Digital to Intelligent Local Government Transition Framework

Mladen Mauher, Ph.D.
Multidimensional Management Consulting, Ltd. Zagreb
Vinogradi 36 C, Zagreb, Croatia
Phone: +385 98 279 004 E-mail: mladen.mauher@zg.t-com.hr

Vanja Smokvina, M.Sc.
City of Rijeka
Korzo 16, Rijeka, Croatia
Phone: +385 51 209 634 E-mail: vanja.smokvina@rijeka.hr

Abstract – **Digital to Intelligent Local Government (LG) Transition Framework contains interrelated Political, Conceptual, Technological, Institutional and Transitional components. Political component presents endogenous political models (directions), harmonized by exogenous ones and verified by best practices. Conceptual component is derived on LG service requirements model, integration and interoperability of services, Knowledge and Sustainable Development Intelligent City Model with resulted Interoperable Processes Model, Enlarged Data Model, Web Service Model and Management Model. Technological component is structured on Enabling ICT Model and Standards for LG. Institutional Infrastructure and Transition components based on Resource Model are presented.**

I. INTRODUCTION

Transition**,** as process or period in which something undergoes a change and passes from one state, stage, form, or activity to another, could take different shapes, can be derived by different drivers, and result in different states/forms/activities. Managing of complexity of digital to intelligent LG transition processes is framed by political, conceptual, technological, institutional, and transitional components (Figure 1.).

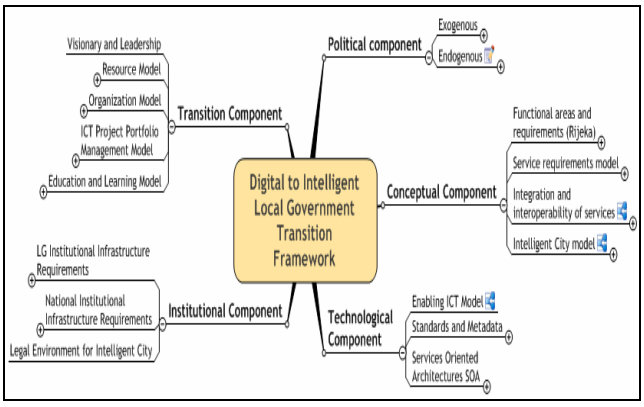

Figure 1. Overal structure of transition framework

II. POLITICAL COMPONENT

A. Exogenous

1) International

EU Ministerial eGovernment Conference 2005 „Transforming Public Services“ [1] has resulted in a strong impetus to bring forward the European eGovernment agenda towards 2010. It is the revision of Lisbon Strategy, which “...emphasizes community relationships over individual autonomy, cultural diversity over assimilation, quality of life over accumulation of wealth, sustainable development over unlimited material growth, deep play over unrelenting toil, universal human rights and the rights of nature over property rights, and global cooperation over the unilateral exercise of power”.

The focus is to evolve from eGovernment to tGovernment (see figure 2.) by:

- changing fundamentally the way government does what it does. It is more than moving services online.
- Transformation should be business-led and ICT-enabled. Technology should enable a sound piece of business redesign, thought through and costed accordingly. Technology, in other words, should be neither the end nor the sole means of public service transformation.
- Transformation should have clear benefits for the constituent: citizen, business or frontline civil servant. These should be clear, quantifiable and factored into business cases.

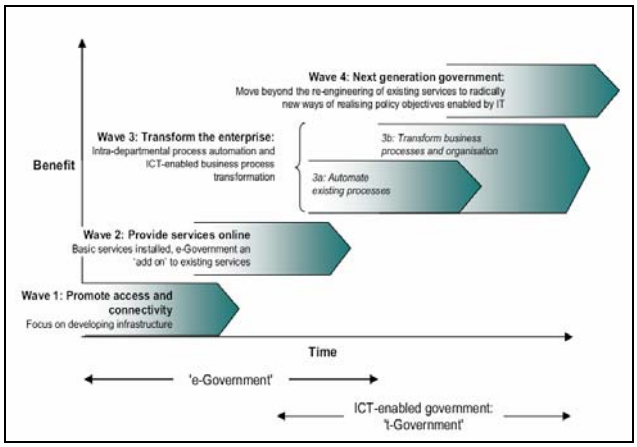

Figure 2. The evolution of eGovernment

Predecessing documents suported the aforementioned strategy:

- eGovernment Beyond 2005 – Modern and Innovative Public Administrations in the 2010 horizon - „CoBrA Recommendations“ to the eEurope Advisory Group [2]
- Interoperability of eGovernment systems, The identification number, data sharing and data protection issues [3].

The EU IST funded IntelCities project, a research and development project, aims to help achieve the EU policy goal of the Knowledge Society [4].

2) National

US new e-government strategy represents an upgrade of the strategy published in early 2002 and shifts the emphasis from consolidation of goals to consolidation of systems. [5]

UK launched 'Transformational Government' strategy [5] “a far more profound approach that goes to the heart of public services delivery”.

The Croatian e-government strategy is set in the **e-Croatia 2007** Programme, which was adopted in December 2003. Based on the principles and priorities outlined in the *e*Europe 2005 Action Plan, the e-Croatia strategy sets the objective of providing online access to key services in public administration, health, education and the justice system by 2007. In addition to improving the quality and responsiveness of public services to citizens and businesses, this strategy is also aimed at reducing red tape and corruption while delivering significant cost savings on government operations [6].

Local government has a crucial role to play in creating sustainable communities. It can lead the local community, reflecting and responding to the needs and priorities of local people. It brings together a wide range of services to deliver the outcomes that matter to people locally. And it is democratically accountable to all citizens, balancing the interests of individuals and groups with those of the wider community.

Both local and central government will need to change to meet the challenges of the next ten years and to ensure that people will look to their council as a place where things get done - a new settlement between central, regional and local government.

UK - Future of Local Government: Developing a 10 year vision [7] is headed towards those goals.

3) Intelligent City Projects and Strategies

AGORA – Cities for People, to identify best practice model for urban planning and design in the 4 European cities studies in the project (Barcelona, London, Malmö and Utrecht). Project seeks to address issues of the contemporary city-state, to reconfigure and promote a new genius loci. To propose an urban model of development that is not one of dysfunction, rupture and cataclysmic change, but subtle (soft), incremental, positive and dignified transformation, where the power of place can still prevail; and within which the citizens are empowered, informed, and sustained in their dynamic and increasingly virtual orientated environment [11].

Intelligent City Project, re-generated on Sustainable Development (SD) and Knowledge Society (KS), [4] research is headed to: ***Social learning*** "laboratories" to simultaneously explore, stimulate and demonstrate routes to e-Inclusion as well as migration routes to Integrated Open-System City Platform-IOSCP; ***Development of a city-wide information system*** that integrates a wide range of current and to-be-developed urban services and activities through an Integrated Open-System City Platform that is flexible and adaptable for the future; ***e-Administrative Services*** (eGIF, Semantic Web) for city planning, management and visualisation (GIS/GPS, nD (multidimensional) city models,VR, Augmented reality) and for real-time data capture.

The IntelCities project is a research and development project that aims to help achieve the EU policy goal of the Knowledge Society.

Some of the best 2010i implementation strategies for cities are:

The Smart City Vision of Edinburgh [8] is about customer focussed public services.

Municipality of Dordrecht, Netherlands, winner of the EFQM [13] Excellence Award is Europe's for organisational Excellence based on ICT, now working on its city vision up to 2010.

Top seven cities in 2006, selected on Intelligent Community Indicators (broadbend infrastructure, knowledge workforce, innovation, digital democracy, marketing) by Intelligent Community Forum [14] are: **Cleveland**, Ohio, USA, **Gangnam District**, Seoul, South Korea, **Ichikawa**, Japan, **Manchester**, United Kingdom, **Taipei**, Taiwan, **Tianjin**, China, **Waterloo**, Ontario, Canada.

4) Influence of SD projects

Environment and Sustainable Development [9] and **Local Agenda 21** [10] key actions on City of Tomorrow and Cultural Heritage relies on:

- Sustainable city planning and rational resource management (improving urban governance and decision making, improving the quality of urban life, waste reduction and its life cycle management, economic development, competitiveness and employment)
- Protection, conservation and enhancement of European cultural heritage (improved damage assessment on cultural heritage, development of innovative conservation strategies, foster integration of cultural heritage in the urban setting)
- Development and demonstration of technologies for safe, economic, clean, effective and sustainable preservation, recovery, renovation, construction, dismantling and demolition of the built environment, in particular for large groups of buildings (revitalisation of city centres and neighbourhoods, optimum use of land and rehabilitation of brownfield sites)
- Comparative assessment and cost effective implementation of strategies for sustainable transport systems in an urban environment (strategic approaches and methodologies in urban planning towards sustainable urban transport, comparative assessment and demonstration of new transport technologies and related infrastructure)

Local Agenda 21 is a local-government-led, community-wide, and participatory effort to establish a comprehensive action strategy for environmental protection, economic prosperity and community well-being in the local jurisdiction or area. This requires the integration of planning and action across economic, social and environmental spheres. Key elements are full community participation, assessment of current conditions, target setting for achieving specific goals, monitoring and reporting.

B. Endogenous

1) City Council

City of Rijeka City Council's Directions for mandate period 2005 to 2009 [15] is one example of local strategies for Intelligent City. One of the City Council strategic missions is the transition from Digital City to Intelligent City, based on:

- integrated ambient/contextual e-services to city constituents (by central/regional/local government interoperability and integration)
- providing infrastructure for reach citizen inclusion to city life (e-inclusion)
- electronic and mobile participation in city decision-making processes (attitudes, votes, suggestions, e.g.) individually and/or through digital citizen communities
- implementation of city information services for mobility on transportation, work, education, health and other mobility (integrated collaborative information services)
- non-intelligent divide in ambient infrastructure (policies and education to share city intelligence)
- effectiveness and economy to share and use citywide ICT and knowledge related potentials and resources
- interoperability and collaboration of city administration and public entities in order to
  - provide integrated services to city constituents
  - integrate city asset management and utilization
  - restaurate, develop and utilize city inheritage for overall constituent benefits
  - collaborative project management in infrastructure and other city developments
  - city-life and urban planning based on collaborative data sources and supporting analytical/forecasting systems
  - interoperable, integrated sustainable city development based on knowledge
- multilateral contextual management of information dissemination
- open, collaborative ICT platform of City of Rijeka

2) City Government

City Government's should promote proactive roles: to propose, to manage to implement, and to use by example, are main implementation drivers towards Intelligent City.

Based on open and collaborative activities in EmunIS, Eurocities Knowledge Society Forum, GISIG-Geographical Information Systems International Group; being member of Major Cities of Europe; cooperating in Ge.Ri.T project which has been jointly realized by the cities of Rijeka and Genoa, 50% co-financed by the Italian Ministry of Production Activities, City of Rijeka City Government started to use „ePoglavarstvo“ fully integrated City Government Web collaborative portal based on technologies as smart card and advanced electronic signature, intelligent documents management system, Web service for interoperability with external systems [18].

3) City Mayor

City Mayor's dominant role is must in order to promote a citywide approach to e-government. Good foreign example is from Mayor of London [16], and local one at Rijeka City Portal [17].

III. CONCEPTUAL COMPONENT

A. The Concept of Ambient, Enhanced, City Service

An ambient enhanced service[19] is:

- a service that can be delivered on different types of devices, in particular "democratic" devices such as telephones, mobile phones, kiosks and PCs (*the accessibility dimension*);
- a transactional service (bi-directional exchange of data), and not just the provision of information, in order to provide the ability, for citizens, to get meaningful answers to their requests (*the interaction dimension*);
- requiring several providers to collaborate and integrate their services to deliver a global, comprehensive answer to a particular query (the one-stop city shop) (*the integration dimension*).

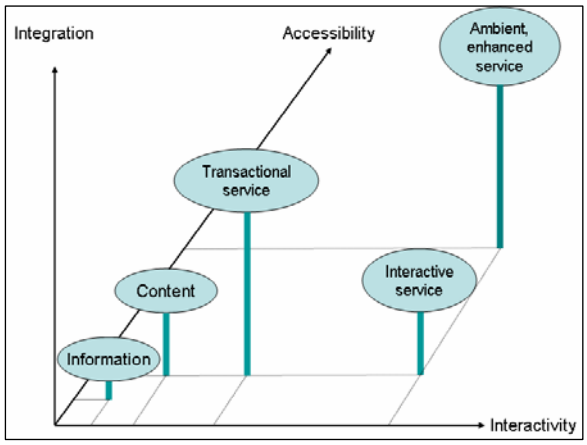

Figure 3. The concept of ambient, enhanced, city services

B. Functional areas and functional requirements

1) International

Local Government Category List (LGCL), developed by the Local Authority Websites (LAWs) Project [20], presents following top level categories:

- Business
- Community and living
- Council, government and democracy
- Education and learning
- Environment
- Health and social care
- Housing
- Jobs and careers
- Legal services
- Leisure and culture
- Policing and public safety
- Social issues
- Transport and streets

Each one is decomposed up to five lower levels.

LGCL, together wits the Government Category list and the seamlessUK Taxonomy have merged into the Integrated Public Sector Vocabulary, an 'encoding scheme' for populating the e-GMS Subject element..

Life Events Access Project (LEAP) [24] aims to utilize knowledge management in order to improve service provision to customers. LEAP combines services around 'life events'. Excerpts form list of services is in Figure 4.

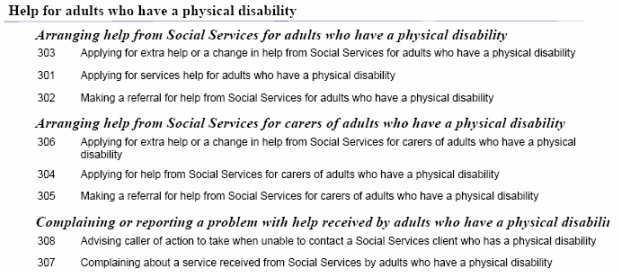

Figure 4. Life events access services

2) National

Functional areas in many Croatian cities follows the structure as: Entrepreneurship, Education, Health & welfare, Culture, Sports, Finance, Urbanism and Environment, Public services, City self-administration, Informatics. Corresponding organizational structures are evident [21]. City of Rijeka, implementing e-MunIS project [22], has published refined LG category list in alphabetic and life-events order [23].

3) Best practices

Australian Local Government Services and Facilities Thesaurus [25] was commissioned by the South Australian Local Government Association and augmented by the Australian Local Government Association to provide a facility for councils to display, promote and provide an online booking service for the services provided by councils. The aim is to provide consistent language across council sites and map non-preferred terms to a preferred term to provide appropriate responses. The thesaurus aims to provide resource discovery.

Liverpool A-Z [26] contains details of services that Liverpool City Council and other external organizations provide.

C. LG requirements model

LG Requirement model presented here is partially derived from Intelcities project deliverables and the background study for City of Rijeka digital to intelligent transition framework.

1) e-Administration

Ambient, enhanced city service provision with a focus on e-services. e-Services designate advanced online interactions between public administration and citizens on administrative or day-to-day management issues.

2) e-Inclusion

The main aim is to involve citizens in new and more inclusive ways of living (working, studying, leisure time, administrative activities, relationships, etc.), including „e" and „m" participation over wired and wireless platforms for e-Voting / m-Polling.

3) Mobility and Transport Information Services

ICT to improve the citizen's quality of life by enhancing public and private mobility and by eliminating the information inconsistencies.

4) e-Land Use Information Management

The focus is on supporting a high level of interoperability of GIS data and seamless Geodata exchange and to support cities in fulfilling the Monitoring and Modelling requirements of Strategic Environmental Assessment and Urban Thematic Strategy.

5) Regeneration

The development of systems for specific use in urban regeneration and their integration with other city systems. It encompasses the physical, social and economic elements of regeneration and their interdependencies.

6) Virtual Urban Planning

The virtual urban planning environment (ViP) supports new, more multi-disciplinary, inclusive planning processes that ensure more rapid and consensual urban re/development decision-making, which balances public and private interests. ViP will allow Visualization of different urban (re)development actions and simulation of impact on the environment: air quality simulations and noise simulations are both addressed.

7) e-Learning – the e-City learning Platform

e-learning platform as a knowledge management system for the intelligent city constituents. The knowledge management system is organized in accordance with a pre-specified, but evolving ontology and is capable of performing ontology-based annotations in semantic-web format.

8) Visioning and Capacity Building of Citizens

Establishing of the standards of envisioning that will allow the setting up of the virtual learning and knowledge management required by e-City Platform to provide the needs of a network society (2005), a knowledge society (2010) and sustainable development (2020).

9) e-Governance

The Model specifies the requirements of e-Governance processes and structures involving effective and participatory interactions, relationships, and networks of local governments and the local actors in city administration and planning and management.

10) e-Organization

The building blocks with which local authorities – and other public services – can build and implement their own e-strategies. The blocks are grouped in five themes (see

Figure 5), which reflect the route map to e-government upon which local authorities based their Implementing e-Government statements [47].

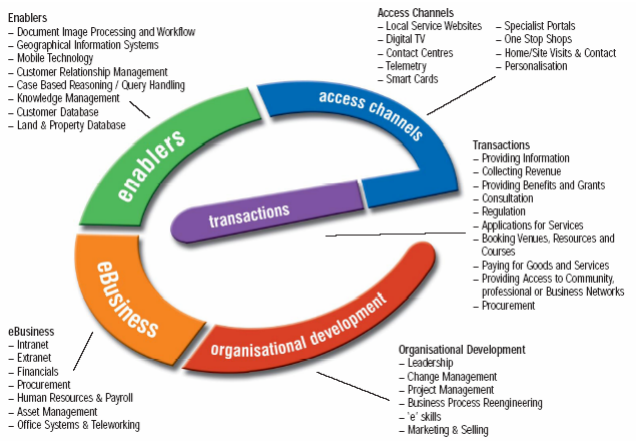

Figure 5. Local e-Organization

D. Integration and interoperability of LG services

Main challenge of e-government is to make it possible for local administrations to become a channel for delivering online a large variety of services in a straightforward and transparent manner regardless of the administration(s) actually involved in providing those services. Local administrations often act as a front office to the Citizen.

1) International projects and activities

The eEurope 2005 Action Plan [27] proposed a set of actions, especially the creation and the establishment of interactive and interoperable public services.

IST project TERRREGOV (Impact of e-Government on Territorial Government Services) [28] offers a Service-oriented Architecture that proposes to wrap existing information systems into Web Services to make them interoperable. The Figure 5 presents project's architecture.

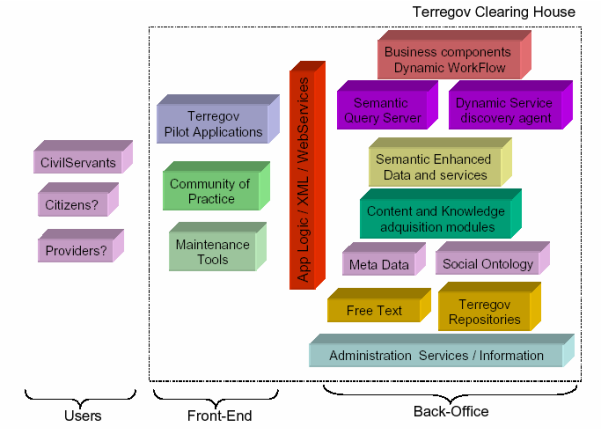

Figure 5. Terregov´s functional architecture

The eMayor project aims to provide secure, interoperable and affordable Web services for small and medium sized government organizations (SMGOs) across Europe [29].

eGovernance in light of eEurope 2005 and beyond [30] focuses on the City eGovernance evolution viewing it as multi-phase transformation, rather than a single step process that anticipates a seamless operation of transformed city government departments that serves the needs of the citizens and the well-being of the community based on innovation, inclusion and creativity.

2) Integration and interoperability levels

Integration and interoperability horizontally spans:

- local level (integrating and interoperating inside local administration, between local administration and local constituents)
- national level (co-operation based on interoperability between local and national authorities and correspondent constituents)
- international level (international co-operation based on interoperability between local authorities and correspondent constituents)

Vertical interoperability covers:

- regional and national levels (interoperating between local, regional and national government administration)
- co-operative national-international interactions.

Semantic Integration and Interoperability:

- On demand, contextual integration of services.

E. Intelligent City Model

Intelligent City Model is based on ambient enhanced services, Knowledge Society and Sustainable Development. Interaction model is illustrated in Figure 6.

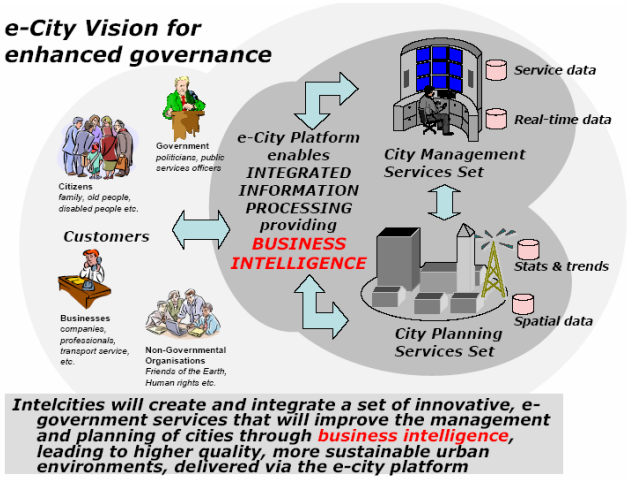

Figure 6. e-City Vision for enhanced governance

IV. TECHNOLOGICAL COMPONENT

A. Enabling ICT

1) Intelligent spaces

Artefacts - a new generation of smart objects embedded in everyday objects, open and scalable architectures for artefact interconnections, new generation of tiny operating systems and middleware, new lightweight distributed networking protocols and technologies will result in „disappearing technology".

User-friendly multimodal interfaces, technology-mediated communication between people, capability of learning and adapting to the user environment, with emotional agents, will bring to friendly computers.

Wireless gets personal based on self-organizing wireless personal area network capabilities and wireless broadband connectivity.

Networked homes, independence at home for people with disabilities - elderly or unwell with care environment and remote monitoring and control, privacy in networked world, intelligent networked access for all, life-long contextual learning and learning on the move, life on the move, ambient healthcare, are all of components for intelligent spaces [31].

2) Enabling technologies

Dynamic, fast evolving, small and smart microsystems with considerable business potential, as well as application potential of micro-nano technology and large-area systems are contributing to our „small future".

Research on organic electronics, organic display technologies, 3D displays and 3D and realistic animated holographic-like representations, are bringing the range of future displays.

Networked viewing, new frontiers for photonics, the push to nano, networked embedded systems design, overcoming complexity, software anywhere, the understanding machine, next generation networks (NGN) and Intelligent Agents, are picturing novice and expected enabling technologies.

3) Digital communities

Knowledge for health, seamless e-government, security in openness, learning together, preserving cultural memory and accessible culture for all, risky environment and risk protection technologies, safety in move, linking people and physical and informational resources on a global scale, move from tools for computation and data analysis to systems for knowledge discovery, and Intelligent City, are some of the shapes of digital communities.

4) Knowledge economy/society

ICT is fundamentally transforming instances of well-known economic theories. The economy is developing from an industrial economy into knowledge and network economy. Substantial changes are in: *time* and *distance* dimensions; *price/quality* ratio; growth rate determined by the *technology*, the *population's level of education*, its preferences; structure and dynamics in product/service generation systems; innovation based (on ICT) increase of *labor and overall productivity*.

Transformations on micro economic levels are reshaping networked enterprises, networked knowledge based management, business ecosystems with intelligent production processes and global standardization initiatives, collaborative work in economic wealth creation. Deployment of Collaborative Workspace technologies as a standard tool for supporting collaboration between geographically separated teams who belong to the same organization, as well as the different organizations, with the aim to achieve complete deployment of collaborative workspaces, supported by trusted intelligent agents, among all the partners in a value chain, wherever located in all stages of product life cycle.

New market shapes are created as: Single European Electronic Market (SEEM) as a open network-centric environment, allowing any entity to come into and leave without barriers, and ensuring the possibility of integrated value chains in which companies, organizations and individuals from different Member States can be linked without experiencing any access or interoperability problems.

Knowledge economy in stepping into the Cities as a new knowledge based economic entities.

B. Standards and metadata standards

1) International standards and metadata standards

There is strong direction towards a Universal E-Government Metadata Standard. The first version of progressive work on e-Government Metadata Framework provides guidelines for the structure and use of metadata in official Government systems. It is largely based on Dublin Core, an open forum engaged in the development of interoperable online metadata standards that support a broad range of purposes and business models [32,33,34].

CEN Workshop Agreement endorses the Dublin Core metadata standard as the basis for metadata in e-Government [35]. The proposed Metadata Framework will result in a number of e-Government services for use at pan-European level, such as discovery of governmental resources, searching and retrieval.

The European Interoperability Framework supports the European Union's strategy of providing user-centered eGovernment services by facilitating, at a pan-European level, the interoperability of services and systems between public administrations, as well as between administrations and the public (citizens, businesses). European Interoperability Framework for pan-European e-Government Services (EIF) focuses on supplementing, rather than replacing, national interoperability guidance by adding the pan-European dimension [36].

1) National standards and metadata standards

The UK e-Government Metadata Standard (e-GMS) lays down the elements, refinements and encoding schemes to be used by government officers when creating metadata for their information resources or when designing search systems for information systems. [37]

The UK e-GIF defines the technical policies and specifications governing information flows across government and the public sector. They cover interconnectivity, data integration, e-services access and content management [38].

Irish Public Service Metadata Standard, the Danish Government Metadata, The Finnish Government Metadata Standard, The Iceland Government Metadata Standard, The Australian Government Locater Service (AGLS), The New Zealand Government Locater Service (NZGLS), The Canadian Government On-Line Metadata Standard are

some examples of national standards and metadata standards.

2) Government Markup Language (GovML)

One aspect of the eGOV initiative, funded through the EC to "specify, develop, deploy and evaluate an integrated platform for realizing online one-stop government", is development of the Governmental Markup Language (GovML), to be introduced as an XML vocabulary that "will support the delivery of content and services to citizens (businesses) in terms of life-events, or business episodes." [39].

3) Model of standards for local government

UK, at the best practice level, has established a local e-standards repository [40]. The 22 National Projects have produced over 1000 outputs, with more resulting from other national, regional and local initiatives, all of which could benefit local government, organized and co-ordinated in order to be accessible and as useful as possible.

C. Services Oriented Architecture

1) SOA- Services Oriented Architecture

SOA is an architectural style whose goal is to achieve loose coupling among interacting software agents. SOA achieves loose coupling among interacting software agents by:

- A small set of simple and ubiquitous interfaces to all participating software agents. Only generic semantics are encoded at the interfaces. The interfaces should be universally available for all providers and consumers.
- Descriptive messages constrained by an extensible schema delivered through the interfaces. No, or only minimal, system behavior is prescribed by messages. A schema limits the vocabulary and structure of messages. An extensible schema allows new versions of services to be introduced without breaking existing services.
- additional constraints.

2) Web semantics and ontology for e-government

Ontology is defined as explicit specification of a conceptualization [41]. In the concept of computer science, „an ontology is a formal, explicit, specification of a shared conceptualization of a domain of interest“ (Deliverable D2) [42].

Ontology enabled e-Gov Service Configuration (ONTOGOV) IST FP6 Project [42] overall objective is to develop, test and validate a semantically-enriched (ontology-enabled) platform that will facilitate the consistent composition, re-configuration and evolution of e-government services. OntoGov aims to:

- Define a high-level generic ontology for the e-government service lifecycle (i.e. covering all the phases from definition and design through to implementation and reconfiguration of e-government services) that will provide the basis for designing lower-level domain ontologies specific to the service offerings of the participating public authorities,
- Develop a semantically-enriched platform that will enable public administrations to model the semantics and the processes of their e-government service offerings at different levels of abstraction; easily and consistently re-configure their e-government services; and knowledge-enrich the provision of e-government services to citizens and businesses,

OntoGov modelling approach is presented in Figure 7.

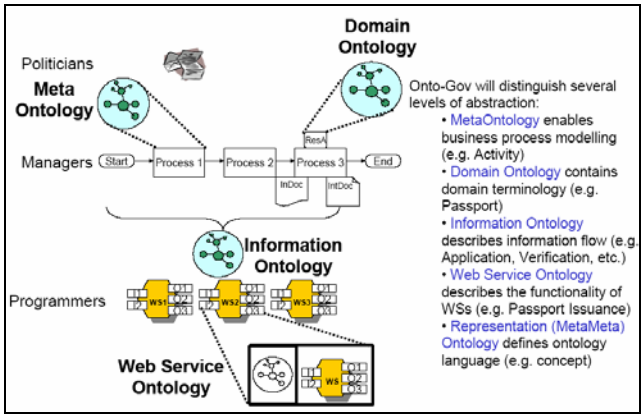

Figure 7. OntoGov public service modelling approach

3) Web semantics and ontology standards and specifications

OntoGov project introduces new set of Web models, standards and specifications: Ontology, Semantics, Web Services, Business Process Modelling, amongst other.

Web Services Architecture is presented in Figure 8.

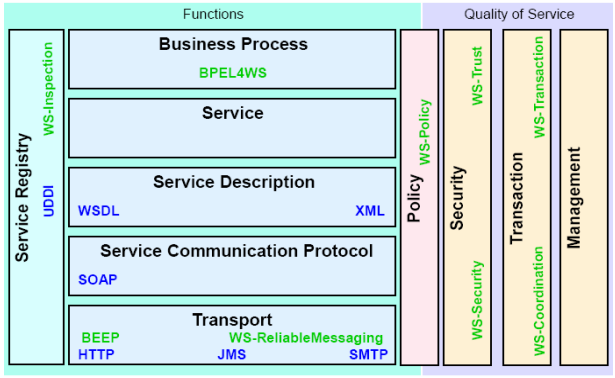

Figure 8. Web Services Architecture

Basic Web Services Models are: Message Oriented Model, Service Oriented Model, Resource Oriented Model, Policy Model, and Management Policy.

Basic set of standards involves: SOAP, XML, WSDL, UDDI as a core standards, and groups of standards for description and discovery, messaging, management, business processes, transactions, security, user experience. There is open set of J2EE and Java JSR technical standards.

V. INSTITUTIONAL COMPONENT

Building, improvement and networking of institutional capacities for eGoverment and e-Local government is the first prerequisite for any implementations.

A. LG Institutional Requirements

1) International

EU IST eGovernment Research & Development [49] is strong „accelerator" for eGovernment. *e*Government is to contribute to the modernization of public administrations or 'better government'. EUeGovernment R&D focus is presented in Figure 9.

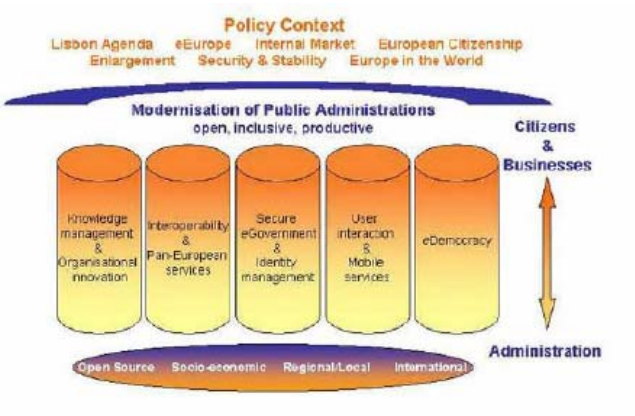

Figure 9. eGovernment R&D Focus

EU Ministerial eGovernment Conference [50], has resulted in a strong impetus to bring forward the European eGovernment agenda towards 2010.

2) National

Requirement to interact on national, regional and local institutional levels (vertical interaction, under the pre-condition of existence of correspondent e-government institutions).

Requirement to interact on horizontal regional and local institutional levels.

Requirement to communicate with regional and central government through local government association.

Requirement for local level peer-to-peer collaboration (exchange of best practice in innovation). GeRiT could be a good national example.

Requirement for national e-local government network of excellence establishment (strategies, services, research, benchmarking).

3) Best practices

UK ***Minister for Local e-Government*** and the local e-Government programme partnership between councils and Office of Deputy Prime Minister (ODPM) - has been running for five years and seen major changes to the face, quality and accessibility of services through the application of effective technology.

UK ***Local e-Gov*** is helping to transform public services, supporting local government in their aim of achieving full electronic delivery of priority services in ways which put the customer first [43].

UK ***info4local*** provides local authorities with quick and easy access to information from more than 65 government departments, agencies and public bodies. It is run by a group of seven departments, with the Office of the Deputy Prime Minister in the lead [44].

UK ***Local and Regional Government Research Unit*** provides professional social research support and advice on a wide range of local and regional government issues. It complements the larger, service-specific research programmes run by other parts of ODPM or other government departments, e.g. on housing, planning, urban policies and social services [45].

The Local Government Association (LGA) promotes the interests of English and Welsh local authorities having strategic objectives [46]. Improvement and Development Agency (IDeA) works in partnership with all councils, to enhance the performance of the best, accelerate the speed of improvement of the rest, and develop the sector as a whole [48].

C. Legal Environment for Intelligent City

There is a long list of legal acts forming legal environment. General categories are as follows:

Freedom of Information legislation (Act on Protection of Personal Data and Disclosure of Data of Public Interest, Act on the freedom of information by electronic means)

Data Protection/Privacy legislation

E-Commerce legislation

E-Communications legislation

E-signatures/E-identity legislation

E-procurement legislation

Re-use of public sector information.

In order to provide integrated services on the global range, legal environment must follow international directions.

VI. TRANZITIONAL COMPONENT

Transition**,** as process or period in which something undergoes a change and passes from one state, stage, form, or activity to another, could take different shapes, can be derived by different drivers, and result in different states/forms/activities.

A. Visionary and leadership

Visionary/inspirational leadership theories and models include theories of charismatic and transformational leadership.

The common theme is that leaders develop and use their vision to structure and to motivate collective action. Considerable emphasis is placed on empowerment and development of human resources, especially subordinates. These models of leadership offer a number of characteristics that enhance a leader's ability to lead, including cognitive abilities (e.g., creativity, reasoning skills, intelligence, verbal ability, cognitive complexity), self-confidence, motivation, propensity for risk, and social skills.

B. Resource model

Resource model consists of internal resources (qualified internal resources: human, intellectual, knowledge, material/digital, capital, and time, which forms a basic building block of any assignments), external resources (as a compensation of internal scarce resources).

Availability/affordability of resources, resource scenarios and price for resources should be optimized and allocated.

Local capacity building and networking (Network of Excellence - NoE) on local, national and international levels provides the long time development and implementation stability.

C. Organization of transition

1) High City level organization structure

Transition from digital to intelligent city involves actors and resources from wide city areas. Mayor and City Government, based on City Council's Directions and e-Government Action Plans, should strategically manage transition.

e-LG Transition Advisory Board constituted by City representatives participating in transition processes should be considered. Advisory Board directly reports to Mayor.

Institute for ICT conduct administrative and co-ordinative activities.

2) Project organization

Project organization of transition, should be based on international project management standards (PMI – Project Management Institute [51]).

3) ICT project and project portfolio management

Management with a large number of interrelated ICT and transitional projects under constrained resources should employ recent Web standardized project management and Web collaborative technologies.

D. Education and learning model

1) Basic ICT education

Basic ICT education should be based on ECDL - European Computer Driving License programmes and certification [52] , well established in Croatia.

2) Civil servant e-government education

Basic level should cover elementary and complex e-government services for local government along with the topology of organizations and processes embedded in services.

Specific programmes should cover professional areas, methodologies and knowledge deployed over ICT.

LG management level should focus on areas and technologies as: Connect Citizens to Services, Constituent Relationship Management for local government, Strategic Management of Human Capital, Financial Management and Performance Measures, Procure with Fiscal Responsibility, Life Cycle Asset Management, Collaborate for Efficient Case Management.

3) Open public e-government education

Basic local government services for constituents – printed programmes, electronic downloadable programmes.

Advanced contextual navigation programmes for constituents.

4) e-Learning technology

Based on reach learning content, e-Learning technology for all the local government aspects (professional, public) should be deployed.

VII. CONCLUSION

Digital to Intelligent Local Government Transition is to evolve from eGovernment to tGovernment. Effective Transition process, with the goal to orchestrate with EU Intelligent Cities developments, should be supportively managed through presented Transition Framework.

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