



Towards an Integrative Digitalization for SME Development in the Arab Region

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I. Introduction: from Bartering to Digitalization

Over its extensive history, money has been focal in shaping and developing our modern international trade networks. With bartering being the first means of exchange in ancient civilizations, standardized coinage emerged through minting coins from raw metals, followed by the introduction of paper money, electronic fund transfers via telegram, credit cards, mobile banking, contactless payment cards, and innovations in financial technology peaked at the introduction of digital currencies (cryptocurrencies). Hence, money history is coming full circle, with 80 percent of people conceding to cashless bartering schemes with minimal levels of trade intermediationⁱ.

Having a range of new technologies swarming into our everyday lives, we are in the midst of a digital transformation, with 40 percent of the world population now connected to networks, up from four percent in 1995ⁱⁱ. The growth of the digital economy has already disrupted diversified industries, as the penetration of thousands of FinTech start-ups into all scopes of financial services has now brought this revolution to the disruption of money itself. Thus, this development has caused the distinction between money and data to blur, with e-commerce and Internet of Things pushing the physical act of paying to fade. Meanwhile, regulators, governments, and businesses alike continue to experiment with new money to plug digital gapsⁱⁱⁱ.

Even in a global economy where multinational giants continue to thrive, SMEs account for 90 percent of all businesses worldwide. They create four out of five new jobs in emerging markets, according to the World Trade Organization. The digital opportunity for SMEs can be sensed by the simple fact that online buying for both B2B (\$7.7 trillion) and B2C (\$2.3 trillion) goods and services is on a global growth trajectory. Yet, SME growth in global commerce has been facing trouble entering and competing in the cross-border marketplace, and their access to finance remains limited. Currently, only 38 percent of businesses around the world can process international orders and only 33 percent sell beyond their own borders, thus causing more than half of all SMEs to miss out on global business opportunities due to lack of access to infrastructure and regulatory expertise^{iv}.

In what follows, I will discuss some of the important catalysts for monetary change, then I will highlight the rewards and opportunities of financial digitalization versus its detriments and risks. Next, I will mention some of the impacts of monetary-financial stability requirements on SME finance and development, and finally I will explore some concepts concerning the integrative regional digitalization for SME development.

II. Catalysts for Monetary Change

“Smart policies can alleviate the short-term pain of technological disruption and pave the way for long-term gain”^v.

This expression by Martin Mühleisen (Director of the Strategy, Policy, and Review Department of the IMF) summarizes the formula that is governing the contemporary monetary change. This pain-and-gain tendency towards monetary change can be explained through these prominent catalysts that stand behind it, as follows:

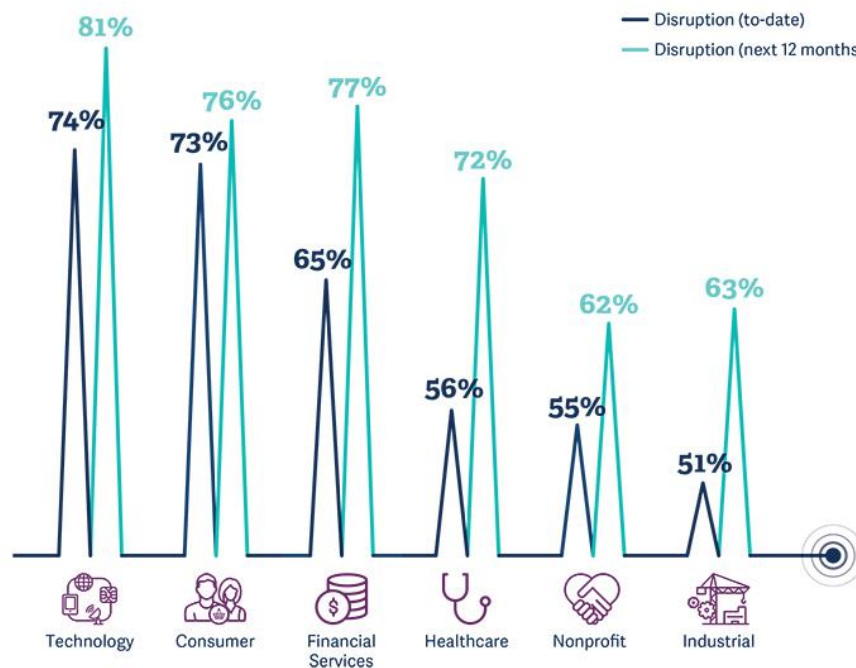
A. Disruptive Competition

The era of digitalization is best described as an era of disruption. As digital technologies continue to transform the economy, many businesses are striving to set digital strategies, shift organizational structures, and eliminate the barriers that are preventing them from reaping the potentials of new digital technologies. The most disrupted industries typically suffer from a two-sided disruption. First, an agile competition caused by low barriers to entry into these sectors. Second, a large legacy business model that generates the majority of their revenue. Therefore, these organizations face entrenched cultural and organizational challenges that hinder their change at the required pace^{vi}.

The new competitive landscape between traditional financial institutions and non-traditional FinTech firms has been further heightened through big tech firms that are offering financial services, creating TechFin solutions.¹ As financial and technology organizations embrace a broader view of banking, offering technologically advanced banking and non-banking services, the ultimate winner will be the consumers regardless of which provider they select.^{vii}

In 2017, companies across all industries were expected to face continued disruption, but financial services, healthcare, and industrial companies have been bearing the most significant change (figure 1)^{viii}.

Figure 1: 2017 expectations for disrupted industries



Source: Digital Pulse 2017 by Russell Reynolds Associates

¹ The difference between FinTech and TechFin is based on the origin of the underlying organization. Fintech usually references an organization where financial services are delivered through a better experience using digital technologies to reduce costs, increase revenue and remove friction. Alternatively, techfin usually references a technology firm that finds a better way to deliver financial products as part of a broader offering of services. Examples of techfin companies include Google, Amazon, Facebook and Apple (GAFA) in the U.S. and Baidu, Alibaba & Tencent (BAT) in China.

B. *Decadence of Sovereign Boundaries*

Many of the assumptions underpinning the modern system of sovereign nation-states are now being placed in question. Intensive global capital flows, growing networks of social interaction, and the rise of transnational regulatory regimes are reshaping the scope of national authorities and affecting the abilities of governments to regulate their socioeconomic conditions. The consequences of economic, technological, and cultural change are having significant impacts on the activity of governing, expressed as a reduction in the efficacy of the levers of command and control that have been a common feature of the modern nation-state settlement^{ix}.

From the opposite causal perspective, the outburst in FinTech and the increased virtualization of money, accelerated by the growth in the digital economy, has raised important questions about the role of regulators and traditional financial services intermediaries, as well as the limits and the reach of governments' sovereign functionalities. Moreover, the surge towards creating widely accepted, fully convertible cryptocurrencies, as a process managed in the private sector, constitutes a challenge to the role of the state in managing money^x.

C. *Digitalization Schemes and Digital Transformation*

Digital technologies have undergone massive developments since the invention of the first computer during World War II and the emergence of the Internet in the 1990s. Some of the key technologies and applications that are driving the digital transformation today include:^{xi}

- *The Smartphone*: The introduction of the smartphone in 2007 enabled mobile computing and provided individuals with access to a wide range of applications and services. It has also allowed the development of the "platform" economy.
- *The Internet of Things (IoT)*: IoT encompasses devices and objects whose state can be altered via the Internet, with or without the active involvement of individuals. It includes the networked sensors that serve to monitor health, location, activities, production processes, and the natural environment, among other applications. The number of connected devices in and around people's homes in OECD countries is expected to increase from one billion in 2016 to 14 billion by 2022.
- *Big data analytics*: It is defined as "a set of techniques and tools used to process and interpret large volumes of data that are generated by the increasing digitization of content, the greater monitoring of human activities, and the spread of the IoT" (OECD, 2015b). Accordingly, firms, governments, and individuals are progressively able to access unprecedented volumes of data that help inform real-time decision-making by joining a wide range of information from different sources.
- *Artificial intelligence (AI)*: AI is defined as "the ability of machines and systems to acquire and apply knowledge and to carry out intelligent behavior" (OECD, 2015c). As this entails performing a broad variety of cognitive tasks, intelligent systems use a combination of big data

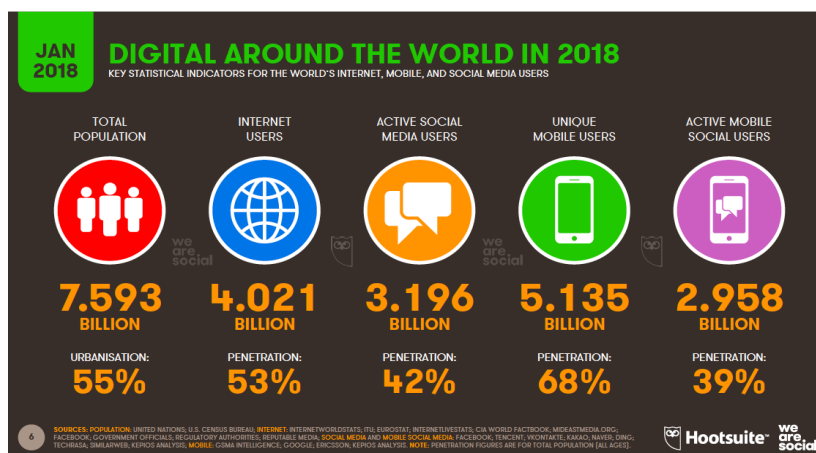
analytics, cloud computing, machine-to-machine communication, and the IoT to operate and learn.

- *Blockchain or distributed ledger technology (DLT)*: It is a distributed database that acts as an open, shared, and trusted public ledger for value exchange that cannot be tampered with and that everyone can inspect. This combination of transparency, strictness, non-intermediation, and oversight provides the conditions for blockchain users to trust the transactions conducted on it, at lower transaction costs, without the necessity of a central institution, thus disrupting markets and public institutions and launching the phenomenon of cryptocurrencies. As a prominent digital initiative, Dubai Smart Government aims to record all government transactions on blockchain, leading to estimated savings of more than US \$1.5 billion in document processing and more than 25 million hours in lost productivity. Furthermore, just as Africa capitalized on the potential of mobile financial services to leapfrog its missing payments infrastructure, Arab countries could do the same with the next generation of money and blockchain^{xii}.
- Many *other technologies* emphasize the ongoing digital transformation, including open-source software, 5G, robotics, grid and neural computing, virtual reality, quantum computing, etc. Be it general-purpose technologies or more narrow sectorial applications, all underpin a huge and fast digital transformation of economies, societies, and governments, in many areas that are fundamentally shifting markets and economic behavior.

D. SoLoMo

The unprecedented universality of communication that came along with the introduction of mobile Internet and smartphones has been accompanied by the outburst of the social media context and the sufficient localization of communication, thus creating a new kind of socioeconomic interaction and revolutionizing commercial behavior, as users increasingly share information about their experiences, offers, and knowledge. Such combination forms the basis for SoLoMo synergies, which result from social, local, and mobile (SoLoMo) networking and give rise to new opportunities for trade and marketing efficiency.^{xiii}

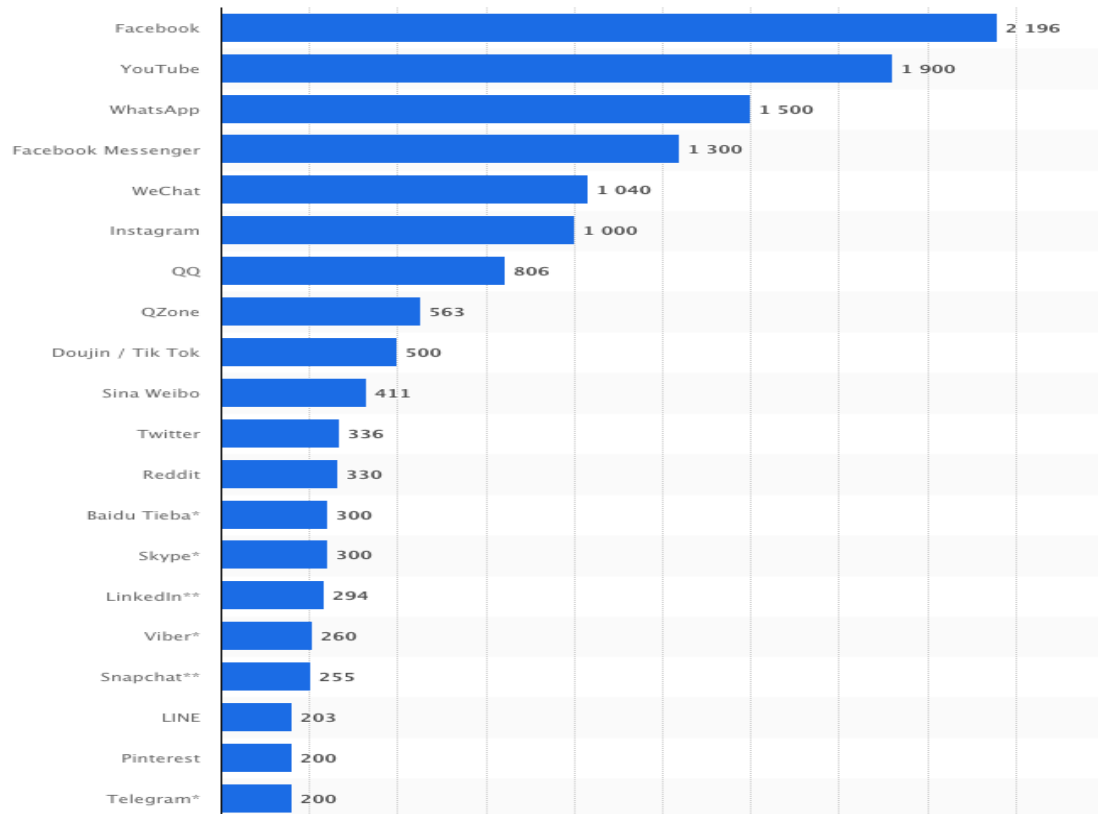
Figure 2: 2018 global digital users



Source: Hootsuite

As such, an estimated 53 percent of the world's population (around four billion) are internet users and 39 percent are active mobile social users (around three billion) (figure 2)^{xiv}, with Facebook, YouTube, and WhatsApp topping the list (figure 3)^{xv}.

Figure 3: Most famous social network sites worldwide as of July 2018, ranked by number of active users (in millions)



Source: Statista

As one of the most explicit byproducts of SoLoMo, mobile money and banking have been based on the synergy between the banking and the telecommunication sectors. Mobile money has thrived in Africa after the success of Kenya's M-Pesa SMS payment service, launched in 2007. In 2017, this mobile money scheme enclosed 30 million users in 10 countries and a range of services, including international transfers, loans, and health provision. The system processed around six billion transactions in 2016.^{xvi}

E. Financial Crises

Nearly a decade on from the financial crisis that had severe repercussions on the levels of social capital and financial integrity, the breakdown of social trust and the credit crunch that followed has paved the way for a parallel universe of alternative financial service providers to flourish. It is estimated that 12,000 FinTech companies are thriving into all areas of the financial services industry – from payments to lending, wealth management, and capital markets. Initially perceived as a threat to the traditional banking industry, incumbents are increasingly grasping opportunities to partner or build alliances with FinTech entrants^{xvii}.

F. Democratization of Finance and Trade

Digitalization bears a shift of power from a financial system that is governed through well-defined regulations and steered by conventional intermediary channels into a system of agile infrastructure that is personalized to individual consumer needs with minimal intermediation. Hence, digitalization serves to promote financial democratization that encompasses important trends, such as digitalized products and services catering to the consumer self-service; artificial Intelligence, virtual Reality, and robotics; big data and unstructured data analysis for assessing financial risk; sharing economy as a socioeconomic ecosystem built around the sharing of physical, intellectual, and human resources through innovative initiatives such as Peer-to-Peer (P2P) and crowdfunding initiatives; security issues that concern the whole public and urge financial institutions to share cyber risk mitigation strategies and deliver new cost-effective digital capabilities.^{xviii}

To some trade critics, modern, comprehensive trade agreements primarily serve the narrow interests of the biggest multinational corporations in the world and account for most of the world's exports and provide millions of good trade-related jobs. However, promoting open and fair global digital commerce can be an effective way to support and empower SME traders, entrepreneurs, consumers, and communities and endorse a more inclusive global environment for trade. Nevertheless, new trade rules are needed to prevent digital trade barriers from eroding the broadly shared benefits of an increasingly data-driven global economy^{xix}.

Figure 4: Global retail e-commerce sales



Source: www.shopify.com

In this context, global retail e-commerce sales are estimated to reach \$4.5 trillion by 2021 (figure 4), whereby self-service and simplified ordering

preferences have caused B2B business to dwarf that of the B2C business (\$7.7 trillion against 2.3 trillion in 2017) (figure 5)^{xx}.

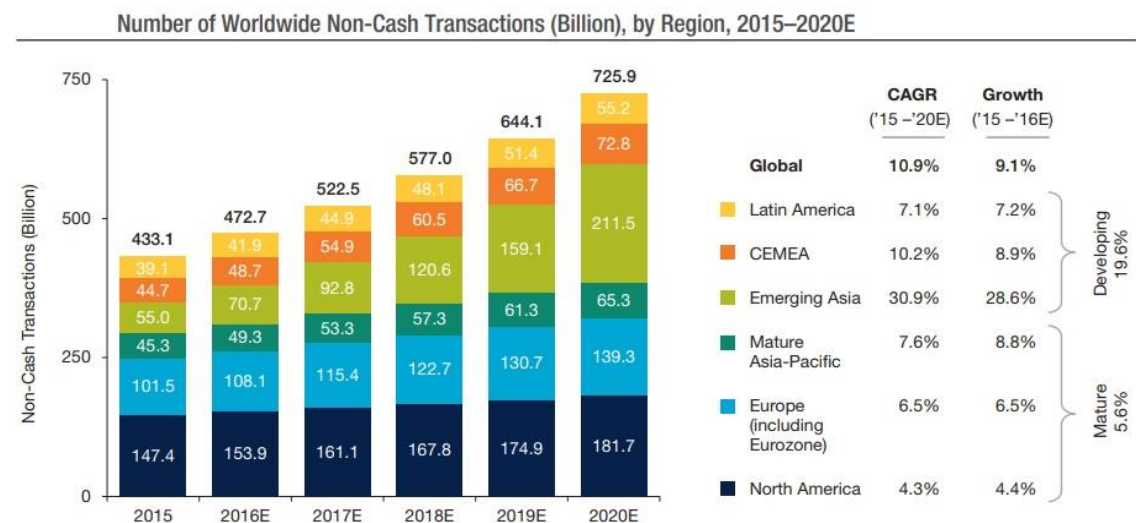
Figure 5: B2B versus B2C e-commerce



Source: www.shopify.com

In 2014, North America has topped worldwide non-cash transactions at \$147.4 billion while Central and Eastern Europe, the Middle East, and Africa (CEMEA) recorded a ranking of four-out-of-five at \$44.7 billion; however, emerging Asia achieved an estimated highest growth in 2015-16 at 28.6 percent, followed by CEMEA at 10.2 percent^{xxi}, as a sign of shifting e-commerce supremacy from the West to other regions of the globe (figure 6).

Figure 6: Worldwide non-cash transactions



Note: CEMEA (Central Europe, Middle East, Africa) now includes Algeria, Bulgaria, Croatia, Kenya, Nigeria, Egypt, Israel, Morocco, and UAE in Other CE and MEA countries; Latin America now includes Argentina, Colombia, Venezuela, Chile, Peru, Uruguay, Costa Rica, Bolivia, and Paraguay in Other Latin American countries; Emerging Asia now includes Malaysia, Thailand, Indonesia, Philippines, Taiwan, Pakistan, Sri Lanka, and Bangladesh in Other Asian countries; Mature APAC (Asia-Pacific) includes Japan, Australia, South Korea and Singapore; NA (North America) includes the U.S. and Canada; Chart numbers and quoted percentages may not add up due to rounding

Source: Capgemini Financial Services Analysis, 2017; ECB Statistical Data Warehouse, 2015 figures released October 2016; Bank for International Settlements Red Book, 2015 figures released December 2016; Internal Estimates

Source: *World Payments Report, 2017*

G. Financial Exclusion

According to the World Bank, 19 percent of SMEs consider access to financing to be a severe obstacle, and 20 percent avoid applying for loans due to complex application procedures^{xxii}.

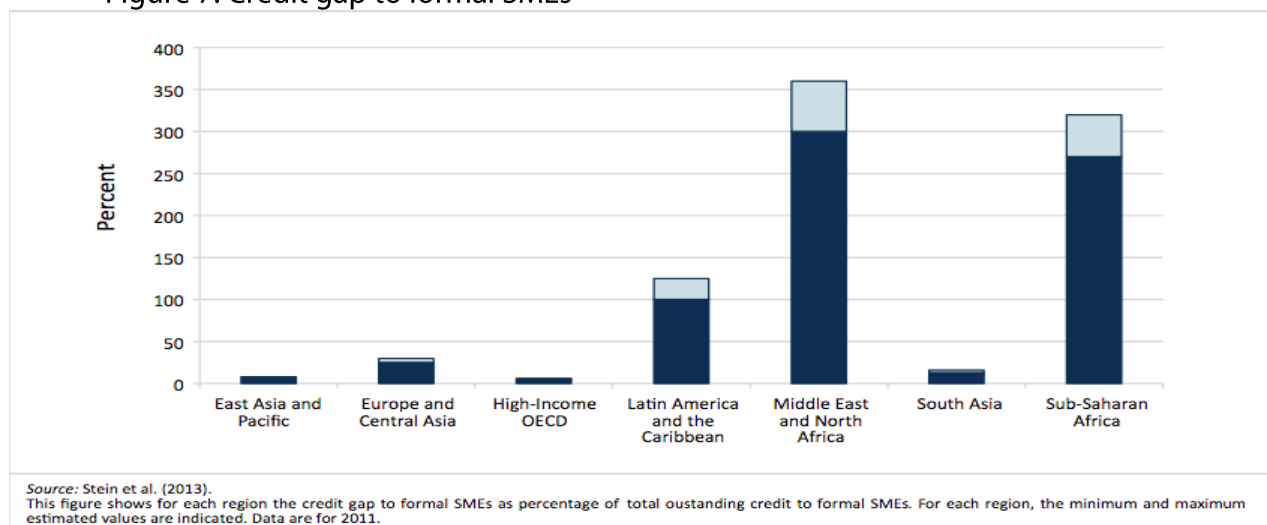
Digitalization has become an affordable platform that fosters social and financial inclusion and female financial empowerment by strengthening access to health care, financial services, and skills development, and by enabling marginalized groups connect to such services.^{xxiii} Thus, obstacles to financing access, such as physical distance, minimum balance requirements, little to no credit, and low-income flows can be avoided. Accordingly, digitalization could enhance savings, with micro-savers encouraged to open bank accounts and banks to offer short-term loans^{xxiv}.

III. Financial Digitalization: Rewards and Opportunities versus Detriments and Risks

According to Roberto Azevêdo, Director-General of the WTO, “for SMEs, e-commerce can significantly lower the costs of doing business across borders. It also provides a platform that allows producers to access the global marketplace, reach a broader network of buyers and, potentially, to participate in global value chains.”

Negatively, SMEs are widely hindered by lack of access to credit, knowledge gaps, regulatory imbalances, and limited access to competitive technology. As a result, public-private partnerships are considered crucial for combining the necessary government intervention and private company capabilities to extend expertise, technology, and access for small merchants. In addition, financial digitalization schemes and lobbying from various stakeholder groups are required to secure access to finance and influence regulation on behalf of SMEs to facilitate cross-border trade^{xxv}. The credit gap to formal SMEs in the MENA region is estimated to be the highest globally (figure 7)^{xxvi}.

Figure 7: Credit gap to formal SMEs



Source: Stein et al. (2013)

A. *Rewards and Opportunities*

Estimated to make up around five percent of global GDP and three percent of global employment, the digital economy is defined as “that part of economic output derived solely or primarily from digital technologies with a business model based on digital goods or services” (Bukht & Heeks 2017)^{xxvii}. Hence, financial digitalization constitutes the financing scheme upon which the dynamics of this digital economy are based.

The rewards of digital economy in general, if addressed diligently, represent a historic opportunity for developing economies in particular in their quest to upsurge growth and achieve development goals. The digital economy has enabled fast revenue growth firms, encouraged the shift from tangible flows of physical goods to intangible flows of data and information, enabled firms in developing economies to connect across borders, and has thus facilitated a surge in cross-border data flows, in addition to matching labor force with enterprises and clients across different countries through labor market platforms^{xxviii}. Moreover, digital transformation offers incentives for fundamental renovation of business models^{xxix}, along with spurring innovation and productivity growth across many activities^{xxx}. As for local and rural SME social inclusion, digital economy assists in overcoming geographic isolation, reducing outmigration, diversify local industries/businesses, and improve competitiveness of SMEs^{xxxi}.

According to the World Bank, although demand-side problems of SME finance occur, supply-side constraints are much more dominant. Evidence shows that a high proportion of SMEs need credit but refrain from applying for it. This is the case for 20 percent of SMEs in high-income countries, 28 percent of SMEs in middle-income countries, and 44 percent of SMEs in low-income countries^{xxxii}. The digital transformation sweeping into the financial industry, which is embodied by the renowned FinTech innovations, was inevitable since ubiquitous computing power, pervasive connectivity, mass data storage, and advanced analytical tools can easily and efficiently be applied to financial services^{xxxiii}. Digital opportunities can be observed on both supply and demand sides.

1. On the supply side

Digitizing finance can lead to greater opportunities for FinTech companies as well as banks. As the 2008 financial crisis reduced trust in financial institutions and increased their capital requirements and compliance costs, this created an opportunity for less regulated, technology enabled non-banks to thrive. These FinTech companies could offer tech-based financial solutions and services more cheaply and efficiently than incumbents. New FinTech entrants can optimize a single link of the financial services value chain, providing solutions that can connect to the rest of the financial ecosystem, thus resulting in more competition. These solutions encompass product areas such as payments, remittances, savings and investments, personal financial management, trade and invoice finance, SME lending and financial management, lending, trade processing, insurance, career coaching, bookkeeping services and cash flow tracking, and data analytics. Innovative technologies have the potential also to change the scope of financial services and disrupt traditional intermediation roles. Technologies with transformative potential, which are already being

incorporated into specific products and solutions, include digital identities and currencies, distributed ledgers, peer-to-peer lending and equity crowdfunding, big data, artificial intelligence, and machine learning^{xxxiv}.

FinTech rewards, particularly through the global spread of mobile phones, stretch further towards enhancing financial inclusion through facilitating and expanding access to financial services to marginalized populations and small businesses at low cost and risk. This is achievable through digital IDs, digitization of cash-payments, mobile-based financial services, and greater availability of customer data which allow the design of digital financial products that better fit the needs of unbanked individuals^{xxxv}.

For the banks, the digital payoff will originate partly from reduced operating costs. Further investment will be needed if banks are to build the digital end-to-end execution of transactions that is at the heart of digital banking. With this digitalization implemented, banks will function with fewer employees and in-person services, that will either lower their cost basis or allow banks to add higher-value advisory services. Beyond cost, ultimately, the digitalization of banking produces benefits that include higher customer satisfaction, higher rates of customer retention, and higher revenues per customer. Refraining from digital transformation may cause banks to lose a substantial market share, particularly that of SMEs^{xxxvi}.

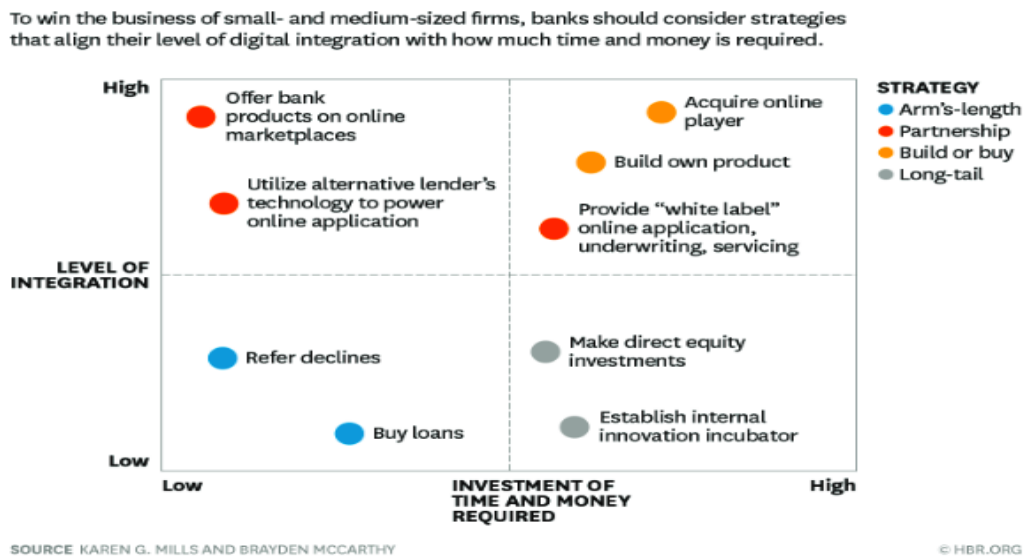
On the Islamic finance scene, setting the balance sheets of over 170 Islamic Banks and 80 further banks that offer Islamic Finance windows to work on global Islamic FinTech products is a key prospective potential for Islamic banking and FinTech. The Islamic FinTech landscape maps over 120 players globally, from Islamic exchange-traded funds (ETFs) to cryptocurrencies. Islamic FinTech is currently investing in MSMEs and digital infrastructure. Moreover, capitalizing on Blockchain, Islamic banking can be revolutionized by adapting standard Islamic finance contracts to smart contracts and cutting cost of services by up to 95 percent. Consequently, Islamic FinTech offers the opportunity to promote hubs that can be fourth-industrial-revolution digital leaders, empowering millions of people globally.^{xxxvii}

Advances in analytic and processing capabilities for both bankers and FinTechs fuel the spread of new data-driven intelligence for initial decision making and portfolio management. This lowers transaction costs to acquire customers in general and SMEs in particular, and to serve them^{xxxviii}.

Financial digitalization presents opportunities for collaborative partnerships between banks and FinTechs, as a logical step in the industry's evolution. The combination of FinTech and bank advantages has the potential to create sustainable and scalable competitive advantages for both partners along with a significantly lower cost structure for digital SME finance^{xxxix}. FinTech innovations can help banks deliver enhanced risk assessment, reduce transaction costs, make operational back offices more efficient, decrease fixed asset investment requirements, and enter new markets. On the other hand, banks can help FinTech innovators address their target markets through their wide customer base. Collaboration has been increasing as both can benefit from partnerships that reconfigure financial services value chains^{xl}. The Global Partnership for Financial Inclusion determined the options for how banks and FinTechs can work together as ranging along "a spectrum of "light touch" to

“deep-touch” linkages between the two parties. The lighter touch end of the spectrum includes one-way or two-way customer referrals and offering bank loans on SME loan broker marketplaces, as well as bank direct investment in SME digital lender loans for yield. Deeper touch options include SME data-rich information exchanges, deep strategic and technology integrations, new distribution channels, equity stakes in digital lenders, joint ventures, acquisitions, and innovation centers, incubators, or accelerators”. In this context, the rise of the digital SME bank/lender schemes is noted. With peer-to-peer lending and cooperation with marketplace lenders as well as open APIs to support trade and supply chain finance, these open bank platforms should continue to expand financing options for SMEs (figure 8)^{xli}.

Figure 8: Levels of partnership models between banks & online lenders



Source: Karen G. Mills and Brayden McCarthy

2. On the demand side

The introduction of FinTech has revolutionized SME financing through offering unprecedented solutions to deal effectively with the main barriers that SMEs face in financial markets: information asymmetries and collateral shortage^{xlii}. Financial digitalization will enable SMEs to have 24/7 digital access to tools and processes they need to run effectively, enabling them to conduct more transactions online, including finalizing loans or credit lines and other contracts. Potentially, SMEs will also gain services that banks traditionally haven't offered, such as accounting and analytics services. Better digital service should also enable SMEs to conduct cost-benefit analysis for their banking expenses^{xliii}. Moreover, lower costs and the rising use of smartphones are allowing SMEs to produce transactions and accounting information in a cheap and timely fashion. Hence, financial management, customer management, and supply/value chain management tools are becoming more affordable^{xliv}. These applications enable lenders to address information asymmetries in a cost-effective manner and allow higher approval rates with a relatively low default rate.

A major digital push is the development of Blockchain (Distributed Ledger) technology, which innovatively addresses information asymmetries and

collateral shortage and is applicable to any digital asset transaction performed online. "Smart contracts" inherent in this technology can immediately execute transactions when certain agreed upon conditions are met, bypassing the need for any intermediation or the risk and cost of enforcement. As an application of Blockchain by traditional financial players, in Europe, the Digital Trade Chain Consortium was created in 2017, gathering major commercial banks, to build a new cloud-based platform based on Blockchain technology, directed at SME clients. A similar project is being considered that would serve Japan and other countries in Asia^{xlv}.

B. *Detriments and Risks*

According to the OECD, "the availability and access to alternative sources of finance is held back by a combination of demand and supply-side barriers. On the demand side, many entrepreneurs and business owners lack financial knowledge, strategic vision, resources and sometimes even the willingness or awareness to successfully attract finance other than straight debt. The lack of appetite by SMEs for alternative financial instruments, equity in particular, can also be attributed to their tax treatment vis-à-vis straight debt. On the supply side, potential investors are held back by the overall opacity of SME finance markets, a lack of exit options, and regulatory impediments. As a consequence, financial instruments for SMEs often operate in thin, illiquid markets, with a low number of participants, which, in turn drives down demand from SMEs and discourages potential suppliers of finance" (OECD, 2017d; Nassr and Wehinger, 2016)^{xlvi}. Despite the fact that solutions for SME finance barriers differ among countries, universal remedies can include conducting capacity building and training for SMEs and entrepreneurs; issuing SME policy indices; enhancing equity financing mentality, trends, and schemes; offering tax incentives for entrepreneurs and startups; encouraging and organizing public information sharing among SMEs, financial service institutions, venture capital firms, and accelerators; developing capital markets; regulatory simplifications and policy reforms that target sensitive issues such as collateral shortage, bankruptcy, and antitrust.

The World Bank has determined a whole set of challenges that are preventing the digital revolution from fulfilling its transformative potential in developing countries, to which policy solutions are required, and among which are digital economy disbenefits. These digital disbenefits can be categorized into three factors:^{xlvii}

1. Digital Exclusion

The digital divide is an entrenched phenomenon in the digital economy of developing countries. Be it a divide of availability, divide of affordability, or divide of applicability, it is responsible for excluding a substantial proportion of the population from engaging with or in the digital economy. Of those excluded – roughly half the planet's population – there is disproportionate representation from the world's female, poor, and rural citizens.

2. Digital Inequality and Adverse Incorporation

The digital pattern encloses a strong asymmetry of power between labor and capital, to the significant disadvantage of labor. This is manifested in

developing countries as problems for platform workers of under-payment, non-payment, arbitrary removal, unsocial and over-long hours, lack of compensation for problems, loading of risk and cost onto workers, unsafe work, lack of employment rights or guarantees, etc.. A general outcome is that this work leads to chronic insecurity within a context of structural inequality.

Smaller enterprises may also suffer adverse incorporation and marginalization due to the impact of inequitable digital engagement of SMEs in ICTs. Moreover, while local enterprises only gained incremental improvements to their bottom line, most high-value activity remained overseas. The result is a type of “ICT-enabled extraversion” that oriented developing markets to the needs and benefits of external actors, while local enterprises are forced into a hyper competition environment for which they are ill-prepared and ill-suited. On the flipside, the “advantageous incorporation” of large digital firms into the digital economies of developing countries has often been associated with oligopoly or even monopoly, leading to high cost and low quality. Digital monopoly would deny SMEs from the blessings of the digital economy that are marked by the consumer benefits of competition in reducing costs and driving quality and innovation.

3. Digital Security and Privacy Breaches

Digital security and privacy breaches impact consumers, workers, enterprises, and national governments, as part of adverse incorporation into digital markets, particularly in developing countries due to its weak infrastructure. The World Bank classifies the loss of data privacy in developing countries into “legitimate losses”, such as those arising from the typical data gathering of large digital economy multinationals such as Facebook, Twitter, and Amazon; “quasi-legitimate losses” to government surveillance; and “illegitimate losses” to hacking and fraud.

Additional challenges and disadvantages for digital SME lenders comprise the following aspects: first, non-bank digital lenders have a significantly higher cost of capital and a relatively high cost of customer acquisition than their bank competitors. Second, although digital lenders may enjoy potentially lighter regulations and compliance burdens, the growth of the industry across many country markets signifies that more regulations are inevitable. At the same time, some FinTech companies have obtained full banking licenses, and a number of all-digital consumer-focused banks have emerged in the last two to three years. Third, weak credit information sharing by digital lenders have been highlighted by policy makers due to the benefits of reporting credit application, credit and payment performance, and account closure data to credit reporting service providers in consistence with the data reported by banks and other lenders. Fourth, the gap in digital pricing transparency is a concern not only for SME borrowers, but also for returns being provided to P2P individual lenders and/or institutional investors. Finally, it is important to preserve the integrity of a well-regulated digital financial system, while not inhibiting the access of individuals and businesses to innovative through competitive financial services^{xlviii}.

IV. The Impact of Financial Stability Requirements on Digitalization of SME Finance

Despite being critical drivers of economic growth, the support SMEs receive from financial institutions to finance their businesses does not reflect their contributions to GDP and employment. In general, SMEs have the following requirements: simple products and services; access to reliable, convenient credit channels even if these are unsecured and expensive; lower their business costs, improve productivity in order to acquire a global competitive edge. In light of the disparities between SME's financial and non-financial needs and what the banks are offering to them, the financial sector ecosystem – comprising financial institutions, non-bank financial institutions, regulators and central banks – will need to be responsive to these needs and preferences through building an environment conducive to providing SMEs with the relevant financial and non-financial products and services.^{xlix}

In order for regulators to address SME financing needs prudently, the following main issues in SME's financing market constraints should be considered:ⁱ

- Supply-side: lack of collaterals, poor credit history, information asymmetries, high fixed costs of small-sized loans.
- Demand-side: unfamiliarity with the lending process, unwillingness to share info, unwillingness to share ownership (equity financing).

Some of the basic monetary-financial stability requirements of central banks necessarily reflect impact on the digitalization of SME finance. This is evident in the policy implications:

A. *The Anti-Money Laundering and Countering Financing of Terrorism (AML/CFT) Process*

With the escalating AML/CFT global regulatory demands, global banking and financial service institutions groups are working for harmonizing compliance standards across international borders, striving to comply with the highest global standards. Recommendations stressed by the Financial Action Task Force (FATF) comprise customer due diligence (CDD), record-keeping, reporting of suspicious activities, and the use of non-bank agents (branchless banking or banking beyond branches)^{li}. Accordingly, digitalization of SME finances should comply with these standards in order to legitimately thrive on a global scale. In fact, emerging financial technologies have initiated RegTech innovations, aiming at facilitating regulatory compliance and reducing compliance costs. RegTech is exploring the use of new technologies to automate manual processes (artificial intelligence); aggregate, share and store data (cloud-computing, DLT); enhance security (cryptography); identify suspicious transactions (biometrics, big data) and facilitate regulator-bank interactions (APIs)^{lii}. Some digital innovations are directed at processes such as Anti-Money Laundering-Know Your Customer (AML-KYC) compliance^{lii}.

B. *International Financial Stability Approaches*

Emerging technologies could raise financial stability risks due to increased market volatility, raised vulnerabilities to cyberattack, increased concentration risk, reduced controls for the processing of data and the management of

risks^{liv}. Therefore, aligning with the Basel committee measures and updates seeking to improve international financial stability on micro-prudential and macro-prudential dimensions, aiming at mitigating the risks existing at the level of the whole banking system, the digitalization of SME finance should be subject to a parallel approach. Such an approach may target issues pertaining to quality, consistency and transparency of the capital base, risk management and capture, leverage ratio control, and liquidity standards^{lv}.

C. Corporate Governance Practices

A comprehensive revision over the corporate governance principles for banks was conducted by the Basel committee in 2015. On the same line, digital SME lenders would be subject to corporate governance requirements, particularly related to transparency and accountability, that aim at organizing operational, financial, risk management, and reporting processes^{lvi}.

D. Enhancing financial inclusion and financial capability

Having become a priority for policymakers, regulators, and development agencies globally, financial inclusion and financial capability should be practiced with the priority of promoting economic and financial wellbeing, as well as sustainable economic growth and financial stability^{lvii}. The major contribution of digital financing to financial stability is its role in enhancing financial inclusion through leapfrogging conventional financial infrastructures to offer a range of digital financial services engineered to sustainably service marginalized or low-income populations^{lviii}.

In the wake of regulating digitized finance, regulators need to have an innovative but cautious line of thought to avoid the creation of a parallel financial system that might pose future risks to consumers, and at the same time make sure they don't stifle innovation at the height of the digital age. The right track of regulation requires a progressive approach that involves tighter collaboration with a broad range of stakeholders, including banks, businesses, start-ups, and the national government. It also has to acknowledge consumer preferences for existing payment channels and ensure the security and robustness of new channels^{lix}.

V. Towards an Integrative Regional Digitalization for SME Development

Building a sustainable and progressive digital economy relies heavily on the state of a country's – and its trading partners' – digital infrastructure. However, the digital economy ecosystem requires perspectives of infrastructure well beyond just the technical one. These include an intensive supply of human capital, and a diversified and capable institutional base^{lx}.

Since this digital technical-human infrastructure is often lagging behind global standards in developing countries, there appears to be a strategic need to work for an integrative regional digitalization for SME development, capitalizing on the comparative advantages of its participants. Such a digitized integration would be based on several initiatives and practices that include:

A. Capacity Building and Training for Digital Transformation

Digital transformation capacity building would comprise steps as the following:^{lxi}

- Embedding ICT-related curricula into primary, secondary and tertiary education including higher-level entrepreneur and innovator competencies.
- Supporting digital economy enterprises through incentives and investments in research and development.
- Creating regional hubs, incubators, and accelerators that support and boost digital entrepreneurship.
- Developing regional digital economy techno-parks that foster enterprise clustering.
- Setting digital capacity-building programs and financial support for marginalized groups (e.g. network events, fairs, competitions/awards, innovation databases, reports to amplify awareness of grassroots digital enterprise, marketing assistance, quality assurance, government procurement).
- Creating cybersecurity agencies and capabilities at regional level.
- Highlighting e-leaders and e-leadership institutions — individuals, networks, and institutions that develop a vision of a knowledge society, set policies and priorities, achieve national consensus on reforms, and coordinate and create synergies among the elements of e-development.
- Encouraging SME knowledge sharing through social media-style platforms to achieve scope and scale, in addition to public-private partnerships that can make information more accessible to SMEs.

B. *Digital Arab Common Market*

A digital common market would represent the strategy to ensure access to online activities and digital goods and services for individuals and businesses under conditions of fair competition, consumer and data protection, free from geo-blocking and copyright issues. A digital Arab common market would create opportunities for new startups and allow existing companies to reach a market of over 400 million people. Establishing a digital common market can contribute significantly to the development of knowledge and digital economies through boosting digital networks and innovative services, generate substantial revenues per year to Arab economies, create job opportunities, and advance public-private services and partnerships^{lxii}.

Pursuing regional digital e-commerce schemes based on a regulatory framework to help SMEs operate regionally and internationally by creating an SME-friendly environment. An example of this was the November 2017 phase one completion of the new Digital Free Trade Zone (DFTZ) established by Malaysia Digital Economy Corporation (MDEC) – the country's lead e-commerce agency – and China's Alibaba Group^{lxiii}.

C. *Regional Regulatory Collaboration and Coordination*

Strengthening the governance of digital economy policy can be achieved through regional regulatory collaboration and coordination, focusing on exchanging experiences, benchmarking, and best practices to help SMEs and start-ups to grow and expand into new markets. This could be further developed towards implementing regional cross-national regulatory simplification and institutional reforms for digital economy and financial innovation policies (including cyber security and data privacy, digital trade, digital consumer protection, FinTech, payment systems, digital anti-monopoly regulation)^{lxiv}.

Digital economy policy collaboratories can adopt an experimental and iterative approach to policy, allowing the incremental learning and policy revision point. A policy collaboratory approach is also important because of increasing endorsement for policy coherence and, conversely, the damage of incoherent, inconsistent, or conflicting policies^{lxv}.

D. Electronic Financing Platforms and Schemes

Regional electronic financing platforms and schemes can be created for offering SMEs microcredits, equity financing, crowdfunding, and peer-to-peer lending. An example is the ICT Innovation Voucher to finance SME digital transformation. It is a small credit line dedicated to SMEs to assist them innovate their existing business through ICT uptake^{lxvi}.

In this context, benchmarking at the experiences of giant private corporations, such as the case with Apple Store and PlayStation, regional and national central repositories could be established for intensifying enterprise assets and capabilities in analytics, product development, and HR and IT applications^{lxvii}.

E. Regional Private Sector and Finance Institution Investment in Digital Infrastructure

Investment in digital infrastructure, in its technical and human aspects, could be achieved through the following schemes:^{lxviii}

- Developing regional universal service funds or obligations for mobile, Internet, and other ICT infrastructure and power infrastructure. These funds constitute a system of telecommunications subsidies and fees intended to promote universal access to telecommunications services.
- Providing financial support for digital accelerators / incubators / hubs / clusters for SMEs, particularly in marginalized communities.
- Promoting role models of digital entrepreneurship from marginalized groups (women, youth, disabled, etc.).
- Encouraging private sector funding of the digital economy including use of public-private partnerships and investment by foreign entrepreneurs and companies.
- Establishing mechanisms conducive to regional venture capital funding.

F. Regional SME Policy Index

Establishing a regional SME Policy Index would serve as a benchmarking tool to monitor, assess, and measure the scope and quality of SME policies and institutions. The index would target key-areas such as entrepreneurial learning

and women's entrepreneurship, bankruptcy, regulatory framework for SME policy making, operational environment for SMEs, support services for SMEs and startups, public procurement, access to finance for SMEs, standards and technical regulations, enterprise skills, innovation, green economy, and internationalization of SMEs^{lxx}.

VI. Conclusion

The role of governments in developing SMEs for trade is a key component of economic policy, as it was a prevalent theme at the recent WTO summit in Buenos Aires, Argentina, held on December 2017, where “Trade Impact for Good” was the main message. For actualizing untapped economic potential and entering into the zone of exportation and era of digitalization, SMEs need awareness of export opportunities; education on the best processes for payment, risk, and compliance; access to digital financing schemes; and connectivity to global opportunities. On the other hand, authorities should enable SMEs by providing capacity building programs; simplifying processes to foster trade engagement and developing access to new markets; issuing modern legislations and regulations for thrusting the digital economy; driving regulatory transparency to enable trust; ensuring equitable and broad access to financing platforms^{lxx}.

Governments and key stakeholders in the SMEs digitization value-chain can further enhance the digital economy of SMEs by injecting behavioral sciences at various stages: financial inclusion policies, business process simplification, human capital development, and FinTech deployment.

Two major challenges are considered to have strategic priority for developing SME digital finance, i.e. complying with financial stability requirements, and establishing integrative regional digitalization. Governments and international development organizations can enhance the growth of digital economy for SMEs via a balanced policy approach and practice that involves a valuable inclusive dialogue between public and private sector players, including SMEs, on addressing key challenges^{lxxi}.

Thank you.

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