The effect of the information management policy on the growth of the Digital Economy: the case of the Arab Spring

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Abstract. This document will focus on identifying the effect of the formal Information Management policies during and after the political uprisings on the growth indicators of the digital economy, the research will study the Arab Spring case and the reformed Arab countries. The study aims to suggest strategic guidelines to support the governments of the Arab Spring with their new reformation plans regarding the digital economy as part of the whole economic reformation that emerged from the recent states changes; the goal is to propose ideas to align these information management strategies with the predefined goals of the Arab Spring uprisings to ensure that the nations requirements, especially the economic ones, from the new states are met.

Keywords: Arab Spring, Arab Digital Economy, Arab E-Commerce, E-Commerce Strategies.

1 INTRODUCTION

It's with no doubt that the latest political unrest in the Middle East and North Africa (MENA) region, the event that was formally named as "The Arab Spring", did rise from the built frustration over the years due to the slow development rates, which caused recession in the living standards of the population, and it was of no surprise that the participation of the Tunisian citizens in the uprising demonstrations extended rapidly after the incident of Mohammed Bouazizi accident , Bouazizi was a fruit vendor who set himself ablaze to protest the police corruption, an event that stoked the revolution. Soon after this accident, there was another scene for the Tunisian revolution; this scene was the internet community. According to LOTAN et al. (2011), between the periods of 12-19 January, 2011, there were almost 168,663 tweets posted on twitter related to Tunisian uprising, containing the words #sidibouzid" or "tunisia" initiated by 39,696 different users. YouTube also played a significant role in covering the Tunisian uprising, by January, 18, 2011 Over 30,000 videos were placed on YouTube tagged "Sidi Bouzid.", which was the city where mohammed Bouazizi set himself ablaze(Howard, 2011). The Egyptian online protests started soon after the Tunisian uprising, the starting point was through an organised protest in the 25th of January, 2011, the date of the national police day, the purpose of this protest was to object against the abuse from police and other economic situations related to corruption and unemployment as well,(LOTAN et al. 2011). The stimulating accident to this protest was a Facebook fan page named" We are all Khalid Said" which was created in June, 2010 to expose the brutal killing of an Egyptian citizen named "Khalid Said" at the hands of some police men in Egypt, moreover, the Egyptian uprising took various online aspects due to the past practice of expression using the different online expression tools such as blogs, online video channels, social media, and email channels (Saleh, 2012).

The internet power continued to extend during the uprising period, for example, the number of Facebook users in Egypt increased from 4.7 million users to 6.65 million between January and April, 2011(Mubarak, 2011) to the extent that some activists named the Egyptian revolution as "the Facebook Revolution").

In Syria, despite the Cyberactivism in the political transformation that included different sorts of online censorship and legal consequences for anti regime online activities, YouTube

videos that targeted the political and battles in Syria flooded the internet by July, 2011(Khamis, Gold, & Vaughn 2012).

Realizing the mobilization power of these online social tools, the regimes in the Arab Spring countries tried to overcome the capacity of the cyberactivism, for example the Egyptian regime decided to shut down the internet service between the periods of 25th January, to 2nd of February, 2011 in an attempt to stop the spread of anti regime media among the population (Tufekci, &Wilson, 2012), while online activists in Syria as well as in some other countries were subject to investigation and torturing to force them to expose their online accounts, such as Facebook and Skype (Reporters without Borders, 2012) , in addition to other repressive strategies against the internet usage that were adopted by the Arab Spring countries in Tunisia, Libya, and Yemen, during and before the uprisings.

Several research studies examined the effect of the internet in raising the Arab protests and the political reformation, however, to the extent to the author's knowledge, no single research attempted to examine the effect of the Information policy during and after the political change from the business aspect, specifically on the digital economy, and how to use the emerging opportunities from such changes, or how to face the expected threats during and after this political reformation.

This research focuses on the digital economy, specifically the aspect of e-commerce drivers that are deemed to boost the digital economy growth that will consequently result in the overall economic growth of the newly reformed Arab spring countries, the first section of this research will contain a literature review to the digital economy indicators pre revolutions, and an overview to the governmental policies towards the digital economy during the uprisings, and then some comparisons with the reached status so far(post revolutions).

The second part of the research will suggest some proposed guidelines to align the growth factors of the digital economy to the goals of the Arab Spring uprisings, these guidelines will take into considerations the former policies of the old regimes and focus on the opportunities of conducting new strategies that will enhance the digital economy growth relating to the connectivity, profitability, and social interoperability based on some predefined goals of the Arab Spring and taking into considerations the latest advancements in the strategic plans in the digital economy that were implemented or under consideration from the veteran countries in the field.

In conclusions, the Arab spring countries that are looking to reform their ICT strategies as part of their new economic reformation process are recommended to seize the opportunity in stimulating their digital economy growth factors to boost the economic development cycle in their countries as a whole and to satisfy the aspirations of their people.

2. BRIEF HISTORY OF THE INTERNET POLICY IN THE ARAB COUNTRIES

The Arab Spring didn't start with a push of button from the online communities as it might seem, the situation was a result of accumulated frustration from the economic and political situations in the initiator countries, and was facilitated through the digital media. One Egyptian activist explained the story briefly when he said" We use Facebook to schedule the protests, Twitter to coordinate, and YouTube to tell the world" (Howard, 2011). To understand how the internet policies in the Arab Spring countries were formed before the Arab Spring and their roles in implementing the reaction plans of the regimes during the uprisings, the following details will provide brief details about this matter.

2.1 The internet policy and its effect during the uprising state

The effects of the internet space and the governmental reaction plans can be summarized in the different Arabian countries that were affected by the Arab Spring as the following:

2.1.1The Tunisian uprising

Since the internet access became available to the public in Tunisia in 1996, the government obtained an extensive control over the users internet privacy, Tunisia was ranked as one of the twelve countries in the "internet enemies" list based on the report of Reporters Without Borders(2009) that identified cases of hacking websites, email filtering, as well as other internet surveillance methods that were applied by the governments before the Tunisian revolution, and continued during the Arab Spring uprising to include some anti privacy activities such as stealing Facebook access accounts either to remove or alter the published contents or to steal the entire accounts credentials, some reports even stated that security agencies forced the prisoner activists to expose their user names and passwords. In his last days before ousting, Tunisian former president Ben Ali agreed to remove many forms of media censorship related to the online space, this was one of the last attempts to regain the public trust before he left the authority.

The report of Reporters without Borders (2009) also stated that users were required to present their formal ID authentication in order to use the internet in a cybercafé, the managers of the internet cafes were also held responsible of their users' activities under the Tunisian laws.

2.1.2 The Egyptian uprising

Since the initiation of the internet in the Arabian region at the ends of the past century, the governments introduced the internet usage based on their strategic plans, mainly to embrace the global economic development, however, according to Saleh (2012) this choice wasn't without costs to the governments, since opening the internet for the depressed citizens would surely result in criticizing the governments that people held the responsibility for their depression as in Egypt, where the strategic decision was to engage the country in the digital economy in order to turn Egypt into a software export country and to improve the economic development, and this vision was addressed by the former Egyptian president Mubarak in 1999. Soon after that speech, the former president Mubarak created the ministry of Information and Communication Technology with the target of promoting the Information and Communication Technology in Egypt, and this increased the internet penetration since that time, which in turn led to more online political activities against the regime as a result since many people found new online gates to express their opinions about the different matters including the government policies (Saleh, 2012).

Before 2009, specifically before the introduction of the Arabic Facebook, which was the most famous social network back then in the MENA region, blogging was more famous especially for political activities, even though the content wasn't blocked, some bloggers were jailed for long periods because of their blogging activities (Wagner, 2012 and Tufekci, &Wilson,2012) it's worth mentioning that the increased blogging activities were due to the development of Arabic software that encouraged the creation of more Arabic blogs, the thing that was able to tackle the language challenges for the audience, and therefore attracting wider portion of blogs readers (Tufekci, & Wilson, 2012).

Soon after the Tunisian unrest, a famous Egyptian Facebook group named" We all Khalid Said" called the Egyptians to protest against the police abuse, and the corruption in the regime, the protestation date was specified in the 25th January, 2011. Because there was a high response from the citizens to this protest, the Egyptian regime decided to shut down the internet service between the periods of 25th January, to the 2nd of February, 2011 in an attempt to stop the spread of anti regime media among the population (Tufekci, &Wilson, 2012).

2.1.3 The Libyan uprising

During the public unrest in Libya, 2011, the government decided to turn off the internet service thoroughly, but different from the Egyptian experience, the Libyan government implemented a controlled the internet access for a while during the uprising as the authorities kept only the formal governmental websites free from blockage for the users (Wagner, 2012).The Libyan government also used the internet to track the political activists and uncover their identities. Realizing the danger of both classic and new media on the Libyan regime, the loyalist forces tracked the political activists, a famous Libyan blogger named Mohammed Nabbous, who found a private TV station to support the rebel movement was unfortunately killed by a sniper of the loyalist force in Benghazi, on March, 2011. (Sabadello, 2011).

2.1.4 The Yemeni uprising

Yemen e-government facilities are not well established yet, the ICT strategy focused on building the infrastructure in both the internet and telephone services according to the Yemeni ICT ministry webpage that still has no English version yet (Ministry of Communications in Yemen, n.d.), even though the internet and mobile penetration in Yemen increased within years, still it is considered in the lowest levels to become a driver for the best e-government practices.

The internet freedom in Yemen faced different levels of censorship before the uprising, according to Reporters Without Borders (2009), some local news websites were blocked for being accused of supporting anti government policy and social uprising, while other news websites restricted access from people who had a "dial-up" telecommunications. Other websites were blocked because they were supporting some human rights cases even outside Yemen, such as a website that supported the case of an Egyptian blogger called" Kareem Amer" who was imprisoned because of online writings and expressions, the authorities adopted web site filtering strategies through the use of a U.S web filtering software called" Web sense"to block some news websites form the users.

2.1.5 The Syrian uprising

In the Syrian political unrest, the governmental actions against the online political activities were different from the practice of Egypt and Tunisia, this is due to the nature of the struggle in Syria, even though access to Facebook was blocked for some time, it was reinstated later, since according to Sabadello(2011**)**, the government found that these online tools can be useful to search dissidents and track them via online social media websites. Wagner (2012) indicated that the online activists and bloggers who were classified as dangerous were imprisoned and detained in order to intimidate the other online activists from engaging in anti governmental cyberactivism, and to limit the anti regime protests.

2.2 Was the Arab Spring useful to the Digital Economy?

In answering such question, it is important to bear in mind that most of the Arabian countries who went through the Arab Spring haven't reached the political or the economic stabilities yet based on various reports and studies, new regimes are still nascent, and trying to win their population trust, while other countries are still witnessing struggles between the political regime and the opposition movements, so for the best criteria, it would be more rational to indicate the new trends(of the new political regimes), and to compare these trends with the old visions and states of the old regimes, while mapping these trends to the population requirements that initiated the Arab Spring uprisings from the beginning. Since the purpose of

this study is to measure the effect of the Arab Spring uprisings on the growth of the digital economy, the comparisons will be made on the aspects related to the Internet business and ICT sectors in the Arab Spring countries before and after the uprisings.

2.2.1 The digital growth in Tunisia

According to the United Nations Survey for e-government in 2008(United Nations, 2008), Tunisia ranked in the 124th position out of 182 surveyed countries in the e-government readiness index, an index that measures the level of interaction between the government and the citizens, this index is composite of different factors including: the web measure index that assesses the level of electronic services provided online from the government to its citizens, the telecommunication infrastructure index that relates to the country's infrastructure capacity such as the penetration of internet broadband ,telephone lines, and the internet users per 100 persons, and the Human Capital index that measures the adult literacy rate within the society. From the UN E-government study for 2008, the web measure index can be seen as an important metric to assess the level of transparency and users participation with the government services, it also relates to the level of openness from the governments to their citizens, i.e. the available detailed information about the government projects and actions. The UN report also includes an e-participation index, which assesses the extent to which the government is ready to involve its citizens in the decision making process, such as feedbacks on political or economic issues that interest the state, this index can be seen as a measurement to the democratic process in the country. As mentioned before, due to the high repressive level of internet censorship and surveillance during the former regime era in Tunisia, the low rank in the web measurement index in 2008 report should not be surprising, indeed, Tunisia ranked in the 175th place out of 192 surveyed countries in the web measurement index for 2008. The telecommunication infrastructure index was also of the lowest values among the countries in the 2008 survey, this is ascribed to the high prices of the internet as the market was almost monopolized by close members of the former regime family (Freedom House, 2012). The penetration of the internet in 2008 was 17% of the total population according to Miniwatts Marketing Group (n.d.).

The study of the International Telecommunication Union (2012) stated that the ICT price basket and its subsets comprised 2.5% of the GNI per capita in Tunisia in 2011. The GNI per capita in Tunisia was estimated to be 4,160USD for 2010, while the broadband basket price per capita was 3% of the GNI in both 2010 and 2011. The statistics of the World Bank (2013) estimated that the GNI per capita in Tunisia was 4.020USD in 2011; this can explain that high prices cause a hinder in the ICT usage in Tunisia. The amount of ICT exported service from Tunisia was estimated to be 10.8 percent out of the total exports in 2011, moving from 8.2 percent in 2010(The World Bank, 2013), on the contrary, the amount of imported ICT related goods to Tunisia (excluding software) was estimated to be 6.6 percent of the total imports in 2011, moving from 6.3 percent in 2010(The World Bank, 2013). According to Freedom House (2012) report, the Tunisie Telecom requires the internet subscriber to buy a landline package before choosing an ISP (internet service provider). Referring to the internet service prices, the subscription ranges from 10 dinars(around 6USD) for a connection speed of 1Mbps, up to 50 dinars(31USD) for a 20Mbps connection speed, in addition to ISP fees that must be paid for the same speeds and range from 10 to 25 dinars(6-15USD).

After the revolution, it became common to enter an internet café and use the internet without the need of identification card or registration details, the wireless access that wasn't permitted by law became more prevailed after the revolution, even though the wireless provision is still prohibited under the Tunisian laws which can put the wireless providers under legal risks. (Freedom House, 2012).

While the internet penetration out of the whole population reached 39.1% in 2012(Miniwatts Marketing Group, n.d.), the boost of mobile penetration in Tunisia was

remarkable in the latest years as the penetration rate was around 117% in 2011, however, due to the fact that mobile companies obtain the internet access from the ISPs, this still makes the internet mobile service costs unreachable (Freedom House, 2012). According to the Tunisian Ministry of Information and Communication Technology ICT indicators, the mobile total density per 100 inhabitants in Tunisia reached 128.8 in 2012(Tunisian Ministry of Information and Communication Technology, 2012).

The Tunisian government expressed its interest in the internet freedom efforts post revolution, during a press conference in September 2012, the ICT minister announced the end of internet censorship, he also stated that Tunisia joined other governments in the work for advancing the internet freedom, under a group called "the Freedom Coalition" (Abrougui, 2013).The new reformation steps included the termination of the Tunisian Internet Agency (ATI), which was used to control the censorship power before the Tunisian revolution, the ISPs were forced to route their traffic through ATI, the thing that facilitated the censorship and surveillance efforts. In January, 2013, the ministry amended the former regulations that restricted the ISPs to route their traffic through ATI, and this decision was welcomed by the Tunisian activists" (Abrougui, 2013), but still some repressive laws from the former political era need to be amended in order to complete the democratic transition, such laws are related to the content monitoring, other laws also still allow the government to censor the online contents that are deemed threat , incite hatred, terrorism, or any other kind of misbehavior that can affect the public in general, as well as charges of defamation that encompass charges such as the imprisonment from one to three years with financial fees (Freedom House, 2012). An example happened in 2012, when the ATI was ordered to block four Facebook pages that were run by anti military activists (Index on Censorship, 2013).

In the UN E-Government survey for 2010, the Tunisian e-government index for 2010 advanced from 2008 to reach in the 66th position out of 183 total surveyed countries in 2010, while the online service index also developed remarkably to reach the 30th place among 189 surveyed countries for 2010(United Nations, 2010). According to the same report, the ministry of Finance in Tunisia was ranked in the highest score among all the other ministries in Africa region, as it provided different kinds of e-services and information as well as the other ministries websites in Tunisia that also achieved high scores among the region, this strengthened the e-government development index and the online services as a result, despite the fact of the repressive and highly censored online content during the former regime era(United Nations, 2010), while the report indicates that the Tunisian telecommunication infrastructure index ranked in the 86th place among the 190 surveyed countries, this is expected as it was mentioned that due to the high service prices that mainly hindered the penetration even though it kept advancing through years. The related developments in the Tunisian e-government activities may also be referred to the new governmental e-strategy 2009-14 that was adopted in 2009, which aimed to establish a governmental presence on the web that delivers value added services to the users through a standardized government portal. (OECD, 2012).

The latest United Nations E-Government Survey in 2012 ranked Tunisia in the 103rd place in the e-government readiness index among other 190 surveyed countries, while it ranked in the 78th place among 190 countries in the online service index. For the total telecommunication infrastructure index, Tunisia occupied the 91st place out of 193rd surveyed countries in 2012(United Nations, 2012). The latest development in the Tunisian telecommunication infrastructure index rank indicates that the penetration growth remained stable so far post revolution, but keeps the door opened for analyzing the growth and development of the next few years.

2.2.2 The digital growth in Egypt

As mentioned before, the main purpose of introducing the internet service to Egypt was to connect the Egyptian economy with the digital development, and to transform Egypt to a leader in the software development in the region, however, this was also attached to the risk of creating an open virtual space for the citizens to criticize the political regime, which what happened before the revolution and due to the lack of freedom of expression some bloggers were imprisoned and punished as a result of the lack of democracy. Even during the uprising protests, Wael Ghonim, the creator of the main Facebook fan page named " We All Khaled Saed" –that was responsible for mobilizing the protests-, said "I basically thought that my anonymity was my power, was the reason this page was so powerful," but despite this anonymous nature, the Egyptian authority was able to identify him and he was kidnapped and arrested for 12 days during the Egyptian uprising(NPR media, 2012).The Egyptian upheaval was driven by different factors such as lack of democracy, the corruption claims, and the economic pressures including the unemployment and other forms of discontentment about what the opponents deemed as foreign policy independency(theguardian, 2011). It's worth mentioning that when relating to the technology factor, the most important factor that helped in transmitting the public impression included the online social networks and Web 2.0 (NPR media, 2012). From theguardian(2011), it is also worth mentioning the role of satellite TVs such as al Jazeera TV news that managed to garner a preference among the Arabian nations through the past decade.

Since Egypt is going through a new transition phase towards political stability currently, it might not be accurate enough to judge the new post revolution state while new strategies are also under development, however, some assessment will be presented to try to correlate between the set up goals of the revolution and what has been achieved so far or under development for the future for the ICT and internet sectors.

According to the United Nations E-Government Survey report for 2008, Egypt ranked as in the 79th position out of 182 countries in the total E-Government Readiness Index (United Nations, 2008). While in the telecommunication infrastructure index that measures the level of the ICT infrastructure, Egypt ranked in the 53rd position out of 192 surveyed countries in 2008.

From the study of the UN e-government survey report for 2010, it's remarkable that Egypt was ranked as the 28th top member in the web measure index out of 189 countries in the list, residing in the 23rd position, but on the other hand, the total E-Government Readiness index Egypt fell back from 79th position in 2008 to the 86th position in 2010 out of 183 countries (United Nations, 2010). It is worth mentioning that the 2010 report praised Egypt among few other countries in the gender empowerment efforts and gave an example of women running telecenters, but the report still referred to these practices as "anecdotal". For the infrastructure index, Egypt ranked in 110th position out of 190 countries which was a remarkable fell back.

In the latest UN E-Government Index report for the year 2012(United Nations, 2012), Egypt ranked in the 107th place out of 190 examined countries in the e-government index, and in the 42nd place among 190 countries in the total online service index. Egypt made a high leap in the e-participation index that was even compatible with the developed countries when Egypt obtained the 7th position among the surveyed countries. In the telecommunication infrastructure, Egypt was the 107th out of 193 countries. It's worth mentioning that the total number of countries surveyed according to each criterion varies, because some countries might have developed infrastructure but have no online services.

According to Hassanin (2012), the users didn't issue any serious complains regarding any difficulties in finding the information from the online government domains in Egypt post revolution, which also enhances the UN report regarding the continuous improvements of the online service index in Egypt so far.

From the global integrity report of 2010, Egypt was identified as one of few other countries that imposed severe repression on the internet freedom, through various techniques such as blocking access to internet websites and content filtering. The report also refers to the strict regulatory framework was also remarked in Egypt, since the law forced the internet service providers and internet cafes to document formal data about the citizens' online activities(The Global Integrity Report ,2010).

According to information received by War Resisters' International, an Egyptian blogger was arrested post revolution for criticizing the armed forces in his blogs (War Resisters' International, 2011). While the report of Reporters without Borders (2012) indicates that some other bloggers were interrogated and threatened to be charged for criticizing the military forces in Egypt during the transition phase either on their blogs or on satellite TV, However, these events happened before the latest presidential elections in Egypt.

The revenues of the Egyptian telecom operators grew dramatically by the end of 2012 to witness a 23.1 percent growth rate since 2008, and this conquered the fears about the Egyptian telecommunication market, especially after the internet force shut down that happened during the revolution in 2011, and the investment environment (Mayton, 2012).

According to a report issued by the Arab Advisors group in early 2012, 22.4% of the internet users in Egypt used e-commerce for buying or paying bills online, which represents around 3.4% of the total population in Egypt, the most popular bought product online were respectively: electronics and software, while the most paid for services were airline tickets and website subscriptions (Arab Advisors Group, 2012). Insightsmena.com, which is a Google founded website, the rate of users who made a purchase online in 2011 was 2% of the total population, while it was 1% of the total population in 2010(insightsmena, n.d.). Actually these statistics can indicate that the revolution didn't participate in hindering the digital economy growth drivers.

Another issue that relates to the online content can be seen through the religious views and the online impact, according to BBC(2013), activists filed lawsuits to call for shutting down some internet websites such as YouTube, because it contained uploaded videos that included offensive contents to Islamic religious symbols, however, the Egyptian ministry of telecommunication along with another human rights group called the Association for Freedom of Thought and Expression in Egypt (AFTE) appealed against the decision that was hard to apply due to high technical costs and regulatory framework that doesn't allow monitoring of social media content according to the ministry. From the human rights perspective, the decision was a collective punishment to the YouTube service that can ban the users from using this online media to express themselves on the online space tools.

The formal amendment strategies were set up post revolution, the Egyptian ministry of telecommunication initiated the national ICT strategy for 2012 to 2017, and the ministry based its ICT strategy on a main vision that involves developing a democratic transition leading to a democratic digital society as well as a sustainable development within the ICT sector to enhance the national economy. (Arab Republic of Egypt, Ministry of Communications and Information Technology, 2012).

The annual ICT GDP in Egypt reached 38.81 billion in Egyptian great pound EGP in 2011/2012, compared to 36.58 Billion EGP in 2010/2011(egyptictindicators.gov, 2012). While the amount of the exported ICT related services was estimated to be 7.0 percent of the total exports in 2011, declining from 8.8 percent in 2010 (The World Bank, 2013), the imports of ICT related goods were estimated as 3.5 percent of the total goods in 2011, declining from 3.7 percent in 2010(The World Bank, 2013).

In 2010, Egypt was one of the main ten countries that received foreign direct investments inflow in the ICT sector (International Telecommunication Union, 2012). According to International Telecommunication Union (2012), the ICT Price Basket including the sub basket in Egypt was around 2.9% of the GNI per capita in 2011, while it was estimated to be 3% of the GNI per capita in 2010 (the GNI per capita was 2,420 USD and 2600USD in 2011)

(The World Bank, 2013).The basket includes fixed and mobile phone prices along with the fixed broadband service price.

As part of its ICT strategy for 2012 to 2017 The Ministry of Communications and Information Technology in Egypt proposed amendments to the laws that contained some articles that don't support the digital freedom of expression, such as the Telecommunication law No.10 for 2003 that contained two articles that allowed the former government to have a legal background in disconnecting the internet connection during the Egyptian revolution in 2011 as well as to restrict the online freedom of the users (Arab Republic of Egypt, Ministry of Communications and Information Technology, 2012), It's worth mentioning that such amendments were proposed after conducting a dialogue between the government and the civil society agents, which also did increase the transparency and openness in decision making after the revolution. The strategy also included programs and plans for genders and age empowerment in the ICT and digital world such as women and children.

2.2.3 The digital growth in Libya

As a result of the applied repressive internet policy before the uprising in Libya, according to Freedom House (2012), many activists were imprisoned because of their anti regime cyberactivism or due to deemed anti social or anti religious morals activities as well, the former Libyan regime was backed by some repressive laws that inculpated any kind of cyber anti regime actions. During the Libyan uprising in 2011, the regime followed the steps taken by its former Egyptian peer; the adopted strategy included shutting down social media and some news websites, such as Al-Jazeera TV web site before shutting down the whole internet service once the revolution started to escalate (HUFFPOST TECH, 2011). The former Libyan regime act against the internet freedom was the severest among the Arab spring countries so far, these counter activities lead to internet shutdown in most parts of Libya since March, 2011, and remained for almost six months later (the period of the armed battling between the dissidents and the regime forces). According to a Libyan activist who was interviewed in February, 2011, spreading mobiles videos via Bluetooth and sending them to online media such as Facebook, or satellite TVs as Al-Jazeera TV helped giving the revolution the momentum it needed (Hauslohner, 2011). Despite the complete ICT service shut down for the period of six months, many observers didn't expect an economic impact due to the small penetration of internet among the Libyan society, which was hindered by many factors such as the monopolized ICT market that was owned by the former president family members or relatives, the thing that lead to high prices of service that wasn't affordable to most of the Libyans. The report of Freedom House (2012) indicates that The General Posts and Telecommunications Company (GPTC), which is the main telecom operator in Libya is fully owned by the government. In 1999, the GPTC awarded an internet service provider license to Libya Telecom and Technology (LTT), which became the first internet service provider (ISP) license in Libya, LTT is a subsidiary of GPTC. Some other ISP companies were granted license, but these ISPs remained subordinate to LTT, by adopting this strategy, the Libyan regime managed to retain a control over the internet sector in the country, this monopoly also contributed to the high prices of service, that in return hindered the effective internet penetration through the country. An example of the affected parts from the high internet service prices were the Libyans who didn't work in the oil and gas markets, such as the public sector workforce, these employees had an average monthly income of 195$, while the monthly ADSL service for 7GB costed around 15$, Other aspects related to the limited computer literacy, especially among women (Freedom House, 2012).

Unlike the broadband market, International Telecommunication Union (2013) indicates that the mobile market was extremely penetrated, in March, 2008, Libya was the first African country that surpassed 100% mobile penetration of the population, and this was due to the more competitive nature as a second provider joined the market in 2003. Actually this market

diversity in mobile service contributed in restoring the communication in the eastern revolting cities in Libya in the beginning of the uprising, Hill (2011) states that a duty engineer of "libyana" mobile phone company, which was founded in 2004, managed to restore the destroyed communication facilities and regain the online and international calls, since the needed telecommunication equipments to restore the connection weren't stored in the capital of Libya, which is Tripoli, but in "benghazi", an eastern city that witnessed the beginnings of the uprising. The rebels were given an external help from foreign network companies specialized in disaster recovery that supplied them with experts and new facilities to restore the communication in the eastern cities. Due to the difficulties in the mobile connection, black markets emerged, for instance "Libyana" SIM cards reached 111$. Some expatriates sold their SIM cards for about 40$ before departing from Libya as mobile phones were confiscated or stolen at checkpoints (Hauslohner, 2011). According to the World Bank statistics Libya didn't have any data indicating either the value of imported ICT related goods in the latest past years or the exported services (The World Bank, 2013).

In 2008, Libya e-government index was ranked in the 120th place out of 182 surveyed countries in the UN e-government readiness study, while it ranked in the 97th place among 192 surveyed countries in the web measurement index and in the 65th place among 192 surveyed countries in the e-participation index for 2008 (United Nations, 2008). According to the World Bank statistics, the number of internet users per 100 people in Libya for 2008, 2009, 2010, and 2011, were respectively: 9, 10.8, 14.0, and 17.0 (The World Bank, 2013). Libya e-government index improved in 2010 as the country ranked in the 114th position among 183 surveyed countries, the online service index for the same year ranked Libya in the 135th place out of 189 surveyed countries (United Nations, 2010). What's noticeable from the Libyan online service index for 2010 is that one of its component, which is the transactional service; a feature that assesses the government interaction with users such as requesting and receiving inputs on the government policies, programs, or regulations, as well as providing some transactions online, i.e. tax filing documents or licenses applications, this transactional feature received a zero rank, indicating that it was absence from the Libyan e-government activities in 2010. Based on United Nations(2012), Libya didn't enter the e-government index ranking for 2012 as by the time the report was under evaluation there was no presence of the Libyan government online, so its normal for some metrics such as e-participation, and the online service indices to have "zero" values in 2012.

After restoring the internet service during the conflict, Freedom House (2012) report indicated that ADSL and WiMAX services were free of charge in the eastern parts of Libya that were controlled by the dissidents, and from November, 2011, until march 2012, users who already had the functioning equipments were able to use the internet for free throughout the whole country, these factors increased the internet users in Libya and increased hours of usage. However, the old high prices of internet connection fees that existed pre revolution returned after that. The Monthly subscription rates slightly decreased while the usage quotas raised, however, the internet speeds in Libya remained generally slow. Akamai(2011) states that the average of internet speed in Libya for 2011 was 0.3,this is due to the communication difficulties that existed in that year in Libya, moreover, there were around 52% of internet users in Libya who worked on internet speed that is less than 256KB.

After the end of revolutionary battle, the transitional government initiated the first Ministry of Information and Communication Technology in the history of Libya, this ministry became responsible of the ICT in the country, before the revolution, the related ICT matters were handled by either a general corporation or within the tasks of previous ministries of Transportation. According to the ministry website that is still only Arabic based content until the time of writing these words, the ministry has managed to restore the ICT infrastructure in Libya after these infrastructure were vandalized during the armed revolution period (Ministry of Communications and Informatics in Libya, 2013). Inspired by the internet role in the Libyan revolution, the ministry adopted an initiative called "E-Libya", that aims to transform

the Libyan society into the knowledge economy, the initiative is supposed to improve the standard of living for the Libyans by increasing the implementation of the technology in the society, and to build the knowledge economy to benefit from a stronger private sector and improved ICT human capacity. "E-Libya" depends on implementing an open government that will improve the information transparency and accountability in the state, as well as helping the citizens to easily reach the information about the government activities and programs. By adopting e-government services, the initiative aims to achieve a better G2C relation and eliminate the manual procedures, eventually; the initiative looks to stimulate e-commerce and e-learning applications in order to boost the economic development in the new reformed Libya. (Ministry of Communications and Informatics in Libya, 2013).

In order to implement E-Libya on the best practice, the Libyan government signed an agreement with its peer in the United Kingdom in May, 2012, according to this agreement, the united kingdom will offer the needed knowledge to develop a modern communications infrastructure in Libya, leading to an improved ICT strategies, regulatory systems, ICT infrastructure, and value added ICT applications such as open government, e-government, e-learning, and e-commerce. The United Kingdom will provide all the needed resources to achieve these goals, from the human resources if needed to the business development plans, and will provide strategic guidance in the related matters (GOV.UK, 2012).

In 2009, the authorities in Libya required cybercafé owners to monitor the users online activities within their premises, including software download. Before that time, in 2003, the cybercafé owners were instructed to install stickers on each computer to warn the users not visit websites that can negatively affect the national security or public morals (Freedom House, 2012). However, after the revolution, the Libyans enjoyed a freer internet environment, as all the previously blocked websites such as the social networks and blogs were freely accessible. Although some fears remain because the transition phase is still new and users still hold the fears from the previous cyberactivism consequences, therefore, they don't engage in online anti revolution activities or real critics against the new regime, according to Freedom House (2012), one example of negative consequences for online anti authorities activity is the abduction and beating of a Libyan journalist female who was investigating a murder of General called Abdulfatah Younis in which the National Transitional Council(NTC) and islamist militias were accused of. The previous repressive internet laws are still in active, however, the regulatory reformation vision of the ministry of information technology seems to be working in the positive direction for the internet freedom.

Based on the latest reports, Libya was one of the countries that were removed from the internet enemies list (Reporters without Borders, 2012), as the overthrow of the old Libyan regime was accompanied by new scopes of internet freedom and an end of an internet censorship era.

2.2.4 The digital growth in Yemen

Stimulated by the ousting of former Egyptian and Tunisian regimes and willing to reform their countries, the Yemenis started their demonstrations against their regime, specifically in March, 2011. Actually in this uprising the internet wasn't the first mobilizing point, however, Yemeni used the online social networks, especially Facebook, in order to coordinate and manage the revolutionary demonstrations as well as to deliver their peaceful message for change to the world. According to Al-Sakkaf (n.d.), the Yemeni people faced stereotypes of being old fashioned and unable to form a suitable substitute to their regime, as the western world saw the former regime a guarantee to sustain stability in the region by conquering the extremist armed forces such as "al qaeda", the thing that made the regime try to defame the image of the opposition by using different methods of media during the uprising, and one of these media was the online social media.

The report of AFP (2011) states that during the uprising, some Yemeni activists considered Facebook as an easy means for protest managing that will eventually lead them to succeed in their national reformation endeavors such as in Tunisia and Egypt, while others saw that Facebook and the online social media networks can be used to distribute unblemished truth of what's really happening on the land instead of going through the news media that are biased or controlled by the regime power. The use of social media was important at that time in Yemen because spreading videos and pictures about the victims who were killed during the uprising was significant to support the revolution and to counter the regime media about the opposition (AFP, 2011).

The Yemeni protesters impressed the international community through their insist on the peaceful demonstration despite the violent techniques that the regime used to conquer the opponents protests, this violent reaction lead to the death of hundreds of protestors (AFP, 2011). The peaceful response from the protesters lead the regime to use the online social networks to try to defame the opponents morale, and to spread falsified facts about the victims of the protests, this actually lead to a marketing war between the regime and its opposition, both parties developed Facebook and other social media presence, the opposition formed a kind of e-army to conquer the regime rumors about the protestors and the political quo in Yemen at that time, the opposition strategy depended on correcting the misinformation about the rebels as well as reporting the pro regime Facebook pages that were defaming the truth about the opposition, and this e-army of pro-opposition users managed to close some Facebook pages through thousands of reports. On the contrary, the pro regime pages worked on hacking some of the opponents fan pages as well as spreading the pro regime media (Jubran, 2011).

One of the remarkable notes of Yemen Uprising is that it instituted a political engagement of the Yemeni women, as from the beginning of the upheaval, female activists started to engage in the online anti regime campaigns, Stoner (2011) states that some of these activists created Facebook groups to discuss the roles of women during revolution and how to obtain and guarantee women rights post revolution, for example, Al-Sakkaf (n.d.) refers to one of the matters related to the women post revolution stature that was raised by a semi organized women's movement, called the Watan Coalition, this movement demanded a quota for the Yemeni women in both the elected and non elected bodies of the new government. Al-Sakkaf (n.d.) also states that the virtual and actual involvement of women in the revolution participated in eliminating the stereotype about Yemeni women, since half of the Yemeni women are illiterate and 20 percent of them are integrated in the economic sector, from that point, their engagement in the peaceful political reformation helped eliminating this old fashioned perception about Yemeni women.

In addition to Facebook, SMS was also a tool of democracy between activists, as the activists used these tools to chat about the decision to conduct marches, and decide the names to be given to each Friday march, as the activists used to name each main march on each Friday with a special name to indicate the purpose behind it (Stoner, 2011), Yemenis also lobbied on anti regime websites that exposed the persecution of the old regime (Al-Sakkaf, n.d.). YouTube also played an important role in exposing the marching in Yemen, as many videos were uploaded to show the anti regime demonstrations, while twitter helped in distributing updates on marching. (Brazzell, 2011).

Based on the latest statistics, only 14.9% of the Yemeni population used the internet in 2012, which comprises 3,691,000 users out of 24,771,809 entire population, moving from 1.9% internet users of the total population of 23,495,3612 in 2010(Miniwatts Marketing Group, 2012).The ICT related imported goods (excluding software) dropped to 1.0% of the total imported goods in Yemen in 2011 from 1.3% in 2010(The World Bank, 2013), while the ICT related exported services accounted to 8.7% of the total service export in 2011 up from 6.7% in 2010.

In 2008, Yemen ranked in the 164th place out of 182 surveyed countries in the UN e-government index study, while it had one of the lowest web measurement indices as it ranked in the 190th place out of 192 surveyed countries for the same year (United Nations, 2008). It's worth mentioning that the GNI per capita in Yemen was 980$ in 2008(The World Bank, 2013), while the fixed broadband tariff for the same year was 225.74$ per month (TRADING ECONOMICS, n.d.). It's also remarkable that the transactional presence (also called transactional service in the later year's assessment reports) in Yemen didn't achieve any points for 2008. In the 2010 study, Yemen ranked in the 164th place out of 183 surveyed countries in the e-government index, while it ranked in the 167th place out of 189 surveyed countries in the online service index, Yemen also didn't receive any points for the transactional services in 2010(United Nations, 2010).

In the latest produced e-government readiness report for 2012, the e-government development index for Yemen was in the 167th place out 190 countries, while the online development index in 2012 positioned Yemen in the 169th place among 190 surveyed countries. What's noticed is that Yemen transactional service was evaluated as 8 percent in the Year 2012 survey (United Nations, 2012).

According to The Global Integrity Report (2010), the level of the internet freedom in Yemen was the poorest among the list of surveyed global countries; Yemen achieved a score of "zero", which is the most comprehensive internet censorship among 33 other countries, while the new documented surveys are still needed to measure the current internet freedom in Yemen post revolution.

2.2.5 The digital growth in Syria

The roots of the Syrian unrest started soon after the Tunisian and Egyptian upheavals, and accompanied with the Yemeni uprising, back in March, 2011. The sparking event happened when a group of schoolboys who were inspired by the Arab spring revolutions, painted some anti regime slogans in the walls in the city of Dara'a, and as a result of this action, the authorities in Syria arrested the schoolboys for several days, which infuriated their families, especially after what their families reported as torturing and beating signs on the students bodies when they were released from jails. During the children imprisonment, the anger of their families and relatives escalated as they protested in the streets demanding freedom for their children, however, due to the violent response from the regime forces, some of the protestors were killed, which exploded the Syrian uprising since that time even after the release of the children (CBS News, 2011).

Just like the other Arab spring cases, the Syrian uprising also had its online struggle between the regime and its opponents, with the difference in the duration of the struggle, which is still running until the time of this research, the thing that forced the change in the internet policy from the regime side due to other factors that affected the online world in Syria from the beginning of the struggle.

According to Reporters without Borders (2012), the online activists in Syria as well as in some other countries were subject to investigation and torturing to force them to expose their online accounts, such as Facebook and Skype. Other attempts of hacking usernames and passwords were also reported in Syria. The Syrian cyber army supports the Syrian regime against the dissidents 'propaganda by refuting the opponents' claims and publishing some unrelated information to the battles such social and sport events in order to change the international vision about the seriousness of the battles severity on the land. On the other hand, some bloggers received international twitter campaign support, while some other internet activists whose online published materials gained international prominence were targeted or killed by pro regime forces. Some other repressive regulations to the users' online anonymity were also passed during the last year of 2012, aiming to regulate the broadcast including the online media. On the contrary, some online human rights groups made efforts to

introduce the Syrian users to the secure browsing tools and how to circulate the government censorship and keep posting materials about the battle (Reporters without Borders, 2012).

Freedom House (2012) report identifies other pro regime online strategies that were followed in Syria; these strategies included hijacking online presence of the activists such as the publishing websites and impersonating twitter profiles for famous online activists in an attempt to defame the facts. Some sorts of repressive activities involved beating and torturing online activists. Syria was among other countries where online bloggers faced physical attacks or even got killed because of their publishing materials, some of these activists were killed during their work in filming and reporting the battles on the land, while others paid the price of their online reforming activities such as creating Facebook pages, at the same time, many bloggers and netizens were kidnapped, arrested, or tortured because of their online publishing, some of those bloggers who had an international campaign behind them were released from prison. Other strategies implemented by the authorities in Syria included slowing down the internet connection during the huge protest days, such as in Friday, the purpose is to prevent the activists from uploading videos regarding the demonstrations. Some reports also indicated the complete disconnection of mobile and phone communications, in addition to blocking access to Bambuster; a website that allows users to post videos from their mobile phones.

Despite the U.S trade sanctions on Syria, Freedom House (2012) report indicates that the online filtering equipment in Syria were obtained from a U.S Company, even though the company stated that these equipments were intentionally sent to Iraq but someway ended up in the Syrian authorities' hands. In the latest Freedom House report 2013, Syria was classified as one of the countries in "the worst of worst" countries in the online freedom level among other countries surveyed, indicating a severe declining curve in the freedom including the online freedom (Freedom House, 2013).

In 2008 UN study, Syria ranked in the 119th place out of 182 surveyed countries in the e-government development index, while it ranked in the 167th place among 192 surveyed countries in the Web Measurement index for the same year(United Nations, 2008). It is remarkable that in 2008, Syria didn't achieve any points for the emerging stage index, which is an index that measures the online presence of the government, such as a central online portal that provides links to ministries and departments and presents information to the citizens regarding these governmental agencies. For 2010, Syria ranked in the 133rd place among 183 surveyed countries in the e-government development index, while it ranked in the 170th place among 189th surveyed countries for the online service index, with no points for the transactional services, and only a score of "1" for the connected approach that measures the efficiency in the governmental activities in requesting information and opinions from the citizens using Web 2.0 and other interactive tools and the ability to customize the services to comply with the varying demographic type of the citizens to empower the citizens' participation in the government activities and decision making. Syria also ranked in the latest places in the e-participation index (United Nations, 2010).

In the latest UN report of 2012, Syria ranked in the 128th place among 190 surveyed countries in the e-government development index, the transactional service received a low evaluation of 4%, and Syria was ranked among the lowest countries in the e-participation index for 2012(United Nations, 2012).

The GNI Per capita in Syria was 2,750$ in 2010(The World Bank, 2013), according the International Telecommunication Union (2012) report, the fixed broadband sub-basket percentage of GNI per capita in 2010 and 2011 was 9.4 percent, however, the mobile cellular sub-basket percent of the GNI per capita was 8.7 percent in 2010 and grew to 9.3 percent in 2011. The total internet price basket percentage of the GNI per capita in Syria went from 6.2 percent in 2010 to 6.4 percent in 2012. Based on the World Bank (2013) statistics, the exported ICT related services in Syria for 2010 comprised 2.5% of the total exported services, while Syria haven't registered any percentage of the exported ICT related services in the recent years yet (The World Bank, 2013), the percentage of the imported ICT related goods

(excluding software) in 2010 out of the total imported services was 2.2, with no registered data for the later years yet. The percentage of internet users in Syria reached 22.5% of the total population of 22,530,746 in 2012, growing from 17.7% of the total population of 22,198,110 in 2010(Miniwatts Marketing Group**,** 2012).

3 THE DIGITAL INVESTMENTS IN THE ARAB SPRING: DO OPPORTUNITIES STILL EXIST?

There might be some questions raised by a typical investor who initiated an online campaign to support his business, some of these questions concern the unrest situations and the new ICT strategies that emerge during and after the political and economic reformations, for example, what should a website owner expect when he is facing a business competition and decided to start an online marketing campaign but suddenly a social unrest occurred? What are the strategies to keep the business away from financial loss? Is the service delivery still possible? Or in the worst case scenarios could the information still be delivered to the client under the extreme unrest? And from the macroeconomic scale, how the government should form its policy to sustain the growth of the digital economy during the emergency cases?

In order to answer these questions, and after having a look at some effects on the ICT sector during the Arab spring, to able to determine how the governments strategies can affect the growth of the digital economy, some indicators related to the Digital service Connectivity, Profitability, and Sustainability need to be taken into consideration, the next discussion will attempt to analyze the effectiveness of some adopted strategies related to these indicators on the Arab Spring reformation purposes, especially the economic goals.

3.1 Sustaining the service connectivity

In order to enable a reliable digital business, there should be a guarantee that the information strategy within the hosting country of the digital business will be aligned to the free usage policy, that is to ensure the internet service continuity is accompanied with the online freedom, and to do so, the risk drivers that emerged during the Arab Spring uprising should be considered carefully to optimize the reaction to the emergency status once it happens, and to develop reliable downtime plans to face the expected challenges, these challenges are related to:

- The communication policy of the hosting country during and after the emergency status, this means how the government will react to any sudden social unrest, and what the future strategies might be.
- The effect of the international society on the repressive governments' information policy.
- The online communication medium, where the business communication is conducted, for example, if a business is conducting its online presence campaign on a social network such as Facebook, then some factors that might affect the business operations during the unrest might occur; these factors are related to Facebook policy as well**.**

3.1.1 The role of the domestic governments in sustaining the internet connection during and after the social unrest

From the of the Arab Spring cases, both the governments and the opposition groups followed different strategies to handle the electronic war, from the governments side, these actions entailed some repressive techniques relating to the internet freedom, the techniques varied from censorship, hacking, pro regime online campaigns, and partial or complete shutdown to the internet service, while the opposition forces depended on extending the online outreach for their standpoints, and reporting some pro governments web pages.

When a government decides to perform either a partial internet shutdown that involves blocking some websites, or a complete shutdown to the whole service it performs collective action against the electronic business in the country in other manners, for instance, blocking a Facebook or Youtube from a country means that the collective punishment doesn't only affect the political activities on those websites, but also expands to affect all the commercial advantages from the tens or hundreds of enterprises that invest in the online marketing using social networks to extend their outreach among the supposed clients.

The McKinsey Global Institute (2012) refers to the different advantages of the social networks in our days, from supplying the organizations with a better Business-to-Consumer interactive space with their clients, which will enhance the product feedbacks and suggestions through the different levels of the value chain, and supporting one-to-one or many-to-many communication facilities across the different geographic zones with no marginal costs. The social networks can also Support the consumers buying decisions as they enable feedbacks from consumers who already bought the products, for example**,** a survey found that 66 percent of Chinese consumers relied on recommendations from relatives, compared with 38 percent for US consumers, while other survey found that recommendations about a brand or product from a contact on a social network are considered three times reliable than as those that come from a stranger or anonymous advertisement**.**

Typically, when a government completely blocks an e- business supporting website, it hinders the ability of different types of businesses of different sizes from taking the advantages of the internet and social networks to expand their shares in the market, which will eventually affect their profitability and might cause the internet-only websites that have no physical offline presence to lose their competitive advantage, while it does impact every brick and mortar business that invests in a high online marketing campaigns. In a study commissioned by Google and conducted by Boston Consulting Group(BSG), the internet GDP in Egypt, which related to the contribution of the internet economics to the total GDP, reached EGP 15.6bn in 2011, which is the year when Egypt was directly affected by the Arab Spring Uprising, the internet GDP represented around 1.1 percent of the total GDP in Egypt for 2011(BELLEFONDS et al. 2012), while in Turkey, the internet economy contributed to around 1.7 percent of the total country GDP in 2011 according to another study of Boston Consulting Group**(**DEAN et al. 2013**)**. The BCG estimates that the internet GDP in Turkey will grow up to 19 percent annually between 2011 and 2017, it's predicted that the internet GDP in Egypt will grow at the rate of 22 percent per year in the nominal terms between 2011 and 2017 provided that the barriers to the internet economy growth are eliminated.

While a collective blocking action can be seen unjustified because it affects the economical impact of the internet, sometimes a controlled blocking and even legal actions can be necessary, for example, using the internet for bad intentions such as to incite riots, violence, child exploitation, identity theft or impersonation for abusive purposes(Smeed, Toolan, and Weir 2011),these cases can be dealt with through a targeted controlled action policy that doesn't impact the majority of the users including the digital investors in order to keep the gains from the internet usage.

3.1.2 The role of the international actors in the information policy

In a research paper that was submitted to the European Parliament's Subcommittee on Human Rights, Wagner (2012) showed that most of the internet surveillance technology including mobile surveillance that were used to constrain the internet freedom in the Arab Spring countries were imported from Europe and North America, also in some Arab spring countries that had liberalized markets such as Egypt, the European owned Telecommunication operators did participate in the internet shutdown based on the former authorities orders during the uprising, but the report indicated that the European governments didn't exert much efforts and pressures to prevent the internet and mobile communication shut down or at least to keep these communications running for a longer period, moreover, the report also indicated that the orders were made suddenly from the former Egyptian force to the local staff working at the European owned mobile telecommunication companies to shut down the service, the thing that didn't give the local staff the chance to consult the European headquarters, so they were forced to bind to the orders and shut down the service as the former Egyptian authorities also had the control to order the power companies to remove the power supply from these European mobile telecommunication owned companies, the thing that will result on greater costs to these mobile operators. When the public pressure against exporting technologies became active on some cases, the consortium of European technology companies were pulled out of Syria and the European sanctions list included the exportation of such repressive technologies, later the council of European Union passed additional sanctions on exporting internet and mobile monitoring software and equipments to Syria, in addition to the American sanctions, Syria Surveillance and Censorship internet technology remained less developed than the former repressive technology architecture deployed by the former Arab Spring Regimes, the study presents an example of Bahrain, a less affected country from the Arab spring which has witnessed protests since the beginning of 2011, where the internet service is extremely monitored and controlled, according to the same study, Bahraini government imports high developed surveillance technology in order to monitor and identify the users who might publish online contents that can be verified critical to the formal regime Wagner(2012) study also calls for a new roadmap European foreign internet policy that is based on supporting internet freedom based on no disconnect strategy to enhance the users privacy and security in the classified "non-democratic countries", and ensure that these users have the right to express themselves freely online, the recommendations also call for diplomatic intervention to support the European telecommunication operators in countries that might have repressive internet and when ICT related decisions can occur suddenly, such as what happened In the Egyptian case as some of the European operators stated that they didn't receive enough support from their governments at the time they were ordered to shut down the communication service. Some other suggestions like regulating the ICT exports and services to be aligned with human rights concept and benefiting from the developed countries experience in regulating the exportation of surveillance technology to repressive regimes such as the British regulatory system, finally, to reach a comprehensive foreign European policy that is supportive to human rights and capable of facing challenges in the foreign countries.

The U.S global internet freedom Act does prohibit the sale and provision of Internet services to "Internet –restricting countries" according to Figliola (2012), the U.S State Department also works to promote global internet freedom by adopting initiatives to advance internet freedom in its foreign policy, these efforts include monitoring the internet freedom in the different world countries and trying to help the users to learn safety tools and provide them with circumventing solutions to access the internet content, while raising the internet freedom issue in the United Nations human rights efforts, as well as working with academic and nongovernmental organizations to establish a strong position for the internet freedom globally. The efforts also include working with media companies to encourage them in taking a proactive role to expose the foreign governments' endeavors in obtaining and using

repressive internet technologies. With regards to these efforts from the U.S State Department, Figliola (2012) study states that some commentators expressed concerns that this policy could result in vengeful actions from the repressive regimes against the whole U.S ICT companies or citizens living in the repressive countries, such as lifting business licenses, confiscating assets, or other economic pressures as a result of following and injecting this policy to the diplomatic policy as a whole, therefore, the more international momentum these initiatives have, the better succession chances they will achieve, however, some risks still arise for foreign internet companies working in repressive internet countries, such as the issue to cooperate with the repressive countries laws that might force these companies to expose their users privacy for investigation purposes, or blocking and filtering orders from formal authorities regarding to the laws in these countries, such differences in the regulatory framework between the countries can be an issue for the foreign operating ICT companies in the repressive countries (Figliola, 2012).

3.1.3 The role of the digital medium

This role is related to the medium where the e-business investment is made, for instance, if a newspaper has an online website and would like extend its internet traffic in order to enhance the e-business profitability, an investment in the online advertisement campaign can be a solution, and imagining that this investment was directed to the online social media websites, taking into consideration the annual increased growth rates of users, such as Facebook, that had a penetration of 30% of the Arab internet users in the first quarter of 2011, comparing to 18% of the Arab internet users in the same period in 2010 according to Dubai Press Club (2012), this growth of course was enhanced by the political events in the region and the role of social media in stimulating the uprising. Dubai Press Club (2012) extensive market research states that there is an increased reliability among the youth Arab internet users to move to social networks for news source as they saw these channels outside the affiliation of the governments such as the traditional news media, also the research shows that the big brands in the region are allocating increased budgets for the digital marketing in order to take advantage of the growing penetration of the social media among the Middle East and North Africa(MENA) region, for example, Al Arabiya.net, which is the website for the famous Al Arabiya news channel, generates 16% of its traffic from Facebook, and 4% from Youtube, while Kooora.com, which is one of the biggest visited websites for sports in MENA region, generates 32% of its internet traffic from Facebook (Dubai Press Club, 2012).

However, as mentioned earlier, due to the uprising and unstable events in some Arab countries during the Arab Spring, this had its impact on the social media, for example some Facebook pages news were targeted and hacked, basically because of the untraditional bold information these pages published, however, when a newspaper owner invests in the social media to improve the website traffic, and this page becomes a target to the online hackers, the role of the social media, such as Facebook in this case should be to quicken the response and damage control, Facebook issued some helpful tools to recover the hacked accounts and to educate the users about how to improve their privacy tools, in addition to more facilities to report the hacked materials, however, so far, there are still various methods of stealing the accounts and changing the information in such a way that the account can't be recovered automatically, moreover, there are some claims regarding the slow response of the online customer service from Facebook in regaining the hacked accounts, which is understood due to the high number of members, in addition to the nature of these social media doesn't offer phone services, this means in many cases the digital investors can lose their marketing budget as a result of these related risks to the service hosted medium and the freedom status in the e-investor country. The following figure summarizes the challenges in sustaining the connectivity of the digital service during and after the social unrests. **Note:** Although the roles of the digital medium and the international actors are considered external factors to the

growth of the digital economy and not performed strategies by the governments or the business entrepreneurs, however, these factors were mentioned because they can affect the overall connectivity indicator especially during the social unrests.

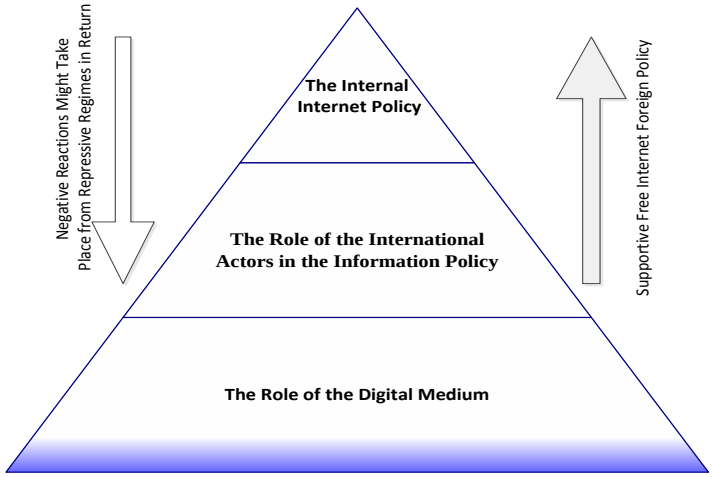

Fig.1. Interrelating challenges to the internet connectivity during and after the social unrests

3.2 Enabling a profitable environment for the digital businesses

In order to boost the growth of the digital economy, the government should enable a stable profitable environment for the digital business, as the successful growth of the digital business in the microeconomic level will accumulate to a bigger annual growth of the digital economy on the macroeconomic eventually.

Among the set of recommended actions to improve the profitable e-business strategies on both micro and macro economics scales are the focused plans for the consumer empowerment, the collection of the lost revenues, the protection of the creative environment, and the building of the creative environments.

3.2.1 Adopting new consumer empowerment strategies

To ensure the consumption growth of the e-commerce transactions, as well as transforming the net exports to a positive value, the consumers should be able and willing to participate more in the digital business, this could happen once the barriers to the engagement are removed, these barriers include the traditional barriers such as the lack of secure internet business framework, language barriers, or even the knowledge in the e-commerce profitability, however from the side of the governments, there are new approaches considering the e-consumers empowerment, these activities are related to new regulations to achieve the online consumer protection, in the study of OECD (2013), several regulatory issues related to consumer protection were detected, for example, since some of the laws even in the developed countries of the OECD don't specify the nature of the intangible digital product, and whether it's a good or service, this does have implications on the consumer rights, for example, the right to withdraw from the digital transaction. Other issues involve the online transaction parties, such as the consumers and merchants who don't have clear understanding to their legal roles and responsibilities under the laws if any disputes happen, this is mainly because of the lack of clear and definitive regulation for the digital transactions.

It's clear that from OECD (2013) study, this problem might become more complicated especially when new sophisticated payment methods are introduced to the digital environment

such as the mobile payment that entails new reliable regulations to address the potential payment and bills disputes, for example, the lack of complete information on the billing statements that are provided by the mobile operators, the thing that makes it hard for the consumers to track any unauthorized payments or bill shock. Another issue that is related to the digital transactions is the counterfeited products that do not represent the true value of the purchase, these products are sometimes misrepresented in a way that doesn't meet with the consumer expectation, and with no clear pre sale agreement that involves product satisfaction guarantees, and with the absence of online consumer protection, the dispute resolution in this case will be worthless.

The OECD (2013) study also refers to OECD countries that are developing new techniques for e-consumer protection, for example, Germany adopted a new law in 2012 that requires the digital merchants to provide the consumers with the basic information about the product including the price when selling the digital products on the internet, Norway also developed detailed guidelines for online shopping that require the online merchants to specify main criteria related to the product information such as price, payment method, dispute resolution mechanisms, and the privacy policy. The French government also called for new market surveillance regulations regarding the online business, a surveillance that should be able to detect the online websites that sell suspicious digital products that don't cope with the pre sale standards, while the authorities can have the right to call for the closure of the website through which the suspicious product was sold. Some ideas were shared to develop a European dispute resolution plan that will resolve any disputes regarding the online business through a flexible, reliable, and rapid mechanism. The study also refers to other issues emerging from the nature of the many online consumers who don't pay enough attention in reading the long pre sale statements once they decide to buy the online good or subscribe to the online service; these issues might include hidden costs such as unwanted additional fees that consumers didn't request to be charged for, or recurring bills. The authorities in the developed nations are doing efforts to control these challenges, for instance, the Australian Communication and Media Authority forces the business to acquire two different confirmations from the consumer before enlisting him in an ongoing SMS service, while in Finland, a new amendment was applied to the Communication Market Act, this amendment gave the authorities the right to order the telecommunication companies to close any SMS number that is involved in a fraudulent service.

The developing Arab Countries that are going through comprehensive reformation and envisioning a rapid growth and development in the digital economy are also invited to take steps in regulating the e-consumer protection and empowerment in their digital economy strategies, for example, in 2011, the Central Bank of Egypt allowed the mobile network operators to cooperate with the banks in Egypt to offer mobile money transfers(BELLEFONDS et al. 2012), however, for a reliable risk free implementation, an accompanied e-consumer protective framework should be aligned with these new promising steps in the internet business sector.

3.2.2 Collecting the lost governmental revenues and protecting the innovations

Some aspects that affect the digital economy growth involve the wasted assets; some of these assets are lost because of issues related to software piracy, which is a global dilemma that governments in the developing and developed countries are working to conquer in order to improve the economic growth as a whole. An example conducted study by the Business Software Alliance (BSA) in 2010 that surveyed 42 countries around the world found that by reducing the global software piracy by ten percent in four years this would create nearly 500,000 jobs in the technology market and add around $32 billion to the tax revenues. The study examined seven countries in the MENA region and concluded that for the 46% piracy

rate in these countries, there was an opportunity cost of creating 11,651 new jobs in the technology sector in 2009(Business Software Alliance, 2010).

According to the latest BSA study on global software piracy that was published in May, 2011, Business Software Alliance (2011) indicates that the selling of pirated software grew from $58.8 billion in 2010 to a commercial value of $63.4 billion in 2011.Incited by a zero or little marginal costs of obtaining the pirated software, companies that pursue pirated software are gaining illegal competitive advantage over the ones that pay for the software, which is the legal method to acquire the product. The BSA study indicates that the software pirates from the emerging markets are more than twice as those from the mature market countries, with percentage of 38 to 15 percents respectively out of the total frequent pirates of the software around the world. Some sorts of piracy involve installing a one-per-pc authorized copy in more than one computer, or downloading programs from peer to peer websites. According to the study twenty percent of users in the mature market countries who admit using pirated software said that they are concerned about being caught for using such illegal products, while fifteen percent of pirates in the emerging market countries expressed the concern about piracy consequences, indicating the assumption that more actions and work are needed to fight piracy in the emerging market countries, Business Software Alliance (2011) also indicates that in the Middle East and North Africa Region for example, the software piracy rates for 2010 and 2011 remained at 58%, which represent only 1% decrease from 2009. From the 2011 statistics, the countries that witnessed the Arab Spring uprising had growing rates of software piracy, for example Tunisia software piracy rate grew to 74% in 2011 from 72% in 2010, representing a commercial value of $52 million in 2011 comparing to $51million in 2010, while the piracy rate in Egypt for 2011grew to 61% comparing to 60% in 2010, comprising a commercial value of $172 million in 2011 comparing to $196 million in 2010. Libya had a piracy rate of 90% in 2011 comparing to 88% in 2010, with a commercial value to the pirated software of $60 million in 2011, comparing to 74$ million in 2010. However, Yemen was able to decrease its piracy rate for 2011 by one percent as it reached 89% in 2011 comparing to 90% in 2010, while the commercial value of the pirated software grew to $15 million in 2011 from $12 million in 2010. It is worth mentioning that the annual piracy rate is also propelled by the number of shipped computers into the country per year, also the price of the pirated software varies based on the type of software and through years, and the BSA study excludes the pirated software that are not sold in the market, such as the downloaded software from the internet.

While software piracy affects the intellectual property rights and diminishes the motivation towards innovation and creativity, some big online social networks responded to the industries calls by taking actions against illegal copyright materials on their websites, such as YouTube and MySpace that filter the copyright materials and hinder the ability of reposting these materials even under different usernames (ITU News, 2011).

Some countries are planning strict policies considering the online software piracy, for example, the Digital Economy Act in the United Kingdom suggests gradual escalated penalties on the movies and music pirates that would start with warning the infringer in the first time, and moving through limiting the internet speed if the infringement action reoccurred, and can eventually result in cutting the whole internet service from the copyright infringer, this suggested Act received some opposition and criticizing opinions(Jowitt, 2011).

The Arab countries that are looking to reform their economical regimes are invited to put more efforts in developing new policies for fighting the software piracy and to take steps in collecting their lost economic assets as a result of these piracy activities. The Governments are recommended to lead the initiative by adopting anti software piracy among their different agencies; however, more actions should include suitable regulatory frameworks to cope with the rapidly changing technological advents, especially within the online space that enables downloading these pirated software, the innovators are also invited to bind their product prices with the different economic states in the selling countries in order to ensure that their

products are affordable under a suitable price basket with the GNI per capita because eventually, when consumers can't afford to buy a product they will tend to either use unlicensed versions, or look for similar products.

3.3 Improving the social interoperability with the public

Some of the drivers of the Arab Spring uprisings were related to the increased gaps between the citizens and their governments, these gaps emerged because the former governments didn't adopt the openness and strategies to empower democracy and diversity in their interaction with the public, therefore, in order to sustain the new opportunities for the economic and political reformation in the Arab Spring countries, the new information strategies should address the new challenges in the social capital, these challenges include enhancing the transparency procedures, diversifying the digital economy sectors, and unifying the standards for data collection and improving the cooperation with the Society.

3.3.1 Enhancing transparency procedures

The Arab Spring uprisings were inspired by the ambition to fight corruption and reform the economic systems in addition to extended levels of democracy and human rights, when it comes to the digital economy, which is connected to the overall economic condition in the country, the typical perspective is that like any other type of economy, transparency and anti corruption are important to its viability. The digital space can be a main supporter to the anti corruption and transparency efforts by supplying more information about the governmental projects and programs, and improving the interaction between the citizens and their government, so that no information gaps would exist in the society under which these gaps can be filled by the privately owned news portals and might be used either for good or bad intentions to infuriate the public opinion or drive it to a riot in a way or another, for example, according to Kendzior (2012), in 2003 some of the online published writings of the government opponents in Uzbekistan incited violence as sort of revenge from the formal authorities, while other online media published various stories about bribery and poverty, the Uzbek government responded by increasing its control over the internet media as a result of some online campaigns that were deemed as violence provoking in the country, this lead to the passing of new laws that defined all websites as media and held them the same accountability as the traditional printed media, including registration with the authorities and supplying copies of publication and information about the website employees to the government.

Nowadays, with the advent of the online social networks, many online pages were created for the sake of news publishing, even for no profit purposes, however, these publications are gaining more fans every day and bigger power in shaping the public opinion, As shown from the United Nations studies regarding to the E-Government Readiness Index for the different surveyed countries around the years, the Arab countries need to continue their work with the e-government initiatives to reach better levels of openness and transparency with their citizens, such transparency should reflect the desired level of democracy that the citizens were missing before, and reaching this level of openness might require reliable regulatory frameworks with new administrative strategies (Demirkan, and Soper , 2012). According to The Global Integrity Report(2010), when people don't find enough information that is needed for accountability reasons such as matter related to their government finance, or their senior leaders source of wealth, the citizens will tend to choose the only possible way in their hands, which is the streets protests, in his speech in 2011, the World Bank President Robert Zoellick said, "Our message to our [Middle East and North Africa] clients, whatever their political system, is that you cannot have successful development without good governance and without the participation of your citizens. We will encourage governments to publish information,

enact Freedom of Information Acts, open up their budget and procurement processes, build independent audit functions, and sponsor reforms of justice systems."

The Arab Spring was also sparked by the slogans of anti corruption and economic reformation, moreover, the lack of online transparency lead to the asymmetry in the information flow between the governments and their citizens, which also centred the information among the different public groups with the advent of internet and ICT. Ensuring the democratic climate online with the freedom of expression and facilitating the reach of information is an essential task to protect the political stability eventually and keep the investment environment away from the overstated gossips that can affect the foreign investment decisions sometimes.

3.3.2 Improving the social environment to diversify the participation in the digital economic sectors

The success of the economic reformation in the ICT sector in general should be dependable on the number of active entrepreneurs and the innovation in the field that will result in an increased contribution of the ICT sector in overall annual gross domestic product.

An Important part of the improvement in the ICT market is to ensure the gender equality, that is to engage the females in the ICT and internet job market to boost its productivity, with more outputs and transactions generated, as well as more innovative ideas, the market will be able to leap to new levels of productivity and succession. In the Arabic region, whether in the ICT or other sectors, women face some barriers in entering the job market; these barriers are related to the social acceptance of the women work in general.

A study of Al Marzouqi, and Forster(2011) on women participation in the ICT sector in the UAE, which is one of the leading ICT markets in the MENA region, found that women entrance in the ICT sector is hindered by the cultural traditions, many mid-level IT women have commented that the "motherhood assumption" was a barrier since the traditional look of motherhood responsibilities doesn't support the work of women, also some of the extreme religious opinions that emerge as a result of misinterpretation of the religious sources play a role in shaping the gender discrimination since the earlier school years. The study also refers to the fathers roles and influence in their daughters lives especially in choosing career paths and working environments that don't allow mixed gender workplaces, such as encouraging the girls to pursue careers in the public sector that doesn't embrace mixed gender environments, some parents also still influence their daughters commitments to the traditional dress codes even in the business environment, but paradoxically, for some conservative emirates women, IT "backroom" role can satisfy their need for unmixed gender interaction at work. The study refers to another stereotype that can cause the females to become less motivated to engage in the ICT sector, this is related to the perception that this job market is designed for males, or needs sophisticated skills, also the pervasive circulation of computer video games among males and the violent nature of these games drive the females to follow this stereotype about the ICT market, while more emirates women are becoming entrepreneurs in other sectors such as finance, retailing, fashion and tourism, and other types of businesses. The study finally recommends some guidelines for solving the gender discrimination against women specifically in the ICT market, such as integrating the ICT subjects into the school curricula, and implementing business strategies to raise the awareness of females experience in the ICT sector and the success stories, as well as encouraging the females to become entrepreneurs in the ICT business, and offering ICT related scholarships for the excellent female graduates(Al Marzouqi, and Forster, 2011).

On the other hand, the Arab Spring can be stimulating to other females to engage in the online business, for some women who were influenced by the roles of their females peers in participating in the region's reformation and standing up for their rights more females believed in their abilities to create more social values, for example in Jordan, some women

launched online shopping websites for women, and the owner said that the opportunity can be seized since women might not have the chance to get out of their homes at certain times in a week if there are some deterring reasons, which consequently increased the number of online shoppers among women, another woman who initiated an online cooking website where she posts her cooking video said that she was influenced by the strength of women in the Arab spring countries who stood to deliver their voices and are working hard to eliminate the gender discrimination.(PRI Public Radio International , 2012).

Another factor that can affect the Social acceptance to the digital economy is related to the religious standpoint, an example is the "Fatwa" , which is an Islamic decree produced mostly by either Muslim scientists or Islamic councils, this plays a role in shaping the society trends towards the internet jobs, for example, some forms of e-marketing are considered Haram(banned in Islam) by discretionary scholars opinions(Islamweb, 2003), other opinions by Muslim councils considered the online Forex trade to be Haram as well (NEWSTRAITSTIME, 2012), these religious opinions consider some online jobs contradictory to the Islamic System for Sustenance, some other Fatwas also call for hacking websites that are deemed suspicious or containing Haram contents.

The Arab Spring countries should define more standardized formal positions on the internet business; these positions should settle any controversy regarding the e-commerce and the digital business as a whole, since most of the new formed regimes in the Arab Spring countries express their commitment to the civilian state and not the theocratic forms.

The controversial effect of Fatwas can still be seen influencing, since these Fatwas are not only issued inside the borders of the country, as many online Islamic websites have wide ranges of audiences from the different countries including the MENA, this can represent a challenge even if the domestic religious councils confirmed their definitive standpoints in the controversial aspects of some online jobs, also the fact that Fatwa can be seen as an elastic concept that is discretionary and endless, this leaves the door opened to every scholar to opine his position, and consequently creates more controversy in this matter.

3.3.3 Building unified standards for data collection and facilitating the cooperation with the society

The countries around the world including the developed ones are still working to improve their information systems regarding the ICT sector; so far, different statistical approaches exist to measure the growth of the digital economy globally, including the UN and the international telecommunication union, in addition to other international organizations and private institutions. Several ideas and issues were raised in the 10th World Telecommunication meeting that discussed the ICT Indicators, these matters included standardizing the statistical approaches and data collection methods to reach a reliable level of information that can be submitted to the ICT policymakers and the investors. In the developing countries, the governments seem to be more dependent on the private companies researches to measure the e-commerce growth, even though these studies might be in some way representative to the reality, however, they have their own methodologies in measuring the growth in addition to their high costs. Developing the e-commerce indicators is one thing, but to know how to obtain the values of these indicators is another dilemma, since in order to measure the effect of the e-commerce on the business turnover is fraught with difficulties, such as the lack of reporting systems that can supply the governments with information about the enterprises e-commerce assets, in addition to the individual entrepreneurs, for example, in Korea, firms are obliged to provide accurate financial data including the ones related to e-commerce and might be subject to sanctions if they fail to deliver such data. Other suggestions included extracting information from credit cards to evaluate the value of e-commerce in the country. Some countries like Thailand estimated the value of the e-commerce transactions (B2B, B2C, and B2G) through a conducted survey on a number of

registered e-commerce entrepreneurs in the Ministry of Commerce (International Telecommunication Union, 2012).

The strategic vision of the new reformed ICT systems should take into consideration the best approaches in evaluating the indicators of the digital economy in order to obtain the most reliable accurate data that any strategies and formal decisions can be built on to improve the overall growth of the ICT sector. Other sorts of cooperation with the private sector should include developing new methods to facilitate the e-government G2C transactions; such interactions will be beneficial in cutting the costs of the traditional manual procedures that consume time and cost. For example, Spain introduced the e-ID document for its citizens, this electronic ID is a secure standardized form of interaction between the citizens and the government and is used for conducting the different kinds of G2C online transactions (OECD, 2012).

The governments can also take initiatives to conduct awareness seminars for the private enterprises as well as for the individuals on the internet economic returns, these seminars could be delivered through the governmental academic institutions or through partnerships with the institutions that teach related science, for instance, Stanford University in the United States took an initiative from its own to make some of its lectures available online for free for the public in order to participate in spreading the knowledge within the society(OECD, 2012).

Other forms of cooperation can include facilitating the establishment of public authorities and groups that represent the specialists in the field of the digital economy in the society, such as specific professional syndicates. In Egypt, a specialized syndicate for electronic commerce and e-marketing was formally authorized in 2012, the syndicate takes the responsibility of qualifying the members for internet job in the fields of e-marketing, e-government, management and consultation, in addition to a focused specialty job on e-tourism marketing, since the tourism sector is considered as one of the biggest contributing sectors to the annual Egyptian GDP, the offered programs qualify the members to up to 50 different job positions in the market related to the online business that is suitable for students, graduates, employees, and housewives. The Syndicate also has an ambitious strategy in spreading the knowledge of the online labour, through initiating specialized TV channels and libraries that contain sources for this science. Other promising goals include spreading the knowledge of the online business in the Arabian countries, by exporting the trained qualified specialists to these markets in order to participate in the economic development and create more jobs in the markets as well as to solve the unemployment problems. The syndicate website has no English content yet, while the statistics currently state that 23 different companies and 665 employees are active on the syndicate website, the website allows the job applicants and the recruiters who are looking for online employees from the Arab countries to register themselves and start looking for the suitable related jobs/applicants. (Syndicate of Electronic Commerce and Electronic Marketing, n.d.).

The following figure summarizes the Discussed Ideas for the governments to boost the growth indicators of the Digital Economy for the Arab Spring Economic Reformation Strategies.

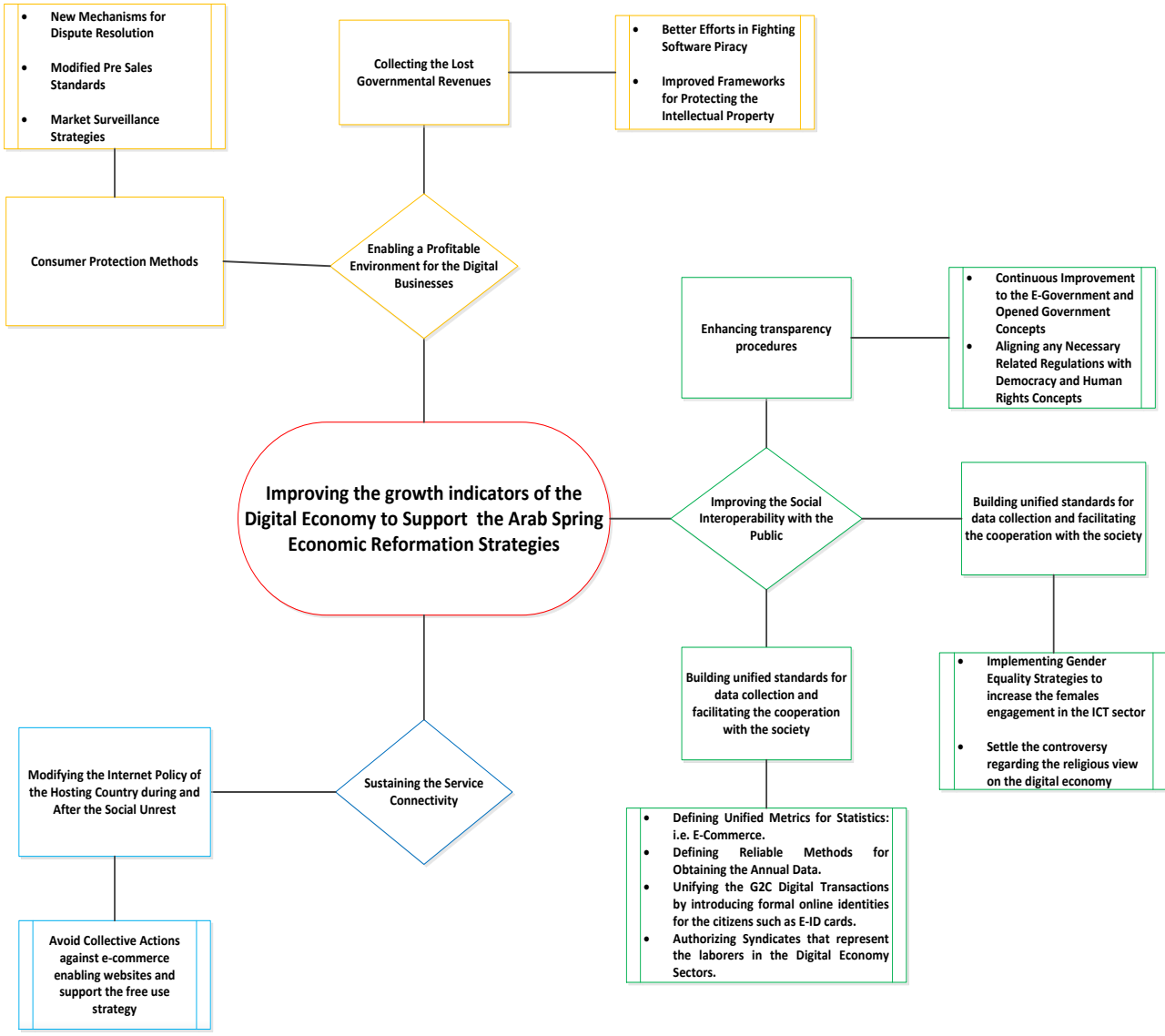

Fig. 2. Improving the growth indicators of the Digital Economy to support the Arab Spring economic reformation strategies

4 TESTING QUESTIONNAIRE

In order to test the effects of the governments' policies on the growth indicators of the digital economy that were presented in this research, a small sample of questionnaire was conducted to measure the impact of some policies. To the author's knowledge, no such research has shown any data regarding the opinion of the public about the proposed connectivity, profitability, and sustainability growth factors proposed in this research so far, especially amid the reformation endeavors, while testing the public opinion on these indicators is not an easy method on the regional basis, and due to the living location of the author, this sample of questionnaire was conducted on some Jordanian participants to have a general idea about these stakeholders' readiness and reaction plans on the digital economy growth challenges.

The other information was taken either from formal statements, reports by the stakeholders, or through the online opinions on the case, the similar opinions were clustered together in order to categorize them under a unified concept. The meant stakeholders in this questionnaire are the internet entrepreneurs who use the internet to boost their business, this sample contained 4 entrepreneurs including 1 female, the internet related jobs employees, the sample included 3 employees including 2 females, the independent experts in the ICT field and the sample included 2 experts, and Islamic Sharia specialists with a sample of 2 interviewees.

4.1 Measuring the formal policies effect on the Connectivity Indicator

The Jordanian ministry of information and communication technology indicated the intention of blocking some websites due to a deemed social considerations such as the ones that contain sexual contents (Ghazal, 2013), also the latest amendments to the press and publications law opened the door for websites blocking policy, since the latest amendments treated the online news websites the same as the offline publications and enforced the online newspapers to register their details, which includes registration fees, and obtaining licenses from the Press and Publications Department, while the new law holds the online websites the responsibilities of the users comments under the news reports, and the news website chief editor must be a member of the Jordanian Press Association, the latest amendments also subjected these websites to the same regulations as the printed media. Failing to cope with the new regulations can lead to blocking the website, or being vulnerable to legal consequences as well.(Hazaimeh, 2012).

The following questions were asked to the interviewees and the answers were obtained either directly from the interviewees or through the formal stated opinions and plans of the formal chiefs:

For the ICT Experts:

Q1: What is your Perception on Shutting down the ICT Communication? Do you think it's justified during emergency status or under any circumstances?

The interviewees agreed that they don't see shutting down the internet service as economically feasible, since more businesses in all the different sectors are depending on the internet service every day, also the ICT strategy in Jordan is based on increasing the ICT investments and growth by ensuring a stable and good quality service in a liberalized market, in addition to the nature of the country, which has been supportive to the online freedom of the citizens to reach the information through the ICT tools, one of the interviewees said" I haven't heard a single story so far about a user who was arrested because he expressed his opinion on a social online network for example, but this doesn't mean that the regulations don't have to improve for the online freedom as well as for the accessibility of the service, since many internet cafes are asking the users to provide their id cards and document their information and these cafes are required to use fixed cameras to monitor the internet users and their online activities based on orders from the ministry of interior affairs", the interviewees didn't expect any collective action against the social media networks or the video websites, because they believed that the democracy level is good enough in Jordan to prevent such collective actions, however, they expressed concerns about the recent websites blocking policy that was enacted according to certain amended regulations such as the press and publications law that can be seen as a reason for blocking websites. They also stated some concerns regarding to pressures from groups that might call for collective actions against online websites, for example out of discretionary religious perceptions.

For the Business Owners:

Q1: Do you have any Alternative Plans if the ICT service shuts down partially or totally?

All the business owners agreed that they will move back to the traditional manual service in making contact with the clients if the internet shuts down, they considered the traditional

method to be through post, mobile, and landline telephones, however, they couldn't see any immediate possibility in contacting the cross border clients or even the domestic clients if the whole ICT service including mobile phones and landlines were shut down as well. For the partial shutdown, Three of the entrepreneurs said they use social networks such as Facebook and twitter for their business, when asked about their plans if the website through which they invest in their online marketing service was blocked, all of them said they will transform to the email contact with the clients who are in their contact list, however, they didn't show any business plans for building an email or phones numbers lists. When asked whether they can think about the Voice over the internet protocol (VOIP) tools such as Google voice to tweet to their cross border clients in case the mobile networks were shutdown but the internet was still going, none of the entrepreneurs showed any knowledge in using these tools to contact people outside their contact list, but when asked if they upload the marketing videos on YouTube or through their business websites, the interviewees mentioned that they would rely on video tube websites, as they don't expect the authorities to take a collective action against all these websites, however, adding the video uploading features to their websites won't be a hard step for them to do. Two entrepreneurs said that they did use Facebook marketing at least once to reach wider range of audience, while one entrepreneur said that the type of his business already has a good base of customers and the offline media is doing well, his bank established a Facebook page to post the latest offers, and the outreach is within the acceptable level so far. Another entrepreneur said that he doesn't market his business online because he sees no point of doing so since the nature of his business is selling songs CDs, and many of the albums are being offered online for free download, but his business model depends on the offline selling mainly for users who want to buy CDs for their cars or stereos, or any other offline tools. two interviewees were owners of online newspapers, and they said that they use social networks to generate more traffic to their websites, however, they never paid for a social media marketing because they feel that the daily hits are satisfactory enough and their websites already have social media add-ons to enable the users to join their pages, another remark is that the online newspapers website owners depend on the advertising revenues that are mainly generated through the banner advertisements on their websites, and if they provided more content on the social media networks they believe that the traffic to their websites will decrease as the people might not be interested to check the websites once they read the headlines if the headline provides more details than what it should, or if they presented the news in a way that doesn't attract the users to check the news website. Some of the news websites in Jordan already provide the SMS service to deliver the news headlines to the users' mobiles once the users agreed to enter their mobile numbers and subscribe to this service. Finally, since many online news websites disabled comments under news reports on their websites to avoid legal consequences as they felt will be targeted by the new press and publications act, the author of this report suggested a mechanism to identify the users on the online websites to cope with the new law regulation, the method depends on requiring the commentators to register with the website in order to be able to comment under the news reports, and to register they should provide their Jordanian phone numbers and then receive a verification text, similar to Gmail verification for example, but with a difference that the registrar should provide a Jordanian number, since the Jordanian numbers are formally documented, so any offensive comment can be legally pursued in that case, but still the news website owners expressed concerns that under the new amendments they are held responsibility for publishing the deemed offensive comments just as the commentators themselves, and there is an ambiguity in the definition of "offense" in the user comment in order to disallow the publishing of the abusive comment.

4.2 Measuring the formal policies effect on the Profitability Indicator

The Jordanian government is considering the e-consumer empowerment regulatory framework under the national e-commerce strategy, these regulatory are supposed to fight the

electronic crimes and regulate the latest advents in the e-payment methods such as the mobile payments, however, the best practice techniques are being under debate with the different parties of the financial and commercial government entities involved in this national strategy. (Ministry of Information and Communications Technology, n.d.).

From the available research, the Jordanian National Library Department is conducting stricter policies against the pirated software, according to the latest BSA report for 2011stated in this report, the software piracy rate in Jordan rose from 57 percent in 2010 to 58 percent in 2011, and the commercial value of the pirated software, DVDs, and books was estimated to be JD14 million in 2012. The software piracy in Jordan remains in the lowest rates among the regional countries, in addition to targeting some raids to the institutions that use pirated software, the Jordanian National Library Department also conducts awareness campaigns to the traders about the threats of software piracy on the overall economy and the penalties of violating the copyright law in which the infringers can face as a prison sentence between three months up to three years and fines ranging from JD 1,000 up to JD 6,000.(Ghazal, 2012).

To assess the proposed ideas for the effectiveness of the profitability indicator, some related questions were asked to the identified stakeholders, these questions were:

For the Entrepreneurs:

Q1What are the most suitable policies that will encourage you to engage in e-commerce?

The entrepreneurs were deemed as the consumers of e-commerce for the purpose of this question, all of the related interviewees said that they will be willing to engage in e-commerce if they can have guarantees that the service or good will be of the same quality and cheaper cost, and when asked about the mechanisms to guarantee the quality of the good or service purchased, four of the interviewees stated that they don't have the enough knowledge in suggesting a specific detailed mechanism, but they would like to see an effective method to guarantee their rights, two of the interviewees said that the government should increase its monitoring on the websites and regulate strict laws to ensure that these goods and services will be scam free, when asked if they have ever purchased something online, one of the interviewees said that he purchased an online PDF book once from an online store, and another participant said that he bought a mobile software on e-bay before, but both dealers indicated that the purchased items were of low price as their trustability in the online space didn't lead them to pay for high online transactions yet, one other interviewees said he paid for Facebook marketing service one time, and another interviewee said he is considering to invest in the social network marketing in the future because he thinks it's a reliable service coming from a global brand name.

Q2: Have you ever bought or downloaded pirated software for your business, whether yes or no, what are the reasons for taking this decision?

Three entrepreneurs said that they installed the basic Microsoft office professional tools once they formatted their windows, and they made sure to use the original software for the best quality of usage, they also had negative impression against the pirated software because such software might not have good quality, but one entrepreneur said that he installed unlicensed windows on his personal pc several years ago and will not do it again since the efficiency of the software was extremely low. The small size business entrepreneurs said that they would prefer to use the original software always, but the costs for obtaining an original Windows operating system or original antivirus software are high for them to afford, especially with the overall inflation in the living standards and production requirements, when asked about their awareness of the copyright law, the small size business entrepreneurs said that they were not totally aware of it.

For the ICT Experts:

Q1: What are the needed actions that can help to reduce the software piracy in Jordan?

The independent ICT experts suggested some amendments to the software pricing mechanism that can adapt to the overall inflation in the living standard, one of the interviewees stated that the Jordanian Library Department reported some sorts of dissatisfaction claims from

consumers who purchased fraud software that they thought to be original, but they found out later that these software were not genuine products, and because the consumers didn't ask for receipts they couldn't prove their claims about the selling stores. Other suggestions for consumer protection involved creating a mechanism to certificate the businesses that comply with the consumer protection standards, such as the dispute resolutions, pre sales fair agreements, the mechanism can be to offer these businesses an official scam free certificates and records that will recognize them as trusted businesses from the consumers and will indicate that these businesses are registered with the formal authorities and they have clear contact details and reliable business services. One of the interviewees suggested blocking the website that provides a free download to the software programs in order to protect the copyright from violations.

4.3 Measuring the formal policies effect on the Social Interoperability Indicator

Many governmental agencies are producing annual reports each year, these reports show the summary of their annual activities and programs, also the ministries websites provide information about their programs and activities, the Jordanian e-government portal provides many G2C and G2B services that can eliminate the manual transactions and curtail the long time spent on those transactions, for example the e-government portal initiated SMS service to interact with the citizens, this service keeps the subscriber updated about the latest governmental news and services and his transaction status, as well as to be reminded about his transaction such as his due duties and taxes. (The Official Site of the Jordanian e-Government, n.d.).

The e-commerce national strategy looks promising in some aspects such as ensuring the security in the transaction through reliable regulations including the digital signature, and suggesting amendments to the E-Transactions law to enhance the security and privacy of the transactions, in addition to adopting an effective dispute resolution methods. The strategy also expresses an interest in eliminating the gender discrimination against women to institute a competitive transformation to the digital economy. Despite the positive aspects of this strategy, it's still under examination and discussion, and no specific methods are suggested yet to enhance the consumer protection or the gender empowerment, the social aspects besides the awareness campaigns are not clear yet.(Ministry of Information and Communications Technology, n.d.).

The following questions were asked to the interviewees to assess their impression about the ICT enabled social interoperability and their remarks about this indicator, these questions are:

For the Entrepreneurs:

Q1: How do you rate the online transparency? Do you find any difficulties in reaching the information from the governmental websites?

Three of them who used e-government services so far said that the these services are providing good facilities to the citizens, however, the opinions varied according to the level of satisfaction in the provided information. Two of the entrepreneurs said that they struggle sometimes in finding detailed level information about some programs from the specified ministries websites, while one entrepreneur mentioned that he faced a delay once in contacting a governmental agency online, the fourth entrepreneur said that he faced an issue in obtaining some statistics he needed from the formal government agencies and he found those statistics on a private paid research.

Q2: Will a Fatwa against the internet business hinder you from engaging in e-commerce?

Three of the entrepreneurs said that they haven't heard about a Fatwa related to e-business before, however they don't see anything Haram in working online, since they won't scam anyone, the fourth interviewee said that he will not use IForex because he believes its might not be compatible with Islamic Sharia.

Q3: Do you think you need a representative body to support your needs and cooperate with the government to address those needs?

The e-commerce entrepreneurs said that it would be useful to see a representing body for them such as a union, however, some interviewees said that they are not optimistic about the succession of this endeavor at least in the near future since some other professional syndicates had experience difficulties in launching in the past because of some regulatory complications.

For the Females Working in Internet Related Jobs:

Q1: Did you encounter or notice any gender discrimination in the field of e-commerce?

The two females who work in online social media related jobs said that most of her colleagues who work in the online marketing are females, since the marketing jobs are easier for women. Another factor is that the online jobs are considering the housewives as main beneficiaries of the internet jobs, since working online can be based from home, these types of jobs are more deemed to be for females, one of the interviewees said ironically" males might have a gender discrimination in working in online marketing jobs that are based at office".

Another practical example comes from "Oasis 500", an established company in Jordan that supports ICT related companies entrepreneurs in their startups after putting them in a business boot camp, considered that despite the fact that women represent around 20 to 22 percent of their attendees, most of the company success stories and investments are lead by women (PRI Public Radio International, 2012).

For the Sharia Specialists:

Q1: What is your perception on working online?

One of the interviewees said that his opinion depends on the type of the online work, for example, to work as an online translator is definitely different from working on commission based job where you exert less effort in generating big money at the expense of leading others to subscribe to services that they might not be interested in sometimes, or be mislead by the service provider who is only looking to generate more subscribers while luring the active users to become network affiliate marketers for his products or services.

The other interviewee said that any type of business that is built on illegal interest by Islamic Sharia is Haram, which includes the online jobs.

Q2: What do you think of women online work?

Both interviewees said that any job that doesn't contradict the motherhood or the family responsibilities of the women and aligned with the right Islamic standards for the legal earning is allowed and considered ok.

Q3: Are you with/against internet websites filtering?

Both interviewees agreed that some websites are being used for offending religious symbols sometimes, and this can create some sorts of tensions in the society, however, they see that a controlled filtering against the violating pages is ok if it prevents the spreading of the content but they also consider the publisher of the content is liable for this offense if he lives within the Islamic country border, and should face the same offline regulative consequences for this act, and both interviewees agreed on the necessity of blocking the pornography websites that represent a real damage to the social morals and lead to perversion.

For the ICT Experts:

Q1: What do you think about the online transparency policy in the country?

For the G2C transactions, both interviewees expressed their optimism in the rapid development of the e-government applications and services; however, for B2B and B2C transactions, the interviewees mentioned that the e-commerce strategy should enhance better transparency regulations to ensure the safety and confidence in the e-transactions.

Q2: Do you think the e-commerce entrepreneurs and specialists need a representative body to face the challenges in the field?

The two interviewees agreed on the benefits of such representative body and its role in eliminating any injustice against the entrepreneurs, for example, if there was a representative syndicate for e-commerce when the latest amendments to the Press and publication law were

issued, then a better harmony could have been reached between the government and the entrepreneurs in adopting these changes. The syndicate could also cooperate with the global companies for eliminating the barriers of anti software piracy endeavors in such a way that will serve the users and the copyright holders, and a representative syndicate could also participate in the national e-commerce strategy and suggest some plans for e-consumer empowerment and the social interoperability in order to reach the best implementation of the strategy that will boost the digital economy growth at the end.

5 CONCLUSIONS

The Arab spring uprisings were stimulated mainly by the willing to overcome the hardships in the economic conditions that prevailed in the past years in the initiator countries, besides the economic drivers, other drivers were related to freedom and democracy requirements, the main goals of the Arab Spring economic reformation called for conquering the corruption and solving the unemployment as well as developing new economic systems. The ICT sector is one of the viable and dynamic sectors in the MENA region as a whole; it has much potential for contributing to the overall economic growth especially in the countries that are looking to review their economic strategies as part of their new national strategic reformations.

In order to envision how the new reformation in the digital economy strategies could lead to increased growth in the overall economy, there was a need to research the current situation related to the digital economy in the Arab Spring initiator countries that witnessed reported violations to the online freedom before the uprisings, however, the latest indications refer to improvements in the online democracy in the countries that went through the uprisings, as well as some modifications to the market accompanied with increased penetration in the ICT usage due to amendments in the regulations and the service price, while in the countries that still witness the Arab Spring, the online freedom violations are still taking place according to the latest reports. Surveillance and internet censorship as well as shutting down the whole or part of the ICT service will definitely affect the usage and the way people interact on the online space, also the lack of security doesn't stimulate the investors to put their money in the digital business after all.

The Arab countries that either underwent major changes from the direct effect of the Arab Spring as well as the regional countries who faced lesser effects and are working to reform their strategic policies are invited to take the advantage of their latest advancements towards democracy and economic reformation to develop their digital economy in a way that satisfies the major requests that initiated the uprisings, the new strategies should take into consideration the sustainability of the ICT access to all the citizens to guarantee the free usage away from filtering and partial or complete ICT shutdowns. In order to maintain the security of the e-commerce investments especially when facing situations that can be deemed as social threats, a controlled filtering for the violating web page will be a better solution rather than a collective action against the hosting websites.

To ensure that the users will trust the online space for purchasing their goods or services and have all the needed success factors to run profitable businesses online, the governments should be able to look at the new approaches in the e-commerce enabling strategies, these approaches are now being consumer focused, for example, the OECD countries are developing new plans to protect the consumer rights in the e-commerce transactions, such as ensuring that the purchased goods or services are compatible to their described functionalities, or that the e-payment policies and regulations are safe and conforming with the rapid development of the technology. Another issue is related to the lost government revenues in the ICT sector, this is due to the existence of some challenges that hamper the growths of revenues in the digital economy, such as the software piracy. The governments need to put more efforts in reducing these piracy rates through awareness campaigns and law enforcement.

The social interoperability strategies should also be refined in order to sustain the digital economy, as well as the socio economic system, for example, increasing the transparency strategies and the concept of the open government will be useful to bridge any gaps and mistrust between the governments and their citizens, such gaps can open doors for gossips and sometimes misstated facts against the governments and might be used to incite protests and social unrests that will eventually affect the national economy.

Expanding the knowledge of e-business among the society would lead to more investors and consumers, therefore, it's important to ensure the development of some plans that will conquer some aspects that affect the growth of the digital economy such as the gender discrimination that might be a reason for women to turn away from the ICT sector in general, plans to link the teaching curricula with the ICT related modules would be productive, as well as performing more awareness campaigns to introduce the female students to the benefits of the ICT sector. Another aspect that could lead to the social reject of the e-business is the religious impression fostered by some Fatwas that consider some sorts of online work to be Haram, and due to the nature of Fatwa, which is based on individual opinions from the religion scholars, this could open an endless opened door against the online business as a whole, the government responsibility should be to address these issues through taking a unified formal position from the online business and to correct any misconceptions in this subject.

In order to improve the strategies and understand how to serve the digital economy so that the policymakers will be able to measure the annual growth and form their strategies based on more reliable metrics, the governments should develop their digital economy indicators, such indicators should be aligned to the complicated nature of the developments in the technology, it's also important for the governments to be able to rely on more satisfactory market researches and develop its human capacities in conducting such researches. The continuous development in the e-government services is also recommended to effectively take advantage of cutting the unnecessary cost and time of the traditional transactions. Initiating awareness programs for the society is a useful approach to increase the penetration of the online transactions on the different levels. Finally, it would be fruitful to facilitate the initiation of a formal representative body for the e-business laborers such as authorizing syndicates that will be able to cooperate with the governments in all the different issues that interest the stakeholders in the digital economy and engage in the future national related strategies.

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