Context-Aware Collaboration: Turning Field Service Workers into Knowledge Workers
Context-aware services, which utilize data from mobile, social, web, and physical environments, are changing the way consumers interact with businesses. Gartner estimates that by 2015, 40 percent of global smartphone users will opt into context services, allowing providers to track their activities in exchange for a more tailored user experience\footnote{1}.
Many enterprises, however, have yet to leverage these services to improve internal operations, such as field service, and other elements of their workforce management solutions. Integrating context-aware services with modern collaboration capabilities can help organizations to improve the way they share ideas, resolve issues, and improve customer service.

Context-based services have existed in a variety of forms for some time, from transmitter tags used by marathon runners to the recommendation engines used by websites operated by Amazon and Netflix. Logistics companies such as UPS and FedEx use contextual data (e.g., geo-location and traffic conditions) to determine optimal delivery routes. Other organizations equip field personnel with mobile devices and apps that help them stay connected with the home office while on sales or service calls.

However, these interactions—downloading a document, calling a co-worker, posting a question in a virtual chat room—are largely informal and ad hoc, which reduces their efficiency. Many of these in-the-moment interactions are not connected to the context of the worker’s task at hand nor are they captured and preserved so that they may be leveraged to change or improve future processes.

Our experience indicates that many organizations face significant cultural and technical challenges in leveraging mobile and social platforms to deploy context-aware collaboration across the enterprise. In many organizations, field workers—service personnel, installation and repair technicians, and the like—are not considered “knowledge workers.” But these personnel most certainly possess knowledge that is critical to building context-aware services.
Organizations have attempted to encourage broader knowledge sharing through knowledge management systems and, more recently, enterprise social collaboration tools such as Jive, Microsoft’s Yammer® or Salesforce.com’s Chatter®. But unless those tools are integrated into the daily workflows of the business, their value to workers will be limited. When deploying a workforce management solution, disjointed systems and workflows can make a comprehensive view of field service operations difficult, if not impossible.

The ability to aggregate historical and real-time data from multiple sources, and integrate that information into enterprise collaboration tools, can help businesses make better decisions at the point where an action takes place. The implications for field service operations can be significant. By combining context-aware services and social collaboration tools within a workforce management solution, field service workers are effectively turned into knowledge workers. This helps give enterprises the ability to find new and improved ways to optimize sales calls, equipment repairs, and other in-the-field interactions with customers.
A New Generation of Context-Aware Collaboration

Integrating context-aware computing and social collaboration tools within a workforce management solution can generate both near- and long-term benefits for the field force and the business. Here are three areas of potential improvement.
Most managers, when estimating job duration, include a fair amount of padding around the actual on-site work to account for travel, prep, and clean-up. Organizations have taken some inefficiency out of this task by deploying navigation systems or apps, for example, to make it easier for drivers to reach the customer site. But context-aware systems can further reduce activities that most organizations don’t consider "idle" time but are nevertheless inefficient.

Knowing which equipment is being serviced and where, for example, can trigger an automatic download of relevant documents to the assigned worker: marketing presentations for an account manager, technical manuals and call histories for a service technician, etc. A technician can receive recommendations on the best way to load his equipment in the truck, based on the parameters of the job, to save time unloading it—similar to the way postal carriers pre-sort mail for delivery. Knowing the customer site has a security station at the front desk, a system can automatically send a photo of the technician in advance to help streamline check-in.

Shaving a few minutes here and there adds up quickly over the course of dozens or hundreds of site visits.

The goal of any field services organization is more “wrench time”—actual work—and less “windshield time”—preparation and traveling to and from job sites.
More frequent and effective incident resolution

Social collaboration tools are an effective means for sharing knowledge among workers.

By integrating these tools within mobile workflows, organizations can begin to filter content available at any given step in a procedure to make the right experts and explanation available in real-time, without overwhelming the technician with too much information.

Context-aware collaboration systems can automatically identify the person or group that is best equipped to address an issue that arises in the field. An activity feed set up in a platform such as Jive, Chatter, or Yammer, or one that is integrated into the mobile workforce solution, such as ClickSoftware’s “ClickSHOUT!”, can change based on the context—in other words, as the technician proceeds from step 1 to step 2 in an installation, the recommended tasks and experts change to reflect each specific step, increasing the chance that the technician will quickly find the answers she needs.

Reducing the number of visits required to resolve a problem—by fixing it properly the first time—can lead to significant savings, not to mention a bump in customer satisfaction.
Continuous improvement

Context-aware collaboration can help an organization integrate field services into the enterprise knowledge center, laying the groundwork for a continuous feedback loop to improve processes and procedures.

The more data the system collects on interactions from field workers, the better insights it can develop about which processes are most effective—along with the bad ideas and procedures that should be rooted out. Call notes and job histories can be catalogued, stored, and delivered automatically to technicians before they answer a service call, providing a more complete picture of the customer as well as the specific job at hand. Data gathered from service calls can help organizations identify and troubleshoot recurring issues—information that can be routed to R&D and product teams to make modifications designed to reduce product failures.

Continuous improvement can be applied to the workers and teams, as well. If the system recognizes that certain associates are collaborating frequently, they can be paired together on projects. If collaborative individuals or partnerships among the workforce produce better performance in the field, then the model can be duplicated amongst others in the workforce to help maximize every interaction. Continuous improvement means constantly squeezing more revenue and creating happier customers without increasing cost. This approach also creates ever-growing pressure on the competition.
By enabling the mobile workforce to interact with context-aware collaboration tools, companies can realize a number of important potential benefits

- Help reduce time to resolution.
- Capture, document, and help spread best-practices.
- Gain granular data into field processes, which can be analyzed to glean insight for improving field processes.
- Help retain institutional knowledge as experienced workers retire.
- Detect and help stop the spread of bad-practices.

Some of these potential benefits may seem like incremental improvements that may not seem like much, for example reducing time to resolution by a few minutes here and there.

However, in situations where any minute of equipment down-time can have potentially significant cost or safety repercussions—every minute counts.

Even in other less critical situations, if an organization can save 12 minutes per job for a worker who averages five visits per day, that's one hour saved per worker per day. Multiply this across a large workforce and hundreds of site visits and we're talking significant savings. And they're all driven by context.
The key to a more successful context-aware collaboration initiative, as with most other enterprise IT projects, is to avoid “big-bang” approaches that maximize disruption based on the assumed needs of the target users. Instead, begin with a smaller pilot project that can help you understand what will provide the most value, and that can be championed as a success story for broader deployment.

How do you identify the right pilot project? Look for high-profile workflows that are most common, have a significant impact on the business, and stand to potentially benefit the most from context-aware collaboration. Don't, however, pick an overly complex workflow; it's important to establish a solid first example that delivers a measurable return to ensure broader adoption.
After identifying a pilot project, consider the four important building blocks outlined on the following pages.

Throughout each of these activities it is important to involve the field workers in the identification, definition, and design of the future collaboration technologies. In addition, executing the proper communication and usage training programs will help ensure a successful pilot and subsequent roll-out.
Gather your contexts and actions

Identify areas in the workflow in which a field worker would benefit from the technology recommending or performing an action.

Then identify the data you need to collect to enable that action, as well as the contexts that are relevant to this task. Where’s the job location? What type of facility is it? What products are involved? What technical skills are required to service or install the equipment?

How will they receive information on-site? Is it a new or longtime customer? How collaborative is our field team? Don’t limit your thinking to traditional inputs – consider any context that might improve the process, and then look to source it creatively.

Assess existing workflows

Once you’ve identified the workflow to address, conduct an audit of the processes involved in the workflow.

Are documented systems and practices out of sync with how workers are actually performing the task? Are paper-based systems out of date, with either the need or available technology?

This exercise should be both bottom-up and top-down. It’s critical to treat field workers as knowledge workers; they possess an intimate understanding of what happens on the job site and can provide important insights about how a process works—and how to do it better. Ask your end users, “If you had an intelligent assistant who knew everything about everything sitting on your shoulder, what would you have her tell you or do for you as you progress through your day?”

Removing the barriers we have about what is realistic may raise ideas that are not practical, but will also provide new and creative ideas that are achievable today.
Measure and iterate

Make sure you have a clear set of metrics and methodology for measuring the pilot, within a specific timeframe.

Use KPIs that the leadership team is already comfortable with, such as customer responsiveness, job duration, number of repeat visits, or SLA compliance. You may also want to layer in metrics that demonstrate added value, such as upsell rates by on-site technicians.

Change comes with challenges that sometimes negatively impact the KPIs, so identify other indicative metrics that can show progress or detect problems early.

Scale smartly

With one successful pilot in hand, you can begin to scale, workflow by workflow.

Market your success internally, early, and often to make the project one that others are asking for instead of having pushed upon them. Within a workforce management solution, make sure that whatever you’re implementing is aligned with existing processes, such as assigning tasks to the field, optimizing schedules, street-level routing, and up-sell opportunities.

You may tweak processes here and there to improve efficiencies, but don’t let the technology drive the process. If your solution is misaligned with a group’s actual tasks, no one will use it.
Important requirements for context-aware collaboration

Technical requirements

- A workforce management solution for optimized scheduling and mobility.
- Network connectivity in the field to back-end servers for content and collaboration.
- Mobile devices that are suited for field work. Tablets and larger-screen smartphones are easier to view and navigate; repair and installation technicians may also require ruggedized devices.
- Digitally accessible workflows and procedures that can be viewed or downloaded from any approved device.
- A content management system (such as Microsoft SharePoint®) for storage and retrieval of technical documents. All documents should be indexed/tagged properly.
- Expertise profiles, also indexed, for suggesting the right expert for a specific topic.
- An “asset service” library for recommending related documents and recent service history for a specific client or job.
- An enterprise social collaboration platform such as Salesforce.com’s Chatter®, Microsoft's Yammer®, or Jive Software. A valuable enhancement, if available, would be Presence and Instant Messaging (such as Microsoft’s Lync®) to enable synchronous communication. A collaboration app such as ClickSoftware’s ClickSHOUT! would also benefit a mobile workforce.

Business/cultural requirements

- Support from leadership of the units involved.
- Incentives to collaborate: Does it help or hurt one’s performance metrics to take time to answer a colleague’s question at a remote site?
- Inter-team alignment: The goals and objectives of teams should be aligned to minimize any resistance to collaboration.
- Willingness to change: Are the teams chosen for a pilot open to new technology and different ways of working?
Context-based collaboration for workforce management requires a broader and more dynamic view of the possibilities for adding value to the business. These services demand different skills and stronger links within the enterprise than many IT leaders have experienced to date. By marrying social collaboration with context-aware workflows, and treating every worker as a knowledge worker, organizations can begin to find new ways to improve efficiencies and deliver high-quality service that wins customer loyalty and provides a strong foundation for growth.
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1 “Context-aware computing and the user experience,” Gartner, February 2012
http://docs.media.bitpipe.com/io_10x/io_102267/item_485946/Gartner%20context.pdf
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About ClickSoftware

ClickSoftware (NasdaqGS: CKSW) is the leading provider of automated mobile workforce management and service optimization solutions for the enterprise, both for mobile and in-house resources. As pioneers of the “Service chain optimization” concept, our solutions provide organizations with end-to-end visibility and control of the entire service management chain by optimizing forecasting, planning, shift and task scheduling, mobility and real-time management of resource and customer communication.

Available via the cloud or on-premise, our products incorporate best business practices and advanced decision-making algorithms to manage service operations more efficiently, in a scalable, integrated manner. Our solutions have become the backbone for many leading organizations worldwide by addressing the fundamental question of job fulfillment: Who does What, for Whom, With what, Where and When.

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