

The role of financial technology (FinTech) in overcoming MSMEs' financing gap in Algeria

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Summary: Access to finance is an important determinant for MSMEs survival and expansion. MSMEs face various financial constraints: some of them are related to these enterprises' intrinsic profile, others are consequences of their environment. All these financial obstacles lead to the appearance of what is known as 'financing or funding gap'. This study aims to analyze this gap in Algeria through a descriptive analysis of the current financial situation, with a special focus on financial difficulties faced by MSMEs mainly to obtain necessary funds. The study discusses as well Fintech innovations available in the Algerian ecosystem and their ability to provide more financing alternatives to MSMEs, to eventually decrease or close the gap.

Keywords: MSMEs ; financing gap ; access to funds ; FinTech ; Algeria.

Jel Classification Codes : D25 ; G21; G32 ; O32

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I- Introduction :

Micro, Small and Medium-sized enterprises (MSMEs) are often described in related studies and reports as a key economic player, a driving force of economic development, an engine of sustainable growth and innovation and the backbone of the economy. All these descriptions reflect the huge capacity of these entities to contribute in economic development (although questioned by some studies (Beck & Demirguc-Kunt, 2006) (Beck, Demirguc-Kunt, & Levine, 2005)). This contribution is expected to occur through multiple channels, such as: creating more job opportunities for the local population. According to the World Bank, most formal jobs are generated by MSMEs in emerging markets, which create 7 out of 10 jobs, therefore alleviating poverty and unemployment levels (Worldbank, 2023). Moreover, MSMEs can contribute in reaching financial inclusion as they create and employ more innovative solutions. In fact, this sector has a tremendous potential to bring added value to the whole country by providing products and services most needed, while requiring only limited resources compared to large firms.

Over the last years, a real interest is oriented toward this segment both in developed and developing countries. Everyone has noticed this attention whether in economic research or in political discourse, and even in daily speech. MSMEs development represents an important axis in almost all future development strategies of emerging economies. Algeria, like other developing countries, has started focusing more on this sector to shift toward a more diversified economy in accordance with president Tebboune's 54 commitments aiming at: reducing imports and increasing non-hydrocarbons exports to break all dependency to oil prices fluctuations, and to vary the country's sources of revenues (the hydrocarbon sector accounted for 93 percent of product exports, and 38 percent of budget revenues between 2016 and 2021) (Worldbank, 2023). The State aims also to lift job prospects among young people and women, and making job creation model as a developmental priority. This later led to the establishment of multiple programs and supporting packages to assure the survival and prosperity -especially during and after the pandemic- of MSMEs, and to unleash their full potential.

In the real world, MSMEs face different challenges to survive and thrive particularly in underdeveloped environments (ecosystems). The flow of finance or access to funding is frequently identified as a critical barrier that holds back MSMEs from seizing investment opportunities and attaining their objectives to reach their optimal size (Beck & Demirguc-Kunt, 2006) (Ayyagari, Beck , & Demirguc-Kunt, 2007) (Worldbank, 2023). MSMEs are less likely than larger corporations to obtain financing at reasonable terms mainly in the post pandemic era due to supply chain crisis and rising business costs. A growing body of literature has highlighted this dilemma

also called 'financing or funding gap' that, although believed to be a global phenomenon, poses great deal of troubles to emerging markets.

Different studies assert that this 'financing gap' deepens as MSMEs have hard times to access financial services, and they are usually classified as credit constrained entities. Implementing some smart Fintech solutions may provide the answer to this problem, and it will hopefully go a long way to bridging the funding gap of MSMEs. (Lasak, 2022) suggest that Fintech innovations can play a crucial role in fostering the financial situations of MSMEs in emerging economies. It has also the ability to contribute in improving the efficiency of financing of these entities since it can provide a broader range of services, than were offered by traditional financial sector, hence, providing greater financial inclusion.

I.1. Problem Statement

This study aims to explore and analyze MSMEs financing gap in Algeria, and to assess their access to credit and other financial services. Additionally, it discusses the possible contributions of fintech innovations to close or at least decrease the existing gap to finally achieve financial digital inclusion. The problem of MSMEs access to finance has regained its importance during and after the pandemic due to the deepening of this problem in addition to the dynamic increase of the use of financial technologies. Hence, the research question is: **To what extent are MSMEs in Algeria able to benefit from available FinTech solutions to fix the existing funding gap?**

to answer this question, the following key elements will be addressed:

- What is the 'financing or funding gap', and why does this problem matter for MSMEs?
- To which extent MSMEs are credit constrained (underfunded) in Algeria?
- What are the difficulties and challenges faced by MSMEs to obtain finance in the Algerian environment (ecosystem)?
- What are the financing alternatives available for MSMEs in Algeria? Are they sufficient to finance their growth and sustainability?
- What are the solutions provided by fintech innovations in the Algerian ecosystem, and are they capable of bridging the gap?

Upon these questions, the following hypothesis is forwarded: 'Algerian MSMEs, like MSMEs in other emerging economies, face various financing obstacles, and the implementation of Fintech infrastructure and instruments can fix the existing fissure'.

I. 2. Research Objectives

To tackle this subject, an analytical and descriptive approach will be employed to observe the Algerian financial environment, and to understand the actual financing behavior of MSMEs. The aim of this analysis is to highlight the existing obstacles faced by these entities, and to explore the possible contributions of implementing Fintech innovations. The research will be structured as follows: section one provides an overview of MSMEs financing behavior and the challenges encountered in obtaining necessary funds, which justify the appearance of the 'funding gap' discussed in section two. Section three describes financing obstacles faced by MSMEs in Algeria, and in section four, we discuss examples of available fintech innovative solutions that can reduce this financing gap. The last section presents the conclusion and main findings.

II- MSMEs Financing Gap:

'MSMEs' 'financing gap' describes the difficulty encountered by micro, small and medium-sized enterprises to get sufficient funds quickly and at reasonable conditions to stay in business. This will negatively impact lenders (mainly banks) that will lose customers, and the wider economy that will lose a key business player'. (FintechOS, 2022). It is a global phenomenon, and made the subject of several studies and reports especially those established by the (OECD) that has been looking at this issue since 2006. the OECD refers to the MSMEs financing problem as the 'financing gap', and it defines this concept as 'how much financing MSMEs in a country would have sought (willingness) and been able to obtain (ability) if they operated in a better institutional, regulatory and macroeconomic environment. On the supply side, this environment would allow financiers to make available more financing as challenges, such as asymmetric information, would be mitigated' (OECD, 2022). The financing gap reflects the gap between financing needs and access to credit, that harnesses full potential for MSMEs and represents a major financial constraint for these enterprises. The World Bank defines 'financing gap' as 'the difference between current

supply of credit and potential demand which can potentially be addressed by financial institutions' (World Bank Group, 2017)

This gap is defined additionally in fi-compass report based on its quantification (measurement) that 'aims at defining the amounts of financing products that should have been provided to projects-SMEs that are considered viable from a financial point of view, if the market conditions were optimal (implying that the supply of financing would cover the demand and that these projects/ SMEs would have been able to reimburse a loan or would have generate value with the equity financing obtained)'. (European commission and European investment bank, 2019).

In order to close or minimize the size of the existing gap, efforts and policies should be directed toward the following elements:

- **Encouraging banks to provide additional financing** since banks are advantaged when it comes to financing loans due to their huge funding base of depositors (Fedder, 2022). It is essential for funding to be seen as a partnership. Promoting the growth of MSMEs should be taken as an objective, thus, banks have to change their culture and be willing to take more risks with a conviction that the result would be win-win: strength in corporate supply chain and thriving MSMEs community driving economic growth from the ground up;

- From a regulative stand, authorities should work **on creating a favorable ecosystem** for MSMEs including reducing banks restriction towards a more capital relief to banks financing of MSMEs, facilitating MSMEs access to finance by creating more well-designed and flexible financial instruments adequate to MSMEs profile with high risk tolerance levels. These adequate financial instruments could target market failure observed in many countries mainly to provide financing to particular types of MSMs working in specific sectors: smaller, younger and more innovative MSMEs as well as MSMEs developing in new/uncommon sectors will have less difficulties to access financing; (World Bank Group, 2017)

- **Providing technical assistance and support** inside financial institutions to orient MSMEs and provide all requested information, so to reduce administrative burden. Moreover, the assistance should include financial experts with technical knowledge to help assessing credit request from high-risk profile MSMEs.

- **Promoting risk assessment capacity** among equity market's players mainly private equity funds to make them able to assess projects proposed by MSMEs;

- **Working on enhancing financial literacy among MSMEs managers or entrepreneurs** so to make them more aware of the existence of various financing alternatives and instruments whether in debt or equity market, in addition to options created by Fintech applications. Increasing their knowledge will also help them in providing necessary documents for loan assessment process, mainly financial statements, thus eliminating the risk of the absence of credit history. Trained managers will gain more confidence in their financial decision and will be able to surpass fears, whether from getting their loan application rejected, or from losing management control when applying for equity finance;

III- Overview of MSMEs' financing behavior and challenges in Algeria:

The common definition of MSMEs employs at least two of the following three indicators: employment -sales volume – capital investment. Employment is common in most of the countries (UNESCAP, 2020) (Bouri, 2017). For instance, Algerian ministry of industry and pharmaceutical production defined MSME in the 2017 directive law number 17-02 as 'a productive enterprise (goods or services) that meets the following criteria: -it employs from 1 to 250 employees; - its annual sales volume (turnover) doesn't exceed 4 billion Algerian Dinar; - it is an independent entity, i.e., not less than 25% of its capital is owned by another enterprise or a group of enterprises'. According to the same law, a special focus is given to the second and third criterion, that is to say, if one enterprise falls in a specific category according to its number of employees and into another category according to its turnover, the priority is given to the second criterion. (Official Journal, Directive Law No. 17-02, 2017). Table (1) shows the adopted classification.

Over its website the same Ministry announces the existence of 1 359 803 MSMEs in 2023 compared to 1 286 365 MSMEs in 2021 that employ approximately 3 134 968 employees. These entities constitute 98% of the economic structure in the country. Every year, about 55 296 new private MSMEs are created versus only 225 state-owned MSMEs. In terms of density, only 28 MSMEs per 1000 inhabitants are recorded, which is very low compared to global standards estimated to be 45 MSMEs per 1000 inhabitants. The same statistics reveal that 97% of Algerian

MSMEs are micro enterprises, this reflects the fragility of this segment and its high exposure to vanishing and failure.

The Algerian government established over the last years an economic policy oriented towards the development of MSMEs' segment. The main objective of this policy is explained thoroughly in the directive law No 17-02 that is 'setting specific supporting mechanisms to ensure the creation, growth and sustainability of MSMEs. (Official Journal, Directive Law No. 17-02, 2017) Additionally, the law indicates other similar goals in line with the same policy that are: creating a favorable ecosystem for MSMEs, encouraging MSMEs' innovation and entrepreneurship, enhancing their competitiveness and exporting ability, increasing national integration rate and economic growth.

To assure their survival and growth, different governmental bodies were installed such as: National Consulting Council for SMEs' promotion. Its main function is to provide a common ground dialogue between all interested parties, mainly between public entities from one side and social and economic partners from the other side, aiming to discuss several matters related to economic development, promoting and supporting SMEs. (Official Journal, Executive Decree No 17-194, 2017). The creation of a public entity to supervise the creation, growth and sustainability of SMEs, that is 'Agency for SMEs' development and innovation promotion' in Law No 18-170. (Official Journal, Executive Decree No. 18-170, 2018). these efforts indicate a serious State's interest to build a favorable environment, i.e., a friendly ecosystem for MSMEs'.

Similar to other emerging countries, there is an increasing interest in creating and supporting MSMEs in Algeria. From the country's perspective, this interest is justified by the government's efforts to diversify the economy and to break dependency on hydrocarbons revenues, thus, reducing exposure to negative external shocks resulted from volatile oil prices. MSMEs sector can help in increasing exports and cutting off imports which will give a competitive advantage to the economy. These enterprises have also the capacity to generate more job opportunities and reduce poverty especially in remote areas, Encouraging women entrepreneurship and their access to finance. All these goals are in line with the economic strategy set by the new government (after El-Hirak), and enhanced mainly after the economic downturn caused by COVID-19 pandemic. (Ministry of Industry and pharmaceutical production, 2023)

The analysis of Algerian MSMEs' financing behavior clearly shows their struggle to obtain necessary funds in the current economic environment. Similar to MSMEs around the globe, studies show that Algerian MSMEs face various financial constraints that prevent them from undertaking available growth opportunities. (Si Mohand, Reffaa, & Benai, 2021) assert that these constraints are mostly a consequence of market imperfection rather than corporate financial needs.

In order to understand the nature and the roots of MSMEs' financial difficulties, a whole understanding of Algerian financial sphere is mostly needed. The Algerian financial system relies predominantly on the banking sector, where public (state-owned) banks are still the dominant economic player compared to private foreign banks. Therefore, the most available source of financing is debt. However, Algerian MSMEs have great difficulties obtaining loans and other forms of credits due to public banks restrictions and severe lending conditions. In this context, (R. Clarke, Cull, Martinez Peria, & M. Sanchez, 2003) find that a financial system dominated by government-owned banks seem less effective in providing credit to MSMEs. The entry of foreign banks, on the other hand, is mostly associated with greater MSME credit availability. foreign banks can bring the necessary know-how and scale to introduce new transaction lending techniques. By competing with domestic banks for large corporate clients, they can force domestic banks to go down market to cater to MSMEs.

Different negative features are linked to the Algerian banking sector that have a direct negative effect on MSMEs finance. We mention for instance: a lack of trained personnel with necessary expertise to treat financing requests especially in innovative and uncommon sectors. This fear of taking risks will be reflected into a raised collateral and asking for sufficient guarantees instead of risk-sharing strategy. Among other observed characteristics we cite: poor financial practices and a huge administrative burden due to the still existing bureaucracy -although the increasing adoption of digitization process-, in addition to insufficient and underdeveloped infrastructure that lacks modernity, flexibility and innovation. (Si Mohand, Reffaa, & Benai, 2021).

In addition to difficulties faced in the banking sector, MSMEs in Algeria suffer from the absence of a mature equity market, which, although it was officially established since 1993, does not perform its main activity that is being an intermediary between credit surplus units and deficit

units. With only four (04) listed companies (SGBV.DZ, 2023) this capital market is still far from contributing actively in financing economic growth. Despite its inactive state, Algiers stock exchange created a specific division for SMEs to be listed with fairly rigorous conditions of admissions, however, this market segment is still inactive as well. Therefore, MSMEs in Algeria still cannot rely on the financial market to obtain funding.

As well as institutional constraints, Algerian MSMEs face additional financial difficulties resulted from their own profile, including problems related to human factors. The Algerian entrepreneur himself often avoid asking for external finance. He is convinced that almost all products offered by traditional banks are not compliant with Shariah law and principles. When religious and cultural dimensions are excluded, the MSME's owner may simply face rejection due to the absence of high collateral and guarantees often imposed by banks. Another important factor discussed earlier is the lack of financial literacy. MSME's owners often do not have sufficient financial mastery and required business capacities. They frequently ignore the existence of alternative and adequate instruments (that can fit more entrepreneurs' convictions and preferences). Sometimes they are incapable of selecting an adequate existing product; to know how to file for loans, how to provide all required administrative and accounting documents...etc. When it comes to equity financing, firms' owners are still avoiding raising capital because of the fear of losing control and management dilution. Since family firms are still a dominant part of this segment, their owners prefer having a full control over the firm, and they choose to obtain funds from their network of family/ friends (also known as Angel investors- if found-) (Sansri & Cheurfa, 2020). This culture is in fact a result of a lack of financial literacy, since financial theory has already confirmed that the use of external financing will add more financial leverage to the firm, and enhance its corporate governance due to additional controlling mechanisms imposed on managers. All these practices lead to an absence of a demanding force capable of activating the financial market and stimulating supply. The result is a vicious circle of absence of supply resulting from a lack of demand pressure.

Another important source of finance for Algerian MSMEs that helped them to start -in the first place- and to survive in the absence of other sources, is the State's subsidies and grants packages. Governments interests in promoting MSMEs started a long time ago with the implementation of different governmental agencies specialized in providing grants and microcredits for entrepreneurs, such as 'national agency for promoting youth employment' (ANSEG) lately transferred into 'national agency for entrepreneurship support and development' (ANADE), 'national agency for microcredit management' (ANGEM), 'national agency for investment development' (ANDI). In addition to support and grants given by 'national fund of unemployment insurance' (CNAC). All these institutions were enhanced by the creation of 'SMEs' credits guarantee fund (FGAR) which main function is to increase SMEs' chances to obtain medium-terms loans from banks by providing a guarantee when the firm do not have tangible assets. (FGAR.DZ, 2023) (Minsitry of Industry and pharmaceutical production, 2023)

To sum up all above-discussed constraining factors, and according to related literature findings, Algerian MSMEs generally rely in their financing on internal sources, that is capital plus cash flows generated by the firm's activity (although limited especially in first stages). Then they look for external finance -if available- mainly loans and overdraft (in accordance with the pecking order theory). The survey of MSMEs financing behavior conducted by (Si Mohand, Reffaa, & Benai, 2021) show that 30% of MSMEs in their sample didn't contract debt at all whether because they don't prefer debt or can't afford to contract it. They also found that Algerian MSMEs seem to be dependent on their cash flow in their growth process with a timid pace of expansion. Algerian MSMEs seem also to rely heavily on State's subsidies (mainly to start), on their network of family and friends, and may open their capital to private equity investors, especially if they work in innovative sectors. Finally, the implementation of Islamic financing in traditional banks through Islamic windows creations may contribute in bridging funding gap created by religious and cultural beliefs (Bendaoudia & Kamoumia, 2022).

IV- Fintech: innovative solutions for financing MSMEs in Algeria :

Fintech is an acronym for 'financial technology' combining banking expertise with modern management techniques and computers' (Yueyang, 2022). It refers to "any innovative ideas that improve financial service processes by providing technology solutions according to different business situations" (Suryono, Purwandari , & Budi, 2020). This shortcut can be understood in two

ways: firstly, it is a technology, and solutions based on this technology that are used in financial services such as the use of artificial intelligence (AI), big data analytics, distributed ledger technology, cloud computing...etc. Secondly, it refers to entities (start-ups) based on financial technology operating in different financial areas such as: mobile payments services, online lending to savings and investment. (Lasak, 2022)

Financial technology or 'Fintech's' main feature resides in its ability to challenge the existing business models provided by incumbent traditional financial institutions, such as banks, causing significant changes in the actual business model, and eventually leading to a new one. Being a financial disruptor, Fintech has proven its ability to revolutionize the whole financial industry during the outbreak of the COVID-19 pandemic. This later contributed to the generation of the second wave of development and penetration of new financial technologies into traditional sectors (Aysan & Nanaeva, 2022). Moreover, studies show that Fintech innovations helped mainly African MSMEs -especially during the lockdown- primarily through the facilitation of digital transactions and easy access to credit (Tidjani, 2021). According to Statista (2023), total investment in Fintech companies worldwide increased drastically between 2010 and 2019, to reach almost 239 billion U.S dollars in 2021. Global investment in blockchain and cryptocurrency start-ups increased in 2021 after the first wave of the COVID-19 pandemic reaching 32.1 billion U.S dollars, as compared to 5.7 billion U.S dollars in 2020. In 2023, The number of Fintech start-ups reached approximately 30,000 start-ups globally, with 9,681 start-ups in the EMEA region only. An important fact is that almost 75% of global consumers had some interaction with fintech in 2019. (Statista, 2023)

In Algeria, and despite the launch of digitization process several years ago, the COVID-19 outbreak and the consequent lockdowns have accelerated this process. By the end of January 2023, Algeria has made a significant progress in this field. Table (2) shows some related stats that reflect this change.

All these statistics show the efforts made in this field, and indicate a positive trend of the country into the digitization process of different strategic sectors mainly the financial sphere.

In fact, the digitization of financial system has started a long time ago with the implementation of 'SATIM' a 'company for the automation of interbank transactions and monetics' in 1995 (SATIM.DZ, 2023) along with the establishment of 'GIE Monetics' 'Monetics Economic Interest Group' in 2014 (GIE Monetique.dz, 2023). The creation of both SATIM and GIE_monetics is an important step taken by Algerian authorities towards the modernization of both banking and financial sectors, and to establish an efficient electronic payment system as well. SATIM is the main interbank electronic operator for both domestic and international cards, aiming at modernizing banks and promoting instruments of payments using cards. Consisting of 17 banks as well as Algérie poste, SATIM counts more than 1,351 ATMs and 40,000 electronic payment terminals (TPE) connected to its servers. According to its official website (SATIM.DZ, 2023), this growth is mainly due to the impact of the CIB card on the purchasing habits of Algerian consumers. In the other hand, the main function of GIE Monetics is to supervise and regulate the interbank electronic monetary system, and to define the mission of all related players. (GIE Monetique.dz, 2023)

Algeria is working on creating a Fintech ecosystem where all economic players can benefit and use these innovations. Studies confirm that developing a suitable economic environment will have more positive effects on MSMEs instead of focusing only on promoting MSMEs alone. A Fintech ecosystem is built upon the following well-known pillars: governments and regulators, financial institutions, investors, users, universities and research institutions, tech vendors, Fintech startups, incubators, accelerators and innovation labs (fintechalgeria.com, 2023). In its Fintech strategy guidelines, the Arab Monetary Fund suggests a roadmap that focuses on enhancing several pillars for the adoption of Fintech ecosystem, where funding is an important step. To improve financing requirements, countries need to work on the following objectives: make available and accessible Fintech funding across stages, stimulate incubators and accelerators and diversify sources of funds; enhance Fintech governance and performance; and increase joint investments between private Fintech players. (Arab Monetary Fund, 2019)

In addition to digitization process adopted in public and private banks as well as the creation of both SATIM and GIEmonetique, Fintech landscape in Algeria has benefited from the creation of 'Algeria FinLab' that is a regulatory lab created in 2020 by the 'Committee for

Regulating and Monitoring Stock Exchange Operations (COSOB). The main objective of FinLab is promoting the adoption and integration of technological innovations in the financial (FinTech) and insurance (InsurTech) sectors, along with necessary regulations. According to its president: 'the activity of this FinLab is leading a common reflection that gathers academics, researchers and financial institutions, and enable them to discuss the regulatory and functional technical aspects of their well-identified needs' (aps.dz, 2021). Lately, this ecosystem was enhanced by the government's announcement on 09 August 2023, the creation of a specific supreme independent department that is 'high governate of digitization'. Its main role is to set a proactive approach to accelerate the digitizing process in the country in all sectors simultaneously. (echaab.dz, 2023)

For MSMEs, the existence of such ecosystem will help them overcoming some financing constraints whether by providing easy business solutions or through providing more access to finance. By observing the current environment, Algerian MSMEs can benefit from multiple Fintech options (compared to the pre-pandemic era) that can become viable financing alternatives. Some of these solutions existed before, others are being more functional, and others have been just created and launched. Among main observed financing solution, we notice:

-1 - Digital payment solutions: the implementation of E-payment, that is 'the use of a digital payment technology' can indeed contribute to elevate the overall performance of MSMEs by improving their business processes, and help them to integrate the digital business ecosystem. It is a strategic tool that has proven its efficiency mainly during the COVID-19 pandemic. E-payment has enabled MSMEs to carry on their business, while reducing the spread of the virus. (Kilay, Simamora, & Putra, 2022). For MSMEs, E-payment can upgrade their business model in terms of making payments and providing payment information. Benefits ranges from reducing costs, improving financial performance efficiency, increasing customer satisfaction, increasing the ability of MSMEs to compete globally, strengthening relationship with suppliers, and increasing sales, transparency, and security (Kilay, Simamora, & Putra, 2022). According to Algerian legislation, E-payment refers to 'any payment instrument, authorized by legislation, allowing its holder to make payments proximately or remotely via an electronic system' (Benmadani S. , 2022) . Examples of E-payment solutions available in Algeria include: products provided by local operators mainly CIB cards made available by SATIM in almost all local banks, 'Algérie Poste's EDAHABIA card available for all current accounts' holders upon request (Dahmani Redha, Chebbah , Sekiou, & Bouzekri, 2023). In addition to these electronic payment instruments- made available by local providers-, international credit cards namely VISA card and Mastercard were introduced by several banks working in Algeria (AGB, BEA, BNP, BDL, etc.) several years ago, however, they are valid for use when travelling abroad or to make online purchases. In 2021, EDAHABIA card was the most used card (69%), followed by CIB cards (16%), and finally Visa and Mastercard (15%) (Benmadani S. , 2022). E-payment is also possible through mobile phone applications without the use of CIB/EDAHABIA cards (M-payment). -International E-payment platforms like PayPal (backed by a visa card), Stripe platform, PaySera (no longer accessible for Algerians), etc. These platforms allow their clients to create digital wallets and to manage their money.

In addition to E-payment, Fintech provides also a range of mobile applications, websites, and other digital banking solutions that can help MSMEs to manage their financial resources efficiently, which can limit financing needs. Examples include Algérie Poste's Baridimob, mobile banks services like Banxy (Natixis Group).

- 2 - Crowdfunding lending: this innovation derives from the concept of 'crowdsourcing' that 'involves an open call, mostly through the internet, for the provision of financial resources either in the form of donation or in exchange for the future product or some form of reward to support initiatives for specific purposes' (Troise, Battisti, Christofi, Van Vulpen, & Tarba, 2023). 'Crowdfunding is an innovative financial product/industry, based on the principle of pooling financial resources from the public to finance individuals, entrepreneurial projects and SMEs through digital platforms' (Babas, 2023). Thus, this innovative financing solution allow entrepreneurs to raise funds directly from the crowd, i.e., a large audience of unsophisticated investors who support initiatives with relatively small amounts of funds, through internet-based platforms, and without resorting to traditional financial intermediaries or sources (Troise, Battisti, Christofi, Van Vulpen, & Tarba, 2023). Based on above definitions, crowdfunding mechanism includes three principal components: -the crowd or contributors; - crowdfunding platforms; - the crowdfunding campaign creator;

Crowdfunding platforms can help MSMEs- often characterized by the absence of a credit history- to overcome obstacles of accessing traditional financing options in a very quickly and at low-cost manner. This innovative solution became very popular in the aftermath of the 2008 crisis due to the phenomenon of credit crunch observed at that time. Banks were unwilling to lend, and small businesses were the most affected by this policy (Babas, 2023). In Algeria, crowdfunding is still a recent practice, and was not regulated until 2020 in the complementary finance act. This activity is from now on regulated by the committee for regulating and monitoring Stock exchange operations (COSOB) that will indicate the conditions for approving the exercise and control of these platforms. Despite the popularity of crowdfunding, only four platforms exist in Algeria (another platform is recently created (in 2023) but there is limited available details about it, that is ALGERIA DONATION CROWDFUNDING), and they are: Twiiza (2013), Chriky (2014), Ninvesti (2019-2020), Kheyima (2020). The first two platforms were created under French legal framework due to the absence -at that time- of an Algerian framework (Sansri & Cheurfa, 2020). A brief description of these platforms is presented in the table below.

In addition to crowdfunding platform exercising in Algeria, Algerian MSMEs can benefit from funding as well as guidance and support from similar platforms working abroad, whether in Arab region or internationally. Examples include Zoomal.com, a crowdfunding platform covering MENA region (Algerian projects represent 21% of their entire financing in 2019); Kickstarter an American crowdfunding platform responsible for financing an entire 245507 projects until 2023. Their finance in Algeria represents only 7 % (third position in Maghreb region in 2019) (Khodheir & Ouguenoune , 2021), Indiegogo, that is also an American crowdfunding platform. Algeria MSMEs have also the possibility to benefit from 'Djazair Ta3mal platform', which is not a crowdfunding platform but an online application working on fostering employment and entrepreneurship in Algeria. While it is primarily known for its job-matching capabilities, it also offers resources and tools for entrepreneurs and MSMEs to expand their businesses and access funding opportunities

-3 -Fintech Startups: considered as an important player in the fintech ecosystem. The emergence of these entities in Algeria is very recent, however, they have the ability to contribute in MSMEs finance (Belaa, 2023). Existing examples include: DIGITAL FINANCE ALGERIA a Fintech company specialized in executing innovative digital and financing solutions, and providing professional consulting services (dzpay.digital, 2023). 'BEYN' a company that provide digital solutions designed for financial institutions. It offers a wide range of products including digital banking solutions, E-payment solutions, and guidance for digital transformation (beyn.io, 2023).

-4 - Lending platforms and financial management applications: Lending platforms offer quicker and more accessible lending options to MSMEs, often with streamlined application processes and flexible terms (Roy, 2023). These Fintech applications provide efficient and user-friendly banking services to MSMEs, often without the need for physical branches (Kumari, 2023). Fintech apps can assist MSMEs in managing their finances, budgeting, and tracking expenses. Examples include QuickBooks, Wave, and Kabbage. Similar to this concept, we find a consulting platform working in Algeria namely MOUSTACHIR. Its main objective is to provide professional consulting services upon request to entrepreneurs to help them start and expand their businesses (moustachir.dz, 2023).

All in all, Digital financial services (DFS) are expected to enable firms to interact with financial services providers, draw down on existing lines of credit without delays or disruptions and access alternative finance that can compensate for a lack of liquidity in traditional financial channels. Indeed, technological advancements have contributed to the development of DFS in Algeria, with Digital ID — launched in 2016— this latter has enabled financial institutions to onboard customers efficiently in compliance with anti-money laundering and other 'know your customer' requirements. Open Application Programming Interface (API) developments have allowed DFS providers to access data from different public and private systems to improve the speed and reduce the cost of financial services without compromising safety and reliability. (Delort & Poupaert, 2021). Table (3) sums up all above-mentioned Fintech players and products available for MSMEs in Algeria:

V- Conclusion:

MSMEs represent a key economic player and an important axis in almost all emerging countries' developmental strategies. Similarly, Algeria begun paying attention to this segment a

long time ago, simultaneously with digitization process set by the government to modernize the economic system mainly financial and banking sectors. Indeed, MSMEs have a great potential to bring added value to the economy, however, they face additional obstacles, compared to large corporations, due to their less diversified structure and lack of expertise and trained staff. These firms face more financial challenges, among which access to finance remains the most critical barrier. These financing constraints have led to the emergence of financing gap, that although is a global phenomenon, its impact on MSMSEs in emerging economies is more severe. In Algeria, and despite the provided support and promotion mechanisms, mainly through government grants and subsidies, MSMEs still lack financing, and they struggle to obtain necessary funds. Although banking loans are the most prevalent source of finance for these entities, banks and other financial institutions usually refuse to lend MSMSEs due to their lack of credit worthiness and absence of required collateral. Along with the absence of an active equity market, MSMEs have to rely on their internal financing (capital and generated cash flows) in addition to their own network of family, friends and private equity investors interested mainly in financing innovative projects. This financing behavior, however, is changing, especially in the post COVID-19 era, with the increasing implementation of Fintech innovations. Currently, MSMEs may find new solutions to their problems- mainly access to finance- through the adoption of multiple choices to alleviate their overall performance. These innovations include E-payment solutions, crowdfunding platforms, digital financial management application, in addition to various digital services provided by Fintech startups. Despite the existing Fintech solutions and all efforts made by the State to create a Fintech ecosystem, reality shows that this process is still in first stages. Even though E-payment solutions are spreading (as a result of pandemic), other solutions such as Crowdfunding and digital platforms and applications have limited contributions in resolving financing problem of MSMEs. However, Fintech implementation in Algeria is increasing, and it is expected to bring additional benefits and to contribute more in bridging the existing financing gap.

- Appendices:

Table (1) : Classification of MSMEs in Algeria

Type of entity	Employees number	Annual Sales volume (Turnover) (Million Algerian Dinar)	Annual result
Micro (TPE*)	From 1 to 09 persons	Less than 40 Millions	Less than 20 Millions
Small	From 10 to 49 persons	Less than 400 Millions	Less than 200 Millions
Medium	From 50 to 250 persons	Between 400 Millions and 04 billions	Between 200 to 01 Billion

The source : Ministère de L'industrie, Bulletin d'information statistique de la PME 2022 and Minsitry of Industry and pharmaceutical production, official website, 2023

Table (2) : ICT figures in Algeria (2022/2023)

Populations	45.6 M
Landline/ Post offices / CCP accounts / Eddahabia cards	5.25 M/ 4150/ 26.04/ 10.04
Mobile / mobile penetration	48.53 M/ 107%
Fixed internet / mobile internet / internet users/ internet penetration	4.36 M/ 42.9 M / 32.09 M/ 70.9%
Executives / Entrepreneurs	4M
Subscribers in FTTH	520,000
Fixed and mobile internet speed Average monthly consumption per user: 250 GB (2022)	Average fixed speed: 10.82 Mbps. Average mobile speed: Ooredoo 21.91 Mbps, Mobilis 12.18 Mbps, Djezzy 8.11

* Très Petite Entreprise

Mbps, overall average 15.63 Mbps

The source: Kahlane, A state of affairs: Digital transformation in Algeria and its links with Africa, 2023

Table (3) : Fintech solutions available for MSMEs in Algeria

Conventional players -banks/ other financial institutions	Innovative/ fintech players: platforms and digital solutions, fintech startups
<p>Banks : All public or state-owned banks including: BEA-BNA-CPA-BDL-BADR-CNEP-Banque</p> <p>Private or foreign-owned banks operating in Algeria including: Société Générale, Gulf Bank Algeria (AGB), BNP Paribas Al Baraka, Al Salam Bank, CITIBANK, Natixis ALGERIE, ABC (Arab Banking Corporation Algeria), Natixis Algerie, Arab Bankk PLC Algeria, Trust Bank Algeria, Housing Bank (the housing bank for trade and finance-Algeria), Fransabank Al-Djazair, Crédit Agricole Corporate et Investissement Bank Algérie (Ex CLAYON), HSBC Algeria</p>	<p>E-payment cards : CIB, EDAHABIA, Visa card, Mastercard</p> <p>Mobile phone applications (payment/ lending/ management): Baridimob (Algérie Poste), <i>BN@tic</i> : BNA, <i>My Bank</i> : BNP Paribas El Djazair, <i>Trust Connect</i> : Trust Bank, <i>APPLI SGA</i> : Société Générale Algérie, <i>MyBDL</i> – DIGIT BANK : BDL, <i>alBaraka</i> : AL Baraka d'Algérie</p> <p>Mobile banks: Banxy (a subsidiary of Natixis)</p>
<p>Other financial institutions: Maghreb Leasing Algérie, -Ijar Leasing Algérie, -El Djazair Ijar, Société de Refinancement Hypothécaire, Sofinance (La Société Financière d'Investissement, de Participation et de Placement), -Arab Leasing Corporation, -Cetelem Algérie, Société Nationale de Leasing, Caisse Nationale de Mutualité Agricole Etablissement Financier</p>	<p>E-lending via fintech platforms: crowdfunding solutions: Twiza, Chricky, Ninvesti, Kheyma, ALGERIA DONATION CROWDFUNDING</p> <p>Accelerators/ Incubators: Incube Me, Sylabs, BCOS, Haba Institute, T.Star</p> <p>Fintech startups: DIGITAL FINANCE ALGERIA, BEYN, MOUSTACHIR (counseling firm)</p> <p>International Fintech players: PayPal, Stripe, paysera, pypl, wise Zoomal.com, Kickstarter, Indiegogo</p>

The source: By the authors based on official websites

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