

An assessment for e-negotiation impact on businesses during COVID19 through economic analysis: Case of Egypt

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Abstract

This study focuses on how to grasp interdisciplinary field relations to interpret how negotiation can be applied using technology in a country to accelerate economic activities. To assess the impact of using information technology via negotiation precisely using reliable measures on the macro level is difficult. Still, negotiation is a practice that is done almost daily as it become mainstream in business communication. This reality involves that while using technology we use e- negotiation to maximize benefit. Many reasons can justify the choice of e-negotiation it is simply in all business transitions, it happens through professional, formal, or informal communications, inter and/or intra organization relies solely on negotiation in every decision made. Currently, after COVID19 using virtual technology is accelerated and organizations are on it to accelerate their economic activities. This paper investigates the impact of using virtual technology (VT) on the country's economic growth using the Egyptian economy data. An indirect, unorthodox study correlating overall economic health during COVID19 with management processing executed online, and using the e-negotiation.

To conclude this paper attempts to read the viability of the VT usability in business in Egypt by reading for overall country economic performance. This paper focuses on studying the acceleration of the integration of the digital economy during and moving on from

COVID19 testing in an indirect correlation whether e-negotiation succeeded in Egypt in supporting business growth or has hindered the process when performed online? The paper deploys a co-integration test of the series using the ARDL boundary test approach. Results showed that the series move together in the long run. Findings show that digital increases economic growth and no evidence that e-negotiation creates a blocking factor in the face of economic growth. The proposed econometric model offers great insights into just how crucial digitalization is to Egypt's economic and social future.

Keywords: Negotiation, COVID19, technology, economic growth, Egypt.

تقييم لتأثير المفاوضات الإلكترونية على الأعمال خلال COVID19 من خلال التحليل الاقتصادي: حالة مصر

اتركز هذه الدراسة على كيفية فهم العلاقات الميدانية متعددة التخصصات لتفسير كيفية تطبيق التفاوض باستخدام التكنولوجيا في بلد ما لتسريع الأنشطة الاقتصادية. من الصعب تقييم تأثير استخدام تكنولوجيا المعلومات عن طريق التفاوض بدقة باستخدام تدابير موثوقة على المستوى الكلي. ومع ذلك، فإن التفاوض هو ممارسة يتم إجراؤها يوميًا تقريبًا حيث تصبح سائدة في الاتصالات الأعمال. يتضمن هذا الواقع أنه أثناء استخدام التكنولوجيا، نستخدم التفاوض الإلكتروني لتحقيق أقصى فائدة. يمكن أن تبرر العديد من الأسباب اختيار التفاوض الإلكتروني، فهو ببساطة في جميع التحولات التجارية، يحدث من خلال الاتصالات المهنية أو الرسمية أو غير الرسمية، وتعتمد المنظمة الداخلية و / أو الداخلية فقط على التفاوض في كل قرار يتم اتخاذه. جعل نجاح عملية التفاوض الأساس الرئيسي لإدارة الأعمال والربط المباشر بين نتيجة التفاوض والنتائج على مستوى المنظمة.

حاليًا، بعد COVID19 يتم تسريع استخدام التكنولوجيا الافتراضية والمنظمات على ذلك لتسريع أنشطتها الاقتصادية. لذا تبحث هذه الورقة في تأثير استخدام التكنولوجيا الافتراضية (VT) على النمو الاقتصادي للبلاد باستخدام بيانات الاقتصاد المصري. وتعتمد هذه الدراسة على التحليل غير المباشر وغير التقليدي وذلك لتحليل الصحة الاقتصادية العامة خلال COVID19 واثرها على البيئات الإدارية المطبقة عبر الإنترنت، وباستخدام التفاوض الإلكتروني.

في الختام، تحاول هذه الورقة قراءة جدوى استخدام VT في الأعمال التجارية في مصر خلال COVID19 من خلال قراءة الأداء الاقتصادي العام للدولة. تركز هذه الورقة على دراسة تسريع تكامل الاقتصاد الرقمي أثناء اختبار COVID19 والانتقال منه في ارتباط غير مباشر، هل نجحت المفاوضات الإلكترونية في مصر في دعم نمو الأعمال التجارية أم أنها أعاققت العملية وتحديدها عند إجرائها عبر الإنترنت؟ تنشر الورقة اختبار تكامل مشترك للسلسلة باستخدام نهج اختبار حدود ARDL. أظهرت النتائج أن السلسلة تتحرك معًا على المدى الطويل. تظهر النتائج أن الرقمية تزيد من النمو الاقتصادي ولا يوجد دليل على أن التفاوض الإلكتروني يخلق عاملاً معوقًا في مواجهة النمو الاقتصادي. يقدم نموذج الاقتصاد القياسي المقترح رؤى كبيرة حول مدى أهمية الرقمنة لمستقبل مصر الاقتصادي والاجتماعي.

1. Introduction

The revolution of the digital economy has a significant influence, similar to the impacts of the industrial revolution. Digitalization drivers depend on: the readiness of relevant institutions, bodies, and ministries, the existence of policies and regulations that help instigate the process of digitalization as well as the literacy and openness of the population itself to the concept of digitalization. In addition to that, there has to be a strong base of manufacturers, importers, assemblers of the type of technology needed, and most importantly investors who are keen to finance and fund the infrastructure required. The number of cases has significantly increased since the lockdown was enforced. During the lockdown, it made a lot of sense that people's use of technology would have boomed. So, remote working still prevails, indicating a bright future for digital transformation.

With the current pandemic, many political Egyptian and economic leaders urge for the move to a more digital-friendly economy. Negotiating to accept the idea of digital transformation become a dominant strategy, as everyone was suddenly pressured into the remote working environment and distance virtual learning. With that being said, COVID19 has proven to Egyptians that most banking, education, business, and healthcare work can be digitalized. But the prominent issue Egypt faces today is not what to provide but rather how our infrastructure fails to provide and distribute such digital concepts to a hundred million people. On the other hand, Business success in digitalization will not only depend on governmental plan and policy, infrastructure enabling, and strategies. A main factor in the outcome success depends on the business processes adaptability and successful results in the virtual context. Among these processes, and which present a core business pillar, as referred to earlier in the paper are inter-and intra-organizational negotiations. The E-negotiation process will either be a major success pillar or a fundamental challenge in all business transactions. The paper starts with the literature review attempting to review the e-negotiation literature. This is followed by a section dedicated to representing the digital economy's relation with economic growth with special emphases on Egypt and digitalization and its current impact. Next, an elaboration of the dynamic model used in the economic assessment, followed by the results and conclusion.

2. Literature review

This section presents an attempt to review the literature on e-negotiation and business impact. Many scholars in the United States of America (USA) and European experience focused, very few to nothing is available on the Middle East and none on the Egyptian experience. Therefore, this study is planned to be conducted in Egypt, to gain scientific knowledge over the actual results of using VT in e-negotiations in its particular environment. In the traditional approaches to research on negotiation, the type of communication media used by the negotiator was not of great research interest, due to the common use of face-to-face negotiation. It is not until 1990 that the general use of information technologies for communication started growing rapidly. Thus, it is predictable that technology will be used in settings that involve negotiation. After declaring the COVID19 pandemic in early 2020, all business negotiations moved online. While this act was an immediate necessity this situation is expected to endure long past the pandemic with new longer-term trends towards more virtual meetings and heavy reliance on technology. Virtual negotiations created new challenges as well as opportunities. This paper will generally use the term “e-negotiations” for negotiations that take place via communication technology.

2.1 E-negotiation impact on the Egyptian economy during COVID19 pandemic

Long before COVID19, a wide array of media was made available to negotiators enabling electronic communication: such as the telephone, fax machine, and videoconference. Other channels for e-negotiation started to more recently be offered in the form of applications. An example of an application is online solution.com which offers an online dispute resolution system in the form of a forum where negotiation takes place. Similarly, Square trade provides a forum to mediate e-commerce disputes. Emails or newer communication means like IM are also used by e-negotiators. Negotiations taking place through e-mail are now highly used for communication purposes and have received the most attention in the existing empirical literature examining negotiation and information technology. Our focus on e-negotiation is positioned within broader literature that examines communication processes in virtual settings (DeSanctis & Monge, 1999; Hollingshead, McGrath, & O'Connor, 1993). During the last decade, significant attention has been directed to the extent to which virtual communication is a viable

alternative to face-to-face communication (Griffith, Sawyer, & Neale, 2003, (Nadler et al, 2013).

The central question in the research field investigating e-negotiation has always evolved around answering whether the use of information technology helps or hinders negotiation processes and outcomes. Many variables were put to analysis such as the relationship between the negotiating parties, the sense of shared identity among parties; how parties perceive each other; the ability of parties to identify each other; and the nature and strength of the emotions the topic of the negotiation evokes. The amount to which the negotiating adversary is viewed as a faceless entity, we argue, is a common theme among these contextual variables such as the unknown stranger, or as a known, familiar person (Nadler et al, 2005). In 2005, Nadler and Shestowsky offered in their work titled “Negotiation, Information Technology and the Problem of the Faceless Other” a state of the art psychological review of the literature. Their work produced 60 citations dating from 1985 to 2004, see table (1) as it represents a summary of literature findings:

Table 1: Summary of literature

	Variables	Literature stand
1	Economic outcomes	Economic outcomes might be influenced by the communication medium (Thompson, 1990; Curhan, Neale, Ross, & Rosencranz-Engelmann, 2004; Thompson, 1990)
2	Strategic Choices	Evidence on the question of whether negotiators' use of information technology influences the likelihood of achieving integrative agreements is mixed (Arunachalam & Dilla, 1995; Barefoot & Strickland, 1982; Croson, 1999; Morris, Nadler, Kurtzberg, & Thompson, 2002; Naquin & Paulson, 2003; Morris, Nadler, Kurtzberg, & Thompson, 2002; Naquin & Paulson, 2003).

3	Whether one party benefits more than the other when using technology-mediated negotiation	Some studies find that e-negotiations result in more equal outcomes than face-to-face negotiations (Croson, 1999; McGinn & Keros, 2002), while other studies find no difference (Naquin & Paulson, 2003).
4	The effect of e-negotiation on social factors such as the parties' emotions during & after the negotiation, their relationships, and how satisfied they are with the process	Evidence is inconclusive. Some studies showed that face-to-face negotiation results in more confidence in performance and more satisfaction with the outcome (Naquin & Paulson, 2003; Purdy et al., 2000; Thompson & Coovert, 2003). Other studies found no difference when comparing the emotional content of email messages and face-to-face negotiations (Morris et al., 2002).
5	Tendency for cooperation	Some studies show that face-to-face negotiation results in more cooperation (Valley, Moag, & Bazerman, 1998), while other studies show that the importance of face-to-face negotiation's cooperative advantage is reduced when the parties are socially embedded in a relationship (McGinn & Keros, 2002). However, other studies show that cooperativeness is decreased when negotiators have visual access to one another (Carnevale & Isen, 1986; Carnevale, Pruitt, & Seilheimer, 1981)

Source: Nadler et al (2005)

From the above literature review and analysis from 1985 to 2005 it is very clear that the results are very inconclusive. Evidence of whether the use of information technology has influenced the negotiation process and the outcome more or less favorable continues to result in contractive, mixed indicators. For that reason, we will continue our search for current literature and a better understanding of the effects of computer-mediated communication (CMC) for Negotiation. Since the late 1990 negotiation scholars have found interest in studying CMC to understand its effects on the negotiation process and outcome. The

following section offers a summary of the findings on e-negotiation, see table (2) below:

Table (2) review the effects of computer-mediated negotiation analysis

1.	Variables	Literature stand
2.	Relationship	The email has damaged the quality of relationships ship, it is much harder to build rapport (Morris et all 2012; Naquin and Paulson 2003)
3.	Trust	In online negotiation, there is less trust than in face to face (Naquin and Paulson 2003; Citera, Beauragard & Mitsya, 2005)
4.	Tactics: rather distributive	Communication media affect negotiation moves and tactics. Greater use of distributive & value claiming (threats, demands, intimidation (Galín et al 2007)
5.	Tactics: rather integrative	The greater social distance among negotiators helps integrative agreements. (Bordia, 1997; Fujita et al 2006)
6.	Size of Communication	Online negotiation reduces communication of positive affect and less chance to reach an agreement (Johnson et al. 2018)
7.	Negative ethics	As the relationship weakness and so moral boundaries. More dishonestly and more deception. (Citera et al 2005; Naquin et al 2010)
8.	Positive ethics	Certain CMC supports fact offering protection against lying and unethical behavior (Schweitzer et al 2002; Giordano et al 2007)
9.	Culture	Online negotiation exacerbate cultural differences (Rosette et al 2012)

10.	Age & generation	The electronic media effect of negotiation also depends on the level of experience with e-negotiation. The generational effect could play a role in the level of comfort with a particular media. (van der Kleij et al 2010; Thayer & Ray, 2006)
11.	Social Distance	The benefits of increased social distance, the diminishing awareness of social norms (Henderson 2011; Rosette et al 2012)
12.	Gender	Women may seem to benefit from the weakening of social norms (Stuhlmacher, Citera & Willis, 2007)
13.	Emotion	E-negotiation is less susceptible to emotional manipulation, emotional perception is less accurate in a virtual environment. (Carnevale et al 1981; Dorado et al, 2002 ; Williams et al 2008)

Source: Friendman and Belkin (2013)

The above tables (1) and (2) summarize three decades of research on electronically mediated negotiation produced steady yet conflicting findings. More research is needed to explain these inconsistencies in e-negotiation research and most important suggesting how to successfully manage electronic negotiations. If however, earlier research focused on problems and risks with e-negotiation, future research needs to focus attention on how to work with the advantages of e-communication.

Currently, there is exponential growth in this research field, and more academic production is expected to result from the current COVID19 pandemic and the digitization continuous revolution, negotiation is no exception. For the past two years, almost all negotiations have been taking place virtually. Among the disadvantages of e-negotiation is that it tends to leave parties with less favorable results and less harmony and trust towards their counterparts. However, if negotiators face additional barriers to finding joint gains, previous research has suggested ways to enhance the chances for success in virtual settings. Although the

richness of face-to-face negotiation may not be substituted, digital communication tools and media can help us stay connected during this stressful period of social distancing, as long as we use them efficiently (Movius, 2020). Previous research also discussed the effects of technological tools on negotiators, principal biases that may surface when using them, and the strategies that should be employed in e-negotiation. Similar results were found; Face-to-face negotiation provides the richness that no other medium provides. However, successful management of technology may contribute effectively to this change (Stein et al 2020). More research is expected to emerge from experiences happening now. It will not only answer the field question on negotiation and technology but hopefully enhance, enrich the experience and the business negotiation output. Based on the above findings, there is a general sense of consistency in the reach results whether the research was conducted in the 1990s, early 2000, or in more recent years. As mentioned in the instruction of the literature review, however inconclusive, e-negotiation is a current necessity and an expected reality in the long term.

Back to the research question of this paper: How did the Egyptian business context manage e-negotiation during COVID19? The scope of the question is rather broad requiring multiple angles of study to provide an answer as accurate as scientifically possible within context limitation. However, we intend to divide our work into two projects. A country economy measure at large scope in one paper; then an individual behavioural analysis in managing day to day e-negotiations, and what happened during these two years of work from home. This paper answers to e-negotiation in the Egyptian business context during the COVID19 pandemic through economic factors. It is very orthodox to measure negotiation from conglomerate results, too many other factors included; however, it is also an innovative approach to measuring business negotiation practice on a nationwide scale. The Paper aims to provide a deeper understanding of the digitalization of negotiation in Egypt - as a sample of digitalized business. But most importantly, to be able to give recommendations on how to improve the process.

2.2 Relationship between virtual Technology & Economic Growth

Technology is regarded as a primary variable affecting the economic growth of a country, and technological developments have a significant role in a country to be developed or underdeveloped. Bahrini and Qaffas

(2019) conducted an empirical study evaluating the effect of information and communication technology (ICT) in some developing countries on their economic growth and development. The developing countries that were included in the study were mainly in the Sub-Saharan Africa (SSA), Middle East, and North Africa (MENA) regions. The authors used a panel generalized method of a moment growth model to conduct the econometric model of the study, and the data were used over the time interval of 2007-2016. The results of the econometric analysis concluded that ICT is the main driver of economic development and growth in SSA and MENA countries. Thus, the authors suggested that the governments in developing countries should support the development and extension of ICT and the internet to achieve economic growth.

Innovation is becoming a vital asset in any economy as it gives the incentive to have a successful industrial sector in most developing and developed countries. According to a study carried by Jianguo (2015), based on previous literature in this field the majority of researchers concluded that there is a significant positive relationship between innovation and economic growth. Thus, the objective of this research paper was to investigate the impact of innovation on economic growth in Egypt in the long run by using Johansen's test for cointegration. The results of those tests concluded that innovation positively affects economic growth. Petrariu, Bumbac, and Ciobanu (2013) conducted an empirical study applied to Central and Eastern European countries (CEE) during the period 1996-2010, investigating the relationship between innovation and economic growth. The authors set a hypothesis stating that although CEE countries were affected by the economic crisis, innovation plays a critical role in achieving long-run economic growth. To measure innovation, they used several variables such as expenditure on R&D, number of researchers, mergers & acquisition, and firm characteristics. The results of this empirical study concluded that innovation contributes with a high percentage in achieving national competitiveness and economic growth.

3. Egypt's Digital Economy before COVID19

Egypt's economy has seen a lot of progress since the reforms introduced in 2015 and enforced in 2016. The reforms were comprised of significant reforms that targeted Egypt's main macroeconomic imbalances such as Egypt's severe budget deficit. Though the government is attempting to build an inclusive social program to help

rehabilitate the effects of the subsidy cut. The IMF program and loan supported this program as well. Egypt's 2030 vision has two main goals, the first one is to reach the steadiness of the economic indicators before the 2011 revolution concerning their real values and the second goal is to aspire in reaching higher numbers than 2010. National production was not localized and depended greatly on foreign conditions. Thus, there is much potential for Egypt to grow economically, and part of this potential depends on the integration of technology into Egypt's development program. Egypt has witnessed a huge cultural shift where people have higher tendencies to accelerate their consumption and try out new things that can facilitate easier access for them. The competition in Egypt's ICT sector has also been on the rise and that has helped encourage investors in investing even more. So, in some sense, the ICT sector has greatly contributed to Egyptian socioeconomics. The Ministry of Communication and Information Technology (MCIT) has been calling for the digitalization of many sectors like the public, health, educational, legislative, or green sectors. Though the MCIT has a pretty solid idea of the importance of ICT integration into the economy, there are still many posed obstacles. First and foremost, Egypt has insufficient technological infrastructure that prohibits the establishment of new tech zones. Those potential tech-zones could have helped Egypt propel by enhancing internet connection and services within the country, allowing for better mobile services coverage, and encouraging more e-government services. Aside from the inadequate infrastructure, there is a great cultural barrier despite the recent progress in cultural behavior. To begin with, Egypt's public workers have inflexible mentalities. Moreover, there is also a lack of performance in human relations departments. Adding on to that, there is also some dearth of communication within the hierarchal structure of organizations. Another obstacle is the generation of unemployment that is accompanied by mechanizing governmental jobs. Additionally, the lack of coherence within the Egyptian ministries and their objectives have held back Egypt's chance for digitalization. Finally, and quite obviously, the government has to acquire a big data system to enable the takeoff for digitalization.

Currently, there has been a continuous increase in the penetration of ICT in Egypt since 2011. If we look at mobile subscriptions, USB modem subscriptions, mobile internet subscriptions, and the penetration of internet users, internet users in general and ADSL

subscription have significantly accelerated within six years. The only thing that took a downturn was fixed lines subscription that comes to show how Egyptians are starting to neglect traditional and outdated uses of technology and starting to embrace new ones. In terms of ICT GDP, there has also been a significant increase given that the 15.75 billion EGP is only for one quarter, if we assume that this was the number for all quarters, then Egypt's ICT GDP would stand at 63 billion by the end of 2016. All the numbers represent one quarter and hence they have all seen a very surprising increase. Lately, the government has started providing various services online for both locals and foreigners. For example, they have adopted online services for personal and identification status released by the Civil Status Organization, there are also options for obtaining visas and e-visas for touristic or regular visiting purposes, as well as other additional services for foreigners (Abdallah, 2019).

Egyptians are still extremely reluctant when it comes to cash. Thus to achieve a competitive market for payment services. This can be enabled through the use of several policies like allowing the Ministry of Finance to disapprove any taxes and tariffs transferred independently of the banking system. To add to that, the government could set a limit of 1000 EGP for receiving financial fees or dues for governmental institutions. They could also impose a policy by which all financial dues should be transferred through the banking system (Abdallah, 2019).

3.1 Egypt and the Rise of Digital Economy during COVID

The outbreak of COVID19 globally has halted life as we know it. It affected businesses of every sector directly. Many sectors have toppled, but others have risen. The ICT sector was one of the luckiest sectors that did not only prosper – it boomed. To some extent, Egypt was forced to become self-sufficient, with lower dependency on foreign businesses and services. Hence, there was an increase in the rise of business opportunities, services, and products to enter the market. Though Egypt had a quite slow adoption of ICT when compared to other countries, it eventually took off. The ICT sector has become a necessary part of the Egyptians everyday lives. Many protective procedures are being taken globally that have encouraged the implementation of digitalization to allow for more sustainable solutions to deal with the current pandemic. Though more and more individuals, firms, and entities are relying on digital solutions, there must instantly be an initiative to build a more

resilient infrastructure to be able to sustain and develop Egypt's rising digital economy.

Egypt Today asked experts in the ICT sector what they think the future of digitalization looks like in Egypt. Experts responded that the government has been making a vast amount of effort and investments for a long period to reach the digital transformation they strive for. They also claimed that the world evolves into more dependency and technological integration every single day at a very rapid pace. Then with the outbreak of COVID19, demand on the ICT and digital sector has more than spiked. This comes to show how truly uncertain the world we live in has become and how technology is an indispensable aspect of our lives. They claim that there is more coherency between the public and the private sector to enhance the speed of digital transformation within the nation. This means that Egypt now has both sectors' support in terms of services, resources, and initiative to help accelerate the road to digitalization. This step, from an expert's perspective, is necessary to incorporate modern digital services and tools to achieve a more advanced business environment that enables development and growth (Egypt Today, 2020). The e-commerce sector in Egypt was expected to prosper, even before the outbreak, and the pandemic only made this expectation seem more reasonable. Currently, marketing trends analysts and strategic consultants say that it will take around a year and a half for the effect of COVID to be fully reflected on Egyptian businesses and the economy. He also added that the e-commerce industry is one of the largest growing sectors within Egypt during the pandemic, with numbers of growth ranging between 300%-500%. Coordinators of Egypt's 'E-Commerce Summit' have claimed that financial transactions done electronically in Egypt are forecasted to be worth two billion dollars. This includes airline and hotel booking as well as basic online purchases (Stohy, 2020).

4. Model

The Autoregressive Distributed Lag Model is a dynamic least-squares regression that has on the right-hand side lags of the dependent and independent variables. Therefore, it does not only test for the contemporaneous effects but also the lagged effects. We use this model as it allows us to estimate both the short and long-run effect of digital tools on growth and understand the short-run dynamic adjustments towards the equilibrium. The exact models used with the specific lags

for each variable are presented for each country separately before presenting the results.

$$GDP_pppt^h = C + \sum_{i=1}^p b1 \text{ GDP_ppp}^h_{t-i} + \sum_{i=0}^p b2 \text{ Mobile}_{t-i} + \sum_{i=0}^p b3 \text{ ind internet}_{t-i} + ut$$

This time series analysis aims to investigate how using digital tools affects economic growth in Egypt. To do so, the study uses the number of mobile users and internet users as an independent variable we test how a relative change in the number of mobile and internet users affects economic growth both in the short and the long run. We test for this using the Autoregressive distributed lag model. This model allows us to test how digital tools affect economic growth but also enables us to understand the dynamics of the relationship and whether a steady state exists. If it exists, we show the dynamic adjustment of GDP growth to this relative change in the digital tools.

The dependent variable represents the Gross Domestic Product PPP, while the independent variables are mobile users, internet users. Among all communication technology media, these two selected here for the research analysis were particularly chosen for being the most relied on during COVID19 business face-to-face substitute. The mobile was already in heavy reliance before the pandemic, while the internet will provide for multiple media at the same time: e-mail, video-conference, online chat... among others).

Table 3: Variables Table

Variable	Description	Source
GDP PPP	This indicator provides values for the gross domestic product (GDP) expressed in current international dollars, converted by purchasing power parity.	World Development Index
Mobile cellular subscriptions	Mobile cellular telephone subscriptions are subscriptions to a public mobile telephone service that	

	provide access to the PSTN using cellular technology.
Internet users	Internet users are individuals who have used the Internet in the last 3 months. The Internet is used via a computer, mobile phone, personal digital assistant, games, digital TV, etc.

Source: Conducted by the author

The descriptive statistics of the model are shown in the following table 4. Which showed the individual interest user has a mean of 1.14 and a standard deviation equal to 3.07, while GDP_PPP has a mean of 27.08 and standard deviation of 0.5 and the mobile users has a mean of 15.4 and standard deviation of 3.07.

Table 4: Descriptive Statistics

	IIND_INT	LGDP_PPP	MOBILE
Mean	1.104981	27.08304	15.40712
Median	2.614472	27.09447	16.70594
Maximum	4.048002	27.83790	18.44983
Minimum	-6.932262	26.22574	8.835938
Std. Dev.	3.077540	0.514573	3.480126
Skewness	-1.098489	-0.125206	-0.911568
Kurtosis	3.110139	1.662896	2.362948
Jarque-Bera	5.443702	2.081872	4.195867
Sum	29.83450	731.2422	415.9923
Sum Sq. Dev.	246.2525	6.884426	314.8933
Observations	27	27	27

Source: Author's calculations via E-views 10 software.

The second step to test for the Unit root test: To test for the stationarity of the variable an Augmented Dickey-Fuller (ADF) is used to indicate that we cannot reject the null hypothesis of the existence of a unit root at levels i.e. all the variables are non-stationary in their levels. However, the null hypothesis is rejected in the first difference except to P; it is non-stationary in the first and second difference. Since the variables are non-stationary in their levels, we cannot regret the non-stationary variables on each other because this might lead to spurious regression than we omit this variable from the model. Thus, we proceed to investigate the possibility of a co-integration relationship among variables using the Johansen (1995) test to determine which method we will employ to estimate the models. If Johansen's test indicates that the variables are not co-integrated, then we use the VAR model. Unit Root Tests (Stability Tests) the series were performed with expanded Dickey-Fuller (ADF) the results obtained are presented in table 5.

Table 5 Augmented Dickey-Fuller unit root tests

<i>Variables</i>	<i>Lags</i>	<i>Constant</i>	<i>Lags</i>	<i>Constant</i> & <i>trend</i>
Gdp-ppp	0	1.93	4	-1.865
Mobile	0	2.864	0	-0.651
Ind int	0	3.711	0	-0.26
DGdp-ppp	6	-4.89**	3	-2.111
DMobile	2	-2.021	0	-8.0741**
DInd Int	2	-2.700*	2	-5.071**
DDmobil	2	-5.6***	5	-5.41***

Notes: (**) and (***) indicate 5% and 1% level of significant, respectively.

Akaike Information Criteria (AIC) is used to select the lag length.

DX represents the first difference of variable x .

DDX represents the second difference of variable x .

The results of these tests ADF indicate that we cannot reject the null hypothesis of the existence of a unit root at levels i.e. all the variables are non-stationary in their levels. However, the null hypothesis is rejected in the first difference except for the p; it is non-stationary in the first and second difference. Since the variables are non-stationary in their levels, we cannot regret the non-stationary variables on each other because this might lead to spurious regression than we omit this variable from the model. Thus, we proceed to investigate the possibility of a co-integration relationship among variables using the Johansen (1995) test to determine which method we will employ to estimate the models. If Johansen's test indicates that the variables are not co-integrated, then we use the VAR model. If the variables are co-integrated, then we use the Error Correction Model (ECM). Before we employ the Johansen test, we use the Information Criterion of Akaike (AIC) to determine the lag length for the models because the Johansen test is sensitive to lag length. Cointegration Test: Using Schwarz Information Criteria (SIC) for determining the delay length model for the boundary test is given in Table 6. It has been decided that the optimum delay length according to SIC is 1 when the maximum delay length is 4. Because of 1 delay, the SIC takes the minimum value and there is no autocorrelation problem.

Table 6: Cointegration test

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LMOBILE)	0.014396	0.0081	1.77721	0.0894
D(IND_INT)	0.002172	0.00179	1.21593	0.2369
CointEq(-1)	-0.174216	0.10217	-1.7052	0.1022
Cointeq = LGDP_PPP - (0.0826*LMOBILE + 0.0125*IND_INT + 25.8923)				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LMOBILE	0.082631	0.01881	4.3931	0.0002
IND_INT	0.012469	0.00413	3.01795	0.0063
C	25.89228	0.29084	89.026	0

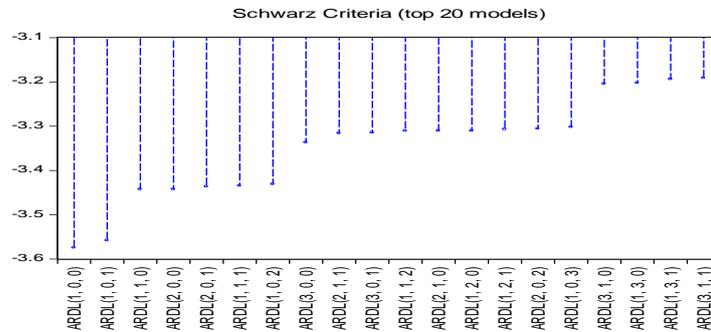
Also, a diagnostics of each regression is provided to prove that there are no diagnostic problems with all the models presented. A test for autocorrelation and heteroscedasticity. Additionally, we test for multicollinearity in the linear ARDL regressions and the number of significant thresholds in the threshold regressions. The Breusch-Godfrey Serial Correlation LM Test and the Breusch-Pagan-Godfrey are used to test for autocorrelation heteroscedasticity respectively. If the test results are on the borderline between showing heteroscedastic and non- heteroscedastic residuals, see table 7.

Table 7: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.333724	Prob. F(3,22)	0.2889	
Obs*R-squared	4.000992	Prob. Chi-Square(3)	0.2614	
Scaled explained SS	6.216549	Prob. Chi-Square(3)	0.1015	
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.052773	0.055363	-0.95321	0.3508
LGDP_PPP(-1)	0.001792	0.002113	0.848295	0.4054
LMOBILE	0.000382	0.000652	0.586268	0.5637
LIND_INT	-0.00053	0.000805	-0.65875	0.5169

The best long-term model according to the SIC Schwarz information criteria is the non-auto correlated ARDL (1, 0, 0) model. The following figure presents graphs of the statistics of the 20 most appropriate ARDL models for long-term analysis. In studying the maximum latency of 5, the best long-term model according to the SIC Schwarz information criteria is the non-auto correlated ARDL (1, 0, 1) model. Figure 1 presents graphs of the statistics of the 20 most appropriate ARDL models for long-term analysis.

Figure 1: Schwarz criteria or optimal lag



After the findings, the long-term relationship was estimated by ARDL (Autoregressive Distributed Lag) model. The results obtained are the result of the optimal delayed long-term ARDL Model (1, 0, 1) and reported as follows

Table 8: Model Estimated Results and Long Term Coefficient

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LGDP_PPP(-1)	0.825784	0.102167	8.082660	0.0000
LMOBILE	0.014396	0.008100	1.777206	0.0894
IIND_INT	0.002172	0.001787	1.215930	0.2369
C	4.510844	2.617128	1.723585	0.0988
R2 =0.89		F- statistics =1916		

Source: Author’s calculations via E-views 10 software.

The results of ARDL regression for Egypt are presented in the above table, all the control variables included have the expected positive impact on economic growth except for the mobile users while the home individual internet user is not significant. Its positive sign shows that an increase of 1% in mobile users will increase the GDP_PPP of the same year by 0.013%.

Limitations:

While we are very happy to read for the above optimistic and very promising economic results we have to acknowledge that the economic results can be considered more solid than the negotiation, and particularly the results of the e-negotiation reading are inconclusive due

to the novelty of the fieldwork methodology deployed. By which we mean, if the results are positive at the macro level, a lot of research is needed to provide insights with regards to how the actual e-negotiations were conducted in the particularity of the COVID19 two years in the unique environment of Egypt. Unique in terms of individual behavior, cultural tool adaptation, country infrastructure, among other variables. An exploratory study on individual tool appropriation and context adaption can help answer to angels of research limitations in this paper. This paper's results can support organization decisions in Egypt in continuing their VT implementation in management processes, but it cannot provide direct recommendations for improvements. Again the sequel paper intended, to capture actual individual behaviour behind VT practice in organizations can also help manage this limitation.

Conclusion

Based on the results, it is obvious that the number of mobile users, internet users, and other digital tools can accelerate growth. This infers that digital variables can alternate the GDP growth rate. Additionally, the model has turned out to be significant. The assumption that could be reached through this significant model is that digital transformation overall is a catalyst driver to a higher GDP growth rate for Egypt. Egypt has come a long way in the past decade to enhance and speed up its path to a digitalized economy. Egypt business catalyst has succeeded to respond to the sudden virtual business processes shift conducting their e-negotiations deliver an organizational positive outcome. Now whether that was easy or not, and how the Egyptian version of e-negotiation was adapted and adopted to reach these results. These are the questions of our next paper investigating the business community action experience of e-negotiators. But the macro results are showing no relaxation or relapse resulting from VT in e-negotiations or broadly in e-management processes however disruptive their introduction was in terms of time allowed to adjust across different industries. Indeed, there is still a long road ahead in terms of infrastructure, literacy, and knowledge to efficiently reach a fully digital transformed economy to instigate growth and development within the nation. This could be done first through infrastructure as mentioned before. As well as better education. Additionally, Egypt could invest more in the research and development sector in the ICT sector. Over time, Egyptian's mentality of sticking to traditional ways could change, especially after the crisis that is COVID19.

Egypt should use this opportunity during this time to launch and boost its digital and ICT sector as many Egyptians are changing their once stagnant mindset towards digitalization. With that being said, Egypt's future will only look brighter with the integration of digital technology within all aspects of its economy. Again the macro level of individual behavior in Egypt in the face of the sudden VT shift has also given indirect evidence the human element has exhibited intellectual potential and willingness to adapt, has given evidence of the existence of human capital with the education, talent, and tenancy to leverage the Egyptian government economic plan into the next step. The government still has a long way to go, they need to first start by providing a more encouraging environment for start-up companies as well as easing the costs of doing business, this could also be done through business incubators. Adding on to that, the government should enhance cyber security as it is a crucial aspect of the digital economy all the while they pass new legislation and laws to inhibit the progress of technology within the economy. Complete the above by ensuring the availability of training and development to the human element in the most critical management skills needed to support the ambitiousness of the economic plan.

Authors' contribution:

Dr. Cherein Soliman presented for the literature review and analysis, the limitations and conclusion.

Dr.Doaa Salman presented for the econometric model analysis and results.

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