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The Role of Startups in the Age of Covid-19 Pandemic - Evidence from the World -

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Abstract:

This study aims to provide startups' experience evaluation during crises and set startups' mechanisms that could help in alleviating the effects of the current pandemic in different countries. Several experiences from the US, UK, Japan, and some Arab countries have been presented in this study to illustrate the role of startups in the age of this pandemic. The study concluded that startups have played major roles in the age of Covid-19, particularly in the health sector. But, they should adopt the innovation mindset, and face challenges using technological changes and internet advantages.

Key words: Startups; Age of Crisis; Covid-19 Pandemic.

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Introduction

There is a total agreement among economists around the world that covid-19 pandemic has negative effects on the global economy. The majority of statistics predict that most economies will lose more than 3 percent of gross domestic product by the end of 2021; therefore, global economic growth will decrease. Besides stock markets, that have big shifts and a huge decrease in the value of pensions and people savings accounts, the demand for oil has all dried up as a result of lockdowns across the world, and collapse in consumption and confidence.

In light of the tragic effects of this pandemic, governments motivate people and corporations to work from home where possible, to minimize physical meetings and infection. Hence, developed countries have given priority to startups to cover the deficit in big companies' business. And with the current pandemic and the shift to the digital economy, technology startups and their ecosystems have become more important and the jobs they create more sustainable and appropriate to the current stage because they are better adapted to distant transaction business. Covid-19 has accelerated the digitization of the offline economy, making tech startups even more significant.

Nobody wins during the covid-19 period, but this pandemic has pivoted the priorities of some start-up founders and entrepreneurs to solve problems related to the pandemic and preparing for any in the future, basically in the health sector. While many startups fail to make travel, transport, and tourism business, others decide to supply much-needed medical solutions and biotech devices. Moreover, in the countries that have the highest numbers of confirmed cases in the world such as Italy, the pandemic is hurting small businesses, but tech and robotic startups are performing well and helping to fight covid-19.

Standing on the different types of startups and their role, this study aims at analyzing the startups' contribution in Europe, the USA, the Middle East, and Algeria in the age of covid-19 pandemic. The study focuses on the following research questions:

RQ01: What startups types can help in the time of covid-19 pandemic?

RQ02: what makes startups different in the age of crisis?

RQ03: How startups are supporting the government in fighting Covid-19 Pandemic?

1- Literature Review

Much of the studies that tackled this topic have been conducted under the banner of the relationship between startups and innovation and the advance in technology. Literature has engaged with startups' role in the economy, looking at how small businesses can help in times of crisis. The limited number of researches on flexibility in the context of startups and crises basically focuses on the pre-crisis period and on the skills or resources that startups and companies build up to adapt to crisis circumstances.

Being innovative is a precondition of being resilient, as innovative businesses tend to constantly and continuously anticipate and adjust to a broad range of crises (Hamel & Valikangas, 2003). Yet, startups do not often predict the crisis in detail, and most startups will not have been prepared for the events of the immediate future (Linnenluecke, 2017). According to her study on the effects of hurricane Katrina and its aftermath founded that a failure to prepare can have dramatic consequences, particularly for small businesses that are vulnerable to interrupted cash flows, lack of access to capital for recovery, and face problems accessing federal assistance and also serious infrastructure problems (Runyan, 2006). In different words, startups should have the ability to adapt with new circumstances, basically during the crisis.

According to the past economic crisis, the cost of research and development expenses decreased in most European countries, for instance in Germany, the budget of R&D in the private sector decreased by 2.9%, and in higher values in the rest of European countries (OECD, 2012); Therefore, Startups reduced their innovation expenditure. On the other hand, (Koellinger & Thurik, 2012) tried to explore the innovativeness of startups founded during the past economic crisis, focusing on the type of startups that have been founded before and during the crisis in high-tech and low-tech sectors. They concluded that crisis foundations are not more likely to be set up in response to lost job opportunities. (Koellinger P. , 2008). Therefore, during the crisis, the rate of innovation in this type of institution has increased.

Concerning Covid-19 pandemic, (Kuckertz, et al., 2020) concluded that while startups are successfully leveraging their available resources as a first response to the crisis, their growth and innovation potential are at risk. Hence, policy measures should not only provide first aid to startups by alleviating the pressure caused by constrained cash flow but also involve

long-term measures embedded in and supported by the wider entrepreneurial ecosystem to ensure rapid recovery and growth.

According to a collaborative study by allied for startups (AS), France Digitale (FD), and the European Startup Network (ESN), the COVID-19 crisis is a chance to adapt the economy to the global challenges. Hence, Startups are an integral part of this adaptation. With the right liquidity support, investment incentives, and regulatory framework, startups will have potential benefits. (startups, Digitale, & Network, 2020).

More recently, (Bărbulescu, Tecău, Munteanu, & Constantin, 2021) concluded that, during the crisis, startups should develop strong relationships with employees but also with other stakeholders, like companies in the same industry, the public sector, academia, and citizens. Findings also show that the health and telecommunication sectors are the biggest winners in the current crisis.

Finally, this study aims at providing startups experience's evaluation during Covid-19 pandemic, and setting startups' mechanisms that could help alleviate the effects of the current pandemic.

2- Winner and Loser Startups during the Covid-19 Pandemic

While many startups are losing during the age of crisis, others are winning, and the following categories are examples of both winners and losers during this pandemic.

2-1- Health application is the best investment

Statistics in Europe show that health application is the most downloaded application. Therefore, startups around the world have launched new products, including a free coronavirus symptom checker. But while this is a moment for doctor apps to shine, rapid growth is not all smooth sailing. Kry, for example, has had to ramp up recruitment efforts to meet the unprecedented demand. Other smaller competitors like Paris-based Qare, where the pandemic has increased the company growth by an additional 25 percentage points (Knowles. K, 2020).To put it in other way, related sectors to the current pandemic, like the health sector, are the most demanded services.

2-2- Tourism platforms are big losers

All online arrangements were down half, and continue decreasing as a result of coronavirus; therefore, the majority of travel startups are going to lose their share markets.

It is indisputable that no other industries have fallen as far and as fast as the travel industry. Travel booking start-ups like Klook will be laying off staff, placing employees on temporary leave, and implementing a

company-wide reduced workweek. Airbnb, the once-heralded disrupter scheduled to go public in 2020, is laying off 25% of its workforce and witnessing a collapse in bookings with hosts pulling out to find cheaper long-term tenants. The tourism industry's financial strategy built on the foundation of a trouble-free future of open borders and high tourism demand has thus failed them (Knowles. K, 2020). In other words, the tourism sector is maybe the big loser in this pandemic. Hence, hotels, booking platforms, and tourism agencies will witness a negative performance at least until the end of 2021.

2-2-1- Transport and logistics startups also lose

Coronavirus pandemic has shown the need for a strategic plan for transport and logistics startups; hence, several innovation changes are required.

The short-term impact of COVID-19 varies by logistics subsector. The volume declines for freight transport are similar to those for traditional logistics companies. Ocean-freight volumes in the first quarter of 2020 were down 20 percent from a year earlier. Many companies are having difficulty accessing transport capacity, especially within air cargo. Overall, 70 to 80 percent of belly cargo capacity has vanished, leading to fierce competition and skyrocketing prices (Hausmann, 2020).

Startups are relying on advanced digital backbones and front channels, as well as digital solutions that help them adapt rapidly. In the long-term, the most resilient logistics startups may accelerate digitization and innovation, while also becoming more agile (Hausmann, 2020).

2-2-2- Remote work become a strategic industry

In times of crisis, suppliers are trying to save the same number of customers who are staying home, and one of the best solutions is remote work options.

In a short time, it is not possible to do everything, so there are a few elements companies can focus on. First, in a remote world, it is very important to not only communicate synchronously on Skype or Zoom but asynchronously, where you do not face to face on a screen. The easiest way is to use a Google doc or Slack. This is how virtual companies work. If people are working as a team, you can work in a Google doc and explain what you have done, and others can wake up in a different time zone or city, open it up, and see the work you have done. There is less chance of losing communication, and people are on the same page.

Finally, Prithwiraj (2020) confirms that remote companies have well-established processes, where people are socializing and no one is feeling isolated, and falling through the cracks. That is important, especially

with all the anxiety around us and schools getting closed and the fear, and psychosis of the moment (Gerdeman, 2020). Despite this industry is not well developed in Arab regions, but remote work proves its speed, efficiency, and easy performance.

3- Why startups can help in the age of crisis?

Many reasons behind startups' ability to help in the age of crisis. While big companies are struggling to continue, small businesses have many advantages as below:

- ✓ Small businesses are not well organized. They don't have fixed and severe structures. These allow them to adapt to different technological changes and circumstances such as crises.
- ✓ Unlike workers in large companies, startups workers are not attracted by material criteria. This will ensure more solidarity and team working during a crisis.
- ✓ Startups are more flexible in terms of fast response to emergencies because the majority of managers are multitasking and innovative individuals.
- ✓ Startups' creators are characterized by observing real-life problems and attempting to find creative and unique methods to solve them. Hence, entrepreneurs are probably the best people who can learn from the immediate crisis.
- ✓ In times of coronavirus pandemic, new startups will start as blank slates which give them the advantage to start a business in a weak competitive environment.
- ✓ During crises, experts and researchers provide startups managers with accurate and most reliable problems. Hence, research and development costs and time lost will decrease.
- ✓ Most startups have innovative visibility that enables people who are deeply affected by this pandemic to adapt and change their life behaviors. Moreover, this crisis opens the gate for new sectors that ensure safety, satisfaction, and online arrangement.

4- Startups' contributions during the crisis

With thousands of death around the world, it is expected to see a huge number of startups offering technological solutions to help the health sector and the large public. Some models are presented from different countries, where startups have provided new ideas that fit the current stage:

4-1- The USA

Zensors is a US computer vision start-up that built a suite of tools for use in airports, offices, and retail environments. Zensors can count open

and occupied seats, detect rubbish that needs to be disposed of, and estimate the waiting time in queues.

In recent weeks, as Covid-19 began to spread across Europe and the US, the start-up has been receiving requests from airports and other businesses to apply Zensors' technology for public health purposes. The Company is now looking at ways that its technology can be used to help governments enforce restrictions and closures by tracking activity levels in various locations. Zensors has also said that it would provide this technology for free until at least the beginning of June (Coldewey, 2020).

Another example of American startups is Zipnosis, it is a digital health company based in Minneapolis, is playing an important role in enabling patients to communicate with health care providers without leaving their homes. Since 2008, Zipnosis' technology has facilitated virtual interactions related to urgent care, surgical care, and occupational medicine, among other settings. More recently, the company has given health care systems a way to quickly reach large numbers of patients seeking answers about their respiratory health and COVID-19 while still maintaining the physical distance that is so valuable under current circumstances. In particular, Zipnosis is breaking new ground with asynchronous visits - where the patient and provider interact on their own time - while also offering care via more traditional telemedicine modes, such as chat, phone, and video (Forbes, 2020). Consequently, sensitive sectors, like health, airplane industries, and national security, require more advanced technologies that can be provided by specific types of startups.

4-2- The UK

Cambridge University-based AI start-up Healx typically uses its technology to explore possible treatments for rare diseases but has now turned its attention to the ongoing Covid-19 crisis. The firm, which raised $56m in October 2019, was founded by Dr.David Brown, Dr.Tim Guilliams and Dr.Andreas Bender in 2014. Healx is now using its AI platform, Healnet, to uncover potential combination treatments for Covid-19 by gathering a detailed analysis of the 8m possible pairs and 10.5bn drug triples stemming from the 4,000 approved drugs already on the market (Earley, 2020).

4-3- Germany

In Germany, Akara Robotics, which is a Dublin-based start-up led by Dr. Conor McGinn. The company is a spin-out of Trinity College Dublin's robotics lab, is best known for its social robot Stevie, which featured on the cover of Time magazine last year. McGinn and the team began studying the sterilization properties of UV light. Since the outbreak of

coronavirus, Akara's focus has shifted to creating a robot that could potentially bathe a room in UV light to kill the virus and stop it from spreading. The startup tried the new robot Violet in the emergency clinic. It has better productivity, less time lost, and fewer workers (Earley, 2020). In other words, Akara Robotics tries to create robots that help people during the pandemic in daily life routine tasks.

4-4- Japan

The best model of startups' role in Japan is Bespoke Company; it helps the Japanese government to effectively communicate with travelers in Japan in multiple languages as a means to combat the pandemic. They do it with Bebot, one of the products that they describe as an "AI concierge". With Bespoke, Japanese residents and travelers can ask the chatbot different questions about their health or the virus (such as symptoms, treatment, or preventive measures) (Camarena, 2020). In the same manner as Germany, Japan invested in robots industry that can contribute to the health, tourism, and service sectors.

Hmcomm is another Japanese startup that engaged in research and development on fundamental technologies, providing solutions and services based on the National Institute of Advanced Industrial Science and Technology's voice processing techniques. The main technologies they use are speech recognition processing modeled by deep learning, natural language processing, and automatic summarization processing. To combat the communication jam, Hmcomm now offers its AI auto-response system "Terry" for free. With this service, they can now be available 24 hours without having physical staff available. Local authorities have been receiving an overwhelming amount of calls from the residents. They can sense the context of the call via their voice recognition system and provide the answers accordingly (Yamamoto, 2020). Therefore, distant diagnosis and service is the new startups' strategic purpose.

4-5- Switzerland

Memo Therapeutics is a Zurich-based start-up that has created a platform using fast microfluidic single-cell molecular cloning and screening technologies to enable antibody repertoire mining and antibody discovery in a fast, efficient, and sensitive manner. The ETH Zurich spin-out, which was founded by Christoph Esslinger in 2012, is now calling on patients who have recovered from Covid-19 to donate blood for potential therapeutic purposes.

As part of Memo's Hack Corona project, the company wants people aged between 18 and 80 who have recovered from the virus to donate 30ml

of blood and one hour of their time in exchange for around €50 and some Swiss chocolate. The company then aims to identify the antibodies that could neutralize the virus (Earley, 2020). Yet the investment in this type of startup in the Arab context is determined by law, potential risks, and lack of research laboratories.

4-6- The UAE

The United Arab Emirates has reported 5,365 cases of coronavirus by the end of March, according to Hopkins. UAE-based healthcare startup Nabta Health will use AI to provide risk and symptom assessments for Covid-19. Co-founder Sophie Smith said that advanced technologies such as AI, applied machine learning, and blockchain could help alleviate the effects of future pandemics (Graham, 2020).

4-7- France

Remote content management solutions like Ermeo SaaS platform - web and mobile app- allows transforming Field Workers Static Work Instructions and Documentation into Dynamic Procedures. Allows clients to remotely manage updates and analyze data on equipment, documents and associated forms, intervention reports, planning and dashboards and content available to field operators and technicians (Startup against corona, 2020).To put it in another way, the remote control management solution tries to minimize human being intervention to reach zero human services.

4-8- Spain

In Spain, Nido Robotics wanted to contribute to the defeat of the COVID-19, by using their technology and producing protective screens for Personal Protective Equipment (PPE). NIDO Robotics has partnered with the Digital Craftsmanship Laboratory in San Pedro del Pinatar, Makers in Alicante and the Corona Makers group in Murcia, in order to produce the largest number of PPE items in the most efficient, fastest way possible. The goal is to produce between 500 and 2000 PPE per day to be delivered to the health services in Murcia and Alicante. In addition to the Guardia Civil, local and national police forces (Robotunion Community, 2020).

After a great effort, they delivered 150 protective screens to the Hospital de la Arrixaca and another 150 to the Hospital Reina Sofía in Murcia (Spain). With hope and commitment, at Nido they continue to work for a greater contribution and to be able to stop this situation.

4-9- Algeria

The lockdown in Algeria due to Covid-19 pandemic has decreased the activity of startups and innovative companies. Yet, some startups have tried different applications and services to help during this pandemic.

The Ministry of Small and Emerging Enterprises and the Knowledge Economy launched an initiative via digital platforms that aim to provide demand, payment, and delivery services to homes or to the nearest food store. The initiative was launched during the past few periods, with price reductions provided, that payment is made electronically or upon receipt, according to the data of these companies. It is declared that the aim of launching this initiative is to encourage citizens to respect quarantine and to contribute to efforts to tackle the pandemic.

Several young people have developed their innovative small businesses to help limit the expansion of the Covid-19 pandemic. In this context, Fawzi Berrahma, President of the Academy of Creativity and Innovation, who won the title of the best marketer for electronic goods in Britain in 2015, said that the academy presented several technological innovation projects to the Ministry of Emerging Enterprises and Knowledge Economy during the current period, related to combating Covid-19 virus, including an underway smart respirator (Arab Newspaper-London, 2020).

4-10- Tunisia

Tunisia has launched a contact-tracing mobile phone application that identifies and alerts users who may have had contact with others infected with the new coronavirus.

The E7mi application, available on Android and awaiting validation for Apple's iOS, was developed by a Tunisian start-up specialized in digital marketing tools for foreign companies, the health ministry told AFP.

Like the French Stop Covid application, E7mi - Arabic for "protect" -- is not based on contact tracing technology developed by Apple or Google.

If a user tests positive for COVID-19, Tunisia's Observatory of Emerging Diseases (ONME) contacts other users whose telephones have been detected close to the infected user's device (Africa business communities, 2020). Yet, these applications are based on people' awareness levels that can be improved using advertising mass communication.

4-11- Morocco

Moroccan government continues to invest in startup development. In collaboration with the Moroccan Start-up Ecosystem Catalysts (MSEC), it has launched a social initiative called SolidariTECH. It orientates the startups to develop agile solutions to the COVID19 and quarantine issues for the benefit of civil society, companies and the Government. They provide new solutions in the fields of health, education, and even transport. For instance, the platform "DabaDoc "offers citizens the option to have a medical consultation online. Now, this initiative is welcoming a new

stakeholder, the International Finance Corporation. It also aims to deploy the solutions proposed by these startups in neighboring countries such as Algeria and Tunisia and identify new synergies between SolidariTECH and similar initiatives carried out in the Maghreb region (vigeoeiris, 2020).

Conclusion and Future Directions

As covid-19 pandemic continues to spread across the globe; many types of startups are feeling the strain. Thus, the majority of Airlines, ferries, transport, travel, and hotel sectors shut down their operations. Yet, innovative startups look for new models to respond.

In this war against the pandemic, technology has played a major role in startups' battle armed with innovation. Findings show that startups over the world have used a high level of technology to help healthcare centers, medical laboratories, the public, and the government as well.

Besides the health sector, innovative startups across the world have invested in remote working, where they redefine communication norms that fit the new context. But this transition will take time to resolve, and misunderstandings are to be expected. For that reason, startups should train workers during this experimentation period and focus on establishing flexible and effective work standards.

Finally, we conclude that the mechanism to expect the new world environment by the end of this pandemic is still not well-defined. But, it is safe to say that the current environment is characterized by galloping competition. In times of crisis, certain types of startups can benefit, but it can be inconvenient for others. Hence, startups should adopt the innovation mindset, and face challenges using technological changes and internet advantages.

Future research could link startups' responses in times of crisis and the digital economy that is stressed on the internet and technology. The shifting toward the digital economy requires more universal connectivity that ensures accurate provisions.

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