

Masters of the Universe: How Digital Business and the Internet of Things are Changing Enterprises Forever



Executive summary

Digital business is everyone's business. In this e-book, we look at the potential of digital transformation and Internet of Things (IoT) and how they are transforming industry. We cover:

- A business case for digital transformation that makes dollars and sense.
- Why you should create a "platform" approach to your business.
- How using platform as a service (PaaS) offerings can free IT teams to focus on strategy.
- Who the new power players are in digital business. (Hint: They're inside your enterprise.)
- Where the real value for IoT lies across industries.
- Success stories of organizations that are using Microsoft SQL Server and Azure IoT Suite to acquire leap-ahead business advantages.
- Ten reasons you should put Microsoft SQL Server to work today.

Let's get started. Digital mastery is waiting.

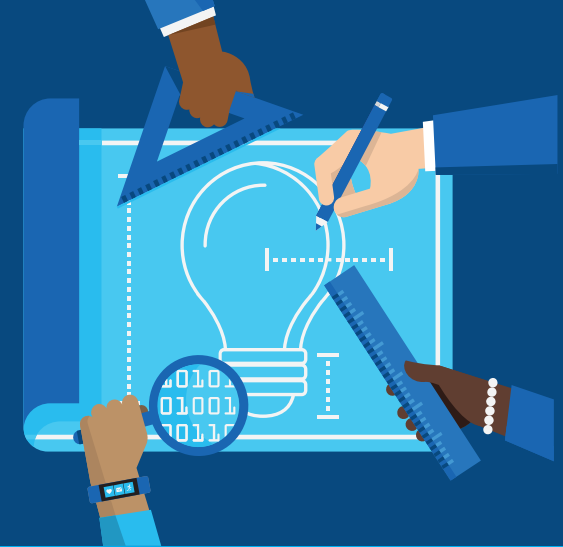


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Digital business is your business

Across industry, the pace of change is quickening. From Skype to GE and 3M to AccuWeather, technology-led companies have proved that those who master data rule it all. These companies are skilled at scaling services quickly, pivoting to meet market demand, and moving into adjacent industries—and others are following suit. As Microsoft CEO Satya Nadella and others have said, every company is now a software company.

Traditional enterprise has embraced digital business. Companies are reinventing their business models and using “SMAC” platforms that fuse social, mobile, analytics, and cloud to drive transformation. Digital business poses both peril and promise.

PERIL

CEOs believe that up to
40% of their revenues
& **20%** of their costs

as well as their company's very survival—will depend on the success of their digital transformation efforts.¹

PROMISE

More than
1/3 of all revenues
will be driven by digital products
and services within the next
5 YEARS
states Gartner.²

Time is ticking: The Internet of Things (IoT) is growing big data at exponential rates, creating game-changing new business opportunities. Those leaders who know how to harness it effectively will have a powerful advantage over their peers.

What digital business isn't—and is

Digital business isn't

- ✗ Becoming a SaaS (software as a service) company.
- ✗ Just adding a digital service component to existing products.
- ✗ A quick fix to ensure competitiveness.
- ✗ Simply connecting with customers and partners.
- ✗ An internal change management initiative.

Digital business is

- ✓ Using PaaS (platform as a service) and other digital tools for transformational advantage.
- ✓ Rethinking your value proposition, strategy, and product portfolio for a new era.
- ✓ An ongoing commitment to reinvention.
- ✓ Adding value to the relationship across interactions and the life cycle.
- ✓ A call to reinvent the company around market and customer demand.

Digital business Is good business

So just what is digital business? According to Gartner thought leader Jorge Lopez, VP and distinguished analyst, it is about creating “new business designs” that are enabled by “blurring the digital and physical world.”³ It’s why many are calling the era we live in the Industrial Revolution 4.0.

Digital leaders know that the time to move is now. As they fuse business and digital strategies, they are also aligning their organization, equipping their workforce, and evolving their infrastructure to meet new challenges. They are moving from “sense and respond” enterprises to ones that use analytics and machine learning to predict the future and make early bets on emerging market demand.

Here’s what industry leaders have to say:

*“We are putting
70 percent of our
applications on the cloud
to improve flexibility.
And we are launching
game-changing
applications to improve
our efficiency.”*

– Jeffrey Immelt, GE CEO

*“Walmart is redefining the next
generation of retail growth and is
the best-positioned retailer to win
at the convergence of digital and
physical retail.”*

– Doug McMillon, Walmart CEO

*“It’s about looking ahead to the
changes coming to the global auto
business, particularly from potential
‘disruptors’ in Silicon Valley—and
preparing Ford to thrive through
those changes.”*

–Mark Fields, Ford Motor Company CEO

9 out of **10**

DIGITAL LEADERS

have fully integrated **DIGITAL**
into strategic planning

versus **60%**
OF ALL LEADERS.⁴

The business case for digital



Strengthen customer loyalty

Creating an exceptional omnichannel experience makes dollars and sense. According to McKinsey,⁵ organizations that are able to deliver complete customer journeys can reap enormous rewards including:

- Increasing customer satisfaction by 20 percent
- Driving up revenue by 10-15 percent
- Lowering service costs by 15-20 percent

Understanding how customers make decisions—how and where they shop and what influences them—allows retailers to tailor their approach, their marketing messages and their product selection.



Empower your employees

Create a digital culture where employees are encouraged to experiment.

Some points to consider:

- Encourage employees to develop and share digital skills with colleagues.
- Use collaboration platforms to link colleagues to share ideas—and amplify gains.
- Provide IT staff with self-provisioning so they can set up database instances and get straight to work developing apps.
- Put winning ideas into production, so employees can see the fruits of their labors.

“Every employee is a digital employee,” according to Gartner.⁶



Optimize your operations

Companies can harness the “industrial Internet” to transform their own processes. Some key wins include:

- Connecting suppliers for just-in-time deliveries that reduce waste and cost.
- Eliminating process bottlenecks that decrease throughput.
- Performing preventive maintenance to keep expensive equipment operating at peak capacity.
- Reconfiguring production lines to handle customized goods without incurring costly changeovers and downtime.

Companies that digitize information-intensive processes can reduce costs by 90 percent.⁷



Transform your products

Business leaders are turning their focus to improving customer engagement by investing in the latest emerging technologies, such as Internet of Things (IoT), smart machines and sensors, computer vision, digital agents, bots, and language and speech recognition.

Nearly two in three IT and marketing executives say they expect to transform into a digital business by the end of 2017.⁸

CEOs and CIOs recommend evaluating your products by which features your customers care about most, determining which add the most value, and prioritizing those for digital investment.⁹

That's why companies are investing heavily in building their digital capabilities. They're also moving from a system to a platform approach to harness ecosystems and connections at will.¹⁰ Digital leadership is a "team sport," says Gartner, and enterprises will need to strengthen partnerships with software and device companies to create new sources of value. That's especially true with IoT, which will provide unprecedented insights into consumer and supplier behavior, M2M (machine to machine interactions), business operations, and more.

Gartner recommends taking a "platform" approach to business



A SYSTEM VIEW of Business

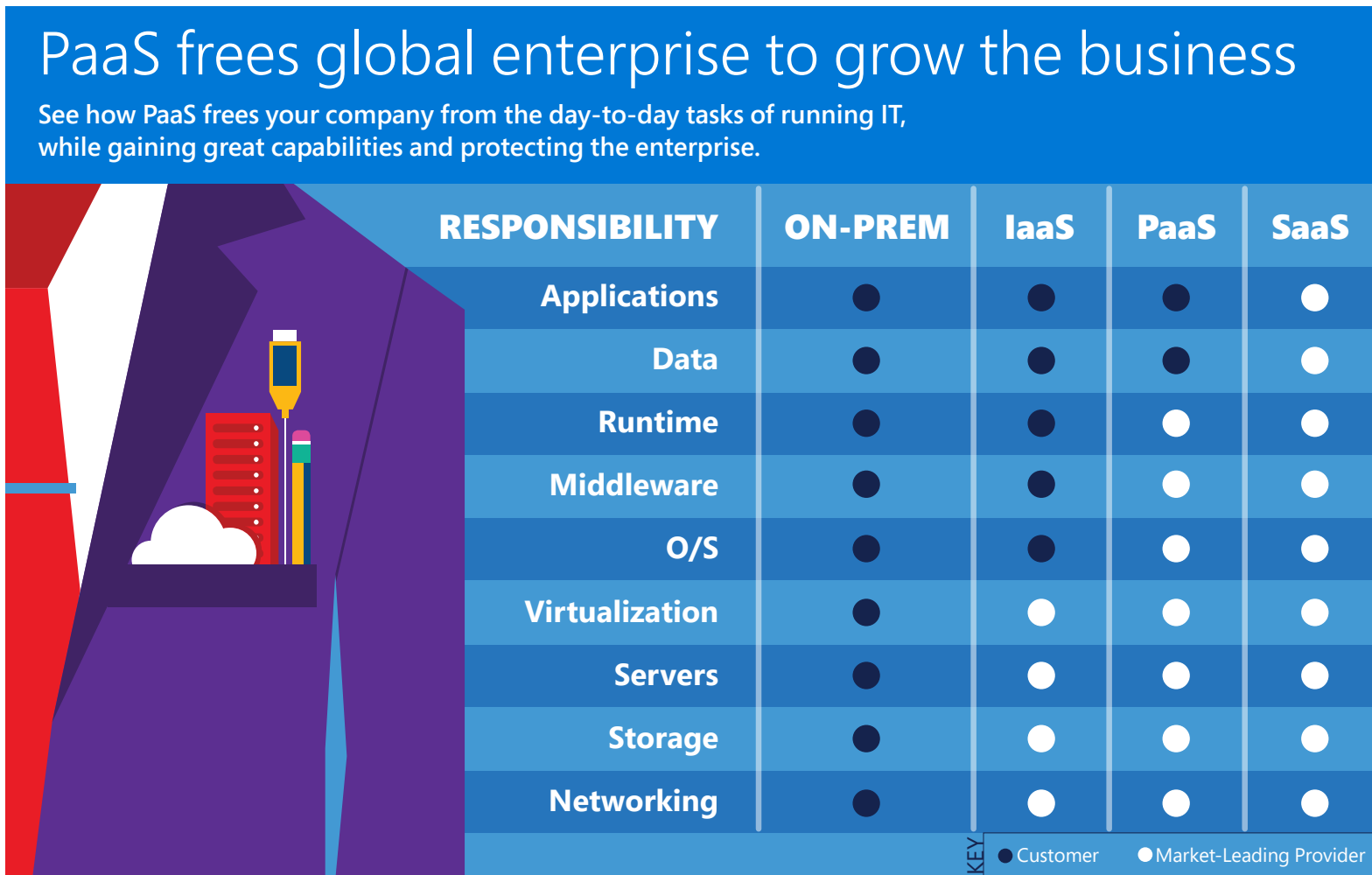


A PLATFORM VIEW of Business

Companies that create a "platform" business model can leverage the best insights, talent, and services from outside their business walls.
Source: Gartner.¹¹

To create a platform business model, you also need a flexible, continuously evolving digital platform. That's why traditional enterprise is embracing cloud services. In just a few years, enterprise has moved from purchasing simple SaaS solutions to virtualizing datacenters. Now, innovative IT leaders are driving value by adopting PaaS. It's easier and faster to test, develop, produce, and scale in the cloud than anywhere else.

These companies also realize that by shifting responsibility for system design and maintenance to partners, they can focus their internal IT talent on innovation.



If your company wasn't born in the cloud, your apps can be.

All hail the digital ecosystem

Digital transformation is hard work, and the pace is relentless. That's why the **"build or buy"** question is shifting to **"buy or borrow."** Why spend millions of dollars and months or years of time building capabilities if you can order talent, products, and services online with a few clicks?

IT teams can now order infrastructure as a service (IaaS) and PaaS offerings from market-leading providers and scale them up and down as needed. Enterprises are also strengthening ties with partners: from IoT and other independent software vendors (ISVs), device manufacturers, and distributors and resellers.

Here are some ways your digital partners can help you:

- Build connected businesses that link you with consumers and identify opportunities to create value.
- Evolve into smart businesses that use analytics and machine learning to make automated, real-time decisions, both small and large, with precision focus.
- Proactively identify changing market demand, new customer needs, and process improvements that can benefit you.

With digital ecosystems, it's not about the one-time product sale. It's about creating outcomes for the **"we economy."**¹²



The new digital power players

While digital strategy is set by the C-suite, transformation is far from a command and control enterprise. Here are the new power players of digital: Line-of-business (LOB) heads and their teams.

LOBs are leading digital because they're close to where the action is: They can implement initiatives that enhance the customer experience, streamline operational processes, and enhance profitability. LOBs have their own IT budgets and teams, who use a DevOps philosophy of continuous innovation and Agile and Scrum processes to deliver new software functionality that adds value with each release.

LOB leaders also need to be collaborators in chief: creating cross-functional teams that span the organization, sharing their plans and successes, and scaling successes so that the entire company can benefit.

One caution: While LOBs can experiment quickly and scale winning initiatives, they need to coordinate closely with other digital team players. Otherwise, enterprises risk "shadow IT" issues, with unknown and unmanaged applications exposing confidential systems and data to the world, and dollars wasted on duplicative systems.



The kings and queens of digital

- The C-suite (including chief digital officers) and LOB heads.
- Globally LOBs controlled 42 cents of every \$1 of corporate IT spend in 2015.¹³ This will increase to 50 cents of every corporate IT dollar by 2020.
- **Every employee can make a difference:** from the IT teams who develop apps, to the employees who use and interpret data to make business decisions.



Success story

A 3M LOB IT team wanted to empower its sales force with a better way to track assets in business divisions and built an app in a single weekend.

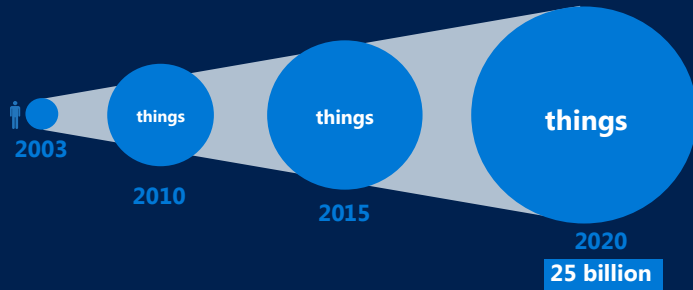
The LOB IT team used Azure Mobile Apps with Microsoft Visual Studio and the Xamarin development platform to create a tracking app that syncs with the cloud and runs on multiple mobile devices.

"Having the right tools and capabilities to put a stable, robust, and functional solution together in two days is a great story."

– Jason Fox, 3M

The Internet of Things will change your business

We've all read the statistics about the torrent of data connected devices will unleash. Analysts project that there will be 25 billion connected "things" by 2020...



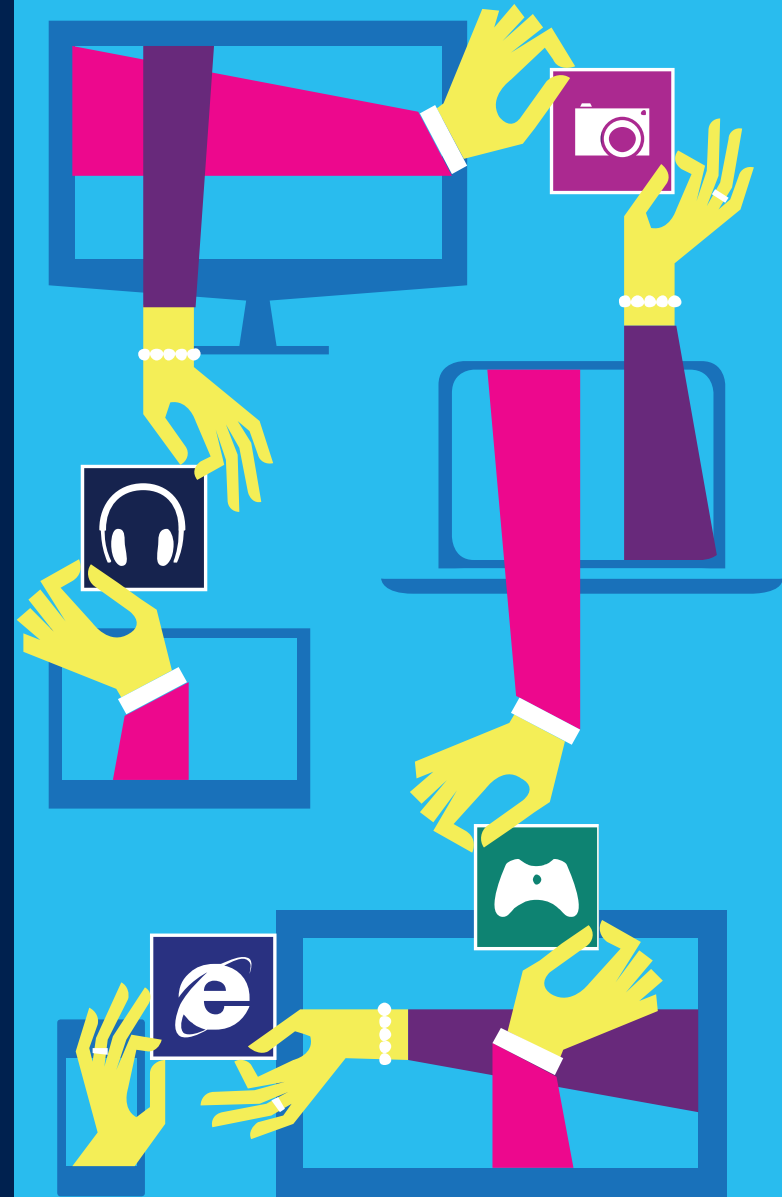
and a
\$1.7 TRILLION
market by the same year.¹⁴

B2B companies are in luck: They will be able to unlock 70 percent of the value of IoT.¹⁵ While manufacturing will reap the lion's share of benefit, government, health, and retail aren't far behind.¹⁶

If you aren't yet working in IoT, it may be time to get started. Nearly three out of four of your competitors are already working with IoT scenarios.¹⁷

Use an IoT platform to amplify innovation by:

- Creating apps using any technology for any platform.
- Increasing the speed and agility of development processes.
- Gaining the broadest reach for every line of code.



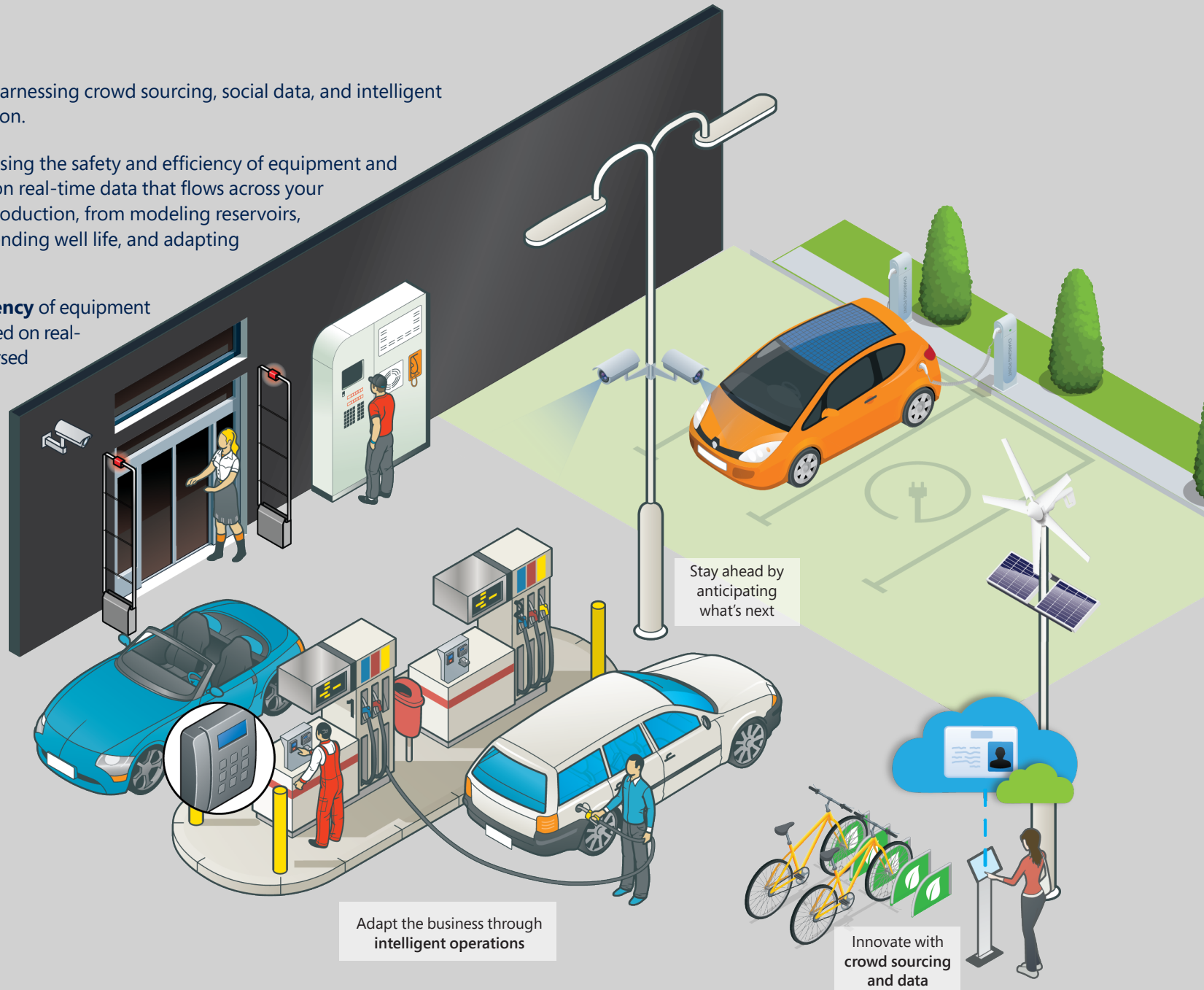
IoT extends its reach **across industry**

Oil and Gas

Transform your products by harnessing crowd sourcing, social data, and intelligent systems to drive digital innovation.

Optimize operations by increasing the safety and efficiency of equipment and processes with analytics based on real-time data that flows across your business operations. Increase production, from modeling reservoirs, implementing methods for extending well life, and adapting extraction techniques.

Increase the safety and efficiency of equipment and processes with analytics based on real-time data that flows across dispersed business operations.



Johnson Controls is a global diversified technology and multi-industrial leader. Chillers now run nine times faster than unconnected equipment, avoiding more than \$300,000 in hourly downtime costs.

Healthcare

Ensure security and compliance by securing confidential data and systems, demonstrating compliance more easily, and ensuring records are in the right hands.

Optimize operations to enhance patient outcomes and identify health trends and risks. Give patients self-service access with wearables and Dynamics CRM.

Empower your employees through greater mobility, operational control, and real-time collaboration across devices and locations.

Improve care outcomes with quick access to the right information at the right time.

Work smarter with smart machines

Adapt your business through **intelligent operations**



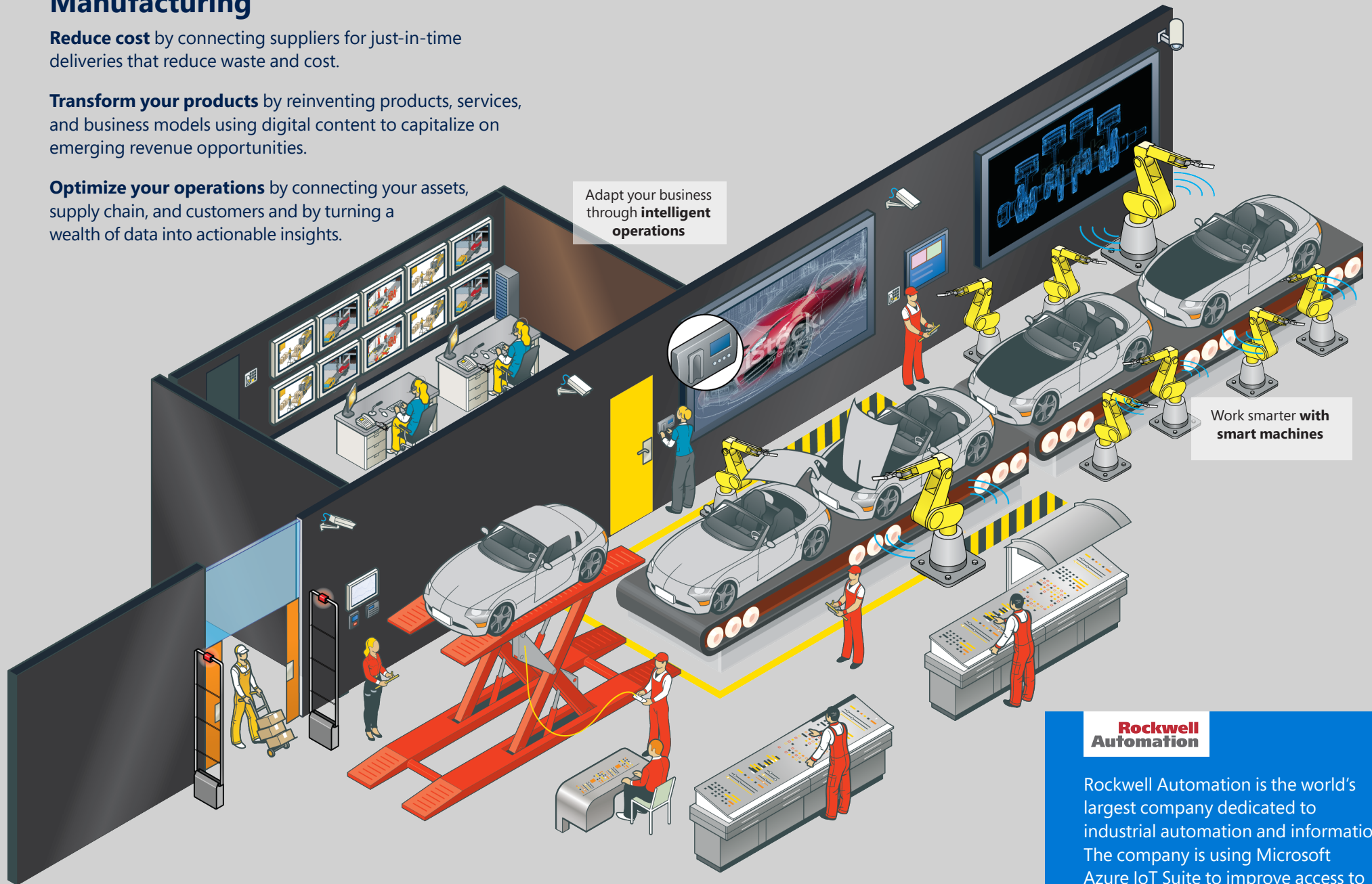
Toronto Western Hospital officials sought to improve surgery outcomes for arthritis sufferers in Canada, who exceed 600,000 individuals. The organization implemented a platform powered by Microsoft SQL Server, SQL Data Warehouse, machine learning, and other tools to acquire data insights on surgery predictors of success and other factors.

Manufacturing

Reduce cost by connecting suppliers for just-in-time deliveries that reduce waste and cost.

Transform your products by reinventing products, services, and business models using digital content to capitalize on emerging revenue opportunities.

Optimize your operations by connecting your assets, supply chain, and customers and by turning a wealth of data into actionable insights.



Adapt your business through **intelligent operations**

Work smarter with **smart machines**

Rockwell Automation


Rockwell Automation is the world's largest company dedicated to industrial automation and information. The company is using Microsoft Azure IoT Suite to improve access to production and supply chain data worldwide, reducing downtime costs by as much as \$300,000 per day.

Azure IoT Suite brings the Internet of Your Things to life

Connect your devices, analyze previously untapped data, and integrate business systems—and transform your company when you uncover new business models and revenue streams. Azure IoT Suite enables application innovation—for web and mobile, IoT, data management, and microservices.

Azure IoT Suite meets enterprise and partner needs to:


- **Start now**—Use preconfigured solutions for the most common IoT scenarios and start developing in five minutes.
- **Connect to anything**—Use Azure IoT Suite to connect any device, operating system, data source, software, or service.
- **Stay secure**—Help protect corporate and consumer data with security solutions that encompass every end point and connection and data as it passes through the cloud.
- **Scale and grow**—Use BI and analytics tools to make sense of data from millions of devices and end points and deploy apps and services over the hybrid cloud worldwide.
- **Predict the future**—Use advanced analytics and machine learning to capture insights from data that weren't possible before.

Secure
End-to-end 

From endpoint and connect through to data and the cloud

Fast
Start in minutes 

Preconfigured solutions for the most common IoT scenarios

Open
Connect anything 

Any device, OS, data source, software, or service

Scalable
Grow effortlessly 

Millions of devices, terabytes of data, on-premises and in the cloud, in 30 regions worldwide

Devices



People

10 reasons why to choose SQL Server 2016

SQL Server 2016 has everything “built in,” providing the OLTP (online transaction processing) data warehousing, and business intelligence you need to build a digital business. **SQL Server 2016 meets enterprise and partner needs:**

1 MICROSOFT IS THE RECOGNIZED INDUSTRY LEADER

Gartner has recognized Microsoft as the #1 company in the market for operational database management systems for our completeness of vision and ability to execute.¹⁸ We have also been cited as a leader for business intelligence and analytics platforms and data warehouse and database management solutions for analytics.¹⁹

2 MOST SECURE DATABASE

For the past six years in a row, SQL Server 2016 has been ranked the most secure and least vulnerable database on the market. Data is always encrypted, whether it is at rest or in motion.

3 GROUNDBREAKING PERFORMANCE AND SCALE

We're the market leader in OLTP (online transaction processing), powering transaction-intensive businesses such as retail, healthcare, and more.

4 BUSINESS INTELLIGENCE DOESN'T WAIT

Get mobile BI capabilities to make decisions when and where you need them—on a factory floor, drilling operation, or government office—at a fraction of the cost of other solutions.

5 IN-MEMORY

SQL Server 2016 boasts the fastest in-memory technology on the planet across workloads, running transactions 30 times faster than other database solutions with in-memory OLTP. Perform advanced analytics at massive scale and get answers in seconds.

6 ENABLES MISSION-CRITICAL INTELLIGENT APPLICATIONS

Develop apps that take advantage of your wealth of structured and unstructured data, and then make sense of it with Azure IoT Suite. Protect data and ensure system performance with AlwaysOn availability and failover clustering.

7 HYBRID CLOUD

Most enterprises have migrated to a hybrid cloud scenario, using private clouds or on-premises datacenters for mission-critical apps and systems but running development, testing, and production in less expensive public clouds. Get the best of both worlds. Tap the full power of your data—real-time, historic, and on-premises with SQL Server 2016 and Azure IoT Suite.

8 TACKLES BIG DATA WORKLOADS

Use the #1 data warehouse solution in the industry for performance. Scale to MPP for both on-premises and the cloud.

9 PROVIDES PLATFORM CHOICE

Whether data is in your datacenter, private cloud, or Microsoft Azure, get a consistent experience across server and database as a service.

10 HAS EVERYTHING BUILT IN

Get all the power and functionality you need to run and power digital business.

SQL Server end of life:

Why count down when you can move forward?

Two prior versions of SQL are reaching end of life: On July 8, 2019, extended support for SQL Server 2008 and SQL Server 2012 will end. Customers who continue to use unsupported versions of SQL Server risk business disruption due to technical and security issues.

Why wait? Join the myriad enterprises who are becoming digital masters by building businesses on the best database platform in the market. Learn more about how the Windows platform is empowering IoT solutions at:

www.InnovateOnWindowsIoT.com.



- ¹Henrik Andersson and Philip Tuddenham, "Reinventing IT to support digitization," May 2014, <http://www.mckinsey.com/business-functions/business-technology/our-insights/reinventing-it-to-support-digitization>.
- ²Building the Digital Platform: Insights From the 2016 Gartner CIO Agenda Report, 1. http://www.gartner.com/imagesrv/cio/pdf/cio_agenda_insights_2016.pdf.
- ³Jorge Lopez, "Digital Business Is Everyone's Business," Gartner, Inc., May 7, 2014, Forbes, <http://www.forbes.com/sites/gartnergroup/2014/05/07/digital-business-is-everyones-business/#4800d20d2d66>.
- ⁴<http://www.mckinsey.com/business-functions/organization/our-insights/six-building-blocks-for-creating-a-high-performing-digital-enterprise>
- ⁵<http://www.mckinsey.com/business-functions/organization/our-insights/six-building-blocks-for-creating-a-high-performing-digital-enterprise>
- ⁶"Gartner Says Every Employee Is a Digital Employee," Press Release, August 20, 2015, <http://www.gartner.com/newsroom/id/3115717>.
- ⁷Shahar Markovitch and Paul Willmott, "Accelerating the Digitization of Business Processes," McKinsey, May 2014. <http://www.mckinsey.com/business-functions/business-technology/our-insights/accelerating-the-digitization-of-business-processes>
- ⁸"Navigate Your Way to Digital Business Transformation with These Resources," August 26, 2015, Gartner.
- ⁹"2016 CEO Survey: The Year of Digital Tenacity," Gartner, April 5, 2016, <https://www.gartner.com/doc/3275917/-ceo-survey-year-digital>.
- ¹⁰⁻¹¹Building the Digital Platform: Insights from the 2016 Gartner CIO Agenda Report, Gartner Executive Programs, 2015, https://www.gartner.com/imagesrv/cio/pdf/cio_agenda_insights_2016.pdf.
- ¹²Thor Olavsrud, "How Digital Ecosystems Are Creating the 'We Economy,'" CIO, February 2, 2015, <http://www.cio.com/article/2878419/innovation/how-digital-ecosystems-are-creating-the-we-economy.html>.
- ¹³Peter Sondergaard, "Rising to the Challenge of Digital Business: Key Insights from the 2015 Gartner Symposium/ITxpo Keynote," November 6, 2015, <https://www.gartner.com/doc/3163517/rising-challenge-digital-business-key>.
- ¹⁴"Gartner Says 6.4 Billion Connected 'Things' Will Be in Use in 2016, Up 30 Percent From 2015," Gartner Press Release, November 10, 2015, <http://www.gartner.com/newsroom/id/3165317> and "Explosive Internet of Things Spending to Reach \$1.7 Trillion in 2020, According to IDC," IDC Press Release, June 2, 2015, <http://www.idc.com/getdoc.jsp?containerId=prUS25658015>.
- ¹⁵⁻¹⁶James Manyika, Michael Chui, Peter Bisson, Jonathan Woetzel, Richard Dobbs, Jacques Bughin, and Dan Aharo, "Unlocking the Potential of the Internet of Things," McKinsey & Company, June 2015, <http://www.mckinsey.com/business-functions/business-technology/our-insights/the-internet-of-things-the-value-of-digitizing-the-physical-world>.
- ¹⁷Redefining the Connected Conversation: IoT Trends, Challenges, and Experience Survey, James Brehm & Associates, 2016. Not available online.
- ¹⁸⁻¹⁹T.K. Ranga Rengarajan, "Gartner positions Microsoft as a leader in the Magic Quadrant for Operational Database Management Systems," SQL Server Blog, October 15, 2015, <https://blogs.technet.microsoft.com/dataplatforminsider/2015/10/15/gartner-positions-microsoft-as-a-leader-in-the-magic-quadrant-for-operational-database-management-systems/>.