.

As much as it may appear that "social" computing has arrived to save everything from collaboration to knowledge management, it is an approach to collaboration, but not "the" approach to collaboration. Any vendor or advisor who suggests otherwise is being disingenuous if not downright deceptive.

Social networking vendors are creating impediments to better designed solutions by co-opting features and functions better suited to other entry points, such as document management, storage and search. And even if enterprise social was an adequate entry point, vendors often add features that already exist in other tools, thus creating competition among features within the enterprise, and confusion within the ranks of the workforce.

When examining models of sharing information, services and goods, social networking directly appeals to the more open and fluid economy of information sharing. But sharing information isn't the only

collaboration model. Social networking needs to think deeply about how best to integrate with other models rather than co-opt them while they have funding and revenue to spare. Just tacking on traditional features in and around enterprise social networking does a disservice to what social networking does well, and threatens to further fragment and confuse the market. That approach to more inclusive collaboration will also likely result in a loss of value and uniqueness that has driven enterprise social networking to be viewed as a viable alternative to e-mail.

Mode First, Conversation Second

Why collaboration is broken: Too many communications channels lead to people acting as the bridge, which takes time and effort, if it happens at all.

Collaboration software primarily defaults to a particular mode of communication: a real-time chat, an instant message, a social media post, a comment in a forum, just to name a few. The content or message to be conveyed always comes second. Once committed to a mode, it is incumbent upon the individual to complete his or her thought in the select mode. Only after the reach of that mode comes into question does the individual second guess him or herself about different ways to communicate. The classic is, "they must know, really they must, I sent all of them an e-mail," with the presumption being that if a communication is sent, the communicator is now off the hook for the landing of the message. If the recipient doesn't receive it, for technical reasons or for a lack of attention span, that doesn't fall within the realm of the originator's responsibility.

Nothing could be further from the truth. If the person originating an action doesn't realize that people may ignore a post in one medium, while paying attention to it in another—let alone that a single message touch is often insufficient to attract attention—they don't have a grasp of modern communication. With fragmented attention spans and time-starved workers, it is also possible that regardless of the electronic communication method used, a topic seemingly unimportant to the recipient may remain ignored, consciously or unconsciously, regardless of its medium.

In the Serious Insights *Collaboration and Adoption Survey* nearly 65% of respondents reported using multiple collaboration software tools for the same conversation. If the mode isn't transformative, the message must be translated into another mode by the message carrier.

From a technical standpoint, collaboration is broken because it forces people to choose a mode for communication. Rather than taking an input and spreading it across multiple channels at once, most

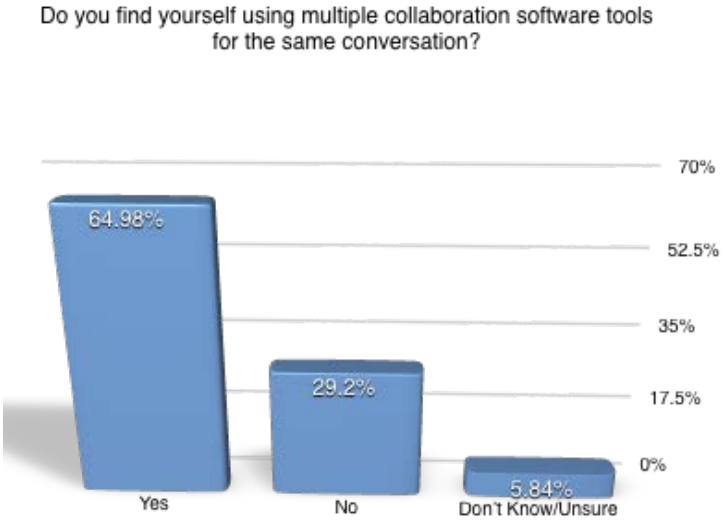

Figure 3. Survey Results: multiple tools used in same conversation.

tools, especially from vendors with narrow offerings, the ability to post once and have a message appear in many places simply isn't a feature.

Analysts and Micro-Segmentation

Why collaboration is broken: IT analysts and buyers have colluded to segment the market so finitely that it has become nearly impossible for organizations to reconstruct effective collaboration experiences from the pieces.

In many areas of human endeavor, most notably in fields like education and law, medicine and computing, specialization becomes an evolutionary offshoot from the expansion of knowledge. At the onset, a new discipline is poorly understood, so a single individual can know what is known. The more humanity learns about something, however, the more details come into view. Humans, by our very nature, begin to expand, categorize and segment knowledge until it becomes impossible for any individual to master all of the knowledge.

Consider medicine: as a macro level discipline with surgery and injury repair taking place at the resolution of the human eye, with the sensitivity of human touch. As discoveries were made about the human body, as instruments were invented that revealed cells, viruses, bacteria, nerves, the human perception changed, no longer limited by organic senses. And knowledge accumulated about organs, proteins, hormones, neural transmitters and hundreds of other areas. Many doctors went into specialties like oncology, neurology, obstetrics and dermatology—increasingly moving further from seeing the body as a whole—often retreating into their domain of expertise. Disciplines and adherents lost the ability to perceive the patient as a whole entity.

The specialists segments the market, focusing on the best approach to instant messaging rather than the higher order question: what is the best way for two or more people to work together in a given circumstance?

The general practitioner, while still capable of treating some aliments, cannot perform neurosurgery, repair the most intricate nerves, arteries and vessels during the reattachment of a limb, nor readily intervene at the onset of cancer. The knowledge to perform the diagnosis and treatment of many illnesses now rests firmly with specialists for whom the general practitioner acts simply as referrer. But there is pushback. Holistic medicine seeks to treat the whole person, not just the physical person, but the mind as well—the ailments as well as the perceptions and emotional consequences of the ailments, regardless of scale.

The micro-segmentation of medicine was inevitable as instruments provided a means to see new levels of detail, and people categorized those discoveries and sought to understand them, and their implications, even more. But in the end, the human body is a complex system of systems, with interactions and feedback that can't be understood by looking only at the liver or the endocrine glands. The human body is a collaborative system.

Collaboration technology, which can be argued is still in its adolescence, has, like medicine, bred its own specialization. Realtime collaboration covers everything from voice to sharing screens, from chatting to video conferencing. For information technology analysts, each of those becomes a market report. Each market report needs an analyst to understand the market, the features and the vendor capabilities — the system of delivery and discovery for that discipline. Looking at instant messaging

as a market is like looking at human vocal chords as a communication tool. They may be a means of communication, but they are not the only means, and in some situations, not the preferred approach. A set of descriptive criteria, however, establishes anatomy, and in the case of software, features, that creates a boundary between one class of communications and another.

Eventually, features become evaluation criteria that permit deep comparisons that describe how one piece of software or solution compares favorably, or unfavorably, to another. Specialists segment the market, focusing on the best approach to instant messaging rather than the higher order question: what is the best way for two or more people to work together in a given circumstance? Specialization in technology can often exist in silos even more so than medicine because most physicians recognize the boundaries of their domain, and at least recommend collaborative consultation.

In technology analysis, the old adage of the pre-industrial age often recurs: if the only tool you have is a hammer, then everything looks like a nail. Specialists tend to answer questions through the lens of their discipline, often answering direct questions about which vendor of a particular solution is better, when they should be raising their own questions with clients about situational need and the goals of the work.

Micro-segmentation creates fragmentation that may bring clarity to a set of tools, but does very little to elucidate on larger questions, such as how best for any group of people to cooperate to achieve a goal, or a more fundamental question for analysts, the efficacy of that tools set within the greater set of possible solutions.

Micro-segmentation does serve the vendor market so that specialist vendors who have discovered how easy it is to develop enterprise social networking software, for instance, can find their place in the collaborative ecosystem without elevating their competitive stance beyond those who offer nearly the same features. Vision within this realm, and the ability to execute, become for analyst firm Gartner a way to describe a market segment, simply zooming in on a feature without regard for the connective tissue required to integrate that feature or service into the greater whole of the work experience.

It is equally dangerous to overly rely upon descriptions for modes of work, such as realtime or asynchronous, because the work itself does not stop at arbitrary barriers, but flows smoothly through the conduit that is human communication. It is the toolmakers who initially craft the boundaries, either for expediency of design, elegance of solution, or because research and analysis suggests a fundable business where “minimum viable product” can be produced and brought to market. But most vendor choices create edges that are too sharp, interfaces that are too constrictive, and data that is too constrained.

Most work is a fluid meandering that stops at certain points to check its path or communicate its location. Markets and analytical approaches, while they serve sellers and create niches for analysts, do not provide value to end users who want tools that meander with them, transform as needed and keep their data accessible regardless of the state.

The Disappearing Document

Why collaboration is broken: The focus on communication over collaboration threatens to leave the document behind, leaving "collaboration" to take place around documents, but not in and through them.

Many traditional collaborative systems focus on the lifecycle of documents and the collaboration effort required to develop them. Most social networking products talk around the document without penetrating them. In fact, most collaboration software either ignores the document content, or is so tied to it that when the content is separated from the tool, the subsequent shared format requires its own collaboration.

The most well-known internal collaboration feature is the revisions features of Microsoft Word, which permits people to edit a document and add comments. And during this process, Word does a marvelous job of differentiating between editors (as long as they use their own copies of Word). Documents can be seen as final with changes, just as final, as the original with changes, or just the original. Even Microsoft's other offerings, most notably Excel and PowerPoint, fail to meet the comprehensive bar for capturing collaborative work set by Word.

Other tools, like MindJet's MindManager and ThinkBuzan's iMindMap, include realtime collaboration connections, delivered through their online services, which extends beyond that of shared whiteboards to shared application control. These tools share the app with other users, presenting the data in a shared screen environment, but with more control and context than simply sharing the screen.

Adobe Acrobat is the most common collaboration format for sharing documents between people through a common app, Acrobat Reader. While Reader permits mark-up and commenting, that input must be reconciled with the original document, making it more a feedback mechanism than a true collaborative, co-creating experience. Acrobat creates extra work by disconnecting feedback from the original content, but with a purpose, that of maintaining the integrity of the original document during the feedback process.

When an organization is developing a large proposal across an organization, it should require some formal document management approach, even if it isn't through a document management technology. The most common technology here is file sharing. File sharing and collaboration vendor Box thinks about this as a move from formal to informal.

This is not just about grants, governments and laws firms. The movement away from the creation of more permanent artifacts can contribute to a failure to recognize the long-term value of knowledge. By concentrating on communications archiving, albeit more open and accessible than in an e-mail-centric organization, the value of knowledge can be perceived just as ephemeral as the medium. Buying organizations, and vendors, need to purposefully think about not only how they collaborate through communications, but about how to effectively link collaboration and co-creation to designs and documents, or risk creating ever more context-free artifacts in a world where talking about the thing never connects back to the thing itself.

Irrational Repositories

Why collaboration is broken: Because of collaboration tool fragmentation and legacy designs, collaboration environments offer too many places for people to put their stuff.

Content, conversations and annotations end up in too many places, and too many of those places don't know about each other. Even more distressing is that information workers, not systems, are charged with determining where content must reside.

Perform this simple exercise: Look at your e-mail folders, your local file system and any cloud file system you happen to use, and see if your own organization structures are precisely consistent across those platforms. There may be some similarity, and more so for some people than others, put it is highly unlikely that these systems match each other's organizations schema.

Why do modern computing systems need multiple file systems anyway? The first answer is historical. Not all systems were developed at the same time or by the same company. As an individual or an organization adopts a system, it was deployed, and then the next system to be adopted was deployed alongside the first one.

This leads to the second reason: the perception that if a database is associated with a functionally unique collaboration environment, then it must also be unique. And that leads to the final reason, which is the lack of a logical integration layer for saving and retrieving collaboration-oriented data. For completely self-contained collaboration offerings, the database may be integrated by design. Most collaboration systems aren't self-contained, however; they are amalgamations of features created over time, sometimes with different underlying technologies, features acquired from other products, or entire products developed with cursory integration that doesn't go beneath the marketing layer so that modules may be more easily sold—and buying organizations who architect their own "solutions" cobble together so called "best-of-breed" purchases that rarely integrate.

The same can be said of collaborative work within an enterprise. Repositories break collaboration because there are too many of them. Most people know where they put new things, but they often don't know where the organization has specified as the optimal place to put one thing or another—and even worse, people often forget where they put things once they put them there.

Search has helped unify repositories by indexing many places, but not all, within enterprise infrastructures. The near elimination of lost content, however, does not justify the failure to deploy repositories, along with associated policies and practice that lead to the rationalization of collaborative document storage.

The ultimate solution for this, which will be covered in the next report, is a logical integration layer that masks the complexity of underlying databases and eliminates the need for information workers to worry about either where things go, or where they might be when they need them.

Failures of Discovery

Why collaboration is broken: All the money being spent on displaying the right ad in context should be turned to display the right information in the work experience.

The discovery of relevant content in the work environment remains a major challenge. Because individuals choose to employ many personal organizing schemes and vendors offer so many options for repositories, technology has been ineffective at aggregating and consolidating content so it can be delivered proactively to the knowledge worker in a meaningful way.

Here is a simple example: you are preparing for a meeting and the responsibility for preparing for that meeting remains firmly with meeting organizers and attendees, all of which are likely time-starved. Often meetings consist of people searching for content in the meeting, sharing it during the meeting and doing very little in the way of formal follow-up after the meeting beyond clear to-do items agreed to, and committed to, during the meeting. Then there is the inevitable "Please send that to me after the meeting request," usually for a presentation file.

Attention remains a primary stealer of productivity, and by forcing people to curate, they are asked to pay attention to the wrong thing (information about information, rather than the information itself) and for those who choose not to engage in curation, either as creators or consumers, the amount of information of which they are unaware, is literally immeasurable.

Since collaboration systems rely on people to curate them, organizations end up with a number of productivity reducing activities, including mundane information management tasks being executed by highly paid individuals, but perhaps more importantly, under-informed decisions or unnecessary actions stemming from untimely information or the lack of specific information entirely. Attention remains a primary stealer of productivity, and by forcing people to curate, they are asked to pay attention to the wrong thing (information about information rather than the information itself,) and for those who choose not to engage in curation, either as creators or consumers, the amount of information of which they are unaware, is literally immeasurable.

This situation creates the haphazard, seat-of-pants, last-minute meetings to which most information workers are accustomed. Although much information is lost, the critical information (versus merely important information) rises to the top, often struggling to find its way as people attempt to construct information models in the moment, rather than having them pre-constructed (See *The Lack of Design* above) or technology-encoded information model.

The experience described above, with a technology-encoded information model, would look very different:

> *As meeting time arrives, at various points leading up to it, people are notified that information about the meeting, including conversation threads, posted documents and media. Opening the calendar entry at any time will reveal a prioritized list of items based on previous awareness and inferred importance to the meeting. Communication channels to all meeting participants will be*

available within the calendar entry, and visible by anyone attending the meeting, even if they aren't addressed directly (this is true only of communications initiated within the calendar entry). Process management technology maintains watch over the site, and notifies attendees of key events like the posting of the agenda, links to guest information and "must-read" content flagged by any attendee….

This particular report will not focus on solutions or futures, so it will leave that experience at the level of a sketch. But even at that level of detail, there is marked difference between a work experience that employs proactive discovery technology where "information finds you," versus experiences left to organizers and attendees alone.

At a fundamental level, the investments in advertising platforms that build profiles of consumers and place well-targeted ads bring this failure of collaborative technology into sharp focus. The placement of ads represents a very similar technology problem for which large vendors have invested huge amounts of money. Microsoft and Google in particular, are fighting for the hearts and minds of the knowledge worker through Office 365 and Google Apps, but they have chosen to invest most of their efforts at the automation of insight into advertising rather than the work experience. Perhaps Microsoft's Delve will provide a new tier in this battle, but until it achieves wide availability in 2015, the lack of discovery technology for routine business work remains a major contributing factor to why organizations continue to struggle to get the most out of their collaboration infrastructure.

The Mis-Measure of Value

Seeing the world through the lens of productivity transforms everything into a factory. Should all collaboration investments be justified simply as a way to reduce the ratio between labor and output? They should not, but because of the industrial age bias built into most economic justification systems, saving time (which is monetized labor) and other costs (just money), collaboration software vendors and clients alike, fail to capture value generated by The Serendipity Economy.

Why collaboration is broken: The use of industrial age measures like productivity don't capture results of *The Serendipity Economy* which generates value over longer periods of time based on unexpected, often random, interactions within a network.

The Serendipity Economy (explored in detail in *Welcome to The Serendipity Economy*) establishes the premise that there are six major attributes associated with The Serendipity Economy, attributes missed when industrial age economic approaches are employed to capture of the value of horizontal technology investments. Figure 4 outlines The Serendipity Economy attributes.

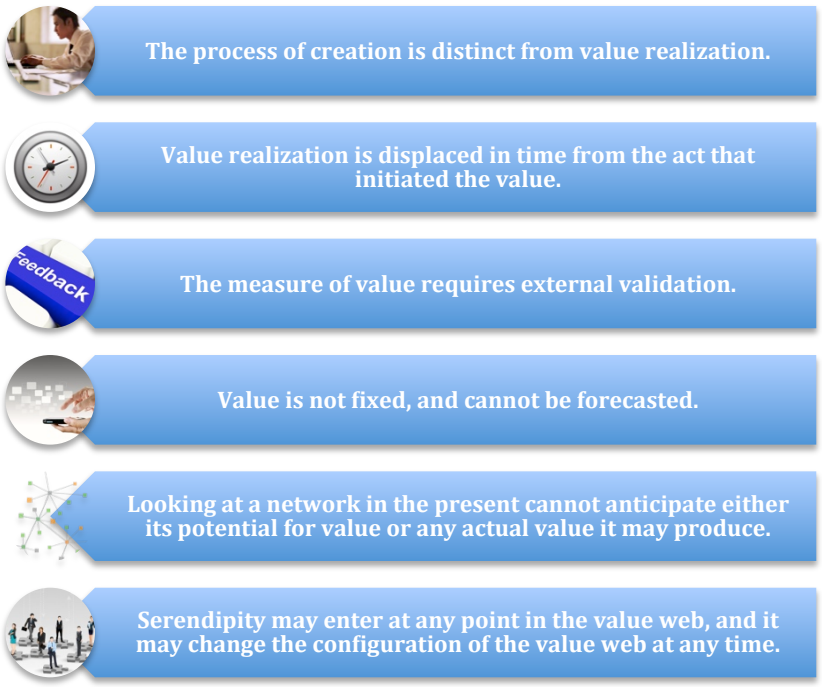

Figure 4: Serendipity Economy Attributes

Using industrial age measures breaks collaboration because much of the collaboration-derived value resulting in new business, process improvements and innovations gets recorded, if at all, as anecdotal stories to complement productivity measures. It may often be the case that the very existence of the connections between people generates value. This value arrives after much work is accounted for, and it may even increase in value or relevancy due to network reconfigurations. The instruments, however, are not in place to capture this value. Collaboration is broken by the use of industrial age measures that capture short-term improvements in work but largely miss or disregard the value generated by serendipitous activity.

Collaboration is the Answer to Everything

Up to this point, this report has made the assumption the reader is interested in trying to identify why collaboration is broken and how to fix the issues related to its disrepair. One issue has not been discussed so far: that of collaboration itself introducing dysfunction.

Modern organizations spend so much time being inclusive, team-oriented and collaborative, that they often fail to recognize when something is personal, time-constrained or important but not impactful to the day-to-day work environment. In other words, not everything needs to be collaborative.

An overly collaborative environment can take away people's ability to be self-reflective, and can create conformity that leads to "groupthink" and common denominator "innovations." Collaboration can hide "slackers" among the collaboration because the team picks up the slack from those who don't participate. It can also disempower and discourage leaders with outlying thoughts that might cause controversy and spark debate in less egalitarian structures.

These are all ultimately design issues with expectations, incentives, team structure and many other elements of work experience design at their core. These risks related to collaboration must be consciously recognized in order to design work experiences that avoid making collaboration the only model, even when it may appear the most effective or useful for a given task. A work experience founded on the principal that "we must collaborate on everything" is just as thoughtless as those founded on the idea employing "what the boss says goes."

10 Recommendations

This report is more a diagnostic than a prescription. There are, however, remedies to the many of issues it raises. The following list can be used to help organizations by encouraging good work experience design, avoiding hype and mitigating self-inflicted mistakes.

1. Don't just let collaboration happen. Think of collaborative work as something that can and should be designed in order to meet the needs of the individuals involved in the collaboration, as well as the needs of the organization.
2. When procuring collaboration services through "The Cloud," don't discount the investment required to integrate the service into the work experience design.
3. When procuring new collaboration tools or services, understand all of the features and capabilities and work diligently with teams across the organization to understand how best to leverage the new investment to improve the productivity of the teams, or to introduce additional serendipity that will drive innovation and learning.
4. Vendors need to invest in practice research and practice dissemination, including curated, industry specific practices, communities, individualized coaching and other approaches that will help customers more quickly and more fully adopt collaboration tools and services.
5. Don't worry about a lack of standards, but design for a lack of standards. In other words, ensure that the minimum number of tools exists in the work experience design to meet the needs of the organization, and that data exchange is a major consideration among tools from different vendors. If data integration isn't possible, the end users need to be aware of the extra work they will need to play as the conduit for pushing information across tool boundaries.
6. Analysts and the market need to reconnect the dots they have gone out of the way to disconnect, and create more holistic views of collaboration software and the relationships between tools, so that buyers can make better decisions about which tools work together, and which tools may introduce competing/conflicting features.
7. Design software with a consistent user experience as the target, rather than an experience that matches the design constraints of the client platform.

8. Vendors need to design for the entirety of the work experience, not just single lenses like mobile or social, which may be the concepts of the moment, but they don't negate existing collaboration scenarios.
9. Buyers and vendors alike need to think about where enterprise social networking fits into the collaboration experience. They need to stop pretending it is the new hammer to drive all of the broken collaboration nails sitting askew. Enterprise social networking, rather than being the savior of failed collaboration investments, risks becoming the latest fad that will distract organizations from actually designing effective collaboration experiences.
10. Organizations must look beyond industrial age measures to new concepts like The Serendipity Economy in order to capture the value collaboration tools and services provide that go well beyond those typically documented as "productivity" improvements.

Future Research

What's Next for Collaboration Technology? (January, 2015)

The Future of Collaboration: An Exploration of Collaboration Through Scenarios. (March, 2015)

Briefings

The following organizations gave generously of their time to share insights and information about their products, their businesses and the way their customers adopt, deploy and use their software.

A special thank you to HP for the use of a Spectrum 13 touch-screen ultrabook that was used for testing various software products during the development of this study and the follow-on studies.

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Rasmus is the former Director of Business Insights at Microsoft, where he helped the company envision how people will work in the future. Before joining Microsoft, Rasmus was a Vice President and Research Director at Forrester Research.

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