PATHFINDER REPORT

The Enterprise in Motion:

Phenomena Transforming Business Process Management and Mobility

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About this paper

A Pathfinder paper navigates decision-makers through the issues surrounding a specific technology or business case, explores the business value of adoption, and recommends the range of considerations and concrete next steps in the decision-making process.

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EXECUTIVE SUMMARY

Digital transformation is a modern phenomenon that is forcing enterprises to reconsider how they develop applications to run their businesses. While its definition is fluid, 'digital transformation' is commonly understood as the means to exploit emerging technology to improve the customer experience and enable more adaptive business operations. But it's also something more. Changing, improving and adapting how customers engage and interact with an enterprise often impacts how business processes are designed, how the workforce collaborates in response, and how business partners in kind must react to new opportunity and ways of doing business.

How customers, the workforce and business partners interact requires a fresh look. Especially because the way they prefer to do business as individual users has dramatically changed. They all require better and real-time information within the context of what they are doing, better means to make decisions, and simple ways to act on their tasks at hand. All use their own devices and are constantly on the move.

This in turn requires new capability to use the location and context of mobile users to add value to the data orchestrated in and out of applications, and to inform how the user experience should subsequently look. Moreover, it affects business process design, user interface (UI) design, application development techniques, and data and application integration technologies.

Applications must now support structured business processes, unstructured content-driven workflows, and dynamic collaboration within the rules and policies set forth by the enterprise. They need to be designed, developed, tested and deployed rapidly, and changed quickly when needed. They also need to be exposed to any and all platforms, mobile devices and things with little to no impact on application design or code.

While this all seems daunting, it really isn't. In fact it's already under way. Industry-leading organizations are now exploiting interoperable business process management (BPM) and mobile application platforms (MAPs) to enable the process-oriented mobile applications needed to transform the way they do business. This paper examines the phenomena driving this trend, and the common approaches to digital transformation that enable the enterprise in motion.

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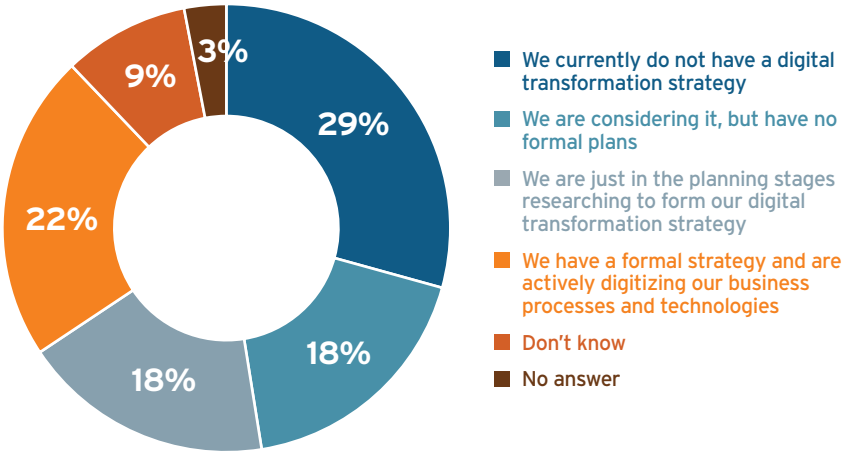
THE ENTERPRISE IN MOTION: APPLIED DIGITAL TRANSFORMATION

The 'enterprise in motion' is a concept that describes how organizations use emerging IT innovations to automate business processes, codify them in applications, and extend them to mobile users. It represents an effort integral to an enterprise's digital transformation strategy. While some consider digital transformation to be a new IT buzzword, others take it seriously. They see it as a program to drive change that often involves automating core business processes and exposing them to the mobile devices of their customers, workforce and business partners. In these enterprises, digital transformation is a means to create new competitive advantage.

To understand how this is playing out, we recently conducted a survey of IT decision-makers asking about their current digital transformation efforts. As Figure 1 illustrates, 22% of respondents have a formal strategy and are actively digitizing their business processes and technologies, while 18% are in the planning stages to do so, and 29% are now considering it.

Figure 1: Digital Transformation Initiatives

Which of the following best describes your company's with regards to a digital transformation effort?



Source: 451 Research/Microsoft study 2016

The phrase 'competitive advantage' has been overused, often without proper explanation, and has therefore lost meaning to some. Firms that successfully create competitive advantage do so in many ways. Common to all, however, is that these firms do the same things as their rivals, but differently, and/or they do different things. These differences are acknowledged as superior by prospects, who award those firms their business. In other words, 'how' an enterprise does things to deliver customer value often determines its competitive advantage and market success (or lack thereof) – and essentially another word for 'how' is 'process'.

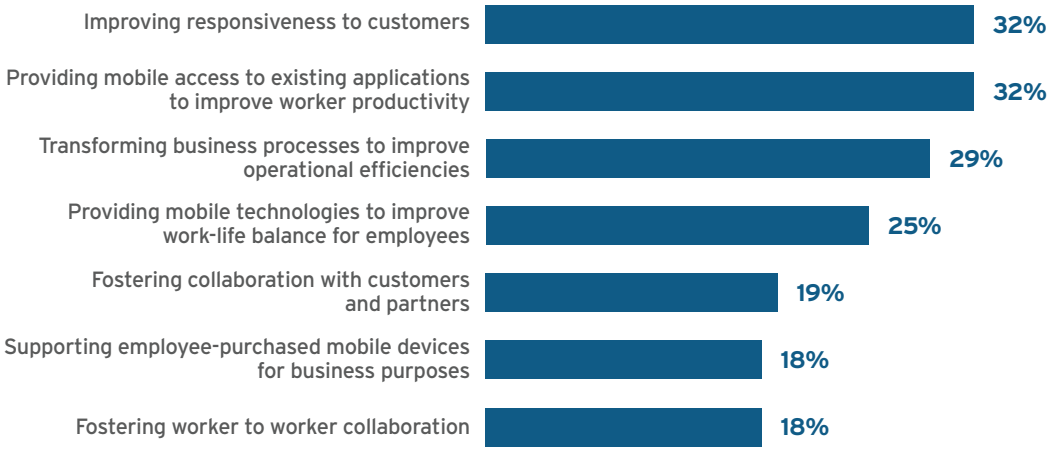
Firms that value and manage processes as assets continuously evaluate them for effectiveness and efficiency, automate as many as practical, and rapidly adapt them (or create new ones) as needed when change occurs or opportunity arises. They manage and measure processes from end to end and include consideration for how their workforce, customers and partners may use them to interact. In this context, processes must be capable of adapting to the needs of any user, in any location, on any device.

Phenomena Transforming Business Process Management and Mobile Application Platforms

In Q2 2016, 451 Research conducted its US Enterprise Mobility: IT Decision-Maker Survey – an online survey of 2,000 enterprise mobility decision-makers. The study explored how enterprises make investment decisions about connectivity, mobile devices and mobile applications. Figure 2 reveals the top priorities for investment focus on three core activities – improving responsiveness to customers, providing mobile access to applications to improve worker productivity, and transforming business processes to improve operational efficiencies.

Figure 2: Drivers of Investment in Mobility Solutions

Q: In your opinion, which of the following activities are the biggest drivers for your company's investments in mobility solutions? (Please select up to two) n=2027



Source: 2016 US Enterprise Mobility: IT Decision-Maker Survey

Asked when each of the activities noted in Figure 2 would be extended to mobile devices, the respondents acknowledged that less than half of them were enabled already, while roughly one-third are planned within the next 24 months, and just under 7% are expected to be enabled beyond 24 months. This tells us that while progress is being made, there is still ample work required to improve customer responsiveness, mobilize applications for workforce producutivity, and transform business processes for efficiency.

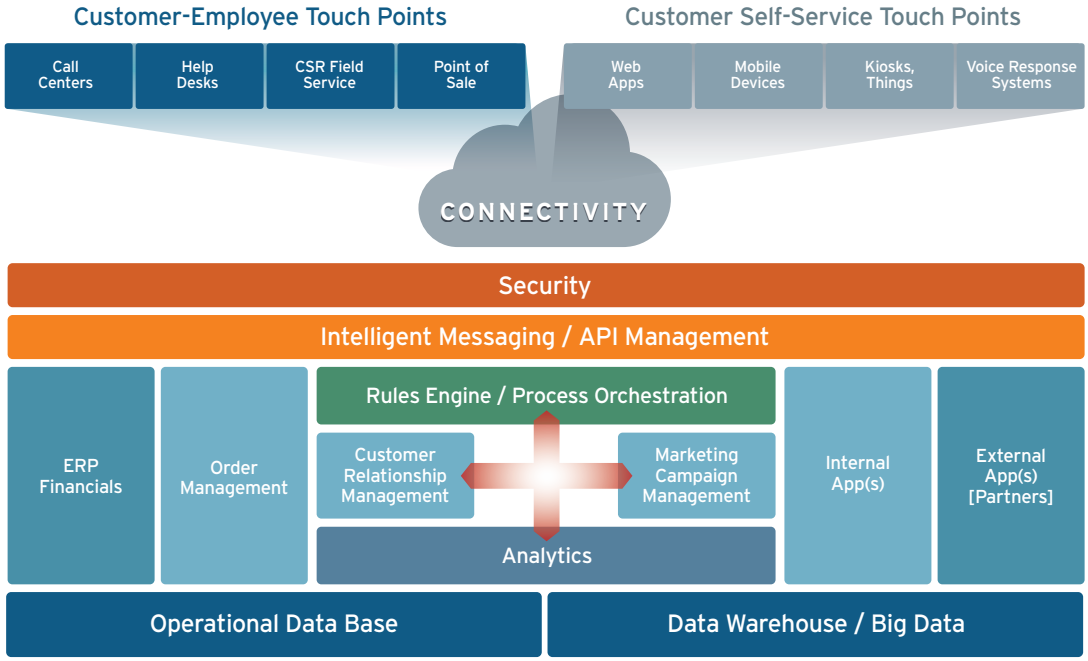
BPM AND MAP: AN INTEROPERABLE FRAMEWORK

Enterprises that are serious about digital transformation begin by considering the digital experience of their customers. These firms often practice a 'mobile first' approach to developing systems of engagement.

Systems of engagement are the touchpoints through which customers interact with an enterprise. Smartphones have become the preferred touchpoint for many. But smartphones are not the only important touchpoint. Web applications, call centers and voice response systems, as well as direct contact with sales, support and field service personnel, must all be considered holistically. The goal is to ensure that the digital experience of the customer is a consistent and productive journey, one that yields desired outcomes for both the customer and the enterprise. This experience is also sometimes referred to as the 'customer journey.'

Customer journeys can be enabled by considering an integrated omni-channel customer engagement design, as illustrated in Figure 4, which spans direct-service and self-service customer touchpoints.

Figure 4: Omni-Channel Customer Management Architecture



How – and how well – data and processes flow across this architecture and how they are used by the customer determines the quality and outcomes of the overall customer journey.

The digital platform required to enable and integrate this architecture can be composed in several ways. Some organizations use in-place integrated developed environments (IDEs), while others are now considering cloud-based platform-as-a-service (PaaS) for modern application development to exploit the resiliency and portability of container- and microservices-based applications.

A common approach in recent years has been to use BPM and MAP software to craft customer journeys, as well as to modernize applications for use by employees and partners.

BPM software is an integrated framework that can enable process modeling, analysis, development, execution and measurement of end-to-end business processes. It can create a visual representation of process designs

that can be used to generate executable code, combining both development and runtime IT environments. It supports a range of data connectivity and integration capabilities (e.g., middleware, web services, APIs) and can facilitate the design criteria called out by an enterprise's mobile-first specifications. Implementation of new (or renewed) process designs can be reduced from months to just days, saving considerable costs while also making the enterprise highly adaptable to change and responsive to opportunity.

MAP offerings came to market with tools to support greater agility of front-end application development. They are particularly good at user interface (UI) and user experience (UX) designs. Moreover, MAPs make thorough use of device features (e.g., location of mobile users and images taken with the mobile device's camera) that add context to the data orchestrated in and out of mobile applications. More importantly, MAPs provide reusable back-end services and APIs that ease the secure integration of applications with systems of record (e.g., ERP, supply chain management [SCM], customer relationship management [CRM], etc.) and other cloud-based back-end application services. This infrastructure became known as mobile back-end-as-a-service (MBaaS), which has now been subsumed within MAP architecture.

Anatomy of BPM and MAP Architecture

Current BPM and MAP offerings share some architectural components. Each includes a modeling environment for workflow design; a graphical design palette with drag-and-drop configuration functionality; UI design tooling; a workflow/process engine to automate and orchestrate structured processes and unstructured collaborations; some form of a repository for models, data, content, metadata, registry and reuse; back-end integration technology for resource connectivity (internally – A2A, and externally – B2B); developer collaboration resources; and an administration console for system monitoring and control. They enable developers to compose or configure applications rather than purely code them, and as such are sometimes referred to as 'low code' platforms.

They may also include some rules management to structure decisions and define key performance indicators (KPIs); some data quality management; and some content management (typically for forms). They are process-oriented – meaning they can rapidly design and codify workflows and use APIs to integrate data and process flows across hybrid IT architecture (e.g., on-premises infrastructure and various cloud services – SaaS, IaaS, PaaS and others). When deployed, each can be used as a 'system of execution' that performs the operational tasks that link 'systems of engagement' (e.g., applications) with back-office 'systems of record.'

BPM and MAP offerings also differ in some ways. BPM suites include stronger tooling required to codify and automate structured repeatable processes, workflows and tasks, with capabilities to analyze and control execution and performance in order to ensure intended results. They can codify and execute policy- and rules-based decisions and orchestrate complex conditional routing. They may also have more sophisticated tooling for the enterprise content management that includes data capture, version control, publishing and distribution features.

Alternatively, MAPs have stronger mobile-centric development tools to design and craft intuitive UIs and UXs. They can make use of back-end legacy data based on contextual analysis and how users call for and manipulate data. MAPs may also include some type of application performance monitoring (APM) that can help design/redesign future versions by studying how mobile applications are used. As applications are updated, they can gradually align more closely with how users actually do things and get things done. A MAP may also enable an enterprise to change organizationally, restructure and evolve to mirror its users' activities, rather than just to 'mobilize' applications. The overall business competency of managing data and applications using MAPs in this way can become a key competitive differentiator in digital transformation initiatives.

BPM and MAP Interoperability

BPM software is typically delivered via either a Java or .NET ecosystem optimized for process execution. MAP technology is typically based on a lightweight server-side platform designed to maximize I/O throughput and is optimized for data-intensive, real-time and mobile applications (e.g., Node.js).

Several BPM vendors also offer mobile application development capabilities, but they may be limited. Some focus on UI design, while others may also make use of the device-native technology (e.g., iOS, Android), or in the absence of native support, they will use HTML5 to enable mobile applications to display across devices. Conversely, several MAP vendors also offer workflow automation. But they may not be capable of addressing complex processes that require rules-based conditional routing, for example. Nevertheless, each type of offering will bring unique capabilities that complement and interoperate with one another.

MAPs will prioritize and resolve for presentation, usability and contextual challenges, and make calls to BPM platforms. In turn, BPM platforms will execute processes, transactions and/or content-centric workflows (i.e., forms), carry out policy- and rules-based logic, and expose results to mobile applications, as well as the other direct-service and self-service customer touchpoints called out in Figure 4.

By doing so, next-generation BPM and MAP platforms will evolve as a new form of middleware that can enable adaptive execution. They are both capable of developing and executing applications on a common runtime environment that can change and redeploy processes and applications on the fly. These platforms are not just middleware. In essence, they also act as de facto DevOps (combined application development and operations) and continuous integration and deployment (CI/CD) frameworks, and represent consolidated and efficient means for rapid application development and deployment.

USE CASES

In general, automating and improving the outcomes of core and supportive processes are among the common uses cases for interoperable BPM and MAP technology.

CORE PROCESSES

Core processes include demand generation (linking sales, marketing and analysis efforts); order acquisition (for customer on-boarding and order capture); order-to-cash (assuring accurate and timely delivery, settlement and payment); customer support (to strengthen customer relationships, wallet share and repeat business); and product development (enabling needs analysis and feedback loops to spark innovation).

SUPPORTIVE PROCESSES

Supportive processes typically include the back-office and IT functions of an enterprise. Among them are source-to-pay processes for direct and indirect material procurement, as well as the means to provision IT resources, improve the ability to manage data, engage engineering changes, and modify shop-floor control in manufacturing operations.

Perhaps the best way to understand how BPM and MAP technology can enable digital transformation is to consider how others have done so, in areas such as field service, financial services and insurance use cases.

FIELD SERVICE/MAINTENANCE

Enterprises with distributed workforces rely on mobile applications and smart devices to enable their field engineers to handle work orders more efficiently. BPM and MAP make use of the native capabilities of smart devices to align data and process flows in context with the work to be performed. Work order scheduling can be improved with better knowledge of the location of engineers. GPS features enable more efficient route guidance, saving transportation time and costs. Engineers are better informed with real-time availability to customer and product information. Camera capability allows images to be attached to customer records for evaluation, and visual collaboration between engineers accelerates remediation efforts.

FINANCIAL SERVICES

Financial services companies are considering a range of process-oriented mobile applications. Business-to-consumer (B2C) applications include insurance/warranty policy activation, claims submission, policy management, policy migration and renewal, document submission, and questionnaire response. Business-to-business (B2B) applications include policy sales, customer service, claims submission, and retail partner account management.

IN-FIELD FARM INSURANCE SALES

A more specific and notable use case demonstrates how process complexity can be made more efficient, and how smartphones capabilities enable better outcomes. A provider of farm insurance deployed a mobile tablet application to provide its brokers with an intuitive and user-friendly interface, coupled with automated back-office processes, to transform and simplify sales of insurance products.

For brokers in the field, the application transformed complex, multi-peril farm-protection insurance into a simple, easy-to-use application that allows the brokers to generate quotes quickly and efficiently while on-site with the farmer. They use mobile devices to capture images of the farm outbuildings and equipment to assess the farmer's risk requirements.

For back-office workers, the application eliminates manual data-entry tasks and automates the processes required to record and approve new quotes and policy applications. It enables the workers to easily adjust the process steps and rules to accommodate new or changed insurance products, new regulations, etc.

For the enterprise, the application reduced turnaround times on sales cycles, allowing brokers to sell more. In less than one month, the income generated surpassed the technology development costs. It also increased efficiency, reduced errors, and reduced costs through the automation of manual data-entry and review tasks. Overall, it enabled the enterprise to respond quickly to changes in market and regulatory conditions.

RECOMMENDATIONS

Enterprises are now under pressure to automate virtually all processes – as many as are practical – and extend them to mobile users that include customers and partners, as well as a mobile workforce. Processes must also be capable of rapid adaptation as market conditions evolve, as customer demand changes, and as the actions of rivals require response. The emerging capabilities of modern and interoperable BPM and MAP platforms are now well suited to these and other tasks required for digital transformation initiatives that thus can enable an 'enterprise in motion'.

Recommendations: Enabling The Enterprise in Motion

1	Manage business processes as assets – inventory them and evaluate them for risk and value to the enterprise. Categorize user groups such as customers, employees and business partners. Select those processes core to customer value creation and assess their ability to create said value. Correlate the applications that compose each business process (many processes transcend multiple applications). Compare the processes and constituent applications to those of rivals to ensure that the customer journey is one that the customer indeed recognizes as superior. Determine those processes and applications that need modernization and begin redesign (digital transformation) efforts.
2	Evaluate BPM offerings as a potential low-code, rapid business process application development platform for digital transformation initiatives and continuous process improvement programs. Assess them for the architectural features noted in this paper. Also assess the relative mobile capabilities of each.
3	Evaluate MAP offerings as a potential low-code approach to mobile application development and lightweight integration capabilities for digital transformation initiatives and continuous usability improvement programs. Assess them for the architectural features noted in this paper. Also assess the relative BPM capabilities of each.
4	Select a short list of the BPM or MAP offerings (either as individual platforms or as interoperable best-of-breed environments) that best meet the needs of the process and application modernization effort concluded in Recommendation 1.
5	Execute a proof-of-concept (POC) process automation and mobile application development effort as part of a DevOps initiative to determine the capabilities of the chosen platform(s) to improve process execution and application usability. Before engaging, measure relative process key performance indicators (KPIs) and usability metrics to determine a baseline from which to measure improvement.
6	Iterate the POCs as necessary to determine the most suitable platform or best-of-breed interoperability environment.
7	Conclude the selection and deploy it as part of a continuous process improvement, DevOps, CI/CD program for digital transformation initiatives.
8	Improve, design and/or redesign the processes identified in Recommendation 1 as required.
9	Congratulations! You are now an Enterprise in Motion.

ABOUT THE AUTHORS

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Carl leads 451 Research's coverage of integration and process management technologies in hybrid cloud architecture, as well as how hybrid IT affects business strategy and operations. The markets covered in his research include enterprise architecture management (EAM) tools, hybrid cloud integration technology (including iPaaS and API management) and business process management (BPM) software.

Prior to joining 451 Research, Carl was Principal Analyst at BPMethods, where he advised clients on business strategy and process management. While there his book, Strategy and Business Process Management: Techniques for Improving Execution, Adaptability, and Consistency, was published by Taylor and Francis Group in 2012.

Carl was also a Senior VP of Strategy and Product Management for a B2B integration firm where he developed e-commerce SaaS and IaaS offerings used by over 4,000 companies. Prior to that, he served 10 years as VP of Research for IT advisory firms Gartner and META Group, advising Fortune 500 clients.

Chris Marsh

RESEARCH DIRECTOR, ENTERPRISE MOBILITY

Chris Marsh is a Research Director setting the vision for and managing 451 Research's Enterprise Mobility practice, a team of smart analysts exploring what enterprises are doing and not doing with mobile technologies. Chris' own research focus is around mobile development, management and security technologies. Originally from London, Chris moved to 451 Research's San Francisco office in 2015.

Chris joined 451 Research as part of the company's acquisition of mobility research firm Yankee Group in 2013. Before that, he was a research manager in Nokia's Global Consumer Analytics and Insights function, analyzing changes in the mobility landscape with a focus on identifying early indicators of changes in consumer behavior. These insights fed into front-end strategy by outlining strategic opportunities for brand and product developments.

Chris is on the editorial advisory board of the IQPC Enterprise Mobility Exchange conference events, having performed the role for a number of other magazine, event, and conference organizations in the past. He has presented at numerous conferences in these capacities.