

TRANSFORMING ASSET-INTENSIVE INDUSTRIES WITH MOBILITY

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EXECUTIVE BRIEF

INTRODUCTION

Organizations of all shapes and sizes have come to realize that in modern times, change is the only constant. To excel and succeed in delivering valuable products and services to customers, organizations need to transform their business to adapt to changing business paradigms.

Asset-intensive industries, in particular, have a major challenge in adapting to these new conditions, while keeping pace with new industry requirements and simultaneously ensuring sustainable operations. Such enterprises also have a significant impact on their communities' socioeconomic standing and on the regulatory climate. The advent of new technologies, such as mobility, can help asset-intensive organizations develop a collaborative partnership with their customers in order to improve the efficiency of their services, benefiting the customer, the company, and the community at large.

So, in today's business, mobile technologies are no longer a "nice to have." They not only have become an expected component of the information technology (IT) infrastructure, but also have begun playing a fundamental role in virtualizing and accelerating the business—and thus transforming the entire enterprise and its ecosystem. Mobile technologies have thus surpassed the operative field, becoming a fundamental player in all levels of the organization.

CHALLENGES OF ASSET-INTENSIVE BUSINESSES

Asset-intensive industries such as oil & gas, utilities, mining, and transportation rely on the continuous operation and enhanced performance of their plants, networks, and equipment as a key to sustained service (utilities) and uninterrupted production (mines). Such organizations therefore require above-average capital to run their operations. An unreliable or idle asset can result in not only delays, interruptions, and lost billings, but also workforce safety incidents, environmental disasters, huge fines, and penalties.

Asset-intensive organizations experience a different and unique set of challenges and requirements:

- The need for larger capital investments and expenditures for deploying and maintaining assets
- The need to service and maintain assets that are often geographically distributed over wide areas as well as remote and hard to reach
- The need to operate in environments that are harsh, volatile, and exposed to the elements
- The need to maintain these assets continually operating in an optimal manner

An important component for addressing these challenges and attaining success as an asset-intensive business is the people involved with the organization: its field workforce, its customers and partners, as well as its managers and executives.

Considering that the financial health and performance of an asset-intensive organization depends greatly on their Return-on-Assets (ROA), a proactive approach is required to ensure optimal security, safety, and environmental practices, operational efficiency, optimal production, and high performance—enabling a high ROA.

This proactive approach should therefore take the following factors into consideration:

- Assets are distributed and the people that service and operate them are mobile
- Operating environments are volatile
- Safety is paramount
- Regulatory compliance is essential
- Reliability and performance require real-time communication and compliance

Current mobile technologies have the potential to transform the entire business by enabling all fronts of the organization: field workforce, customer, and management.

True business transformation happens when organizations are able to achieve agility at all levels of the organization. In asset-intensive organizations, mobile applications need to be able to provide effective support during on-site maintenance, timely response to outages and incidents in the field, improved service during customer engagements, and timely and accurate information to management to improve decision-making cycles.

To achieve a certain level of success, asset-intensive organizations face intense pressures to overcome four major types of corporate challenges. These relate to their capacity, social and economic factors, technological innovation, and political and regulatory compliance (table 1).

Capacity	Social/Economic	Technological Innovation	Political & Regulatory
Aging infrastructure	Customer choice, price sensitivity and volatility	Deployment of smart grid and metering technologies	Enforcement of market liberalization
Increasingly scarce resources	Quality expectations	Integration with green and renewable energy systems	Increasing fines for incidents and service interruptions
Rising fuel, water, and power costs	Increasing competition	Introduction of water efficiency and treatment systems	Increasing safety regulations
Aging workforce	Increasing environmental concerns and awareness	Automation and robotics	Increasing environmental restrictions
Increasing demands on service and production levels	Increasing concerns over labor conditions	Advances and investments in exploration and equipment for going deeper and further	Carbon reduction and compliance programs
Digging deeper and hauling farther	Theft and increasing security risks	Consumerization of IT	Funding for renewable systems
Infrastructure bottlenecks	Venturing into unstable regions	Water treatment	Increasing import/export regulations
Increasing traffic in pit and haul roads	Media coverage of incidents	GPS/3D for underground mapping	Increased tax burden
	Contractual penalties for product delays or shortfalls	Wireless tracking systems	
	Reclamation costs		
	Reducing carbon footprints		

Table 1. Challenges of Asset-intensive Organizations

So, given the current state of the asset-intensive industry marketplace, organizations need to find the means to overcome these challenges and collaborate in order to increase safety, improve performance, promote social responsibility, and ensure compliance. Mobile technologies can play a key role in responding to these challenges.

THE PILLARS OF PERFORMANCE IMPROVEMENT IN ASSET-INTENSIVE INDUSTRIES

Mobile technologies can play a significant role in improving the performance of asset-intensive organizations—and thus maximizing profit and increasing ROA. Their introduction can help these industries accomplish a number of important goals and bring them competitive advantage. As such, mobile technologies may not only enhance profits, but also promote improvements in all major areas of asset-intensive organizations (table 2).

Infrastructure	Workforce	Customer	Management
Upgrade assets	Promote safety	Shorten and prevent outages	Provide timely, reliable, and relevant analytics
Prolong asset life	Improve productivity	Prevent production delays	Provide visibility to assets, workforce, and customers
Prevent asset failures	Transfer and sustain knowledge	Offer new products and services	Balance supply and demand
Optimize asset efficiency	Train to support new technologies	Participate in the supply chain	Increase revenue, cash flow, and ROA
Improve security	Improve customer engagement	Actively contribute to the value chain	Reduce cost of service delivery
Prevent compliance failures	Enable faster response to outages	Increase touch points and change the basic relationship	Respond to continually changing conditions and opportunities
Increase capacity of extraction, processing, and transport	Integrate new operations/workforces	Prevent production shortfalls	Reduce cost of production
Acquire existing operations	Improve and promote safety	Provide online visibility for production and shipping	
Improve sampling and testing	Improve productivity	Reduce costs and maintain competitive prices	
Replace and upgrade equipment, and prolong machine life	Promote knowledge transfer	Improve trading, contracting, and payments cycles	
Increase security	Promote/enhance training for new equipment and emergency response		
Conduct continuous monitoring of equipment operation and its condition	Manage third-party “fly-ins”		

Table 2. Drivers of Mobile Adoption in Asset-intensive Organizations

Hence, mobile technologies can play a key role in improving performance by addressing the following key considerations:

- **Visibility**—improving governance over (and visibility into) assets, people, and processes
- **Availability**—ensuring continuous availability of assets and the people that service and operate them
- **Optimization**—optimizing the value chain
- **Decision making**—improving and shortening the decision-making process
- **Assessment**—leveraging effective risk-assessment strategies to provide users with valuable information and to reinforce secure work practices, inspections, and monitoring

As a technology booster for operations and management alike, a mobile strategy can empower all individuals to address these key considerations, and with the right combination of hardware and software, enable key stakeholders to achieve various types of performance enhancements:

- **Field Workers**—to gain access to data onsite, streamline field processes and activities, and automate critical activities, thereby
 - avoiding safety incidents,
 - mitigating catastrophic risk,
 - minimizing and shortening delays and interruptions,
 - shortening work cycles, and
 - improving work quality.
- **Customers, partners, and external users**—to gain access to new products and services, and experience a new partnership with the organization, thereby
 - hastening response to complaints and incidents,
 - lowering utility bills,
 - facilitating payment processing,
 - reducing delays and shortfalls,
 - hastening response to markets,
 - improving shipping coordination,
 - improving permit processing,
 - improving service fly-in efficiency,
 - participating actively in preventing brownouts, and
 - better preparing for storm and sudden weather events.

- **Managers and executives**—to gain access to the right data and the means to analyze it and deliver better decisions in real time, thereby
 - improving revenue,
 - reducing risks and improving compliance,
 - reducing service costs,
 - improving time to decision,
 - improving trading and hastening response to market,
 - increasing margins,
 - reducing regulatory fines, and
 - reducing delays and shortfalls.

A corporate strategy for applying mobile solutions in asset-intensive organizations means extending the benefits of mobile technologies to all levels of the organization and using the right mobile devices and the right applications at every level of the organization to perform the required tasks (figure 1).



Figure 1. Example of Mobile Technology Adoption in Different Levels of an Asset-intensive Organization

But planning and deploying a mobile initiative in an asset-intensive organization is not a simple matter. Organizations should take a corporate approach to this initiative, rather than look at it as a one-off isolated event. As such, they need to consider and select all necessary elements involved in this initiative according to their technical and business requirements, as well as those solutions that create real value and profit for the organization.

THE MAIN OBJECTIVES OF MOBILE TECHNOLOGIES FOR ASSET-INTENSIVE INDUSTRIES

So, when considering adopting a mobile technology strategy, asset-intensive organizations need to look at fulfilling three main objectives for successful mobile solution deployment:

- Workforce virtualization—to give employees access to and visibility into data, processes, and interactions anywhere and anytime, ultimately mobilizing the entire day in the life of an organization's workforce
- Time-to-decision process streamlining—to enable key people to make decisions based on information and to improve both tactical and strategic decision-making processes
- Business transformation—to increase productivity and performance at all levels inside and outside the enterprise

Workforce Virtualization

Currently available mobile technologies provide more than just mobility. Laptops and tablet devices can perform much the same functions that field workers and customers can perform using their desktop computers. But having the ability to access data and interact with core business processes, regardless of the physical location of the field workers, and being able to use the right type of device to perform the required tasks—from maintaining assets to receiving remote training—provides what is called work virtualization. This may allow asset-intensive organizations to overcome geography-related challenges, providing mobile functions with the potential to address the following:

- asset maintenance
- outage response
- alert response
- remote training and education
- on-site preparation for weather conditions

Virtualization thus allows for

- unleashing the worker from the desktop,
- making the user's mobile experience easier and more intuitive,
- automating the entire workday in the life of the mobile worker, and
- bringing mobile back in to the desktop.

Time-to-decision Acceleration

Because of the nature of their job functions, managers and executives of asset-intensive organizations tend to frequently travel and be on the move. As such, decision makers must be able to gain access to decision support systems via business analytics applications regardless of their location.

By deploying mobile business analytics solutions, key managers, decision makers, customers, and suppliers can monitor business performance, gather data for analysis, and have access to corporate dashboards—providing with corporate and line of business (LOB) visibility, improving tactical and strategic decision making, and shortening the time to decisions. Analytics applications can assist various corporate stakeholders in performing key functions.

- Executives can analyze and improve the following:
 - service delivery
 - partner and supplier performance
 - cash flow
 - demand/usage
 - mine and plant performance
 - water and energy costs
 - network performance
 - revenue
 - expenses and payables
 - market prices/trading
 - contract performance
 - financial performance
 - compliance performance
 - equipment performance

- Employees can analyze and improve the following:
 - mine and plant performance
 - equipment performance
 - crew performance
 - asset criticality and risk
 - workload balancing
 - parts utilization
 - incident response and prevention
 - workforce utilization and effectiveness (quality as much as quantity)
 - their own performance
 - outage status
 - response

- Customers and partners can analyze and improve the following:
 - service delivery
 - spending performance
 - consumption of services
 - contract/revenue performance
 - service efficiency
 - order
 - pricing
 - ore grade
 - assignments
 - job performance

Business Transformation

Mobile technology initiatives can and must be more than mere windows to the organization’s data. They can be used to transform the way asset-intensive organizations conduct their businesses—enabling business process improvement and execution, enhanced safety and compliance, and real-time collaboration among the relevant parties (see figure 2):

- **Maintenance & Operations**—enabling faster response to incidents, ensuring information is secure from threats, and providing data in real time
- **Sales & Marketing**—providing real-time visibility of customers by shortening the billing cycle and providing access to customer information and preferences from anywhere
- **Logistics**—hastening part order and delivery and monitoring these events
- **Service & Support**—enabling faster customer and provider integration

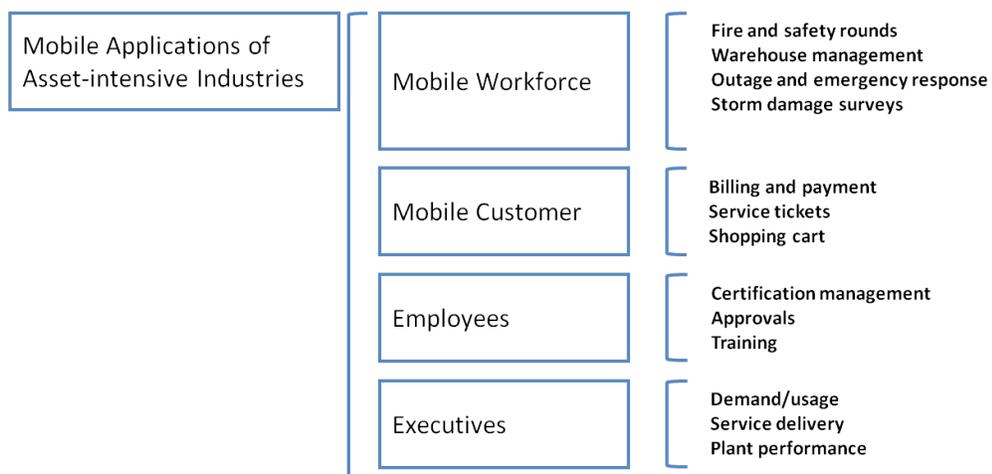


Figure 2. Sample of Mobile Apps in all Areas of an Asset-intensive Organization

CONCLUSION

Successful asset-intensive organizations will look at mobile solutions as an integral component of the organization's corporate mobile initiative and use mobility as a tool to virtualize, accelerate, and most importantly transform their businesses—thereby giving employees access to and visibility into data, processes, and interactions anywhere and anytime; increasing employee performance and productivity; and improving both tactical and strategic decision-making processes.

And by enabling real-time collaborative interaction and partnership between the organization and its customers, mobile technologies will help asset-intensive enterprises transform their entire ecosystem—minimizing energy waste with cost-savings implications for their customers; reducing public pressure on regulatory agencies and governments for more stringent guidelines for these organizations; and even promoting new businesses in the community at large.

In conclusion, mobile technologies have the potential, when applied wisely, not only to streamline the organization's processes and perhaps improve the company's bottom line, but also to support synergistic interactions between the organization and the outside world and thus improve the community's economic well-being.

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