Making AI the Killer App for Your Data

A practical guide for leveraging data to enable your AI journey
June 2018

Executive Summary

Decision makers, stakeholders, and influencers from the C-suite to business operations and IT agree that there is strong, transformative value in artificial intelligence (AI) with the potential to disrupt and replace business architectures and enterprise software. However, the jury is still out on how best to unlock the value.

As is to be expected with nascent technologies, organizations are knee-deep in AI pilots and proofs of concept (PoCs) largely focused on a "bolt-on" approach: applying AI at the edge of the enterprise and foraying piecemeal into exciting but isolated use cases such as adding intelligence to robotic process automation (RPA) activities or testing conversational services such as chatbots.

To help enterprises formulate their strategies for actionable and effective use of AI, HfS and IBM have jointly developed a practical guide to starting your AI journey, leveraging insights from IBM's Institute for Business Value (IBV) and recent HfS research, as well as real-world experiences, gleaned from interviews with clients and field practitioners.

The four success factors for the AI journey are:

1. **Strategy: *Don't forget the "why"***. Your AI strategy needs to be driven by the desired business values and outcomes. AI is a means to an end, not an end in itself. Start with the end goal in mind.

2. **Data: *There is no AI without data*.** When enterprise data is coupled with external data and made accessible via a platform, you can unlock endless AI opportunities. Without accessible data in the right format, there is no AI.

3. **Execution: *Avoid AI tourism*.** Understand the need, build the solution, and execute with scale in mind.

4. **Change: *Change heads, hearts, and hands*.** Building the necessary skills required to enable technological and process changes requires significant change management focus to successfully re-train your talent pool, maintain the culture, and achieve scale.

Staying true to these four simple steps ultimately enables AI and other exponential technologies to become key differentiators for the enterprise.

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What are the building blocks of AI?

AI is many things: It is hyped, it is undefined, it is becoming pervasive, and it is fostering emotional and at times, heated discussions. However, many of those discussions are more focused on consumer-facing technologies such as self-driving cars, package delivery drones, or robotic home helpers. The broader market has not yet fully come to terms with the impact of AI on B2B and enterprise operations.

Artificial intelligence (AI) refers to the simulation of human-thought processes across enterprise operations, where the system makes autonomous decisions using high-level policies, constantly monitors and optimizes its performance, and automatically adapts itself to changing conditions and evolving business rules and dynamics. It involves self-learning systems that use data mining, pattern recognition, and natural-language processing (NLP) to mimic the way the human brain works, without continuous manual intervention.

It is critical to understand that AI is not one technology. It is a set of technologies and building blocks that include NLP, machine and deep learning, neural networks, virtual agents, autonomics, and computer vision. See Exhibit 1 for a depiction of the various building blocks included under the umbrella of AI. Examples and use cases of the AI building blocks are included in the Appendix.

Exhibit 1: **The Building blocks of AI**
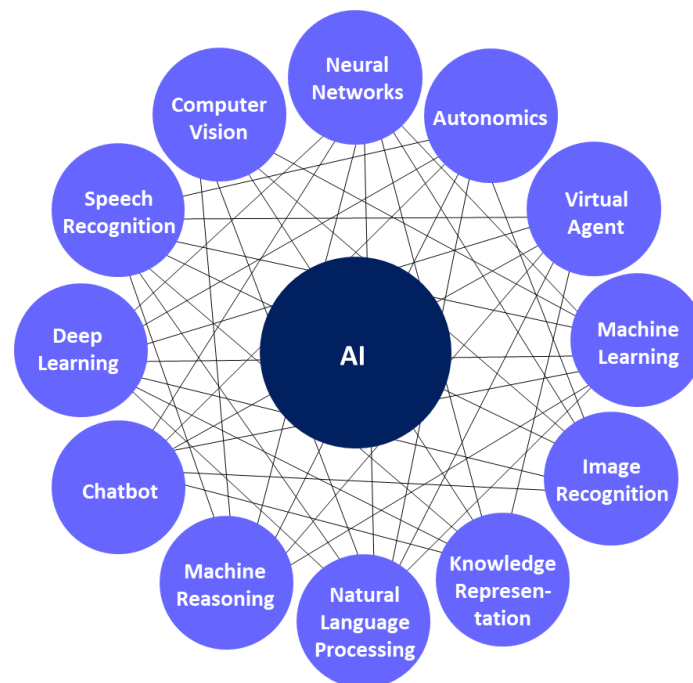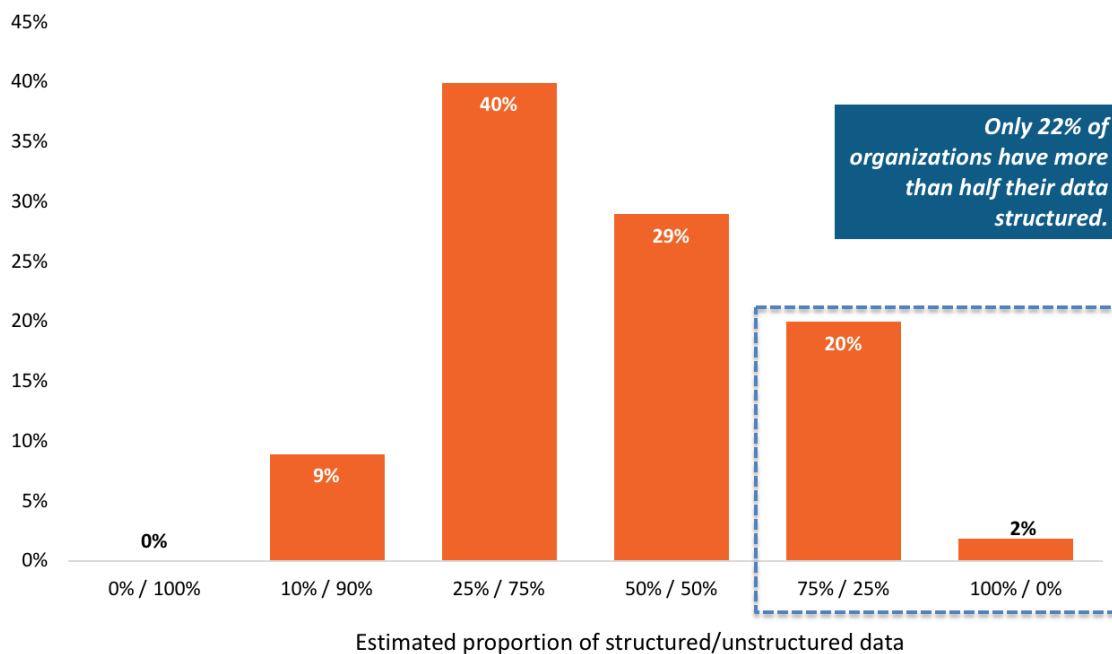

Source: HfS Research, 2018

What role do data and data management play in enabling AI?

AI is not plug-and-play. It requires data to provide baseline knowledge and context and to enable it to learn from its experiences. This data can be internal proprietary data, externally licensed data, or publicly available information. Format-wise, it can be structured (i.e., with defined length and format such as dates, names, and zip codes) or unstructured (i.e., lack defined structure or format in text, audio, or visual artifacts such as email, texts, voicemail messages, or video). There is also a time parameter where data can be historic or real-time. Moreover, the relationship of data to AI is ongoing—AI systems continue to gather data as part of machine learning to deepen their knowledge base.

The data that AI requires is "learnable" data—data known to contribute to inference. Crucially, those algorithms enabling these inferences need to be trained in order to leverage the data sets in production. This is accomplished with data that is scalable, flexible, and structured appropriately. To progress toward autonomous processes requires access to unstructured data, which is not easily harnessed in most enterprises. As shown in Exhibit 2, HfS research of 460 Global 2000 enterprises reveals that the vast majority of data in most enterprises is unstructured data. With access to greater quantity of and more relevant data sets, and as AI technology itself matures, AI will eventually expand beyond domain-specific tasks.

Exhibit 2: **The state of data in enterprises**
Q: Can you estimate the proportion of structured vs unstructured data in your organization?

Only 22% of organizations have more than half their data structured.
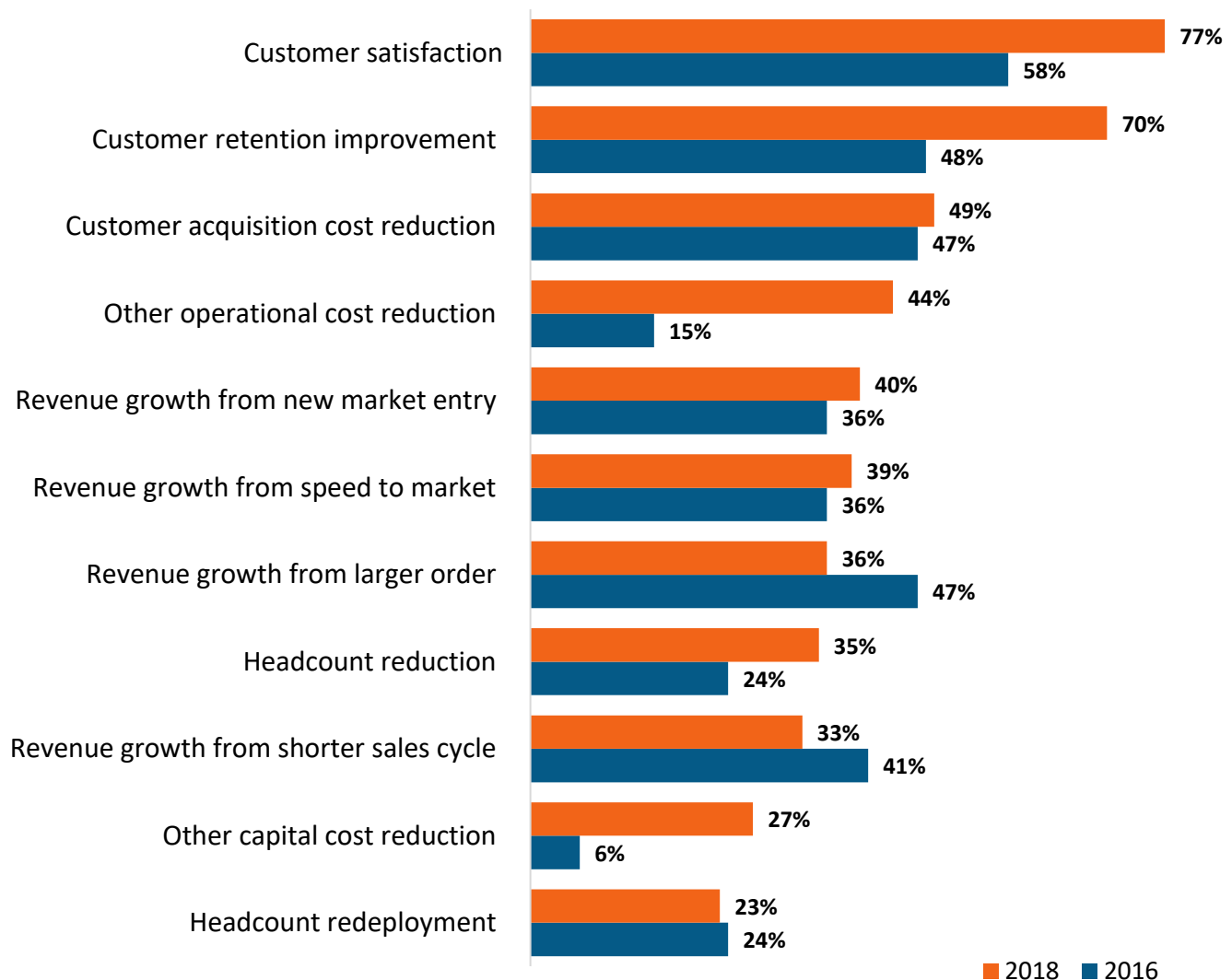
Estimated proportion of structured/unstructured data

Source: HfS Research 2018; Sample: Global 2000 Enterprise Buyers = 460

To start though, companies should make use of the data they have, can access, and can process. Data management principles come into play in order to ensure that data is scalable, flexible, and structured correctly so it can be consumed. A fundamental difference between good AI and great AI is the quality of the data consumed. At the start of the journey, enterprises with limited data quality may achieve lower-grade certainty of AI results. But as they crystallize their data strategy and improve data quality, quantity, and accessibility over time—paired with machine learning feedback loops—they can iteratively drive better outcomes.

What can your enterprise achieve with AI?

The market perception of the value and benefit of AI continues to percolate through many enterprises. Research conducted by the IBM Institute for Business Value (IBV) showcases the changing perceptions of value from 2016 to 2018. As shown in Exhibit 3, executives continue to rank customer satisfaction and retention as primary objectives of their AI investments—significantly above cost considerations and even more highly than before. However, the biggest change from 2016 to 2018 is the growth in focus on reducing operational cost. Our interpretation is that companies have become clearer and more discriminating in what is important to their enterprise AI strategy and to particular use cases over the last two years. They are shifting from experimentation to "enterprise-grade AI." The relative value derived from any engagement will, of course, be tied to overarching business objectives and how initiatives are being implemented and executed.

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Exhibit 3: **Value drivers for implementing AI 2016 versus 2018**

Value driver	2018	2016
Customer satisfaction	77%	58%
Customer retention improvement	70%	48%
Customer acquisition cost reduction	49%	47%
Other operational cost reduction	44%	15%
Revenue growth from new market entry	40%	36%
Revenue growth from speed to market	39%	36%
Revenue growth from larger order	36%	47%
Headcount reduction	35%	24%
Revenue growth from shorter sales cycle	33%	41%
Other capital cost reduction	27%	6%
Headcount redeployment	23%	24%

■ 2018 ■ 2016

Source: IBM IBV AI / Analytics survey with Oxford Economics, 2016 and 2018; N = 5001

While the potential value of AI is starting to crystallize, the recent HfS study, Enterprise Artificial Intelligence Services 2018, suggests that achieving that value is another story. The market is awash with pilots and proofs of concept (PoCs) around RPA extension, autonomics, and conversational services. However, these are being applied to small, specific use cases such as chat bots, which don't adequately reflect the scale of potential benefits or the complexity and investment required to achieve them.

A useful context for understanding the potential benefits of AI is the journey of organizations toward the Digital OneOffice Framework. HfS' OneOffice Framework illustrates that digital customer experiences are only possible when enabled by an intelligent, unified operating model.
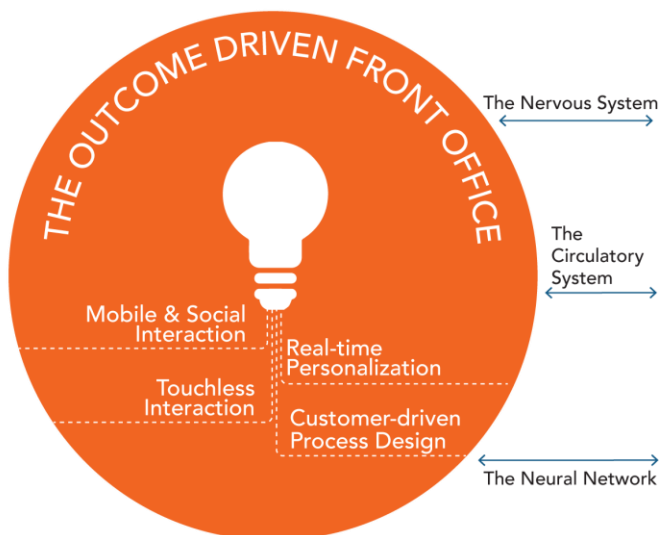
OneOffice is when the needs and experiences of the customer are front and center to the entire business operations, where the old barriers between corporate operations functions (often referred to as "front" and "back office") are eroded, and where the constraints of legacy ERP systems are minimized to allow the business to invest in digital technologies and intelligent automation capabilities that enable the company to cater to its customer needs at the forefront of its markets and respond quickly if these needs change unexpectedly. Moreover, with the smart use of predictive analytics and AI, enterprises can start to anticipate changing customer needs or even identify new business opportunities by leveraging external insights and market information. For example, market developments such as weather fluctuations, changing regulations, trade tariffs, data privacy issues, and global logistics information can help a business anticipate unexpected customer needs before they occur and prepare accordingly.

In short, OneOffice is the endgame of digital transformation, where the digital organization can work in real-time to cater to its clients. It's where the intelligence, the processes, and the infrastructure can come together as one integrated unit, with one set of unified business outcomes tied to delighting customers. Please refer to Exhibit 4 for a graphical representation of the Digital OneOffice.

Exhibit 4: **HfS Digital OneOffice Framework**

The HfS Digital OneOffice™ Framework

The Customer Centric Digital Organization

THE OUTCOME DRIVEN FRONT OFFICE

Mobile & Social Interaction
Real-time Personalization
Touchless Interaction
Customer-driven Process Design

The Nervous System
The Circulatory System
The Neural Network

The Empowering Digital OneOffice

Digital Underbelly
» Digitization & Automation of Processes
» Cloudification and Security
» Unification of Data

Intelligent Support Functions
» Autonomous and Agile Working Culture
» Inclusive Digital Mindset
» Unification of Outcomes
» LEAN & Design Thinking

Predictive Digital Insights
» Predictive analytics
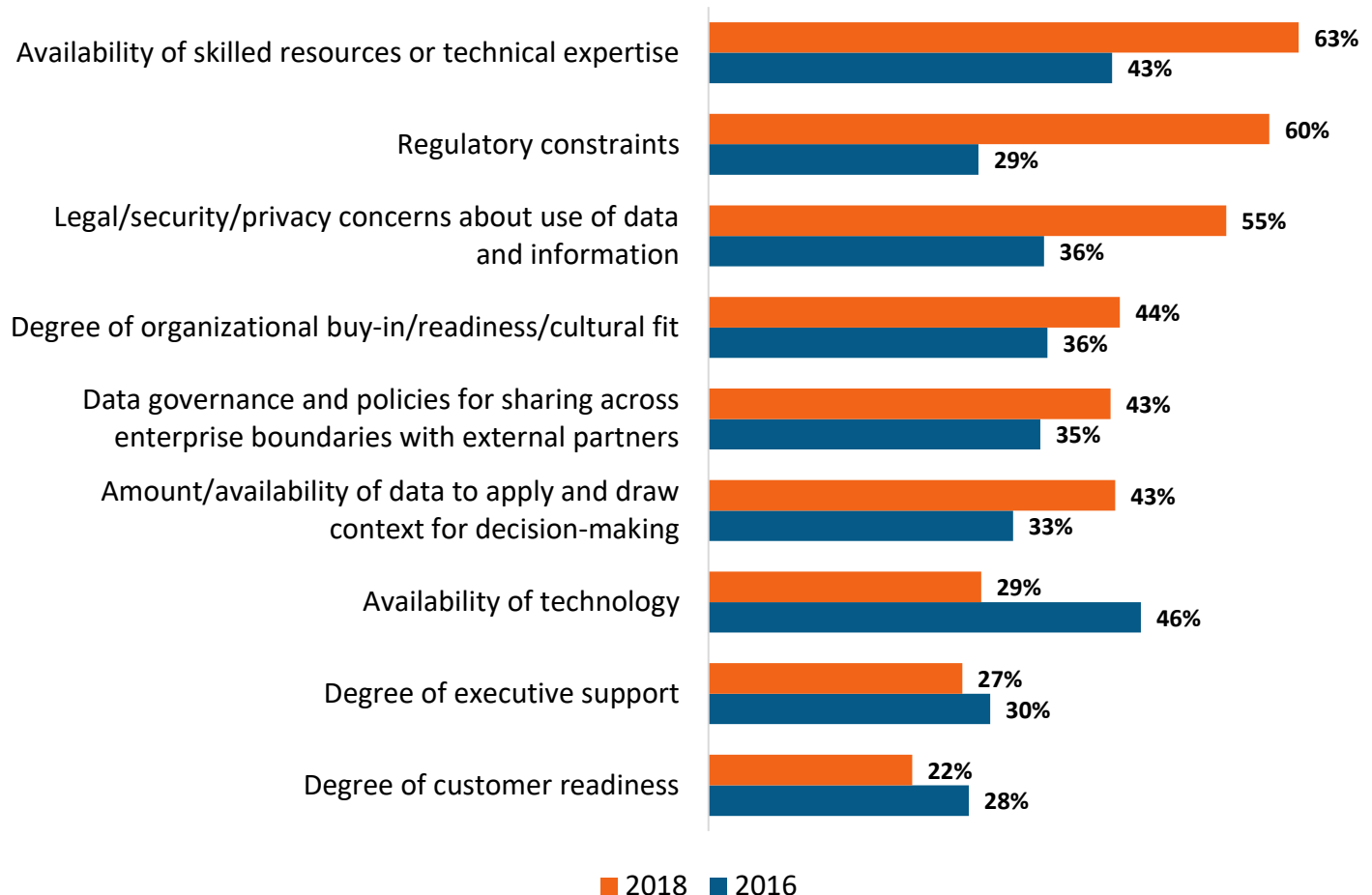» Cognitive AI Processes
» Machine Learning
» Blockchain and IoT

Collaborative, Unified, Dynamic, Intelligent, Responsive, Simple

Source: HfS Research, 2018

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What are the practical steps to starting your AI journey?

So where do enterprises start in order to embrace catalysts such as AI, smart analytics, and automation to make the journey to the Digital OneOffice? IBM IBV researched barriers to AI adoption in 2016 and again in 2018. As illustrated in Exhibit 5, in the relatively brief span of two years, the results show a shift away from concerns about the availability and maturity of AI technology, to the availability of talent, as well as regulatory and privacy concerns. The barriers themselves have changed in tenor from fundamental "Is it possible?" issues to those focused on execution and adequate governance and oversight, indicating a general market acceptance that AI is indeed possible. Enterprises are ready to move, but just like the early RPA days, they urgently need realistic guidance and thought leadership.

Exhibit 5: **Barriers to implementing AI—2016 versus 2018**

Barrier	2018	2016
Availability of skilled resources or technical expertise	63%	43%
Regulatory constraints	60%	29%
Legal/security/privacy concerns about use of data and information	55%	36%
Degree of organizational buy-in/readiness/cultural fit	44%	36%
Data governance and policies for sharing across enterprise boundaries with external partners	43%	35%
Amount/availability of data to apply and draw context for decision-making	43%	33%
Availability of technology	29%	46%
Degree of executive support	27%	30%
Degree of customer readiness	22%	28%

■ 2018   ■ 2016

Source: IBM IBV AI / Analytics survey with Oxford Economics, 2016 and 2018; N = 5001

As with any nascent market, best practices are beginning to emerge alongside the (hopefully fast) failures. Reviewing experiences from early AI implementations as well as those from the slightly more mature and less complex RPA market begins to yield some practical approaches to AI.

The following represents a continuum of practical recommendations for starting and scaling your AI journey gleaned from HfS interviews with those involved in a range of AI-focused customer engagements. These recommendations from the trenches are intended to be useful regardless of where you are starting with AI. As with any technology-centric initiative, the journey must be framed by the intended strategic outcomes. What's unique to AI is the role that a strong data foundation plays in determining the scalability, and ultimately the volume and velocity of its associated impact. Exhibit 6 outlines the four success factors underpinning our practical recommendations.

Exhibit 6: **Four success factors for starting your AI journey**

Source: HfS Research and IBM, 2018

1. **Strategy:** *Don't forget the "why"*

   » **Creating a business-value-driven AI strategy.** For every moment you spend trying to execute on the how of getting digital transformation done, the approach has to tie back to the why and what business value you are trying to drive.

   » **Improving a business through digital transformation requires an enterprise-wide approach.** All efforts, top-down and bottom-up, need to support the same focus and approach, even at the task level. This requires C-suite commitment to set the business outcome directives, framework, and coordinated business and functional experts to help define the focus and execute the vision.

2. Data: *There is no AI without data*

» **Don't avoid AI because you think you have no usable data**. Every enterprise has some good, usable data that's clean and accessible. Use it as a means to get started and drive quick wins—while your organization creates a clearer overall data strategy. Always start with the value you want to create and then see what you have that can help enable it. A trucking company in a low-margin transportation industry niche wanted to build new revenue streams. It leveraged internal location data from its trucks and combined it with licensed data sources to launch a new truck-based smart advertising business that cognitively optimizes ads based on location, weather, and other information.

Every enterprise has some good, usable data that's clean and accessible.

A US federal government agency leveraged a combination of public, licensed, and proprietary data to build a cognitive decision engine and employee dashboard to help automate and communicate critical transportation decisions.

» **Internal, proprietary data is not your only source to power AI initiatives**. Licensed sources (e.g., The Weather Company, Bloomberg) and publicly available data (e.g., public company filings, transit schedules) can be used alone or in concert to enable data-based decisions and cognitive learning. A US federal government agency was losing millions of dollars a month and putting its employees at risk due to adverse weather conditions impacting transit to work. It leveraged a combination of public, licensed, and proprietary data to build a cognitive decision engine and employee dashboard to help automate and communicate critical transportation decisions.

In another example, a quick-service restaurant leveraged hyperlocal data from IBM MetroPulse in combination with its own footfall data to improve location targeting, resulting in notable visit lift gains.

» **Achieve near-term results in parallel with longer-term data management plans**. There are a variety of tools such as accelerators, adapters, plug-ins, and microservices that can assist in getting data into a format that can be optimized for AI and analytics purposes. Time is of the essence for most companies, thus getting access to and optimizing current data stores through various accelerators can move the needle while larger data management structure concerns are addressed.

» **Make data the cornerstone of your delivery strategy**.
The holy grail of service delivery is at the intersection of automation, analytics, and data, particularly around the blending of iterative data inputs with minimal training of algorithms. Invest in talent that blends data engineering and data science, as well as expertise that can appropriately apply automation and analytics to solid data platforms, libraries, and machine learning. A recent IBV survey has found that many of the early adopters of AI are also those with the most sophisticated data and analytics capabilities.[1]

3. Execution: *Avoid AI tourism*

» **Scale or fail**. AI is cool and proofs of concept are on the rise, but many of them never reach the pilot or production phase because they are not focused on solving a critical business issue, do not have senior executive support, or have no plan for scaling. We refer to this as "AI tourism." If AI PoCs are not aligned to a specific business outcome and lack a vision for production, then they are a waste of time and effort.

» **Nothing has bold impact in isolation**. Enterprises need to always ensure coordination across AI initiatives. The connective tissue that links project execution to enterprise value creation is the architecture and constant focus on supporting and enabling the corporate vision for transformation and business outcomes. A good Center of Excellence (CoE) with integrated IT and business leadership, strong governance, and change management principles can help create and manage this. The easiest part of mitigating the silo effect is regular and frequent communication with all stakeholders.

» **There is no singular starting point for automation and AI journeys.** Where to begin depends on the company's structure, needs, and the burning business problem(s) it is trying to solve or outcomes it is trying to achieve. A retail company that wants to embrace digital marketing to improve cross-selling but with no integrated data across brands will need to start with optimizing its data structure. A financial institution looking to improve its cost-to-income ratio will likely start with RPA and AI-

> A retail company that wants to embrace digital marketing to improve cross-selling but with no integrated data across brands will need to start with optimizing its data structure.

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[1] IBM IBV AI / Analytics survey with Oxford Economics, 2018

enabled RPA to begin refining processes and removing cost. Regardless of the starting point, there is always a need for good, accessible, and well-managed data.

» **Focus on re-imagining your processes rather than applying AI as patchwork.** The ultimate goal of your AI projects should be to solve problems that can't be solved with other technology and approaches. Seek out specialist consultancies that can help drive the process leveraging approaches such as design thinking to reimagine your processes, co-investments to share risk, and innovation through collaboration.

» **Once you have achieved a minimum viable AI product, you need to reflect on what's necessary to scale the model**. You need to plan how to scale early, or you simply will not scale. This is often where enterprises get serious about data management. Because if you don't scale, you are just an interesting project.

4. Change: *Change heads, hearts, and hands*

» **You need talent that understands the intersection of data and algorithms, as well as their impact on process chains and workflows**. The moment you move out of the realm of lower level RPA, forget about notions of plug-and-play. AI projects require highly specialized talent and as shown in Exhibit 7, these skills are lacking. Many enterprises are using a combination of training, hiring, and partnering to obtain the skills they need. Talent that blends data engineering and data science with an understanding of the business processes involved is ideal. Without this talent, you cannot scale.

Exhibit 7: **Organizations lack needed data science, machine learning, and AI skills**

Most organizations do not have the necessary data science, machine learning, and other AI or cognitive talent

Percentage of respondents that agree their organizations do not have the necessary data science, ML, and AI skills today
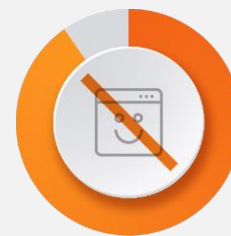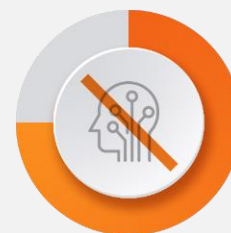
90%
of organizations using basic process automation

89%
of organizations using advanced process automation

75%
of organizations using intelligent process automation

Source: The Evolution of Process Automation, IBV 2018

» **Collaborating with an experienced partner can help drive speed to solution and business results.** Commitment-driven co-innovation with defined objectives and milestones can yield strong results. Partners dramatically help with speed, talent, and technology. Success is ultimately dependent on ensuring commitment and a laser-like focus on achieving outcomes. Partners can help you scale and stay on track.

» **Change management is key**. Organizations today still see a lot of headcount reduction from RPA and AI, which causes automation anxiety. Changes in how work is done and the role human talent plays require holistic change and cultural management. This is not a one-time event. Your ability to manage ongoing IT and business change with the buy-in of your employees can be the difference between success and failure. Lessons learned from outsourcing can be helpful here.

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AI Journey Spotlight: Groupama Italy embraces telematics to transform its business from covering risk to preventing risk

One of the companies in HfS' research that is embracing data and AI is Groupama Italy through its telematics services subsidiary G-Evolution. Groupama Assicurazioni (Groupama Italy) is the Italian subsidiary of Groupama, an insurance and banking group of mutual origin based in France. Groupama Italy is the number nine player for non-life insurance products and offers general insurance, life insurance, pension and savings services.

In 2014, Yuri Narozniak was appointed as the deputy CEO of Groupama Italy. As part of his responsibilities, he led strategic and corporate projects aimed at innovating products and services. At the start of his tenure, he found a company with legacy technology in need of modernization and transformation to help it do a better job at profiling risk, managing fraud, and driving improved customer experiences. For the automotive insurance business, Narozniak set the company's sights on embracing telematics to help achieve these objectives.

In 2015, the company began offering telematics-enabled automotive coverage supported by a third-party company. In Italy, telematics is opt-in. Customers must buy a device for their vehicle, which then entitles them to lower premiums. Groupama Italy began realizing results from telematics including automated analytics, cost reduction, faster claims decisions, and improved visibility into accident circumstances and fraud instances. By 2016, the company was so delighted with the success of telematics that it decided to take the bold step of building its own telematics capability rather than relying on a third party. Narozniak's vision was that Groupama could leverage telematics to move from covering risk to actually preventing risk.

> By 2016, Groupama Italy decided to take the bold step of building its own telematics capability rather than relying on a third party.

Developing Groupama Italy's telematics capability—the birth of G-Evolution

Groupama Italy's mission was to build its own telematics capability to support its business, but with the potential of being utilized across the broader Groupama family and eventually being spun-out for other insurers. The company conducted several months of due diligence in the second half of 2016, searching for a partner that could provide in-car devices, connectivity, and a platform to collect data, analytics, and algorithms to assess risk, cover claims, identify fraud, and avoid accidents. The company selected IBM as its strategic partner based on three core criteria:

1. IBM will not compete against Groupama in the insurance sector;

2. IBM's Watson IoT platform is compelling and proven for automotive;

3. IBM's data structure and security expertise would help Groupama mitigate risk and optimize its data.

Realizing time was of the essence, Groupama Italy's CEO wanted to move quickly and essentially act like a technology-driven insurance start-up. To facilitate this, the company launched its G-Evolution subsidiary, an independent telematics services company. While the longer-term vision is for G-Evolution to provide telematics services to other lines of business and other companies, its first mission was to bring Groupama's insurance expertise and IBM's technology and transformation expertise together to nimbly work as a start-up.

How Groupama managed its vision and drove it to execution

Groupama's ambition was to build its telematics capability in a relatively short time. They commenced work in early 2017 with an objective of being live by December. In this time, IBM and Groupama built an end-to-end vertical solution using Watson IoT for the collection of data from vehicles, a data lake to integrate and structure its myriad data sources, and an analytics environment to generate insights. This also included oversight for the provision and installation of the telematic devices for vehicles.

Initially, simple things were hard. Basic functionality such as matching data from customer accident declarations with the data from the in-car devices was incredibly challenging because Groupama Italy didn't have a platform that integrated the two. This integration and matching were enabled by a data lake solution. Once the matching was enabled, the company was able to move on to testing and validation of data, a previously impossible task when all data and decisioning was provided by a third party.

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> **"Data in the digital economy is the new gold."**
>
> —Yuri Narozniak, former deputy CEO Groupama Italy, former CEO G-Evolution

G-Evolution telematics went live supporting Groupama Italy clients in January 2018. The focus has been on getting the basics correct by developing the platform and optimizing the data. Groupama Italy has now moved from 30,000 telematic-enabled policies three years ago to now almost 500,000 policies, with 35% of its insured vehicle portfolio consisting of connected cars. The company's loss ratio has also improved throughout the journey. And the team is generating tons of new data with the in-car devices—data to which it previously did not have access. In the words of their former deputy CEO Yuri Narozniak, "Data in the digital economy is the new gold".

This telematics system is enabling Groupama to better identify when incidents happen, provide assistance ASAP, start claims faster, and complete claims faster. The Groupama team can detect theft if vehicles are moving at an odd time or using an unusual route. They can even save lives because the system sees when crashes happen and can immediately alert rescue teams. Telematics is helping Groupama deliver a more proactive level of service that prevents accidents while delighting customers.

According to Pedro Bernardo Santos, Managing Director of G-Evolution, this is just the beginning. There is enormous opportunity to further apply Watson and AI. Now that G-Evolution can match telematics data with declaration data, their teams can train algorithms to start automating claim decisions based on facts. Today this process is still manual, but claims adjusters have a lot more data and better quality data. For example, the in-car devices let claims adjusters see what happened the day prior and the day after an incident, providing valuable context in helping to quickly differentiate between real and fraudulent claims. These evidence-based decisions along with their expanded data sets provide even more learnable data with which to train machine learning algorithms.

> **"There is enormous opportunity to further apply Watson and AI… using learnable data to help enable machine learning algorithms."**
>
> —Pedro Bernardo Santos Managing Director of G-Evolution

Scaling G-Evolution

To truly scale G-Evolution and its telematics services business model, it needs to begin layering capabilities on top of the platform it has created. This requires additional investment and generous use of data scientists and developers to build and train algorithms to enable enhanced use of data, analytics, and AI. To scale this vision, G-Evolution plans to:

» **Step 1. Expand to the group level**. France represents 80% of the global Groupama group. It is essential for headquarters to utilize the G-Evolution approach for reputational reasons as well as investment reasons, in order to scale.

» **Step 2. Expand to other insurers**. This expansion approach includes a data monetization strategy that starts with other automotive insurers, then expands to other types of insurance such as home, life, and health.

Yuri Narozniak, the visionary CEO that started Groupama Italy on its telematics journey, is now leading a business for the mothership in France and helping to push the value of data and technology-enabled business to the group level.

Client lessons learned

Pedro Bernardo Santos, Managing Director of G-Evolution, shared some of his key learnings from the experience of setting up G-Evolution. While these lessons reflect the unique experience of his organization, they echo many of the practical themes articulated by other enterprises on their transformation journeys. These include:

» **You need a clear vision of where you are going, but must show iterative results.** If you get too deep into the details of potential investment needs before showing results, you will lose support. Stick to the vision and show results step by step. Convince with results – demonstrating potential and ROI as quickly as possible.

» **Communicate with stakeholders up front, very clearly, and on an ongoing basis**. Transformation is a learning process for everyone involved—Groupama, G-Evolution, even IBM. Treat transformation as an ongoing learning experience and leverage communication to mitigate the silo effect.

> **"If you don't scale, you are just a business accelerator, not a transformation agent."**
>
> —Pedro Bernardo Santos
> Managing Director of G-Evolution

» **If you don't scale, you are just a business accelerator, not a transformation agent.** In one year, G-Evolution and Groupama Italy accomplished their baseline—developed their own telematics, greatly improved their data, and are driving new business for Groupama in Italy.

However, the next step for G-Evolution to expand its business benefits beyond Italy and beyond automotive insurance. This ability to scale is ultimately what determines the volume and velocity of business impact.

» **Don't underestimate the need for talent**. Leveraging learnable data to train algorithms and create additional products and services requires talent not generally available in insurance companies—developers and data scientists. Interim talent can be sourced from service provider partners, but some have to be cultivated in-house in order to best combine inherent process expertise with technology expertise. The integration of these resources also requires a cultural shift to break legacy habits and to foster integration and nimbleness.

Bottom line: A practical approach to AI can yield exponential dividends

While there is a lot of hype and confusion around AI, it is real and has immense value potential for enterprises. At this juncture, it is critical for enterprises to develop a strategy and vision for AI and then begin to execute the use cases and solve the problems that make the most sense for their business objectives. AI ultimately can be best optimized by enterprises with strong data management capabilities. Data, in all its myriad forms, is what ultimately teaches and enables cognitive capabilities. Without access to vast data sets, AI will remain narrow, thus carrying out only specific tasks and failing to generate the volume and velocity to achieve C-suite mandates.

To move toward aligning vision and execution, it's critical to have a clear view of your ultimate end-state for AI and intelligent automation. AI, for all its significant benefits, does not directly provide the business outcome. Instead, it is an enabler to help enterprises achieve their goals effectively, productively, and intelligently. The Digital OneOffice Framework provides this end state of digital transformation, where the digital organization can work in real-time to cater to its clients, rapidly support their needs, and help anticipate changes to the business environment to stay ahead of the market. It's where your talent, intelligent software, processes, and infrastructure come together as one integrated unit, with one set of unified business outcomes tied to delighting customers.

In order to start or optimize your AI journey, HfS and IBM encourage enterprises to:

» **Develop your AI-enabled business strategy**. The vision needs to come from the top with clear desired business outcomes and focus on permeating the mandate throughout the organization.

» **Bring the focus back to data**. Every enterprise has some data that is clean and useful. Don't let poor data quality or quantity be an excuse to put off the journey to AI. Instead start with the data you have, and then use AI as a catalyst for investing in a solid data platform that brings together external licensed and public data to drive broad data sets that enable the training of AI algorithms.

» **Quickly move from strategy to execution**. Pick a starting point that makes sense for your organization and your business objectives. Execute quickly, show iterative results, and earn the right to scale. Communication with stakeholders is critical.

» **Build a path to scale with appropriate skills and change management practices**. Scale by building the team and skills required to grow and leverage AI through internal hires and use of strategic partners while practicing good stakeholder, cultural, and change management in order to execute on the business transformation mandates set out by leadership.

Appendix—AI building blocks

The following provides technology examples and use cases for the core building blocks of AI.

NLP	**Technology**: Nuance, Cortana, Alexa **Use cases:** voice recognition, conversational services
Machine and Deep Learning	**Technology:** Google DeepMind, Tensorflow, Loop AI, Microsoft Cognitive Services **Use cases:** integration of data on an industrial scale, pattern recognition without ontology or knowledge-base, analysis of dark or IoT data
Neural Networks	**Technology:** HIRO, ignio, HOLMES **Use cases:** discovery in accounting, KYC, batch management
Virtual Agents	**Technology:** IBM Watson, Amelia, LivingActor, Accenture myWizard **Use cases:** substitute of IT and business agent, virtual data scientist, virtual scrum master, mortgage broker advisor
Autonomics	**Technology:** IPcenter, HIRO, ignio, HOLMES **Use cases:** password reset in IT help desk, self-healing IT environment
Computer Vision	**Technology:** AntWorks, AlchemyAPI, Clarifai **Use cases:** pattern recognition in images, integration of handwriting

Source: HfS Research, 2018

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About the Authors

Tom Reuner, Managing Partner, Business Operations Strategy and M&A Advisory, HfS Research

Glenn Finch, IBM Services, Global General Manager, Cognitive Business Decision Support

Elena Christopher, VP, Industry Research and Robotic Process Automation, HfS Research

Brian C. Goehring, Associate Partner, IBM Institute for Business Value, AI / Cognitive & Analytics Lead

Cathy Reese, IBM Services, Global Analytics Practice Leader

Yashih Wu, IBM Services, Global Director of Strategy and Offerings, Cognitive Process Transformation

Contributors:

Lori Feller, Phil Fersht, Tony Giordano, Manish Goyal, Mike Hobday, Peter Korsten, Jesus Mantas

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The HfS mission is to provide visionary insight into the major innovations impacting business operations: Automation, Artificial Intelligence, Blockchain, Internet of Things, Digital Business Models and Smart Analytics.

HfS defines and visualizes the future of business operations across key industries with its OneOffice™ Framework.

HfS influences the strategies of enterprise customers, to help them develop OneOffice backbones to be competitive and to partner with capable services providers, technology suppliers, and third-party advisors. The "As-a-Service Economy" and "OneOffice" are revolutionizing the industry.

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