

Use a Systematic Approach to Select a Mobile Solution*

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What do the following organizations have in common?

- An electric and gas utility wanting to expand its mobile work system to allow crews to schedule customer appointments while onsite.
- A city using a paper system and various databases for assigning and coordinating construction work.
- A broadband provider needing to locate and verify its facilities in the field via maps.

All three organizations would like to implement a mobile workforce-management solution, and they need a framework for planning and selecting their solution.

Mobile-workforce management includes automated scheduling and resource optimization, routing and workflow-management tools, positioning, and “e-maps,” and it’s combined with real-time communications among the operations center, back-office systems and the mobile workforce.

The accompanying table presents “Mobile Technology Opportunities” available to organizations as well as the benefits associated with each opportunity. As indicated in the table, the level of benefits achieved depends on many factors, including the communications-network coverage, extent of systems integration and data currency.

SYSTEMATIC APPROACH

To take advantage of mobility opportunities, organizations need to follow a systematic approach that includes developing a business case and selecting a vendor partner. Consider

getting outside assistance if new to this process. There are more than 100 mobility vendors, so “do the homework” and consult with peers and experts who have experience.

THE BUSINESS CASE

Getting started on a mobility business case is probably the hardest part of the process. Questions to ask include the following:

- What parts of the business don’t have mobile capability, but need it?
- What parts of the business already have mobile capability and need improved or expanded functionality?

ESTABLISH THE MODEL

A mobility business case is critical to identify the amount of money required for capital planning. Other uses include justifying a return on investment and explaining project cash flow. It’s important to understand what aspects of the business case to focus on (e.g., costs, benefits, cash stream, resource needs, etc.) to satisfy organizational and project requirements.

For example, determine how, and at what level, to capture benefits, and set up a model accordingly. If the decision to implement a new or improved mobile solution is strategic in nature, then a detailed benefits estimation probably is unnecessary. However, if business benefits are key to selling the project, then it makes sense to quantify benefits in as much detail as practical.

To refine and validate the project charter and business-case model, arrange a half to full day

with the executive sponsors responsible for approving the proposed budget and address the following:

- **What are the business drivers?** Will this project improve customer satisfaction, address process or labor efficiencies, reduce operating costs, or enhance employee safety? Typically, there are multiple objectives, and it's important to understand the priorities.
- **Do you need to do more or just the same with less?** This question should resonate during the executive session and throughout the planning process. It's important to understand if you're striving to deliver greater work volume or trying to do the same with less due to a dwindling field force.
- **What are the cost and timeframe expectations?** Is the project driven by immediate pressures, or is it being planned for the future?
- **What mobility opportunities should the project team pursue?** Is the project's scope limited to the business priorities? Or is the project looking to leverage additional opportunities (see accompanying table)?

PERFORM NEEDS ASSESSMENT

The next priority is to conduct a "Needs Assessment" of the mobile solution's user community. This discovery process typically is accomplished by conducting interviews with respective stakeholders, including back-office and field-operations staff, to explore the functionality and benefits of the proposed mobile solution.

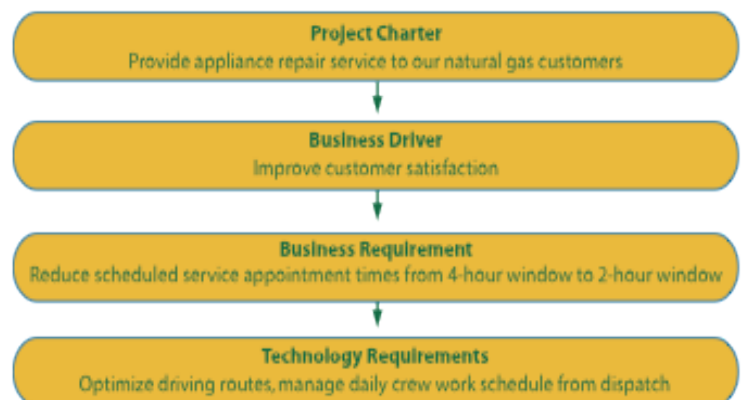
The scope of the needs assessment should include the following:

- Current and anticipated functional needs of the user community
- Data requirements that support these user needs, including how departments will exchange mobile data and services

- Inventory of current data and databases maintained by each department as well as hardware and software
- Personnel requirements

ANALYZE SOLUTION REQUIREMENTS

The information gathered in the Needs Assessment is analyzed to determine the business functions that will be performed by the proposed system. Arrange the requirements-analysis results, listing business and technical requirements for the mobile solution as well as the data that support these functions. The business and technology requirements need to directly support the project charter and business drivers, as illustrated in the accompanying figure.



Specific business and technology requirements need to be defined for the mobile solution that directly support the project charter and business drivers.

DEFINE ARCHITECTURE AND INTEGRATION

The mobile system architecture defines what elements need to be designed and implemented (i.e., “How big is the breadbox?”), and it’s key to understanding the solution’s cost. For example, the architecture will define the number of computer servers needed, field devices or software licenses required, or the number of dispatcher licenses to efficiently control and monitor the workforce.

Additional considerations that will influence costs include communications-network infrastructure costs, monthly service fees from the communications provider, and the costs of designing and installing vehicle mounts for the remote computers or handhelds.

The architecture also establishes a high-level view of how the mobile solution will integrate with other systems that are being used or will be implemented in the future. Taking an enterprisewide approach to the mobile system ensures that the full benefits of mobilizing the workforce are reaped.

Currently, mobile systems are used predominately for service-type work and often for emergency response. Mobile solutions can be extended to all field-related activities, including maintenance, inspections, design and construction via integration with work-request sources (e.g., ERP, CIS/CRM, outage management/ trouble ticketing, work management, enterprise asset management, etc.), enabling the mobile system to automatically acquire work orders.

ESTABLISH COSTS AND BENEFITS

After requirements and high-level architecture/ integration are defined, it’s time to budget more accurately for the mobile solution. At the same time, establish measureable benefits that can provide

accountability for the investment. If the mobile solution’s objective is to reduce crew drive time, then reduced fuel consumption provides a measureable benefit for calculating return on investment.

The system architecture is used to estimate a range of costs that are balanced against the benefits stream using cost/benefit measures such as Net Present Value, Internal Rate of Return and Payback Period.

With these measures, it can be seen if there’s actually a business case for implementing the new or improved mobile system.

OBTAIN BUSINESS-CASE ENDORSEMENT

Business-case results should be documented as part of a project-implementation plan that recommends project tasks and timelines, team participants and staffing, risk mitigation, and other key considerations. To obtain sponsor endorsement of the business case and implementation plan, expect the following questions:

- Are the goals realistic and achievable?
- What’s the business justification for the proposed solution?
- Who in the organization has agreed to be accountable for these benefits?
- How will these benefits be measured, by whom and how frequently?
- Should a reward system be established for realizing these benefits?

VENDOR PARTNER

The second stage in the systematic approach to taking advantage of mobility opportunities is to identify the best vendor to help realize the business case. As noted earlier, if you haven’t gone through this process before, seek help and advice from someone who has.

GENERATE AN RFP

A determination should be made early in the planning process regarding whether to issue a Request for Information (RFI), Request for Quotation (RFQ) and/or Request for Proposal (RFP). An RFI can be used during the initial discovery process to determine which common and unique capabilities are available from vendors. An RFQ can help determine the range of prices associated with business functionality. An RFP addresses technical, cost and risk considerations, based on a finite set of requirements.

The typical approach is to issue an initial RFI (and ask for a cost range or “ballpark” pricing), and then use the RFI responses to help define the overall goals, objectives and requirements of the RFP.

To develop the RFP, draw heavily on the business-case work already performed and “drill deeper” into the solution requirements. For example, the RFP’s technical and integration-requirements section may include a request for the product architecture and the preferred and/or available methods of integrating the product with various systems and applications.

This section also will request information on the vendor-supported hardware platforms and operating systems (e.g., database servers, applications servers, client stations, other mobile devices, etc.) as well as specify mobile requirements such as system performance, scalability, availability, administrative support and security.

COORDINATE VENDOR PARTICIPATION

It’s not practical to send an RFI or FRP to all mobile-technology vendors. Some homework is needed to identify a list of compatible vendors. Consider your organization’s size, business

needs and price range as well as functional requirements. You may have to consult with other companies, experts in the field (non-product companies) or your own information-technology staff. This is a process all by itself, so plan for the time and effort for such an assessment.

After the “playing field” is narrowed, actively engage the vendors through personal contact and bidder conferences. A vendor that understands your requirements and feels it has been “selected” to bid is more likely to provide a targeted response to an RFP. Be as explicit as possible in all communications to ensure that competing mobile-vendor bids are consistent “apples to apples” and that pricing aligns with needs.

EVALUATE PROPOSALS AND SOLUTIONS

As vendors prepare their bid responses, take time to work on the proposal-evaluation process and scoring system. Decide what’s important to your organization, and define consistent vendor-evaluation criteria before reviewing any proposal responses.

This includes weighting the importance of major evaluation areas (e.g., 50-percent technical, 25-percent cost, 25-percent risk) as well as establishing scoring/weighting systems in each specific RFP category, such as functionality (e.g., mobile-dispatch application or ease of use), costs/benefits and the proposed deployment plan. Also, invite the affected departments or individuals to do the scoring.

After bids are received, look for potential holes, hidden costs, marketing verbiage (vs. real product capabilities or commitments) and custom development in vendor responses. After work sessions are completed for scoring RFPs, and a set of short-listed vendors are identified, consider holding in-depth demonstrations. Structure the demonstrations

Mobile Technology Opportunities

Mobility Opportunities	Reasons to do It (Benefits)	How to Maximize Benefits
Assist in vehicle routing/driving directions	<ul style="list-style-type: none"> Reduces drive times 	<ul style="list-style-type: none"> Up-to-date street network with turn direction
Provide field-worker/truck locations to dispatchers	<ul style="list-style-type: none"> Sends closest/best-equipped crew to emergency calls 	<ul style="list-style-type: none"> Use of Automated Vehicle Location (AVL) devices AVL integration with dispatch system
Lookup customer information by field crew	<ul style="list-style-type: none"> Provides field crews with customer information for generating work orders, scheduling work, generating customer invoices, generating job estimates 	<ul style="list-style-type: none"> Up-to-date and accurate data from Customer Information System (CIS)
Daily work assignment (scheduling and daily rescheduling)	<ul style="list-style-type: none"> Assigns/reassigns work to mobile workforce Eliminates need for field personnel to drive to service center to get daily assignments and schedules 	<ul style="list-style-type: none"> Real-time connection between field device and back office dispatch
Locate facilities or assets in the field using maps and GPS	<ul style="list-style-type: none"> Locates underground facilities or verifies above-ground facilities/assets 	<ul style="list-style-type: none"> Geospatial database with up-to-date facilities Integration between GIS and mobile systems
Upload job status and completion information for near-real-time enterprisewide access	<ul style="list-style-type: none"> Provides estimated time of arrival (ETA) for customers to know when crew will be onsite Tells dispatchers where crew is (if not using GPS/AVL) 	<ul style="list-style-type: none"> Communications network coverage Integration of mobile devices with back-office work-tracking system(s)
Capture field-survey information	<ul style="list-style-type: none"> Removes paper from field Eliminates paper-to-digital transfer errors in the back office 	<ul style="list-style-type: none"> Geospatial maps with asset location and unique identifiers Editable asset/condition information
Generate work orders	<ul style="list-style-type: none"> Removes paper from field Eliminates paper-to-digital-transfer errors in back office 	<ul style="list-style-type: none"> Mobile system with work-order generation software integrated to back-office work-order-generation and tracking system
Schedule field-generated work orders (with or without materials)	<ul style="list-style-type: none"> Schedules customer work appointments while crew is onsite 	<ul style="list-style-type: none"> Communications network coverage Integration of mobile device with back-office work-tracking system(s)
Generate hardcopy customer invoices and accept payment	<ul style="list-style-type: none"> Accelerates billing and payment (i.e., improves cash flow) 	<ul style="list-style-type: none"> Paper-printing device, payment-recording software
Generate field-job estimates	<ul style="list-style-type: none"> Customer receives estimate while crew is onsite, improving chance for new work 	<ul style="list-style-type: none"> Real-time interface to materials and labor costs in back office Empowerment of field crew to estimate jobs
Issue materials requisitions	<ul style="list-style-type: none"> Supports field-generated work-order scheduling 	<ul style="list-style-type: none"> Real-time interface among mobile devices and company materials/inventory management systems
Mobile maps (to aid in field design or field updates/ redlines to generate as-builts)	<ul style="list-style-type: none"> Reduces or eliminates back-office mapping functions 	<ul style="list-style-type: none"> Integration among mobile map and back-office system of record (e.g., GIS)
Crew-time reporting (manually or automatically)	<ul style="list-style-type: none"> Crew time is recorded as jobs are completed rather than at end of day, for improved time reporting 	<ul style="list-style-type: none"> Ability to capture time worked per job (e.g., job codes, labor rates, etc.) Integration with payroll system

to use scripted scenarios that reflect current and future business practices, providing a good understanding of the strengths and weaknesses of each solution.

CONTRACT WITH SELECTED VENDOR

The final step in the vendor selection process, after selecting the vendor team, is to set aside ample time to work through how the project will be managed and how the services will be delivered by the vendor. You may want to include a sample services agreement in the RFP as well as ask the vendors to comment on or identify exceptions (and why) to your terms and conditions.

Skipping this process may delay the project. Or worse, you may never come to terms with the selected vendor, and you will have wasted valuable time and wind up selecting the second choice.

Organization that take advantage of mobile-technology advancements and extend such systems across the enterprise will achieve efficiencies that enable them to better compete in their markets. But the technology is not “one size fits all.” A systematic approach to building a business case and selecting a vendor is key to success.



About the author

Jim Savino, PMP, is a Program Manager with Enspira Solutions. He helps utility clients plan and execute GIS, mobile, work management, outage, and related technology projects. Jim’s background includes positions in Program Management, Systems Engineering Management, and Software Development/Integration at Convergent Group, SchlumbergerSema, and Lockheed Martin. He has a Bachelors degree in Computer Science and a Masters degree in Systems Management.