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REPORT

on

Development of a monitoring methodology for e-governance in Azerbaijan

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Executive Summary

The following paper provides a model for monitoring and evaluating of electronic services recommended to be used for assessment of the progress in e-Government development of Azerbaijan. Our proposal is based on data gathered in the Fact Finding Mission which took place in Baku on 12- to 14 November, and on international evaluation experience.

Levering on the international experience in M&E, and on the specificities of the country, we propose to select 20 e-services (12 e-services directed to citizens and 8 directed to business) for the scope of the present M&E exercising.

We propose to use a two tier track:

- a service provider's self-assessment of e-services done either as automated process via a self-assessment portal or in a simple Excel spread-sheet format. This assessment will include 3 components: a) an evaluation of the maturity of the e-services provided; b) the impact of the e-services in reducing corruption; c) the process of introduction of new e-services showing how many of the public services provided by the country are available in e-format.
- an experts group's assessment of the existing e-infrastructure if necessary and proving also the interpretation of gathered data as a whole.

As the e-services monitoring and evaluation is a statutory task of newly created State Agency for Public Services and Social Innovations under the President of the Republic of Azerbaijan, the whole e-services M&E process has to be carried out under the Agency's leadership. Therefore, we recommend that the Agency would create a self-assessment portal for the M&E of e-services provided by Azerbaijan state agencies. It is also recommended that expert group for assessment of e-infrastructure will work under The Agency's guidance. This group may give also guidance on the further developments of the e-services M&E methodology.

However, as the Agency has just been created, the first implementation of the proposed methodology may be done by experts gathered by OSCE in collaboration with the Agency. This exercise should lead in the next future to the creation of an M&E portal enabling on-line collection of data by the relevant State bodies.

In this first phase of the process, we also recommend to the OSCE office in Baku to facilitate the creation of a working group who will provide feedback on the development of the methodology along the process. This group might be supported by international expertise to share and discuss local and international best practises.

Without losing sight of the main objective of the methodology (to monitor and adequately evaluate provision of e-services) a model as simple and understandable as possible was chosen. This model can be implemented quickly and without the need for large resources.

Proposals for the next steps for implementation of the methodology are described in the end of this paper.

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1 Azerbaijan – on the way to a leading position in e-services

Azerbaijan has been successful in implementing many policy actions. However, there are still some serious challenges that need to be addressed. Individual and business technological readiness, industry-university cooperation, and the accompanying institutional framework are all areas that will require further improvement to boost ICT impacts for competitiveness. In addition, the government will also need to improve the quality, relevance, and usefulness of its websites as well as its willingness to provide online information and participatory tools and services to the people. Domestic and regional ICT projects carried out in accordance with the government programs and strategies, as well as the sectorial growth rate and evaluations by international experts indicate that Azerbaijan's ICT sector has high chances of catching up with oil revenues by 2025, and the country will become a regional ICT hub [1].

1.1 Infrastructure as a precondition for developing e-services

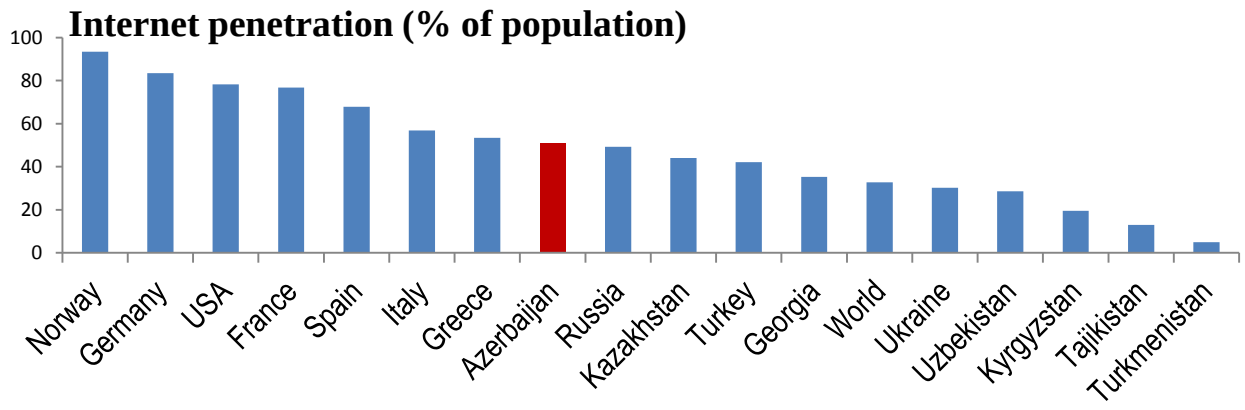
Azerbaijan's robust ICT infrastructure (see Table 1) enables the efficient provision of government e-services. Thus implementation of e-services in different economic sectors has continued to advance and improve. Azerbaijan has made significant achievements in developing fixed telephony, increasing broadband penetration and international Internet bandwidth capacity and improving its television, radio, and mobile telephony infrastructure.

Indicator	2009	2010	2011
Fixed-line penetration (per 100 inhabitants)	16,0	16,2	18,6
Broadband Internet users penetration (per 100 inhabitants)	10,0	15,0	30,0
Internet penetration (per 100 inhabitants)	41,0	50,0	65,0
International Internet bandwidth capacity (GB/s)	15,0	40,0	87,0
Digital television broadcast (percent of the country's inhabited territory)	30,0	45,0	85,0
Mobile telephony penetration (cellular subscriptions per 100 inhabitants)	86,2	100,0	110,0
Computer penetration (computers per 100 inhabitants)	12,0	15,0	20,0

Table 1: Major ICT infrastructure development indicators of Azerbaijan. Source: State Statistical Committee and the Ministry of Communications and Information Technologies of the Republic of Azerbaijan [2]

A good precondition for using e-services is the high rate of internet users - 65% (see Figure 1), which is strongly getting closer to the usage rate of developed countries. The introduction rate to fast broadband internet is also rapidly rising. Some Azerbaijan's ratings are so high that comparing them to the world's average indicators has no point. For example internet penetration rate is already 2-3 times bigger than the world's average and is only 5 points behind the 2011 indicator 70,2 of the developed countries.

Figure 1: Internet penetration rate



Source: http://data.worldbank.org/indicator/IT.NET.USER.P2 [3]

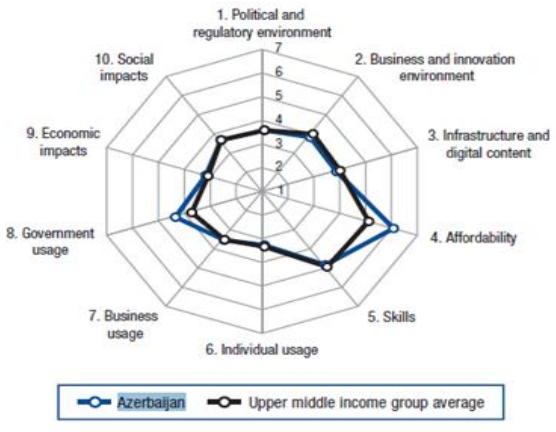
Azerbaijan's progress in the development of infrastructure is reflected in several international benchmarks.

The ICT Development Index (IDI), which ranks countries' performance with regard to ICT infrastructure, ranked Azerbaijan in 2011 **68th** out of 155 countries and 2010 **73rd** out of 155 countries as well [4].

The growing technical readiness of Azerbaijan is also demonstrated by advancement in the ranking of the Networked Readiness Index which offers an overview of the current state of ICT readiness in the world. The Networked Readiness Index (NRI) 2010-2011 ranked Azerbaijan **70th** out of 138 countries and NRI 2012 ranked Azerbaijan already **61st** out of 142 countries (see Figure 2) [5].

Figure 2. The Network Readiness Index of Azerbaijan 2012

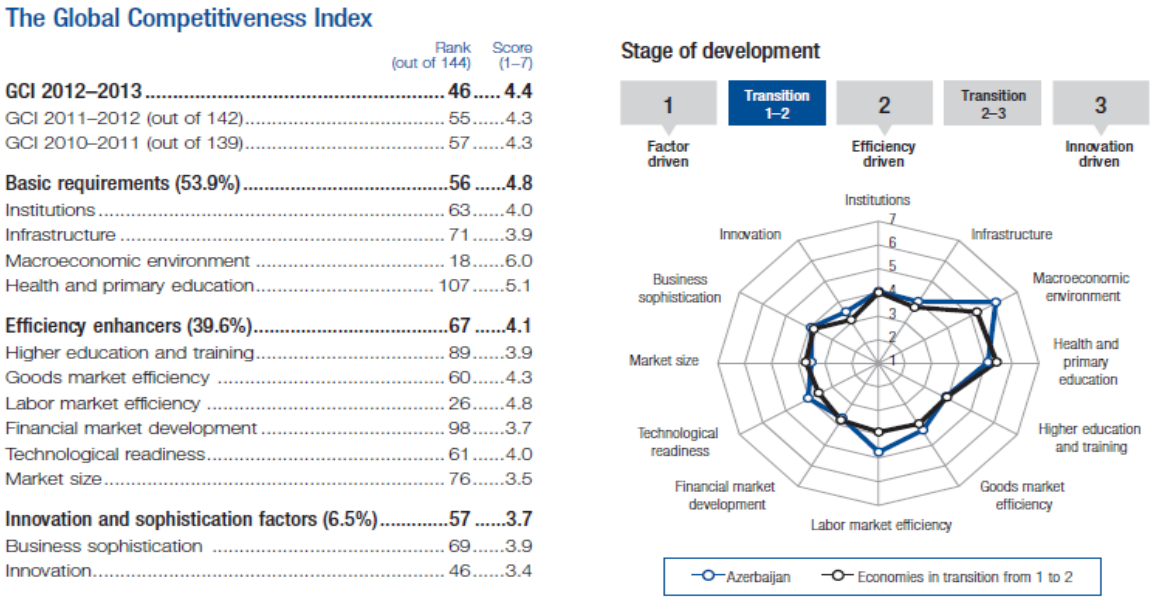
	Rank (out of 142)	Score (1–7)
Networked Readiness Index 2012	**61**	**3.9**
A. Environment subindex	**77**	**3.7**
1st pillar: Political and regulatory environment	75	3.6
2nd pillar: Business and innovation environment	80	3.9
B. Readiness subindex	**61**	**4.9**
3rd pillar: Infrastructure and digital content	72	3.8
4th pillar: Affordability	25	6.0
5th pillar: Skills	82	4.8
C. Usage subindex	**57**	**3.7**
6th pillar: Individual usage	70	3.2
7th pillar: Business usage	72	3.5
8th pillar: Government usage	38	4.4
D. Impact subindex	**70**	**3.5**
9th pillar: Economic impacts	68	3.3
10th pillar: Social impacts	67	3.7



Source: The Global Information Technology Report 2012. Living in a Hyperconnected World. World Economic Forum.

We will get a similar picture when dealing with the other survey conducted by the egis of World Economic Forum. The 2011-2012 Global Competitiveness Index (GCI) ranked Azerbaijan **55th** out of 142 countries and 2012-2013 Networked Readiness Index ranked Azerbaijan **46th** out of 144 countries (see Figure 3) [6] [7].

Figure 3. The Network Readiness Index of Azerbaijan 2012-2013



The Global Competitiveness Index

	Rank (out of 144)	Score (1–7)
GCI 2012–2013	**46**	**4.4**
GCI 2011–2012 (out of 142)	55	4.3
GCI 2010–2011 (out of 139)	57	4.3
Basic requirements (53.9%)	**56**	**4.8**
Institutions	63	4.0
Infrastructure	71	3.9
Macroeconomic environment	18	6.0
Health and primary education	107	5.1
Efficiency enhancers (39.6%)	**67**	**4.1**
Higher education and training	89	3.9
Goods market efficiency	60	4.3
Labor market efficiency	26	4.8
Financial market development	98	3.7
Technological readiness	61	4.0
Market size	76	3.5
Innovation and sophistication factors (6.5%)	**57**	**3.7**
Business sophistication	69	3.9
Innovation	46	3.4

Source: The Global Competitiveness Report 2012-2013. World Economic Forum (WEF) [7].

We have so far praised Azerbaijan's success in developing technical infrastructure, which is an inevitable precondition for developing e-services. Subsequently we will be examining if the technical success story has succeeded in transforming adequate e-services.

1.2 e-services in fight against corruption

When comparing technical indicators, Azerbaijan's position in the world has been constantly rising but when it comes to analysing the Transparency International corruption index, Azerbaijan's position has not improved remarkably. The Corruption Perceptions Index ranked Azerbaijan **134th** out of 178 countries in 2010, **143rd** out of 183 countries in 2011 and **139th** out of 174 countries in 2012 (see Figure 4) [8] [9] [10].

Figure 4. The Corruption Perception Index of Azerbaijan 2010, 2011, 2012

2010

RANK	COUNTRY	SCORE
134	Azerbaijan	2.4

2011

RANK	COUNTRY	SCORE
143	Azerbaijan	2.4

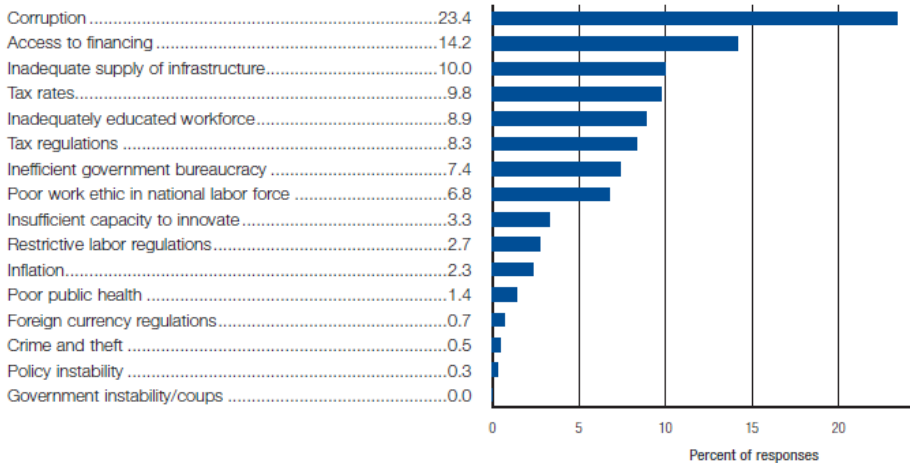
2012

RANK	COUNTRY	SCORE
139	Azerbaijan	27

Source: Transparency International [8] [9] [10].

GCI survey does not only include technical indicators but also the factors preventing business activity in a country. The following list of factors preventing business activity in Azerbaijan demonstrates the subjects that the country should be focusing on in the near future i.e. fighting corruption (see Figure 5).

Figure 5. The most problematic factors for doing business in Azerbaijan



Source: The Global Competitiveness Report 2012-2013. World Economic Forum (WEF) [7].

Already in 2007, Azerbaijan made an effort to minimise corruption. The Government implemented the Strategy of Increasing Transparency and Combating Corruption that was approved by the Presidential decree in May 2007 in line with the 2007-2011 Action Plan.

Report on OECD's second round of monitoring Azerbaijan showed that "While fight against corruption is declared a political priority in Azerbaijan at different levels of power, failure to implement certain measures may indicate an insufficient will to implement policy declarations. Following the State Programme for Fighting Corruption for 2004 – 2006, adoption of a new National Strategy on Increasing Transparency and Combating Corruption in 2007 and an Action Plan for 2007 – 2011 represents an important achievement in the development of anti-corruption policy in Azerbaijan. Several analyses about levels and trends in corruption were carried out to provide the basis for the development of the policy; however, the results of these surveys were not sufficiently disclosed to the public. More efforts are needed from the central authorities to develop useful and result oriented action plans to promote anti-corruption reforms in various sectors; there is also a need to promote anti-corruption measures at local level." [11].

In 2012, the Government made three important steps to strengthen its anticorruption policies, including the development of a new Action Plan [12] for Increasing Transparency and Combating Corruption to implement the second phase of the anticorruption strategy adopted in 2007, the creation of a State Agency for e-services [13] and associated with Open Government Initiative [14].

The Republic of Azerbaijan is strongly committed to fighting against corruption - the new anticorruption action plan marks the willingness of Azerbaijan Government to use e-governance as a main tool for fighting corruption. Through development of e-governance the transparency and accountability of Government increases, which is critical to turning back the tide of corruption. President of Azerbaijan Ilham Aliyev has emphasized that broad application of electronic services is a major contributor to the fight against corruption and bribery [15].

Formation of The State Agency for Public Service and Social Innovations under the President of the Republic of Azerbaijan is extremely important for developing e-services. The United Nations E-Government Survey 2012: E-Government for the People examined the institutional framework for e-government and found that the presence of a national coordinating authority can help overcome internal barriers and focus minds on integrated responses to citizen concerns – an important lesson for sustainable development actors. Azerbaijan needs a strong leader in developing e-services and that is a challenge for the State Agency for Public Service and Social Innovations, which first major work is establishing the ASAN service centres in order to ensure that all services are rendered to citizens from a single source, with higher quality and in a more convenient manner.

Azerbaijan has also joined the Open Government Partnership (OGP) in 2012 with a goal to improve its activities aimed at increasing transparency and promoting Open Government; to exchange international experience; and to contribute to the international efforts in this domain. National Action Plan 2012-2015 consists of special subdivisions of e-services development.

1.3 Rapid development of e-services in Azerbaijan

To speed up the implementation of plans of State Program on the Development of Communications and Information Technologies of the Republic of Azerbaijan in 2010-2012 (Electron Azerbaijan) [16] the Decree of the President of the Republic of Azerbaijan on the Provision of Electronic Services by State Bodies [17] was passed.

Central Executive Bodies received orders:

- to create the Electronic Services sections on respective Web-resources according to their authority in order to provide specific Electronic Services;
- to place the name of the service, list of all required documents, electronic forms of all required documents (applications, blanks, other) on the Web-resource and establish the possibility to use this service for everyone in a smooth and free fashion;
- to provide opportunities for citizens addressing Electronic Services section to send scanned versions of all required documents;
- to notify citizens upon the receipt of the documents;
- to create conditions in which documents will be examined according to the legislation and within the specified period of time;
- to use Electronic Information Resources (databases, search engines, registries, other information resources) in order to collect information on documents provided by the citizens;
- to require originals of the documents from the citizens in case the usage of the Electronic Information Resources brought no results;
- to create opportunity for the payment of the Electronic Services' tolls in real-time using electronic payment methods;
- to create a system capable of providing information privacy and payment security for the users.

Ministry of Communications and Information Technologies received orders:

- to provide State Bodies with Electronic Signatures in order to develop Electronic Services, to provide legal and physical persons with Electronic Signatures upon the request;
- to implement all necessary tasks in order to make information exchange between State Bodies' information systems possible;
- to create Electronic Government web-site in order to organize Electronic Services according to one-stop shop principle.

On the basis of the President's decree on Nov 24th 2011 Decree of the Cabinet of Ministers of Azerbaijan Republic was legislated, which approved **"**The Rules for Providing Electronic Services by Central executive bodies in Concrete Areas" and "List of Electronic Services". The Cabinet of Ministers decree determine 285 e-services provided by 41 service providers in 29 spheres of e-services [18].

The Cabinet of Ministers 17.10.2012 decree No 235 modifies The Cabinet of Ministers of Azerbaijan's 24.11.2011 decree No 191 and determines already 417 e-services provided by 40 service providers [19].

EHDİS

To enable interoperability between different IT systems in Government "The state of e-government information system - EHDİS» project was initiated by the Ministry of Communications and Information Technologies. The project was implemented in partnership with the Azerbaijani-

Estonian company B.EST Solutions and with the participation of Azerbaijani and Estonian companies SayberNet, Cybernetica, Aktors.

Under the EHDİS several government databases are already connected enabling exchange of data between different government agencies.

As a single information system for data exchange used by all government agencies - EHDİS can solve interaction not only among government agencies, but also with various companies and individuals. Thanks to EHDİS doing business in the old way with a physical visit to the government agencies and paperwork will remain in the past, and various services will be available over the Internet, just a few keystrokes away.

Government employees in accordance with their duties and authority have access to the information from the information systems of various government agencies. For example, on request, data about property, vehicles, employment, insurance, credit, education and diplomas, etc. can be found.

EHDİS is a complete system consisting of certification Centre, central servers, monitoring system, security servers, adaptive server, support and official communications system. EHDİS is an extremely secure system, it meets safety standards ISO27001. EHDİS does not contain the data itself, but is an intermediary in the transmission of data. The EHDİSsystem provides such important conditions as data security, standardization, observability, traceability, reliability.

As part of the project EHDİS technical, organizational and legal framework for the transfer of data between public authorities, citizens and businesses have been created. At the moment the Ministry of Communications and Information Technologies, Ministry of Taxes, the State Customs Committee, Ministry of Justice, Ministry of the Transport, the State Social Protection Fund, the General Prosecutor's Office, Ministry of Labour and Social Protection, Ministry of Education, Ministry of Health are participating in the pilot project.

EHDİS can be compared to a living organism or a tree, which is constantly growing and evolving by connecting new services and databases. The introduction of this system in Azerbaijan in the near future will not only enhance the efficiency of the public authorities, but will also ensure the transparency of relations between citizens and public agencies and help to eliminate bureaucracy and corruption.

One-Stop Shop

The state incorporation of the entrepreneurial activity has been carried out according to the One-Stop Shop principle since 2008. As a result, the number of procedures for incorporation of the commercial legal persons dropped from thirteen to three, the term shortened from fifty three days to just three and the number of the documents provided decreased five times. Azerbaijan was named as a ‘reformer state’ in the World Bank survey of *Doing Business 2009,* due to reforms in the field of launching business. The registration of the physical persons for entrepreneurial activity started on the 1st June 2011 and the incorporation of legal person, on February 2012. Furthermore, One Stop Shop facility has been in the areas of border-checking of transported goods and vehicles from 2008, immigration procedures from 2009 and registration of imported vehicles as of 2011.

The Decree of the President of the Republic of Azerbaijan on the Provision of Electronic Services by State Bodies gave an order to the Ministry of Communications and Information Technologies to create an Electronic Government web-site in order to organize Electronic Services according to the one-stop shop principle.

Portal www.ehdis.az is the primary mechanism to provide access to e-government services. The portal will feature information and transactional e-services, arranged for civil servants, citizens and businesses. This list is dynamic and constantly updated with new services ready to use. Over time, this portal will be the main source of communication between citizens and legal persons with public authorities.

EHDİS portal mediates 152 e-services from 38 central state agencies, the leader is the Ministry of Taxes.

1.4 How is e-state of Azerbaijan seen internationally?

The United Nations global survey of e-government presents a systematic assessment of the use and the potential of information and communication technologies to transform the public sector by enhancing efficiency, effectiveness, transparency, accountability, access to public services and citizen participation in the Member States of the United Nations, and at all levels of development. By studying broad patterns of e-government around the world, the report identifies leading countries in e-government development. It also suggests a way forward for those that have yet to take advantage of its tremendous power.

The 2012 United Nations e-government development index (EGDI) ranked Azerbaijan **96th** out of 190 countries, 2010 index ranked **83rd** among 192 states, up from its rank of **89** in the UN's 2008 report (see table 2). The biggest development in 3 sub-indexes has been in the infrastructure component (see table 3) [20] [21]. The EGDI of Azerbaijan is continuingly (since 2008) above the world's average, but it is still below the Western Asia average.

Year	Azerbaijan's ranking	EGDI - Azerbaijan	EGDI - Western Asia Average	EGDI - World Average
2012	96	0.4984	0.5547	0.4882
2010	83	0.4571	0.4732	0.4406
2008	89	0.4609	0.4857	0.4514
2005	101	0.3773	0.4384	0.4267

Table 2: The United Nations e-government development index (EGDI)

Year	Ranking	EGDI	Online Service Component	Telecomm. Infra-structure Component	Human Capital Component
2012	96	0.4984	0.3660	0.3033	0.8259
2010	83	0.4571	0.3238	0.1329	0.9185
2008	89	0.4609	0.3946	0.1077	0.8822

Table 3: The United Nations e-government development index (EGDI) and his sub-indexes of Azerbaijan

How to explain the fact that Azerbaijan, after successful efforts in developing e-services, has fallen behind in the comparison of the other countries? Among others there are 3 logical explanations.

Firstly, developing e-services is one of the leading priorities in the world and most countries have gone along with the e-service "race" which means that the average level in the world is also rising rapidly.

Secondly, we can't forget that the score of countries mainly depends on calculating the index and the conducting of methodology which (involuntarily) demonstrates the advantages of one or another country. When wanting to improve the rating of the country some nuances should be taken into

account while composing the e-services' development plans, as a result of which the main components affecting the rating of e-services will be developed.

Thirdly, Online Service Component takes into account the maturity level of e-services. So far under main attention in Azerbaijan have inevitably been the quantitative indicators i.e mainly the number of e-services in order to attain so called necessary critical weight both in the sense of the number of e-services but also in the sense of the number of consumers. So that the natural e-service development cycle i.e continual service improvement consisting of service design, service transaction and service operation would start functioning. Most of the e-services regarding maturity levels are currently in the forming stage – development and attaining maturity is still ahead.

1.5 First evaluation of e-services of the Azerbaijan

In autumn 2011 in cooperation with the Transparency Azerbaijan Anti-Corruption Public Association, Anti-Corruption Information and Cooperation Network of NGOs and Entrepreneurship Development Foundation the level of providing e-services was evaluated [22]. Monitoring can be approached in two ways, either according to certain demands/parameters or maturity level of e-services i.e substantive evaluation or monitoring of e-services with our recommended additions. In 2011 the first method was selected which gave very interesting results. While evaluating e-services list of 284 e-services was approved, 51 e-services or 18% were working, 50 e-services or 18 % were partly working and 183 e-services or 64 % were not working. In this situation evaluating the so called accordance was obviously the best method.

Taking into consideration the speed of developing e-services in Azerbaijan the method of evaluating the accordance is not sufficient enough to evaluate the actual situation. Methodology of monitoring e-services proposed in the present work belongs to the so called second class and in addition to quantitative indicators deals primarily with monitoring the substantive level of e-services. On a certain development level of e-services the number of e-services will become totally irrelevant because after developing contemporary e-service infrastructure and e-service environment all the services suitable for it have moved to an e-environment and the decisive factor will be the maturity level of these e-services.

1.6 Results of the Facts Finding Mission

The e-Governance Academy experts were on Facts Finding Mission in Nov 12-15. 17 meetings with state agencies and international organizations gave an overview of developing e-services in Azerbaijan.

The formation of IT-systems among Azerbaijan central authorities began in 1999. This process has been coordinated by the Ministry of Communications and Information Technologies (*hereinafter:* MCIT). Excellent steps have been taken in the technical development of necessary infrastructure for issuing e-services. For example x-road has been established (e-Government State Information System (*Elektron Hökumət Dövlət İnformasiya Sistemi (EHDİS)*). The portal of e-services was active and contained 155 e-services of 36 agencies at this moment. From future solutions mobile-ID (mID) is under development. Last summer a new agency was formed to coordinate e-services – the State Agency for Public Service and Social Innovations under the President of the Republic of Azerbaijan (ASAN).

Here are some extracts from the mission report. The dedication of people in developing e-services was felt in the meetings. Many demonstrated their excellent achievements. The administration of taxes is carried out in a very modernized way. Pension Fund has been united with the central fund with regionals and Social Security Card has been implemented. Ministry of Justice has digitized the population registry and the civil registry. Ministry of Education has impelemented e-service for employment of teachers. Health Card was Azerbaijan's first digital card. State Customs Committee

has developed a very modern Electronic Customs. Sumgait city will start using the digital cadastre developed by the Property Committee in 01.01.2013. Ministry of Labour and Social Protection of Population have developed a very modern cashless e-service "electronic application of citizens to receive monetary/financial allowance", to which an SMS informing system will be added in the near future. State Committee for Standardization is leading the development of IT standards.

In the meetings it was discussed that the evaluation methodology of e-services should be suitable for all e-services at any time and at every occasion, that sample indicators and recommendations should be added and that the cost of evaluation should be taken into account. Discussion should be developed about success factors, to share the experience of leaders. International experts should be involved annually in working out recommendations.

A lot is done well in Azerbaijan but they have not moved significantly in the corruption chart because the others have improved. To reduce the level of corruption, face to face meetings with officials should be reduced and also cashless payments should be promoted.

The communication between agencies about e-services is weak and it lacks feedback mechanism because there was no awareness of actions and results of other agencies. The best example of this is that in surprisingly many cases there was no awareness of the technical possibilities of EHDİS or no awareness about this project at all.

International organizations recognized the will and action of Azerbaijan's government to reduce corruption and a remarkable part of e-services has been developed and implemented with their support.

1.7 Conclusions

Experience indicates that a well-developed enabling environment (e.g., legislative, budgetary, infrastructure frameworks) is a crucial prerequisite for the implementation of e-government. Azerbaijan has a well-established state infrastructure, which includes a secure data exchange system EHDİS, different hardware and software components like the state portal, public key infrastructure (PKI), also governmental databases and information systems –that provides the basis for enhanced connectivity across the government.

However the high quality of e-government infrastructure is not reflected evenly across e-services, whose development falls under the responsibility of each sector ministry. Such an approach impacts the public administration's overall capacity to develop effective and efficient e-government services. There are examples of good practice, or "stars" in Azerbaijan, such as e-taxes and e-custom etc. But there are also many areas that lag behind.

The inconsistency in the quality of service delivery and results appears to be due to insufficient co-operation across the Azerbaijan public sector (i.e. central agencies) for the development of e-services. While Azerbaijan has excellent IT infrastructure, this needs to be more strongly linked with an overall approach and responsibility for service delivery which puts the citizen at the centre in order to promote horizontal and vertical co-operation for e-government services.

Increasing co-ordination within the government, or assigning the responsibility for the administrative development of e-government services under the same organisation holding a mandate for other areas of the public administration, could help address the inconsistencies in e-government services supply associated with sectoral development. Azerbaijan needs a strong leader in developing e-services and that is a challenge for the State Agency for Public Service and Social Innovations, which first major work is establishing the ASAN service centres in order to ensure that all services are rendered to citizens from a single source, with higher quality and in a more convenient manner.

Finally, there are constantly news in the press describing rapid development of e-services in Azerbaijan. For example the terms of payment of the state fee were regulated by Azerbaijan Parliament recently.According to the amendment, citizens can now pay state fee electronically, including by use of Internet (Nov 20, 2012). Second example is regarding implementation of the project of development of broadband Internet. It is expected that this project will increase Internet penetration in Azerbaijan to about **85** percent (Nov 23, 2012) [23].

2 The benchmarking of e-services

In the following chapter the recommended model for evaluating the e-services in Azerbaijan is described. The proposal is based on knowledge gathered from the Facts Finding Mission 12.-15.11.2012 and on international evaluation experience. Also, recommendations presented in the seminar in Baku on 13th December are taken into account.

There have been many benchmark studies on eGovernment in the world. The benchmarks of the EU (hereafter: *EUeGovBe*), the United Nations (United Nations eGovernment Readiness Benchmark, hereafter: *UNPAN*) and Brown University have the longest history [20] [21] [24] [25] [26] [27]. The scope of eGovernment benchmarks is mostly on the supply/output side and a stage model of the government (online) services.

The methodologies have been continuously modified. Similar to the EU's benchmarking activities, the United Nations started to work on the revision of their eGovernment benchmarks at the end of 2008. There are several reasons which provide the impetus for changing the methodologies: developments in technology, a new thinking about the citizen government relationship etc. The development of a relevant and universally accepted benchmarking for eGovernment will continue to be a challenge around the globe. Many aspects of eGovernment, especially transformation or its impact are difficult to capture.

It is one thing to measure the readiness of providing e-services and another, to measure the usage of these e-services. In evaluating less mature e-services it is neccessary to focus on the process of forming and development of e-services. Later on, with more mature e-services the importance of consumer surveys will increase significantly.

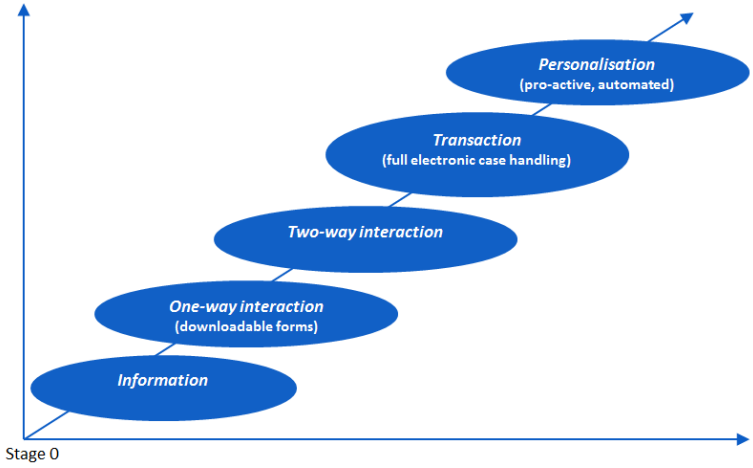
That is why our proposed methodology also has to be treated as a model that needs constant supplementing and updating. In order to ensure the constant updating of the methodology we would like to emphasize the need to collect and analyze feedback from users. It will ensure also sustainability and practical impact of the methodology.

2.1 The Maturity Model of e-services: methodology

We recommend to evaluate every specific e-service against a 5-stage maturity model, similarly to the European Union e-Government Benchmarking (EUeGovBe) and to the United Nations e-Government Readiness Benchmarking (UNPAN).

The EUeGovBe uses an online sophistication indicator based on a renewed 5 level model, which illustrates the different degrees of sophistication of online public services going from (1)basic information provision over (2) one-way and (3) two way interaction to (4)'transaction or full electronic case handling and (5) personalisation/targetisation/automation (see Figure 6).

Figure 6. e-services maturity model



Similar to the EUeGovBe, a five-stage model is used by UNPAN to capture the state of eGovernment in a country:

1. Emerging presence (representing limited, basic information);
2. Enhanced presence (more information available, with search options and help-features);
3. Interactive presence (downloadable forms, e-mail addresses);
4. Transactional presence (two-way interaction, paying options);
5. Networked presence (participatory, deliberative decision-making and integration of public).

The online services index is one of the three components of the United Nations e-government development index. Based on extensive observation and feedback from the experts the model assumes that countries typically begin with an emerging online presence with simple websites, progress to an enhanced state with deployment of multimedia content and two-way interaction, advance to a transactional level with many services provided online and governments' soliciting citizen input on matters of public policy, and finally proceed to a connected web of integrated functions, widespread data sharing, and routine consultation with citizens using social networking and related tools.

Currently it is most common to use the 5-stage maturity model. Firstly the 4-stage model was taken into use and the 5th stage was introduced in the middle of the previous decade.

A short explanation of the 5th maturity stage of e-service is as follows:

Stage	Description
0	No publicly accessible website(s) or the website(s) do not qualify for any criteria for the stages 1 to 4.
1	Information necessary to start the procedure to obtain the service available on the website(s).
2	Interaction: downloadable or printable form to start the procedure to obtain the service on the website(s).
3	Two-way interaction: electronic forms to start the procedure to obtain the service on the website(s).
4	Transaction: full electronic case handling of the procedure by the service provider (incl. decision, notification, delivery and payment if necessary).
5	Proactive, automated service delivery.

The 5th level provides an indication of the extent to which the online provision of the services is based on new models of front and back-offices integration, the reuse of available data and to what degree the idea of pro-active service delivery is embedded. For certain services this means that the applicant receives the service automatically based on a previous registration of an event. In other words, this 5th level gives in an indication of fully integrated electronic procedures that help reduce 'red tape' and improve data consistency; where no other physical action is required on behalf of the applicant.

The 5th level of sophistication introduces two extra concepts: (1) The idea of pro-active service delivery, i.e. the government pro-actively performs actions to enhance the service delivery quality and the user friendliness. Examples of pro-activity are: the government warns the user that action could be required, the government pre-fills data in the application forms that it already contains in governmental databases to the extent permitted by law. (2) The idea of automatic service delivery: the government automatically provides specific services being social and economic rights for citizens (and business), linked to a certain condition of the user. There is no need for the user to request the service.

Because of the nature of e-services even the 4-stage model is not suitable for use with all e-services. For example for personal documents, declaration to the police, certificates (birth and marriage) etc. 3-stage model should be used.

The maturity of e-services indicates the level of online availability of the public services and the maximum score is 100 % - then all public services are available online. The results of measurement will be "translated" into the language of percentage.

As already mentioned the 5-stage model is not suitable for all the e-services. Some services should be measured on 3-stage model and some services on the 4-stage model. This means that also the intervals of percentages that the measuring results correspond to are different.

So for example with the 5-stage model the intervals of aggregate indicators are as follows: 1-19% interval conforms to stage 0, 20-39% interval conforms to stage 1, 40-59% interval conforms to stage 2, 60-79% interval conforms to stage 3, 80-99% interval conforms to stage 4 and the 5th stage is a 100% i.e a new qualitative stage (new stage, meaning proactive full case electronic handling). For the 5th stage already new specific methodology is needed.

The intervals of the 4-stage model are accordingly 1-24%, 25-49%, 50-74%, 75-99% and 100% and the intervals of the 3-stage model are accordingly 1-32%, 33-66%, 40-99% and 100%.

For services with a maximum score 5, the calculation of the percentages is as follows:

Stage	Percentage interval	Description
0	1-19	No publicly accessible website(s) or the website(s) do not qualify for any criteria for the stages 1 to 4.
1	20-39	Information necessary to start the procedure to obtain the service available on the website(s).
2	40-59	Interaction: downloadable or printable form to start the procedure to obtain the service on the website(s).
3	60-79	Two-way interaction: electronic forms to start the procedure to obtain the service on the website(s).
4	80-99	Transaction: full electronic case handling of the procedure by the service provider

		(incl. decision, notification, delivery and payment if necessary).
5	100	Proactive, automated service delivery.

For services with a maximum score 4 (i.e. announcement of moving (change of address)), the calculation of the percentages is as follows:

Stage	Percentage interval	Description
0	1-24	No publicly accessible website(s) or the website(s) do not qualify for any criteria for the stages 1 to 4.
1	25-49	Information necessary to start the procedure to obtain the service available on the website(s).
2	50-74	Interaction: downloadable or printable form to start the procedure to obtain the service on the website(s).
3	75-99	Two-way interaction: electronic forms to start the procedure to obtain the service on the website(s).
4	100	Transaction: full electronic case handling of the procedure by the service provider (incl. decision, notification, delivery and payment if necessary).

For services with a maximum score 3 (i.e. personal documents, declaration to the police, certificates (birth and marriage) etc), the calculation of the percentages is as follows:

Stage	Percentage interval	Description
0	1-32	No publicly accessible website(s) or the website(s) do not qualify for any criteria for the stages 1 to 4.
1	33-66	Information necessary to start the procedure to obtain the service available on the website(s).
2	67-99	Interaction: downloadable or printable form to start the procedure to obtain the service on the website(s).
3	100	Two-way interaction: electronic forms to start the procedure to obtain the service on the website(s).

As described above every e-service is unique and has to have it's own description and sometimes also it's own scale. Therefore it is necessary to form a stage description for the services taken under special attention. As experience shows those descriptions should be complemented in time – descriptions of e-service stages used in European Union benchmarking have been constantly complemented.

Developing e-services creates additional opportunities for involving people, for strengthening participation and democratic decision-making employing effective tools for public debate and participation in democratic decision-making. To show the level of e-participation also e-participation index is separately calculated in many surveys. Additional questions that focus on the use of Internet to facilitate provision of information by governments to citizens ("e-information sharing"), interaction with stakeholders ("e-consultation"), and engagement in decision-making processes ("e-decision making") will be asked for this. A country's e-participation index value reflects how useful these features are and how well they have been deployed by the government compared to all other countries.

The present methodology does not recommend to use in this stage a separate e-participation index in evaluating e-services. We recommend to evaluate the involvement of service receivers in the process of service provision. Indicators 3-5, 8, 11, 14 and 17 should be used to determine the e-participation level.

E-services are not separate services but a part of public services that the state offers to its citizens. Therefore it is important that the methodology enables to assess the level of e-services as part of public services as a whole. Governments today are progressing toward 'Government 2.0', which is characterized by its citizen-oriented services enabled by information sharing and facilitated participation. The future governments are expected to advance toward 'Government 3.0' – customized and intelligent government using Semantic Web technology (see Figure 7). Governments today are using Web 2.0 technologies to transform themselves from a government-oriented to a citizen-oriented government that is characterized by cooperation based on information and service sharing, new government services oriented toward the demanding side, and easy participation of citizens.

Figure 7. Paradigm Shift of Government Services [28]

Government 1.0 (e-Government)	**Government 2.0**	**Government 3.0 (u-Government)**
1995 ~ 2000	2005 ~ 2010	2015 ~ 2020
World Wide Web	Web 2.0	Real-World Web
Government-oriented First-stop -shop	Citizen-oriented One-stop-shop	Government service portal for individuals
One-way service	Bilateral interaction	Customized intelligent service
Time and place restrictions for services	Mobile services	Seamless services anytime and anywhere
Uniform services mainly based on supply	Services based on public-private collaboration	Intelligent services

The first four stages of the recommended model of e-services show that the government of the state belongs to the sector of 'Government 2.0', the fifth stage shows that the government has reached a fundamentally new 'Government 3.0' level.

When the maturity model was taken into use it had 4 stages and the purpose was to reach level 'Government 2.0' in government. Since there was such rapid progress in the development of e-services the 4 stages were not advanced enough anymore and a new challenge was developed- 5th stage. At the same time the development of 'Government 3.0' conception was launched which enables to express the purpose of government as a whole.

Although disputes over the paradigms of government are continuing, it is necessary to remark that the maturity model is associable and conforms with both international evaluation models as well as evaluating the development of state government as a whole.

2.2 The (self-)assessment of e-services

Without losing sight of the main objective of the methodology (to monitor and adequately evaluate provision of e-services) a model as simple and understandable as possible was chosen. It is also important that it can be implemented quickly and without the need for large resources.

The way data is collected determines the work load for state agencies personnel and facilitates information sharing. Often, data is being collected through an Excel spread sheet that needs to be

filled by someone annually. Thus, one way to collect data is as follows: a service provider or a hired expert answers predetermined questions for assessment of the e-services and this information will be put in the Excel spread sheet format to simplify subsequent processing.

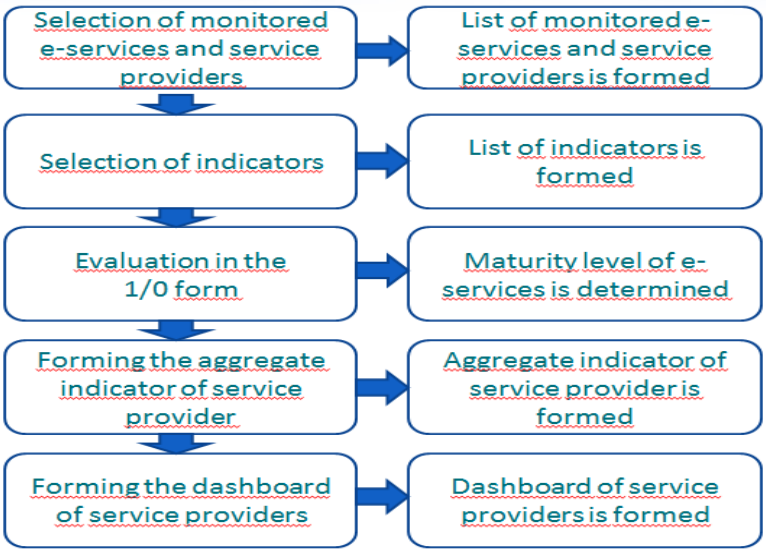
A secure Internet benchmarking platform could provide new and alternative means of surveying, data access, measure identification, frequency and analysis. Therefore we propose to develop an e-service monitoring portal with automated work process through which the service providers of e-services can give a self-evaluation to their own services by answering the predetermined questions. From the questions given to the service provider and received answers the level of e-service indicators is determined.

Through such an e-services monitoring portal both service providers and the public can know at which stage the providing of e-services currently is.

This environment will create reasonable amount of competition, spares fixed costs and ensures feed backing. It will also enable to evaluate all e-services. As international methodologies are limited to evaluate the state's level of e-services with a certain number of e-services, it would be practical in the Azerbaijan state to evaluate the efforts of all the state agencies in transferring all the services to e-services (apart from services that are in essence not transferrable to e-services).

The process of assessment passes through 5 steps as described in Figure 8.

Figure 8. The Process of Assessment.



2.2.1 Selection of e-Services

Until an e-service monitoring portal with automated work process is not introduced, it should be considered whether the assessment of all e-services is not too resource consuming and maybe to limit with evaluation of a sample of e-services.

During the meetings of the Facts Finding Mission we asked the question, which e-services of a certain agency are socially sensitive or important. Since the question was not sent beforehand and there was no possibility for starting a discussion inside the agency, most of the agencies did not present their opinion on the spot.

In the first sample there should be services that are under international evaluation in order to ensure the possibility of comparison. It is natural that e-services of states don't coincide in their content

across administrations and therefore it is not possible to take for example all services measurable in 20 European Union states under observation in Azerbaijan.

Accordingly a proposal list of e-services is drawn up, which should be taken into separate attention and the evaluation of which would be conducted by - in addition to self-evaluation – an expert (see Table 4). The proposed list is meant to start a discussion. Providing of these services should be of a constant nature i.e. probably lasting for years, which ensures the possibility to evaluate their progress. Also it is taken into account that possibly there would be services in the sample of European Union so that it would be possible to evaluate the level of certain e-services in European countries. As we already showed the development of e-services should improve the Azerbaijan business conditions (see figure 5). Due to the importance of taxation issues several tax-related e-services are offered in the sample. Several services "represent" government bureaucracy.

e-services of Azerbaijan	**No***	**servicec provider**	**e-services of EU**
Citizen Services			
x	x	x	Income taxes
Search for a job through employment authorities. *Məşğulluq orqanları vasitəsilə iş axtarışı*	9.3.	The Ministry of Labour and Social Protection of Population	Job search services
Social security benefits			
Request for the determination of the status of unemployed and unemployment benefits. *İşsizlik statusunun verilməsi və müavinətinin təyin edilməsi üçün müraciətin və sənədlərin qəbulu*	9.5.	The Ministry of Labour and Social Protection of Population	· Unemployment benefits
Online registration of the insured. *Sığortaolunanın onlayn uçota alınması*	30.5.	The State Social Protection Fund	x
Pension Information for pensioners (retiree). *Pensiyaçıya məlumatların verilməsi*	30.23.	The State Social Protection Fund	x
x		x	· Child allowances
x		x	· Medical costs
x		x	· Student grants
Personal documents			
Request for replacement of the passport. *Ümumvətəndaş pasportunun dəyişdirilməsi üçün müraciətin və sənədlərin qəbulu*	2.15.	The Ministry of Internal Affairs	· Passports
Request for issuance of driving license. *Sürücülük vəsiqəsinin verilməsi üçün müraciətin və sənədlərin qəbulu*	2.6.	The Ministry of Internal Affairs	· Driver's licence
Request for replacement of citizens' identification card. *Vətəndaşların şəxsiyyət vəsiqəsinin dəyişdirilməsi üçün müraciətin və sənədlərin qəbulu*	2.14.	The Ministry of Internal Affairs	x
Car Registration. *Nəqliyyat vasitələrinin dövlət qeydiyyat nişanında əks olunmuş rəqəmlərin və ya hərflərin kombinasiyasının sifariş verilməsi*	2.10.	The Ministry of Internal Affairs	Car registration

Application for a building permission. Dövlət standartlarına uyğun olaraq I və II məsuliyyət səviyyəli bina və qurğuların layihələndirilməsi fəaliyyəti ilə məşğul olmaq üçün hüquqi və fiziki şəxslərə xüsusi razılıq (lisenziya) verilməsi üçün müraciətin və sənədlərin qəbulu	20.1	The State Architecture and Urban Planning Committee	Application for a building permission
x	x	x	Declaration to the police
x	x	x	Public libraries (catalogues, search tools)
Getting information related to registered acts of civil status. *Qeydiyyata alınmış vətəndaşlıq vəziyyəti aktları ilə bağlı sənədlərin verilməsi*	3.4.	The Ministry of Justice	(Birth and marriage) Certificates
x		x	Enrolment in higher education
Information about students academic achievements. *Şagirdlərin təhsildə qazandıqları cari nailiyyətləri əks etdirən məlumatların verilməsi*	13.8.	The Ministry of Education	x
x	x	x	Announcement of moving
Information about citizen's electronic health card. *Vətəndaşlara elektron sağlamlıq kartı üzrə məlumatların verilməsi*	14.1.	The Ministry of Health	Health-related services
Registration of the medical certificate of birth. *"Doğum haqqında tibbi şəhadətnamə" elektron registrindən məlumatların verilmə si*	14.13.	The Ministry of Health	
Registration of the medical certificate of death. *"Ölüm haqqında tibbi şəhadətnamə" elektron registrindən məlumatların verilməsi*	14.14.	The Ministry of Health	
Payment of fines. *Yol hərəkəti qaydaları əleyhinə olan inzibati xətalarla bağlı görülən tədbirlər barədə məlumat verilməsi və cərimələrin ödənilməsi*	2.8.	The Ministry of Internal Affairs	x
Fixed phone request, changing phone number and name of subscriber. *Telefon çəkilişi, nömrənin dəyişdirilməsi və addan ada keçirilməsi üçün müraciətin və sənədlərin qəbulu*	15.6.	The Ministry of Communications and Information Technologies	x

Information about personal identification number for citizens of the Republic of Azerbaijan, as well as foreigners and persons permanently residing in the Republic of Azerbaijan. *Azərbaycan Respublikasının vətəndaşlarına, həmçinin Azərbaycan Respublikasında daimi yaşayan əcnəbilər və vətəndaşlığı olmayan şəxslərə fərdi identifikasiya nömrəsi barədə məlumatın verilməsi*	3.14.	The Ministry of Justice	x
Request for citizenship of the Republic of Azerbaijan. *Azərbaycan Respublikası vətəndaşlığının əldə edilməsi üçün müraciətin və sənədlərin qəbulu*	33.6.	The State Migration Service	x
Business Services			
x	x	x	Social contribution for employees
Online tax declaration. *Elektron bəyannamənin qəbulu*	7.1.	The Ministry of Taxes	Corporate tax
Individual entrepreneurs' online registration. *Fərdi sahibkarların onlayn qeydiyyatı*	7.4.	The Ministry of Taxes	x
Payment of taxes and other budget revenues. *Vergi və digər büdcə daxilolmalarının internet vasitəsilə ödənilməsi*	7.8.	The Ministry of Taxes	x
Simplified online tax declaration. *Sadələşdirilmiş vergi bəyannaməsinin vergi orqanına onlayn təqdim edilməsi*	7.10.	The Ministry of Taxes	x
x	x	x	VAT
Registration of a new company. *Kommersiya hüquqi şəxslərin onlayn qeydiyyatı*	7.5	The Ministry of Taxes	Registration of a new company
Submission of data to statistical offices. *Rəsmi statistik hesabatların təqdim edilməsi*	26.1	The State Statistical Committee	Submission of data to statistical offices
e-declaration for customs clearance of goods and vehicles. *Malların və nəqliyyat vasitələrinin gömrük rəsmiləşdirilməsi üzrə elektron Gömrük Bəyannaməsinin qəbulu*	22.1.	The State Customs Committee	Customs declaration
x	x	x	Environment-related permits
Land cadastrial services. *Torpaq kadastr məlumatlarının hazırlanması və kadastr xidmətlərinin göstərilməsi üçün müraciətin və sənədlərin qəbulu*	23.3.	The State Land and Cartography Committee	x

* e-service number in the list of the e-services approved by the Cabinet of Ministers of Azerbaijan (05.11.2012 order no 235)

Table 4. A preliminary list of e-services to be monitored.

2.2.2 Selection of Indicators

The proposed evaluation questionnaire of the e-service includes 17 questions or indicators. For determining the level of maturity model we could have done with less questions but some questions are pointed out separately or added since they have the effect of decreasing corruption or they are important to evaluate the e-participation.

The 17 indicators of e-services we propose are the following:

1) Does the service provider have a publicly accessible website?
2) Is the necessary information available on a publicly accessible website managed by the service provider?
3) Do administrative agencies regularly assess the quality of their services, incl. people's satisfaction with service quality?
4) Is giving one's opinion about the provision of services easy, e.g. is feedback about service quality requested in the course of providing the service?
5) Have administrative agencies published information about the performance of their duties and work results on their websites?
6) Does the service provider offer the possibility to obtain the paper form to get a service in a non-electronic way?
7) Does the service provider offer the possibility of an electronic input with an official electronic form?
8) Does the service provider offer the possibility to consult databases?
9) Is the e-service provided through a one-stop shop (is it possible to go to the electronic application required for use of the service displayed on the website of the administrative agency straight from the state central portal)?
10) Are people not required to resubmit and prove the data already held in the electronic databases of the state when applying for a public service?
11) Are people informed of the status of the service provision by telephone, post or letter, depending on the selected communication channel?
12) Can a public service be applied for without visiting an official whilst using the digital identity to identify oneself?
13) Does the service provider offer the possibility to pay in an electronic way (is it possible to use the service in a cashless way)?
14) Can people see, either when submitting their applications to administrative agencies or in the web environment, which persons have made queries about them?
15) Does the service provider offer the possibility to completely treat the service via the website incl. payment?
16) Can the complete service be treated via the website (case handling, decision and delivery incl. payment of the standard procedure to obtain service) - no other formal procedure is necessary for the applicant via "paperwork"?
17) Does the service provider offer the possibility of an electronic supply of pre-selected information related to a given profile or are pre-filled forms with relevant data automatically delivered?

As already mentioned indicators are put to the sample for different reasons. For example in evaluating the maturity level of e-service the sufficient indicators are 1-2, 6-17. Determining the e-participation level should be based on indicators 3-5, 8, 11, 14 and 17. The evaluation of the contribution to decreasing corruption should be based on indicators 2, 4, 7-8, 10-13, 15-17. Every so called indicator set can have a calculated medium and it can be evaluated on the agreed scale (see chapter: Measuring the e-services and decreasing corruption).

2.2.3 Evaluation

Every owner of e-service has to answer the questions in the form of yes/no, which is doable in a reasonable course of work and time (see table 5). Every indicator shows which level of e-service it is corresponding to (seen in the horizontal row). The level of e-service will advance according to how it accumulates the characteristics i.e. indicators of the next level (on the vertical row). Some characteristics are obligatory to perform, meaning that without them the next level will not be scored.

e-service name							
indicator	no-0, yes-1	***Scoring***					
		stage 0	stage 1	stage 2	stage 3	stage 4	stage 5
Does the service provider have a publicly accessible website?	0	1	0	0	0	0	0
Is the necessary information available on a publicly accessible website managed by the service provider?	0		0	0	0	0	0
Do administrative agencies regularly assess the quality of their services, incl. people's satisfaction with service quality?	0		0	0	0	0	0
Is giving one's opinion about the provision of services easy, e.g. is feedback about service quality requested in the course of providing the service?	0		0	0	0	0	0
Have administrative agencies published information about the performance of their duties and work results on their websites?	0		0	0	0	0	0
Does the service provider offer the possibility to obtain the paper form to get a service in a non-electronic way?	0			0	0	0	
Does the service provider offer the possibility of an electronic input with an official electronic form?	0				0	0	0
Does the service provider offer the possibility to consult databases?	0				0	0	0
Is e-service provided through a one-stop shop (is it possible to go to the electronic application required for use of the service displayed on the website of the administrative agency straight from the state central portal)?	0				0	0	0
Are people not required to resubmit and prove the data already held in the electronic databases of the state when applying for a public service?	0				0	0	0
Are people informed of the status of the service provision by telephone, post or letter, depending on the selected communication channel?	0				0	0	0

Can a public service be applied for without visiting an official whilst using the digital identity to identify oneself?	0				0	0	0
Does the service provider offer the possibility to pay in an electronic way (is it possible to use the service in a cashless way)?	0				0	0	0
Can people see, either when submitting their applications to administrative agencies or in the web environment, which persons have made queries about them?	0					0	0
Does the service provider offer the possibility to completely treat the service via the website incl. payment?	0					0	
Can the complete service be treated via the website (case handling, decision and delivery incl. payment of the standard procedure to obtain service) - no other formal procedure is necessary for the applicant via "paperwork"?	0						0
Does the service provider offer the possibility of an electronic supply of pre-selected information related to a given profile or are pre-filled forms with relevant data automatically delivered?	0						0
e-service level number	**0**	0	0	0	0	0	0

Table 5. The evaluation form of e-service

Accordingly is given an example of evaluating an e-service (Table 6).

e-declaration							
indicator	no-0, yes-1	***scoring***					
		stage 0	stage 1	stage 2	stage 3	stage 4	stage 5
Does the service provider have a publicly accessible website?	1	0	1	1	1	1	1
Is the necessary information available on a publicly accessible website managed by the service provider?	1		1	1	1	1	1
Do administrative agencies regularly assess the quality of their services, incl. people's satisfaction with service quality?	1		1	1	1	1	1
Is giving one's opinion about the provision of services easy, e.g. is feedback about service quality requested in the course of providing the service?	1		1	1	1	1	1

Have administrative agencies published information about the performance of their duties and work results on their websites?	1		1	1	1	1	1
Does the service provider offer the possibility to obtain the paper form to get a service in a non-electronic way?	1			1	1	1	
Does the service provider offer the possibility of an electronic input with an official electronic form?	1				1	1	1
Does the service provider offer the possibility to consult databases?	1				1	1	1
Is e-service provided through a one-stop shop (is it possible to go to the electronic application required for use of the service displayed on the website of the administrative agency straight from the state central portal)?	1				1	1	1
Are people not required to resubmit and prove the data already held in the electronic databases of the state when applying for a public service?	0				1	1	1
Are people informed of the status of the service provision by telephone, post or letter, depending on the selected communication channel?	0				0	0	0
Can a public service be applied for without visiting an official whilst using the digital identity to identify oneself?	0				0	0	0
Does the service provider offer the possibility to pay in an electronic way (is it possible to use the service in a cashless way)?	0				0	0	0
Can people see, either when submitting their applications to administrative agencies or in the web environment, which persons have made queries about them?	0					0	0
Does the service provider offer the possibility to completely treat the service via the website incl. payment?	0					0	
Can the complete service be treated via the website (case handling, decision and delivery incl. payment of the standard procedure to obtain service) - no other formal procedure is necessary for the applicant via "paperwork"?	0						0
Does the service provider offer the possibility of an electronic supply of pre-selected information related to a given profile or are pre-filled forms with relevant data automatically delivered?	0						0
e-service level number	**3**	0	1	2	3	0	0

Table 6. Example of evaluation an e-service

2.2.4 Forming the aggregate indicator of service provider and forming the dashboard of service providers

There are a number of possibilities to present aggregate indicators. To visualize the average level of providing e-services in Azerbaijan as a whole and also in state agencies it is suitable to employ the classical form used in EU benchmarking which is attached as an example above (see Figure 6). Also it is necessary to internally see where all services of all the state agencies are on the maturity level and for this we recommend to use a dashboard with traffic light colours to reflect the service provider's results (described below, see Chapter 4).

Also aggregate indexes can be formed by e-service groups, also separately by e-services provided for citizens and businesses. In EU benchmarking four service clusters or service baskets are assessed: income generating (for government), registration (e.g. births, company, moving), service returns (e.g. health, social, libraries) and permits and licences (e.g. building, education, passport).

The proposed methodology is also suitable for usage in regions and local governments to evaluate the services provided by these agencies. The availability of services provided by central state agencies in regions depends on the development of infrastructure in the corresponding region and when wanting to evaluate it, the technical infrastructure needs to be assessed, which is not a part of this methodology.

2.3 Measuring the e-services and decreasing corruption

Since Azerbaijan has taken a clear target of decreasing corruption in providing services, a list of questions is offered. The aim is to evaluate every service of every service provider and find out whether the conditions and methods of providing of the service increase or decrease the possibility of corruption.

indicator	***Reasons for putting into the sample***
Is the necessary information available on a publicly accessible website managed by the service provider?	Indicator shows if it is necessary at first to have (any kind of) physical contact with the service provider.
Is giving one's opinion about the provision of services easy, e.g. is feedback about service quality requested in the course of providing the service?	Indicator shows whether feedback from service receiver is welcomed and whether he has an actual possibility to affect the content of the service and the conditions for providing the service.
Does the service provider offer the possibility of an electronic input with an official electronic form?	Indicator shows whether it is necessary at first to have (any kind of) physical contact with the service provider.
Does the service provider offer the possibility to consult databases?	Indicator shows if the service provider enables the service receiver to get acquainted with data about himself in the country's databases without mediation.
Are people not required to resubmit and prove the data already held in the electronic databases	Indicator shows whether the service receiver "is sent to" another service provider to obtain information that the service provider could ask

of the state when applying for a public service?	himself.
Are people informed of the status of the service provision by telephone, post or letter, depending on the selected communication channel?	Indicator shows if the service provider's procedure is an open procedure and if the service receiver is automatically kept informed.
Can a public service be applied for without visiting an official whilst using the digital identity to identify oneself?	Indicator shows if it is necessary at first to have (any kind of) physical contact with the service provider.
Does the service provider offer the possibility to pay in an electronic way (is it possible to use the service in a cashless way)?	Indicator shows if money is transferred digitally and is fully observable.
Does the service provider offer the possibility to completely treat the service via the website incl. payment?	Indicator shows if it is necessary at first to have (any kind of) physical contact with the service provider.
Can the complete service be treated via the website (case handling, decision and delivery incl. payment of the standard procedure to obtain service) - no other formal procedure is necessary for the applicant via "paperwork"?	Indicator shows if it is necessary at first to have (any kind of) physical contact with the service provider.
Does the service provider offer the possibility of an electronic supply of pre-selected information related to a given profile or are pre-filled forms with relevant data automatically delivered?	Indicator shows if it is necessary at first to have (any kind of) physical contact with the service provider.

Table 7. Principles of selecting indicators connected to reduce corruption

Evaluating and monitoring the indicators affecting corruption take place during an overall assessment of the e-service (these topics are covered by the questions about e-services described above) i.e. there is no separate assessment. In the present description the indicators influencing the level of corruption are intentionally shown separately, but the evaluation process is common. During the analysis the aggregate indicator among indicators affecting the level of corruption is separately referenced.

Following there is an example of evaluation (see Table 8).

e-declaration	
indicator	no-0, yes-1
Is the necessary information available on a publicly accessible website managed by the service provider?	1
Is giving one's opinion about the provision of services easy, e.g. is feedback about service quality requested in the course of providing the service?	1
Does the service provider offer the possibility of an electronic input with an official electronic form?	1
Does the service provider offer the possibility to consult databases?	1
Are people not required to resubmit and prove the data already held in the electronic databases of the state when applying for a public service?	0

Are people informed of the status of the service provision by telephone, post or letter, depending on the selected communication channel?	0
Can a public service be applied for without visiting an official whilst using the digital identity to identify oneself?	0
Does the service provider offer the possibility to pay in an electronic way (is it possible to use the service in a cashless way)?	0
Does the service provider offer the possibility to completely treat the service via the website incl. payment?	0
Can the complete service be treated via the website (case handling, decision and delivery incl. payment of the standard procedure to obtain service) - no other formal procedure is necessary for the applicant via "paperwork"?	0
Does the service provider offer the possibility of an electronic supply of pre-selected information related to a given profile or are pre-filled forms with relevant data automatically delivered?	0
scoring for indicators reducing of corruption	**4**

Table 8. Example of evaluating indicators affecting corruption

Taken into account the nature of the questions, the evaluation should be as follows:

- Up to 3 points – pure performance;
- 3-5 points – good;
- 6 and more – excellent.

The visual presentation of results should take place similarly to the presentation of the level of providing all e-services.

2.4 The use of quantitative indicators

In order to achieve the best overview we recommend, in addition to measuring the e-services maturity, to continue to use quantitative indicators.

Below we will examine two quantitative measuring methods.

As already mentioned above, e-services are a part of public services, that the state offers to its citizens. Accordingly the scope and speed of transforming public services to e-services should also be taken under supervision. Therefore we recommend to bring in the concept of "number of services convertible into e-services" and to evaluate whether the agencies follow the task. Proposed method is relevant if the state has set a goal of development of public services in a systematic form, including e-services.

Below there is an example of demonstrating the results of forming the e-services by state agencies (see Table 9).

Key

More than 75 %

More than 50 % and up to 75 %

Up to 50 %

Agency	Number of public services	Number of e-services	e-services compared to public services (%)	evaluation
1. Name of the state authority	54	35	65%	

2. Name of the state authority	22	21	95%	
3. Name of the state authority	42	36	86%	
4. Name of the state authority	7	7	100%	
5. Name of the state authority	83	55	66%	
6. Name of the state authority	65	20	31%	

Table 9. An example of the results of evaluation of public services transformation to e-services by state agencies

Evaluating Azerbaijan e-services we recommend initially to use as a quantitative metric a comparison with the e-services listed in the decree of Council of Ministers [19]. In the example in Table 10 instead of calculating the percentage of transforming all public services to e-services the percentage of transforming public services listed in the Council of Ministers decree to e-services.

3 The evaluation of the e-Governance infrastructure

In addition to particular services the existence of e-services' infrastructure should be evaluated.

e-Governance infrastructure i.e. horizontal enablers are common re-usable components/concepts across services and systems. They are generic, independent of services and have a high impact on service delivery. The level of e-services' infrastructure and the maturity level of e-services are linked directly: without a certain infrastructure a single service provider can't raise the level of its service's maturity higher than the infrastructure can enable it. For example an e-service can't be on the 4th maturity level if there is no possibility of digital payments connected with the consuming of the e-service. Hence the evaluation of e-services without infrastructure does not reflect the success.

In European Union benchmark'2012 the availability, usage and take up of nine horizontal enablers has been analysed. These are listed below:

- Authentic Sources are base registries used by governments to automatically validate or fetch data relating to citizens or businesses;
- Electronic Identification (eID) is a government-issued document for online identification, and authentication;
- Open Specification are free and possibly standard specifications that can be used throughout eGovernment applications;
- Single Sign On (SSO) allows users to get access to multiple systems without the need to log in multiple times;
- Electronic Payment (ePayment) is an electronic money transfer between government and citizens or business in eGovernment service delivery;
- Architecture Guidelines are common architectural principles and guidance targeting a uniform and re-usable service-based approach;
- Catalogue of Horizontal Enabler is a collection of technological enablers to be used across governmental environments;
- Secure Electronical Delivery (eDelivery) is a legally recognized secure delivery for electronic exchange of documents and data between government and citizens or businesses;
- Electronic Safe (eSafe) is a legally recognized system that allows for secure storage and retrieval of electronic documents.

As the e-services evaluation is a statutory task of State Agency for Public Services and Social Innovations, the whole e-services evaluation process has to be carried out under it's leadership.

Under State Agency for Public Services and Social Innovations guidance should also work an expert group evaluating e-services and, in particular, evaluating the necessary infrastructure. Members of the expert group evaluating e-services infrastructure definitely need joint training to harmonize knowledge and in particular to design common semantics.

e-Governance Academy proposes to evaluate infrastructure in 2 stages. On first assessment to limit to evaluate 3 most important basic components without which providing e-service is not possible. After successful first evaluation, on second evaluation all 9 components should be evaluated to ensure a balanced development of "building blocks".

The 3 most important components that the e-services are based on are as follows:

- Authentic Sources;
- Electronic Identification (eID);
- Secure Electronic Delivery (eDelivery).

The questionnaire by which the evaluation of the 3 basic components should be done is as follows:

1. Authentic Sources:
    a. Is personal data register operational?
    b. Is (im)movable property register operational?
    c. Is business register operational?
    d. Is there a legal basis that obliges administrations to use (data from) personal data register in eGovernment service delivery?
    e. Is there a legal basis that obliges administrations to use (data from) (im)movable property register in eGovernment service delivery?
    f. Is there a legal basis that obliges administrations to use (data from) business register in eGovernment service delivery?
2. eIdentity:
    a. Does state provide an electronic identification framework for public eServices to citizens?
    b. Does state provide an electronic identification framework for public eServices to businesses?
    c. Does the eID contain or facilitate an electronic signature for citizens?
    d. Does the eID contain or facilitate an electronic signature for businesses?
    e. For how many of the public eServices can citizens use the common eID solution?
    f. For how many of the public eServices can businesses use the common eID solution?
    g. How many of the eService providers are using an electronic identification framework?
3. Secure eDelivery:
    a. Does the country have a central solution for data exchange?
    b. How many of the eService providers are using the common data exchange solution?
    c. For how many of the public eServices is the common data exchange solution used?

It is not possible to answer these questions by every owner of e-service separately, it has to be done by an expert or an expert group with necessary expertise. An expert (group) has to answer the questions in a form of yes/no, which can be done in a reasonable course of work and time. Every component's scoring is the average of the scoring of the questions related to him.

The following questionnaire is meant to be filled by the evaluators who have undergone prior training and based on that it is possible to evaluate the level of e-services' infrastructure in the Azerbaijan State (see Table 10).

No	Back Office Enabler questionnary	estimating	scoring
1	**Authentic Sources**		**0,0**
1.1	Is personal data register operational?	yes=1/no=0	0
1.2	Is (im)movable property register operational?	yes=1/no=0	0
1.3	Is business register operational?	yes=1/no=0	0
1.4	Is there a legal basis that obliges administrations to use (data from) personal data register in eGovernment service delivery?	yes=1/no=0	0
1.5	Is there a legal basis that obliges administrations to use (data from) (im)movable property register in eGovernment service delivery?	yes=1/no=0	0
1.6	Is there a legal basis that obliges administrations to use (data from) business register in eGovernment service delivery?	yes=1/no=0	0

2	**eIdentity**		**0,0**
2.1	Does state provide an electronic identification framework for public eServices to citizens?	yes=1/no=0	0
2.2	Does state provide an electronic identification framework for public eServices to businesses?	yes=1/no=0	0
2.3	Does the eID contain or facilitate an electronic signature for citizens?	yes=1/no=0	0
2.4	Does the eID contain or facilitate an electronic signature for businesses?	yes=1/no=0	0
2.5	For how many of the public eServices can citizens use the common eID solution?	0%*	0
2.6	For how many of the public eServices can businesses use the common eID solution?	0%*	0
2.7	How many of the eService providers are using an electronic identification framework?	0%*	0
3	**Secure eDelivery**		**0,0**
3.1	Does country have a central solution for data exchange?	yes/no	0
3.2	How many of the eService providers are using the common data exchange solution?	0%*	0
3.3	For how many of the public eServices is the common data exchange solution used?	0%*	0

* Possible value range is 0% - 100%. Scoring method: 0-50% corresponds to “0” ja 51-100% to “1”.

Table 10. Back Office Enabler questionnary.

Following there is an example of evaluation of e-service infrastructure.

No	Back Office Enabler questionnary	estimating	scoring
1	**Authentic Sources**		**0,8**
1.1	Is personal data register operational?	1	1
1.2	Is (im)movable property register operational?	0	0
1.3	Is business register operational?	1	1
1.4	Is there a legal basis that obliges administrations to use (data from) personal data register in eGovernment service delivery?	1	1
1.5	Is there a legal basis that obliges administrations to use (data from) (im)movable property register in eGovernment service delivery?	1	1
1.6	Is there a legal basis that obliges administrations to use (data from) business register in eGovernment service delivery?	1	1
2	**eIdentity**		**0,6**
2.1	Does state provide an electronic identification framework for public eServices to citizens?	1	1
2.2	Does state provide an electronic identification framework for public eServices to businesses?	1	1
2.3	Does the eID contain or facilitate an electronic signature for citizens?	1	1

2.4	Does the eID contain or facilitate an electronic signature for businesses?	1	1
2.5	For how many of the public eServices can citizens use the common eID solution?	1%	0
2.6	For how many of the public eServices can businesses use the common eID solution?	1%	0
2.7	How many of the eService providers are using an electronic identification framework?	10%	0
3	**Secure eDelivery**		**0,3**
3.1	Does country have a central solution for data exchange?	1	1
3.2	How many of the eService providers are using the common data exchange solution?	0%	0
3.3	For how many of the public eServices is the common data exchange solution used?	0%	0
		eInfrastructure index	**0,6**

Table 9. Example of evaluation of back office enabler.

As an average of infrastructure components an e-infrastructure index can be used that easily and expressively reflects which infrastructure components should be developed in order to create premises for maturing the e-services. In the example referred above the e-infrastructure index would be 0.6, while the maximum value is logically 1.

There are many ways to illustrate the results of e-infrastructure evaluation, two visual presentations are following (see Figure 9 and 10). At a glance it can be seen that secure data exchange requires a prioritized development.

Figure 9. The visualization of results of example evaluation of 3 most important e-infrastructure components: authentic sources, electronic identification (eID) and secure electronic delivery (eDelivery).

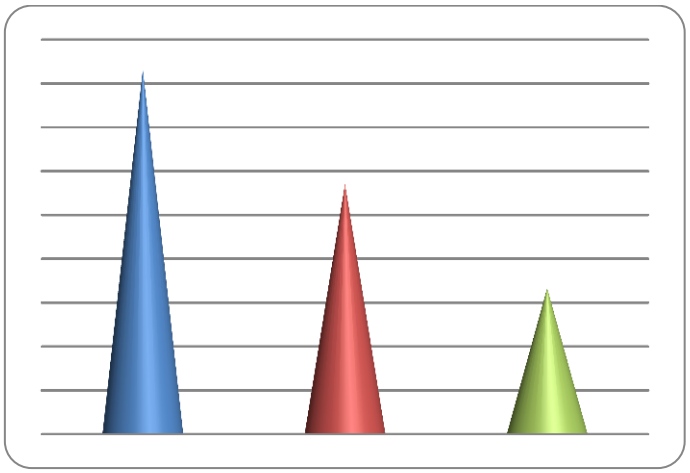
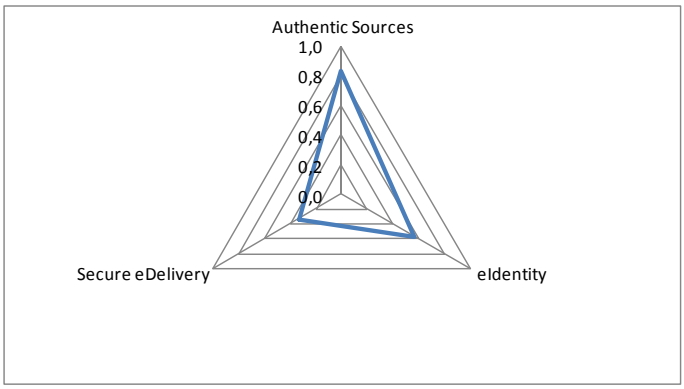


Figure 10. The visualization of results of example evaluation of 3 most important e-infrastructure components: authentic sources, electronic identification (eID) and secure electronic delivery (eDelivery).



4 Dashboard of evaluation of development of e-services

Mentioned above there are proposals for evaluating the creation of e-services, the maturity level of e-services including e-services affecting corruption and the existence of minimum necessary infrastructure. To get a quick and easy overview we propose to use a dashboard with traffic light colours to indicate the results.

Below there is an example of demonstrating the results of evaluating the development of e-services by state agencies (see Table 11).

For example the 4th state agency is providing most of the necessary public services digitally, the e-services provided are on the 3rd maturity level and work is being done to acquire the 4th maturity level, necessary e-infrastructure exists and e-services that affect corruption the most are operational.

Key

Meets requirements

Progress towards requirements

Fails to meet requirements

Agency	Formation of e-services	1.stage	2.stage	3.stage	4.stage	5.stage	e-infrastructure	Indications affecting corruption
1. Name of the state authority								
2. Name of the state authority								
3. Name of the state authority								
4. Name of the state authority								
5. Name of the state authority								
6. Name of the state authority								

Table 11. Dashboard of evaluating the development of e-services.

5 Recommendations and conclusion

As already mentioned, the methodology proposed herein has to be treated as a model that needs constant supplementing and updating.

We recommend to the OSCE office in Baku to facilitate the creation of a working group who will provide feedback about the development of the methodology along the process, with the support of some international experts to share and discuss the local and international finest practises.

As the OSCE mission can only be supportive, we recommend to involve and to closely cooperate with the responsible state agency. During the facts finding mission we felt that in developing the e-services there was a lacking of knowledge, the agencies were not sufficiently familiar with what is going on in developing the e-services as a whole, also a clear feed backing mechanism was missing.

Evaluating the e-services on the basis of the recommended methodology and the revelation of results would provide a clear, understandable and comparable feedback and would give an indication how to move forward.

Based on the above we propose two possible scenarios for next steps. Both of these scenarios require close cooperation between OSCE Office in Baku, State Agency for Public Services and Social Innovations and the Ministry of Communications and Information Technologies.

Action plan. Scenario no 1.

Implementation on pilot bases of the proposed M&E methodology by OSCE in collaboration with The State Agency for Public Services and Social Innovations.

First, OSCE has to identify a partner gathering local and international experience to be charged to:

- implementing the proposed methodology on pilot bases;
- indicating needed methodology amendments consequent to the lessons learned from the first M&R round;
- presenting terms of reference for the development of a portal for e-services M&E;
- delivering the results of the first round of M&E to beneficiaries.

Second, OSCE has to facilitate the creation of a roundtable of e-service providers to discuss and to get feedback on the evaluation process.

Action plan. Scenario no 2.

The e-services M&E methodology worked out by OSCE will be implemented by State Agency for Public Services and Social Innovations.

Action plan with duration of 12 months is showni n Table 12.

Action	**M1***	**M2**	**M3**	**M4**	**M5**	**M6**	**M7**	**M8**	**M9**	**M10**	**M11**	**M12**
To prepare a draft legal act for enforcing the methodology including a manual for implementing the methodology.												
To develop e-services monitoring portal.												

To develop the administrative structure for implementing the M&E methodology including the technical management of the portal and the work of the group of experts assessing the e-infrastructure and giving guidance on the further developments needed.												
To facilitate the roundtable of e-service providers in charge of discussing and getting feedback on the M&E process.												
To arrange joint trainings of staff in charge of M&E of the e-services including e-services providers advisors.												
To conduct M&E of e-services.												
To publish e-services M&E results on e-services monitoring portal.												
To draw up the proposals for complementing the e-service M&E methodology.												
To proceed the amendment of the legal act which approved the e-services M&E methodology.												

* M1 – 1st Month.

Table 12. Action plan to implement e-services monitoring methodology.

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