

## CHAPTER 4

### DATA ANALYSIS AND RESULTS

#### 4.1 Introduction

The purpose of this chapter is to present and analyze data gathered from the respondents through questionnaires and interviews. Findings in this chapter were analyzed using descriptive statistics and presented in tables, graphs and pie charts. Findings were analyzed according to the objectives of the study. A profile of data from each of the respondents was compiled and subjected to statistical packages for social sciences (SPSS) and structural equation model (SEM) analysis which were made through AMOS. The results are represented in tables of frequency distribution and percentages. The results will be discussed using exploratory factor analysis (EFA) and confirmatory analysis. The hypotheses were tested using structural equation model (SEM) analysis.

#### 4.2 Analysis of Data

The data was analyzed using statistical methods by the help of statistical Package for Social Science (SPSS) to offer a description and summary of the data using descriptive statistics, which allowed description of several points that are

Understandable. Exploratory factor analysis was used to test the relationship between the different variables of which latent factors were extracted to measure the variables (Costello & Osborne, 2005). The theoretical frame and hypothesis were tested using the structural equation model (SEM).

As stated above, AMOS was the best choice for this SEM analysis. It is a visual program that is optimal for structural equation modeling as with it, we can draw graphic models with the help of simple drawing tools. It performs quick analysis and computation for SEM and displays the result in graphic as well as textual form.

The descriptive statistics was used in the analysis of the results. This included distribution, modeling, the arithmetic mean, the mediator average, the pattern range, standard deviation, and variance. The reason behind using the method is to develop total sample, identify distribution of the respondents and measure the level of e-government services.

The hypothesis was examined using AMOS software to measure the degree of relationship between two variants examining the moderating effect of the age on the relationship between perceived e-government services and job performance in the civil status and passport department in Jordan.

#### 4.2.1 Reliability of the Instruments

**Table 4.1:** Reliability Analysis of the Measurement Scales

Measurement scale	Number of Items	Cronbach's alpha	Non-reliability = 1- alpha	Interpretation
E-government services scale	10	0.83	$100 \times (1 - 0.83) = 17\%$	Good reliability
Job Performance	10	0.89	$100 \times (1 - 0.89) = 11\%$	Very good reliability

The Cronbach's alpha trial of internal consistency was utilized to survey the dependability of the civil status and passport department representatives' deliberate markers of the civil status and passport department and the job performance scale. Cronbach's alpha would show decent reliability of the estimation scale if the yielded inward consistency of the scale things is above (0.7), which relates to (70%) unwavering quality and (30%) trickiness in the utilized estimation framework (Nunnally, 1978, p. 245). The aftereffects of the examinations of the two inventories appear in Table 4.1 above.

The Cronbach's alpha test demonstrated that the (10)-items civil status and passport department estimated with a one-to five-point Likert-type scale was solid, with (alpha = 0.83) showing that the ten things assessing workers' apparent e-taxpayer supported organizations and learn capacity were seen similarly by the respondents.

Further, the regular quality examination recommended that the representatives' impression of their own job performance was dependable, with Cronbach's (alpha = 0.89). The degrees of lack of quality was estimated by subtracting the dependability from an aggregate of (100%) unwavering quality yielding modest quantities of non-solid estimations (unexplained shared difference/blunder) inside the two scales as appeared in Table 4.1 above. The remainder of the evaluation in the two ranges describes the mutual fluctuation between the things when squared: for instance, the e-taxpayer supported organizations ten things share  $(0.83 \times 0.83) \times 100 = 68\%$  of the change in like manner between these ten pointers by and large. A similar standard applies to the activity execution job performance ten things.

#### 4.2.2 Instruments Validity

The legitimacy of measures translation depends on the information assembled in the certified research. The examination utilized a build legitimacy strategy to quantify the instruments' legitimacy (Hair, Anderson, Babin, & Black, 2010). Hair, Anderson, Babin and Black (2010) contend that the examination must plan the factor investigation system in the wake of recognizing the reason for factor investigation. Three first advances should be taken in structuring a factor investigation and in surveying the appropriateness of the information for the methodology (Hair, Anderson, Babin & Black, 2010; Pallant, 2013). In the first place, the critical example size as an outright term and as an element of the number of factors in the examination was evaluated (Hair, Anderson, Babin, & Black, 2010). This was trailed by assessing the relationship framework for coefficients of (0.3) or more, and figuring the Kaiser-Meyer-Olkin (KMO) proportion of inspecting ampleness and Bartlett's trial of sphericity (Osborne, 2014; Costello & Osborne, 2005; Pallant, 2013), and in conclusion, deciding the quantity of underlying in the arrangement of factors (Osborne, 2014; Pallant, 2013). The examination will additionally talk about the EFA and auxiliary condition model (SEM) utilizing the CFA more prominent beginning methodology right now.

At that point, considering the guidance of Hair, Anderson, Babin and Black (2010), this examination accepted that the (314) led perceptions were adequate to permit the exploratory factor investigation (EFA) strategy to be utilized. Hair, Anderson, Babin and Black (2010) proposed that an example size of more than (100) would be best for the factor investigation technique. Moreover, the number of perceptions was far higher than the base required by analysts or (50) opinions and an ideal proportion of (5) or (10) views for each pointer with EFA and more top than

(200) with CFA. Moreover, analysts ought to consistently determine the potential builds that can be recognized through the character and nature of the factors submitted to factor investigation (Hair, Anderson, Babin & Black, 2010). Also, with CFA, the specialist evaluated build legitimacy by surveying conduct focalized legitimacy and discriminate legitimacy (Hair, Anderson, Babin & Black, 2010).

The develop legitimacy accomplished by evaluating the joined legitimacy through examining the extents of scales corresponds with different estimates that were intended to gauge comparable builds (Hair, Anderson, Babin & Black, 2010; Hinkin, 1998). The develop markers are firmly connected, yet they don't correspond with different measures and underlying square foundations of AVEs that ought to be higher than the relationships between builds to ensure the discriminate legitimacy utilized in the examination (Hair, Anderson, Babin & Black, 2010; Hinkin, 1998).

This way, considering the above mentioned, all the factors analyzed right now hypothetical help and were inspected in past investigations. The investigation accepted that the elements are fit for factor examination techniques. As noted over, this investigation led the methodology of EFA and CFA to see the basic structure of the measures to ensure its build legitimacy.

### 4.3 Rate of Response

**Table 4.2:** Summary of Response Rates

Questionnaires administered	400
Undelivered	41
Uncompleted	24
No. of responses	335
Response rate (335/400)	83%

Information was gathered through polls, of which an aggregate of (400) surveys was circulated to the bleeding edge civil status and passport department representatives in Jordan. Out of the (400) votes, (41) were undelivered, and (24) had inadequate reactions and accordingly couldn't be utilized for the examination. Along these lines, a sum of (335) surveys were the ones that we're qualified to be used in the investigation giving a reaction pace of (83%) appeared in table 4.2 above.

#### 4.3.1 Respondents' Profile

Analysis of the data involves the translation of data collected into valuable information. Besides, data obtained from Jordanian civil status and passport department workers was evaluated using SPSS and AMOS. They included the study of precision, classification, and regression.

**Table 4.3:** Demographic and Professional Characteristics

	Frequency	Percentage
<b>Sex</b>		
Female	146	46.5
Male	168	53.5
<b>Age group – collapsed</b>		
25–30 Years	59	18.8
31–35 Years	79	25.2
36–40 Years	83	26.4
>40 Years	93	29.6
<b>Educational level – collapsed</b>		
Diploma or less	137	43.6
University Degree	149	47.5
Master’s Degree or Higher	28	8.9
<b>Working Experience</b>		
1–<2 years	24	7.6
2–<5 Years	58	18.5
5–<10 Years	57	18.2
>=10 Years	175	55.7

Table 4.3 shows the socioeconomic and expert qualities of the respondent workers. There was a sum of (314) representatives at the Department of Civil Affairs of Jordan who finished the overview with no absent and odd reactions; most of them, (53.5%), were male workers, and the remainder of them, (46.5%), were females. The periods of the workers were appropriated as follows: (18.8%) of them were matured somewhere in the range of (25) and (30), (25.2%) were matured somewhere in the field of (31) and (35), (26.4%) were matured somewhere in the range of (36) and (40), and (29.6%) were aged more than (40).

Moreover, the instructive degree of those workers was disseminated as follows: a large portion of them, (47.5%), had a college degree, (43.6%) had recognition or less, and (8.9%) had a graduate degree or higher instructive level.

The yielded investigation of the long periods of experience of the respondents recommended that (7.6%) of them had among one and under two years of experience, another 18.5% had among (two and under five years of experience, (18.2%) had among five and under ten years of experience, and the rest of the more significant part, for example, (55.7%), had at least ten years of experience.

#### **4.4 Data Screening**

Data screening was done to avoid problems at later stage of the research and improve the model solution (Collins, Onwuegbuzie, & Jiao, 2007; Gallagher, Ting & Palmaer, 2008). The screening involved checking of data in the questionnaire was correct and constituent to the response and no information or question went an answered in the questionnaire and it was normally distributed (Malhotra, 1999). Screening was conducted through SPSS by detecting any data that was out of range utilizing descriptive and frequency command. When dealing with Multivariate statistical technique it is important to ensure that the data entered is free from error and is considered a critical step (Hair, Anderson, Babin & Black, 2010).

##### **4.4.1 Missing Data**

Individual fit measurements are a propelled strategy for distinguishing odd, unusual, rushed, phony, and fake study respondents (John & Castaneda, 2017). Individuals with consolidated high residuals (more noteworthy than three standard

focuses) and those with multivariate Mahalanobis removes in the multivariate settings (for our situation  $> 28$  standard focuses) were recognized and evaluated for their impact on the factor and relapse arrangements.

In the long run, (21) records were barred from the investigation for the accompanying reasons: (12) records had a single reaction classification, eight albums impacted the relapse examination settings with consolidated multivariate and bivariate high estimations of Mahalanobis separates, and standardized residuals over the necessary edges characterized previously. One more record was absent in every single segment variable and subsequently was prohibited from the examination.

#### 4.4.2 Outlier

The information was inspected for single class reactions, and the FACTOR analysis was utilized to survey the dimensionality of every one of the deliberate scale pointers of e-government services and job performance. Further, it inspected the personal fit insights (mean squared mistake and the RP files), featuring individuals with reaction sets that may have been odd comparative with the factor arrangements looked for.

The example of the yield from the FACTOR analysis indicates respondents with moderately oddball (odd reactions/exceptions/single reaction SRC classes) right now in Appendix G. The respondents' reactions were given to the two estimated scale markers: featured (\*\*) cases describe individuals with odd results all in all scale, examples named as SCR are those whose reactions were single class for all the scale

things (line writing they are designated "straight liners" = replying "emphatically concur" for all scale things).

#### 4.4.3 Normality

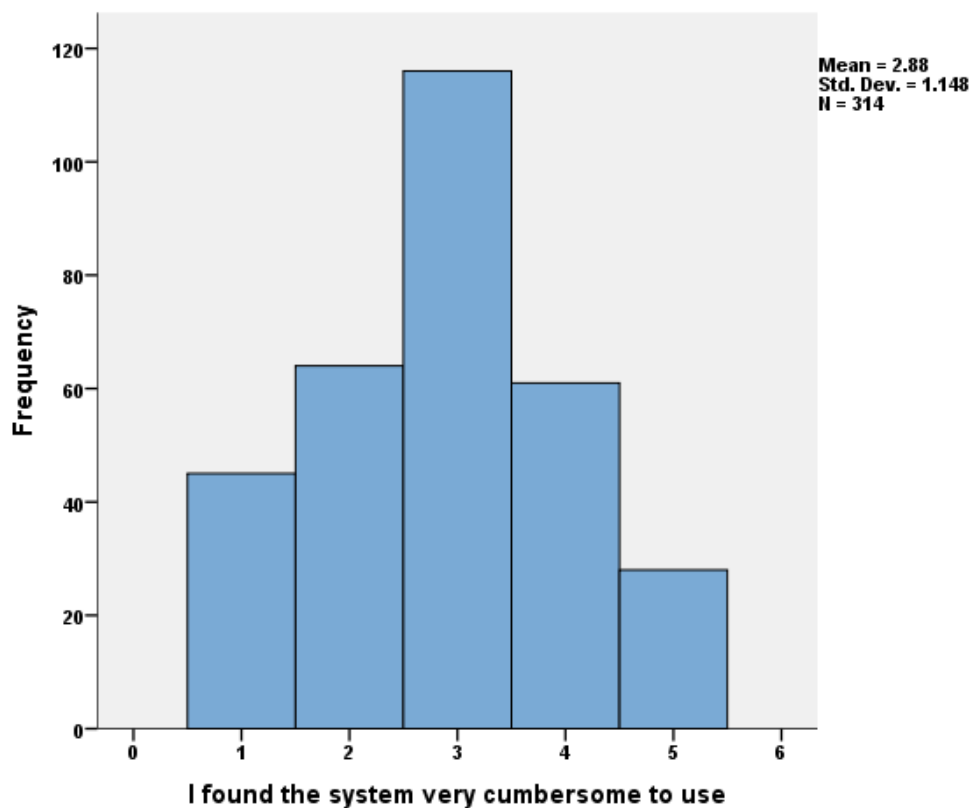
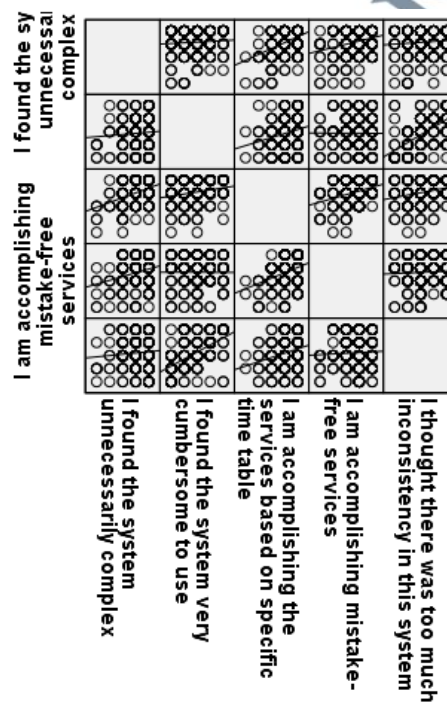


Figure 4.1: Histogram of Item 8 Normal Distribution

Total of (335) respondents' measurements were collected. These records were coded and numbered and were then entered into the Excel spread sheet program and analyzed using SPSS and the stand-alone FACTOR program. The measured indicators of e-government services and job performance were examined for normality distribution using the histogram as illustrated in Figure 4.1, which shows the

distribution of item 8 as a sample of the civil status and passport department. Kurtosis and skewness indexes were also examined, Table 4.3 (Appendix G).

#### 4.4.4 Multicollinearity



**Figure 4.2:** A Correlation Matrix between Selected Samples of the Measured Indicators

Scatterplots and boxplots were used to identify outliers with balancing effects on the regression lines when assessing the correlations between these indicators, Figure 4.2. The resulting analyzed sample was equal to 314 respondents' complete records.

#### 4.5 Factor Analysis Result and Interpretation

The objective of the study is to determine the relationships between the variable in the study (exogenous and endogenous variables). Based on the literature review in chapter 2, factor analysis was selected to redefine the metric variables that supported the theories (Pett, Lackey & Sullivan, 2003).

##### 4.5.1 Factorial Validity of the E-Government Services Scale (EFA)

**Table 4.4:** Maximum Likelihood Rotated Pattern Matrix

Items	Promax rotated item-factor loadings	
	Usability/difficulty	Learnability
Item2 I found the system unnecessarily complex	0.833	
Item9 I found the system very cumbersome to use	0.770	
Item3 I thought the system was easy to use	0.770	
Item5 I found the various functions in this system were well integrated	0.678	
Item1 I think that I would like to use this system frequently	0.653	
Item7 I would imagine that most people would learn to use this system very quickly	0.604	
Item8 I felt very confident using the system		0.930
Item6 I thought there was too much inconsistency in this system		0.640
Item10 I needed to learn a lot of things before I could get going with this system		0.569
Item4 I think that I would need the support of a technical person to be able to use this		0.477

Learnability factors = -0.37. Goodness-of-fit chi-squared test:  $\chi^2(45) = 1238.1$ ,  $p < 0.001$ . Extraction method: maximum likelihood. Rotation method: promax with Kaiser Normalization. a. Rotation converged in 3 iterations.

Determinant = 0.018. KMO = 0.85, Bartlett's test of sphericity chi-squared test:  $\chi^2(45) = 1238.1$ ,  $p < 0.001$ . Correlation between extracted usability and job performance.

Table 4.4 shows the assessment of the factorial validity and dimensionality of the CSPD (E-government services); they are subjected to exploratory factor analysis (EFA).

Firstly, the factorability of the e-government services scale was assessed using principal components analysis using the SPSS program and the stand-alone Factor program (Lorenzo-Seva & Ferrando, 2013). Then, literature on the number of available sub concepts that can be extracted from the civil status and passport department was reviewed. In addition, Borsci, Federici and Lauriola (2009) suggested the presence of two dimensions; however, the author used scoring manual of the e-government services scale, which indicated the presence of two distinct sub-factors, namely the usability and learnability subscales that may exist within the e-government services scale. As such, the scale is subjected to mean average partial (MAP) and parallel analysis (PA) using the FACTOR program assuming the maximum likelihood estimator as an extraction method first. The correlation matrix analysis yielded from the SPSS program indicated that the 10-item civil status and passport department was factorable, as evidenced by the presence of several correlations with a size of (0.3) and above between these items, (Appendix G).

These correlations between the (10) items beside the sufficient sample size (314 subject records per indicator) (Hair, Anderson, Babin & Black, 2010), and the initial extracted variance from each items, were relatively high and none of them had an initial extracted variance below (0.2), which is the minimum extracted variance in an indicator that can be analyzed in the factor analysis approach (Osborne, 2015).

Moreover, the K-M-O index of sampling adequacy was statistically significant as found by the PCA and EFA procedures, at (K-M-O = 0.85), which is a good sample size. Bartlett's test of sphericity suggested that these indicators' correlation matrix had sufficient shared variance that did not reach collinearity thresholds that may render the matrix indeterminate; further, the determinant factor suggested the absence of serious collinearity between these indicators, with the determinant=0.018. To rule out collinearity in the correlation matrix under factor analysis, the determinant was checked to see if it was greater than (0.00001) (Field & Field, 2012, p. 771). Thus, it indicated that the correlation matrix was fact. The correlation matrix between the (10) items measuring the e-government services were subjected to PCA initially, with the resulting factor solution showing the presence of two meaningful, simple and interpretable factors: the first factor explained (42%) of the variations between the (10) items, and the second factor explained (18.3%) of the variance with the total explained variance being equal to (60%).

Next, the extraction method was switched from the PCA method to the maximum likelihood method and the factor solution was rotated using the promax method; promax rotation assumes the two subscales are correlated and real.

The items measuring system ease, difficulty, complexity issues and integration beside the willingness and happiness to use the system converged significantly and

saliently (item-factor loadings  $> 0.5$ ) with the first factor, which was called “e-government services/system use difficulty”. The items that measured the employees’ perceptions of confidence using the system, the consistency of the system, learnability and the need for support and training converged significantly, (well  $> 0.5$ , (except item4: factor loading below 0.5), on the second factor (system learnability).

The extracted two factors were correlated significantly and negatively as expected,  $r = -0.35$ , denoting that people who perceived higher e-government services difficulty tended to perceive significantly fewer learnability issues on average,  $p < 0.001$ , according to the extracted factor correlation test.

Next, the FACTOR program was consulted for how many factors can be extracted from the (10) e-government services indicators; the parallel analysis (PA) and the mean average partial (MAP) analysis tests agreed on the presence of an extractable two-factor solution (i.e. two sub-factors) that may be extracted from the (10)-item e-government services scale. This agrees with the eigenvalue and scree plot scatterplot criteria, which indicated clearly the presence of two extractable factors within the EFA analysis of the correlation matrix of the e-government services scale.

The FACTOR program advised that a single factor solution would be more tenable if the 95th percentile was considered a measure of people’s responses instead of the mean score of the extracted variance from these measured indicators. However, a single factor may exist within the e-government services scale because when the first factor extracted variance (25.8%) is divided by the second factor extracted variance obtained from the parallel analysis output the yielded proportion equals (1.2), which supports the presence of only one factor solution.

#### 4.5.2 Factorial Validity of the JP Scale (EFA)

In the same manner, the (10) indicators of job performance scale administered to the principal component analysis explored, followed by the exploratory maximum likelihood factor analysis and the confirmatory factor analysis.

The SPSS, AMOS and stand-alone FACTOR programs were used. The Factor program was consulted for the parallel and MAP tests. Initially, the correlation matrix between the 10 indicators measuring the employees' self-rated job performance showed reasonably sufficient intercorrelations with a magnitude equal to (0.3) and above as illustrated in the correlation matrix in Appendix G.

Also, the Kaiser-Meyer-Olkin index of sampling adequacy for the factor analysis procedure suggested that the number of covariances with the given items and cases was sufficient for the factor analysis (K-M-O = 0.92, Maritorious), according to the determinant factor statistic (determinant = 0.013, which is above 0.00001).

Field and Field (2012) suggested that the 10 measured job performance indicators did not show undue collinearity affecting the factorability of the scale items. In addition, Bartlett's test of sphericity suggested that the correlation matrix between these indicators was not a zero definite,  $\chi^2(45) = 133.15, p < 0.001$ .

All these statistics agreed on the factorability of the (10) job performance measured indicators. Also, all the measured indicators had an initial shared variance above (0.3) and many of them had an initial extractable variance above the (0.5) threshold. The parallel analysis using the FACTOR program suggested that there was one extractable factor; this agreed with the MAP test and the scree scatterplot

(Appendix G) denoting that there was a single latent perceived job performance that can be summarized from these indicators.

**Table 4.5:** Maximum Likelihood Rotated Pattern Matrix

JP items	Job performance factor
q15 I am seeking to provide perfect services	0.777
q20 I have the enthusiasm and willingness to achieve these services	0.746
q18 I am respecting the job ethics	0.739
q17 I am abiding by the department systems and policies	0.721
q11 I am providing complete and accurate services	0.671
q19 I am following the work schedule	0.667
q13 I am providing fast responses to customers' inquiries	0.667
q16 I am accomplishing the services based on a specific timetable	0.650
q14 I am providing services with effectiveness	0.630

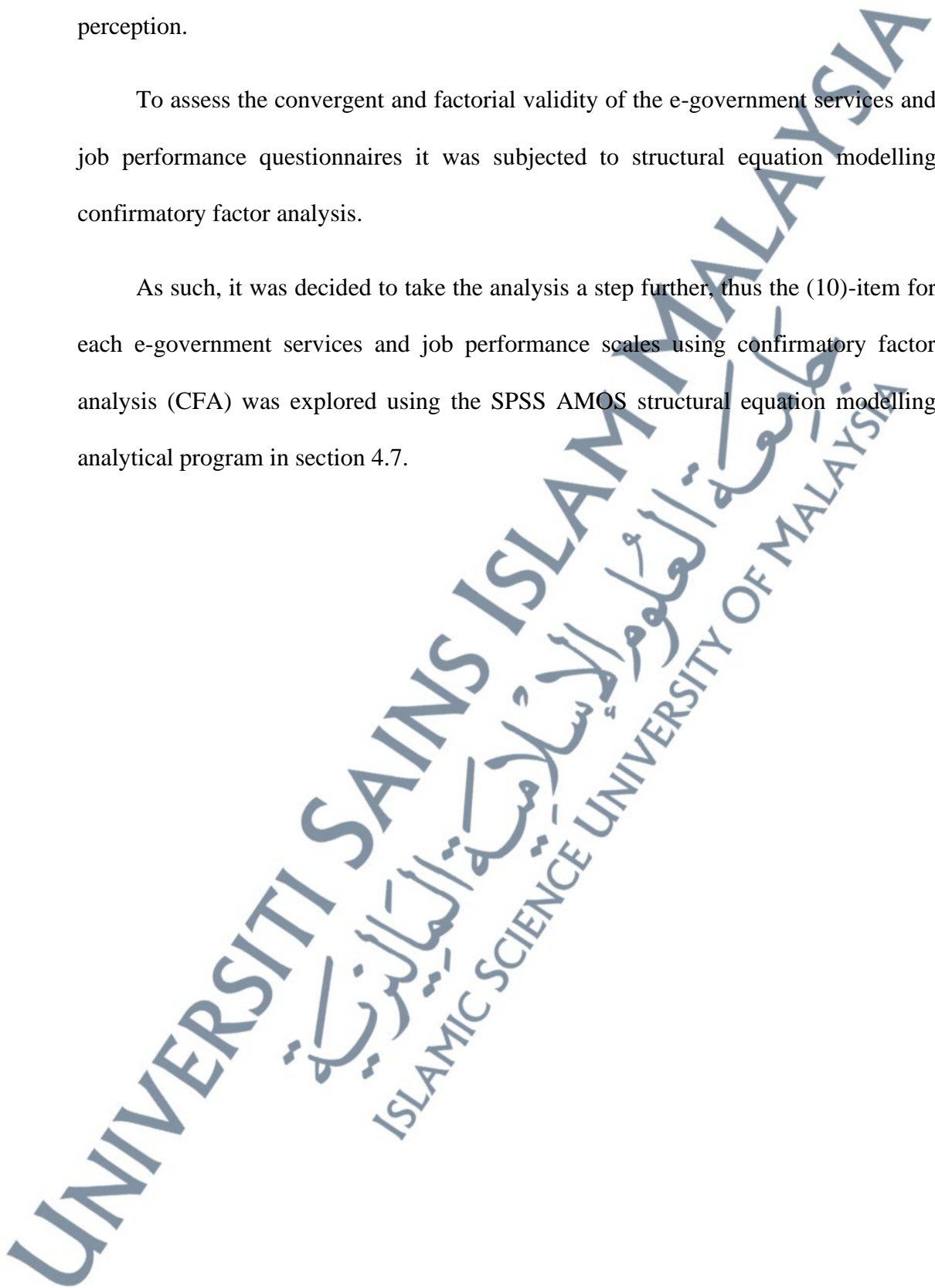
Extraction method: Maximum likelihood 1 factor extracted. 4 iterations required. K-M-O = 0.92, determinant = 0.013, Bartlett's test of sphericity  $\chi^2(45) = 1339.15$ ,  $p < 0.001$ .

Table 4.5 shows that ML extraction due to low communality  $< 0.2$ , communality and extracted variance was substantially lower than (0.2), as item12 "I am accomplishing mistake-free services" was removed and thus the factor solution was repeated. No rotation was possible due to the presence of a single extractable latent factor; in the maximum likelihood extracted item-factor loadings, all the items

(1 to 10) loaded saliently above the (0.5) threshold to their job performance perception.

To assess the convergent and factorial validity of the e-government services and job performance questionnaires it was subjected to structural equation modelling confirmatory factor analysis.

As such, it was decided to take the analysis a step further, thus the (10)-item for each e-government services and job performance scales using confirmatory factor analysis (CFA) was explored using the SPSS AMOS structural equation modelling analytical program in section 4.7.



#### 4.6 Descriptive Statistics and Relative Importance

Table 4.6: Descriptive Statistics and Relative Importance Indexes Of E-Government Services

Code	Indicator	Mean (SD)	RII (%)	Rank
Q1	I think that I would like to use this system frequently	4.16 (0.90)	83.18	1
Q2	I found the system unnecessarily complex	4.14 (0.91)	82.80	3
Q3	I thought the system was easy to use	4.15 (0.91)	82.99	2
Q4	I think that I would need the support of a technical person to be able to use this	3.46 (1.2)	69.11	8
Q5	I found the various functions in this system were well integrated	3.87 (0.95)	77.39	5
Q6	I thought there was too much inconsistency in this system	3.21 (1.1)	64.27	9
Q7	I would imagine that most people would learn to use this system very quickly	3.79 (0.87)	75.80	6
Q8	I found the system very cumbersome to use	2.88 (1.2)	57.64	10
Q9	I felt very confident using the system	4.1 (0.87)	80.96	4
Q10	I needed to learn a lot of things before I could get going with this system	3.55 (1.1)	71.02	7

Table 4.6 indicates that the relative importance indexes (RIIs) are simply understood as percentages between (0) and (100 %). An item with a RII of between (0) and (25 %) is highly insignificant contributor to its main domain concept, an item with an RII of between (25%) and (50%) is an insignificant contributor to its concept, and an item with an RII of between (50%) and (75%) is a significant contributor, while any item with a (RII >75%) is a highly significant contributor to its domain concept (Aziz et al., 2015).

The means and standard deviations of the employees' perceptions of the indicators of the e-government services are shown in Table 4.6. The third column shows the (RII) analysis of the (10) indicators of e-government services, and the

fourth column shows the rank of these indicators when RIIs are sorted in ascending manner. To explain the findings of this analysis, the top perceived indicator of e-government services by the civil affairs employees in Jordan is “I think that I would like to use this system frequently”, which has a collective mean rating equal to (4.2) out of a maximum (5) Likert points, which indicates between high and very high willingness to use the electronic system. The RII analysis shows that the employees’ rating for their willingness to use their organization’s electronic interface significantly is (83.1%), which is substantial willingness to use.

The next perceived indicator of e-government services is the employees’ perception of whether “I thought the system was easy to use”, which has a collective mean rating of ease of use equal to (4.15) out of a maximum (5) Likert points, showing that the employees’ collective mean rating is between high and very high ease of usage on average, and the RII suggested the employees’ perceived ease of system use was quite substantially high at (RII = 82.9%) out of (100%), which is a significant perceived ease of system use on average. The third top perceived indicator of e-government services is the employees’ collective endorsements of whether they had perceived their electronic system complexity as more or less “I found the system unnecessarily complex”. This indicator was rated collectively by the employees with a mean complexity equal to (4.14) out of (5), which shows that their collective rating is between high and very high on average. This rate is confirmed to be a significant RII, i.e. substantial, for this perceived system complexity and equal to (82.8%).

By contrast, the lowest perceived indicator of e-government services by the employees is “I found the system very cumbersome to use”. They had perceived their working system was cumbersome to use/navigate, which had a mean rating equal to

(2.88) out of a maximum (5) Likert points. This rate is low but significant, with a relative importance index rating of (RII = 57.6%), indicating that their collective perceived difficulty using their work e-system was between low and medium on average. The second lowest indicator of e-government services is the employees' contention as to whether it has inconsistency or not, "I thought there was too much inconsistency in this system", which has a mean collective rating of system inconsistency equal to (3.21) out of (5) and substantial but low relative perceived inconsistency at (RII = 64.27%). The rest of the indicators measuring the employees' perceived e-government services mingled between these top and bottom perceived indicators of e-government services usability and learnability.

#### **4.7 Structural Equation Modelling**

SEM is a group of multivariate statistical strategies used to look at direct and joint connections between at least one free independent factor and at least one dependent factor (Gefen, Straub & Boudreau, 2000). SEM permits the researcher to survey the general attack of a model just as test the auxiliary model together (Gefen, Straub & Boudreau, 2000; Hair, Anderson, Babin & Black, 2010). Utilizing SEM does not only assess the theorized essential linkages among factors, yet the ties that exist between a variable and its separate measures. Structural equation modelling is a far-reaching measurable method that permits specialists to test speculations about connections among watched and inactive factors (Hoyle, 1995). Moreover, SEM allows a hypothesized model to be tried factually in a concurrent investigation of the

whole model to decide the degree to which it is reliable with the information (Byrne, 2016).

#### 4.7.1 Examining the Fit of The Model

The Goodness of fit is known to be how the model will produce the covariance matrix among the indicator items. When it is observed to be close to the covariance matrix produced by the data called then it can be referred to as the Goodness of fit (GOF).

Goodness of fit (GOF) alludes to how well the examination model replicates the covariance network among the pointer things near the watched covariance grid delivered by the information gathered (Hair, Anderson, Babin & Black, 2010).

**Table 4.7:** Goodness-of-Fit Indexes of Model Fit

Fit Index	Expected range	Interpretation	References
$\chi^2$	Non-significant	Non-significant, but this is expected	(Hair, Anderson, Babin & Black, 2010), Hooper D
$\chi^2/df$	Between 1 and 3, good if < 5	Signals minor departure from fit	(Hair, Anderson, Babin & Black, 2010), Hooper D, Barbara Byrne
CFI	Above 0.94	Good fit	(Hair, Anderson, Babin & Black, 2010), Hooper D
TLI	Above 0.94	Good fit	(Hair, Anderson, Babin & Black, 2010), Hooper D, Barbara Byrne
RMSEA	below 0.08	Good fit	(Hair, Anderson, Babin & Black, 2010), Hooper D, David Keany

Hair, Anderson, Babin and Black (2010), a researcher does not need to report all of these indices because of the redundancy among them. Hair, Anderson, Babin and Black (2010) also suggested that in addition to the value and the associated of ( $\chi^2/df$ ), the researcher should report at least one incremental index (such as NFI and CFI) and one absolute index (such as RMR and RMSEA). Therefore, normed chi-square ( $\chi^2/df$ ), standardised root mean residual (SRMR), comparative fit index (CFI), Tucker-Lewis index (TLI), incremental fit index (IFI) and root mean square error of approximation (RMSEA) are used to assess the model fit.

#### **4.7.2 Bootstrapping Approach**

Bootstrapping is a system that thinks about an arbitrary example of information as a substitute for the populace and resampling the example information to lead test bootstrap gauges, predisposition, expectation mistake, certainty interims, fluctuation, or some different evaluations. Bootstrapping assessed fit records in essential condition displaying (SEM) is critical to affirm the consistency of fit files tractable expository appropriations (Bollen & Stine, 1992; Efron & Tibshirani, 1994). The hypothesis of the bootstrap includes demonstrating the compatibility of the gauge (Efron, 2003).

The bootstrapping system can evaluate the ways and the power of a worldview. This strategy is additionally used to portray the factual properties of specific example sizes correctly (Byrne, 2016). It adds to making resampling from the example information and appraisal of a worldview for each sub-test (Efron & Tibshirani, 1994;

Zhang & Savalei, 2016). Furthermore, right now, bootstrap estimator through the Bollen and Stine trial of rightness was utilized to decide how steady or great the example measurement was as a gauge of the populace parameter (Bollen & Stine, 1992; Byrne, 2016).

#### **4.7.2.1 The Measurement Model Assessment**

This area shows a report of aftereffects of auxiliary condition displaying. First, the appraisal of the estimation model is talked about. At that point, the assessment of the extra model is presented. Be that as it may, this examination was planned from the beginning to capture itself with speculations testing and hence a reasonable premise towards corroborative factor investigation utilizing structure condition displaying (SEM), which was resolved.

By and large, the estimation of root means lingering (RMR), normed fit record (NFI), Tucker-Lewis file (TLI) and near fit list (CFI) are another arrangement of insights that are utilized to help the wellness of the speculations of the model (Hair, Anderson, Babin & Black, 2010).

The estimation of a normed fit file (NFI), Tucker-Lewis Index (TLI), and similar fit file (CFI) ranges from (0) to (1), with the worth near (1.00) being characteristic of a solid match (Byrne, 2016).

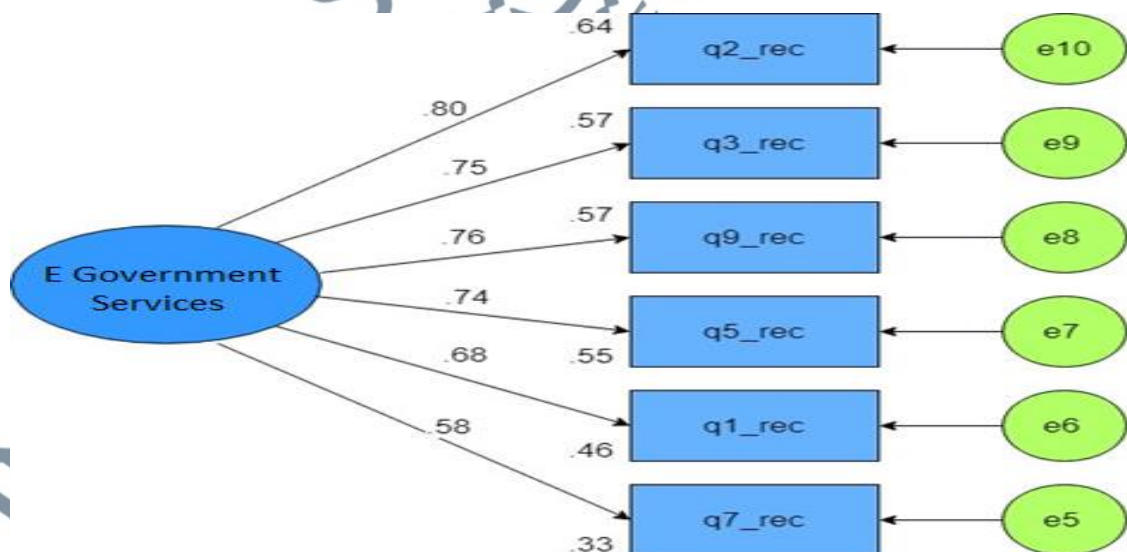
The estimation of root implies square blunder of the guess (RMSEA) for the proposed model must be under (0.08), which demonstrates a sensible mistake of evaluation suggesting that the model is an adequate fit (Hair, Anderson, Babin &

Black, 2010). Grounded on the above decency of-fit measurements, there is sufficient help to infer that the speculations model fits the information assembled satisfactorily well, and further investigation should be possible.

Before dissecting the causal model, it is essential to look at the estimation model to evaluate the unwavering quality and legitimacy of the factors. Corroborative factor investigation (CFA) utilizing the most extreme probability strategy was directed to assess the legitimacy of the held scale things for every single dormant development.

A measures model with the examination intended to look at the connections that exist between the two builds, to be specific e-government services and occupation performance, and their watched pointers to set up their reliabilities and validities before testing the basic model.

#### Confirmatory factor analysis (CFA) E-government services scale



**Figure 4.3:** Confirmatory Factor Analysis (CFA) Measurement Model (E-government services)

The structural equation modelling AMOS program was utilized to survey the factorial, concurrent, and discriminate legitimacy of the ten e-government services things by conceding their covariance matrix as a unit of investigation to the diagnostic program. At first, the ten pointers in the intelligent model in Figure 4.3 above were included.

**Table 4.8:** Goodness-of-Fit Indexes of Model Fit (E-Government services)

Fit Index	Value	Expected range	Interpretation
$\chi^2$	14.62	Non-significant	Non-significant, but this is expected
$\chi^2/df$	1.624	Between 1 and 3, good if < 5	Signals minor departure from fit
CFI	0.993	Above 0.94	Good fit
TLI	0.988	Above 0.94	Good fit
RMSEA	0.045	below 0.08	Good fit

Table 4.8 illustrates the initial analysis, which indicates a lack of fit between the 10-items covariance matrix and the data,  $\chi^2(35) = 347.63$ ,  $p < 0.001$ , the exact chi-squared test  $CMIN/DF = 9.93$ ,  $p < 0.001$ ,  $CFI = 0.74$ ,  $TLI = 0.668$ ,  $RMSEA = 0.169$ ,  $90\% \text{ CI RMSEA} = (0.153:0.185)$ , all of which signaled that the covariance matrix (correlations) in the e-government services was not fit for the measured data.

By evaluating the standardized residual (error) of those covariances between the measured items, it was found that item4 had several standardized errors above the threshold of 3, denoting that this item is not explained accurately by the proposed single latent factor, thus it was removed from the model since it had great error covariance with items (6, 8) and (10). Then the solution was repeated: the model fit

was re-evaluated, showing that the model fit was not optimal due to another high residual error in item6, which had significant error covariance with item3.

Further, the program showed that item6 had a significantly low factor loading with the latent e-government services score (standardized regression = 0.233), which is a relatively lower salient loading (convergence) than the (0.5) minimum required factor loading; this suggested that this item, along with item8, was not explained well by the proposed model, and thus it was removed from the model.

After repeating the solution, the model fit showed significant improvement in the goodness of fit as evidenced by a significant difference in the chi-squared test and degrees of freedom, Delta  $\chi^2 = 119.79$ , Delta DF = 7,  $p < 0.001$ , indicating that there was an improvement in the overall fit of the model by removing item4 and item6.

The global and specific other goodness of fit suggested a lack of statistical fit between the proposed and observed model of covariance, RMSE = 0.137; thus the suggested modification indexes were re-evaluated by the analytical program, which showed that item8 had a significantly low factor loading to the latent factor (standardized regression loading = 0.182), indicating its low convergent validity, which is far below the threshold of (0.5), thus it was removed.

Then the model was repeated. The repeated model global goodness-of-fit indexes showed remarkable improvement, RMSEA = 0.079, CFI = 0.97, TLI = 0.961, but the exact and global  $\chi^2$ -test of G.O.F. showed significant misfit between the reduced model covariance and the reproduced covariance, ( $\chi^2 (14) = 35.97$ ,  $p = 0.001$ ).

Also, item10 had a factor loading below the (0.5) threshold (standardized regression weight = 0.38, SMC = 0.144), which was a convincing reason for removing item10. After repeating the CFA solution without item10 the model fit showed a significant fit between the measured and reproduced (proposed) models, ( $\chi^2(9) = 14.62$ ,  $p = 0.102$ ), as shown in Table 4.8.

The exact chi-squared (CMIN/DF = 1.624,  $p = 0.102$ ), which is below (3), indicating good fit, and the CFI was equal to (0.993) and the Tucker-Lewis TLI measure of goodness of fit was equal to (0.988), both showing greater goodness of fit in the model and the root mean squared error index suggested that the proposed and reproduced models had a great fit, (RMSEA = 0.045, 90% C.I.: <0.001: 0.085,  $p_{close} = 0.534$ ).

#### 4.7.3 Assessment of Reliability and Validity

**Table 4.9:** CFA Standardized Regression Coefficients (Factor Loadings)

Indicators	Effect	Latent Factor	Standardized Regression Estimates	p-value
Item2	<---	e-government services	0.799	<0.001
Item3	<---	e-government services	0.757	<0.001
item9	<---	e-government services	0.764	<0.001
Item5	<---	e-government services	0.731	<0.001
Item1	<---	e-government services	0.695	<0.001
Item7	<---	e-government services	0.577	<0.001

Table 4.9 evaluate the standardized residual (error correlations) between the remaining six items and showed no item pairs with high residual covariance (error covariance); thus the current reduced model of e-government services latent factor characterized by only six items was accepted, noting that the minimum number of indicators could be as small as three (Byrne, 2013), which displays the unstandardized and standardized regression coefficients of these manifest variables on the e-government services factor.

To untangle the resulting analysis of the standardized regressions (factor loadings) of the measured indicators to the e-government services, all these indicators had a significant and substantial loading (above 0.5) to the e-government services usability/difficulty latent factor, denoting that these indicators had great convergent validity to their characterized e-government services factor composite reliability (CR).

**Table 4.10:** CFA Standardized Regression Coefficients (Factor Loadings)

Indicators		Latent Factor	Standardized Regression Weight estimates-SRW	SRW squared	Error variance	Error variance squared
Item2	<---	F1_e-government services	0.799	0.638	0.316	0.100
Item3	<---	F1_e-government services	0.757	0.573	0.502	0.252
item9	<---	F1_e-government services	0.764	0.584	0.415	0.172
Item5	<---	F1_e-government services	0.731	0.534	0.353	0.125
Item1	<---	F1_e-government services	0.695	0.483	0.3	0.090
Item7	<---	F1_e-government services	0.577	0.333	0.419	0.176
Sum			2.725	3.15	2.305	0.914
Sum^2			7.43	9.89	5.31	0.84

Composite reliability-CR 0.76

CR= construct Reliability

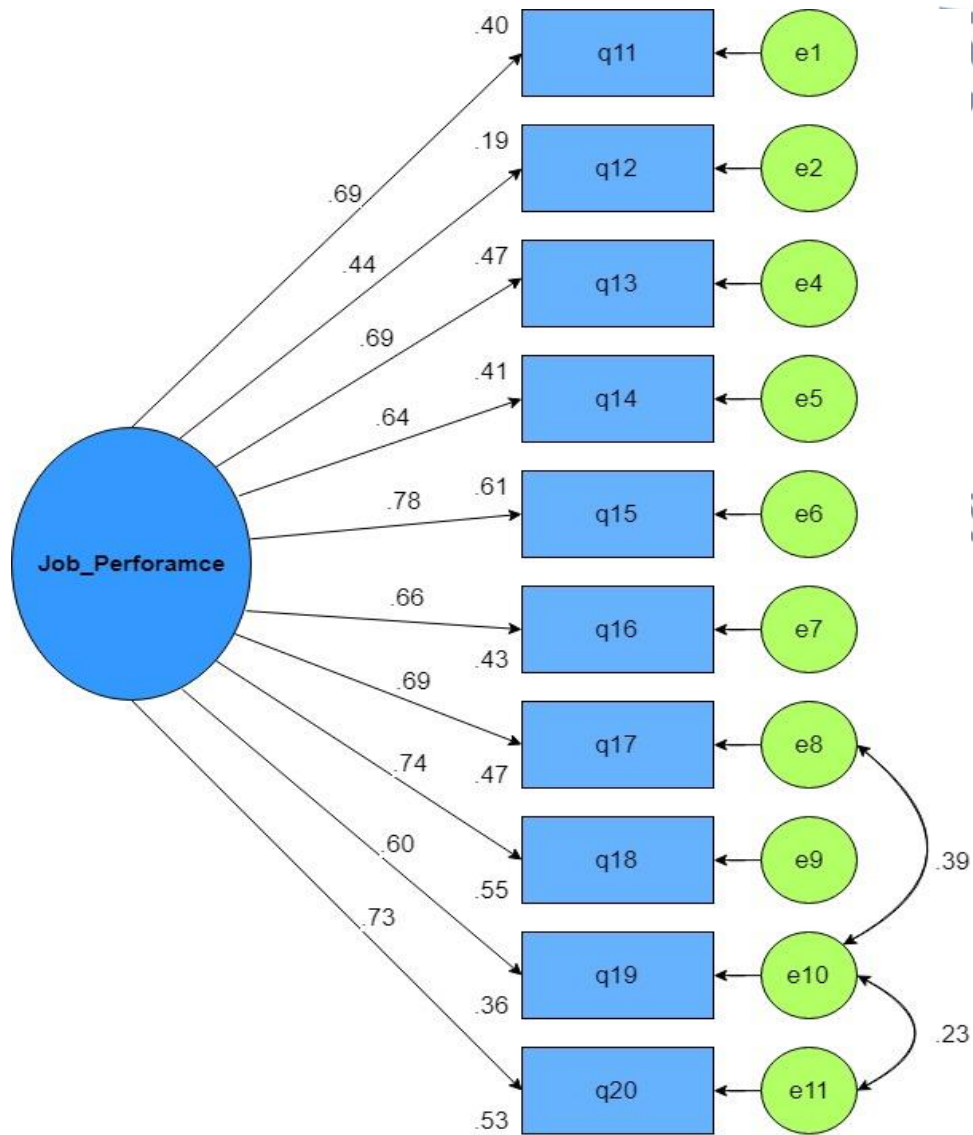
AVE 0.577099992

Raykov (1998) showed that the factor had a significantly reasonable composite (CR = 0.76) reliability when the adjusted explained variance in these six indicators was computed by their e-government services score, suggesting that average explained variance (AVE) was equal to (0.577), literary equals to (1 57.7%) of the shared variance between the six indicators.

This indicates that the explained variances in these indicators by this latent factor relative to the total variance within these indicators (error + shared variances) was substantial, showing the factorial validity of the latent factor and its ability to explain variations between people's usability of their electronic systems as illustrated in Table 4.10.

Lastly, the total score was computed for usability by adding up the rescaled six items (2, 3, 9, 5, 1, 7) and multiplying their yielded sum score by (2.5 ) (as per the author manual), resulting in a total score of between 1 and 48 points. This score was used in further analysis as a proxy measured composite for the e-government services.

#### 4.7.4 Confirmatory Factor Analysis Job Performance Scale



**Figure 4.4:** Confirmatory Factor Analysis (CFA) Measurement Model (Job Performance)

Figure 4.4 illustrates the confirmatory factor analysis (CFA) on the (10) items that measured the civil employees' perceived job performance on a Likert-type scale between (1) and (5). The CFA model included all the (10) measured indicators at the start, then the latent factor (job performance) was regressed on the (10) measured indicators in a reflective manner, with the covariance between these indicators set as a unit of analysis.

Table 4.11 illustrates the initial model fit was evaluated and showed a partial fit, ( $\chi^2(45) = 110.04$ ,  $p < 0.001$ ,  $CMIN/DF = 3.14$ ,  $CFI = 0.94$ ,  $TLI = 0.93$ ,  $RMSEA = 0.083$ ,  $90\% \text{ CI RMSEA } (0.066:0.100)$ ,  $pclose = 0.001$ ), and this indicated a possibly misfitted model and that further room for improving the model fit may exist, thus the standardized residuals were evaluated for the analyzed covariance between these indicators.

Consequently, none of the item pairs had a significantly high residual (error) that exceeded the threshold of 3 standard points, which indicated that item7 and item9 may need to be correlated with their error variance, i.e. they may share something in common and by evaluating the context of the following two items, i.e. “I am abiding by the department systems and policies” and “I am following the work schedule”, it was found that the two items almost measured the same context of compliance and abiding. Further, item9 and item10 were measured in a similar context of being energetic at work, as the two items are correlated.

**Table 4.11:** Goodness-of-Fit Indexes of Model Fit (Job Performance)

Fit Index	Value	Expected range	Interpretation
$\chi^2$ test	53.8, p = 0.013	Non-significant	Non-significant
$\chi^2/df$	1.63, p = 0.013	Between 1 and 3, good if < 5	Signals minor departure from fit
CFI	0.98	Above 0.94	Good fit
TLI	0.98	Above 0.94	Good fit
RMSEA	0.045	below 0.08	Good fit

Source: Joseph Hair, Hooper D, Barbara Byrne text, Rex Kline.

Lastly, after repeating the model estimation, the model was fit and had improved, fit, ( $\chi^2$  (33) = 53.80,  $p < 0.001$ , CMIN/DF = 1.63, CFI = 0.98, TLI = 0.98, RMSEA = 0.045, 90% CI RMSEA (0.021:0.066),  $p_{close} = 0.629$ ), indicating that the model fit with the data had improved significantly as shown in Table 4.11.

The observed correlations between these 10 measured indicators reproduced by the program are matched in the association of the latent job performance with the measured indicators that characterize their interrelation well, even with the presence of correlation between the error components of the items (7, 9, 10) since they are also related.

#### 4.7.4.1 Assessment of Reliability and Validity

**Table 4.12:** CFA Standardized Regression Coefficients (Factor Loadings)

Indicators	Effect	Latent Factor	Standardized Regression Estimates (Loadings)
Item1	<---	JP	0.691
Item2	<---	JP	0.439
Item3	<---	JP	0.685
Item4	<---	JP	0.637
Item5	<---	JP	0.78
Item6	<---	JP	0.659
Item7	<---	JP	0.688
Item8	<---	JP	0.743
Item9	<---	JP	0.596
Item10	<---	JP	0.728

Table 4.12 shows the standardized regression coefficients (loadings) of the (10) indicators to the job performance scale; all of them loaded significantly and saliently to the JP scale with standardized regression weights in excess of a threshold of (0.5,  $p < 0.001$ ) (Byrne, 2013). This indicates that these items discriminated their latent factor very well and are a good characterization of their concept, i.e. factorially valid as evidenced by high standardized loadings to the factor.

**Table 4.13:** CFA Standardized Regression Coefficients (Factor Loadings)

Indicators		Latent Factor	Standardized Regression Weight estimates (SRW)	SRW Squared	Error Variance	Error Variance Squared
Item1	<---	JP	0.691	0.477	0.332	0.110
Item2	<---	JP	0.439	0.193	0.782	0.612
Item3	<---	JP	0.685	0.469	0.377	0.142
Item4	<---	JP	0.637	0.406	0.319	0.102
Item5	<---	JP	0.78	0.608	0.228	0.052
Item6	<---	JP	0.659	0.434	0.38	0.144
Item7	<---	JP	0.688	0.473	0.341	0.116
Item8	<---	JP	0.743	0.552	0.268	0.072
Item9	<---	JP	0.596	0.355	0.378	0.143
Item10	<---	JP	0.728	0.530	0.31	0.096
<b>Sum</b>			6.646	4.498	3.715	1.589
<b>Sum^2</b>			44.169	8.997	13.801	2.525

CR Composite reliability (0.922417186)

AVE Average variance extracted (0.707755071)

Table 4.13 shows the computed composite reliability of the job performance latent factor scale to assess the reliability of the job performance scale; the composite reliability measures the structural reliability of the scale and it would be good if it exceeded (0.7). In this study it was equal to (CR = 0.92), suggesting that the job performance scale has a great construct reliability, and that the latent factor accounted for at least an explained AVE equal to (70.7%) from the variations within the (10) measured indicators of job performance among the Jordanian civil affairs employees.

This indicates that the job performance 10-indicator scale characterized the employees' job performance very well, and it is a factorially valid measure of job

performance with great discriminant validity (Borsboom, Mellenbergh & Van Heerden, 2004).

**Table 4.14:** Computation of the Weighted Factor

Item	JP raw weight	Total weight	Weighted item factor weight
Item10	0.109	0.888	0.123
Item9	0.016	0.888	0.018
Item8	0.127	0.888	0.143
Item7	0.09	0.888	0.101
Item6	0.084	0.888	0.095
Item5	0.154	0.888	0.173
Item4	0.086	0.888	0.097
Item3	0.091	0.888	0.102
Item2	0.033	0.888	0.037
Item1	0.098	0.888	0.110
<b>Sum = total weight</b>	0.888		1

Then, Table 4.14 illustrates the measured factor-weighted composite job performance score by requesting the factor weights of the job performance measured indicators to their latent factor and then they were adjusted to their total weight; the adjusted weights were then multiplied by their corresponding indicators. The resulting factor weights were then added up, yielding a weighted job performance composite score, to explain how the weighted job performance score is computed (Messick, 1989).

#### 4.7.5 Assessment of the Structural Model and Hypotheses Testing

Following the measurement model stage, the structural model was then determined by allocating the connections between construct dependent on the applied system that was progressed in Chapter 2.

The structural model was utilized to test the speculations of the examination. The investigation included the control examination within the structural model. Control examination of the structural model comprises of three sorts of factors that structure a chain of relations among the elements called direct impact and collective impact and known as directed impact (MacKinnon & Fairchild, 2009). Control suggests a shortcoming of a causal effect and can improve the usual implications. The connection between free factor and mediator in the model could diminish or expand the impact on the dependent variable.

A key, some portion of the control, is the estimation of the causal impact of free X on independent variable Y for various degree of mediator variable M. In measurement, the impact of X on Y for a fixed estimation of M alluded as the "simple impact" of a free factor on its dependent variable. Let X is a dependent factor, and Y is a independent variable. The simple regression analysis equation will be:

$$Y = \beta^0 + \beta^1 X + e \quad (4.1)$$

The above relapse connection does exist and measurably noteworthy. At the point when the mediator variable M enters the model, the balance impact of M is demonstrated in the equation condition as follows:

$$Y = \beta^0 + \beta^1 X + \beta^2 M + \beta^3 XM + e$$

(4.2)

The equation coefficient  $\beta^3$  measures the interaction impact between independent variable X and moderator variable M.

To test the control in a model, one needs to check  $\beta^3$  (the coefficient of cooperation term XM). If  $\beta^3$  is critical, at that point, one could presume that the moderator variable M directs the connection between X and Y.

Having all variables and information close by, the following thing the analyst has to know is how to examine the moderator and demonstrate that M is directing the connection between X and Y. notwithstanding the variable X, M, and Y, the scientist needs to create another variable to be specific XM from the result of X increase M. Accordingly, the variables include will be X, M, and XM. The data can be displayed in the accompanying relapse condition:

$$Y = \beta^0 + \beta^1 X + \beta^2 M + \beta^3 XM + e$$

(4.3)

Three speculations testing for path investigation is required to be specific:

The X-Y relationship (testing for  $\beta^1$ )- demonstrate Hypotheses 1

The M-Y relationship (testing for  $\beta^2$ )- demonstrate Hypotheses 2

The XM-Y relationship (testing for  $\beta^3$ )- demonstrate Hypotheses 3

The control impacts for moderator variable M in the model happens if Hypotheses 3 ( $\beta_3$ ) is critical, and Hypotheses 2 ( $\beta_2$ ) is not noteworthy. Concerning Hypotheses 1 ( $\beta_1$ ), two potential outcomes could happen:

If Hypotheses 1 is not vast – at that point, the “complete control” happens.

If Hypotheses 1 is vast – at that point, the "fractional control" happens.

The accompanying speculations would now be able to be tried:

H1: The e-government services has statistically significant effects on job performance.

H2: The employees’ age differences has statistically significant effects on job performance.

H3: The Age differences of the employees moderates the relationship between e-government services and job performance.

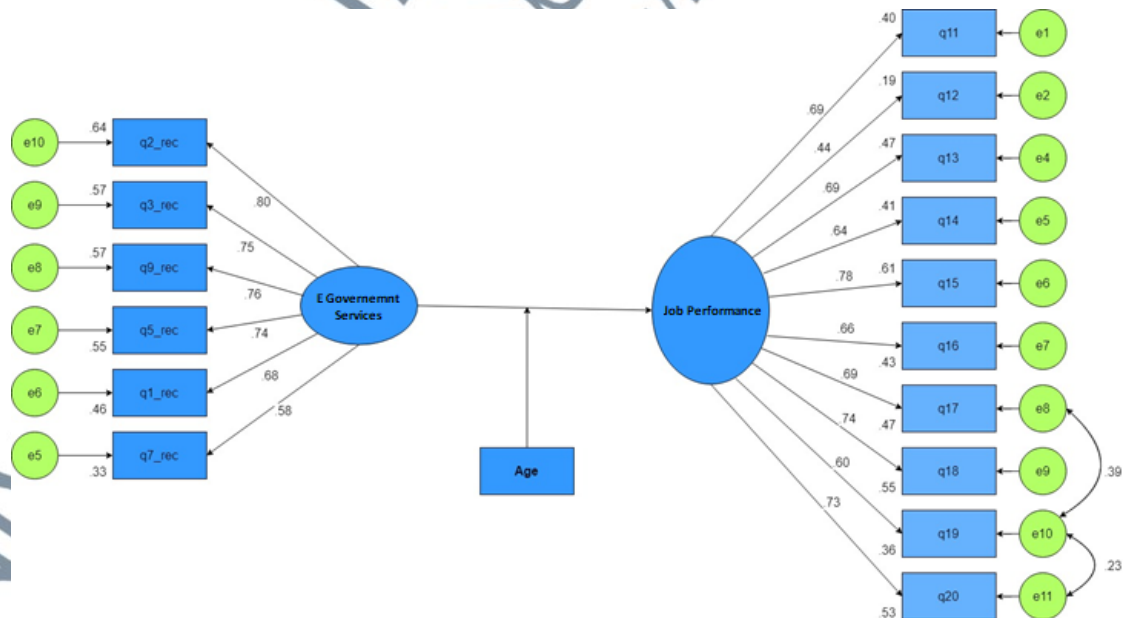


Figure 4.5: Structural Model

The structural model was examined, and the results demonstrated that whole construct in the model stayed in the model. The result showed a satisfactory fit correctly and theoretically gave by the fit indexes in Table 4.15.

**Table 4.15:** Goodness-of-Fit Indexes of Model Fit

Fit Index	Value	Expected range	Interpretation
$\chi^2$ test	0.965	Non-significant	Non-significant
$\chi^2/df$	3.16	Between 1 and 3, good if < 5	Signals minor departure from fit
CFI	0.99	Above 0.94	Good fit
TLI	0.99	Above 0.94	Good fit
RMSEA	0.001	below 0.08	Good fit

The model firstly did not fit the data, requiring the addition of a correlation between the Z-e-government services score and the interaction term, which was added and converged the model for the second time; the overall model fit suggested partial fit, as evidenced by a significant chi-squared goodness-of-fit test and (RMSEA = 0.083).

Therefore, the modification indexes were evaluated once more, and the model required the addition of a correlation between the Z age and Z usability, indicating some association between the two scores. Then the correlation was added and the model was rerun, thus the overall model fit was great as evidenced by the goodness-

of-fit index: fit, ( $\chi^2(1) = 0.965$ ,  $p = 0.0326$ ,  $CMIN/DF = 3.16$ ,  $CFI = 0.99$ ,  $TLI = 0.99$ ,  $RMSEA = 0.001$ ,  $90\% \text{ CI RMSEA } (0.000:0.140)$ ,  $pclose = 0.492$ ).

The achievement of a relatively good model fit allowed the proposed hypotheses to be tested (Schumacker & Lomax, 1996). The results of the hypotheses testing are reported through the structural model path estimates in Table 4.16.

**Table 4.16:** Standardized Regression Weights for the Moderation Test

Dependent Variable	Effect	Predictors	Standardized Regression Estimate	p-value
job performance	<--	Age	0.048	0.261
job performance	<--	E-government services	0.629	<0.001
job performance	<--	Age X E-government services	-0.092	0.034

Table 4.16 shows the effect of moderation test between employees' age and their e-government services on their job performance if the age will moderate the association between the employees' e-government services and their perceived job performance. Age is presumed to be the moderating variable since it proceeds the system use temporarily; thus the two variables; age and e-government services, were standardized by computing a Z-score for each one.

Z-scores are standardized scores with a (mean = 0 and SD = 1); the interaction product was created between the standardized age and e-government services Z-scores

by multiplying them, yielding a product interaction term labelled “Z Age X\_E-government services\_Z”.

The results of the rerun were reported again to the experts to find if they were accurate enough to be further worked on. The rerun was approved and thus, next step of analysis was taken to draw precise results.

To explain further: the first hypothesis, 'H1: The e-government services has statistically significant effects on job performance'; the model showed that by portioning out the effect of the other factors in the model, the employees' perceived e-government services was statistically and positively associated with their job performance (standardized beta = 0.629,  $p < 0.001$ ) (Table 4.15), denoting that after considering age, the product interaction between age and system use and the correlations in the model, the employees' higher e-government services was still significantly associated with higher perceived job performance, highlighting the correlation between e-government services and employees' performance. Thus, H1 is supported.

With regard to H2, the model also indicated that, by considering the joint effect of the e-government services and the interaction product of the age and e-government services in the model, the age of the employees was not statistically significantly associated with their job performance ( $p = 0.261$ ) on average, accounting for the correlation between age and the system in the model, which was statistically significant,  $r = 0.129$ ,  $p = 0.022$ , indicating that older employees may tend to have the ability to use the system more efficiently and easily,  $p = 0.022$ . Therefore, H2 is not supported.

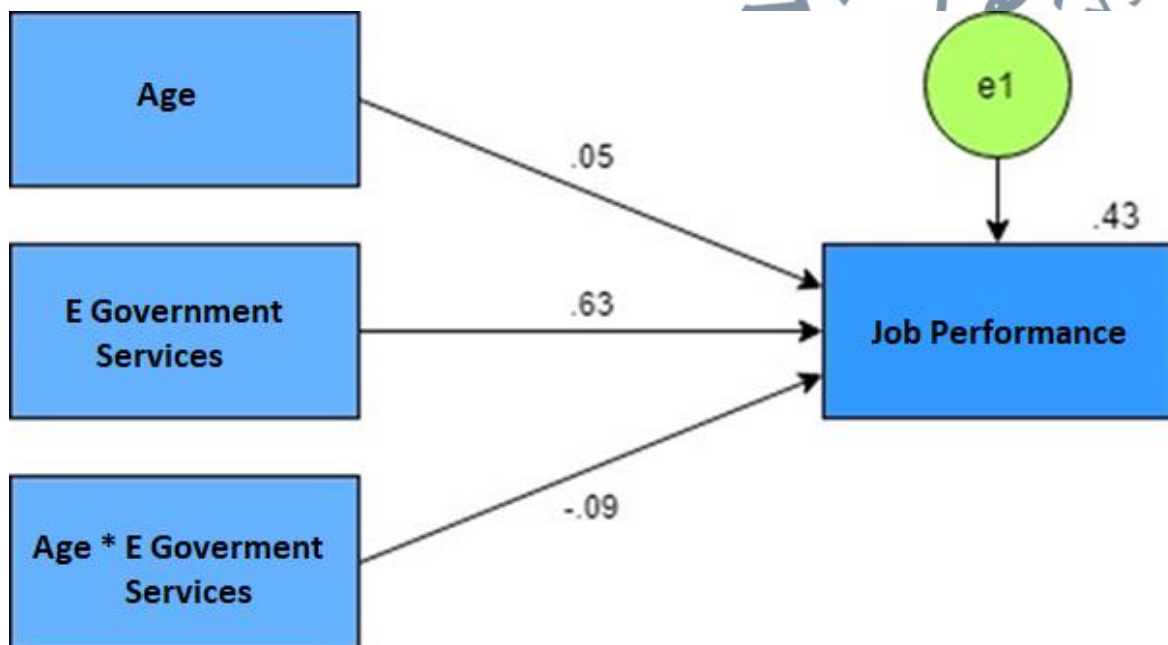
Finally, H3 predicted that the moderation test suggested a significant moderation effect between employees' age and usability on their multivariate association with employees' job performance, accounting for the correlation between age, job performance and their interaction in the model (standardized beta = -0.092,  $p = 0.034$ ). This indicates that the effect of the e-government services' usability on employees' job performance may differ significantly across the levels of employees' age, and that specific age groups may have a slightly lower (muffled) effect of e-government services on their job performance depending on their age. The significant relationship in this finding shows that H3 is supported.

Also, the analysis model required a correlation between employees' age and their interaction (age x e-government services) term, which showed a significant negative association (standardized beta = -0.092,  $p = 0.034$ ) indicating that some of the employees perceived the use of the system as less easy and learnable.

#### **4.7.6 Moderation Analysis**

Age is proposed to direct the connection between the indicator variable; e-government services and job performance. To survey the control impact old enough, the criteria for balance investigation were analyzed. Control is the variable that "moderate the impacts" of a free factor on its dependent variable. The meaning of the directing variable as the variable that "meddle" in the connection between an independent variable and its subordinate reporter variable. The control job is "change" the impact of an independent variable on the auxiliary variable (Barron & Kenney, 1986).

The impact of the independent variable on the subordinate variable must exist and noteworthy before presenting an arbitrator in the model. Hence, when a moderator enters on the model, the usual impacts would change cause to some "association impact" between free factor and arbitrator variable came. Thus, the effect of a free factor on the needy variable could either increment or abatement relies upon the degree of mediator variable (Barron & Kenney, 1986). The moderation effect of age on the relationship between e-government services and job performance.



**Figure 4.6:** Path Analysis Model Standardized Regression Weights

As appeared in figure 4.6, e-government services (the indicator variable), has critical impact on the reliant variable job performance; second moderator variable (age) has not noteworthy on the dependent variable lastly, the interaction impact between independent variable and arbitrator variable has massive effect on the ward variable (Barron & Kenney, 1986).

H3: The Age differences of the employees moderate the relationship between e-government services usability and job performance.

Figure 4.6 indicated that the balance investigation right now utilizing the moderator model (MacKinnon & Fairchild 2009). The moderator revealed that there is an immediate impact between the e-government supported organizations and job performance. There is additionally a joint impact for age and e-government, and job performance. Given the result, this examination has represented an exact vital condition by Baron and Kenny (1986).

The application of e-government services has significant positive effects on job performance.

The age level has significant positive effects on job performance.

What is the moderating effect of age in the relationship between e-government services and job performance in the Jordanian civil status and passport department?

Figure 4.6 also shown, the join effect is (-0.09). Therefore, researcher can conclude that the construct is a moderator in the relationship between the e-government services and job performance. The type of moderation that occurs in this study is partial moderation because the hypothesis for the main effect is still significant after the moderator enters the model. This leads to the conclusion that age have a significant moderating effect on the relationship between e-government services and job performance. Thus H3 was supported.

#### 4.8 Summary

Descriptive analysis showed that the top indicators of job performance among the civil status and passport department employees' were respecting work ethics and providing complete and accurate work assignments, while the lowest perceived indicators of job performance for those employees were their perceptions of their ability to complete error-free services and timely completion of assigned work.

Moreover, the descriptive analysis of the civil status and passport department employees' indicated that the top indicator of good e-government services was the ability to use the system frequently and easily while the lowest perceived indicators of e-government services were the inconsistencies and difficulties pertinent to electronic system use, suggesting the overall low difficulty and inconsistency of the system perceived by those employees in general. These descriptive analysis findings were also supported by the exploratory factor analysis factor-item loadings of those top and bottom job performance and e-government services measured indicators.

Analysis of the e-government services (10)-item questionnaire showed that only one factor may be uncovered from exploratory factor analysis of the (10) items; this was agreed on by the confirmatory factor analysis and parallel analysis. Six out of (10) items were found to reliably characterize the civil status and passport department employees' e-government services. The job performance (10)-indicator questionnaire was also valid and reliable as evidenced by exploratory and confirmatory factor analysis.

The e-government services scale was found to have the potential to tap employees' perceived ease, familiarity, usefulness and the learnability of new electronic interfaces; however, the findings of the analysis showed the absence of two

valid factors as proposed by the authors and other research findings elsewhere, and only one simple meaningful and interpretable factor could be confirmed. Four items of the scale were removed during the confirmatory factor analysis due to non-reliability, error measurement, shared error covariance and redundancy with other indicators that were understood equally by the respondents using the Arabic translation version of the questionnaire.

As regards the relationship between e-government services and job performance as a function of people's age test, the analysis suggested that the effect of e-government services on job performance may differ across the levels of people's age groups. Those aged between (25) and (35) and those aged below (25) had significantly lower job performance despite their overall high usability scores compared to the other groups. Some of these people had high e-government services scores, but despite their high scores their job performance was slightly lower than that of the other age groups with high e-government services.

This is an indication that the effect of e-government services on job performance may depend on the age of the subjects, but it is vital to rehearse that the association between age and job performance in the bivariate and conventional regression analysis remained statistically significant when analyzed simultaneously with e-government services. However, when an interaction term between the standardized age groups and the e-government services in the path analysis is included the effect of the age turns out to be non-statistically significant at ( $p = 0.261$ ), showing that the interdependence between e-government services and subjects' age may have different effects on their overall job performance. This is indicative of a moderation effect between age and e-government services on employees' job performance.

**Table 4.17:** Summary of Hypothesis Tests

Hypothesis	Result	Finding
H1: The e-government services usability has statistically significant effects on job performance.	Supported	The employees' perceived e-government services usability was statistically and positively associated with their JP (standardized beta = 0.629, $p < 0.001$ ).
H2: The employees' age intervals has statistically significant effects on job performance.	Not supported	The age level of the employees was not statistically significantly associated with their JP, $p = 0.261$ .
H3: The Age intervals of the employees moderates the relationship between e-government services usability and job performance.	Supported	The moderation effect between employees' age and e-government services impacts significantly and negatively on their multivariate association with employees' JP.

Table 4.16 summarizes the results of hypotheses testing. The results provided support for the hypotheses, which demonstrated that job performance is greatly influenced by e-government services and the interdependence between e-government services and age, but they are not supported regarding the relationship between age and job performance.

#### 4.9 Conclusion

This section showed the results of the investigation for both the analysis, measurement model and the structural model. The motivation behind utilizing a

structural model right now was to ensure the consistency of the estimated developments with the proposed directing impacts. Taking everything into account, the theories and ensuing discoveries for this examination were achieved through the technique and evaluation utilizing auxiliary condition displaying. The analysis and models in this chapter verified the hypothesis, where it was mentioned that there is interdependence in the two variables of this research; age and e-governance but they aren't interconnected if we consider the relationship of age and job performance as primary. Further conversation of the speculations testing, and managerial ramifications of the findings will be found in Chapter Five.

UNIVERSITI SAINS ISLAM MALAYSIA  
جامعة العلوم الإسلامية  
ISLAMIC SCIENCE UNIVERSITY OF MALAYSIA