The Path to Digital Innovation
32 Experts Share Insights on Transformative Technologies
Introduction

“Today’s digital economy is the least forgiving in history.

Every business needs to run with operational excellence and out-innovate its competition. As the world’s system of record, SAP has an exciting role to play.

This collection of insights showcases the significant opportunities for digital innovation that will help the world run better and improve people’s lives.”

Bill McDermott, SAP CEO

To help navigate this dynamic environment, we reached out to 32 digital transformation experts to identify how transformative technologies – including IoT, Analytics, Machine Learning, Blockchain, Big Data, and a Digital Cloud Platform – will advance the way to do business.

Is your business ready to unlock the full power of digital innovation today?
Internet of Things

Ian Gertler  
Founder & CMO, Symplegades Inc.

Connectivity helps create holistic experiences and processes.

IoT enables teams, organizations, and industries to embed sensors in virtually anything, connect those things to networks and gain additional streams of real-time data to enhance analytics and pattern recognition to drive actionable insight, efficiency, customer engagement, and automation – often identifying and avoiding challenges before they occur or capturing new opportunities.

From industrial machinery to wearable devices and beyond, IoT is part of the foundation that takes AI from artificial to augmented levels of intelligence, value, and action.

The Internet (of Intelligence, as I like to say) of Things is not a case of if, but how soon.

Are you ready?
Hospitals collecting data streams from “things” – like heart rate monitors, oxygen monitors, respiratory systems, or a range of patient care machines and monitors – that are either umbilically connected or “attached” to a patient (fitness band, O2/Pulse bands etc) are all fed into an AI system that can compare much about a given patient to other patients has the potential to create new regimens that can increase patient care and recovery success rates.

IoT enables new models from micro-cost and risk pricing to new regimens in healthcare.

Bob Egan
President & Founder, Sepharim Group

Ian Gertler
Founder & CMO, Symplegades Inc.

Bob Egan
President & Founder, Sepharim Group

Vincent Granville
Executive Data Scientist & Co-Founder, Data Science Central

Kevin R Benedict
Senior Analyst, Digital, Mobile, & IoT Strategies, Cognizant

Simon Porter
Vice President Sales, NGA Human Resources
Internet of Things

Vincent Granville
Executive Data Scientist & Co-Founder, Data Science Central

IoT provides more data and actionable insights. Analytic capabilities need to be in sync with this growth.

IoT will provide more data sources, and potentially more actionable insights if the data is properly blended and processed.

The challenge is growing and deploying analytic capabilities in sync with the growth of this data. On the plus side, even if there aren’t yet true standards for IoT data, much of the data generated by sensors is likely to be rather structured, facilitating analysis.

One of the potentials of IoT is the ability to design autonomous systems that involves device-to-device communications to generate actions: automatically adapting the drug mix and dosage for a patient in a hospital, allowing self-driving cars to "communicate" with each other to identify optimum routes. Or in my case, as a digital publisher, getting various APIs (Twitter, Facebook, Google Analytics) to interact with an algorithm that automatically selects and schedules which articles should go in which feeds and when.
Humans, already at their limit, augment their decision-making capabilities to handle the massive increases in the volume, speed, and complexity of data.

Competitions will be won by those with better and faster decision-making systems, both human and robotic. IoT systems that can collect larger quantities of data, analyze and execute relevant actions faster will win.

The futuristic F-35 fighter jet used by the United States has over 24 million lines of software code running, just to keep it in the air. Code is required to process all the data fast enough to augment the pilot’s decision-making skills.

Consumers today demand more real-time queries, transactions, decision-making and business process execution than are humanly possible without computer and software augmentation operating beyond the limitations of human decision-making capabilities and into the realm of artificial intelligence and robotic software automation.
Internet of Things

Simon Porter  
Vice President Sales, NGA Human Resources

Today, new business models are being offered from the advantages of data and IoT.

There is more change and disruption happening now than in the 31 years I have been in the IT industry.

The opportunities in the B2B area are transformational with Preventative Maintenance becoming the norm from jet engines to the manufacturing plant. This enables companies to develop new profit opportunities by developing a lifetime relationship with their clients.

Similar technologies are also being applied in the HR field to provide faster and more efficient support to employees and managers. For example, matching available skills to demand in an ever more dynamic market. In the fight for talent and retention, HR-as-a-Service becomes more an important differentiator.

At NGA, we have introduced Machine Learning to a number of the solutions we offer on SAP Cloud Platform to enable employees to get answers when and where they want it.

Learn more
Machine Learning

Ronald van Loon  
Advisory Board Member Simplilearn, Top 10 Big Data & IoT influencer

ML can make UX immersive and efficient while also being able to respond with human-like emotions.

ML mimics how the human cognitive system functions and solves problems. It can analyze data that is beyond human capabilities based on the patterns. It can make UX immersive and efficient while also being able to respond with human-like emotions.

Business processes will become automated and evolve with the increasing use of ML. Customers can use the technology to pick the best results and thus, reach decisions faster. ML will also help businesses arrive on innovations and keep growing by providing the right kind of business products/services.

Businesses should start gathering the components necessary for building AI products – including a cloud platform capable of handling high data volume from multiple sources.

The relevant people are as important to this step as are the technology and processes. After all, they are the ones who will be testing the latest digital and ML technologies.
Machine Learning

Armed with these new insights, employees can focus on value-added work that differentiates a business.

Machine learning helps people work faster, better and more securely.

It makes companies more secure by minimizing spam and detecting potential security threats. It makes employees more efficient by identifying routine tasks that can be automated and alerting employees to potential errors in a process before they occur. It’s part of a technology foundation that enables business intelligence tools to deliver actionable insights from the enormous volumes of new business data.

Machine learning also adds new functions such as vision and speech recognition that improve business processes with better information.
When combined, ML, AI, and cognitive computing revolutionize the way we work, how industries operate, and how society functions. While these technologies increase efficiency and cut costs – the biggest gains come from creating new value, enabling new business models, creating entirely new markets and revenue sources. By significantly shortening cycle times – such as an insurance case study of shortening a process from eight weeks to eight hours to just three seconds – these technologies eliminate waste and inefficiencies – at the same time mitigating risk.

The revolution has already begun.
Machine Learning

Sarah Austin  
Board Member, Investor, Author, & Startup Advisor, Finworx

The future of information workers depends on making choices with the support of sound data.

Good data leads to good decisions. Information workers need to know how to use data and apply it – or become obsolete.

Although using data is essential, it’s not enough to be data driven. The future is automated with machine learning. People who can figure out how to automate as much of their job as possible are the ones most likely to survive. It could be automating two or three hours a day on email.

Young bright minds are coming out of college with their own automation tools that make them 10x more productive.

With the speed at which industries are changing, it’s hard for people to have experience in every area before applying for a job. What’s important is hiring people who are willing to learn. It’s about adaptation and having core skills to build on.

Learn more
Machine Learning

Stewart Rogers
Director, Marketing Technology, VB Insight (a VentureBeat product)

Machine learning is leveling the business playing field.

No longer do only the largest of enterprises have access to insights from massive data sets – it is delivering knowledge into everyone’s hands. It lets those that are responsible for innovation, and business goals, focus on what they do best.

By enabling access to, and understanding of first-, second-, and third-party data, every size of business is now in a position to focus on being progressive, dynamic, creative, and customer-centric. And intelligent automation takes those tenets further by reducing high-waste, menial tasks, leaving stakeholders to concentrate on the tactics and strategies that are likely to make a significant difference to the business.

In short, intelligent automation through machine learning helps to increase competition across every industry, which is ideal for safeguarding the future of innovation and consumer choice.
Analytics

**Analytics and insights don’t just impact digital transformation, analytics and insights must drive it.**

Digital transformation for an organization means fundamentally changing how they do business, and for ultimate success, customer-centricity must sit at the hub.

Big data and analytics are only as potent to an organization as the questions that are asked of the data. Asking the right questions drives insights that can steer the organization toward owning their customer’s journey, thereby circumventing the potential of being disrupted by a competitor.

Many companies can get overwhelmed by the digital transformation imperative, but I believe it’s the questions asked of the data, and the insights gleaned that give a much clearer picture to the organization of where they need to start and how they need to progress forward.

Digital is ubiquitous, so understanding your customer journey, how your internal teams are communicating and accomplishing their goals, how your organizational culture is structured around progress, innovation, and supporting agile, is critical.

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**Tamara McCleary**
CEO, Thulium.co

**Daniel Newman**
Principal Analyst & Founding Partner, Futurum Research + Analysis

**Brian Fanzo**
CEO, iSocialFanz LLC

**Gregory Piatetsky-Shapiro**
President and Editor, KDnuggets

**Mark W. Schaefer**
Executive Director, Schaefer Marketing Solutions LLC and Author of KNOWN

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Learn more
Besides a people led strategy of building cultures of innovation, perhaps nothing is more important to digital transformation than the proper utilization of data and analytics.

For too long, business decision making has been driven by gut decisions and in the age of data, everything is measurable. With the power of data, companies can better understand their customers. They can use endless streams of data to improve their products, services and experiences, AND they can adapt and innovate faster too. Proper use of data leads to better decision making today and a better understanding of your business now and into the future.

By becoming a company that embraces data, you become a company that is prepared to meet and exceed the needs of your customers no matter how rapid your industry is disrupted.

Proper use of data leads to better decision making today.
A result of digital transformation success is an increase in data clarity which ultimately results in more actionable data for business. Our dependence on analytics and insights in real-time will drastically increase in many cases allowing for more accurate predictions of the future while increasing the strategic business decisions available today.

Digital transformation is more than just technology change, it also requires a mindset shift which will change who & what we hire for in regards to analytics and insights. The focus must be on translating the insights gained from digital transformation analytics into business results that include context and real-time inputs. Digital transformation leverages real-time analytics and insights to provide results of the business and customers at the right-time.

Businesses must shrink the distance between the business decisions makers, the customers, and those leveraging analytics and insights in order to leverage the full benefits of digital transformation.

Data never tells the entire story. Data gives you context to tell a good story!
Analytics

I expect analytics and machine learning will be embedded in almost every step of business processes, continuously optimizing them and customer interaction. This will improve efficiency, but has a danger of limiting choices, since customers are likely to see only what they are predicted to like.
Analytics

Mark W. Schaefer
Executive Director, Schaefer Marketing Solutions LLC and Author of KNOWN

Analytics can be used to not only guide us but inspire us.

Digital transformation is not necessarily about technology.

We can get technology to do whatever we want. Getting the people to change is usually the hardest part. I think there is a great opportunity for analytics to guide us, inspire us and reinforce a culture that points us in the right direction.
Thanks to cryptocurrency, we have heard about some of the financial uses of Blockchain to secure investments and business transactions. That’s just the beginning and a small slice of what will come next.

Blockchain will secure accounting, inventories, shipping, and every type of shared database – eliminating much of the drudgery and tasks of accounting department and other job functions and reducing costs.

After that, we can really start changing the world with blockchain in ways we haven’t yet truly imagined. All record keeping, marketing, politics, health care will be secure. Lawsuits, insurance and sales cost reduced for a safe, frictionless move to an era of abundance.

Blockchain will change everything about the way we do business.
Blockchain Technologies

Vinny Lingham  
Co-Founder and CEO, Civic.com

Blockchain will increase efficiencies by removing the need for trusted third parties to verify transactions or provide auditing.

By creating peer-to-peer trust within and between organizations and entities, large cost savings will be achieved.

Some of the industries to be impacted first will be supply chain, contract & trade settlement.
Blockchain Technologies

Wherever people, processes, businesses, governments, or the social good requires proof of identity, ownership, transactions, or commitments; blockchain technologies promise to meet those needs with a degree of trust and integrity never before possible.

While blockchain has been adopted initially in financial services, they are spreading into healthcare, energy, supply chain, and government. One interesting application is in the area of supply chain provenance – tracking the ownership of assets.

By tying multiple entities together with accurate, reliable information, blockchain plays a crucial role in enabling digital transformation.

There are now systems for tracking the ownership of diamonds from their source through to retailers. This way, people can be certain that they are not inadvertently purchasing so-called ‘blood diamonds’.

By providing the infrastructural glue tying multiple entities together with accurate, reliable information, blockchain plays a crucial role in enabling the digital transformation of business to the benefit of all.
Blockchain Technologies

Ian Moyse  
UK Sales Director, Natterbox Limited

Blockchain will deliver us a new type of internet, one which aids the removal of intermediaries.

Blockchain is an ingenious invention for sharing of anything with a core value. It makes the nature of digital transactions more secure and will disrupt many industry economies and the status quo of how they work and who leads. Blockchain empowers the removal of fees and risks posed by the middle people and will impact a wide range of sectors from the obvious fintech through to stock trading, crowdfunding, supply chain auditing and consumer areas such as e-books.

Increasingly we will see a closer, if not direct, connection between core supplier and end consumer.

Learn more
Blockchain Technologies

Derin Cag  🌐🔗
Founder and CEO, Richtopia

Blockchain will transform the management of transactions by providing accurate automation and reliable security.

Blockchain disrupts:
• Corruption by enforcing the condition of being transparent.
• Mundane industries by opening a vacuum for new and more sustainable developments.
• The underworld and makes machines safer from cyber-crime.
• Mundane tasks by connecting with smart machines.

In the new world, blockchain technology will enforce the growth of Gross Domestic Product (GDP) through virtuous commerce and align with the United Nations’ Sustainable Development Goals (SDGs).

Learn more
Blockchain Technologies

Mark van Rijmenam
Founder, Datafloq

Blockchain will do for transactions what the internet did for the sharing of information.

One way or another everything will change with blockchain.

Most of the time, third parties are used to verify transactions such as when you transfer money or when you buy a house, but even when you step into an Uber. With Blockchain, such intermediaries can disappear. They will simply no longer be needed.

In the words of Goldman Sachs “the blockchain will change...well everything”.

Today’s organizations, no matter what industry, all need to work very hard to understand what this will mean to them.

Organizations need to prepare for the future by focusing not only on blockchain, but also on Big Data Analytics and Artificial Intelligence. These three are the holy grail of doing business tomorrow.
Big Data

Kirk Borne, Ph.D.  
Principal Data Scientist & Executive Advisor, Booz Allen Hamilton

To remain agile in this hyper-connected world, businesses must be able to quickly transform data from bytes to knowledge.

The transformation of data from bytes into information and knowledge is the goal of machine learning algorithms and intelligent analytics applications.

Such transformations are imperative, since they accomplish the essential reduction and distillation of massive volumes of data into critical insights. This is what digital businesses need in order to ideate, innovate, and initiate actions at scale in response to the information flood emerging from Internet of Things devices and sensors.

Smart algorithms will enrich sensor data with value-added information regarding context, linked entities, events of interest, and emergent behaviors of people, products, and processes.

Blockchain can be used to record and transmit securely the corresponding information nuggets and their interrelationships across the business.

The more compact, informative, and digestible these knowledge representations can be made (through Machine Learning and intelligent algorithms), then the more agile and responsive the business will become in the hyper-connected world.
Big Data

Claudia Imhoff  
Founder, Boulder BI Brain Trust

We literally have, at our fingertips, access to an entire world of knowledge.

We are in a period of breath-taking innovation in the technologies that support next generation analytics and decision-making.

With access to an entire world of knowledge, enterprises finally have the ability to quickly sense and respond to any situation – as it is unfolding – securely and confidently.
Big Data

Christina “CK” Kerley
Innovation Speaker & Futurist, allThingsCK

Humanity can now move from The Information Age into The Intelligence Era.

The pairing of the 21st Century’s greatest resource, Big Data, along with the 21st Century’s greatest collaborator, Artificial Intelligence (AI), will enable companies, organizations, and worldwide agencies to track massive streams of information that has always been invisible to us…and transform it into intelligence that will elevate us to: detect threats in advance, identify opportunities, discover cures, discern risk, personalize customer offerings, realize our greatest achievements, and solve our biggest problems.

Whether it’s delivering on the promise of personalized medicine, averting financial risks, leveraging global growth opportunities, preventing epidemics, bolstering the emerging markets, stemming climate change, or advancing scientific breakthroughs, Big Data (Information) and Artificial Intelligence (intelligence) are not only pivotal – they are hands down, and without question, the paramount technologies of our time.

Learn more
Big Data

Yves Mulkers  
Founder, 7wData

The possibility to simulate more results in better products and processes, bringing us more comfort and quality of life.

Data to information will continue to extend beyond our imagination, thanks to ever-increasing computing power. New CPU architectures are being developed for massive data crunching and optimizing data centers.

Thanks to the more powerful and miniaturized hardware, computing can move to the edge, and happen decentralized. This will allow individual devices to become smarter. Smart devices, off the grid computing, onboard AI, sensors everywhere, will create a smart grid, and allow the process to become self-optimized.

We will have the possibility to simulate more, at lower cost, resulting in better products and processes, bringing us more comfort and quality of life.
Three of the more critical aspects of business today are:
- Customer Experience
- Data
- Speed

However, leveraging these three are easier said than done. Each aspect brings a different problem to the forefront. Yet, they must leverage each other in a meaningful way.

This is where the role of selecting the right platform among a wide spectrum of solutions becomes critical. The key is in understanding the right mix of requirements for your business in selecting the right tools. And the best way to start is to adopt a customer-first orientation to guide your decision making.
Innovation at scale requires foundation, freedom, and flexibility.

A wide variety of cloud services have been developed to solve or automate many business problems so that businesses can focus on innovating new solutions.

Cloud platforms provide personnel with the freedom to work wherever they are so that their creativity is not constrained by their environment, nor their availability reduced by their location. The cloud also offers companies the flexibility to add, grow, or remove services rapidly as needed, so they can stay agile in a shifting technological landscape.

The underlying cloud digital platform provides a foundation of best-of-breed solutions that businesses can build on.
Cloud Platform

Dr. Craig Brown
Senior Big Data Architect & Data Science Consultant

Open APIs have improved the way enterprises deliver the right data to the right consumers via the right technology.

Open APIs have become another pathway for enabling enterprises to undergo effective digital transformation. When performed as an ecosystem, this allows open API’s to provide much needed data security throughout the data platform, adding a critical requirement to this ecosystem.

The use of open APIs combined with an agile framework and digital platform, allows business to more easily develop applications that can be freely assembled to meet the needs of the consumer.

Open APIs have significantly improved the way enterprises securely deliver the right data to the right consumers via the right technology transparently.
Cloud Platform

Eric Kavanagh  
Strategic Consultant, United Nations

A global digital cloud platform enables innovation across corporate and cultural boundaries.  

The cloud provides an ideal marshaling area for both data and services.  

When the architecture uses in-memory technology, clients can benefit from the latest innovations in real-time, thus expediting time to value, and reducing the friction that hampers customer experience.  

And because the cloud is global, it enables innovation across corporate and cultural boundaries. That’s when the real magic happens – when professionals from all walks of life can collaborate in real-time, share their vision, hammer out the details, and launch new offerings in a fraction of the time it took just two years ago.  

Consumers expect a high level of service. Companies that deliver it will thrive in the information economy.
Cloud Platform

Holger Mueller  
VP & Principal Analyst, Constellation Research

We are living in exciting times, where for the first-time technology capability has surpassed the demands of business best practices. We are living in an era of experimentation and innovation, in which the next generation of best practices for the 21st century still has to be defined.

In order to be prepared for rapid change and the ability to respond in an agile way, enterprises need more flexible platforms than they had in the past.

But a modern PaaS platform isn’t enough, business functionality needs to be broken into smaller pieces with the help of APIs, executed in more leaner ways with micro services and all brought together in a leaner and more agile way than ever before – to build the next generation applications the enterprise needs.
Final Thoughts

To learn how digital leaders set themselves apart, view our latest SAP Digital Transformation Executive Study.

Is your business ready to transform at scale with digital innovation?

To learn more, visit: sap.com/leonardo
Final Thoughts

Michael Krigsman  
Industry Analyst and Host, CXOTALK

Digital transformation means collaborating across boundaries – sharing info among multiple departments and organizations.

The challenge of breaking down silos and information barriers demands that we build fundamentally new relationships, with incentives to share, rather than withhold, information.

At a technology level, modern cloud software anticipates aggregating data from multiple sources to be used for predictive analytics and personalizing customer experiences of all kinds. For the foreseeable future, data holds the key to new business models based on gaining deeper insights and understanding about the world.

From Machine Learning to IoT; from Blockchain to robo-investing tools; data is the currency of digital transformation. The ability for users to take advantage of that data requires a platform to aggregate the data and expose it through APIs.

With the right platform and APIs, developers can create software and tools that enable users to build new business models, share and collaborate across boundaries, and develop a “transformational mindset.”
Final Thoughts

Dion Hinchcliffe  
Chief Strategy Officer, 7Summits

Gain advantages in today's integrated digital arena with preparation, vision, and strategy.

As nearly every meaningful element of life becomes digitally networked – from connected objects and offices to intelligent factories and smart cities – the next horizon for scaling business value will come from making the most of the limitless possibilities this profound and pervasive connectedness represents.

To achieve these possibilities, the right enablers are required, as the next-generation of business will be much more complex than the last. Thus, the organizations of the future will discover and use powerful new ways to navigate, manage, and wield this complexity as a sophisticated tool to develop new markets.

Organizations that can best employ technologies like the IoT, Machine Learning and advances in analytics and Big Data to innovate, re-imagine, and transform on top of the real-time ocean of intelligence and interactions that they unleash are the ones that will lead the industries of the future.