

Evolving Social Computing and Collaboration in the Enterprise

Our internal social platform has evolved into one of the key tools for collaboration at Intel, facilitating the free flow of information and ideas.

Executive Overview

Recognizing the power of social computing as an important tool for supporting the increasing velocity of Intel's businesses, Intel IT is developing a strategy to boost usage of social computing as part of a unified collaboration experience that better supports employee and business workflows. Our investments in social computing have already been successful in reducing organizational boundaries, speeding access to information, and improving employee productivity. Our internal social platform has evolved into one of the key tools for collaboration at Intel, facilitating the free flow of information and ideas.

Partnering with several groups, including Human Resources and Human Factors Engineering, we identified the best opportunities for using social computing to increase collaboration and productivity across Intel. To better understand the requirements for effective collaboration, we developed several use cases based on specific segments of employees at Intel. We then conducted proofs of concept to identify business usage models.

We've learned that the effective use of collaboration tools can help deliver the following benefits:

- Increase the overall productivity of employees, regardless of their job role
- Foster a sense of open communication among employees, enhancing the exchange of ideas and ability to solve problems
- Access information that is the most up-to-date, eliminating inconsistencies or duplication of effort

Our vision is to create a seamless and unified collaboration experience that brings together expertise, information, people and business intelligence to fully support employee and business workflows. This new approach means mapping capabilities to what employees want to do, as well as continue to educate employees in better collaboration behaviors. We are identifying strategic engagements that are aligned to Intel priorities and continue to gain understanding of employees, business processes, the desired experience, and unmet needs.

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BACKGROUND

Four years ago, Intel IT implemented an enterprise-wide social computing platform so employees can connect and collaborate using tools such as wikis, forums, and blogs. Today, the platform and the way employees use these tools has expanded to meet their business workflows and collaboration needs, whether with colleagues, partners, agencies, or customers. This capability is now becoming more integrated with business processes and the way that employees work, rather than something separate from their main role.

We have embraced social computing as a strategic capability that fosters collaboration and accelerates innovation. Intel relies on innovation and the sharing of new ideas across the company in order to stay competitive. Large organizations such as Intel often suffer from silos of interaction and information, which limits the sharing of knowledge and insight. Intel's culture includes core values that are essential for innovation, such as questioning and risk-taking, but organizational silos sometime hamper the free flow of ideas. We've found that social technologies can unleash those ideas and provide a common foundation on which employees can voice their opinions and share their ideas.

To encourage the free flow of information, Intel IT delivers and supports hundreds of technology groups, forums, secure wikis, and enterprise RSS feeds through our internal social collaboration platform. Based on our

experience to date, social computing offers Intel significant value, including:

- **Greater employee productivity** through collaboration and easy access to information and experts
- **Improved velocity** due to crowdsourced idea generation, open communication, and easy transfer of tacit knowledge
- **Higher employee engagement** through open and ongoing dialogue with leaders and higher transparency in decision making

Social computing supports informal learning; it changes the way we collect, organize, and disseminate information across Intel. Our employees, especially new interns or recent college graduates, have come to expect a social aspect built into getting their jobs done. They see it as an easier way to listen, connect, and inform.

Over the last few years, we've invested in innovative social computing services, tools, and support to boost adoption and usage and maximize the benefits Intel gains from our social computing investments.

Evolution of Enterprise Social Computing at Intel

Intel's journey toward enterprise social computing began in early 2009 when Intel IT began enabling blogging and forum capabilities with limited professional networking among employees. Our goal was to transform the way Intel employees collaborate across the company. Introducing social technologies within the enterprise also included defining appropriately balanced security measures and updated use policies, in addition to making

sure all employees knew how to use these technologies appropriately.¹

The first year was challenging. Employees initially perceived our internal social computing platform as a place to engage in casual conversation. However, as the platform evolved, its usage extended to work-related collaboration as employees realized the benefits of using these collaboration solutions.

Today at Intel, there are more than 1,000 groups using the enterprise social computing platform for discussions and collaboration. Intel has seen year-over-year growth in participation. At the end of 2012, the number of active participants was almost 61,000 and growing. This includes 51 support groups, 364 communities of practice, and 728 business groups. Most of the active groups have been business-related—used for projects, finding answers, sharing best practices, and problem solving.

In addition to forums and groups, we have more than 1,000 wiki spaces that are being used to collaborate on content and develop knowledge management. The number of active participants on wikis has grown from 20,000 to 55,000 over the last two years.

Over the last few years, we've evolved our social computing platform to support increased growth and usage.

- In 2011 we made improvements to our social computing platform that included integration with the corporate intranet.
- In 2012 we added new profile improvements for a richer experience, such as enabling

avatars next to updates, one click to add others into a social network, instant messaging, and improved contact details.

- Also, in 2012 we upgraded the experience by enabling easier navigation, improving the platform's search capabilities, and adding a mobile interface optimized for touch screens in anticipation of increased use of tablets and Ultrabook™ devices. These changes helped increase the number of new users by 23 percent in 2012. We now have over 60,000 employees actively engaging on the social platform, but all employees read and receive content this way, so the reach is universal within Intel.
- Recognizing the importance of wikis for collaboration within project teams, we upgraded the wikis to a higher service level to provide a reliable, high-availability environment. We also implemented advanced disaster recovery and increased security to support collaboration on classified content.
- New improvements to our internal technical self-support communities provide Intel employees with the opportunity to resolve problems using a self-support community model. Giving employees the ability to use their peers for IT troubleshooting and problem-solving enables Intel IT to save on support costs and provide a more consumer-like experience.

As the platform has evolved, more employees are realizing the benefits of using the suite of social computing tools for quick problem-solving and information sharing. For example, a self-help group for handheld services and other capabilities lets employees proactively

address issues. Many teams help new interns become assimilated with mainstream employees through forums and wikis. Software engineers draw on each other's expertise in solving problems and finding experts through professional networks.

Measuring Success and Expanding Usage

Although initially we measured adoption of the platform by the number of active participants, we learned that effective collaboration is demonstrated in the way employees form logical groups and communities and collaborate within them.

As employees became familiar with the tools and technology, we recognized examples of successful usage by projects, teams, and communities. The communities themselves began to share their success stories for others to use as models. Successful, active users guided new users on how to use the platform for their business needs.

Recognizing the power of social computing as a strategic tool for enabling increased collaboration, Intel senior management challenged Intel IT to increase adoption and usage of social computing. They directed us to look at not only the social computing capability as a tool offering, but also at solutions that would help overcome the obstacles to collaboration and facilitate information sharing as a cultural shift throughout Intel. We needed to fully understand how different employees and business groups collaborate, what the barriers were to collaboration, and how to better integrate social computing tools into their workflows.

¹ For additional background, refer to the paper "Developing an Enterprise Social Computing Strategy," July 2009.

Table 1. Our research shows a spectrum of employee roles and expectations

Role	Who this includes
Segment #1	Technologists who specialize in creating hardware
Segment #2	Employees who work in the factory or support manufacturing operations
Segment #3	Employees in sales, marketing, finance, and other roles across Intel
Segment #4	Employees who are new to the company, usually less than 18 months
Segment #5	Technologists who focus on software development
Segment #6	Administrative staff

TRANSFORMING COLLABORATION AT INTEL

To unlock the full potential of social computing and increase collaboration, we needed to better understand the key obstacles to collaboration at Intel. Partnering with several groups, including Human Resources, IT employee communications, and Human Factors Engineering, we identified the best opportunities for using social computing to boost collaboration and productivity across Intel.

We performed an extensive exploration to understand the current challenges that business groups and teams encounter in areas of collaboration and communication. We focused on understanding how business groups currently collaborate and what their problems are. Our studies show that the most compelling social computing systems achieve the balanced integration of three perspectives: technology, business need, and the requirements of individual employees.

Understanding the desired experience is particularly important with social computing because using it is not a job requirement. If the social computing tools are not compelling or helpful, they will not be used.

To better understand requirements, we developed use cases based on specific segments of employees. We then conducted proof-of-concept (PoC) tests to identify promising business usage models.

Personas Help Define Roles and Needs

Our usage models based on personas, as shown in Table 1, are hypothetical archetypes based on data gathered from real employees.

The use of personas helps us precisely define what employees need and what they want to accomplish, which in turn helps define what tools we need to provide.

Each persona has a different orientation to the type of collaboration they gravitate toward as a part of the way they work. Understanding these preferences can help us better focus our investments in use cases that will be most likely to succeed in accelerating collaboration.

Across employee segments, our research revealed a common theme of needing to find expertise, along with the desire for social computing. Intel IT identified specific groups that prefer social computing as their top choice for communication and collaboration. Interestingly, all employees identified people (often in the form of social networking) as their top reported information source, with the employee portal being second choice.

Comparing Social to Traditional Tools

Our research showed that Intel employees want content, preferably all in one place, that is easy to find, clearly labeled, secure, and current. They want meetings that are easier to schedule and join, and they want to find the right person with answers when they need them. Their desired solution is not typically to search through multiple team workspaces, databases of contacts or facts, or to search through hundreds of emails. In fact, today's digital natives who grew up with technology often find email outdated. Instead, they expect a more seamless experience that is accessible and secure with fast and effective search capabilities.

Business Use Cases

Our research highlighted business use cases that illustrate how employees might use social computing to improve collaboration and productivity within Intel.

- **Support.** Individuals supporting IT tools and services who need to reach out to a diverse and dispersed set of employees, often seeking their input for troubleshooting and issue resolution.
- **Community.** Employees, with similar job functions or a shared interest, who come together to exchange knowledge, best practices, and possibly trigger new collaboration.
- **External liaison team.** Employees who routinely communicate with external agencies either as a customer or as a supplier.
- **Project teams.** Individuals working closely together toward a common deliverable, often dealing with resourcing problems and requiring efficient ways to transfer knowledge and share information among the participants.

SUPPORT

Background

Our support teams servicing internal customers are increasingly adopting discussion and Q&A forums on our internal social platform, creating additional ways to interact with those needing support. For example, anyone with a smartphone that accesses the Intel network can interact with the mobile devices support team in IT. A simulator software services team supports all product design teams exclusively through their social forum.

Collaboration through Crowdsourcing and Gamification

The collective wisdom of many employees can be an effective way to gather information, stimulate innovation, and solve problems. For example, Intel IT conducted a crowdsourcing exercise to learn about how to improve collaboration at Intel. We targeted employees that are new to Intel for two reasons: our CEO was very interested in attracting and retaining new employees that are essential for growing Intel's business in new markets, and we had little data from other studies on this particular segment.

We asked questions in four categories that we hypothesized as key problem areas for collaboration based on our prior research:

- Velocity of innovation
- Barriers to working together
- External practices we should embrace, including consumerization
- Finding the right people to collaborate with

Three key suggestions came out of the feedback on how to improve collaboration.

- **Increase the use of personal networking.** Get to know each other better by occasionally leaving the workspace.
- **Better communication.** Communicate in an open way, more clearly, and using fewer acronyms.
- **Show open-mindedness and respect.** Be open to new ideas and ways of doing things, and help each other.

Interestingly, 44 percent of the feedback related to organizational barriers, 45 percent to technology, 7 percent to people, and 4 percent to the environment or physical workspace. The study results align with other research we'd conducted, which found that 73 percent of employees talked about how collaboration helps them feel engaged at work.

In many cases, employees recognize that they own the process of making collaboration better—whether it's getting to know people, being more open, learning how to communicate better, or improving their own meeting behaviors.

Intel's use of gamification projects, in which rewards incentivize input and the best ideas, has also enhanced collaboration. Our projects included short-term demand forecasting, estimating schedule risks for engineering, and prioritizing investments for a New Business Initiatives program, in which more than 4,500 employees generated over 250 ideas for new business opportunities. In masking the real task and removing bias from the input through anonymity, we found that more voices were heard from across the spectrum of participants. By providing an element of competition and rewards, we are seeing increased participation as people strive for greater accuracy in their predictions.

Table 2. Social collaboration business use case - Support teams

Aspect	What this involves
Who this includes	A team supporting a tool or service, needing to reach out to a diverse and dispersed set of employees, often seeking their input for troubleshooting and issue resolution
Specific needs	<ul style="list-style-type: none"> Q&A forums that allow participants to rate responses, tag keywords, and flag the right response Powerful search capabilities (including Search As You Type) to avoid repeat threads on known issues Analytics on support quality Reputation: A platform that can display on community members' profiles their reputations based on their activities and answers offers a great incentive for members to contribute
Expectations	<ul style="list-style-type: none"> Forums will be monitored by the team that has a formal responsibility to support the tool or service Participants will function as a community and encourage voluntary contributions toward solving problems
Value to support team	<ul style="list-style-type: none"> Increased productivity through the ability to quickly find information about past issues and their resolution, and easy access to crowdsourced problem solving Easy access to crowdsourced problem solving
Value to employees	<ul style="list-style-type: none"> An additional channel to use for problem reporting and resolution Increase productivity through the ability to quickly find information about past issues and their resolution, and for faster time to repair and response

Table 3. Social collaboration business use case - Software developer community

Aspect	What this involves
Who this includes	All software engineers across Intel
Specific needs	<ul style="list-style-type: none"> Open communities to share information, such as upcoming conferences and training, best practices, tool evaluation, and feedback Draw on each other's expertise for problem resolution Find an expert through virtual networks Contributions recognized through a reputation or "points" system
Expectations	<ul style="list-style-type: none"> Critical mass of members, to sustain activity levels and response rates Seamless search across multiple collaboration sites and systems
Value to employee	<ul style="list-style-type: none"> Access to a vast network with related skills and expertise A democratic approach to sharing ideas or promoting a teachable point of view No unwanted email
Value to Intel	<ul style="list-style-type: none"> Collaboration across organizational boundaries results in improved productivity and reuse of code Improved employee engagement; rewarding workplace experience

Key learnings at Intel

We found that the most successful support forums benefit from crowd-think in problem solving. Often, community members contribute to issue resolution, even if they do not have a formal role in support. By harnessing the knowledge of experts and encouraging self-help, we are reducing the amount of time service representatives spend resolving issues and answering questions.

We found that reporting and resolving issues in a public forum helps to reduce the mean time to repair. For example, on our mobile devices forum, our support team can quickly troubleshoot a reported issue by identifying common elements such as OS version or browser type. The support team is more quickly able to pinpoint the problem by having access in real time to a large community of specific technology users. Table 2 describes the needs and expectations of support teams and the value that social collaboration tools can provide.

Support teams that use public issue reporting have an additional responsibility to manage their online image, addressing any concerns with timely responses and updates.

COMMUNITIES

Background

Communities, which typically reflect various job functions or shared interests, are among the largest beneficiaries of social collaboration software. For example, Intel software engineers, dispersed across various divisions and product lines, have a strategic imperative to reduce Intel's time to market and exemplify the importance of collaboration. They need the availability of a supportive network to share expertise and solve problems.

Key learnings at Intel

Communities need to build a critical mass of participation to be successful. We found that new communities rely on ambassadors or moderators who seed new discussions, keep conversations moving, and in general, nurture the community through regular interactions. Employees reported that offline community activities such as conferences or face-to-face meetings helped to build trust and a sense of belonging. These activities also offer an opportunity to recognize top contributors and to meet people in person. Table 3 describes the needs and expectations of software engineering communities and the value that social collaboration tools can bring to them.

EXTERNAL LIAISON TEAMS

Background

In May, Intel IT initiated a PoC with a marketing team in the Asia-Pacific region. We enabled the social collaboration platform to allow the marketing team, IT, and external media agency teams to collaborate together to release marketing campaigns.

Our marketing teams typically work with multiple agencies. To give them access to our internal social computing platform, we needed to apply additional security features and controls. By using “private groups” for roles, we were able to create an information architecture that restricted access to other participants’ identities and content.

Key learnings at Intel

One obstacle to the adoption of enterprise social capabilities is resistance to change. We found that this barrier is compounded when the membership base includes external participants, with a short-term commitment to the relationship. It is easy for collaboration to revert back to email, which allows the exchange of information through a familiar interface.

While motivating external participants to use the tool can be a challenge, we learned the potential for success improves if the experience is modeled after popular social sites in the consumer segment. In the future, as enterprise social platforms become more pervasive, we expect to provide business-to-business integration so that external participants will be able to collaborate with us. Table 4 describes the needs and expectations of external liaison teams and the value that social collaboration tools can bring to them.

PROJECT MANAGEMENT

Background

Social computing offers tools and methodologies for better interactions that are primarily meant for community development and creation of forums to share common interests. However, since a project team shares a common goal, we’ve learned these tools can help us manage projects and programs more effectively.

Table 5 summarizes some of the social computing tools we use in project management at Intel.

Table 4. Social collaboration business use case - External liaison teams

Aspect	What this involves
Who this includes	Intel teams that work with external participants such as market research or advertising agencies, fully owned subsidiaries, universities, suppliers, or customers
Specific needs	<ul style="list-style-type: none"> Isolated and secure areas for collaboration with each external entity A unified interface and experience for Intel employees in multiple collaboration areas
Expectations	<ul style="list-style-type: none"> Seamless exchange of trusted information between Intel, partners, suppliers, and customers Secure, shared repositories for documents and large files
Value to external participants	Increased productivity through the ability to reference all past interactions and quickly ramp up new team members on the relationship history
Value to Intel	Increased productivity

Table 5. Social computing tools Intel project teams use

Tool	Use in Projects
Blogs	<ul style="list-style-type: none"> Used by project managers to provide status updates for management or the team. The content is always readily available in clear chronological order, which is a benefit if team membership changes.
Forums	<ul style="list-style-type: none"> Solve project issues or problems asynchronously. Especially useful for virtual teams that are distributed across different time zones.
Micro-blogs	<ul style="list-style-type: none"> Share status updates quickly, which is particularly useful for items that are on a critical path.
RSS feeds	<ul style="list-style-type: none"> Helps teams stay abreast of content changes. Instead of sending an email after each change, the team members subscribe to the RSS feeds for automatic instant updates.
Videos	<ul style="list-style-type: none"> Webcasts and meetings can be captured in video formats and shared with the team. Videos can be used for end-user training on the products the team delivers.
Wikis	<ul style="list-style-type: none"> Help teams manage projects, solve problems, and answer questions in a group setting. Collaborate on requirements, store meeting minutes, weekly status reports, and conduct post-implementation reviews.

Project management using groups and forums

When a project is chartered, teams manage them through a social group on our internal social computing platform, with members expected to post minutes and discussions using the forums. For some projects, sharing information through forum threads has reduced the number of meetings.

Adding team members as group members helps create a distribution list for the project or program communications. However, some team members still use emails instead of forum communications for the minutes and other discussions.

Project management using wiki pages

Wiki pages have been successfully used for creating project collateral, with the team directly updating the information as they receive it. The decisions on the checkpoints are recorded as comments to the wiki pages.

Using wiki pages for project management has given better transparency to the projects. For example, dynamic projects where team

members often change are particularly easier to manage effectively using wiki pages.

Key learnings at Intel

In the past, when Intel IT projects were chartered, leaders created shared team workspaces, posted documents, and sent emails. This was, in effect, a controlled conversation within a closed team. In contrast, the use of social computing fosters open communications, allowing project teams to focus on the core work instead of on coordinating communications and teams. For example, real-time status updates using wikis helps to reduce both the number and duration of meetings.

Managing tacit knowledge is also much easier. For example, new team members can gain an understanding from the blog or wiki of how the project has evolved; it is not necessary to read forwarded emails to come up to speed. Wiki pages can be bookmarked and linked to from other communications, such as to peripheral stakeholders who can also contribute to wikis.

NEXT STEPS

The use of enterprise social computing for business is now an indispensable part of Intel's collaboration toolset. We are developing a three-year strategy for boosting collaboration at Intel with a focus on improving the relevance of social capabilities in mainstream collaboration within day-to-day business processes.

By continuing to better understand how each group of employees does business, whether with other employees, agencies, or partners, we can define the information architecture and develop a collaboration experience that meets the workflow needs of each group. This, in addition to platform redesign, will increase the level and quality of collaboration and allow these groups to do their primary jobs more effectively and efficiently.

Our vision is to create a seamless and unified collaboration experience that brings together expertise, information, people and business intelligence to fully support an employee's daily workflow (Figure 1).

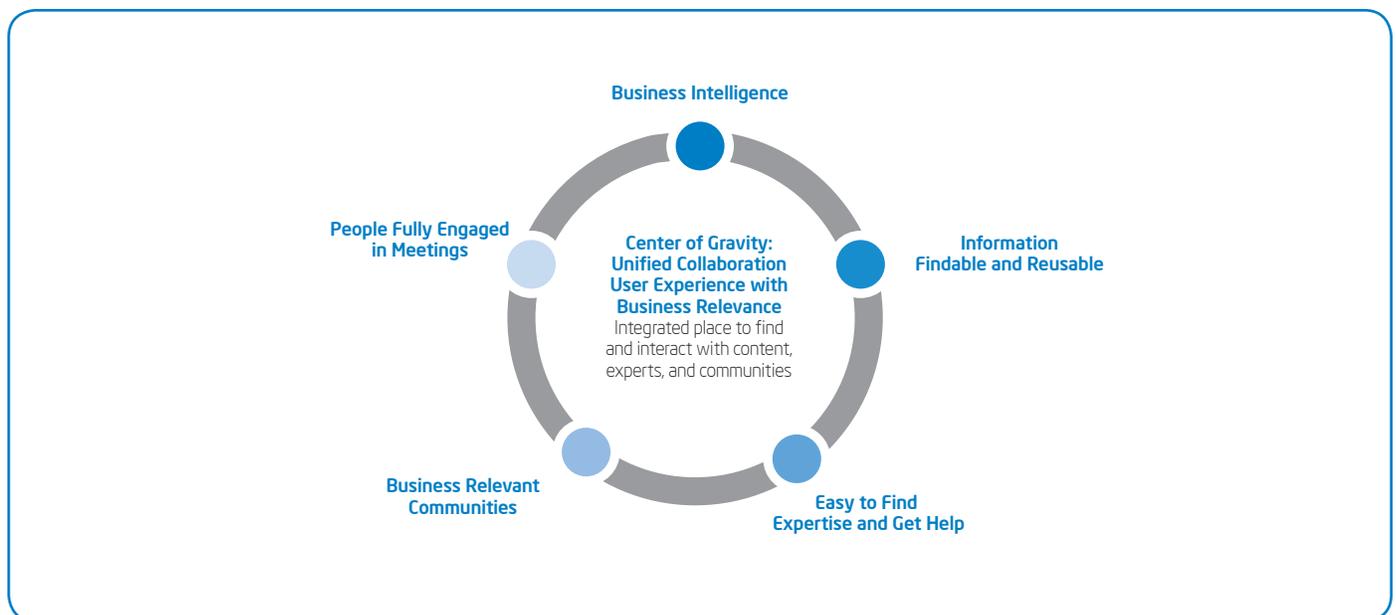


Figure 1. Social computing is part of our vision to create a unified collaboration experience.

This new approach means mapping capabilities to what employees want to do, as well as continuing to educate employees in better collaboration behaviors. We are identifying strategic engagements with Intel business units that are aligned to Intel priorities. The engagements will help us to better understand employees and their processes, desired experience, and unmet needs. This increased understanding will guide agile solution implementation through assembly of reusable building blocks, including social and mainstream collaboration and business-specific data and applications.

Currently, employees have to go outside their business applications and use completely separate tools to collaborate. The choice of tool may vary by individual, resulting in inconsistency. Business processes are optimized in silos instead of by audience or across organizations. Employees end up manually copying data and documents or creating links from a business application over to the collaboration site. It takes extra time they don't have and detracts from their primary job.

As the existing collaboration technologies continue to mature, we will continue to identify new capabilities that extend the existing portfolio of tools and drive high-impact solutions. For example, Intel IT is looking at activity stream aggregators, which allow changes to documents in shared team workspaces, wikis, and blogs to appear as one activity stream. We also plan to make

video available and convenient to use on any device. Another key goal is to make content more discoverable and secure.

We are also looking to change the role of collaboration champions. We plan to give them more exposure to product development details earlier in the release cycle so they can evangelize on upcoming technology, not just what is already available, to both boost their role and to communicate information more broadly.

CONCLUSION

Intel IT sees social computing as a strategic way to improve collaboration, foster innovation, and facilitate learning. Our research identified the best opportunities for using social computing to boost collaboration and productivity across Intel. To keep achieving maximum benefit from its social computing efforts, Intel IT continues to invest in social capabilities. Beyond improving personal productivity, we are looking to enable efficiency in Intel's business divisions for product design, manufacturing, and sales, through the use of cutting-edge social collaboration technologies.

By extending the use of social collaboration tools, we can improve the efficiency in the way we work and create highly engaged

teams. Our goal is to continue to transform collaboration across Intel into a seamless and unified experience that fully supports employee and business workflows.

We see this as a key way to address top business challenges such as helping employees to find relevant information and expertise more quickly, breaking down silos, attracting and retaining new employees, and capturing the tacit knowledge of mature employees.

RELATED TOPICS

Visit www.intel.com/it to find white papers on related topics:

- "Developing an Enterprise Social Computing Strategy"

ACRONYMS

PoC proof-of-concept

For more information on Intel IT best practices, visit www.intel.com/it.

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