How Companies Collaborate Sharing Work Online

A Q2Learning White Paper

Bill Bruck, Ph.D.
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EXECUTIVE SUMMARY

Corporations need to solve increasingly complex problems amid dispersed workgroups, distributed business units, and interdependent supply chains. To meet these needs, global 1000 corporations are increasingly turning to technologies and processes that promote online collaboration.

Unfortunately, technology has not kept up with the need for people to effectively collaborate online. Current generation solutions focus on providing people with a shared view of common data. They are not optimized for helping people need to take the next step – to talk together to analyze data, share knowledge, or make decisions.

A Virtual Collaboration Application (VCA) must map the four-phase process of collaboration into the virtual environment. It should allow for the customized **design** of the collaboration; facilitate sharing **content** about which the collaboration occurs; enable people to **process** that content and make decisions; and structure the resulting **actions** to be taken.

Throughout all four phases, true collaboration happens in discussion—in *structured conversations for action.* Thus, the ideal VCA must support a variety of discussion formats and integrate them with the other collaborative tools.

We can consider ourselves to be at the cusp of a third generation of virtual collaboration technology. The first two generations were termed by GartnerGroup *shared ideas* and *shared creation.* The first and second generation tools are the ones that characterize virtually all virtual collaboration efforts today, and there are serious problems with the way these tools fail to map to the process of human collaboration sketched out above.

The required communications processes for online collaboration are complex. They often extend into many interactions over a period of time, between people who have different roles and responsibilities – just as they do in face-to-face environments. Thus, virtual collaborations communications solutions must support complex, data intensive networks of human interactions.

Moreover, each individual plays different roles and has different responsibilities in the myriad of collaborative processes he or she is involved in; so from the worker's perspective, he or she is involved in a *web* of communications with overlapping groups of people – both within the organization and within the value chain.

To date, these interactions are primarily conducted online using tools such as email, chat, instant messaging, discussion databases and bulletin boards that are not optimized to the task.

While current generation communications tools are valuable and have their place, taken together they create a cacophony of disparate noises, rather than collaborative harmony. They each have their own unique user interface, and data from one is not accessible via another.

But none of them support true collaboration in an online environment.

The next generation Virtual Collaboration Application must be designed with a thorough understanding of the processes by which real human beings collaborate in virtual environments. It must:

- Create a true *environment* for collaboration, rather than a "web site", "portal," or a "message stream" or a "filing cabinet."
- Map best practices in collaboration into the virtual environment.
- Support complex webs of interconnected people, processes, and information.
- Provide a sense of shared presence and support the building of ongoing relationships in the online environment.
- Integrate the best features of current generation communications, e-commerce, and data management tools.
- Transcend the current dichotomies of synchronous/asynchronous communications, and help the emerging convergence of B2B, B2C, and B2E environments.
- Allow people to collaborate whenever and wherever they are, by supporting multiple access modalities (email, web, wireless, etc.).
- Be a "blur offering" of technology, consulting, and training.

And, finally, it must put human interaction at the center of the collaborative experience.

INTRODUCTION

Corporations need to solve increasingly complex problems amid dispersed workgroups, distributed business units, and interdependent supply chains. Information from enterprise portals, e-commerce marketplaces, and data warehouses need to be disseminated, discussed, and analyzed in order to reach rapid, sound business decisions among people located around the country or around the world.

To meet these needs, global 1000 corporations are increasingly turning to technologies and processes that promote online collaboration.

THE C-COMMERCE PHENOMENON

In the business-to-business sphere, online collaboration is growing very rapidly across the supply chain. GartnerGroup has coined this phenomenon **C-Commerce**, short for Collaborative Commerce.

Such collaborative services enable corporations to go beyond transactional e-commerce exchanges to use the Web to exchange intellectual capital, facilitate problem troubleshooting and resolution, enable new ideas to cross corporate boundaries, provide rich feedback on goods, services and customer satisfaction, and foster a much closer bond between business partners.

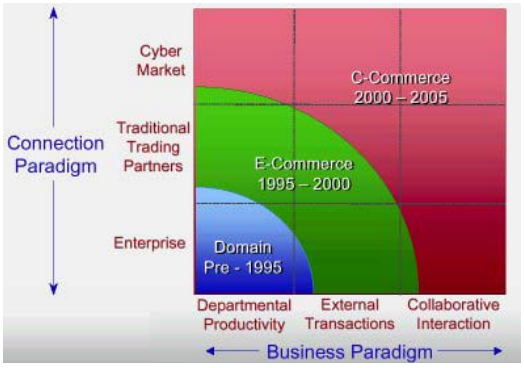


Figure 1. Source - GartnerGroup

MetaGroup suggests that traditional collaborative tools will be blended into many B2B services over the next several years. It is projected that B2B portal sites and exchanges will have c-commerce capabilities for collaborative project management, market research, partner relationship management, and distance learning. In fact, MetaGroup predicts that by 2002, vendors will offer comprehensive snap-in modules of collaborative services (in ASP and on-premises versions) to B2B companies. B2B services will first use collaboration as a market differentiator, but by 2004, rich collaboration services will be a given for most B2B activities.

WORKPLACE TRENDS

The trend towards virtual collaboration is not just a B2B phenomenon. It is also pervasive in the B2E (Business to Employee – intranet) sphere as well. Research by the Gartner group indicates that within a year, 80% of all enter-

prises will have at least 50% of their knowledge workers engaged in some

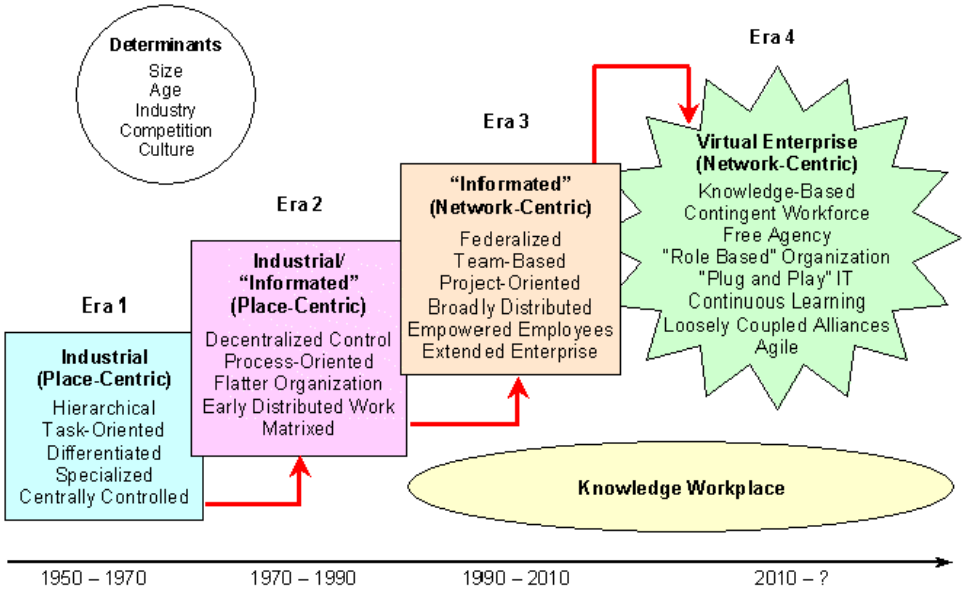


Figure 2 Source: GartnerGroup

form of telecommuting or other nomadic work. In fact, Gartner Group goes so far as to suggest that "workplace transformation is a critical management imperative for the connected economy as a key element to attract, retain and enable talented employees, and to re-allocate financial resources between physical and digital infrastructure, or between 'bricks and clicks.'"

The office building today was designed in an earlier industrial age to mimic the assembly lines that made Ford so successful, with individual knowledge workers in offices (or more recently cubicles) arranged in rows. What was a breakthrough in standardizing production was marginally useful for the exchange of information and processing of transactions. In the age before copiers and fax machines, there was an advantage to centralizing workers around the information they were processing.

However, new ages are shaped by new forces, and the workplace of the 21st century is shaped by the forces that impact today's businesses.

Globalization has created workforces that are distributed widely across time and space, and require new ways to bring people together to work effectively.

The Virtual Enterprise now consists of alliances across a value chain, with quick-forming, quick-dissolving teams being assembled from different companies who may never meet face-to-face, and ongoing distributed workgroups that need to conduct business on a daily basis.

Flex-time and rapid pace of work has made it harder to meet face-to-face, even for employees who are co-located.

As a result, more and more companies are working with a distributed workforce. IBM, for example, has allowed a large proportion of its US sales force to work entirely from home, and Cisco has re-engineered its entire workforce around electronic methods of working from wherever one happens to be.

The workplace is no longer an *office*, and *office* is becoming a verb. We are *officing* wherever we have the tools and access to information and people to undertake our work.

In fact, the forces of globalization and ubiquitous digital networking are making the traditional B2B (business-to-business), B2C (business-to-consumer), and B2E (business-to-employee) distinctions less and less relevant. Within the extended enterprise, entities switch between taking the role of vendor, supplier, partner, and customer. Partners are brought into the corporation's extended intranet, while CRM initiatives bring customers into the design and development phase of new products.

The agile cyber-enterprise requires the ability to communicate with a variety of people – but increasingly in the same ways. As the distinctions between B2B, B2C, and B2E fade, the emerging requirement is for virtual collaboration tools that are flexible enough to meet a variety of demands.

THE PROBLEM

Unfortunately, technology has not kept up with the need for people to effectively collaborate online.

In the business-to-business arena, according to the GartnerGroup, C-commerce solutions can be characterized as person-to-application (P2A), application-to-application (A2A), and person-to-person (P2P). **Of all these, P2P applications have received the least attention to date.**

Instead, solutions focus on solving related problems such as

- Building an infrastructure that allows you to harness, leverage, and enrich your intellectual capital by deploying and presenting data over the web.
- Building an infrastructure that enables you to build "weblications" to access that data, or
- Providing ubiquitous access to that data.

When people need to take the next step – to talk together to analyze data, share knowledge, or make decisions – it is assumed that they will use tools such as the telephone, email, or – at best – synchronous meeting tools that provide chat, whiteboards, and application sharing.

Current generation solutions share the same central misunderstanding of online collaboration:

Electronic commerce is transactional;
Collaborative commerce is interactional.

E-commerce solutions are increasingly providing ways to automate transactional processes. However, when there's a problem with a transaction, decisions must be made, new products developed, or partners consulted, *discussion* is needed, and a more interactional *process* is required.

SCENARIOS

The following scenarios provide examples of the wide range of situations in which online collaboration is required. They demonstrate how collaboration occurs in workgroups, within the enterprise, and throughout the value chain, combining the traditional B2B, B2C, and B2E categories.

Inventory allocation

A parts manufacturing company uses a proprietary enterprise application for transactional processes such as tracking, invoicing, settlement, and RMAs. The decisions that are based on these processes, however – such as allocation,

commitments, "who gets first shot at what allocations" – are a matter of negotiation and discussion, both within the corporation, and within the larger value chain. They require a way to involve the right people across the country in inventory allocation decisions – especially when the decisions are non-routine, as in inventory shortfall situations.

New product rollout

A high-tech firm has a new software application that they believe will create an exciting new category in the market. They need to provide their partners with information on this new offer, and train a 30,000 person sales force in how to position it. They want to ensure that their marketing department gets continuous feedback from sales and partners on the new product, and that their sales force can quickly build a "bank" of best practices for positioning the product.

Steering committee

A tool manufacturing firm has an input pool that consists of vendors, users, and other stakeholders within its value chain. This steering committee provides input on customer requirements, as well as holding ongoing strategic discussions on issues related to the company and the industry as a whole. The company needs a way for this nationally distributed committee to be able to its work online.

Strategic visioning

A major division of a pharmaceutical firm wishes to re-examine its visioning statement. The CEO has drafted a statement, but he wishes to get input on the draft to refine it, obtain buy-in from 400 managers world-wide, and for these managers to work together to develop action plans for implementing the new vision for each region.

Global training

A dot-com software manufacturer is releasing a new version of its e-commerce portal infrastructure software. As part of the upgrade, they need to train 10,000 customers on how to upgrade their websites with the new application, and provide support for them during the transition.

Similar examples can be shown in areas as diverse as mergers and acquisitions, product development, partner management, customer relationship management, market research, and product inquiries.

In all these areas, people within and between organizations need to collaborate to reach sound business decisions. The same dynamic governs business-to-business, business-to-consumer, and business-to-employee collaborations. In fact, many collaborative efforts combine two or even all three of these categories.

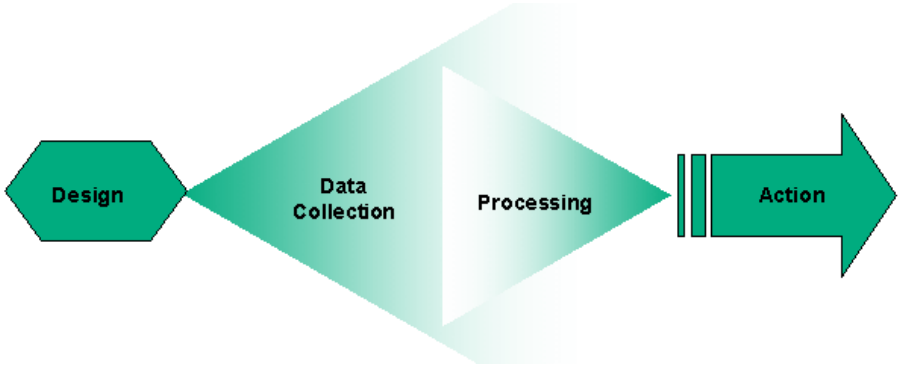
In all cases, however, "collaboration" is more than the exchange of data. In creating true online collaboration solutions, it is important to start with an understanding of what collaboration really is.

WHAT IS COLLABORATION

The American Heritage® Dictionary of the English Language defines *collaboration* as the act of working together, especially in a joint intellectual effort.

A COLLABORATION MODEL

We can understand the process of collaboration using a simple four-step model.



Design

"Good results without good planning come from good luck, not good management." The first phase of a collaborative project is the **design** phase. In this phase, the projects' goals, deliverables, timeline, resources, personnel, and methodology are identified. Typically, collaborative scoping is a process of discussions held over time between a project leader, team members, sponsors, and other stakeholders.

Data Collection

The second phase is to **gather data** that will be analyzed and processed. Data collection is quite often thought of as a *divergent* process, as the team must be open to new sources of input. As the diagram shows, this step does not have a discrete end-point when the processing phase begins. Rather, data collection continues to feed the collaboration effort, but the figure/ground focus shifts from data collection to processing as time goes on.

Processing

A collaborative effort's third phase consists of **processing** the data that is collected, to transform it into information and knowledge that will inform decisions in an increasingly *convergent* way. This processing may be formal or informal, quantitative or qualitative. Some of it may even be totally automated.

Action

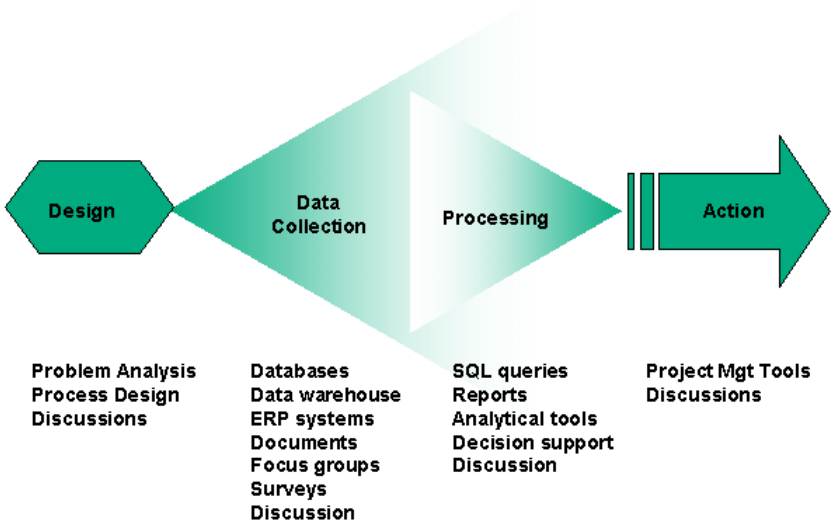
Based on data collection and processing, **decisions** are reached and action plans developed. These action plans are then put into effect, and in many cases their results evaluated. Based on this evaluation, a new collaborative process may begin.

OBSERVATIONS

When we look at the collaborative process, we can make several initial observations.

Collaboration is collaboration is collaboration. The fundamental processes and success factors are similar, whether a group of people is collaborating face-to-face, via fax and telephone, or in an online environment over the Web.

Process. Most significant collaborative efforts are characterized by being a *process*. They are not one-time meetings, or a number of people looking at the same data and then chatting about it on the phone. Rather, real-world collaboration involves a series of interactions. It has discrete phases, involves people with different roles and responsibilities, and extends over time.



Discussion. Collaboration involves discussion. It is in discussion that work is truly shared.

- Discussion occurs in the design phase, when the problem is analyzed, project requirements decided, and a process for the collaboration is created.
- Discussion occurs in the data collection phase, when people decide which data is relevant and how best to obtain and display it.
- Discussion occurs at the processing phase, when data are interpreted; the context of information is considered; implications of analyses are determined; and hypotheses are created and discarded.
- Discussion occurs in the action phase, when the tasks of the team are coordinated – sometimes using project management tools – but always supplemented with ongoing communications.

SUCCESS FACTORS

What are the factors that mediate for successful collaborations? In our experience with clients of many types, working together and working online, there are two major categories of success factors: *task* factors and *process* factors.

Task Factors

Task factors are ones that focus on "what" is being done, and the ways it is organized. Some of the most important task-related success factors include:

Explicit goals. Collaborative groups need to have a clear destination that everyone understands, if they want to maximize their chances of reaching it. Goals need to be explicitly shared, and clearly stated in ways that their achievement can be evaluated.

Clear roles and responsibilities. While it is important in all collaborations to be clear on everyone's roles and responsibilities, this is especially true when the group is not co-located. Even the simplest things like how often everyone agrees to check in with the collaborative online tool, or who is supposed to take what action by when, can get very muddy in the online waters.

Process Factors

Process factors are ones that focus on the *people* who are doing the tasks – their motivations, relationships, and communication patterns. Common process success factors include:

Goal alignment. Not only is it important that the organizational goals be clear and explicit, it is also important that the personal goals of those collaborating are in alignment with the organizational goals. For instance, if team members will lose power in the organization by virtue of the project, or not obtain the recognition they desire for their part in the project, then goals are not aligned.

Ownership. Ownership is the degree to which each member of a project team feels that the project is *theirs*. Ownership is dependent on several factors, including the degree to which the individual ; that they ha

Relationships. The success of a collaborative effort will correlate almost directly with the degree to which team members understand what each other is doing, value the contributions of others, and trust that they are all working towards the same end. Whenever people work together, they have some type of relationship. Collaborations succeed best when these relationships are characterized by respect, trust, and understanding.

Development. Work groups go through "forming, storming, and norming" periods, before they settle into their working stage. A predictor of successful collaborations is that the collaborating group successfully navigates the challenges posed in these earlier stages, and arrives at a working stage in which the energies of the group are not sidetracked, but are devoted to achieving project goals.

THE IMPACT OF BEING VIRTUAL

The success factors above are shared by both co-located and distributed groups. In addition, there are several factors that are particular to (or at least magnified by) the process of working together in a virtual way.

Unfamiliarity. The most obvious of these is the relative unfamiliarity of virtual mediums and processes. Often, participants vary widely in their comfort level with new technologies. People who lead and even dominate face-to-face meetings may have relatively little to say in the more cognitive medium of written discussion, and the "democracy of the loudest" may give way to the "democracy of the best typist." Merely getting everyone to participate using new technology may pose a significant challenge.

Defined process. While simple projects may not require formalized processes, an explicit process is especially important in online collaboration. For instance, it's important that participants know when brainstorming is required versus when decisions need to be made, or how the group will move from consideration to decision; from decision to action.

Inclusion is often more of an issue in distributed work teams than in their co-located counterparts. When a group is using anytime tools such as listservs, email, and threaded discussions, it is often hard to even know who is present or what they are reading (especially if they are not actively participating). Most same-time technologies (such as NetMeeting or conference calls) are serial in nature – only one person "talks" at once. As a result, most people participate passively, and once again it's hard to track whether they are engrossed, or reading their email on the side.

Norm setting is accomplished in a face-to-face environment by clearly setting forth and agreeing on ground rules, reinforcing compliance, and (subtly or overtly) sanctioning deviance. However, to be effective, norms must have buy-in from the entire group, and they must be reinforced – not merely stated. And, not to make too strong a point of it, but *it is shared norms that weld a disparate collection of people together into a high performance group that achieves the synergistic effect where the whole is more than the sum of the parts.* Virtual groups have special challenges when it comes to norm setting. The problem comes in getting buy-in, and reinforcing the norms during the life of the group. What is needed is the equivalent of the eye contact, the nod, the "nice idea," on the one hand; and the shifting away of attention or pulling the person aside on the other.

Conclusion

Even in this first-level analysis, however, it is apparent that collaboration is a complex series of human interactions, in which both task and process variables play a role, and communication is paramount.

Given the additional complications when collaboration occurs between individuals who are not co-located, it is no wonder that leading analysts agree that current online communication tools do not support these complex processes well.

So what would be the characteristics of tools that are optimized for virtual collaboration?

VIRTUAL COLLABORATION APPLICATIONS

Based on a shared understanding of the process of collaboration, its success factors, and the impact of being virtual, it is possible to identify the attributes of software applications that would facilitate a group's collaborative efforts. This can be done most easily by examining the requirements at each of the four stages of collaboration.

DESIGN

The ideal Virtual Collaboration Application (**VCA**) should assist a person or group in the design phase of collaboration – in setting goals, forming norms, creating business rules, and identifying roles and responsibilities.

Goals. VCAs should assist the designer in setting goals for the group, stating them in explicit ways, allowing for group participation in goal setting, and providing ways for disseminating goals in such a way that they remain clearly figural to the group throughout the collaborative effort.

Norms. To have norms that have group "buy in," they must evolve in a person-to-person way, through the expression of natural reinforcement and counter-reinforcement in the ebb and flow of interaction among participants. The ideal VCA will permit the type of ongoing interactions that build relationships and establish shared norms.

Business rules. The ideal VCA should use if/then logic to determine such factors as who should be included in each phase of a collaborative effort; what types of data, analysis tools, and discussions participants see depending on the phase of a project; or under what conditions a collaboration should automatically be started (i.e., when there's an inventory shortfall).

Roles and responsibilities. The VCA should permit different collaborative roles, such as manager, designer, facilitator, core participant, peripheral participant, or auditor. Moreover, it should be flexible enough to allow multiple people to take these roles, and for people to take different roles at different stages of a project, as well as taking different roles in different projects.

Custom interface. All of the foregoing implies that the VCA should be able to create a virtual space – a working environment – and provide a different interface for different types of collaborative efforts. The designer should be able to easily customize, via **wizards and templates**, such things as the look-and-feel of the space and the available tools.

CONTENT/DATA

Collaboration needs the content that is processed to reach the action phase. The ideal VCA should be able to provide that content, whether it is in enterprise applications or simple text files. The four most common types of content that should be supported are access to electronic files (i.e., support for **document management**), **enterprise information** (integration with Enterprise data such as SAP or e-commerce portal data such as Commerce One), **web-based** information available on the Internet, and **rich media** files.

PROCESSING

As the group collaborates on the content, they may be assisted by a variety of tools, including:

Productivity Tools such as individual and group calendars, contact lists, and task lists.

Data Analysis Tools such as statistical packages, SQL queries, pivot tables and charts.

Group Decision Tools from simple questionnaires and polling applets to complex group decision support applications that incorporate proprietary processes (future search, scenario planning, or strategic alignment).

Application sharing that permits the group to share in the analysis process in real time.

ACTION

While some collaborative efforts conclude when a decision is reached, others continue until certain actions are taken and deliverables produced. Two tools that collaborative groups use in the action phase are project and workflow management applications.

Project management. The ideal VCA allows analysis and decision to flow seamlessly into action, integrating project management tools that allow team members to know their deliverables, track accomplishments, and discuss problems along the way.

Workflow Management. For other applications, collaboration is better described in terms of workflow management. For instance, in asset management, a workflow management tools helps a group in the purchase, receiving, and deploying assets throughout the organization.

THROUGHOUT THE COLLABORATIVE PROCESS

In addition to the phase-specific attributes, the ideal VCA should also support several attributes throughout the collaborative process.

Discussion

Throughout all four phases, true collaboration happens in exchange, dialog, and structured conversations for action. Thus, the ideal VCA must support a variety of discussion formats and integrate them with the other collaborative tools.

Synchronous and asynchronous discussions. Participants should be able to hold synchronous (same-time) discussions with others on their team, or hold asynchronous (any-time) conversations. Ideally, the two forms of online conversation should be seamlessly integrated, so that synchronous discussions are automatically saved so that others who are only available later can actively participate in them.

Asynchronous discussions should be supported in a variety of ways.

Streaming discussion. To understand a comment, one must understand its context. The context of a collaborative discussion is the conversational stream – the transcript (as it were) of comments. When discussions are presented in a streaming format, the discussion builds on itself, forming a synergistic whole that is greater than the sum of the individual comments. (It is also in this context that online relationships are built, as the participants see each others' participation in entire conversations, rather than disjointed "posts".)

Structured discussion. Conversations for action are organized conversations. Each conversation stays relatively on-topic. The VCA should incorporate methods (either technologically or via facilitation) for keeping discussions on track.

Organized discussion. Similar topics are grouped logically together. Discussion topics and be re-organized as needed so that they make a coherent whole.

Branching and linear discussion. Some types of discussion are best done in a linear fashion, where each discussion stays on one topic, and "off-subject" remarks are moved to a different area where they can generate discussions of their own. At other times, it is beneficial to allow someone to respond to any previous response, creating a "branching" structure. An ideal VCA supports both types of online discussion.

Forms-based interaction. Another way of structuring discussions is by the use of forms. For example, in an asynchronous virtual focus group, participants might see a form to start a new idea that includes a "title" and "description" field. When responding to another's idea, they might see fields including "agree/disagree" and "reason". Forms-based interactions can then be combined using business rules to create complex interactive processes.

Access

In order for collaboration to succeed when a group is not co-located, it is vital that it be as easy as possible to use the collaborative tools. Thus, to the greatest extent possible, the ideal VCA will support multiple points of access, including **web** interface, **email** interface, and **wireless** interface.

Process Factors

There are several attributes that the ideal VCA may include in order to create the sense of shared goals, norms, and relationship.

Shared Presence. Users should be able to ascertain who else is online at any given time and communicate directly with them (if appropriate), providing a sense of shared presence.

Personal Information. It should be easy to find out information about other participants, such as their professional experience, personal interests, photograph, etc. It should also be easy to take conversations off-line with them in a variety of ways (from instant messaging links to published phone numbers).

Team Building. The VCA should have a model of how to build successful virtual teams built into its business rules and applications, and be flexible enough to incorporate other proprietary team building models when desired.

Time Bounded. A very common problem with asynchronous group communication tools is the sense that "the light's on but nobody's home" – the space exists but there's no one in it. One of the best practices to maintain group energy within an asynchronous environment is to transform ongoing discussion spaces into time-bounded events (such as a virtual book tour, a periodic ask-the-expert conference, or a quarterly sales meeting). The ideal VCA should have tools that permit the creation of this type of time-bounded event.

Consulting and training

While the sexy new e-business technology gets media attention, it should be apparent by now that getting a group to collaborate online is more of a people-problem than a computer problem.

Having great collaboration software doesn't ensure collaboration, any more than a brand new community center ensures that you'll have an active community. You need basketball games to make the community center come to life. And to have basketball games you need to plan for it. You need basketball teams, marketing, vendors with hot dogs, and all the other things that go into getting people to come and cheer (including cheerleaders!).

Similarly, to get people to collaborate online, the solution cannot merely be a software license that's deployed throughout the organization. It takes people

factors – design, hosting, facilitation, etc. These skills must be acquired if they do not already exist in house. For that reason, VCAs must be complimented by consulting and training to help you use them effectively.

So how do currently available products stack up?

CURRENT GENERATION SOLUTIONS

We can consider ourselves to be at the cusp of a third generation of virtual collaboration technology. The first two generations were termed by Gartner-Group *shared ideas* and *shared creation.* The first and second generation tools are the ones that characterize virtually all virtual collaboration efforts today, and there are serious problems with the way these tools fail to map to the process of human collaboration sketched out above.

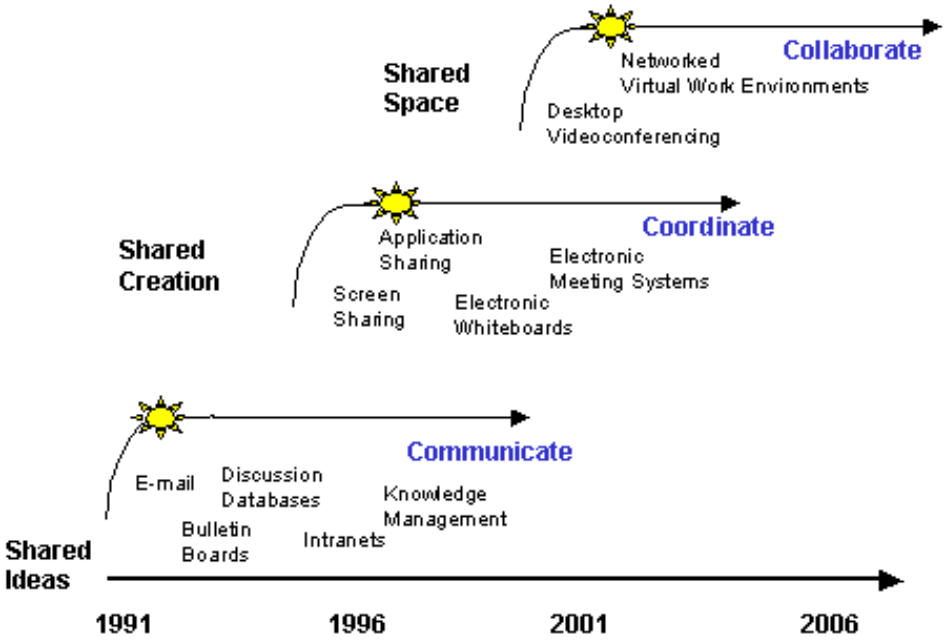


Figure 3: Source - GartnerGroup

As can be seen from the collaboration process model, the required communications processes for online collaboration are complex. They often extend into many interactions over a period of time, between people who have different roles and responsibilities – just as they do in face-to-face environments. Thus, virtual collaborations communications solutions must support complex, data intensive networks of human interactions.

Moreover, each individual plays different roles and has different responsibilities in the myriad of collaborative processes he or she is involved in; so from the worker's perspective, he or she is involved in a *web* of communications with overlapping groups of people – both within the organization and within the value chain.

To date, these interactions are primarily conducted online using tools such as email, chat, instant messaging, discussion databases and bulletin boards that are not optimized to the task.

The following table shows the most common first and second-generation collaboration tools, and maps them against the characteristics of the ideal VCA outlined above.

x – supported; * - partially supported

	Goal setting	Norm setting	Business rules	Roles & responsibilites	Custom interface	Wizards & templates	Web-based data	Rich media	Enterprise data	Document management	Productivity tools	Data analysis tools	Group decision tools	Application sharing	Project management	Workflow
	Design						**Data Collection**				**Processing**				**Action**	
Email			*		*		x			x	x				x	x
Chat				*			*									
Instant messaging					*											
Discussion boards			*	x	x	*	x	x	*	*	*	*	*		*	*
Webcasting				x	*	*	x	x		*				x		
Virtual workgroup				x	x	*	x			x	x	*	x	x		
C-Commerce apps									x	*		x				

	Synchronous	Asynchronous	Streaming	Structured	Organized	Branching & linear	Forms-based	Web access	Email access	Wireless access	Shared presence	Personal info	Consulting & training	Time-bounded events	Team building
	Discussion							**Access**			**Success Factors**				
Email		x			*				x	x					
Chat	x		x					x		x	x				
Instant messaging	x		x					x			x				
Discussion boards		x	x	x	x	x	*	x			*	x	x	x	
Webcasting	x			*	*			x			x		x		
Virtual workgroup		x		*	*			x				x			
C-Commerce apps		x		*	*			x							

As we can see from this table, while there is a profusion of online communications tools, none of them are optimized for true *collaboration.*

Email[1]

Email is ubiquitous and widely accepted. It is excellent for asynchronous single exchanges between two people, but it has fundamental shortcomings for virtual collaboration.

- It lacks the ability to easily structure a discussion among a group of people – have you ever tried to conduct an extended email exchange between yourself and four other folks?
- It lacks the ability to organize discussions – other than by attempting to remember to file associated items in the same folder, or with the same keywords or title.
- It is fundamentally a noisy medium. GartnerGroup estimates that the increase in email may lead to knowledge workers spending two hours a day sorting through and reading their email, with a significant "signal to noise" problem.
- It lacks the ability to easily incorporate business rules and structure, so as to move a collaborative process forward step by step, or to permit people to have different, clearly defined roles and responsibilities vis à vis the process.

Chat and Instant Messaging

Chat and instant messaging applications provide an excellent synchronous technology for short "what about?" exchanges, but:

- The discussions are not stored for later review
- The material is not integrated with email or other message stores
- It is often difficult to get all the right people together at the same time for a discussion or for sustained conversations.
- There is little or no capability to effectively share and collaborate around specific data.

Discussion Boards

Most current discussion board software is not optimized for virtual collaboration – i.e., structured conversations for action. Rather, most products are optimized for quick-and-dirty interactions, such as one finds in a technical support discussion board, where each "problem" is usually resolved in one or two exchanges.

[1] Functionality is based on that provided by the combination of Microsoft Outlook, Exchange Server, and Digital Dashboard, which combine email, groupware, and simple workflow automation, and exceed the functionality provided in most email applications.

In order to be optimized for collaboration, discussion boards must

- Support linear (as well as branching) discussion.
- Show discussion in context – not as a series of pop-up "email-like" windows.
- Permit the inclusion of HTML, spreadsheets, charts, and diagrams in postings.
- Organize discussions together in groups, display the groups that are relevant to each worker, and allow for the easy re-organization and multiple linking of conversations.

In addition, even when the discussion software is optimized for structured conversations for action, it needs additional capabilities to be a true VCA – it needs links to the content about which conversations are held, support for other types of structured processing (polling, Delphi group techniques, etc.), and the incorporation of business rules.

Webcasting

Rich media presentations, application sharing, combined with chat or VOIP are excellent for one-time small-group meetings, and for the one-to-many communication of information. However, they are not integrated into the overall process by which collaboration happens to get work done. To become a true collaboration application, they need to be integrated into work environments that support business rules and ongoing discussions that map the organization's work processes into the virtual landscape.

Virtual Work Environments[2]

Virtual work environments provide an excellent suite of shared tools (calendar, file management, contact list, task list), and some of the better ones provide VOIP, chat, or instant messaging so that team members who are available at the same time can communicate with each other.

However, the asynchronous discussion boards offered in current generation products are not suitable for ongoing structured conversations for action; there is no way to archive same-time conversations or (better yet) integrate it into an asynchronous discussion, and the applications are built to support the work of one small virtual team, rather than to create a working environment consisting of interlocking and interactive virtual team spaces.

[2] Products are those provided by companies such as Groove, Flypaper.com, Intranets.com and Eroom.com, which provide a small workgroup with a toolset including shared calendars, contact management, task lists, and asynchronous threaded discussions.

C-commerce applications

Current generation C-commerce applications emphasize the Application to Application or Person to Application integration. As such, they provide an easy way for a person in one part of the supply chain to share a view of common data with a person in another part of the supply chain. However, data sharing is not collaboration, and these products do not provide a rich method for processing these data, having structured conversations, and translating these results into action.

CONCLUSION: A THIRD GENERATION SOLUTION

While current generation communications tools are valuable and have their place, taken together they create a cacophony of disparate noises, rather than collaborative harmony. They each have their own unique user interface, and data from one is not accessible via another.

But none of them support true collaboration in an online environment.

The next generation solution must be an application designed and built to support virtual collaboration. Not shared views of data – though that's part of the puzzle. Not just messaging or communication – though they are vital pieces as well.

The next generation Virtual Collaboration Application must be designed with a thorough understanding of the processes by which real human beings collaborate in virtual environments. It must:

- Create a true *environment* for collaboration, rather than a "web site", "portal," or a "message stream" or a "filing cabinet."
- Map best practices in collaboration into the virtual environment.
- Support complex webs of interconnected people, processes, and information.
- Provide a sense of shared presence and support the building of ongoing relationships in the online environment.
- Integrate the best features of current generation communications, e-commerce, and data management tools.
- Transcend the current dichotomies of synchronous/asynchronous communications, and help the emerging convergence of B2B, B2C, and B2E environments.
- Allow people to collaborate whenever and wherever they are, by supporting multiple access modalities (email, web, wireless, etc.).
- Be a "blur offering" of technology, consulting, and training.

And, finally, it must put human interaction at the center of the collaborative experience.

Industry analysts are univocal – the trend is away from simple transactions and towards more complex collaborative interactions. The challenge is to provide virtual environments that will support and enhance our efforts to carry out these collaborations online.

About the Author. Dr. Bill Bruck is a psychologist and futurist who focuses on the effects of rapid technological change on information intensive industries, integrating technical expertise honed over two decades with his understanding of organizational systems and the people who make them work. A best-selling author, Dr. Bruck has written ten books on the effective use of information technology that are translated and sold internationally. Dr. Bruck is a founder and Principal of Q2Learning LLC.

About Q2Learning LLC. Q2Learning is a leading provider of online workplaces for virtual teams, e-Learning programs, and business communities. Q2Learning's solutions are designed around the way people communicate, share information, and collaborate in order to get work done. We blend critical work processes, people issues, and right technology to create effective online workplaces that enhance your business outcomes. For more information on how our third generational approach to creating high performance distributed teams can assist your corporation, contact us at **info@Q2Learning.com**.