The Best Practices for Establishing and Implementing Smart Government for Special Needs and Disabled People

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Abstract -In light of changing demographics and an ageing population, research on new technologies to support people with disabilities and special needs in independent living is vital, as it is the right of all people with disabilities to enjoy equal opportunities and to participate fully in the life of the city. For this purpose we need a smart government which enables special needs and disabled people to contribute towards the country's economy and progression. This paper will provide best practices for establishing and implementing smart government framework for people with disability and special needs. This smart government framework and best practices will help the government of several countries to contribute towards the welfare, health and education of people with special needs and disability.

Keywords - Disable people, special needs, smart government, practices, framework

1. INTRODUCTION

It is estimated by the World Health Organization (WHO) that the urban population, on international level, will grow approximately by 1.84% per year from year 2016 to 2020. It is estimated that currently a larger portion of population are inhabiting in urban cities in developed nations; however, the same report estimates that by 2017, less developed countries are expected to contain majority of population to be lived in urban areas [22]. This increase in the number of individuals living in urban regions of the world will give rise of certain challenges to the governments particularly with respect to infrastructure, housing, energy, healthcare, employment, transportation and education [23].

For government agencies and organizations, it is implied that protective measures have to be taken by them to meet the targeted requirements of future. On the other hand, a new operational paradigm is also required by them that will enable governments to taken smarter decisions to make cities sustainable and smarter. Further it is also ensured by them that such initiatives are financially important for smarter cities [8]. It is reported in a report that in response of this impact, a deeper reliance is observed on ICT and it is inevitable that smart initiatives such as M2M (Machine to Machine) digital disruptions, social media, Internet of things (IoT), Cloud Computing and big data will become the backbone for smarter cities and for the generations to be prevailed in smarter cities [7].

Information and Communications Technologies (ICT) have influenced the ways in which individuals, governments and organizations associate with one another. The quick upheaval of the Internet, development of versatile telecommunications systems and broadband systems show how pervasive this innovation has become [8]. Today, ICT is considered one of the crucial building blocks of contemporary societies and economies. From the viewpoint of a government, Smart government is turning into an inevitable development. Smart government is primarily concerned with supporting the functioning of an existing government by distributing government services and information to the wider society [6]. A definitive objective of Smart government is to be capable to offer an enhanced distribution of public services to citizens in an effective and productive manner. Foreseen advantages of Smart government incorporate effectiveness, enhanced services, better availability of public services, and more responsibility. The figure below summarizes the context and trajectory as well as the main areas of the smart governance and smart and open government evolution.
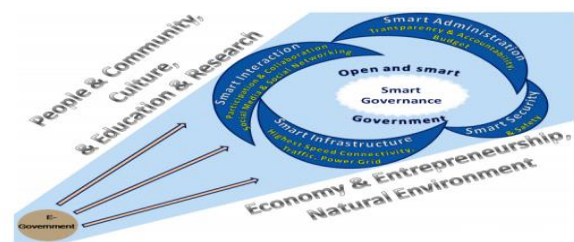

Figure 1: The Trajectory from E-Government Research to Smart and Open Government Research (H. J. Scholl and L. F. Luna-Reyes, 2011)

This study is rooted in the emphasis on smart government framework and services for special needs and disabled people. While previous researches have considered the models and frameworks used for normal people or people without disabilities working in the relevant cities. There are no studies which presently discuss the smart government framework and services for special needs and disabled people. The study aims at overcoming the limitation and proposes the best practices for implementing smart government for special needs and disabled people. This study makes use of qualitative techniques to investigate the perceptions of government about establishing and implementing smart government framework/action plan for special needs and disabled people.

1.1 BACKGROUND

The awareness of the sustainability issues and increased urbanization are setting off the need of new investments in renaissance of current cities and development of new. However, provided with the scale of challenge of, simply making the investment through money is not the solution of the problem. A new operating parading is required by this world which can provide the solutions for the needs of urban citizens and special needs and disabled persons in an socially inclusive, economically viable and environmentally sustainable manner [5]. In order to meet these objectives and targeted goals for the development of special needs and disabled persons, the governments and businesses have started to recognize the importance of technology. The investments in cities which mainly include large ICT component can redesign the smarter cities offering better quality of life for their residents and people with special needs while being more cost efficient and more sustainable [6]. The key features of smart cities are shown in the figure below as it stated that smart governance is the flexible governance which is structured on technology enabled decision mechanisms, innovative clusters for creating more job opportunities and vibrant economies and smarter regulation to connect city laws to new digital certainties.
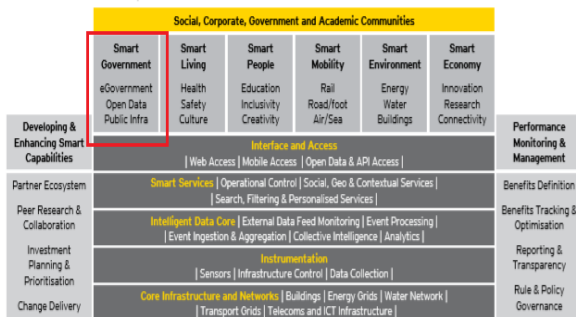

Figure 2: Ecosystem for Smart Cities (Highlighted the Smart Government) (Luis F. Luna-Reyes and Theresa A. Pardo, 2015)

It is not only the urban citizens who are getting benefits from smart governments' initiatives, but they are meeting the objectives faster while providing benefits to the needy people as well. To understand the developing relationships between smart governments, advancements and e-government impacting on the development on needy people, it is important to realize the needs of disabled and people with special needs [24]. In today's advanced age, individuals with subjective incapacities and other uncommon needs ought to have learning abilities that can offer them some assistance with learning development, mental growth and provision of helping environment [14]. In light of changing demographics and an ageing population, research on new technologies to support people with disabilities and special needs in independent living is vital, as it is the right of all people with disabilities to enjoy equal opportunities and to participate fully in the life of the city. For this purpose we need a smart government which enables special needs and disabled people to contribute towards the country's economy and progression. This paper will provide best practices for establishing and implementing smart government framework for people with disability and special needs. This smart government framework and best

practices will help the government of several countries to contribute towards the welfare, health and education of people with special needs and disability. This study aim *to discuss the best practice(s) for establishing and implementing smart government framework for special needs and disabled people.* To achieve the aim the following research questions were identified to meet the aim of the paper:

RQ 1: What are the main factors required to find out the practices used for establishing and implementing smart government for special needs and disabled people.

RQ 2: What are the guild lines need to follow for the implementation of smart government for people needs and disabled persons?

RQ 3: How much government is concerned on establishing and implementing smart government framework/action plan for special needs and disabled people?

1.5 ORIGINALITY AND SIGNIFICANCE OF THE STUDY

The originality of this study is rooted in the emphasis on smart government framework and services for special needs and disabled people. As it is mentioned earlier that a considerable research gap is existed in previous researches in which the main focus is on the theoretical framework and models used for normal people or people without disabilities working in the relevant cities; therefore, this study aims at overcoming the research gap and discusses the smart government framework and services for special needs and disabled people. The study proposes the best practices for implementing smart government for special needs and disabled people. This paper asserts its significance through its contribution towards the special group of people that are special needs and disabled people. It has a unique focus on the best practices for implementing smart government framework for this special group of people. This smart government framework and best practices will help the government of several countries to contribute towards the welfare, health and education of people with special needs and disability.

1.7 CONTRIBUTION TO KNOWLEDGE And Practice

The results of this research will not only further develop the body of knowledge and the academic literature regarding people with disabilities, it will also have significant ramifications on the present literature and research on smart government framework for people with disability and special needs. The study's findings can be used as generalized findings for countries around the world and through this several more frameworks and practices can be deducted regarding the relevant study.

Through producing a framework/action plan that has been specifically tailored for analyzing best practices for the implementation of smart government for disable people,

researcher can assist the government that how to use these practices as soon as possible in their current smart government projects as it's the right of all people with disabilities to enjoy equal opportunities and to participate fully in the life of the country or cities.

Previous studies conducted on the models and frameworks used for normal people or people without disabilities working in the relevant cities. Yet, there are no studies which presently discuss the smart government framework and services for special needs and disabled people. Below figure provides a graphical representation of the knowledge gap:

KNOWLEDGE GAP	
Lack of emphasis on the person with disability and special needs	Lack of research on best practices smart government for them
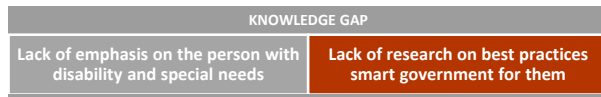
This study is overcoming the knowledge gap considerably.

2.0 LITERATURE REVIEW

2.1 Smart Government

According to [5] Smart Government is regarded as an extension of E-government that incorporates with the delivery of services to citizens through mart phones. On the other hand, Smart Government is considered as the application of innovative and advanced business technologies and models for addressing the challenges being faced by public sector organizations in service delivery [25], [26]. Government organizations, to convert their services to Smart Government, need to realize the communication preferences of their citizens so that they can develop a better connectivity with their customers. It is recognized that instead of the development and implementation of new solutions, Smart Government establishes and leverages the investment on Information Technology already done by public sector companies over the last decade.

Smart Government incorporates with the fundamental concept that revolves around personalized data, citizens directed government and 360 degree citizens services [28]. In Smart government execution, the citizens are not allowed any longer to go and attain data from the government entities but they are being provided with information proactively by government via smart phones and they get instant services based on their requirements, expectations and profile. The need is to have a technology emphasis towards the evolution of Smart Government and continual efforts at internal transformation [29].

Generally, remarkable consideration has been achieved by Smart cities and Smart government towards effective delivery of services to citizens all around the world. However, different scholars have characterized the concept of Smart government in different ways; for instance, Gartner (2014) characterized that smart government is regarded as a government which implements a set of business procedures and underlying IT capabilities enabling flow of information impeccably across all government entities. Smart government establishes programs to become instinctive to provide quality oriented services to all citizens across all the domains [11]. World Bank demonstrated the meaning of Smart Government with the acronym SMART that incorporates with Social, Mobile, Analytics, Rational

Openness and Trust that provides its services on timely manner and that are specific in nature fulfilling the demands of the citizens, while achieving the measurable goals and objectives in realistic scenario. This study proposes the transformation of government to Smart government for the improvement of quality of services [20]. It is called as e-government paradigm shift in the smarter city. The concept of Smart government recommends the public sector companies to get higher productivity level and better management while accomplishing the set targets through positive connection with all clients and stakeholders.
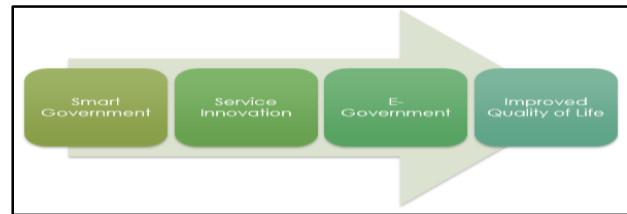

Figure 3: Quality of service improvement through Smart Government [20]

2.2 CHALLENGES FACED BY SMART GOVERNMENT

United Arab Emirates took the Smart Government reforms to take benefits of technology as a technique for connecting people and bringing them closer to the government while facilitating them with the integrated public services delivery through smart phones application. A remarkable success is observed by the two-year reform journey starting from June 2013 to May 2015 in terms of horizontal transformation from e-Government to Smart Government. As a result, new milestones have been set by the country for achieving further results till year end of 2018. However, following are some concerns observed at the policy level:
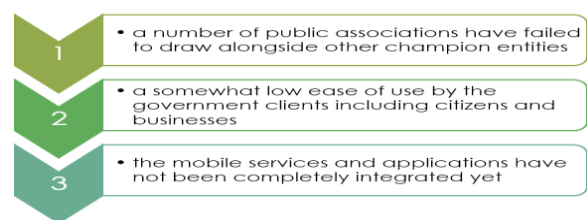

Figure 4: Concerns regarding Smart Government [20]

Considering other challenges, it is declared by the managing director of Cisco Smart Cities businesses, UAE that the country can face the challenge of overseeing resources for implementing the project of smart city within Dubai as it incorporates the feature free Wi-Fi in all public places. The smart city of Dubai project aims at the creation of one of the worlds' most sustainable urban center and most connected city [16].

The organizations within the UAE can be inspired by adequate motivation and monitoring by Smart governments. On the other hand, significant improvement can be observed in infrastructure and organizational change implementation with smart institutional set-up. However, there is a need to offer easy access to Smart Government initiatives for increasing participation of citizens in making the city smarter and for getting citizen oriented services from public sector

organizations. In this regard, mobile and wireless networks along with significant motivation and monitoring May rose the affiliations of public sector companies for enhancing their framework [27].

2.3 IMPACT OF SMART GOVERNMENT ON UNITED ARAB EMIRATES

The government services are affected in a positive way with eth evolutional phase of smart government transformative initiative accompanied with smart government roadmap, national level Government plans and Smart guidelines in a timeframe of two years. This initiative has an objective of satisfying the national key performance indicators of the UAE as this initiative has target of making the UAE number one in provision of online services effectively across the globe by 2021 [25]. The indicator for this measurement is Online Services Index that measures the evolution of smart services provided by Smart Government or e-Government services in terms of quality, accessibility and diversity of channels and the utilization of such services. The following is the figure representing roadmap of Smart Government:
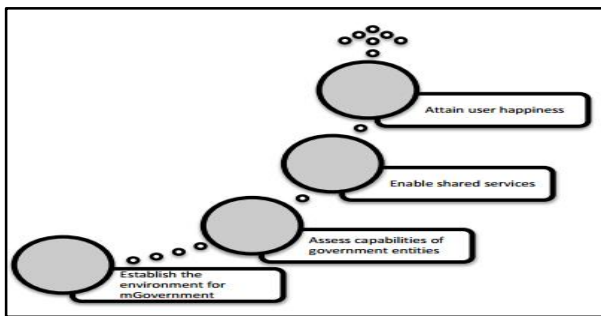

Figure 5: Roadmap of TRA (TRA, 2013)

The roadmap of Smart Government has four stages, the first and second stage including the establishment of the environment and evaluation of the capabilities of government entities were completed in May 2015 [1].

An ambitious initiate with a timeline of 24 months was spooned by ICT Fund of 200AED million, in these two stages, for supporting mobile phone applications combined with the requirement of other resources which includes the technical assistance towards ICT and advice for TRA (Telecommunications Regulatory Authority). The main tasks were implemented in third and fourth stages. These tasks included the integration of services and increasing happiness for users through provision of citizen-centric vision of the UAE [1]. It is recognized that currently, the government of UAE has developed more than 345 smart applications so that it can provide smart services to 800 citizens out of 2000 planned target.

The following is the figure representing the structure if Smart Government Initiative which shows the relationship between diverse and important players in Smart Government and within the activity. The key players mainly include the Government Entities and official authorities.
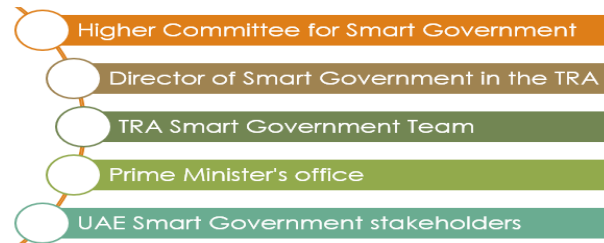

Figure 6: Key players which are Government Entities and projects specialists (TRA, 2014)

At the top of the structure, there is Higher Committee for Smart Government which strategically approved the associated roadmap of Smart Government and National Plan of Smart Government and necessary decisions are made for implementing the initiates through mobile applications [1].

It is demonstrated that in UAE, Smart Government is regarded as the leading initiative with respect to the utilization of Information and Communications Technology in order to give information and best services to general society. While having positive impacts, this initiative aims at the facilitating the lives of citizens and businesses and contributing effectively in making the UAE and primary financial hub.

2.3. SMART GOVERNMENT AND ICT FOR SPECIAL NEEDS AND DISABLE PEOPLE

More than a billion people living in this world have some form of disability and reports suggest that 80% of disabled and people with special needs live in developing countries live in developing countries [13].
Dubai thinks about individuals with special needs do not access the internet regularly and it is realized that implementation of ICT, its usage and the initiatives of Smart government can enhance the quality of life of disabled persons. The UAE Management Authorities give social and mental backing to individuals who take care of people with special needs.
In November 2006, the UAE Government passed the UAE Inability Act (Elected Law No. 29/2006) to ensure the privileges of individuals with incapacities. It is recognized in this Act that disabled or persons with special needs have a right to accessible services which can include the ICT services or Smart Government services. This law stipulates that UAE nationals with handicaps have the same rights to work and involve open positions [2].
From the researches, it is realized that with the discovery of Information and Communications Technologies and Smart Government implementation, new hopes are developing for persons with Disabilities. Although huge challenges are being faced by the authorities, yet sincere efforts are being executed to encounter issues around disable persons using ICT. It is recognized that Smart government services are not only specific to the citizens of UAE but they are also aiding the disable persons to meet their needs and to help them in learning processes [4].
New opportunities are being offered by everyone from Assistive Technology and ICTs. However, disabled persons or persons with special needs ate getting more significant advantage of such initiatives. This is because persons with

disabilities utilize assistive technology in their daily actions more as compared to other people. With assistive technologies where the normal people are being adaptive to them in several tasks, disabled end users find themselves to be more participative in all aspect of social life. They are observed to be more adaptive towards ICT on more equal terms than ever before [10].

In 2014, HH Sheik Mohammed Receptacle Rashid Al Maktoum, VP and Head administrator of the UAE, in his ability as the Leader of Dubai, issued Law No. of 2014 "to secure the privileges of individuals with handicaps in the emirate of Dubai". The law bolsters Government Law No. for 2006 concerning the privileges of individuals with handicaps, and affirms the consideration given by Dubai to individuals with incapacities and their driving part during the time spent building and advancement of human capital. The Law expects to give fantastic restorative consideration and social administrations, help open mindfulness and add to coordinating individuals with inabilities into society and reaffirm their cooperation in social advancement.

In light of changing demographics and a maturing populace, research on new innovations to bolster more established individuals and individuals with inabilities in autonomous living is indispensable. Following below figure shows the ICT technology used by people with disability and special needs:

Figure 7: Technology Evolution Services for Special Needs and Disables People

Advanced mobile phones are a fantastic sample of innovation with the possibility to improve the instructing and learning knowledge of youngsters with handicaps. Notwithstanding serving as a method for correspondence, PDAs have the ability to run numerous applications that backing and go with understudies in their everyday exercises [9]. For instance, the iPhone offers the application iSigns. The application encourages correspondence between hard of hearing understudies and general instruction educators and other who don't sign. Understudies and educators who need to learn American Communication through signing can utilize the project containing 800 signs with signals demonstrated with a 3D character [17]. Brilliant houses are homes with a ton of inbuilt innovation that are controlled by a PC system. Various brilliant houses have been inherent UAE for the particular needs of individuals with inabilities. Keen home innovation can incorporate natural adjustments that permit remote control of home apparatuses, electronic correspondence, wellbeing observing and computerized errand signaling, any of which might demonstrate helpful for individuals with neurological handicap [25]. RTA-partnered Dubai Taxi Company has allotted various uncommonly composed vans for individuals with handicaps. The vans are outfitted with lifts to convey travelers inside the van alongside wheelchairs for agreeable

and secure ride of individuals with handicaps inside the vehicles.

2.4 FUTURE CONSIDERATION ON SMART GOVERNMENT FOR SPECIAL NEEDS AND DISABLED PEOPLE

Dubai will have the Center East's biggest expo on incapacities and exceptional needs uniting global specialists, experts, exhibitors and chiefs on a solitary stage to showcase items, benefits and talk about procedures went for improving the personal satisfaction of more than 750 million individuals with handicaps around the world, 50 million of whom are in the Center East [8]. Access Abilities will showcase the most recent shrewd advancements that can help those with incapacities and will incorporate interest from government and private part associations from over the social insurance, friendliness, tourism, training, foundation, offices administration, transport, customer hardware and different fields. The expo is being held in accordance with the vision of the UAE's authority to incorporate people with unique needs into the general public and make their lives less demanding and more satisfied [5]. The UAE is effectively taking activities toward coordinating and engaging people with exceptional needs and making them solid donors in the country's prosperity.

3.0 THEORETICAL FRAMEWORK

The actual theoretical framework explains the actual process, and that is applied to steer this research. As mentioned above, the smart government framework needed for the special needs and disability persons. The framework will serve as conceptual framework for people with disability and special needs to find out the best practices needed to establish and implement smart government:
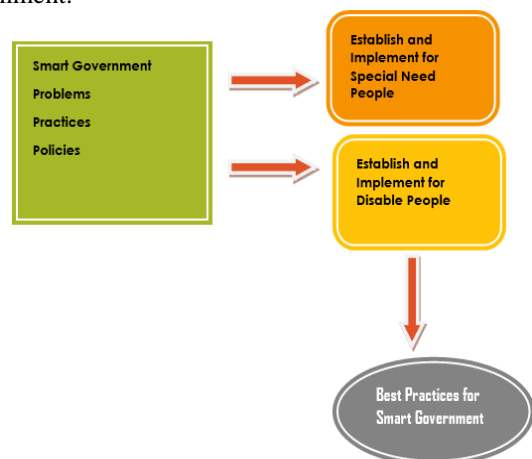

Figure 8: Theoretical framework for this study

4.0 RESEARCH METHODOLOGY

4.1 RESEARCH DESIGN
This study utilizes a qualitative research method for obtaining an inclusive analysis of the research problems which are inherent for the best practices in establishing and implementing smart government for special needs and disabled people. For this purpose qualitative research method was used, which as compared to quantitative research, for the study under

consideration, is regarded as more complete and more accurate [18], [21]. Moreover, this study is based on the achievement of wider perspectives aiming at the utilization of different data types in the same study. Amongst different qualitative instruments, this study incorporates the interview technique as qualitative research instrument [15] in order to make use of the opinions provided by psychologists, experts, specialists, and experienced personnel who can provide in depth information on ICT on people with special needs or disabled persons implementation of smart government for special needs and disabled people.
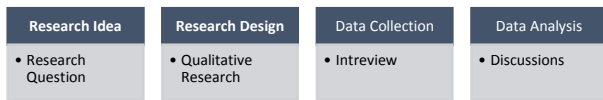

Figure 9: Steps for Research Design (Gartner, 2014)

4.2 RESEARCH APPROACH

There are different research approaches such as explanatory, research approach, exploratory research and mixed research approach but for this study a qualitative approach has been opted. This study uses qualitative analysis and an exploratory method of research to explore the best practices in establishing and implementing smart government for special needs and disabled people. The choice of qualitative analysis is rooted in the need to uncover the thought processes, ideologies, and patterns which determine the decision to use a particular model or framework for analyzing the best practices for implementation of smart government for special needs and disabled people [18], [21]. The qualitative analysis will be applied through an interview approach that will be used in order to see what models and frameworks are currently being used and the ones which can be potentially applied.

4.3 QUALITATIVE INSTRUMENT

The qualitative instruments include the interview approach. The approach has been used in order to target the topic area and investigate a variety of perspectives and opinions offered. The respondents of the research are divided into two groups; disable people and specialists, experts, and experienced personnel from health sector. In this research, a management sample using random sampling technique was used to collect data from each of the respondent while considering critical issues of gender, age, disability, to achieve a wider view of implementation of smart government for people in need and disable people. The following figure will describe the characteristics of the sample:
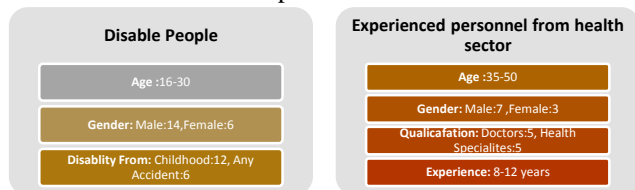

Figure 10: Research Sample Characteristics

4.4 INTERVIEW TECHNIQUE FOR DATA COLLECTION AND ANALYSIS

The interview technique makes use of a variety of interview techniques such as structured interviews, semi-structured interview, and unstructured interview [3]. The utilization of

qualitative data or interviews was fundamental for the present research, as the researcher was concerned with the interviewees' suppositions, thought processes and state of implementing smart government for disable people. The interview questions shown below are based on the theoretical disclosure of the study. There are 5 questions designed to answer the research questions of this study. As the interview questionnaire was structured and open ended interview therefore, respondents were asked to give their opinions freely. These questions were designed to achieve the research objectives and to answer the research questions describe in first section of the research.

- Why do special needs and disabled person need smart government service?
- How a person with the disability and special needs facilities from smart government establishment and implementation by using best practices?
- What do you think your government cares about people with disabilities irrespective of whether they are citizens, residents or visitors? Are they provided with social and technological support along with the normal citizens?
- To what extent do you think the smart government services will help a person with disability and social needs in all sphere of life?
- What do you think, which steps should government take for the implementation of smart government for people needs and disabled persons?

5.0 DATA ANALYSIS AND DISCUSSION

The current framework is being used in order to evaluation and investigates the best practices for the establishment and implementation of smart government for special needs and disable people. All the data collected through interview is being analyzed, the interview questions provided the researcher with the desired results. All of the respondents were agreed on the need of the smart government services for disabled people and special needs people. Few agreed on that the government cares about people with disabilities irrespective of whether they are citizens, residents or visitors. Others think that disabled persons are not provided with social and technological support along with the normal citizens. Furthermore, 80% of the respondents responded that steps should be taken by the government for the implementation of smart government for people needs and disabled persons.

Thus from this research, it was found that people with disability and special needs need a smart government which enables them to contribute towards the country's economy and progression. This paper will provide best practices for establishing and implementing smart government framework for people with disability and special needs. This smart government framework and best practices will help the government of several countries to contribute towards the welfare, health and education of people with special needs and disability.

6.0 CONCLUSION

From the theoretical underpinnings and research findings of Interview technique, it is concluded that use of ICT has not only essential for normal citizens of UAE but they are equally

becoming significant for people with special needs and disabled persons. It is revealed that the initiative of Smart Government within UAE is addressing the requirements of special needs. On the other hand, the provision of public sector services by Smart Government are helping the people with special needs to learn rapidly while becoming independent of others as Smart Government provides equal opportunities to all.

The results of this research had not only further developed the body of knowledge and the academic literature regarding people with disabilities, it will also have significant ramifications on the present literature and research on smart government framework for people with disability and special needs. The study's findings can be used as generalized findings for countries around the world and through this several more frameworks and practices can be deducted regarding the relevant study.

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