

Enabling Enterprise Mobility for Healthcare Professionals

Choose the Technology Platform and Applications to Support Clinical Care Operations



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Mobile technologies promise to transform healthcare organizations by bringing information to the point of care. But how can you bypass the hype and create a healthcare environment that empowers clinicians to improve workflow, patient interaction, and care delivery efficiency by using mobile devices? This paper explores challenges, best practices, and relevant technologies needed to deploy mobile technologies in the healthcare environment.



Executive Summary

Bringing mobile technologies to health-care – especially to clinical care operations – can be an innovative way to improve patient care, reduce complexity, improve efficiency, and empower healthcare decision makers with actionable insight at the site of care: the patient bedside.

But deploying mobile technologies to healthcare providers cannot be done without careful planning and consideration. To effectively secure, manage, and control mobile devices and access data, you must deploy appropriate enabling technologies beyond the network infrastructure.

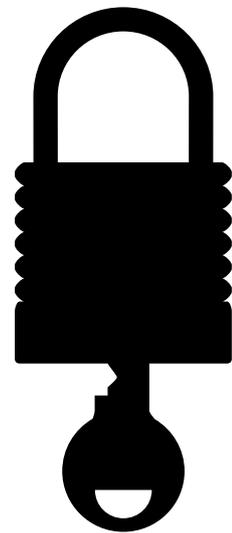
Healthcare executives like you need to seek mobile solutions that:

- Are based on an open, flexible mobile platform
- Help you efficiently and centrally manage, secure, and protect applications, data, and users

- Deploy enterprise-class applications that can interoperate with various device types and operating systems (OSs)
- Mitigate the risk and maximize the value of mobile applications
- Minimize the IT effort required to deliver mobile healthcare solutions

Only SAP offers the wealth of mobile technology solutions that can help you plan, develop, and deploy mobile technology for healthcare providers. This paper discusses the challenges of transforming your healthcare operation using mobile technologies and describes leading practices that can help you address these challenges. It also provides an overview of SAP® solutions that you can use to support this initiative.

Consumer apps typically lack the security needed to protect patient privacy and the communications features to support compliant information sharing among treatment providers.



The Value of Mobile Solutions for Healthcare

Most medical professionals are familiar with smartphone-based and tablet-based applications that help consumers manage their health. Yet the applications that can transform your organization are not typically simple, graphically engaging consumer apps. Used across the organization, apps such as those typically lack the security needed to protect patient privacy and the communications features to support compliant information sharing

among treatment providers. Instead, you need scalable, robust, and secure enterprise-class applications that can be used by professionals throughout the healthcare organization.

To most effectively address your healthcare provider and clinician goals for enterprise mobility, consider the clinical processes and mobile apps shown in the “Enterprise Mobile Application Types for Healthcare” table.¹

The business value – and risk – of each application varies. Reference and learning materials offer limited value but almost no risk. Clinical process support and electronic medical records can deliver tremendous productivity and care benefits but must be carefully deployed and managed to mitigate compliance and privacy risk.

Enterprise Mobile Application Types for Healthcare

Category	Examples
Clinical process support	Order management, clinical documentation, medication administration, best-practice evidence-based guidelines
References and medical textbooks	Medical terminology lists, <i>Physicians’ Desk Reference</i>
Learning	Flash cards, quizzes, slide shows of common conditions
General health and wellness support	Dietary tracking logs, appointment reminders, dietary suggestions based on calorie counters or exercise suggestions
Administrative and general office	Billing code determination, appointments, billing, inventory, collecting patient histories to replace paper-based entry, insurance claims data collection
Generic aids	Magnifying glass, recording audio, note taking (not exclusively for medical purposes)
Electronic medical records	Digital files of patient treatment records
Analytical	Mobile dashboards for executive decision support

Many app stores sell thousands of applications classified as “medical software.” These applications rarely provide the type of enterprise-level benefits that qualify as transformative for healthcare provider organizations. What’s more, they can present significant risks when used by individual practitioners or even departments. If they are not incorporated into your enterprise mobility platform and managed as part of your organizational policies, these applications can expose you unnecessarily to regulatory, privacy, and compliance risks.

Traditional vendors of health information technology are beginning to introduce point solutions to support enterprise mobility in healthcare. Yet this software is typically appropriate only for departmental applications or in situations in which it is used with the vendors’ specific back-end or transactional solutions. Often this software uses proprietary standards, is designed for specific dedicated devices, and cannot support integration of data from multiple sources. Organizations that use these tools to support multiple types of information collection and exchange can inadvertently create tremendously complex, costly, and resource-intensive solutions.

“With SAP EMR Unwired we can access patient information reliably and in real time. It makes work easier for doctors and shortens waiting times for patients.”

Prof. Dr. Stephan Brandt, Deputy Director Neurological Clinic, Charité

BENEFITS OF MOBILE HEALTHCARE SOLUTIONS

Deploying well-designed, enterprise-class mobile solutions for clinical care can deliver significant benefits. For example, mobile healthcare apps can allow your care providers to:

- **Determine the best treatment and care, anywhere and anytime** – By bringing mobile patient care tools to the healthcare professional, you can help care providers dramatically accelerate decision making, enhance treatment quality, and streamline workloads.
- **Proactively respond to patients' changing conditions** – By delivering critical information to the point of care, you enable care providers to instantly receive and respond to vital patient information, monitor health status or update care plans, and support peer-to-peer communication and collaboration.
- **Reduce complexity** – Intuitive, context-aware mobile apps simplify information entry and retrieval, making it easier for clinical users to quickly and efficiently get the information they need to make patient care decisions.
- **Empower healthcare decision makers** – Delivering role-based analytic data to mobile devices gives decision makers the information they need – in real time and at their fingertips – to help them understand root causes and devise course corrections more quickly.

Proven Strategies to Help You Innovate with Mobile Technologies

CREATE A ROAD MAP FOR SUCCESS

Mobile applications offer extremely valuable benefits to a healthcare organization. To ensure that your clinical care initiative achieves the desired goals while minimizing complexity and cost, you should carefully define an enterprise mobility road map.

In doing so, it pays to think globally but start locally. First, develop a vision for the mobile health initiative. Choose a platform that will support your overall vision. Review the types of applications that will deliver maximum benefit and create minimum risk. Look for a partner with expertise in both mobile technology platforms and enterprise-class applications who can help you scope out your path and meet your goals for enterprise mobility.

DEPLOY AN OPEN, FLEXIBLE MOBILE PLATFORM

The foundation for your mobile healthcare applications is a comprehensive mobile technology platform. Healthcare organizations often deploy individual applications to meet a pressing user need. Or they recognize the need for a mobile platform but are intimidated by the technology considerations. Others deploy a weak foundation that lacks enterprise-strength device management and security capabilities, opening the organization to potential breaches, unnecessary risk, and costly inefficiencies.

Rather than limiting your focus to the business's immediate mobile requirements, think about the bigger picture. Leverage a framework for your mobile software that not only can accommodate your current

needs but also will be open and flexible enough to grow and scale as your mobile requirements evolve.

Which features can help you create an optimum mobile platform?

- **Open, flexible architecture** – Choose an architecture that helps you create, consume, connect, and control mobile applications. It should allow you to develop apps once and deploy them on multiple OSs. Select technologies that support the latest standards. To design a solution that will provide maximum value, it must integrate with both today's and tomorrow's technologies. Anything less is a path toward technical obsolescence.
- **Support for multiple devices and OSs** – Most organizations need to support a wide variety of smartphones, tablets, laptops, PDAs, and other devices. OSs that support these devices include iOS, Android, Windows Mobile, and BlackBerry. Additionally, new types of devices and OSs and OS upgrades come to market regularly. Choose a platform that is designed for maximum flexibility, so you can integrate new devices into your mobile network without the need for costly recoding or resource-intensive middleware.
- **Application integration** – A successful mobile initiative will rapidly grow and include a wide variety of back-end applications. Your mobile platform must be able to integrate data from back-office applications (such as billing, registration, and scheduling) as well as clinical and departmental systems. Unless your platform offers this integration functionality, clinicians and other users will struggle to maximize the potential of mobile apps.

EFFECTIVELY MANAGE AND SECURE MOBILE DEVICES

Enterprise mobility introduces new risks, such as lost devices, compromised data security, and highly complex device-specific issues, such as camera management. To create a comprehensive health-care strategy for enterprise mobility, you must take steps to mitigate all of these risks.

Device Management

To effectively manage device hardware and software issues, you need centralized device management functionality. Over time, your IT organization will need to upgrade software, deliver fixes, prevent unauthorized downloads, manage hardware on the device, and apply configuration changes. Handling these tasks one device at a time will increase costs, reduce your ability to provide timely service to users, and compromise the productivity of precious IT resources.

To efficiently meet these needs, look for device management functionality that allows you to manage all devices from a single, centralized console. Tools that provide a unified view of information can also streamline management processes. Network optimization features that minimize user connection time and downtime and maximize data availability are essential.

Additionally, administrators should be able to set up role-based profiles that can be applied to each mobile user. When you are ready to provision new mobile applications or update user configurations, you can make these changes remotely – enhancing control, improving productivity,

and increasing user satisfaction. Central device management features help you track hardware inventory and software licenses.

The most effective way to deploy device management functionality is through a platform-based approach. Using an open, flexible platform, you can ensure that device management functionality is applied consistently and comprehensively to all mobile devices. You can also create a foundation that will scale as your organization expands the number of mobile users, devices, and applications.

Security

Mobile devices pose a variety of security threats to your business, including:

- **Lost or stolen devices** – Given the frequency of this problem, the cost of replacing missing devices is a concern. But even more important is the cost of lost data.
- **Unauthorized data access** – As with wired computing devices, the use of mobile devices to gain unauthorized access to data is a real threat.
- **Breach of data during transmission** – Encrypting data is just the first step in preventing hackers from collecting clinical data as it is transported across wireless networks.
- **Combined use of devices for personal and work tasks** – Allowing mobile workers to mix business and pleasure on their mobile devices makes it more

likely they'll use them for work. But it also creates liability issues for health-care organizations if workers use the devices inappropriately or fail to protect data after they have left the company or if they change devices.

To address these challenges, choose a mobile platform that lets you deploy advanced security features. Simple device-level user authentication features ensure that only authorized users can access company applications and data. It's also wise to look at:

- Remote lock features that let you remotely disable mobile devices so that no one can use them
- Wipe features that allow administrators to clean all data from a device before it can be compromised (whether because a device is lost or because an employee leaves the company)
- Data encryption features that help you protect data from unauthorized access

Additionally, data control features help you ensure that data is protected when a device may be lost. For example, if a mobile user does not sign onto the network within a preestablished time period, the device may delete its own data, back up data, or block access. Select a solution that continues security protection even when a device is off-network or if its SIM card is replaced.

Look for device management functionality that allows you to manage all devices from a single, centralized console. Tools that provide a unified view of information can also streamline management processes.

KEY FEATURES OF A HEALTHCARE MOBILE PLATFORM

When choosing a mobile platform to support mobile clinical care operations, look for these features:

- **Support for a broad spectrum of mobile devices**, helping you keep pace with new technologies and device types
- **Strong user authentication**, to prevent unauthorized use of mobile devices
- **Strong encryption features**, which help secure data on mobile devices
- **Ability to set access restrictions and security policies for all mobile business applications**, to uniformly manage and enforce policies and minimize vulnerabilities
- **"Over-the-air" controls**, such as remote provisioning, device configuration, device lock, and data-wipe features
- **Sophisticated security controls and activity-monitoring features**, so you can enforce the same types of rights access management on mobile devices that you support for wired computer clients



Mobile Solutions from SAP for Your Healthcare Business

Providing mobile capabilities to healthcare providers requires the right technology partner. Select an organization that understands your business, can help you develop innovative processes, and offers proven mobile technologies that support healthcare operations.

With more than 30 years of experience developing solutions that help organizations become best-run businesses, SAP is uniquely qualified to help you use mobile technologies to transform your healthcare organization. Using mobile solutions from SAP, you can:

- **Enable care providers to determine the best treatment and care** – anytime, anywhere, from any device
- **Significantly accelerate decision making** by giving providers rapid access to the right information, enhancing treatment quality and increasing patient satisfaction
- **Proactively respond to changes in patient health**, both in and out of the hospital setting
- **Support rapid collaboration** with colleagues, enhancing patient care

- **Monitor care plans** and health status through instant information access
- **Empower executives and managers**, as well as care providers, with real-time, actionable insights
- **Deliver role-based analytics and key performance indicators (KPIs)** with workflows, improving enterprise performance and reducing patient care costs

SAP offers a full complement of technologies that you can use to create a solid foundation for your mobile initiatives. With a flexible mobile technology platform, sophisticated device management and security functionality, powerful integration functionality, and enterprise-class applications, we can deliver the technologies and services you need to launch a mobile initiative. Affordable, functionally robust healthcare applications address your specialized business needs and interoperate with your back-office, clinical, and departmental systems. We also partner with best-in-class industry application providers, so you can deploy leading solutions quickly and with faster time to value.

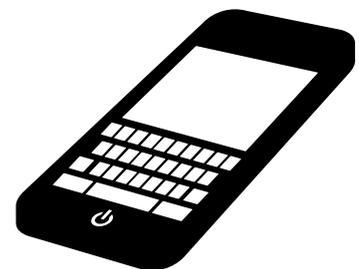
COMPREHENSIVE MOBILE INFRASTRUCTURE

To simplify the complexity of enterprise mobility, we are building SAP's mobile infrastructure on our most comprehensive mobile platform: the one we use to write our own apps. The mobile platform includes:

- Sybase® Unwired Platform, a mobile enterprise application platform that supports the connection, creation, consumption, and control of mobile applications and services, and the related software developer kit for writing business-to-employee applications
- SAP Afaria®, a mobile device management solution that helps you manage, secure, and control mobile data, devices, and applications

With these components, our mobile platform provides a comprehensive mobile infrastructure that helps you create, consume, and control mobile applications and devices. The architecture also offers flexibility at the device level. The open interface allows you to select your supported mobile devices and OSs.

With a flexible mobile technology platform, sophisticated device management and security functionality, and enterprise-class applications, SAP can deliver the technologies and services you need to launch your initiative.



DEVICE MANAGEMENT AND SECURITY FEATURES

When planning to deploy mobile applications for clinical care, many healthcare executives fear the effort will require excessive IT resources to support the initiative. To help you centrally manage and secure mobile data, applications, and devices, SAP offers the SAP Afaria mobile device management solution. You can use this solution to reduce the complexity and effort required to manage a wide range of devices over any network.

SAP Afaria helps you address your mobile solutions from a device lifecycle perspective (see the figure). With this solution, you can address and enforce security policies through these phases:

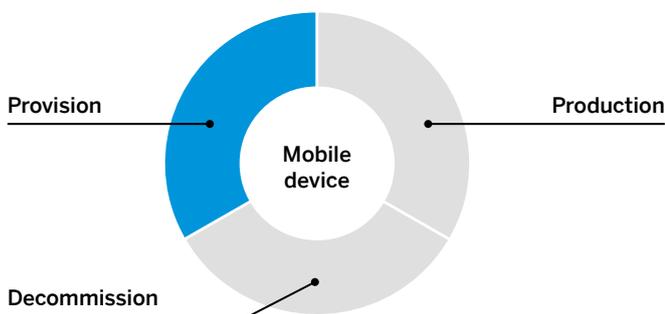
- **Provision** – When the device is first brought into business service and you need to configure security. You can use SAP Afaria to remotely segregate business and personal functions, install anti-virus software, provision basic business applications and data, set up password protection, and configure network access.
- **Production** – When the device is being used for business purposes. SAP Afaria helps you keep the device updated with the latest security and software patches, install or update applications, and monitor usage – all using remote, over-the-air controls.
- **Decommission** – When a device is retired from service, whether it is replaced with a newer model, reported as lost or stolen, or taken out of service due to the employee leaving the organization. SAP Afaria helps you remotely

remove all business data, applications, and functionality from the device.

SAP Afaria provides a single administrative console, which you can use to manage mobility across the enterprise. This highly customizable solution supports mobile workers by minimizing connection time and delivering up-to-date information wherever users need it. Because IT can add, update, or remove applications and data from mobile devices, users have the correct software and reliable, current information.

With SAP Afaria, your IT department can deliver controls across all mobile devices, data, and applications. The solution's optimization features help administrators execute all management tasks in the background, minimizing user downtime and optimizing network bandwidth. SAP Afaria can be deployed in a hosted or on-premise implementation.

Figure: Three Phases of the Mobile Device Lifecycle



POWERFUL INTEGRATION FUNCTIONALITY

Healthcare organizations use a wide variety of applications. To help you maximize the value of mobile technologies and break down application silos, you need integration functionality that lets mobile devices access a variety of back-office, clinical, and departmental information sources.

Mobile solutions from SAP integrate not only with multiple devices and OSs but also with many back-office clinical source systems. The solutions are optimized to run with SAP Business Suite software. Yet we also provide a centralized backbone for mobile applications, so users can interoperate with these other back-office systems too. This functionality also enables efficient data exchange and intuitive access to the data.

BEST-IN-CLASS SOFTWARE

SAP offers a wide range of enterprise mobile apps that you can deploy to support your enterprise mobility initiative.

Electronic Medical Records

The SAP EMR Unwired mobile app is designed to support the care management process. This mobile app provides healthcare professionals with the clinical information needed to care for patients, no matter where they are located. With this data, providers can get instant access to patient history, track information at the point of care, and collaborate with other healthcare professionals. The app integrates with multiple SAP and non-SAP systems including Picture Archiving Systems (PACS) and third-party clinical information systems. SAP EMR Unwired is available for different Apple iOS devices (iPad, iPhone, iPod Touch) and Android devices (smartphones and tablets of different sizes).

Leveraging the app's unique extensibility, SAP and its partners already provide functional extensions that will cover the entire process chain in the future.

Collaborative E-Care Management

Extending mobile care applications beyond the hospital environment is the next logical step for your enterprise mobility initiative. The SAP Collaborative E-Care Management application supports

collaborative e-care management in the community, outside of the acute care setting. This software uses mobile technologies to connect patients, their families, and care providers or health coaches. With this connectivity, the entire team can work together to better manage the patient's health. Improved coordination can help boost the quality of care while managing costs.

Mobile Analytics

Mobile users need insight to help them make the right decisions. SAP is extending many of the features and functions of the SAP BusinessObjects™ business intelligence (BI) solutions to mobile devices, helping users make informed decisions with instant access to personalized information. For example, the SAP BusinessObjects Mobile software helps users develop interactive reports and dashboards. With the SAP Crystal Reports® family of offerings and SAP BusinessObjects Web Intelligence® software, users can create interactive reports and visualization. The SAP BusinessObjects Explorer® software helps healthcare professionals develop targeted BI content and search to find the information they need.

“SAP EMR Unwired presents information in an easy-to-use format that supports the clinical workflow. We can extract information from SAP and non-SAP systems and deliver it on a mobile device.”

Hagen Hupperts, Project Manager IT, Charité

ENTERPRISE MOBILITY WITHOUT COMPROMISE

Realizing the vision of an unwired health-care organization can help you deliver the best treatment and care, anywhere and anytime. With the proper planning, a flexible mobile platform, enterprise-class applications, and expert services, you can begin deploying your mobile initiative – quickly and cost-effectively.

SAP offers the deep industry knowledge, sophisticated software, and ecosystem of healthcare customers and partners that can help you meet your enterprise mobility goals. With this combination of skills and expertise, SAP should be your first choice to help you plan and deploy this initiative.

LEARN MORE

For more information on mobile solutions for your healthcare organization, contact your local SAP representative or visit us on the Web at www.sap.com/mobile/healthcare.

FOOTNOTE

1. Draft Guidance for Industry and Food and Drug Administration Staff – Mobile Medical Applications, U.S. Department of Health and Human Services, July 21, 2011, www.fda.gov/medicaldevices/deviceregulationandguidance/guidancedocuments/ucm263280.htm.

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