SAP White Paper
Chemicals

Driving Maximum Value from Mobile Technology

The Strategic Necessity of Mobility in the Chemical Industry

The Best-Run Businesses Run SAP™

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Mobility is a must-have strategy for the chemical industry. Sales representatives, field technicians, and maintenance workers in the plant are starting to adopt mobile technology. Right now, the technology exists – from really smart smartphones to everywhere Wi-Fi access – to support true mobility in the chemical industry. But how can you make sure that mobile technology brings the greatest value to your company?

Executive Summary

Mobility offers an array of unprecedented opportunities to the chemical industry. Rapid responses to changing market conditions and order fulfillment needs are possible when real-time information about demand changes, transportation capacity, and material availability and specification is readily available at your fingertips.

Sales cycles can be expedited and time to market for new products can be reduced through instant access to customer, product, and pricing information, as well as to sample and technical information. Moreover, safety and efficiency on the plant floor can be enhanced by delivering instant, paperless information about assets, operations, and risks, ultimately supporting continuity and performance in manufacturing operations.

Enterprise mobility continues to gain momentum. This is evidenced by increased corporate support for a broad array of smartphones and other mobile devices; expanding support of mobile applications for employees, clients, and partners; and increased access to these solutions, even on the plant floor. Across a range of enterprises, mobility is no longer a "nice to have" feature. It's now considered a strategic necessity – one that increases productivity from the shop floor to the top floor and allows firms to offer competitive client service.

But making a workforce mobile and securely connecting business information with a vast array of mobile devices can be a challenge. This paper details trends and issues in enterprise mobility and then outlines a framework that can help guide chemical companies seeking to connect, consume, control, and create a comprehensive and effective mobile strategy. The paper concludes by identifying business processes that, once mobile, can drive the most value to the organization.

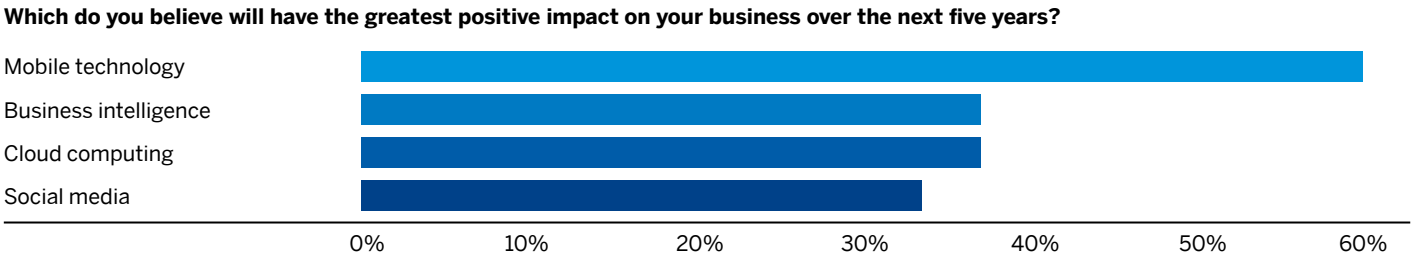
Mobility is no longer a "nice to have" feature for chemical companies. It's now considered a **strategic necessity** – one that increases productivity, enables firms to gain a competitive advantage, and helps ensure sustainable profits and performance.

Why Mobility Matters

In a recent Oxford Economics survey, respondents were asked to identify four digital megatrends that they believe will have the greatest positive impact on the business landscape. Mobile technology topped the list, as shown in Figure 1.[1] Respondents across all sectors, in firms of all sizes, and in both the developed and emerging countries consistently rated mobility as a game changer. In fact, more than 50% of respondents within each sector indicated that their firms will invest heavily in mobile technologies over the next five years.[2] As smartphone penetration and adoption rates soar, handheld devices are poised to eclipse the desktop and laptop as must-have technologies.

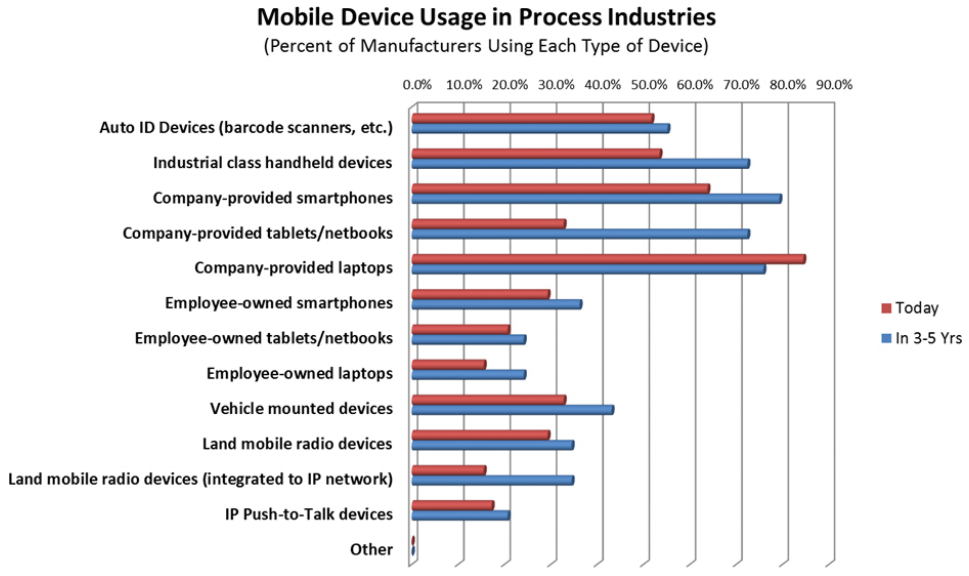
A recent study by the ARC Advisory Group (Figure 2) showed that bar-code scanners, industrial handheld devices, and company-provided smartphones not only found widespread adoption in process industries but will further grow over the next years.[3]

Figure 1: Importance of Mobile Technology in Driving Business Value



Source: *Oxford Economics*

Figure 2: Mobile Device Usage in Process Industries



Source: ARC Advisory Group

THE CONSUMERIZATION OF TECHNOLOGY

When it comes to mobility, employees are driving how they want to interact with information – and expecting IT departments to support a wide range of personal mobile devices and applications. According to a recent survey of nearly 2,000 North American and European companies by Forrester Research Inc., more than 45% of firms state that they are focused on supporting more mobile applications for employees who work outside of the office. In addition, 43% of companies are planning to support more mobile devices or smartphones for their employees.[4]

Furthermore, more than 55% of companies allow employees to bring their personal mobile devices into the office and provide some level of support for these personal devices. "This is part of a broader trend that we call the 'consumerization' of IT in which employees solve customer and business problems using technology that they master first at home, such as social media, mobility, and video services," notes the Forrester report.[5] In short, employees want to interact with business data as easily and as intuitively as they use Twitter or Facebook.

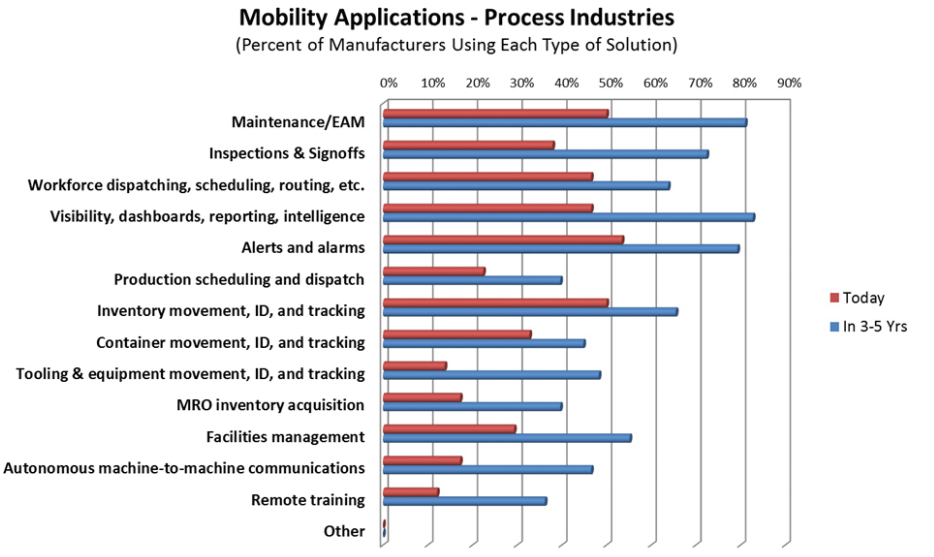
EXPECTATIONS FOR INCREASED MOBILITY AND PRODUCTIVITY

Both customer expectations and needs within the organization are driving the push for increased mobility in the chemical industry. Customers, often mobile device users themselves, expect rapid and comprehensive responses on all kinds of business matters – and quick and decisive action. Whatever your role in the company, you need to be informed and able to respond regardless of your location.

For example, a customer might expect a sales representative to provide immediate information on product specifications, pricing, availability, or order status during a meeting at the customer site. Traditionally, the sales representative would carry printed brochures, would not have the latest information on customer-specific pricing, and would have to call or e-mail the home office to find out the order status. In many cases, there would be a considerable delay in getting this information to the customer.

Mobile applications can speed processes and support rapid decision making, and both aspects translate into increased productivity. Dynamic reports, real-time messages, and immediate information provisioning let executives, sales representatives, plant workers, and warehouse and logistics employees make quick and informed decisions and communicate them to their stakeholders almost instantly. Since the workforce is also geographically dispersed, information needs to flow where employees and customers need it. The high adoption rate of mobile applications in the process industries gives clear evidence for this, in particular for processes like asset management and maintenance, inspections and sign-offs, workforce dispatching and scheduling, and business intelligence and dashboards, as shown in Figure 3.[6]

Figure 3: Mobility Applications for Process Industries



Source: ARC Advisory Group

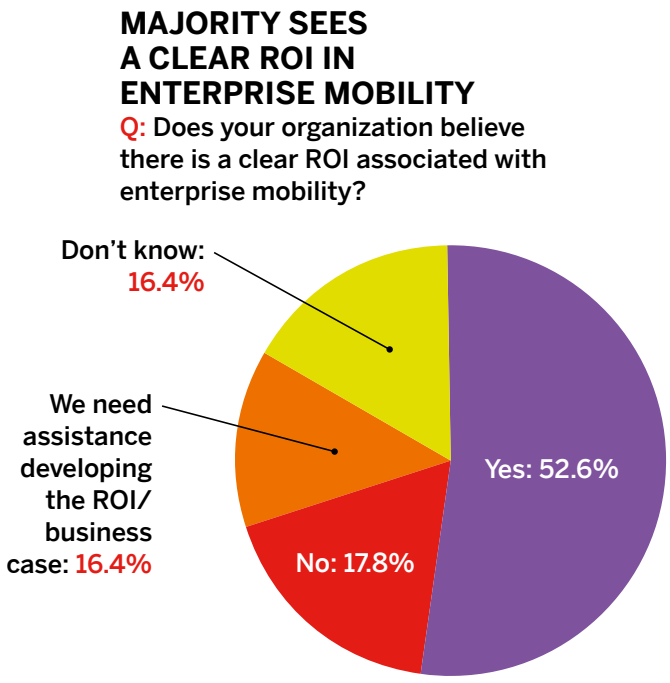
The Challenges of Mobilizing the Enterprise

A comprehensive mobile strategy is a top priority to leverage technology and improve performance. While the need to implement a powerful and flexible mobility strategy is evident, getting there can be complicated and difficult. Historically, many firms have pushed information – e-mails, alerts, and static reports – out to employees via a corporate-mandated mobile device. With today's technology, firms can move from a push environment to an interactive one – where employees are connected and interactive all the time, anywhere, on any device.

A recent study from Managing Automation Research Services shows that 52.6% of survey respondents believe there is ROI in enterprise mobility (see Figure 4).[7]

Mobilizing your enterprise requires getting timely business information from a multitude of sources to your employees when they need it, where they need it – and on a wide variety of devices. For example, suppose management distributes a dynamic report. An employee reviews the data and drills into details to make a decision. The fact-based decision is broadcast immediately to the team or target recipient for action. This means no more waiting for additional information or for the employee to get back in the office and log on to the network. Information can be shared and analyzed, approvals granted, and decisions made instantly.

Figure 4: ROI in Enterprise Mobility



Source: Managing Automation Research Services

While chemical companies have long desired this level of interconnectivity, the technology is only now fully available to support it. Smartphones and tablets – such as the iPad, Galaxy, and Playbook, in addition to ruggedized and intrinsically safe devices for plant environments – are quickly becoming mainstream. Meanwhile, Wi-Fi network connectivity and bandwidth are ubiquitous – not just in the office but literally everywhere, from coffee shops to taxi cabs and at home.

However, supporting and managing the collection and delivery of business information to a wide range of wireless devices and operating systems – BlackBerry, iOS, iPad OS, Android, Web OS, Windows, and Windows Phone 7, just to name a few – quickly become complicated, as illustrated in Figure 5. One example is the process of applying necessary and timely OS patches.

In addition, you need a platform that can help you coordinate and manage data from multiple applications, servers, and storage systems – one that can securely filter large amounts of data and distribute it safely. This must be done with the confidence that data is secure at all times, using a system that balances rigorous security with easy and trouble-free employee access. As shown in Figure 6, 60.3% of process industry companies report security as the biggest hurdle to overcome in adopting mobile technologies.[8]

Can you enforce security policies established in the provisioning stage? Can you provide detailed logging and reporting? Historically, these IT challenges have been addressed manually, in an ad hoc fashion. Now, enterprise mobility platforms allow IT to better manage data flow and ensure rigorous mobile security features for the connectivity of critical information to all employees on any device.

Figure 5: The Complexity of Managing Organizational Mobility

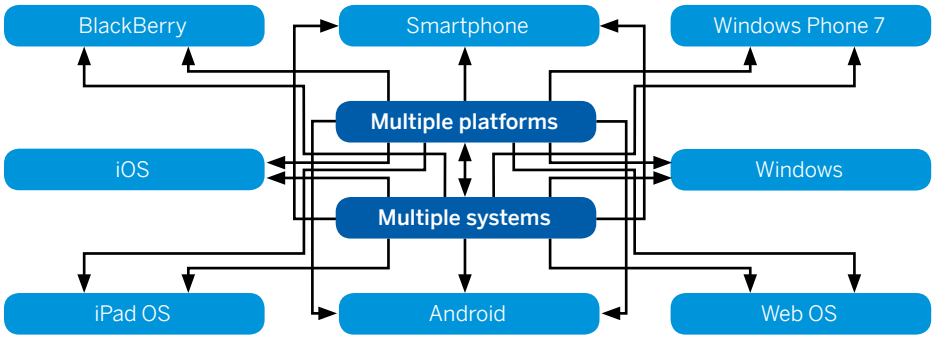
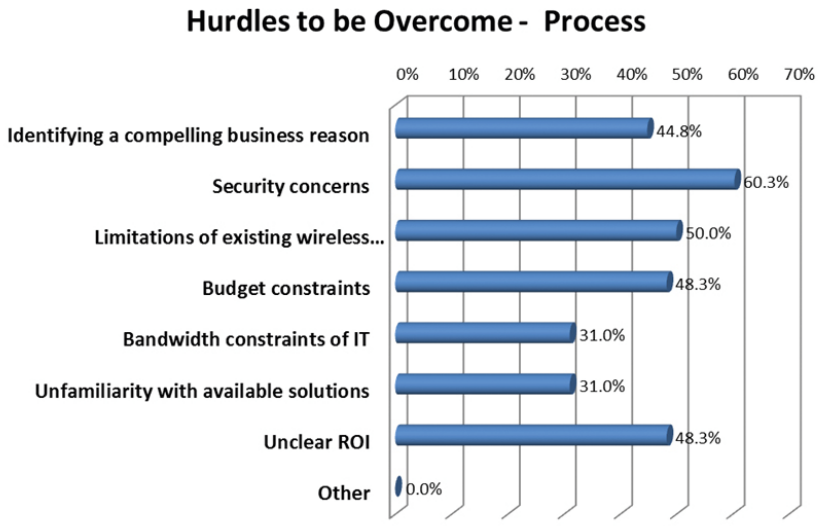


Figure 6: Hurdles Process Industries Must Overcome When Adopting Mobile Technologies



Source: ARC Advisory Group

The Four Cs of Mobility

Companies planning to deploy mobile solutions need to consider several major factors. We call them the "four Cs": connect, consume, control, and create.

CONNECT

Any enterprise mobility strategy starts with a platform for information management. Such a platform must be able to pull all business information from multiple data sources and applications – including enterprise resource planning, customer relationship management, supply chain management, HR, and more – to data storage devices, servers, and data marts. A flexible and open infrastructure is needed to make heterogeneous data easily accessible to users, regardless of source.

CONSUME

A comprehensive enterprise mobility system must be able to deliver business information to any mobile device. Users not only want to receive information but also to analyze it on the device of their choice – anytime, anywhere. Companies need to address the complex challenges associated with managing a wide and ever-changing range of both employee-owned and company devices, with multiple operating systems and upgrade schedules. For example, a report formatted for viewing on a BlackBerry may not display correctly on an iPhone.

CONTROL

Your IT department needs central control of all devices, as well as the information pulled from the platform and pushed to those devices. For example, an effective practice is to build a control feature just once and use it to support multiple devices. The goal is to manage and secure each mobile device through its entire lifecycle, from provisioning to production to decommissioning.

Provisioning

In the provisioning phase, you need to configure, set up, and install devices; manage application deployment; and establish security policies. Group and membership assignments help to accomplish provisioning for large organizations.

Production

In the production phase, you have to remotely manage, track, and maintain devices. This includes updating and repairing software as needed, as well as distributing data and content to line-of-business applications. You need to securely back up device data, enforce compliance and security policies, and provide logon reports.

Decommissioning

The final phase of the device lifecycle is decommissioning. Options are to remotely disable or kill devices, reprovision and redeploy devices, and enforce access violation locks. Decommissioning is a critical step – as important as provisioning, or perhaps even more so. All too common are stories about a device sold on eBay that is still loaded with corporate data; apparently that device was the victim of either theft or a poor decommissioning process. To enforce the security of the business, you must be able to lock or kill a lost or stolen device and to wipe all data from devices being removed from inventory and repurposed. Finally, each reprovisioned device must receive a new functional image as well as the appropriate applications and settings.

CREATE

Rapid development tools make it easy to create new mobile applications – for example, a sales report or a new supply chain application. The value that mobility delivers is directly related to the effectiveness of the applications you are running. Developing mobile applications for mission-critical processes – such as sales, marketing, or supply chain management – can help save cost, deliver critical information for decision making, and provide a competitive edge. New applications should possess the best qualities of well-designed consumer apps – streamlined, easy to download, and easy to understand, with rapid development, instant value, and fast ROI.

Mobility with Maximum Impact and Value

Several business areas in the chemical industry could potentially benefit from mobile solutions, as shown in the table.

With so many possibilities, how do you narrow in on those that will drive the biggest impact and value?

You want to look for opportunities to turn wasted time caused by ineffective processes into productive time. For example, can you decrease the time a sales representative spends obtaining critical information to support a deal or to answer a customer's question? You want to look for opportunities to increase the productivity of your workforce. For instance, can you decrease the amount of time and effort required for a plant maintenance employee working in a remote part of the plant to create a work order or to obtain information about spare parts?

At SAP, we've developed some simple guidelines for identifying processes ripe for improvement using mobile applications. First, the workflow must be complex; you won't get the same level of ROI on a simple process. Second, the process must be time sensitive. One of the greatest strengths of mobile apps is reducing the time it takes to make a decision. Third, mobile applications can offer significant benefits to processes that multiple people touch. To summarize: mobility can speed decision time and accelerate activities in a time-sensitive, complex process that requires information, analysis, or approval from multiple employees. Taking the above factors into account, let's review three high-impact use cases in more detail.

Area	Mobile Application Examples
Corporate executives	• Cost and profitability analysis • Reporting of key performance indicators • Ad hoc analysis • Alerts
Sales Business development	• Sales reports • Information on customers, products, complaints, product availability, and so on • Lead management • Opportunity management • Collateral access • Price approval routing
Enterprise asset management	• Work order management • Spare-part information, such as specifications, availability, and storage location • Preventive and breakdown maintenance
Warehouse management	• Storage location • Product information • Resource management
Transportation management	• Information for truck drivers • Transport tendering • Transport notification and status • Product status during transit, such as temperature and humidity

MOBILITY FOR CORPORATE EXECUTIVES

Executives need to be on top of the business and to act quickly. With mobile applications, they can get instant insight – in the form of key performance indicators on revenue, profitability, days sales outstanding, and operations – into all business areas. They can review sales and the business development pipeline – and receive alerts early on, to maximize time for decision making. Mobile solutions provide executives the ability to make better-informed decisions based on real-time data and analytic functionality, which, ultimately, reduce response time.

MOBILITY FOR SALES AND BUSINESS DEVELOPMENT

With key information at their fingertips, your sales executives can use mobile applications to accelerate sales cycles and decisions. They need access to up-to-date information on customers, products, complaints, product availability, and order status. Mobile applications can help speed up sales cycles by providing information and documentation instantly upon a customer's request, thereby enabling fast and effective order and sample management as well as technical support.

MOBILITY FOR ENTERPRISE ASSET MANAGEMENT

Reliable assets are vital for chemical companies. Through the use of mobile apps, maintenance workers no longer rely on slow and error-prone paper-based processes. Asset and spare-part information is available at their point of work. Mobile asset management enables data access and data entry even in remote locations, helping to avoid errors and speeding up the process. Mobile solutions can help companies gather, assess, and share work order information with service and maintenance technicians. In addition, mobility solutions can provide key performance information about operating assets to decision makers at all enterprise levels. Overall equipment effectiveness, key performance indicators, and compliance data can be made available in real time and trigger real-time decisions in support of Six Sigma strategies related to safety, availability, and profitability of assets.

THE BOTTOM LINE

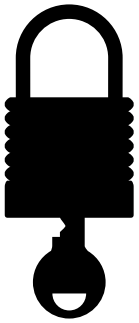
Understanding where to apply mobility – addressing time-sensitive, complex processes requiring input from multiple people – can help ensure maximum impact and effectiveness and speed ROI of enterprise mobility initiatives.

CRITERIA FOR APPLYING ENTERPRISE MOBILITY

To optimize your ROI in mobile technology, apply it to business processes that involve:

- Complex workflows
- Time-sensitive decisions
- Multiple process touch points

You need a platform that can help you coordinate and manage data from multiple applications, servers, and storage systems – one that can **filter and distribute large amounts of data safely,** balancing rigorous security with easy employee access.



Conclusion

Chemical companies are positioned to derive great benefits from mobilization across the enterprise, from executives to business managers to support staff. But to do so successfully, a company must address the daunting task of supporting a wide-ranging ecosystem of operating systems, devices, and applications required to empower its mobile workers. To mobilize with power and control in a way that helps its users get the most out of mobile technology, a company should thoroughly address the four Cs – connect, consume, control, and create. Focal points for mobilization are complex processes that require rapid decisions based on information, analysis, or approval from multiple people. For these scenarios, successful mobilization can speed decision time and accelerate both processes and ROI.

To reap the benefits of enterprise mobility, find a process that is ripe for mobilization – and use the four Cs to start making faster, better-informed decisions today.

FOOTNOTES

1. *Digital Megatrends 2015: The Role of Technology in the New Normal Market* (Oxford Economics, March 2011).
2. Ibid.
3. G. Gorbach, *Enterprise Mobility: Current Practices and Future Plans for Mobility Systems in Industrial Companies* (ARC Advisory Group, February 2011).
4. *The Rise of Wannabe and Maverick Mobile Workers* (Forrester Research Inc., February 16, 2011).
5. Ibid.
6. Op. cit., *Enterprise Mobility: Current Practices and Future Plans for Mobility Systems in Industrial Companies*.
7. *Enterprise Mobility A Game Changer for Manufacturing* (Managing Automation Research Services, May 2011).
8. Op. cit., *Enterprise Mobility: Current Practices and Future Plans for Mobility Systems in Industrial Companies*.

LEARN MORE

In the chemical industry, mobile technology is a strategic necessity that can boost productivity and drive a competitive advantage. For more information on how to maximize the value of mobile technology in your company, visit www.sap.com/chemicals.

Mobility can **speed decision time and accelerate activities** in a time-sensitive, complex process that requires information, analysis, or approval from multiple employees.

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