IDC PERSPECTIVE

How the Digital-Native Enterprise Is Winning the Future, Now

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EXECUTIVE SNAPSHOT

FIGURE 1

Executive Snapshot: How the Digital-Native Enterprise Is Winning the Future

Digital transformation has progressed to where it is now an existential concern for many enterprises. Growing organizations strive to become "digital native" in the way they think, what they produce, and how they operate. Yet many organizations have difficulty in imagining what the new digital future could be. This IDC Perspective illustrates what a digital native enterprise looks like and can achieve, organized along the dimensions of leadership, omni-experience, information, operating model, and worksource.

Key Takeaways

A digital native enterprise creates and delivers innovation at speed. Customers are at the core of its existence. Employees are its assets. Technology and data are its lifeblood. Ecosystem is its ally. Further:

- **Information and how it is used are core to success.** Cognitive/AI technologies and information drive improved engagement, new products, optimized operations, and enhanced decision making.
- **Consumer engagement and scale are mandatory.** Whether your enterprise touches consumers directly or indirectly, competing increasingly requires connecting value to consumers, their homes, and lifestyle.
- **Ecosystems are as important as core IP.** Maximize leverage through communities – developers, partners, and customers around industry collaborative platforms will determine much of the DX success.

Recommended Actions

- Create new, connected digital products, services, and assets enabled by intelligent, self-aware processes that create new intelligent knowledge offerings.
- Think "data, information, insight" enabled by robust knowledge management and AI/cognitive capabilities supported by data discovery, data management, and data monetization capabilities.
- Focus on hyper-connected, hyper-personalized engagement across your entire ecosystem, facilitated by cognitive systems, value-added autonomous conversation, and enhanced physical/virtual experiences.
- Provision a secure DX platform with robust data management and AI services that will support the new speed, scale, and scope of the digital economy.

Source: IDC, 2017

November 2017, IDC #US43195117

SITUATION OVERVIEW

Digital transformation (DX) has progressed well beyond the abundant hype predicting it to where it is now an existential concern for many enterprises. We are at an inflection point as digital transformation efforts shift from "project" or "initiative" status to strategic business imperatives. Growing enterprises, regardless of age or industry, are striving to become "digital native" in the way their executives and employees think, what they produce, and how they operate. IDC predicts that by 2021, at least 50% of global GDP will be digitized, with growth in every industry driven by digitally enhanced offerings, operations, and relationships, and that by 2020, investors will use platform/ecosystem, data value, and customer engagement metrics as valuation factors for all enterprises.

IDC has reported three important characteristics of the DX economy:

- **Things are moving faster than previously predicted.** This can be seen in adoption of DX, 3rd Platform technologies, expansion of the DX developer community, and deployment of augmented reality/virtual reality (AR/VR) and innovation accelerator technologies. But nowhere is this more evident than in the use of cognitive/AI technologies and information to drive improved engagement, operations, and decision making. Information and how it is used are core for success in the DX economy.
- **Consumer engagement and scale is mandatory.** Whether your enterprise touches consumers directly or indirectly through consumer-facing partners, competing will become more and more difficult without connecting value to consumers, their homes, and their lifestyle (even for traditionally B2B enterprises).
- **Ecosystems are as important as core IP**. Maximizing leverage in all aspects of the enterprise through partner communities — developers; partners, competitors, and customers aggregating around industry collaborative platforms; and the emerging DX channel community — will determine much of the success in the DX economy.

Organizations need to master these (and other) imperatives to become a digital-native enterprise (DNE). Perhaps DNE is a misnomer because we are not only concerned with those enterprises "born digital" but also with those that have successfully transitioned into leaders in the new DX economy and have "digital" ingrained in the most important aspects of their culture and business.

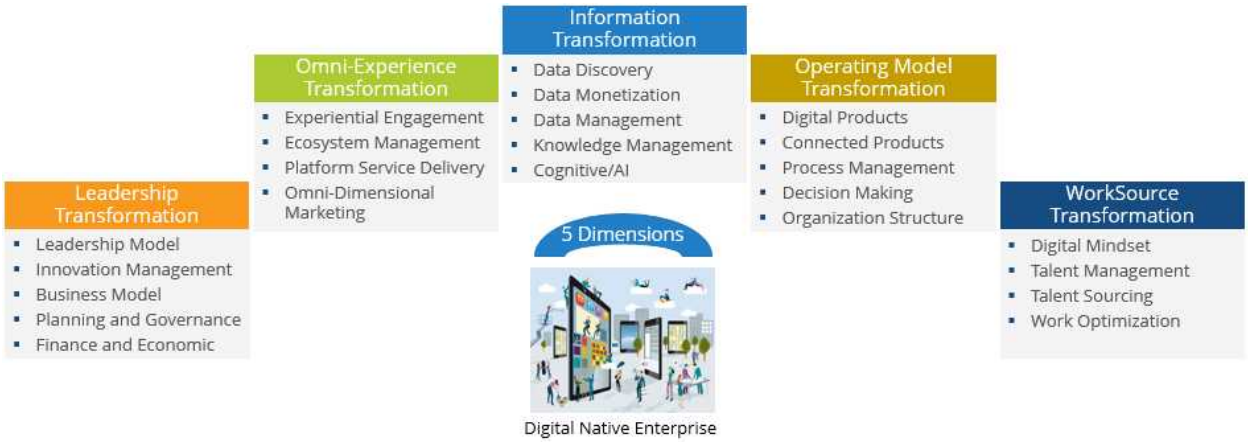
IDC defines a DNE as "an entity that is able to scale its business and innovate at a pace that is an order of magnitude greater than traditional businesses. It is driven by a customer-centric and empowered workforce that embraces risk taking as it seeks to continuously innovate. Technology and data are its lifeblood, fueling more efficient operations, new revenue streams, and customer loyalty." DNEs leverage leadership, engagement, information, business/operating models, and worksource in an "outside in" approach to be a leader in their ecosystem and industry. They continually monitor and adapt to new information, opportunities, and threats while leveraging their ecosystem of stakeholders (customers, partners, employees, and community) to dynamically evolve products, services, and strategies.

This IDC Perspective describes the characteristics of a mature DNE along five critical dimensions of DX as illustrated in Figure 2. Each dimension is described in terms of the capabilities that must be mastered to be a DNE in the corresponding dimension of the IDC MaturityScape for digital transformation (See *IDC MaturityScape: Digital Transformation 1.0,* IDC #254721, March 2015). IDC's 2017 Benchmark Survey shows that only 6% of organizations have currently reached the "optimized"

level of maturity required to be considered a DNE. We hope that this IDC Perspective will inspire and guide some of the other 94% of organizations on their journey in the DX economy.

FIGURE 2

Five Dimensions of DNE Mastery



Source: IDC, 2017

Leadership

Leadership is the ability to sense and make sense of the business around you; to relate this awareness to build trust, consensus, and motivation among internal and external partners; and to deliver innovation in effective and efficient ways to customers. Leadership strategies enable digital transformation. This requires that leaders become more sophisticated in their knowledge of the enterprise ecosystem, including the digital accessibility of markets, customers, and service providers, to grow and prosper by being able to anticipate and develop product and operational innovations that extend market share and increase revenue. It also requires the ability to communicate and embed the vision in the organization and to engage employees, customers, and partners in its execution. IDC predicts that by the end of 2018, at least 40% of organizations will have a digital leadership team (versus a single DX executive lead) to accelerate enterprisewide digital transformation initiatives.

DX Leadership Model

Leadership requires an acute ability to sense a market including the impact of digital trends on business, resources, and operations. Sensing is supported by an ability to relate this understanding, and the strategy it informs, to the people in the business and in the wider ecosystem to create organizational and personal commitment, trust, and motivation. Collectively and individually, employees feel they are working together to the advancement of that mission and strategy. All activities, products, projects, and business units reflect the shared belief in the mission and strategy of their company because that tone is set and communicated by the company's leadership.

Key Attributes

- Ability to sense the internal and external enterprise environment.
- Create a vision of the future.

- Engage with employees and partners to build trust and consensus and change culture and process.
- Innovate, execute, and measure to lead digital transformation.

Innovation Management

Managing innovation is a key element of company success since without innovation there is no agility and continuous reinvention. Constant change is the new normal for DNEs. Change management, initially managed by leadership, has become an everyday activity managed by all employees. As new innovations are tried and accepted, they are continuously integrated into the overall environment of products, services, platform, and technology.

Key Attributes

- Foster an innovation culture.
- Manage change to create innovative products, services, and value.
- Integrate those innovations into the enterprise.
- Incorporate innovation into the fabric of the organization.

Business Model

DNE leadership is purposely disruptive in the use of digital technologies and business models to affect markets. "Future of commerce" business models are the norm (me-commerce, sharing economy, data monetization, community engagement, outcome-based pricing, and risk-reward sharing). Resources and partner relationships are focused on delivering value propositions, first, to customers and to all ecosystem stakeholders. Activities, cost structures, and governance are based on information and undergoing continuous learning and automation. Platform and multisided business models, such as BT's Personal Cloud Management Systems, Transamerica's Health-to-Wealth, P&G's Integrated Work Solution, and GE's Predix, are common among DNEs.

Key Attributes

- Create new "future of commerce" business models
- Based on data and cognitive insight
- Orchestrate services across multiple providers
- Include partnerships and acquisitions

Planning and Governance

Leadership expertise in synthesizing agile planning practices extracts maximum performance from talent, technology, business models, and ecosystems. Planning processes continually optimize a portfolio of DX projects and products, using proactive risk taking and measuring to optimize investment and maximize returns. Agile planning is a de-risking technique that allows the DNE to quickly adjust or pivot in light of internal and external environmental changes that transition from unknown to known through sensing the relating mechanisms. By establishing a clear risk profile, vision and enterprise buy-in, and breaking operations into executable pieces, governance overhead is optimized and delay is reduced. Frontline managers and employees are trusted with microlevel decisions, while leadership addresses macrolevel issues and strategic direction.

Key Attributes

- Envision and execute strategies and digital transformation.

- Continually optimize portfolio of executable-sized project.
- Create and manage agile plans and budgets.
- Optimize enterprise resources.

Financial Leverage

DNEs manage a portfolio of digital investments that include strategic acquisitions and ecosystem relationships. Leveraging ecosystems and partners as a collective worksource rather than fighting to acquire new talent or resources is a base strategy for DNEs. Effective partnerships may then turn into acquisitions and are a common approach for expanding R&D in related areas. An "asset lite" approach leverages partners and ecosystem technologies, business models, and talent for scale. Uber and Airbnb are prime examples of organizations that have perfected an asset lite, transaction-based, brokering business model.

Key Attributes

- Initiate, leverage, and measure partnerships and financial investments.
- Embrace an "asset lite" approach.
- Manage a risk-based portfolio of digital investments.
- Target investments at enhancing transformation and ecosystem growth.

When Satya Nadella took over as CEO at Microsoft, the company lacked a shared mission, with a strategy bifurcated across the consumer and enterprise markets. Business units fought with each other even as some products were clearly at the end of their life cycles, and others, including the Microsoft mobile platform, struggled to differentiate and capture a sustainable position in the market. 3rd Platform competition in cloud, analytics, and mobile markets primarily from Amazon and Google was intensifying. But Nadella declared that making things "people would enjoy using" would be the company's shared mission. Thus individual product revenue, instead of "usage," became a success metric. This led to a renewed focus on cloud and analytics, a vastly improved Windows 10, unification of often disparate seeming groups and a renewed culture of innovation and user centeredness.

Successful DNEs have established a framework that articulates a vision of the shared mission and purpose and how the mission is executed. Like Nadella, and others with similar leadership capabilities, DNE leaders develop their own sense of external and internal forces and engage with constituents from across the company's ecosystem: first and foremost employees, but also customers, partners, board members, and competitors.

Omni-Experience

Omni-experience describes an omnipresent and multidimensional ecosystem approach to continually amplify experiential excellence for products and (or) services. Omni-experience includes the infinite combination of interactive experiences between digitally enabled businesses and their customers, partners, employees, and things that are transforming the way people communicate with each other and with the business products and services that are increasingly created to meet unique and individualized demand. IDC predicts that by 2020, human-digital (HD) interfaces will diversify as 25% of field-service techs and over 25% of infoworkers use augmented reality, nearly 50% of new mobile apps use voice as a primary interface, and 50% of consumer-facing G2000s use biometric sensors to personalize experiences.

Experiential Engagement

- DNEs have a hyper-personalized, hyper-connecting, immersed, and holistic approach to relating to everyone in the ecosystem, starting with single holistic, integrated, and comprehensive views of customer, vendor, supplier, and partner. For example, in the retail sector, DNEs employ new technologies throughout the customer journey to enhance experience and utilization/conversion or AI for hyper-personalized and contextualized (IoT enabled) customer experience that improves visit and purchase frequency and profitability. Insight into customer's behaviors and preferences allows companies to tailor experiences that are smarter and more responsive. Decision processes that impact the customer journey from inspiration, discovery, selection, fulfilment, and service are automated and/or deliver actionable information that conspires to engage the consumer better.
- DNEs engage with stakeholders in the right way at the right time … anytime, anywhere, including voice, chat/chatbots, mobile, phone, onsite, social media, and email/SMS marketing. They focus on the whole relationship, not just one channel or tier. At the same time, DNEs are careful to respect consumer privacy expectations and regulations. This enhances the customer experience with digital interactions, leveraging consumer mobility and business-owned digital screens of all shapes and sizes, supported by a network that processes, mines, and analyzes a broad spectrum of real-time and near-real-time data throughout the customer journey.
- Amazon is a great retail example of omni-channel experience. The company has done a good job of bringing everything together – search, hyper-personalization of recommendations, reviews, order management, wish lists, omni-channel cart, and payments. A customer can go into an Amazon store in the United States, scan a barcode, put the item into either their digital cart or their physical cart, and use their phone to pay. Amazon's added value is in the completely integrated omni-experience that reduces overall costs while increasing customer satisfaction resulting in increased conversion rates, higher frequency return visits, and larger basket size.

Key Attributes

- Engagement to disrupt market and personal behaviors
- New technologies for hyper-personalized experience
- Holistic, comprehensive view of ecosystem
- Delivering game-changing journey across products and services

Ecosystem Management

DNEs have backed their superior engagement with overall ecosystem management. They have established capabilities that are marketplace like, such as multitiered relationships and self-service/auto provisioning. The partner's experience of working with DNEs is seamless as they have automated transactions through the supply chain and partners. Real-time visibility to product inventory, enabled by IoT and collaborative supplier relationships, improves omni-channel order orchestration and fulfillment service levels and return on inventory investment. Through intelligent communication and scheduling, bottlenecks in distribution and supply are alleviated before they happen through predictive analytics. DNEs ensure a safe and secure supply chain that can track items, lots, and shipments from raw goods all way to the consumer through connected intelligent systems that store and collaboratively share chain of custody information. At the same time, digital access to a broader network of suppliers enables more competitive bidding processes and more efficient sourcing decision making.

DNEs are able to better satisfy customers by deeper partner relationships and encouraging community. They achieve higher product success ratios by enabling consumers, designers, and suppliers to communicate and collaborate proactively on product ideas to better serve target audiences.

Key Attributes

- Continuously expanding, symbiotic, value-added ecosystem network of consumers, providers, and partners
- Seamless, automated partner experience
- Self-service community and marketplace adds value to all participants
- Intelligent fulfillment

Platform Service Delivery

DNEs rely on a platform of digital services to enable their omni-experience capabilities, typically cloud based and managed by a service provider. The platform is architecturally at the center of all the capabilities that enable the omni-experience, ecosystem marketplace. The platforms equip knowledge workers with AI-assembled or easily assembled information and analytics tools to handle problem-solving tasks in operations, merchandising, marketing, supply chain, and human resources.

DNE platforms often support next-generation payments that enable the customer to pay anyone, from anywhere, anytime, seamlessly, securely, and privately, removing any barrier to safe and secure payments – perhaps by leveraging biometrics and multifactor identification as the primary digital mechanism to pay for goods. Next-generation security and cybersecurity are continually evolved to leverage the most current technologies, protecting the enterprise, the ecosystem, customers, and their personally identifiable information (PIN).

DNE platforms take advantage of their networks and information to enable real-time, context-aware analytics and curated network data to anticipate and balance operations. They apply internal and external risk assessment analysis to supply chain decision processes to optimize product availability and sell through. For example, predictive network inventory optimizes the level and location of inventory and inventory depots and the autonomic operation of pick, pack, and ship processes enabled with the aid of various sensors, robotics, and machine-handling equipment.

Key Attributes

- Manage business and technology capabilities as an integrated platform of services
- Real-time, context-aware, curated networks
- Next-generation payments, security, and so forth
- Autonomously adapt and improve experiences that reverberate across all the elements of the ecosystem

Omni-Dimensional Marketing

DNEs consider marketing a two-way street with stakeholders. Brands market themselves through digital and physical messaging and allow stakeholders to share pictures, video, and thoughts for feedback. Messaging is personalized and contextualized. This allows DNEs to align dialogues to the roles, behaviors, and location of the person who needs, buys, and uses products in the context of the person's current world.

DNEs amplify traditional broadcast marketing and advertising through social influence channels reaching precisely defined target audiences to improve return on total marketing investment. They have a single content management system serving all communication channels with consistently applied well-defined content tags to ensure that portfolio meets the needs of merchandising and marketing. Unified management of marketing and sales improves return on demand generation and balances marketing objectives to increase customer lifetime value and merchandising objectives to increase sales and return on inventory investment.

Key Attributes

- Personalized and contextualized messaging
- Use of digital connections, influences, impressions, and triggers to amplify experience
- Optimized two-way messaging across the ecosystem
- Integrated content management across all channels

The retailer Nordstrom has always been customer focused, but it also identified the need to be digitally connected with customers. The company also thought outside the box, expanding its operating model and acquiring companies that were born digital. Recently, Nordstrom announced the opening of a small store that doesn't stock inventory. Instead, customers go to the store and work with a sales associate empowered with mobile and predictive tools that enable the associate to engage the consumer with a 360-degree view of the relationship. Items can be placed into the shopping cart in the store and then shipped to the customer's home or anywhere else the customer desires. Nordstrom utilized a multifaceted approach to personalized and contextualized marketing, including social presence, word of mouth, and improved brand image. It is currently testing AR and digital fitting rooms. As a result, Nordstrom has publicly reported increases in basket size and profitability. Nordstrom has remained a leader in omni-experience because of its keen awareness and pursuit of ways to engage and excite their customers, making every aspect of the customer journey as seamless as possible.

Information

Information DX is the focused approach to extracting and developing the value and utility of information relative to customers, markets, transactions, services, products, physical assets, and business experiences. DNEs treat data and information as they would any valued asset. Information is not only used to make better decisions and optimize operations and products but also monetized in the form of products and services. Information forms the currency of a dynamic experience chain between the enterprise and its ecosystem that leverages information for competitive advantage by enabling the business to respond to opportunities in less time with better intelligence. The ability to acquire and apply knowledge is hidden in limitless data that can be unlocked, processed, and eventually embedded in products, services, or systems. DNE's comprehensive enterprise intelligence vision leads to a focus on comprehensive awareness, augmentation of the human decision maker, and automation of machine decision making. IDC predicts that by 2019, 40% of digital transformation initiatives will use AI services. By 2021, 75% of commercial enterprise apps will use AI, over 90% of consumers will interact with customer support bots, and over 50% of new industrial robots will leverage AI.

Data Discovery

Data discovery is the ability to collect and prepare digital data and make it available as a service for further extraction of value and insights. DNEs gain a comprehensive awareness on every opportunity, and they collect data systematically and efficiently. They have acquired the competencies and tools to

industrialize the process and enable reuse. They have established operations for the provisioning, metatagging, assessing, and visualizing of data. They also offer state-of-the-art tools and infrastructure delivered as a service, shared enterprisewide, with partners, and with customers, addressing both data scientists and business analysts.

Key Attributes

- Collect data systematically and efficiently
- Industrial process enabling reuse
- Operation for the provisioning, metatagging, assessing, and visualizing data
- Data discovery as a service with state-of-the-art tools and infrastructure

Data Monetization

DNEs understand that information represents the highest value differentiator, and they focus on business model innovation and adding digital value to their entire offerings, creating a difficult to imitate competitive advantage. They have the capability to identify and operate pricing and revenue models for information, digital products, and digitally enhanced products. These enterprises embed intelligence in products and services and gain market intelligence to spot market opportunities for new innovative products. Their decision making is based on timely information, analytics, processes, and expertise. The best DNEs also worry about cost optimization and process and resource efficiency.

Key Attributes

- Add digital value to their entire offerings
- Pricing and revenue model for digital products and services
- Embed intelligence systematically
- Real-time decision making

Data Management

DNEs think about data as symbiotic with their business, organization, and culture. Information architecture underpins digital business transformation, supporting the full range of velocity, variety, and volume with dynamic capabilities. For DNEs, data management enables data to be at the core of the enterprise business platform, collecting data from different sources, making data consistently available across the enterprise, in the right format, in the right place, and at the right time to drive decision making, actions, and experience. They are particularly efficient at collecting and integrating both internal and external data. DNEs apply data quality management and master data management across their ecosystem. Their information architecture aligns with their desired decision architecture and is designed both for people and things, including IoT. They have a deep understanding of their data including their definition, meaning, provenance, lineage, and relationships. They built security and privacy from the ground up which they leverage for compliance and trust as a competitive advantage. Most DNEs have already experimented with blockchain.

Key Attributes

- Data systematically available across the enterprise and at the core of the enterprise business platform
- Data quality management and master data management across their ecosystem
- Architected approach to data and information covering both people and IoT
- Security and privacy from the ground up

Knowledge Management

DNEs have removed barriers and boundaries to accelerate the flow, development, and sharing of knowledge. They have built a comprehensive virtualization of devices, apps, and data, thus enabling a full seamless work experience with continuous synchronization, whether tethered or offline. Information governance is incorporated in all aspects of the business processes at the speed of business change. The best DNEs also worry about the dramatic increase of disinformation, propaganda, and manipulation that can hurt them. Competitors can take advantage of these techniques and reputations can be destroyed. When managing knowledge, DNEs ensure each source's authenticity and authority. They provide verification, feedback, and review mechanisms and assign certifications levels.

Key Attributes

- Full seamless virtual work experience while sometimes untethered
- Incorporated information governance
- Knowledge and information facts checking, authentication, and certification
- Persuasion intelligence

Cognitive and AI

The best DNEs manage a portfolio of cognitive solutions with varying horizons. In the short term, DNEs focus on use cases with established business value then scale up and scope up the successful solutions. In the medium term, they explore the most promising emergent technologies that have already demonstrated market success. In the long term, they partner with diverse innovators including start-ups, academia, crowds, or institutions. DNEs know that for machine learning to be effective not only machines need to learn. Machine learning also requires organizational learning, executive learning, and individual learning. As part of developing cognitive systems, DNEs also worry about decency, ethics, judgment biases, and explaining predictions or recommendations.

Key Attributes

- Portfolio approach to cognitive solutions
- Machine learning, organization learning, executive learning, individual learning
- Prediction, prescription, persuasion
- Cognitive systems governance including ethics, security, safeguards, and accountability

Lockton, one of the largest property and casualty insurers in Houston, was tested with Hurricane Harvey. Leveraging the Eigen Prism technology platform from EigenRisk, Lockton could warn clients in real time of the risk they were facing from the constantly readjusted predicted path of the storm, and as actual damage data was coming in, they could assess losses. This is particularly valuable for global organizations with multiple properties in different locations. The same system could be used by companies anywhere in the world which depend on output from industries in areas of high adverse weather risk and would benefit from earlier warning of plant shutdowns resulting in critical shortage in equipment, components, additives, or specialty products. For Lockton, this system has changed everything relative to property risk, has exponentially reduced manual work, and added valuable benefit to clients.

Operating Model

Operating model transformation describes the ability to make business operations more responsive and effective by leveraging digitally connected products/services, assets, people, and trading partners.

DNEs master the life cycle of new products and services by integrating the business' external digital connections to its markets and suppliers with the internal digital processes and projects that are directly impacted by customer requirements and ecosystem opportunities. The operating model defines "how" work gets done by describing the key assets, activities and processes needed to deliver products and services, and the decision making and organizational structure required to keep them optimal and in sync with the ecosystem. IDC predicts that by the end of 2021, 25% of global manufacturers will apply machine learning to data across product development, supply chain, manufacturing, and service for more rapid decision support, improved quality, differentiated products, and innovative business models.

Digital Products

The development of digital products is the most significant change to the operating model of a DNE. Applying digital technology to products and customer-facing services provides the opportunity to take product and service processes into the realm of knowledge offerings. DNEs innovate not only around the core product, but they also innovate by providing knowledge solutions to their customers and partners. Capabilities such as benchmarking (providing start-up and continuous information on benchmarked performance of the asset or service) and real-time virtual experts (cognitive and AI capabilities to provide solicited and unsolicited real-time advice to customers) are common features of DNE products and services. DNE products are often sold with pricing based on actual usage where the product provides self-billing and manages all transactions, including blockchain support.

To ensure the development of leading digital products, the DNE has focused innovation on extending core products into the digital domain through complete life-cycle management, Agile product management and development, ecosystem-based product delivery, and digital revenue management.

Key Attributes

- Innovation focused on extending core products into the digital domain
- New digital capabilities, such as benchmarking and intelligent assistants
- Information-based services provide new revenue streams
- Usage-based pricing

Connected Products/Services/Assets

DNE products and services have been developed with the assumption that the product, service, or asset itself is connected to the DNE and its channels. This improves the speed and quality of communications, as well as freeing the DNE from cumbersome and expensive additional channels that were previously needed to enable communications, service, and delivery of non-connected products. DNE connected products, services, and assets automatically and continually provide information such as health status, performance, benchmarking, predictive expert advice, billing and transaction support, and inventory management.

The DNE operational model has been organized around effective data capture – the rapid and continuous flow of information directly from and to products. This information flow, combined with AI and machine learning, is used to continually enhance and improve products, better understand customers and their usage, monitor assets, manage demand, improve product performance, and innovate new products and services.

Key Attributes

- Products, services, processes, and assets are real time and always connected

- Continuous sensing, analysis, prediction and action provide exceptional service and competitive differentiation
- Cognitive capabilities enhance product life cycle
- Effective data capture and information flow from and to products

Process Management

DNEs have evolved process management into a continuous process of managing improvement and change through cognitive intervention. DNEs ingest both structured and unstructured information from connected products, customers, channels, and internal operations to feed cognitive models that determine what changes can be made immediately to a business process and what changes must be researched in more detail. For example, comprehensive and real-time demand and consumption data allows companies to improve both the forecast and the linkage to inventory and capacity. Digital twins allow for implementation and testing of logistics automation, strategic asset management, smart plants, intelligent customizations, and product line engineering.

Using cognitive intervention, DNEs have removed managers and operators from tedious continuous improvement tasks, allowing only the most important and impactful changes to the operating process to be passed on for detailed reviews. DNE cognitive models continuously learn and self-adjust to provide a continuous improvement loop to the change management process itself. Lean process design combined with intelligent automation and process self-healing allow DNE companies to free the continuous improvement process from human intervention. This freedom significantly improves error proofing and the speed of process change.

Key Attributes

- Continuous process of managing improvement and change through cognitive intervention
- Digitalized process integration standardizes business operations
- Instant analysis enables real-time autonomic business response
- Self-aware internal and external processes maximize efficiency and effectiveness

Decision Making

One of the biggest impacts on the operating model of a DNE is the use of AI and cognitive capabilities to enhance decision making. AI and cognitive models can do the majority of the work prior to presenting a manager with a possible decision. In most cases, the AI system has already made the decision, awaiting validation, though some critical decisions are left for managers. In these cases, DNEs governance rules provide for a decision portfolio prebuilt with all the necessary information for a decision to be made.

For example, real-time awareness of specific supply positions and aggregate vulnerabilities lead to better decisions that improve performance, lower transportation costs, and better on-time delivery. Continuous assessment of inventory position relative to demand, production capacities, and supply reduces inventory levels and lowers management costs.

Using these approaches and advanced simulations, DNEs have improved extended planning and decisions around life-cycle management, specification, resource allocation, risk management, and plan optimization, to name just a few.

Key Attributes

- Decision making is integrated, creating closed loop control

- Cognitive analytics and advanced simulations are used to suggest decisions
- Governance rules dictate human intervention
- Improved resource management, risks mitigation, and plan optimization

Organizational Structure

The DNE organization has transformed to support an infrastructure that is continuously ingesting, analyzing, and deciding. All organizations, including operations, lines of business, and administration, take advantage of automated processes, information, and analytics to improve efficiency and effectiveness. DNEs have successfully addressed key organizational challenges of governance and model evaluation. Governance is focused on dynamically deciding how much leeway is given to AI systems to make decisions and how much manual intervention is needed. Governance itself is subject to continuous improvement. As the organization and the cognitive systems have learned and gained more experience, the governance model has been continuously improved and adjusted.

Key Attributes

- Organization is structured to maintain operations and affect digital transformation
- Supports information-based products, services, operations, decisions
- Automated processes improve efficiency and effectiveness
- May have an independent digital group to support new operating models

A large midwest investor-owned utility (IOU) has significantly improved its outage management system (OMS) by evolving its operating model. Historically, an OMS is used with geospatial information to localize outages, determine causes, and dispatch work crews. It has been done through combinations of call center monitoring, meter data collection, gut feel, and grid management systems. This IOU implemented advanced metering infrastructure, geospatial analytics, and grid analytics to significantly increase the speed at which control room operators can pinpoint outage causes and the respective crews best positioned to respond. But even with that new capability, the time between the grid first showing signs of stress and when a crew could be rolled out was measured in hours. A detailed review of human reactions to the rapid influx of information determined that human hesitancy and inability to rapidly process information was the leading cause of long response times.

In response to the internal study, the utility developed cognitive models and AI routines that assisted humans in the control room with decision making. In some cases, the humans were removed completely from the loop. The utility spent several months on a study that compared human response time and accuracy with AI capabilities. On start-up, the AI was at least 100 times faster but only 50% accurate on cause and 60% accurate on selecting the responding crew. But within three months, the AI went to 96% accurate on cause and 90% accurate on crew selection. Within six months, the AI was not only more accurate on cause and crew selection, it also opened up the ability to prioritize crews on much broader parameters than a human decision maker could have done.

The project proved transformational not only in the technology and how it was applied but also in the operation and maintenance of the new process. New talent and partners were needed. Specifically, current human resources and new hires had to be trained and screened for working with large data sets and analytical model support. Also, new processes had to be developed to assist the AI in learning from both its mistakes and its human partners. For the future, staff with machine learning and cognitive training will be needed to roll out the project beyond its existing limited parameters. But the project has been a lynchpin for laying the foundation for digital transformation in the operational area of utilities.

Worksource

Worksource covers the way that a business achieves its objectives through talent sourcing, deployment, and integration, including internal (full-time and part-time employees) and external (contract, freelance, partner) resources. Worksource transformation is realized by adopting strategies that leverage digital interactions and collaboration, connections, relationships, and tools, augmented by machine intelligence and other emerging innovations. Worksource transformation optimizes the productivity and flexibility of the internal and external contributors to organizational value, identifies the right resources to achieve business objectives, distributes leadership and accountabilities, drives business outcomes by creating a modular, agile structure, facilitates relationships, and maximizes productivity. For example, IDC predicts that by 2020, 25% of utilities will have moved from traditional talent sourcing strategies to virtual, borderless, and task-oriented approaches, integrating online communities and platforms to acquire skills and temporary staff.

Digital Mindset

DNEs have focused on rapid iterations and allow teams to self-organize to achieve internal and external objectives. DNEs tend to innovate frequently and rapidly to create significant market opportunities by exploiting digital resources, tools, and processes. DNE teams are empowered and encouraged to distribute the important components of leadership and self-organize across groups to achieve business objectives. The DNE leverages learning from initial failures to inform future success.

Key Attributes

- Rapid and frequent innovation creates significant market opportunities
- Teams aggressively self-organize across groups/units
- Rapid failure informs success
- Innovation is recognized and celebrated; new approaches identified, elevated, and disseminated

Talent Management

DNEs view appropriately skilled, empowered, motivated, rewarded talent as a competitive advantage. DNEs effectively manage and engage their workforce to achieve its business objectives by recognizing that the customer experience hinges on exceptional employee experience. DNEs have seamlessly integrated processes and supporting digital technologies that allow for visibility into workforce demands, supplies, and effectiveness and can monitor productive workforce mobility. Visibility empowers DNE managers to continuously sense work demands and supply needs and immediately course correct in staffing, recognition, and collaboration to best achieve business objectives.

Key Attributes

- Talent as competitive advantage
- Retain, reward, develop, replace, and coordinate the right talent in the right position at the right time
- Talent management process uses new technologies and continuous feedback and collaboration
- Talent management and HR systems fully integrated

Talent Sourcing

Digital-native enterprises acquire and deploy talent resources wherever needed without geographic or location limitations. Talent acquisition leverages a full range of employee/employer relationships. Top talent is engaged through traditional employment, contingent, contract, or freelance arrangements. DNEs source talent globally leveraging social, consultative, and alumni networks. They maintain strong relationships with college/university systems to keep a healthy inflow of new talent.

Key Attributes

- Acquire and deploy talent resources wherever needed without geographic or location limitations
- Talent tapped through all modalities: employment, contingent, contract, or freelance
- Globally sourced through social, consultative, alumni networks, college/university feeder systems and internally
- Integrated recruiting, internal talent, staffing vendor management, and social sourcing systems

Work Optimization

DNEs effectively leverage collaborative technologies, including conferencing, file sync and share, and messaging applications across internal and external devices to support effective work. DNEs have established widely leveraged social networks to support communication, engagement, and locating subject matter experts efficiently. DNEs continuously evaluate, prioritize, and improve work processes to adjust to changing business requirements using success metrics and performance indicators.

Key Attributes

- Optimize, facilitate, and automate workflows, processes, and collaboration
- Communication deeply integrated into business processes including social platforms
- Unified collaboration experience supports all devices/modalities
- Integrated enterprise social and expert networks

PwC is a skill-driven enterprise, consisting of a global network of member firms employing more than 223,000 people in 742 locations in 157 countries with 2016 revenue over $35 billion.

PwC has aggressively expanded its workforce through talent acquisition and optimization with strategy, digital customer engagement and experience, data and analytics, digital business operations, and 3rd Platform technology skills. Through the integration of business, experience, and technology skills, PwC as an enterprise has designed a new way of working (called BXT) and established a series of a skill integration and co-creation platforms for its clients. Collectively referred to as PwC "Experience Centers," these facilities demonstrate an important worksource trend in digital consulting: the ability to acquire and deploy skill sets from multiple knowledge domains to more rapidly identify opportunities, design new processes, and iterate together with clients to quickly produce observable benefits and value. The approach extends Agile development beyond software and into business process design using the principles of distributed leadership, adaptive planning, evolutionary development heavily influenced by design and usability analysis, early delivery, and continuous improvement. In PwC's Experience Center environment, the company strives to make it difficult to distinguish consultant skills from client skills, some of which are augmented by freelance experts, when working together as a collective worksource "DNE platform" for change and innovation.

ADVICE FOR TECHNOLOGY LEADERS

Figure 3 provides essential guidance for technology leaders.

FIGURE 3

Essential Guidance

Role(s)	Actions	Outcomes
CEO, DX Leadership Team	**Leadership:** Establish a vision for leadership in the DX economy. Have foresight for 30 days and 30 years. Adopt transformative leadership.	Business models shape industries and marketplaces. Customers, employees, and ecosystems are critical assets. Strategic excellence and operational discipline coexist in harmony.
CDO, CMO, CIO	**Omni-experience:** Focus on engagement across your entire ecosystem, facilitated by cognitive systems and enhanced experiences.	There are improved customer satisfaction, loyalty, and spend; seamless, automated partner experience; and added value network.
CIO, Business Leaders	**Information:** Think "data, information, insight" enabled by robust knowledge and cognitive capabilities supported by data discovery and management.	There are more meaningful engagement across the ecosystem, autonomic processes, optimized operations, reduced costs, and improved revenue.
CEO, COO, CIO	**Operating model:** Create new, connected digital products, services, and assets supported by intelligent, self-aware processes.	There are more effective business operations and fact-based decisions. Product and services extend to additional knowledge offerings.
CEO, CIO, CXO	**WorkSource:** Foster a digital mindset within the organization to attract and retain talent across multiple sources. Optimize work and collaboration.	Talent is a competitive advantage, and there are self-organizing innovative teams, the right skills for the right task at the right time, and employer of choice.
CIO	**Platform:** Provision a next-gen digital business platform with robust data management and AI/cognitive services.	Modular services enable scale, scope, and speed of transformation initiatives and digital products and services.

Source: IDC, 2017

LEARN MORE

Related Research

- *The DX Platform: Rearchitecting for Scale* (IDC #EMEA43147617, October 2017)
- *IDC FutureScape: Worldwide Digital Transformation 2018 Predictions* (IDC #US43154617, October 2017)
- *IDC FutureScape: Worldwide IT Industry 2018 Predictions* (IDC #US43171317, October 2017)

- *IDC FutureScape: Worldwide CIO Agenda 2018 Predictions* (IDC #US41789117, October 2017)
- *IDC FutureScape: Worldwide Manufacturing Product and Service Innovation 2018 Predictions* (IDC #US43153217, October 2017)
- *IDC FutureScape: Worldwide Utilities 2018 Predictions* (IDC #EMEA41791517, October 2017)
- *Measuring Digital Transformation Performance: Introducing the IDC Digital Native Enterprise Scorecard* (IDC #AP43037517, September 2017)
- *A Framework for Service Company Success in a Post-Digital Era* (IDC #US42908817, July 2017)
- *IDC MaturityScape: Digital Transformation 1.0* (IDC #254721, March 2015)

Synopsis

This IDC Perspective illustrates what a digital-native enterprise looks like and can achieve when it has "digital" ingrained in the most important aspects of its culture and business. Digital transformation has progressed to where it is now an existential concern for many enterprises. Growing organizations strive to become "digital native" in the way they think, what they produce, and how they operate. Yet many organizations have difficulty in imagining what the new digital future could be.

"The digital-native enterprise is able to scale its business and innovate at a pace that is an order of magnitude greater than traditional businesses. Technology and data, built on an advanced digital business platform, fuel more efficient operations, new revenue streams, and customer loyalty," says Mike Rosen, research vice president at IDC. "DNEs exemplify three core principles: Information and how it is used are key to success. Consumer engagement and scale is mandatory. And, ecosystems and platforms are as important as core IP."

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world"s leading technology media, research, and events company.

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