National Culture and E- Government Services adoption Tunisian case

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Abstract—**The main purpose of this paper is to examine empirically national culture impact on E-Government development in Tunisia. We used partial least squares path modeling (PLS) applied to variable in E-government Development Index from the United Nations E-government Survey 2012 and Hofstede's national culture dimension. We found that national culture influences attitudes of citizens to adopt E-Government services.**

This paper can help Tunisian government policy and decision makers design and implement policies and strategies to improve E-Government services and their overall development. The study not only provides empirical support and validates the findings of previous research but also updates the results of similar studies in the study field.

Keywords- E-Government service, national culture, ICT (Information and Communications Technology), E-Government development index.

I.   INTRODUCTION (HEADING 1)

E- Government services have increased around the world over the past decade. A recent study presented by United Nations E-Government survey (2010) found that Tunisia was ranked first in Maghreb and Africa and 66th in the world out of 192 countries in terms of "E-Government", thus moving 58 places compared to 2009 when it was ranked 124th.

In its latest report "2012 UN Global E-Government Readiness Survey," index of E-Government development, under United Nations (UN), highlights the degree of application of ICT by governments in order to improve their services. This index takes into account the use of Internet, telecommunications infrastructure and human resources.

Even better, the 9th report on the global information technology and communication 2009-2010 (GITR), published by the World Economic Forum in Davos and the European Institute of Business Administration (INSEAD), has classified Tunisia first in Africa and the Maghreb and 39th globally on a total of 133 countries. GITR is one of the most credible internationally on the impact of ICT on the development process and competitiveness of nation's evaluation reports.

All these distinctions make Tunisia an international industrial and technological destination and that still stands into account international standard.

The development of the E- government services in Tunisia indicates the capacity and the willingness of the public Tunisian sector to deploy ICT (information and communications technology) for improving knowledge and information in the service of the citizen. This development is a function of not only a country's state of readiness but also its technological and telecommunication infrastructure and the level of human resource development. It's widely acknowledged that national culture have a significant effect on consumer behavior and technology diffusion [1].

However how does national culture can be influenced development of E-Government? And what's the influence of national culture on citizen adoption E-Government services?

To answer the research question, we will refer on national cultural dimension presented by [2] and [3]. We used method PLS (Path latest squares) to examine the correlation between national culture and E-Government services.

II. LITTERATURE REVIWE

A . E-Government implementation

In the literature there are many definitions of E-government. The World Bank has defined E-Government as the use by government agencies of TIC (area networks, the internet, and mobile computing). It transforms relations with citizens (G2C), businesses (G2B), and other arms of government (G2G).

In this paper, we limit our study by the relation between E-government services to citizen only (G2C). This relation (G2C) explain interactions with business and industry, citizen empowerment through access to information, and transparency government management [4].

Corresponding to the rapid development of E-Government in the world, Tunisian government have presented the importance of providing government services and information via the Internet and world-wide-web to improve the efficiency, cost and quality of the government information and services provided to the public. Table I showed E-government developing index between 2003-2012.

Table I_: Tunisia e-Government Development Index
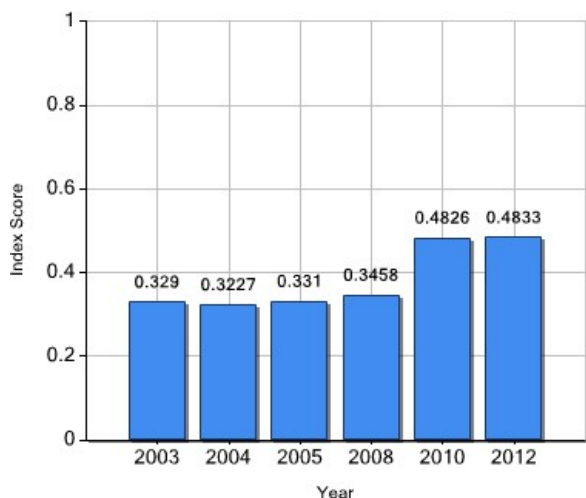
Source : UN Public Administration Program(2012)

In Table_I, we can observe the increasing of E- Government index development in Tunisia. The study of [5] concluded that the degree of E-Government service adoption could be explained by the perceived administrative benefit from adopting E-government services, the political nature of online applications, the government's organizational capacity in adopting new information technology, and the diffusion effect of E-Government service technology.

Additionally, Tunisia is ranked among the first African countries to adopt E_ government Service.

Table II_ : Level E-Government Data in Northern Africa
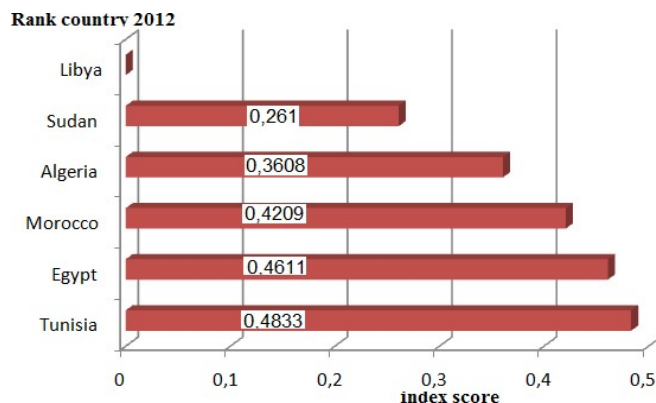
Source UN Public Administration Program (2012)

Table II showed that Tunisian country is classified first in Northern Africa for adoption E-Government services. In spite of rapid globalization there's a difference between countries to adopt E-Government services. Several studies have concluded that national culture is the causal factor.
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B . National culture and E-Government implementation

[6] define national culture that is a system of shared norms, values and priorities, that taken together, and constitute a design for living a people. Importantly, national culture have learned as previously stade and provides meaning to "how things ought to be done" for persons in a country [6,7]. These shared beliefs are acquired early in life through a person's primary socializing in families, in school [7].

However, National culture is a source of shared norms and behaviors. It influences expectations, preferences, attitudes of public towards e-government. For example, e-government is a new concept can lead to conflicts attitude against the dominant group norm. Hofstede's model of cultural indexes is the most widely used. In empirical study of IBM employees in 40 countries, Hofstede has identified four national culture dimensions:

Power distance: explain the extent to which a society accepts the fact that power in institutions and organizations is unequally disturbed. People in countries have high power distance accepted hierarchical order would have a negative attitude toward implementing and use services of E-government[8].

H1. Counties with low power distance tend to have a high level of E-Government services adoption.

Uncertainty avoidance: explain the extent to which members of society feel threatened by unknown situations. However

member of society have strong uncertainty avoidance preferred structures situation and they accepted new of ITC [8].

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H2. Countries with high uncertainty avoidance tend to have a high level of E-Government services adoption.

Individualism/collectivism: Explain the extent to which individuals are integrated into groups. High collectivism people consider a group as the source of identity. On the other hand individualistic countries used E- Government services more than collectivism people country. Technology in individualistic culture help people to perform time management however it could be concluded that country with high individualistic culture have a positive e attitude to adopt E- Government service[10,11].

H3. Countries with Individualism culture tends to have a high level of E-Government development.

Masculinity/Femininity: explain the distribution of emotional roles between the genders. Culture with high on feminity, prefer relationships, caring for the weak and the quality of live.in other words, the feminity dimension could have positive attitude toward implantation government services [12].

H4. Countries with low masculinity tend to have a high level of E-Government development.

III. MATERIALS AND METHODS

This research tests the effect of national culture on e-government adoption. We have relied two data sets: the United Nations e-government development index (EGDI) and Hofstede's national culture dimensions.

A- The United Nations e-government development index (EGDI)

The United Nations Department of Economic and Social Affairs has published five surveys on E-Government development in its Member States since 2003. It introduced significant changes to the previously used survey instrument, "focusing more on how governments are using web sites and web portals to deliver public services and expand opportunities for citizens to participate in decision-making".

E-Government Development is measured by the Telecommunication Infrastructure index and the Human Capital index

1) **Scope quality of online services: indicate:** Indicates national website and the websites of the ministries of (education, labour, social services, health and finance……) was visited to assign values to survey responses

2) **Telecommunication infrastructure index:** indicates a country's economic and ICT development.

3) **Human capital index:** aggregate level of education

B- National culture

In our statistical analysis, we have used Hofstede's dimensions index and data base UN Public Administration Program (2012). A questionnaire survey was conducted to identify characteristic of Tunisian national culture. The four dimension indexes are power distance index (PDI), uncertainty avoidance index (UAI), individualism-collectivism index (IDV), masculinity/femininity index (MAS).
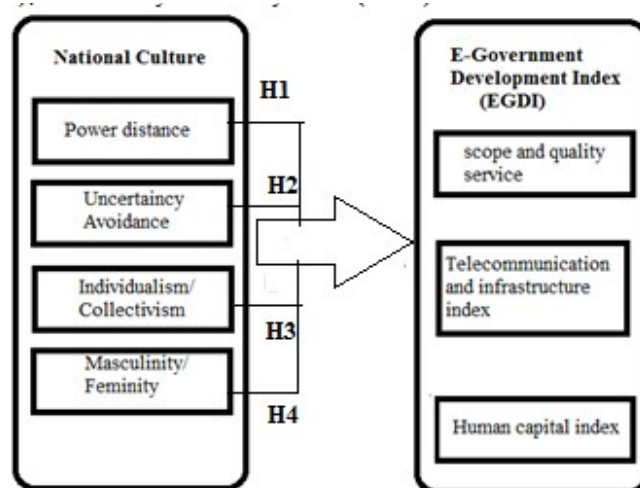
IV- RESULTS

A structural equation model has been proposed to evaluate the effect of national culture in adaptation E-Government services by citizens. The internal reliability of the four constructs (PDI, UAI, IDV, MAS) model was improved by eliminating variables with law factor loadings that were not statistically significant at α= 0.05. Table 3 shows results of partial least squares path modelling

TABLE- 3: hypotheses validation of regression

	Standardized Regression Coefficients	Coefficient Risk CR	T-value	Result of hypotheses
H1	0,191	1,082	0,093	Not supported
H2	0,710	2,126	0,001	Supported
H3	0,493	2,435	0,001	Supported
H4	0,179	1,146	0,156	Not Supported

V- DISCUSSION

Based on results of Table 3 cultural variables only, H2 and H3 are supported .

Tunisian national culture is characterized by a great power distance [13]. Tunisian people accept hierarchy and this attitude is explained that paternalism is presented current form of resolution problem. Thus in Tunisian family the culture of obedience is important, it's father who have absolute power [15]. Children grow up in atmosphere marked by respect. Despite high power distance in Tunisian culture, citizens adopt E-government services (H1 not supported). This attitude is explained that government have great consideration and responsiveness of the service. So citizen adopt available government service and obey instructions. Government have power and for Tunisian citizen power is right and good [15].

According to [16], Tunisian national culture is characterized by high uncertainty avoidance. Tunisian economic system is bureaucratic so citizen adopts E- Government services because they do not preferred the traditional method face to face due to the long routine. Using E-Government services, citizen become an active participant [17]. Through this interaction, user can control everything. So E-Government services can be appreciated by citizen with high uncertainty avoidance. Government is not the only ones to have the power to decide and instead of the individual who may better suit him. The user can also decide on a multitude of parameters: the information received, the duration of consultation, frequency of visit, site content, etc [18,19].

The individualism defines the relation between member of society. In Tunisia people consider the group as the main source of identity (high collectivism). They judge E-government service like the behavior group. Religion is also considered as one of the main determinant of internet usage in these countries [20]. People in the Arab world find the internet as an approach to break up the limitations of the traditional and social life [21]. Tunisia is an Arab-Muslim country. Family and religion are the origins of social relation. Values and norms of Tunisian society accorded importance to the family, school etc… [22]. On other hand, an individualistic culture would have a positive attitude toward implantation E-government service. It pay more attention to the performance of the individual and E- Government service would be highly regarded and quickly accepted because technology could help individual to perform more efficiently.

Tunisian society is characterized by male values, such as the desire to achieve personal performance [23]. The preference in Tunisian society is for achievement and material

success. However it was argued that Tunisian country with high masculinity has a positive attitude toward e government services because these technologies increase the chance of success and support competition, which are the key of masculine culture.

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