



TECHNICAL REPORT N° 01
Summarized Version

eGOIA - Electronic GOvernment Innovation and Access

ALA/2002/47-446/1087

Leader of the consortium

Fraunhofer Institute for Open Communication Systems (Fraunhofer FOKUS)

Period:

15 September 2003 – 31 July 2004

This document has been produced with the financial assistance of the European Community. The views expressed herein are those of Fraunhofer FOKUS and the eGOIA project partners and can therefore in no way be taken to reflect the official opinion of the European Commission.

TABLE OF CONTENTS

| | |
|--|-----------|
| TABLE OF CONTENTS..... | 3 |
| 1 EXECUTIVE SUMMARY | 4 |
| 2 INTRODUCTION | 7 |
| 2.1 Project Overview | 7 |
| 2.1.1 Objectives..... | 7 |
| 2.1.2 Background..... | 8 |
| 2.1.3 Roadmap | 8 |
| 2.1.4 Demonstrations | 8 |
| 2.1.5 User Groups..... | 9 |
| 2.1.6 Usability of eGOIA Services..... | 9 |
| 2.1.7 Technical Information..... | 10 |
| 2.1.8 List of Partners..... | 11 |
| 3 PROJECT OBJECTIVE FOR THE NEXT PERIOD | 11 |
| 3.1 Overall objectives | 11 |
| ANNEX | 13 |
| Acronyms and Abbreviations | 13 |

1 EXECUTIVE SUMMARY

The main goal of EU @LIS project “**Electronic GOvernment Innovation and Access (eGOIA)**” being an @LIS demonstration project is the provisioning of demonstrators that show future-oriented public administration services to a broad public in Latin America. The vision of the eGOIA project is the provision of *a single virtual space* supporting the interaction of citizens (independent of social status, gender, race, abilities and age) and the public administration in a simple, future-oriented and cost-effective way.

The roadmap of eGOIA is designed as follows:

- eGOIA intends to develop a long term, ambitious set of guidelines and strategies for future e-attendance agency solutions;
- Begins with the demonstration of some integrated citizen-centric e-services based on a current set of public services;
- Offers these services to a selected citizen user group in the newly established Citizen Access Points;
- Evaluates service usage through monitoring the behavior of selected users groups associated with the assessment of the results;
- Multiplies the lessons learned into different Brazilian regions/states and also to other countries (i.e. Peru and Portugal).

Background information, initial requirements and principles for the demonstrator have been assessed. This includes the current e-Government situation in Latin America, applications and services such as Poupatempo, best practice examples from Europe and Latin America, relevant standards, initiatives, existing technology and infrastructures. Also functional and non-functional requirements (e.g. social, organizational, technical, political, financial, economical, security requirements etc.) from different points of view of the stakeholders have been gathered. The boundary conditions, i.e., the constraints for the demonstrations within the eGOIA project were inspected such as laws and regulations, financial constraints, standards to be applied, available infrastructure, employee persuasion and education. General principles of the demonstrator were established that comprise a highly complex distributed environment and are based on the viewpoint-oriented system modeling as specified in the international standard of the Reference Model for Open Distributed Processing (RM-ODP).

The interests and needs of the eGOIA user groups such as citizens, employees of the public administration, administrators, etc. are of major importance in establishing a distinguished set of requirements by applying a requirement engineering process.

eGOIA recognizes two main user groups that will benefit from the project results:

- Population – fighting the digital divide of citizens without access to electronic means, such as poor communities in urban centers, suburban communities, rural communities etc. by providing access to new electronic services
- Public Service Providers – provisioning of advanced electronic services by reviewing and integrating available services, existing infrastructures, back-office aspects, as well as the possibility of inclusion of new services to provide a citizen-friendly environment and to reuse existing and new technologies to reduce the financial investments. Four segments of user groups among the public service providers can be

differentiated: direction staff, ICT managers, back-office employees and CPA employees.

EGOIA looked closer into these user groups as to find out their requirements more clearly. According to the projects objectives, the separation of the population into segments of users considered skill and access problems and focused on the particular social segments that must be the main beneficiaries of the solutions to be demonstrated. Income, education and age are the most significant variables in São Paulo to define user groups to focus on, because they present a more distributed pattern among the population than the others – language and domicile (rural/urban).

Regarding the user group of government agencies, this user group is renamed and conceived as public services provider group, in order to include non-governmental providers. According to role criteria, this group is divided into the following segments: direction staff, ICT managers, back-office employees and CPA employees, in order to represent the specific needs and assessment of results by each perspective.

The collection and evaluation of eGOIA requirements will be supported by developing a hierarchical, multidimensional and weighted list of criteria, which can be applied to the dependency of benefit, requirements and assessment. To demonstrate high-quality eGOIA services the user requirements (functional and non-functional requirements) are gathered and constantly evaluated. These assessments are fed into the development process in different phases of the project.

The selection of e-Government services is a major task in the eGOIA project. Service selection for the eGOIA demonstrator is based on a combination of pragmatic and ideal criteria. Since it will be hardly possible to assess in depth every service, the eGOIA project applies a combination of criteria that ensures as much as possible the highest pay-off with the minimal risk, while taking into account the characteristics of the technology available to the project.

The **eGOIA Demonstrator** technically will comprise the integration of back-office procedures (integration of services and access of existing distributed databases for the benefit of the citizen) and front-office procedures (supporting appropriated access channels and the functionalities of the services). These integration tasks are not at all simple techniques. Therefore technological tendencies in the IT area were analyzed and an architecture concept was introduced. This concept views and divides the e-Government system and services into different aspects (viewpoints) and so the complexity of the overall architecture is reduced. The advanced technology thereby becomes more understandable and thus more controllable.

eGOIA has chosen in **Brazil** the **region of São Paulo** for its initial local community demonstrations. The citizens of the São Paulo region already have the possibility of accessing public administration services in single physical places – the Poupatemplos. The Poupatemplos are increasingly demanded and require expansion, which is associated with high expenditures due to the extensive infrastructure needed for high quality services. Anyhow, in this physical presence environment people will always have to queue up physically for each service required. The positive acceptance of the Poupatemplos led to the requirement of the São Paulo State Government to enhance this administration system into a future Internet-based e-attendance system available to all citizens in São Paulo and in areas, which are currently lacking the possibility of access to new technologies and services.

In the case of **Peru** another complementary way has been decided, aiming the support of municipalities. Peru is a country with 26'749,000's inhabitants grouped in 1822 districts. The capital of Peru, Lima, has 7'775,000 inhabitants located at 42 districts of the province. To

implement an e-government project in these districts, like eGOIA, it was decided to consider three districts as basis for the project:

- **San Borja Municipality:** St. Borja's District has a population estimated of 116.637 inhabitants distributed in 39.920 urban buildings. San Borja is the district with larger rookie area in the Province of Lima, and it has been named as "Ecological District".
- **Villa El Salvador Municipality:** Villa El Salvador Municipality is located at the central coast of the Peru, at the department and province of Lima. Villa El Salvador's population is approximately 330.000 people. Villa El Salvador's Municipality is a public entity that manages public services, regulating the activities related with sanitation and promoting the ecological preservation of the district and the civic participation
- **Cajamarca Municipality:** Cajamarca's Province and its capital (of the same name) are located at Cajamarca's Department in the north of Peru. Cajamarca's Province, with 230.049 inhabitants' population (1993), presents some demographic characteristics own of rural areas since most of the population is rural (56 %). In the level of the capital of province, Cajamarca's district registered 124.378 inhabitants in 1995. Its demographic characteristics are similar to capitals of provinces of marked rural character. Cajamarca's Municipality hopes to be the promoter of the economic development in its city. The perspective to medium and long term is decreasing the poverty and achieving the social, economic and cultural district transformation to reach the institution's improvement.

The project's web site is <http://www.egoia.sp.gov.br> .

2 INTRODUCTION

2.1 Project Overview

The main goal of EU @LIS project “**Electronic GOvernment Innovation and Access (eGOIA)**” being an @LIS demonstration project is the implementation of demonstrators that show future-oriented public administration services to a broad public in Latin America. Thereby the vision of the eGOIA project is the provision of *a single virtual space* supporting the interaction of citizens (independent of social status, gender, race, abilities and age) and the public administration in a simple, future-oriented and cost-effective way.

eGOIA aims to demonstrate an eGovernment system based on an open services infrastructure in order to allow the access of citizens through the Internet to integrated public services at several levels: local (municipalities), regional (state governments) and federal government.

2.1.1 Objectives

EGovernment must be about meeting the needs of citizens and improving quality of life. Borrowing a lesson from the private sector, e-government must be customer-driven and service-oriented. This means that a vision of e-government implies to provide greater access to information as well as better, more equal services and procedures for the public and businesses. The final goal is to make the government serve the citizens better.

The specific objectives of the eGOIA project can be summarized as follows:

- To improve existing Latin American approaches and physical-presence attendance system, like Poupatempo towards a future-oriented e-attendance system in order to:
 - + Support less favored people by Internet access points. This includes the improvement of the user interfaces and services to fit people’s needs based on a life-situation focused approach. Usability of the services will be supported by training mechanisms for the unskilled users.
 - + Integrate public administration services to provide a one-stop-shop for users. Integration comprises adaptation of front-office processes for easy usability and access to back-office processes in an open and standardized fashion that feature the reusability of components.
 - + Define the strategies for successful realization and operation of the future e-attendance system by various methodologies such as strategy planning, roadmaps, technical and non-technical organizational methods and procedures, assessment of user requirements and involvement of user groups in the decision process, assessment of existing services/infrastructure and its potential for integration and added value.
- To study the process of multiplying the experiences and solutions into other Brazilian regions, states and to other Latin American countries, i.e. Peru, and back to Europe.
- To involve European know how, solutions, technologies and products.

2.1.2 Background

The growing availability of public services introduced by public agencies in the Internet requires that the government takes initiative to convert the present, physical-presence relationship with citizens, into a future-oriented electronic community. The interaction of citizens with the public administration has to be encouraged to choose new ways of access for the benefit of all participating parties.

On the other hand, as computer networking becomes increasingly important to economic and social success, many people in inner cities and isolated rural areas are failing to acquire the new technology as others. This is especially true for less favored people that do not have the possibility to access the new technology and to benefit from its challenges. In underserved communities, proper tools for making use of these technologies are required to profit from the benefits of these new developments.

2.1.3 Roadmap

The roadmap of eGOIA designed as follows:

- eGOIA intends to develop a long term, ambitious set of guidelines and strategies for future e-attendance agency solutions;
- Begins with the demonstration of some integrated citizen-centric e-services based on the current set of public services;
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2.1.4 Demonstrations

eGOIA has chosen in **Brazil** the **region of São Paulo** for its initial local community demonstrations. The citizens of the São Paulo region already have the possibility of accessing public administration services in single physical places – the Poupatempos. The Poupatempos are increasingly demanded and require expansion, which is associated with high expenditures due to the extensive infrastructure needed for high quality services. Anyhow, in this physical presence environment people will always have to queue up physically for each service required. The positive acceptance of the Poupatempos led to the requirement of the São Paulo State Government to enhance this administration system into a future Internet-based e-attendance system available to all citizens in São Paulo and in areas, which are currently lacking the possibility of access to new technologies and services.

In the case of **Peru** another complementary way has been decided, aiming the support of municipalities. Peru is a country with 26'749,000's inhabitants grouped in 1822 districts. The capital of Peru, Lima, has 7'775,000 inhabitants located at 42 districts of the province. To implement an e-government project in these districts, like eGOIA, it was decided to consider three districts as basis for the project:

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2.1.5 User Groups

eGOIA recognizes two main user groups that will benefit from the project results:

- Population – fighting the digital divide of citizens without access to electronic means, such as poor communities in urban centers, suburban communities, rural communities etc. by providing access to new electronic services.
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2.1.6 Usability of eGOIA Services

To demonstrate high-quality eGOIA services the user requirements (functional and non-functional requirements) are gathered and constantly evaluated. These assessments are fed into the development process in different phases of the project.

Technically this means that usability laboratories, such as the e-Poupatempo laboratory existent at the Poupatempo Guarulhos, will be adapted and used based on defined norms and procedures. The services to be monitored in the laboratories are dynamically selected.

Usability data is gathered by:

- Polling users opinion;
- Monitoring user's behavior (with cameras) to find out the difficulties of the users using the computer and the different behavior in using such systems (socio-cultural

aspects).

- Personal contacts
- Performance and availability measurements of services, e.g. response time.

The results will influence the eGovernment process quality regarding:

- Layout and Web design;
- Search tools;
- Organization and structure of the information;
- Vocabulary;
- Training facilities

Impact is expected regarding the services providers' infrastructure, back-office organization, operational support and, last but not least, towards the training of employees to support users of the eGOIA services.

2.1.7 Technical Information

Technically the project is based on two main paradigms – front-office and back-office integration.

Back-office Integration

Back-office integration concentrates on a unified approach to access already existing and newly emerging government services. Requirements for faster development cycles, decreased effort, and greater software reuse motivate the creation and use of middleware and middleware-based solutions. The envisaged solution creates a virtual boundary around application components (e.g. eGovernment services) that interact with each other only through well-defined interfaces and define the standard mechanisms to compose and execute components in generic component servers.

Valuable experiences on how to proceed to an integrated eGovernment service architecture were provided by the German (Senate of Berlin) eGovernment project *VeZuDa* (Unification and Consolidation of the Data of the County of Berlin; <http://www.vezuda.de/>). The objective of this project was the conception and prototypical realization of a distributed and secure back-office infrastructure for the City of Berlin, providing access to various data of different administrative departments via a uniform platform. Based on middleware, communication, access and security issues have been solved to connect governmental departments and to develop services to request data from different database systems.

Front-office Integration

Besides the integration of back-office processes the main factor for the acceptance of eGovernment services is an intuitive user-interface integrating the diverse eGovernment services available. eGOIA will instantiate these services in so-called Citizen Access Points. These Citizen Access Points focus on the integration and participation of less favored people with a lack of possibilities and experiences towards this new technological environment. Therefore the applications – citizen-centric services – have to be easily usable. This will be achieved by concentrating on certain life-situations (examples for life-situations are: child is born, marriage, looking for a job, social assistance required, etc.) that are non-technical and easy to follow by the target user group.

Experiences such as those provided by the project Start-Infosystem of the Senate of Berlin are

taken as an example. Start-Infosystem is an information system that allows simplification and speeding up of administration processes at front office work places in more than 60 citizen offices in Berlin. This system will be available at more than 1.000 workstations. The objective of the solution is to give people in back-offices detailed information for customer case handling as well as an improvement of customer service. In addition, the installation of an Internet portal for direct access by citizens to the information database is planned.

2.1.8 List of Partners

Fraunhofer FOKUS
Institute for Open Communication Systems
Berlin, Germany
<http://www.fokus.fraunhofer.de>

Governo do Estado de São Paulo
Casa Civil, Chief of Staff (former SGGE)
São Paulo, Brazil
<http://www.saopaulo.sp.gov.br>

Centro de Pesquisas Renato Archer (CenPRA)
Campinas, Brazil
<http://www.cenpra.gov.br>

Associação Brasileira de Empresas Estaduais de Processamento de Dados (ABEP)
Taboão da Serra, Brazil
<http://www.abep.sp.gov.br>

Consejo Nacional de Ciencia y Tecnología (CONCYTEC)
Lima, Peru
<http://www.concytec.gob.pe>

Helios ICT Management Ltd.
Murieston Livingston, West Lothian, UK

Meticube Sistemas de Informação, Comunicação e Multimédia, Lda.
Taveiro, Portugal
<http://www.meticube.com>

INI-GraphicsNet Stiftung
Darmstadt, Germany
<http://www.inigraphicsnet-stiftung.de>

3 PROJECT OBJECTIVE FOR THE NEXT PERIOD

The main eGOIA project objective is to implement the “eGOIA Demonstrator- Phase I” and to perform the demonstrations with the selected initial services in Sao Paulo, Brazil. In parallel, investigations in Peru are running to select services to be demonstrated in Peru (phase II of project).

3.1 Overall objectives

To realize the “eGOIA Demonstrator Phase I” the following objectives have been determined for the next project year:

- Implementation of the eGOIA Demonstrator (Phase I):
The eGOIA demonstrator will be realized to show the eGOIA e-government services selected for phase I of the project.
- Demonstrate eGovernment services in São Paulo (Phase I):
The services will be demonstrated to the user groups in São Paulo.
- Evaluation of demonstrations (Phase I):
The performed demonstrations will be evaluated regarding its usability and regarding its technical realization.
- Definition and selection of services for the eGOIA Demonstrator in Peru:
For the eGOIA demonstrator in Peru dedicated services will be selected based on the needs of the Peruvian users.
- Selection of eGovernment services (Phase II):
eGOIA will perform again a selection activity for advanced/enhanced e-government services to be realized in phase II.
- Development of the e-GOIA Demonstrator Architecture, Phase II
The new selected services will be modeled and the new components identified
- Implementation of the eGOIA Demonstrator (Phase II):
The realization of the eGOIA demonstrator for Brazil and Peru will be started and will be continued in year 3 of the project.
- eGOIA dissemination, exploitation and marketing:
To ensure sustainability of the results constant dissemination, exploitation and marketing activities will be performed during project execution.

ANNEX

Acronyms and Abbreviations

| | |
|-----------|---|
| BLIS | e-Gov project in Berlin, Germany, provision of access to geospatial data of real Estate affairs, information about ownership, regional development plans etc. |
| CPA | Citizen Points of Access |
| D.n.n | Deliverable.n.n |
| EDOC | Enterprise Distributed Object Computing |
| e-GIF | e-Government Interoperability Framework (UK) |
| eGOIA | Electronic Government Innovation and Access |
| e-Gov | Electronic Government. The same as e-Government |
| Enago OSP | OSP = Open Service Platform; Product; Service integration platform |
| FEA | Federal Enterprise Architecture (USA) |
| FEAPMO | Federal Enterprise Architecture Program Management Office (USA) |
| G2C | Government to Citizen |
| G2E | Government to Employee |
| G2G | Government to Government |
| G2B | Government to Business |
| ICT | Information and Communication Technology |
| ID card | Identity Card – A citizen identity card provided by Brazilian’s States for citizen identification and valid in all Brazilian territory. |
| IDA | Interchange of Data between Administrations (EU Initiative) |
| IIRGD | São Paulo State Citizen Identification Department: “Instituto de Identificação Roberto Gumbleton Daunt” |
| IS | Information Society |
| IWA | Internal Working Agreement: An eGOIA internal planning document |
| LA | Latin America |
| MDA | Model Driven Architecture |
| ODP | Open Distributed Processing |
| OMG | Object Management Group |
| PM | Person*Month |
| RM-ODP | Open Distributed Processing Reference Model |
| SAGA | Standards and Architectures for e-Government Applications (Germany) |
| SP | Subproject |
| UML | Unified Modeling Language™ |
| VeZuDa | eGov project in Berlin, Germany, “Unification and Consolidation of the Data of the County of Berlin” |
| XML | Extensible Markup Language |