

Employing Information Systems for Enlightened Uses: The Case of Northern Cyprus

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My dad's vision, the struggle for justice and equality, is still with me despite losing him at 11. I rest assured that he would be proud of my position and struggle towards inequality within society.

I want to thank all my family and friends; they were there whenever needed. Their trust encouraged me to move on.

This thesis includes works that have mutual collaboration. Therefore, I would like to thank all of my coauthors, colleagues and PhD students. I would be more than happy if these works could even have a small impact on the progress of society.

Lastly, I would like to thank all participants of my research; their inputs enabled me to produce the outcome. I hope this thesis will be effective for utilising information systems for equal, democratic and free societies.

List of Abbreviations

AI	Artificial Intelligence
CGAG	Cyprus Green Action Group
ECDG	European Conference on Digital Government
ECKM	European Conference on Knowledge Management
EGDI	E-Government Development Index
EGMC	E-Government Management Committee
EU	European Union
GDPR	General Data Protection Regulation
HCI	Human-Computer Interaction
ICICKM	International Conference on Intellectual Capital, Knowledge Management & Organisational Learning
ICT	Information and Communications Technology
IT	Information Technology
IS	Information System
KM	Knowledge Management
MoH	Ministry of Health
NGO	Non-Governmental Organisation
NHS	National Health Service
PCR	Polymerase Chain Reaction
PhD	Doctor of Philosophy
PPI	Political Participation Index
RoC	Republic of Cyprus
R&D	Research and Development
TKA	Tacit Knowledge Accumulation
TKC	Tacit Knowledge Capacity
TKT	Tacit Knowledge Transfer
TRNC	Turkish Republic of Northern Cyprus
UK	United Kingdom
UNICEF	United Nations Children's Fund
UoM	Union of Municipalities
US	United States
WoS	Web of Science
WGI	World Governance Indicators
WHO	World Health Organization

A synthesis of themes of the thesis and published papers

Theme One (pp.31-33)

Publication 1: Kaya, T. & Bicen, H., (2016). The effects of social media on students' behaviors; Facebook as a case study, *Computers in Human Behaviors* (SSCI, Q1), 59, pp. 374- 379. <https://doi.org/10.1016/j.chb.2016.02.036>

Contribution: The research findings reveal that participants know how to control privacy, which is crucial as privacy-related issues within social networks. Examining the use of youngsters who will be the future higher education students and working population who have high Facebook usage also underlined the medium's importance in upcoming years (Please see Appendix Seven for the results). The work indicates that Facebook is highly used, which is a good indication as it can be used for circulation of the news and provision of transparency.

Publication 2: Kaya, T. (2020). The changes in the effects of social media use of Cypriots due to COVID-19 pandemic, *Technology in Society* (SSCI, Q1), 63, 101380. <https://doi.org/10.1016/j.techsoc.2020.101380>

Contribution: This work indicates that social media is vital for communication, and decision-makers should employ it during crises to provide official and legitimate information. Furthermore, respondents believe that decision-makers change their behaviour based on their reactions on social media. Therefore, the responsiveness of the decision-makers can be perceived as effective utilisation of social media to become more democratic. Furthermore, Dahl (1998) emphasised the importance of supporting democratic values by the citizens and political elite. Accordingly, considering citizens' reactions can be perceived as supporting democratic values.

Theme Two (pp. 34-37)

Publication 3: Kaya, T. & Sağsan, M. (2015). The Impact of Tacit Knowledge Capacity on Social Media: An Empirical Research on Physicians in North Cyprus, *Proceedings 12th International Conference on Intellectual Capital, Knowledge Management & Organisational Learning (ICICKM 2015)* (WoS), 15-16 November 2015, Bangkok, Thailand. <https://bit.ly/31X62vk>

Contribution: The study recommends reviewing the Ministry of Health's reward structure, researching new methods, circulating them to the staff, creating WhatsApp messaging groups for effective and fast internal communication via the departments to improve TKC. The paper also

recommends investing in social media applications, creating social media groups, and using social media for effective and fast communication via the departments (Kaya and Sagsan, 2015).

Publication 4: Kaya, T. & Erkut, B. (2016). The Tacit Knowledge Capacity of Lecturers: A Cross-Country Comparison, *Proceedings 17th European Conference on Knowledge Management (ECKM 2016)*, 8-9 September 2016 (WoS), Belfast, Northern Ireland. <https://bit.ly/3qx7vSq>

Publication 5: Kaya, T., & Erkut, B., (2018). Tacit Knowledge Capacity: A Comparison of University Lecturers in Germany and North Cyprus. *The Electronic Journal of Knowledge Management* (Scopus), 16 (2), pp. 131-142 <https://bit.ly/3FAmoIa>

Contribution: The publication 4 and 5 recommended that lecturers have secret Facebook groups to effectively transfer knowledge within the departments. The paper concluded the effectiveness of using social media for knowledge sharing as the students highly use it. The work also recommends that university management emphasise social media applications, increasing tacit knowledge accumulation and enabling effective dialogue and knowledge transfer with students. Furthermore, reviewing the reward structure for knowledge sharing and removing hierarchical barriers would improve TKC.

Publication 6: Kaya, T. & Erkut, B. (2017). Tacit Knowledge for Strategic Advantage: Social Media Use of Employees in the Financial Sector, *Proceedings of the 18th European Conference on Knowledge Management (ECKM 2017)*, 7-8 September 2017 (WoS), Barcelona, Spain. <https://bit.ly/34XVZY7>

Contribution: Publication 6 evaluated the aspects of knowledge sharing in the financial sector. The study mentioned that increased knowledge sharing practises improve organisations' strategic innovation vision.

Publications four to six examined the effect of social media on TKC in different organisations. The importance of social media was changing depending on the occupation. It must be remembered that the penetration and effects of social media are even higher today. There is a potential to use social media, especially Facebook, when North Cyprus is considered. The flow of intensive and deeply routed knowledge to colleagues allows the next generations of customers to improve knowledge production. As knowledge needs 'ba', time and space and production (Nonaka et al., 2000), social media can be an effective medium. Although not all occupations were examined, occupations with high knowledge intensity were

still reached. The occupations with high knowledge capacities were investigated, which can provide a snapshot of the use of social media and innovative approaches for that period. Social media knowledge management is an important area, and researchers have increased since 2011 (Zhang et al., 2015). The author aimed to contribute to that field by mainly focusing on an understudied region.

Theme Three (pp.38-52)

Publication 7: Kaya, T. (2019). Artificial Intelligence Driven E-Government: The Engage Model To Improve E-Decision Making, *Proceedings of the 19th European Conference On Digital Government (ECDG 2019)*, 24-25 October 2019 (WoS), Nicosia, Northern Cyprus <https://bit.ly/3qsrban>

Contribution: Being available on the digital medium creates various benefits, as explained above. However, digitalisation created a huge gap where hackers can access sensitive information via malware, ransomware, virus or worm despite the benefits. These attacks might significantly affect the efficiency of the public administration units. For example, the WannaCry Ransomware infection cancelled 6,900 NHS appointments in 2017 (BBC, 2017). Furthermore, there are still ongoing legal actions to investigate the leaks and effect of Russia on the US 2016 Presidential elections, where Donald Trump's attorney-general Jeff Sessions and William Barr are called to testify under oath by the Democratic Senators (The Economist, 2021).

The Internet Research Agency, a Russian company, manipulated the news by 80,000 publications via 470 Facebook accounts. In addition, more than 3.8 million tweets were generated via more than 50,000 Twitter accounts linked to Russian bots. The bots aim to circulate false information that accounted for 19% of the news related to the 2016 US presidential election (Marineau, 2020). The bots engage with the fake news, which gets attention where they disengage with those who have not got attention from the users. The main aim is to increase the circulation of fake news by the bots and to create a situation where reality is mixed with false information.

The United States National Intelligence Council classified the actions and prepared a report to assess the impact of external influence by digital means in the latest 2020 US presidential elections. Election influence and election interference are the two terms that are combined due to the interventions of the elections by the external stakeholders. “Election influence includes overt and covert efforts by foreign governments or actors acting as agents of, or on behalf of, foreign governments intended to affect directly or indirectly a US election – including candidates, political

parties, voters or their preferences, or political process” (National Intelligence Council, 2021, p.i). Similarly, election interference includes activities that target technical aspects of an election process (National Intelligence Council, 2021).

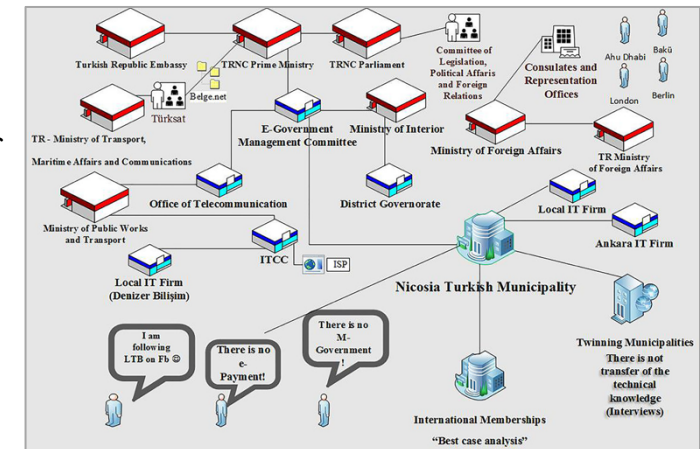
There was no detection of technical interference due to improved firewalls, patches, and cybersecurity training of the personnel. At the same time, Russia and Iran tried to affect elections by decreasing confidence towards the election process via the circulation of fake news via trolls. Similarly, a recent report that examined the interventions for the 2020 presidential elections of Northern Cyprus indicated that fake accounts and trolls frighten the opponents and circulate the fake news (Yücel et al. 2021). Furthermore, recently elected Northern Cyprus President Mr Ersin Tatar has close relationships with the government of the Republic of Turkey. There are various proofs that Turkish representatives interfered with the 2020 presidential elections in favour of Mr Tatar via physical attempts (Yackley, 2021). Thus, the current example indicates digital interference becomes an area to tackle with physical influence.

Therefore, it is advised for the governments to provide websites to check the validity of news. News confirmation sites like <https://factcheck.afp.com/> or <https://fullfact.org/> may help decrease the circulation of fake news, which may directly affect the election results. Despite the benefits of the technology and the possible uses for the enlightenment, the current report indicated attempts to manipulate results. The charts indicating the EGDI and WGI indicators such as voice and accountability, government effectiveness, and political stability are provided in Appendix Five. Attacks to manipulate elections and destabilise a country can happen within the countries with high EGDI.

The above findings highlight the risks of breaching an election system and affecting their democracy significantly. Furthermore, the Russian attacks show a risk of involvement, either manipulating the voters or accessing the electoral databases. Therefore, it is advised for government officials to take cybersecurity measures, provide training to governmental personnel, and use up-to-date firewalls, patches, and required systems to improve the vulnerability of the governmental and electoral processes. Furthermore, the general counting of the votes of Northern Cyprus is undertaken in a private university, which makes it more vulnerable. Therefore, by considering the prior attempts to manipulate the election results, necessary precautions should be taken to prevent the destabilisation of the democratic processes.

Publication 8: Kaya, T., Sağsan, M., Medeni, T., Medeni, T. & Yıldız, M. (2020). Qualitative analysis to determine decision-makers' attitudes towards e-government services in a De-Facto state, *Journal of Information, Communication and Ethics in Society* (ESCI, Scopus), 18 (4), 609-629. <https://doi.org/10.1108/JICES-05-2019-0052>

Contribution: The Network Analysis indicates that various actors affect the development and implication of digital practices. A variety of actors firstly creates a coordination problem. Also, there is a dependency on external countries, which slows down the process and creates vulnerability. Possible attempts to manipulate the electoral process are explained via publication seven. Therefore, it is advised that e-government practices are coordinated and implemented from one specific unit. In addition, the EGMC members are appointed after every coalition. The change of EGMC members after every coalition lessens the intellectual capital and prevents the continuation of the projects. For example, the author was a member of the board of the EGMC, where they were going to launch the e-gateway portal by June 2019. However, the launch was cancelled as the new government was formed by May 2019. The portal still was not launched by January 2022. As the political instability impedes and hinders the development of e-government practices (Yildiz, 2007; Wirtz and Daiser, 2015; Kaya et al., 2020b), it is advised that the structure of this agency be reorganised (Please see policy recommendations). As this thesis argues, the Enlightened use of technology will improve the democratic process, accountability, efficiency, and transparency. Therefore, the continuation of the e-government projects is crucial. The following model was created after the interviews, indicating the stakeholders affecting the development of e-government practices in the capital city, Nicosia.



Publication 9: Kaya, T., Sağsan, M., Yıldız, M., Medeni, T. & Medeni, T. (2020). Citizen Attitudes Towards E-Government Services: Comparison of Northern and Southern Nicosia Municipalities, *International Journal of Public Administration in the Digital Age (IJPADA)* (ESCI, Scopus), 7 (1), 17 - 32. <https://bit.ly/33bDQ8Q>

Contribution: This publication enabled me to gather insights from the citizens from both parts of Nicosia by considering the importance of Enlightened use of the Technology. The results of one de-facto and one recognised part did show significant differences. In other words, both

respondent groups find their public administration inefficient. Similarly, 33.4% of the respondents in Northern Nicosia declared that they strongly disagree with the statement that my municipality is a transparent organisation. On the other hand, this statement ranked 29.6% for the municipality within the South. In addition, the current use of the e-government practices of the municipality portals also highlights differences where 72% of the respondents from the North use their municipality website, which is 20.4% for the South. Likewise, 74.3% of Northern Nicosia Citizens informed that they want a mobile government application for their municipality. In contrast, only 20.4% of the Southern Nicosia respondents declared that they use the mobile government application of their municipality (See Appendix Thirteen).

These ratios indicate that citizens demand the current concepts, want transparency and efficiency of their organisations; hence the Enlightened use of technology is desired. This publication also uncovers the desire of Northern Nicosia citizens towards digital practices. I believe that physical isolation increases the use and the desire to use digital practices. Using digital practices creates a chance as the demand side of the e-government practices are ready to use the digital mediums for government-related duties. (Please check Figure 2, more than 90% of the participants use Facebook, which is one of the highest penetration numbers in the world. India has the highest number of Facebook users, where only more than 30% of the total population use the network. The second-ranked USA and third Indonesia have a penetration above 50%).

Publication 10: Eyupoglu, A., & Kaya, T. (2020). E-Government Awareness and Adoption by the Residents: A Quantitative Analysis on North Cyprus, *International Journal of Public Administration in the Digital Age (IJPADA)* (ESCI, Scopus), 7(2), 1-22. <https://bit.ly/33B7hAF>

Contribution: This publication snapshotted the current use of e-government practices during the COVID-19 pandemic. The COVID-19 pandemic increased the demand for e-government practices (United Nations, 2020a). The same shift was observed within Northern Cyprus as well. E-government practices such as electronic permits for residents to leave their properties during the curfew, e-learning platforms, or platforms to apply or check for the results of polymerase chain reaction (PCR) tests are provided by the decision-makers (See Appendix Fourteen). The publication has encouraging results for the Enlightened use of the technology. Firstly, there was no difference between the rural and urban areas. The e-government literature highlights that place of living limits access to e-government practices (Wirtz and Daiser, 2015). The awareness of e-government practices in urban and rural places is above 60%, indicating that geographical proximity does not impede e-government usage. It must

be mentioned that this might be due to living on a small island. Furthermore, 69.55% of the aware users used e-government practices. This ratio is also encouraging, supporting the view that the residents will benefit from the Enlightened use of technology.

Publication 11. Agozie, D. Q., & Kaya, T. (2021). Discerning the effect privacy information transparency on privacy fatigue in e-government, *Government Information Quarterly* (SSCI, Q1), 38 (4), 101601. <https://doi.org/10.1016/j.giq.2021.101601>

Contribution: The research findings are significant as it indicates that provided e-government practices are shifted towards the transactional stage, and foreign residents of the nation are also involved in e-government practices. The use of e-government practices via foreign residents is an issue and sometimes under-researched. In addition, the research findings indicate that users should be given notification regarding their data use as the lack of the required information and process of data use will negatively affect the use of e-government practices by creating cynicism and emotional exhaustion. As the users must use the e-government portal, they do not have any chance to drop the use or switch the physical process. The must use case of the e-government portal should be considered by the decision-makers as they are responsible for the well-being of the users. Therefore, it is advised for the decision-makers to provide the required information for the users. This will result in fewer issues or concerns regarding the information use. Increasing information transparency will improve the satisfaction of the used services as low information transparency increases cynicism behaviour (Agozie and Kaya, 2021). The publication argues that privacy information transparency should be used “as an engagement strategy, and e-government practitioners can use this idea to their advantage to repackage data information into concise and understandable forms” (Agozie and Kaya, 2021, p. 8).

Publication 12: Kaya, T., Medeni, T., Sağsan, M., Medeni, İ., & Asunakutlu, T. (2016). A Situation Analysis for Northern Cyprus Municipalities: Key Success Factors for Effective Participation, *International Journal of eBusiness and eGovernment Studies*, 8 (2), 1-17. <https://bit.ly/3qwcWRE>

Contribution: This work enabled the author to create an evaluation framework for e-government practices. The provision of the services and being digital will improve transparency, involvement in the decision-making practices and democratic values, hence the enlightened use of technology. Furthermore, having a framework to benchmark, the available services enabled the author to test and measure the development.

Publication 13: Kaya, T. & Over, A. S. (2019). Analysis of Ministry and Municipality Websites in the Context of E-Participation with Content Analysis Method – TRNC as a Case Study, *Journal of Economics and Administrative Sciences*, 33 (4), 1201-1226. <https://bit.ly/33nePra>

Contribution: It is recommended to use e-participation tools such as sending a message to the mayor, surveys, polls, e-voting and online forms will improve the e-participation. Furthermore, it is mentioned that the use of social media applications will positively affect e-participation. The paper emphasises the importance of being available on digital platforms. It states that e-government should be perceived as state policy rather than government policy, which will enable the continuation of the supplied e-government practices. The services' continuity and stability can ensure the vital aspect of digital citizenship, digital society, and digital government. Available services are expected to benefit the enlightened use of technology as residents will become able to participate in decision-making processes.

Publication 14: Kaya, T. (2020). E-Government Services in South Asia: Challenges and Opportunities, In G. D. Sharma (Ed.), *Contemporary Issues in South Asia*, (pp. 47-78). Hauppauge, NY: Nova Science Publishers. <https://bit.ly/3KhFdmT>

Contribution: The book chapter evaluates and ranks the websites based on e-participation and usability. In addition, recommendations such as effective use of visuals, integration of WhatsApp online help, integration of Secure Socket Layer and professional use of social media use were provided to improve the user engagement. User participation is vital for the enlightened use of technology, which can be improved via participatory website designs.

Publication 15: Kaya, T. (2020). Human Computer Interaction and Public Administration, In Yıldız, M. and Babaoğlu, C. (Ed.) *Technology and Public Administration*, (477 - 494). Ankara: Gazi. <https://bit.ly/33rX0al>

Contribution: Perceived usefulness is defined as “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989, p.320). A user will not be willing to use or utilise a system if they do not perceive it useful and foresee the benefits. Therefore, evaluating the websites of the public sector organisations will help to snapshot the current situation and improve the sites in a usable and effective interactive way.

Publication 16: Over, A. S. & Kaya, T. (2021). An Investigation of Electronic Government Applications By ‘De Jure And De Facto Country’ Perspective: Comparison of Ankara and Nicosia, *Pamukkale University Journal of Social Sciences Institute*, (46) , 1-30. <https://doi.org/10.30794/pausbed.789576>

Contribution: The research indicates that current users have a positive attitude towards e-government practices. Therefore, decision-makers should provide incentives to encourage the trial of e-government practices.

Publication 17: Abubakr, M., & Kaya, T. (2021). A Comparison of E-Government Systems Between Developed and Developing Countries: Selective Insights From Iraq and Finland, *International Journal of Electronic Government Research (IJEGR)* (Scopus, ESCI), 17(1), 1-14. <https://bit.ly/3FFAVT2>

Contribution: The paper emphasises seven areas; Vision and Strategy, ICT infrastructure, education and e-literacy, trust & confidence, stability and security, and transparency, that positively affect the development of e-government practices in a partly recognised state, Northern Iraq.

Theme Four (pp.52-53)

Publication 18: Kaya, T., & Sagsan, M. (2016). The Concept of 'knowledgization' for Creating Strategic Vision in Higher Education: A Case Study of Northern Cyprus, *Education & Science* (SSCI, Q4), 41 (184). <http://dx.doi.org/10.15390/EB.2016.6195>

Contribution: This paper highlights universities’ potential for knowledge-based development by evaluating IT Capacity.

Publication 19: Kaya, T.; Erkut, B.; and Thierbach, N. (2019). Entrepreneurial Intentions of Business and Economics Students in Germany and Cyprus: A Cross-Cultural Comparison, *Sustainability* (SSCI, Q2), 11, 1437. <https://doi.org/10.3390/su11051437>

Contribution: This paper evaluates the factors affecting entrepreneurial activities and emphasises the impact of following recent technological trends on entrepreneurship.

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Abstract

The small size of Northern Cyprus makes it an ideal lab to test the use of information systems. This thesis conceptualises the utilisation and importance of information systems to have a more transparent, accountable, democratic and free society. These concepts are framed as Enlightened use of Technology, and the impact of enlightenment was evaluated under four thematic themes. The first theme includes the impact of information systems on individuals. The publication findings indicate that respondents utilise the information systems within their daily lives, and social media is the leading one. Social media is also the primary medium for information retrieval during crises. The second theme evaluates the impact of information systems for occupational use, where the author evaluated the potential of social media for knowledge transfer activities via different occupations. The theme recommends utilising social media applications to have effective knowledge transfer. The third theme evaluates the impact of information systems on the public sector organisations within the domain of e-government. The theme recommends a conceptual model for user-driven decision making, evaluates the decision-makers' proposition towards the technological concepts, and measures the desire and satisfaction of the users. Finally, the fourth theme evaluates the impact on academia; provision of digital skills via education is essential. The thesis highlights that North Cyprus does not have digital isolation despite being isolated. The use of IS in a de facto state is evaluated, where this thesis argues that IS can be used for the Enlightenment despite the situation of Northern Cyprus. Policy recommendations are provided for the 7 out of 10 ministries to utilise the Enlightened use of the Technology effectively.

Keywords: Digitalisation, enlightenment, information systems, public sector, Northern Cyprus

Chapter One – Introduction

Technology has changed every aspect of our daily life. It has significant effects and improvements on organisations, individuals, and professions. Information system (IS) is ‘a set of interrelated components that collect, process, store and distribute information to support decision making and control in organisation’ (Laudon and Laudon, 2020, p.48). Within this thesis, IS systems are perceived as enabling users’ interaction with the digital environment, such as social media and e-government. Information is sent, encoded, decoded, and received according to the Communication Theory of Shannon and Weaver (1949). IS plays a significant role in the information exchange process. As the spread and utilisation of IS increased significantly, scholars searched for conceptualising and evaluating the benefits and success of IS. DeLone and McLean (1992) introduced a taxonomy to conceptualise the success factors for information systems under six topics as system quality, information quality, use, user satisfaction, individual and organisational impact. Seddon et al. (1999) indicated that different stakeholders would have different needs and success criteria based on these needs. DeLone and McLean (2003) later revised the model. This was due to the improvements, and the use of IS as organisations started to make high investments in the e-commerce applications as the internet significantly decreased the operations and transaction costs (Laudon and Laudon, 2020) (See Appendix One). It must be highlighted that technology evolves continuously, so modifications to the evaluations and success factors are expected to be added periodically.

IS enables operational excellence, improvements in decision making, provision of new products/services and business models (Amazon, Airbnb, Spotify, Uber) and better customer-supplier relationships. IS are widely employed and utilised by organisations. Being digital and effective use of IS has become the crucial point and the critical success factor for regular times. The COVID-19 pandemic, which started in Wuhan city of the Republic of China in December 2019, ceased daily life and slowed economic developments due to lockdowns and uncertainty. On the other hand, it also demonstrated the importance of IS as shifting digital becomes one of the organisations’ success factors (Taylor, 2020; Popov, 2021). For example, regular class education shifted towards digital education, which enabled the continuation of the learning processes from remote places. Private and public organisations have shifted towards digital means to continue the practices and reduce the number of people in contact.

The use of IS for benefiting organisations is an essential topic for the literature. For example, Mata et al. (1995) highlighted the importance of information systems to hold a competitive

advantage for a more extended time. IS enables organisations to record, analyse, store the information and decide, to have operational excellence, efficiency, and accuracy (Laudon and Laudon, 2014, p.45). Both public and private organisations benefited from IS's use (Laudon and Laudon, 2014, p. 45; Wirtz and Daiser, 2015, p. 27). Traditional physical shopping activities have been shifting online since 1994. On 11th August 1994, Mr Phil Brandenburger completed the first online electronic commerce (e-commerce) transaction, costing \$12.48 for the compact disk 'Ten Summoners' Tales' album of Sting (Lewis, 1994; Aaronson and Struett, 2020). That transaction was the first step of a new purchasing medium where the revenue of e-commerce was \$4.28 trillion for 2020, and it is expected to reach \$5.4 trillion by 2022 (Sabanoglu, 2021).

When recent user behaviours are examined, it is seen that 90% of internet users ordered goods or services online in the United Kingdom in 2020. This ratio is 64% for the European Union (EU) average. When e-commerce use is examined via different age groups, 16 – 24 (96.2%) and 25 - 55 (96.4%) showed a similar online shopping tendency, where the age group 55 - 74 had usage of 76.7% in 2020. Furthermore, there is no significant difference between the e-commerce use of the people who live in urban (90.5%) and rural areas (89.2%) within the UK. 67.7% of the people who used the internet and lived in urban areas ordered goods or services online, whereas 59.2% is for those living in rural areas for the EU average (Eurostat, 2021). The data-driven approach in e-commerce practices enables analysts to understand user behaviours and improve customer/user experience. Despite the improvements in the user experience, the availability of data sharing creates ethical considerations. Data should be shared responsibly and according to privacy policies explained in detail in Chapter Four (World Economic Forum, 2021).

The success of an e-commerce site is affected by a variety of indicators such as the website design (Feindt et al., 2002), search engine optimisation (Serrano-Cinca et al., 2010), available purchase facilitation (larger picture, payment options, and description of the product) (Song and Zahedi, 2005), quality of the system (navigability and security) (Lee and Kozar, 2006). Even the timing of the messages has a significant effect on e-commerce transactions. If the scarcity messages regarding the product are sent early during the purchase process, it will decrease the sales, whereas if the message is sent late in the process, it will increase the sales (Cremer and Loebbecke, 2021). Aparicio et al. (2021) state that gamification enables the effective use of e-commerce sites. Whether public or private sector organisations utilise IS for

their operations, usability is also an important area (Jiang et al., 2016). The shares of e-commerce in global retail trade increased from 16% (2019) to 19% (2020), where the COVID-19 pandemic was also a trigger for this increase (UNCTAD, 2021). The ratio shows there are still many physical shoppers, while online is an essential medium for organisations. For the upcoming years, sales expectations of e-commerce are subject to change due to several conditions. A constant and steady improvement is the solid thing regarding e-commerce (Manly et al., 2020; Escudero et al., 2020).

Being available on the digital medium did not just affect private institutions' formation; it also transformed public institutions' operational structure (Yildiz, 2007). The public sector organisations utilise IS to improve organisational efficiency, accountability, and transparency. As a result, electronic government (e-government), first used for back-room operations of public sector organisations, increased its existence and importance (Yildiz, 2007; Wirtz and Daiser, 2015). E-government practices are the medium where the public sector organisations can serve their stakeholders (citizens, employees, residents, disabled individuals, governmental agencies, non-governmental organisations) by electronic means (Wirtz and Daiser, 2015). E-government enables the continuation of government-related tasks via digital means. However, the development of e-government practices was not the same in all countries, as the spread of technology, infrastructure development and desire towards e-government show significant differences between the nations (Kaya et al., 2020a). There are various levels of measurement of the maturity of e-government services, from being online/providing information to fully integrated enterprise transactions or political participation (Layne and Lee, 2001; Reddick, 2004; Andersen and Henriksen, 2006; Almazan and Gil-Garcia, 2008; United Nations, 2012; Wirtz and Daiser, 2015; Iannacci et al., 2019). According to the available maturity model, maturity levels can be classified into five stages: transaction, integration, transformation, participation, and open collaboration (Wirtz and Daiser, 2015) (See Appendix Two). The classification enables benchmarking of the developed services, where effectively working practices can be used or transferred if required.

Despite the worldwide differences in e-government penetration and use, 2020 was when the importance of e-government practices was globally recognised. "The year 2020 was significant in the global benchmarking of e-government, as governments are reminded more than ever about the importance and relevance of digital government. Digital transformation is now a critical part of the national sustainable development of many countries" (United Nations,

2020a, x). During the COVID-19 pandemic, governments tried to find alternative solutions to enable day-to-day practices using digital mediums. For example, National Health Service's (NHS) COVID-19 application has features such as contact tracing and providing information regarding local area restrictions. The application also enables check-in via a quick response code, provides guidance regarding symptoms, and lets users upload test results. In addition, users can download their COVID Pass via the application (NHS, 2021; BBC, 2021a). More than 26 million users downloaded the application by mid-July 2021 (Statista, 2021). Worldwide variety of e-government practices had been used to tackle COVID-19 which can be categorised under the following areas: information sharing, e-participation, e-health, e-business, contact tracing, social distancing, and virus tracking, working and learning from home, digital policy and partnerships (UNDESA, 2020, vii). As the restrictions were lifted and travel between the countries started, digital passports/vaccination cards (describing the vaccination/infection status of the passengers) were introduced. For example, the EU Digital Covid Certificate enables residents of the member countries to travel without restrictions (BBC, 2021b) (See Appendix Three).

Digitalisation enables governments to interact with their citizens via various mediums, increasing citizen-government relationships (Kaya, 2020a). E-government development is measured sequentially as the e-government development index (EGDI) by the United Nations. The UN E-Government Survey is released every two years and evaluates how a country utilises information technologies to provide e-government practices and citizen involvement. EGDI measures human capacity, telecommunication connectivity, and online services (United Nations, 2020a). The EGDI evaluates e-government development as Very High EGDI, High EGDI, Middle EGDI and Low EGDI. Globally, the EGDI average increased from 0.55 in 2018 to 0.60 in 2020. Europe is the dominant continent with 33 countries with Very High EDI, followed by Asia (15) and the Americas (7). High EGDI countries are led by the American continent (23), which is followed by Asia (19) and Africa (14). There are only eight countries with low EGDI, which was 15 in 2018, indicating the improvements within all levels of e-government development (United Nations, 2020a, xxvi). The United Kingdom has provided digital services via gov.uk since 2012 (Garrett, 2017). The gov.uk replaced around 2,000 government websites with just one (Williams, 2018). The websites' merging reduced government costs, reduced duplication, and enabled users to work digitally by default (Henninger, 2017; Henmen et al., 2021). The system urges the importance of being a digital service, not a website. Furthermore, the public sector employees consult citizens on digital

practises to decrease the demand for physical practises (Faulkner et al., 2019). The Digital by default approach is rewarded the best design awards (Cabinet Office, 2013) and is followed by other nations (United Nations, 2020a).

As the e-government becomes popular and common, its participation also becomes a key topic. Electronic participation (e-participation) is an important goal for the countries, accounting for a global significance. E-participation was firstly mentioned in 1992 in Agenda 21 of the United Nations Conference on Environment and Development. Sustainable Development Goals also highlight the importance of e-participation via the 2030 Agenda for Sustainable Development. Goal 16 aims to have inclusive societies for sustainable development (United Nations, 2018; United Nations, 2020a, United Nations, 2020b). ‘The concept of e-participation revolves around the use of information and communications technology (ICT) to engage people in public decision making, administration and service delivery; hence, e-participation is usually considered part of e-government.’ (United Nations, 2020a, p. 115). As more people participate via electronic means, it is more likely that governments will anticipate the needs and wants of the citizens effectively. There are examples of e-participation sites such as the Virtual Congress of Chile. The site was created to build trust with citizens and aims to improve the standards of decisions as they will be based on data, feedback, and opinions of citizens. The legislation information is provided via the website, where the citizens can vote in favour or against the legislation and comment and discuss it (Congreso Virtual, 2021). This process increases citizen involvement and IS increases the democratic process. Similar websites are created for different cities, such as Decide Madrid; the site empowers the citizens and wins the 2018 United Nations Public Service Award (Royo et al., 2020). As following the developments of IS to improve dialogue between the residents and the governmental units, the author supervises a project called [decide Cyprus](#), which aims to improve e-participation in Cyprus (See Appendix Four).

Social media plays a vital role in e-participation, where it is used to provide information and consultation where the construction of political discourse is aimed (United Nations, 2020a). Social media’s role, increasing the impact of e-government and e-participation, including citizens, politicians, and public administration, triggered the author to conduct e-government related research. The digitalisation of the public sector aims to provide enlightenment which is explained in Chapter Two. (See Appendix Five for the effect of EGDI and World Governance Indicators (WGI) for the countries mentioned within this thesis). Social media also changed how people communicate; it became one of the most-used channels for daily communication.

Social media is used by individuals and organisations frequently. 4.54 billion internet users and 3.8 billion active social media users, highlighting social media use and worldwide penetration (Statista, 2020).

Social media has become the preferred medium of communication for many internet users. The daily knowledge sharing activities shifted to social media. Social media also significantly changed traditional communication methods, mainly dominated by the mass media, and allowed alternative opinions to spread regardless of supporters, financial budget, or geographical proximity (Nulty et al., 2016). Social media increased freedom of speech and enabled the ideas and voices to be circulated, which mainstream media might neglect (Zhang & Luo, 2018). Although hate speech also increased via social media platforms (Castaño-Pulgarín et al., 2021), social media is also extensively used for political campaigning. It enables the political parties with a lesser budget to express and share their ideas and views cheaply (Nulty et al., 2016). Social media improved the transparency of the public sector organisations as well (Perea et al. 2021). Social media is also the primary tool for societal movements and social responsibility projects of non-governmental organisations (NGOs) (Giglou et al., 2017; Kaya, 2017; Maes et al., 2019; Blakemore, 2020). Institutions started to use social media to engage with their stakeholders and social media accounts to become digital identities. Now, a user can use his/her social media account to create an account for the software instead of typing his/her personal information.

The amount of data generated in social media is increasing significantly. 64.2 zettabytes of data were generated in 2020 within users, where social media is one of the primary mediums for this (IDC, 2021). The available data also got the attention of the analytics companies, where the users' data had been used to manipulate the voters' behaviours in the Brexit referendum and 2016 US Presidential Elections. After the Cambridge Analytica Scandal, discussions regarding the collection and the use of user data increased (Dance et al. 2018; Criddle, 2020). In parallel to these, Tim Berners-Lee started a project called Solid-Inrupt to provide users with more power over their data. By using personal online hubs, users will be able to control their data and give permission to other companies by user desire. Furthermore, the company which will gain access will selectively use the allowed information while not storing it (Lohr, 2021).

Similarly, data scientist Alex Sandy Pentland argues that big data should be used in a format that enables users to demand appropriate use of their data. If aggregated, users can act as

regulators to have a say in how their data is used. If a collective awareness is gained, the data can be used as a benchmark for multinational companies and lobbying against the firms/organisations that do not use data fairly (YouTube, 2021). By enabling users to control and give permission to use their data, they can shift data-driven activities to an innovative and user-controlled method. Pentland (2021) stated that local data could be used to evaluate and maximise the allocation of investments, which will increase a region's health and prosperity. Pentland (2021) further stated that the anonymous data from mobile phones, credit cards, and other data sources help decision-makers tackle issues related to societal importance, such as crime levels, environmental and natural disasters, and social problems. 'From a technology perspective, data needs to be made more accessible and standardised in a more coherent and interoperable manner, while at the same time protecting private and proprietary data' (Pentland, 2021, p.224). The statement highlights the need for data harmonisation while the availability of data generated creates challenges and opportunities for the decision-makers and authorities.

After the misuse of data and data related issues, as explained above, the General Data Protection Regulation (GDPR) entered into force in 2016 and has been applied since 25th May 2018 to protect users regarding the use of their data. It includes statements such as disclosing data use, using only for disclosed purposes, collecting only the requested data, keeping data up to date, and not storing data unnecessarily. The data collected within the UK was under EU GDPR until 31st December 2020 and is under the UK GDPR after 1st January 2021 (Burgess, 2020; Information Commissioner's Office, 2021) (See Appendix Six). The world's largest social media platform Facebook is criticised as it does not properly handle any inappropriate content. The oversight board will decide whether the posts, contents will be taken down for Facebook and Instagram (Culliford, 2021). Despite these developments, social media platforms are criticised for mishandling infodemics during the COVID-19 pandemic. Fake news is problematic for social media platforms (National Intelligence Council, 2021). In addition to the potential misuse of the user data, fake news and infodemics, the users are also affected by technology-related disorders such as fear of missing out, sensitivity related to the number of likes received, internet anger, like phobia and anxiety of losing social media accounts (Kaya and Bicen, 2016; Błachnio and Przepi'orka, 2018; Rosenthal-von der Pütten et al., 2019). The vulnerability of users also makes it essential to evaluate the impact of social media on users' behaviours.

Ethical Considerations

All data which is used for this research was conducted under ethical considerations. The respondents of the questionnaires participated voluntarily. Informed consent was provided, including the research information, the aim and rationale, and the right to withdraw from the research. The questionnaires were designed to have anonymity, and the collected data was secured in a safe environment to ensure the anonymity of the users.

Chapter Two. The conceptualisation of the publications works

2.1. The Case of Northern Cyprus

Cyprus is the third-largest island of the Mediterranean. Throughout history, different nations have ruled the island due to its strategic geographical location. King Richard I (the Lionheart) of England and the Knights Templar was in charge between 1191-1192, which was followed by the Lusignans' Era (1192-1489), and the Venetians (1489-1571). After that, the Ottoman Empire was in charge between 1571-1878, which is followed by the Great Britain/United Kingdom (1878 – 1925 as handling of administration, 1925 - 1960 as a crown colony) (Orr, 1918; Durrel, 2007; Britannica, 2021; Ministry of Foreign Affairs, 2021). The Republic of Cyprus (RoC) was formed in 1960 with three guarantor countries (the United Kingdom, Greece, and the Republic of Turkey). The first violence during the RoC happened in 1963 and lasted in 1968. By 1974, there was a coup against the government, and the country had an international conflict and de facto division of the island (Mikellide, 2014; Mikellide, 2017; Žeželj et al., 2017).

After the division, the Turkish Cypriots lived in the North, and Greek Cypriots lived in the South of the island. The North of Cyprus is currently governed by the Turkish Republic of Northern Cyprus (TRNC), and the Republic of Cyprus governs the South. United Nations member countries do not recognise TRNC due to Resolution 541, which "7. Calls upon all the States not to recognise any Cypriot State other than the Republic of Cyprus" (UN Security Council, 1983, p. 2). This resolution resulted in isolation and embargoes applied to TRNC, and TRNC lacked recognition since 1983 and became a de-facto state. The RoC has been a member of the European Union (EU) since 2004. Article 10 is not applied within the North, which made Cyprus join the EU as a de-facto divided island, where the whole of the country is EU territory (European Union, 2021).

Since the Cyprus conflict, there have been ongoing peace negotiations for more than 40 years to have a comprehensive settlement. "In 2008, the Greek Cypriot and Turkish Cypriot leaders established six working groups to initiate a review of the key substantive points to be negotiated (governance and power-sharing, EU matters, security and guarantees, territory, property, and economic matters)" (UNFICYP, 2021; Cyprus Dialogue Forum, 2021). Two parts should have the same standards and practices in case of unification. Therefore, I was interested in evaluating the current state of digital practices within Northern Cyprus to evaluate the current situation

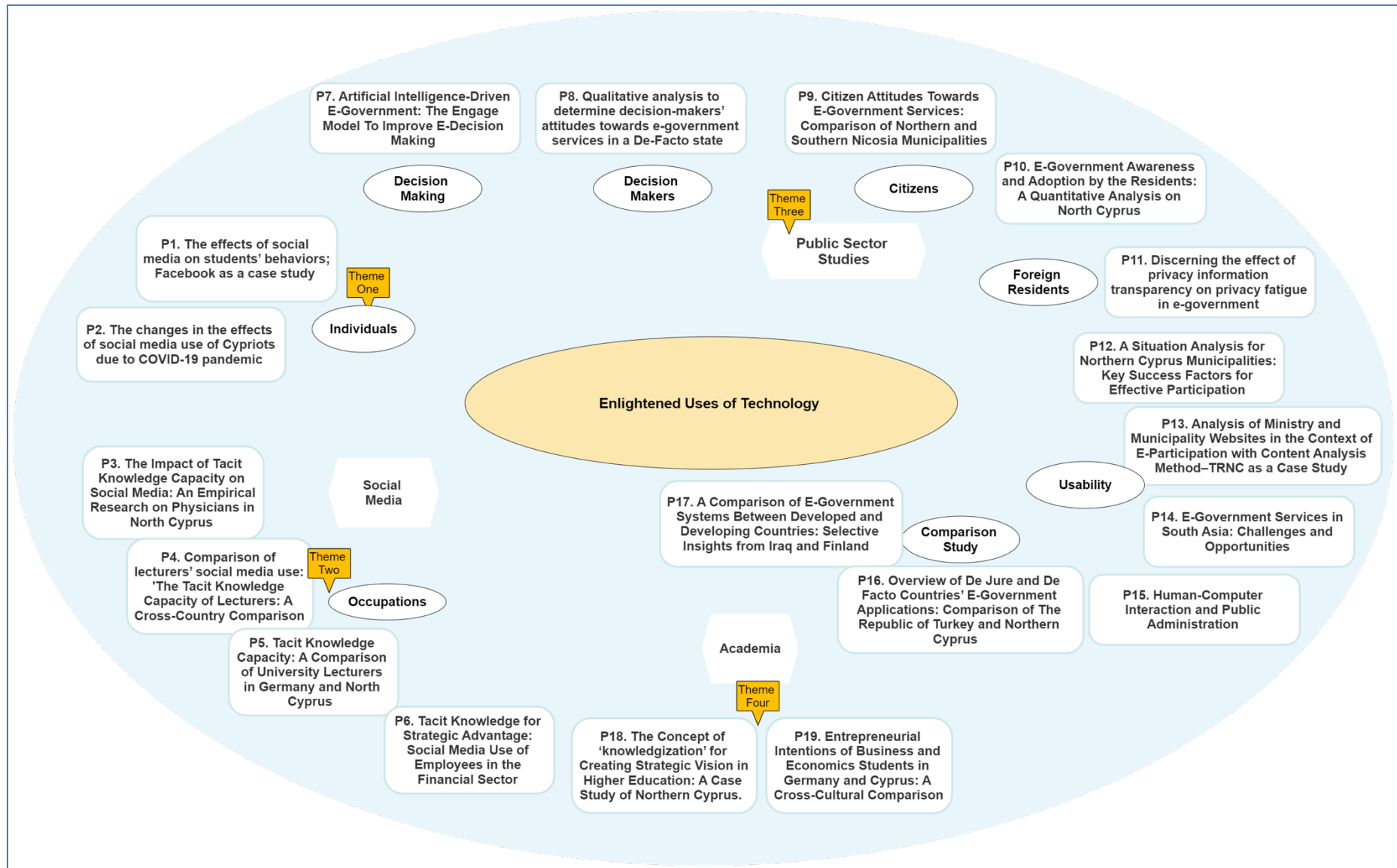
and recommendations to improve the practices. Furthermore, I was curious to check whether physical isolation limits digital practices development and creates digital isolation.

De facto states “established territorial control in a distinct geographic region and proclaimed itself an independent sovereign polity but failed to acquire widespread international recognition and legitimacy as such in the international system” (Kolossoff and O’Loughlin 1999; Kolstø 2006 cited in O’Loughlin et al., 2014, p. 242). Physical isolation prevents economic development and international recognition and negatively affects the democratic process. “In other words, Turkish Cypriots’ mediated access to globalisation, combined with the paternalism of the current Turkish government, have left Turkish Cypriots feeling that they are not political actors, that they have no platform on which to express their political agency, and that they are simply the object of various projects” (Bryant, 2015). Furthermore, de-facto and unrecognised states lack democracy and stability (Byrant, 2014). Freedom of thought and expression is an essential part of democracy (Welzel, 2013). Information systems play a crucial role in freedom of expression (Hiller and Belanger, 2001; Reddick, 2004). The introduction explained the worldwide progress and importance of information systems on individuals and organisations. The small size of North Cyprus makes it an ideal lab to explore and evaluate their effects. Therefore, the thesis includes the authors' publications between the years 2015 – 2021. Specifically, the thesis comprises thirteen articles, four conference proceedings and two book chapters. Figure one represents publications and the research domain.

2.2. The Enlightened use of the Technology

Counter-enlightenment is revealed via authoritarian and popular leaders. There is zero-sum thinking, demonisation, conspiracy theories and fake news (Pinker, 2018). As Northern Cyprus is a small country, conspiracy theories and misinformation can quickly spread. Counter-enlightenment fails ‘to acknowledge that hard-won knowledge is the key to societal improvement; it denigrates “elites” and “experts” and downplays the marketplace of ideas, including freedom of speech, diversity of opinion and the fact-checking of self-serving claims (Pinker, 2018, p. 323). Therefore, the Enlightened use of Technology is framed in this thesis as utilising technology for transparency, accountability, freedom of speech, awareness of society and giving authority for the user to control their data (Pinker, 2018).

Figure One: Representing Publications and Research Domains



2.3. Thesis Framework

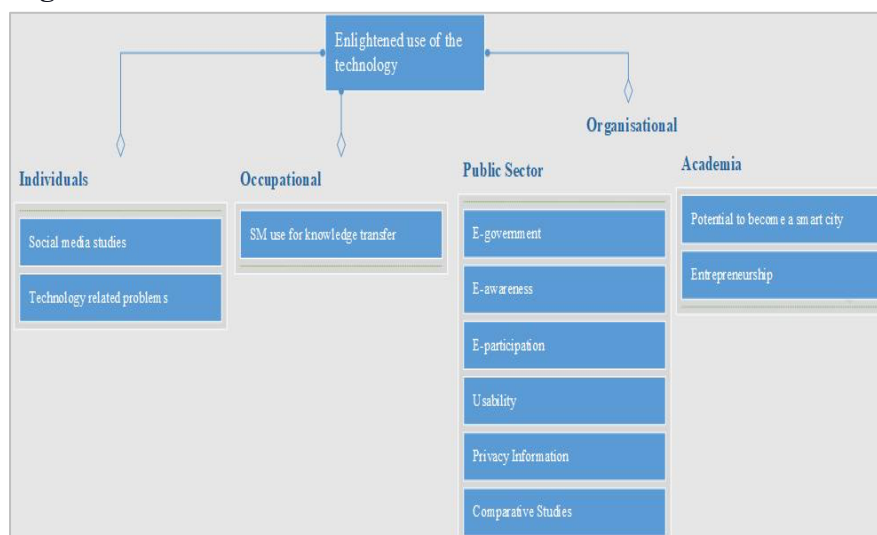
Figure two illustrates the framework of the thesis. The publications formed mainly on three segments regarding the impact of information systems on individuals, occupations, and organisations. The impact of IS on individuals includes the studies regarding the impact of social media on daily life, focusing on the effects on students and the effect during the COVID-19 pandemic. Occupation includes studies on how social media can be used for effective knowledge transfer in the digital era. Finally, organisational studies can be divided into three as

- public,
- private,
- academia

The author's research mainly concentrated on the effect of IS in the public sector within the e-government domain. He also examined the impact on academia with two studies. The impact of IS on the private sector is subject to further studies explained in Chapter Eight. The author is aware that technological progress has pros and cons. Nevertheless, technology is constantly improving and will improve transparency, accountability, freedom of speech, awareness of society, and giving authority for the user to control their data. These benefits can be framed as Enlightened Use of Technology (Pinker, 2018) and represent the structure of the thesis. This thesis has the following aims to uncover;

- To examine the current uses of IS for enlightenment
- The review the impact of physical isolation on the utilisation of digital practices
- To overview the current situation of IS utilisation in a de facto state
- To provide policy recommendations for effective utilisation of IS for the enlightenment

Figure Two. The framework of the thesis



Social media became the dominant medium of communication within the region, which initiated the author to conduct publications one and two that evaluate the impact of Cypriots' social media use on two different periods, explained in Chapter Three. The author further proposed a Tacit Knowledge Capacity model to evaluate whether social media can increase tacit knowledge sharing and accumulation by considering social media's growing importance and utilisation for daily practices. As Nonaka mentioned, "Tacit knowledge is deeply rooted in actions, procedures, routines, commitments, ideals, values and emotions" (Nonaka et al., 2000, p.7). Therefore, the author was curious to examine the crystallisation of knowledge via social media to examine the effects of social media for occupations. The knowledge is about experiencing, and the main intention was to check whether and to what extent the experiences can be circulated via digital means. These researches were years before the COVID-19 pandemic, while the ability to shift to digital means cannot be neglected nowadays. The author wonders about the reactions after the post-COVID-19 era, which is subject to further study. The effect of social media on knowledge sharing is explained in Chapter Four.

Chapter Five evaluates the impact of IS on public administration. The chapter examines the e-government practices within Northern Cyprus, focusing on the views of the decision-makers, the desire of citizens to use the services, awareness of e-government practices, the usability of the e-government websites, and a conceptual model to enable data-driven public management. "Knowledge acquisition involves communication and learning" (Mellor, 2011, p.6). Northern Cyprus has 21 universities with 80,000 registered university students, where education is of the main areas for economic activities (YÖDAK, 2021). There is a potential to use universities as knowledge hubs, which is expected to increase the intellectual capital produced within the universities, so have a variety of side benefits for the regions. As the universities hold a strategic role in the country's development, the potential of knowledge-based development has been examined via Publication Eighteen.

Chapter Three - Theme One - The impact of information systems on individuals

This chapter includes articles that are published within the domain of social media. It is acknowledged that social media is not the only information system in which individuals interact. Nevertheless, the figure below represents the social media users within Northern Cyprus. There is no official report indicating the number of social media users within the region, so the author prepared this graph based on his works to demonstrate the growing number of social media users via Northern Cyprus.

Figure Three. Representing the use of Facebook amongst respondents

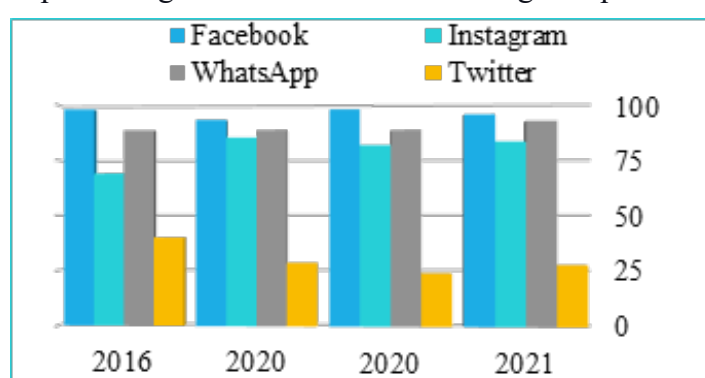


Figure Three demonstrates the high use of the social network, where Facebook is the most popular; at least 95% of the respondents use the social network. The author first realised the high usage of Facebook when he conducted his first research for his undergraduate thesis. He compared social media use within the thesis between the Cypriot and British students, where Cypriot students' monthly social network use was more than twice that of British students (Kaya, 2012). The author also argues that high Facebook usage is due to cultural factors as, when the Republic of Cyprus (Southern Cyprus) numbers are checked, it is seen that the region has the highest Facebook users among European countries with 88% of usage within internet users (Knews, 2018; Kemp, 2020).

3.1. Publication One. The effects of social media on students' behaviors; Facebook as a case study

This paper is the authors' first article which was published in the Computers in Human Behavior journal. The paper aimed to determine students' social network use and how this affects their behaviour. For this reason, a questionnaire was conducted on 362 students in high schools between the age of 15 to 18. This paper argues that Facebook can be an alternative communication medium due to students' high smartphone ownership and active social media accounts.

The paper recommended that Facebook can be used to brainstorm and idea generation for projects and homework. The paper did not propose Facebook as an educational environment. At the same time, it recommended using social media to support the learning environment as the students highly use social media. Students reflect their mood on social media, which creates a chance for consultancy. It requires more considerable big data analysis to understand if there is something unusual or problematic. The tendency of changes during the exam periods can also be examined to provide consultations if required. Exam stress has psychological effects such as anxiety for the students and economic effects such as the ineffective use of a workforce (Pascoe et al., 2020). Therefore, spotting a problem via social networks will be beneficial.

Contribution:

The research findings reveal that participants know how to control privacy, which is crucial as privacy-related issues within social networks. Examining the use of youngsters who will be the future higher education students and working population who have high Facebook usage also underlined the medium's importance in upcoming years (Please see Appendix Seven for the results). The work indicates that Facebook is highly used, which is a good indication as it can be used for circulation of the news and provision of transparency.

3.2.Publication Two. The changes in the effects of social media use of Cypriots due to COVID-19 pandemic

Previous work highlighted the author's curiosity regarding social media and its effect on users. COVID-19 pandemic, which started in Wuhan City of the Republic of China in December 2019, unfortunately, had a global effect. The first COVID-19 case within Northern Cyprus was diagnosed on the 10th of March 2020. The first case was a German tourist who was staying in a hotel. The government declared a lockdown immediately. The respondents stayed at their properties and were only allowed to leave for urgent market shopping or pharmaceutical needs. By the 15th of March, the author circulated his questionnaire regarding social media and COVID-19. The research question and his curiosity were: 'Are social media use influences different from normal times?'.

Six hundred sixty-eight respondents participated in the questionnaire. Facebook was the top used application by respondents (97.6%), which is followed by WhatsApp (88.2%) and Instagram (81.5%). The results indicate that the respondents only consider the statements from an official organisation such as WHO, UNICEF, Ministry of Health or Physician's Union. The

respondents further stated that they have more information regarding COVID-19 due to social media. Also, respondents believe that the decision-makers' decision is significantly affected by social media. Even though the publication process usually takes time, the article got accepted in four months as the manuscript includes a timely topic (See Appendix Eight for the questionnaire and results).

The author also circulated the same questionnaire to see changes in the users' behaviours within the second lockdown (February 2021). Even though the work has not been published yet, the work in progress indicates some changes. For example, respondents' decisions regarding social media changes decision-makers attitudes increased by 7% to 57%. On the other hand, the respondents' panic when they saw the coronavirus related news on social media decreased from 36% to 30.5%. Similarly, the COVID-19 related anxiety due to social media decreased from 51.8% to 44.2% and perceiving social media for the start of COVID-19 anxiety decreased from 36.2% to 24.8%.

Contribution: This work indicates that social media is vital for communication, and decision-makers should employ it during crises to provide official and legitimate information. Furthermore, respondents believe that decision-makers change their behaviour based on their reactions on social media. Therefore, the responsiveness of the decision-makers can be perceived as effective utilisation of social media to become more democratic. Furthermore, Dahl (1998) emphasised the importance of supporting democratic values by the citizens and political elite. Accordingly, considering citizens' reactions can be perceived as supporting democratic values.

Chapter Four – Theme Two - The impact of IS on occupations

The digital revolution had a significant impact on daily working practices. This chapter includes publications related to social media and knowledge management. As more and more people started to use social media, it became a tool for occupational communication that can be either beneficial or damaging (Grewal et al., 2017; Dolega et al., 2021). On the one hand, it will benefit the organisations if users engage in knowledge sharing activities. On the other hand, knowledge leakage can result in companies' essential and strategic intellectual assets. Chapter four includes knowledge management related research, where the author checked the potential use of social media for knowledge sharing and knowledge accumulation via different occupations. Knowledge management is defined as capturing, sharing, and using knowledge effectively (Davenport, 1994). Knowledge depends on the person; the value increases when used and grows when shared (North and Kumta, 2018, p.4). Explicit and tacit knowledge should be mentioned when the concept of knowledge is examined. Explicit knowledge is codified and structured forms of knowledge in a transmittable format. Tacit knowledge can be framed as uncodified, personal, context-sensitive, value-added, and experience-based (Sternberg and Horvath, 1998; Nonaka et al., 2000; Mellor; 2011). Human capital is crucial in islands. Essential knowledge can be lost when an employee retires. Social media can be a tool to perceive knowledge capital by effective knowledge transfer. This chapter includes three conference proceedings and one research article examining the potential of social media for tacit knowledge transfer.

4.1.Publication Three - The Impact of Tacit Knowledge Capacity on Social Media: An Empirical Research on Physicians in North Cyprus

As more and more people participate in conversations, engage, and spread their ideas via social networks, there was interest to examine whether social media can be used for knowledge management (Zhang et al., 2015; Ali et al., 2020). Tacit knowledge transfer via the use of information technologies (IT) is an ongoing debate where, on the one hand, it is argued that tacit knowledge can be transferred via IT (Hildrum, 2009; Lopez-Nicolas and Soto-Acosta, 2010). However, on the other hand, it is argued that the crystallisation of tacit knowledge via IT is almost impossible (Haldin-Herrgard, 2000, Hislop, 2001, Johannessen et al., 2001, Flanagan, 2002, Sagsan, 2003). As most opposing scholars conducted their research before the spread of modern social media applications such as Facebook, the author examined social media use for knowledge sharing via physicians.

Physicians were selected as they have high capacity and intensive knowledge. One-third of registered (n=138) and active physicians of the Cyprus Turkish Physicians Association Union of Doctors Chambers had been reached, and a self-prepared questionnaire was conducted. The concept of Tacit Knowledge Capacity (TKC) of physicians, which includes Tacit Knowledge Accumulation (TKA) and Tacit Knowledge Transfer (TKT), was evaluated (See Appendix Nine). Regression models highlight that TKA and TKT are positively affected by the seniority of employees, the speed of adoption of innovation, the medium of communication and the institution. Furthermore, the media retrieval positively affects TKA while negatively affecting TKT, whereas communication frequency negatively affects TKA and TKT. The work concludes that a negative relationship is due to the high complexity of the profession.

Contribution: The study recommends reviewing the Ministry of Health's reward structure, researching new methods, circulating them to the staff, creating WhatsApp messaging groups for effective and fast internal communication via the departments to improve TKC. The paper also recommends investing in social media applications, creating social media groups, and using social media for effective and fast communication via the departments (Kaya and Sagsan, 2015). This work was presented at the 15th International Conference on Intellectual Capital and Knowledge Management (ICICKM) in Bangkok in 2015.

4.2.Publication Four - Comparison of lecturers' social media use: 'The Tacit Knowledge Capacity of Lecturers: A Cross-Country Comparison

Following the TKC model, which was first proposed as publication three at ICICKM 2015, publication four was conducted to check lecturers' social media use within the same framework. The study was first presented at the European Conference on Knowledge Management (ECKM) 2016 in Belfast. The work aimed to evaluate how social media influenced the TKC of the lecturers as there were knowledge requirements of universities was an emerging topic (Harvey, 2008). The work compared lecturers in two different countries that both offer knowledge management programmes as universities' knowledge requirements can reflect cross-cultural differences in their nature (Howell and Annansingh, 2013). Half of the participants were from Near East University, North Cyprus, whereas the other sample was from Dresden University of Technology, Germany. Research findings indicate that TKC is affected by the speed of innovation adoption in parallel to publication three (See Appendix Ten). Research findings also indicate that media retrieval positively affects TKT, contradicting

publication four. The author believes that access to media increases the chance of knowledge sharing for academicians while not physicians. The medium of communication positively affects TKA, and communication frequency affected TKA negatively in parallel to publication four, which is expected to be due to work overload and bureaucracy. Facebook was the most used social network platform amongst the lecturers, where 63.4% of them mentioned they check it at least once a day. The work reveals that the social media use of Cypriot lecturers is higher than their German colleagues. The author argued that this is due to cultural differences as ‘Cyprus has a high context society where people have closer relationships with their family members, friends, and colleagues’ (Kaya and Erkut, 2016, p. 9). Therefore, it is argued that the difference in social media use is due to cultural factors.

Contribution: The paper recommended that lecturers have secret Facebook groups to effectively transfer knowledge within the departments. The paper concluded the effectiveness of using social media for knowledge sharing as the students highly use it. The work also recommends that university management emphasise social media applications, increasing tacit knowledge accumulation and enabling effective dialogue and knowledge transfer with students. Furthermore, reviewing the reward structure for knowledge sharing and removing hierarchical barriers would improve TKC.

4.3. Publication Five. Tacit Knowledge Capacity: A Comparison of University Lecturers in Germany and North Cyprus

Publication four improved and was published as an article. Within this work, it is argued that the use of social media will have two effects. First, the lecturers can use it as a place where new experiences can be explored. As tacit knowledge is personal and subjective, participating in a knowledge-sharing environment will objectively observe knowledge practices. Secondly, social media can act as a medium to express ideas and circulate embedded knowledge. It is further argued that the use of social media for improving knowledge practices is essential. Simultaneously, it will become effective if it is considered a strategic target to form a cognitive framework for an innovative vision.

4.4.Publication Six. Tacit Knowledge for Strategic Advantage: Social Media Use of Employees in the Financial Sector

This work has a similar intention to understand, such as publications four and five, while focusing on the risks involved in transferring tacit knowledge via social networks. The tacit knowledge via the financial sector should be protected as it may leak sensitive and vital information. It is critical and challenging as the sensitive information regarding the firms' and customers' is also available via the banks' sharing systems (Serenko & Bontis, 2016). Therefore, the aim was to check the potential advantages and disadvantages to use social media in a sector with higher knowledge intensity (Rooney et al., 2012; Sarigianni et al., 2016). The work concludes with the duality of the situation.

On the one hand, specific and subjective knowledge can be shared while it risks exposure. On the other hand, there will be less idea generation if knowledge sharing is not encouraged. Even though only 52 bank employees were reached (36 from the public and 26 from the private), the following hypotheses are confirmed (See Appendix Eleven). Within the work, it is highlighted that knowledge sharing culture will positively affect the innovation process. First, there is a more practical strategic vision in the private sector than in public, showing its potential. Second, organisational barriers prevent the circulation of new knowledge. Therefore, a flexible organisational structure is advised.

Publications four to six examined the effect of social media on TKC in different organisations. The importance of social media was changing depending on the occupation. It must be remembered that the penetration and effects of social media are even higher today. There is a potential to use social media, especially Facebook, when North Cyprus is considered. The flow of intensive and deeply routed knowledge to colleagues allows the next generations of customers to improve knowledge production. As knowledge needs' ba', time and space and production (Nonaka et al., 2000), social media can be an effective medium. Although not all occupations were examined, occupations with high knowledge intensity were still reached. The occupations with high knowledge capacities were investigated, which can provide a snapshot of the use of social media and innovative approaches for that period. Social media knowledge management is an important area, and researchers have increased since 2011 (Zhang et al., 2015). The author aimed to contribute to that field by mainly focusing on an understudied region.

Chapter Five – The impact of IS on organisations

IS affected organisations significantly, as explained above. The impact on organisations can be examined in three segments: the public sector, the private sector and academia. The author has eleven publications regarding the impact on the public sector organisations by examining e-government. He also has two publications on academia. The studies regarding the private sector are added as future research directions and explained further in Chapter Eight.

5.1. Theme Three - Public sector related studies

The public sector related studies evaluated e-government practices by considering the attitudes of decision-makers, citizens' demand, electronic participation, usability, and privacy fatigue.

5.1.1. Publication Seven - Artificial Intelligence-Driven E-Government: The Engage Model To Improve E-Decision Making

This paper proposed a conceptual model during the 19th European Conference of Digital Government Conference (ECDG), where the author was the conference chair. The paper examines digital decision-making practices by mentioning the concepts such as e-participation, big data, artificial intelligence (AI), and e-voting. The paper highlights the potential of using social media by big data analysis where AI can track and highlights society's problems. On the one hand, it can reduce the significant amount of time it usually takes to identify citizens' problems during daily practices. However, there are issues with user data use the other hand. For example, Cambridge Analytica manipulated the Brexit referendum and the United States 2016 Presidential Elections. Therefore, analysing the user data is a sensitive issue (Kaya, 2019).

Furthermore, the author acknowledges the digital divide, where the proposed model did not cover people with no access to technology. It is also a question whether people will behave the same if their digital footprint is traced. The Hawthorne experiments indicated that people change their behaviour when observed (Nahavandi et al., 2015). If consent is provided, and the data will be analysed with user allowance, they might act or behave differently as they know they are observed. There is a dilemma as their data is already traced. There are participatory examples such as Granada Municipality, where the mayor controls the town via Twitter, where the citizens are involved in taking part in decisions such as street naming. The proposed model caused the author to check the decision-makers' attitudes towards e-government practices to examine the extent to which they consider essential. For this reason, the author conducted publication eight.

Contribution to the framework

Being available on the digital medium creates various benefits, as explained above. However, digitalisation created a huge gap where hackers can access sensitive information via malware, ransomware, virus or worm despite the benefits. These attacks might significantly affect the efficiency of the public administration units. For example, the WannaCry Ransomware infection cancelled 6,900 NHS appointments in 2017 (BBC, 2017). Furthermore, there are still ongoing legal actions to investigate the leaks and effect of Russia on the US 2016 Presidential elections, where Donald Trump's attorney-general Jeff Sessions and William Barr are called to testify under oath by the Democratic Senators (The Economist, 2021).

The Internet Research Agency, a Russian company, manipulated the news by 80,000 publications via 470 Facebook accounts. In addition, more than 3.8 million tweets were generated via more than 50,000 Twitter accounts linked to Russian bots. The bots aim to circulate false information that accounted for 19% of the news related to the 2016 US presidential election (Marineau, 2020). The bots engage with the fake news, which gets attention where they disengage with those who have not got attention from the users. The main aim is to increase the circulation of fake news by the bots and to create a situation where reality is mixed with false information.

The United States National Intelligence Council classified the actions and prepared a report to assess the impact of external influence by digital means in the latest 2020 US presidential elections. Election influence and election interference are the two terms that are combined due to the interventions of the elections by the external stakeholders. “Election influence includes overt and covert efforts by foreign governments or actors acting as agents of, or on behalf of, foreign governments intended to affect directly or indirectly a US election – including candidates, political parties, voters or their preferences, or political process” (National Intelligence Council, 2021, p.i). Similarly, election interference includes activities that target technical aspects of an election process (National Intelligence Council, 2021).

There was no detection of technical interference due to improved firewalls, patches, and cybersecurity training of the personnel. At the same time, Russia and Iran tried to affect elections by decreasing confidence towards the election process via the circulation of fake news via trolls. Similarly, a recent report that examined the interventions for the 2020 presidential elections of Northern Cyprus indicated that fake accounts and trolls frighten the opponents and

circulate the fake news (Yücel et al. 2021). Furthermore, recently elected Northern Cyprus President Mr Ersin Tatar has close relationships with the government of the Republic of Turkey. There are various proofs that Turkish representatives interfered with the 2020 presidential elections in favour of Mr Tatar via physical attempts (Yackley, 2021). Thus, the current example indicates digital interference becomes an area to tackle with physical influence.

Therefore, it is advised for the governments to provide websites to check the validity of news. News confirmation sites like <https://factcheck.afp.com/> or <https://fullfact.org/> may help decrease the circulation of fake news, which may directly affect the election results. Despite the benefits of the technology and the possible uses for the enlightenment, the current report indicated attempts to manipulate results. The charts indicating the EGDI and WGI indicators such as voice and accountability, government effectiveness, and political stability are provided in Appendix Five. Attacks to manipulate elections and destabilise a country can happen within the countries with high EGDI.

The above findings highlight the risks of breaching an election system and affecting their democracy significantly. Furthermore, the Russian attacks show a risk of involvement, either manipulating the voters or accessing the electoral databases. Therefore, it is advised for government officials to take cybersecurity measures, provide training to governmental personnel, and use up-to-date firewalls, patches, and required systems to improve the vulnerability of the governmental and electoral processes. Furthermore, the general counting of the votes of Northern Cyprus is undertaken in a private university, which makes it more vulnerable. Therefore, by considering the prior attempts to manipulate the election results, necessary precautions should be taken to prevent the destabilisation of the democratic processes.

5.1.2. Publication Eight. Qualitative analysis to determine decision-makers' attitudes towards e-government services in a De-Facto state

This publication overviews decision-makers' attitudes towards technological developments and their managerial propositions, such as how they perceive concepts such as transparency, openness, and efficiency. Furthermore, the publication examines whether decision-makers intend to use social media and e-government practices. In other words, the manuscript aims to uncover the proposition of the decision-makers towards the Enlightened use of the technology. Eight decision-makers who significantly affect the development of e-government practices have been interviewed. The Ministry of Interior, former and the current Mayor of the capital, representative from the E-Government Management Committee (EGMC), which works under the prime ministry, head of the technical committee of the municipality, a representative from the Ministry of Foreign Affairs (as due to the Case of Northern Cyprus, foreign affairs has different digitalisation practices which work in parallel with the Republic of Turkey), a representative from the Information Technologies Communication Institution and former coordinator of the Office of Telecommunications answered questions which are provided in Appendix Twelve.

The interview findings highlight that the degree to use digital practices (e-government, social media) shows differences via decision-makers, affecting and preventing the development of the e-government practices. Nevertheless, social media is perceived as an essential tool that affects decision-making practices, and all the decision-makers declared that they use Facebook, Twitter and Instagram following. The Mayor indicated that the effective use of social media would change the election result. The current Mayor who won against the candidate who did not use social media during the election indicated, "We activated the social media accounts to enable citizens to effectively interact with the municipality" (Interviewee-7). The current Mayor's move regarding social media also shows the importance given to social media for decision-making practices. Interviewee-6, who was the former Mayor who lost the election, indicated; "I did not use social media when I was the mayor. We did not realise the importance; if we had used social media, things might have been different" (Kaya et al., 2020b, p.620). These statements emphasise the importance of social media by the decision-makers. This research triggered the author, where he conducted three additional works to examine the effects of social media and e-government practices on citizens.

One of the critical outcomes of this publication is that some of the decision-makers do not want to implement e-government practices as they consider that their importance, popularity, and public value will decrease. Most shockingly, the prime minister of that period did not want to use an electronic signature as he could not change a decision made. This example indicates that if the decision-maker is not transparent, the use of e-government practices will decrease significantly. In other words, it could be mentioned that e-government practices are significantly affected by nepotism. The effect of nepotism on the development of e-government practices is also highlighted by publication nine.

Contribution

The following model was created after the interviews, indicating the stakeholders affecting the development of e-government practices in the capital city, Nicosia.

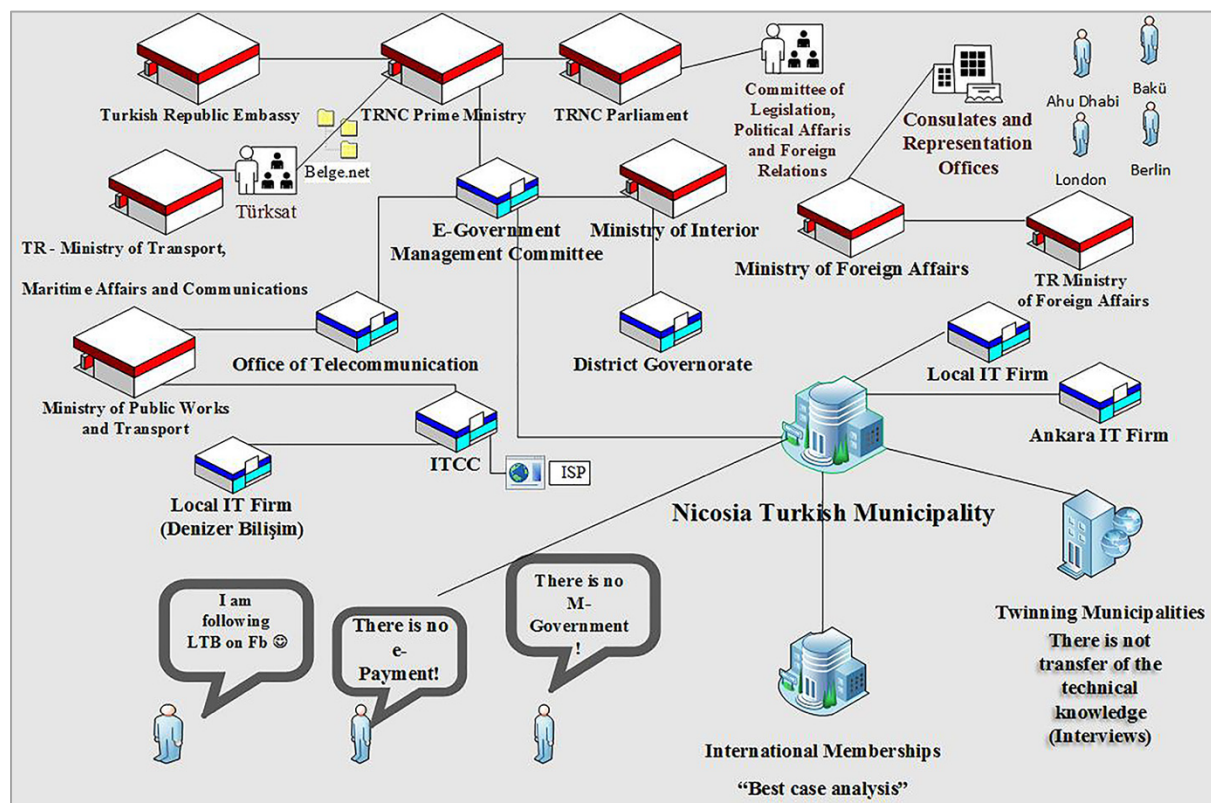


Figure Four: Network Analysis of e-government development of Nicosia (Kaya et al., 2020b, p.615).

The Network Analysis indicates that various actors affect the development and implication of digital practices. A variety of actors firstly creates a coordination problem. Also, there is a dependency on external countries, which slows down the process and creates vulnerability. Possible attempts to manipulate the electoral process are explained via publication seven.

Therefore, it is advised that e-government practices are coordinated and implemented from one specific unit. In addition, the EGMC members are appointed after every election. The change of EGMC members after every election lessens the intellectual capital and prevents the continuation of the projects. For example, the author was a member of the board of the EGMC, where they were going to launch the e-gateway portal by June 2019. However, the launch was cancelled as the new government was formed by May 2019. The portal still was not launched by January 2022. As the political instability impedes and hinders the development of e-government practices (Yildiz, 2007; Wirtz and Daiser, 2015; Kaya et al., 2020b), it is advised that the structure of this agency be reorganised (Please see policy recommendations). As this thesis argues, the Enlightened use of Technology will improve the democratic process, accountability, efficiency, and transparency. Therefore, the continuation of the e-government projects is crucial.

5.1.3. Publication Nine. Citizen Attitudes Towards E-Government Services: Comparison of Northern and Southern Nicosia Municipalities

The case of Northern Cyprus, explained in chapter two, makes North Cyprus a unique case due to several factors. Firstly, the research provides insights from a de-facto state. Secondly, there have been ongoing peace negotiations for 47 years. The two states need to have similar standards in case of unification. For this reason, the author was curious to examine citizens' attitudes towards e-government practices to highlight the similarities and differences amongst residents of the last divided capital city of the world, Nicosia. The author also aimed to see if physical isolation creates digital isolation and whether technology can be perceived as enlightenment utilising transparency, accountability, and efficiency (Kaya et al., 2020a).

For that purpose, a questionnaire was designed and conducted in the two parts of Nicosia. Two hundred sixty-four respondents participated in the study. The research findings reveal that citizens from both parts of Nicosia use Facebook mainly for online communication. National Insurance service, checking payslips, and voting information are the most used services among North respondents. Southern Nicosia respondents mostly use tax-related services, paying fines and official document applications. The usage difference shows the North state has information provision (Interactive Stage) where citizens can access transactional services via South.

The regression models highlight that perceived benefits, organisational agility, and e-voting positively affect e-government practices in both parts of Nicosia. Social media and human

rights positively connect with e-government practices, whereas nepotism negatively affects the e-government for the North Nicosia residents. The e-government use in Southern Nicosia has a positive relationship with disseminating democratic behaviour, mobile government, attitudes towards innovation and the right to access information.

Even though advantages regarding e-government practices were highlighted, public sector organisations were rated poorly in both regions of Nicosia. The low rating of municipalities in both regions creates the question of being a recognised EU member towards citizens' perceptions through innovativeness, efficiency, and transparency of the public sector organisations. Furthermore, the speed of the internet was a common problem during the e-government usage within both regions. However, the work highlights that being physically isolated does not create digital isolation.

Contribution: This publication enabled me to gather insights from the citizens from both parts of Nicosia by considering the importance of Enlightened use of the Technology. The results of one de-facto and one recognised part did show significant differences. In other words, both respondent groups find their public administration inefficient. Similarly, 33.4% of the respondents in Northern Nicosia declared that they strongly disagree with the statement that my municipality is a transparent organisation. On the other hand, this statement ranked 29.6% for the municipality within the South. In addition, the current use of the e-government practices of the municipality portals also highlights differences where 72% of the respondents from the North use their municipality website, which is 20.4% for the South. Likewise, 74.3% of Northern Nicosia Citizens informed that they want a mobile government application for their municipality. In contrast, only 20.4% of the Southern Nicosia respondents declared that they use the mobile government application of their municipality (See Appendix Thirteen).

These ratios indicate that citizens demand the current concepts, want transparency and efficiency of their organisations; hence the Enlightened use of technology is desired. This publication also uncovers the desire of Northern Nicosia citizens towards digital practices. I believe that physical isolation increases the use and the desire to use digital practices. Using digital practices creates a chance as the demand side of the e-government practices are ready to use the digital mediums for government-related duties. (Please check Figure 2, more than 90% of the participants use Facebook, which is one of the highest penetration numbers in the world. India has the highest number of Facebook users, where only more than 30% of the total

population use the network. The second-ranked USA and third Indonesia have a penetration above 50%).

5.1.4. Publication Ten. E-Government Awareness and Adoption by the Residents: A Quantitative Analysis on North Cyprus

The e-government practices comprise the demand and supply side (Reddick, 2004; Heeks, 2015). The demand side represents the user, whereas the supply side is the government officials who supply the e-government practices. This work is targeted at the demand side to measure the e-government awareness of residents in North Cyprus. In addition to the awareness, the research highlighted the residents' adoption of e-government practices. Despite publication nine focused only on citizens, this publication focused on the whole residents in North Cyprus. Three hundred forty-two respondents participated in the questionnaire. The questionnaire was designed to check whether the respondents are aware of e-government practices. It later investigated whether the aware user used the e-government services.

64.33% of the respondents declared that they are aware of e-government practices in North Cyprus. Among the unaware people, 87.7% informed that they would use e-government practices. Although 74.5% declared that they preferred an official statement, 44.3% of respondents preferred to see government-related information on social media. The desire of having an official statement shows that decision-makers need to communicate and circulate the available e-government practices. However, the expectation from the decision-makers to circulate e-government practices creates a dilemma as some government officials are unwilling to promote e-government practices, as discussed in publication eight.

The results also highlight that 55+ is the most aware group regarding e-government practices. High awareness within the 55+ is understandable as that age group is either retired or close to retirement. As mentioned in publication nine, national insurance is the highest used e-government service. The 55+ segment checks the social insurance portal to see the retirement salary and benefits. The residents with PhD have the highest awareness of e-government practices (83.78%). The income level reveals that the segment with the highest income level is more aware of e-government practices. As the income level increases, e-government awareness increases as well. The income and e-government awareness is understandable as the digital divide impedes e-government usage (Wirtz and Daiser, 2015; Eyupoglu and Kaya, 2020).

Simultaneously, there was no significant difference between the awareness and place of living, which shows that e-government awareness is widespread in rural areas.

Online navigation and road tax payment, electronic permissions during the COVID-19 curfew, and National Insurance Portal were the most used services amongst the aware and used segment. The research highlights that the COVID-19 pandemic increased the development of e-government services in North Cyprus. The services were improved from interactive (See publication thirteen) to transactional services. 77.8% of the respondents mentioned that usefulness and time-saving benefits are the highest reasons for e-government usage. It is recommended that the benefits of the e-governments are circulated as a theoretical concept, as circulating e-government benefits based on ideology can decrease usage. Furthermore, providing incentives for shifting towards digital medium can help as there will be a tendency to visit governmental units due to geographic proximity physically.

Contribution

This publication snapshotted the current use of e-government practices during the COVID-19 pandemic. The COVID-19 pandemic increased the demand for e-government practices (United Nations, 2020a). The same shift was observed within Northern Cyprus as well. E-government practices such as electronic permits for residents to leave their properties during the curfew, e-learning platforms, or platforms to apply or check for the results of polymerase chain reaction (PCR) tests are provided by the decision-makers (See Appendix Fourteen). The publication has encouraging results for the Enlightened use of the technology. Firstly, there was no difference between the rural and urban areas. The e-government literature highlights that place of living limits access to e-government practices (Wirtz and Daiser, 2015). The awareness of e-government practices in urban and rural places is above 60%, indicating that geographical proximity does not impede e-government usage. It must be mentioned that this might be due to living on a small island. Furthermore, 69.55% of the aware users used e-government practices. This ratio is also encouraging, supporting the view that the residents will benefit from the Enlightened use of technology.

5.1.5 Publication Eleven. Discerning the effect of privacy information transparency on privacy fatigue in e-government

This publication is the author's recent publication, which is published in Government Information Quarterly. It evaluates the privacy fatigue concept via the foreign users of the e-government portal. The portal is created for foreign residents to apply for a resident permit, paying for health insurance and other related taxes (See Appendix Fifteen). Transparency is a critical feature of e-government sites. Privacy information transparency indicates how the data of the user is used. The lack of transparency regarding the collected information can create disengagement and affect the user negatively. The concept of disengagement or emotional exhaustion due to a lack of privacy is called privacy fatigue (Choi et al., 2018; Agozie and Kaya, 2021). Privacy fatigue disengages a user from the e-government service. Despite the following effects, the users could not leave or drop the use of the system as it was mandatory to complete the immigration procedure. To evaluate the impact of privacy fatigue on a mandatory e-government service, 620 respondents participated in the study.

The research findings indicate that users should be given notification regarding their data use. The lack of the required information regarding the data use and collection will negatively affect e-government practices by creating cynicism and emotional exhaustion (See Appendix Sixteen, for results). Cynicism and emotional exhaustion usually decrease the use of websites. In contrast, as the users must use the e-government portal, they do not have any chance to drop the use or switch the physical process. Therefore, the decision-makers should consider the use case of the e-government portal as they are responsible for the well-being of the users.

Contribution

The research findings are significant as it indicates that provided e-government practices are shifted towards the transactional stage, and foreign residents of the nation are also involved in e-government practices. The use of e-government practices via foreign residents is an issue and sometimes under-researched. In addition, the research findings indicate that users should be given notification regarding their data use as the lack of the required information and process of data use will negatively affect the use of e-government practices by creating cynicism and emotional exhaustion. As the users must use the e-government portal, they do not have any chance to drop the use or switch the physical process. The must use case of the e-government portal should be considered by the decision-makers as they are responsible for the well-being

of the users. Therefore, it is advised for the decision-makers to provide the required information for the users. This will result in fewer issues or concerns regarding the information use. Increasing information transparency will improve the satisfaction of the used services as low information transparency increases cynicism behaviour (Agozie and Kaya, 2021). The publication argues that privacy information transparency should be used “as an engagement strategy, and e-government practitioners can use this idea to their advantage to repackage data information into concise and understandable forms” (Agozie and Kaya, 2021, p. 8).

5.1.6 Publication Twelve. A Situation Analysis for Northern Cyprus Municipalities: Key Success Factors for Effective Participation

This research was conducted in 2016 to evaluate the current maturation of the e-government websites of municipalities that operate in Northern Cyprus. For this reason, websites of 28 municipalities were examined by the content analysis method to highlight the e-participation maturity level for the local government sites. The websites are evaluated based on the list, which includes 30 points. The content analysis list is prepared based on the United Nations E-Participation Framework and literature. The websites received one point per available feature (See Appendix Seventeen). The research findings highlight that only half of the municipalities have a website with different services capacities. The work highlights that e-government practices for local governments were in the early stages, where information is provided in a catalogue format (Layne and Lee, 2001). The work also examined key success factors for e-participation maturity. Creating an assessment form for the e-participation maturity helped the author conduct publications thirteen and fourteen.

Contribution

This work enabled the author to create an evaluation framework for e-government practices. The provision of the services and being digital will improve transparency, involvement in the decision-making practices and democratic values, hence the enlightened use of technology. Furthermore, having a framework to benchmark, the available services enabled the author to test and measure the development.

5.1.7 Publication Thirteen. Analysis of Ministry and Municipality Websites in the Context of E-Participation with Content Analysis Method–TRNC as a Case Study

The importance of e-participation is already explained within the introduction section and publication twelve. E-participation enables accessibility of citizens towards governmental units, increases the acceptance and support towards decision-makers. The e-government sites are the medium with the highest interaction with the users. The 11 ministers and 18 municipality websites were examined within publication thirteen via the content analysis method created and tested at publication twelve (See Appendix Eighteen). The results indicate that municipality websites are better through e-participation when compared with the ministry websites.

Furthermore, the research reveals that the municipalities with higher populations scored better. The findings reveal improvements in the number of municipality websites which is a good indication. Assessment of the ministry websites indicates that the search feature is not effectively working. Furthermore, the ministry websites are used just for information retrieval; there was a limited engagement. Mayors are elected for four years, whereas ministers change every twelve months on average, partly explaining the lesser development in the ministry sites. There is high social media use via local governments when a higher rate of foreign residents lives within a region (Paderio et al., 2021). The positive effects of foreign residents on the development of digital practices are also found in publication thirteen. It could be mentioned that foreign residents within an area positively impact the development of e-government practices and social media applications. As the diversity feeds in innovative practices (Mellor, 2011; Hewlett et al., 2013; Kaya and Dey, 2016), digital dialogue tools are expected to improve, which will help to have enlightened use of technology not only for the citizens but for all residents of the region.

Contribution: It is recommended to use e-participation tools such as sending a message to the mayor, surveys, polls, e-voting and online forms will improve the e-participation. Furthermore, it is mentioned that the use of social media applications will positively affect e-participation. The paper emphasises the importance of being available on digital platforms. It states that e-government should be perceived as state policy rather than government policy, which will enable the continuation of the supplied e-government practices. The services' continuity and stability can ensure the vital aspect of digital citizenship, digital society, and digital government. Available services are expected to benefit the enlightened use of technology as residents will become able to participate in decision-making processes.

5.1.8 Publication Fourteen. E-Government Services in South Asia: Challenges and Opportunities

Publication fourteen is a book chapter, and it is not conducted in Northern Cyprus. On the other hand, it is developed based on the E-Participation Maturity Model used in publication thirteen. Presidency websites of countries from South Asia (Afghanistan, India, Pakistan, Bangladesh, Bhutan, Sri Lanka, Nepal, and the Maldives) were evaluated based on usability and e-participation. In addition to the evaluation via maturity model, the websites were evaluated by Nielsen' Heuristic Evaluation and evaluation of two independent tools, TAW Analyzer and Site Analyser, which measures web accessibility.

Contribution:

The book chapter evaluates and ranks the websites based on e-participation and usability. In addition, recommendations such as effective use of visuals, integration of WhatsApp online help, integration of Secure Socket Layer and professional use of social media use were provided to improve the user engagement. User participation is vital for the enlightened use of technology, which can be improved via participatory website designs.

5.1.9 Publication Fifteen – Human-Computer Interaction and Public Administration

Publication fifteen is a book chapter on Human-Computer Interaction (HCI) and public administration. The chapter discusses the importance of effective HCI for enabling the stakeholders' participation (citizens, foreign residents, private firms, and NGOs) in the decision-making processes. The chapter emphasises the importance of user involvement in designing systems that will satisfy the citizens' needs. The chapter compares three different usability models and highlights the importance of being dynamic in response to changing user demand. Finally, recommendations for the systems' effective design are provided, considering examples of the best-case and worst-case scenarios. As being digital is perceived as one of the highest priorities of public organisations, user engagement should be high to enable dialogue and support.

Contribution: Perceived usefulness is defined as “the degree to which a person believes that using a particular system would enhance his or her job performance” (Davis, 1989, p.320). A user will not be willing to use or utilise a system if they do not perceive it useful and foresee the benefits. Therefore, evaluating the websites of the public sector organisations will help to snapshot the current situation and improve the sites in a usable and effective interactive way.

5.1.10 Publication Sixteen - Overview of De Jure and De Facto Countries' E-Government Applications: Comparison of The Republic of Turkey and Northern Cyprus

This publication compares the citizens' attitudes towards e-government practices in Nicosia and Ankara. The case of Northern Cyprus is explained in Chapter Two. Northern Cyprus has limited relations with the Republic of Turkey by being a de-facto state. In response to this, this work aimed to see the similarities and differences between the e-government use of citizens in two capital cities of a De Jure and De Facto country. Three hundred respondents from Ankara and 299 from Nicosia participated in the study, including 46 questions. The research findings indicate that the users in Ankara have more satisfaction regarding the e-government, which is understandable as they have developed and matured services.

Furthermore, the research highlights that current users have a more positive attitude towards e-government practices when compared with non-users. The income level and higher ICT and internet usage also positively affect e-government practices. The publication also includes recommendations to have user-centred e-government practices.

5.1.11 Publication Seventeen - A Comparison of E-Government Systems Between Developed and Developing Countries: Selective Insights from Iraq and Finland

This work compares the e-government development in one developed and one developing country. The author is still supervising his PhD student on developing e-government practices in a developing country. The work is conducted in Northern Iraq, partly recognised like Northern Cyprus. Recommendations were made on seven areas (Vision and Strategy, ICT infrastructure, education and e-literacy, trust and confidence, stability and security and transparency) based on the systematic review made for the research.

5.2. Theme Four - The impact of IS on Academia

5.2.1. Publication Eighteen. The Concept of ‘knowledgization’ for Creating Strategic Vision in Higher Education: A Case Study of Northern Cyprus.

When this research was conducted, the country ranked 17th for the student registration rate (87% university registration rate per generation). In contrast, the country had the last position (145th) for R&D spending, 144th for Innovation Capacity, and 108th for the R&D Cooperation with the universities and the private and public sector (Sertoğlu et al., 2015). The high university registration rates show the potential of training knowledge workers, and the competitiveness report outputs indicate that universities potential is not fully utilised.

For this reason, this paper evaluated a concept that aims to use universities as knowledge hubs. The model aims to help the region’s knowledge-based development under the concept of knowledgization as only ‘only cities with knowledge-producing scientific institutions (universities, research institutes) will have a chance to evolve into a knowledge city’ (Franz, 2008, p.105). A questionnaire was conducted on 42 lecturers and 432 university students to test the potential of becoming knowledge hubs. This work was conducted in one university where the waterfall approach can be used to check the potential and situation in other universities if employed at the macro-level via the decision-makers.

The model evaluates the university’s potential for knowledge-based development by checking the institution’s knowledge capacity, information technology capacity and organisational capacity. The paper proposed 12 regression models and recommendations to enable the proposed concept (See Appendix Nineteen). The author first presented this work at an international conference. Then, the work is improved according to the feedback and published as an article.

5.2.2. Publication Nineteen. Entrepreneurial Intentions of Business and Economics Students in Germany and Cyprus: A Cross-Cultural Comparison

Publication nineteen was first presented at the 3rd Higher Education conference in 2017. It was later developed and published as an article. The work is conducted on university students studying at the Business and Economics departments in Northern Cyprus and Eastern Germany. The two regions are structurally similar as East Germany is less developed than the West, and North Cyprus is less developed than the South. The main aim was to understand

students' risk-taking behaviour and entrepreneurial tendencies. Understanding the triggering factors and attitudes towards entrepreneurship will help regional development and reduce youth unemployment. One hundred fifty-one completed responses were collected from East Germany, and one hundred forty-two were collected from North Cyprus.

The results show that having internship experience, a relative with entrepreneurial background and education on entrepreneurship increases the chance of entrepreneurial attempts. Following recent technological trends and entrepreneurship support culture also affects entrepreneurial tendencies positively. However, no relationship was found between student engagement in student clubs and entrepreneurial attempts. The need for financial security also decreases entrepreneurial attempts. The work recommends having entrepreneurial universities to increase entrepreneurship within the region and contribute to areas that are not economically stable.

Chapter Six – The Research Impact

This chapter explains the research impact of the publications.

Theme One

- **Paper One** - Kaya, T. & Bicen, H. (2016). The effects of social media on students' behaviors; Facebook as a case study, *Computers in Human Behavior*, 59, pp. 374-379.

This paper emphasised how Facebook use affects high school students. In addition, the paper emphasised the importance of using social networks for supporting the learning environment. This paper has been published in *Computers in Human Behavior* (Impact Factor: 6.829), cited 153 times on Google Scholar, 63 times on Scopus, and 46 times on Web of Science.

- **Paper Two** – Kaya, T. (2020). The changes in the effects of social media use of Cypriots due to COVID-19 pandemic. *Technology in Society*, 63, 101380.

This paper evaluated how the COVID-19 pandemic changed the social media use of Cypriots. The research findings indicate that social media was the primary medium for information retrieval, and users are aware of fake news. In addition, findings also highlighted that decision-makers change their behaviour based on society's reaction, which shows that social media is effective for decision-making. This paper has been published in *Technology in Society* (Impact Factor: 4.192), cited 46 times on Google Scholar, 28 times on Scopus, and 25 times on Web of Science.

Theme one publications cited 199 times on Google Scholar, 91 times on Scopus, and 71 times on Web of Science. Social media can improve transparency, dialogue between the citizens, and involvement in the decision-making processes. As democracy requires the culture of debate and free expression of alternative views, this medium has the potential for that. In addition, it can be used to transfer the knowledge capital as mentioned by papers three to six.

Theme Two

- **Paper Three** - Kaya, T. & Sağsan, M. (2015). The Impact of Tacit Knowledge Capacity on Social Media: An Empirical Research on Physicians in North Cyprus, *Proceedings 12th International Conference on Intellectual Capital, Knowledge Management & Organisational Learning (ICICKM 2015)*, 15-16 November 2015, Bangkok, Thailand.

This paper evaluated the potential of using social media for knowledge transfer. The paper highlights the potential of social networks for departmental communication and knowledge transfer. This paper has been cited 21 times on Google Scholar, 8 times on Scopus, and 5 times on Web of Science.

- **Paper Four** - Kaya, T. & Erkut, B. (2016). The Tacit Knowledge Capacity of Lecturers: A Cross-Country Comparison, *Proceedings, 17th European Conference on Knowledge Management (ECKM 2016)*, 8-9 September 2016, Belfast, Northern Ireland.
- **Paper Five** - Kaya, T., and Erkut, B. (2018). Tacit Knowledge Capacity: A Comparison of University Lecturers in Germany and North Cyprus. *The Electronic Journal of Knowledge Management*, 16 (2), pp. 131-142

Paper four and five highlight the importance of investing in social media applications to increase the tacit knowledge accumulation of lecturers. Paper four has been cited 3 times on Google Scholar, 2 times on Scopus, and Web of Science. Paper five has been cited 21 times on Google Scholar and 10 times on Scopus.

- **Paper Six** - Kaya, T. & Erkut, B. (2017). Tacit Knowledge for Strategic Advantage: Social Media Use of Employees in the Financial Sector, *Proceedings of the 18th European Conference on Knowledge Management (ECKM 2017)*, 7-8 September 2017, Barcelona, Spain.

This paper evaluates whether social media is used for knowledge transfer in the banking sector. Paper six has been cited 9 times on Google Scholar, 5 times on Scopus and 3 times on Web of Science. Papers one to six checked the impact of social media on various occasions. Papers conclude that social media has the potential for knowledge transfer and accumulation.

Theme Three

- **Paper Seven** - Kaya, T. (2019). Artificial Intelligence Driven E-Government: The Engage Model to Improve E-Decision Making, *Proceedings of the 19th European Conference On Digital Government' (ECDG 2019)*, 24-25 October 2019, Nicosia, Northern Cyprus

This paper highlights the potential of using artificial intelligence to improve citizens' e-participation. It aims to contribute the studies involving citizens to the decision-making

processes by electronic means. This paper has been cited 11 times on Google Scholar and 4 times on Scopus.

- **Paper Eight** - Kaya, T., Sagsan, M., Medeni, T., Medeni, T. & Yildiz, M. (2020). Qualitative analysis to determine decision-makers' attitudes towards e-government services in a de-facto state, *Journal of Information, Communication & Ethics in Society*, 18 (4), pp. 609-629.

This paper evaluates the decision-makers' attitudes towards implementing the information systems. The research findings highlight that implementing an e-government project or using social media for transparency changes significantly by the decision-makers' proposition. In addition, the work snapshotted the actors who affect the development and deployment of digital practices within the country. This paper has been cited 5 times on Google Scholar, 2 times on Scopus and 1 time at Web of Science.

- **Paper Nine** - Kaya, T., Sagsan, M., Yildiz, M., Medeni, T. & Medeni, T. (2020). Citizen Attitudes Towards E-Government Services: Comparison of Northern and Southern Nicosia Municipalities, *International Journal of Public Administration in the Digital Age (IJPADA)*, 7 (1), pp. 17 -32.

This paper evaluated citizens' desire in both parts of Nicosia towards e-government practices. Even though the citizens ranked both municipalities poorly regarding transparency, efficiency, and vision, they highly desire to use e-government practices. The research emphasises the desire towards enlightened use of information systems. This paper has been cited 3 times on Google Scholar, 2 times on Scopus and 1 time at Web of Science.

- **Paper Ten** – Eyupoglu, A., & Kaya, T. (2020). E-Government Awareness and Adoption by the Residents: A Quantitative Analysis on North Cyprus, *International Journal of Public Administration in the Digital Age (IJPADA)*, 7(2), 1-22.

This paper measured the awareness of residents for e-government practices. The result indicates that residents are aware and willing to use e-government practices if they know about them. This is encouraging as the information systems will be utilised if the awareness is increased. This paper has been cited once on Google Scholar and Web of Science.

- **Paper Eleven** – Agozie, D. & Kaya, T. (2021). Discerning the effect of privacy information transparency on privacy fatigue in e-government, *Government Information Quarterly*, June, 101601. <https://doi.org/10.1016/j.giq.2021.101601>

This paper evaluated the privacy fatigue concept for foreign residents who use e-government services. Understanding the factors which discourage usage is essential to enable maximum utilisation and satisfaction for an e-government service. This paper has been published in *Government Information Quarterly* (Impact Factor: 7.279) and cited 3 times on Google Scholar, twice on Scopus and once on Web of Science.

- **Paper Twelve, Thirteen and Fourteen (2016, 2019, 2020)**

Kaya, T., Medeni, T., Sağsan, M., Medeni, İ., & Asunakutlu, T. (2016). A Situation Analysis For Northern Cyprus Municipalities: Key Success Factors For Effective Participation, *International Journal of eBusiness and eGovernment Studies*, 8 (2), 1-17.

Kaya, T. & Över, A. S. (2019). Analysis of Ministry and Municipality Websites in the Context of E-Participation with Content Analysis Method – TRNC as a Case Study, *Journal of Economics and Administrative Sciences*, 33 (4), pp. 1201-1226.

Kaya, T. (2020) E-Government Services in South Asia: Challenges and Opportunities, In G. D. Sharma (Ed.), *Contemporary Issues in South Asia*, (pp. 47-78). Hauppauge, NY: Nova Science Publishers

Publication Twelve, Thirteen and Fourteen were conducted based on the e-participation framework developed and based on the e-participation factors of the United Nations. The publications measure the e-participation of official websites. A benchmark for e-participation is important where ways of improvement are provided. Participating via electronic means improves democratic processes. The publications have 17 citations on Google Scholar.

- **Publication Fifteen** - Kaya, T. (2020). Human Computer Interaction and Public Administration, In Yıldız, M. and Babaoğlu, C. (Ed.) *Technology and Public Administration*, (477 - 494). Ankara: Gazi.

Publication Fifteen emphasises the importance of usability and user involvement in designing e-government websites. The book chapter provides best and worst-case examples for the successful implementation of the IT projects of governments.

- **Publication Sixteen (2021)** - Över, A. S. and Kaya, T. (2021). Overview of De Jure and De Facto Countries' E-Government Applications: Comparison of The Republic of Turkey and Northern Cyprus, *The Journal of Pamukkale University Social Sciences Institute*

This paper compares e-government development in Nicosia and Ankara. The research indicates that current users have a positive attitude towards e-government practices. Therefore, decision-makers should provide incentives to encourage the trial of e-government practices.

- **Publication Seventeen (2021)** - Abubakar, M. & Kaya, T. (2021). A Comparison of E-Government Systems Between Developed and Developing Countries: Selective Insights From Iraq and Finland, *International Journal of Electronic Government (IJEGR)*, 17 (1), 1-14.

This paper compares e-government development in a developing country, Northern Iraq, also partly recognised, like Northern Cyprus. The paper recommends areas that positively affect the development of e-government practices. The paper has one citation on Google Scholar, Scopus and Web of Science.

- **Publication Eighteen** - Kaya, T., & Sagsan, M. (2016). The Concept of 'knowledgization' for Creating Strategic Vision in Higher Education: A Case Study of Northern Cyprus. *Education & Science*, 41 (184)

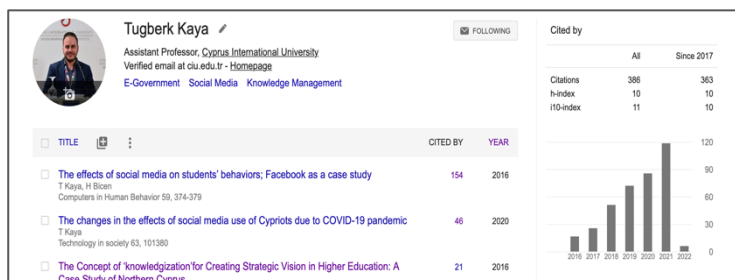
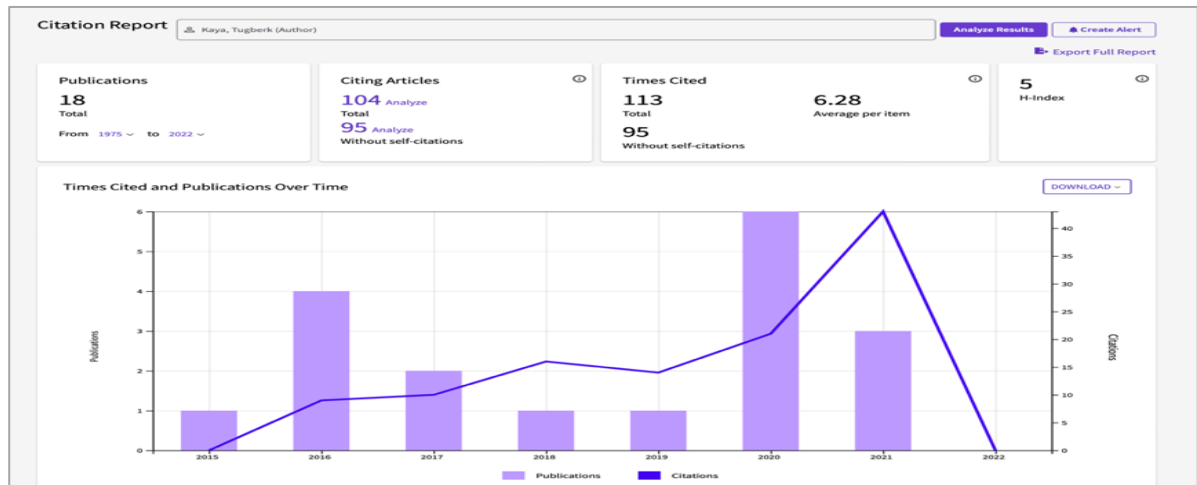
This paper highlights universities' potential for knowledge-based development. This paper has been published in Education and Science (Impact Factor: 0.486) and cited 21 times on Google Scholar, 12 times on Scopus, and 7 times on Web of Science.

- **Publication Nineteen** - Kaya, T., Erkut, B., & Thierbach, N. (2019). Entrepreneurial Intentions of Business and Economics Students in Germany and Cyprus: A Cross-Cultural Comparison, *Sustainability*, 11, 1437.

The paper evaluates the factors affecting entrepreneurial activities and emphasises the impact of following recent technological trends on entrepreneurship. This paper has been published in Sustainability (Impact Factor: 3.251) cited 20 times on Google Scholar, 8 times on Scopus, and 7 times on Web of Science.

H-index of the author

Figure Five. H-index of the author according to Web of Science, Scopus and Google Scholar



The author's H-index is 6 for Web of Science, 7 for Scopus and 10 for Google Scholar. When the citations of the articles are analysed, it is seen that the Enlightened use of the

technology for individuals' use (Chapter Three) is the area with the highest number of citations. It is understandable as social media-related research gained popularity in the last five years. The number of citations is essential as it indicates the spread of the published work, hence the spread of the potential benefits of the Enlightened use of the technology.

Table One: Demonstrating the number of citations of the publications.

	Google Scholar
Theme One – The impact of IS on individuals	
Publication One (2016)	153
Publication Two (2020)	49
Theme Two – The impact of IS on occupations	
Publication Three (2015)	21
Publication Four (2016)	3
Publication Five (2018)	19
Publication Six (2017)	9
Theme Three – The impact of IS on public organisations	
Publication Seven (2019)	11
Publication Eight (2020)	5
Publication Nine (2020)	3
Publication Ten (2020)	1
Publication Eleven (2021)	3
Publication Twelve (2016)	11
Publication Thirteen (2019)	6
Publication Fourteen (2020)	
Publication Fifteen (2020)	
Publication Sixteen (2021)	
Publication Seventeen (2021)	1
Theme Four – The impact of IS on Academia	
Publication Eighteen (2016)	21
Publication Nineteen (2019)	20
Total citations of the themed publications	341

Chapter Seven. Table Two. Summaries of the methodologies used

Publication	Subject	Methodologies used
Chapter Three – Theme One - The impact on individuals		
1. Kaya, T. & Bicen, H., (2016) The effects of social media on students' behaviors; Facebook as a case study. Computers in Human Behaviors, 59, pp. 374-379.	This research examined how Facebook use affects the behaviours of high school students.	In order to gather primary data, a questionnaire was conducted to 362 high school students from three high schools (Türk Maarif Koleji, Bülent Ecevit Anadolu Lisesi and 20 Temmuz Fen Lisesi).
2. Kaya, T. (2020). The changes in the effects of social media use of Cypriots due to COVID-19 pandemic. Technology In Society, 63, 101380. DOI: 10.1016/j.techsoc.2020.101380	It is the first research that examines the effects of COVID-19 on Facebook use. The research indicates that Facebook use during the pandemic differs from normal time usage.	The researcher used a quantitative approach. A questionnaire was created based on the systematic literature review, and 668 people participated in the survey.
Chapter Four – Theme Two - The impact on occupations		
3. Kaya, T. & Sagsan, M. (2015). 'The Impact of Tacit Knowledge Capacity on Social Media: An Empirical Research on Physicians in North Cyprus' Proceedings 12th International Conference on Intellectual Capital, Knowledge Management & Organisational Learning (ICICKM 2015), 15-16 November 2015, Bangkok, Thailand.	The population includes physicians because this occupation requires a vast capacity of tacit knowledge, especially on using their treatment process and operation techniques.	The questionnaire had been designed and conducted. As a result, 138 out of 330 registered physicians participated in the study.
4. Kaya, T. & Erkut, B. (2016). 'The Tacit Knowledge Capacity of Lecturers: A Cross-Country Comparison' Proceedings 17th European Conference on Knowledge Management (ECKM 2016), 8-9 September 2016, Belfast, Northern Ireland.	This conference paper examined whether social media can be used for knowledge transfer by the lecturers.	A questionnaire was prepared based on the literature review and the conceptual model of Kaya and Sagsan (2015). Seventeen lecturers from Near East University (NEU) in Nicosia, Northern Cyprus, and 21 from Technische Universität Dresden (TUD) in Dresden, Germany, participated.
5. Kaya, T., and Erkut, B. (2018). Tacit Knowledge Capacity: A Comparison of University Lecturers in Germany and North Cyprus. The Electronic Journal of Knowledge Management, 16 (2), pp. 131-142	This article is a cross-country comparison of the social media use of lecturers in North Cyprus and Germany. The research highlights that universities should invest in social media platforms to increase the tacit knowledge accumulation of lecturers.	A questionnaire was prepared based on the literature review and the conceptual model of Kaya and Sagsan (2015). Seventeen lecturers from Near East University (NEU) in Nicosia, Northern Cyprus, and 21 from Technische Universität Dresden (TUD) in Dresden, Germany, participated.
6. Kaya, T. & Erkut, B. (2017). 'Tacit Knowledge for Strategic Advantage: Social Media Use of Employees in the Financial Sector', ' Proceedings of the 18th European Conference on Knowledge Management (ECKM 2017) 7-8 September 2017, Barcelona, Spain.	The employee survey results among financial sector employees in Cyprus can contribute to the capability of tacit knowledge and the recognition of potential threats that may arise from social media use. Furthermore, the research findings highlight that the organisations in the financial sector are determined by their heterogeneous properties, which refer to the employees' subjective knowledge and the use of subjective knowledge to generate a competitive advantage for the organisation.	The quantitative approach was used, and the survey was conducted on 36 employees from publicly owned financial sector institutions and 26 employees from privately-owned financial sector institutions.

Chapter Five – The impact of IS on Organisations

Theme Three - The impact of IS on public organisations

7. Kaya, T. (2019). 'Artificial Intelligence Driven E-Government: The Engage Model to Improve E-Decision Making', 'Proceedings of The 19th European Conference On Digital Government' (ECDG 2019) 24-25 October 2019, Nicosia, Northern Cyprus	This publication proposes a model to increase e-participation for the local governments.	The author proposes a conceptual model.
8. Kaya, T., Sagsan, M., Medeni, T., Medeni, T. and Yildiz, M. (2020) Qualitative analysis to determine decision-makers' attitudes towards e-government services in a de-facto state. <i>Journal of Information, Communication & Ethics in Society</i> , 18 (4), pp. 609-629.	This research examines the decision maker's attitude towards digitalisation, and it is essential as there is no significant research on the decision-makers of the de-facto state. The research findings show that social media seemed necessary for the decision-makers as a game-changer for the elections.	Qualitative research has been conducted where in-depth interviews were conducted with eight decision-makers who affect e-government development.
9. Kaya, T., Sagsan, M., Yildiz, M., Medeni, T. and Medeni, T. (2020) Citizen Attitudes Towards E-Government Services: Comparison of Northern and Southern Nicosia Municipalities. <i>International Journal of Public Administration in the Digital Age (IJPADA)</i> , 7 (1), pp. 17 -32.	This is the first research to examine the citizens' attitudes in the world's last divided capital. The result shows that social media use positively affects e-government practices, which indicates democratic decision making.	Quantitative research has been applied where non-probability sampling based on snowball sampling has been used to access citizens who live in different parts of Nicosia. Two hundred sixty-four respondents (132 from Northern Nicosia and 132 from Southern Nicosia) completed the survey.
10. Eyupoglu, A., & Kaya, T. (2020). E-Government Awareness and Adoption by the Residents: A Quantitative Analysis on North Cyprus. <i>International Journal of Public Administration in the Digital Age (IJPADA)</i> , 7(2), 1-22. doi:10.4018/IJPADA.2020040101	The publication measures the awareness of residents regarding e-government practices.	A questionnaire was designed and conducted to 364 residents.
11. Agozie, D. and Kaya, T. (2021) Discerning the effect of privacy information transparency on privacy fatigue in e-government. <i>Government Information Quarterly</i> , June, 101601. https://doi.org/10.1016/j.giq.2021.101601	The publication evaluates the privacy fatigue concept while using a mandatory e-government website.	A questionnaire was designed and applied to 620 foreign users who use e-government practices.
12. Kaya, T , Medeni, T , Sağsan, M , Medeni, İ , Asunakutlu, T . (2016). A Situation Analysis For Northern Cyprus Municipalities: Key Success Factors For Effective Participation, <i>International Journal of eBusiness and eGovernment Studies</i> , 8 (2), 1-17.	The publication aims to create a list to evaluate the e-government websites based on e-participation.	Qualitative analysis. Content analysis is made based on the framework which the author prepares.
13. Kaya, T. and Över, A. S. (2019). Analysis of Ministry and Municipality Websites in the Context of E-Participation with Content Analysis Method – TRNC as a Case Study, 33 (4), pp. 1201-1226.	The publication evaluates the ministry and municipality websites based on e-participation.	Qualitative analysis. Content analysis is made based on the framework which the author prepares.

14. Kaya, T. (2020) E-Government Services in South Asia: Challenges and Opportunities, In G. D. Sharma (Ed.), Contemporary Issues in South Asia, (pp. 47-78). Hauppauge, NY: Nova Science Publishers	The chapter evaluates the presidential websites of South Asian countries based on usability.	Qualitative analysis. A content analysis was made based on the framework developed by publication 14. In addition, the sites were tested by Nielsen Heuristics, Site and TAW analysers.
15. Kaya, T. (2020). Human Computer Interaction and Public Administration, in Yıldız, M. and Babaoğlu, C. (Ed.) Technology and Public Administration, (477 - 494). Ankara: Gazi.	The publication overviews the impact of human-computer interaction on public administration by focusing on usability.	The author explained the subject by case studies and best- and worst-case examples.
16. Över, A. S. and Kaya, T. (2021). Overview of De Jure and De Facto Countries' E-Government Applications: Comparison of The Republic of Turkey and Northern Cyprus, <i>The Journal of Pamukkale University Social Sciences Institute</i>	The publication also evaluates e-government practices in Nicosia (De Facto, capital city of Northern Cyprus) and Ankara (De Jure, capital city of the Republic of Turkey).	A questionnaire was prepared and conducted in Nicosia (n=299) and Ankara (n=300).
17. Abubakar, M. & Kaya, T. (2021) A Comparison of E-Government Systems Between Developed and Developing Countries: Selective Insights From Iraq and Finland, <i>International Journal of Electronic Government (IJEGR)</i> , 17 (1), 1-14.	The publication highlights the success factors for e-government applications and compares a developed and developing country.	A systematic review compares the factors affecting e-government development in a developed and developing country.
Theme Four - The impact of IS on Academia		
18. Kaya, T., & Sagsan, M. (2016). The Concept of 'knowledgization' for Creating Strategic Vision in Higher Education: A Case Study of Northern Cyprus. <i>Education & Science</i> , 41 (184). http://dx.doi.org/10.15390/EB.2016.6195	Within this research, the potential of universities for knowledge-based development was evaluated.	A questionnaire was prepared and conducted on 42 university lecturers and 434 university students. Participants voluntarily participated in the research during the fall academic term (September to November 2015).
19. Kaya, T.; Erkut, B.; and Thierbach, N. (2019) Entrepreneurial Intentions of Business and Economics Students in Germany and Cyprus: A Cross-Cultural Comparison, <i>Sustainability</i> , 11, 1437.	This research examined the entrepreneurial tendencies of business and economics students.	A questionnaire was prepared and conducted to the university students in East Germany (n=151) and Northern Cyprus (n=142).

Chapter Eight. Conclusion, policy recommendations, and future research agenda

8.1.Conclusion

To conclude, this thesis conceptualises the author's publications between 2015 and 2021. Fourteen peer-reviewed research articles, five international proceedings and two book chapters are used to conceptualise the thesis. The publications are categorised into four main themes by considering the impact of IS (individuals, occupations, public sector and academia) as Enlightened use of the Technology. IS holds a vital role in daily life. Therefore, this thesis aimed to indicate the potential use of IS to improve transparency, accountability, freedom of speech, awareness of society, and giving authority for the user to control their data.

These concepts are essential and debatable within every region. Furthermore, it should be mentioned that improving digitalisation does not mean the citizens' living standards or democratic rights will directly improve. For example, digital surveillance is a critical issue, where authoritarian regimes can use it against opponents in society. There are countries where they give citizenship scores for their citizens (Ex: China). If the technology is used for surveillance, control, and limiting user behaviour, it is impossible to have transparency, openness, accountability, democracy, and human rights. Thus, the Enlightened use of Technology will be impossible.

A recent example is the COVID-19 pandemic, which has a twofold effect on the use of IS in daily life. On the one hand, IS enabled faster tracing, treatment, and mobility of individuals, while on the other hand, IS is also used to limit behavioural activities. The use of IS can be described within the example of the knife. The knife can be a lifesaver if used by a physician during an operation or used for a robbery. This relevancy indicates that the intention of the user is crucial. Therefore, there is a critical need to circulate the importance of transparency, accountability, freedom of speech, awareness of society, and the right to give users control of their data, which is covered as the Enlightened use of Technology via this thesis. Educational institutions and families play an essential role in circulating the mentioned values.

Nevertheless, the publications indicate the potential of IS to use for the Enlightenment in a region which has a unique situation due to historical events explained in Chapter Two. Even though Northern Cyprus faces isolation and is a de facto state which lacks international recognition, the use and implementation of the IS indicate that physical isolation does not create

digital isolation. In other words, physical isolation does not prevent utilisation of digital practices.

The publications' outcomes indicate a high demand to use IS, especially for the public sector domain. Not facing digital isolation and the high desire to use new technologies are encouraging. The need, importance and urgency of accountability, transparency, freedom of speech, and involvement in decision-making can be circulated via digital means. The current research findings also indicate that users are aware that decision-makers change their behaviour according to the reactions on social media. The change of decision-makers regarding reactions on social media can be used during the struggle to have a more democratic society or deal with any potential IS-related problems. The demand of the users also fits with the thought of Tim-Berners Lee and Alex Sandy Pentland, as they argue that users should have more rights on their data and demand from the authorities (public/private sector organisations) to use their data for the common good and in a reasonable manner.

There is an important factor within the possible implementation or utilisation of IS as Enlightened Technology, the decision-makers. Unfortunately, the country lacks political stability; a new government is formed every 14 months on average. The lack of political stability problematically affects the continuation of the projects, as explained via Publication Eight. The author was a member of the board of EGMC, which works under the prime minister, where the e-government gateway (portal) was set to be launched by June 2019. However, the e-government gateway still is not activated by January 2022. The delays in launching the portal show the digitalisation projects' fragility, as the decision-maker in charge can cease the whole progress. The formation of independent authorities to advocate the Enlightenment can be a potential solution to this problem. Therefore, awareness regarding the importance of the concept should be improved.

Increasing the awareness regarding the importance of Enlightenment will require a long-term strategy. One promising development is the increased use of social media, which replaced traditional media for news accumulation. Traditional media institutions have closer relations with businesses and political parties, which hindered the spread of scandals. Social media provides a medium of expression for the people whose voices are neglected while there are issues regarding the credibility of the information. If the users are aware of fake news and

misinformation circulation, social media platforms can be used to improve the transparency of the institutions by the demand of the users.

On the other hand, privacy concerns might limit the use of the mentioned technologies. Surveillance issues can be eliminated by evaluation by the independent authorities and applying the data protection standards mentioned, such as GDPR. In addition, a news confirmation site can be created to tackle fake news and misinformation. The role of AI is also another area for consideration. As mentioned in publication seven, AI provides various opportunities while being used for surveillance.

Finally, the thesis overviewed the current situation of IS utilisation in a de facto state. Despite the mentioned potential problems related to the use of IS within daily practices, IS provides an opportunity if they are used for the Enlightenment. The use of IS for Enlightenment will also provide a unique example firstly due to the island's small size (the concept and effects can be evaluated quickly), secondly for being a de-facto state. The thesis highlights that despite the unique case of Northern Cyprus, technology has the potential for the Enlightenment. The high use of social media should be used to improve the residents' conditions. The author has a project to enhance citizen involvement in decision-making processes, a must-have condition for a democratic society. Protecting the democratic, secular lifestyle and public administration has significant importance as the Republic of Turkey, moving away from secularism and democracy, affects Northern Cyprus for reasons explained in Chapter Two.

8.2. Work in progress papers

The author has work in progress papers to evaluate the mentioned concepts. One of the unpublished works evaluated the intentions of Cypriots towards digital practices during the COVID-19 pandemic. The findings indicate that citizens are willing to participate in digital practices. 62% strongly agreed, and 22.5% agreed with the statement "I want the local government to increase the available online services after the COVID-19 pandemic", 49.9% strongly agreed, and 18.3% agreed with the statement "I want to vote from my home by e-voting instead of physical voting if the necessary security precautions are taken", and 29.9% strongly agreed and 27.6% agreed for the statement "I will prefer to use online services for the local government rather than physical services after the COVID-19 pandemic". These results indicate that there will be demand for digital practices after the COVID-19 pandemic, which is encouraging for the proposed model (See Appendix Twenty).

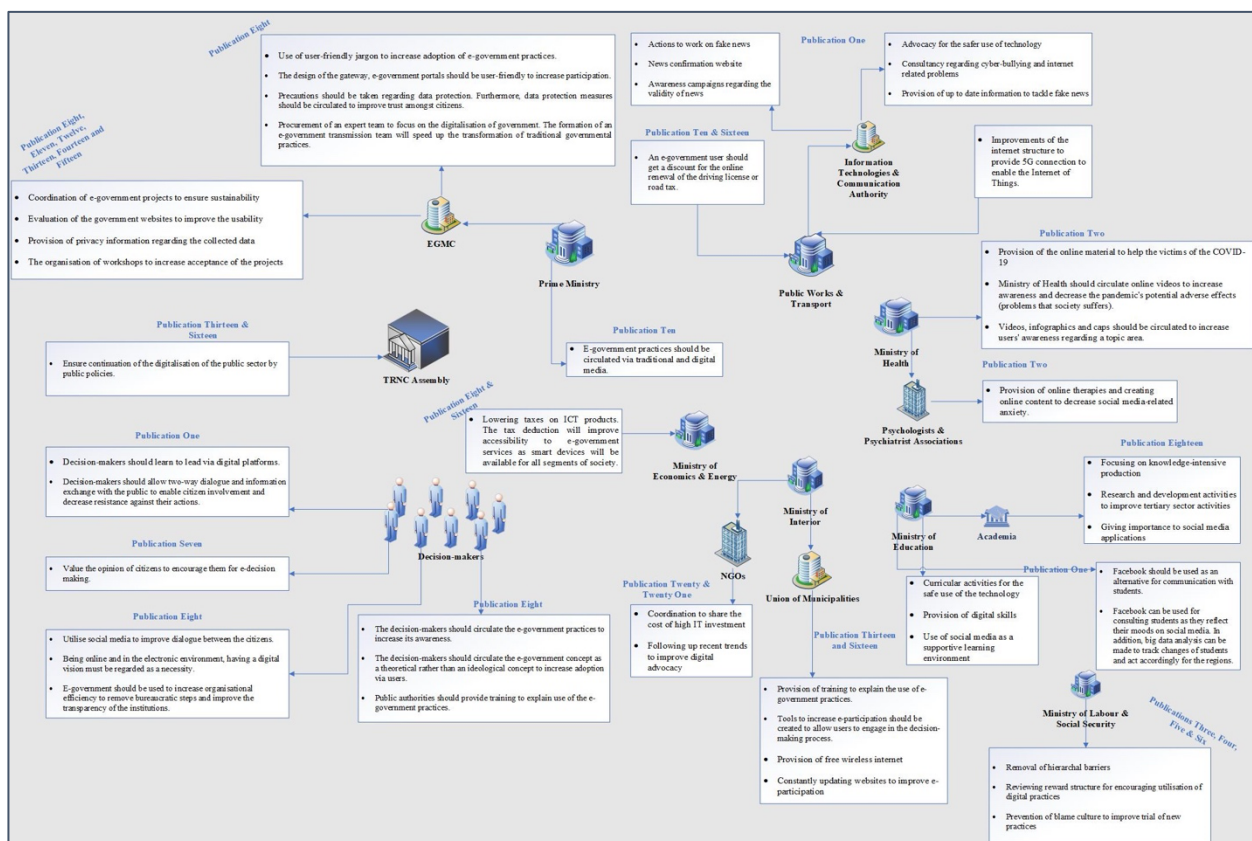
The author collected the data to evaluate the distance learning practices by university students during the COVID-19 pandemic in Northern Cyprus. The questionnaire was conducted on 1,298 university students where the distance learning activities were not perceived as effective. For example, 65% of the respondents strongly disagree, and 11% disagree with the statement “I think distance education is an effective learning activity”. Similarly, the author has collected data from high school students to evaluate social media use changes during the COVID-19 pandemic.

Instead of debating comments regarding the effects of social media practices, their impact on daily life cannot be neglected. Social media became one of the leading mediums for information retrieval during the COVID-19 pandemic as well. The author is conducting cross-cultural studies to examine the impact of COVID-19 on social media usage, which he examined via publication two. He collected data with various co-authors in the UK, Italy, India, Pakistan, Nigeria, Ghana, and Iraq. The collection of data in various countries will enable him to compare social effects in a cross-cultural way and to check the potential of social media for the mentioned model.

8.3. Policy Recommendations

Policy recommendations were provided as mentioned within the thesis aims. There are worldwide accepted policy implications and recommendations to enable effective digitalisation practices for organisations. Benchmarks, evaluation standards, and guidelines are widely used, primarily whenever IS practices are implemented (Jansen et al., 2010; Kromidha, 2012; Codagnone et al., 2015; Zuiderwijk et al., 2021). The author would like to highlight the importance of modifying recommendations by acknowledging global and acting locally. Therefore, although the recommendations aim to have a broader impact and help academicians, practitioners, and professionals worldwide, the socio-cultural, geographical, and economic differences should be considered during applications. Some of the recommendations might be already in use in different parts of the world (developed nations that have high investments in digital practices). Other regions may need a couple of years for that technology to spread (some developing nations are struggling with absolute poverty, so digital divide). Less developed regions can start better by considering the mistakes of the former countries. The recommendations aim to improve the digital practices within the region, which is a small island developing state. Improvements in digital practices aim to decrease bureaucracy and improve organisational efficiency with enhanced transparency and accountability.

Figure Six: The Map of State Institutions showing proposed policy interventions



Within this thesis, policy recommendations for seven out of ten ministries, TRNC assembly and the decision-makers were provided. Recommendations to improve digital practices of the country are as follows;

Prime Ministry

Electronic government practices are the most used IS by the public sector organisations in Northern Cyprus. The research outcomes indicate that despite the physical isolation (Please see Chapter Two), the country's governmental institutions are not digitally isolated. Furthermore, the residents have a high desire to utilise and engage with e-government practices. The E-government Management Committee (EGMC), which works under the prime ministry, is responsible for implementing e-government strategies of the country. Despite the committee's critical importance, EGMC does not have continuity and members of the committee change as the government changes. Furthermore, there were six prime ministers in the last seven years, indicating political instability (Yenidüzen, 2021). This instability also affects the development and implementation of new projects, especially e-government projects which need long-term planning and implementation (Wirtz and Daiser, 2015).

Organisational Restructuring

The structure of EGMC should be modified; EGMC members should be appointed based on expertise rather than political relations. Nepotism is one of the impediments against e-government development within the country, which is expected to exist if the e-government management within the country stays the same. In order to decrease the impact of nepotism, EGMC should employ professionals for at least five years. During the five years, the committee members can overview the ongoing projects and ensure successful implementation (Kaya et al., 2020b). The structure will be nepotism free when the committee members are appointed based on experience and technical expertise. The nepotism-free organisational structure will improve e-government practices and ensure a transparent and accountable public sector. A five-year appointed committee will ensure the sustainability of the e-government projects by effective coordination, where their main focus will be the digital transformation of the government.

Usability of the websites

The organisational restructuring will ensure the continuity of the e-government projects while continuity is not the only success factor. The usability of websites is a decisive factor regarding

their use (Momenipour et al., 2021). Therefore, EGMC should ensure that the ministry and other public organisation websites have a user-friendly design. An example can be www.gov.uk. The website was developed based on the build once and reuse principle, widely used by other nations (United Nations, 2020a). Twenty-three ministry sites and more than 400 governmental websites are merged in Gov.uk (Crown Copyright, 2021). The users will find it easy to use with an integrated framework (Nielsen, 1994; Nielsen Norman Group, 2021). In addition, the use of user-friendly jargon will improve the use of e-government practices (Kaya et al., 2020b). Despite the importance of the usable and integrated design, screenshots below indicate that three ministers have different home page designs, page structures, and social media integration. In addition, they use different domains where the Prime Ministry website uses gov.ct.tr while the Finance Ministry uses the .com domain.

Figure Seven: Screenshot of the Prime Ministry website.

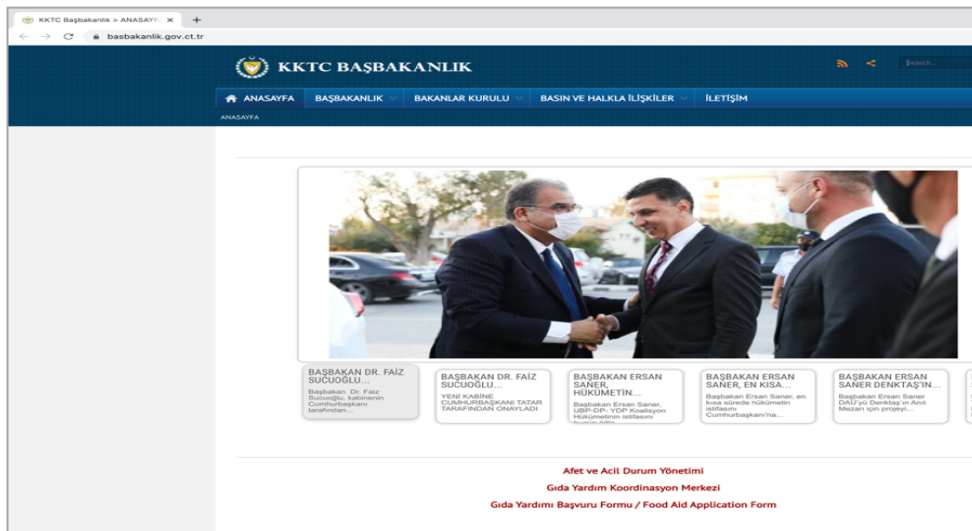
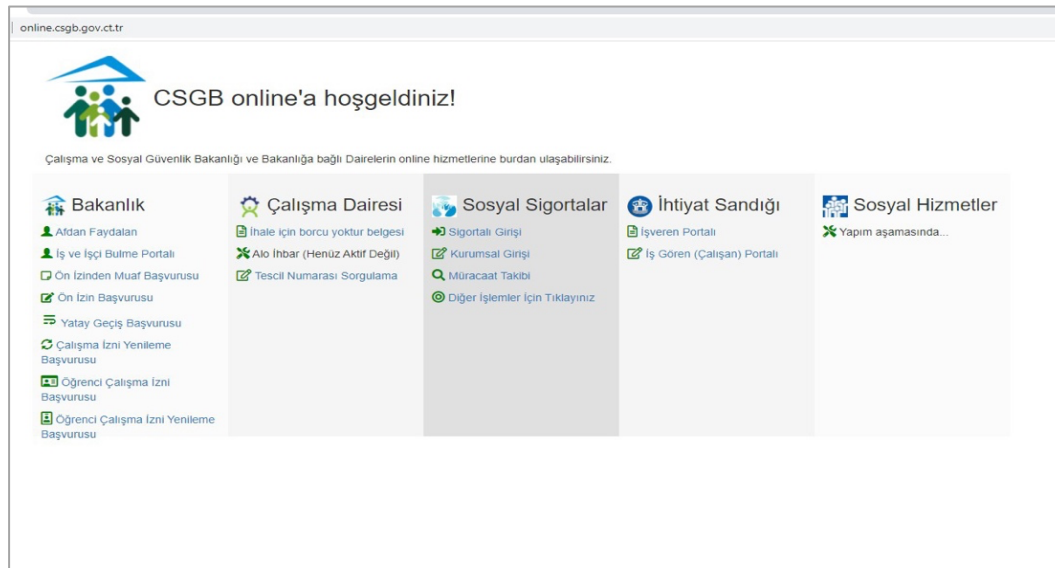


Figure Eight: Screenshot of the Ministry of Finance website.



Figure Nine: Screenshot of the Ministry of Labour and Social Security website.



Improving e-participation

Decision-makers should learn to lead via digital platforms and allow two-way dialogue and information exchange with the public. Leading via digital platforms will improve citizen involvement and decrease resistance against their actions (Kaya, 2020b; Kaya et al., 2020a). In addition, decision-makers should value citizens' opinions to improve electronic participation (Kaya, 2019). An example of e-participation can be seen from the picture below, where the new ship's name is determined via public opinion. The effective use of the practices will result in a better democratic process, where the residents/users will have the chance to participate freely and easily with the decision-makers.

Figure Ten: E-participation example



Data protection and privacy

EGMC should provide privacy information regarding the collected data of users as inadequate information creates privacy fatigue for the users (Agozie and Kaya, 2021). Informed consent should be provided when an e-government website requires data from the user. Users should be given the required information about the collected data by the governmental websites. The current research on the recent immigration portal indicates that compulsory service is provided without privacy information, decreasing user satisfaction and creating cynicism (Please check Publication Eleven). Data protection measures should be circulated to improve trust amongst citizens (Kaya, 2020b). Central coordination of e-government projects will ensure the same guidelines and have coherence regarding the provided services, which will also positively affect data privacy.

Outreach to society

The media plays a vital role in spreading and accepting e-government practices (Yildiz and Saylam, 2013). The ongoing e-government projects and the potential benefits of digital practices should be circulated via decision-makers using media effectively. 50% of the residents unaware of the e-government practices declared that they would trust and use the services (Eyupoglu and Kaya, 2020). The ratio indicates that a high percentage of residents are willing to use e-government practices. In addition, the citizens extensively use social media for information retrieval, as explained in Chapter Three. Therefore, decision-makers should use traditional and social media to enable two-way interaction and explain ongoing projects. The use of traditional and social media will improve dialogue, transparency and awareness in society. Furthermore, as the e-government users are more willing to use the services than non-users, the users' experience should be circulated to enhance awareness regarding e-government use.

Workshops and seminars

The public authorities should provide workshops and seminar sessions to explain the use of e-government practices (Kaya et al., 2020b; Eyupoglu and Kaya, 2020; Over and Kaya, 2021). Some users will be reluctant to use new practices as they might not be familiar. Therefore, workshops and seminar sessions may decrease the ambiguity and increase the acceptance and usage of e-government practices. These events should be organised by inviting all stakeholders of e-government (citizens, foreign residents, public sector employees, private sector representatives, NGO representatives, disabled citizens, leading and opposition party

members) to set the country's digitalisation strategy. The involvement of the stakeholders and the circulation of the e-government practices as a technical concept will also increase acceptance via stakeholders (Kaya et al., 2020b).

TRNC Assembly

Legislation is important as the policies are implemented based on the legislation. Therefore, members of parliaments should review the state art of the concepts and work on the required legislation to ensure the digitalisation of the public sector practices (Kaya and Over, 2019; Over and Kaya, 2021). Theme one emphasised the importance of the IS, primarily social media, on individuals. The authorities should acknowledge the high use of social networks and create required legislation to prevent cyberbullying. The [IT legislation](#) was approved after many years of ongoing discussions in July 2020 (The Information Technologies and Communication Authority, 2021). The legislation needs to be updated regularly as the technology advances progressively. The decision-makers should follow the recent trends to modify the legislation and prevent further possible cyber-related problems.

Ministry of Education

The Ministry of Education needs to set the strategy for the education and training of the individuals who will be employed within the digital society. Provision and the transfer of digital skills should be organised within the academic curriculum starting from primary education. This does not mean just setting up computers within the early years, as "Putting computers into schools is no guarantee that there will be a positive impact on learning outcomes as measured in high stakes assessment or the development of digital literacy" (McFarlane, 2019, p.9). Educating the students within the digital age needs careful planning as it is not just about being online or accessing the information via the internet (Nascimbeni and Vosloo, 2019). A user leaves digital footprints, and one in four people becomes the victim of cyber-related problems (Cymutta, 2020; YouTube, 2020; Zotz, 2021).

Awareness related to being a digital citizen should be given, starting from primary school. In addition to the awareness, the potential of the technology and possible problems should be explained. Therefore, considering the technology-related problems explained above, the safe use of digital practices should be a subject of the academic curriculum. The education should start from primary school and continue until the end of the K12 education as the cyber-related problems they will face will vary as the age changes. For example, a younger student may be

a victim of cyber-bullying, while a senior one might be a victim of fraud transactions. Nevertheless, students' high technology and social media use can enable effective dialogue with them. Top used social media can be an alternative communication medium with the students. Students reflect their mood on social media, so these mediums can be used to understand possible problems and consult or take necessary precautions (Kaya and Bicen, 2016).

Academic work regarding the impact of IS on a variety of disciplines should be made and shared with the Ministry of Education for future strategy setting. As a small island, knowledge production is essential, so the universities have an essential part in knowledge dissemination and activities in the tertiary sector (Kaya and Sagsan, 2016). However, a clear distinction between the research universities and teaching universities should be made. There are 21 universities with more than 80,000 active students (YODAK, 2021). Despite the high number of students (80,000 is larger than the population of the second-largest city), the higher education strategy of the country is not well-established. Therefore, the impact and contribution of these students are subject to a different topic. While there is no clear distinction or specialisation amongst the universities, clear guidelines and standards should be set for acceptance, registration, and alumni processes. The categorisation of the universities will allow specialisation, which will benefit the industry, improving academia and sector collaboration. Universities can also concentrate on working and producing research and outcomes related to digitalisation. For example, despite 21 universities, none developed or contributed to developing the COVID-19 patient tracking system. The Ministry of Education should analyse the needs of the industry and fund research to satisfy those needs.

Ministry of Health

The higher use of social media also needs to be considered by the Ministry of Health (MoH). The MoH should advocate for the safer use of technology and ensure that the residents are not suffering from the use of digital practices. Chapter one explains social media and technology-related problems such as fear of missing out, likephobia and internet anger. In addition, the MoH should consider the mental well-being of the residents; therefore, it should provide consultancy services for those who suffer from technology-related problems such as fear of missing out, likephobia and internet anger.

Furthermore, the MoH should provide online material to help the victims of the COVID-19. For example, the MoH should circulate online videos to increase awareness and decrease the pandemic's potential adverse effects (problems that society suffers). Videos, infographics and caps should be circulated to increase users' awareness regarding a topic area. The ministry should organise online sessions in collaboration with Psychologists and Psychiatrist Associations. The Psychologists and Psychiatrist Associations should create online content to decrease social media-related anxiety (Kaya, 2020c).

Ministry of Public Work and Transport

The Ministry of Public Work and Transport should make the required investments as the internet connection speed is not fast and stable. 19.95% of the internet users have 15 MB internet upload & download speed (the highest available wireless connection), and 32.57% use 10 MB. Fiber optic connections are also minimal, 3G is provided for the mobile internet (Bilgi Teknolojileri ve Haberleşme Kurumu, 2021). Despite the lower internet connection speeds, citizens have high internet penetration and extensively use social media. Fake news is problematic where infodemic negatively affects pandemic management (Kaya, 2020c). Therefore, a news confirmation site should be created. News confirmation site will allow checking the validity of the news. There are some examples, such as <https://factcheck.afp.com/>, <https://fullfact.org/> or <https://teyit.org/>. Furthermore, awareness related to the importance of originality and relevance of the news should be circulated via the Information Technologies and Communication Authority. This institution receives complaints regarding fake news, so it should advocate and fight the fake news and provide relevant information. The Ministry of Public Works and Transport should give online discounts for the services such as renewal of the driving licence and road tax to encourage the use of e-government practices (Eyupoglu and Kaya, 2020). The provision of discounts is expected to increase the number of e-government users.

Ministry of Economics and Energy

There is a strong desire for citizens to engage and utilise e-government practices (Kaya et al., 2020a). The demand regarding e-government use is promising. Actions via the Ministry of Economics and Energy can increase the number of people accessing e-government practices. For example, taxes on ICT products and internet service providers can be lowered to ease purchasing. Tax reduction will make ICT and smart devices available for all segments of society, so the accessibility of e-government practices will increase (Kaya et al., 2020b).

Despite the high internet penetration, there are still many citizens who do not have access to the internet or need to share a device to access the internet. During the COVID-19 lockdown, 25% of students could not access online education within North Cyprus (Kıbrıs Türk Öğretmenler Sendikası, 2021). This also emphasises the need for long-term strategies to ensure every citizen has enough infrastructure and devices not to be digitally excluded.

Ministry of Labour and Social Secretary

The organisations should use information systems and social media applications to encourage sharing among the employees. This will increase the amount of formal and informal knowledge transfer between the organisation members. Despite the risk of leaking essential knowledge, the accumulation of enterprise social media systems or department-specific messaging groups (such as private WhatsApp Groups) is advised. Communicating via social platforms will increase organisational transparency and, therefore, the employees' trust (Men et al., 2020). It is advised that organisations apply committed leadership to use digital practices effectively. This will improve efficiency, knowledge transfer and employee productivity.

The blame culture prevents knowledge sharing or the possible trial of new practices. Therefore, the reward structure of the organisations should be reviewed, and initiatives should be given to the employees who effectively engage with IS to encourage the use of digital practices (Kaya and Sagsan, 2015). Removing hierarchical barriers and preventing the blame culture will improve the use and spread of the digital practices within organisations (Kaya and Sagsan, 2015; Kaya and Erkut, 2016, Kaya and Erkut, 2017).

Ministry of Interior

The Ministry of Interior oversees the coordination of the municipalities and is responsible for the NGOs within the country.

Union of Municipalities

The Union of Municipalities (UoM) is a union that commonly takes decisions for the effective management of all municipalities. The workshops and seminars advised for EGMC can be organised in cooperation with the UoM. Local governments have a critical role in the provision of e-government practices. The municipality websites were found more effective than ministry websites which is a good indication (Kaya and Over, 2019). In addition to usable websites, they can improve the infrastructure and provide free wireless internet to enable residents

without an internet connection to benefit from online practices. The central and local governments could share the economic burden of the public internet. This will enable access to information and participation in decision-making processes. The provision of public wireless internet will also decrease the digital inequalities due to lack of internet access which was explained above.

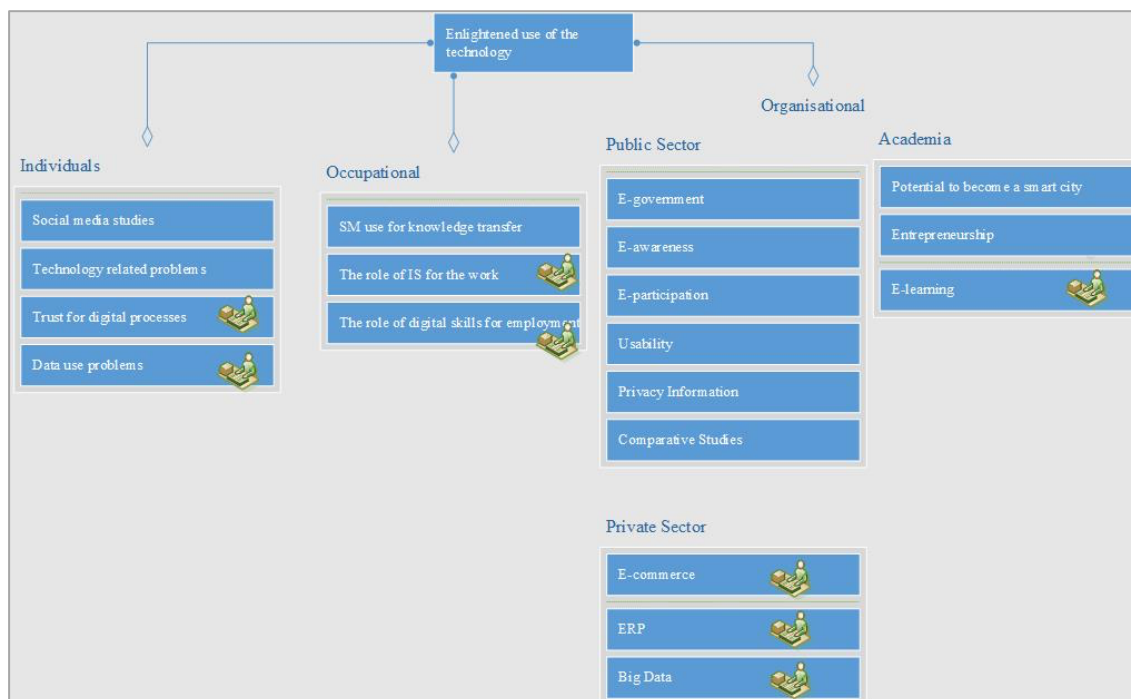
NGOs

NGOs operate in areas where the private sector does not operate due to a lack of profitability, and the public sector does not have an interest (grey areas). Therefore, NGOs need to benefit from the Enlightened use of Technology and advocacy on the grey areas. They have a limited budget due to the high numbers of NGOs and lack of available funding. The lack of funding decreases the advocacy power of the NGOs. Therefore, they should benefit from digital practices and use free communication tools for their advocacy. They can also coordinate to share the high IT investment or staff costs (Kaya and Dey, 2016; Kaya, 2017). For example, five NGOs can employ one graphic designer, which will decrease the cost. It would be ideal for the NGOs who struggle on the same topic (education, environment, energy) to set up a network to improve their advocacy. An example is the Open Democracy platform (<https://www.opendemocracy.net/en/>), an independent global media organisation that encourages democratic debate worldwide (Opendemocracy, 2021). Furthermore, an international portal could be created to enable knowledge transfer between NGOs to establish an innovation network.

8.4.Future Research Agenda

As highlighted by Figure one (see page 29), the authors' publications were within the domain of social media considering the impact of Enlightened Technology on individuals (2016-2020), occupational practices (2015-2018) as well as organisations (2016 – 2021). Figure eleven highlights future works that can be conducted to examine the impact of the Enlightened use of Technology to have a more comprehensive understanding. As technology rapidly advances and user behaviours change, it should be mentioned that repetition of the researched areas should be reworked regularly to see the similarities and differences.

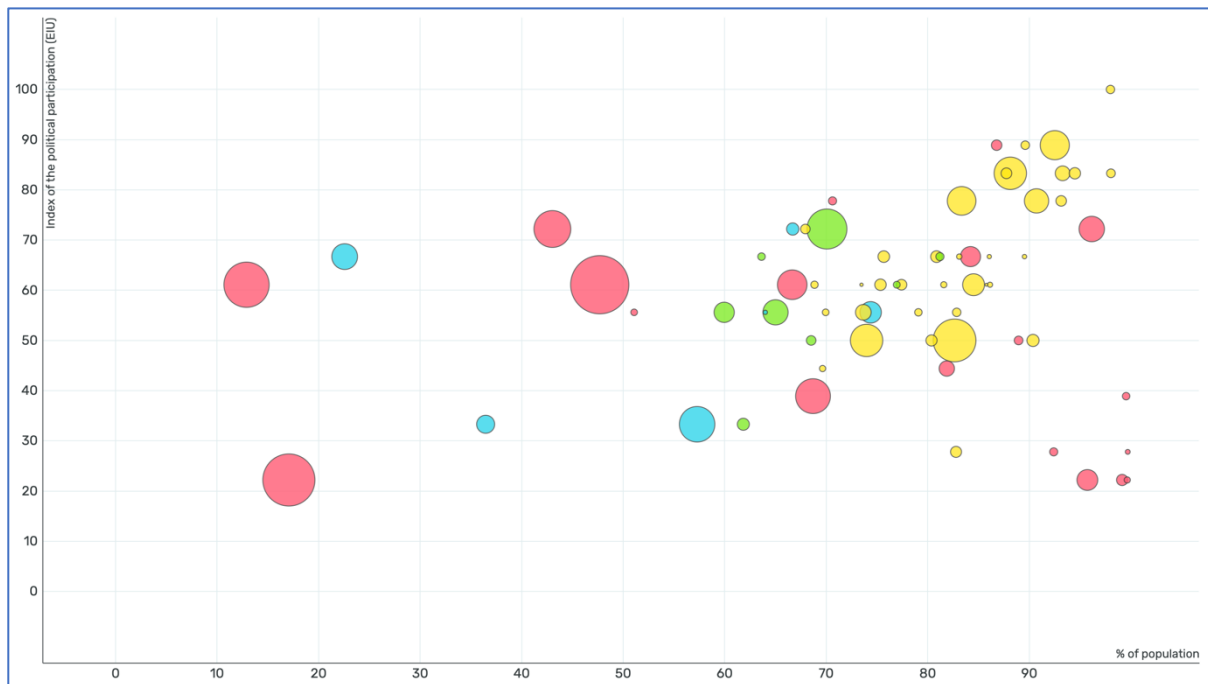
Figure Eleven. Theoretical Framework with further work domains



Technology integrates with everyday activities, technology's humane use is also becoming an important point. Therefore, the author plans to balance the use of social media and e-government practices in a way that does not affect the users' mental well-being. Digitalisation cannot be neglected, while user-friendly and naïve use of technology should be found to protect users' psychological well-being. The terms like internet anger, fear of missing out, like phobia are added to the literature due to the high usage of social media. The intentions of the technology use, user behaviours, and problems due to social media use in a region with high social media usage can be used for the foundations of the humane use of technology. Digital tiredness is a recent phoneme affecting users which need to be considered. To conceptualise, the author's focus will enable a comprehensive look at the effects of IS on decision making,

user involvement, and well-being to have enlightened use of the technology. The internet plays a crucial role in the Enlightened use of Technology, and the figure below highlights internet usage and voter participation in the world.

Figure Twelve: Representing the Political Participation Index (PPI) and Individuals using the internet (GapMinder, 2021).



As the figure highlights, there is a tendency of having a higher political participation index as the number of individuals using the internet increases. The figure does not include Northern Cyprus due to the conflict, explained in chapter two. The table below summarises the voting ratio and the number of internet users in Northern Cyprus.

Table Three: Representing Political Participation and Number of Internet Users¹

Year	Political Participation (%)	Number of Internet Users
1976	72.5	NA
1976*	74.85	NA
1981	88.62	NA
1981*	85.73	NA
1985*	87.44	NA
1990	93.19	15,000
1995*	93.88	15,00
1993	93.55	NA
1995	85.13	20,000
1998	88.93	NA
2000*	81.02	NA
2003	85.98	NA
2005	80.82	NA
2005*	69.58	NA
2009	81.7	NA
2010*	76.35	NA
2013	69.41	354,977
2015*	62.35	327,712
2018	66.14	537,681
2020*	58.29	567,066
2022	58.23	647,478

The table above highlighted the significant increase in internet users and decreased voting ratios despite the worldwide trend. Therefore, the author is curious to evaluate whether increased internet subscriptions can increase the voting ratio and have an inclusive society. The work in progress research in February 2021 indicates that respondents' decisions regarding the

¹ The table is created based on the official election reports, the ITCA and Statica Company reports, and personal interviews.

* Presidency election.

social media impact on decision-makers attitudes increased by 7% to 57%. This increase shows that citizens perceive social media as an essential medium. The author has a project to increase the e-participation called www.decidecyprus.com, which is mentioned in Chapter One. The [Decide Cyprus](#) project aims to increase e-participation, which is expected to increase the physical voting ratio or create awareness and demand for electronic voting practices. Therefore, the author intends to evaluate the impact of social media and e-government practices on increasing voter turnout to improve the democratic process and use technology for enlightenment. Even though physical isolation did not create digital isolation, digitalisation is not fully utilised as e-participation. The project aims to encourage the inclusiveness of users in the decision-making processes.

Figure eleven also highlights unresearched areas. Therefore, the work regarding the role of social media for the enlightenment and trust for digital practices/IS by users will be conducted for individuals' use. Furthermore, the role of digital skills for employment can be evaluated for the occupational category. The use of technology for the private sector (e-commerce, CRM, AI, Big data) will enable us to check the impact of IS on the private sector. Finally, the author has a work in progress paper evaluating the satisfaction of e-learning practices during the COVID-19 pandemic.

8.5. Self-Reflection - Being a PhD candidate for the second time

I enjoyed the valuable PhD journey, while I must admit that it was stressful being in the reevaluation phase for the PhD degree. I am fully aware that the life-long-learning process is significant in academia and every aspect of our lives. Therefore, the PhD journey enabled me to reconsider my current positions while experiencing some disadvantages, COVID-19. Concentrating and working in a pandemic is a new skill that we all gained as moving from office to house, from house to office happened several times during the pandemic. Therefore, I believe it was a unique experience. Working on the thematic categorisation of the concepts shed light on possible future research areas. Furthermore, it enabled me to realise that research conducted provides foundations of a potential book regarding the digital practices within an island, which later can be expanded to have a comparison study for other small island states.

Furthermore, researching new concepts, having chances to spot new opportunities, and improving my point of view was a grateful experience. During the journey, the support and guidance provided by my supervisor, Associate Professor Dr Robert Mellor, was priceless as he enabled me to see things from different angles and points of view when required. During

my postgraduate studies, he was such a great mentor; I benefited even more during the PhD process. I rest assured that there are ways to improve and work on, necessary for scientific progress. There is potential for fallibilism, and scepticism is vital for progress. By acknowledging that there will be areas to improve, the current categorisation of my published work enabled me to have a holistic overview of my publications. The process enabled me to connect the dots, spot missing areas, and use IS for a more participative, collaborative, democratic, accountable, secular, and free society. For Enlightenment, I hope the use of IS will effectively work in a small region. The successful model can be spread to other regions to help their struggle to protect democracy against authoritarianism.

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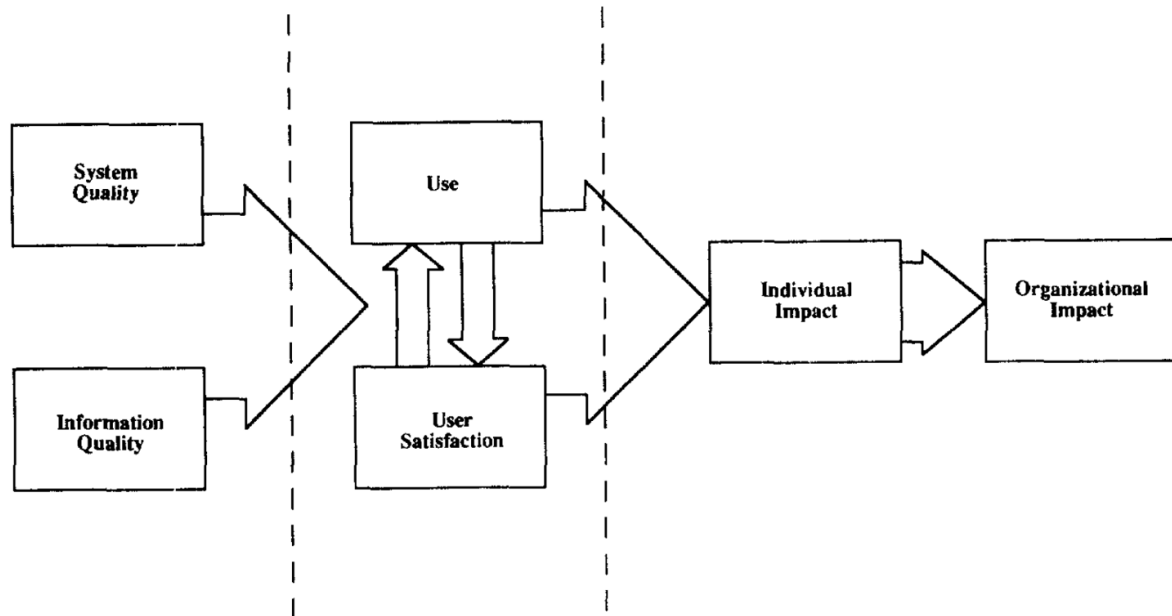
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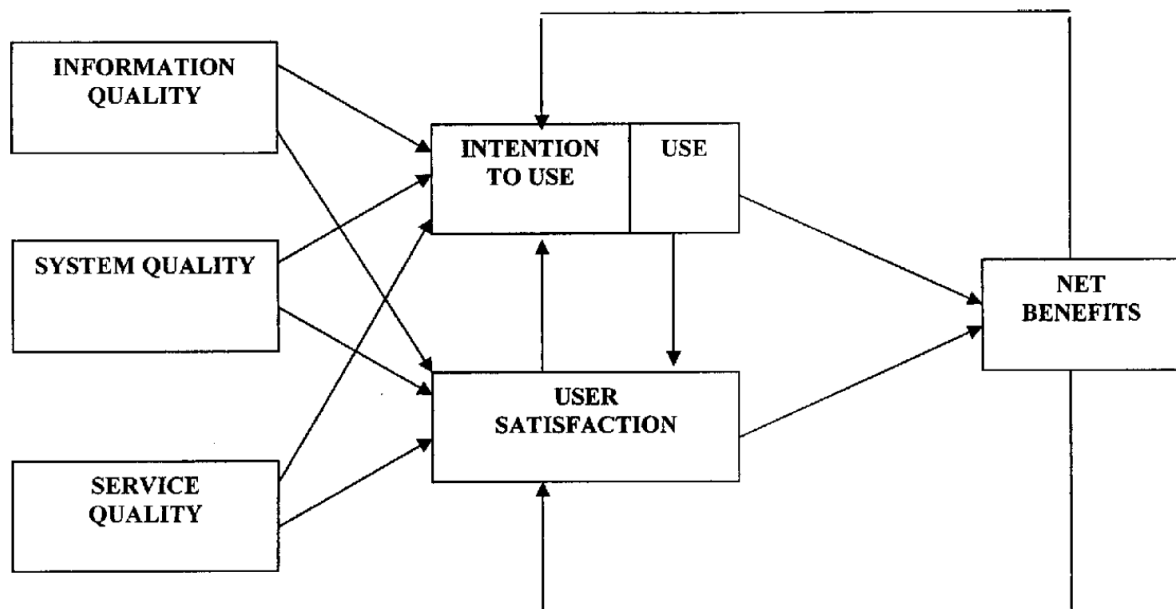
Appendices

Appendix One.

The IS Success Model (DeLone and McLean, 1992, p.82)

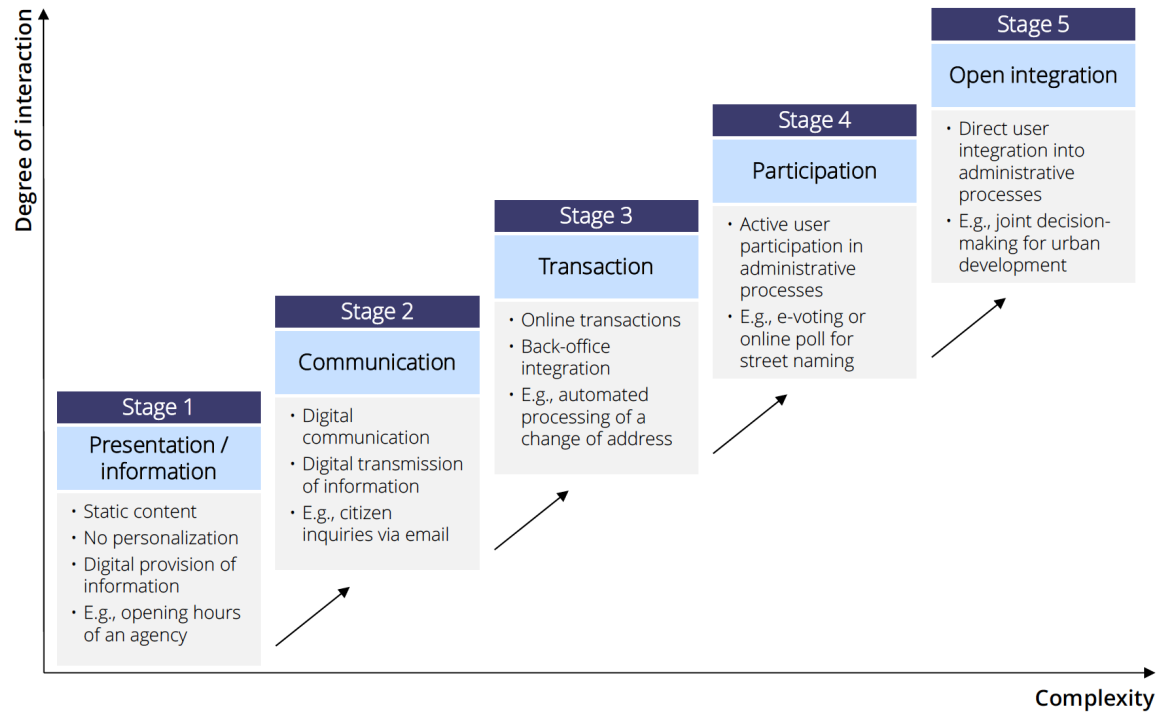


Updated IS Success Model (DeLone and McLean, 2003, p.24)



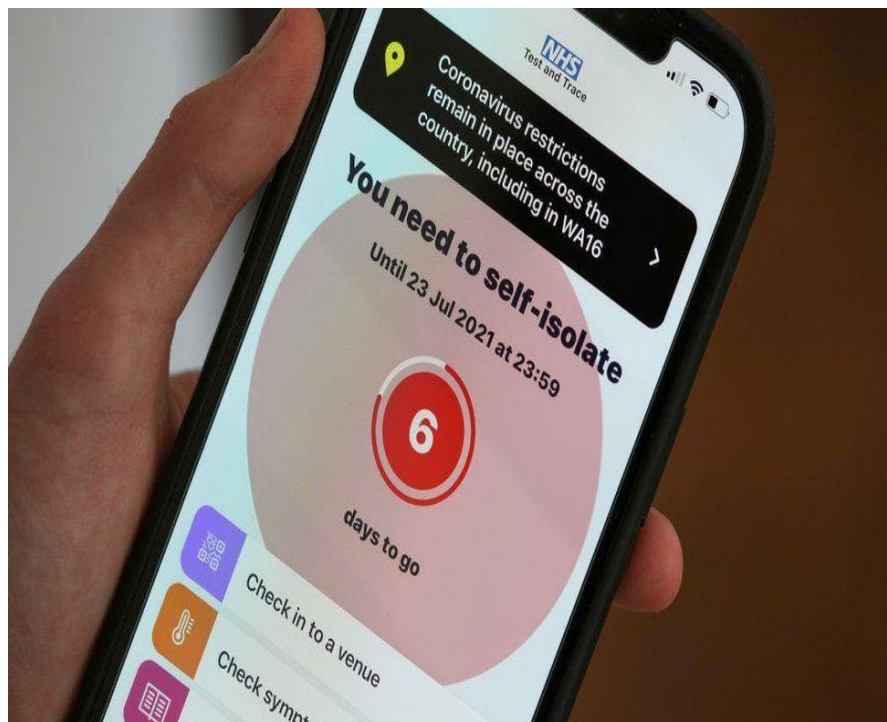
Appendix Two.

E-Government Development Stage Model (Wirtz and Dasier, 2015, p. 47).



Appendix Three.

NHS COVID-19 Application (BBC, 2021c)

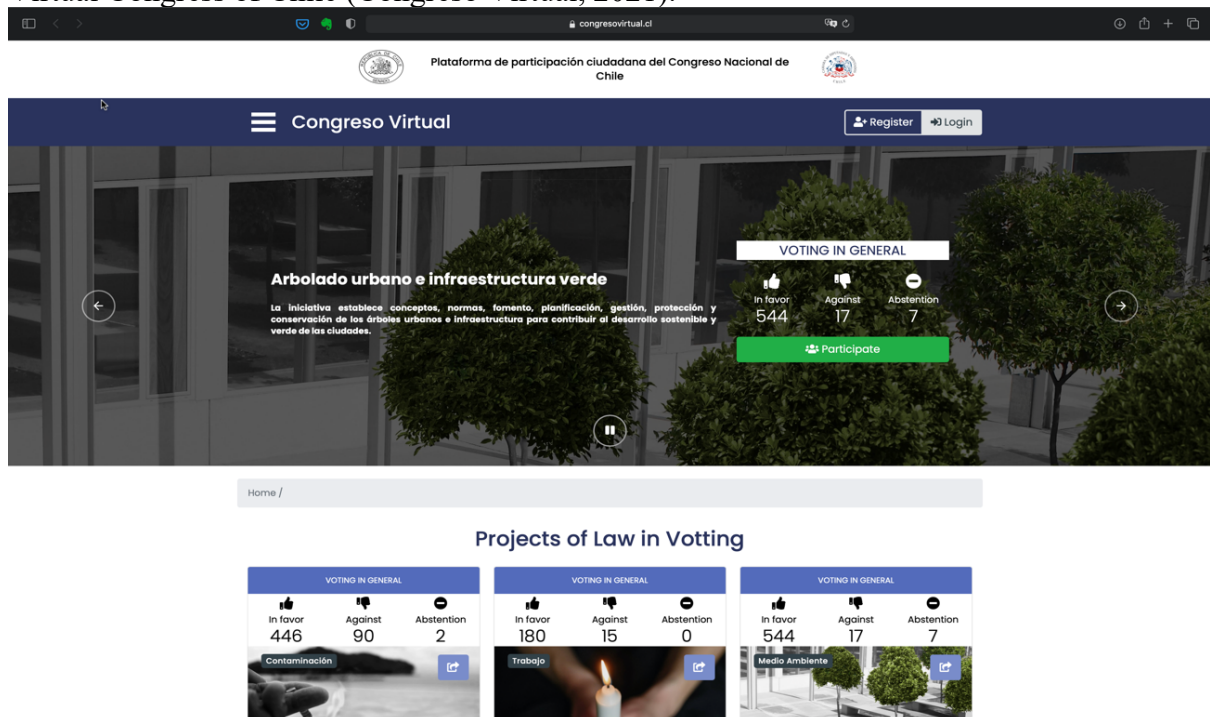


EU Digital COVID-19 Certificate (European Commission, 2021).



Appendix Four

Virtual Congress of Chile (Congreso Virtual, 2021).



2018 United Nations Public Service Award Winner Decide Madrid Site (Decide Madrid, 2021)

Propuestas ciudadanas de Madrid

decide.madrid.es/proposals

Decide Madrid: citizen participation portal of the Madrid City Council

MADRID

Decide_Madrid

Get in Check in

Search in Decide Madrid

Beginning Debates **Proposals** Voting Processes Participatory budgets Organs Help

Citizen proposals

Help on citizen proposals

FEATURED

Eliminate terraces in parking lots created by COVID
SHOSH • 1574 supports

Fines for those who throw masks and gloves on the ground.
Lgp • 1254 supports

FORCING LARGE AREAS TO CREATE WOODED AREAS IN LARGE PARKING LOTS
Mike00 • 997 supports

Support

Support

Support

Create a proposal

SELECTED PROPOSALS

See selected proposals

CATEGORY:

Associations Culture sports

Social rights Districts Economy

Job Equity Environment Media

Mobility Participation Health

Security and Emergencies

Sustainability Transparency

Town planning

More active Most supported New

For a park for everyone ... (López de Hoyos 57)

1.5% / 100%

410 supports

An e-participation project supervised by the author - Decide Cyprus (Decide Cyprus, 2021)

decidecyprus

decidecyprus.com/polls

decideCyprus

HOME ABOUT POLLS DEBATES CAMPAIGNS CONTACT TR LOGIN

polls


filter by status;

active ones closed ones all

Covid-19

28/05/2021

closed



Should vaccinated people enjoy a restriction-free life while others have their activities curtailed?

On 17 March 2021, the European Commission presented a proposal to create a Digital Green Certificate to facilitate the safe free movement of citizens within the EU during the COVID-19 pandemic.

browse

search through polls

filter by category

Ayn Enlari Covid-19

E-government

Economics and Finance

Electronic Voting Home Economics

Lifestyle Media Politics

Public Administration Sport

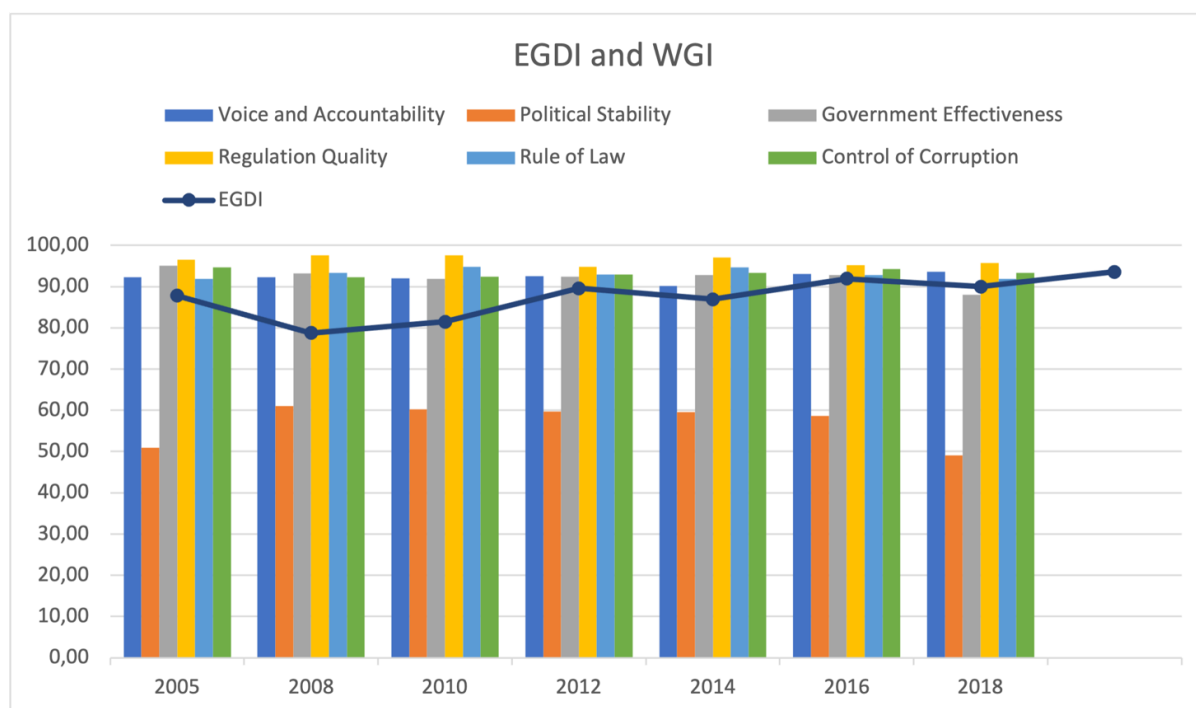
Student Life

register with facebook

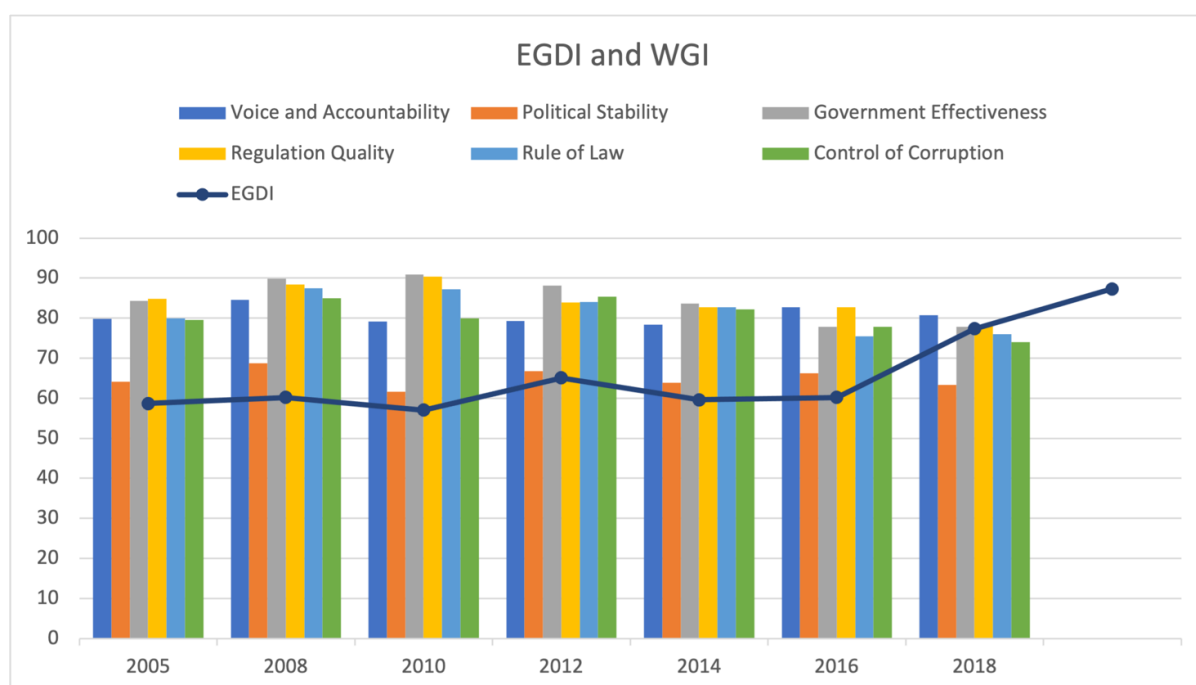
most voted

Appendix Five.

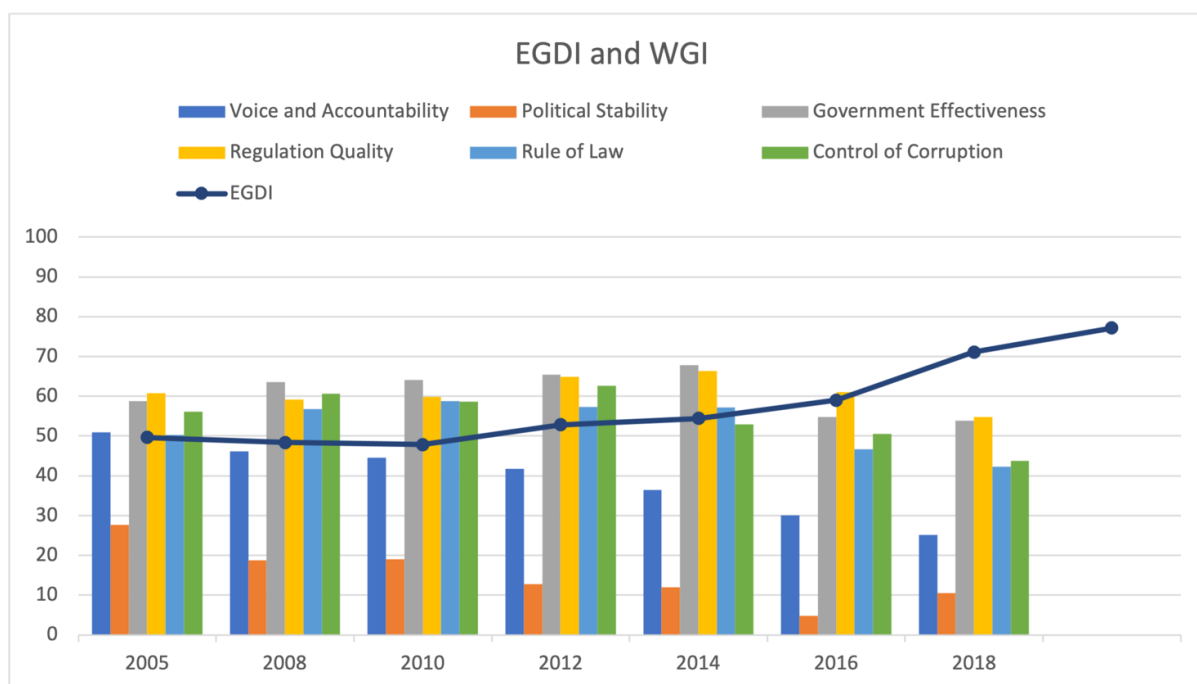
EGDI and WGI – The UK



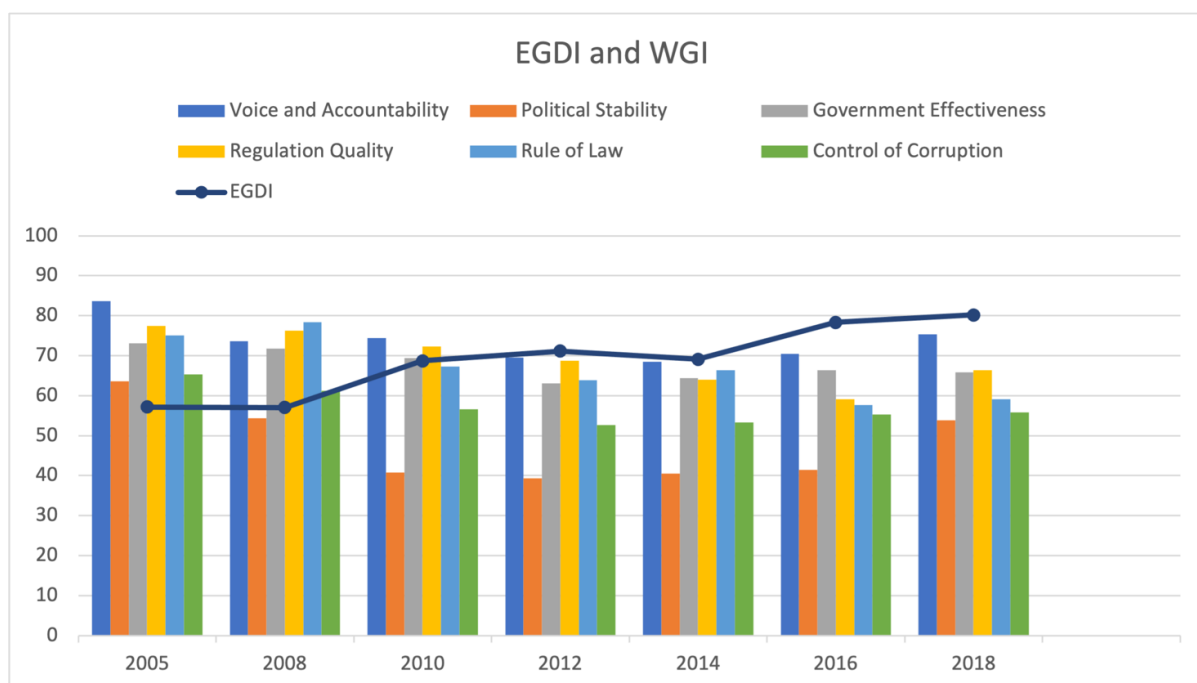
EGDI and WGI – The Republic of Cyprus



EGDI and WGI – The Republic of Turkey



EGDI and WGI – Greece



Appendix Six.

The UK GDPR (Information Commissioner's Office, 2021).

What are the principles?

Article 5 of the UK GDPR sets out seven key principles which lie at the heart of the general data protection regime.

Article 5(1) requires that personal data shall be:

- “ (a) processed lawfully, fairly and in a transparent manner in relation to individuals ('lawfulness, fairness and transparency');
- (b) collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes; further processing for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes shall not be considered to be incompatible with the initial purposes ('purpose limitation');
- (c) adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed ('data minimisation');
- (d) accurate and, where necessary, kept up to date; every reasonable step must be taken to ensure that personal data that are inaccurate, having regard to the purposes for which they are processed, are erased or rectified without delay ('accuracy');
- (e) kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the personal data are processed; personal data may be stored for longer periods insofar as the personal data will be processed solely for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes subject to implementation of the appropriate technical and organisational measures required by the GDPR in order to safeguard the rights and freedoms of individuals ('storage limitation');
- (f) processed in a manner that ensures appropriate security of the personal data, including protection against unauthorised or unlawful processing and against accidental loss, destruction or damage, using appropriate technical or organisational measures ('integrity and confidentiality').”

Article 5(2) adds that:

- “The controller shall be responsible for, and be able to demonstrate compliance with, paragraph 1 ('accountability').”

CHAPTER II

Principles

Article 5

Principles relating to processing of personal data

1.

Personal data shall be:

- (a) processed lawfully, fairly and in a transparent manner in relation to the data subject ('lawfulness, fairness and transparency');
- (b) collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes; further processing for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes shall, in accordance with Article 89(1), not be considered to be incompatible with the initial purposes ('purpose limitation');
- (c) adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed ('data minimisation');
- (d) accurate and, where necessary, kept up to date; every reasonable step must be taken to ensure that personal data that are inaccurate, having regard to the purposes for which they are processed, are erased or rectified without delay ('accuracy');
- (e) kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the personal data are processed; personal data may be stored for longer periods insofar as the personal data will be processed solely for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes in accordance with Article 89(1) subject to implementation of the appropriate technical and organisational measures required by this Regulation in order to safeguard the rights and freedoms of the data subject ('storage limitation');
- (f) processed in a manner that ensures appropriate security of the personal data, including protection against unauthorised or unlawful processing and against accidental loss, destruction or damage, using appropriate technical or organisational measures ('integrity and confidentiality').

2.

The controller shall be responsible for, and be able to demonstrate compliance with, paragraph 1 ('accountability').

EU GDPR (EUR-Lex, 2021).

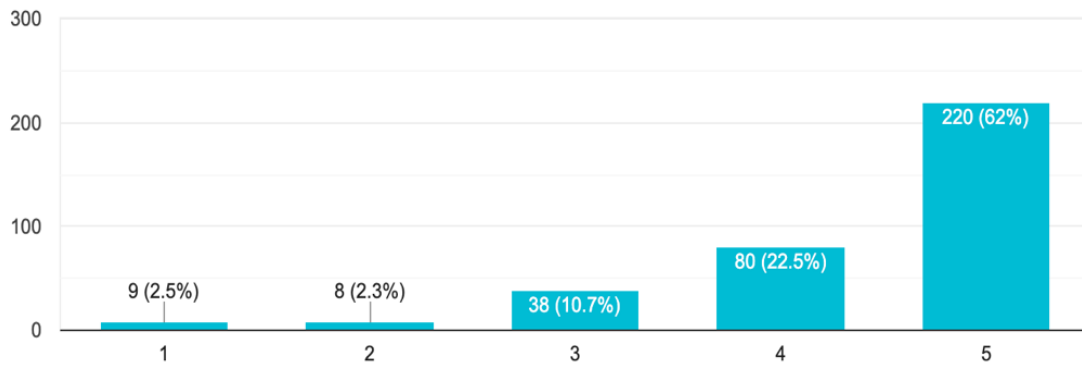
Appendix Seven to Nineteen had been removed due to copyright restrictions.

Appendix Twenty. Post-COVID-19 Intentions

I want the local government to increase the available online services after the COVID-19 pandemic.

Corona salgını sonrasında bağlı olduğum belediyenin online hizmetlerini artırmasını istemekteyim.

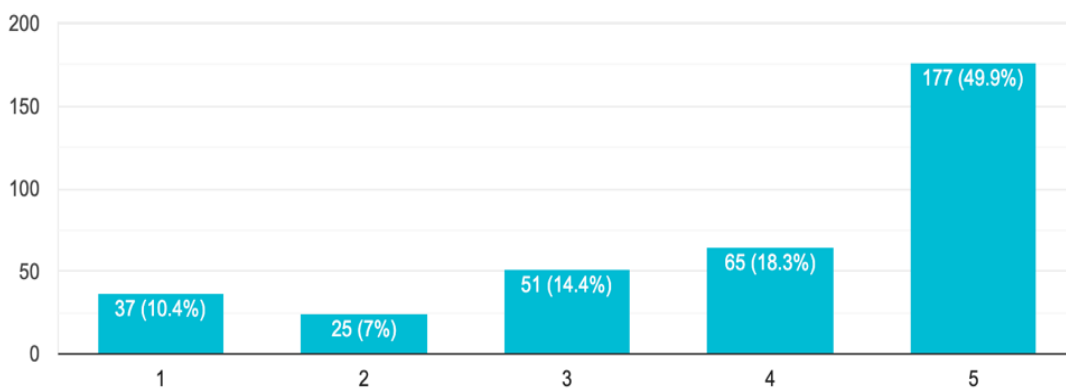
355 responses



I want to vote from my home by e-voting instead of physical voting if the necessary security precautions are taken.

Gerekli güvenlik önlemleri alındığı takdirde fiziksel oylama yerine elektronik oylama (e-oylama) ile evimden ayrılmadan oy kullanmak isterim.

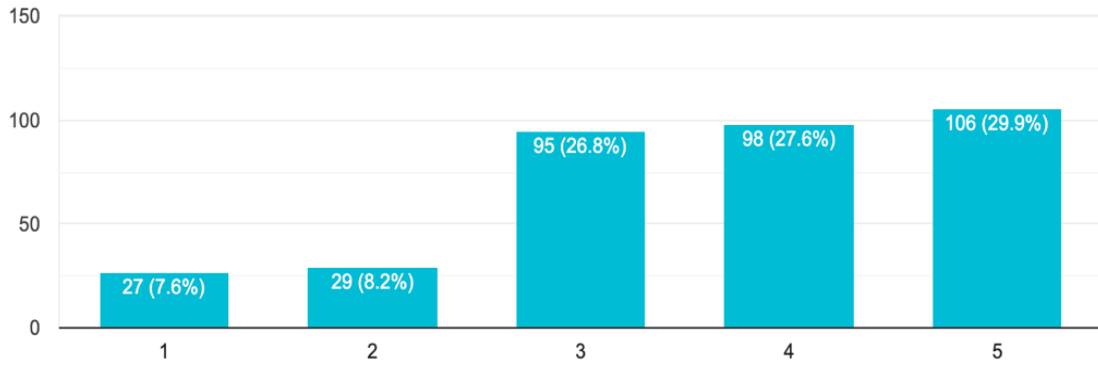
355 responses



I will prefer to use online services for the local government rather than physical services after the COVID-19 pandemic.

Corona salgını sonrasında e-devlet uygulamalarını kullanmayı tercih edeceğim.

355 responses



List of Selected Publications

Publication 1: Kaya, T. & Bicen, H., (2016). The effects of social media on students' behaviors; Facebook as a case study, *Computers in Human Behaviors* (SSCI, Q1), 59, pp. 374-379. <https://doi.org/10.1016/j.chb.2016.02.036>

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Publication 4: Kaya, T. & Erkut, B. (2016). The Tacit Knowledge Capacity of Lecturers: A Cross-Country Comparison, *Proceedings 17th European Conference on Knowledge Management (ECKM 2016)*, 8-9 September 2016 (WoS), Belfast, Northern Ireland. <https://bit.ly/3qx7vSq>

Publication 5: Kaya, T., & Erkut, B., (2018). Tacit Knowledge Capacity: A Comparison of University Lecturers in Germany and North Cyprus. *The Electronic Journal of Knowledge Management* (Scopus), 16 (2), pp. 131-142 <https://bit.ly/3FAm0Ia>

Publication 6: Kaya, T. & Erkut, B. (2017). Tacit Knowledge for Strategic Advantage: Social Media Use of Employees in the Financial Sector, *Proceedings of the 18th European Conference on Knowledge Management (ECKM 2017)*, 7-8 September 2017 (WoS), Barcelona, Spain. <https://bit.ly/34XVZY7>

Publication 7: Kaya, T. (2019). Artificial Intelligence Driven E-Government: The Engage Model To Improve E-Decision Making, *Proceedings of the 19th European Conference On Digital Government (ECDG 2019)*, 24-25 October 2019 (WoS), Nicosia, Northern Cyprus <https://bit.ly/3qsrban>

Publication 8: Kaya, T., Sağsan, M., Medeni, T., Medeni, T. & Yıldız, M. (2020). Qualitative analysis to determine decision-makers' attitudes towards e-government services in a De-Facto state, *Journal of Information, Communication and Ethics in Society* (ESCI, Scopus), 18 (4), 609-629. <https://doi.org/10.1108/JICES-05-2019-0052>

Publication 9: Kaya, T., Sağsan, M., Yıldız, M., Medeni, T. & Medeni, T. (2020). Citizen Attitudes Towards E-Government Services: Comparison of Northern and Southern Nicosia Municipalities,

International Journal of Public Administration in the Digital Age (IJPADA) (ESCI, Scopus), 7 (1), 17 -32. <https://bit.ly/33bDQ8Q>

Publication 10: Eyupoglu, A., & Kaya, T. (2020). E-Government Awareness and Adoption by the Residents: A Quantitative Analysis on North Cyprus, *International Journal of Public Administration in the Digital Age (IJPADA)* (ESCI, Scopus), 7(2), 1-22. <https://bit.ly/33B7hAF>

Publication 11: Agozie, D. Q., & Kaya, T. (2021). Discerning the effect privacy information transparency on privacy fatigue in e-government, *Government Information Quarterly* (SSCI, Q1), 38 (4), 101601. <https://doi.org/10.1016/j.giq.2021.101601>

Publication 12: Kaya, T., Medeni, T., Sağsan, M., Medeni, İ., & Asunakutlu, T. (2016). A Situation Analysis for Northern Cyprus Municipalities: Key Success Factors for Effective Participation, *International Journal of eBusiness and eGovernment Studies*, 8 (2), 1-17. <https://bit.ly/3qweWRE>

Publication 13: Kaya, T. & Over, A. S. (2019). Analysis of Ministry and Municipality Websites in the Context of E-Participation with Content Analysis Method – TRNC as a Case Study, *Journal of Economics and Administrative Sciences*, 33 (4), 1201-1226. <https://bit.ly/33nePra>

Publication 14: Kaya, T. (2020). E-Government Services in South Asia: Challenges and Opportunities, In G. D. Sharma (Ed.), *Contemporary Issues in South Asia*, (pp. 47-78). Hauppauge, NY: Nova Science Publishers. <https://bit.ly/3KhFdmT>

Publication 15: Kaya, T. (2020). Human Computer Interaction and Public Administration, In Yıldız, M. and Babaoğlu, C. (Ed.) *Technology and Public Administration*, (477 - 494). Ankara: Gazi. <https://bit.ly/33rX0aI>

Publication 16: Over, A. S. & Kaya, T. (2021). An Investigation of Electronic Government Applications By ‘De Jure And De Facto Country’ Perspective: Comparison of Ankara and Nicosia, *Pamukkale University Journal of Social Sciences Institute*, (46) , 1-30. <https://doi.org/10.30794/pausbed.789576>

Publication 17: Abubakr, M., & Kaya, T. (2021). A Comparison of E-Government Systems Between Developed and Developing Countries: Selective Insights From Iraq and Finland, *International Journal of Electronic Government Research (IJEGR)* (Scopus, ESCI), 17(1), 1-14. <https://bit.ly/3FFAVT2>

Publication 18: Kaya, T., & Sağsan, M. (2016). The Concept of 'knowledgization' for Creating Strategic Vision in Higher Education: A Case Study of Northern Cyprus, *Education & Science* (SSCI, Q4), 41 (184). <http://dx.doi.org/10.15390/EB.2016.6195>

Publication 19: Kaya, T.; Erkut, B.; and Thierbach, N. (2019). Entrepreneurial Intentions of Business and Economics Students in Germany and Cyprus: A Cross-Cultural Comparison, *Sustainability* (SSCI, Q2), 11, 1437. <https://doi.org/10.3390/su11051437>