An Exploratory Study of E-Government Usage: A Saudi Perspective

Rana Alabdan*

College of Computer and Information Science, Majmaah University ,
Al Mjamaah 11952, Saudi Arabia, r.alabdan@mu.edu.sa

Abstract

Electronic technology is increasing gradually in Saudi Arabia and using e-services among Saudi users become more popular due to its effectiveness and efficiency. The aim of this study is to investigate the usage of electronic government (e-government) or (eGovernment) among Saudi users, especially with the transformation according to vision 2030. There is a vast paradigm shift in using e-government in the Kingdom of Saudi Arabia, especially with the surrounding eGovernment services such as Absher. This study will provide a thorough review of the usage of eGovernment across the regions of Saudi Arabia and the reasons for non-usage as well. The word eGovernment and E-government will be used interchangeably in the context.

Keywords:

eGov; Saudi; statistical analysis; e-government services; Absher

1. Introduction

E-government involves the application of information and communication technology (ICT) to deliver efficient services of eGovernment to the users and business owners as well (Alzahrani et al., 2017). E-government usage allows increasing the efficiency of government services provided to the users either personal or business. In the previous decade, eGovernment as a term of e-commerce has been grown dramatically. Nowadays, eGovernment has been spread widely in studying programs (MSc and Ph.D.), conferences which emphasized on this topic, journals dedicated specifically to eGovernment; books, and more than 4,630,000,000 webpages refer to eGovernment (Heeks & Bailur, 2007).

Communications in Saudi Arabia are mainly based on mobile phones. As mobile phones became widespread. On a large scale of 99.16% at the level of families in the Kingdom, which confirms the transformation and rapid spread of this service. It reveals a recent acceleration in access to information technology and the use of communications within the population. Also that 75.19% of individuals of all ages used a mobile phone. Besides, 92.66% of the individuals who ranged ages 12 to 65 years old used them in 2018 (General Authority for Statistics, 2018).

EGovernment is beneficial for users and government agencies as well (General Authority for Statistics, 2018). The government will have cost reduction and more efficiency, while users will perform faster more convenient services anytime anywhere, they prefer (Alzahrani et al., 2017). Previous researches presume that the factors influence eGovernment, i.e., technology, skills, work environment, and culture (Heeks & Bailur, 2017). In mid of 2019 the total population of Saudi Arabia was 19,739,056 males, 14,479,113 females, and a total of 34,218,169 (General Authority for Statistics, 2020).

The percentage of eGovernment usage among Saudi individuals according to gender 38.12 and 10.78 for males and females respectively, which represents 27.19 from the

usage of the Internet among other services in Saudi Arabia (General Authority for Statistics, 2020). Saudi Arabia government initiated multiple projects to improve services and to shift services into another paradigm to make government services easier and more effective.

In the next few years, eGovernment projected to grows in Saudi Arabia until 2030 (Vision 2030). Nowadays, the top countries using eGovernment are South Korea, Netherlands, France, Singapore, and Australia (Clement, 2018a). The government will allow the citizen to save time and effort when services are shifted to be paperless by using different government services electronically, this will be more transparent and will fight corruption (Arab News, 2016). Saudi Arabia was ranked 36 out of 193 among countries in these services (Arab News, 2016). Further, in 2030 Saudi will be classified among the top five countries around the world, especially within the Interior Ministry system, Absher which all serve Saudi citizens and make their life easier (Arab News, 2016).

E-government in Saudi Arabia is developed under the Royal Decree by the Ministry of communication and information technology. The main goal of this government is to facilitate citizens about the quick service and enhance the efficiency of facilities. The Yesser is contributing to different government agencies to get sustainable progress, which can build structural improvement. Key services under eGovernment are Absher, medical consultancy, e-visa, umrah, instant tourism visa, and intelligent hajj, Authentication of mortgage and health services platforms (El-sofany et. al., 2012). The consequences of using e-service will be positive for the population, in terms of getting education, knowledge and seeking growth. It is relevant to Saudi Arabia due to the country's potential and growth. It will ease all the main processes and improve government productivity. Using eGovern-

ment services from Saudi users, will spread the benefits within the country. E-government implementation in Saudi Arabia is significant and quite relevant to cater to this large population's needs. This process will empower individuals to take part in government activities. The scope of the online payment system in Saudi Arabia will get recognition at the international level.

1.1. Justification of the Study

The current study aims at discussing the vision 2030 and its impact on Saudi users, in terms of efficiency. The influence of technology on Saudi citizens can be estimated by their daily usage and dependence on technology. Due to information and communication channeling, people are more aware of global trends and get use of electronic services. This study is significant in this regard to map up government services and its benefits for citizens. The focus of this study is to convey into consideration related research papers and evidence to make it clearer for the users. This study will be beneficial to the users, in terms of information related to e-government, services efficiency, and trends of service usage in population. The study will also provide a key framework of the Saudi government for the population regarding its efficacy. This research is backed with empirical and theoretical evidence from literature.

1.2. Purpose of the Study

The main purpose of this paper is to investigate the usage of eGovernment among Saudi regions and explore the reasons to adopt/not adopt within Saudi regions. This study will answer the following research questions which will provide us with the insight of eGovernment services in Saudi Arabia:

RQ1: What are the factors which influence the adoption of eGovernment system among Saudi users?

RQ2: What are the reasons which prevent Saudi users from using eGovernment?

The study will be organized to the following structure: after the introduction, related work is presented, which is followed by the methodology. Finally, analysis and results are presented followed by the conclusion of the study.

2. Related Work

In this section, this paper will focus on eGovernment studies from a distinctive perception identifying multiple frameworks. The study of Heeks and Bailur (2007) focused on exploring eGovernment from another perspective which are models, factors' lists, or definitions. For example, it provided a deep understanding of human factors, which affect eGovernment. The researchers conducted eGovernment research using different types of knowledge frameworks (see Table 1) (Heeks & Bailur, 2007).

• Theory based work: it means using/applying/testing a theory.

• Framework based work: framework usage, which inherits from a theoretical background.

• Model based work: using a model without a deep understanding of a framework.

• Concept based work: it means using a particular concept in eGovernment.

• Category based work: this introduces a set of categories, or several factors, which is found on eGovernment.

• Non-framework-based work: this particular framework does not use distinct knowledge framework, it only delivers a set of ideas and data.

So, table 1 demonstrates the frameworks' frequency that are used in the literature. It seems the most usage knowledge framework is model based work.

Table 1. Types of Knowledge Frameworks presented in eGovernment research

Knowledge Framework	Frequency
Theory-Based work	1
Framework based work	10
Model based work	29
Schema based work	8
Concept based work	4
Category based work	22
Non framework-based work	10

By observing Fig 1, the statistic showed ranks of the international regions based on the EGovernment Development Index (EGDI) as of 2018. The EGDI is derived from three factors: online service, telecommunication infrastructure, and human capital. It is presented in Fig 1 that America was the highest region uses eGovernment service among other regions, represents 0.59. Asia is almost similar to the Americas representing 0.58, while the lowest rank is Africa representing 0.34 (Carter, L., & Belanger, 2004).

Fig. 1. E-government Development Index Worldwide (Clement, 2018a).
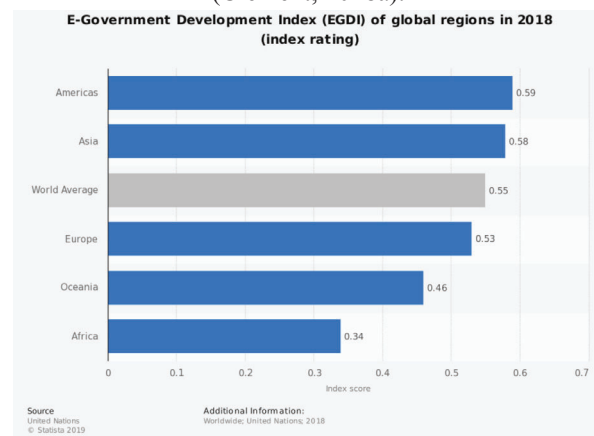
Furthermore, the satisfaction with eGovernment sites in the first quarter of 2019 is %75.2. the result was accomplished by using an online survey among 500,000 respondents in the United States for more than 100 sites measured. In Fig 2, the similarity of satisfac-

tion from 2013 until 2019 can be identified, which seems noteworthy (Clement, 2018b).

Fig. 2. The US customer satisfaction (Clement, 2018b).
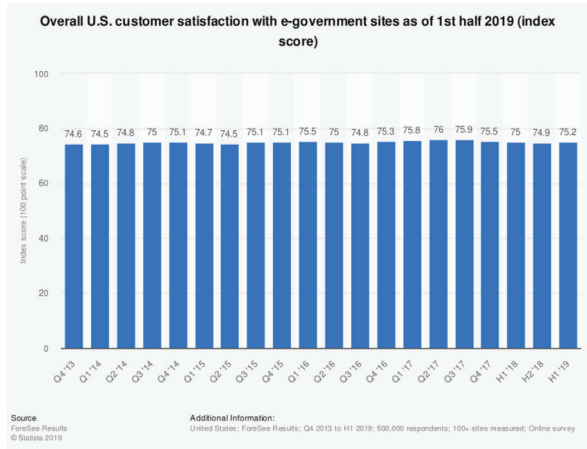
. 2. The US customer satisfaction (Clement, 2018b). The countries worldwide allow their citizens to use eGovernment services, i.e., customers used eGovernment in paying their utility bill in 140 countries, pay fines in 111 countries, applying for marriage certificate in 82 countries, and apply or personal identity card in 59 countries (Clement, 2019) (see Table 2).

Table 2. Offerings of transactional eGovernment services 2014-2018

EGovernment Services	2014	2016	2018
Utilities (internet, gas, tv provider…etc.)	41	104	140
Submit income taxes	73	114	139
Register a business (i.e., new company)	60	97	126
Apply for a birth certificate	44	55	86
Apply for a marriage certificate	39	53	82
Register motor vehicle	33	47	76
Apply for driver's license	29	38	62
Apply for personal identity card	27	31	59

2.1 E-Government from an Arabian Perspective

In the Arab world, eGovernment is working efficiently to cope with the demand of users. The users get related assistance from government electronic applications. However, the experience of Arab about eGovernment is not free from technical, cultural and strategic challenges. The performance is dependent on the income level in the country, so independent factors in this regard need the elimination of some economic conditions (Al-Nuaim, 2009). The key issues are related to IT infrastructure, funding, and limited resources. In addition, there are some limitations discovered in Arab experience regarding internet subscription and funding (El-sofany et. al., 2012). Arab countries have also less vision about technology, so the strategic challenges came out in the form of framework strategy. The cultural challenges related to gender discrimination and lack of awareness or education about technology also matters a lot (El-sofany et. al., 2012). Some examples of how your references should be listed are given at the end of this template in the 'References' section, which will allow you to assemble your reference list according to the correct format and font size.

E-Government impact on Arab users can also be seen in terms of income level. Online services need a clear strategy and decent adoption rate. Nevertheless, the goals of eGovernment to facilitate users in all over the regions is related to certain targets and national and sectoral level. The vision of government is broader under specific indicators to satisfy users and enhance their motivation (Al-Nuaim, 2009). User experience in Arab world related to technical efficiency is based on trust in administration to bring about all the related changes (Alssbaiheen & Love, 2016). Users have shown e-readiness in government agencies regarding assessment. The scope of business and using technologies is expanded in Saudi Arabia because data is available about mobile, PC and internet usage. The role of eGovernment is always considered beneficial to improve the administration for the public by offering efficient services. Alateyah (2014) reported that users are benefiting from easy access to social and political rights due to better governance. The eGovernment maturity is monitored through the development index, by the United Nations. The online services and telecommunication services have ranked the country at the higher level (Alhashimi, 2019).

This experience has made eGovernment follow a road map for users to develop a significant framework for the efficacy of service delivery.

2.2 E-Government Factors

In Germany, there are some factors that prevent users from using eGovernment services. The most crucial factor is lack of needed service online, a lack of security, and user awareness regarding these services (Koptyug, 2019). According to Carter and Belanger (2004), the influencing factors for eGovernment usage are perceived usefulness, relative advantage, and compatibility. Carter and Belanger conceptualized the eGovernment factors using the Technology Acceptance Model (TAM) and diffusions of innovation theory (DOI).

A research paper by Mellouli et al., (2016) on eGovernment among Tunisian citizens to identify their acceptance and level of trust in this service. The researchers identified information and system quality, compatibility, and trust in government and Internet as well. However, trust has the most effect on the citizens in comparison to other factors. Lallmahomed et al., (2017) surveyed 247 users in Mauritius to examine the acceptance of eGovernment among them. The researchers demonstrated that behavioral intention has positively impact performance expectancy and facilitating conditions. Computer self-efficacy has also a negative impact on pre-adoption and using eGovernment services. Further, trust is an important value to encourage users to use the services via ensuring security and privacy are accomplished (Lallmahomed et al., 2017).

2.3 Trust as an Influential Factor

One of the vital factors which influenced eGovernment usage among users is trust; however, trust is a very complicated factor (Alzahrani et al., 2017). Increase the level of trust among users, it will also increase their intention to use eGovernment, this will ensure their usage and adoption of eGovernment services. Trust defined as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party" (Mayer et al., 1995, p. 712).

Multiple scholars studied the importance of trust in eGovernment usage (Mellouli et al., 2016; Alzahrani et al., 2017; Lallmahomed et al., 2017). Also, ease of use, usefulness (Chee-Wee Tan et al., 2008; Alsaghier et al., 2009; Wang & Lo., 2012; Ayyash et al., 2013; Ozen et al., 2018) that influence users' trust to use eGovernment. Further, Khasawneh et al., 2013 studied the importance of trust and risk, which may affect eGovernment usage. However, Abu-Shanab and Al-Azzam (2012) did not support risk as a factor to influence eGovernment usage among users, only trust.

Horsburgh et al., (2011) emphasized there is no correlation between trust and government in different eGovernment services. Alzahrani et al., presented multiple aspects which influence eGovernment usage which is technological factors, governmental factors, users' characteristics, and risk factors. Distinctly, these factors, including the subfactors influence trust in eGovernment services and intention to use this services as well. The eGovernment factors are:

1. Technological Factors: it represents the factors, which influence beliefs of citizens

- System quality

- Service quality

- Information quality

2. Governmental Factors: it represents the agency reputation and the user experience with this agency

- Reputation of the agency

- Past experience

3. Users' Characteristics: the users' characteristics which influence trust in eGovernment.

- Disposition of trust

- Internet experience

- Education

- Gender

4. Risk Factors: is a crucial factor which impact users in trust

- Performance risk

- Time risk

- Security and privacy

3. Methodology

The study primary source is from General Authority for Statistics (GAS), in addition to some secondary data from Statista. This kind of data classified as secondary resource data which the analysis done at ecological level and the unit of analysis are Saudi users. According to GAS, the sample was randomly selected across Saudi Regions.

4. Analysis and Results

In this research study, the scholar performs a data analysis among Saudi regions to present the main factors of the eGovernment acceptance within the country. This paper identified there are four main services used via eGovernment websites. First, use the eGovernment website to obtain information from government agencies (e.g. from websites or by e-mail). Second, to access to government services (e.g. Absher). Third, to obtain and fill eGovernment forms. Fourth, to make a payment online for eGovernment services. The

maximum usage of eGovernment according to the regions are Eastern Region, Najran, and Tabuk, which represents 80.36%, 78.87%, 77.52% respectively (see Fig 3.).

Fig. 3. Relative distribution of eGovernment services used by individuals via Internet
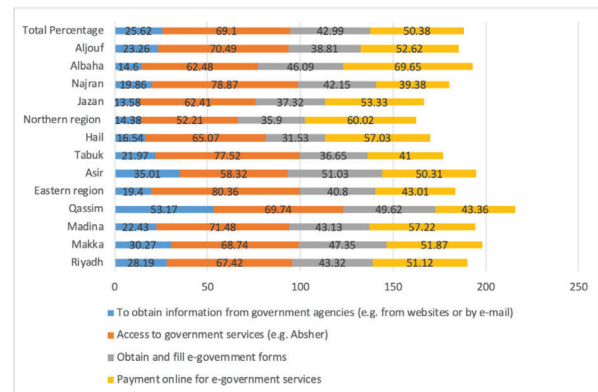

The highest usage of the first service is within Qassim 53.16%, second service within Eastern region 80.36%, third service within Asir %51.03 and the last one within Albaha %69.65.03. The usage of eGovernment services which used last week among Saudi is similar in different regions, for example, the highest rank usage is in Asir and Albaha 12% followed by Riyadh which represents 10% and the least was in Qassim and Jazan (see Fig 4).

Fig. 4. Last time individuals performed government transactions online by administrative regions "Last week"
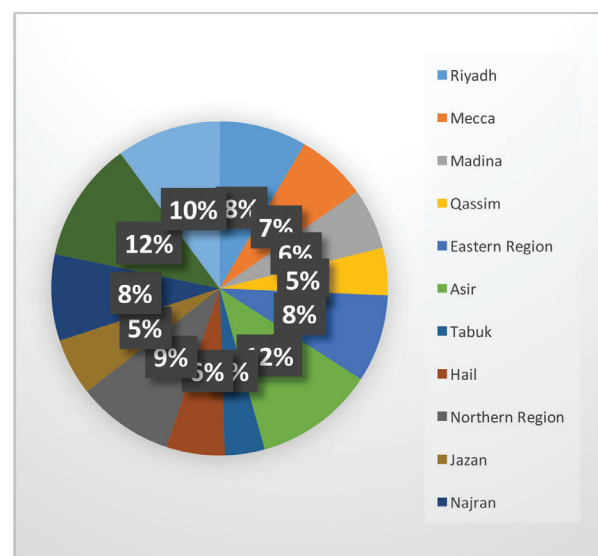
Albaha is also the highest rate of usage among Saudi in services within more than a week and less than a month. While the rest of the regions is slightly similar to each other (see Fig 5).

Fig. 5. Last time individuals performed government transactions online more than a week and less than a month
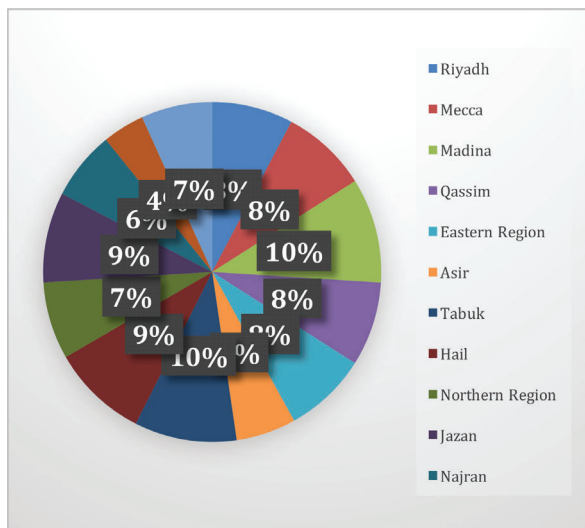
Madina and Tabuk were the most regions where the individuals used the eGovernment the least which is approximately more than a month and less than three months (see Fig 6).

Fig. 6. Last time individuals performed government transactions online more than a month and less than three months
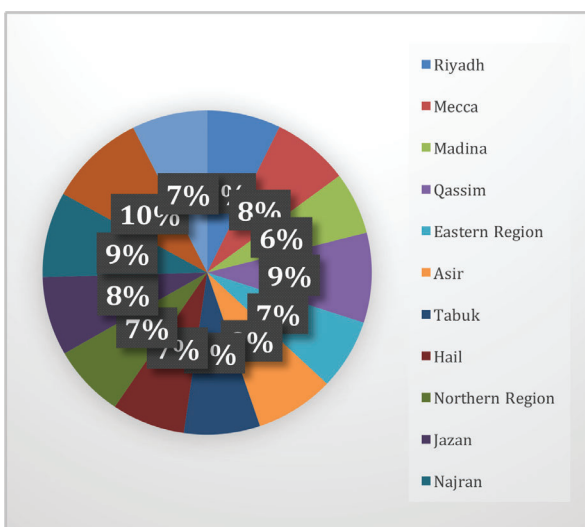

online more than a month and less than three months

The factors impact the users' attitude to use eGovernment ranked from the most concerning factor to the least (see Appendix A):

1. Lack of knowledge or skills – 29.64%

2. Security concerns (e.g. bank account details) – 3.75%

3. Privacy concerns (such as providing personal details) – 2.07%

4. Technical concerns (e.g. poor services provided by some government agencies online) – 0.75%

5. Trust-related concerns (e.g., concerns about ways to receive and return products) – 0.41%

The percentage of the factors are categorized depending on the total percentage of Saudi population, the rest of the population is not interested in these services by 77.88%. It is also recognized that there is a gender difference among males and females who are not using eGovernment, i.e. the percentage of lack of knowledge and skills among males is 30.85% while females are 28.41%, which means male lacking skills to use such services more than females (see Fig 7).

Fig. 7. Percentage distribution of reasons why individuals do not perform government transactions via the internet according to gender.
Note: Blue represents male and red represents female
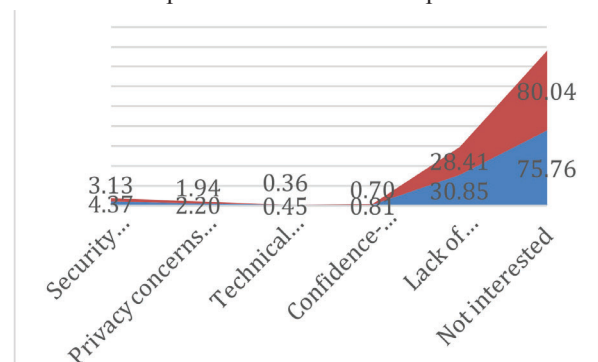
According to Fig 7 which represents the reason why Saudi do not use eGovernment services and which answers the RQ2 is divided according to gender.

The researcher identified a positive correlation among the level of education and reasons why Saudi users do not use eGovernment. By using the following equation from (Statistics How To):

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n \sum x^2 - (\sum x)^2][n \sum y^2 - (\sum y)^2]}} \tag{1}$$

Note that: r (value of Pearson correlation)

n – sample size of

x education

y other factors

There is a positive correlation among the level of education and security concern represents 0.66 which means educated users have more security concerns than uneducated users. Privacy is positively correlated with the level of education by 0.20, technical concerns by 0.60, confidence level by 0.66. However, lack of skills and knowledge is negatively correlated with the education level which means educated people have more skills and knowledge to use such services.

To answer RQ1, the factors that encourage Saudi to adopt eGovernment are: trust, computer competency (skills and knowledge), privacy and security. The eGovernment services should increase the level of trust and the level of security, in addition to implementing strict rules to ensure users' privacy and transparency. Moreover, conducting training, workshops, and provide more ads to increase the usage of such serves is recommended. The

results agreed with previous scholars such as (Alzahrani, 2017; Lallmahomed et al., 2017; Khasawneh et al., 2013).

Conclusion

This study investigated the usage of eGovernment among Saudi users. The researchers identified that lack of knowledge, trust level, privacy, security are the most critical factors which prevent Saudis from using services of eGovernment. However, the government requires to enhance the infrastructure which will improve level of awareness and trust among users to recognize the importance of using eGovernment and its advantages.

The study has used empirical evidence to highlight the implications of eGovernment in Saudi Arabia. For instance, Qassim, Eastern region, Asir, and Albaha are the highest regions, which uses eGovernment services. This study acknowledged some factors influence eGovernment services usage. For instance, privacy is positively correlated with the level education by 0.20, technical concerns by 0.60, lack of knowledge and skills is 29.64%, security concerns 3.75%, and technical concerns are 0.75%. The findings proved research questions of this study that how eGovernment can improve these factors to bring more efficiency. The positive correlation among the level of education and reasons discussed of why some users do not use eGovernment.

Further study should research the gender difference of eGovernment usage among Saudis. Another study to which compares the eGovernment website such as Absher to identify the deep understanding of the website factors which encourage users to adopt such services.

Conflict of Interest

The author does not have conflict of interest to declare.

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Appendix A

Percentage distribution of reasons why individuals do not perform government transactions via the Internet

Age	1 Lack of knowledge or skills	2 Trust-related concerns (e.g., concerns about ways to receive and return products)	3 Technical concerns (e.g. poor services provided by some government agencies online)	4 Privacy concerns (such as providing personal details)	5 Security concerns (e.g. bank account details)	6 Not interested
19-15	27.03	0.54	0.42	1.88	2.66	81.65
24-20	23.99	0.86	0.68	2.69	4.55	80.86
29-25	28.30	1.05	0.48	2.23	4.58	77.67
34-30	30.73	0.84	0.38	2.75	4.60	76.21
39-35	32.38	0.70	0.46	2.30	4.37	74.56
44-40	33.05	0.87	0.30	2.15	3.76	74.67
49-45	32.87	1.05	0.30	1.77	3.84	76.09
54-50	31.67	0.54	0.16	1.52	3.15	77.22
59-55	29.83	0.47	0.28	1.14	3.50	77.56
65-60	27.97	0.21	0.21	1.05	2.73	80.02
Total Percentage	29.64	0.75	0.41	2.07	3.75	77.88