



The Individual Enterprise

How mobility redefines business

Executive Report

Strategy and Analytics

The right partner for a changing world

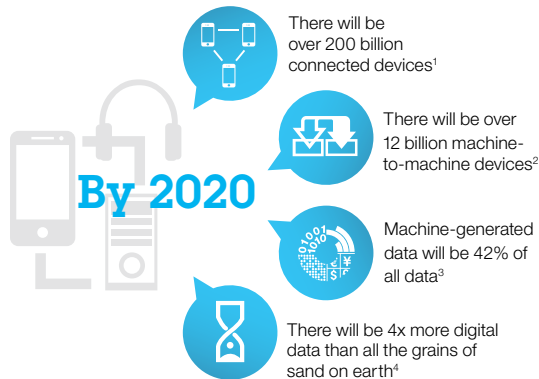
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IBM Institute for Business Value

The IBM Institute for Business Value, part of IBM Global Business Services, develops fact-based strategic insights for senior business executives around critical public and private sector issues.

Figure 1

The mobile transformation is all around us



Executive summary

Just as the Internet did before, mobile networks—and the devices that exploit them—are radically changing the way we interact with the world. Everything, from how we transact with merchants, to how we educate our students, to how we entertain ourselves, is moving to mobile platforms with stunning speed. And just as with the Internet before, many businesses are profoundly underestimating the full and lasting impact of this still nascent revolution.

We see the evidence of the mobile transformation all around us. Approximately ten times more smartphones and tablets are sold every day than babies are born.⁵ The average person checks their smartphone 150 times a day, or nearly once every six minutes.⁶ And the market for wearable devices is projected to grow at least fivefold over the next four years.⁷

These mobile devices not only play an important role in our collective consumption of information, they also generate a growing proportion of new information. There are more than 2.5 quintillion bytes of data created each day, including countless uploads of video, images, geo-positioning information and daily updates to social media that increasingly originate from mobile devices, growing mobile data traffic some 80 percent per year.⁸ Many businesses are already using sophisticated data analytics to distill insights and context from this increasing volume of digital information. Those insights are informing our understanding of the world around us, and change how people, businesses and governments interact.

But while businesses have been quick to adopt analytics as a competitive differentiator, and are eager to embrace mobile, they have struggled with its full implications. Many of those who have developed strategies for mobile haven't yet moved beyond the first wave—using mobile as a new channel through which they can transact with customers, or as an enterprise communications tool, for example. Others don't formally support mobile devices at all.

We believe the time has come for organizations of all sizes, in all industries, to look beyond consumer applications and consider the full transformational potential of mobile inside the enterprise. By combining the power of analytics with the ubiquity of mobile, organizations have the opportunity to serve up rich data on location, within the proper context, based on user preferences and behaviors. These “mobility” solutions will increasingly serve as a cognitive extension, empowering employees and organizations to quickly acquire new skills, work more and better together and improve decisions. Information platforms, tailored to each employee's specific needs, can dynamically reconfigure workflows to get the right information (and only the right information) to the right people, at the right time, in the right place.

We call this the Individual Enterprise. It is enabled by mobile devices that are powered by analytics, made manifest by a new breed of empowered employees. And we believe organizations that architect their business and information systems with this model in mind will unleash the full potential of their employees, evolve their business models, or even create totally new ones, and thus realize the full transformational benefits of mobility. And all this leads to ever more engaged and even excited end customers that get precisely what they need, when and where they need it, at lower cost.

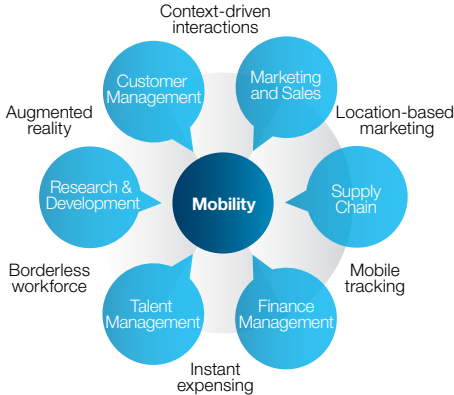
The double revolution

That mobile has affected every aspect of our lives, personal and professional, is not in dispute. Already there have been many innovative applications of the technology: GPS devices that monitor driving habits and offer safe-driver insurance discounts; mobile payment systems in Africa; location-based taxi-hailing apps in cities. These are just a few of the capabilities made possible by the unique attributes of mobile devices: portable, connected, personal and intelligent. Indeed, the customer experience will never be the same.

The business world is well aware of this shift. In the most recent IBM C-suite Study, 84 percent of CIOs rated mobile solutions as a critical investment to get closer to customers,⁹ while 94 percent of CMOs ranked mobile apps as crucial to their digital marketing plans.¹⁰ Yet most of the mobile applications they're considering are customer facing, and that's only half of the equation.

For years, big data and analytics have been changing the way people work together, surfacing previously unseen insights, enabling employees to make better decisions, and improving everything from customer insight to operational efficiency. During this time, companies have moved from maintaining "systems of record" (which store and organize highly structured information in large and complex, mostly centralized computer systems) to "systems of engagement" (which allow a wider set of users to retrieve and contribute to both structured and unstructured data) to "systems of insight" (which make rapid, intelligent and predictive sense of all of this disparate data).

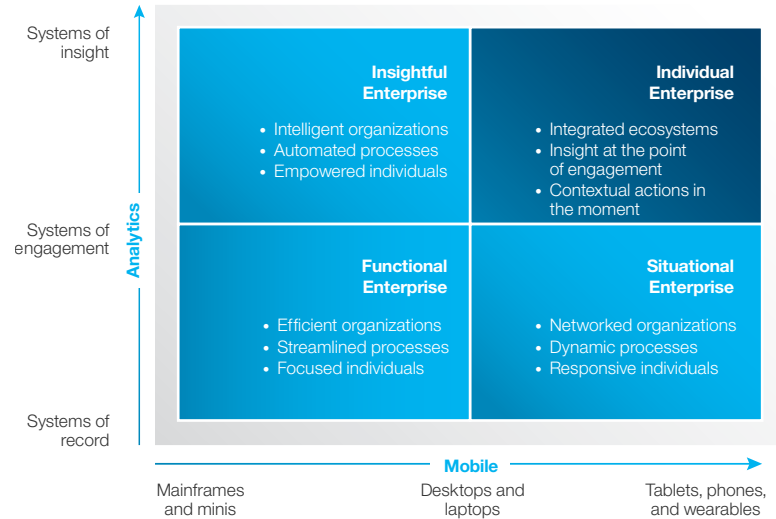
Figure 2
Examples of mobility impacting how organizations conduct business



The potential for mobile to change the way we work is apparent. But its full value is only unlocked with analytics. Together, they will completely redefine the way we work.

Figure 3

The double revolution of mobile and analytics sparks the Individual Enterprise



Mobile technology's precise location and contextual information is the ideal filtering mechanism for insights mined from sophisticated data analytics. By delivering these insights to employees at the point of engagement—whether that engagement is with customers, business partners or colleagues—the barriers between employees and the information they need are removed.

Defining the Individual Enterprise

The concept of the Individual Enterprise can feel futuristic and abstract. But the technology and capabilities are already available. And the power lies simply in *what* information is delivered *to whom, when* and *where*. The proper application of mobile and analytics can substantially compress the time between identifying situations and taking action on them, radically boosting productivity and allowing the fundamental redesign of workflows. And it can improve the quality of decisions, small and large, inside and beyond the enterprise.

For example, in just the last few years, carmakers have greatly expanded their business partner ecosystem, adding satellite service providers, GPS-based traffic services, mobile device manufacturers, and concierge services. All of these new partners must seamlessly interact, sending and receiving location-based, context-aware information to each other and to the end user. Mobility is the primary force behind this change, pushing organizations toward economic integration and new business value.

This same dynamic can occur within the enterprise. Linear business processes will evolve into apps, organized around specific tasks and constantly combining the latest information from multiple sources. Employees will no longer be limited by rigid processes or incomplete knowledge, or by their skills, location or circumstances. Instead, dynamically configurable platforms and apps will untether employees, allocating organizational expertise precisely where and when needed, and serving as cognitive extensions to help employees make faster, better-informed decisions.

Winning the in-store information race

Mobility equips in-store sales personnel with the analytical power and tools they need to stay ahead of price-comparison shoppers. Access to things like product pricing comparisons and inventory location, coupled with the data and autonomy to make real-time decisions and offers, gives sales personnel the tools they need to redress declining in-store sales. Equipped with *as-good-as* or even *better* information than customers obtain online, store staff can deliver the true advantages of traditional retail: personal interaction and advice, the ability to “touch and test,” and rapid delivery at competitive prices.

Figure 4*Characteristics of the Individual Enterprise***Create new business value**

- Mobility compresses time between identifying situations and taking action
- Mobility drives a step change in productivity growth
- Mobility allows fundamental redesign of the enterprise

Unleash empowered employees

- Mobility dynamically reconfigures workflow around every individual
- Mobility stimulates skill acquisition and sharpens career focus
- Mobility empowers individuals to create their own work experience

**Powered by analytics**

- Mobility amplifies analytics value through real-time situational understanding
- Mobile analytics brings intelligence to action in the moment
- Mobile analytics accelerates the return on investment of information

Designed first for mobile

- Mobility redefines operating models
- Mobility is the foundation of new models of engagement
- Mobility shifts design to optimize for the end user

To be considered truly individual, an enterprise should exhibit four characteristics:

Create new business value

The faster response times enabled by mobility make the Individual Enterprise significantly more nimble than its predecessor. Both individuals and the enterprise can do more with less by increasing people efficiency and reducing process waste. Time-optimized decision-making improves outcomes—for example, last-second pricing decisions optimize margins.

These productivity gains are amplified by mobility's ability to spread critical capabilities and expertise when and where it's needed, maximizing these enterprise assets and helping identify capability gaps. And as it has with most consumer-facing businesses, mobility enables completely new business models via greater transparency and dynamism, while accelerating both evolutionary and revolutionary innovations.

Powered by analytics

The value of analytics is amplified by mobile, not only by providing more precise information about time and place, but through its ability to break down large decisions into a series of smaller ones that can more accurately hone in on desired results. More precise inputs also boost confidence in the quality of analytic insight. And in-the-moment analytical intelligence creates real-time situational understanding that can improve responsiveness. In the end, every step — from product and service creation through to every customer touch point — can take advantage of advanced analytical capabilities. Simply put, mobile analytics can accelerate the return on information investment.

Designed first for mobile

Mobility redefines possible operating and engagement models, shifting the design of enterprise systems to focus on the experience of the end user. Building apps with time, location, speed, temperature and ever more situational dimensions embedded and across the most appropriate form factors (smartphone, tablets and wearables) makes possible an anywhere-anytime environment. And all that with highly intuitive visual interfaces. Mobility should not be an afterthought but the starting point.

Unleash empowered employees

The Individual Enterprise evolves from managing employees to optimizing ecosystems; from assigning “a person for the process” to creating “a process for the person.” By dynamically reconfiguring workflows around the individual, mobile combined with analytics can empower employees to make better, context-rich decisions based on situational awareness. Immersive augmented learning-on-demand and virtually unlimited opportunity to collaborate can diversify and expand the skill sets of every employee. With the flexibility to create their own work experiences, employees are free to find better ways of getting things done across the ecosystem.

Passenger assistant—in the air

Mobility will deepen relationships between passengers and airlines as flight attendants are enabled to provide a full range of services in-flight. Device-equipped flight attendants will offer real-time information and calibration of customer travel schedules, including re-booking flights mid-air. Flight issues will be resolved when and where they occur. Flight attendants will have real-time access to scheduling and employee tools, improving their personal efficiency. Mobility can reduce traveler anxiety and improve passenger loyalty.

The five Individual Enterprise building blocks

Building the truly Individual Enterprise starts with leaders defining the mobility transformation journey and championing a call to action. Using customer insights, leaders must envision the change from the outside in, mapping the perspective of the individual customer to the perspective of the individual employee.

Changes as profound as those we envision require a rock-solid foundation. The fundamental building blocks of the Individual Enterprise include:

Security

Secure systems deliver the trust and confidence necessary for the enterprise and individuals to embrace mobility.

Connectivity

“Always-on” mobile networks facilitate a continuum of information and services throughout the enterprise.

Resiliency

Persistent availability of connections, data and services are essential to business continuity.

Orchestration

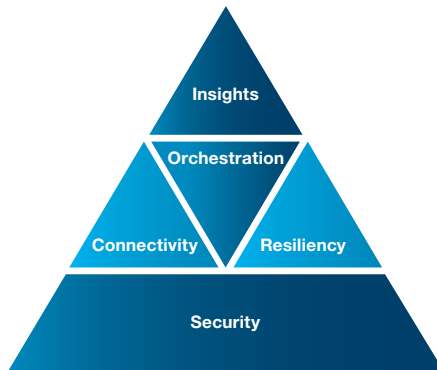
Processes and enterprises become configurable around workflows and situations in real time.

Insights and learning

Mobility generates insights in the moment that responsively adapt to circumstances.

Figure 5

The fundamental building blocks of the Individual Enterprise



Security

Even a casual glance at today's business headlines underscores the essential role of data security. High-profile security breaches have cost organizations billions of dollars, countless customers, trusted reputations and even the jobs of top executives. As mobility accelerates the flow of enterprise data, the imperative to secure that data grows exponentially more critical.

The Individual Enterprise proactively monitors, controls and protects enterprise data from end to end—even as the endpoints are in perpetual motion. Security controls not only enhance the reliability and availability of vital information, they help protect the chain of relationships throughout the ecosystems that share that data. It enables employees, partners, customers and other stakeholders to access mission critical applications and data irrespective of location or device.

Securing the Individual Enterprise will be no small challenge. Organizations must employ centralized management of device security, while many will have to cope with the fragmented device platforms driven by the increasingly popular bring your own device (BYOD) phenomenon. Provisioning, supporting, monitoring and securing multiple platforms with comprehensive compliance, management policies and processes is vital.

Bringing financial advice to where it's needed

Mobility-enabled financial advisors will break down physical barriers to connect with customers where and when they want. Using mobile devices enabled with big data, cognitive analytics and recommendations, financial advisors will redefine their role from technical analysis, to partnership and collaboration. "Trusted advisors" will become commonplace, driving increased customer satisfaction. Advisor quality will improve as technology equips advisors with leading edge skills and capabilities.

Connectivity

Making enterprise assets accessible continuously across time and place will be the hallmark of organizations of tomorrow. It requires seamless integration of information across enterprise systems and platforms, as well as the ability to collect and coordinate data, and share it across devices. Ubiquitous public and private wireless networks are essential. So too, will be emerging technologies like near field communication, a radio standard that allows data transfer so items don't need an IP address to be connected and share data.

The inevitability of widespread mobile connections is evident in the explosive growth of the Internet of Things, projected to reach 30 billion by 2020.¹¹ According to one study, between 2013 and 2022, an estimated US\$14.4 trillion of value (the combined impact of higher revenues and lower costs) will be attributable to people, processes, data and things.¹² Such connectivity will allow immediate access to enterprise data, enabling collaboration, emergent coordination and unprecedented levels of group behavior and synchronization. It will also provide on-demand access to systems of record, faster response times and better asset optimization.

Though the Internet of Things is here today, connecting more than 10 billion devices, limitless connectivity is not without challenges. Platform complexities must be overcome and flexible architectures that can easily incorporate changing components must be implemented. Developing the necessary scalability and robustness of mobile networks is also crucial.

Resiliency

Above all, network redundancy and resiliency is paramount. Reliability and availability of resources must be uninterrupted regardless of challenges to devices or system failures. Just as they must remain secure, data and applications need to remain available and functioning at the point of engagement.

Enterprises should provide multiple touch points building system-wide redundancy using loosely connected components and also implement elasticity in their network designs. They must design for possible failures, with adequate disaster recovery and contingency plans, aligning policies to business values and needs.

Orchestration

Mobility can be deployed to automate the arrangement, coordination and management of complex workflows. By comprehending current situations and providing responsive solutions, such implicitly intelligent systems will empower employees and help organizations do more with less. Componentization of workflows creates efficiencies and enables both organizations and individuals to quickly combine and recombine different applications, rapidly identifying and implementing specific solutions based on current circumstances.

Insights and learning

If mobile *enables* the Individual Enterprise, advanced analytics *powers* it. The new breed of apps that ingests, analyzes and manages location-based, context-rich data—both structured and unstructured and fed by ever more precise and rich device features—can produce actionable insights and better informed decisions. And these apps will grow more productive and powerful with use over time. Continuous iterative exploration and investigation of data and transactions will sharpen the organizational intelligence “baked into” these apps. Like the human brain, such intelligence can grow more responsive and learn on the fly, ultimately enabling predictive and prescriptive recommendations that further inform decision making.

Making complex simple for telco field engineers

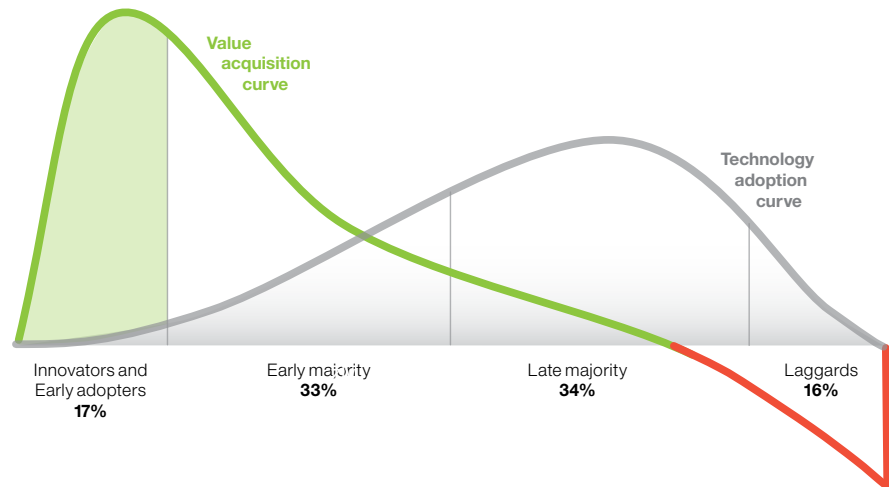
Mobile devices powered by analytics provide a collaboration platform and sales support tool for telecommunications field engineers, who can establish real-time collaborations to solve complex problems on location. With access to instantly available expertise, repair and service times are compressed while efficiencies expand. Scheduling and other functions will allow for flexible rerouting to address urgencies or fill open time slots. Increased customer face-time can be used to provide analytics-enabled suggestions and recommendations for additional services.

Activating the Individual Enterprise

By definition, the Individual Enterprise will be highly customized. In the emerging era of pervasive mobility and advanced analytics, no two organizations will look alike. Yet some of the steps needed to achieve the vision are common across organizations and even industries. And as with the Internet, first-mover advantage will deliver the lion's share of the lasting transformative value.

Figure 6 (illustrative)

Leaders will extract most of the value while laggards face possible value destruction



We see a clear five-step progression toward the Individual Enterprise, comprising these key steps:

1. Depict employee/user experiences via persona journey maps. Develop day-in-the-life storylines based on a deep understanding of user needs, then share demos, templates and functional information about the app(s).

2. Pilot test apps, and quantify costs and benefits. First identify mobile apps aligned with organizational needs, then run pilot activities that provide hands-on experience and allow for performance evaluation.

3. Build capabilities to realize the Individual Enterprise. Architect the strategy and develop the technical transformation roadmap, then leverage the enterprise software and application programming interface (API) catalog and development environment.

4. Leverage existing apps and solutions. Identify opportunities to use existing third-party solutions and apps to enable faster time-to-market and reduce development costs. Leverage and build upon existing apps using standard developer kits, while developing an app marketplace and sourcing strategy.

5. Promote the value and scale of the benefits. The toughest challenge for internal proponents of the Individual Enterprise may be selling the sometimes intangible benefits of tighter collaboration and data-driven decision making. Yet organizations must integrate mobility as the primary mode of interaction within the enterprise and among partners in their ecosystem. Establishing new ways of working and aligning organizational policies and governance with the new mobility reality will be vital. So too, will be defining performance parameters and success criteria, and doing cost-benefit analysis as the mobility strategy continues to evolve.

Social service experts solve urgent issues on the fly

Mobility can deliver the dual benefits of substantially increased productivity and dramatically improved client outcomes in social services. By enabling real-time access to case records, recommended actions, changing case priorities, resources and experts, mobile enablement of social service case-workers redresses institutionalized pain-points, and promotes better, faster decisions. Mobility enables real-time collaboration and informed decision-making, mitigating cross-agency coordination challenges. Clients experience improved outcomes while an area that has typically been held back by scarce resources can cover an increased range of those in need.

Mobility makes us smarter, more productive and faster

Mobile and analytics. Two coinciding phenomena that together will change the way business gets done, putting real-time contextual information at employees' fingertips and providing predictive recommendations and insights to improve decision making. They will give people access to collaboration opportunities when and where they need them and amplify organizational expertise. Thus, employees will be better able to leverage the knowledge of the entire enterprise, make better use of time and assets, and drive results faster.

In the end, this allows organizations to discover, define and refine new and emerging customer wants and needs, and create truly unique, exciting experiences.

To learn more about this IBM Institute for Business Value study, please contact us at iibv@us.ibm.com. For a full catalog of our research, visit ibm.com/iibv

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Kevin Custis, David Lubowe and Katharyn White.

Acknowledgements

We would like to also thank Sachi Desai, Rachna Handa, Christine Kinser, Kristin Meadows, Aniruddha Ray and Rajrohit Teer.

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July 2014

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