DIGITAL TRANSITION ABC

Main principles, components and best practices for the development of local digital governance

Urban Agenda for the EU
Digital Transition Partnership

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1 Introduction

Information and communication technologies (ICTs) are considered the main driving force for economic growth and for improving the quality of governance. The Urban Agenda for the EU Digital Transition Partnership's action plan is explicit in the need to make use of the ICTs for more efficient administrative processes, for providing better quality and more user-friendly services and for improving the relationship between EU cities, citizens, and businesses. It also underlines the need to create innovative and competitive business solutions for the global market. As most of the citizen-government interaction takes place at the municipality level, local government digitalisation is particularly important.

At the same time, it has become evident that the current level of digital governance in local municipalities in the EU varies, revealing a "digital divide" that exists between local municipalities across the EU member states but also within them. Small size local municipalities demonstrate poorer results in their digital transition process as they suffer more from limited financial and human resources. Therefore, one of the main priorities of the Digital Transition Partnership's action plan is to support the digitalisation process of local municipalities, and it does foresee several actions to bridge that gap. Accordingly, the aim of this document is to contribute to the capacity-building of the EU small and medium size cities to plan and implement their digitalisation initiatives by gathering and diffusing the existing know-how and best practices. Thus, the "Digital Transition ABC" serves the action No 3 of the Digital Transition Partnership's action plan.

2 Abbreviations

AECM - The Association of Estonian Cities and Rural Municipalities

CIO – Chief information officer

CSO – Civil society organisation

DPO – Data protection officer

EDMS – Electronic document management system

DMS – Document management system

eID – Electronic identity

eIDAS - Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market

EU – European Union

GDPR - Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC

HR – Human resources

ICT – Information and communication technology

IT – Information technology

KOVTP – Service portal of local municipalities

mID – Mobile identity

PIA – Public Information Act

PKI – Public key infrastructure

QES- Qualified electronic signature

PB – Participatory budgeting

SO – Security officer

VOLIS – Information system of local municipality council or government

3 Objectives and outline

There is not one single digital governance model or framework that all local municipalities should follow to succeed in their digitalisation process, and it is not the ambition of this document to offer one either. Instead, this document lists some of the essential principles and components that serve as necessary preconditions for the digital transformation process to provide user-friendly online services and involve citizens in the policy-making process.

The concrete objectives of the document include:

1. Introduction of the main principles guiding the development of digital governance in local municipalities, and the main components of this process.
2. Introduction of the enabling frameworks: institutional (policies, action plans, legislative acts), organisational, fiscal and technical supporting the development of digital governance in local municipalities.
3. Providing good examples on these frameworks that have been established in local municipalities in the EU member states as well as best practices on digital governance solutions. Here, examples on how the ICTs could support back-end administrative processes, service provisioning and public participation are given.

This document is divided into two main sections. The first one focuses on the readiness of municipalities to adhere digital governance and; here, necessary components of digital governance are listed alongside with the enabling frameworks such as institutional, organisational, and technical but also budgeting and financing fall here. These enablers support the development of digital governance; yet, they do not determine the outcomes per se. The second part of the documents gives and overview of the outcomes of the use of the ICTs and here, examples of how technology has

enabled to change administrative processes, service provisioning and public participation are provided.

Defining digital governance

In this document, digital governance refers to the use of the ICTs by governments to support public administration inner processes, provide services, and involve citizens in the policy-making process. Hence, this document supports a rather broad conceptualisation of digital governance, the so-called balanced digital governance, that entails the three main functions of a municipality: e-administration, e-services, and e-participation, as summarised in Figure 1 below.

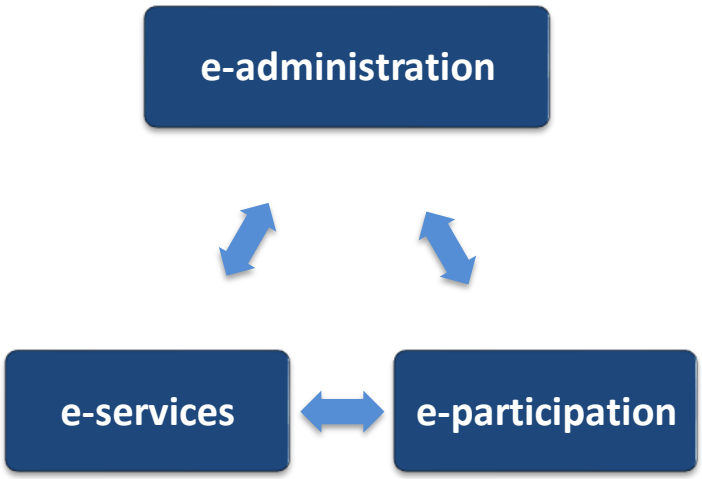

Figure 1 - Concept of digital governance

4 Enabling frameworks

It has been agreed by practitioners and academics alike that the success of digital governance does not depend on technology i.e., IT hardware, software, and the Internet, but on how these technologies are being designed, used, and perceived, i.e., on how these technologies are enacted[1]. Technologies always get modified in the context in which they emerge and are shaped by organizational, institutional and fiscal factors but also by different actors. As each digital governance initiative is embedded in its own organizational environment and is subject to its institutional, fiscal but also human constraints, as a result, each initiative is used differently and may produce different outcomes. This partly explains why cities (but also countries) reveal different development levels of digital governance.

Until the present, the role of technologies in the digitalization process has been somewhat overstated, and much less attention has been paid to institutional, organizational, fiscal and other frameworks that support the planning, development, implementation, and use of information systems, online services and online participation tools. In Figure 2, a well-functioning digital governance framework is described. It is followed by a short description of each framework but also some recommendations and examples.

[1] Adopted, Fountain, J.E. (2001).

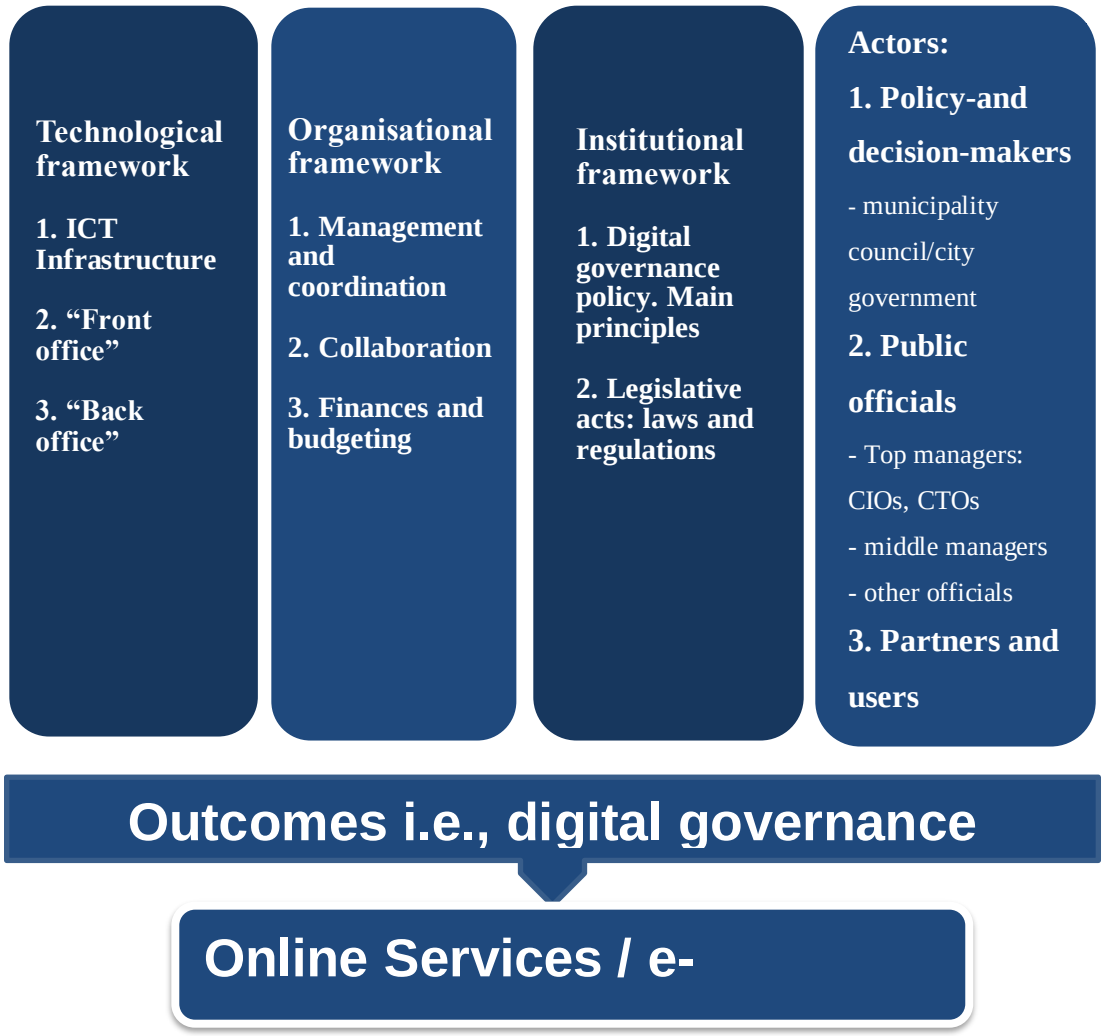

Figure 2 – Frameworks supporting the development of digital governance

4.1 Institutional framework

4.1.1 Digital governance policy and action plan

The development of digital governance at local level should be systematic and sustainable, comprising of both a long-term strategy and a shorter-term more operational action plan. A good municipality strategy supports the national digital governance policy, at the same time, incorporating the needs of the municipality, its different units but also the needs of its citizens. Hence, the strategy development should combine the "bottom-up" and "top-down approach".

Generally, a strategy should answer the following questions:

1) **What?** i.e., the objective of the strategy;
2) **Why?** i.e., the expected impact of the strategy,
3) **How?** i.e., the planned concrete actions to reach the objectives
4) **When?** i.e., the timeframe of implementation
5) **Who?** i.e., concerned organisations and their responsibilities
6) **How much?** i.e., the budget.

There are several essential principles that should guide the development of digital governance at both central and local government, pursuant to several European relevant policies and other documents: The EU eGovernment Action Plan 2016-2020[2], Ministerial Declaration on eGovernment – the Tallinn Declaration[3], Urban Agenda for the EU- the Pact of Amsterdam[4], The New European Interoperability Framework[5] and many others. The main principles that are set in these documents include:

1) **Digital by default** i.e., public services should be preferably delivered via digital channels and through a one-stop-shop.
2) **Once only** i.e., citizens and businesses need to submit data to public institutions only once who then re-use this data whenever needed. This principle is supported by the next principle i.e., Interoperability by Default.
3) **Interoperability by default** i.e., data needs to be exchanged between all administrative units in and across the EU member states to allow for the provisioning of seamless digital services, including cross-border digital services.
4) **User-centricity** i.e., online services need to be designed and provisioned considering a citizen perspective and not an administration perspective.

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[2] The EU eGovernment Action Plan 2016-2020: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52016DC0179
[3] The Tallinn Declaration: https://ec.europa.eu/digital-single-market/en/news/ministerial-declaration-egovernment-tallinn-declaration
[4] Urban Agenda for the EU – the Pact of Amsterdam: https://ec.europa.eu/regional_policy/sources/policy/themes/urban-development/agenda/pact-of-amsterdam.pdf.
[5] The New European Interoperability Framework: https://eur-lex.europa.eu/resource.html?uri=cellar:2c2f2554-0faf-11e7-8a35-01aa75ed71a1.0017.02/DOC_1&format=PDF.

5) **Openness and transparency** i.e., administration needs to share data with each other but also with people and business who should have access to the data that administration holds about them. Administration also needs to involve all stakeholders in service design and delivery.
6) **Security and trustworthiness** i.e., data protection, privacy, IT security needs to be integrated to digital solutions already at the design phase.
7) **Accessibility and inclusiveness** i.e., online services need to be accessible to everyone, including elderly and those with special needs.

There are a few organisations that guide governments on the preparation of digital governance strategies, for example OECD has proposed a set of recommendations on what digital strategies should entail[6]. Additionally, several country cases serve as good examples on how a digital governance policy forms the foundation for central, regional, and local level digitalisation. The following describes the foundational policies guiding digital governance development in Denmark and in the Netherlands.

CASE EXAMPLE. Digital governance strategy: Denmark and the Netherlands

Danish Digital Strategy 2016-2020[7] concerns all three levels of government: central, regional, and local which means that it applies to all public institutions such as ministries, agencies, regional and municipal administrations but also institutions such as public schools, universities, public health care providers etc. The strategy supports joint digital initiatives in areas where the provisioning of public services requires the involvement of different levels of government. Apart from the national digital strategy, Denmark poses a Common Municipal Digitisation Strategy 2016-2020[8], accompanied with the Action Plan that build on the national Digital Strategy.

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[6] OECD (2014). Recommendation of the Council on Digital Government Strategies. Available at: https://www.oecd.org/gov/digital-government/Recommendation-digital-government-strategies.pdf.

[7] Danish Digital Strategy 2016-2020: https://en.digst.dk/policy-and-strategy/digital-strategy/

[8] Common Municipal Digitisation Strategy 2016-2020 "Local and Digital – a Coherent Denmark" (in Danish): https://www.kl.dk/ImageVaultFiles/id_78679/cf_202/Lokal_og_Digital_-_et_sammenh-ngende_Danmark.PDF/

In the Netherlands, too, The Digital Government Agenda[9] guides the development of digital governance at all levels of government, aiming at better interaction between the government, citizens, and entrepreneurs.

The Digital Government Agenda supports, and vice versa, other digitalization strategies such as the central government Inter-administrative Programme, the Digital Agenda 2020 of the Association of Netherlands Municipalities (VNG), Common Ground from the municipalities, The Digital Society of the VSNU, and the European Digital Agenda. The Agenda has been prepared in close cooperation with all levels of government but also the public and private companies.

4.1.2 Legislative acts: EU regulations and directives, national legislation

There are several requirements deriving from the EU regulations and directives but also from national legislation that influence the development

[9] The Dutch Digital Government Agenda: https://www.nldigitalgovernment.nl/digital-government-agenda/

of digital governance also at local level. In the following, and overview of the main EU legislative acts that need to be accounted for is given but it also lists some of the essential aspects that need to be regulated either nationally or by local municipalities themselves.

Requirements from EU legislation

There are two main EU regulations that set requirements for digitalisation at both central and local level:

1) eIDAS i.e., Regulation (EU) No 910/2014 of the European Parliament and of the Council of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market[10];

2) GDPR i.e., Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC.

In the following, a short overview of how these two regulations effect local municipalities is given.

1. eIDAS establishes common principles on the acknowledgment of electronic identity and digital signatures for European public institutions. As of July 1, 2016, all state and local government institutions but also private companies that provide public services have to recognize digital signatures from all EU members.
2. GDPR is concerned with the processing of personal data and on the free movement of such data and sets a number of requirements that local municipalities need to count for in the digitization. Shortly, these are:
   - An organization needs to establish a position of a data protection officer (DPO) under the following conditions: when

[10] eIDAS: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32014R0910&from=EN

it is a public authority, when it monitors people systematically, and when it processes sensitive personal data on large scale.

- Setting the data retention period and the deletion of data which means that after the aim of the processing of data has been achieved, that data should be deleted. Therefore, when ordering and developing digital solutions, a municipality should pre-assess the period of data retention, but also for the possibility to delete the data.
- Guaranteeing security measures for the protection of private data. This requirement applies to a municipality as a data processor. From the point of view of digital developments this means that a contract with an authorized processor of private data should include the requirements for processing private data such as: the aim, content, time, but also the obligations and rights of both parties. In case a municipality uses cloud services for hosting data, there are additional requirements for data transfer to the third countries.
- Guaranteeing the transparency of data processing. Here it is essential to remember that a data subject has the right to know how her data has been processed and used. This, in turn, means that a municipality must be able to record who and when has accessed somebody's data. Even though the GDPR does not make a reference to logs and timestamps, a municipality needs to keep log records.

Surely, the GDPR encompasses much more but its requirements and impact on local level digitization process is not situated at the core of this document.

Requirements from national legislation based on EU directives

1. Requirements set for public websites and mobile applications with an overall aim to increase their accessibility as well as the

accessibility of the online services that are provided in these websites and applications (Directive (EU) 2016/2102 of the European Parliament and of the Council of 26 October 2016 on the accessibility of the websites and mobile applications of public sector bodies[11]). In Estonia, for example, these requirements are incorporated into the Public Information Act (PIA)[12] and in Finland, into the Act on Openness of Government Activities[13]. In Denmark, there is a separate Act on the Re-Use of Public Sector Information[14].

2. Requirements established for the re-use of public information (Directive 2003/98/EC of the European Parliament and of the Council of 17 November 2003 on the re-use of public sector information[15]). In Estonia, Public Information Act regulates the access to public information and the re-use of the latter. It lists concrete information that needs to be made public by default and regulates the process of request for information. The PIA also sets requirements for document management as well as the set-up and functioning of a document management system.

Other requirements from national legislation

There are several other principles, processes and areas that need to be regulated, usually at the central level that influences the development of digital governance at local level as well. These include:

1. Principles of administrative procedures that are usually set at the central government level. For example, see the General

[11] Directive (EU) 2016/2102: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32016L2102
[12] Public Information Act of the Republic of Estonia: https://www.riigiteataja.ee/en/eli/514112013001/consolide
[13] The Act on the Openness of Government Activities: http://www.finlex.fi/en/laki/kaannokset/1999/en19990621.pdf
[14] Act on the Re-use of Public Sector Information, Denmark: https://www.retsinformation.dk/Forms/R0710.aspx?id=163488
[15] Directive 2003/98/EC: https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex:32003L0098

Administrative Procedures Act in Austria[16] or the Administrative Procedure Act of Estonia[17].

2. Principles for data collection, maintenance, and sharing. Even though most data are being organised at central level and usually, each registry is regulated by a separate act (for instance, see Population Registry Act of Estonia[18]), local municipalities may need to set the principles for the data collection under their jurisdiction, such as education, transport etc. Here, The New European Interoperability Framework sets principles for organisational, semantic, and technological interoperability but these are also regulated by laws such as the Act on Information Management Governance in Public Administration of Finland[19].
3. Principles for collection, archiving, preserving, and accessing archival documents that, again, are often set at central level such by Archives Act in Estonia[20].

4.2 Organisational framework

Another challenge for a municipality lies in the establishment of a well-functioning organizational framework that includes both decision-making and implementation regarding digitalization of a municipality.

In medium size (up to 500 000 inhabitants) as well as in bigger municipalities, the position of a Chief Information Officer (CIO) is usually established at a high level within the municipality to be responsible for the overall progress on digitalisation but also for projects and initiatives on digital governance. This position may also be known as IT manager, Chief Technology Officer (CTO) or as Smart Government Officer like in the city of

[16] General Administrative Procedures Act, Austria: https://www.digitalaustria.gv.at/
[17] Administrative Procedure Act, Estonia: https://www.riigiteataja.ee/en/eli/530102013037/consolide
[18] Population Registry Act: https://www.riigiteataja.ee/en/eli/502012019008/consolide
[19] Act on Information Management Governance in Public Administration (2011): https://www.w3.org/2013/share-psi/wiki/images/1/18/Act_on_Information_Management_en.pdf
[20] Archives Act, Estonia: https://www.riigiteataja.ee/en/eli/504032016002/consolide

Tartu, for instance. In smaller municipalities, too, a person responsible for digital governance may be nominated and in case of particularly small municipalities, that service could be outsourced on needs bases, or part-time. Additionally, each project/service/development needs to have an owner and in case of bigger developments, a project committee needs to be established.

The CIO is responsible for the i) preparation and implementing digital governance action plan, ii) preparing budget; iii) implementing of projects and initiatives, iv) related procurements, v) ICT architecture and vi) acts as a central contact point in regional and central government digitalization working groups, task forces etc. In bigger towns, an ICT Council, or other body discussing and advising on a municipality's digital developments could be established. In smaller ones these functions could be undertaken by the municipality council/city government. Pursuant to eIDAS, local municipalities as public authorities and as organizations processing sensitive data, need to establish a position of the Data Protection Officer (DPO). Additionally, it is advised to have a position of a Security Officer (SO).

As it has been widely acknowledged that local municipalities do need support in their digitalization process, particularly smaller size municipalities, cooperation between municipalities is particularly important to share experiences but also to plan and execute common developments and use common platforms. In several EU members states (Estonia, the Netherlands, Slovenia etc) the association of cities and rural municipalities represents common interests at central and at EU level but also arranges co-operation between cities and rural municipalities. Additionally, the cooperation between central and local government is essential to align digitalization priorities but, again, to plan and execute initiatives in partnership with central and local governments. Here, again, Denmark and the Netherlands have been bought out as good cases (see the case example in institutional framework section).

4.3 Technical framework

This section focuses on few essential components of the ICT architecture of a municipality, but it also provides insights into front-end and back-end information systems as well as to the development of these systems.

The main components of the ICT infrastructure for a local municipality are: broadband connection, computers, local area network(s), software, user identification and authorization systems, and data exchange between different units of a municipality but also between local municipalities and central government. Two components particularly: **electronic identity** comprising of online authentication and digital signature, and **data exchange** between registries and information systems (or any e-application) of different units of local municipality but also between local and central governments, form essential pillars of digital governance. These two components are necessary for the provisioning of user-friendly and fully automated online services.

Electronic identity

Electronic identity allows to identify a person or a company in a virtual world and pursuant to the eIDAS, there are three assurance levels of online authentication: low, substantial, and high. Shortly, in case of low level, there is limited degree of confidence that the person is who she claims to be, in case of substantial degree, there is a substantial reason to believe that a person is who she claims to be and in the third case, there is high level to believe that. When providing high level (see the section on e-services) and fully automated digital services, a high assurance level online authentication needs to be used. Regarding digital signature (or, electronic signature as in eIDAS), there are four trust levels but only the one with the highest level of trust i.e., the qualified electronic signature (QES) is equal to a handwritten signature. Again, depending on the level of online services, digital signatures of different trust levels could be used but in the provisioning of high level, fully automated online services, digital signature of the highest

trust level is required. In the following, two cases are presented, both of high assurance level of online authentication and with the QES: 1) the national electronic identity system of Estonia and 2) Belgian mobile identity Itsme originating from private sector.

CASE EXAMPLE. Electronic identity: online authentication and electronic signature in Estonia and Belgium

One of the two main building blocks of digital governance in Estonia is its comprehensive system for electronic identification, authentication and digital signature[21]. It is also a key enabler for the digital transition at local level.

The eID includes:

- ID card
- eID (or Digi ID, Digital ID)
- Mobile ID
- Smart ID
- digital stamp
- residence permit card
- e-residency card as of 2014. Additionally, diplomatic ID can be a carrier of an electronic ID.

The ID card is used to access all public online services in Estonia, but it is also used for private services. Some of the functions include:

- online authentication
- digital signature
- checking medical records
- issuing and receiving e-prescriptions
- accessing and using online banking

[21] In Estonia, the term „digital signature" is being used as opposed to „e-signature" or „electronic signature" as in eIDAS i.e., REGULATION (EU) No 910/2014 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 July 2014 on electronic identification and trust services for electronic transactions in the internal market and repealing Directive 1999/93/EC: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32014R0910&from=EN

- applying for parental benefit
- choosing and applying for a place in a kindergarten
- applying for building permits, etc.

The secure functioning of the eID is guaranteed by the state, mainly by the Information System Authority (RIA), the Ministry of Economic Affairs and Communications, the Police and Border Guard Board, and the Ministry of the Interior. eID in Estonia: https://www.ria.ee/en/state-information-system/electronic-identity-eid.html

Itsme is a Belgian mobile ID used for both online authentication and digital signature.

Itsme was developed in 2017 by a consortium of Belgian banks and a telecom operator and started as a payment wallet called Belgian Mobile Wallet, combining payments, loyalty and authentication and signing. By now, it is integrated into main government sites that offer online services in areas like: social security, finance and tax administration, health etc. It is also integrated into "back office" information systems such as human resources, document management, etc. It offers fully recognized online authentication and digital signing mechanism via one log-in for all touchpoints and services within one app. Belgian mID: https://www.belgianmobileid.be/en.

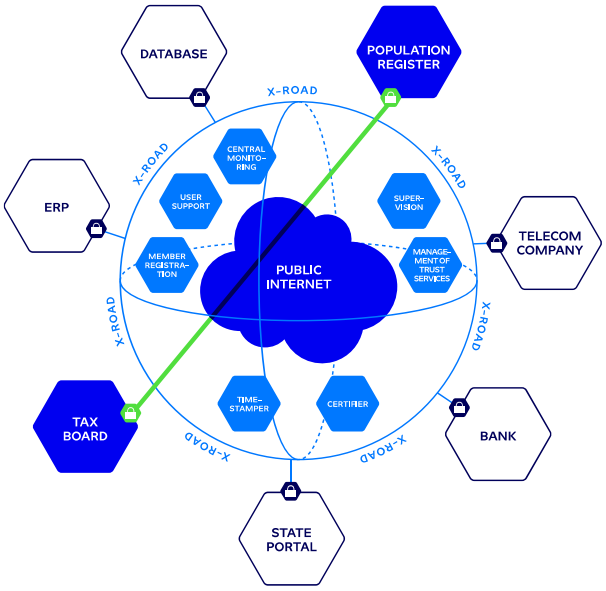
Data collection, maintenance, and exchange

Most data that local municipalities need for their functions, including for the provisioning of online services such as data on population, real-estate, businesses, vehicles are collected and maintained at the central level in state registers. This means that municipalities need an access to these data and there are several possible mechanisms that allow to create interconnection between different autonomous digital applications and share information between state registers and municipality information and registers.

Still, municipalities do need to collect some data for their operation, on education, transport, waste, etc so it is essential to set clear ownership of data, principles for its collection, maintenance and use but also for the cross-use of these data by a local municipality. Some of the more popular government data exchange platforms include: GovTalk (used in the United Kingdom, Georgia), WSO2 (used in Moldova), X-Road (used in Estonia, Finland, Faroe Islands, Kyrgyzstan, Ukraine), and Info Highway (used in Singapur for instance). The chosen case example concerns X-Road, an interoperability layer from Estonia that is currently used in EU member states both central and local governments but also private sector. Its conceptual model is based on the EU Interoperability Framework.

CASE EXAMPLE. Data exchange platform X-Road

x-Road is a secure and standardised environment enabling internet-based data exchange between information systems of both public and private sector. In Estonia, X-Road currently connects 449 enterprises and organisations and 150 public institutions (including municipalities), and 1285 information systems.



X-Road connects almost all pubic registries, including the Population Register, Business Register, European Business Register, Land Register, Register of Constructions, Criminal Records Database etc. One of the most frequent data requests are made from the Population Register that contains the main personal data[22] on Estonian citizens, EU citizens residing in Estonia and e-

[22] This includes names, unique personal identification codes, birth dates, place of residence, marital status, and other.

residents. As the Population Register is connected to other systems and databases via the X-Road, it allows for the exchange of up-to-date data. Thus, when a person applies for a study allowance, or a social benefit, all the needed data is retrieved from the Population Register (but also any other register the data is needed from) automatically. This means that there is no need to submit any documents or fill in forms etc. The state portal www.eesti.ee includes information on local level services and links to the services; however, the majority of the municipality services are available also on municipality websites/service portals.

The well-functioning of the X-Road is mainly guaranteed by Information System Authority (RIA), but also the Estonian Data Protection Agency (AKI) and it is regulated by the X-Road Regulation (2003)[23] but also by documents of an advisory nature such as the Interoperability Framework[24].

4.3.1 *"Front office" and "back office"*

Front office

Front office refers to the public face of a municipality and it includes information, services and participation possibilities that a municipality publicly offers to citizens and businesses, usually via websites or mobile applications. Obviously, every municipality needs a website to make itself and its services accessible to the public and even though it is not overly complex, small size local municipalities that suffer from limited financial and human resources may require support in the development and use of their websites and/or service portals. The latter could be supported through regional cooperation and cooperation between local and central governments but also through public-private partnerships. The following case originates from Estonia and utilises a public private partnership model to assist local municipalities in the development and maintenance of their websites to provide information, services and participation tools.

CASE EXAMPLE. Service portal for local municipalities (KOVTP)

KOVTP is a service portal used in approximately 165 local municipalities in Estonia to provide information, services and public participation opportunities. The service portal was developed to unify

[23] X-Road Regulation (2003): https://www.riigiteataja.ee/akt/688079. Has been last amended in 2016 to harmonise the EU regulation eIDAS.

[24] Current interoperability requirements can be found at: https://www.mkm.ee/en/objectives-activities/information-society/state-information-system.

the level of municipality websites as well as the level of services offered through these websites. The service portal has a firm layout but its content can be easily adjusted which allows for the provisioning of services in a similar way across different municipalities.

KOVTP offers:

- Firm concept and layout of the website (the by-default structure could be changed though);
- Simple content management and easy integration with services that does not require any specific knowledge;
- Interfacing with other applications (e.g. Facebook, Twitterc) but also with mapping application, for example;
- Fixed monthly fee. The monthly maintenance fee, fixed at 57 EUR, includes hosting, management, and user support.

KOVTP was first developed in 2009-2011 by the Ministry of Interior, as of 2015, it managed by the Ministry of Finance (MoF). It was developed with the support of the European Regional Development Fund. KOVTP is maintained by a private company and municipalities use the company's service on a monthly fee basis, fixed by the MoF in the respective tender. Updates can be ordered and financed by the MoF or by a municipality. KOVTP: https://www.kovtp.ee/ (in Estonian).

Back office

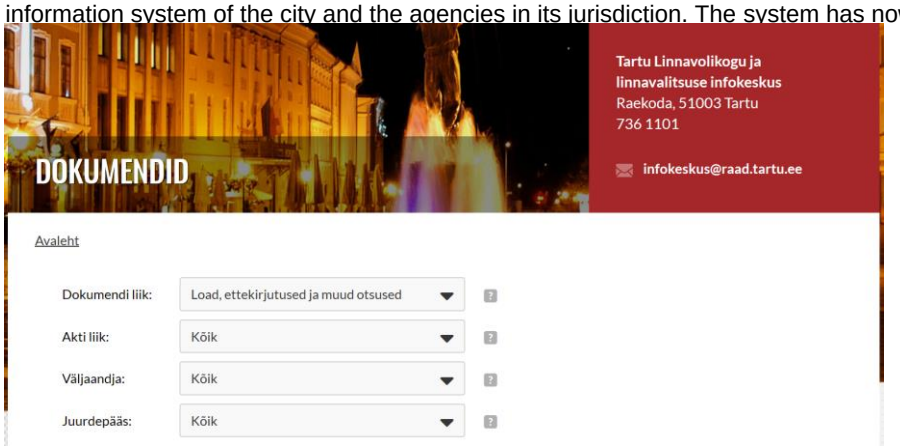
Regarding back office, all internal operations of a municipality fall here to support the activities of a municipality that are not visible to the public. The development of back-end systems should not be separated from the developments of front-office ones, these should support each other. Most common information systems of local municipalities include:

1. e-Mail systems. It is essential that e-mail systems are integrated into other essential systems of a municipality like document management, and any other system used for resource planning.

2. Document management system (DMS). DMS is usually the main information system of a municipality as it is connected to the core functions of a municipality. Tartu city EDMS GoPro is introduced as a case example below.
3. Finance and human resources management systems.
4. Information system for special planning procedures. This information system enables planning-related communication between citizens and local governments via a web platform. The platform allows citizens to initiate plans, view the plans of their local government and submit queries. The planning procedure has been integrated in the solution for officials.
5. Information system for education management.
6. Data and registries. As mentioned above, most data are being collected and maintained at central level but local municipalities, too, need to organize data and use it for the design and provisioning of services. Tartu city's main registries, for example, include: Waste Holders Register, Education Register (data on pre-school, basic and secondary school children), Geological Survey Register, Public Transport Ticketing Register, Register on Cemeteries, Land Use Register etc.

CASE EXAMPLE. Electronic document management system GoPro of Tartu city government, Estonia

Tartu city launched its electronic document management system in 2002, and it is the main information system of the city and the agencies in its jurisdiction. The system has now 900 users.



Some of the main functionalities of the GoPro include:

- Contact management, including data requests from all main state registries (via X-Road i.e., the data exchange layer);
- Case management. Each case gathers all documents related to the latter (e-mails, other documents). Each case has a responsible person. There are different categories of cases: bookkeeping documents, human resources documents, building documents, court cases, public procurements, fine notices etc.
- Communication. In and out communication management e.g., registration, signing, forwarding, coordination, editing, publishing, etc.
- Contract management, including registration, coordination, signing, interconnection with invoicing etc;
- Invoicing;
- Processing of legal acts, including their preparation, coordination, signing, publishing.
- Processing of meetings and sessions, including the preparation of agenda, agenda items, related materials, preparation of minutes.

GoPro is interconnected with several state registers and information systems such as: Vehicles Register, Business Register, Population Register, etc but also to the state portal www.eesti.ee. Additionally, it is integrated with several other municipality information systems but also front-end applications i.e., online services. This enables, for instance, automated registration of applications in GoPro, exchange of data on finance, public procurements, e-invoices etc.

4.4 Online services and e-participation

4.4.1 Online services

Stages of online services

The widely-accepted approach to measure the level and sophistication of online services in the EU[25] includes five stages as illustrated below:

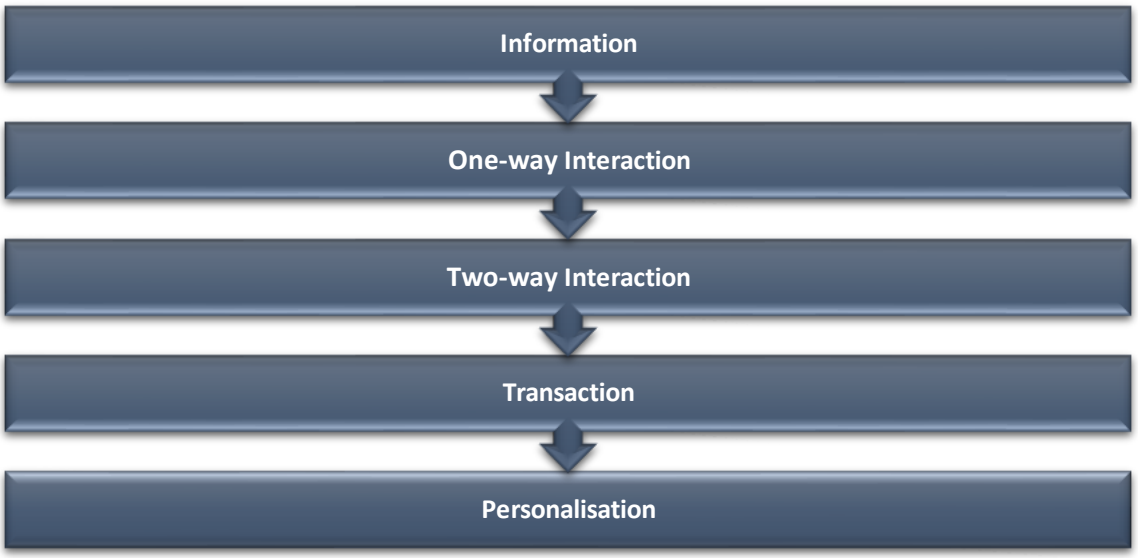


Figure 3 -Maturity levels i.e. stages of online services

Shortly, these stages include the following online services:

- Information. Here, information about how to obtain a service is given online, including requirements, eligibility, etc. Information can be given at a municipality website, for instance using a life-event approach as in the city of Eindhoven (see https://www.eindhoven.nl/en), or additionally via state portals (see https://www.eesti.ee/en/).
- One-way Interaction. Here, a municipality offers online forms that can be downloaded from a website, but it does not yet provide an opportunity to initiate a service online as the form needs to be filled

[25] In 2018, UN e-Government Survey piloted the assessment of digital governance at local level, using a rather similar model but comprising of four levels of online services: emerging presence, enhanced presence, transactional presence, and connected presence. UN e-Government Survey 2018: https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2018

in in paper. For example, to apply for a resident parking permit, a form can be downloaded, must be filled in and taken to the service center of a municipality to submit an official application i.e., the form. Later, a permit must be picked up.

- Two-way Interaction. At this stage, it is already possible to initiate a service online, for instance, by an electronic submission of a form. Here, a possibility for online authentication of a person (physical or juridical) needs to be in place.
- Transaction i.e., fully digital services. At this stage, a service could be initiated and delivered online. Here, online authentication and digital signature must be functional. In the following, an example of a digital public event application of Tallinn city illustrates a case of a fully automated online service. Additionally, digital permit application process of Helsingborg, see: https://eservice.helsingborg.se/PBL.
- Personalisation i-e., pro-active services. At this stage, service is provided digitally in an automated manner and no action is required from the applicant which means that a service is initiated by government. One could think of an automated renewal of resident parking permit (in case the data has remained the same) or automatic transfer of parental benefit after the birth of a child.
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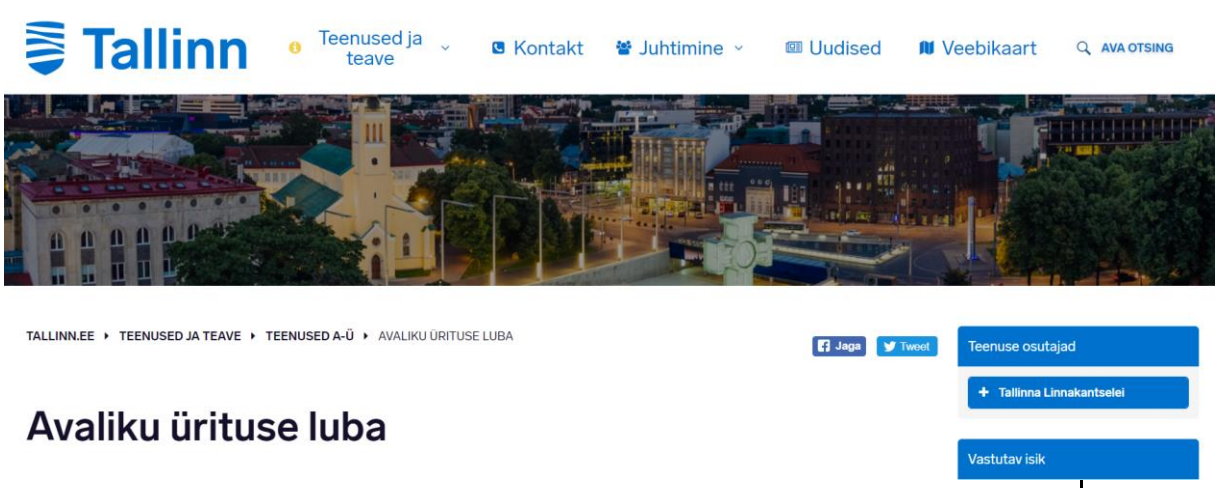
CASE EXAMPLE. Fully digital services: applying for public event permission in Tallinn and building permit process in Helsingborg.

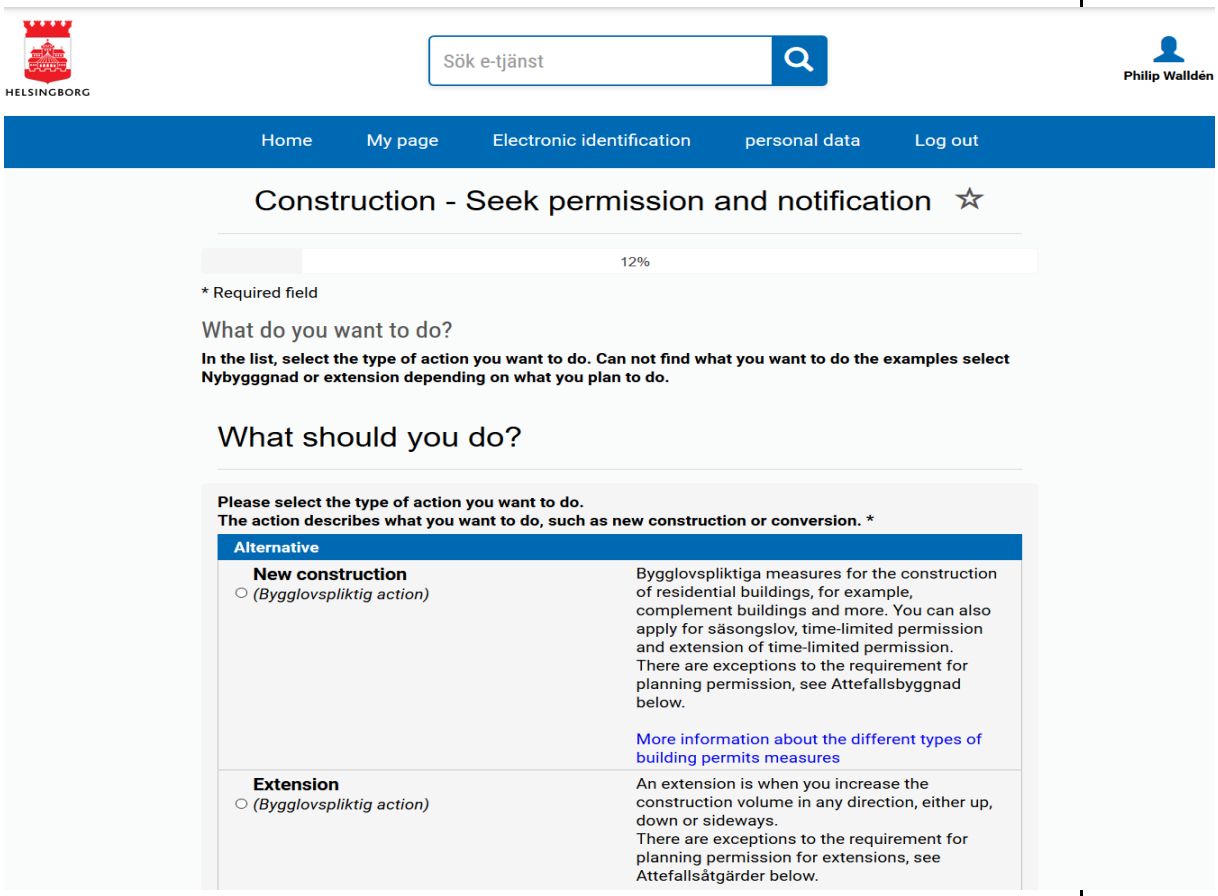
Tallinn public event permission application process

Tallinn city offers fully digital and automated process for applying for public event permission. An applicant needs to first authenticate herself using eID or mID and can then fill in the application form and add the required information. Due to the interconnection via data exchange layer X-Road, data on the applicant is automatically retrieved from Population Register and Business Register; hence, the form is partly pre-filled. The case is automatically registered in the information system of public events (synchronised with DMS) and after the processing of the application, a digitally signed permit is sent via e-mail to the applicant. An applicant can follow the process online throughout its stages.



Data is automatically shared with other public institutions whose coordination is required that allows for a parallel handling of a case, for instance, with: such as Environmental Board, Rescue Board, Police and Boarder Guard Board etc.

Helsingborg digital building permit application process



Helsingborg city offers fully digital building permit application process through its website. Citizen, after authenticating themselves by Swedish bank eID or mID, can fill in a needed form online via My Page. After the submission, the case will be automatically registered in the case management system and handled by the municipality. In case the application needs to be amended or some

information needs to be added, applicants are informed by text message or by e-mail. The permit will be delivered digitally. Helsingborg digital building permit application process: https://eservice.helsingborg.se/PBL.

4.4.2 e-Participation

The development levels of online participation are not as clear cut as the levels of online services, and there seems to be no consensus over what constitutes a successful or a high-level e-participation initiative. Still, the most widely used e-participation model is based on the OECD (2001) concept that comprises the following three main stages: (i) *e-Information* – online provision of information, (ii) *e-Consultation* – organizing public consultations online, and (iii) *e-Decision-making* – involving citizens directly in the decision-making processes[26]. In 2006, Archon Fung added the fourth stage – *co-governing* to the model, sometimes also referred to as *co-decision making*.

1) The first stage of e-participation concerns providing information online and this stage is essential to give information in a comprehensive and easy to understand manner to allow for the public participation to follow and make informed choices. There is no other interaction at this stage.

2) At the second phase of what is called public consultations, people should already give their opinion and feedback, for example via gallups, online forums, online consultations etc.

3) The third stage of decision-making includes public involvement in the policy-making processes, and it usually requires an active dialogue from both sides. At this stage, people's proposals get incorporated into the decision-making either partly or fully, or they may not be incorporated. Here, different types of participatory budgeting (PB) that has become popular practice around the world

[26] This model offered by OECD has been widely used with certain variations, for example, the *Inform-Consult-Empower* model developed by Layne and Lee (2001) or *Enable-Engage-Empowering* approach proposed by Ann Macintosh (2004).

after it was first experimented with in Porto Alegre in 1987 (Smith 2009) could serve as an example.

4) At the fourth level, co-governing phase, people's suggestions do get incorporated into the policies or other questions at stake. Here, people may also be part in the implementation of these decisions. Here, again, PB could serve as an example.

In the following, two case examples on e-participation are being introduced. The first provides an overview of the PB and its essential elements and it is based on several PB practices, in Tartu, Cascais, Paris and Madrid[27]. The second example originates from Helsingborg in Sweden and describes an initiative that gives the city residents an opportunity to submit proposals to the city.

CASE EXAMPLE. Online participatory budgeting: Cascais, Madrid, Paris, and Tartu

Participatory budgeting is a process during which people can suggest and/or decide over the use of a portion of a municipality budget. PB has been widely implemented all over the world and certain variations exist in their implementation. In the following, essential issues that need to be decided are summarised basing on the examples of Cascais, Tartu, Paris, and Madrid.



1) **Who will make decisions over PB?** A PB decision-making body needs to be established to decide over the "rules of the game" i.e., the process, allocated sum etc. This can be an existing decision-making body but, in most cases, a separate PB body with decision-making powers in being formed. Here, a municipality needs to decide whether to involve the public in this decision-making body.
2) **How much money to allocate?** Here, variation exists but, generally, it is advised to start with smaller sums rather than larger. In Tartu, the allocated sum constitutes 1% of its annual budget

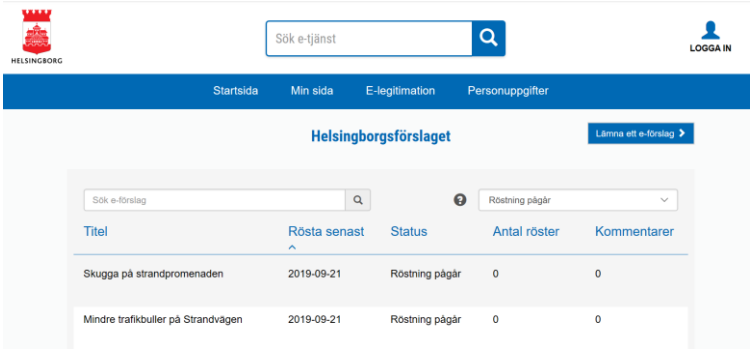
[27] More on PB in Tartu: https://www.tartu.ee/en/participative-budgeting; in Paris: https://budgetparticipatif.paris.fr/bp/ and for information in English, please see the summary of the PB in Paris at: https://urbact.eu/participatory-budget; in Madrid: http://www.madridforyou.es/en/participatory-budgets, and in Cascais: https://www.cascais.pt/node/10201. A good overview can also be found at Krenjova (2012) and Alves and Allegretti (2012).

and in Paris, is has been 5% of the capital budget. In Tartu, the limit is 100 000 EUR, in Cascais it is 300 000 EUR.

3) **What should the PB process be like?** Generally, there are six main stages. During the first phase, the ideas get submitted. At the second phase, a municipality assesses the legitimacy of the projects and whether these projects could be implemented. At the third phase, approved projects move to the deliberation phase where they are debated and discussed. The fourth phase concerns the introduction of the projects and public debates. Public awareness plays an essential role here. During the fifth phase, the public votes over the projects. The sixth phase entails the implementation of the winning projects. This is the process of the Tartu PB model and the majority of municipalities uses it with some small variations, like Paris, Cascais etc.
4) **What is the role of the public?** The public's role may be limited to the submission of the ideas only but, more commonly, they are given a power to select the projects to be funded and implemented, by voting in favour of one or more projects. This is the most common case and the PB in Paris, Cascais, and Tartu fall here. In fewer cases, the public remains responsible also for the implementation.
5) **Who gets involved?** – another question that needs an answer. Even though there are usually no restrictions to who gets to submit proposals and vote over them, at times, the participation may not be based on self-selection but targeted instead. This mainly concerns the phases where the projects get to be assessed and debated as, at times, experts, CSOs etc only may be invited to the meetings.
6) **What channels to use for submitting ideas, discussing them but also voting over them?** Various participation mechanisms, combining offline and online, are recommended here.

CASE EXAMPLE. Helsingborg Proposal

Helsingborg Proposal is an initiative of the city of Helsingborg in Sweden that gives each person registered in Helsingborg an opportunity to suggest proposals to the city on how to make Helsingborg a better place. A proposal can be submitted via Helsingborg website or at city service centres on any issue that falls under the jurisdiction of the city, does not concern Helsingborg city internal processes, and does not violate law. After the submission, the city has five working days to review a submission and in case of an acceptance, it will be then published at Helsingborg website for the period of 90 days for public comments and voting. In case a proposal receives more than 100 votes, it will be considered for implementation.



Helsingborg Proposal was launched in 2018 and, as of June 2019, 83 proposals have been submitted. Four of the proposals have received more than 100 votes and have been forwarded to relevant departments and committees for processing. The four ideas that have received more than 100 ideas include: i) building sports centres, ii) building an athletics hall, iii) more pedestrian, bicycle and horse-riding paths, and iv) civic dialogue regarding the sales of the public energy company – Öresundskraft.

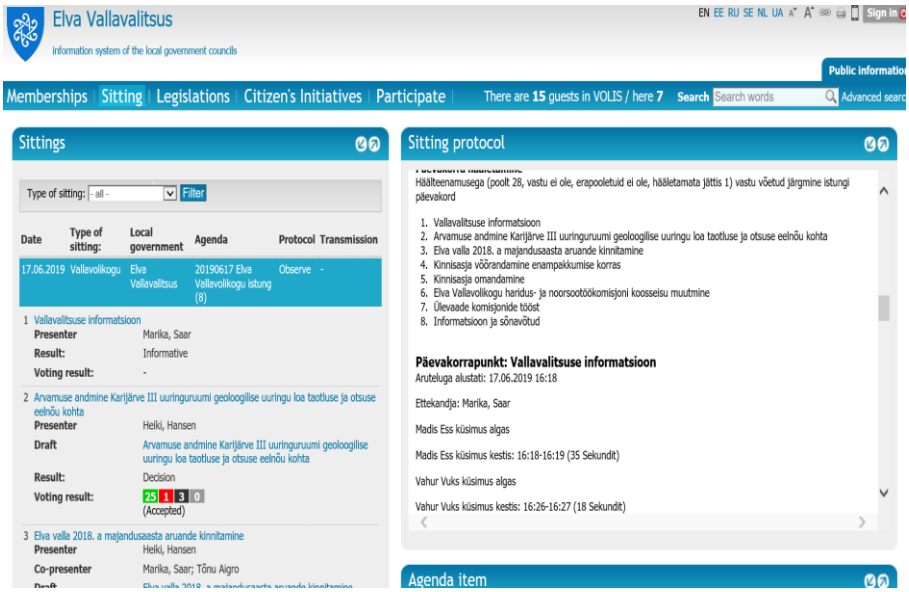
Helsingborg Proposal was initiated after the respective decision of the City Council, it did not require any legislative changes and it is currently managed by the city officials. Helsingborg Proposal: https://helsingborg.se/kommun-och-politik/kontakt-och-paverkan/helsingborgsforslaget-for-dig-som-har-forslag-pa-hur-helsingborg-kan-utvecklas/.

Apart from e-participation initiatives that happen occasionally and do bring the public closer to a municipality, it is as essential to guarantee the transparency and inclusiveness of the decision-making process of a local municipality. In this light, it is crucial to guarantee public access to the decision-making making process of a municipality council/city government, the latter's sittings and meetings, taken decisions and the related material; and enable the public participation in this process. Case example below summaries an information system of a municipality councils in Estonia that gives the public an opportunity to follow and participate in a work of a municipality council or a city government.

CASE EXAMPLE. Information system of local municipality council or government (VOLIS)

VOLIS is an information system of local municipality council and/or city government that facilitates fast, open and participatory decision-making process. Shortly, it is a virtual working environment of

the members of councils and local governments that is open to the public to be able to follow what is happening at meetings and sessions. It also allows for virtual public participation in sessions and meetings.



More concretely, VOLIS enables:

- To virtually conduct municipality council or government meetings and sessions;
- Paperless document management and processing;
- Auto-recording of council or government meetings and sessions, and their archiving;
- Automatic self-writing of the minutes of meetings and sessions;
- Arranging electronic voting (in Estonia, by using the eID);
- Recording of all events taking place at a meeting and a session on video and making this available to the public.
- Virtually participate in meetings and sessions, both the members of council and government and the public;
- Submitting of proposals or sending proposals submitted by residents for public voting;
- Conducting polls.

VOLIS was developed in 2010, it was supported by central government - the Ministry of Interior through the EU Structural Funds. The monthly maintenance etc costs are covered by local municipalities. It is freeware based and licence free. Currently, VOLIS as a service is provided for municipalities by a private company on a pre-fixed monthly fee basis. About VOLIS: https://www.volis.ee/gvolis/?lang=en&kid=.

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