IT

2020 Research Agenda

Maxine Holt
Research Director

> To support the ongoing digitization of both customer-facing and back-office processes, enterprises and their vendor partners must develop and deliver a coherent portfolio of business-aligned IT services. These provide the foundation for intelligent applications, data-driven insights, and digital innovation, while maintaining the highest levels of security and reliability.

2020 research themes

CUSTOMER ENGAGEMENT

- Creating the connected and adaptive enterprise to deliver differentiated customer experience
- Using AI and machine learning to transform customer data from static to intelligent and actionable
- Enabling the next-generation augmented and highly differentiated customer experience
- Understanding the role of the customer engagement platform

DATA AND ENTERPRISE INTELLIGENCE

- Modern databases for the digitally transformed
- Managing the data lifecycle
- Evolving use of Robotic Process Automation higher up the "food chain"
- Evolving toward the citizen data scientist

CYSBERSECURITY ACCELERATOR

- Examining xDR: Integrated, coordinated detection and response architecture covering endpoints, networks, and cloud infrastructure
- DevSecOps: Embedding security into the discipline of DevOps
- Risk-driven security: Prioritizing defenses where needed most
- Next-generation application security: Capabilities combined
- Enabling security and governance for cloud-native capabilities

INFRASTRUCTURE SOLUTIONS

- Defining a cloud strategy
- Adopting cloud-native sustainably
- Evolving use of Robotic Process Automation higher up the "food chain"
- DevSecOps: Embedding security into the discipline of DevOps

ENTERPRISE ICT MANAGEMENT

- Revenue generation and cost reduction within Enterprise ICT
- Practical approaches to 4th Industrial Revolution and Industry 4.0

Customer Engagement

The Market Challenge

Customer experience has become a key competitive battleground for today's organizations; however, as customer expectations continue to rise, there is a growing gap between what customers want and what enterprises are able to deliver. To close this gap and compete successfully in the Experience Economy enterprises must orient their value creation and delivery systems and processes around the customer. This requires a holistic perspective allied to a connected ecosystem of data, analytics, machine learning, collaborative support, targeted content, and collaborative workplace tools.

To navigate, survive, and thrive in this increasingly complex landscape, enterprises must transform into intelligent, highly adaptive, and purposeful organizations with the integrated capabilities to deliver positive experiences throughout every customer journey, irrespective of channel or department touched. Today, it is a real-time intelligent platform play, not a siloed collection of line-of-business applications.

Maxine Holt
Research Director

How Ovum helps you

Learn best practices in data integration and knowledge management to optimize customer-facing employee interactions.

Find out how effective customer journey management can drive brand differentiation in the marketplace.

Understand the critical role of customer engagement platforms versus siloed CRM applications.

Organize priorities and processes to enable a connected ecosystem of data, analytics, and machine learning and automation tools.

Evaluate the tools enterprises use to implement AI-driven predictive and proactive processes into the CX environment.

What's new for 2020?

Personalization – report on the role of ethics in the evolution of customer personalization.

Conversational AI – research covering growing demand for conversational AI and an analysis of future market development.

Sales – report on the rise of sales force engagement versus sales force automation.

Key Deliverables

Evaluation reports – updates on how platforms such as customer journey management, customer data platforms, and customer engagement platforms, are evolving and a look at the leading vendors involved.

Analyst insights – updates on the growing demand for conversational AI and analysis of future market development.

Market forecasts – global forecasts by geographic regions and countries of technologies, agent positions, vertical markets, and dollars spent on CX.

Themes for 2020

Creating the connected and adaptive enterprise to deliver differentiated customer experience
Enterprises are acknowledging the need for platforms that span the enterprise and enable end-to-end, proactive engagement at right time, right place. To succeed in this new holistic continuum, enterprises and vendors must harness data, applications, intelligence, processes, and automation to understand customer context, buying journeys, and then orchestrate relevance at every step – content, offers, guidance, and support – to help customers achieve their desired outcomes. This will create a near-autonomous level of dynamic orchestration of the customer experience at every step of the customer lifecycle.

Using AI and machine learning to transform customer data from static to intelligent and actionable
Data and the knowledge resulting from its efficient collection and intelligent use will be the main ingredient required for business optimization and brand differentiation in the future. However, most enterprises have silos of data as the result of disparate systems implemented over decades that have yet to be merged to enhance business operations and customer satisfaction. Innovations in AI and machine learning now provide a unified environment to remove silos and deliver actionable and impactful business solutions.
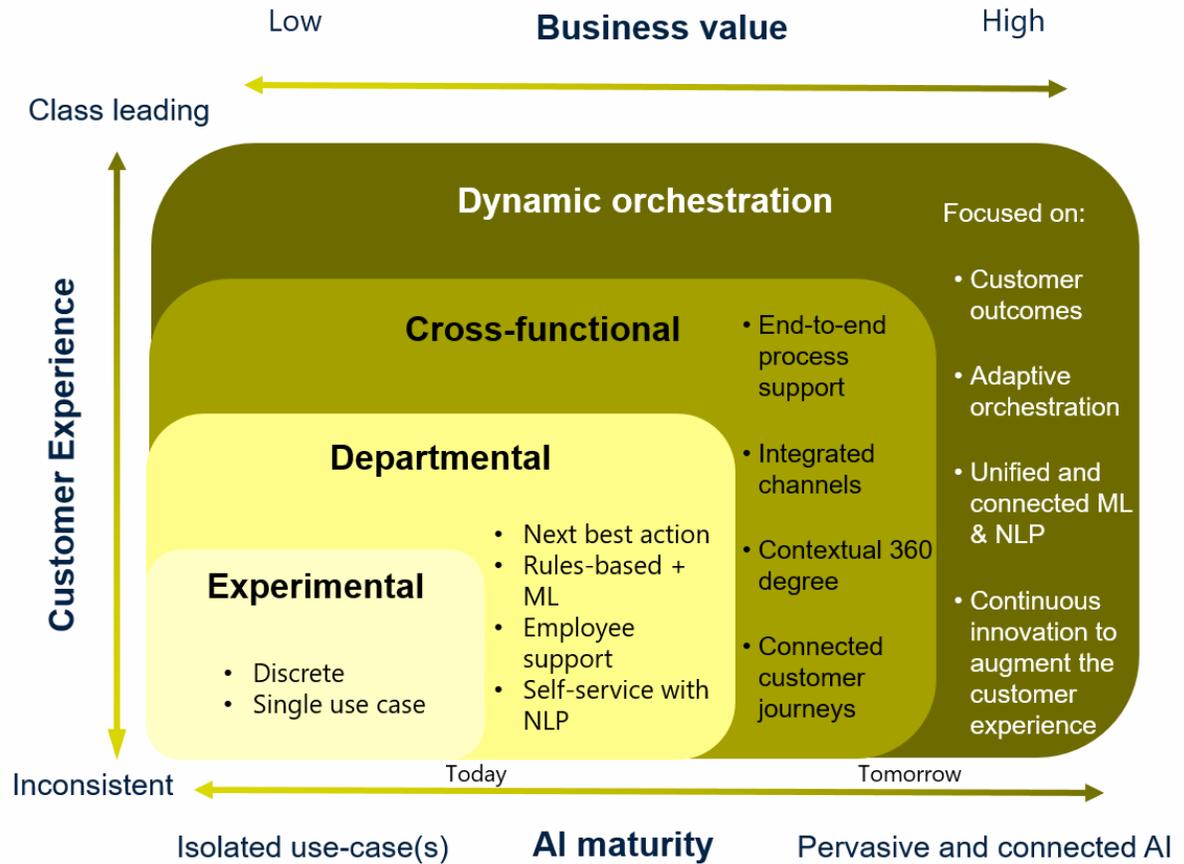
Enabling the next-generation augmented and highly differentiated customer experience through advancement to the cloud, 5G, and mobile edge
The advent of 5G in conjunction with mobile edge computing and the cloud, will transform the customer experience. Together, they will enable genuine and real-time dynamic experiences that customers and employees will come to expect: immersive commerce and marketing experiences, remote support through augmented reality, connected global workforces, increased customer personalization, interactive visualizations, and the modern agent desktop that enables real-time, 360-degree support.

Understanding the role of the customer engagement platform and strategic approaches to delivery
Customer expectations continue to rise, yet traditional customer relationship management (CRM) technology is transactional and has proved inadequate. Customer engagement platforms (next-generation CRM) overcome these limitations and can be used to create a coherent and enterprise-wide customer engagement capability. Consideration must be given to what such a platform entails and how best to deliver it – build, buy, or a hybrid approach?

> *We are only at the start with AI in customer experience, where ML provides localized value a department at a time. But dynamic, near-autonomous orchestration is where it is heading.*

Business value

Low   High

Class leading

Customer Experience

Dynamic orchestration

Focused on:

Cross-functional

- End-to-end process support

- Customer outcomes

- Adaptive orchestration

Departmental

- Integrated channels

- Unified and connected ML & NLP

- Next best action
- Rules-based + ML
- Employee support
- Self-service with NLP

- Contextual 360 degree

Experimental

- Connected customer journeys

- Continuous innovation to augment the customer experience

- Discrete
- Single use case

Inconsistent

Today   Tomorrow

Isolated use-case(s)   **AI maturity**   Pervasive and connected AI

Source: Ovum

Data and Enterprise Intelligence

The Market Challenge

Digital transformation has led to an explosion of data and the need to collect, store, process, manage, and analyze an exponentially expanding array of data types originating from a myriad of data sources across heterogenous cloud and premises deployment scenarios.

In response, enterprises are seeking to exploit any innovation that will put this data to work improving speed to market, lowering operational costs, and enhancing customer experience. Chief among these innovations is machine learning (ML), which is being used to automate existing tasks and predict future outcomes. Such efforts are increasingly making use of the latest deep learning (DL) neural network-based algorithms, furthering the need both for supportive data and data science expertise. The major challenge faced by enterprises, therefore, includes the effective implementation and management of these innovations while keeping pace with market and business changes.

Michael Azoff
Distinguished Analyst, IT

How Ovum helps you

Understand the role of digital transformation, AI and automation, big data, and hybrid/multi-cloud technologies.

Evaluate products by category to assess their applicability and advantages.

Discover the challenges and opportunities for specific roles such as data scientist, data engineer, DataOps/DevOps practitioners, and business users.

Identify and investigate key industry trends such as evolution of data science, data security, governance and privacy, open data, AI acceleration, edge computing, and more.

Find out more about the market for Robotic Process Automation, including its evolution and RPA+.
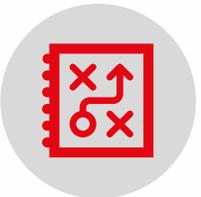
What's new for 2020?

DataOps: Market landscape research on the emerging field of DataOps**.**

AIOps: The role of data analytics in the emerging field of AIOps.

Prescriptive Analytics: Market landscape research on the impending move from predictive toward prescriptive analytics.

Continuous Intelligence: The application of AI, streaming analytics, and other innovations in support of frictionless, continuous data insights.

Key Deliverables

Evaluation reports – Reviewing modern databases for big data, data lakes, data warehousing, and cloud-native computing.

Market landscapes – Assessing emerging markets for data analytics and information management**.**

Case studies – Recommendations, best practice, and advice from real-world product and service deployments.

Software market forecasts – A five-year view on growth in information management software markets, segmented by vertical, region, and function, and updated annually.

Trends report – Annual trends to watch report providing analysis and evaluation of trends in the field, including from Informa primary research data into enterprise information management.

Themes for 2020

Modern databases for the digitally transformed: cloud-native computing, big data, and ML applications
The database market has evolved considerably in recent years as technology has progressed, moving from traditional relational to columnar then object store, and now on to autonomous AI-managed, hybrid, and data mart databases. A comparative report will provide a timely independent assessment.

Managing the data lifecycle
Customers will demand a more comprehensive, lifecycle-complete approach to data creation, storage, processing, collaboration, security, archive, and destruction. In turn, this will drive technology providers to think more broadly, particularly those with point solutions such as data preparation in support of analytics and data modeling in support of AI algorithms.

Evolving use of Robotic Process Automation higher up the food chain
Over the last couple of years, RPA has emerged as one of the priorities on business–IT agendas. Current growth trends strongly indicate that RPA adoption will continue to accelerate, with more and more enterprises adopting RPA platforms for task and process automation. As a technology discipline, RPA is evolving to support the automation of increasingly sophisticated processes – beyond swivel-chair processes – and along with business process management suites (BPMS)/case management and AI/ML capabilities, it forms a good combination for end-to-end process automation.

Evolving toward the citizen data scientist
Market efforts to automate repeatable tasks and augment difficult decisions are compelling for enterprises facing a significant data science skills gap. If realized properly these efforts, rooted in AI models and algorithms tailored to specific business requirements, could also open up data science to the broader business stakeholders.

Themes for 2020, continued

The next reinvention of enterprise analytics
Recent work among modern business intelligence (BI) providers to containerize software for more flexible cloud/premises consumption will lead to a new opportunities where AI-informed analytics microservices can be embedded right at the point of business decisions, enabling, at long last, the true democratization of data.

> *Executives surveyed about their AI investment plans responded with 72–78% either fully deployed, trialed, or planned solutions; the rest were either not considering or considering with no firm plans. This shows a significant uptake of AI across all verticals.*
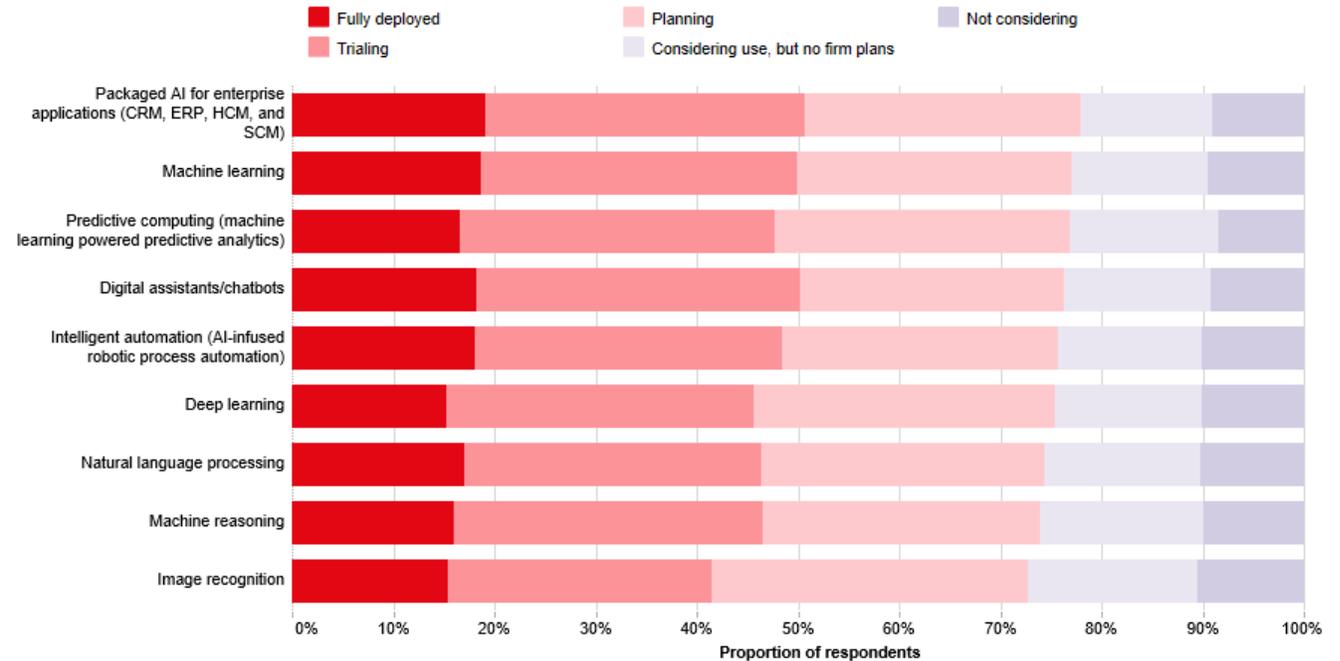
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Source: Ovum

Cybersecurity Accelerator

The Market Challenge

Headlines with a cybersecurity angle appear on an almost daily basis. Security challenges are top of board-level concerns. Enterprises require a business-wide, risk-based approach to cybersecurity that extends beyond technology. Ovum's unique definition of cybersecurity embraces the six organizational levers that act with it and Ovum research presents an encompassing view of the cybersecurity landscape. Technology is at the heart of the enterprise's defenses, and an organization also requires people and process to complete the protection picture. Compliance demands, aligning information security strategy with organizational objectives, and the management of digital risk gives the information security function a significant challenge to protect the enterprise whilst simultaneously enabling it to enhance, expand, and build for the future.

Maxine Holt
Research Director

How Ovum helps you

Align information security strategy with organizational objectives to develop security controls combining people, process, and technology.

Secure and deliver corporate data in line with confidentiality, integrity, and availability requirements.

Bolster security posture with an increased focus on integrated detection and response across the security stack.

What's new for 2020?

Research addressing **the challenges facing the office of the CISO, the levers on the security function (governance, risk, and compliance), and the remit of the security operations function, to help enterprises prevent, detect, and respond to security incidents and breaches.**
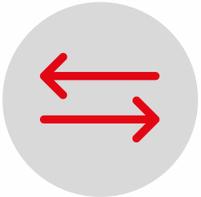
Expanded insights into **enterprise requirements** for vendors and service providers, and practical and actionable advice in **developing security capabilities for enterprise buy-side roles.**

Key Deliverables

Evaluation reports – Product capability comparisons for cybersecurity strategies and technologies.

Market landscapes – Assessing emerging markets for cybersecurity strategies.

Case studies – Recommendations, best practice, and advice from real-world product and service deployments.

Software market forecasts – A five-year view on growth in security software markets, segmented by vertical, region, and function, and updated annually.

Trends reports – An analysis and evaluation of trends identified across Informa Tech capabilities, including from extensive primary research data into enterprise security maturity.

Themes for 2020

Examining xDR: Integrated, coordinated detection and response architecture covering endpoints, networks, and cloud infrastructure
Complete threat prevention is impossible, and everyone knows it. The industry now offers layered protection through prevention, detection, and response, which includes a backstop for the identification of previously undetected breaches, with the goal of early identification and rapid remediation. Early threat identification and the use of automated, intelligence-driven analysis techniques is now a vital requirement, but in isolation is not enough. Coordinated, orchestrated threat management actions across the entire hybrid IT landscape, combining the use of technology and process with needed people skills, is critical to ensure that business and user protection remain the priority.

DevSecOps: Embedding security into the discipline of DevOps
DevOps as a discipline has been focused on only part of the software lifecycle – production to deployment. However, the importance of integrated security has become clear, as organizations struggle to address pre-deployment code flaws and opportunities for exploit. These are exacerbated by increased complexity, scale of systems built on open software, and integrated shared resources. Strong DevOps practices, which address the issue of speed and quality for software development, must be paired with an embrace of DevSecOps practices that measure code quality, automate code reviews, and remediate software risk before an application is approved for use.

Risk-driven security: Prioritizing defenses where needed most
The move toward risk-driven security is gathering momentum. Too many enterprise security programs operate as if searching for a needle in a haystack. New business challenges tend to drive enterprise projects, which in turn expand the cyberthreat landscape, creating more assets to defend. However, a move to a risk-based approach to security, typically from more of a "tick-box" approach, is rarely undertaken overnight. Understanding the cyber-based risks that the enterprise faces is complex. As such, an enterprise will typically require a step-by-step program to move toward a risk-based approach to security.

Digital transformation progress detail
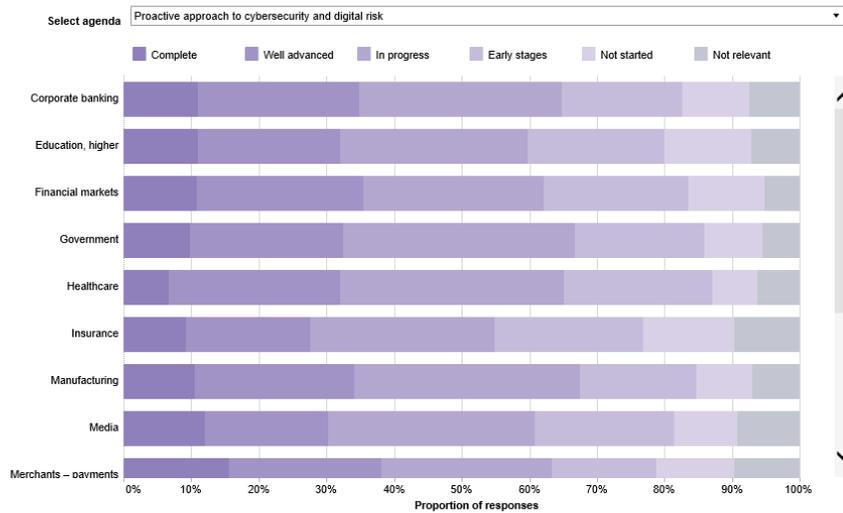
Themes for 2020, continued

Next-generation application security: Capabilities combined
Traditional application security models are insufficient to protect increasingly complex, multitenant enterprise application architectures in today's multi-cloud environments. Distributed denial-of-service (DDoS) prevention, web application firewalls (WAF), API security, and bot security will combine into a new, unified segment called next-generation application security. This will be broken down into three areas: proving the security of applications before they are moved into production, defending the organization from application attacks, and maintaining the security of deployed applications.

Enabling security and governance for cloud-native capabilities
Today's enterprises can use hundreds of cloud services. Most are sanctioned – approved – but some "shadow IT" cloud services remain. Challenges include understanding what is happening in the cloud and enforcing policy across environments that the enterprise does not have under its direct control. Enterprises are keen to protect against breaches happening in public cloud environments, and the shared responsibility model is proving difficult for some organizations to grasp.

Only 11% of enterprises globally have a fully developed approach to cybersecurity and digital risk. Of potentially even greater concern is that over 38% of organizations have barely started their efforts to develop approaches here.

Infrastructure Solutions

The Market Challenge

Digital transformation is the main driver for technological change, and software has become the universal commodity driving today's enterprise infrastructure, directly and via service providers. This software must be integrated into how services and systems are managed and delivered, and a cloud-centric approach is becoming accepted. The cloud market is segmented into four; private cloud, public cloud, edge cloud, and hybrid cloud. Within these segments the market has different dynamics, and overlaying all of these segments is the question of how the workloads are modernized – rewritten as cloud-native, moved and improved, or delivered as a service (SaaS). Furthermore, the data explosion continues apace as part of digital transformation initiatives. Infrastructure is heavily involved in dealing with this data explosion with collecting, storing, processing, managing, and analyzing an exponentially expanding array of data types originating from a myriad of data sources across heterogenous cloud and premises deployment scenarios.

Roy Illsley
Distinguished Analyst, IT

How Ovum helps you

Hybrid and multi-cloud: assess the value of each approach to cloud delivery, comparing the leading vendors in cloud providers and cloud management.

Cloud-native: understand the rapidly evolving market – in areas including service mesh, serverless, and microservices – and its applicability, maturity, and relevance to the enterprise.

DevOps/AIOps: identify how – when connecting cloud infrastructure with cloud-native developments – to implement and operate these technologies for the benefit of the business, generating business value beyond cost efficiencies.

Cloud services & marketplace evolution: compare how services are presented to customers and the problems they are solving, and explore the economics of the cloud.

What's new for 2020?

Strategic Advisory services: Designed to provide vendors with a half-day workshop in a conversational manner to evaluate and feedback on a strategic messaging or GTM. This uses extensive primary research data from Ovum, analyst expertise, and knowledge of the market.

Self assessment maturity models: To enable vendors to get potential customers to self-assess so that the vendor can ensure the way they approach the customer meets the current needs and is not a generic approach.

Key Deliverables

Technology Assessment reports – evaluate vendor technologies supporting cloud strategies: HCI market and hybrid and multi-cloud management solutions

Market Strategy/Landscape reports – for service mesh technology, with the leading vendors approaches explained and evaluated.

Case studies – recommendations and best practice from real-world product and service deployments.

Market & technology forecast reports – for key technologies, exploring the market variances by geography and vertical so vendors can focus marketing spend.

Technology reports – assessing all of the key themes for 2020.

Maturity models – models for key aspects of IT operational readiness, enabling enterprises to evaluate their current position and vendors to target messaging on the value of solutions.

Trends report – analysis and evaluation of the core cross-technology markets and how these can be used and deployed by enterprise customers.

Themes for 2020

Defining a cloud strategy
The core of the private cloud and edge cloud is based on the hardware and how this can be deployed. In 2020, Ovum will compare the leading HCI solutions and evaluate its applicability. To support the edge cloud Ovum will define the edge cloud in terms of its components, with the focus on the practical applicability of edge cloud. Ovum will also compare and evaluate the hybrid and multi-cloud management vendors, assessing how the market is changing to provide a cross-platform capability to support workload portability.

Adopting cloud-native sustainably
DevOps as the cloud-native market is a complex mixture of technologies that have evolved from the open source community. Ovum will review this market, providing a foundational assessment of the technology, explaining its value proposition and the challenges that organizations will encounter. The service mesh and its role and purpose will be evaluated. Container management platforms will also be revisited to understand how this market has changed in light of IBM's acquisition of Red Hat.

Evolving use of Robotic Process Automation higher up the food chain
Over the last couple of years, RPA has emerged as one of the priorities on business-IT agendas. Current growth trends strongly indicate that RPA adoption will continue to accelerate, with more and more enterprises adopting RPA platforms for task and process automation. As a technology discipline, RPA is evolving to support the automation of increasingly sophisticated processes – beyond swivel-chair processes – and along with business process management suites (BPMS)/case management and AI/ML capabilities, it forms a good combination for end-to-end process automation.

DevSecOps: Embedding security into the discipline of DevOps
DevOps as a discipline has been focused on only part of the software lifecycle – production to deployment. However, the end product needs to bring more security into the lifecycle and as such is being integrated into this process. Increased complexity and scale of systems built on open software, public networks such as the internet, and integrating shared resources means that security issues are on the rise. While good DevOps practices look to address the issue of speed and quality for software development, Ovum believes security challenges that arise from using DevOps can be addressed by embracing DevSecOps.

> *The public cloud market is dominated by two providers: Ovum's Decision Matrix shows that while they have a technical leadership, the market is closing the gap.*

Ovum Decision Matrix: Selecting a Cloud Service Provider, 2019–20
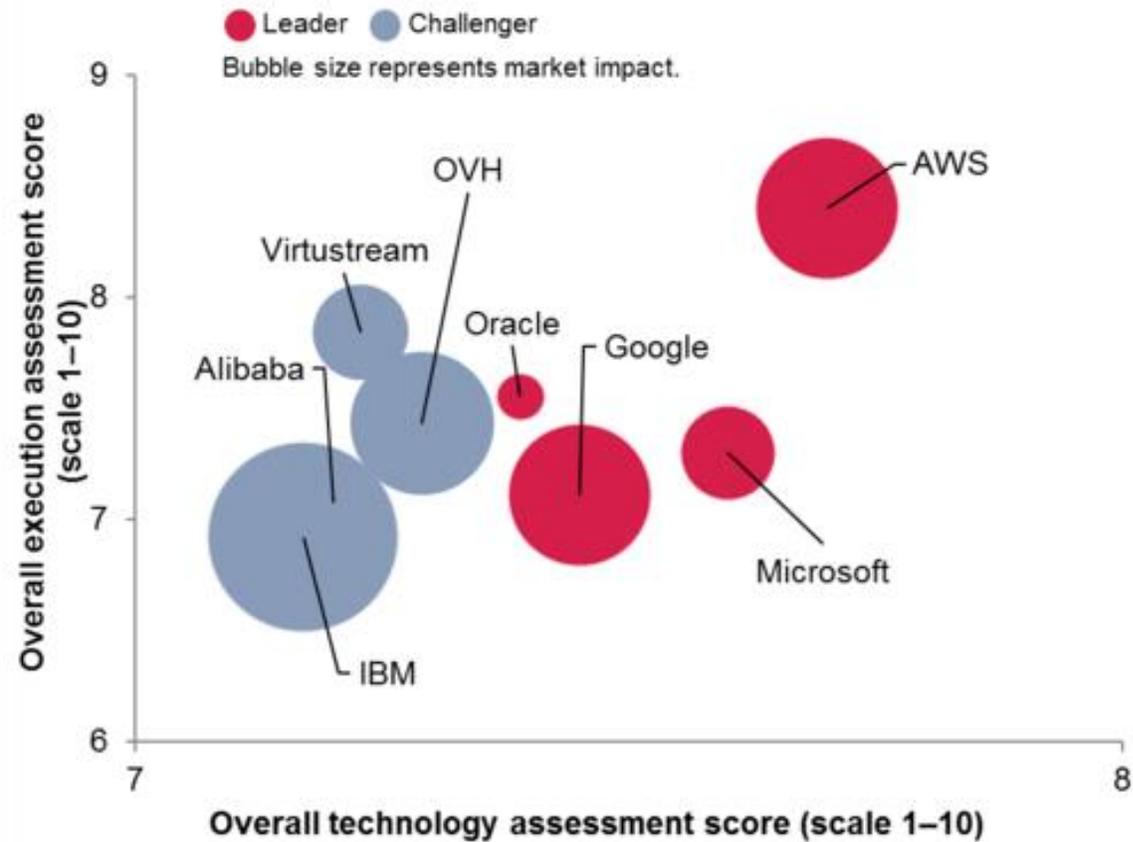
Source: Ovum

Enterprise ICT Management

The Market Challenge

Ovum's ICT Insights survey for 2019/20 shows that the top business priorities are reducing operating expenditure, increasing revenue, and improving efficiencies. Improving customer experience also features high on the priority list.

Customer-facing operations costs and revenue generation are clearly at the forefront of decision-makers' thinking. To provide business value, CIOs must focus on monetization of IT products and services, and on cost reduction strategies. They should also be looking at the implications of new trends, particularly the Fourth Industrial Revolution (4IR), as general business understanding of this trend is incomplete.

Practical uses of 4IR and Industry 4.0 technologies should be championed, and the necessary digital capabilities created.

Tim Jennings
Research Fellow, IT

How Ovum helps you

Reducing operating expenditure: optimizing ICT operations and increasing market reach; identifying cost reduction opportunities to market; and improving speed and monetization of ICT products and services.

Fourth Industrial Revolution and Industry 4.0: demystifying 4IR; identifying practical 4IR initiatives and technologies; building 4IR and Industry 4.0 capabilities; and educating and informing decision-makers on 4IR and Industry 4.0.

What's new for 2020?

Cost reduction and revenue generation: Evaluation Report – identify and compare leading vendors in a specific technology.

4IR and Industry 4.0: IoT Enterprise Survey Tool – provides a key understanding the current drivers of enterprise IoT investment; deployment, technology, and application choices; KPIs; and supplier preferences.

Key Deliverables

Insight reports – investigating cost reduction and revenue generation. ICT operating technologies and methods to drive down operational costs. Customer-facing ICT to increase revenue opportunities. Agility to speed time-to-market.

Trends report – for IT research services covering advances and new trends in customer engagement.

Technology Assessment reports – to evaluate vendor technologies supporting enterprise ICT management, including IoT, AI, RPA technologies, which are innovative and in use.

Market and technology forecast reports – to examine industry verticals, including industry specific technologies, trends, and innovations.

Trends to Watch reports – informing IT decision-makers about 4IR and Industry 4.0. Review relevant technologies, particularly AI to reduce costs, increase responsiveness, assist decision-making, IoT for sense and respond to operational events, RPA to improve efficiencies, 24/7 operations and reduce costs, and 5G as a 4IR-enabling technology.

Themes for 2020

Revenue generation and cost reduction within Enterprise ICT
As the top priorities of business in 2019/20, operating cost reduction, revenue generation, and customer-facing ICT are also priorities for CIOs. New technologies should be identified to assist with these priorities. Operational efficiencies should be implemented. Finally, with customer-driven and customer-facing products and services, CIOs can be positioned to drive rapid development, agility, and speedier time-to-market.

Practical approaches to Fourth Industrial Revolution and Industry 4.0
"Buzzword compliance" among decision-makers may drive inefficient and ineffective investments. CIOs should investigate 4IR and Industry 4.0 and offer practical initiatives and technologies to an informed business. IoT, AI, RPA, and data analytics underpin smart cities, homes, and factories. Vendors must be aware of adoption dynamics of newer technologies, and accommodate customers for where they are in the adoption curve.

> *Contributing to the slow pace of digital transformation is a lack of understanding of how the art of the technologically possible has changed.*

How Ovum thinks AI maturity will develop from simple to more complex uses cases.

	0–1 years (2019)	2–3 years (2020–21)	3–5 years (2022–23)
What to expect	• Machine learning (ML) increases the accuracy of voice and visual search, enabling more-personalized recommendations. • Search is gaining good traction on AI assistants, although voice commerce is still modest. • Enhancements in augmented reality (AR) drive more immersive shopping. • The spread of AI across the commerce domain surfaces new and deeper data insights, which raises the stakes in privacy.	• ML drives new capabilities in contextual personalization (e.g., offers on-the-fly, real-time pricing). • Advances in AI-powered object/image recognition helps make visual search popular with consumers. • Voice commerce on AI assistants starts to take off. Advertising on AI assistants starts to build, mostly via audio ads and with efforts to make search results shoppable.	• Audio ads and shoppable search has bedded down on AI assistants, with more activity around visual formats. • AI has helped advance commerce in connected vehicles and in the wider Internet of Things (IoT) domain via intelligent sensor networks and location technologies. • Emotion detection and sentiment analysis are starting to play a role in commerce. • The deepening of AI in the commerce domain triggers regulatory scrutiny.
How to respond	• Service providers must have an understanding of core AI technologies, have the solutions available, and have an AI strategy and implementation road map. • AI is creating new opportunities for commerce – now is the time to form partnerships with AI assistant vendors and take advantage of their commerce capabilities (e.g., in-app payments).	• Use AI to drive commerce personalization at scale. • Look beyond in-app payments on AI assistants and leverage advertising opportunities on these platforms. • Keep a watching brief on how AI is enabling wider IoT commerce opportunities. Prepare for potential data privacy impacts.	• Strengthen AI assistant advertising and payment positioning. • Think about ways that you could transition your proposition onto other platforms where AI assistants are gaining good traction. • Assess the impact and potential of new AI technologies such as visual AI and emotion/sentiment detection.

Source: Ovum

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