



# Synergy Unleashed: The Convergence of Digital Transformation, SMART Technology, and Innovation

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## ABSTRACT

This report presents the Digital Transformation and Innovation and the influences associated with the application in all aspects of business. This research aims to address digital transformation focused on five important parameters such as Social, Mobile, Analytics, Radical Openness and Trust and their relationship with innovation. In addition, the literature review identifies the affect and influences addressing these five elements with innovation. The research model covers the use of digital innovation in Business, challenges and opportunities in a qualitative and qualitative approach. Result show that the Five parameters are positively affected by innovation. In the conclusion we recommend some points for future research.

## 1. INTRODUCTION

In the 21st century, the digital transformation process and outcome accelerate business technology transformation and the creation of sustainable societies. Our life and existence generate history and information, our decisions and actions generate data. This offers a great need for building research on digital transformation and the strength of data [1].

Moreover, Innovation is a needle mover, a method and service to challenge existing norms and use better solution to meet market and life needs. "Innovation is not always a technology it is what results from technology" [2-5]. Innovation can assist us in solving many problems in new reimagined ways. Alternatively, Digital transformation means implementing employees' roles and services in an innovative technological model [6]. Also, it is referred to as: the use of new digital technologies to enable major business improvements in operations and markets such as

enhancing customers experiences, streamlining operations or creating new business models" [7-9] Digital transformation is the final level of digital literacy [10], Digital technologies support innovation and creativity and promote significant change in the professional knowledge domains [11-14]. Many big companies have successfully adopted SMART and have risen to a great level while others who did not adapt have not and became absolute. A recent study showed that all technology spending in the world has been focused on digital transformation by 40%, and many organizations started planning to increase their investment in technology to more than AED 6 trillion [15-18]. The World Economic Forum (WEF) have calculated that by 2025 approximately \$66 trillion value from digitalization will be from platform-driven collaborations [19-22]. Furthermore, digital transformation can have many potential effects on innovation. A resent

student in the United State of America USA showed the effect of innovation on the five largest technological companies who have leveraged digital technologies to innovate in many industries have more scalability, broader market scope, and faster strategic actions that who did not [23-26]. Research on digital transformation and innovation management is still in its early stages, but it is gaining momentum. The digital transformation world is entering an era of prosperity that can pave the way to new insights and deeper understanding on digital- innovation. That is why we need to look in to more on the relationships between digital transformation and innovation to expose opportunities and challenges for more deep understanding on the topic and help policy makers to set policies and goals for the topic [27-32]. Though a systematic literature reviews the paper will identifies and categorize the next generation model of ICT-enabled public sector transformation Smart government and Innovation, in smart government concept, the “SMART” stands for, Societal, Mobile, Analytics, Radical Openness and Trust. The research method used for this study are presented in the following section and after that we present our main results and recommendations for future agenda. Proposed Hypothesis is: The relationship between SMART and innovation (Figure 1).

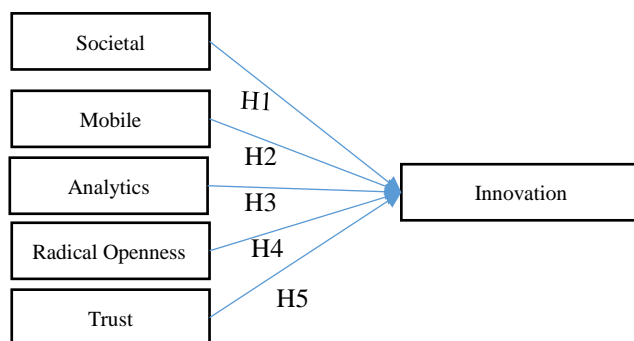


Figure 1: The relationship between SMART and Innovation

## 2. LITERATURE REVIEW

### 2.1 Societal and Innovation

Digital transformation has changed and expanded on large scales around the world in the last 10 years [33-39]. One of the main scales toward transformation is applying innovation in many

social and community-based services. By collaborating the social innovation, it helped in increasing the knowledge of the society and stimulate a positive change between the communities.

Social innovation (SI) has always a big impact and change on different communities, societies, and that affected on the performance of the public/private companies and governments [40-45]. The social innovation improvements also had positive effects toward the communities in the mind-sets of the citizens and the technology used by them.

Social innovation has been recognized as a social solution to many kinds of old and new social challenges. There is a need therefore to examine which types of SI are driving impacts in rural areas and the nature of those impacts. Mostly positive impacts are considered as they are involved in the community's process of decision-making and it also involves the society to achieve a range of different objectives, and the provision of new products and services toward the community [46-49].

The relationship between societal and innovation is essential nowadays as it helps to solve some of the world's most pressing problems with new solutions such as fair trade, distance learning, mobile money transfer, restorative justice, and zero-carbon housing [50-53]. In the process of creating solutions, it is also profoundly changing beliefs, basic practices, resources, and social power structures. SI provides a unique opportunity to step back from a narrow way of thinking about social enterprises, business engagement, and philanthropy and to recognize instead the interconnectedness of various factors and stakeholders.

Social innovation influences each country by different aspects and “in today's hyperconnected world, one country's societal problems can become ours [54-59]. Nations are facing slow economic growth, financial instability, political turmoil, hunger, poverty and disease. These are all social issues that must be addressed, one way or the other, and such big problems generate big business opportunities. In fact, more than 80% of economic growth comes from innovation and application of new knowledge” [60].

There are different kinds of challenges toward SI that sometimes it is mistakenly seen by some as

charity. It should be acknowledged that social innovation is adding an extra dimension to innovation, sustaining economic and social growth. Other barriers toward social innovation are the social demand approach, mindset, financial, skills and formation [61-64].

Social innovation measurement may help an organization manage the impact on a project or policy. The set of indicators for measuring social innovation depends on expectations and requirements of organization after determination of the dimension of innovation. The measurement indicators may represent ethical goods, services responsibility, environment, community, education, health protection and poverty areas [65-67].

## 2.2 Mobile and Innovation

Technological advances have played a critical role in helping businesses develop and thrive over time, especially in a dynamic and complicated market with volatile economic conditions. One of the potential causes behind the failure of any market-based innovation is the success of the invention, which is heavily dependent on customers [68-69]. It's unrealistic to expect all customers to buy and accept new products. Companies, on the other hand, continue to experiment by releasing new features and products. It is necessary to comprehend consumer innovators and the acceptance of new goods [70].

The retail market in 2020 was very different from what it was five years ago. Consumers are on the lookout for innovative methods to buy their favorite goods. Companies are growing more inventive in how they may offer their goods to their consumers in quick, convenient, and cost-effective methods, whether it's through a website, mobile app, or social media [71-73].

Kenneth Lewis, CEO of OneGold Company, pointed out that here is where mobile app innovation came into play. It joins the 91.9% of free applications accessible for Apple users and 96.4% of free apps available for Android users. Global usage of banking apps is increasing, rising from 16% in 2015 to 64% in 2019. Fintech is the fastest-growing area of mobile apps, accounting for 5% of all app downloads in 2019. In 2019, consumers downloaded 204 billion mobile applications, up from 140.7 billion in 2016. That's a total of 204 billion possibilities [74-79].

In addition to companies that gained additional markets, Nike is introduced a cutting-edge smartphone application that allows users to scan their own feet to get the ideal fit, a first in the industry. Nike Fit creates an ultra-precise scan using the customer's smartphone camera, which captures 13 points of data and creates a map of both feet [80-83]. The software makes shoe recommendations using a combination of computer vision, machine learning, and recommendation algorithms. Furthermore, the app is used to improve the customer experience by utilizing the data obtained to better the design of future items.

The major increase in the use of smartphone led a majority of entrepreneurs to have either built or are planning to create mobile applications for their businesses. However, it's critical to recognize the obstacles and devise smart ways to overcome them [84-90]. These are a few challenges businesses face in the approach to innovate and upgrade into a mobile business:

### 2.2.1 Development Approach

The nature of the business and future objectives when choosing a development method must be examined, such as hybrid development, native development, or even solely web-based mobile app development [91]. The user interface and user experience requirements should also be planned out as a result of this.

### 2.2.2 Funding

Another issue that arises frequently while developing an application is a lack of funds. It's critical to have a good sense of how much a mobile app will cost in total. It is not a one-time expenditure [92-93]. Money is required for any future value additions to the business' software. The need to conduct thorough market research before deciding on an app development is crucial. It's not enough to have a mobile app for any business; a successful mobile app is also needed, and quality work should be at the top of the priority list.

### 2.2.3 Customer Reviews and Experiences

The application has to be as simple as possible. It may result in bad consumer feedback. It has the potential to reduce the amount of downloads as well as active users [94]. To get around this, keep

things as basic as possible. Putting useful resources such as movies, pictures, and doc files in your app stores will help to assist the users.

#### 2.2.4 Performance

Most app developers confront a similar issue in guaranteeing world-class app performance, in addition to building a successful app and offering better user experience [95]. The task is creating a functioning program that is free of crashes and errors while also taking up as little space on the device as possible without sacrificing battery life. A well-performing app can attract a large number of users.

#### 2.2.5 Security

In-app security will be a source of worry for developers. Malware should not be present in the program; otherwise, it may cause software or hardware disintegration, necessitating extra time and money to resolve [96]. With so many operating systems and device variations, maintaining application security might be difficult to achieve optimal security standards. App developers face a difficult task in establishing a relationship with end users. If the mobile app fails to connect with end consumers, all of your hard work and money will be nullified.

#### 2.2.6 Analytics and Innovation

Analytics uses big data analytics, devices, and context-aware services to lead policy actions and customize communication and operations [97]. There are different emerging technologies in Data Science as the scoop of business and digital transformation in a constant state of change. With human interaction, it grows by the day. The amount of Data generated from technologies is unmeasurable. Data science aims to collect, process, analyze, and present the data in innovative visual that helps the human understand trends and information's. IT organizations are looking for ways to take advantage of the increasingly large quantities of data they oversee for business by incorporating these innovative systems and data and applying predictive analytics. IT can contextualize and design products and services in an intelligent way to increase business value [98-99].

Data Analytics presents a significant opportunity for many organizations to innovate, but only if they

know what to do with it. In recent research, they examined the different organizational structures that influence data analytics to stimulate innovation. However, some of the results were shocking, professor Lynn Wu Wharton, professor at organization structure and information, said, "economists have documented that we have been spending more and more money per capita on research, but we have a decline in the rate of innovation we are generating, that is because we are spending lots of money with less return, there are many cool data-driven innovations in the market but it rarely a statistic to find any innovation statistics" [100-104].

#### 2.2.7 Data Driven Innovation (DDI)

DDI is an emerging concept that refers to the integration between digital data and analytics into innovation. The role of data analytics in innovation is to provide new knowledge that could not be obtained in a practicable way to identify users' needs or identify new users. In business, DDI promises to create value in many operations, from the optimization of value chains in manufacturing to customer relations and services [105-107]. The public sector is also a vital data user with great access to data. Policymakers will use data to create a wide array of policy issues and address many important aspects of public services by providing policy guidance and promoting growth and well-being. In an interview with Mr. Khaled Al Shamsi Umm AL Quwain Smart Government office and a member of United Arab Emirates AI and Blockchain Council, he said: "UAE government aims to improve the quality of life for its citizens and residents and in order to achieve this vision passion for using AI and its applications in various ways to improve government performance and creative innovative work environment to act, create the development objectives [108-111]."

#### 2.2.8 Artificial Intelligence

Artificial intelligence (AI) is the use of IT systems to mimic the role of human intelligence, problem-solving, learning, and judging. Many businesses see the huge potential in AI, and a recent study showed that over 72% of business leaders believe that AI can increase the human's concentration on work [112]. One of the main goals of AI is to improve the quality and consistency of data, "AI does not tell you what to do, but it tells you what was and what

is,” said Michael F. Gorman, professor of operation management and decisions science at the University of Dalton Ohio. Moreover, another study from Pega showed that after the COVID-19 crisis, organizations are investing more heavily in AI tools to help them meet their customer's needs [113]. The same study calculated that 74% of the respondent believed that it is necessary to invest hugely in intelligent automation for the sake of their organization's success. AI helps in fuelling better decisions and real-time insight to work as well as adapting to the changing context of customers and employees.

### 2.3 Radical Openness and Innovation

The importance of radical openness and how it influences innovation is clearly pointed as the more openness the more innovative. Openness reflects in transformation of science and innovative ideas and shows how they operates in global context. The expansion of radical openness in innovation is hard because of the uncertainty and the implemented changes in process, organizational structure form and culture [114-115]. Innovation and science are counted as open enterprise. There are many challenges that affects and shapes openness, which are political regulation which some countries enforce on their markets. Financial aids which could be so limited to have research and development in such sectors. Collaboration of local markets and the government support to make them more open and wide [116-119].

Openness is vital to an organization it gives it the flow of technology, develop new structures that suits the new era, keeps the markets in competitive advantage.

Practical examples of radical openness could be the founding of Google Drive and any facility which is similar to open shared storage. It is vital that there is openness so it has the access of so many people [120]. Another example is United Arab Emirates government and The Fifth Generation- 5G which is a landmark to achieve, smart city and artificial intelligence applications.

### 2.4 Trust and Innovation

Digital transformation is linked through many fields, and has an influence over many of them. The relation between the innovative transformation and trust is the main focus on this part [121]. Discovering the relationship between innovation

and trust goes wide enough to define that any organization or entity needs trust to build up clear innovative ideas and progress on, sometimes it means the organizational culture of trust, transparency and security. Innovation is more about knowledge partnership, collaborative culture and the management of both. Trust in an “underappreciated but potentially high valuable source of value in open innovation networks”. It is one of the hardest things to achieve in any organization, specifically with the bureaucratic systems because of the idea of top management or top leaders having the right of decisions while the middle have to buy the rules without discussion or clarification, the truth is that in most of the top innovative organization they have clear cooperative leaders and teams working together toward, top leaders could clarify as much as they can and talk with their teams so they work smoothly and gain the targeted result, It also shapes the innovation competition between organizations. Concluding how to manage and build the phenomenon of trust inside and outside is always about adopting authenticity, investing in the organization and intellect leadership.

The relation between trust and innovation is has many angles to view firstly what’s influences it and what are the challenges:

Corporate image has an influential rule of trust, more about giving the financial services distribution it is builded through the time by the frequent satisfactory interactions between firms and individuals [122-128]. Trust is important in all sectors, for example the new firm holding up long term financial service it is never trusted unless the result of someone who used to trust to hold up his services. Trust can reduce the uncertainty in all decisions financially. Functional image and institution image also has an important effect on trust, when the corporation maintain the high reputation, it causes the trust of many stakeholders. Trust affects the working networks inside the corporation, by having more trusted employees to think and work hand to hand the idea of success is more likely to spread all the teams are clear about all decisions without the personal side of any conflict [129-131]. Then it affects the strategic network wideness, it is important that all have links to leaders and strategy makers to have the open talk and get the ideas flow easily and then think how to improve and stay innovative without

the fear of failure. The more the employees share their knowledge together the more the organization gets innovative and feels the trust. The challenges are commonly how to build trust in the era of changing to foster innovation with a brave heart, so it is hard to believe in product that is numbered as newly in market. Organization could build trust in innovation and transformation through open dialogue, understanding how a new product or innovative idea works. Gather more information and access to meet clients' expectations and satisfaction [132-139].

To foster innovative ideas or innovate change you need to get the trust of the recipients. In organizations and different sectors, trust is built over time passing it is the result of progressively experienced and reliably independent of individual and employees [140-146].

Practical examples of trust and innovation, is shown in many entities and organizations such as Dubai Customs. Director General of Dubai Customs H.E. Ahmed Mahboob Musabih received the "Great Place to Work" certificate, which points that Dubai Customs as the first customs organization to receive such certification of trust inside the organization which measures effective communication, trust, creativity, and teamwork [147-149].

I believe that trust could be improved in innovation by sharing more information between mid-level leaders and their team with a great flow of clear points to work in. Giving the teams wider birth to work freely. Being transparent and honest to the clients, teams and leaders. Creating an environment that support employees' innovative ideas and taking the risk with the study of the factors that shapes it [150]. From the conducted interview, the main recommendations are to enhance group work hand to hand in innovation by forming the right group norms, designing team that works on innovation production strategically, encourage employees trust to innovate freely. Collaborate across the organization boundaries, physical barriers and hierarchical levels and adopting practices such as rotating leadership and peer evaluations.

### 3. RESEARCH METHOD

As indicated earlier, this paper aims to present the connection involving digital transformation and innovation. To evaluate the relationship, we

conducted a study applied on digital transformation specials from different organizations across United Arab Emirates UAE.

Combination of qualitative and quantitative approach was used to measure the effects. Four interviews were conducted from 4 different organization in UAE, Question were organization in qualitative approach to allow more interactive and explanation from interviewee. For the purpose of achieving the objectives of this research a survey was administered to collect data from expertise in the field. The quantitative method is the best way to get exact statistics and easy compare the results. Due to the challenge of finding the right module to structure our survey by, we agreed on separating the data collection based on each parameter focus expertise and targeted considerations.

### 4. MAIN RESULTS

Here are the main results based on each parameter: Hypothesis 1: There is a positive relationship between Societal and Innovation.

To measure the social innovation in the region, quantitative research (interview and survey) has been done to acknowledge the results. The data collection has been done in two ways: first an interview with a member in Retail sector who worked in innovation and technology department for 15 years and had impact in SI toward the community by different programs and initiatives (Appendix 2). Mr. Manoj Vijayan, Director of Innovation and Technology Dept. in aswaaq LLC have pointed out his experience in SI, "In the procedure of continuous process of fine tuning, sometimes we end up in a radical and disruptive approach which will have major optimization on time and cost. Which is the direct impact on employees. Anything we do should be an interactive and decision support model."

Moreover, he added that aswaaq LLC have dealt with "SI tasks for employees, customers, and partners. But same time this will have a major impact on number of employees who is operating currently. We constantly scale up their skill set to accommodate in other areas of the business (more on a decision support system than operation). Thus, ensuring an ethical transformation". Also, Mr. Manoj have mentioned that different kinds of indicators to measure the SI in the retail sector and they are modern collaborative platforms as Microsoft Office 365, loyalty programs as

personalized and frictionless transactions, various friendly apps to ease the tasks in the physical locations and supply chain that enables a vendor portal (SaaS Model) to address the entire chain of Purchase order processing till the invoicing matching.

The second way that have been done to collect the data is by conducting a survey and have been distributed to different age group of people. In the (Appendix 1) you can find the survey questions with the results. The survey was circulated to identify the SI in UAE communities. In (Table 2), it clarifies the most well-known SI challenge in UAE and that is Employment (66%). The least challenge that has been addressed is Supporting and encouraging Entrepreneurs (11%) as I think in UAE, we have many government offices and initiatives to help the new generations to start their dreams and careers.

There are many SI in Dubai and from the survey it was pointed out Expo 2020, distance learning and smart governments are the most well-known social innovations in the last years. The impact on the society mostly were positive and economic impact (Table1).

Mostly all who have answered the questions are interested to volunteers and be from the SI team to make a change in their community and society. As I see that this is a good advantage toward the future of SI in our communities and the mind-set of the new generations can be active and cooperative (Table 2).

Hypothesis 2: There is a positive relationship between Mobile and Innovation.

A quantitative research method was utilized for the purpose of finding reliable results regarding the consumers' thoughts, standards, as well as their preference on purchasing or using innovative mobile applications available in the market. The data collection is conducted through a one-on-one interview with the In-Charge Manager of Masdar's Innovation Development Department. The interview questions are primarily consisted of the manager's average time spent on his smartphone, as well as his point of views about the convenience that the innovative mobile applications offer in his daily life. Further, the later part of the interview is about the manager's opinions based on his experience in using Masdar's City Mobile App.

The interview opened with the question of how often Masdar's Manager uses his mobile phone. As

provided in (Appendix 1), the interviewee, just like most people worldwide, uses mobile phone almost every minute in every single day for the purpose of entertainment, work, business, and for communication means. The main reason why most people nowadays are inseparable with their mobile gadgets is due to the convenience it offers towards the people's daily activities. Based on (Appendix 1, question 9), the respondent maintained that mobile applications can be efficient and sustainable too. It is sustainable in a sense that various important activities such as payment transactions, grocery shopping, business engagements, and deliveries can be done with just a single tap on their smartphones. More importantly, mobile applications allow the users to effectively manage and access their businesses at their most favorable time of the day. Its features enable people to conduct or attend important business meetings anywhere they may be.

As presented in (Appendix 1), in response to the question of what particular mobile or social media app that the respondent often uses, he inferred that he usually uses Google and Facebook application. Just like the majority of people around the world, Masdar's Manager's commonly used mobile application is Google. Google provides various online services for people and it is predominantly used for search purposes, documents and presentation features, business transactions, and even setting up clear schedules for their day-to-day affairs and undertakings. Since majority of the world population is using mobile phones and lots of mobile applications, the rising threats for data and identity theft is also becoming alarming for the users. Particularly for online bank transactions, it is highly important to ensure the safety of the consumers. On Question 6 of (Appendix 1), Masdar's In-Charge Manager answered that despite the growing threats, he maintained that he gives his full trust for the finance companies for his online banking transactions. This is mainly because of the existing security features the company offers specifically the authentication codes, One-Time-Password (OTP) and privacy policies.

The second part of the interview is comprised of questions about the respondent' assessments of Masdar City Mobile App. He said that he uses the said application and he only has a fairly good feedback based on his experience in using the app. One thing that made him love the app is because of

its engaging features. He also added that he enjoys using the Masdar City Mobile App for it aids the users in navigating places within the city. It does not only navigate, but it also educates people for its informative programs. It tells the background stories and information about the important landmarks, and helps the users to find nearby restaurants and any other amenities within the city. Users of this mobile application generally have only positive feedbacks for this app. The app's features provide great experience to the users, hence generating and attracting more consumers to try the app themselves.

Hypothesis 3: There is a positive relationship between Analytics and Innovation.

To evaluate the relationship between Analytics and innovation a study on 25 SMART digital employees from all over the UAE have been administered. The study asked the participant 5 question regarding the effect and impact of Analytics innovation on their work.

From our survey we have concluded that Analytics and innovation are positively related. Respondents' findings showed that 92% have agreed that Analytics have a positive impact of the digital transformation and it changed how they work in a positive way.

When we asked about the important parameters of the Analytics, 36% of the participants answered that "Technologies" were the most important aspect in the Analytics innovations then followed by Data and Services. This shows how data driven technologies is highly promoted in Analytics government office and play a vital role in increasing the important of Analytics innovation.

Although, Analytics Innovation is a tool to make our life better, this tool has a challenge. During the study we asked about the challenges in Analytics innovation and 64% of the participation said security, 40% said that finding experts in Analytics and Data managers is challenging in their opinion.

To find more about the subject we interviewed a specialist in this field, Mr. Khaled Al Shamsi, Director of Umm Al Quwain SMART government office and one of the UAE Artificial Intelligence Council members. Mr. Khaled was very generous with helping us in our research as he said, "data science is an emerging principal, by 2021 we came to a state that we cannot actually move without it". Furthermore, Mr. Al Shamsi talked about how new digital organizations will kill the traditional ones if

they do not digitalize quicker. There are many organizations do not know what digitalization meant, but at the same time, there are many companies that think data is the new oil. In UAE government there is no place for the old-fashioned services and offices, Government offices directors who do not realize this will be left out.

When we asked Mr. Al Shamsi on how innovation effect Analytics he demystify that Analytics and Innovation are a correlate concept each on bring the best of the other. Why we need to innovate and what we need to innovate are a critical question but when you ask HOW we innovate here come the roll of Analytics, the secret ingredient is Data science as it's the most crucial part of future innovation because it comes from Data. Data helps us to conclude findings as solution for problems from a facts and numbers not from points of view.

The creation of UAE AI council was a very important step in UAE government as its boost the government performance and use integrated SMART digital system to overcome challenges and find a quick and effective solution to creative economic value for the country.

Hypothesis 4: There is a positive relationship between Radical Openness and Innovation.

To collect and gather the common knowledge about Radical Openness and Innovation, an interview has been researched toward the topic, TED eBook authors. We have started with the meaning of (Radical Openness) as it can mean differently toward the subject it relates, and author Tapscott writes on the meaning as "it can mean many things, depending on the circumstance". So, we've looked at four different strategies for openness that ultimately entail some pretty deep changes in business and society."

In addition, Mr. Tapscott added that when it comes to innovation, organizations rarely exploit the power of openness in their business and institutions. It is hardly the first word they would use to describe companies and other societal organizations.

Adding to above, Radical Openness examples are many, as their favorite is "unprecedented steps GlaxoSmithKline took in October 2012 to release all of its clinical trials data on the Web. It was an extraordinary move — a bid to aid in the discovery of new medicines and end any suspicion that the pharmaceutical giant had secrets to hide. This was an incredible first in the ultra-secretive world of



drug development. Chief executive Andrew Witty called the move essential to finding new drugs to treat the diseases plaguing the world and there has been much admiration for these efforts in the broader medical community”, as Mr. Tapscott mentioned.

Moreover, mentioned in the e-book, ways that proved Radical Openness to be successful in different organizations that it increases trust that is an essential glue to the networks and economic. Also, giving companies access ideas and capabilities that lay outside their corporate boundaries. This will help to open stages on which vast ecosystems of exceptional talent create and assemble some of the world’s best innovations, as mentioned by Mr. Tapscott.

Hypothesis 5: There is a positive relationship between Trust and Innovation.

To generate more information and data regarding how trust relates to innovation is positive way, and what is the positive connection between the two variables the researcher has

conducted an interview with an employee in the Federal Authority for Identity and Citizenship (ICA) to analyze and test the hypothesis which is “There is a positive relationship between trust and innovation “. The employee is working for this corporation for nearly 15 years, standing over all the changes happened within his period in leadership. Added also some recommendation to improve and deploy trust that results in innovation.

The point of view in many situations regarding innovation and trust during his experience was summarized in the interview, the main points are : In the ICA and any other organization trust and innovation are positively linked through having the comfort feeling of working freely, the more an organization have trust the more the innovation is conducted by employees for example once we moved the online forms and applications most of the employees were not comfortable of that shift specifically the once who works on the national identity filling information they try their best to be focused so they don’t miss a number or the spelling of any named saved.

The existence of trust in working frame and between employee’s with their leader leads to an innovative activities without the fear of failure, to trust an employee it means to feel confident about the work done before you can see it in other words

we can see that whole teams could fail because their is unspoken annoyance towards one person whom others consider unreliable.

The flow of clear information leads to a confident trusted employee then results with an innovative ideas, open communication makes everything clear and smooth whenever the team lacks this concept it means you may face the failure because of it. Sharing information clearly and making every possible point of communication is a concept that leads to the success of any innovative activity. Most of the companies around are exposing transparency as a part of their strategy and also their principles, that’s a way of showing trust.

## 5. RECOMMENDATIONS

### 5.1 Social

We believe Social Innovation can be practiced in different societies globally or locally by many aspects. I think establishing a permanent multi-sectoral Social Innovation Council and create an office for the council will help the citizens to cooperate and easily to frequent visit the office. Another recommendation is that SI can improve the skills and ideas of the society and it can happen by creating training programs and starting with early stage and support them. Last but not least, in our point of view, knowledge sharing initiative can be a major advantage for above recommendations and it will make a big impact toward the social innovation outcomes.

### 5.2 Mobile

Given the number of existing mobile applications available in the international market, it is vitally important for app developers to formulate a comprehensive framework in developing an application that would certainly attract different target consumers. This is for them to effectively compete to the already existing and well-established names and concepts of mobile applications in the market. The app developers need to utilized an efficient OS in developing their applications for it to become more favourable for consumers. Lastly, as I have observed in this digital era, the technological breakthroughs have also opened doors for an increasing online threat that could harm both the sensitive information and physical health of the users. With these unfolding menaces that comes along with mobile and innovations, it is necessary for mobile app

developers to not solely focus on creating engaging features for their applications but also to ensure their target customers with security and safety of their privacy and essential information.

### 5.3 Analytics

Although analytics and innovations are positively linked, trends for data-driven innovation are not moving forward dramatically. We are in a great era of technology especially with the rise of AI and machine learning. There is no evident of analytical tools to examine the coloration between these two variables and how we can use them more effectively. For example, we have innovated how we can use AI in analyzing data, but have we learnt to use them effectively with high percentage of efficiency, we do not know as there is no many statistics provided to measure it. This really provide a ripe opportunity for us schoolers to examine some key lessons for the future.

### 5.4 Radical Openness

Truly, radical openness is a window to opportunity for growth and success. But the pursuit for it entails impediments that threaten and imposes risks for the company. In the light of the foregoing research and thorough analysis, this section recommends the following for the effective implementation of radical openness.

Firstly, the company or organization must constantly train itself to adopt on changes and shall accept that the world is evolving so does the business world. In this context, the company shall support all employees and managers while undergoing certain changes. Constant training and seminars in view of certain changes must be carried out. Furthermore, it is highly recommended that the company shall create a research and innovation team that will introduce certain changes fueled by modernization and current trends of the world. With this team, plans and initiation phase will be magnified by the company and necessary steps will be projected. Thirdly, changes are accompanied by risks. Hence, it is also recommended that the company shall identify, assess, and monitor the risks that could hinder the growth and process. With mitigation plan, the company will be guided. More so, radical change is important and motivation among employees is of great importance. The basic tenet shall be implied to employees by means of

workshop and seminars. Radical openness indeed is a milestone towards success. Seize and take it!

### 5.5 Trust

We have the view that trust results in innovation and we believe in that the more trusted the employees are, the more innovative the corporation is and this is compatible with all entities local and international. And we are noticing the change in all concepts and principles. Trust transparency and how to build culture is important concepts of success in innovation. We founded from the interview done that most productive corporations have achieved a high level of trust between employees and leaders and has the benefit of opening up clear communication. Be Productive, find teams that encourages open communication, practice the management of team building, share your view of point and faire and don't forget to set up the right norms and always think about transparency because it is the way of making sure that everyone is on the same page and works in alignment with the targeted result.

## 6. CONCLUSION

Research about the interaction between digital transformation and innovation is still scattered and an overall framework on future theoretical and empirical studies are needed. Thought a review of existing literature reviews on the topic and qualitative research we have examined a micro level of this interaction. Future research on a smaller level of analysis would be hopeful and will provide opportunities and new scope of digital innovation.

“Social Innovation is a response to a social or environmental problem which, once adopted, results in better outcomes than existing approaches.”

To conclude, SI is a major characteristic to improve and transform the thoughts and views of societies around the world to a better living and income by using updated innovations and simplified improvements.

The advancement of technology will continue to push businesses to innovate in order to better serve their consumers' demands. Developing innovative solutions to meet the requirements of our clients as their shopping habits change must always continue. Mobile apps have completely altered the game. One can expect to not only meet

market need for a more accessible shopping experience, but also to lead the way in developing innovative and interesting ways to grow mobile apps to meet future demands.

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## Appendix (1), Survey Questions

### Survey Questions – Social Innovation in UAE

<https://forms.gle/dGaS5MXfSL1UhAPz6>

## Social Innovation

Thank you for participating in this survey that aims to identify and measure the Social Innovation (SI) in UAE. Social Innovation refers to "the process of developing and deploying effective solutions to challenging and often systemic social and environmental issues in support of social progress."

Kindly read the questions carefully, and answer at your own pace. Our goal is to improve our academic research, and to highlight the SI in the country that have big impact on the society.

This survey should only take 2 minutes of your time. Thank you for your effort and support, your participation is confidential and is very much appreciated.

What is the most important challenge being addressed by the Social Innovation in UAE? \*

- Environmental Sustainability
- Improvement of Services / Infrastructures
- Supporting / Encouraging entrepreneurship
- Improvement of governance
- Employment
- Education
- Demographic Challenges (e.g. Ageing population)
- Other...

Please describe one well-known SI in your city? \*

Short answer text

How has the SI, you described, led to changes in your city? (e.g. positive or negative, environmental, social, political, cultural, and/or economic impacts, etc.) \*

Long answer text

Will you be willing to be one of the SI team members to make a (happy) change in your neighborhood? \*

- Yes
- No

S

**Table (1)**  
**Survey Answers**

What is the most important challenge being addressed by the Social Innovation in UAE?	Please describe one well-known SI in your city?	How has the SI, you described, led to changes in your city? (e.g. positive or negative, environmental, social, political, cultural, and/or economic impacts, etc.)	Will you be willing to be one of the SI team members to make a (happy) change in your neighbourhood?
Environmental Sustainability; Supporting / Encouraging Entrepreneurial; Improvement of governance	Improvement of governance	Yes	Yes
Environmental Sustainability; Improvement of Services / Infrastructures; Improvement of governance; Employment; Education	SMART GOV	Positive	Yes
Employment	Tawteen	No impact at all it was in media headline only!	No
Improvement of Services / Infrastructures; Improvement of governance; Education	Distance learning	efficient way to deliver lessons/information to students/workers. It also saves times and money.	Yes
Environmental Sustainability; Employment	Recycling the old asphalt material (instead of dumping it) and utilize it in different areas in the city (e.g. Residential)	<p>The mentioned impacts below are all considered positive:</p> <p>Economic impacts: Reduced the cost of road construction in some cases.</p> <p>Environmental impacts: Minimized the amount of emissions produced from new asphalt construction activities and the dust that results from the vehicles passing on the road base.</p> <p>Social: The society is much more pleased with the recycled asphalt material rather than the road base material when constructing temporary roads.</p>	Yes
Employment	expo 2020	economic impact	Yes
Employment	Ma'an, Established by the Department of Community Development in February 2019, the Authority of social Contribution "Ma'an" has been bringing the government, private sector, and civil society together to help drive social innovation and build a culture of social contribution and participation while aiming to strengthen Abu Dhabi's position as one of the best global destinations to work and live in.	Positive	Yes
Employment	expo 2020	economic impact	Yes

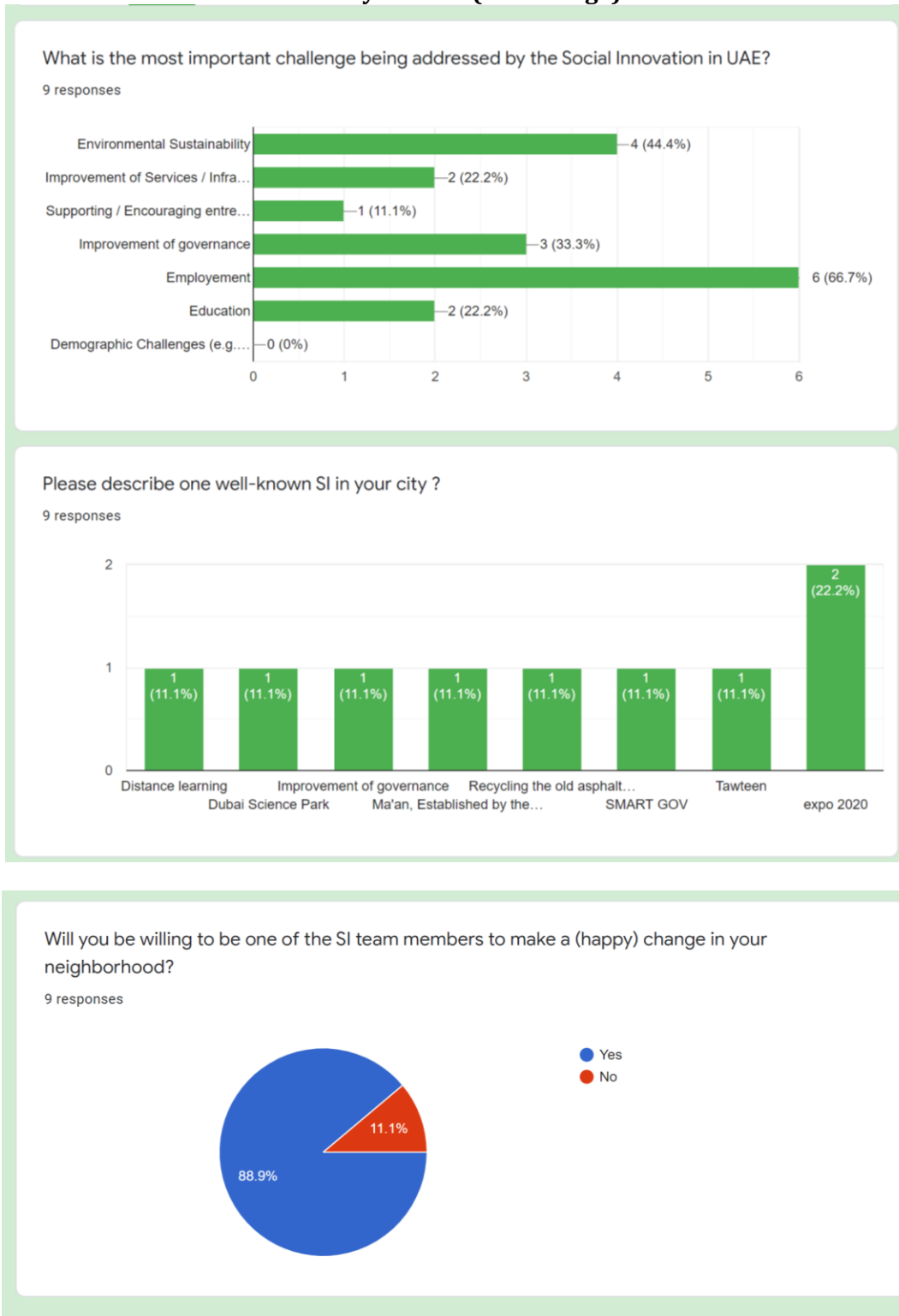
Environmental Sustainability

Dubai Science Park

Educational impact

Yes

**Table (2)**  
**Survey Results (Percentage)**



### Analytics Survey

<b>Do you see Analytic Innovation have affected the digital transformation?</b>	<b>What the most important parameters in the Analytics Innovations?</b>	<b>What are the challenges in Analytical Innovation during the digital transformation?</b>	<b>What are some suggestion to increase the awareness of the important of data driven technologies</b>
Yes	Technologies	Cost	
Yes	Technologies	finding experts;trust in those Technologies;Security	Intensification of courses of the important of data driven technologies.
Yes	Data	lost jobs;finding experts	To add in the workforce and online programs awareness toward the technologies
Yes	Technologies	Security	
Yes	Data	Cost;trust in those Technologies;Security	
Yes	Technologies	trust in those Technologies	Increase awareness through social media
Maybe	Services	lost jobs	
Yes	Technologies	Security	Nothing everything is perfect
Yes	Data	Cost;trust in those Technologies;Security	
Yes	Technologies	finding experts;trust in those Technologies;Security	Intensification of courses of the important of data driven technologies.
Yes	Data	Security	
Yes	Services	lost jobs;Security	
Yes	Services	finding experts	
Yes	Data	lost jobs	
Yes	Services	Cost;trust in those Technologies;Security	
Yes	Technologies	finding experts	
Yes	Technologies	trust in those Technologies;Security	
Yes	Technologies	trust in those Technologies;Security	
Maybe	Services	Cost;Security	
Yes	Data	Cost;finding experts;Security	
Yes	Services	Cost;finding experts;Security	
Yes	Data	Cost;finding experts;Security	
Yes	Services	finding experts;trust in those Technologies	
Yes	Data	Cost;finding experts	
Yes	Services	lost jobs;Security	

# Appendix (2) Interviews Questions Societal Interview

Vijayan, M. M., 2021. *Director of Innovation & Technology Dept., aswaaq LLC* [Interview] (14 July 2021).

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**Digital Transformation and Innovation - SMART (Social)**

**Social Innovation Interview**

**(aswaaq LLC) Retail and Ecommerce Impact**

**Part 1: General**

1- **Organization name, interviewee name, date of interview**  
*aswaaq LLC  
 Mr. Manoj Vijayan  
 Director Innovation & Technology  
 (14 June 2021)*

2- **Brief about the organization (few lines)**  
*aswaaq LLC is an e-commerce company. It was formed in 2008 and played an important role in serving and empowering the community through industry like Grocery Retail, Food Retail, Travel, Travel using best business practice, standardized approach and cutting-edge technology.*

3- **Brief about social innovation (SI) in the organization (few lines)**  
*It's implemented various platforms and collaborative tools, which enable us to empower and enhance experience across the company for employees, customers, and partners. Continuous work/life are conducted for business process re-engineering to optimize and ease the tasks.*

4- **Any experiences in social innovation? Innovation which taught you lessons (few lines)**  
*In the process of continuous process of fine tuning, sometimes we end up in a radical and disruptive approach which will have major optimization on time and cost. Which is the direct impact on employees.  
 Anything we do should be an interactive and decision support model.*

2

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**Part 2: main body**

5- **Do you have innovation strategy in your organization?** *Yes, we formalized a Charter and Strategy.*

6- **Do you have innovation methodology in your organization?** *Yes, Innovation Framework covers financial impact, risk mitigation and human resource impact.*

7- **How do your organization deal with SI?**  
*As we all know social innovation means the risks for employees, customers, and partners. But some time this will have a major impact on number of employees who is operating currently. We constantly scale up their SI set to accommodate in either area of the business (before on a decision support system then operation).  
 Thus, ensuring an ethical transformation.*

8- **Can you tell us about this strategy and/or methodology?**  
*Our innovation goes through a well-defined control framework to have an ethical approach, avoid exploitation, and minimize failure impact.  
 Life  
 Disruptive approach: In the context towards Strategy, Financial and Leadership  
 Complete Freedom approach: In context towards Technology, Cultural and Intellectual.*

9- **What are the SI indicators to measure in the company?**

SI	Social Innovation Indicators	(Tick ✓ if all applied)
1	environmental	✓
2	Community Need	✓
3	Services Responsibilities	✓
4	Customer Happiness	✓
5	Others (please specify)	✓

3

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10- **Are you using any other indicators to measure?** *Yes*

11- **If (Yes), please specify**  
*Modern Collaborative Platform  
 Loyalty program  
 Q&A/Q&A*

12- **If (yes), Give us a brief about the programs.**  
*The Platform is from CRM, various apps are utilized from this platform to ease the tasks independent to the physical location.  
 Loyalty Program: Personalization and Personalized transactions.  
 Q&A/Q&A: We are having a Frictionless and Operate on Trust model Customer Experience*

13- **In which SI method do you use the programs below (Tick ✓ if all applied)**

No	Programs	Social Interaction	Social Happiness	Social Usage
1	Company Application	✓	✓	✓
2	Company Website	✓	✓	✓
3	CSR	✓	✓	✓
4	Feedback app	✓	✓	✓
5	Office Visit	✓	✓	✓
6	Others	✓	✓	✓
7	Seasonal events	✓	✓	✓
8	Others (please specify)	✓	✓	✓

4

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14- **Any other tools or processes that lead to SI improvement? What, how, what results, his personal judgement, how to improve it.**  
*Q&A/Q&A: We are having a Frictionless and Operate on Trust model Customer Experience  
 Supply Chain: Doublet a vendor portal (SI) model to address the entire chain of Purchase order processing till the arriving matching. Which will address the gap in the Purchase Order distribution to the vendor and invoice reconciliation, if this process is not optimized rightly, this will have major impact in stock, payment, loss of sales etc.*

15- **What are the strengths and weaknesses in the organization based on the interviewee opinion toward SI.**  
*Strength: SI helps in explore and adoption to changes for better efficiency and ease  
 Weakness: Adopted quite slowly in the routine cycle. Some resistance towards changes to avoid risk.*

16- **What are the opportunities and threats in the organization based on the interviewee opinion toward SI.**  
*Opportunities:  
 Since our business are directly responsible for the wellbeing and essential for every thing, we are consistently in the process of enhancement, standardization towards the customer experience.  
 Customer adoption of Deliver Channel, which we need an efficient operation.  
 Threats:  
 Impact on the existing rules  
 Demand to improve the SI set  
 Disruptive models  
 Rapid Change  
 Cyber Attack - (Reputational?)*

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17- **Final recommendations or any additions the interviewee likes to add.**  
*Collaborative business model with Suppliers, Owners and Partners  
 Or for SI set model solutions for a Dynamic Scaling  
 Or for Q&A/Q&A model to have a proper Business Continuity Planning with latest recovery point and RTO minimum time  
 Or for Cloud model towards zero down time due to cyberattack, system fault, patch update etc.*

\*\*\*\*\* End of Interview\*\*\*\*\*

6

## Mobile Interview

### **1. What does your daily activity look like? How many times do you use your mobile phone in a day?**

ANS: I use my mobile phone many times in a day. I use it mostly as a morning alarm, as a device where I keep tabs on my schedule, check and reply to my emails, call and text people that I need to talk to anytime of the day. So basically, almost every minute of every day I use my mobile phone.

### **2. In this fast-paced technological period, what kind of interaction do you expect from the company?**

ANS: As a person, I personally want to have a face-to-face contact and engagement to the people that I have a meeting with but with many things that we juggle every day, sometimes the easiest way to attend meetings will be through a device through any type of technology available.

### **3. With the working atmosphere feeling like always on-the-go, do you want to have access to your company engagements wherever you may be? If so, how do you want that to happen?**

ANS: Yes, very much so. Like I said, whatever technology or device available that would allow me to do my business wherever I would be very helpful. Although provided, it should also allow me to engage without hitches and something that I can bring on-the-go.

### **4. What applications and social media sites do you often use? Do you use your mobile phone to transact any services?**

ANS: I often use Google applications to do my business transactions from schedules, to documents, reports, presentations, etc. In terms of social media, I only have Facebook just to keep track with family and friends. However, I also use my phone or any mobile device that I must do bank transactions, check insurance and real estate.

### **5. What will be the best way to personally engage with the clients even through mobile transactions?**

ANS: A good internet connection is one, then of course a good device that would allow you to see and talk to the person without any glitches or technical malfunctions. Also, a good quiet room or place would be appropriate especially for meetings or such.

### **6. Mobile applications and social media sites are prone to hacking, what possible innovations should the company use to protect its clients and employees?**

ANS: One of the challenges that many companies face in upgrading their services into mobile apps is security. Investing in the top-quality security features for the mobile applications can add assurance to the possible hacking or stealing of data from any applications.

### **7. Digital transactions can easily be manipulated by anyone maintaining the database and networking. How much do you trust the company, as a whole, to maintain the dignity and values of the company when issues arise?**

ANS: I trust the company completely. For security and privacy, they have provided privacy policies and authentication codes that are personal to the user only. As being a huge company and is respected by many, I believe that the company will not disappoint its customers.

### **8. Applying social media, mobile applications, and the website interactions definitely decreases the use of paper, but still uses energy to power electricity and computers. Do you think this is sustainable?**

ANS: There is definitely a huge debate about this situation. By using paper, you cut down trees and possibly deforest a certain piece of forest land, then in the process of making the paper itself it produces more carbon - however its also biodegradable. On the other hand, digital media may sound like its more sustainable since electronic parts can be reused. However, the production and manufacturing of the devices would also create a huge carbon footprint. There is still a lot of information lacking in terms of this debate.

**9. Enumerate a few ways that makes using mobile application sustainable and efficient in a holistic perspective.**

ANS: On a larger perspective, mobile applications nowadays are used usually for payment transactions, shopping and groceries, food deliveries, and business engagements. These mentioned daily activities can all easily be done through one device and without wasting car gas, energy, and time to go one place after another. This is one perspective that people could look at in terms of sustainability in the use of mobile applications.

**10. Have you used the Masdar City Mobile App? What is your assessment on the new application?**

ANS: Definitely. It has an easy user interface, very interactive for the users. It has nice guided tours that presents a very interesting history of Masdar City. It is highly recommended.

**11. What are the strengths and weaknesses of the application?**

ANS: One of the many strengths of the app is that it is very engaging. It helps you to navigate the different areas in Masdar City. Tells you stories behind landmarks, helps you find whatever it is you are looking for like restaurants, service providers, any amenities that you wanted to find. So far, there are no weaknesses that I can think of.

**12. Have you heard any feedbacks and reviews from clients and other users of the Masdar City Mobile app? If so, what are they?**

ANS: Yes, and I hear that it's good and highly recommended.



## **Analytics Interview**

Al Shamsi, K., 2021. *Digital Transformation Analytics and Innovation*.

1. Do you see Analytics Innovations have affected the digital transformation? What is the effect?
2. Why do you think is Analytics in digital transformation so important?
3. What is the most influential Analytics technologies in implementing digital transformation?
4. Please provide an example of the most successful digital initiative that you have led?
5. Data-driven technology have they changed the public sector for the better? Or you still did not see any outcomes yet?
6. Big data, AI, cloud, IoT and many Analytics innovations where do you see this technologies after 10 year?

## **Radical Openness**

### **Why radical openness is unnerving and necessary: A Q&A with TED eBook authors Don Tapscott and Anthony D. Williams**

1. What do you mean by the term ‘radical openness’?
2. You say that old systems are failing us. How so?
3. What factors are forcing the dramatic opening up of society? Financial? Societal?
4. Why is radical openness such an unnerving concept for business?
5. What are the downsides to radical openness? Sometimes, unsavoury forces fill the vacuum left by great change.
6. Any great examples of organizations that first rejected this openness and then engaged it?
7. What are some of your favourite examples of radical openness?
8. Does radical openness operate the same globally as in the US?
9. In what ways has radical openness proved successful for different organizations?
10. Is Wikileaks a good use of radical openness?

## **Trust - Interview**

Federal Authority For Identity & Citizenship , ( A.B ), 7-July-2021

### **1. What does trust in the workplace mean to you?**

Trust allows me to focus on progressing, without second-guessing about other employees work if it is going smoothly or not or even questioning them working hard, it makes innovation production goes easily. It helps in preventing and eliminating bureaucracy, unnecessary processes, and excessive oversight that can both limit innovation and slow progress.

### **2. It's easy to develop trust with people you work with daily — but what about people you don't know (new candidates for example) ?**

This would take us to the phenomenon of organizational culture, I'm still amazed at how we've manage to create a culture of trust and transparency inside our workplace.

### **3. What can you do to help engender trust?**

It always comes down to how people handle failure and hard situation or struggling points. When people trust each other, the focus is on minimizing damage and getting back to the idea of hard work. The involved parties take responsibility with little encouraging, and they adjust so that all of us as a team can figure out how the hard times and situations we were straggling in will be avoided in the future.

### **4. Senior leaders make decisions all the time and it's rare that everyone in an organization would agree with those decisions. Sometimes those feelings can even lead to distrusting senior leadership, so how can people managers address times when employees don't agree with or trust senior leaders?**

I believe what we have here is constant conversation between leadership with their teams, and in those conversations being as transparent and sharing as much information as they can, so everyone gets the clear view and work on without any doubts of success.

### **5. Let's say managers find themselves in a situation in which they have amplified the communication that senior leadership is giving the decisions that they've made to their teams, and the teams still aren't really satisfied with it. That manager then elevates those concerns upward, and they're either not met very well, or they're even met with a little backlash from others. What do you believe those managers could do in those cases?**

In my point of view and my own experience, leaders are employees too. Sometimes the senior leader is just struggling with how to communicate the message. Or they're struggling with how to more effectively translate it. And many times that tension that comes when an issue is raised. I try to encourage leaders to not get overly reactive to when a leader, a senior leader is struggling with how to best indicate.

### **6. Identify the tools and/or processes that mitigate trust in your organization.**

Transparency and openness help change that default mindset to be positive, built on a foundation and a bound of trusting leaders, even if you don't have all the information that went into a decision made by those leaders. Recognize that building trust takes hard work. Trust must be earned, so we have to be honest and supportive. Quiet sometimes, consistent and then we build on countability.

**7. Describe the relationship between innovation inside your organization and trust?**

Innovation and working tasks firstly and then will talk about the trust side because I see them connected to each other. Working tasks couldn't be done without having the easy way to contact then in order to get it you need to have the feeling of trust to get the information from the right source. So they are connected, you get innovative once you have the trust to work and the working task get easy.

8. Do you think that trust is mainly putting pressure on working networks?

Actually I believe that trust makes a bound between people inside the entity and it has a positive relationship with working network, the more trust you have the more you feel the freedom to work.

**9. What are the strengths and weaknesses in trust the organization based on your opinion?**

The strength of our organization is that we have strong base of trust, working progress and high competition. As a weakness we could admit it is not really shown but let's be honest and say we will work to be better always on to improve our services to make our costumers happy and build up more trust.

**10. What are the opportunities and threats in the organization based on your opinion?**

We will focus on having strong initiative externally, what I mean by that is more contact to our citizens to make them feel that we work hard to serve and satisfy them.