2018 Tech Trends

The Symphonic Enterprise
Data sovereignty
If you love your data, set it free

As every organisation recognises data as a key asset, there is an increasing demand to “free it” – to make information accessible, understandable and actionable across business units, departments and geographies. This requires modern approaches to data architecture and data governance that take advantage of machine learning, natural language processing, and automation to dynamically understand relationships, guide storage, and manage rights. Those same capabilities are needed to navigate changing global regulatory and legal requirements around data privacy and protection.

Is this relevant for the SA market?

Undoubtedly! Today’s South African business user, across all industries, demands unrestricted access to corporate data from a variety of sources including the internet of things, websites, social media, documents and emails. Corporate data is growing at an exponential rate and this is adding complexity on how South African organisations should best store, manage and protect their data. Business leaders are questioning how they govern and steward data in a way that enables innovation and growth, while navigating the growing complexities of regulatory and legal requirements.

Looking at data management from an enterprise lens, there is a better way to handle data management architecture to make it more automated/dynamic by using modern technology e.g. machine learning and natural language. This enables organisations to better manage an increase in volume and new types of data. South African organisations need to start focusing on how emerging technologies can help them with data management and architecture, global regulatory compliance and data governance (including data ownership) in controlling access while making data “free” across lines of business and geographies.
What is the Risk of not taking/making this Trend part of your strategy?

Traditional data management strategies included imposing top-down definitions on data, hierarchies of access and creating several layers of governance protocol as a means of controlling data across the organisation. In most organisations, the data warehouses, data marts, operational data stores and reports still rule the day requiring behind-the-scenes heroics to resolve master data, data quality and metadata challenges. To maintain data consistency and quality, these organisations rely heavily on mandates, complex technologies and manual procedures. These approaches have proven inadequate in the age of big data, real-time reporting and automation especially as data continues to grow in volume, type and strategic importance. Traditional data management approaches will struggle to meet business demands in a flexible, agile manner whilst adhering to the ever-increasing regulatory and legal requirements.

What will be the Benefit from early adoption of the Trend?

Organisations that adopt the trend to modernize their data management, architecture and governance processes, will take the lead in becoming data-driven organisations that generate ongoing ROI in the form of a dynamic data management construct that is constantly evolving, learning and growing. Advanced data management architectures will focus on deploying tools within new architectures to automate the decision-making processes on data sourcing, storing and governance thereby reducing manual interventions, delays and errors.

Which industry have adopted the Trend?

South African organisations are treading carefully and tend to focus more on the risks that new data management technologies present. The rate of adoption varies enormously based on the individual organisation, their specific sectors and the size and culture of the organisation. Organisations in the financial services sector and key players in retail are highlighted as the leaders in adopting new technologies. These organisations have already embarked on their journey to modernise their data management including the review of their existing data management architecture and processes, cloud computing and big data analytics technologies. South African organisations continue to face the following hurdles: investment in new approaches is inhibited due to legacy architectures and redundant tools that consumes existing
budget and resources, organisations do not have right level of executive sponsorship, shortage of skills in the market, organisations still operate in silos, local privacy and data protection laws have significant impact on new technology solutions

How can Deloitte Help?

The South African Deloitte Analytics and Information Management (AIM) practice has significant experience in assisting clients in reviewing their existing data management strategies, aligning to leading practice and recommending modernised data management approaches. Deloitte AIM can assist clients with transitioning into modernised data architectures and processes required to handle growing volumes of data in an agile, efficient manner by implementing the following steps:

1. Pay data debt - by reducing data sprawl and manual input
2. Start Upstream - by deploying advanced analytics and machine learning to improve data quality at the point of entry
3. Use metadata - add metadata to raw data at the point of ingestion to help enhance data context
4. Create a cognitive data steward - leverage advanced cognitive computing technologies to help “assist” data stewards
5. Help users to explore data effectively - provide a natural language interface and cognitive computing tools to help guide users
Where have Deloitte done it?

Deloitte AIM (SA) has completed significant data management strategy work across leading banks, insurance, telecommunication and energy & resource organisations. These engagements included an assessment of the current EIM environments, development of the EIM roadmap and architectural blueprint as well as the roadmap execution. Examples of these initiatives are:

- In response to increased regulatory and legal requirements, leading tier 1 and 2 banks have embarked on a strategic journey to review their data management strategy and operating model. This involved a redesign of their enterprise data management operating model, data architecture and data governance processes.

- Data is rapidly becoming the hard currency of the digital economy. To manage this currency more effectively and efficiently, leading tier 1 insurance organisations are modernising their approaches to data architecture and governance.

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**Digital Reality**

**Blurring the lines between digital and physical to augment the enterprise**

Digital Reality refers to a convergence of Technology Trends such as Augmented Reality (AR), Virtual Reality (VR) and the Internet of Things (IoT). By amalgamating these technologies, organisations are able to virtualise and visualise working environments that augment their workforce by blurring the lines between digital and physical worlds. The application of this trend offers massive potential in enhancing productivity of enterprise workforces through automation, remote process management, predictive maintenance, quality control as well as immersive, ‘just-in-time’ training.

**Is this relevant for the African market?**

Africa’s rising urbanization, technology penetration and millennial workforce makes it an ideal candidate to unlock value from Digital Reality technologies. Additionally, the economic focus on heavy industries and geographic remoteness of many of these industries, supports the case for unlocking value through Digital Reality. With mining, manufacturing and agriculture contributing more than 50% of Africa’s GDP, a large portion of the blue collar workforce lie within machine-heavy industries. An economy of this nature speaks to the application of Digital Reality for cost optimisation and improved efficiencies.

**What is the Risk of not taking making this Trend part of your strategy?**

Neglecting this trend may result in an opportunity cost of lost productivity from a workforce that focuses its time on menial, time consuming and repetitive tasks, rather than being augmented to provide superior value to the enterprise.
What will be the Benefit from early adoption of the Trend?

Early adopters of Digital Reality will find a number of productivity use cases that present benefits in automation, remote process management, predictive maintenance, quality control and immersive ‘just-in-time’ learning. For example; smart condition monitoring systems and AR wearables for maintenance staff in mining and manufacturing plants, guiding the repair of equipment with ‘just in time’ learning. Another use case is AR/VR piloted drones on utility plants or in agriculture, used to identify areas that require attention. The benefits of Digital Reality can be achieved in a way that uplifts and augments the workforce, rather than replacing them.

Which industries have adopted the Trend?

The benefits of Digital Reality are already being recognised in heavy industries across the African continent; such as mining, manufacturing and agriculture. However, success lies in the workforce accepting and using them. A potential lack of digital fluency and cultural readiness to accept Digital Reality as a means of working better poses a threat to digital transformation. Another consideration is that the unionisation of various sectors requiring the support from governments to lead a cultural shift. If we are able to successfully change the perceived outlook of technology as a hindrance to our employment, we can augment and evolve the workforce to produce a higher yield at a lower cost. In spite of this, Africa’s rapid pace of change and willingness to improve shines a ray of hope for the future of the immersive enterprise on the continent, especially in digital transformation and cost efficiency projects in heavy industry.

How can Deloitte Help?

Deloitte has developed a library of preconfigured use-cases with related Intellectual Property (IP). Deloitte has also invested in developing a digital core solution that forms the backbone of the digital technology architecture. These accelerators, not only speed up the time to value, they also mitigate risk and ensure that the solutions align to technology best practices.

By launching a “digital play pen” lab and sandbox environment, Deloitte enables its clients to experiment, learn, see and feel the power that Digital Reality may have for their organisation, over a variety of use case demonstrations.

Deloitte follows an agile and iterative approach to implementing Digital Reality solutions, such that our clients can make incremental investments and see an immediate proof of value.
Where have Deloitte done it?

Deloitte has developed a number of cross-industry Digital Reality use-cases and is currently engaged with manufacturing, mining and automotive clients:

Manufacturing and Mining

- Deloitte has developed various “through-the-lens” applications that offer field workers hands-free access to contextual, real-time information to enhance the field-force-automation benefits of our applications
- QR codes and gesture inputs provide workers with the information that they need to complete tasks in a hands-free environment (e.g. assessment, maintenance, learning)

Automotive

- Immersive digital learning solution utilizing coded stickers that serve as triggers to launch component specific content such as 3D AR environments, contextual information and training video footage

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Reengineering technology
Building new IT delivery models from the top down and bottom up

With business strategies linked inseparably to technology, leading organisations are fundamentally rethinking how they envision, deliver, and evolve technology solutions. They are transforming IT departments into engines for driving business growth, with responsibilities that span back-office systems, operations, and even product and platform offerings. From the bottom up, they are modernizing infrastructure and the architecture stack. From the top down, they are organizing, operating, and delivering technology capabilities in new ways. In tandem, these approaches can deliver more than efficiency—they offer the tools, velocity, and empowerment that will define the technology organisation of the future.

Is this relevant for the African market?

Within the African context, the need to re-engineer the role, scope, brand, capabilities, operating model and the structure of traditional IT departments is rapidly emerging as a core requirement within organisations covering all industry sectors. Although the financial services sector has been more proactive in the adoption of “digital-first” IT operating models, the speed of change in shifting away from traditional IT engagement models has not been adequate to effect a substantive change in the way in which business engages with IT. Additionally, the types of capabilities that IT departments need in order to transform from their traditional role of service providers to becoming business co-creators have not been incubated or developed during the early stages of digital adoption. Today, organisations are having to fast track the enablement of these new capabilities and are considerably constrained by a number of significant factors, including:

- Historical technology products that were either highly customised or implemented as bespoke solutions have created substantive architectural complexity that is proving difficult to scale or repurpose for the digital era;
What is the Risk of not taking making this Trend part of your strategy?

IT stats the risk of becoming a business growth prohibitor by not adapting their strategy to redefine the way deliver to the business and gearing them selves in away to do this effectively.

What will be the Benefit from early adoption of the Trend?

IT departments that head the call will be viewed by business as a partner in growth, by quickly helping to open new channels or helping business be more effusion. By doing this the stigma of IT being a cost center will change to profit center

How can Deloitte Help

We at Deloitte have a number of tools and approach to help client with the transition from a traditional IT organisation to one that is more agile and focuses on business value.
Where have Deloitte done it?

Most companies start their journey by adopting the Agile delivery model and project approach. Deloitte has successfully helped a number of clients through our Agile coaching process.

In parallel we help clients establish or build a DevOps capability to enable and support the Agile team in their delivery.

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Is quantum computing becoming powerful enough to render your data encryption technology at risk? If so, will it be possible to “quantum proof” your information and communications? When does that need to be done? Will artificial general intelligence actually emerge and tilt the man/machine equation further toward machines? Will it put your own job at risk? What about your business, or even your industry? Does AI represent an equal amount of opportunity to innovate and thrive? In the face of these and other exponential forces, leading organizations—working within ecosystems that include business partners, start-ups, and academics are developing the disciplined innovation responses and capabilities they will need to sense, experiment with, incubate, and scale exponential opportunities.

Is this relevant for the African market?

With the Doomsday Clock sitting at two and a half minutes to midnight and sustainability related challenges such as population growth, climate change, deforestation and resource depletion leading to mass migration and even war, it is not surprising to see the strong correlation between the Exponentials Watch List and the African countries where the effect is arguably the highest in world.

Quantum technology will not only allow for unbreakable encryption, super-powerful computers and random number generation, but also address real world problems for the predominantly rural population of Africa in terms of harnessing natural energy in hyper-efficient batteries and providing high technology medical healthcare screening and treatment with devices the size of your smartphone.

Nanotechnology’s use in water filtration systems could drastically reduce the amount of death and diseases due to the lack of safe drinking water and basic sanitation. Similarly, the use of biometric membranes offers opportunities for cost-effective salt water desalinisation plants.
Whilst on the topic of water management, it is estimated that approximately 50-60% of water is lost in the distribution networks which could be addressed with the use of IoT based technology sets allowing for more efficient management of a scarce resource.

Finally, amongst a host of other emerging technologies, is the possibility for African organisations to create the third industrial revolution via large scale adoption of 3D printers, where we see the use cases increasing at the same rate as production costs decreasing. Similar to the adoption of mobile technology, hurdling fixed line technology, it is an opportunity to not only cut out the manufacturing middleman, but to also create local manufacturing companies increasing employment rates and decreasing costs, timelines and dependencies on international partners.

**How can Deloitte Help?**

Through continues reached global and locally, we are able to help our client to see the art of the possible of these next generation technologies.
Where have Deloitte done it?

Deloitte has globally invested in creating Digital Garages or Lab where some of these technologies are deployed at a small scale to address some of today's business challenges.

Some examples are:

Intelligent Mine – We have looked at the four major challenges faced by the mining industry and how can today's technology be combined with the next generation technology to address them.

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Blockchain technologies are on a clear path toward broad adoption, with proofs of concept shifting toward production and leading organizations exploring multiple concurrent use cases of increasing scope, scale, and complexity. Moreover, initial coin offerings and smart contracts are finding more applications and creating more diversity throughout the blockchain ecosystem. Now is the time for organizations to begin standardizing on the technology, talent, and platforms that will drive future blockchain initiatives. Likewise, they can begin identifying business consortia to join. Beyond these immediate steps, they should also look to the horizon for the next big blockchain opportunity: coordinating, integrating, and orchestrating multiple blockchains working together across a value chain.

Is this relevant for the African market?

In Africa, the blockchain ecosystem is slowly maturing from its infancy stage and advancing from topics of discussion to proofs of concept or sandboxed minimum viable products. However, some countries have already made major advances in this space.

Recently it was announced that Senegal would be launching a national digital currency called eCFA which will be issued in accordance and compliance with the central bank of the West African Economic and Monetary Union, effectively establishing eCFA as legal tender throughout a large contingent of West Africa in following phases. Interestingly, it will also integrate into established mobile money platforms such as M-Pesa to ensure a wider reach. This follows on Tunisia, which launched the eDinar national blockchain based cryptocurrency earlier in 2017. BitPesa, established in Kenya in 2013, currently offers a blockchain based online payments platform enabling real-time settlements at wholesale FX rates throughout Africa and Europe.

On the smart contracts front, multiple public and private organisations are preparing themselves for the development and launching of initiatives, ranging from Sovereign Identity KYC to supply chain management and asset management. Whilst Everledger is a London based start-up, it is very much focused on the regulation of distribution of blood diamonds from conflict regions in Africa. The South African Financial
Blockchain Consortium consists of banks, regulators and other financial services institutions and aims to release a blockchain based, FICA compliant, KYC identity platform in the near future. Many challenges remain in this space as a large number of African countries do not have definitive sources of methods of identifying citizens and with the number of migratory workers an African Union wide KYC utility would be of great benefit, but very difficult to achieve.

**What is the Risk of not taking making this Trend part of your strategy?**

If the organisational C-suite is not aware of, and actively identifying opportunities and benefits within their broader ecosystem for disintermediation of non-value adding parties, then someone else is.

**What will be the Benefit from early adoption of the Trend?**

The Blockchain ecosystem is at its most effective within ecosystems, not organisations and the opportunity to be the leader within an ecosystem cannot be ignored.

**How can Deloitte Help?**

To understand blockchain and the part that it plays within a broader environment, rather than just following the media and technology vendor hype, Deloitte can assist in clarifying where (and when) a blockchain enabled solution would provide value. Too many organisations force specific technologies into solution sets for which they are not optimal and Deloitte assists in removing all of the market related hype and noise in order to find the right solution to resolve the business challenge or use case that an organization has organization has.
Where have Deloitte done it?

Deloitte South Africa in conjunction with teams from the US and UK have built a working prototype as a part of the Digital Bank initiative on top of the Stellar and Ripple blockchain rails where customers can send money cross border by just knowing the receiver’s cellular number or email address.

This transfer was done in 5-10 seconds, cheap (the transfer cost was near zero), data rich enabling AML checks, frictionless as no paper was involved, immutable due to the tamperless nature of blockchain and secured by cryptography.

The goal was to show how blockchain and other exponential technologies such as cloud and distributed databases can remove the friction that exists in today’s banking equation.

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The New Core

Unleashing the digital potential in “heart of the business” operations

Much of the attention paid to cloud, cognitive, and other digital disruptors today centers on the way they manifest in the marketplace: Individually and collectively, these technologies support new customer experiences, product innovation, and rewired industry ecosystems. Often overlooked, however, is their disruptive potential in core back- and mid-office systems and in operations, where digital technologies are poised to fundamentally change the way work gets done. This transformation is beginning with finance and supply chain, two corporate and agency pillars ready to embrace all things digital. From there, next-generation transaction and financial systems, blockchain, machine intelligence, automation, and the Internet of Things (IoT) are redefining what is possible in these mission-critical functions.

Is this relevant for the African market?

Throughout Africa there is substantial and ongoing investment in the maintenance and customisation of legacy systems, increasing the organisational dependency on the software solution provider and system implementation partner, but also limiting the organisation’s ability to swiftly meet the ever-changing market conditions, which inevitably creates conditions for the organization to be disrupted by smaller, more agile businesses that are able to provide the same service or offering in breakneck speed, and at a much lower cost base.

What is the Risk of not taking making this Trend part of your strategy?

In an attempt to battle this threat, these organisations are adding more layers of complexity around their core investments by adding a customer engagement veneer that integrates to the legacy core. This scenario meets a short term need of engaging customers in a better, and more intimate manner, however, it also perpetuates increasing technical debt and dependency on the legacy core. As a combative strategy to this, there is a rising trend where a number of African companies have applied design thinking in re-imagining their core capabilities. Some have even gone as far as to launch separate businesses that are geared to be and act like an agile startups – the main thinking here is that the rejuvenation of the legacy
core would be too costly and too impactful to the going business concerned, and also that they would prefer to disrupt themselves, before others do.

What will be the Benefit from early adoption of the Trend?

Enticing and attracting the largely unexplored African consumer base has been a key driver for numerous organisations, many of which have not achieved substantial success. Those that have, did so by understanding and meeting the needs of the African customer base at a cost to benefit ratio that resonates at a personal level. Considering the size and populace of the continent, the opportunities are endless.

Which industry have adopted the Trend?

Whilst MPESA is the poster child of the African disruptor, a number of FinTech and pure Tech organisations have managed to succeed in multiple industries. Luno, Zoona, Paylater, Getsmarter amongst other have gained global attention and in 2017 alone, African tech startups have raised over USD195m over the course of the year, focused primarily on disrupting the existing incumbents.

How can Deloitte Help?

Africa is large and diverse and far from the outdated perceptions of technologically naïve consumers. A billion people live on the continent, with the population expected to double by 2050. Not only do African consumers represent a world of opportunity, they also want a quality experience, the same as other customers across the globe. Currently some 200 million Africans, about 20% of the population, are between the ages of 15 and 24, a figure expected to rise to 321 million by 2030 and if you add that more than 33% of Africans check their phones every five minutes and within five minutes of waking up, the opportunities stack up.

Deloitte has substantial presence and understanding of the African market, not only from a Global or South African perspective, but real life, on the ground experience and that is what is necessary for established organisations to combat the threat of being disrupted or for disruptors to succeed.
Where have Deloitte done it?

Deloitte is currently engaged with multiple organisations, both established and disruptive focusing predominantly in the areas of:

- Agile and efficient
- Faster, cheaper, better
- Information accessibility
- Real time, automated insights
- Detailed insights and forecasts
- Super sized data management capacity
- Robotics and,
- Digital trust

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Is this relevant for the African market?

In recent years we have seen a number of local South African start-ups and tech savvy organisations starting to reap the benefits of monetising their core infrastructure and the related business processes through externally available API’s. Whilst start-ups often have the benefits of modern development standards, larger and well-established organisations are frequently still supported by aging legacy infrastructure, hampering their ability to rapidly respond to digital disruption or changing market trends and expectations.

What is the Risk of not taking making this Trend part of your strategy?

From an African perspective, legacy systems would ideally be replaced by highly componetised, containerised, micro-service architected solutions, but the reality is that these are often arduous, costly and risky programmes and hindered by organisational and technological inertia and we are still seeing a number of conservative organisations preferring cosmetic legacy adaption to rebuilding or re-platforming their core environments. That said, there are also a few of the more aggressive organisations that are finding ways of wrapping core assets in a layer of business oriented API’s providing agility, flexibility and scalability in a heterogonous environment. Whilst it does not enable true plug and play, it is the dawn of an era where these self-same companies are not only disrupting themselves, but moving from product providers to platform providers catering for external re-use and sweating their existing assets. Most, if not all of the large organisations are currently running tactical API based projects in parallel to the planning of core re-platforming with the goal to eventually seamlessly migrate from cosmetic legacy adaptation to multi-functional, agile platforms exposing information within and beyond organisational boundaries.

What will be the Benefit from early adoption of the Trend?

2018 is set to be a game-changing year for retail banking. As the PSD2 (Revised Payment Service Directive) becomes implemented in Europe, banks’ monopoly on their customer’s account information and payment services is disappearing. With a number of financial institutions having representation in Europe, their structure would need to change to accommodate the regulation. A number of Fintechs have already grasped the opportunity to provide value added services on the Open API’s, providing functions traditionally associated with accredited financial services institutions.

Which industry have adopted the Trend?

PSD2 has driven change within the financial services sector, but the telecom industry were quick to see the benefits of providing open API’s, with open standards having been made available for all of their primary functions. Other industries will follow shortly.

How can Deloitte Help?

Deloitte is currently actively involved with a number of organisations across Africa (and worldwide) in the financial services and telecoms space in the planning and delivering of open API, platform as a service based solution sets.

As a technology agnostic solution provider with substantial experience within this space and our presence across Africa, Deloitte is uniquely positioned to assist organisations in monetising their assets.
API Imperative
From IT concern to business mandate

Is this relevant for the African market?

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Where have Deloitte done it?

Deloitte is currently engaged with multiple organisations, both established and disruptive focusing predominantly in the areas of:

- **Telecoms (Large African Telecoms provider)**
- **Financial Services (Large bluechip financial services provider across Africa, financial services provider in Kenya, financial services provider in Nigeria and a few other financial services providers across Africa)**

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