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Midsize Firms Can Use Analytics to Accelerate Digital Transformation

IDC OPINION

Digital transformation (DX) is a must for midsize firms (those with 100 to 999 employees) to thrive in the digital economy. DX enables firms to increase competitive advantage through initiatives such as automating business processes, creating greater operational efficiencies, building deeper customer relationships, and creating new revenue streams based on technology-enabled products and services. DX is a journey, and it starts with firms embracing an IT-centric vision that guides a data-driven, analytics-first strategy. The outcome of DX initiatives depends on the ability of a firm to efficiently leverage people (talent), process, platforms, and governance to meet the firm's business objectives.

DX also depends on midsize firms viewing IT as a strategic area of investment. As part of this investment, firms must develop or invest in IDC's 3rd Platform technologies (such as next-generation applications, data management tools, and infrastructure technologies) that serve as the foundation for DX initiatives such as the Internet of Things and next-generation commerce and consumer services. These technologies enable firms to gain deep, actionable, and timely insight by harvesting information from large and diverse data sets gathered from internal and external sources. It is crucial that firms invest in an infrastructure optimized for analytics technologies that enable the timely gathering of this insight. This infrastructure must be:

- **Agile, scalable, flexible and, more importantly, modular.** Allows IT to provision and manage compute, storage, and networking capacity and/or performance incrementally, and independent of each other (Furthermore, the use of industry-standard hardware reduces acquisition and maintenance costs and increases the return on investment [ROI].)
- **Application solutions friendly.** Supports current-generation commercial application and database solutions from vendors like Microsoft and SAP, among others, while also being friendly toward next-generation in-house custom and open source–based applications
- **Data centric.** Interconnects systems of record, engagement, analytics, and insight (i.e., centrally stores and analyzes structured, semistructured, and unstructured data according to the business value and shelf life of the data)

Situation Overview

The State of IT in Midsize Firms — Setting the Stage for Growth

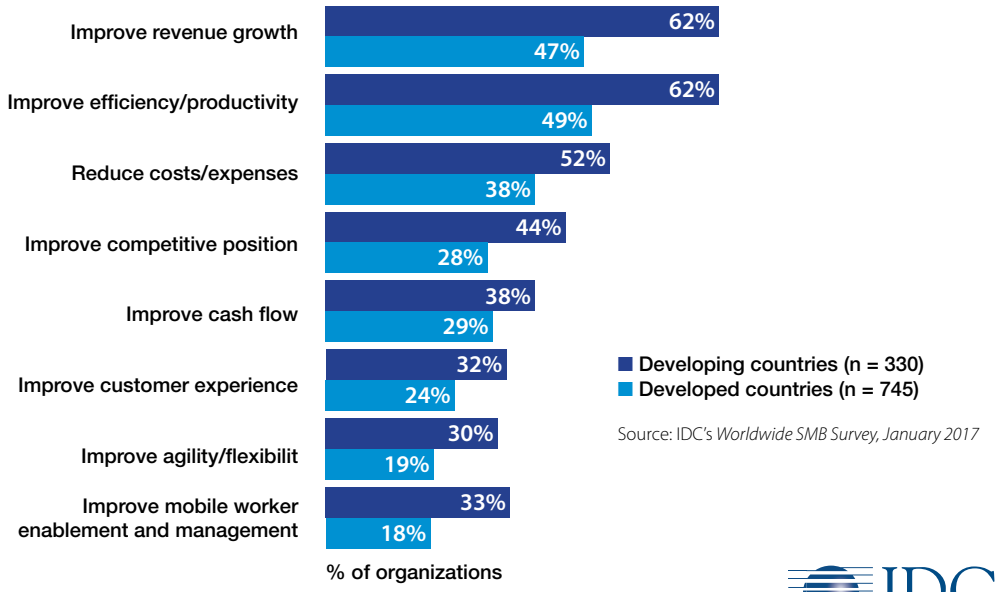
For midsize firms (those with 100 to 999 employees), an investment in advanced IT is no longer optional. The right investment in IT is essential for the firms to meet key business objectives.

Key Business Objectives in Midsize Firms — Revenue and Productivity Gains Top the List

Figure 1 illustrates the key business priorities for small and midsize firms. Growing revenue, improving efficiency, and reducing costs (or at least managing them) are the most widely cited goals. Other objectives that are related to these key performance aspirations include business agility and flexibility. While midsize firms in some countries are more likely to want to grow revenue and others more likely to want to improve efficiency or manage costs, all are clearly looking at improving their financial health as a key objective. Roughly 30% of midsize firms in developed countries (the United States, the United Kingdom, Germany and, to a lesser extent, Japan) and over 40% of midsize firms in developing countries (India, China, and Brazil) are looking to improve their competitive position regarding larger competitors. Note that fewer midsize firms are concerned with matching the flexibility and agility of smaller firms; they are worried about the larger firms. Many of these objectives and their priorities are similar in nature to those of large enterprises. IDC finds that midsize firms are increasingly following in the footsteps of their larger counterparts (i.e., large enterprises) in embracing an IT-centric vision for shaping successful business outcomes. Aspirations to consistently meet business objectives — to improve identification and response to new opportunities — drive investment in IT, of which analytics is a huge component. It starts with changing midsize firms' views on such investments.

FIGURE 1

Top Midsize Business Priorities for the Next 12 Months



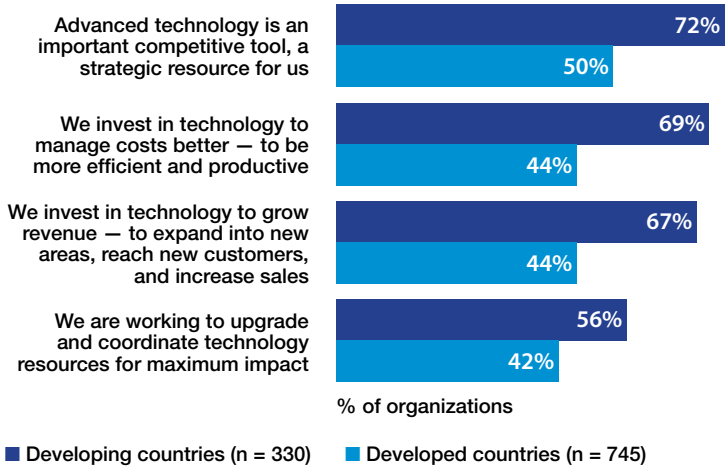
Source: IDC's *Worldwide SMB Survey, January 2017*

Technology Attitudes Beginning to Encourage an IT-Centric Strategy

As Figure 2 illustrates, midsize firms are not there yet when it comes to looking at investments in advanced technologies as strategic. Many tend not to consider investment in technology alignment and coordination to be a top IT spending priority (just 25–35%). However, most midsize firms across different countries agree that they are working to coordinate technologies to improve efficiency.

FIGURE 2

Attitudes Toward Technology in Midsize Firms

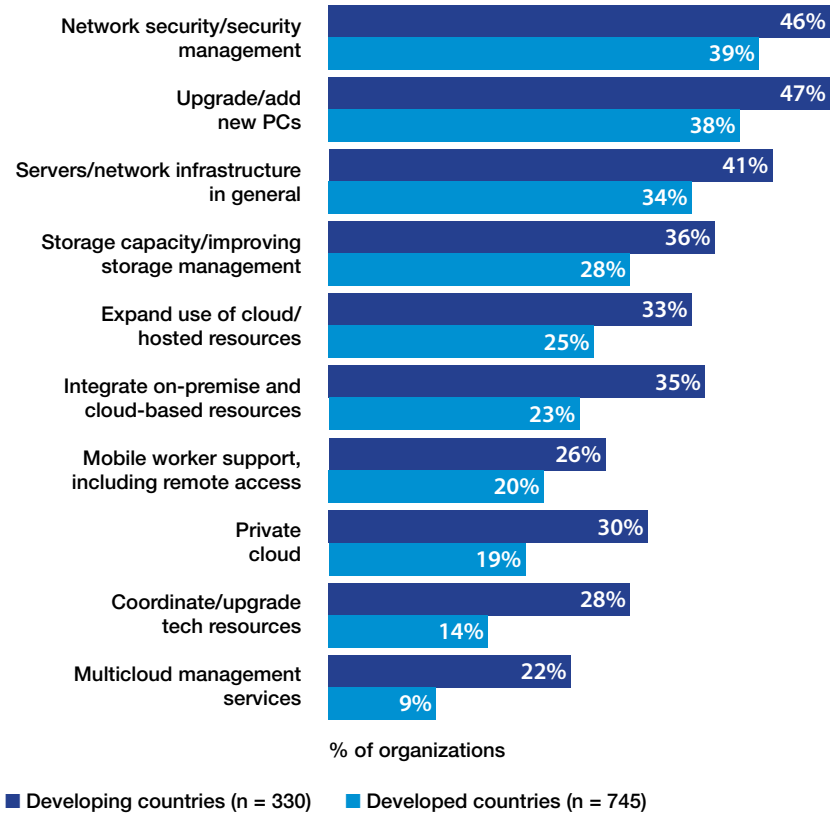


Source: IDC's *Worldwide SMB Survey*, January 2017

Furthermore, as Figure 3 illustrates, many of the areas in which midsize firms prioritize much of their IT spend are tactical in nature. For example, only about a third of midsize firms cite investment in integrating on-premise and off-premise public cloud resources as an IT spending priority for the next 12–18 months. The alignment of different resources — specifically mobile capabilities, on-premise networking and server equipment, and business intelligence and analytics software — is still in early stages.

FIGURE 3

Technology Spending Priorities for Midsize Firms



Source: IDC's *Worldwide SMB Survey, January 2017*

Midsize firms are in transition as they look to refine business practices to support their growth and changing business practices. They have no choice but to balance between staying the course on budgets and, at the same time, prioritizing spend on IT. There are appealing aspects to transforming themselves to being IT-centric, data-driven organizations that can consistently service business priorities and objectives.

Outlook

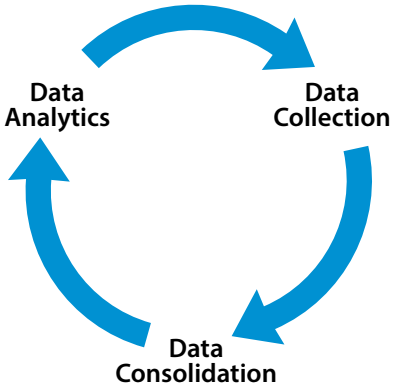
Moving Toward Data Centricity to Transform Business Performance

To successfully transform themselves digitally, midsize firms must take a data-driven, analytics-first strategy to improve their bottom line. As a part of their IT-centric vision, they must embrace IDC's 3rd Platform technologies (such as next-generation applications, data management tools, and infrastructure technologies), which are crucial for the successful and predictable outcomes of DX initiatives. 3rd Platform technologies are designed with analytics at the core and utilize varied internal and external data sources, including social media data to provide a rich user experience. The firm's IT organization must also keep pace with the demands of these new technologies, especially the infrastructure.

Figure 4 illustrates the approach that firms take to becoming data-driven organizations. It starts with (data) collection, moves to (data) consolidation, and ends with (data) analytics. Business transformation is all about treating this as an information stream.

FIGURE 4

Data Centricity in Midsize Firms



Source: IDC, 2017

Data Collection — The More Diverse the Data, the Better the Quality of Insight

For company leaders, the phrase "If you can't measure it, you can't manage it" can have strong appeal. However, the reality is that firms have some work to do to get there. They must assess the volume, velocity, and veracity of internal and external data sets:

» **Internal data — move beyond the rearview mirror to being predictive.** Firms need to look past the monthly cadence of financial results (which is as data driven as they get now). Today, senior management (and stakeholders) are interested in revenue, expenses, and profits along with expectations for the quarter and the future. Measures of past performance are critical to tracking success, but they do not provide much guidance regarding the future. The classic sales force

30-60-90-day outlook is another tool, but other performance-related insights can help guide operating decisions, including product line profitability, in-stock/out-of-stock detail by geography, and a wide range of other details that may already be captured but may not be shared.

» **External data — gain timely insight on customers, competitors, and the market.** Firms need to look at external data in a "big picture" fashion and not just as an echo of internal financial results — for example, receivables aging as a function of buyer behavior. An effective analysis of current customer activity can provide deep and unprecedented insights. A coordinated "single view of the customer" can be an important source of information, where every customer interaction — whether by phone, email, or social media — is centralized and made available in a manner that enables key stakeholders in the firm to share a common and comprehensive understanding of the customer. Automated data collection mechanisms and social media streams further enhance the quality of this data.

Data Consolidation — Building Coherency

Collecting data is just the "getting started" part. Firms need to build a framework to assemble, collate, curate, and analyze data. Successful DX is about breaking down data silos so the insight gained from "data mining" is holistic.

In the past, much of this data used to be structured in nature (i.e., stored in relational databases). It also used to be static in nature, with change occurring in a predictable

fashion. With a shift to dynamic and unstructured data sets, firms must be prepared for two key changes:

- The ability to centrally store structured, semistructured, and unstructured data according to its business value and shelf life (Data consolidation is the ability to interconnect systems of record, engagement, analytics, and insight.)
- Adjusting to a paradigm where the data sets are constantly changing and the data itself can have a limited shelf life — requiring streaming or real-time data analytics (Data consolidation requires that the business value be extracted from the data before it expires.)

Data Analytics — Gaining Business Intelligence

The depth of insight gained by analyzing the consolidated and interconnected data sets and the manner in which the derived information is consumed can make or break any digital transformation initiative. Deep insights require a structured approach to internal and external information capture and consumption.

Larger firms (and even Web 2.0 firms that started small) have been analyzing internal and external data sets for deep and actionable insights for quite some time now. They have decentralized analysis to speed up decision making at the local level while managing information management controls centrally. Midsize firms need to follow the same strategy by investing in the right set of analytics technologies for diverse internal and external data sets.

"Customer experience" — which was once a potential competitive differentiator — is now escalating to table stakes for firms in owning the relationship. Likewise, timely feedback on promotions, competitor activity, and expected changes in the economic or regulatory environment can be invaluable. "What-if" kinds of analysis are enabled by next generation of business intelligence tools.

Firms must also ensure that the right level of information is accessible to all employees and not be available only to those in a centralized planning function. Having resources in the hands of decision makers who can assess the outcomes of different decisions based on predictive analytics will provide meaningful competitive advantage. Of course, the delivery of these kinds of tools requires not just the latest business intelligence software but also the IT infrastructure to provide the necessary operating support.

Optimizing IT Infrastructure for Analytics

Midsize firms must be extremely prudent about ensuring that every dollar spent has a multiplying effect on every dollar earned. This begs the need to ensure that the firms invest in technologies that have industry-leading ROI (while keeping the total cost of ownership low) and, more importantly, support their key business objectives. Investing in next-generation applications and infrastructure solutions (i.e., 3rd Platform technologies) is a balancing act.

Firms cannot just throw away their current-generation business applications (i.e., 2nd Platform technologies) in favor of next-generation applications — the two will coexist for a long period. By connecting current- and next-generation applications together, firms can develop an organizationwide information fabric. In other words, this fabric interconnects systems of record, engagement, analytics, and insight. By breaking down data silos, firms can improve the insight gained from "data mining" and therefore enhance the quality and accuracy of business.

A suitable IT infrastructure enables businesses to leverage analytics for innovating and transforming themselves aggressively while keeping their business running. Utilizing analytics for business transformation is an incredibly complex task from an IT point of view. For the foreseeable future, given that most midsize firms do not have the luxury of maintaining separate infrastructure silos, IT infrastructure plays a dual role in such firms:

- On the one hand, it forms the foundation upon which a firm conducts business (by leveraging IDC's 2nd Platform technologies) — that is, it supports current production environments, mostly deployed on a traditional shared infrastructure. The speed in accessing, collecting, and analyzing data is important, and with the huge influx of data from different sources, scalable and easy-to-manage IT (e.g., storage) is important as well.
- On the other hand (and increasingly so), it forms the launchpad upon which a firm seeks to transform itself for the digital economy (i.e., new big data and analytics environments along with next-generation applications — which demand a new-generation infrastructure).

Security, service quality, improved user experience, scalability, agility, and efficiency all apply equally to current- and new-gen infrastructure. As an operating paradigm, hybrid IT enables IT to address the needs of an expanded group of constituents, especially those that handle analytics environments.

Architecture and Hardware Design

Midsize firms' IT should seek to make the architecture agile, scalable, flexible and, more importantly, modular. This allows IT to compose and scale compute, storage, and networking capacity and/or performance incrementally and independently of each other.

By using industry-standard hardware built with off-the-shelf components, IT can reduce acquisition and maintenance costs, increasing the return on investment. This enables organizations to start small (in a capex-friendly fashion) and scale as necessary, thereby reducing the total cost of ownership.

The infrastructure should support current-generation commercial application and database solution stacks from vendors like Microsoft and SAP, among others. Such stacks could be procured and deployed in the form of solution bundles, which makes it easier for IT to procure and deploy them in production.

Using Data Lakes

One approach to data consolidation for midsize firms is to implement a "data lake" in their IT infrastructure. The term is used to describe a common structured, semistructured, and unstructured data repository. Data lakes can be based on an open source solution or a commercial vendor solution.

Data lakes allow disparate and incoherent data types to be consolidated onto a single, scalable, extensible, and agile storage platform. They support ingestion of varied and diverse data sources for analytics. Sources include relational databases; social network data; media files, including audio, video, and images; internet clickstream data; relational and nonrelational databases; and machine data. To aid multidimensional analytics without the need to preformat the data, data lakes utilize varying extensions and overlays such as in-memory extensions and relational and nonrelational connectors and overlays. This enables data lakes to be used for diverse use cases. Data lakes can also serve as an excellent companion platform to enterprise data warehouse (EDW). Businesses gain the ability to optimize EDW storage by archiving cold data and improve EDW performance by offloading extract, transform, and load (ETL) processing. With the data lake as a companion to EDW, the data lake can be used for business-critical queries on all relevant data, and when necessary on historical records, as well as on structured and unstructured data from new sources. Businesses can gain from the storage economics of a data lake to keep more data online than is viable in EDW and optimized queries on the EDW performance by offloading ETL processing.

Challenges/Opportunities

From an IT perspective, the coordination and alignment of technologies (i.e., upgrading and aligning resources for maximum impact) better positions firms to take advantage of opportunities associated with the new digital economy. Most firms will be satisfied with the resulting improvements in efficiency, but the real beneficiaries will be the firms that transform their business models to take advantage of new opportunities; in other words, not just modernizing IT operations but shifting business models to find new and more efficient ways to serve customers by providing unique value. Analytics enables firms to better understand the purchasing behaviors of their customers, thereby being better able to serve them. The support of decision making through analytics will be an important part in that process. Rather than have a central business intelligence function to respond to information requests, it is easier for firms to make business intelligence and mining tools available to decision makers, who can seek real-time answers to their questions. Analytics can also be used to track what questions are being asked, providing additional intelligence on what data is being evaluated and in what ways, details that can be instructive for others in both line-of-business management and IT.

Getting the right information distributed in a timely way is difficult with an increasingly mobile workforce supported by on-premise and cloud capabilities. In addition to making information (and the processing power to analyze it) available to key users, firms must make certain that effective storage and secure access are also in place. Furthermore, the coordination of cloud and on-premise resources will be increasingly important for midsize firms, especially when the increasing interest in business analytics is considered.

Advances in infrastructure technologies and the multiple benefits that midsize firms can achieve through upgrading infrastructure in a timely fashion provide strong incentives for new investment. Improving access to advanced business intelligence and analytics will provide a variety of important benefits, from both near-term improvement in competitive positioning and customer engagement and long-term identification of new business opportunities. The decentralized access to key business information provided as needed to decision makers will be at the heart of digital transformation for midsize firms in the coming years. By strengthening internal technology resources, midsize firms can ensure the "right time and right place" delivery of information and analysis. This is an opportunity for suppliers to partner with their midsize customers to help them on this journey.

Conclusion

IDC believes this is the right time for midsize firms to be looking at IT infrastructure as a strategic investment area. IT budgets are often based on past spending patterns, but for midsize firms, there can be important benefits in taking a big-picture view of how different technology elements can be coordinated for maximum effectiveness, especially when it comes to management decision support through analytics. Business intelligence and analytics resources are especially useful in improving business decisions and outcomes, and the right kind of IT infrastructure can make all the difference.

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