

Next-generation business analytics & big data: The 7 golden rules for success

Executive Overview

All analysts claim: “Big data is the next big thing in business technology”. Yet, 78% of executives confess that their principal challenge is to understand how to get real value from it, and most organizations continue to leverage only 12% of their available data. Does this mean that next-generation analytics are only a fad, like many technology buzzwords before it? Statistics, when examined carefully, tell a different story. They underline that, as for every profound business transformation, the recipes from the past do not work anymore. To be successful, analytics must be reinvented with new technologies and new management paradigms. Based on expert interviews and real-life cases, this paper unveils 3 classic errors on the way to next-generation business analytics and big data, and 7 proven best practices for success.

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Opportunities and Challenges

We know that analytics is the next big thing in business technologies. With the progressive blurring of digital and physical universes, it is no mystery that the third digital revolution takes us into a world where data will be the new black gold, and where advanced analytics capabilities will be a key business differentiator. Internet players are already leveraging it. Vendors take positions. New “Chief Data Officer” roles emerge in large corporations that are becoming more and more “data driven”. Yet, surveys show that most organizations today struggle to really leverage the true potential. Does this mean that next-generation analytics technologies are just hype? Or rather that new analytics technologies call for new business strategies and project methodologies? What are the new ways to leverage the coming digital world for true business advantage?

Every week, the news is filled with cover stories. Analysts and consultants prepare for the next big rush. Business gurus claim that even greater change is coming with emerging prescriptive insight platforms. In recent years, which CEO hasn't heard that next-generation analytics from R&D centers, Internet giants, and flourishing startups may bring up to several trillion dollars to the economy, promising to revolutionize every business? Hasn't heard that these new technologies will consolidate and strengthen the previously weak signals in the digital universe to better master the future? Hasn't heard that they will enable corporations to get deeper business insight for digital leadership, offering new ways of leveraging data, the very raw component of the coming digital economy, which is growing by 60% per year?

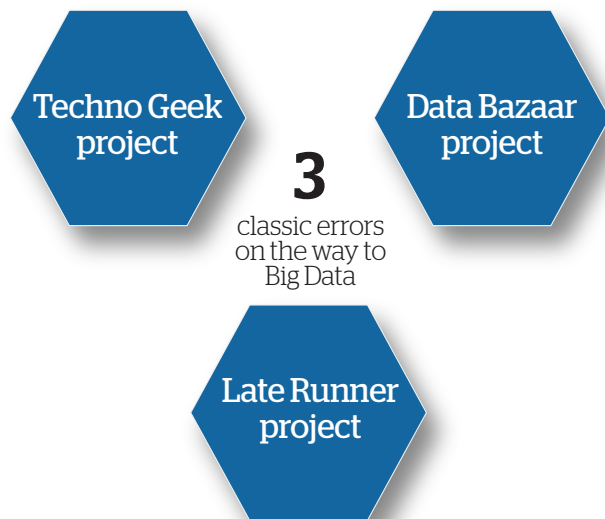
Does the reality match the promise? Looking beyond the buzz, it is clear that today's daily practices are somehow more differentiated. While every company claims it is willing to take on the data revolution, 78% of executives confess that their principal challenge is to understand how to get real value from new analytics and technologies. While many IT vendors have rapidly repainted their offering under the big data light, most traditional CIOs say that they are just beginning to experiment with new technologies and struggle to understand how to effectively link what they do every day (e.g., managing data warehouses) with these new analytic opportunities. In the meantime, they continue to leverage only 12% of their available data. And the new executives that begin to build bridges between siloed business and IT data worlds (Chief Data Officers and their teams) are just beginning to emerge in less than 20% of large enterprises.

Has consulting hype, journalistic exaggeration, and vendor enthusiasm lured a whole industry into a new fancy? Statistics, when carefully examined, tell a different story. From Internet players to large finance corporations, from retail behemoths to new startups in wearables or smart home, numerous companies already show daily that next-generation analytics can provide exceptional value to gain deeper customer insights, optimize operations, monetize data, and favor trust and compliance. Business impacts are often underestimated. Analyst data are striking and demonstrate that information-centric corporations are already 20% more profitable and have twice the market value of their peers.

Yet, current low maturity levels point to a more striking reality: uncertainty. In a new era in which new customer behavior calls for new ways to get insights, dynamic business ecosystems require on-the-fly operational agility, and fierce competition forces us to constantly reinvent business models, it is not surprising that the simple revamp of older technologies and processes doesn't suffice to succeed. As for every profound business transformation, the recipes from the past do not work anymore.

3 classic errors on the way to big data

What are the best ways to truly leverage next-generation analytics? Observations of frequent mistakes from the field provide interesting insights. Indeed, faced with the big data hype, old ways of doing things often lead to, if not a dead end, at least to a perilous and less profitable path. Among them, 3 classic types of failed projects are generally observed:



The **Techno Geek project** is often driven by vendor pressure to convince the board that they “must do big data”. These projects think of solutions before knowing what problems must be solved. The result is impressive and costly one-size-fits-all technologies, architectures, and appliances for yet unidentified problems. For a moment, the solution may shine. The company has “its big data solution”. However, the solution remains underutilized, if utilized at all, by real business users. On to the next fad...

The **Data Bazaar project** is driven by a smart perception of business urgency. This project is usually fueled by various initiatives: from the lines of business, eager to leverage innovative insights and new ways of doing things, from customer behavior analysis to market trend research. The experimentation approach is sound. The good news is that it is clearly driven by usage. The bad news is that various in-silo experimentations are rarely followed by industrialization and consistent data management with the appropriate governance. IT is rarely involved. Even top management is often unaware of what should be a shared strategic enterprise initiative. As a result, such projects often end in various data silos and shadow IT implementations, in which security is at risk, and delivered value is real, but disparate. Ultimately, the true value of next-generation analytics and big data is not fully unleashed.

The **Late Runner project** is doubtful. The late-runner project recognizes hype signals behind the buzz. It understands that technology promises are sometimes late to come true, and that the road to value may not be instantaneous. Maybe their leaders have been disillusioned by previous technology fads. This time, they think that they won't be fooled. “Let others test. And we'll see”. The bad news is that market dynamics are no more the same than before. It took 18 years for mobile to reach 50 million users in the 80s. For Google+, it took 4 months in 2011. In an accelerating world, innovation dynamics are faster than before. And, in a digital economy, the pioneers may well take all. Being a late runner is now a risky business.

7 best practices for next-generation business analytics and big data success

What are the real paths to success? Beyond the advances of Internet giants in targeted advertising, the applications of new analytics and big data technologies in enterprises consistently show proven business returns today. Geolocation analysis and data resell in telecoms, customer 360° management in retail, real-time fraud detection in banks and predictive maintenance in manufacturing are examples of flourishing successful

implementations with immediate value and strong potential for the future. What are the common success factors? If every company and every project has its own context, seven best practices often stand out. These seven key approaches do not guarantee the success of every business analytics and big data project, but greatly increase the probability of a successful outcome.



Focus on business insights

Faced with a technology revolution that often stems from advanced engineering, statisticians, and lots of startups, it would be tempting to begin with the obvious: technology. After all, isn't it where everything begins? One might forget that these technologies have been created precisely to solve specific problems. And that, start from the beginning - business - is the best way to get results. Seems obvious? Yet, how many enterprises, obsessed with the pressure to leverage the strategic opportunity of next-generation

business analytics and big data, have begun to deploy technologies, even before knowing which use cases they address? If assertions such as *"our data warehouse may be extended to Hadoop. Just add our new appliance to do big data"* or *"deploy our data lake and keep all the data you get, you'll find one day what it could be of use to"* sound familiar to you, you see the point.



RULE N°1

Forget about data or technology: think about business insight!

By Nicolas Mallison, Global Analytics Lead for Digital Transformation, Atos Consulting

At Atos, we believe that whenever the importance of getting the right software and infrastructure is critical, it's essential to begin from the start: with business usages. That's why we have built specific methodologies (opportunity scans, innovation workshops, maturity assessments, etc.) to identify and select the best opportunities to transform data into profitable business insights. This approach notably targets the four key domains of digital transformation: the better understanding of customer experience and the optimization of operational excellence, business innovation, and trust and compliance. We integrated all these streams into our Atos Codex analytics offering. In doing so, we cover the nine key areas of leadership, strategy, culture, governance, skills, data management,

technology, processes, and rules, essential to becoming an analytics-driven organization. This can be applied to the entire enterprise, or to a specific process. For example, Atos is helping car manufacturers such as Renault to develop their connected car strategy, federating a complex ecosystem of partners around a new business model, focusing on data monetization. The result? Increased competitiveness and new revenue streams for vehicle manufacturers already in 35 countries, and soon to be 50.

Discover the nine best practices to become an analytics-driven enterprise at atos.net/analytics-driven-enterprises

Start small and grow

For some time, IT projects have often consisted of long and complex specifications, followed by equally long and complex developments, and then by large and lengthy deployments. This represents a time-consuming process that has proven effective for critical back office systems, but that is characterized by a strong “tunneling effect”. This is not always efficient for best user experience and agile adaptation to a more and more fast moving digital business world. Traditional business intelligence projects

have sometimes followed the same path. Before rendering any data, you had to invest in a multimillion dollar data warehouse, not knowing exactly what you would find beneath. These days are progressively passing. When both market and technologies move continuously, especially in the field of big data and its usage, time to market and flexibility are essential. This calls for new agile, iterative approaches for quick wins.



RULE N°2

Try & experiment fast

By Julien Bensaid, Head of Global Business Intelligence & Information Management practice, Atos

At Atos, we are convinced that large back-office systems will always be of use, and the data warehouse still has a long life ahead. Yet, we are also convinced that new generations of technologies and DevOps favor new ways of working, enabling rapid experimentation, in close partnership with customers, before a second step of industrialization that remains needed for integration and performance. After all, when you don't know in advance what you will find and when technologies change regularly, what's the best approach than to experiment with small proof of concepts before deployments? We have put this iterative approach at the heart of our big data offering. Our Atos big data labs and ASSIST program enable us to help corporations rapidly experiment, test, and learn. In just a few weeks, we help customers identify use cases, replicate best practices, and develop new specific analytic applications.

The secret: co-innovation in a very short timeframe! Leveraging the business accelerators brought by our Atos Codex analytics platform, and other partner technologies, we can gather together our expert teams and the customer's vertical and business experts to develop, test, and deploy applications in weeks for rapid ROI. Industrial deployments can even be done completely “as a service” with our Atos Codex offering, powered by our Canopy Cloud. For example, Siemens used this approach to build their “Digital Factory” with Canopy. The result? Agile innovation to boost Siemens operational excellence and B2B customer experience with immediate time to value. At last, with this approach, unleashing the business value of data becomes truly fast and easy.

Learn more about Atos analytics services and Atos analytics labs and get a personalized evaluation by sending an email to dialogue@atos.net

Be inspired by industry best practices

Big data has already proven its potential in multiple functional and sectorial use cases. If market behavioral analysis or customer 360° are the most popular fields to date (remember that many big data technologies came originally from Internet players), very fruitful applications now appear in operational excellence (network flow management, industrial production optimization, predictive maintenance, etc.), business innovation (product "servitization", personalized medicine, etc.), risk management (fraud and risk analysis for finance, theft and loss detection in utilities, risk intelligence in homeland security, etc.), and more. To rapidly leverage big data, it's

essential for organizations to check whether existing use cases can be replicated, and therefore to assess successful best practices. In addition, it's also essential to think out of the box. The connected world of tomorrow will be a world of fewer boundaries between digital and physical worlds, between IT and OT, between the departments of each enterprise (sales, production, human resources, etc.), between organizations in business ecosystems, and even between vertical markets. The success will lie in customer unified experience, and in the best way to deliver the perfect personalized and timely experience, i.e., unified insights.

RULE N°3

Replicate rapid time to value use cases, and think out of the box at the same time

By Nicolas Kozakiewicz, Head of R&D and Innovation, Worldline

At Atos, we are convinced that big data is above all a business opportunity, and must be envisioned from the start at a business use case level, notably in each vertical. Banks differ from retail, public from manufacturing, healthcare from transportation, etc. That's why Atos puts vertical markets at the center of its Atos Codex analytics and big data approach and is developing specific use cases for finance (fraud detection, etc.), public (smart cities, etc.), healthcare (service process optimization, etc.), telecom (network optimization, etc.), media (customer 360°, etc.), utilities (smart grid theft and fraud detection, etc.), manufacturing (predictive maintenance, etc.), retail (loyalty management, etc.) and transport (operational optimization, etc.). At Worldline, for example, we have developed innovative analytics use cases for our "Connected Living" offering, dedicated to appliances makers. They enable manufacturers like BSH Home Appliances to develop new connected

services and business models around their products. At the same time, we believe that tomorrow's disruptive opportunities will deliver value at the interface between services and sectors. We are working in many areas to cross-fertilize these insights. As an example, our DataSharing Factory helps organizations across verticals to monetize their ultra-qualified profiles to create new sources of revenue. In a similar way, our "Cash Club" big data solution enables banks to set up and manage a marketplace between merchants and consumers, and monetize consumer-card transaction data through multi-merchant cash back offers. These are just a few examples of repeatable use cases.

Learn more about Atos Codex analytics vertical solutions and get a personalized demo by sending an email to dialogue@atos.net

Get industrialized and flexible at the same time

Faced with rapidly growing potential, the temptation is to move fast with big data. Hence, many businesses tend to run into disorder by deploying multiple point solutions that may bring some benefits, but rapidly end up in security or integration nightmares when it comes to upscaling or integrating between silos. It may work up to a point. Faced with complexity, the inverse temptation to oversimplify is also great, leading to another common syndrome: the static, one-size-fits-all, costly, monolithic solution that is supposed to handle all big data needs, but ends up poorly compatible with existing processes and infrastructure choices. To really succeed in

the medium and long term, analytics industrialization must be foreseen from the start with an industrialization approach that is both powerful and versatile. It must also be open and flexible enough to adapt to your own processes, technology, or deployment choices. Seems obvious? Yet, how many corporations have ended up in costly, poorly integrated analytic and big data technology silos, increasing complexity instead of reducing it? Not just a loss of time and budget, it is also loss of value creation opportunity.



RULE N°4

Leverage an industrialized analytic platform, adapted to your own process

By Michel Frackowiak, CTO, Atos-Siemens Co-innovation Analytics Program

When defining our Atos Codex analytics and big data offering, we designed our approach from the start around two key principles: help companies industrialize their analytics approach with a powerful, ready-to-use platform on premise or in the cloud, and at the same time make it open to rapidly integrate innovation and enable personalization. The advantage? Provide the best of both worlds! The power of an industrial analytics platform and the flexibility of a solution that can be customized to your data science algorithm context (random-forest, k-mean, deep learning, arima, etc.), your technology choices (Hadoop, NoSQL, CEP, Search, etc.) and your sourcing strategy preferences (ISV or Open Source).

In this spirit we have developed our Atos Codex analytics platform within our strategic €150 million co-investment program with Siemens.

The result? A scalable, pre-configured analytics platform, covering for the first time the complete and integrated set of business analytics services needed for global data integration, data management, data presentation, data modelling, and analysis. Our Atos Codex platform enables not only existing use cases to be deployed in minutes over all verticals. It also enables the development of new use cases in a matter of days. And it can be customized easily for specific needs. Beyond multiple implementations at Atos clients, Worldline has made a specific adaptation of it for its BPO analytic offerings. And Siemens is already leveraging this foundation in its energy, rail, and healthcare service businesses.

Learn more about Atos Codex Analytics platform and get a personalized demo by sending an email to dialogue@atos.net

Differentiate with performance

Once the right usages have been targeted, and the appropriate software platforms deployed, what's the difference between enterprises in analytics? Let's be clear. Some organizations will pioneer next-generation business analytics and big data, and ultimately all companies will implement it. Beyond the business quality of analysis tools and data science developments, the difference between them will lie in five very simple letters: S.P.E.E.D. In a digitally accelerated world, where 30% of leaders in all sectors will be "amazonized" within five years according to Gartner, the essence of success

will lie in the capacity to implement big data faster than others and to run it faster, too! A growing concern even more important than analytics is moving from reporting (describing what has happened in the past or right now) to prediction (predicting what may happen in the future) and even more prescription (preparing decisions and finally automating the decision making process to make things happen the way you want).

RULE N°5

Remember that speed is the essence of success

By Jean-Pierre Panziera, Chief Technology Officer in Extreme Computing, Atos

In the Internet age where "the winner takes all", the importance of time to market is of the utmost. At Atos, we know that microseconds can make the difference between millions gained or lost on the high-speed digital-trading networks. A few milliseconds of basket analysis and recommendation in retail can make the difference between a happy customer and a dissatisfied buyer. A few hours of calculation for complex CAD (computer-aided design) simulation - instead of days - can enable the right time to market for a product innovation in months, rather than years, thus avoiding industrial failures. As the European leader and the top 4 worldwide player in HPC, we take care to apply our high-end HPC technologies to next-generation analytics. With our Bull sequana X1000 supercomputers, we are building tomorrow's technologies for next-generation exascale systems, able to compute one billion billion operations per second. These supercomputers will enable analytics use cases impossible to handle today, in domains such as public services (imagining high-quality smart city urban services), manufacturing (designing more environment-friendly engines), healthcare (leveraging

genomics for better diagnosis and treatment), etc. Right now, we are also adapting HPC technologies to run advanced real-time analytic applications, such as with bullion, our multiyear winner of the highest-performance x86 server worldwide. For example, bullion is already employed to power the largest real-time analytics implementation worldwide, with SAP HANA at Siemens. We have also adapted these technologies to boost Hadoop analytics platforms in domains such as fraud management, finance risk analysis, trading, and ecommerce, security. This opens new opportunities for analytic applications to be not only more accurate, but also incredibly faster.

Discover more about the Bull exascale program from Atos and new bullion technologies for real-time analytics at <http://www.bull.com> and get a personalized assessment of what we could do for you by sending an email to dialogue@atos.net

Constantly leverage innovation

Technology is advancing at a rapid pace like never before. And, like never in history, open innovation rooted in open source communities is continuously having a disruptive impact on the way technology is designed, built, and implemented. Next-generation business analytics are at the forefront of this movement. From Spark and Hadoop to NoSQL databases, from software

to hardware with new open compute technologies, and from statistics to machine learning, open innovation is rapidly and constantly changing the landscape and the traditional rules of the game. The challenge is to be able to continuously leverage this rapid innovation stream, while being able to industrialize it for effective business advantage.



RULE N°6

Always keep outsmarting competitors with innovation, in a collaborative way

By Gauvain Girault, Head of Big Data Software R&D, Big Data & Security, Atos

At Atos, we are convinced that the continuous innovation in big data must be leveraged permanently, in a domain enriched each day by startups and open communities. As a result, with our partners and our big data innovation lab, we continuously connect to and leverage a rich and open innovation ecosystem, including not only proprietary ISV such as Pivotal and many others, but also the large set of communities and Open Source vendors that contribute to fuel big data software innovation. This co-innovation approach is core to our own R&D and to our co-R&D programs with partners such as Siemens, which are quite a unique analytics investment in the industry,

covering multiple markets (manufacturing, utilities, healthcare, telco, retail, etc.). In advanced research, we also devote strong efforts in three domains that we think are essential for the future: data science toolkits, multi-cloud application lifecycle management for analytic platforms, and real-time insight-to-action technologies for prescriptive analytics. This is at the heart of the next-generation insight platforms that we are building within our Atos Codex analytics platform offering. Our ultimate goal is to meet the big challenge of tomorrow, move from predictive to prescriptive analytics.

Think security from the start

Business people are accustomed to go where the value is, just as are thieves, too. If data is the new oil of tomorrow's economy, as finance was in the previous century, it's easy to figure out where tomorrow's hackers will devote their efforts. While 30% of companies may monetize part of their data in the two years to come, it's no surprise that disgruntled employees, hackers, mafias, and competitive intelligence services will make data a priority target, whether for espionage or blackmail. Cases such as Sony

or Target, with personal data of millions of customers leaked, are not only a clear demonstration of this trend, they are only the tip of the iceberg. How many organizations have been compromised? The statistics are impressive: it usually takes more than 200 days between intrusion and its discovery. This is enough time to expose millions of customers' personal data, financial, HR, or industrial data, and a strong call to strengthen security in the data analytics and big data approach.



RULE N°7

Put trust at the core of your analytic strategy

By Alexis Caurette, Security Consulting & Integration Director,
Big Data & Security, Atos

At Atos, we are convinced that data security must not be an afterthought. It must be envisioned from the start. At stake are not only high reputation, intellectual property, and customer trust protection, but also legal risks, as regulations increasingly seek to protect personal data privacy. Ultimately, it is the CEO who is liable. That's why we have made security a core foundation of our business analytics and big data offering, and also consider data-centric security as a priority in our cyber-security offering. Of course, we leverage big data for security intelligence within our trust and compliance offerings. We develop new-generation analytics within our security operation centers to detect and react immediately to advanced persistent threats. Worldline has developed advanced algorithms in credit/debit transactions that analyze tens of millions of transactions per day for

fraud detection in a couple of milliseconds, with highly finely tuned models to avoid negatives or false positives that may have a strong impact on revenue and customer experience, etc. We also and most importantly secure our analytic platforms ourselves, with advanced identity and access management and data protection. One of our key customers, a major multinational company, needed, for example, very high protection for its real-time analytics platform, managing data representing several billions of euros in revenue. To protect critical data across silos, we have built and run specific highly secure systems, which we call "application resource islands". The result is that critical data are easily leveraged for analytics while being kept under tight control and securely monitored.

Discover Atos' vision for cyber-security at <http://www.atos.net/security>

Conclusion: succeeding in the economy of data

As highlighted by Atos CEO, Thierry Breton, the 3rd digital revolution takes us into a new era where “data will be the new resource to boost the economy, as finance was in the previous century”. An era where succeeding in the “economy of data” will be a new preoccupation for executives. Numerous are the promises. Numerous also are the challenges. To succeed, innovation and new approaches in data acquisition, processing, and analysis will be needed. Along the road, there will be surprises. There will also be unexpected discoveries. Among best practices, seven golden rules are simple, but effective guidelines to ease the discovery process: focus on business insights, start small and grow, be inspired by industry best practices, get industrialized and flexible at the same time, differentiate with performance, constantly leverage innovation, think security from the start. The story is not completed, yet. There may be unforeseen questions. But one thing is sure: Value is at the end of the road. The winners will be those who get there fast and who leverage the right approach, with the right partner.

Take action now

To find out how Atos could be the partner you need, attend one of our business analytics & big data workshops. Just contact us to hear more about the latest best practice in big data, and assess how next-generation data analytics could help you enhance customer experience, streamline operational excellence, reinvent business models, and foster trust and compliance.

atos.net/atoscodex

About Atos

Atos SE (Societas Europaea) is a leader in digital services with pro forma annual revenue of circa € 12 billion and circa 100,000 employees in 72 countries. Serving a global client base, the Group provides Consulting & Systems Integration services, Managed Services & BPO, Cloud operations, Big Data & Cyber-security solutions, as well as transactional services through Worldline, the European leader in the payments and transactional services industry. With its deep technology expertise and industry knowledge, the Group works with clients across different business sectors: Defense, Financial Services, Health, Manufacturing, Media, Utilities, Public sector, Retail, Telecommunications, and Transportation.

Atos is focused on business technology that powers progress and helps organizations to create their firm of the future. The Group is the Worldwide Information Technology Partner for the Olympic & Paralympic Games and is listed on the Euronext Paris market. Atos operates under the brands Atos, Atos Consulting, Atos Worldgrid, Bull, Canopy, Unify and Worldline.



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