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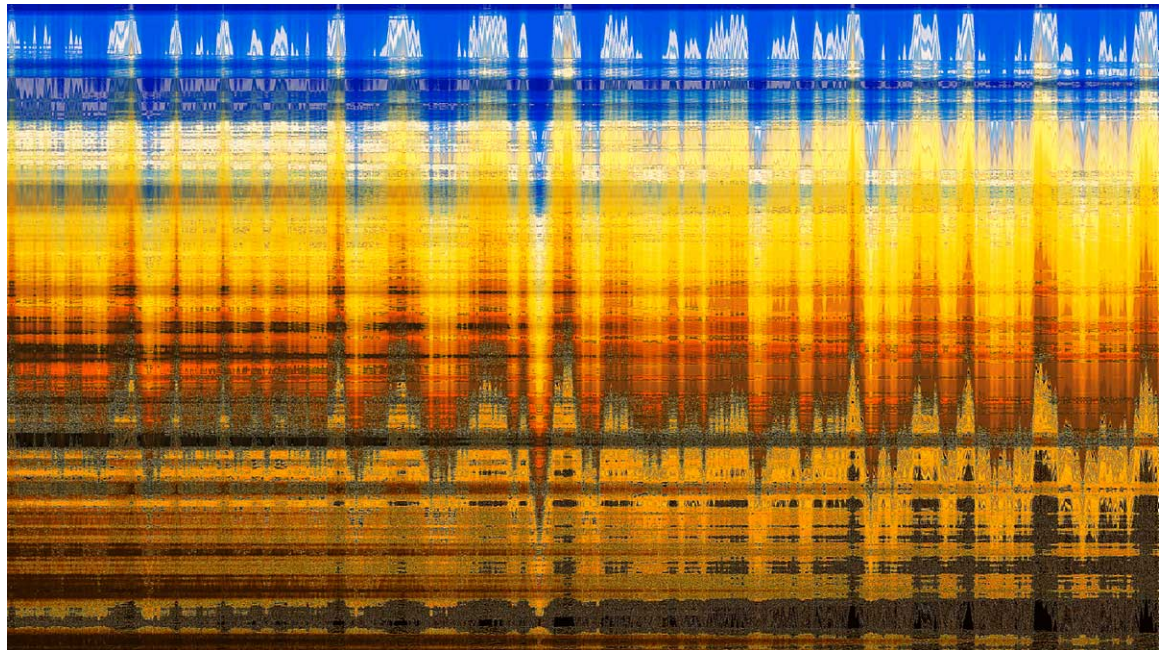
by Robert Bock, Marco Iansiti and Karim R. Lakhani

INNOVATION

What the Companies on the Right Side of the Digital Business Divide Have in Common

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In just a few years digital technology has connected an ever-growing number of people, sensors, and devices. It's created new business and social networks, resulted in new ecosystems, and transformed our economy. Of course, not all organizations have responded to it in the same way. While some have invested significantly in technology, operational, and cultural changes, others are lagging behind.

Our research shows that digital transformation is paying off for those who embrace it: Digitally transformed organizations (“digital leaders”) performed much better than organizations that lagged behind (“digital laggards”), effectively creating a “digital divide” across companies.

Our research focused on 344 enterprises* listed on U.S. exchanges with a median company revenue of \$3.4 billion, including most major firms in the manufacturing, consumer packaged goods, financial services, and retail industries. The table below includes all participants in our study and shows how organizations that scored in the top quartile of our digital transformation index obtained much better gross margins, earnings, and net income than organizations in the bottom digital quartile. Other financial and operating indicators showed similar disparities.

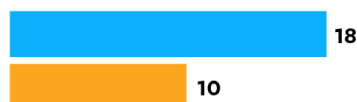
Digital Leaders Outperform Laggards on Three Financial Measures

Based on 2012–2014 data from 344 enterprises listed on U.S. exchanges.

3-YEAR AVERAGE GROSS MARGIN



3-YEAR AVERAGE OPERATING MARGIN



3-YEAR AVERAGE PROFIT MARGIN



SOURCE S&P CAPITAL IQ, KEYSTONE STRATEGY ANALYSIS

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Our research also shows that a digital advantage is not simply a function of spending money. The best-performing companies stated they have technology budgets on par with digital laggards; the average IT spend as a percentage of revenue was 3.5% for leaders and 3.2% for laggards. Clearly, digital transformation involves some significant capability building.

What Digital Leaders Do Differently

Our research indicates that these leaders approach the digital opportunity with a different strategic mindset and execute on the opportunity with a different operating model. Data and analytics are obviously key. Leading organizations are more likely to have a comprehensive data acquisition strategy and differentiate themselves from competitors based on their data platform. This difference in strategy means that business users are more likely to have access to a consistent set of up-to-date metrics for decision making, and the organization can generate predictions about their business from data they collect.

The broad deployment of digital technology requires rethinking both business and operating models. A *business model* defines how your organization creates and captures value. An *operating model* defines how your organization delivers the value promised by its business model. In combination, business and operating models define and rank the range of options available to operating managers in making their daily business decisions.

Digital technology changes the way an organization can create value: Digital value creation stems from new, network-centric ways your business connects with partners and customers offering new business combinations. Value is increasingly captured by new data, embedded and shared in your networks, with “network effects” growing value as the network expands. This means that business models are increasingly network-centric and data-oriented – and we see that among the digital leaders like Honeywell. (A company doesn’t have to be born digital to become a digital leader.)

Honeywell’s Lyric, which competes head-on with Google’s Nest connected home thermostat, is only the most visible of the company’s efforts. Within the core business, digital technologies are fundamentally changing the way Honeywell creates and captures value for its industrial customers through new efficiencies and services that unlock new value. And Honeywell recently established a dedicated [Industrial IoT \(IIoT\) division](#) to create an IoT platform that helps industrial clients derive greater value from its products and the 2.5 billion gigabytes of data the company captures each day.

Opportunities for capturing the value an organization creates also expand greatly, with pricing technology, ubiquitous sensors, and business instrumentation offering completely new ways to drive price differentiation, efficiency, and accuracy. An increasing portion of the value captured is also shared with partners, customers, and community participants as the locus of any business model expands to business networks and communities. For example, automobile insurance companies like Allstate, Progressive and State Farm have launched programs to use connected devices to monitor customers’ driving patterns. [Automotive telematics](#) can capture metrics such as the frequency and length of trips and unsafe driving behaviors like hard braking and rapid acceleration. Insurers can use this data to better understand their customers and to price policies accordingly. Safe drivers stand to benefit from lower premiums as traditional pricing policies are amended using real-world data about customer behavior.

Delivering the new business models requires adopting new operating models that change the very nature of the way companies explore new ground, experiment with new concepts, and deliver products and services to customers. Ecolab is a prime example of this. Ecolab’s products and services help major refineries, petrochemical plants, and manufacturing facilities process and save water in their operations. Increasingly, Ecolab’s business [is taking advantage](#) of data it collects from its equipment to ensure greater uptime and performance, deliver enhanced customer service, and help customers achieve key business outcomes.

Ecolab’s [data platform has been designed](#) to generate operational insights from the rich data generated by the company’s equipment and a profusion of networked sensors. Insights gleaned from

this data have [transformed Ecolab's field service operations](#), enabling the company to [monitor its products](#) for potential problems, suggest and dispatch the best available technician, and minimize downtime or process disruptions. Ecolab is also using its growing network of equipment to generate new services. Data can be aggregated to benchmark a customer's operations, suggest performance improvements, and help the customer capture greater value through energy and water savings, increased product performance.

Four Operating Pillars

Digital operations are built around four pillars. The first is customer interaction and relationship management, which leverages new and extensive data and analytics platforms to shape relationships and target opportunities. The second is manufacturing, product, and service delivery, which manages internal operations as well as the increasingly crucial and extended ecosystem of partners and external contributors. The third is product creation and delivery, which combines a tailored mix of engineering, product management, data sciences, traditional engineering ops, design, and economics resources. The fourth is human capital management, which focuses on recruiting, developing, and enabling information workers, providing the processes and systems to empower them with the tools required to connect and remain productive. Digital leaders have achieved more-robust capabilities across all four operating model pillars:

Customer Interaction and Relationship Management

- Digital leaders are 2.5x more likely than digital laggards to harness real-time data and analytics to deliver tailored customer experiences
- 2.5x more likely to use analytics to develop perceptual intelligence about customers
- And 2.6x more likely to use analytics to prescribe business actions to limit customer churn

Manufacturing, Product, and Service Delivery

- Digital leaders are 1.5x more likely to optimize production runs based on demand forecast
- 1.7x more likely to be able to predict equipment downtime using advanced analytics
- And 2.3x more likely to use predictive modeling to anticipate customer support requests

Product Creation and Delivery

- Digital leaders are 2.3x more likely to inform product design by capturing data on how their products are used
- 1.8x more likely to monitor products remotely and drive customer support based on data insights
- And 1.9x more likely to use data to benchmark customers and advise them on how to realize greater value

Human Capital Management and Employee Productivity

- Digital leaders are 2.6x more likely to collect data on employee performance and generate recommendations for development
- 1.4x more likely to empower employees with access to self-service business intelligence and data visualization tools
- And 1.7x more likely to allow employees to define and receive real-time alerts to more effectively manage changes to the business

Driving digital transformation does not imply replacing old business assets and capabilities. But, like any significant building addition, doing it well requires modifying the existing structure. There are no blank sheets of paper. Digital transformation is about reconstructing the firm around digital operating principles, integrating traditional assets to address new challenges and pursue new opportunities. To do this well, leading companies invest not only in technology but also in developing the data-centric and network-centric capabilities and mindset to put that technology to the best use.

**The authors have consulted for a number of companies in the software industry, included several mentioned in this paper. The research was performed in collaboration with Keystone Strategy LLC, which received funding from Microsoft Corporation.*

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