THE DIGITALIZATION AND ITS INFLUENCE ON COMBATING CORRUPTION

Darwish ALAA* *The North-West Institute of management RANEPA, Saint-Peterburg, Russia, amokhameddarvi-20@edu.ranepa.ru*

Oleg MISKO *The North-West Institute of management RANEPA, Saint-Peterburg, Russia, misko-on@ranepa.ru*

DOI: 10.52123/1994-2370-2022-570
UDC 338.2
CICSTI 06.52.01

Abstract. In last years, many governments in all over the world have made a lot of efforts to improve the level of disclosure and transparency in their actions by using the information and communication technology (ICT) which includes: the internet, mobile applications and the social media.
And the main target for this transformation is not only to improve the disclosure and transparency, but also to combat corruption.
In this paper we are defining the digitalization and corruption and analyzing from the available resources the influence of digitalization on combating and eliminating the corruption.
Keywords: corruption, digitalization, e-government, information, communication, technology, government, Internet.
JEL code: D73

Аңдатпа. Соңғы жылдары бүкіл әлем бойынша көптеген үкіметтер интернет, мобильді қосымшалар, сондай-ақ әлеуметтік желілерді қамтитын ақпараттық және коммуникациялық технологияларды (АКТ) қолдана отырып, ақпаратты ашу және өз әрекеттерінің ашықтығын арттыру үшін жұмыс жасады.
Бұл трансформацияның басты мақсаты - ақпаратты ашу мен ашықтықты жақсарту ғана емес, сонымен қатар сыбайлас жемқорлықпен күресу.
Бұл мақалада біз цифрландыру мен сыбайлас жемқорлықты анықтап, қолда бар ресурстарға сүйене отырып, цифрландырудың сыбайлас жемқорлыққа қарсы күреске және оны жоюға әсерін талдаймыз.
Түйін сөздер: сыбайлас жемқорлық, цифрландыру, электрондық үкімет, ақпарат, коммуникация, технологиялар, үкімет, Интернет.
JEL коды: D73

Аннотация. В последние годы многие правительства во всем мире работали над повышением уровня раскрытия информации и прозрачности своих действий, используя информационные и коммуникационные технологии (ИКТ), которые включают в себя: Интернет, мобильные приложения, а также социальные сети.
И главная цель этой трансформации — не только улучшить раскрытие информации и прозрачность, но и бороться с коррупцией.
В этой статье мы определяем цифровизацию и коррупцию и анализируем, исходя из имеющихся ресурсов, влияние цифровизации на борьбу с коррупцией и ее искоренение.
Ключевые слова: коррупция, цифровизация, электронное правительство, информация, коммуникация, технологии, правительство, Интернет.
JEL код: D73

Introduction

In last years, many governments in all over the world have made a lot of efforts to improve the level of disclosure and transparency in their actions by using the information and communication technology (ICT), which includes: the internet, mobile applications and also the social media. *(Bertot, et al, 2010).*

Digital transformation approaches outside the public sector are changing citizens' expectations of governments' capability to provide digital services at a high level of accuracy and transparency, and also just on time and up to date.

Governments are constantly upgrading their mode of operation to enhance the public service delivery, to get their designs more effective and efficient, and to realizing their goals such as increasing the level of

* *Corresponding author: D. Alaa, amokhameddarvi-20@edu.ranepa.ru*

transparency, interoperability, which will lead to the main objective, which is the citizen satisfaction *(Sohag, et al., 2021).*

In this article, we seek to answer the hypothesis: Is there a relationship or correlation between the digitization process and the level of local corruption?

Materials and Methods

To answer the above guiding question, we systematically and comprehensively searched, filtered and assessed the available literature on applications of ICT tools against corruption. Like other systematic reviews in the field of e-governance *(Adam, Fazekas, 2021; Bertot, et al., 2010; Matheus, et al., 2021)* this review involved five methodological steps:

First, we screened and collected all potentially relevant studies using common search engines such as Scopus, Google Scholar and Web of Science. We applied search term combinations: names of each of the 6 ICT tools (including their variants) and corruption-related keywords such as “corruption”, “digitalization,”, “e-government”.

Second, we identified relevant studies for in depth analysis applying complex criteria:

i) Whether the study assesses the corruption impact of one of the ICT tools we review.

ii) Whether the study is empirical (qualitative or quantitative), but also applying a solid theoretical frame - work.

iii) Geographical context of the study to maintain a global focus, giving particular attention to studies on less-studied developing regions.

Third, we extracted key characteristics of the study such as bibliographic data, country/region focus, ICT type, corruption type, research question, methodology, unit of observation, data used, key findings, and policy implications.

Fourth, we assessed the quality of evidence presented by each relevant study by looking at aims, quality of methodology, validity of measurements used, causal analysis and consideration of counterfactuals, and robust- ness of findings. We only filtered out apparently low-quality papers at this stage.

Finally, we carried out an in-depth appraisal and synthesis of the complete set of studies deemed both relevant and good enough quality.

E-government and actions to combating Corruption

There is a little of methodical insights into the way which the public administrators themselves are using to define the digital transformation in their daily practices, and how they are approaching the digital transformation projects, and the results which they are expected to achieve *(Mergel, et al., 2019).*

Many people considers the information and communication technologies (ICTs) as a cost effective and suitable means to improve the disclosure and transparency levels and to combating corruption.

The E-government has been used in many important and thorough transparency efforts in a number of countries. While these individual efforts have received much attention, the question of whether or not these ICTs have enabled the efforts to bring about a fundamental social change in attitudes towards transparency has not been considered in a wide manner *(Bertot, et al, 2010).*

This combination of social media, mobile technologies, Web-enabled technologies, disclosure and transparency policy initiatives, e-government, and citizen desire for open and transparent government are creating a new era of opportunities that has the possibility to create transparent, effective, efficient, open, and user-centered Information and services which enabled by communication technologies *(Sohag, et al., 2021).*

Furthermore, development agencies, organizations governments, and citizen groups are increasingly linking investment, governance, and support to the creation of more open and transparent government. It is rare that there is such an alignment of policy, technology, practice, and citizen demand exists - all of which bode well for the creation of technology-enabled government that instills the trust of citizens in governmental policies.

A wide range of nations with different levels of technological infrastructure have created numerous procurement, tracking, anti-corruption, and other systems which can assist the national and state governments to engage in transparent the governmental activities *(Nam, 2018).*

Furthermore, the systems enabled the citizen scrutiny to the government, thereby increasing the level of disclosure and transparency and decreasing the level of corruption *(Bertot, et al., 2010).*

However, there has been significant growth in the adoption of mobile technologies, including in countries with low landline and internet penetration, supporting the emerging nature of mobile e-government (or mobile government) as holding great promise for spreading transparency initiatives.

Parallel to access to technology is the need for end users to be able to have a good understanding and smooth using of these technologies, through which disclosure and transparency tools are available.

Long time ago, the digital divide has been documented and widely defined as the gap between those who have can access to technologies and those who cannot. However, there are in fact multiple divides that can exist, of which access to the Information and Communication Technologies (ICTs).

This digital divide including different issues such as:

• Technology literacy — the ability of persons to understanding and using technologies.

• Usability — the design of technologies in such ways that are enable the end users to engage in the content which included within the technology.

• Accessibility—the ability of persons with disabilities to access the content through the technological devices (for example, some mobile technologies such as the iPhone are completely inaccessible to persons who have visual impairments due to the touch screen design which lacks a touch keyboard); and

• Functionality — the design of the technologies to include features (e.g., search, e-government service tracking; accountability measures, etc.) which the end users wants to use *(Bertot, et al., 2010).*

The use of social media as an initial part of disclosure and transparency initiatives also can create new opportunities and new challenges. For example, using the social media in combination with accessible government data is considered as a new manner of enabling and facilitating disclosure and transparency. These types of disclosure and transparency initiatives are directed toward the more technically inclined citizen: researchers, technologists, and civic-minded geeks. While everyone can benefit from the data and the incidental products and analyses that the more technically inclined citizens would produce, to truly “democratize the data” would ultimately require a better, more effort to make this initiative more comprehensive and participatory to all citizens *(Bertot, et al., 2010).*

Another type of opportunity for social media in openness and combating corruption is by increasing the opportunities for citizen journalism. Through social media, citizen journalism can record when the media fails, when the media is strongly affected by the government or controlled by those who have the authority, or when the media has a shortage in coverage of a particular issue.

There are two initial factors for improving the disclosure and transparency and the governmental openness, which are:

1) A culture of disclosure and transparency included within the governance policy and system, and

2) A transparency “readiness” factor, such as technology penetration, technology abilities and access of government agencies, and cultural, social and technological readiness of citizens.

There is a close relationship between these two factors, one of them needs the culture of openness to penetrate governance mentalities, structures and operations while at the same time, needing the technical and social capabilities to implementing the e-government disclosure and transparency initiatives. If those two factors will not operating with each other, it is highly doubtful that the essential trust between the government and citizens will develop and thus truly create an open and transparent environment *(Bertot, et al., 2010).*

The technology by itself does not change organizations, rather the way organizations work and their use of technologies changes work practices. It focus on organizational change, organizational culture, and the new ways society handles information and new demands for government services. Both frameworks help us to derive the following elements of digital transformation *(Mergel, et al., 2019).*

Under pressure to fight corruption, hold

public officials accountable, and build trust with citizens, many governments pursue the quest for greater transparency. They publish data about their internal operations, externalize decision-making processes, establish digital inquiry lines to public officials, and employ other forms of transparency using digital means. Despite the presence of many transparency-enhancing digital tools, putting such tools together to achieve the desired level of digital transparency, to design entire government systems for digital transparency, remains challenging *(Matheus, et al., 2021).*

The rapid spread of Information and Communication Technologies (ICTs) and digitalization as one of the forces shaping the 21st century gives an impression of great promise for revolutionizing societal relations and public service delivery. In the field of anti-corruption, ICT has been widely perceived to offer new effective means for the prevention, detection and prosecution of corruption *(Adam, Fazekas, 2021).*

As numerous studies assert, ICT can promote transparency, accountability and citizen participation. It can also facilitate advocacy and closer interaction of government and citizens. The most widely praised tools include websites and mobile phone applications as well as newly emerging Distributed Ledger Technology (DLT), big data analysis and artificial intelligence (AI). These tools serve the fight against corruption by enhancing access to public information, monitoring officials' activities, digitalizing public services and enabling corruption reporting *(Adam, Fazekas, 2021).*

ICTs for anti-corruption operate against the background of given societal divides and power relations which are often supported by corruption. They risk further entrenching these unless their design and implementation take into account corruption and associated power imbalances. Hence, it is arguable that the success of ICT interventions against things on their suitability for local contexts and needs, cultural backgrounds and technological experience. However, ICT features and corrupt behaviors remain under-explored. Although ICT is commonly studied as an anti-corruption instrument, it can also lead to the opposite effect when such tools are used for instead of against corruption. Emerging technologies can provide new corruption opportunities through the dark web, crypto currencies, or the misuse of well-intended technologies such as digital public services and central databases *(World Bank, 2014)*.

Similarly, investment into ICTs can itself be corrupted representing a major negative impact *(Charoensukmongkol, Moqbel, 2014)*. Such examples underline the fact that ICT is not per se a panacea against corruption, and it can also play into the hands of corrupt officials.

However, it is yet unclear based on the available literature under which conditions do ICTs facilitate rather than inhibit corruption *(Adam, Fazekas, 2021).*

The available literature, for example *(Bertot, et al., 2010; Adam, Fazekas, 2021)* focused on analyzing and studying three important questions, as well as answering them, which are:

1- What are the main applications of ICT tools against corruption?

2- What are the impacts and of ICT tools, both positive and negative?

3- What are the facilitating and limiting factors of ICT-based anti- corruption tools?

We find that ICTs have been most effective against low-level or petty corruption, while their effects on grand corruption are often negligible due to elite capture and the lack of interest by the powerful to address systemic corruption. These findings underline the importance for successful ICT-enabled anticorruption reforms to clarify the impact mechanisms which underpin the expected anti-corruption impact and a specific definition of the targeted corrupt behavior *(Adam, Fazekas, 2021).*

ICTs can decrease the corruption by reinforcing and encouraging the good governance, reinforcing the reform oriented initiatives, decreasing the potential for corrupt behaviors, improving the relationships between governmental employees and public, allowing for citizens to tracking of activities, and monitoring and controlling behaviors of government employees.

To achieve the desired results of decreasing corruption, ICTs enabled initiatives generally must transfer from increasing information access to ensuring rules are transparent and applied to building abilities to tracking the decisions and actions

of the governmental employees.

There are many countries all over the world achieved successes in combating corruption through e-government. Taxes and government contracts are the most popular areas where e-government has been noticed as a clear and successful solution to combating corruption problems in many countries, such as:

• In India, putting rustic property records online has greatly improved the speed at which the records are accessed and updated, while at the same time, removing the possibilities for local officials to accept bribes as previously widespread *(Bertot, et al., 2010).*

The Bhoomi electronic land record system in Karnataka, India, was evaluated to have saved 7 million farmers 1.32 million working days in waiting time and Rs. 806 million in bribes to regional employees in its first several years. Before the system, the average land transfer required Rs. 100 in bribes, while the electronic system requires a fee of Rs 2 *(Bertot, et al., 2010)*.

• In Pakistan, the entire tax system and department was restructured with an accurate purpose which is decreasing the direct personal contact between citizens and tax employees to reducing the opportunities for requests for bribes *(Bertot, et al., 2010)*.

• In Philippines, the Philippines Department of Budget and Management established an electronical procurement system of governmental agencies to use to allow public bidding on governmental contracts. There were two main purposes for initiating this electronical procurement system which are:

1- Preventing the price fixing, and

2- Allowing the public accountability. *(Bertot, et al., 2010).*

• In Chile, the Chile Compra e-procurement system has been used to allowing either the governmental employees and the citizens to make a comparison between the costs of bids and the services which purchased by the government itself. The prices of more than 500 outsourced services from over 6,000 suppliers are included in the system. The system saves about $150 million US annually by preventing price fixing or inflation by corrupt employees and contractors. In addition to decreasing corruption, this system widened the number of small businesses that could participate in the governmental bidding process *(Bertot, et al., 2010).*

•The utilizing of e-government to combat corruption in Fiji has resulted in beneficial changes in public perception of governmental corruption and improve in the responsiveness of governmental employees to the needs of citizens *(Bertot, et al., 2010).*

• The United States has establishing web sites that allow access to the data of governmental expenses, for stimulus dollars (www.recovery.gov), general funds (www.usaspending.gov), and information technology funds (www.IT.usaspending.gov) sites, which are purposed to encourage the public surveillance of government expending for faster identification and removal of prodigal projects. A number of state governments in the United States have the same web sites for the public to observe the governmental expending for squandering and fraudulence *(Bertot, et al., 2010).*

• Many U.S. government Web sites permit for the tracking of transactions so that it is potential to track the progress of one's requests, applications, and other governmental services and resources. For example, the U.S. Customs and Immigration Service (USCIS) permits the immigrants to track their immigration applications, and also, the U.S. Department of State allows the passport seekers to track the proceed of their passport applications. These features gives the ability of a wide range of users to check on proceed of their governmental services, guarantee the level of efficiency, and gives sensible timeframes for processing of different types of documents, services, and resources *(Bertot, et al., 2010).*

Governmental and nongovernmental organizations spends a lot of efforts to establish and develop a widespread applications to combating corruption through the social media.

And there are a lot of examples of those popular applications such as:

- Wikileaks (www.wikileaks.org) is a Web site which enables the end users to anonymously publish sensitive information. It is in quintessence an untraceable and uncensorable wiki for whistle blowing. Till now, it includes over 1.2 million documents. Wikileaks is an intrinsic example of how social media technologies can be used to combat corruption.

- Another example is the Web site

which created in 2009 by the National Democratic Institute to help users discover, analyze, conceive, and visualize the data associated with the 2009 Afghanistan presidential election (www.afghanistanelectiondata.org) *(Bertot, et al., 2010)*.

While relevant research is scanter in this area, some studies points to the potentially adverse use of ICT for corruption: for instance, €2 million (ca. £1.8 million) disappear every year from Croatian tollbooths due to officials entering false data into the new digital information system *(Adam, Fazekas, 2021).*

Digital public services are a sub-form of electronic government (e-government), that involves the use of ICTs, particularly the internet, web-enabled devices, and electronic data management systems, for providing of public services to citizens. Governments aim to improve performance by automating services and simplifying recurrent bureaucratic processes *(Adam, Fazekas, 2021).*

Corruption: Definition and Meaning

Corruption is documented to bring about a range of detrimental outcomes for society. It tends reduce public trust in government as it diverts funds from goods and services supposed to benefit citizens and weaken the functioning of public institutions and the rule of law. It is also likely to discourage investment, create economic inefficiencies and contribute to income inequality. Nevertheless, the concept of corruption is used to encompass diverse phenomena in many contexts which differ in the prevailing norms of good conduct *(Adam, Fazekas, 2021).*

While corruption bears various definitions, it is widely considered to encompass activities whereby a public office is used (abused) to satisfy the personal interests of a public officer, against the rules of the office and the interests of the country *(Khan, et al., 2021).*

Corruption includes both monetary and non-monetary benefits and it can be in a form of bribery, extortion, embezzlement, fraud, nepotism, favoritism, and opportunism, among others. It is typically identified as consisting of three types, namely, (1) petty corruption, (2) state capture, and (3) grand corruption. Petty bureaucratic corruption indicates corrupt practices involving the low-level administration of the public sector. It usually entails corruption experienced by citizens on a daily basis when they access public information and services from educational institutions, hospitals, police, and other government sectors *(Transparency International, 2020d; Khan, et al., 2021).*

State capture refers to a situation where the powerful entities (individuals, organizations, institutions, or groups) within or outside a country undemocratically influence public policies, legal environment, and the economy of a country to accomplish their private objectives *(Transparency International, 2020b).*

Finally, grand corruption occurs at the level of political elites who abuse their power to make economic policies that maximize their personal gains. It implies large political corruption involving high-level public officials (e.g., ministers) and significant embezzlement of public funds or resources that lead to serious gross human rights violations *(Transparency International, 2020d; Khan, et al., 2021).*

There is a difference between grand and petty corruption and associated anticorruption theories.

First, one of the most commonly used definitions of corruption is: “the misemploy of public office for private gain” *(Romero-Martínez, et al., 2021).*

This definition understands corruption within a bureaucratic context and associates corruption with bribery of public officials, in other words petty corruption. Such petty corruption often refers to street-level bureaucrats being corrupted during public service delivery *(Charoensukmongkol, Moqbel, 2014).*

In this framework, corruption can be conceptualized as a principal agent problem, with citizens commonly being principals and governmental employees being representatives that act on citizens’ behalf. The employees have non symmetric information and a freehand on the distribution of resources, which potentially allows room for corruption. Consequently, strategies to fight corruption in the framework of the principal-agent model commonly focus on decreasing discretionary power of government officials and establishing better over- sight and accountability mechanisms

(Adam, Fazekas, 2021).

Most of the ICT-enabled tools we examine fall into this category as they aim to lower the incidence of petty corruption by improving oversight and accountability. The corruption as collective action problem often gets associated with grand corruption.

Grand corruption takes a place when a public employee or other person prevents a particular group of society or fundamental part of the population of a country of an essential right or causes the country or one of its citizens a loss greater than 100 times the annual minimum subsistence income of the citizens as a result of bribery, embezzlement or other corruption offence. In other words, grand corruption is perpetrated by corrupt leaders who control state institutions in order to expropriate the state's wealth with impunity. Corrupt leaders need not only be the leaders of a whole country, they may also be local politicians such as mayors or they may be leading key institutions in a particular sector (e.g. head of a public electricity utility). Grand corruption is inherently difficult to fight with the help of ICTs since corrupt elites design and control the system in which they operate (e.g. provide data on government actions). Few ICT tools can help in such a difficult situation: those which help organize collective action (e.g. identifying which officials are responsible for imposing corruption costs on society) or weaken the informational monopoly of corrupt public actors (e.g. block chain-based public registries operated independently of government officials) *(Adam, Fazekas, 2021).*

One of the highly important and famous indicators which shows the global situation about corruption is Corruption Perception Index (CPI), which prepared annually by (Transparency International) organization, which presents a worldwide rating for 180 countries for combating corruptions with annually changes which occurs in each country.

According to professionals and people in business society, The CPI scores 180 countries and territories by the public sector corruption perceived levels.

The CPI uses a scale from 0 to 100, which means 100 is very clean and 0 is highly corrupt.

In table 1, we presenting the CPI 2020, which is the last version of the report for year 2020, to give a brief view for the international situation for corruption *(Transparency international, 2020).*

Table 1 – Corruption Perception Index 2020

SCORE	COUNTRY/TERRITORY	RANK
88	Denmark	1
88	New Zealand	1
85	Finland	3
85	Singapore	4
85	Sweden	4
85	Switzerland	4
84	Norway	7
82	Netherlands	8
80	Germany	9
80	Luxembourg	9
77	Australia	11
77	Canada	12
77	Hong Kong	12
77	United Kingdom	12
76	Austria	12
76	Belgium	16
75	Estonia	17
75	Iceland	18
74	Japan	18
72	Ireland	20
71	United Arab Emirates	21
71	Uruguay	21
69	France	23

68	Bhutan	24
67	Chile	25
67	United States	25
66	Seychelles	27
65	Taiwan	28
64	Barbados	29
63	Bahamas	30
63	Qatar	30
62	Spain	32
61	Korea, South	33
61	Portugal	33
60	Botswana	35
60	Brunei Darussalam	35
60	Israel	35
60	Lithuania	35
60	Slovenia	35
59	Saint Vincent and the Grenadines	40
58	Cabo Verde	41
57	Costa Rica	42
57	Cyprus	42
57	Latvia	42
56	Georgia	45
56	Poland	45
56	Saint Lucia	45
55	Dominica	48
54	Czech	49
54	Oman	49
54	Rwanda	49
53	Grenada	52
53	Italy	52
53	Malta	52
53	Mauritius	52
53	Saudi Arabia	52
51	Malaysia	57
51	Namibia	57
50	Greece	59
49	Armenia	60
49	Jordan	60
49	Slovakia	60
47	Belarus	63
47	Croatia	63
47	Cuba	63
47	Sao Tome and Principe	63
45	Montenegro	67
45	Senegal	67
44	Bulgaria	69
44	Hungary	69
44	Jamaica	69
44	Romania	69
44	South Africa	69
44	Tunisia	69
43	Ghana	75
43	Maldives	75
43	Vanuatu	75
42	Argentina	78
42	Bahrain	78
42	China	78
42	Kuwait	78
42	Solomon Islands	78

41	Benin	83
41	Guyana	83
41	Lesotho	83
40	Burkina Faso	86
40	India	86
40	Morocco	86
40	Timor-Leste	86
40	Trinidad and Tobago	86
40	Turkey	86
39	Colombia	92
30	Ecuador	92
38	Brazil	94
38	Ethiopia	94
38	Kazakhstan	94
38	Peru	94
38	Serbia	94
38	Sri Lanka	94
38	Suriname	94
38	Tanzania	94
37	Gambia	102
37	Indonesia	102
36	Albania	104
36	Algeria	104
36	Cote d'Ivoire	104
36	El Salvador	104
36	Kosovo	104
36	Thailand	104
36	Vietnam	104
35	Bosnia and Herzegovina	111
35	Mongolia	111
35	North Macedonia	111
35	Panama	111
34	Moldova	115
34	Philippines	115
33	Egypt	117
33	Eswatini	117
33	Nepal	117
33	Sierra Leone	117
33	Ukraine	117
33	Zambia	117
32	Niger	123
31	Bolivia	124
31	Kenya	124
31	Kyrgyzstan	124
31	Mexico	124
31	Pakistan	124
30	Azerbaijan	129
30	Gabon	129
30	Malawi	129
30	Mali	129
30	Russia	129
29	Laos	134
29	Mauritania	134
29	Togo	134
28	Dominican Republic	137
28	Guinea	137
28	Liberia	137
28	Myanmar	137
28	Paraguay	137

27	Angola	142
27	Djibouti	142
27	Papua New Guinea	142
27	Uganda	142
26	Bangladesh	146
26	Central African Republic	146
26	Uzbekistan	146
25	Cameroon	149
25	Guatemala	149
25	Iran	149
25	Lebanon	149
25	Madagascar	149
25	Mozambique	149
25	Nigeria	149
25	Tajikistan	149
24	Honduras	157
24	Zimbabwe	157
22	Nicaragua	159
21	Cambodia	160
21	Chad	160
21	Comoros	160
21	Eritrea	160
21	Iraq	160
19	Afghanistan	165
19	Burundi	165
19	Congo	165
19	Guinea Bissau	165
19	Turkmenistan	165
18	Democratic Republic of the Congo	170
18	Haiti	170
18	Korea, North	170
17	Libya	173
16	Equatorial Guinea	174
16	Sudan	174
15	Venezuela	176
15	Yemen	176
14	Syria	178
12	Somalia	179
12	South Sudan	179

According to the report, we found the following:

This year's CPI presents corruption is more permeating in those countries least equipped to handle the COVID-19 pandemic and other global crises.

The index, which rates 180 countries and territories by their recognized levels of public sector corruption according to professionals and people in business society, uses a range from zero to 100, where zero is very high corrupt and 100 is very pure.

The same as last years, more than two-thirds of countries score lower than 50 on this year's CPI, with an average score of just 43. The data presents that in spite of some progress, the most of countries still fail to reduce the corruption with an efficient way.

In addition to earning poor scores, nearly half of all countries have been stagnant on the CPI for almost a decade. These countries have failed to move the needle in any significant way to improve their score and combat public sector corruption.

The top countries on the CPI are Denmark and New Zealand, with scores of (88), followed by Finland, Singapore, Sweden and Switzerland, with scores of (85) each.

The bottom countries are South Sudan and Somalia, with scores of (12) each, followed by Syria (14), Yemen (15) and Venezuela (15). Since 2012, 26 countries improved their CPI scores, including Greece (+14), Myanmar (+13) and Ecuador (+7). In

the same period, 22 countries decreased their scores, including Lebanon (-5), Malawi (-7) and Bosnia & Herzegovina (-7).

The residual countries achieved little or no progress in combating corruption in recent years.

The report divided the world into six geographical regions which are:

1- Americas with average score 43/100. Top is Canada 77/100, and bottom is Venezuela 15/100.

2- Western Europe and European Union with average score 66/100. Top is Denmark 88/100, and bottom are Bulgaria, Hungary and Romania 44/100.

3- Middle East and North Africa with average score 39/100, Top is United Arab Emirates 71/100, and bottom is Syria 14/100.

4- Sub- Saharan Africa with average score 32/100, Top is Seychelles 66/100, and bottom are Somalia, South Sudan 12/100.

5- Eastern Europe and Central Asia with average score 36/100, Top is Georgia 56/100, and bottom is Turkmenistan 19/100.

6- Asia Pacific with average score 45/100, Top is New Zealand 88/100, and bottom is North Korea 18/100.

Information and Communication Technologies tools

Information and Communication Technologies (ICT) generally facilitates the processing, transmission and display of information through digital devices. This includes radio, television, mobile phones and computers, as well as network technology – the most important one being the internet *(Charoensukmongkol, Moqbel, 2014; Adam, et al., 2021).*

ICT tools can be grouped in a number of ways, but we opted for a categorization driven by the literature discussing the ICT-corruption linkage. Thus, the below list is not comprehensive, while we managed to keep the tools largely distinct from each other.

(1) Digital public services are a sub-form of electronic government (e-government), that involves the use of ICT tools such as web-enabled devices or electronic data management systems to provide public services to citizens *(UN Department of Economic and Social Affairs, 2014; Sabani, et al., 2019).*

(2) Anti-corruption crowdsourcing platforms allow a large number of citizens to publicly report corruption incidences via the internet or telephone and are primarily intended for sharing cases of petty corruption in the public sector *(Charoensukmongkol, Moqbel, 2014).*

(3) Whistleblowing tools are designed for gathering detailed reports of individual cases of grand corruption with the aim of supporting criminal prosecution.

(4) Transparency portals are online platforms run by governments or NGOs that publish information on government operations. Examples include freedom of information portals or open data portals.

(5) Distributed ledger technologies such as block chain represent a decentralized and synchronized database maintained by a peer-to-peer network where each user holds a copy of the data. All information is transmitted, verified and saved in permanent and secure records giving rise to crypto currencies, smart contracts, or file storage.

(6) AI technologies, such as neural networks, are learning algorithms which infer patters and relationships from large volumes of examples in order to best achieve pre-set goals. Their ability to cheaply and quickly predict and uncover hidden relationships make them valuable in policy making and policy implementation such as directing policing effort or corruption risk red flagging.

ICT may decrease or increase corruption relying on the type of intervention, impact channels, and context. ICT facilitates the information flow between government and citizens, across government institutions, and among societal actors. Potentially, these foster transparency, vertical and horizontal accountability and citizen participation *(Casadesús de Mingo, Cerrillo-i-Martínez, 2018).*

ICT can aid the fight against corruption by reducing information asymmetries, facilitating collective action, automating and standardizing government processes, limiting public officials' discretion, reducing red tape and increasing the likelihood of punishment *(Adam, Fazekas, 2021).*

Conversely, ICT can also have a corruption- enhancing effect as the use of digital technologies introduces new opportunities for concealing wrongdoing and conducting corrupt exchanges. ICTs may introduce new layers of complexity making it easier to hide corrupt acts, that is increasing information asymmetries; they may also

create databases and administrative systems that can be hacked or manipulated easier; moreover, as ICTs can reduce information asymmetries for those seeking details about relevant officials to bribe, the amount of bribes, and the process of bribe paying.

These may make bribery markets operate more efficiently, with uncertain effects on the total amount of bribes paid. Additionally, ICTs can also enable a global web of corruption making law enforcement that is largely nationally bound ineffective. Furthermore, the framework of the World Development Report *(World Bank, 2016)* underlines that the power of ICT to improve public services by enhancing integrity, transparency and accountability crucially varies by the type of service and activity and their amenability to improvement through ICT.

ICT can facilitate the detection and prevention of corruption, particularly petty corruption, where government activities are made public to citizens which improves vertical accountability and reduces corruption *(Adam, Fazekas, 2021).*

Since not all information is equally useful to citizens, government transparency can be operationalized using situational characteristics, in particular paying attention to the purpose for which information is to be used, as well as the intended users, i.e. the principals (government offices, voters, and non-state actors acting outside of electoral institutions). The government transparency enabled by ICT can provide citizens, for example, with information on their rights, on public administration procedures, and on cases of corruption. In sum, as the power over information becomes decentralized, petty corruption becomes riskier to commit.

Nevertheless, digitalization can also create new vulnerabilities for hacking and manipulation at a scale simply not possible in paper based administration, or it may shift petty corruption to other areas of government activities that are not yet digitalized. ICT may concentrate new, system-wide corruption opportunities in the hands of those few who have the right tech skills; and in- creased transparency can also facilitate corruption, for example, in public procurement by enabling bidders to more effectively identify which official to bribe *(Adam, Fazekas, 2021).*

Also, the emerging technologies can foster transparency i.e. information flows from society to government. Supervisors receive citizen feedback on public officials' performance, for example, through digitalized public service delivery. Such feedback loops create complaint channels that can lead to prevention, detection and punishment of corruption within government, which is making the accountability more effective.

Nevertheless, false information might be spread too. Digital means of interaction among citizens and businesses may also render corruption easier to organize and maintain by lowering trans- action costs and allowing for more efficient monitoring within criminal groups *(Adam, Fazekas, 2021).*

Conclusions and Results:

There are two directions in defining corruption, the first direction looks at corruption from an ethical perspective, where the owners of this direction consider that corruption is an immoral phenomenon, or in other words, it is a deviant moral behavior, it is basically a departure from the moral and behavioral standards and traditions of society. As for the second direction, it is the functional perspective of corruption, where the owners of this direction consider that corruption is a job like any other job. The individual, according to their opinion, can solve some of the problems he faces by using some form of corruption, for example offering bribes in order to overcome bureaucratic obstacles, for example.

There are many reasons for the spread of corruption, including, for example:

Greed for money, Desire to capture higher levels of the market, Political monopoly, Low levels of democracy, Weak civic participation, Weak political transparency, The are higher levels of bureaucracy, Ineffective management structures, Low level of press freedom, Low level of economic freedom, Great ethnic divisions, High levels of nepotism within society, Gender inequality, Poverty, Political instability, Double property rights, Low levels of education, Lack of commitment to society, High cost of living, and Deterioration of the economic and social conditions in the society.

Accordingly, we believe that fighting corruption must take the reform approach

and form for all pillars of the state and all activities, whether in the daily life of citizens or at the level of governments or at the level of political departments and decision-making centers.

From our point of view, we see that the main and most important element in combating corruption is the real desire of the political leadership and state administration to combat corruption and reduce its negative effects on society.

The real desire of leaders, rulers and decision-makers in countries to combat corruption is the password for the entire anti-corruption system, as decision-makers have the power, whether it is legislative power, which is the ability to enact laws or the executive power, which is the ability to implement the law (the power of law and the power of law enforcement), which is considered the green light to move forward in the path of fighting corruption.

Then comes the second element in terms of importance in combating corruption, which is the infrastructure. The state must be keen on paying attention to the infrastructure and developing it and providing the necessary funding to continuously modernize the infrastructure so that it can play its role to the fullest, as the investment in the infrastructure is through the public sector, and through the private sector and foreign investments, which considered as one of the most important factors in combating corruption.

Then the cultural component and awareness of the society about the dangers of corruption and its damages to the individual, society and the economy. As the culture and awareness of society is the main pillar on which the individual and society will depend on combating corruption in the future.

And finally the step of transformation to digitalization which prostrates the final gateway to reach the desired results from all the previous steps, and it explains our point of view in detail.

We believe that the transition to digitization for the purpose of reform and fighting corruption through digitization must take place through those four main steps:

1- Existence of the real desire of the political administration to combat corruption.

2- Developing the infrastructure to work efficiently in light of the transformation of digitization.

3- Working on developing the cultural and the educational level of the citizens, so that he can keep pace with the expected development and modernization.

4- Transition to digitization to reach the highest level of transparency, fight corruption, and provide prompt service to the citizen in a satisfactory manner.

ICT has affected the work of all actors involved in or against corruption, including public institutions, civil society organizations, the private sector and the media. While many see great promise in this development, the effectiveness of ICT tools, as well as their drawbacks and potential misuse, vary widely with the type and extent of corruption. Depending on the degree of corrupt public officials' control over key government institutions, including law enforcement, ICT's anticorruption impacts can be weakened or reversed altogether. Hence, ICT can only be effective against corruption, especially grand corruption, when sufficiently conducive conditions are given.

To indicate this, we can look at the United Arab Emirates, which is an example in support of our view, where we can notice the great change that has occurred in the United Arab Emirates, the last thirty years of development and prosperity.

In the beginning, there was a real desire from the political administration and the rulers of the country in the United Arab Emirates had a real desire to develop society and improve it in all respects. After that, the political administration began working on developing the infrastructure and services to be available for all citizens, and at the same time, it worked to raise the cultural level of the society and development of education, as well as the development and improvement of all aspects of the citizen's life activities. As a result, a very good level of anti-corruption was reached, as the UAE occupies the 21st place in the global anti-corruption classification, with an average of 71 points, as it is considered the first country in the Middle East in combating corruption, and also a very good place in the global anti-corruption classification (Table 1).

Our point of view agrees with the results of the available literatures after studying and analyzing it, since digitization has a great impact in combating corruption at the level of petty corruption, which is what we

can all notice in our everyday life. On the level of petty corruption, the digitalization can be enable a closer interaction between citizens and the governments, for example, by enhancing access to public information. ICT can truly impact public discretion and scrutiny by digitizing and monitoring officials' activities and public services, and enabling corruption reporting.

While the available literature has implicitly agreed that the digitization has a very weak impact in combating and eliminating corruption at the level of grand corruption and the level of state capture, which is also consistent with our view, it did not mention enough examples of this.

On the contrary, at the level of grand corruption and state capture, digitization can have a significant adverse effect, meaning that social media, the Internet, and digitization in general are a tool for the spread of corruption and control over the pillars of the state and the destinies of peoples. For example, we cannot forget what happened in the recent US elections, what was reported by international news agencies and news bulletins, where the company that owns social media platforms (Facebook and Twitter) banned Donald Trump's account on both social media platforms Facebook and Twitter, which prevented him from communicating with his supporters and members of his campaign electoral. This is a complete blow to the principles of democracy, freedom of opinion, equality, fair competition and equal opportunities. Digitization (the Internet and social media platforms) has been used to favor a competitor over another, which represents a complete destruction of all the principles of freedom, democracy and freedom of expression, which is considered a crude form of corruption in an incident that did not occur in any country in the world either was it a developed or developing country or a democratic orientation or not.

REFERENCES

Bertot, J. C., Jaeger, P. T., Grimes, J. M. (2010). Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies. *Government Information Quarterly*, 27(3), 264-271. doi:10.1016/j.giq.2010.03.001

Mergel, I., Edelmann, N., Haug, N. (2019). Defining digital transformation: Results from expert interviews. *Government Information Quarterly*, 36(4) doi:10.1016/j.giq.2019.06.002

Matheus, R., Janssen, M., Janowski, T. (2021). Design principles for creating digital transparency in government. *Government Information Quarterly*, 38(1) doi:10.1016/j.giq.2020.101550

Adam, I., Fazekas, M. (2021). Are emerging technologies helping win the fight against corruption? A review of the state of evidence. *Information Economics and Policy*, doi:10.1016/j.infoecopol.2021.100950

Khan, A., Krishnan, S., & Dhir, A. (2021). Electronic government and corruption: Systematic literature review, framework, and agenda for future research. *Technological Forecasting and Social Change*, 167 doi:10.1016/j.techfore.2021.120737

Sohag, K., Riad Shams, S. M., Darusalam, D., & Devalle, A. (2021). Information digitalisation and local institutional agility: Evidence from ASEAN countries. *Technological Forecasting and Social Change*, 172 doi:10.1016/j.techfore.2021.121063

Romero-Martínez, A. M., & García-Muiña, F. E. (2021). Digitalization level, corruptive practices, and location choice in the hotel industry. *Journal of Business Research*, 136, 176-185. doi:10.1016/j.jbusres.2021.07.032

Sabani, A., Farah, M. H., & Sari Dewi, D. R. (2019). Indonesia in the spotlight: Combating corruption through ICT enabled governance. *Paper presented at the Procedia Computer Science*, 161 324-332. doi:10.1016/j.procs.2019.11.130

Casadesús de Mingo, A., & Cerrillo-i-Martínez, A. (2018). Improving records management to promote transparency and prevent corruption. *International Journal of Information Management*, 38(1), 256-261. doi:10.1016/j.ijinfomgt.2017.09.005

Nam, T. (2018). Examining the anti-corruption effect of e-government and the moderating effect of national culture: A cross-country study. *Government Information Quarterly*, 35(2), 273-282. doi:10.1016/j.giq.2018.01.005

World Bank, 2014. *Report on the Session Digital Records Management: Good Practices for Anti-*

Corruption Authorities 3rd Biennial Meeting of the World Bank's International Corruption Hunters' Alliance. World Bank, Washington, DC.

Charoensukmongkol, P., Moqbel, M. (2014). Does investment in ICT curb or create more corruption? A cross-country analysis. *Public Organization Review*, 14(1), 51-63. doi:10.1007/s11115-012-0205-8

Transparency International, (2020a), *Corruption Perceptions Index 2020.* https://www.transparency.org/en/cpi/2020.

Transparency International, (2020b), *Glossary*. https://www.transparency.org/en/glossary.

Transparency International, (2020c), *Grand Corruption*. https://www.transparency.org/en/our-priorities/grand-corruption

Transparency International, (2020d), *Petty Corruption*. https://www.transparency.org/en/corruptionary/petty-corruption.

UN Department of Economic and Social Affairs, (2014). *United Nations E-Government Survey 2014: E-Government for the Future We Want*. United Nations, New York.

World Bank, (2016). *World Development Report 2016: Digital Dividends*. World Bank, Washington DC.

Transparency International. (2020). *Corruption perception index 2019.* https://images.transparencycdn.org/images/2019_CPI_Report_EN_200331_141425.pdf

Transparency International. (2021). *Corruption perception index 2020* https://images.transparencycdn.org/images/CPI2020_Report_EN_0802-WEB-1_2021-02-08-103053.pdf

ЦИФРЛАНДЫРУ ЖӘНЕ ОНЫҢ СЫБАЙЛАС ЖЕМҚОРЛЫҚПЕН КҮРЕСКЕ ӘСЕРІ

Дарвиш АЛАА, Солтүстік-Батыс басқару институты РХШМҚА, Санкт-Петербург, Ресей, amokhameddarvi-20@edu.ranepa.ru

Олег МИСЬКО, Солтүстік-Батыс басқару институты РХШМҚА, Санкт-Петербург, Ресей, misko-on@ranepa.ru

ЦИФРОВИЗАЦИЯ И ЕЕ ВЛИЯНИЕ НА БОРЬБУ С КОРРУПЦИЕЙ

Дарвиш АЛАА, Северо-Западный институт управления РАНХИГС, Санкт-Петербург, Россия, amokhameddarvi-20@edu.ranepa.ru

Олег МИСЬКО, Северо-Западный институт управления РАНХИГС, Санкт-Петербург, Россия, misko-on@ranepa.ru