



Programs to support financing startups

(Qatar Science and Technology Park model)

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Abstract ;

This research paper aims to identify the structure of support structures for startups in Qatar, which is Qatar Science and Technology Park, and the most important strategies it adopted to support startups, and the various institutions that it incubated and graduated from, after identifying the most important concepts related to startups and their characteristics, and their most important implications for development, Depending on the appropriate descriptive approach to the subject. The study concluded that the oasis succeeded in supporting the development of emerging institutions, and this is shown by the huge numbers of graduates, and it is considered a good idea to support the ideas of young people in universities.

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1. Introduction

the startups face the problem of difficulty obtaining financing from banks and financial institutions, due to their lack of the necessary guarantees for this. With the development of economic conditions, modern financing formulas have emerged that have helped these institutions to begin implementing their ideas, in addition to the supportive structures that embrace them from the beginning until they are able to From relying on its income and integrating with the economy.

Countries have worked to promote this type of institutions because of their importance to the national economy, and to encourage them to support innovative youth ideas, they have followed strategies and established support funds specifically for entrepreneurship. As a model for this, the Qatar Science and Technology Park is concerned with such activities in various fields. Of the above, we will try to address The following problem:

What are the strategies adopted by Qatar Science and Technology Park to support financing startups?

Sub-questions include:

- ☐ What is meant by Qatar Science and Technology Park?
- ☐ What programs does the oasis offer to support emerging enterprises?

Objectives of the study:

This study aims to present theoretical concepts related to the subject of the study, by shedding light on the concept of emerging institutions and how they are supported by business incubators, their role in achieving economic development, and identifying one of the structures to support them in the State of Qatar, which is the “Qatar Science and Technology Park,” by identifying the most important Strategies adopted.

the importance of studying:

The study derives its importance from the importance of supporting the financing of emerging institutions and the structures involved in this, which has known a significant increase in the hereafter due to the role that emerging institutions play in economic growth.

The method followed:

To answer the problem of the research paper, the appropriate descriptive approach was relied on, and a set of academic articles and websites that include the most important information and data related to the subject subject to study were erased.

Study structure:

The researcher decided to divide the study into: First, the concept of startups, secondly its repercussions on economic development, third, the Qatar Oasis of Science and Technology Program to support startups.

2. The concept of startups:

In this title, we will discuss the definition of the startups, its advantages, sources of financing, and problems thereof.

2.1 Definition of a startup:

There are many definitions of startups, but they have the same meaning. Here are some of them:

A startup organization is defined as: “It is an organization that seeks to market and offer a new product or innovative service targeting a large market, regardless of the size of the company, sector, or field of its activity. It is also characterized by high uncertainty and high risk in exchange for achieving strong and rapid growth with the possibility of making profits.” "Huge if successful." (aris & ben zayer, 2021, p. 21)

Others define them as small, new, fast-growing companies founded by self-employed individuals working in the technology fields. (damiano, daniele, & andrea, 2020)

It is also defined as: “A small project that has just begun, and the word start-up is divided into two parts: “start,” which refers to the idea of launching, and “up,” which refers to the idea of strong growth” (bayzide, 2022, p. 61)

Therefore, startups can be defined as newly established institutions that work to innovate a new product to launch it in a large market, and obtain quick and huge profits.

2.2 Advantages of startups:

The startups are characterized by a set of characteristics that make them able to adapt to economic conditions, including: (bournane & soli, 2020, p. 133)

- ☐ New companies: Not every small company is classified as a startup company.
- ☐ Young and young companies: They have two options: either develop successful companies, or lose them and close their doors.

- Companies that have the opportunity for gradual and incremental growth: One of the characteristics that define the meaning of a startup company is its rapid growth and generating revenues much faster, that is, increasing production and sales without increasing costs.
- Companies related to and rely on technology: Start-up companies are distinguished by the fact that they base their business on pioneering ideas and satisfy the needs of the market in a smart and modern way by relying on the Internet.
- Companies that require low costs: This means that they require small costs compared to the profits they obtain quickly.

In addition to: (ramdani & bougara, p. 279)

- o Its ability to innovate and develop new products,
- o Flexibility in interacting with the investment climate and its ability to adapt to changes,
- o Using production technology that is less complex and less capital intensive,
- o Accuracy of production and specialization, which helps in gaining experience and benefiting from the results of scientific research.

2.3 Problems of financing startups:

The startups suffer from many problems that prevent them from obtaining bank loans from banks, the most important of which are: (aris & ben zayer, 2021, p. 23)

- o **Inadequate lending standards:** Banks impose some conditions and standards on institutions to obtain financing, and they are often not compatible with the nature and characteristics of emerging institutions.
- o **Weak financing structures for startups:** It is not possible to determine the creditworthiness of startups because it is not possible to extract the financial ratios and indicators that the bank needs to finance institutions.
- o **Weak guarantees:** Traditional banks need guarantees to grant loans, which startups do not have, and this is what makes banks reluctant to finance them.
- o **Irregularity in accounting records:** Banks rely on regular final accounts approved by accredited auditors. In startups, their owners are content with keeping personal statistical records to avoid falling into tax problems, and this is due to the low volume of activity.

- o **Lack of sound and objective feasibility studies:** Banks to grant credit require a feasibility study of the project to be financed, and due to the high cost of preparing it, startups do not resort to that.
- o **High degree of risk:** the startups are characterized by a high degree of risk, and this constitutes an obstacle to their financing by banks.
- o **High interest rates on loans:** the startups in the early years are unable to repay loans with their interest because their profit margin is small, and this is considered a financing obstacle.

2.4 Sources of financing for startups:

In view of the problems of traditional financing faced by startups, bodies supporting and developing these institutions have created a set of financing mechanisms and policies that are in line with their needs and exploit them optimally.

2.4.1 Traditional sources:

Among the traditional methods that help finance startups are the following:

2.4.1.1 Business incubators:

Defined as “a structure that welcomes and supports new companies in construction, until their establishment and sometimes during the first months of their existence” (aris & ben zayer, 2021, p. 24), business incubators work to incubate projects between the start-up phase and the growth phase, and provide new contractors with tools. necessary for the success of their emerging projects. (bolachaour, p. 423)

Business incubators cover three stages: (aris & ben zayer, 2021, p. 24)

- o **Pre-incubation stage:** evaluating the innovation and business plan, prototyping the company, providing training, and transferring field experiences.
- o **Incubation:** This step consists of accessing financing, supervision, hosting, marketing, and planning advanced activities,
- o **Post-incubation stage:** related to innovation diagnosis, technological support, marketing and business development.

2.4.1.2 Grants and income subsidies:

It is a transfer of capital, the ownership of funds from one party to the donor to another party to the beneficiary, and the best example of an income support policy for emerging entrepreneurs is in

Germany, which has experimented since the mid-eighties with schemes that promote business creation among the unemployed.

2.4.1.3 Soft (subsidized) loans:

These are the loans that the government grants as supplementary support to young entrepreneurs in the event that their application is rejected by banks. They have been approved in European Union countries, and represent the granting of interest-free loans within the framework of so-called “honor loans” made in exchange for the borrower’s word of honor without requesting guarantees.

2.4.1.4 Loan guarantee programs:

It works to provide guarantees to encourage banks to lend to startups and overcome the problems that prevent them from obtaining financing. The program aims to:

- o Covering part of the losses resulting from non-payment,
- o It works to provide guarantees to banks and financial institutions to finance fixed assets,
- o It is based on sharing risks between the bank or financial institution and the guarantee institution, as it provides guarantees to economically viable institutions whose owners are unable to obtain financing because they do not provide guarantees. (aris & ben zayer, 2021, p. 24)

2.4.2 New sources:

Among the modern sources adopted to finance emerging institutions, we find:

2.4.2.1 Financing with a lease loan:

Investors resort to it in the event of a lack of private funds and a weak rate of self-financing. It is defined as “a contractual agreement between two parties that gives one of them the right to use an asset owned by the other party in exchange for periodic payments for a specific period of time. The lessor is the party that receives the periodic payments in exchange for providing the asset, while The lessee is the party contracting to benefit from the asset’s services in exchange for paying the leasing installments to the lessor. (bournane & soli, 2020, p. 140)

2.4.2.2 Risk capital:

An alternative technology to traditional financing for emerging institutions that are difficult to obtain financing, as it is carried out by risk capital companies on the basis of participation. “The participant finances the project without guarantees, so he risks his money.” Risk capital owners achieve high

returns upon the success of the project, while they are exposed to risk. Loss of invested capital when it fails. (aris & ben zayer, 2021, p. 31)

2.4.2.3 Financing through exploitation of intellectual property rights:

With the entry into force of the Trade-Related Intellectual Property Rights (TRIPS) Agreement in most countries of the world and with the increasing intensity of competition as a result of globalization, there has become a general trend regarding the reliance of an institution, regardless of its size, on innovation on the one hand, and on establishing the necessary mechanisms to protect these innovations from being exploited by others without a license. (bournane & soli, 2020, p. 140)

3. startups and business incubators and their impact on economic development:

In addition to the previous definition of business incubators, they are institutions that help new and emerging companies develop, by providing a suitable and safe place for growth and prosperity while providing financial support, equipment, a cooperative work environment, and guidance in the first years of launch.

3.1 The relationship of startups with business incubators:

The incubator's relationship with the startup is demonstrated through the services it provides to it: (adel, 2022)

- **Administrative services:** accounting services, invoice preparation, equipment rental,...
- **Secretarial services:** word processing, photocopying, reception, filing, fax, Internet, organizing calls and correspondence,
- **Specialized services:** product development consulting, packaging, pricing, product management, marketing services,
- **Financing services:** assistance in obtaining financing,
- **Public services:** such as security, training places, computers, library,...
- **Follow-up and personal services:** providing quick and direct advice and assistance....

3.2 The implications of startups and business incubators on economic development:

Business incubators can enable the region in which they are established to achieve high rates of establishing new economic activities, in addition to achieving high growth rates for joint projects in the incubator, by working to facilitate the localization and establishment of a number of new

production or service projects. These new projects are considered one of the most important pillars Economic development, as these companies pay taxes and fees and stimulate production and export operations, all of which generate financial resources for state budgets. (Solutions Center for Future Studies, n.d.)

Since business incubators work to nurture and develop creative ideas and applied research and work to transform them from the research and development stage to the implementation stage, they realize small projects characterized by faster production processes and lower costs, unlike large companies. They also help create new job opportunities, whether permanent or non-permanent. Directly and indirectly through the companies that produced it, and it contributes to confronting some economic problems. (Solutions Center for Future Studies, n.d.),

Wealth creation: startups are capable of creating wealth, as many countries have been able to provide large returns, and they also help increase national income within a relatively short period due to the ease of their establishment,

Creating new jobs: Emerging enterprises contribute to developing employment and encouraging investment, as they can create new jobs and reduce the unemployment rate. They also protect brains from migrating abroad and work to develop creative people,

Achieving sustainable development: To achieve sustainable development, there must be a structural transformation of economies and the transition to knowledge-based economic sectors in order to address the traditional challenges of economic and social development in a modern way that takes into account environmental considerations. Emerging institutions have become one of the main engines of economic growth, and interest in them has increased in various countries of the world. The necessity of encouraging small enterprises and using them as a tool to achieve economic and social goals, after attention was focused on large companies. (Solutions Center for Future Studies, n.d.)

4. Qatar Science and Technology Park program to support startups:

Qatar is known among the developed countries in terms of ease of doing business, as it ranked 77 globally in 2020, and the score was 68.7 in terms of performance score, a difference of 31.3 from good global performance. This score increased by 2 compared to 2019, which reached 66.7. (world bank, 2020)

Qatar Science and Technology Park is located within Qatar Foundation Education City, and is part of a unique environment that includes a group of eight leading international and local universities, primary and secondary schools, research centers and policy institutes, and various community-focused academic entities. This unique environment is designed in a way that enhances the synergy between Various specializations and sectors, which contributes to attracting new technologies developed in

Qatar and launching them in the global market. It also hosts leading international companies, directs and supports a network of startups and emerging technology projects, and provides a rich and diverse set of business acceleration, incubation, and financing programs. Through Qatar Science and Technology Park, it contributes mainly to developing the technological sector and promoting innovation and entrepreneurship in Qatar.

4.1 Objectives of Qatar Science and Technology Park:

One of the primary goals of Qatar Science and Technology Park is to create an enabling environment to encourage innovation and joint work, by attracting and supporting projects and entrepreneurs concerned with developing technical services and products and commercializing scientific research. To achieve this goal, Qatar Science and Technology Park was keen to develop the “Transferring Research to Start-up Companies” program. “To guide this pioneering initiative, in an effort to support researchers and entrepreneurs, the program aims to support innovation and accelerate the transfer of new technologies to the market through the establishment of institutions (Qatar Science and Technology Park, 2022) and the next session of the “Transferring Research to Start-up Companies” program will provide the opportunity to a group of From carefully selected entrepreneurs to learn about the marketing uses of technologies developed by the following:

- o Qatar Computing Research Institute, affiliated with Hamad Bin Khalifa University
- o Qatar University
- o Virginia Commonwealth University College of the Arts in Qatar, a partner university of the Qatar Foundation

4.2 Research conversion program for startup companies:

The Research to Startup Program was created to support the scientific research community in Qatar by providing a complementary path to commercializing intellectual property and launching technology startups.

4.2.1 Definition of the program for transferring research into startups:

The “Transferring Research to Start-ups” program is considered one of the leading programs sponsored by the Qatar Science and Technology Park to support emerging companies in the field of innovative technologies, by the scientific research community in Qatar. This program relies on a unique approach that aims to:

- o Attracting a group of experienced entrepreneurs and launching initiatives that encourage them to benefit from the innovative technologies developed in Qatar,

- o Working to develop these initiatives with the aim of creating bankable emerging projects,
- o The program aims to bridge the gap between industry and academia by facilitating interaction between technology entrepreneurs and research institutes, creating new technological projects capable of attracting investors, and licensing intellectual property developed in Qatar. (Qatar Science and Technology Park, 2022)

4.2.2 Benefits of the “Transferring Research to Start-ups” Program:

The program achieves a set of benefits that will accrue to innovators as follows: (Qatar Science and Technology Park, 2022)

- o Benefit from an alternative path to commercialize new technology developed in Qatar,
- o Gain the ability to secure intellectual property licensing from Qatar Foundation,
- o Obtaining an initial investment from the Technology Projects Fund at Qatar Science and Technology Park,
- o Gain opportunities to present and discuss new technologies developed by leading research institutions based in Qatar,
- o Obtaining support from senior technical advisors.

4.2.3 How the “Transferring Research into Start-ups” program works:

The program's focus is always on selecting important research in the research community in the State of Qatar, attracting experienced entrepreneurs from all over the world, and benefiting from their expertise, to make a qualitative impact by translating research results into various forms of commercial marketing, and it works to support and invite researchers, entrepreneurs, and emerging companies. From all over the world to learn about the technologies and investment opportunities available in the State of Qatar, such as: (Qatar Science and Technology Park, 2022)

- o Obtaining initial entrepreneurship investment from the Technology Ventures Fund of the Qatar Science and Technology Park to enhance the chances of success of emerging projects;
- o Gain the ability to leverage cutting-edge intellectual property rights and work with guidance and guidance professionals to develop a commercialization strategy;

This is done within a framework that requires the entrepreneur to form an active work team and develop an actual operational work plan for the project, to meet the requirements of the first stage and reach the next financing stage. The State of Qatar has three national research institutes that are at the

forefront of efforts to search for innovative solutions to the major challenges facing Qatar and are working on... Program development:

- o Qatar Environment and Energy Research Institute (QEERI)
- o Qatar Biomedical Research Institute (QBRI)
- o Qatar Computing Research Institute (QCRI)

4.3 Funds to support startups:

Due to the restrictions imposed on entrepreneurs in the field of technology, the “Transferring Research to Start-ups” program was developed to provide the ideal model to attract and increase the number of entrepreneurs who aspire to the State of Qatar as a research destination of a special nature, given that it possesses the resources, capabilities, and capabilities that qualify it. To become a beacon for global researchers and entrepreneurs, who seek to work according to a comprehensive and innovative approach that provides important transformative initiatives, funds and incubators were created to support startups. (Qatar Science and Technology Park, 2022)

4.3.1 Product Development Fund “Incubator:”

The Product Development Fund (PDF) is a cost-sharing fund that finances SMEs and startups involved in developing products and services that meet the needs of the local market. Qatar Science and Technology Park provides up to 50% of the total budget, as a grant to encourage local startups and SMEs in The private sector seeks to develop products and services that meet the needs of the local market. The Fund promotes new advanced technology products and services and supports technology ready for commercialization. (Qatar Science and Technology Park, 2022)

4.3.1.1 Companies in the incubator (2022):

Rawi Company: presented a project called Rawi Al-Qutb, The project aims to provide high-quality, diverse and exclusive Arabic audio content that includes audiobooks, podcasts, documentaries, concepts and articles. It is the first distinguished Arabic audio content provider in the Middle East and North Africa region that deals with Arabic audio content in all its formats, by combining technology with the highest narration and content skills. Purposeful, Rawi aims to reshape the way people read and learn in the Arab world, providing easy access to knowledge and education and facilitating effective learning.

Bayyna Company: presented a project called Bayyna Trading, Bayyna is a legal technology company specialized in providing smart technological solutions to the legal community in the Arab region. Its long-term goal is to develop several products, the latest of which is: the legal news platform. Constant

updating and being aware of new legal updates is essential for legal practitioners, without which they will not be able to Correctly performing their duties in the service of their clients (lawyers, public counsels) or their authorities (judges, prosecutors), or, more dangerously, providing them with outdated legal materials (advice, argument, ruling, etc.), which could lead to serious consequences, the news platform is regulated. Legal In a focused, industry-oriented and constantly updated manner, this legal news mainly covers new laws and Supreme Court rulings. Since these legal materials are usually large in size and very sophisticated, they require a long time to read and analyze. Those who are interested in knowing updates on such news, whether they are legal practitioners or not, are usually too busy to read dozens of pages every month.

Genius Company: presented a project called Genius Consulting, Genius is a product that allows people to easily invest in a variety of high-performing stocks around the world, particularly in the USA, and allows them to create portfolios based on their risk tolerance.

Genius is developing a new technological method to improve investment based on artificial intelligence (AI) using historical and current data in new ways. All Genius investments will be Sharia compliant.

Gooby Company: presented a project called Digital Pulse, Gooby is an online marketplace that connects freelancers with clients around the world on a per-project basis. Freelancers get the opportunity to profit from their hard work, while companies and individuals can easily find professional translators. The platform accommodates both online and on-site freelance work. Founders Work Gooby side by side to take Gooby to a higher level of international competitiveness The COVID-19 pandemic is driving an influx of highly skilled young people and first-time freelancers seeking alternative career opportunities; Most freelance platforms provide access to workers from around the world with a variety of skills, and a study revealed that 59 million of the American workforce participated in the gig economy during the 12 months of 2021, representing 36% of the American workforce, and increased by 2 million. Freelance worker since 2019.

Majoor Company: presented a project called Majoor Marketing & Delivery, Majoor is Qatar's first 'one-stop' digital healthcare platform that allows users to get from the comfort of their homes almost all the services they receive from regular hospitals and clinics (including doctor appointments, online consultations, laboratory medical tests, online purchasing and home delivery of medicines). This enables them to have a higher quality of life by reducing hospital trips to a minimum for resource-intensive requirements only (such as specialist consultations or surgery) and enabling Qatar's tertiary medical system (Hamad Hospital and its allied hospitals) to handle urgent cases only. The State of Qatar has options to rationalize future investments in healthcare infrastructure after considering this innovation in the current healthcare business model. It also helps in achieving the goals of the Qatar

National Vision 2030 by contributing to a knowledge-based and healthy society, as it makes available knowledge related to healthcare And treatment is available at your fingertips.

Kees Company: presented a project called Twyla Technology, KEES is an AI-based online marketplace. The platform provides a dedicated seller center for merchants to manage their products online. For consumers, it provides an integrated shopping experience with multiple payment options and a loyalty program.

KEES is the first one-stop-shop in Qatar where you can shop from a variety of categories and have them delivered to your doorstep.

4.3.1.2 Companies graduating from the incubator:

A group of 25 companies graduated from the incubator, as follows: (Qatar Science and Technology Park, 2022)

ADGS Computer Systems Company: presented a project called TASMO

"Text Analysis and Semantic Modeling", It is a software project consisting of an engine based on the idea of "natural language processing" using artificial intelligence specifically designed to understand the meanings of the language spoken by humans. What distinguishes this program is that it can be applied to various fields, whether administrative or highly specialized, such as health care and the like, so customers (most of whom are banks) in both Kuwait and Qatar rely on it on a daily basis.

Airlift Company: presented a project called Airlift QSTB, Incorporating innovations in intelligent control software and in autonomous aircraft vehicles, they develop solutions to directly serve extended and centralized supply chains, while order fulfillment is store-based and distribution center-based, while delivery is direct-to-consumer only.

Al-Doha Link LLC Company: presented a project called HAYA, The application is the preferred Arabic resource for children, target audience - children from 4 to 12 years old (males and females). AR "augmented reality" based, tag-based image recognition is a necessary component of augmented reality systems By using visual tagging already built into the system, physical world objects are detected in order to overlay virtual objects. In order for the application to be able to estimate the orientation and position of the camera in relation to the real-world frame.

Autonomous Technologies Company: presented a project called go-tadawul, It works to provide financial information and provide services to investors. It collects data on listed companies from various sources in preparation for presenting it to users in multiple formats and display formats, giving the user the information necessary to make informed decisions with minimal effort. The go-tadawul

platform automates company procedures and integrates them into transaction data. The client also calculates everything new regarding “weighted average prices”, “return on investment” and “total profit/loss” in order to accurately assess the extent of the impact of the actions taken by the company on the investment portfolio, in the event that the user decides to include his property Finance In the platform, the software integrates different data sets with each other, providing the client with a comprehensive (360-degree) view of the performance of all their financial portfolios and giving them insight that they would otherwise have access to without much effort, tedious manual calculations and cumbersome guesswork.

Baloora Technology Company: presented a project called Baloora Application, It provides a web interface for schools supported by the Internet of Things (IoT) to help track buses and children’s attendance, in addition to providing a real-time tracking service for the bus route to and from school. Thus, the application gives school administrators and parents an opportunity to manage all bus operations. Schools, including scheduling and editing notifications/school announcements/messages. The Baloora application seeks to help keep children safe and secure on their daily school journey. The application quickly issues an alert when something abnormal occurs. The project is divided into four main components (Parent mobile app, school mobile app, school dashboard, admin panel), and mobile apps will be available through the Apple and Android stores.

Bonocle OSTB Company: Bonocle provides an additional layer to access digital content and will be a tool for using practical applications, educational content and games. Its purpose is to integrate blind people into schools, universities and workplaces and reduce the gap in access to digital content. It works alongside smart devices to increase their computing capabilities in addition to its ability to be modified to suit With the largest number of users, Bonocle uses Braille, haptic vibration, motion, and audio description to enable the consumption of richer and more complex digital content. The goal of the project is to develop the Bonocle platform as a device and its software, and to create applications in all categories.

Cwallet Services Company: presented a project called Cwallet, The company allows users to make payments online from their locations, through affiliated partners who can conduct many financial transactions on the local and international levels. The cWallet project is a mobile application that runs on Android and iOS to serve businesses directed to companies (B2B) and businesses directed to consumers (B2C) and is equipped with an admin panel for administrators and partners.

Doha Technolution LLC Company: presented a project called Interactive camel racing application for health and performance management, The new application will contain vital signs and other sensors connected to the Internet through the owner’s or trainer’s phone to display the camel’s heart rate in real time, in addition to determining its location, speed, path, and level of acceleration, with

the ability to listen and talk to it via live broadcast. The application also works To store and display data to compare it with future levels of performance and readiness.

Trio Investments Company: presented a project called Droobi, The app seeks to integrate technology, healthcare professionals, data analytics, and the science of behavior change to help individuals manage their chronic diseases more effectively, while reducing their risk of developing other diseases. The application also aims to enable individuals suffering from chronic diseases to change their habits and reduce their risk of complications, through digital behavior change interventions, which includes a multidisciplinary team of experts.

Emdad Consultancy And Technology Company: presented a project called WAASLA, It works through the Supplier Relationship Management (SRM) system and uses machine learning on data from SRM actions, such as supplier ratings, audit results and credit scores, providing multiple “best supplier scenarios” for making more purchasing decisions.

The Waasla platform relies on artificial intelligence to manage the relationship between suppliers, manage performance and risks, and also works to transform supplier data into procedures and funds.

Informatica Qatar Company: presented a project called EMMA, The EMMA project provides airport operators with a clear interface that enables them to create data visualizations and obtain real-time sensory information by monitoring the main conditions and systems at their airports. Through the integrated Airport Collaborative Decision Making (A-CDM) platform, users and stakeholders can collaborate to make informed decisions and improve airport operations.

Through a flexible integrated bridge, EMMA can be adapted to any airport to meet its business requirements and operating procedures. As EMMA is consistent with the objectives of Eurocontrol's Airport Collaborative Decision Making (A-CDM) initiative, the platform is designed to improve the overall efficiency of airport operations, by optimizing resource utilization and increasing its ability to predict events. By knowing airport patterns through artificial intelligence techniques.

MaktApp OSTP-LLC Company: presented a project called Fatora.io, It is an online invoicing platform that facilitates electronic payments between merchants and customers. Within two minutes, the merchant enters his customer's name, mobile number, and the invoice amount and description, then sends it to him through any means of communication, such as email, SMS, or even WhatsApp, so that the customer receives a link that enables him to make the payment process using local and international credit cards.

Digital Pulse Company: presented a project called Gooby, The Gooby application works to provide an environment for freelancers/talented and skilled professionals to carry out their work from home,

which contributes to improving their income by providing them with the opportunity to obtain faster, more flexible recruitment processes that are characterized by continuous production around the clock from anywhere and at any time. Gooby app users can hire service providers online through a mobile or web app. This is done either by directly employing available service providers or by publishing an advertisement for the required work and following up with the vendors who provide the services in preparation for selecting the most suitable among them. Application users can also access information related to prices, customer reviews, and communicate with workers before and during service.

Ibtiker Technology Services and Trade Company: presented a project called Oxy Cooler, The function of the Oxy Cooler is to reduce the water temperature in both the upper and lower parts of the tank simultaneously and very quickly, by absorbing the ambient air of the cold, sterile air on the surface of the water and injecting bubbles of cold, sterile oxygenated air at the bottom of the tank using a Peltier unit. And a metal box to distribute the cooling before pushing the hot air from the tank out.

iHorizons Media and Information Services Company: presented a project called Al Kashif, Al Kashif, a product developed by iHorizons under the umbrella of the Qatar Science and Technology Park's Product Development Fund, is an automated customer identification system that retrieves, stores, and analyzes consumers' social network data with the aim of enabling the company's customers to identify customers. Each consumer and presents appropriate offers to him, then builds profiles for each consumer that are modern and extremely accurate.

Ithraa For Information Technology Company: presented a project called Masader Qpedia, This platform contains many languages, and will work to provide a new generation of electronic resources and references independent of paper copies. This service is based on a patent that allows all types of printed content to be supported by another that is based on the Internet using numbers, words and three-dimensional symbols, which They can be relied upon to access content by scanning it, typing it or requesting it by voice.

Magaza Trading W.L.L Company: presented a project called BSAG, This project was specifically designed to develop a unique framework consisting of proprietary technology, toolkits and knowledge bases to increase the growth rate of e-commerce. This framework incorporates human-centered design methodologies and relies on a multi-level input system to collect content.

Qchain Company: presented a project called Qlog, QLog leverages blockchain technology to keep records and manage vital business information, track security events (such as admin logins) and the validity of vital information. Therefore, this product ensures that these records and information are protected against information scanning attacks (such as those caused by the Shamoon virus) that occur

in the region, and also ensures their compliance with the regulations and laws in force in the State of Qatar.

Pro Technology Company: presented a project called Skip Cash, will help shoppers make digital payments instead of cash payments using barcode technology. It will allow shoppers to securely link their credit cards to use for all their transactions, track their spending through detailed visual reports, organize payment receipts, link virtual accounts for children and family members, and receive discount coupons. The application will provide a convenient and enjoyable experience when paying.

Hasanat Online Platform Company: presented a project called Social Charity, It is expected that the convenient use of the platform will facilitate the making of a huge number of donations to the charitable projects of the various organizations. Like a number of websites, such as Booking.com & Talabat.com, the Hasanat platform will change the way individuals donate. The Social Charity electronic platform consists of a number of web and mobile applications that rely on the latest technologies that have been integrated in a way A series to provide an amazing user experience for donors and facilitate more donations to charitable organizations.

STA QSTP – LLC Company: presented a project called Cyber Intelligence and Incident Coordination Center, The project aims to enable governments and organizations to improve the effectiveness and timeliness of decision-making and preventive measures to confront cyber threats based on social engineering, by assimilating large, diverse, and heterogeneous sets of data in near real-time. The project also included using the geographical context of events to enable advanced analysis and application of mathematical and machine learning models to detect abnormal patterns, unexpected deviations and hidden threats that could not be detected before using traditional techniques. Advanced analytics are combined with innovative visualization tools to discover patterns and anomalies that were previously hidden.

Subol Product Design Company: presented a project called Samam, It is a male sensor for LPG and natural gas leakage. Samam is responsible for leak detection and communication with the shutdown module of the Samam system and mobile app through the cloud Wi-Fi gateway. The sensor connects to the shut-off unit via Bluetooth to shut down the unit if a leak occurs. The sensor also allows the user to close the regulator valve at any time through the application. Not only that, but the sensor also sends a notification to the mobile application and triggers the alarm system when LPG leaks.

QSTB Company: presented a project called sajda, The latest technologies are used to directly monitor the movements of the novice worshiper, and correct errors if they occur. In addition to displaying what the worshiper must say in each movement in audio and video and in different languages, and surahs of the Holy Qur'an can also be displayed via the built-in screen, prostration is controlled via a companion application that runs on smart phones, where the user can choose the type of prayer from

among more than 30 types of prayers. The obligatory prayers and voluntary prayers, as well as the surahs of the Holy Qur'an before starting, enable you to follow the prayers of your children or any other user. And Therapy QSTB, It is an application that provides a secure online platform and network of psychotherapists who help those facing life's challenges by providing easy and private access to psychological counseling. Therapy provides video sessions, voice calls, messaging and live chats that allow people to get the help they need using a smartphone – anytime, anywhere.

4.3.2 Technology Projects Fund:

The Technology Venture Fund from Qatar Science and Technology Park is a strategic venture capital fund designed to support innovative local startups, and attract international companies looking to expand in the region. The Fund provides the opportunity for technology project founders and entrepreneurs, local, regional and global, to secure sources of funding for the initial stages in The beginning of launching their projects, and subsequent capital. (Qatar Science and Technology Park, 2022)

Tech entrepreneurs have many concerns, and what worries them the most is identifying sources of capital in the early stages, as emerging businesses need initial funding to attract talent, reach the first customer base, and start generating revenues, and providing funding for the first or second round is considered a challenge for them. Here comes the role of the Technology Projects Finance Fund in providing the opportunity for founders of technology projects and entrepreneurs to secure sources of funding for the initial stages at the beginning of their journey. (Qatar Science and Technology Park, 2022)

4.3.2.1 Services provided by the Technology Projects Finance Fund:

The Fund works to provide the following services: (Qatar Science and Technology Park, 2022)

4.3.2.1.1 Submitting an investment mandate:

Authorization varies from one stage to another as follows:

- o Launch phase: Investment of up to \$500,000 in the launch phase.
- o First round: investment of up to \$1 million in the first round,
- o Second cycle: Investment of up to \$3 million in the second cycle.

4.3.2.1.2 Founding participation:

A technology venture fund can participate in or lead seed rounds in local technology-based businesses using convertible bonds (simple, quick and relatively inexpensive to issue), or a simple SAFE

agreement for future shares (which are instruments that will be converted into preferred stock upon closing of Series A). In the first financing cycle, the company works to measure or determine the scope of distribution, investigate market specificities, and develop the business model, while the Qatar Science and Technology Park does not take the lead during the first/second financing cycle, but it can be a source of subsequent capital after a major institutional investor joins. He undertakes the evaluation and assessment of value. (Qatar Science and Technology Park, 2022)

4.3.2.1.3 benefit conditio“ Eligibility”:

Benefiting from the services of the Tech Venture Fund, local technology-based startups with early validation of the product, which are working to scale and which usually result from accelerator programs, incubators, or local spin-offs from research institutes, and expectations indicate that a number of startups You have already achieved some of these aspects including product validation while you have established a network of interested sources from venture capital investors, government grants or through a comprehensive bootstrapping, international technology-based startups with touchpoints in Qatar has a leading institutional investor identified. (Qatar Science and Technology Park, 2022)

There are also sectors that are considered a priority for the Technology Projects Fund over others: discontinuous education, preventive health and diagnosis, enterprise solutions that support artificial intelligence, preserving the Arabic language, heritage and culture, smart cities and sustainable living. (Qatar Science and Technology Park, 2022)

4.3.3 Investment portfolio (start-ups):

The portfolio includes a group of emerging companies shown as follows: (Qatar Science and Technology Park, 2022)

ARGUS Cognitive: Software developer to improve medical diagnostic services, prognostication, and treatment options.

Conical: Production and operation of efficient self-driving pods for urban mobility.

Droobi: A virtual care provider offering customized chronic care programs for the Middle East designed to help people make lasting changes for better health outcomes and save costs for organizations.

Else: It works to automate the cooking experience by creating smart devices to complete the food cooking process automatically.

EMBER: A cloud platform that allows doctors in the MENA region to efficiently manage their business including clinical management, electronic health records, patient care and marketing at an affordable cost.

Emma: is an airport management system based on artificial intelligence that contributes to increasing the efficiency and sustainability of operations, improving the passenger experience and achieving key gains for key users.

HeliumDoc: is a developer of a healthcare services platform designed to find doctors and book appointments

KANARI AI: is a word technology company that provides innovative word recognition technology in the Arabic language, enabling it to recognize individual dialects in audio and video files to convert them into written text.

KEYCAST: is an AI-based media platform player dedicated to advertising and professional video production

OBRIZUM: is an AI-based digital learning technology company that automates and creates adaptive digital learning programs for large enterprises and deploys personalized learning and assessment activities to be subsequently analyzed in real-time.

Rayyan: is a developer of an AI-based platform that allows researchers to collaborate to accelerate systematic reviews of their research

sKora: is the developer of an electronic platform designed to serve aspiring football players and give them the opportunity to professionalize according to specialized, individually designed career paths

Stellic: is a developer of an integrated advising and planning platform designed to enable students to plan their college careers

Subol: is a startup company that provides an innovative service to homes through the Internet of Things. Its first product was Subol, a smart detector to protect the home from gas leaks, fires, and mold incidents.

VIAVII: is an electronic platform that allows travelers to experience a rich and integrated cultural experience through a wide package that includes many options of tourist activities hosted and organized by local citizens in the countries they visit.

5. CONCLUSION:

What distinguishes startups is that they do not easily obtain financing because they differ from traditional companies. Traditional financing methods are also considered unsuitable for them because they require speed. startups offer a new product in a large market to achieve huge profits and their costs are low compared to their profits. They rely on modern technologies from multiple sources. Its financing is between the traditional “soft loans, business incubators...” and the new ones “risk capital, exploitation of property rights...”, supported by structures called business incubators, which provide them with a set of services throughout the stages of their development, and this is to achieve economic development through the creation of job opportunities, And creating wealth, and relying on it, like major companies, to achieve sustainable development.

Among the results obtained from this research paper is that the Qatar Science and Technology Park is part of a large environment that works to achieve synergy between various sectors and specializations in the Science City in Qatar. It has goals of creating an appropriate environment to encourage innovation and joint work, so it was keen to develop the “Research Transformation” program For emerging companies to attract entrepreneurs and reduce the gap between industry and academia, which provides initial financing for investments through the “Product Development Fund, Technology Projects Fund” and “Investment Incubator” incubators.

Recommendations that can be made include:

- ☐ Supporting and encouraging emerging enterprises by drafting laws that contribute to facilitating and financing investment.
- ☐ Ensuring that research centers are linked to the business environment to overcome some obstacles to innovative youth.
- ☐ Increase spending on research and development,
- ☐ Benefiting from the creative ideas of the various projects mentioned and applying them in Algeria.

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