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## VISION OF ELECTRONIC GOVERNMENT IMPLEMENTATION IN KURDISTAN REGION OF IRAQ

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**Abstract:** With the majority of countries in the globe having embraced new technologies and having connections to the internet and the world wide web, more and more governments nowadays (be national or local in scale) look to engaging these technologies in an effort to improve the way they offer services to citizens. Some do so in order to the channels through which they communicate and interact with their citizens, while others look forward to improving the efficiency of delivery of services and consequently introduce savings in the utilization of resources that could be diverted in creating additional value adding initiatives. Over the latter half of the current decade, many developing countries have been attempting to imitate the western models and introduce e-government services in their portfolio expecting savings, efficiency and a drive for modernization across their states. The purpose of this paper is to explore the potential of initiating an enhanced programme of delivering government services through a multitude of channels that embrace electronic communication media, in a developing country. In particular the paper discusses the case of the regional government of Kurdistan in the federated state of Iraq. The authors explore the potential of any e-government implementation through the study of the status of technological infrastructure, the levels of available skills and more importantly the desires and expectations of citizens as well as government employees. Through an extensive questionnaire survey the views of all representatives groups of stakeholders are captured and this first phase of results is critically analyzed against potential drawbacks and constraints in development. Issues of cultural differences, technical competences, education and trust are also considered before a first level recommendation as to the best avenue to pursue is identified and put forward in the concluding section of this work.

**Keywords:** KRG, e-Government, e-government requirements, e-challenges, and stakeholders perception.

### 1- Introduction

E-government is a dynamic continuous service provision process which makes availability of services to the community electronically via various channels; such as internet, telephone, wireless devices, and other communication systems. Electronic government has added new notion to the general administration such as; transparency, accountability, citizen contribution in decision making, the assessment of government's act, and transformation to e-governance (Mohammad et al. 2009). E-government is differing from e-governance, Fang, (2002) summarize e-governance as the direct contribution of the people in decision making and participating in political activities such as e-democracy, and e-voting. In a broader definition e-governance will cover parliament, Judiciary functions, government, citizen contribution, political parties, and organizations. World Bank's website provides an extensive definition of e-government as "... *E-Government*" refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. The resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions"... (World Bank Group 2009). In the 21st century e-government provided a great drive to move forward with superior quality, effective financial resource, more efficient services and enhanced relationship between stakeholders and government (Fang, Z., 2002). Heeks (2008) found in his study due to the success and failure levels of e-government in developing and transitional countries, shows that 35% are total failures in which the implementation were deserted or the system were not implemented such as East Africa, 50% can be measured to be partial failures in which some aims of the implementation were not achieved such as Eastern Europe and approximately 15% are successes, where most of the aims of the stakeholders were achieved. However though, e-government initiative would be success if the government authority convinces all the stockholders of an e-government project (Savvas, et al. 2009). In other words the successful e-government systems

are those that closely reflects the reality and do not attempt to change radically. The most important feature of e-government is how to encourage and motivate citizen and business closer to their government; also how to prepare innovative channel that will be useful for community. Furthermore, the implementation of e-government depends on the culture of the region. In other words the situation is varied from region to region (Carter, and Weerakkody, 2008). As far as literature concern, e-government implementation can be classified into two classes which are depicted in figure 1 (Al Hujran, and Chatfield, 2008).

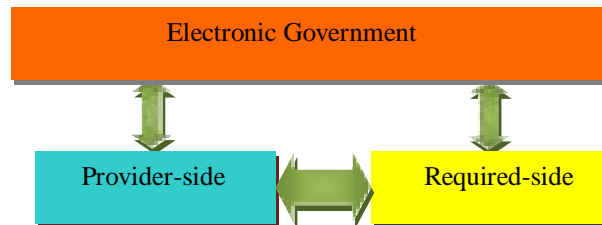


Figure 1 the conceptual structure for e-government

The first class is the provider or supply-side perspective which imitates issues that are vital to the provider of public services, for example local, state, federal or national government. Consequently, this perspective find out technological, economical, and societal issues such as IT infrastructure, resistance to change, financial resource, and personnel skills, that influence the implementation of e-government services (Coursey et al. 2007; Norris, and Moon, 2005). The second class is the required or demand-side which concentrates on the consumers/users of public services; this class explore some issues such as culture, trust, citizens participation, and experience that influence consumers/users to utilise e-government services (Carter, and Bélanger, 2005; Phang et al. 2005). According to some researchers that e-government implementation still not reached the full effectiveness level (Reddick, 2004; Wescott, 2002; Coursey et al. 2007; Norris and Moon 2005). The index growth of e-government readiness on the survey of UN (2008) show that United Arab Emirates (0.6301) lead the Western Asian region after Israel (0.7393), but Iraq (0.2690) with the rank of 151. Moreover, In the Arab world only some countries such as United Arab Emirates, Bahrain, Jordan and Qatar are provide the community with e-government services such as online payment transaction and online democracy (Chatfield and Alhujran 2007). However, the UN report in (2005) indicated that approximately 25% of national governments worldwide supply the community with online financial transactions i.e. online payment. Kumar et al. (2007), dedicate that only 30% of citizens using government website. According to the literature review most of the academic literatures has focused on the second (required-side) class e-government. In this paper we will shed lights on both classes according to the literature survey and citizens' perception.

The rest of the paper is organised as follows. The next section examines a quick view of the environmental state of Kurdistan Region of Iraq. Section three explains methodology that used in this study. Section four outlines the current government services to determine to what extent the e-government initiative can become a useful tool in providing effective and efficient services, and we will also present the perception of different stakeholder groups within Kurdistan. Section five will examine the findings to provide some evidence of system requirements analysis will be carried out using extensive literature survey and questionnaires. Before conveying this paper to a conclusion, barriers and challenges faced in the implementation of a successful e-system including but not limited to technological, economical, societal, trust, and political issues will be covered in section six.

## 2- Iraqi Kurdistan at a Glance

Iraq is a federal state, Kurdistan Region is one of the Iraq's region, currently is consist of three cities; includes Erbil (capital), Sulaymani, and Duhok. The region is located at the north of Iraq; it neighbored Iran to the east, Syria to the west, Turkey to the north. The area of the region is about 40,643 Km<sup>2</sup> (KRG) and the estimated population is 4,910,742 (KRSO, 2007). After the uprising of spring 1991, the Iraqi central government withdraws all the administrations from Kurdistan. This has created a power vacuum situation, but the Kurdish authority was able to build an administration by their efforts. They held an election in 1992, and made an accountability government. The regional government always concentrates on the role of new technology in the re-construction of the Kurdish

social life, infrastructure, services, increased political freedom and tangible improvements in the people's daily lives.

### **3- Methodology**

A pilot study is used as part of the scale development methodology in order to evaluate and identify the current state affairs circumstances in Kurdistan Region of Iraq, and also to see the understanding of citizens and the awareness of e-government. We conducted our survey on Erbil city as our main sample of this research as an initial phase, because it ranks among the best in criteria in fields related to area size, population, strategic place, as a capital of Kurdistan region and the location of the government cabinet. For the pilot survey, we identify some Kurdistan Regional Government (KRG) agencies such as; Erbil governorate, Erbil municipality, Erbil Tax land, Erbil traffic police office, department of foreign relationship, and department of IT at the council of ministries. Two types of questionnaires were carried out, first questionnaire is 33 questions were distributed among ordinary citizens that visiting the above government agencies, the total of 400 forms were distributed and 270 or 67.5% survey responses rate were received, and the second questionnaire is 23 questions were distributed among 150 employees in the above agencies and a total number of 96 or 64% survey responses rate were received. In addition, interviews were carried out with some of the government's directors.

### **4-The current state affairs of Kurdistan Regional Government (KRG)**

In Kurdistan, the e-government program is a national initiative of the prime minister of the region as the plan looks for to aim greater effective and efficiency in government services performance by lifting up the quality of service delivery to its citizens and businesses from all society sectors simply, effectively, and efficiently, to turn into a modern type of act of government workforces and government communications in order to establish a civil society. To attain this plan, the IT department in the council of ministries has been launched to perform a strategic plan, and prepare for e-government initiatives and its implementation in collaboration with various stakeholders and sectors. Within the span of the work of e-government within the framework plan, the IT department has started with smart ID project as an initial pace towards electronic government. Nevertheless, in 2008 KRG has managed to sign an agreement with Price Waterhouse Coopers (PwC) to create an IT strategy for KRG in order to assist government to make a strategic plan of IT and a roadmap for implementation of the project with a budget of 3.5m US dollars. Furthermore, In 2009 the IT academy has been launched as a centre for learning and training government employees in various aspects such as; IT skills, managing, and others, Kurdistan region authority always focusing on the role of ICT as a driving force tool for service provision to the community. The finding revealed that the questionnaires respondents mostly had a positive approach towards e-government initiative, despite some of them mentioned to some negative attitude. The result summarise the benefits of government program services in Kurdistan region of Iraq, also identify the drawbacks of the current system, and the factors that influence an e-government implementation.

#### *4-1. Benefits of electronic government*

The following are general benefits of e-government initiative system (Zahran, 2003; ESCWA, 2003)

- 1- Raise the effectiveness and efficiency of the government services to citizens and all other stakeholders.
- 2- Reduce illiteracy, and digital divide
- 3- Provisioning of high quality of services 24/7 basis to stakeholders through various channels.
- 4- High opportunity for businessperson and investors.
- 5- Major contribution to economic development, and assisting the flow of business.
- 6- Improve transparency and accountability, and hence facilitate to reduce the corruption.
- 7- Reduce the operating cost in terms of transaction with government, time, effort, and cost saving.
- 8- Reducing the government bureaucracy.
- 9- Reduce the complexity of government administration and bringing citizen and government closer together or enhancing internal government's functions and process.
- 10- The ability to access government services and information anywhere, and anytime.
- 11- Opportunity of collaboration among government departments, and promote integration and data exchange
- 12- Increase the level of consumers/users satisfaction from services provided by government.
- 13- Augment of job opportunity.

- 14- High degree of integration and collaboration between government sector and private sector.
- 15- Increase citizen contribution in political activities and decision making in government, includes e-voting, and e-democracy, and
- 16- Centralizing some functions, thus reducing cost and redundancy.

*4-2. Key drawbacks of the current KRG system*

- 1- Unavailability of updated information and documents which has increased reliance on the system developer.
- 2. Unavailability of electronic transaction, except tender form downloads on the KRG web, and Kurdistan board of investment website. Lead to more waste of time, energy, and money
- 3. Obsolete administration system that increased time process or delay process and effort during service provision.
- 4. Disintegrated system in which does not allow exchange of information between various agencies.
- 5. Obsolete /old technology system is in use due to continued dependence on the old legacy system.
- 6. Lack of computerized system functionalities.
- 7. Massive cost expenditure due to unavailability of computerised system.
- 8. Inefficient, less transparency and more availability for corrupted system administration, and
- 9. Lack of collaboration between different ministries and perhaps government agencies.

*4-3. Key advantages of the current KRG system*

The current system has no major advantage, according to some of the citizens' perception; the following are some of the advantages were identified

- 1. Less risk in terms of trust, security and privacy
- 2. Most of the transactions occur physically which associated with culture attitude, in other words many people have queue culture rather than online transaction, and
- 3. Depiction of high cost of equipment such as hardware and software solutions.

**5. The findings**

The survey was supported with qualitative study such as interviews and questionnaires. The findings analyse the data collected from two types of questionnaires, and also an interview carried out with some of the directors of the KRG staffs, that identify the current circumstances and to find out the ability of e-government implementation in the region.

*5-1. Gender characteristics*

The data collected from questionnaires demonstrate the fact that 69% of the ordinary citizen respondents are male and 31% of them are female. While 73% of the employees respondents are male and 27% are female. In addition, 32% of the ordinary citizens respondents are young of the age of 26-30 (see figure 2) that will indicate the most of the younger people performing the transaction with government hence, which will ease the implementation of e-government in the region. Furthermore, 45% of the people going to the government offices are an employee compared to others, which will show that these employees should leave their jobs for some time in order to execute their transaction.

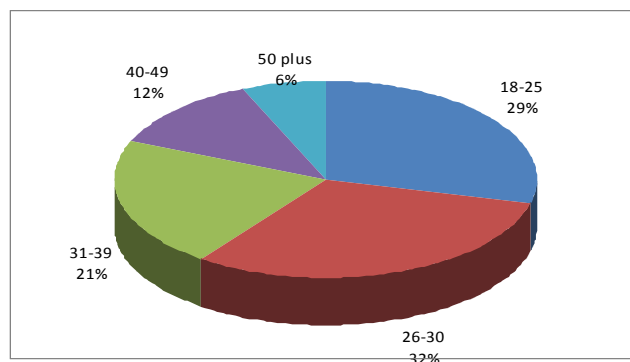


Figure 2 Describing citizen age

## *5-2. Computerisation and internet*

After the establishment of KRG formally in 2003 which was recognised by Iraqi constitution, the Kurdish authority has started to equip all the government offices, universities, and most of the schools with computers in order to follow the development and to start to computerise the system. According to the interview with the director of the ministry of communication indicated that all the ministries are connected via fiber optic cables, and also there is a debate regarding the connection to the FLAG (Fiber-optic Link around the Globe) Network, this is a network that connects, U.S. Japan, and the Middle East through an undersea cable system via Turkey. Currently, KRG is also in a discussion with Iran to connect Kurdistan region with Iran via fiber optic cable. In terms of the availability of computers at home and using internet, 92% of the government employees have computers at home, and 84% of them using computer for internet, 60% of the employees accessing the internet at home. Moreover, 72% of them spend more than one hour on the internet per a day. The results show that 67% of the ordinary citizens have computers at home, while 54% of them have internet access at home, and 27% of them using it at work, 51% of the respondents accessing the internet for more than one hour per a day, and 33% of the respondents accessing the internet for 45-60 minutes, while 16% of them accessing for 0-44 minutes. These results point out that citizen in Kurdistan have significant experience in using computers and internet. This implies that citizens in the region have skills and the availability to use electronic system is high.

## *5-3. online services*

The main characteristic of e-government is to provide services electronically at higher level of convenience, efficiency and effectiveness to the citizens and other stakeholders. In Kurdistan region of Iraq there is no such online services to its citizens, 95% of services are manual, accept tender forms on the KRG website, and forms available on the Kurdistan board of investment website for businesspersons. The result show that 76% of citizens visiting government offices to perform their needs, the rest using different channels which is mere to employees to communicate among different government agencies. The survey revealed that 56% of the government agencies have website, and 53% of the employee respondents have indicated that their agencies has plan to design website by early next year. That implies the citizens have no enough access to the website, and all web sites are presenting just news and their activities and no such online interaction and transaction.

## *5-4. ICT infrastructure at the local government*

Most of the local government institutions in Kurdistan region have a separate ICT department that is responsible for all information technology needs. 57% of the employee respondents answered yes for the availability of separate ICT department in their agency, while these departments are not active and not developed to the context of e-government initiative. Particularly, many municipalities in Kurdistan already have a fundamental ICT system in place. However in the context of requirement there is almost no use of ICT in the interaction of the government with the public, and also in the case of the municipalities in Kurdistan, ICT use in the range of zero, based on the interview with the head of the IT department, mentioned to the unavailability of a strategic plan to follow it. 63% of the employee respondents indicated that their agencies have no master plan to guide its future e-government initiatives.

## *5-6. Completion transaction in terms of cost and time*

E-government implementation has a major contribution to economic developments, hence reduced the operating cost, time, and energy. In Kurdistan region because of the unavailability of e-government system, current government provide services to its citizens manually that will needs more time waiting and cost a lot compared to the electronic system. The survey shows that 35% of the citizens spend 30,000-59,000 ID (Iraqi Dinar) equivalents to £15-30 to complete a simple transaction excluding fees, and also 54% of the citizens spend one to five days to complete their transaction (see figure 3). Furthermore, 41% of the citizen respondents in the traffic police office spend 30,000-59,000 ID equivalents to £15-30 to complete driving licence application excluding fees, and 43% of citizen indicated that required one month and 36% required more than one month to complete and gain a driving licence. That implies that citizens should wait for a long time and circulating to the various institutions to carry out their transaction. Consequently, that will cost money, time, and efforts a lot. Therefore, 70% of respondents are interested in applying for driving licence online, and also 73% of

respondents are interested in applying online for house building permission. In terms of businessperson, 93% of businessperson's respondents do not perform any completion and submission of business license applications or renewals online. Merely, a downloadable form is available on the Kurdistan board of investment (KBI) website. Moreover, 63% of respondents interested in apply online for registration to set up a company. That mean the community generally, interested in performing their desires online.

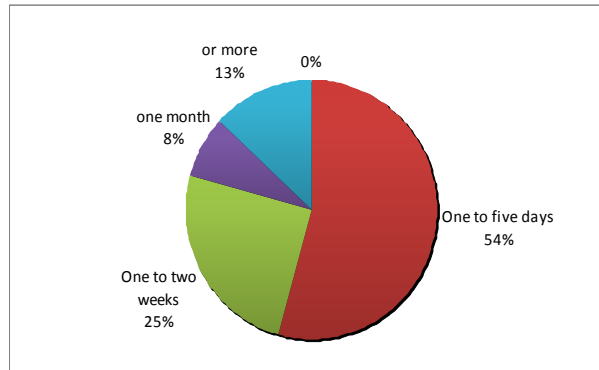


Figure 3 Transaction completion time

The survey indicated that citizens are generally not satisfied with the current government services. 33% of the respondents are not satisfied, and 22% of them are neutral, merely 13% of them are very satisfied (see figure 4).

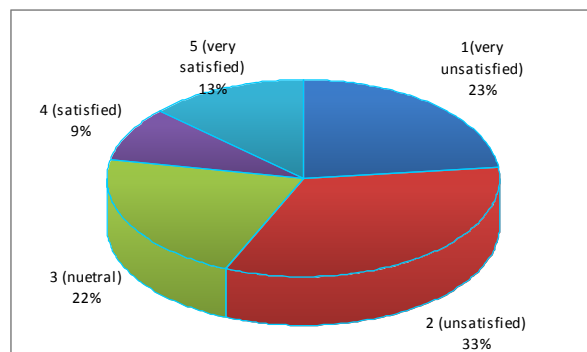


Figure 4 satisfactions with the current services

Table 1 show the overall services that provided by Kurdistan Regional Government, and demonstrate the percentage of citizens interested to get these services electronically.

Services available	Online	Citizens interested online
Driving licence application		70%
Vehicle registration		✓
Renew driving licence		70%
Demolish and building, permission		73%
Land and property registration		✓
Tax paying		49%
Birthday certificate		✓
Death certificate		✓
Marriage certificate		✓
Passport application		76%
Electricity bill paying		✓
Water bill paying		✓
Banking (transferring money)	✓	77%
Apply to University		80%
Enrolling to University		82%



Accessing to the library		78%
In class learning		79%
Voter registration		✓
Voting		✓
Business License application and renewal		93%
Applying to set up a company		63%
Goods purchasing		79%
Tender application form	✓	✓
Top up credit for mobile		✓

Table 1 overall services provided by KRG

## 6. Challenges

There are many factors and challenges that impact the e-government initiative system that most noticeable in technologically developing and even developed countries (Sweisi, and Adams, 2006; Al-Sebie, and Irani, 2005). According to the interview with the head of IT department at the council of ministries mentioned that current government system faced several challenges that should be solved to prepare for e-government initiative, and he precisely focused on the lack of interoperability and lack of inter-agency coordination between ministries and government agencies, hence will make e-government initiative difficult, because every ministry carrying out projects independently without referring to other agencies or sharing the information with other related ministry to uptake the project successfully. The survey also found that needs to focus on relevant factors and challenges were identified to consider e-government success (see table 1), the findings summarize the most important challenge that effect e- government initiative.

Technological	Economical	Societal	Political
ICT infrastructure	High financial resources	Citizen awareness	Strategy vision and missions
Internet skills	Cost, time, and effort during transaction	Human capacity building, Internet penetration	Policy issues and legislation
Computer and ICT literacy	Funding, budgets	Culture attitude, Partnership	Weak of education system policy
Education learning capability, and Inter-operability of computer system		interoperability ,collaboration of public/private, Resistance to change, Ease of access and usage	Leadership role, involve, support, motivate, and influence
international connection networks		Citizen participation, Poor of information quality and System acceptance	legal framework of public process of government, lack of standards
		Privacy, security, trust, and Level of stress Citizens requirement and their views	lack of management skills, and Data Protection

Table 1 E-government Challenges

### 6-1. Technological challenge

The role of ICT on business and administrative processes has been used since early 1970's when the computerization process start, but the corresponding economic and social dimensions were considered with some delay (Vehovar, 2006). The personal computer started on 1980's linked via internet in 1990's. ICT in terms of technical point of view is a combination of hardware include equipment or devices, the software solution includes, operating system, application, and



communication includes local area network, WAN, backbone network, WiFi, wireless networks, communication protocols, and others. The lack of ICT infrastructure and heterogeneous of technologies will increase the digital divide. Therefore, ICT is one of the fundamental challenges that facing the e-government in developing countries (Heeks 2008). The ICT infrastructure is well established in developed countries, but still remains as one of the main challenges in developing countries; such as Kurdistan. The findings revealed that most of the institutions in KRG equipped with computers and internet connection that will enhance the ability of employees to use the technology and collaborate with other agencies. Furthermore, all the ministries are connected together via fiber optic cable, which will ease the pace of e-government initiative in the region. However, most of the computers in the institutions are used for music and games. This is because of the unavailability of a strategic plan and employee's awareness for the e-government initiative. Most of the e-government maturity model published in government information quarterly dedicated that progress of e-government is a matter of technological and organisational complexity (Layne & Lee, 2001).

### *6-2. Economical challenge*

High financial resource is one of the primary challenges that face the e-government initiative. The traditional government channel services such as telephone, particularly physically visiting offices require more money for any government transaction (Aichholzer and Schmutzer, 2000); hence will affect the quality of services. The implementation of e-government system also required a huge budget to be accurate and efficient system.

### *6-3. societal challenge*

One of the important societal challenges is "trust" in many developing country people do not trust their government, especially where there has been a bad history dictatorship, or instability of political system. It is vital to ensure and build trust in government among citizens, hence will lead to the success of e-government system. Trust mainly referred to one of the mechanisms of governance in inter-agencies relations and a combination with government authority and cost more governance mechanisms (Zaheer, and Harris, 2006). Jahankhani and Varghese (2004) explain three types of trust namely; characteristic-based trust, process-based trust, and institutional-based trust, these types of trusts are very important that promote citizen in participating to the system and also is beneficial of the continuous progress and development of electronic commerce. Al-Khoury, and Bal, (2006) also identify three schemes to solve the trusted authentication medium for e-government services, by utilising developed technology national ID schemes namely; smart card, biometrics and public key infrastructure (PKI). According to the citizen respondents 84% of the citizen trust in e-government initiative, but this result will not be an accurate because there is no online transaction in the region.

### *6-4. Political challenge*

Any country led by rule of laws, transparency, human right and accountability will be a success country. Therefore, to implement e-government system it is vital to institute a regulatory and legal framework policy of the e-government system (Chittoo et al. 2009; InfoDev, 2002), In order to protect citizen's right and their information. The government should be separate from politics, while in Kurdistan politicians are running the country, in other words politicians controlling the government services provision, which will be the main obstacles to set up an effective e-government system. Therefore, e-government should have a standard and strategic policy plan and not be intercepted by politicians. In addition the lack of coordination between ministries and government agencies is the main issue facing the KRG, because each ministry develop their own system independent to other ministry. Therefore, the uncoordinated is a big problem that effect government efforts.

## **7. Conclusion**

The main exploratory of this paper is to analyze the data collected from two types of questionnaires, and also an interview carried out with some of the directors of the KRG staffs. We identified the drawback of the current government and the challenges that facing e-government initiative. The findings that current government does not provide such services electronically and most of the citizens are not satisfied with the current government service. Therefore, KRG has signed an agreement of with Price Water House Cooper UK (PWCUK) to carry out the strategic IT plan for KRG to be able to implement electronic government effectively and efficiently. The finding revealed that the questionnaires respondents mostly had a positive approach towards e-government initiative, despite

some of them mentioned some negative attitude. Our future plan is to propose a suitable e-government model for Kurdistan region of Iraq.

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