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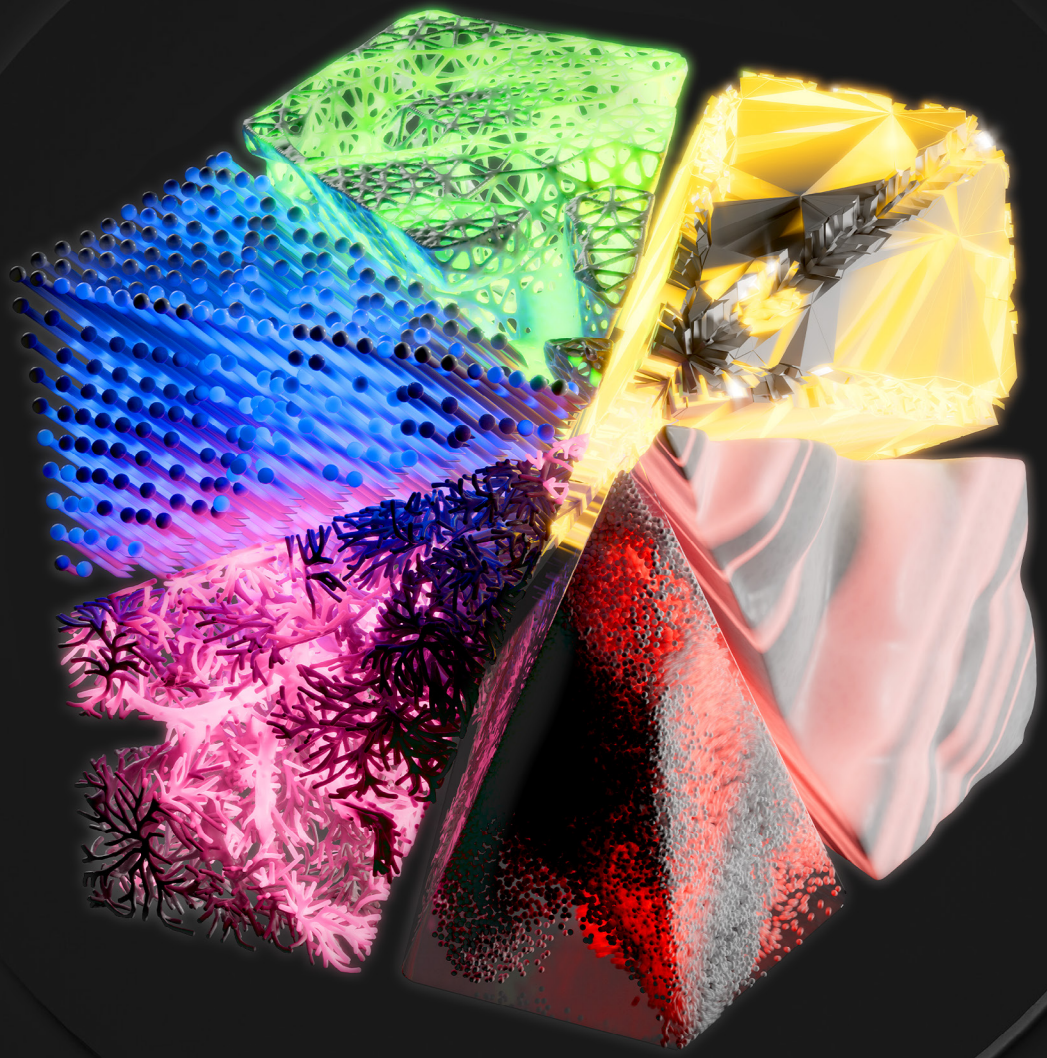


Tech Trends 2024

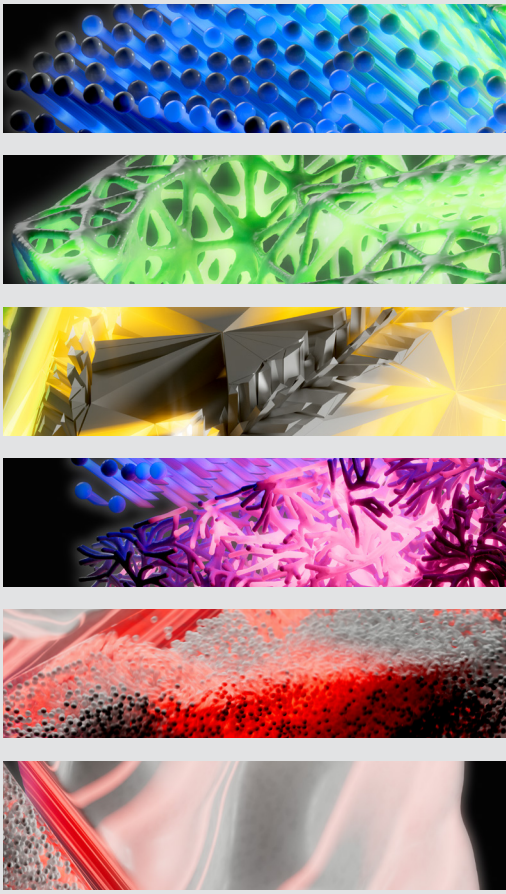
Africa POV

Introduction

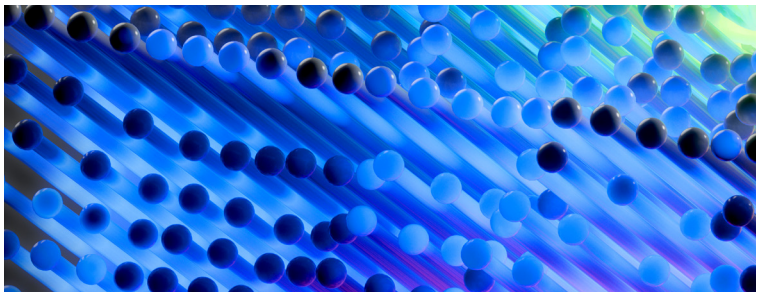
In a world that continues to be disrupted by technology across industries at an unprecedented pace, it is important for all industry leaders to not only keep up but also stay ahead of the technology game and its impact.

This is no different in Africa. Technology is more important for Africa than ever before, to be a catalyst for faster economic growth and to break down barriers to entries into newer market segments that were difficult to reach in the past.

It is with this in mind that Deloitte Africa releases local insights from our subject matter experts in response to trends captured in our global report, Tech Trends 2024. Context is essential, and with the continent's various nuances our local thought leaders can navigate and plan for the possible impact of each trend on industries important to Africa's prosperity.



Interfaces in new places:
Spatial computing & industrial metaverse



Why Africa must take spatial computing seriously

By Shivesh Boodhram UX Capability Lead, Deloitte Africa

Shivesh Boodhram has over ten years human-centred digital design experience and is a Metaverse expert specialising in UX/UI design. He shares his perspective on the first Tech Trends 2024, 'Interfaces in new places: Spatial computing and the industrial metaverse's impact on UX/UI design' – with consideration on how Africa will be able to maximise the spatial computing opportunity to unlock new opportunities.

The industrial metaverse, powered by spatial computing, presents another paradigm shift for UX/UI design in Africa. While traditional interfaces confine users to screens, spatial computing unlocks a new design frontier: the physical world itself. This presents exciting upskilling options, opportunities and challenges for UX/UI professionals.

African organisations adopting spatial computing must consider, 3D space and depth perception, accessibility and user comfort and localisation.

User interfaces transition from flat screens to 3D environments. UX/UI designers must consider depth perception, spatial context, and natural hand interactions when crafting intuitive experiences. While new hardware such as Augmented Reality (AR) glasses need to be comfortable and accessible for users across Africa. User research and culturally relevant design principles will be crucial as people gravitate towards technology that feels bespoke and more tailored to the user's needs.

With localisation and cultural consideration, spatial interfaces have the potential to transcend language barriers. UX/UI designers can create localised experiences that incorporate cultural symbols and design aesthetics.

The benefits for Africa are significant:

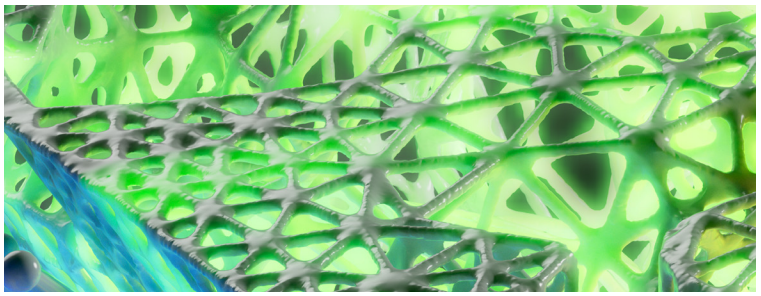
- Enhanced Training and Education: Imagine immersive learning experiences in agriculture or healthcare using AR/VR. These can improve training effectiveness and accessibility across vast geographical distances.
- Remote Collaboration and Innovation: Spatial interfaces can bridge geographical divides. Designers and engineers can collaborate with international partners in real-time, fostering innovation and knowledge sharing.
- Boosting Productivity and Efficiency: Spatial computing can optimize industrial processes and resource management. UX/UI designers can create intuitive interfaces for digital twins and AR applications, leading to efficiency gains.

Challenges however remain, with limited resources and infrastructure widespread adoption hinges on affordable hardware and reliable internet access. Creative solutions and public-private partnerships can address these hurdles. As the physical and digital worlds merge, robust data governance frameworks are essential to protect user privacy.

By addressing these challenges, Africa can emerge as a leader in spatial computing UX/UI design.

The continent's talent pool of creative designers and its focus on leapfrogging traditional development stages position it well for this transformative era.

Genie out of the bottle:
Generative AI as growth catalyst



Humans won't be replaced by AI, they will be replaced by humans using AI

By Dr Quentin Williams, AI and Data Leader for Deloitte Africa and Jania Okwechime, West Africa AI and Data Analytics Leader for Deloitte Africa

As African businesses and leaders aim to deeply understand both the opportunities and threats that AI presents the continent, the emerging technology is only at the infancy stage. Dr Williams and Jania are at the forefront of the adoption and usage lifecycle and share their perspectives on the second trend in the Deloitte Tech Trends 2024 report, 'Genie out of the bottle: Generative AI as growth catalyst'.

Artificial Intelligence (AI) is top of mind for leaders and has become a real buzz term in conversations now, regardless that AI has been around for years. When the topic comes up, it is usually followed by statements such as, 'AI is going to replace my job', or 'AI is going to take over the world'.

In Africa, we are witnessing the great conundrum, 'balancing the excitement of business and governments with the harsh reality that the adoption and implementation of Generative AI (Gen AI) requires hefty investment'. This is especially important when considering that Africa faces some of the most significant socio-economic-political challenges, and this is where investment is being allocated. Understandably.

Everyone wants a piece of the action, but many executives don't quite know the extent of the opportunity (and the challenge) that Gen AI presents their business, and the continent.

Gen AI represents the next step in the evolution of AI, - it can learn patterns from large amounts of data, enabling the platform to create anything from text, images, video to audio. What excites us is its ability to pick-up the nuances of a diverse continent such as Africa – from demographic, voice, language to dialect.

Now Africa can build personalised solutions with local nuances factored in, helping bring Gen AI to the forefront for those who are not tech-savvy, making it easy to use thus boosting adoption. This coupled with the fact that Africa is a hub of technology innovators, locally relevant solutions will start emerging. Consider a local education solution, developed by a tech-preneur on the continent or a medical innovation to overcome issues of access.

With villages in remote locations on the continent, children often don't have access to schools. Gen AI can put an expert tutor in front of every single child at a very low cost via a computer, laptop or tablet. The reality however is that most of these remote locations do not have the necessary infrastructure and have little to no access to electricity. If we can overcome these infrastructure challenges, we can link educators from around the world with students. The opportunities are endless.

Even with the obvious benefits, the adoption of Gen AI has not accelerated. Regardless of a willingness from businesses (and governments), readiness to implement – even at a pilot phase – remains the issue. This is not just an Africa issue.

Gen AI must link to the business strategy and processes to be effective, and this requires deep and consistent investment. Without discounting this hurdle, we are witnessing two key industries in West Africa taking a leap. The financial services and telecoms industries are investing in the Cloud revolution, with focus on Cloud hyper scalers aimed at supporting with the implementation of Gen AI.

By utilising these technologies together, solutions for sectors such as agriculture can be developed. Agriculture remains one of the most important industries on the continent. The industry is largely made up of subsistence farmers and only a few commercial farmers. Farming is knowledge intensive; the right insight will mean the difference between having a yield or not. It comes down to how to engage with farmers, sharing insights via some sort of interface or device providing the imaging interface that is easy to understand. This could be a Cloud-based Gen AI driven interface.

By accelerating the adoption of these technology solutions, we can accelerate economies growth.

Word of caution, even once implemented correctly, Gen AI will not be a 'genie' ready to solve all business's problems. Gen AI should be seen as a co-pilot, with business leaders still firmly in the driver's seat. The importance of a Gen AI framework is critical, to ensure the ethical use of the technology which ensures a trust-based approach is followed.

Trust and Gen AI may seem for many as a contradiction, this is however not true. Once all players in the ecosystem, including the public sector, create and implement a clear framework that allows for the freedom to innovate with confidence. The role of the Chief Ethics or AI officer will become of greater significance.

Without wanting to sound cliched, Africa must lay a foundation for future Gen AI adoption. Once all facets are in place the endless opportunities will be uncovered and real impact achieved. Organisations in Africa must create an ethical Gen AI framework, public-private collaboration, meaningful infrastructure changes, investment and focus on grooming future talent. The question is not when Gen AI will influence the way we operate, it is how will business plan to maximise the opportunity?

Smarter, not harder:
Beyond brute force compute

Localisation is essential: Emerging technologies for emerging markets

By Rudzani Mulaudzi, Cloud Transformation Leader, Deloitte Africa

Rudzani Mulaudzi leads Cloud transformation for clients at Deloitte Africa, with focus on Cloud strategy, architecture, and analytics. With his experience leading the Cloud Centre of Excellence for the firm, he shares his thoughts on the third trend from the Tech Trends 2024, 'Smarter, not harder: Beyond brute force compute'. Mulaudzi highlights how organisations in Africa can optimise their technology systems for greater output.

Considering the unique landscape of Africa, the evolution of computing infrastructure and its application is indeed undergoing a significant transformation. This transition is primarily driven by the increasing complexity of workloads, particularly in Artificial Intelligence (AI), and the necessity for hardware that can efficiently manage these demands.

The reliance on the Central Processing Unit (CPU) for a broad spectrum of computational tasks has been challenged by the rise of applications requiring more specialised processing capabilities. This has led to the development and adoption of the Graphic Processing Unit (GPU), which excels in parallel processing and matrix multiplications, essential for rendering graphics in gaming and performing the computational heavy lifting in AI, enabling 'deep learning' – turning data into accurate insights and predictions.

The proliferation of 'deep learning' has prompted global tech companies to innovate further, creating hardware specifically tailored to these workloads, such as the Cloud Tensor Processing Unit (TPU) from Google – designed to fast track the process of machine learning. These developments signal a shift towards creating hardware optimised for specific tasks, including future devices designed for Generative AI (GenAI).

For Africa, this global trend offers both challenges and opportunities. While the continent may primarily be a consumer of such advanced hardware, given the substantial investment required for development, there is a crucial role for Africa to play beyond consumption. African developers and researchers should actively engage in creating applications that address the continent's unique needs. This is especially pertinent in areas where existing models fall short, such as in recognising local languages, which are often underrepresented in Large Language Models (LLMs), and in acknowledging the diversity of African skin tones, which are not adequately represented in many vision foundation models.

To mitigate these gaps and ensure the development of trustworthy, locally relevant solutions, African innovators must leverage the global infrastructure while tailoring applications to meet regional nuances. This involves not only addressing cultural and linguistic diversity but also navigating the varied regulatory landscapes across the continent. Privacy laws and regulatory frameworks differ significantly among African nations, influencing how public infrastructure can be utilised in compliance with local regulations.

Furthermore, the advancements in quantum computing by African institutions such as the University of Witwatersrand and the University of Kwa-Zulu Natal present another frontier for the continent. These capabilities offer promising applications in cryptography and other fields, emphasising the importance of the industry staying abreast of and engaging with academic research to harness these emerging technologies.

Therefore, the path forward for Africa in this evolving computational landscape involves not just adapting global technologies but actively participating in shaping the next wave of computing solutions. This will require robust industry-research partnerships and a commitment to developing applications that are both globally innovative and deeply attuned to the needs of the African context. Clients should identify key business led applications that can be executed, leveraging the Deloitte Gen AI dossier can accelerate these efforts - key in localising and establishing competitive advantage in using modern technologies.

Grounding forces

Existing systems and investments—represented by the business of technology, cyber and trust, and core modernization—need to integrate well with pioneering innovations so that businesses can seamlessly operate while they grow.

From DevOps to DevEx: Empowering the engineering experience

Enabling a culture of efficiency for improved people and client experience

By Jacques Compaan, Senior Manager, Digital Engineering, Deloitte Africa and Shyam Ranchod, Africa TMT Digital Leader, Deloitte Africa

Jacques Compaan is a senior digital engineer with Deloitte Africa. He shares his views on the fourth trend in Tech Trends 2024, 'From DevOps to DevEx: Empowering the engineering experience'. With the concern of talent attraction and retention being top of mind for many African organisations, Jacques provides insight on how to create a more attractive environment for digital engineers.

Shyam Ranchod is a Deloitte Consulting Director in Deloitte Africa's Enterprise Solutions practice, he is also the Africa TMT Digital Leader. He is an IT and digital transformation specialist with 19 years international consulting experience. He is responsible for pioneering digital solutions for FTSE 100 companies largely in the TMT sector. He was a founding member of imagine broadband, a European based digital broadcast innovation company. He is an IT Strategist with extensive experience in driving value by aligning business priorities with technology investment priorities.

As digital engineering is central to many organisations structure today, the importance of improving the flow of value to customers by enabling a closer collaboration between software development and operations (DevOps) is a concept widely understood and adopted. The software development ecosystem has come a long way since the concept of DevOps was introduced by in 2009. The realisation that rapid software development doesn't result in rapid software deployment has motivated organisations to implement the DevOps CALMS (Culture, Automation, Lean, Measurement and Sharing) Framework, resulting in an improved flow of value to customers. The DevOps methodology has evolved due to the need for even greater efficiencies in the flow of value to customers. The emphasis is now on enhancing the experience for software developers (DevEx).

Enhancing the developer experience will create a competitive advantage for your organisation by not just attracting great talent but also retaining the developers in a very competitive market.

DevEx is applicable in all parts of the world where software products are developed, but the concept of DevEx, although not new, is still relatively unknown in Africa where developers are looking for an enhanced environment providing them access to the right tools, data, telemetry, access, and support to enable them to develop freely without frustrating blockers.

These interventions will enable developers to 'hit the ground' running, motivating a culture where knowledge is transferred across teams, clearer roles and responsibilities and thus greater levels of efficiency – allowing developers to focus on developing, while operational areas ensure roadblocks are removed. Resulting in greater value-driven-output and results for customers.

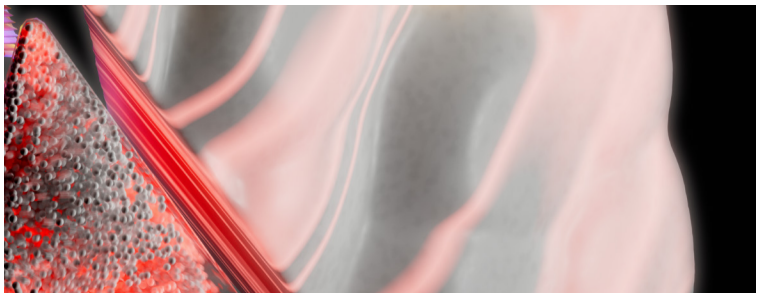
Africa's opportunity...

The continent has long been seen as a hub of innovation and a source for talent. As the world feels the impact of an aging population, Africa can provide a solution. Organisations will however need to focus on understanding the unique challenges facing developers on the continent and create a bespoke DevEx offering.

Investing in developers, from skills to work environment experience, can open new opportunities to drive better product development and innovation, operational efficiencies, and could lead to an increase in opportunities in Africa – positioning the continent as the go-to for DevOps talent.

As more organisations are moving towards a platform business model, the demand for talent (specifically developers) increase. This demand for developers fuels the war for this skilled talent in the market and is the reason why organisations need to prioritise retention and attraction. We don't want to lose talent to other markets, the focus should be on keeping African talent in place but improving their job satisfaction through enhanced DevEx.

Core workout:
From technical debt to technical wellness



Africa's opportunity to create a dynamic tech ecosystem

By Conrad Steyn and Kavitha Prag, Enterprise Resource Planning (ERP) leaders for Deloitte Africa

Conrad Steyn and Kavitha Prag support clients during business transformation, with broad experience in enterprise resource planning in Africa. With this experience, they highlight the continent's opportunity to be at the forefront of technology innovation. The authors unpack the sixth trend in the Tech Trends 2024, 'Core workout: From technical debt to technical wellness', in the context of Africa.

The trend reflects on the continent's propensity to leapfrog traditional legacy technologies – as we have seen happen across various industries, including the financial and agriculture sectors. This section of the report looks at the 'now', 'new' and 'next' considerations. By applying these digital transformation steps to an Africa perspective, the continent can overcome an ageing technology ecosystem if action is taken now.

At present, Africa stands out for its unique technological trajectory, characterised by a tendency to leapfrog older technologies. Unlike other continents burdened by extensive investments in traditional legacy systems, many countries in Africa have embraced a more agile approach. This has led to an unconventional technology landscape where certain regions have not heavily invested in outdated technologies, creating an environment conducive to innovation and rapid adoption of the latest solutions. There does however remain countries that do not have significant legacy system investments and hence Africa is not a homogenous environment.

If Africa is to successfully achieve this goal the continent must work as one continent to proactively review its technology ecosystems, where proactive assessments are vital for optimising the limited existing infrastructure and identifying strategic points for development.

African countries, unencumbered by extensive technical debt, can conduct thorough evaluations that consider the latest technologies. This phase involves not just identifying issues but strategically planning for the incorporation of cutting-edge solutions, setting the stage for a resilient and adaptable technology core.

Looking ahead, the concept of the 'Core Healing Itself' in Africa becomes synonymous with the continent's potential for technological leapfrogging. African nations, unburdened by extensive investments in legacy systems, have the unique opportunity to pioneer advancements. By starting new businesses with the latest technologies, Africa can bypass the constraints faced by other continents tethered to outdated infrastructures. The vision is one of creating a technology core that not only addresses existing challenges but is inherently agile, capable of continuous improvement, and positioned to leapfrog over technological constraints faced by other regions. South Africa, for example, who is dominated by large players will need to aggressively act to keep up with more nimble countries.

Transitioning through aging innovations, core health check-ups, and core self-healing underscores the continent's unique advantage of not being weighed down by extensive investments in traditional legacy technologies. This positions Africa at the forefront of technological innovation, presenting an opportunity to leapfrog over outdated systems and set the stage for a dynamic, forward-looking tech ecosystem.

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