

451 Research

S&P Global

Market Intelligence **Black & White**

The Autonomous Digital Enterprise

A Strategic Approach to Measuring and Improving
Digital Competitiveness

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About this paper

A Black & White paper is a study based on primary research survey data that assesses the market dynamics of a key enterprise technology segment through the lens of the “on the ground” experience and opinions of real practitioners — what they are doing, and why they are doing it.

ABOUT THE AUTHOR



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Executive Summary

451 Research was retained to assess the market perception and state of adoption of how BMC envisions enterprises will operate and compete in the digital business era. To thrive, BMC believes that every organization will need to evolve and function as an Autonomous Digital Enterprise.

In Q4 of 2020 we surveyed 1,200 business and IT decision-makers from across 20 industry categories and 11 countries in organizations that had at least 500 employees and annual revenue over US\$100m. The survey asked respondents to think about their organization's digital competitiveness by considering the degree to which it may be currently practicing the operating models and technology tenets that compose an Autonomous Digital Enterprise, and how this is likely to change in two years.

Answers to the survey questions were ranked and weighted to create a global industry measure of the state of adoption to BMC's vision. The Autonomous Digital Enterprise Index (ADE Index) is a tool that measures an organization's standing and potential as an Autonomous Digital Enterprise, and acts as a benchmark against which enterprises can compare their digital competitiveness. It is measured on a scale of 0-100%.

Findings from the research reveal the current global ADE Index to be 39.3%. This means that, on average, organizations practice over one-third of what is needed to be an Autonomous Digital Enterprise. Looking out two years, the respondents believe their organizations will have increased their efforts. The 2022/23 Global ADE Index is 46.1%, representing a net increase of 17.3%. On average, the respondents believe that in two years, their organizations will be practicing closer to half of what is needed to be an Autonomous Digital Enterprise. However, priorities among the operating models and technology tenets will shift in response to new market opportunities and needs that the respondents believe are likely to become important in two to three years. The current and future ADE Index ratings reveal strategic and tactical priorities that can guide management teams as to where to invest scarce budget funds and resources to help improve their digital competitiveness.

Introduction

The extraordinary rate of technological change brought by the current era of cloud computing and artificial intelligence is driving management teams across the globe to scramble. Some see chaos and are concerned that they are ill-prepared to keep pace. Most, though, are inspired. They view such chaos as opportunity to create new wealth from the technologies and markets emerging from it. In fact, this era has been named: The Fourth Industrial Revolution, or Industry 4.0, is the era of intelligence, automation and autonomy. The dawn of the first Industrial Revolution brought mechanized means of production; mass production and assembly lines followed. The information age enabled by computers and the internet was the third era in industrial evolution leading to the modern digital businesses being built today.

The digital business concept represents a transformation of product and service creation and delivery and can create entirely new businesses and business models. Digital businesses use a range of emerging and evolving technologies to create compelling customer experiences and unique operational capabilities. They use cloud services, cloud-native architecture, agile software development, containers, microservices and artificial intelligence, among others, to create value, compete and differentiate among rivals. These technologies accelerate the deployment of adaptive IT infrastructure, agile application environments, and new business and operating models that give management teams options to quickly and proactively, or better yet autonomously, adapt to change, risk and opportunity.

The Autonomous Digital Enterprise

To thrive in the Fourth Industrial Revolution, BMC believes that every organization will need to evolve to function as an Autonomous Digital Enterprise. An Autonomous Digital Enterprise is customer-centric, agile and derives actionable insights from data. It minimizes manual effort to capitalize on human creativity, skills and intellect across the enterprise, and continuously examines its relationships with customers and partners to intelligently create new value. Successful Autonomous Digital Enterprises will develop new operating models enabled by key technology tenets to craft and assert their digital competitiveness within Industry 4.0. The operating models that compose an Autonomous Digital Enterprise address cultural, organizational and structural issues. They require enterprises to:

- Create **‘Innovation Ecosystems in a Sharing Economy’** – whereby an enterprise establishes a network of external and non-traditional relationships to deliver new products and services. Examples include OEM reselling agreements, white-labeling third-party products, and partnerships in the ‘sharing economy’ like Uber, Lyft and Airbnb.
- Structure **‘Digital Business Domains’** – whereby dedicated lines of business (LOBs) integrate multiple internal functions and become responsible for end-to-end delivery of innovative and potentially disruptive digital products and services.
- Facilitate **‘Optimized Technology Buying’** – whereby LOBs consult less with central IT in purchasing decisions and rely more on their own IT resources and budgets, but share IT buying decisions with centralized IT to ensure consistency and compliance.
- Reconsider the **‘Evolved Role of Centralized IT’** – whereby the purpose and structure of centralized IT evolves, transforming to ensure cross-functional efficiencies and interoperability while focusing less on operations and more on innovations.
- Establish **‘Tech-Savvy Corporate Functions’** – whereby enterprises rethink how humans, machines and ‘digital workers’ (software robots or ‘bots’) interact to deliver value. Doing so means the organization is changing how it acquires and manages skills and talent, and aligns it with digital technology.

The technology tenets that help guide the structure and purpose of the IT investments needed by an Autonomous Digital Enterprise call for...

- Enabling a **‘Transcendent Customer Experience’** – whereby organizations actively collect data from across customer touchpoints and use it to provide a consistent and immediately helpful customer experience across all touchpoints.
- **‘Automation Everywhere’** – whereby organizations use a range of automation technologies to systematically automate business and IT processes to improve operations, guide workforce efforts, and create better customer experiences while redeploying people talent to creative and collaborative endeavors.
- **‘Enterprise DevOps’** – that extends the principles of speed and agility of software DevOps to the broader surrounding processes (e.g., release planning, change management, operations) within the enterprise.
- A **‘Data-Driven Business’** – whereby data throughout an organization is treated as an asset; organizations use analytics and AI to reveal insights and find new ways to monetize or otherwise extract new value from data.
- **‘Adaptive Cybersecurity’** – in response to increasing threats and regulations that will require new tactics and technologies to automatically and potentially autonomously sense, detect, react, respond to or prevent potential threats.

Measuring Progress: The ADE Index

The Autonomous Digital Enterprise Index is a tool that can be used to measure an organization’s standing and potential as an Autonomous Digital Enterprise. It acts as a benchmark against which enterprises can compare their digital competitiveness. It is measured on a scale of 0-100%. The higher the Index value, the greater the digital competitiveness as an Autonomous Digital Enterprise. For further details on the calculations used, see the [Methodology](#) section.

Key Findings

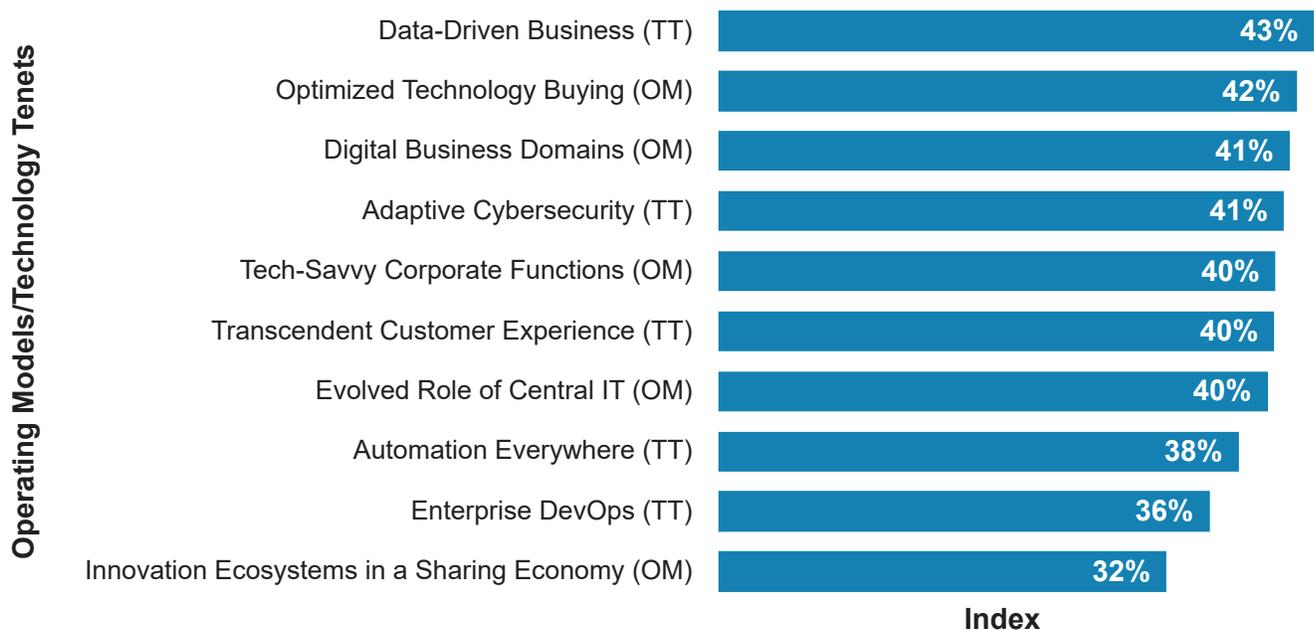
Every Organization is on a Unique Autonomous Digital Enterprise Journey

The first finding from this research is that the current Global ADE Index is calculated to be 39.3%. This means that, on average, the respondents believe that their organizations practice over one-third of what is needed to function as an Autonomous Digital Enterprise.

Figure 1 reveals the relative rank of each of the operating models and technology tenets and the obvious fact that many are in close proximity to one another. Essentially, the proximity means that the respondents believe they are all of value and currently being practiced, but in slightly varying degrees. It also acknowledges that the operating models and technology tenets of an Autonomous Digital Enterprise are useful principles that help define the structure and composition of competitive digital businesses.

Figure 1: Global ADE Index = 39.3% in 2020/21

Source: 451 Research and BMC, Autonomous Digital Enterprise Survey 2020 (n=1,200)



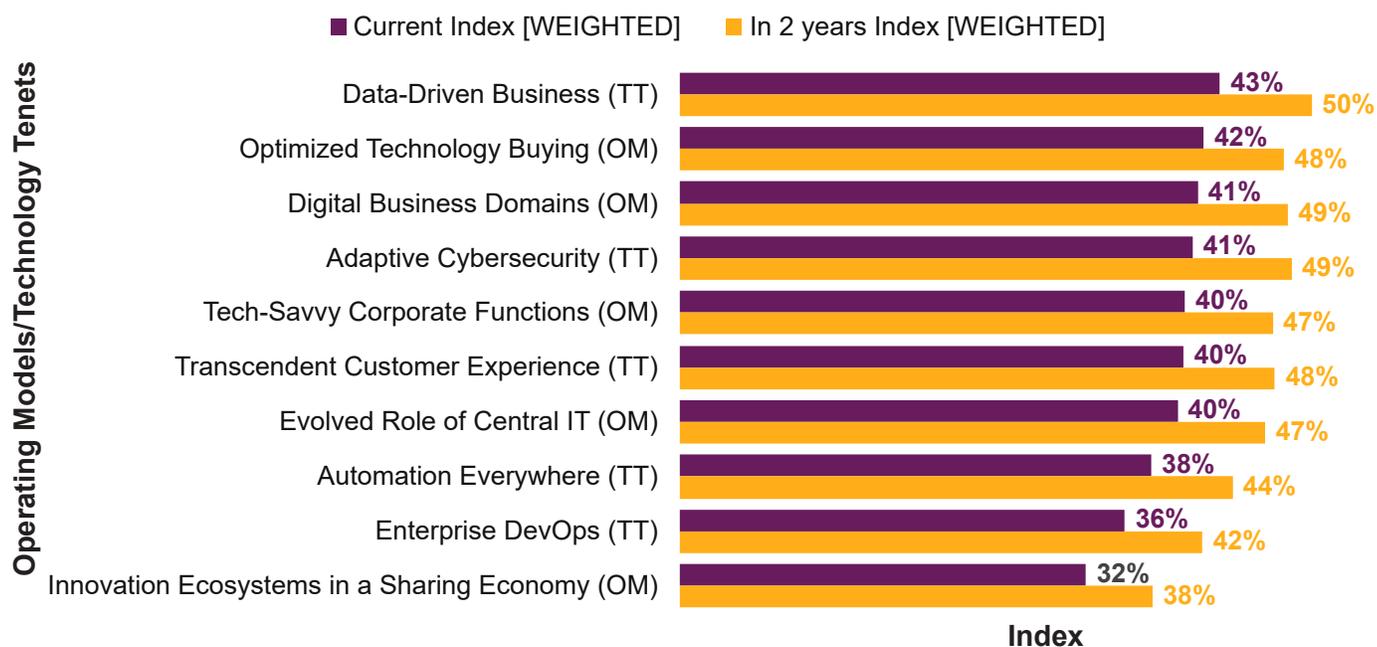
While most are in close proximity, the Index ratings do reveal priorities that can guide management teams as to where to invest scarce budget funds and resources to help improve their digital competitiveness. Figure 1 shows that Data-Driven Business, Optimized Technology Buying and Digital Business Domains are the current top three priorities. Indeed, well-informed decisions, controlled strategic procurement and digital innovation are pragmatic efforts when coping in a period of uncertainty driven by a global pandemic. However, respondents believe that efforts and priorities will change as they consider the future.

Enterprises are Optimistic About Their Future ADE

Looking out two years, the respondents believe their organizations will increase their efforts toward becoming an Autonomous Digital Enterprise. Figure 2 shows a Global ADE Index of 46.1% for 2022/23, representing a net increase of 17.3%.

Figure 2: Global ADE Index = 46.1% in 2022/23

Source: 451 Research and BMC, Autonomous Digital Enterprise Survey 2020 (N = 1,200)



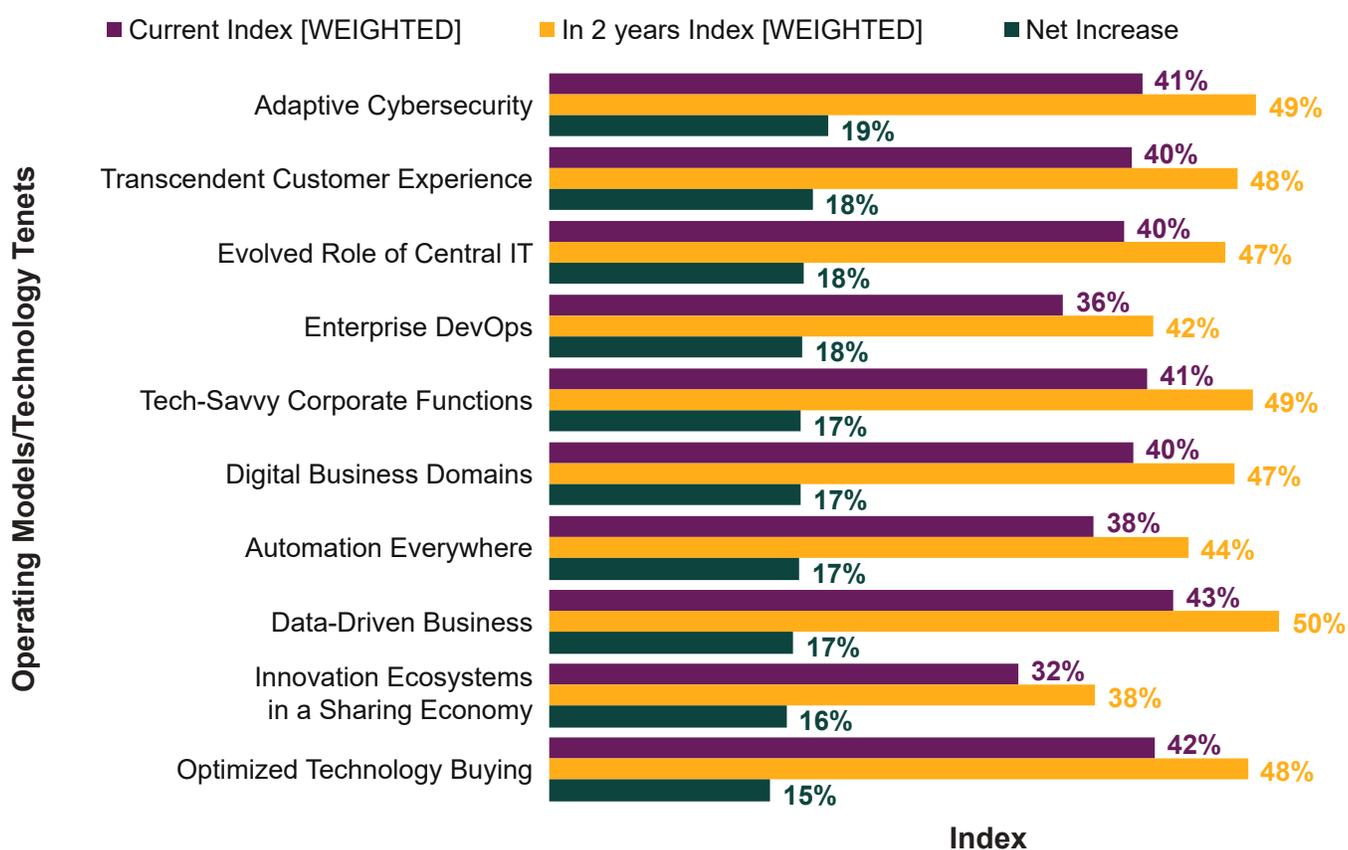
This means that, on average, the respondents believe that in two years, their organizations will be practicing closer to half of what is needed to function as an Autonomous Digital Enterprise. However, priorities among the operating models and technology tenets will shift to adapt to what they believe is likely to be more important in two or three years.

Expectations for Future Mean a Shift in Operating and Technology Priorities

To understand how the value of models and tenets change over two years, we examined the net increase of each as illustrated in Figure 3. Here again, the proximity of each is close. Nevertheless, priorities changed, shifting to more traditional strategic initiatives that were absent amid the uncertainty caused by COVID-19.

Figure 3: Net ADE Index increase by operating model and technology tenet: 2022/23

Source: 451 Research and BMC, Autonomous Digital Enterprise Survey 2020 (n=1,200)



Organizations will refocus on Adaptive Cybersecurity and Transcendent Customer Experience, much as was typical pre-pandemic. The models and tenets related to internal organizational and operational functions (e.g., Role of Central IT, Enterprise DevOps, Tech-Savvy Corporate Functions) follow closely behind, signaling a need to increase efficiencies and understand the human implications of digital business. Indeed, it seems that tech-savvy corporate functions will remain a stable constant over time, signifying a persistent effort will be needed to align human and digital skills as rapidly changing and future technologies become new enablers of digital businesses.

The effort toward Digital Business Domains will begin to wane slightly. We believe this will occur because it was already a top priority in earlier and now maturing digital transformation strategies that created new digital products and services, and thus, such domains are now maturing themselves. For similar reasons, Automation Everywhere, Data-Driven Business and Optimized Technology Buying will become somewhat lower priorities as they become engrained in daily business.

However, we expected Automation Everywhere to rank higher in priority because business process and IT automation, in general, are core elements to many enterprise digital transformation strategies. We believe it ranked relatively low in this survey because it is not considered a separate tenet but rather a capability constituent to a range of enterprise business functions and technologies.

Innovation Ecosystems in a Sharing Economy was consistently ranked as a lower priority. We believe that many organizations still choose to be the masters of their own destiny and, therefore, carefully select and closely control the nature and type of partnerships they create.

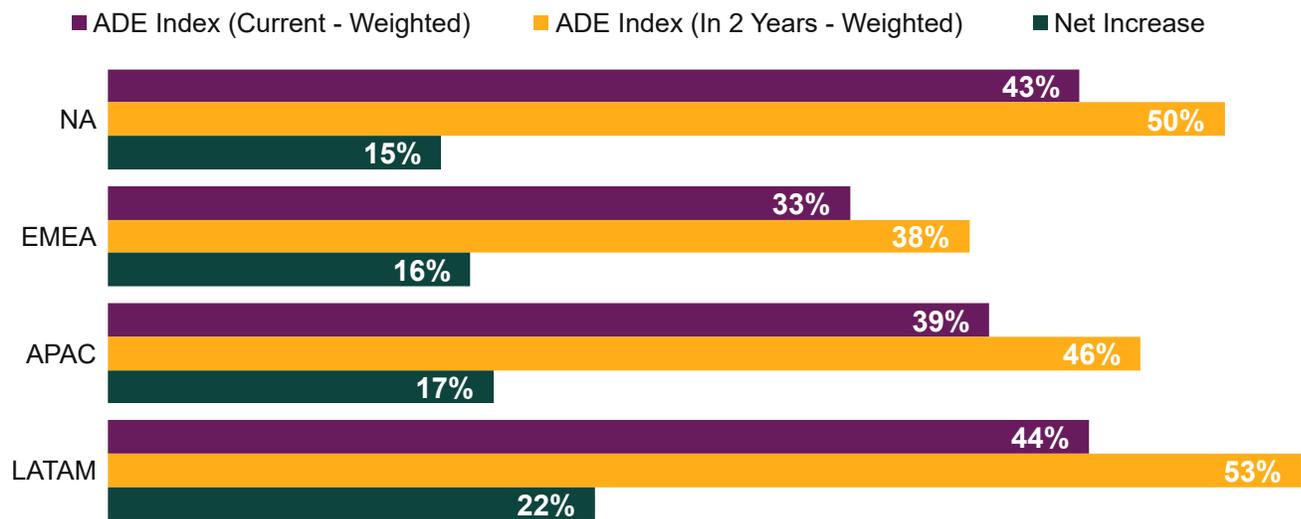
LATAM Breaks Out as ADE Index Leader

Examination of the ADE Indexes by geographic region reveals differences. Organizations in the Americas tout the highest current and two-year future ADE Indexes. Latin America (LATAM) boasts the highest current ADE Index at 43.5% and expects it to increase by 21.6% to the highest two-year future ADE Index of 52.9%.

North America's (NA) current ADE Index of 43.1% is well ahead of Europe, Middle East and Africa (EMEA) and Asia-Pacific (APAC). So, too, is NA's two-year future ADE Index of 49.5% compared to EMEA and APAC's.

Figure 4: ADE Indexes by region: 2020/21, 2022/23 and net increase

Source: 451 Research and BMC, Autonomous Digital Enterprise Survey 2020 (n=1,200)



EMEA's current ADE Index of 32.9% signifies a lesser current effort by organizations to function as Autonomous Digital Enterprises. Its two-year future net increase of 16.1% to bring its ADE Index to 38.2% is ahead of NA's 14.8% net increase, but still leaves EMEA behind all other regions. APAC's current ADE Index of 39.1% is well ahead of EMEA's, and the region seems to show a willingness to put in greater effort with an expected net increase of 17.1%, bringing its two-year future ADE Index to 45.8%.

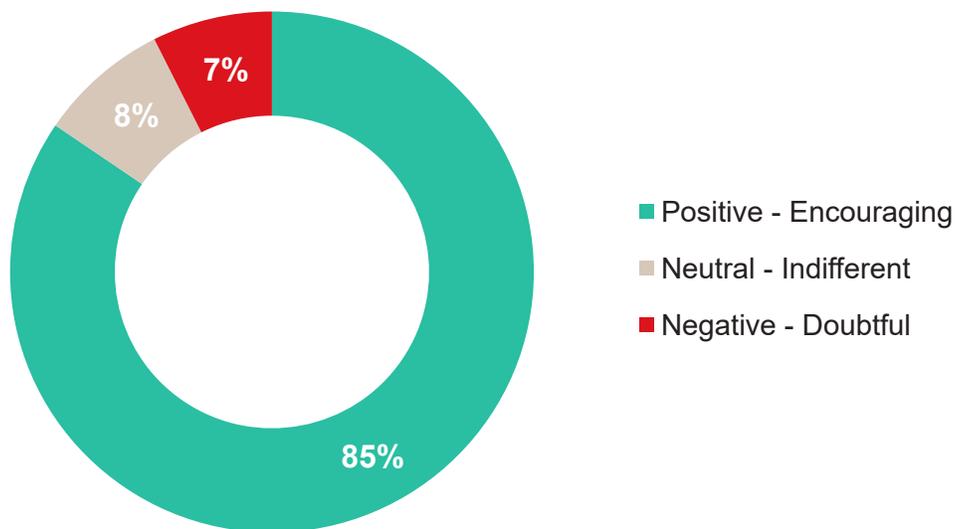
Strong Support for the Concept and Purpose of an Autonomous Digital Enterprise

At the conclusion of the survey we asked, 'How do you feel about the concept of the Autonomous Digital Enterprise, and do you agree with it? Any thoughts?'

Indeed, there are always some detractors, or those who doubt the value and use of new analytic and managerial methods. However, we discovered that there was considerable positive support for the concept and structure of an Autonomous Digital Enterprise. Figure 5 illustrates that 85% of the respondents globally believe it to be a valuable framework within which to craft the business strategy and structure the resources needed to improve digital competitiveness.

Figure 5: Autonomous Digital Enterprise sentiment analysis

Source: 451 Research and BMC, Autonomous Digital Enterprise Survey 2020 (n=904)



Regionally, 93% of 270 LATAM respondents expressed a positive sentiment. In APAC, it was 88% of 290 respondents, in EMEA it was 77% of 198 respondents, and even in the most skeptical of the regions, 72% of the 143 respondents in NA expressed a positive sentiment toward the concept of an Autonomous Digital Enterprise. Perhaps the sentiment analysis partially explains the ADE Index variances across regions.

What follows are statements by those who expressed positive views.

Notable Quotations

“It will be more and more important as our organization evolves over the next several years.”

EXECUTIVE IN LINE OF BUSINESS
Financial Services, NA
5,000+ employees, >\$1bn in revenue

“Currently exploring this concept for use in my company.”

VP IN IT
Manufacturing, NA
1,000-4,999 employees, >\$1bn in revenue

“It creates a better experience and makes everything more agile, and I am all for it.”

DIRECTOR IN IT
Software, IT & Computer Services
EMEA, 5000+ employees, >\$1bn in revenue

“It’s an interesting concept. I think it will be a great way to test the technical strength of the company.”

IT C-LEVEL
Retail Products & Services, APAC
1,000-4,999 employees, \$501m-1bn in revenue

“I agree with this concept as it is necessary to keep evolving the business model to offer better options and values to the customers.”

DIRECTOR IN IT
Telecommunications, LATAM
1,000-4,999 employees, \$501m-1bn in revenue

Conclusions

We have learned from this research that organizations across the globe and in all industries are keenly aware that they need to continuously assess their digital competitiveness, as well as understand how they rate among rivals in the industries and markets they serve. The concept and structure of an Autonomous Digital Enterprise as defined by BMC provides management teams with a planning and decision framework within which organizations can assess their digital business through examination of a handful of core operating models and technology tenets. Doing so reveals an enterprise benchmark that can be compared to a global index to help guide digital business strategy, operational structure and technology investments.

Our goal was to create a benchmark against which organizations can make comparisons about whether, and how, to improve their digital competitiveness. Moreover, we wanted to learn the degree to which a diverse range of business and IT decision-makers and influencers believe in BMC's vision of an Autonomous Digital Enterprise, what their organization's stage of adoption may be, and whether they will practice it in the future. Currently, on average, those surveyed believe their organization's practice to be a little over a third of what is needed to function as an Autonomous Digital Enterprise. In two years, they expect to be practicing nearly half.

During this journey, the priorities and investments made in operating models and technology tenets will frequently adjust in reaction to global events, market dynamics, rivals' actions and customers' expectations. The decisions needed to adjust wisely will require guidance. Based on the findings of this research, we conclude that the respondents to our survey concur and believe that the operational and technological practices that compose an Autonomous Digital Enterprise offer pragmatic means to continuously assess and adapt the digital competitiveness of their enterprises.



From core to cloud to edge, BMC continues to build on a 40-year heritage of shaping digital transformation for organizations around the world. We deliver the software and services innovations that help over 10,000 global customers, including 84% of the Forbes Global 100, thrive in their ongoing evolution to an *Autonomous Digital Enterprise*—a state in which intelligent, integrated, value-creating functions operate with minimal human involvement across every facet of the organization and its ecosystem.

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Methodology

In Q4 2020, BMC commissioned 451 Research to survey 1,200 decision-makers based in the US, China, India, Japan, Australia, France, Germany, Argentina, Mexico, Brazil and the UK about their view on BMC's vision of an Autonomous Digital Enterprise.

All respondents worked for organizations that had at least 500 employees and annual revenue over \$100m dollars. Ultimately, 82% of the sample had more than 1,000 employees, and 45% had more than a \$1bn in revenue.

Respondents were asked to answer a simple multiple-choice test to confirm their expertise. The study was conducted through a multiple-choice web survey.

Within our survey sample, 20 industry categories were represented. The 10 largest industries, in descending order, were Manufacturing; Retail Products and Services; Software, IT and Computer Services; Financial Services; Telecommunications; Healthcare; Government/Public Sector; Business Services; Construction and Environmental Services; and Transportation.

In terms of the individuals surveyed, 26% were managers in a line of business, 20% were managers in IT, 13% were directors in IT, 11% were executives in a line of business, and 30% held higher-level positions that include VP and C-level executives.

ADE Market Research Survey

To ascertain the market perception and state of adoption to BMC's vision of an Autonomous Digital Enterprise, we structured an online survey and gathered responses from 1,200 business and IT decision-makers and influencers, within 20 industries, across 11 countries. The survey was composed of 10 three-part multiple-choice questions. It asked respondents to think about their organization's digital competitiveness by considering the degree to which it may be currently practicing the operating models and technology tenets that compose an Autonomous Digital Enterprise, and how this is likely to change in two years. The multiple-choice response options were:

- **Autonomous** – we have fully engaged and are scaling out across the entire organization.
- **Executing** – we are actively executing in several key business functions.
- **Evaluating** – we are testing our plans and are piloting in at least one business function.
- **Planning** – we are planning what's needed and will act when ready.
- **Considering** – we know it's needed, but have no formal plans or timelines.
- **Status Quo** – we do not have a strategy; the current state remains as is.

We also asked the respondents how important they believed each is to the digital competitiveness of their organization. The response options were:

- **Essential** – it creates unique competitive advantage over rivals.
- **Very Important** – it differentiates us from our rivals.
- **Important** – it's needed for our business.
- **Somewhat Important** – it has some positive effect.
- **Not Important** – it has no effect.

The answers to the survey questions were ranked and weighted to create a global industry measure of the state of adoption to BMC's vision of an Autonomous Digital Enterprise – the ADE Index.

How the index was calculated

Calculating the ADE Index was based on the survey answers given that describe the current and future (two-year) state of adoption for each operating model and technology tenet. Each answer was weighted based on the importance value chosen for each operating model and technology tenet.

The values assigned to each answer are as follows...

- **Autonomous** = 100%
- **Executing** = 80%
- **Evaluating** = 60%
- **Planning** = 40%
- **Considering** = 20%
- **Status Quo** = 0%

The values assigned to the level of importance are as follows...

- **Essential** = 100%
- **Very Important** = 75%
- **Important** = 50%
- **Somewhat Important** = 25%
- **Not Important** = 0%

The ADE Index is calculated by multiplying the answer value by the importance value for each model or tenet and then averaging the results. For example, if the respondent answered 'Executing' (80%) to all of the model and tenet questions and believed all to be 'Very Important' (75%) the average ADE Index = 60%. Of course, the answers and importance values varied by all respondents, but this brief example illustrates the calculation.

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451 Research is a leading information technology research and advisory company focusing on technology innovation and market disruption. More than 100 analysts and consultants provide essential insight to more than 1,000 client organizations globally through a combination of syndicated research and data, advisory and go-to-market services, and live events. Founded in 2000, 451 Research is a part of S&P Global Market Intelligence.

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