THE REPORT

Algiers Smart City: Practical & Pragmatic

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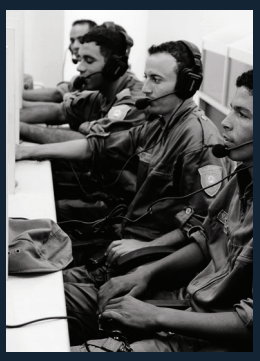
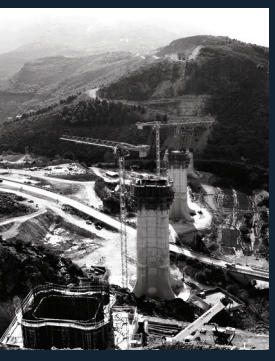
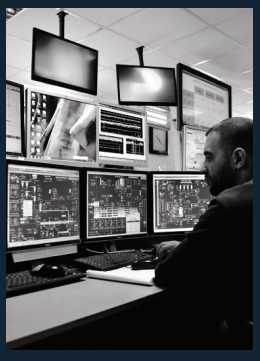
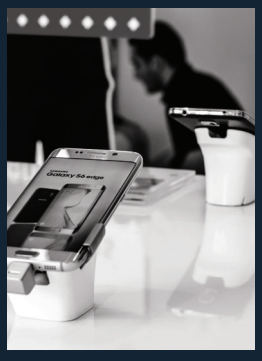
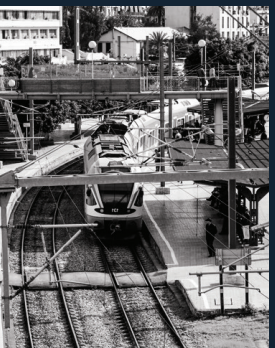
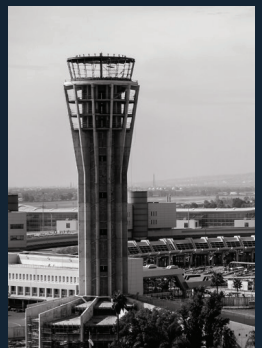


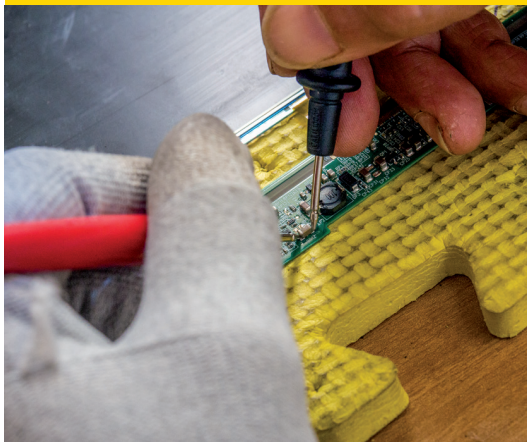












ICT is set to play a major role in Algeria's economic diversification efforts

Time for technology

Scaling the Algiers Smart City approach may provide a way to develop ICT in an effective and sustainable way

Algeria has been working to diversify its economy, especially since the fall in global oil prices in 2014 led the authorities to reduce the role of hydrocarbons and develop other sectors. Industry, agriculture, tourism and ICT have been identified as priority areas to reach this target, and digitalisation and entrepreneurship are set to play a major role in their development strategies. "Building entrepreneurial ecosystems is core to the growth of any economy, and Algeria is positioning itself at the forefront of that movement in the MENA region," Issa Aghabi, head of investments for MENA at the World Bank Group's International Finance Corporation, said.

As more IT innovations come to market, the country will have to adapt these models to make use of the latest developments and build an ecosystem to assimilate and exploit these technologies. This is expected to positively affect various sectors, including transport and logistics, financial services, industry and manufacturing, health, and customer service.

DIGITAL ERA: Collaborative and open-source technology development models have become the norm, data-centric products are mainstream, and the cloud and internet era, coupled with global disruptive innovation, have led to rapid technological development over the last decade. Among these are blockchain for distributed data management, unlicensed wireless as a complement to internet connectivity, open-source artificial intelligence as a service, and various others.

Currently, technology is dominated by a few large players, such as Google, Amazon, Netflix and Uber, which all aim to continuously challenge their competitors in adjacent markets by rolling out alternative technologies. It is this specific context – and the leapfrog technologies that emerge from it – that the developers of the Algiers Smart City are seeking to capitalise on. "The Algiers Smart City project is a demonstration of our commitment to develop our city based on the principles of durability, sustainability and innovation," Fatiha Slimani, head of the Algiers Smart City project, said.

Algeria has already made significant progress in developing its ICT infrastructure, as highlighted by the large-scale fibre projects in recent years, as well as the launch of its first communications satellite at the end of 2017 and the commencement of construction of high-capacity submarine cables that year.

However, the new and aggressive dynamic of the global tech industry transcends ICT infrastructure, as exemplified by the rapid development of a robust start-up ecosystem in Algiers. While this only emerged fairly recently, it is undergoing a process of re-conception of incubators and early-stage ventures from a variety of sectors. It features projects such as the Algiers Experimental Laboratory and Innovation Hub, as well as technology development initiatives, mostly driven by bottom-up engineering and business approaches. The knock-on benefits of this undertaking are expected to be wide-reaching, with public services, energy, agriculture, transport and other sectors seeing technological innovations that improve productivity and performance.

DOING BUSINESS: The World Bank's "Doing Business 2018" report, published in October 2017, shows that Algeria fell 10 places overall to 166th out of 190 countries. Industry stakeholders hope this change in standing could be reversed with the use of new technology models. Indeed, innovations and digitalisation have the potential to boost the local business environment by speeding up procedures and facilitating access to information for all economic players.

Developers of the Algiers Smart City project are hoping to reach these goals through rapid digitalisation and a strategic leveraging of leapfrog technologies. "Smart cities built on next-generation digital infrastructure have the potential to substantially magnify economic benefits," Malik Faraoun, deputy head for MENA of the World Economic Forum, said.

Algeria is fast-tracking its ICT development, setting aggressive targets for broadband deployment and universal coverage, positioning itself as a regional connectivity hub.

Algiers has seen the emergence of a robust start-up ecosystem in recent years, with knock-on benefits expected for public services, energy, agriculture, transport and other sectors.

Algeria had an internet penetration rate of 85.2% at the end of 2017, an improvement from 71.2% in 2016

"The challenge is to shift towards urban ecosystems that not only are sustainable and inclusive, but also put individuals' aspirations at the centre."

The Digital Evolution Index, published in July 2017 by the Fletcher School of Law and Diplomacy at Tufts University and MasterCard, ranks Algeria within the "watch out" category in terms of recent digital evolution. According to the study, this ranking means that despite some infrastructure developments and limited progress in digitalisation, start-ups manage to pop up in innovative segments. However, this positive trend is fragile, so the developers of the Algiers Smart City project are working to balance this by bringing them together under a common structure. By maintaining this bottom-up dynamic, the project aims to stimulate this embryonic ecosystem and spread innovation across all sectors of the economy.

ACHIEVEMENTS & OPPORTUNITIES: There have been numerous ICT development milestones in the country; however, a select few provide examples that could outline a roadmap for future development. According to the Post and Telecommunications Regulatory Authority, Algeria had an internet penetration rate of 85.2% at the end of 2017, a significant improvement from 71.2% in 2016, 46.9% in 2015 and 25.6% in 2014. This positions Algeria both ahead of many other emerging economies and among the top countries in Africa in this field, as the average internet penetration rate on the continent is around 50%.

This demonstrates Algeria's potential to position itself as a regional tech leader. "Just as large portions of the developing world used mobile phones to leapfrog landline technology, artificial intelligence, drones, 3D printing, biotech and other exponential technologies are set to provide the world's least-developed regions with the opportunity to apply these innovations at a faster and more scaleable rate than in the developed world, with its entrenched legacy infrastructure," Cameron MacLeod, founder of the Global Civic Innovation Centre, said. The government is working to boost domestic ICT infrastructure in various ways. For example, several fibre-optic construction projects are under way, carried out by state-owned operator Algérie Télécom, as well as submarine cables to provide the Algerian market with high-connectivity bandwidth.

As the country seeks to leverage its potential to become a regional technological leader – particularly in areas related to the internet and connectivity – significant public investment has been channelled into ICT infrastructure, and results are starting to materialise. At the capital level, the Algiers Smart City project reflects the local authorities' efforts to capture and accelerate the technological revolution to improve city residents' quality of life. Developers aim to unlock this potential by using recent, open-source and locally mastered technologies.

SMART CITY: The Algiers Smart City project represents a local continuation of broader ICT measures, including infrastructure investment to boost connectivity and develop a more favourable regulatory framework. Building upon this, the framework of the Algiers Smart City project is expected to create opportunities for domestic and international stakeholders to engage in various start-up ventures and partnerships. This, in turn, will allow Algiers to tackle some of the most significant obstacles to the emergence of a start-up ecosystem, including new revenue models and alternative means of funding, both essential to smart cities.

CASCADING TECH TRAP: While many cities around the world are looking to use ICT to improve their operational efficiency and the life of their residents, technological development is also at the forefront of the challenges facing many cities. Technologies are coming to market at a rapid rate, making it challenging even for industry players to decide which ones to endorse. This is the so-called cascading technology

The Algiers Smart City project promotes sustainability and innovation

The Algiers Smart City project is the local continuation of broader ICT measures, including infrastructure investment to boost connectivity and develop a more favourable regulatory framework.

trap, which is amplified for cities. The proliferation and fragmentation of technologies with different market strategies presents a complex mix of choices for urban planners. For example, myriad technologies are available for internet-of-things connectivity applications, with a new protocol coming to market approximately every two years.

Moreover, leading internet and cloud companies driving innovation in IT, like Google and Amazon, develop and deploy technologies in a way that can make it difficult for the rest of the industry to absorb and adopt. Smart cities experience an even greater challenge in doing so, as the rapid evolution of IT exceeds their ability to assimilate knowledge, make decisions, plan, design and deploy a technology at scale. This results in strong competition between multiple technology camps and little stability.

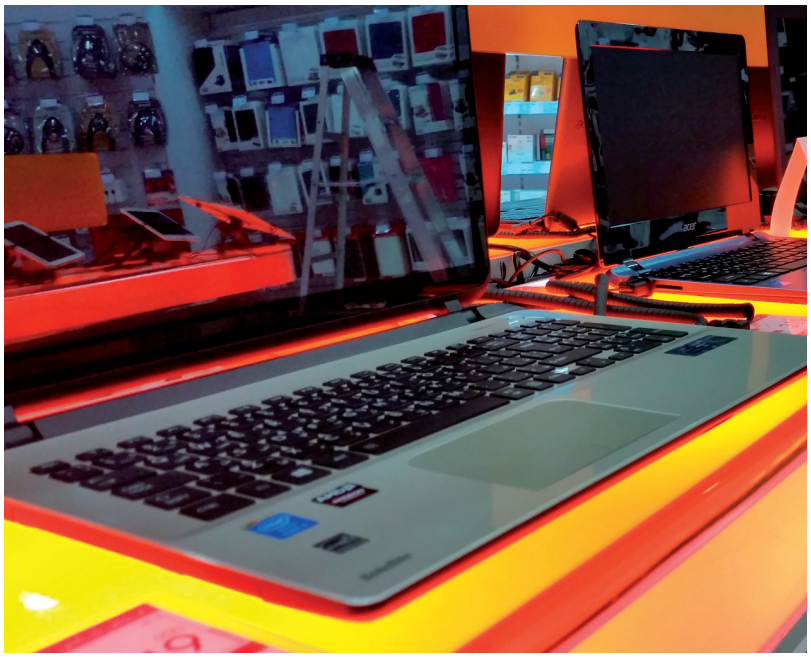
Leaps in technology are not only moving at a rapid pace, but also increasing in complexity, requiring sophisticated skills that come at a high cost. Commercial entities have been battling to acquire those rare skill sets, making it more difficult for smart city developers to effectively compete.

Cities plan for the long term, and therefore rely on mature technologies and a validated business case, whereas modern technologies have a short lifespan and often do not have a business case that has been validated for wide-scale deployment. Determining returns on investment is a time-consuming activity, and the organisational structure of cities, from the decision-making cycle to evaluation and deployment, is slow to assimilate complex modern technologies that cut across vertical silos of city functions.

TRADE-OFFS: The Algiers Smart City project has therefore had to look carefully at how to approach, implement and evolve its most fundamental IT decisions while tackling the cascading technology trap. It is seeking to deploy them while working with the broader ecosystem of technology players and regulators to ensure harmonisation and scale. "Technology can bring together and orchestrate diverse networks, devices, sensor and other data, and augment it with artificial intelligence to create new forms of actionable intelligence," Shervin Bakhtiari, member of the AngelVest Group, said.

Various dimensions are being considered in the overall decision-making process when it comes to evolving internet-of-things solutions, Industry 4.0 frameworks and upcoming 5G connectivity models. The most fundamental considerations for the various ICT design and architecture choices include:

- Proliferation of connectivity standards, which can be categorised depending on fundamental characteristics and strategically implemented;
- Commoditisation of devices and connectivity, which continue to become more affordable with the development of supporting technologies and will increase the competitiveness of smart cities;
- Emergence of more efficient wireless technologies, allowing wireless technologies that are low power, low cost and work over long ranges;



The Algiers Smart City project aims to create opportunities for start-up ventures and stakeholder partnerships

- Competition and harmonisation of connectivity standards, which will address the challenge of competing and complementary standards;
- Partnerships and alliances among industry players to scale platforms around offered solutions;
- Emergence of new service models, deriving value from innovative applications of data; and
- Extracting value through data sciences, allowing businesses to leverage the data available through mining and learning, as well as optimising communication between those producing and using data.

At the macro level, the convergence of various trends, including innovations in network and application technologies; scaleable network connectivity; mainstream cloud and big data processing models; and policies encouraging mass adoption throughout the industrial sector have opened new opportunities for the emergence of smart city applications based on value-added services. This has been a guiding principle of the Algiers Smart City project.

OUTLOOK: Although the country faces the same challenges of many other emerging markets, the progress that has been led by the Algiers Smart City initiative demonstrates the benefit of confronting development from a less conventional perspective. IT and other contingent sectors are increasingly aware of the opportunities created by adopting an approach to progress based on leapfrog technologies and new development models.

However, the foundations for an ambitious and multidimensional project like this are only partially set, and Algeria will need to continue making conventional progress, particularly regarding its regulatory environment and economic policy strategies. The country's priorities remain a topic of debate, and technological leaders see other possibilities on the horizon. In this sense, the Algiers Smart City could serve as a catalyst for rapid, disruptive and constructive change, opening a window of opportunity.

Smart city developers face a particular challenge in developing and deploying technologies, as the rate of innovation often outpaces their ability to assimilate and adopt such advancements.

The success of the Algiers Smart City project will depend on the ability to adopt a different approach to progress based on leapfrog technologies and new development models.

Abdelkader Zoukh

Progress and prospects

Abdelkader Zoukh, Wali of Algiers, on key priorities to achieving the long-term targets of the Algiers Smart City project

How do you assess the progress the Algiers Smart City project has made towards meeting its targets?

ZOUKH: The main goals are to introduce a new dynamic into Algiers' technology ecosystem and provide a catalyst for jump-starting progress. This includes the emergence of new start-ups, as well as the development of partnerships between various actors in the ecosystem and technology hubs, which we are already seeing happen. This progress is complementary to the key goal of contributing to solving the most challenging problems facing Algiers. To achieve the goals of the project, we are mobilising all the required resources in terms of talent, partners and processes, and expect results to come gradually.

What are the main priorities of the project, and what particular methods have been identified as helpful to reaching these goals?

ZOUKH: The main priorities are keeping up the momentum the project is experiencing now, and advancing to the next phase of execution. This includes the development and implementation of new solutions to challenges that Algiers is facing, assisting start-ups in their next phase of development, and evolving IT systems to provide a ubiquitous platform for efficient communication between the various actors in the city. We are at the beginning of this journey, and the next crucial step of the project will be to sustain it and evolve it, and through that, improve the quality of life for all our citizens.

How can Algiers leverage the broader pan-African initiative for smart cities to advance their own technological development?

ZOUKH: Algiers shares a lot of the same problems and challenges faced by other African cities. As such, we see collaborations and the exchange of information as a very useful and mutually beneficial strategy. Algiers has a long history of collaboration with other African cities, and we are looking to further develop these relationships in the context of the smart city initiatives we are undertaking.

In what ways is a more competitive and stimulating ecosystem for small and medium-sized enterprises (SMEs) and start-ups being fostered?

ZOUKH: We have taken a very pragmatic approach to supporting to the development and growth of start-ups and SMEs. It is based on directly involving these businesses in the endeavour to solve the challenges facing the city, as well as having them contribute to the efficient functioning of the city. In our approach, smaller businesses work very closely together with existing solution providers in an attempt to foster mutually beneficial partnerships.

Lastly, we have been working on bringing together various initiatives on the regulatory and policy fronts to progressively improve the working environment of our companies, as this is fundamental to attaining the long-term goals of our city.

To what extent will the solutions and services developed within the project contribute to the organisation and management of Algiers?

ZOUKH: The innovative solutions developed in the context of the Algiers Smart City project are all focused on modernising the organisation and management of the province. This will be achieved through a variety of undertakings, including integrating industry-leading information and communication systems in day-to-day operations, optimising the flow of information within the city and between its citizens, as well as bringing in new and innovative solutions to enhance the operations of the city.

Overall, we are very pleased with the progress achieved by the Algiers Smart City project so far, but we shall remain focused on our long-term goals for the prosperity of the city of Algiers and its citizens.

Carefully selected start-ups will be used in most smart city initiatives

A smarter blueprint

The Algiers Smart City initiative paves the way for widespread technological development in other cities in the emerging world

The ultimate goal of a smart city is to improve the standards of living for citizens by optimising resources through digital solutions. In addition to advancing the *wilaya* (province) of Algiers, the Algiers Smart City envisions setting a new baseline for technology development in other cities in Algeria and further abroad.

Although the exact strategies used by each smart city vary, as they draw on a location's specific assets and constraints, there are some common challenges, such as retaining local talent, along with the chronic issue of financing expensive and fast-evolving technological innovations. In the face of these obstacles, the Algiers Smart City team has been empowered by the wilaya to create a framework that provides Algiers and other developing cities with adapted solutions.

NOVEL APPROACH: In recent times technology has continued to advance at a rapid pace, which places ongoing financial pressures on aspiring smart cities. However, smart city solutions can also contribute to alleviating a city's existing problems. "Cities are attempting to transform in the face of rapid urbanisation, pollution, transportation bottlenecks and the growing need for energy, among other things. A smart city approach can be an efficient way for cities to make use of technologies and find solutions to those major challenges," Peter Lyons, partnership development lead at the World Economic Forum, explained.

Against this backdrop, the Algiers Smart City project is based on a framework that accounts for the challenges of building a smart city within an emerging country. This is identified as the isolation, dependency and lack of confidence (IDC) challenges framework, upon which the Algiers "talent leverage model" is based.

The first challenge is isolation. Leading technologies are usually created and developed by global corporations working in prominent tech clusters in advanced economies. This is rarely done in cities such as Algiers, which leads to an acute isolation of the tech industry in cities in the emerging world. Second, there is the issue of dependency, as the absence of technology transfer from global clusters to local initiatives triggers technological dependency vis-à-vis foreign advancements. The third issue relates to a lack of confidence. Domestic tech firms and start-ups often lack the necessary confidence to build advanced commercial solutions and scale them, something that also applies, to some extent, to the majority of the emerging world.

These areas have been focal points of the Algiers Smart City project. "In Algeria we face the IDC challenge first hand, and that is directly linked to not being able to retain and leverage talent. This project aims to fix this via new talent mobilisation models," Riad Hartani, strategic advisor for the Algiers Smart City, said.

TECH CYCLE: Because technologies are being developed at such a fast and disruptive pace, it is difficult for innovators and authorities to master these technologies and deploy them quickly enough to develop a viable business model. "This challenge can only be amplified for cities, as public administrations usually prefer implementing technologies with long life cycles. In fact, the business case often mandates that, as it would be difficult to break even with a short cycle," Frank Rayal, founding partner of the advisory services firm Xona Partners in San Francisco, said. "Evaluating new technologies is a time-consuming process, and cities don't move fast in making those evaluations."

In other words, the pace of technological evolution in recent years has tended to exceed the time it takes for the relevant authorities to assimilate the requisite knowledge to evaluate it, make decisions, plan, design and deploy a particular technology at scale. "We aim to find a solution to what we call the cascading technology trap, where technology moves faster than policymakers," Fatiha Slimani, head of Algiers Smart City, said.

While constantly assessing new technologies is laborious, its disruptive nature can also present leapfrog opportunities. "Timing is unique. It's the chance of a lifetime to exploit such discontinuities," Rayal added.

The Algiers Smart City project seeks to overcome the challenges of isolation, dependency and lack of confidence that many cities in the emerging world face.

Smart city leaders in Algiers are attempting to find a solution to the so-called cascading technology trap, whereby technology is developed faster than it can be deployed.

The Algiers talent mobilisation model aims to secure talent with the right expertise to overcome challenges

MODELS: Cities around the world have adopted a wide range of approaches to developing their smart cities, but there are some fundamental steps common to most of these, such as identifying the most urgent problems that need to be tackled, determining what industries will benefit the most from new technology, and ensuring that knowledge sharing takes place between stakeholders and across sectors. A study on global smart city activities by advisory firm Xona Partners identified four main types of strategies.

One approach is to focus on awarding contracts to start-ups, among other parties, to address problems with project-driven solutions. For example, the Startup Bootcamp Smart City Dubai programme, launched in May 2017, selects start-ups that work towards reaching the emirate's smart city vision. These selected start-ups are then supported through an intensive three-month mentorship programme. Although this type of strategy has the advantage of boosting the development of the local start-up ecosystem, there are also inherent risks to working with early-stage ventures, which often face difficulties accessing finance, securing customers and setting up stable revenue streams. In the case of Dubai, the programme's stringent selection process is designed to mitigate these issues.

Under the second strategy, major internet and cloud technology players are involved in the smart city design, disrupting the existing data and IT industries in order to spark progress. Seoul, for example, utilised this approach by having the national telecoms company, SK Telecom, lead development. While this approach ensures that the latest technologies are deployed, it is worth noting that competition within the ICT sector can make this option politically sensitive under some circumstances, especially regarding data residency.

The third approach – adopted by cities such as Hong Kong, Paris and London – follows an incremental smart city roadmap based on proven business cases. The blueprint is then led by various government groups within the city. This strategy has the benefit of optimising the cost of deployment, but making decisions on a technology before it has moved into its next development iteration has proven difficult in some cases.

Lastly, Barcelona illustrates the fourth strategy the study identified, where a consortium of government bodies, technology players, research and development labs, telecoms operators, start-ups and universities is involved in the decision-making process. Solutions are chosen based on a cooperative model that involves all these parties in order to share experiences and minimise risk. While this model can encourage synergies along the smart city value chain, it can be inefficient if streamlined governance practices are not in place.

UNIQUE METHOD: The Algiers talent mobilisation model is unique in that it combines some of the elements of these four outlined strategies with new tactics that take into account the IDC framework and other challenges that are specific to Algiers. While it is designed to deal with the needs and constraints of Algiers, the model could also be applied to other cities in the emerging world that face IDC issues. Its strategy is based on four guiding principles: start-up involvement, global benchmarking, linkage to technology leaders and local talent mobilisation.

To encourage and enable start-ups and innovative companies to engage in the design of smart city solutions, the Algiers Smart City team is working to improve its processes to be more innovation-friendly. Ensuring that local start-ups are incentivised to participate in the project is also a key priority.

Global benchmarking of other smart city models is helping to create partnerships and exchanges with cities around the world. Importantly, it optimises learning from other cities, in turn allowing this knowledge to be adapted to the Algiers context. Even though Algiers faces some unique challenges of its own, solutions to many smart city problems have already been developed elsewhere, and solutions that have worked effectively can help to inspire local initiatives.

Involving global technology leaders – starting with Facebook, Apple, Microsoft, Google and Amazon – will be essential to tackle the issues of isolation and dependency in Algiers. To this end, the authorities are introducing incentives to encourage these major tech firms to dedicate resources to smart city experimentation models, such as implementing more favourable regulations for these companies.

Lastly, access to talent with the right expertise will continue to be crucial to solving IDC problems. The success of a smart city project depends on the quality of experts working on it, and thus relies on the project's ability to leverage local and diaspora talent. Aware of this need, the talent mobilisation model hinges on encouraging targeted members of the diaspora to participate in smart city projects. In the past it has been difficult to stem the emigration of talent, but now, with much of the work being done online, there is the chance to tap a global talent pool.

Under the talent mobilisation model, a quality core team leads a project and rapidly scales it, using human

The Algiers diaspora model is based on four guiding principles: global benchmarking, start-up engagement, linkage to technology leaders and local talent mobilisation.

resources abroad if needed. Policymakers have a prime role in identifying diaspora talent, as well as defining projects for them to lead and develop. According to Hartani, effective leadership is imperative in both these areas. "These projects could leverage technology shifts to bypass the linear nature of technology evolution and, as such, technology dependency," he explained.

BUILDING AN ECOSYSTEM: The Algiers Smart City project aims to be inclusive, bringing together domestic and foreign players in an attempt to foster synergies. Leading international institutions, including the World Bank, the World Economic Forum, the African Development Bank, the OECD and the UN, have been involved in the project. "Algiers Smart City involves a wide range of profiles, as well as expertise from fields as diversified as engineering, urban planning, economics and finance. This is unprecedented in Algeria," Amine Bouabdallah, founder of the local start-up Isiniaa, which specialises in intelligent data management, said.

Key to the Algiers strategy is the involvement of carefully selected start-ups in most initiatives. This has the double effect of mobilising local innovative talent, and boosting the country's start-up ecosystem. "Access to talent with the right expertise, linkages and passion to tackle the core problems is at the heart of the Algiers Smart City strategy," Slimani added.

Prior to the Algiers Smart City Summit in June 2018, and as part of the first phase of the start-up competition, over 20 start-ups were selected on the basis of the quality of their management and their potential for developing partnerships with multinational companies, with most of these chiefly focused on leapfrog technologies. Reciprocally, multinationals and larger companies are selected according to their willingness to partner with start-ups and implement technology-transfer models. Incubators could represent another key stakeholder in the innovation ecosystem once their model is reviewed. The number of involved start-ups, larger companies and incubators will grow as the project scales up its operations. For local start-ups, the Algiers Smart City project is an opportunity to demonstrate their expertise and prove their ability to deploy advanced technological solutions, many of which were seen as too difficult in the recent past.

TAILORED FINANCING: Adequate financing and revenue creation are among the most pressing issues that are facing smart city initiatives. Exacerbating these is the fact that cities tend to already operate on tight budgets. "The budget allocated to IT is a relatively small part of the overall budget," Hartani said. However, the idea that funding is not necessarily the main problem is key to the thesis of the Algiers Smart City project. "The biggest challenge is building sustainable revenues with the right technology transfer model," he added.

While financing models for the Algiers Smart City project are starting to emerge in the form of angel and venture-capital funding, development will likely rely on both public and private funds for some time. However, developing new partnership models that secure revenue streams for start-ups remains a priority. "Some of the funding should come in the form of government grants and subsidies, but other sources of financing are likely to originate from private investment that will be targeted at specific initiatives," Hartani said.

The winning start-up of the Smart Cities Global Summit Startup Competition will receive funding for its work

These initiatives will include new education programmes, the launch of coding schools, acceleration programmes for local firms, competitions that offer rewards to spur innovation, in addition to strategic partnership projects such as those related to Smart Africa, among others.

At the moment, the Algiers Smart City team is particularly focused on fostering mutually beneficial partnerships between larger corporations and start-ups, through which the former can fund innovations developed by the latter.

TALENT MOBILISATION: Attracting and retaining local talent is one of the greatest challenges faced by emerging countries, and smart city initiatives in particular require a broad set of skills and experts in order to flourish. In its attempt to develop a new model to ensure talent mobilisation, the Algiers Smart City has already launched a series of initiatives. This step-by-step methodology has given birth to the Smart City Hackathon and the Smart Cities Global Summit Startup Competition, both of which will be run concurrently with the Algiers Smart City Summit.

"The start-up competition that will take place during the Algiers Smart City Summit is a great incentive for a start-up like ours to get involved in the project, as the winner will receive funding to help it start deploying its solution all over the city," Abderrahman Ait Said, founder of the local start-up Ursinia, said. The summit also provides the opportunity to brainstorm and take decisions regarding talent mobilisation models, as well as support upcoming local talent in the industry.

EXPERIMENT LAB: The country's regulation of the ICT sector has developed significantly since the 2000s, although according to many stakeholders, it still needs to evolve to more closely align with the regulatory frameworks of leading global economies. Given the

The Algiers Smart City team is seeking to foster mutually beneficial partnerships, whereby larger firms can help to fund start-up innovations.

The Experimental Lab and Technology Innovation Hub, launched in April 2018, provides a live environment where smart city solutions can be tested prior to being implemented at scale.

disruptive nature of leapfrog technologies, however, the need for regulatory updates is chronic.

In this regard, the newly created Experimental Lab and Technology Innovation Hub in Algiers, which launched its operations in April 2018, will be paramount. The lab will allow for a more relaxed regulatory framework to incentivise innovation because it provides a live environment where smart city solutions can be tested and validated prior to being launched at scale in the city. This will allow research and development labs, universities, incubators, accelerators and start-ups to fast-track the validation of their concepts.

Having a concentrated environment where students, large multinationals, small and medium-sized firms, start-ups and local decision-makers can work together in a physical location will also promote synergies. It will be easier for innovators to adjust new technologies in response to the concerns of policymakers, in turn allowing the innovations to be deployed more quickly. Furthermore, this environment will help Algiers to develop each stage of its value chain more effectively.

THE SUMMIT: The inaugural Algiers Smart City Summit in June 2018 is the stage for several key discussions, helping the authorities make important decisions regarding the execution of the far-reaching smart city initiative. More than 150 international speakers are taking the stage at the two-day conference, including keynote speakers from the World Economic Forum, the UN, the OECD, the World Bank, the European Investment Fund and Smart Africa, in addition to approximately 4000 delegates representing the government, leading tech investors, large corporations and start-ups from a wide range of industries.

Global experts from institutions such as the National Aeronautics and Space Administration, MIT, Tencent and Microsoft are also in attendance, as well as economists, lawyers and regulators.

An event of both this size and scale demonstrates the momentum that the Algiers Smart City initiative has been gathering. "The unique geographic position of Algiers between Europe and Africa provides great potential for disruptive cross-fertilisation ideas," Merouane Debbah, director of Huawei Mathematical and Algorithmic Sciences Lab, said.

Conference attendees are taking part in discussions to appraise how technology can transform regional economies, with a focus on trends and issues specific to emerging countries, bringing valuable knowledge to Algiers and opening pathways for future collaboration.

The conference covers two strategic topics: "Start-ups and Innovation Ecosystems" and "Diaspora Models – Talent Mobilisation". The first deals with nurturing tech start-up ideas and subsequently growing them into sustainable businesses, building on the experience of the speakers to divulge the most critical ways of achieving this, with a specific emphasis on aspects related to incubating, accelerating and funding. This topic also encompasses the event's start-up competition.

On the subject of talent mobilisation, the second conference topic introduces new ways of learning, building and decentralising in the era of internet of things and leapfrog technologies. There are discussions on existing models to leverage the diaspora, new models for talent mobilisation that could be used moving forward, and potential strategies for building relations between emerging and advanced economies.

Some of these discussions are related to the major strategic partnerships that have been made with international players and other African cities, while others are related to financing, and educational and incubator models, notably including the recently formed Experimental Lab and Technology Innovation Hub. In particular, the functioning modalities of the lab are further detailed, as well as its overarching purpose to create a space that links the local ecosystem with international technology and investment communities.

DEFINING PRIORITIES: Properly defining and continually redefining the priorities of the project will be essential to its success. "To harness the power of external waves of technological innovation into internal sources of growth and job creation, the region will need to adapt several key areas, including its internet and payment systems, its regulatory framework, its education systems, its tech-state capacity and the financing architecture for start-ups," Rabah Arezki, chief economist for MENA at the World Bank, said to local media on the topic of Algiers' summit.

For its part, the Algiers Smart City team has identified transportation, water and energy as some of the priority sectors for the time being, with the internet of things, cloud technology and innovation to be integrated across these areas.

"While the project is expected to be large in scale, issues such as urban planning, including waste management, and the optimisation of water consumption should be given priority," Nizar Jegham, a smart city expert based in Dubai, explained. "These challenges have already been made explicit by the wilaya of Algiers, and once the overall strategy is in place, what should be tackled first will need to be determined."

MEASURABLE IMPACTS: Notwithstanding the ongoing challenges that are being progressively addressed, the Algiers Smart City project is expected to have a significant impact on the quality of life of the city's citizens. "We need to reinforce the angle of approaching the smart city from the perspective of it being a means to an end, rather than an end in itself," Hartani added. "It provides the opportunity to leverage new leapfrog technologies, innovation models and investment strategies to adapt the various economic development roadmaps into an internet and data-first era that will be with us for the coming decades."

Crucially, the economic impact of successful smart cities could help to bridge the development gap in emerging markets. In fact, cities in the emerging world may be capable of implementing the various components of a smart city more effectively than their counterparts in advanced markets. "Emerging countries are positioned very well to capitalise on the latest breakthroughs in technology and create a new generation of governance," Anurag S Maunder, vice-president of US artificial intelligence company Kindred, said.

The inaugural Smart City Summit has keynote speeches from leading technology and business leaders, including the World Bank, the UN and Smart Africa. It is the first event with this many international experts and organisations in Algeria.

Riad Hartani

Tactical tech solutions

Riad Hartani, Strategic Technology Adviser, Algiers Smart City, on the context-specific strategies guiding the smart city project

What have been the main achievements and successes of the Algiers Smart City project so far?

HARTANI: The main achievement has been incorporating new dynamics in the Algerian technology ecosystem in a way that has involved all stakeholders. Start-ups, corporates, policymakers and entrepreneurs have all worked together to develop new innovation models, with a sharp focus on execution. The successful launch of new tech start-ups, funding mechanisms, technology-transfer approaches, as well as new partnership models between global tech giants and small businesses illustrates the results achieved by the project. Yet, this is just the beginning, and a lot more needs to be done. Short-term actions with a long-term focus on strategy will remain the guiding principle of the project.

What are the fundamental challenges that the Algiers Smart City project aims to address?

HARTANI: The project has been developed as an answer to three fundamental challenges: a fairly isolated technology ecosystem, limited technology transfer and low confidence in growing tech giants. The execution model put in place is aimed at addressing these three challenges, and the desired result is to overcome them progressively. Thus, the main goal is to develop the right talent mobilisation models, expertise and know-how.

To what degree do you expect the need to secure both financial and technological resources to impact the Algiers Smart City project?

HARTANI: We don't see the securing of financial resources as a hurdle; however, the allocation of financial resources needs to be addressed and adapted to the desired economic development model in an era where the internet is ubiquitous. This applies to seeding and nurturing start-ups, all the way to providing growth capital to the more established businesses.

We do, however, see securing technological resources as a challenge – in fact, it is the main challenge. As such, the whole strategy is about developing specific expertise and know-how, as well as models of talent mobilisation that are very much adapted to the context.

How does the Algiers Smart City strategy differ to other smart city initiatives in Africa?

HARTANI: I have personally been involved in the architecture, design and execution of many other smart city projects around the world, including some in Africa. The first thing to mention is that these projects tend to be very different and very specific to the cities where they occur. Context is everything. Nevertheless, they do share a certain number of tactical goals, and in some cases, strategic goals as well.

With the Algiers Smart City project, we have identified our own tactical and strategic goals, and they tend to be different from what we have seen elsewhere. More specifically, we are focused on the dimension of nurturing talent with the right expertise to address the challenges of isolation, dependency and confidence. We see the project as a means to an end, and not an end in itself. If we address the lack of talent, we will progressively attain what a smart city aims to become.

How can the Algiers Smart City project leverage the province's modest level of advanced technology to strengthen economic development?

HARTANI: Leveraging data will be at the heart of economic development for times to come. We are conscious of that, and though we are in the early stages of working on it, we see this as an advantage, as it allows us to leapfrog technologies. We decided to go with a non-linear technology development model because we believe these are special times where new technologies are rapidly entering the market, making a lot of the past obsolete. Being technologically underdeveloped could turn out to be an advantage for Algiers, but only if exploited correctly. The window of opportunity is short, so we will need to capitalise on it now rather than later.

Rabah Arezki

Innovative ecosystem

Rabah Arezki, Chief Economist for MENA region, World Bank, on the regional significance of the Algiers Smart City project

What are the similarities and differences between this project and others in the region?

AREZKI: The aim of smart city projects is to solve urban problems. To do so, these projects need to develop technology ecosystems, mobilise local and international talent, and build strong knowledge bases. Each city faces a different set of challenges, and hence smart city projects tend to be different.

In the MENA region, some cities see these initiatives as a way to move away from overly centralised service delivery, others use them to build new regional tech hubs, while in some cases smart city projects are used as a vehicle to attract investment. In the case of the Algiers initiative, the focus is on using the project to build a vibrant ecosystem of technological innovation while incorporating all stakeholders in the value chain.

From a regional perspective, onlookers view the Algiers approach as a fairly original one, with well-defined strategic objectives.

How can Algeria and other countries in the region build upon their competitive advantages?

AREZKI: As in other MENA countries, Algeria has vast untapped potential in its young, educated and tech-savvy populations. If governments across the region can implement the reforms that are needed to shift the direction of development so that it is led by the private sector rather than the public sector, as well as adopt successful approaches from other smart city projects, the region's economies could become digital powerhouses.

In what ways could regional authorities support and promote innovation in new technologies?

AREZKI: In general, governments in the region will need to develop an approach to regulation that encourages, rather than stifles, innovation. Ensuring investor confidence, especially in financial systems, is essential in this regard, but regulation must be balanced with policies designed to boost competition so that start-ups can easily enter the market and test new ideas. In addition, there needs to be more space for companies to emerge, such as Careem (MENA) and GO-JEK (South-east Asia).

How could the cooperation between universities, scientific research facilities and private investors be strengthened to support this strategy?

AREZKI: In order to cement such collaborations, education systems in MENA will need to change. For young people in the region, the curriculum is more often a source of frustration than advancement. For example, university graduates are far more likely to be unemployed than workers with only a basic education, and this has to change.

Two factors work against young people in this regard. First, schools are still geared towards channelling graduates into large public sectors, which means they place less emphasis on fields such as mathematics and science. Second, overcrowding in the public sector is pushing out the private sector, which could otherwise be a more significant provider of high-skill, high-wage jobs.

Because the future economy will need tech-savvy workers, curricula should be re-oriented towards science, technology, engineering and mathematics subjects, and away from the social studies that have long been prized by the public sector.

Moreover, education systems should focus on encouraging greater openness to innovation and risk taking. This would be a significant departure from the attitudes that have been perpetuated under the current system spearheaded by the public sector. In particular, moving in the direction of an innovative learning society will require students to develop their critical-thinking and managerial skills, with a greater emphasis on collaborative approaches.

The internet of things is at the core of the Algiers Smart City Project

Leapfrog to the lead

The Algiers Smart City project is set to reposition the country as a regional technological frontrunner

Algeria is at the crossroads of its very own technological revolution. While there are several challenges to be tackled – including the ongoing development of supporting infrastructure – there is clear momentum to create a much-needed innovation ecosystem. In particular, the country has a unique opportunity to shape a new model for smart cities: one that is adaptable to developing countries.

The opportunity to transform Algiers into a smart city is there, due to the rise of technological disruptions that offer significant potential to leapfrog development stages. The Algiers Smart City project was established to leverage these opportunities and advance multiple aspects of the industry, such as technology transfer, talent mobilisation and cross-sector synergies, among others. This inclusive strategy will serve as a template for other developing smart cities around the world and help reposition Algeria as a regional tech leader.

BUILDING UPON A HISTORIC CITY: Algiers is a historic city formed by centuries of traditions and cultures. "When we talk about putting in new infrastructure in a historic city, one of the biggest challenges is being respectful to its history," Terri Chu, technology lead at Canadian artificial intelligence start-up MOAI Solutions and member of the Algiers Smart City Leapfrog Hack jury, said. Abderrahman Ait Said, founder of local start-up Ursinia, as well as the leader of the Algeria team that came in second place at the 2018 Robotics World Championship in May, agreed that one of the challenges facing the Algiers Smart City project is fast-tracking the rollout of infrastructure as a key enabler to multi-dimensional industry development. However, adequate infrastructure is crucial for attracting investment. "The efforts to develop and deploy smart city infrastructure will draw talent and investment into the cities, which will further drive innovation in a positive feedback loop," Dean Sirovica, chair of the Oakland East Bay Silicon Valley IEEE Society chapter, said. Though Ait Said considers infrastructure a paramount area of focus, he also emphasises the importance of keeping the spirit, fabric and heritage of the city intact.

LEVERAGING TECHNOLOGIES: While infrastructure is a major aspect that needs to be addressed when designing smart city solutions, it also presents an opportunity for creative design. Algiers is starting from a blank slate in terms of smart solutions, which is likely to spur innovation and invite new design and deployment patterns. In particular, it is looking to leverage so-called leapfrog technologies, which are fairly recent and disruptive technologies based on cooperative and open-source models that have the potential to fast-track innovation. "I am very excited about the Algiers Smart City project," Chu said. "When I look at a place like Algiers, I see opportunities to leverage leapfrog technologies without having to worry about existing infrastructure, which can act as an obstacle in many other places. In Toronto, for instance, it will be a very expensive process to switch everyone over to a common technology platform because of what is already out there." Along the same lines, Riad Hartani, strategic technology adviser of Algiers Smart City, explained, "One can leverage the lack of legacy technologies within a city to assist its successful transition into a smart one." Hartani views the deployment of such technologies as the fundamental advantage and key success factor of the Algiers Smart City project.

In other words, what is perceived as a hurdle may turn out to be an advantage for Algiers, as an underdeveloped technological landscape is not restrictive to which or how new technologies will be implemented into society. "The Algiers Smart City project is our approach to proactively centralise the technological ecosystem and speed up innovation," Fatiha Slimani, head of the Algiers Smart City project, said.

The Algiers Smart City project was established to advance multiple aspects of the tech industry, such as technology transfer, talent mobilisation and cross-sector synergies.

The Algiers Smart City project aims to become a catalyst for investment from leading global tech companies. Providing these firms with opportunities for investment is expected to boost technology transfer and help Algeria close its technology gap.

INTERNET OF THINGS: Among the main pillars of a smart city are the internet of things (IoT), cloud computing and an analysis model framed around advances in artificial intelligence – all areas at the core of the Algiers Smart City project. "We are on the cusp of several major technological innovations in the areas of ubiquitous connectivity, including IoT, smart transport and renewable energy," Sirovica said. "These will be transformational for the developing world, where there is further opportunity for deployment." Amine Bouabdallah, founder of Isiniaa, the first start-up incubated by local Fikra Tech, which focuses on advanced cloud and data solutions, points out the early challenges Algiers faced in this area. "Algiers has little experience in handling such advanced technologies, and we were initially hesitant about bringing them to the market," he said. "However, the very nature of these technologies – being based around open source and collaborative communities – made it surprisingly tractable." According to Bouabdallah, such successes have fostered a sense of confidence in the use of advanced technologies, something that was previously lacking in Algiers and other comparable ecosystems.

SMART INVESTMENT: To tackle these challenges, the Algiers Smart City project has a very clear goal: to fast-track technological development by leveraging local talent. In order to do so, it aims to become a catalyst for attracting investment from leading global tech companies, such as Google, Apple, Facebook, Amazon and Microsoft. The project offers these firms various opportunities for investment in the *wilaya* (province), and it is seen as a driver of technological development that will boost technology transfer and help Algeria close its technology gap. "Through innovative technology and investment strategic partnerships, Africa now has the possibility – and the responsibility – to bridge its infrastructure gap, which should be seen as a huge business opportunity," Emery Rubagenga, CEO of Rwandan mining company ROKA Global Resources and founder of Ishango Consulting, said. Data management and digitisation will benefit both government and economic operators by providing them with solutions to enhance their access to information, inform their decision-making, increase productivity and ultimately improve the quality of life for all citizens.

GROWING ECOSYSTEM: International investors can also help the local tech economy flourish, particularly when it comes to nurturing and scaling tech start-ups. Algeria's start-up scene remains in its early stages, in part because there are only a limited number of functional incubators and accelerators with the required critical mass of start-ups, funding and entrepreneurs. Myriad initiatives exist, however, including the Sidi Abdellah technology park near Algiers, the Sylabs agency, private tech accelerator Haba Institute and, more recently, the first pan-African incubator, IncubMe, which was launched in April 2018. Other initiatives include the creation of alternative coding schools, new angel and venture capital funds, and various other developments aimed at strengthening the tech and business landscape. These efforts appear to be a step in the right direction, and with the right timing and execution, positive outcomes are expected. "One position held by the Algiers Smart City project is that the existing incubation and acceleration models – not only in Algiers, but all around the world – have run into some obstacles," Hartani said. "These models are in fact shifting and evolving, which allows for new technology and acceleration models to emerge."

A knowledge-based economy depends on the existence of funding structures, such as angel and venture capital investors, and private equity and sovereign funds, as well as ensuring the creation of a regulatory framework that will enable start-ups and investors to test new business models and technologies within a more flexible, and thus less risky, environment. The Algiers Smart City team has been working to develop new funding models with both the public and the private sectors. It launched a new experimental lab and technology hub in April 2018, where start-ups and investors will be able to meet in a melting pot of creativity and innovation.

A MODEL CITY: Amid the challenges faced by developing countries in a context of increasingly complex and costly technological advancements, the Algiers Smart City project aims to create a template for future initiatives of this kind. Most smart city projects launched in Africa and the Middle East focus on providing turnkey solutions to specific challenges. For example, Egypt is planning to build a completely new capital city to ease pressure on Cairo. The purpose of the Algiers Smart City project, however, is to support the emergence of a global ecosystem that builds on the heritage of the city, leverages leapfrog technologies and focuses on developing local talent. These targets are key to enhancing innovation across multiple sectors. By building up a wide structure of competitive and disruptive operators, Algeria aims to provide tailored solutions to local challenges, thus enhancing development in the long term. "The project will be the start of a new Algeria," Ait Said said. "Involving students, engineers and entrepreneurs is a good strategy – that's where the skilled and innovative minds are. The key to success will be working hard and working together," he added.

> "Algiers is starting from a blank slate in terms of smart solutions, which is likely to spur innovation"

TIMELY CHOICES: The Algiers Smart City project is looking to leverage opportune timing, as well as leapfrog technologies, in order to facilitate its success. The right choice of technologies, as well as their timely implementation, the acquisition and training of local talent, and the development of cross-sector synergies are all essential to transforming the country into a regional and global technological leader.

The right choice of technologies, as well as their timely implementation, the acquisition and training of local talent, and the development of cross-sector synergies are all essential to transforming Algeria into a tech leader.

James Shanahan

Wise approach

James Shanahan, Artificial Intelligence Expert, Xona Partners Silicon Valley, on the lessons to be learned from the project

The Algiers Smart City project is based on leapfrog technologies and non-linear methodologies. How can this approach be put into practice?

SHANAHAN: In order to answer this question, one has to go back to the main premise that lies behind the concept of leapfrog technologies. These are technologies that are fairly new, disruptive and fast-moving. Furthermore, they are defined within the wider concept of leapfrogging; this is a theory of development that argues that emerging markets can accelerate their development by limiting the adoption of legacy technologies in favour of moving directly to more advanced ones.

In most cases these technologies are widely accessible given that they are open source and globally collaborative in nature. They are a direct consequence of the development stage at which we find ourselves internationally in terms of the internet, where a few very large technology giants dominate the market. These major market players push forward the development of these technologies.

In the case of the Algiers Smart City project we see that careful, well-thought-through choices are being made in order to leverage these aspects. We believe this constitutes a wise approach, as it allows the city to exploit disruptions and narrow windows of opportunity. The other strategy would be to consider alternative ways of achieving specific technological development goals. Overall, we do not see any viable alternative other than leapfrog and non-linear technologies.

What lessons can be learnt from the project, and what practical experiences can be exported and replicated elsewhere for similar projects?

SHANAHAN: Smart city projects are all unique and all very specific to the context in which they are developed. Nevertheless, we believe that the main challenges the Algiers Smart City project is experiencing are those of isolation, dependency and lack of confidence, and these challenges are common throughout the developing world to varying extents. As such, elements of the approach undertaken in Algiers can be adapted and repeated in other cities. Efforts are already under way to export the model developed in Algiers, in particular when it comes to funding, jump-starting and growing high-tech start-ups, as well as models of technological experimentation and partnerships with global technology players.

To what extent is a country like Algeria ready for regulatory challenges related to the implementation of new technologies?

SHANAHAN: The Algiers Smart City project and other similar projects around the globe have been initiated with one primary consideration in mind – namely that technologies are currently developing far faster than their regulatory frameworks. This is one of the key challenges that needs to be overcome in every country, not only in Algeria.

The project in Algiers has put in place specific initiatives to address these challenges. The best illustration of these efforts in the establishment of the large-scale Experimental Lab and Technology Innovation Hub in Algiers, where innovators can experiment with new advanced technologies within the framework of a relaxed regulatory environment. We believe that this provides a creative way to deal with these issues. It allows regulators to see, learn and understand the consequences of deploying such technologies, which in turn will enable them to adapt and develop appropriate regulatory frameworks more effectively. Although this approach is not completely free of challenges it is the best manner in which to face the issue of regulation, given the fact that the pace of technological development is unlikely to slow down over the medium or long term.

Boris Mann

Calculated risk

Boris Mann, Managing Director, Frontier Foundry, on supporting start-ups in risk-taking and sustainable revenue generation

Given that start-ups have identified revenue and not funding as the priority issue, how can the Algiers Smart City project help address this?

MANN: Funding is of course important, but it is not necessarily the most important aspect for a start-up venture, nor for the broader Algiers Smart City project. Access to customers and revenue generation are the most important factors upon which to build a sustainable business model. Subsequently, this model will drive funding, as logically any investor would be happy to participate in a project that generates sustainable revenue. Without that model, it will not only make funding difficult, but it will also result in a very low return on investment.

Therefore, the Algiers Smart City strategy is aligning start-ups to customer demand, with the goal of fast-tracking funding. The next step is turning that goal into practice and developing a successful model. This is the most important thing for start-ups, not only in Algiers, but all around the world. However, it is especially crucial for Algiers and other regions in the world where venture-capital funds are still nascent. We don't see any other option than working with start-ups to help them come up with business strategies that will ensure sustainable revenue. From that, funding will then follow. The recent start-ups launched under the guidance of the Algiers Smart City project adhere to this sustainable revenue model. Time will tell if this is the right approach, but as of now, all indications show that it is an option worth exploring.

What else is needed for entrepreneurs to succeed in the wake of the paradigm shift in technology?

MANN: What is needed is a different approach to risk, as we are now entering a period where taking more risks is crucial to development. As such, start-ups need to exercise good risk management. There is little risk being taken in Algiers, and the success rate of start-ups remains relatively low. In the broader context, there is a lot of risk-taking occurring, particularly in the areas of early-stage technology and business, but changing the mindset of Algerians to start taking more risks is a difficult thing to do. It involves addressing culture, society, ability and many other factors. If start-ups do not take risks, there is little chance of developing into tech giants. Algiers has taken a very pragmatic approach in addressing this. Basically, we are helping businesses take more risks, with the goal of increasing their chances of success. If risks are perceived as a way to gain return on investments, then risk-taking behaviours will increase. Over time, as these behaviours are rewarded, subsequent generations will be encouraged to follow suit. Changing perceptions is a long-term task, and this will take years, and potentially decades, but there is no way around it.

How would you assess the progress made by the Algiers Smart City project so far?

MANN: We need to first realise that the project is still at a very early stage. I think its main achievement thus far is having clearly identified strategic goals, and having determined tactical goals based on that. It is a thesis being laid out; one that is being defended not in theory, but in practice. Of course, one can draw an antithesis to any thesis. In fact, that is what Algiers aims to do: develop a thesis, learn of any antitheses that may arise, then carefully and proactively accept and adapt to the challenges and limitations. It is all about adapting, and doing so smartly. Understanding that is, in itself, good progress. The rest will take much longer to judge.

While we cannot disregard that the project is still a work in progress, we must acknowledge that the task is a difficult one – very difficult, in fact, but one must ask the question: what else can be done? Nothing but to continue working towards success.

The Algiers Smart City project is supporting research and development

Roadmap in action

Development of the full project implementation model under way following the release of blueprint plans

Although many challenges lie ahead for the smart city initiative, Algiers has so far benefitted from a well-elaborated smart city framework, crafted during the first 12 months of the project and based on concrete achievements through a bottom-up strategy. The approach has focused on trialling small-scale experiments, and building templates out of the successful ones. Visible results as of early 2018 include the creation of new start-ups coming out of engineering school incubators, spin-off technology companies from research and development (R&D) labs, the launch of the Algiers Experimental Lab focused on advanced smart city technology and the Technology Innovation Hub.

These ventures, among others, were announced by the Algiers Smart City team, which has also announced strategic partnerships with technology giants, new educational models and tech investment funds. These short-term measures will form the baseline of the roadmap, which will serve as a template for the achievement of long-term goals and a blueprint for start-up development, technology transfer and talent mobilisation models for future smart city initiatives in other developing regions.

EXECUTION FIRST: The outline for the Algiers project is distinct in that it has been bottom-up, and not top-down as many smart cities initiatives have been. The model is based on four major pillars, namely the extensive inclusion of local start-ups in various aspects of the project; a global benchmark that will allow the team to draw from other valuable smart city experiences around the world, with an optimal adaptation model; close collaboration with international technology leaders on win-win technology transfer; and efforts to retain local talent and leverage that of the Algerian diaspora.

Now that an overarching strategy has been defined, the project is looking to bring in actors from across the value chain. These will include investment funds, global technology leaders, Algerian start-ups, incubators and universities, as well as local government authorities and policymakers. Incorporating stakeholders, while deciding how these should be involved and interact with each other, is now the top priority, according to Riad Hartani, strategic technology adviser on the Algiers Smart City project. However, the initiative remains subject to an ongoing decision-making process, he added, with an "experiment fast and adapt faster" model. In this regard, the venture can potentially draw on leading management approaches elsewhere, adapting them to the local context. "Algiers, and Africa, can adopt the Silicon Valley mantra of 'learn fast' by working with start-ups to fast-track innovation and infrastructure development," Paddy Ramanathan, managing director of US corporate fintech accelerator iValley Innovation Center, said.

The Algiers Smart City team is making a number of statements at the summit in June 2018, encompassing investment, partnership and policy angles. The initiative is set to deliver new education projects, including the launch of coding and hands-on experimentation schools; new models of acceleration programmes for Algerian companies; and the introduction of competitions for innovation in the fields of technology, culture, urbanism and art, offering significant rewards. This will be paired with key strategic partnerships between local and global tech players, and cooperation initiatives between countries looking to work collaboratively.

The Smart Africa project, an innovation-focused platform that aims for regional economic growth and job creation, is an important example of this. "The Algiers Smart City Summit is the manifestation of the concept that the developing world's best and brightest need new ways to 'link, learn, and do' with partners in the developed world," Peter Lyons, community leader at the World Economic Forum, said.

Partners in the project's deployment model will include investment funds, global technological leaders, Algerian start-ups, incubators and universities, as well as local authorities and policy makers.

The Algiers Smart City initiatives seek to bring technology and business leaders under the same roof

Over
20
start-ups have been selected as key partners out of many more start-ups

EARLY ACHIEVEMENTS: Launched in mid-2017, the initiative has already spearheaded a number of innovative projects, with the number set to increase. Major ventures detailed so far include the development of an Algerian cloud and big data platform by a local start-up, which within its first year of operations secured global customers.

A number of other projects, which so far involve over 50 engineers from local engineering schools, are also in motion. Meanwhile, partnerships with four multinational companies have been announced and were executed in the first eight to nine months of the project, which is an indicator of the fast-paced approach of the programme. In July 2017 the Algiers Smart City team called for stakeholders from all backgrounds to submit proposals for collaboration according to the project framework.

By the end of February 2018 more than 150 proposals had been received, coming from 15 countries, and from organisations as diverse as global technology corporations, start-ups, R&D labs, law firms, financial institutions and advisory groups. The team said that it has been their number-one priority to link leaders from the tech industry to the project, to such an extent that it was listed as one of the goals of the call for collaboration. Work with these actors is central to the development of technological aspects of the project.

PARTNERSHIPS: As of early June 2018 partnerships with some of these players had already materialised, while others were on the way or under discussion at the time of writing. In the first nine months of the initiative over 20 start-ups and more than five multinationals had confirmed their participation, with a target of increasing this number by up to three times in the project's second 12-month phase.

April 2018 saw the launch of the Experimental Laboratory and the Technology Innovation Hub, two important achievements in the early stages of the project. The laboratory aims to provide a live environment where selected smart city solutions will be tested before being launched at scale in the city. As a key venture that was enabled by the smart city project, the lab is open to innovations from active players in a wide range of sectors, including telecommunications, health and fintech. As a result, leading global technology corporations will be able to test their own solutions while working jointly with the local technology value chain within a relaxed regulatory environment. This will in turn feed into the efforts of policymakers to craft an optimal and evidence-based regulatory framework on the basis of the laboratory's research findings.

For its part, the Technology Innovation Hub aims to provide a focused physical environment where various actors from the global and local technology value chains interact, creating synergies and helping to develop a local culture of innovation. Other benefits provided by the technology hub, designed to support the success of new local enterprises, include mentoring for new firms in their adaptation to the international market, business advice, funding and other services designed to support new companies seeking to establish themselves locally. "Both the Experimental Laboratory and the Technology Innovation Hub represent unique tools to support the technology development roadmap that Algiers Smart City is implementing," Hartani said. "They will stimulate innovation by selecting the best technologies, leveraging talent and optimising R&D, as well as adapting global solutions to locally specific needs with a long-term perspective."

ROADMAP: The coming months will be fundamental to the realisation of a clear and comprehensive roadmap. To this end, a number of results and decisions on key issues have been announced. Among these are the realisation of newly created start-up models, the internationalisation of the programme and the involvement of the Algerian diaspora in the project. Governance from a public policy perspective will also be key, including the setting up of appropriate regulations, such as those that allow start-ups to become quickly operational and investment funds to secure financing efficiently. Pilot approaches carried out in the Technology Innovation Hub should help to cement best practices in this regard.

With a roadmap designed to create an enabling environment with a long-term perspective, the Algiers Smart City project seeks to define an innovative way to conceive of and promote strategies for socio-economic development and inclusion. Many cities in the world share similarities with Algiers in terms of economic constraints and other challenges, including a lack of access to funding for small and medium-sized enterprises, limited private funding or a lack of diversity in the economy.

The Algiers initiative, however, is proposing an international and non-mainstream approach to enhancing innovation, based on opportune timing, that the developers endeavour to export elsewhere.

In April 2018 the Algiers Smart City launched the Experimental Laboratory and the Technology Innovation Hub, two important achievements in the early stages of the project.

Creating the smart cities of the future