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Venture Capital In Saudi Arabia And Formation Of New Technology

[1]Dr. Mohammed Abdulaghani Abdulgadir Alsaigh
Management Information Systems Department, Faculty of Economic and Administration,
King Abdelaziz University, Jeddah, Saudi Arabia.
Email address: oalsaigh@kau.edu.sa

Abstract

Background: Venture capital in Saudi Arabia already existed before World War II by well-off investors, banks, and other financial institutions. These businesses not only generated through the years by monetary support but also of technical or managerial expertise. The aim of this study is to 'identify the role' Venture Capital in the transition of businesses to new technological platforms.
Methods: A constructed three types of questionnaire were used to survey the active organizations in the Western Region of the Kingdom of Saudi Arabia for the year 2019-2020. Survey was performed in three steps: (1) to get a general overview of the project, (2) to investigate about the 'expected' outcome of the project, and the (3) about the 'actual' outcome. The data of 86 included business were classified according to the enhanced version of the model provided by Breznitz with the additional 2 more classification (1) Non-IT projects and (2) Unclassified projects. Data were analyzed using Statistical Program for Social Sciences version 25 (SPSS).
Results: Out of 86 Ventured capital businesses only 4 (4.7%) ventured into inventing new technology, while 52 (60.5%) are using new technology, 18 (20.9%) non-IT projects and 12 (14%) were unspecified projects.
Conclusions: Ventured capital business opted to using new technology rather than invention, while several of the projects were non-IT related and non-specified businesses.
Keywords: Venture capital, Information technology, business.

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ملخص البحث

الخلفية: كان رأس المال الاستثماري في المملكة العربية السعودية موجودًا بالفعل قبل الحرب العالمية الثانية من قبل المستثمرين الميسورين والبنوك والمؤسسات المالية الأخرى. لم يتم إنشاء هذه الشركات على مر السنين فقط من خلال الدعم المالي ولكن أيضًا من الخبرة الفنية أو الإدارية. الهدف من هذه الدراسة هو "تحديد دور" رأس المال الاستثماري في انتقال الأعمال إلى منصات تكنولوجية جديدة.
المنهجية: تم استخدام ثلاثة أنواع من الاستبيانات لاستقصاء المنظمات النشطة في المنطقة الغربية للمملكة العربية السعودية لعام 2019-2020. تم إجراء الاستطلاع في ثلاث خطوات: (1) للحصول على لمحة عامة عن المشروع ، (2) للتحقيق حول النتيجة "المتوقعة" للمشروع ، و (3) حول النتيجة "الفعلية". تم تصنيف بيانات 86 شركة مدرجة وفقًا للنسخة المحسنة من النموذج التي قدمتها Breznitz مع تصنيفين إضافيين (1) مشاريع غير متعلقة بتكنولوجيا المعلومات و (2) مشاريع غير مصنفة. تم تحليل البيانات باستخدام البرنامج الإحصائي للعلوم الاجتماعية الإصدار 25.(SPSS)
النتائج: من بين 86 مشروعًا رأسماليًا مغامرًا ، غامر 4 فقط (4.7٪) باختراع تكنولوجيا جديدة ، في حين أن 52 (60.5٪) تستخدم تكنولوجيا جديدة ، و 18 (20.9٪) غير متعلقة بتكنولوجيا المعلومات و 12 (14٪) كانت مشاريع غير محددة.
الاستنتاجات: اختارت الأعمال الرأسمالية المغامرة استخدام التكنولوجيا الجديدة بدلاً من الاختراع ، في حين أن العديد من المشاريع كانت غير مرتبطة بتكنولوجيا المعلومات وغير محددة.
الكلمات المفتاحية: رأس المال الاستثماري ، تكنولوجيا المعلومات ، الأعمال.

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Introduction

Wealthy individuals and families were the workforces in venture capital before World War II, as it is a form of private equity and a type financing that investors provide to startup companies and small businesses that are believed to have long-term growth potential (Wikipedia). Currently, Venture capital generally comes from well-off investors, investment banks and any other financial institutions. However, it does not always take a monetary form; it can also be provided in the form of technical or managerial expertise (Wikipedia).

Over the years, research in Information Systems has been fixated on studying the impact of IT related investments for specific and well-defined user groups, organizations, and markets (Sidorova et al. 2008; Tilson et al. 2010). In the field of Information Systems (IS), research is usually about creating new technology or applying known technology in a new way (Breznitz et al. 2018).

However, as increasing technological convergence brings applications and platforms together, it is being realized that focusing solely on the impact of digital infrastructures may be inappropriate (Tilson et al. 2010). While it is true that developing and spreading of digital infrastructure produces not only economic dividends but also innovation. It is the 'technological eco-system' that spans individual users and different producers of hardware and software, that facilitates in putting this technological innovation to good use (Greenstein 2010).

Literature review

Intensive research has been done on studying how investing in IT and business process innovation can boost productivity at macro and micro economic levels (Bresnahan and Greenstein 1996). One more point that needs to be analyzed is that in many cases the digital infrastructure being employed by firms does not automatically lead to innovation. This is a serious issue as it means the "technology push" model, in which existing technology is utilized by several different producers to produce new products is not functioning (Kim 1997).

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For a digital infrastructure or a new technology to be successful, its creation alone is not enough, but an array of different application and programs from different independent workers need to be created that can operate using the new technology. For example, the invention alone of personal computer did not mark its success. It was the creation an entire ecosystem that comprised of software that could operate on and hardware that was inter-operable with personal computers that forced companies to start replacing mainframes and workstation for personal computers.

Another example could be of Enterprise Resource Planning ERP Systems. Most researchers have explored possible business process adjustments that can help companies extract maximum benefit out of ERPs and other enterprise software. The point that not many researchers have highlighted is that ERP systems such as SAP R/3 did not come about automatically from developments in relational databases, cloud-server computing and mainframes but have evolved gradually over a period of time due to cooperation between several independent business process innovators and software houses (Kundisch et al. 2014).

While new technology can emerge from both, newly created and established firms, the latter is more likely to incline towards employing existing technology, partly because of the fear of rendering existing products obsolete and partly because of the fear that fresh technologies would skills and capabilities not possessed by established firms (Christensen 1997). For example, if we take a look at the transition of ERP companies to Cloud computing, established firms such as Oracle and SAP did switchover to cloud but there are indications that these companies had to face problems in adjusting their business models to the new environment. While on the other hand ERP startups like Salesforce went cloud much earlier and much easily (Yoffie and Wagonfeld 2006).

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Firms wanting to create programs for new IT platforms are often confronted with considerable amount of 'uncertainty' (Rosenberg 1996). Extensive research has been done on uncertainty due to 'installed base' and 'network effects' but not much work has been done on uncertainty about new technology caused by 'coordinated instigation'. Coordinated instigation means that several different actors who are working independently need to be ensured that there are other actors who are working on other vital components of technology and business, and when all these components are put together, they will make not only technological but also economic sense and without economic sense Ventura capital firms obviously wouldn't want to invest their money. Broadly speak, there are different factors such as unknown user valuation and uncertain technology that make difficult for companies to predict market outcomes (Greenstein 2010; Rosenberg 1996).

The Venture Capital model is seen as attractive because it provides "big-ticket" financial exits. These financial exits not only cover the losses of previously made investments but also generate enough revenue that they can offer higher rates of return to their own investors. The only way to gain these kinds of financial exits is to bet early on companies using new technologies, hoping that they would go on to be the next big success.

By pouring money into new and untested technology, Venture Capitals make sure that their money is channelized towards new firms that either employ this new technology or manufacture products that use this technology. This sends a signal to new startups, and they to start working on this technology. Furthermore, this also send an indication to financial markets and prospective consumers that this new technology is being heavily and is being used products of several different manufacturers (Janeway 2012).

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There are different methods through which Venture Capitals can help in switching to new technological platforms, it can either be through 'treatment' i.e. directly influencing the technology-related decisions of their portfolio companies, or by 'selection', which means signaling to new startups that if they wish to increase their chances of acquiring investment they should try to employ the new technological platform. Once several new startups do employ the new technology, select the best out of them that are most suited for the investment.

Breznitz et al. (2018) have come up with a baseline model that helps firms decide if they should offer products that operate on cloud, if they should seek VC financing and also if they should try to do both simultaneously. Once these decisions have been taken, the complementarities can then be identified using parameters to gauge additional payoffs. According to the proposed baseline model the forecast probability of offering cloud-based products and securing VC investment is 7.3%. As opposed to, the counterfactual assessment of this probability excluding the complementarities turns out to be 6.8%. So, the chances of doing both the things is 0.5 percentage points (or 7.4%) higher.

Methods

Over the years, two methods have been utilized to test 'complementarity' (Brynjolfsson and Milgrom 2013). The first method is to directly measure the outcomes of these decisions in terms of performance implications (Tambe et al. 2012).

The second method is to make use of the revealed preference implications of these performance differences to study clustering or correlation among practices (e.g., Arora 1996). Since it can be difficult to identify the performance implications of choices in our setting, most recent research has opted for the second approach (Fares 2014).

A constructed three types of questionnaire were used to survey the active organizations in the Western Region of the Kingdom of Saudi Arabia for the year 2019-2020.

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Survey was performed in three steps: (1) to get a general overview of the project, (2) to investigate about the 'expected' outcome of the project, and the (3) about the 'actual' outcome. The data of 86 included business were classified according to the enhanced version of the model provided by Breznitz et al 2018 with the additional 2 more classification (1) Non-IT projects and (2) Unclassified projects. Data were analyzed using Statistical Program for Social Sciences version 25 (SPSS).

Among the organizations registered in the Kingdom of Saudi Arabia, a study excluding inactive organizations. Others were created for ad hoc purposes and thus will adversely affect the results of the study and less than five projects did not respond to the survey Figure 1.

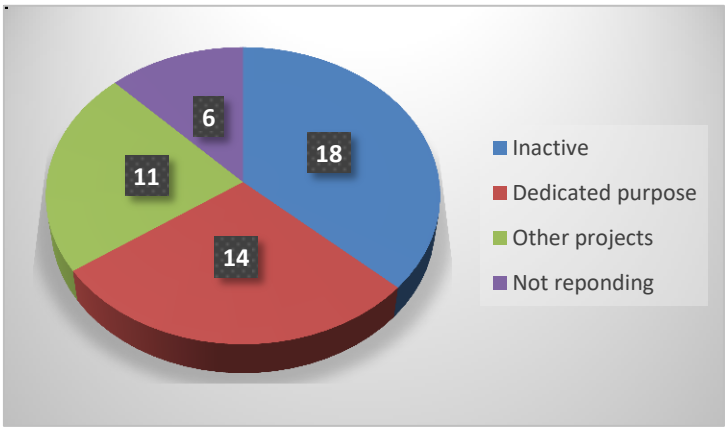

Figure 1: Number of Saudi registered organizations excluded from the study

Using Breznitz et al. (2018) model which divides the role of VCs in new technology into two categories:

1. Inventing new digital infrastructures.
2. Applying already known technology in an innovative way.

Since the difference between these two categories are not clear and requires deeper analysis, data of the last five years were collected from large and active organizations specializing Venture Capital VC.

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Two (2) types of survey forms were designed for this study:

1. To identify the VC organizations in Saudi Arabia. This form will not only help in identifying the VC organizations distinctively from other organizations but will allow the research to identify the 'purpose' of establishing these organizations.

2. To collect information about VC projects of these organizations. It is expected that not all organizations will response to the survey though. The survey should allow the researcher to analyze the projects in depth and comprehend the role these projects can play or have played in creating new technology. The survey will cover only completed projects and not one's under-progress. researchers .

Noting that the model consists of only two classes designed for IT projects, investigators added two more classes in his study:

1. Non-IT projects
2. Unclassified projects

Only completed projects are included from the study while organizations established for dedicated purposes are excluded.

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Result

Semi-constructed interviews were conducted with each project owner to obtain information about the projects and classify each project in to one of the four categories. The interviews were divided into three parts. The first part was to get a general overview of the project, the second part was to investigate about the 'expected' outcome of the project, and the third was about the 'actual' outcome (table1).

Table 1: VC Projects classification in Saudi Arabia for the last 5 years

SN	Classification	No of projects
1	Inventing new technology projects	4
2	Applying known technology projects	52
3	Non-IT projects	18
4	Unspecified projects	12
Total		86

The results show that almost 93% of the IT projects initiated by Venture Capital in Saudi Arabia are applying existing technology in a new way, while only 7% of the projects can be considered as entirely new or innovative technology. The results appear to be consistent with the situation of Saudi Arabia as it is a technology consumer country not an industrial country.

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Moreover, the results show that less than 21% of the VC initiated projects in Saudi Arabia are non-IT projects, while more than 65% are IT projects. This is also consistent with the overall direction in Saudi Arabia which is more inclined towards technology Fig 2.

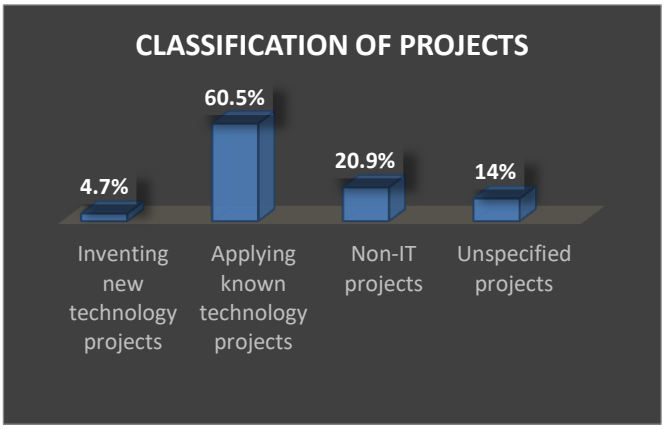

Figure 2: Classification of projects according to percentage

Discussions

The presence of huge investments in emerging companies, the size of which reached in the first half of 2020 AD, for the Saudi financial technology industry in the main aspect, as the importance of financial technology is the entry of technology in the financial sector, where its importance has emerged in specialized operations in the financial sector, where the technology of the financial sector is divided It divided into three main sections: They are financial solutions that are provided directly to the beneficiaries, so here it is considered a legislative entrance. The second part "Business to Business", which is the partnership between financial service providers and companies that benefit in providing solutions that benefit in financial operations indirectly, and the third and last part, which supports the financial technology sector indirectly, which depends on the introduction of new methods in financial operations such as the results of a specific system that serves the financial requirements.

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The opportunities have become significantly different from the past ten years, to meet a specific need in the investment sector with technical skills, which allow innovation and solutions to be added in the services provided to the investment sector with a clear strategy. I have found some distinctive solutions that have precedence, as it is an integral part of the financial sector and the entry of financial technology service providers plays a fundamental role in the financial sector, which is looking for early partnerships and alliances in Jeddah to adopt financial technology companies, as the Kingdom of Saudi Arabia is an emerging market that produces many One of the investment companies that aim for excellence. As today, financial technology is no longer mainly focused on pure financial services, but rather is looking for the support of companies that support different sectors in all fields.

It is an essential part of measuring performance to determine the required support in the infrastructure, gathering and identifying information, and completing all requirements that are in line with the integrity and balance risks in the financial sector that must be adhered to. These policies, if adopted effectively and efficiently, could contribute to controlling loan risks and avoiding asset bubbles fueled by bank financing, and thus contribute to maintaining the stability of the financial system. As the banking affiliation constitutes the most important source of risk for the financial sector, given the dominance of banks in financing a wide sector of institutions, most of which are distinguished by the financial balance and their high demand for credit, in addition to the marginal role of financial markets for economic institutions.

Obstacles

1. There are real opportunities to create new behavior in financial technology.
2. Creating serious and purposeful content that can be used in the distant future.
3. Society's reluctance to go into investment experiences.

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Conclusions and Recommendations

The impact of the output of VC companies in Saudi Arabia on technology innovation has not been studied despite of the numerous VC projects in the country. In this research, we have studied the output of VC projects using an enhanced version of Breznitz model on 86 projects completed by the largest VC companies in Saudi Arabia. The results show that majority of the IT projects initiated by Venture Capitals in Saudi Arabia are about applying existing technology in a new way, while the projects that can be considered as entirely new or innovative technology are in minority.

The results appear to be consistent with the situation of Saudi Arabia as it is a technology consuming country not an industrial nation. These results can also be of help to investors in making investment related decisions. Moreover, these results can also be extrapolated over other GCC countries and other countries that have similar IT consumption to Saudi Arabia.

The Kingdom of Saudi Arabia has witnessed a great boom in adopting the infrastructure for information technology, and the rate of mobile services penetration in the Kingdom is among the best in the world, and the Kingdom has made great achievements in a number of fields related to information technology to provide more competitive services. In terms of the size of the economy, and the application of a long-term vision through its national development and technology development plans, which would enable it to raise the ceiling of ambitions to achieve more.

The Kingdom can build on the positive momentum by encouraging more investments in information technology. It is expected that the concerned authorities in the Kingdom of Saudi Arabia will seek to adopt more IT solutions and adopt them as a means of implementing their operational requirements, which include the development of the main work procedures.

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Declaration:

Availability of data and materials:

The datasets used and/or analyzed during the current study available from the corresponding author on reasonable request .

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Competing interests:

The author declare that he has no competing interests.

Author Contributions:

M.A conceived the idea; collected the data; calculated the sample size; analyzed and interpreted the data, led the writing; critically revised and edited the manuscript. read and approved the final manuscript.

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