UNDISCOVERED POTENTIAL IN THE EAST AFRICAN ICT SECTOR

OPPORTUNITIES WITHIN THE ICT SECTOR

BUSINESS SWEDEN, 2016
Executive summary

- The growing connectivity stimulates digitalisation and smart solutions are needed to support the development in the East Africa region.
- Mobile connectivity is high and growing in East Africa and although internet penetration is low today it is growing at a high pace. Solutions presented to the market need to be innovative, developed in or adapted to the local context and they have the potential of making a vast impact on a large number of people.
- Mobile payment is an area where East Africa is in the lead, and a number of other focus areas are presenting innovative solutions and attractive opportunities for Swedish companies. Business Sweden has identified five main sectors that are particularly interesting in the region from a Swedish perspective; including E-government, agriculture, energy, education, health, and security.
- The East African region has the necessary ecosystem in place, the market is large, growing, and the challenging region is spurring innovative solutions. This altogether makes East African ICT and digitalisation an interesting area to look into.
- East Africa is in many ways developing at a high pace. A major difference from when Europe was experiencing similar development is that today, there are a number of smart solutions available, which allows East Africa to leapfrog and skip a number of steps.
A growing connectivity in East Africa creates a large consumer group

Access to a mobile phone in Sub-Saharan Africa is higher than the access to electricity and sanitation. Mobile communication in the region has been booming and is currently posting one of the highest growth rates in the world. The uptake for mobile phones has addressed the high demand for communication, but also provided alternatives and disruptive business models for services such as banking, entertainment, medical advice, and training, which were previously not easily accessible. Currently, the mobile penetration rates in Sub-Saharan Africa stand at 41%. The East African region has a mobile penetration rate of 70%, which is far above penetration rates in Sub-Saharan Africa; this signifies a high ICT uptake in East Africa.

Source: BMI Telecommunication Report 2016: Kenya, Tanzania, Rwanda and Uganda

Different stakeholders have been instrumental in driving the mobile penetration rates in East Africa. The telecommunication operators and the governments in the region have invested in infrastructure, though the rural areas have not been sufficiently covered. Governments in the region are keen on driving the ICT sector, with countries such as Rwanda and Kenya looking to transform their economies into knowledge based economies.

1 GSMA, The Mobile Economy Sub-Saharan Africa, 2015
economies. The Rwandan government has slashed taxes on mobile phones and introduced credit schemes to increase mobile phone penetration in rural areas.² With such proactive policies and strategies, continued growth in the mobile penetration rates is anticipated, reaching 100% by 2021 in Sub-Saharan Africa.³

When it comes to internet penetration, Africa ranks last in the world. However, the continent at the same time has among the fastest growing rates globally. The growth is driven mainly by the vast expansion in the mobile broadband. Mobile broadband penetration is higher than fixed broadband with most internet access being on mobile phones due to the falling prices of smart phones in the region. 400 million additional smart phones are expected in the Sub-Saharan region by 2020, twice as many as the current number of smart phone users in the United States.³

The use of mobile applications is expected to increase, particularly among the tech savvy youth. In conjunction, a local application economy that develops content and services for domestic consumption is expected to emerge. There is increasing knowledge, on the significance of the internet; this is expected to continue driving internet penetration.

The number of 3G and 4G subscribers in Tanzania and Kenya are expected to double from the 2015 subscriber numbers in the next two years. With the highest number being in Tanzania, this will be driven mainly by the investment in 3G and 4G infrastructure as well as population growth. The 3G and 4G subscriber numbers in Uganda and Rwanda are also expected to grow significantly the coming years. However, the starting point is much lower than in the other countries, and due to the lower population in the two countries, the customer base will not reach the same level as in Kenya and Tanzania.

³ CGAP. Six takeaways from Rwanda’s Financial inclusion insights, 2015
² Ericsson. Sub-Sahara Ericsson Mobility Report, 2015

Digitalisation is expected to transform East Africa the coming years

Digitalisation amplifies the benefits of connectivity, and is expected to make a vast impact on the East African development and influence it to be more inclusive, efficient and innovative. Digital transformation drives growth, generates jobs and opens up for delivery of a vast array of services. A large and growing young population is expected to fuel the digital development in the region. Still, the main obstacle hindering this positive development is lack of connectivity, and in the East African countries it is both a matter of accessibility and affordability. Considering the sound base of connected individuals and a positive development, the East African digitalisation is expected to greatly impact East Africa and the world the coming years.

Mobile is taking the lead in the digital development in East Africa and is the foremost platform for creation, distribution and consumption of innovative solutions and services in the region. The solutions are a mix between global players like Facebook and Google launching localised solutions and locally...
developed solutions appealing to local interests and solving unique challenges of the region.4

The local companies are also innovating and exporting solutions to other markets. For instance Craft Silicon a company founded and headquartered in Kenya focuses on providing software and payment solutions to the financial sector, specifically to banks, microfinance institutions, wealth management institutions, insurance companies and telecom companies. The company’s solutions are exported, not only to African countries, but also to countries in South Asia. Latin America is considered for future expansion. The company recently launched an application that is in competition with Uber and according to Roy Niladri, VP Global sales, Craft Silicon, the application is very versatile and not merely a copy of the Uber application but much adapted to the local context. A few of the benefits with the Craft Silicon solution is that enables payment through Lipa Na M-Pesa (the local mobile payment solution), free WiFi and choice of music during the cab-rides.

The innovative context is also reflected in East Africa presenting one of the most innovative solutions for mobile payments globally. Four out of five mobile-money based international transactions occur in Africa, proving the wide adoption and importance of the solution.5

Since 2007, Kenya has a revolutionary mobile payment solution fully adapted to the local context. Safaricom, Kenya’s biggest mobile operator is behind the solution, which is called M-Pesa. M-Pesa does not require a bank account, but instead cash can be posted directly to the mobile phone and M-Pesa account. As a consequence, the solution reaches the larger mass, since in Kenya, most people have a mobile phone, but few people have a bank account.6 In addition to Kenya, Tanzania is also in the forefront of Mobile Payment solutions and has overtaken Kenya in terms of accounts per thousand adults.7 For countries in Africa with an already high adoption rate of bank-accounts, such as Rwanda and Ethiopia, the mobile payment solutions are not gaining traction to the same extent.

![Penetration rates for personal financial accounts](image)


Another example of how the growing connectivity has already spurred digitalisation in Africa is e-commerce, which leverages on smart infrastructure of mobile transactional platforms. Tanzania is one of the top three countries when it comes to e-commerce in Africa, and also Kenya has got a good start. Both countries have a high forecasted growth the coming years (CAGR 21% and 17% respectively). In order to ensure growth in e-commerce, investments in infrastructure and logistics are vital.8

Innovation centres and technology hubs support the digital development and have played a critical role in fostering ICT sector growth in Africa, by bringing up innovative and disruptive solutions. The number of technology hubs in Africa doubled between 2015 and July 2016. In East Africa, Kenya and Uganda are the leaders in the number of hubs, with 27 and 12 hubs respectively. The innovation centres have been partnering with global technology companies such as Google, Amazon and IBM and telecommunication operators among others. Through such partnerships the companies have gained access to local innovations and also enabled some telecommunication operators to remain innovative by tapping in to the skills in the hubs.

---

6 Quartz, M-Pesa Shows why mobile money is yet to realize its true potential in Africa, 2016
7 Financial Times, Tanzania’s fintech and mobile money transform business practice, 2016
8 BMI, Industry view Sub-Saharan Africa-Q4, 2016
There are a number of attractive business opportunities for Swedish companies

*Opportunities within digitalisation can be found almost anywhere in East Africa. Business Sweden has identified five main sectors that offer potential for Swedish digital solutions. In the following, each sector will be presented with examples of local and Swedish successful businesses.*

E-Government

Digitalisation contributes to improved access to public information, increased transparency and accountability and enables interaction between government and citizens in a better and more efficient way than before. Governments have several benefits to gain; these include improved governance because of the increased information flow, increased efficiency from providing services online and for receiving anonymous information about corruption issues, improved welfare because of increased knowledge from communication and information.9

E-government in Rwanda

The Rwandan government is one of the governments in the region which are in the forefront in digitalisation and who has a high priority on transforming the government to become more digital. The goals for 2018 are to have 95% of government transactions online through a 24-hour self-service portal, which should encourage a cashless and paperless economy. The benefits expected are productivity gains, reflected in GDP, with an estimated value of MUSD 50.10

Agriculture

Agriculture is a large industry in East Africa, and digitalisation brings great benefits to the industry. Digital platforms are one of the main drivers contributing to the digital transformation within agriculture. The platforms support the farmers with everything from practical information about growing methods, information about the weather, warnings and advice about plant and animal diseases and information about trends in the market. In addition to information and support, digital technology and particularly mobile phones can be used for transferring government subsidies, tracing livestock and control and optimise irrigation systems.12

---

9 EPRS, Digital Development in Sub-Saharan Africa
10 Ministry of Youth and ICT, Smart Rwanda 2020 Master Plan
11 Africa Outlook, 2016
12 EPRS, Digital Development in Sub-Saharan Africa
Agricultural Inputs Platform

Uganda Seed Trade Association (USTA), Uganda National Agro- input Dealers Association (UNADA) and Crop Life Uganda have together created the platform Agricultural Inputs Platform. The platform is a good example of an innovative solution supporting farmers and increasing productivity. The platform is targeted at Ugandan farmers and includes a number of services such as a knowledge database with information ranging from financial services to equipment suppliers, a seed database where it is possible to find different varieties, licences and more, a dealer database where dealers can be found, as well as a database with agrochemical products, where to find them and their intended uses.

The goal of the platform is to help Ugandan farmers and provide them with high quality inputs, such as seeds, fertilizers and crop protection products, and make sure the needed products are available for every season, and that the deliveries are reliable and on time.\(^{13}\)

Energy

Energy’s importance for investments and productivity has resulted in energy being a high priority in East Africa and included in the East African Community Development Strategy.\(^{14}\) In addition to providing power to big industrial facilities, electricity is needed for people in rural areas and at the moment rural electrification is very low in the region. Mobile payment is one area that is already having a positive effect on the electrification in rural areas as it sets up an infrastructure where the users are actually able to pay for the electricity.\(^ {15}\) Innovative solutions that can positively impact the power sector are also seen in terms of power plant monitoring.

M-Kopa

The lack of electrification potentially could delimit the accessibility to technology, but in the region, that is not always the case. An innovative solution, leveraging mobile technology, enables power supply to areas with no electrification. The solution, M-Kopa, is based on solar technology, which can supply smaller electric devices, such as lamps or mobile phones, and payment is made over the phone. An IoT solution is leveraged, which enables the remotely monitoring the amount of electricity captured/stored and also to analyse whether the device is working or not. (M-Kopa exemplifies how ICT can revolutionise and improve a sector in Africa.\(^ {16}\)

Trine

Trine offers financing solutions to solar energy project companies in developing countries and investment opportunities to people in the European Economic Area. Investments range from 250 SEK and upwards. Operations started in Kenya and Tanzania, much because these two countries have come far in terms of connectivity and mobile payment solutions, which enable small scale solar power solutions in rural areas.

In order to understand the market, how it works and its potential, Trine’s founders travelled the region, visited projects and potential collaboration partners.

\[\text{Solar panel installation at a customers’ roof at one of Trine’s projects in Kenya}\]

When asking Christoffer Falsen, one of Trine’s founders, what makes a company successful in the region, he stresses the importance of understanding the region.

“Developing countries in Africa are very different from Sweden, and in order to succeed, it is crucial for the management team to understand how the region works. You should be prepared for a context where you need to iterate

\(^{13}\) USTA, UNADA
\(^{14}\) East African Community
\(^{15}\) PWC, Electricity Beyond the Grid, 2016
\(^{16}\) EPRS, Digital development in Sub-Saharan Africa, M-Kopa
information several times before getting an idea of how things work. We always ask several lawyers in order to find out how things work, and you can never take the information for granted. Understanding structures is also difficult, records are poor or non-existent and companies bookkeeping are often unsatisfactory. Things take time; even small things can take several weeks. In order to succeed you need to be synchronised with the market, and spending time in the market certainly adds to that.”

Despite the market being challenging, Trine is doing well. The company already has own employees in Kenya who can assess projects and run daily operations. At the moment, Trine has 9 local solar partners active in Kenya, Tanzania, Uganda, Senegal and Zambia. Recently, Trine launched in the UK in order to grow their investor base, and the company has a positive outlook on the future.

Trine serves as good example for how innovative solutions and digitalisation can grow revenue and create value for people.

Education

Digital solutions have the potential to make a positive impact on the education in East Africa, both in terms of quality, but first and foremost in terms of accessibility. Today, there are children in rural areas who do not have access to education. Additionally, although the school enrolment rate is high in Tanzania, Uganda and Kenya, the corresponding literacy and numeracy among the students are of varying quality and in some cases very low.¹⁷ Innovative E-learning solutions have the potential to solve these problems. The main blockers for E-learning solutions are access to digital devices and infrastructure, both in terms of connectivity, but also in terms of access to power.¹⁸

Studi

With the vision of improving education in developing countries, Studi provides a digital learning platform for students in developing countries. Fredrik Rosman, COO and founder of Studi in Tanzania was motivated by the high demand for good education and the poor state of the current education systems. Problems included both a shortage of teachers and also poorly educated teachers. In order to solve the problems and create value for the large number of students in Tanzania, a scalable solution was required. Fredrik Rosman saw opportunities with the Swedish education platform Studi Academy. With few modifications, the solutions were able to serve the Tanzanian market. The two main adaptations needed were the language and the content, mainly to ensure that it followed the Tanzanian curriculum.

BRCK
OPPORTUNITIES WITHIN THE ICT SECTOR

Reaching rural areas was also a challenge because of poor internet connectivity. A router solution, where content could be stored in the router, enabled the solutions to be rolled out also in areas with poor connectivity. The innovative router solution inspired development of the Swedish solution, solving the problem of slow processing when having many students streaming material in the classroom at the same time. A similar set-up might be used in Sweden in the future.

A grant from Human Development Innovation Fund, which enabled development of more local material and also a mobile application, contributed to Studi’s growth in Africa.

Studi is doing well in Sub-Saharan Africa; the solution has been rolled out to seventy schools in Tanzania and four schools in South Africa. However, more investments are needed in order to grow further. Fredrik Rosman explains that the solution could easily be rolled out to 500 schools, and Studi is currently looking for financiers that can make this happen. Studi has already started looking at Kenya as a market with good potential and are hoping their solutions will contribute to improving education and creating value to students across Kenya.

Health

Health is an area with much room for improvement in Eastern Africa. There is a shortage of medical staff, services can be of varied quality and there is a lack of knowledge and shortage of information among the public. Digital solutions can change the scene and there is great potential for solutions offering information to the general public, such as self-diagnosis, where to find a doctor, as well as training and communication platforms for medical staff. 20

Safe Delivery

Innovative solutions can save mothers in rural areas; the Safe Delivery App provides information to birth attendants on how to manage normal and complicated deliveries. The information is based on global clinical guidelines and is presented to the users in animated clinical instruction films. To account for lack of connectivity, the app can be installed on the phone and no network is needed for usage of the app. The app was tested in Ethiopia and thereafter further developed from input during roll-out in more countries. Now the app can benefit all delivering women with smartphones in rural areas. 21

Milvik Bima

Milvik Bima is a Swedish company that offers a disruptive technology that allows for insurance and health care access over mobile phone at a low cost, the company is working in partnership with mobile operators, insurance companies, banks and microfinance institutions in 16 countries. The company is active in Tanzania, Senegal, Ghana and Uganda, and is looking to expand in more African countries.

To deliver insurance at low cost insurance, customers have the option to pay from their airtime or through mobile payments. The target customers for Bima are people who earn between 1-8 dollars a day. The major challenge that the company has faced is the culture and insurances not being viewed as a necessity. However, with the company educating potential customers through their call centre combined with the ease and simplicity of the company’s product they have been able to grow.

In emerging markets some people have to travel long distances to access health care. Bima has resolved this challenge by offering a solution over the mobile phone where a patient can seek medical consultation with a doctor over phone.

According to Tom Chaplin, Bima country manager Tanzania, for Swedish companies looking at entering the East African Market one consideration should be the distribution model. Infrastructure in some areas may not be well developed and this may mean additional costs have to be incurred to reach target customers.

20 EPRS, Digital development in Sub-Sahara Africa

21 Maternity Foundation
Security

Security is a high priority in Eastern Africa, and the people who can afford private security uses the service. Only in Kenya, the private security sector employs 400 000 people, which makes the sector more than four times bigger than the police, military and prisoners services combined. In Uganda and Tanzania the picture is similar. (The East African, Charles Onyango-Obbo, June 18 2016) IoT has the potential to greatly impact the security sector with new solutions able to monitor homes, plants, and other facilities.\textsuperscript{22}

Chimera IoT

Chimera IoT is a Kenyan company operating in the security sector that offers smart home solutions. The smart solutions include monitoring of the home through cameras sending videos to the mobile phone, temperature regulation, lightning control and other solutions increasing the comfort in the home.\textsuperscript{23}

\textsuperscript{22} McKinsey, The Internet of Things: Mapping the value beyond the hype
\textsuperscript{23} Chimera IoT
Why you should explore business opportunities in East Africa

The East African market ecosystem is in place, making the market mature enough to invest in

The East African region has a relatively stable political environment and governments in the region have realised the potential of ICT as a contributor to the economy and established beneficial conditions for companies operating in the sector, which together with government spending facilitates a favourable climate for new businesses. Connectivity is high considering East Africa is developing, and the market has a positive outlook for the coming years. A growing population and the fact that the great majority of people have a mobile phone ensure a large customer group. Finally, innovation hubs and incubators contribute to make the market accessible for start-up companies and beneficial for larger companies to place research and development activities in.

A large and growing market with a young population

Africa is hosting a large part of the world’s young population today and this is also the expectations for the future. The young population is expected to continue dominating the African market, which makes the market attractive for ICT investments.

Companies succeeding in the African market can thrive on a large consumer group and potential of a dominating position in the global market.

Population distribution per age group and region in millions

Source: Statista 2015

A challenging market spurs innovative solutions

Although the market offers great potential, there are several challenges companies need to overcome in order to deliver smart solutions to the East African market. Products developed in the market are innovative and robust and in some cases they leapfrog and jump ahead of the solutions in developed countries. Products presented in the East African market have long battery life, smart charging solutions, are resistant to water and solve problems in new ways. Developing products and solutions in the market can be beneficial and bringing the solutions to more developed parts of the world can give market advantages.
Business Sweden’s purpose is to help every Swedish company to reach its full international potential and help companies abroad to reach their potential by investing in Sweden. The purpose is operationalised through 450 staff deployed at 14 offices in Sweden and at 55 offices in 49 key markets abroad. Feel free to contact us for any questions regarding Swedish international trade or foreign investments in Sweden.