Analyst Insight

Mobility Making Waves in Manufacturing

The dynamic and urgent nature of today's manufacturing environment defines time as a critical element impacting all quality, productivity, and efficiency activities. More than ever, manufacturers are required to take charge, manage resources, and effectively respond to specific customer and operational needs in real time to stay competitive throughout what feels like constant operational change.

As described in Aberdeen's October 2012 report _Next-Generation Enterprise Mobility: Putting Mobile to Work_, mobility is top of mind in the retail, field service, and healthcare fields. Mobile has become not only the mechanism to deliver value to customers, but also a way to empower employees to make effective and timely decisions. Leaders in those industries prepare for the new wave of mobile technologies by establishing indigenous mobility initiatives to serve the business and meet the demands of their workers.

This Analyst Insight will look into the growing areas of Business-to-Employee (B2E) mobility adoption among manufacturers and examine the business case for improved operational performance enabled by providing mobility to their workforce.

Got Mobility?

In a fall 2012 Enterprise-Grade Mobility survey, manufacturers identified a variety of reasons why they do not provide employee-facing apps (Figure 1).

Figure 1: Manufacturer Reasons for not Providing B2E Mobility
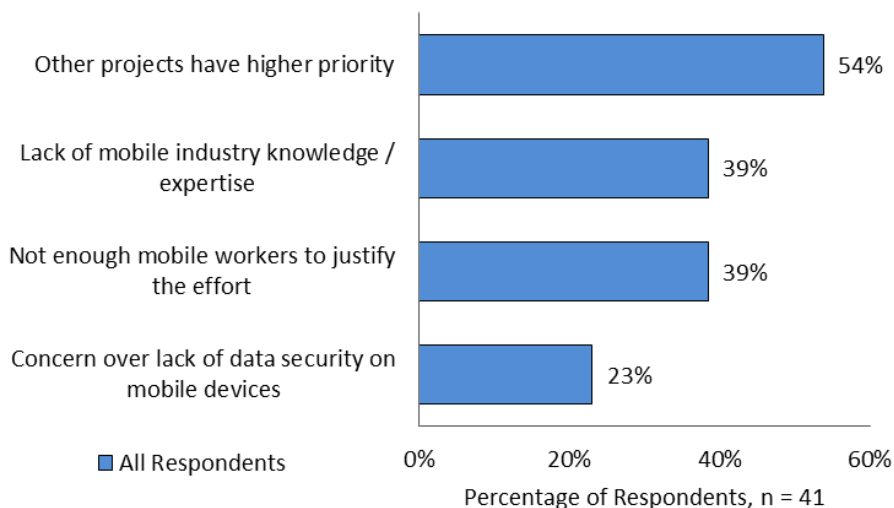
Source: Aberdeen Group, October 2012

Analyst Insight

Aberdeen's Insights provide the analyst's perspective on the research as drawn from an aggregated view of research surveys, interviews, and data analysis.

B2E Definition

B2E apps: ("Business-to-Employee" apps): employee-facing mobile software provided by the organization to be used by their employees.

Mobility in Manufacturing

41 manufacturers were extracted from a fall 2012 mobile software survey.

Performance was defined by the following metrics:

√ Ability to access information within the required time frame

√ The percentage of workload completed on mobile device

√ The Year-over-Year change in operational efficiency

For manufacturers, a B2E mobility initiative is a relatively new concept. The ability to access company information from anywhere, combined with cost and security concerns, can threaten significant change or disruption in organizations already focused on reducing process variability through compliance and controls. The introduction of new technology in hard hat environments — and other areas where process must comply with specific order or guidelines — requires a thorough understanding of the potential risks as well as efficiency gains.

In order to benefit from these disruptions, manufacturers must acquire B2E mobility knowledge. They need to develop a B2E strategy that is optimized for their specific environment — a refinery, mill, or a manufacturing plant — around managing supply chain, product, quality, and safety issues according to their business priorities. Mobility can extend information access to more users, but it may also displace earlier investments in technology applications and infrastructure. A company-wide mobility initiative could result in a smooth technology evolution. It can also create parallel networks that completely replace systems and disrupt how companies work today.

Manufacturers are catching up to the fact that mobile technology advances in data sharing, information exchange, and content management can support existent business process improvement initiatives. New and more cost-effective mobility solutions drive employee demands to bring their own devices (BYOD) to work to complement desktop access to critical data. The business need to increase response time, savings, and collaboration calls for a practical way to keep the connection between the business and employees always on and always open.

Manufacturers can draw from the experience of other industries and work with solutions providers, their own IT departments, and subject matter experts to define the system architecture, security, infrastructure model, and service level that best supports their B2E mobility initiatives

BYOD

Manufacturing organizations, processes, and resources are typically spread across distributed operations. Often decisions must be made at the shop floor, while travelling, or at specific times during the product design, production, and delivery cycle.

Manufacturing employees that bring their own mobile devices to work can benefit from using these devices to have full or limited access to company information. BYOD also serves as a test case or model for company-wide mobility initiatives, especially on assessing the impact of new technology in the workplace.

Mobile devices include different types of powerful hardware options (Figure 2). Manufacturers are in the best position to understand how access to a GPS, video cameras, accelerometer, photographic lens, touch screen, advanced displays, and high bandwidth connection for phone, web, and email options can be used to increase their competitive advantage.

Figure 2: Mobile Devices Hardware Options
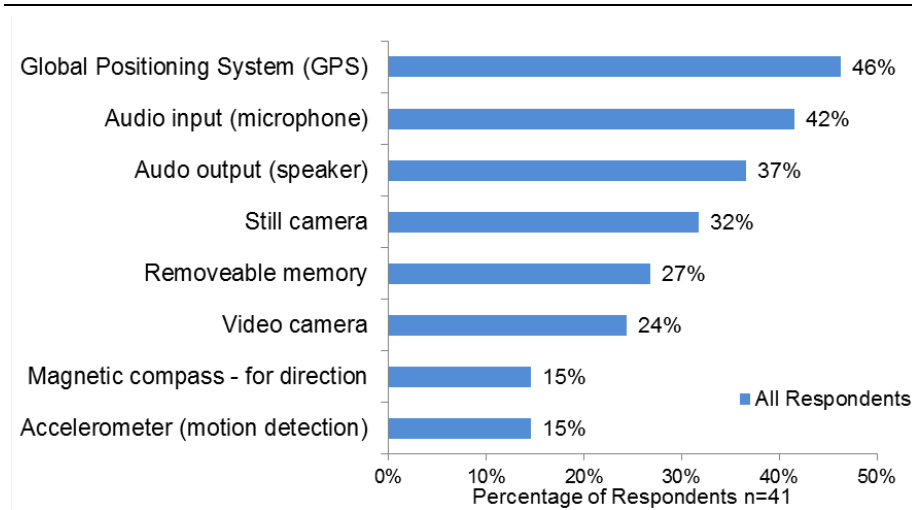
Source: Aberdeen Group, October 2012

BYOD represents a convenient way to increase productivity and reduce risk:

- **Content access** — Employees armed with access to operational knowledge can make better decisions. Instructions, process guidelines, and training tools intended to mitigate risk, along with dashboards to oversee performance, increase confidence in their ability to inject the right corporate criteria into their jobs.

- **Rapid response** — A plugged-in employee can use problem-solving tools and knowledge to take action and speed up manufacturing bottlenecks. Using GPS to quickly find faulty equipment, pictures to describe failure modes, or audio logs explaining corrective actions increases their ability to resolve quality and safety incidents.

- **Collaborate** — Mobile interactive publishing tools can help employees fully participate in important business communications. Sensors, cameras, and mobile apps augment the sharing experience.

- **Innovation** — From tracking employee behaviors for process models to synchronizing technologies at the point of service, there are novel ways where mobility can improve how manufacturers work.

BYOD supported by a B2E company-wide mobility initiative can help employees validate best practices as well as increase their effectiveness on important manufacturing business processes activities.

Manufacturing Mobility Road

Manufacturers are a long way from having "mobile-only" employees. However, numerous mobile applications are starting to appear everywhere

"Terminology or 'regulatory parlance' has proven a challenge until we formalized it in laymen (not lawyer, not specialist) language and made it available on a mobile application where we maintain our business terminology."

~EH&S Consultant, Large Discrete Manufacturer

in manufacturing environments (Table 1). These applications are available in different mobile forms and functionalities, including commercial off-the-shelf smart apps, thin-client apps, specific business process management (BPM) use cases, and custom interfaces to centralized enterprise data management systems.

Table 1: Enterprise Application use by Device

Application	Smartphones	Tablets
Customer Relationship Management (CRM)	39%	22%
Field service	39%	35%
Vertical Line of Business (LOB) applications	35%	22%
Location-Based Services (asset / personnel tracking, geo-location, etc.)	30%	17%
Asset Management	26%	22%
Enterprise Resource Planning (ERP)	22%	26%
Manufacturing Automation	22%	22%
Supply Chain Management (SCM)	17%	22%

Source: Aberdeen Group, October 2012

These mobile applications can potentially make the work life easier by extending employee capabilities while they make their rounds, or any time on the go. Innovative approaches for record creation and tracking, synchronizing mobile hardware (video, audio, etc.), and user responsibilities to enhance the business experience, as well as access to company information at the point when users need it most, are a few of the helpful mobile functionalities available to manufacturers.

Additional examples of how mobility can assist various aspects of manufacturing are described below:

- **Customer Relationship Management (CRM)** — Any chance to conveniently follow up on customer visits with actions, collateral, and quotes, can make frontline professionals very productive. Anytime access to customer records keeps the sales force competitive.

- **Business Intelligence (BI)** — Line of business managers with real-time corporate data at hand can make better decisions. Simplified dashboards adapted to mobile devices support specific roles and functions. Mobile portals increase access to insight.

- **Enterprise Asset Management (EAM)** — The ability to quickly respond to preventive and corrective maintenance increases accuracy and overall service quality. Managing certificates, logs, work orders, and authorizations at the point of service saves time.

- **Enterprise Resource Planning (ERP)** — The ability to interact with transactions, change authorization, and access financial information in a simplified way speeds up the pace of business.

- **Manufacturing Operations Management (MOM aka MES)** — Beyond traditional workflow progress tracking, alarms, and exceptions alerts, mobility not only can help prioritize views through manufacturing intelligence capabilities, but also significantly reduces paper consumption across all production processes.

- **Quality Management System (QMS)** — From product compliance, to process variability, CAPAs, audits, and customer escalations, a broad base of mobile quality functionality can help decision makers address concerns by creating, monitoring, and routing records at any point of the quality cycle.

- **Supply Chain Management (SCM)** — A convenient way to track parts and raw materials authorizations, monitor supplier CAPAs, perform audits, and access balanced scorecards can help increase transparency to address the complexity of supply chain management.

- **Environmental Health & Safety (EH&S)** — Enabling employees to log incidents, illnesses, and accidents when they occur can help support a safety culture. On the other hand, rapid response and access to sustainability issues will help on the adoption of environmental practices across all levels of the organization.

- **Product Lifecycle Management (PLM)** — From design reviews to change orders and obsolescence issues, product management is a time sensitive collaborative effort. Real time access to product information increases responsiveness and competitive advantage.

Manufacturers are getting ready for a new set of enterprise applications that combine mobile users' experience with mobile technology advances in search engines, role-based GUI preferences, embedded intelligence, and automation. Through mobility apps, manufacturers plan to extend business capabilities to more users, increase awareness to important issues, and reduce time to action.

Fast Fact

The Food Safety Modernization Act (FMSA) which was signed into law on January 4, 2011 and has two new proposed rules pending, requires produce be kept certain distances from any hazardous materials. Companies are starting to utilize mobile devices to scan, inspect, and track this produce, further limiting the risk of contamination.

Key Insight

With most manufacturing budgets either staying the same or shrinking, it can seem hard to justify investing in new technology that isn't fully understood, like mobility. The increased productivity and efficiency of adopting mobile solutions far outweigh the costs, however, and so far mobile solutions have just scratched the surface of the manufacturing world. Enabling mobility now not only will allow companies to enjoy improved metric performance, it will also set them up to incorporate future mobile innovations into their operations. This will keep manufacturers ahead of the game in the rapidly developing mobile world, and also ahead of their competition in general. Mobility is coming; those manufacturers who do not embrace this technology run the risk of being left behind.

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