

## ОЦЕНКА И АНАЛИЗ НА ПАЗАРНИЯ ПОТЕНЦИАЛ ЗА ДИГИТАЛНИ ФИНАНСОВИ УСЛУГИ В СУБСАХАРНА АФРИКА \*

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**Резюме:** Африка е континентът, в който концентрацията на бедните е най-високата в света. Това поражда дисбаланс между континентите и различните държави, водейки до висока миграция и големи диспропорции в икономическата активност на хората. Един от основните проблеми в развиващите се страни е достъпът до финансови услуги. Тази особеност поражда възможност за Fintech компаниите да навлязат на Африканския пазар с иновативните си услуги и алтернативен модел, основани на анализ на кредитния риск на база алтернативни данни. Тропическа Африка е регион с огромен пазарен потенциал за дигитални финансови услуги, който очаква да бъде разработен. Тропическа Африка с най-високия отосителен дял на младите и бързо нарастващата урбанизация, с един от най-ниските БВП на глава от населението, е твърде рисковано място за стандартно банкиране, но е отлична възможност за Fintechs стартъпи да оптимизират финансовия бизнес чрез съкращаване разходите за придобиване и времето за пускане на пазара, предоставяйки масови дигитални финансови услуги, базирани на оценка на кредитния риск на база поведенчески данни за клиентите. В настоящата статия разглеждаме сегмента на индивидите без достъп до формално банкиране в Тропическа Африка, основните причини и пречки за постигане на по-висок дял на финансово включване и разглежда предимствата на Fintech подхода - като средство за реализиране на устойчив бизнес в региона.

**Ключови думи:** макросегментация, пазарен потенциал, Тропическа Африка, Субсахарна Африка, финансово включване, алтернативна кредитна оценка, дигитални финансови услуги.

**JEL:** M31.

## UNDERSTANDING AND ANALYZING THE SUB SAHARA AFRICA MARKET POTENTIAL FOR DIGITAL FINANCIAL SERVICES

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**Abstract:** Africa is the continent where concentration of poor people is the highest in the World. This creates a big disbalance between continents and countries leading to high migration and great discrepancies in economic conditions of the

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individuals. A major issue of the underdeveloped countries is access to financial services for the unbanked. This is also an opportunity for fintech companies to enter the African market with their alternative service and delivery models combined with creative credit risk analytics. Sub-Saharan Africa (SSA) is a dormant place with great market potential, waiting to be awakened. With the highest share of youth and rapidly increasing urbanization but one of the lowest GDP per capita, SSA is too risky place for conservative banking but a great test field for fintechs and start-ups, that could optimize acquisition costs and time to market using digital channels controlling the credit risk with alternative data. This paper reviews Sub Sahara Africa's unbanked segment, major obstacles to achieving greater financial inclusion in SSA and outlines Fintechs' advantages of doing successful business in the region.

**Key words:** macro segmentation, market potential, Sub-Saharan Africa, financial inclusion, behavioral credit scoring, Fintechs, digital financial services.

**JEL:** M31.

## **Introduction**

Sub-Saharan Africa's economic development, personal wealth and faster growth largely depend on access to financial services. While formally employed individuals have the opportunity to use traditional banking services, others employed in agriculture living in remote areas, as well as very small business owners and those employed informally have no bank accounts, could not use secure money transfers and are not eligible for even a small credit. The objective of this work is to dig closer at the unbanked segment in Sub-Saharan Africa, the share they represent, understand issues and barriers for doing business with them and mark possible approaches of unleashing the enormous market potential in this area due to its size and structure. This paper explores and analyzes the current state of development in SSA, financial services market penetration, issues and barriers for further development. The goal is to examine the macro segment of the unbanked in SSA- size, potential, current issues and Fintech possible partnerships and market entry strategy. Methodology used in the article is a comparative analysis of the economic development in selected World regions as well as mobile telecommunication and financial services penetration rates comparison. Review and analysis of the major obstacles and potential success factors for broader financial inclusion indicate possible methods for sustainable growth in SSA's individuals financing. Suggested in this document is the use of telecom data and "anonymous" individuals' digital footprint left online for leveraging credit risk in financial services offering to underserved individuals. Fintech startups with their low acquisition costs and lack of initial investments in physical branches or personal agents could easily reach high number of potential users and identify reliable payers via scoring models that do not necessary include previous financial history but analyze personal behavior of the client. Without bank bureaucracy procedures and complicated structures,

Fintech companies could offer simplicity, effectiveness, flexibility and fast deployment that could successfully substitute traditional bank offers for poor individuals. Comparing publicly available statistical data from the World bank, NGOs, GSM Association and other sources it is clear that SSA is lacking behind other areas in the world in terms of GDP contribution and economic growth, though mobile services and devices penetration rates are as higher as elsewhere. Analysis of the statistical data suggests that adopting forward-looking legislation and local regulations in favor of financial digitalization, together with fostering internet penetration could increase the number of connected devices significantly. Generated big data and information extracted from its analysis could be the engine behind further development- based on the success stories in some countries in the region, SSA could become World's leader in ubiquitous use of digital services in areas like finance, agriculture, small business, personal financing, education, insurance, health sector, renewable energy projects, infrastructure projects, contributing to the achievement of several of the UN global sustainable development goals. Statistical data overview outlines Telecoms' major role and the use of the data generated in their systems for individuals' assessment.

### **1. Target market for financial services**

The world population is constantly growing and in 2018 it exceeds 7.5 bio people. Closer look at World bank's statistics shows that the highest population growth rate- almost double, compared to the World's percentage in the last decades is observed in Sub-Sahara Africa (SSA)- a region that is also reported to be inhabited by economically the poorest people in the world. (World bank group, 2017). World bank's data shows in Sub-Sahara region live 14% of the world population but their contribution to the world's GDP is only 2%. Adding the fact that in SSA the share of youth population is much higher than in other regions in the world makes it one of the largest homogenous market and source of labor force on the planet.

Africa's sustainable growth is one of the most important challenges nowadays. World leader have understood that global development could be achieved only by closing the gap between developed and developing economies. Governments have already realized and identified the huge business potential in the emergent nations. Institutions like the World bank, United Nations, NGOs like Bill &Melinda Gates Foundation etc. are working on the challenging goal to fill the financial exclusion gap till 2020. (Demirgüç-Kunt, Klapper, Singer, Ansar, & Hess, 2017) Their belief is that financial inclusion of the poor will significantly improve economic condition of the individuals, will be a major factor for maintaining of the regional and global political security and stability, beneficial for the entire society.

*Table 1*  
*World population, growth, GDP/capita; GDP/capita growth*

		1990-1995	1996-2000	2001-2005	2006-2010	2011-2017
Population, total, last year	World	5 713 794 372	6 121 682 736	6 520 298 763	6 932 869 743	7 530 360 149
	SSA	587 469 624	670 649 638	766 080 507	877 628 367	1 061 107 721
Population growth-last vs first year	World	8,0%	7,1%	6,5%	6,3%	8,6%
	SSA	14,7%	14,2%	14,2%	14,6%	20,9%
GDP per capita (current US\$), last year	World	5 398,9	5 484,0	7 271,4	9 513,6	10 200,9
	SSA	574,0	547,1	892,6	1 554,5	1 463,9
GDP per capita growth-last vs first year	World	26,5%	1,6%	32,6%	30,8%	7,2%
	SSA	-5,2%	-4,7%	63,2%	74,2%	-5,8%

Source: (World Bank Open Data, 2018)

Sub-Sahara Africa is without doubt on one hand the poorest but on the other one of the most perspective regions in the world, as well as the most underrated one. Companies looking for new business opportunities and markets should turn their eyes towards this region as it could offer youth and growing population, fastest urbanization rates and improving technological adoption.

According to Africa's economic growth report major factors for development are political, business and macroeconomic climate, significant improvement of agriculture and building the local infrastructure- all these aspects of growth need huge investments. Weak regional infrastructure- roads, ports, railways, electricity, drinking water availability, internet coverage etc. especially in SSA, is a key factor preventing economic growth, trade integration, and poverty reduction. Transport costs for goods and services are among the highest in the world, and an unreliable electricity supply is seen everywhere. SSA's economy suffers because of frequent power outages even in the capital cities in the most developed countries in the region. As stated in the report, the poor state of infrastructure in SSA cuts economic growth by 2% every year and reduces productivity by 40%. **(Zamfir, 2016)** Last but not least growth factors are services- the fastest growing segment in African's economies. The biggest share in the sectoral output in SSA have technological services- telecommunications, ICT, financial services, dominated by digital channel- innovative alternative with higher productivity at a minimum cost for markets with significant mobile money and mobile wallets market penetration. Francis Gatare (CEO, Rwanda Development Board) stated for World Economic forum 2015 that - technology is the major success factor for African economic

development. It is the key enabler that will unlock Africa's full economic potential and will lead continent's development to a sustainable growth. Local governments understanding, legislation facilitation and digital policies adoption ease foreign investments and technological companies' startups market presence in the region. (Gatare, 2018)

## 2. Financial inclusion for the unbanked

Globally, it is estimated that 1.7 billion adults remain unbanked – they do not have accounts both in a formal financial institution and from a mobile money provider. In developed countries nearly, everyone has a bank account-formal or virtual, meaning that unbanked individuals live primarily in the undeveloped countries. (Demirgüç-Kunt, Klapper, Singer, Ansar, & Hess, 2017)

Broader financial inclusion leads to financial development and economic growth. It is especially important in the developing economies providing indispensable aid to individuals engaged in agriculture, small business entrepreneurs, women and other social groups in risk. Individuals that lack of access to formal banking such as having an account and operating with it including access at least to microcredit vital importance could be also served by microfinance institutions (MFI). This requires more even more attention and stricter control from regulatory and government bodies as usually legislation for MFIs is lighter compared with banks and both risks for the customers/entities and related cost of the service is higher. (Dev, 2006) While banks remain conservative and offer limited, if any services to poor citizens, microfinance industry addresses mainly people involved in informal economy with low income that is also impossible to be officially proven. Thus, MFIs are the main local players influencing poverty reduction, women's empowerment and household welfare. Increasing access to financial services by small farmers, sole & micro-entrepreneurs deepens the financial sector and also links them to the economic mainstream. Due to regional specifics and local population characteristics share of traditional banking customers in the developing economies is extremely low. The need for serving the unbanked led to creation of innovative financial services that are disrupting the business in the emerging markets. Now poor individuals, farmers in remote areas, micro-business owners and women that had no access to traditional banking before due to high acquisition costs, could manage their finances over a mobile device from a virtual wallet. This has revolutionized financial inclusion and a remarkably rapid increase in number of users is observed, especially in countries with high penetration rate of mobile telecommunication services. Not all the markets in the undeveloped world experience high adoption of digital financial services and fast improvement of financial inclusion but these services are the core of achieving World bank's UFA2020 initiative main goal- enabling 1 billion

people with no financial accounts to gain one by the end of 2020. (Worldbank Group, 2018)

Table 2  
Financial Account ownership (% age 15+)

	2014			2017		
	Total	Financial Institution	Mobile money	Total	Financial Institution	Mobile money account
East Asia & Pacific*	53%	51%	3%	53%	52%	7%
Europe & Central Asia*	50%	50%	0%	58%	58%	6%
Latin America & Caribbean*	45%	44%	2%	49%	46%	7%
Middle East & North Africa*	33%	33%	1%	44%	43%	6%
South Asia	37%	36%	2%	48%	45%	7%
Sub-Saharan Africa*	30%	25%	12%	41%	30%	24%
High income	90%	89%	6%	92%	92%	17%

\*excluding high income

Source: (Demirgüç-Kunt, Klapper, Singer, Ansar, & Hess, 2017)

### 3. Digital financial services - mobile money and Fintech expansion

Technology occupy all aspects and sectors of our lives. Financial world is not an exception and disruptors so called Fintech companies are the game changers in fining new delivery channels, improved customer experience, better flexibility and more competitive pricing. Mobile money is the layer that enables digital financial services reaching even customers that were previously excluded from traditional banking. Before mobile money were introduced, people in emerging markets were operating in cash, even in a remote area making direct payments and using informal sector for keeping their savings at high risk and higher costs. An estimate of 1.6 billion new customers in the developing economies are the potential clients of digital financial services. Increase in volume of business and individuals' loans from this new channel is roughly calculated to be around \$2.1 trillion. Potential increase in financial institutions' revenue involved in digital banking is estimated to reach around \$4.2 trillion. Fintech companies are already substituting traditional payment and transaction methods and position themselves as a major factor for financial inclusion that will overcome infrastructure deficit and boost entrepreneurship in informal economy. (Philip Osafo-Kwaako, 2018) In order to differentiate and implement new market practices, MFIs should emphasize on innovative products and services that will impact also on the youth in the various

communities where banks operate but also others where banks could not offer any financial services due to multiple factors like ease of access in terms like costs for branch opening and extremely low ROI- in remote areas average revenue per customer is very low and not at all comparable with costs for physical branch maintenance and traditional banking.

Global partnership for financial inclusion (GPFI) is an initiative of G20- a group of 19 countries and EU (Wikipedia) with main focus on global economic development, established to promote financial inclusion in undeveloped countries. GPFI has a common agreement that digital financial inclusion is the key enabler for economic growth in places with poor infrastructure and communication. The group defined four basic principles of successful digital financial inclusion:

- (1) Financial inclusion, promoting digital technologies and approach
- (2) Using innovation to leverage risk and broader financial inclusion
- (3) Improve and adapt legislation to new type of connected services
- (4) Boost the expansion of the digital financial environment

**(Global Partnership for Financial Inclusion, 2016)**

*Table 3*  
*Cards ownership (% age 15+)*

	2014		2017	
	Debit cards	Credit cards	Debit cards	Credit cards
East Asia & Pacific*	32%	6%	38%	6%
Europe & Central Asia*	34%	14%	42%	15%
Latin America & Caribbean*	29%	12%	30%	12%
Middle East & North Africa*	21%	5%	28%	6%
South Asia	12%	1%	15%	2%
Sub-Saharan Africa*	14%	3%	16%	4%
High income	77%	41%	82%	44%

*\*excluding high income*

*Source: (Demirgüç-Kunt, Klapper, Singer, Ansar, & Hess, 2017)*

Kenya's mobile money fairytale: Mobile money service called M-Pesa offered by Safaricom (Vodafone subsidiary in Kenya) made it to the top of the World, making Safaricom first mobile money provider to reach one million mobile money accounts at the end of 2008. Mobile money is not successful in East Africa only. By the end of 2013 they expand beyond this region. Twelve services managed to reach the 6-digit number, in countries in Asia, Latin America & Caribbean, West Africa, Middle East and North Africa. By the end of 2014 the number of successful launches with more than a million accounts doubled reaching 23 services all over the world. Two years later in 2016, a total

of 35 services had reached the million with more than 50% of them are operating in Sub-Saharan Africa. **(GSMA, 2017)**

Mobile money services continue to impress with the numbers they achieved:

- 276 mobile money deployments are now live in 90 countries
- 690 million registered mobile money accounts worldwide—a 25% increase from 2016
- Overall mobile money industry direct revenues \$2.4bn
- Over 20% of deployments now offer a savings, pensions or investment product with another 37% intending to over the next year

**(GSMA, 2017)**

SSA contributes to the above numbers with 135 deployments, 50% from registered accounts and 63% from global transactions value.

It is now clear that mobile money serves as the major tool and medium for financial inclusion in the undeveloped world and they could have various:

Virtual micro-bank: While M-Pesa is an enabler, M-Shwari is a service using mobile money and offering savings-and-loans products. It is issued by Commercial Bank of Africa but could be used only with M-Pesa. Popularity of the service is not only based on its simplicity but also of the fact that it could be used with a feature phone with USSD codes. At the end of 2014 there were more than 9 million savings accounts of 7.2 million unique customers with US\$45.3 million deposit balance as of December 2014 and 1.8 million borrowers with US\$17.7 million outstanding loan as of December 2014 and only 2.2% nonperforming loans over 90 days! **(McKay, 2015)**

Insurance is not quite popular in SSA. As majority of the individuals are involved in the informal economy, they are not covered by formal health and social insurance. Microinsurance financial products, related to mobile phone usage are trying to find a market niche for such products. Starting in Ghana with life insurance fees varying depending on the mobile monthly spending, financial providers are promoting microinsurance and educating customers of the benefits of such services especially for the vulnerable social groups. **(Kumar, 2018)**

Mobile wallets are mainly used for transactions and small payments where providers earn transaction fees that do not significantly contribute to their EBITDA until they reach high volumes and penetration. Making the next step some companies offer small credits but due to high risk related to underserved customer group and respectively high interest rates there is no service that has disrupted the market until now. **(Kumar, 2018)**

Mobile internet is the absolute must for driving digital financial inclusion with innovative models. Kenya's success story is to a great extent based on smartphone penetration. Connected devices are unlimited source of information- personal, social, communal, financial, real time, constantly updating and impossible to be manipulated. Still generated data from mobile



devices is not widely used as its difficult to be extracted and is linked to personal privacy and moral values. Example for innovative digital financing could be found again in Kenya and it is now spread around the world on three more continents- Tala.co – with the aim to help the unbanked they work completely online, providing small loans via mobile application. Customers’ creditworthiness is analyzed based on a combination of personal information provided by the customer and one extracted from the smartphone from the app-calls, location, contacts analysis, SMS etc. Only in Kenya the app has more than 200,000 downloads in Google play. Such models are in very early stage and with the expansion of internet adoption in the developing countries they will grow respectively.

*Table 3*  
*Internet users by region*

	2005	2010	2017*
<b>Africa</b>	2%	10%	21.8%
<b>Americas</b>	36%	49%	65.9%
<b>Arab States</b>	8%	26%	43.7%
<b>Asia and Pacific</b>	9%	23%	43.9%
<b>Commonwealth of Independent States</b>	10%	34%	67.7%
<b>Europe</b>	46%	67%	79.6%

\*Estimate

Source: (Wikipedia, 2018)

#### **4. Digital financial services – Issues and proposals**

Although mobile money accounts are widely spread in SSA and are preferred over traditional bank accounts there are still millions of adults who remain unbanked. The major reasons why an individual has no access to an account is simply shortage of money. For 20% of the respondents this is the only reason for not having an account and overall for more than 60% this is the most stated reason. The other reason “do not need an account” could be indirectly linked to lack of money as this is the main reason why somebody doesn’t need an account. Prices and physical distance to the financial provider are stated as major reasons for not having an account by 25% and 20% respectively. Family member’s account stated as a reason by 21% of the respondents could be again linked to expenses optimization, as using one account instead of many is done obviously for cost optimization reasons. Another almost 20% have no account due to inability to prove their identification. (Demirgüç-Kunt, Klapper, Singer, Ansar, & Hess, 2017) To

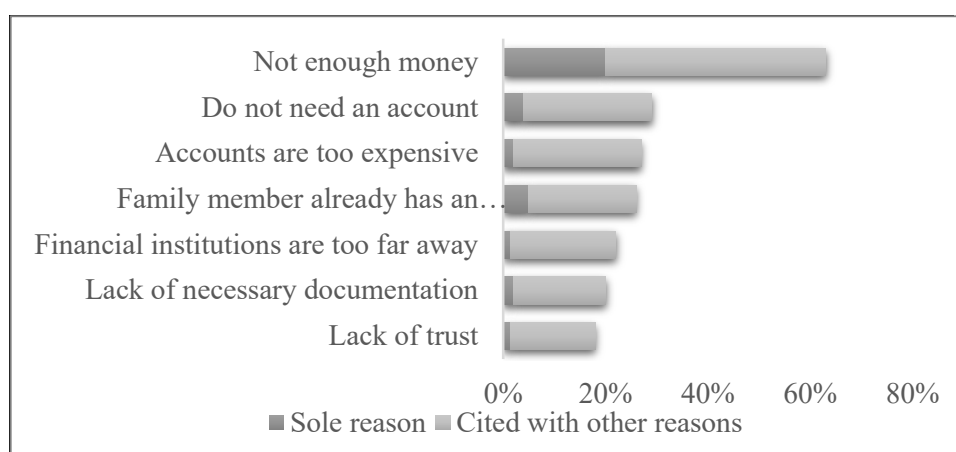
summarize there are three global reasons groups (respondents were allowed to state more than one reason):

Lack of money with roughly 90%

Costs and benefits from having an account – more than 70%

Lack of documentation- 20%

As the first two could be addressed by digital financial services- Unbanked could be offered with lower rates with remote banking via mobile device, the last one is an issue in some regions of the world.



Note: Respondents could choose more than one reason.

Source: (Demirgüç-Kunt, Klapper, Singer, Ansar, & Hess, 2017), page 40.

Figure 1. Barriers to account ownership

Worldwide there are around 1.1 billion people who are not able to prove their identity. Out of this number 78% of the “anonymous” people live in SSA and Asia and 40% are children below 18 and another 16% are kids below 5y without birth certificate. These people are usually at the bottom of the pyramid living in poor conditions in the most endangered communities in their countries, mostly women, girls and children. In Africa alone nearly 40% of the population are without personal documents. Sub-Sahara Africa is world’s number one with kids without birth documents with 43% share. There are only eight countries in the region with more than 80% of children under the age of 5 with birth certification. **(World bank group, 2017)** It is not a surprise that under such circumstances majority of these “anonymous” citizens are engaged in the informal economy. In Africa alone, the share of informal economy is 85.8%.

The lack of identity automatically excludes these individuals from all the activities and benefits provided by the society. Privileges that they lack but that the developed world takes for granted, include:

- The right to vote
- The ability to earn or keep a job

- The opportunity to attend school or university
- Travel across city, state, or national borders
- Government benefits and pensions. Healthcare
- Non-governmental organization (NGO) aid

**(Integrated Biometrics, 2017)**

Given the scope of this document lack of identity excludes individuals in SSA from:

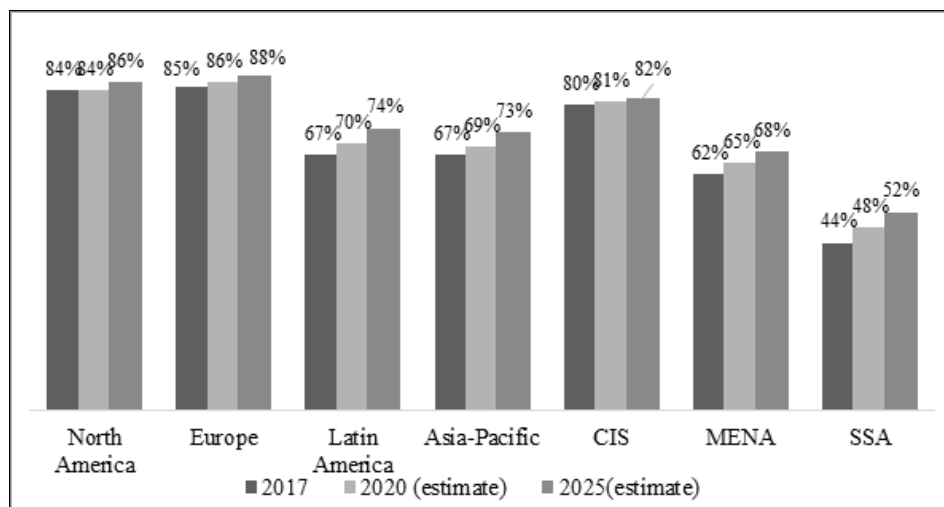
1) Reliable banking and other financial services, located far or near where people work or live

2) Background checks- due to lack of historical data about these individuals and related services as credits and credit cards

3) Bank accounts

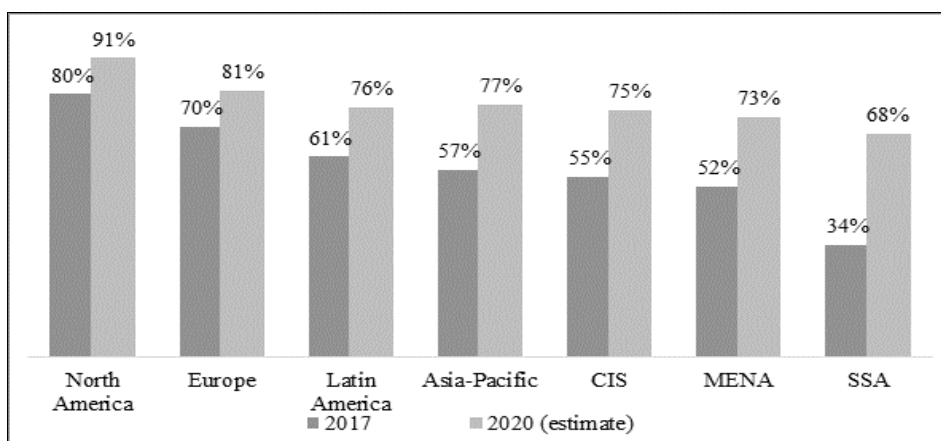
4) Greater individual and local economic development

• Mobile money, banking from a mobile device in combination with innovative financial offers could be the key for solving major issues of the unbanked: Their bright future and success are guaranteed by their extremely easy deployment just at a fraction of the cost of traditional banking financial services. Basis for this is development and high penetration rates of mobile devices also in developing countries. While in some countries smartphone penetration is comparable with European rates in others it is still low due to still high devices prices and lack of possibility for installment plans for poor. Still regional internet access via mobile devices is very low unlike overall mobile devices penetration yet both have the potential to become personal financial assistants substituting traditional bank branches as customer touchpoints, as banks affiliations are too expensive to establish and maintains, making offline business earning negative margins.



Source: (GSMA, 2018), page 13

Figure 2. Unique mobile penetration



Source: (GSMA, 2018), page 15

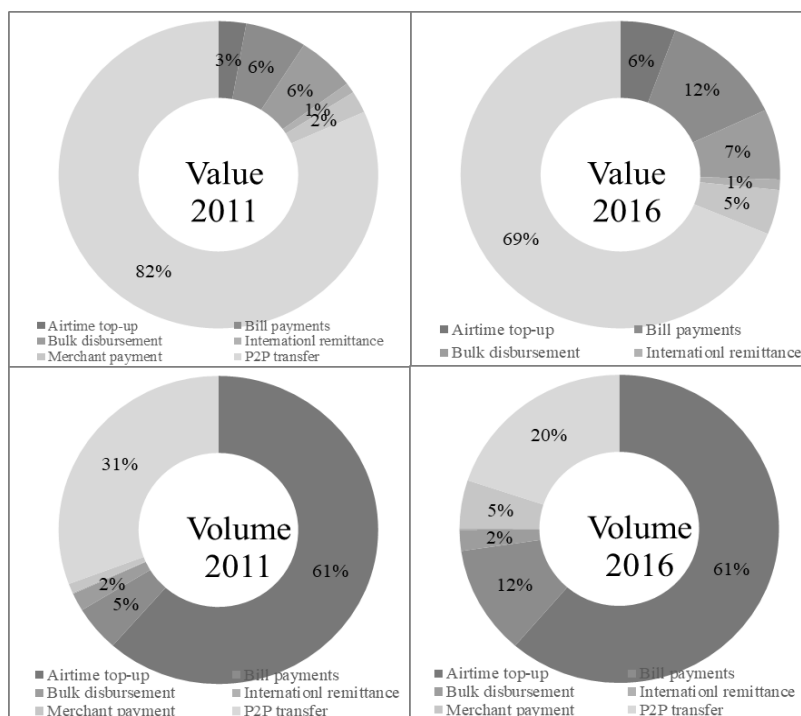
Figure 3. Smartphone Adoption

Mobile Money Programme of GSMA is to create together with the MNOs broad mobile money infrastructure that could change for good lives of the unbanked. The aim is for ubiquitous mobile money access enabling accelerating use of digital mobile operations. These will ensure financial inclusion, individual prosperity and overall economic growth in the developing world. Due to high importance of the project and its broad impact on millions lives it is supported by the Bill & Melinda Gates Foundation, The Mastercard Foundation and Omidyar Network. (GSMA, 2018)

- Another major issue for the unbaked is financial credit scoring. The absence of traditional credit data for financially excluded individuals and very small business owners is a major barrier to accessing financing. Countries in SSA region have extremely low credit bureau and registers coverage making it difficult to assess loan applications. Even in places where credit bureaus exist sometimes filling data is not obligatory and results are with poor data quality. As unbanked are mostly active in the shadow economy and do not interact with the state, there is no credit bureau data available for them. All their savings and transactions are made using informal means and dealers. Thus, alternative data should be used to evaluate credibility of the underserved and offer them relevant services at an affordable price. Use of alternative data for assessing future customers is not new. Given their social mission, local focus, and roots, some local NGOs have access to the informal knowledge of the local clients, which plays such an important role in community microfinance. Researches show that some behavioral data could influence customer's repayment pattern: Credit applicants that share sensitive information like personal income, sources of income, educational level, loans in other institutions or potential clients using more complicated expressions are more likely to default. In other cases, photo analysis is used to determine trustworthy faces but critics could arise for discrimination based on gender or race. (Julapa Jagtiani, 2018) Problems occur when customers become aware their score depends on such

“examinations”. They become creative, change their input data, making such patterns further useless. This makes the business a constant cat-and-mouse game where customers always adapt to the new rules in order to achieve their goals. While such models depend on interviewing, using telecom behavioral, demographic and social networks data for something that already happened in the past is something that could not be manipulated. Innovative use of telco and other digital data sources, such as social media profiles are providing greater behavioral analysis providing on their hand financial inclusion. Fintechs, NGOs, MNOs are collaborating with startups or financial providers on creation of digital payment solutions available on mobile devices including ones with operation system (smartphones) or even using USSD codes for feature phones. Such partnerships and solutions significantly reduce acquisition and transactions costs for the provider promoting financial inclusion. Rich data is still only available mainly from smart devices- ones connected to internet and their penetration rates in SSA is still too low. Majority of mobile devices are still feature phones, where telecom data is crucial as such device could not provide itself social media or digital history but only call behavior data combined with demographics and mobility data (GPS) available in Telco.

- Successful alliances- market potential for digital financial services for the unbanked



Source: (GSMA, 2017), page 19

Figure 4. Global product mix by volume and value 2011vs2016

Majority of the events generated by m-wallet services provided by Telecoms are still those related to communication services usage- prepaid top-ups account for the highest share of number of transactions both in 2011 and 2016. Looking at the volumes for both periods P2P transfers have the leading share and the most significant growth is observed in bill payments share. (fig.4) In order to generate new revenue streams, Telecoms should move beyond their existing business and diversify with products not directly related to telecommunication services. Telecom should broaden its offers including savings and loan products. Not being financial institution itself, Telecom must partner with one in order to create successful business model. Potential partnership or even merger of Telco and financial institution will have positive effect on both entities not only in the commercial field but also in optimizing operational structures of the companies. Closer examination of a telecom and financial provider infrastructure shows numerous similarities: Both have almost identical:

- commercial structure: branches, sales assistants, business representatives, product managers, marketing and marcom
- financial structure- risk assessment, fraud and audit
- procurement and security

In an environment where customers have low income and acquisition cost is too high, not comparable with the related revenues, where local infrastructure is missing or in poor condition, electricity is an issue and transportation and communication is undeveloped, new joint business models could optimize costs and find new market niches for productive business. Telecom- bank convergence might have synergizing effect on both businesses based on customer data exchange, using joint infrastructure, joint billing, joint IT and product development, telco participating in credit risk analysis and evaluation. Telecom-bank convergence will be able to accumulate bigger resources and serve higher number of customer segments based on data exchange between the two entities:

- Group offers to small business owners that depend on each other
- Agriculture financial aid for certain periods
- Finance micro entrepreneurs business plans based not only on historical data but combined with telco and other
- Support of education based on multi-customer analysis

Cooperation between telecom and financial institutions exists, but there is plenty of new opportunities to be explored. What they have in common too is push for technological innovations and the need for new revenue streams. In order to operate alone, Telecoms need banking license or Fintech need telecom data for analysis. The first is too complicated as Telecoms do not have banking know-how and is challenging for them to operate at their own risk. Thus, as a first step towards the right direction, telecom behavioral data for identification and risk scoring should be shared. Stimulating m-wallet use in volume but also

diversifying with more services will significantly enrich the available data. Besides the profit from digital service and transactions made, providers will accumulate more data for the financial habits and behavior of the individual. Fast increase in smartphone penetration rate has also more than one benefit: it will increase customer's monthly spending for telecom services and at the same time smart devices will generate more data for even more precise scoring. Out of one billion SSA. As shown at the begging three quarters of a billion individuals in SSA have no bank accounts and are the market potential for digital financial services. Ideal test concept would be a wide targeted smartphone on installments promotion. As smartphones are becoming more powerful and affordable, they could be used as the main connected device in areas with problems in the electricity supply and poor infrastructure. Installments offers for unbanked, filtered based on behavioral data could cover at least 10% of the less risky early adopters. Smartphone acceptance will increase educational level of the users; in remote areas will cover informational and business needs of the customers: farmers will check weather forecasts, small business owners will find clients or partners online, community members will communicate remotely etc. Thus, targeted offers will increase loyalty and reduce default rate due to the added value of the smart device in customers' everyday life. Such offer, bundled with promotional/low-level m-wallet fees, justified by the economy of scale might boost providers' revenue and generate needed data for further analysis and even more precise offers.

## **5. Takeaways**

There is for sure huge unexplored potential of using a combination of behavioral telecom data combined with other sources by Telecoms themselves. While being at the moment only an instrument and environment for mobile money and mobile wallet issuers, Telecoms must make the next step at least in the developing world: to partner with or become themselves financial institution. In Europe or North America where banks have huge network, individuals' income is higher and historical data exists for almost everyone, Telecoms could not come up with a positive business case alone. There they could only supplement risk analysis with extra data, improving customer segmentation and/or assist cross/up-sell marketing campaigns of third parties for revenue share in return. In Sub-Sahara Africa, Telecoms could act beyond their comfort zone, pioneering in providing banking services based mainly on their own customer data, assuming the financial risk and benefits of becoming financial institution. Traditional financial institutions from the developed economies tend to enter and operate on markets with low risk rates, favorable and conservative legislation, stable currency rates with mid or high-income individuals chasing high margins and ROI. SSA is considered risky, unstable and poor place where global players prefer to invest in startups without

expecting great financial results. In this environment another successful alliance would be a small though flexible Fintech, especially one from Eastern Europe to make the difference by offering financial services for the poor partnering with Telecom, using its infrastructure and data plus its own knowhow and previous experience in highly dynamic and unpredictable post-communist markets. Such partnerships using digital channels to reach as many as possible customers at minimum costs could make revolution in Africa and grab significant market share before dinosaurs become aware of the new reality. Successful entrants will even have another key competitive advantage - pioneers, relying on telecom and digital customer footprint data using big data analytics will be the first ones to create and possess DWH with individual data of customers without formal identity. At another stage this data alone or combined with other sources could be ideal for any kind of marketing initiatives or campaigns in any sector of the local economy.

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