# What is the eCommunity Tool?

Handbook
For administration and citizens in Narva, Estonia

# 1 eDemocracy and eGovernance for Sustainable Urban Development in the City of Narva

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## 1.1 Introduction

### 1.1.1 Goal of the project

The overall objective of the eCommunity project is to promote sustainable and democratic urban planning by offering an internet-based tool for exchanging spatial environmental information and connecting those with online participation possibilities.

The eCommunity tool was implemented for Narva Municipality in 2005. Innovative web-based software solutions are applied to promote the concept of e-Democracy by facilitating the exchange of opinions and spatial environmental information about the City of Narva. Doing this, environmental challenges in and around Narva are made more visible and can be highlighted in a decision-making process. The combination of spatial environmental information and online decision-making offers a window of opportunity to Narva Municipality to develop a more effective dialogue with the city's inhabitants, a more transparent planning process and therefore a better understanding among the public of decisions adopted by the Municipality. The eCommunity tool makes information on environment and urban development available not only to the citizens of Narva but also to interested organizations and persons internationally: This can promote the interest on issues of local development and environmental management to increase investments or to attract tourism in Narva. If the experience with the tool is positive, the same tool could also be used in urban decision-making and environmental management in other cities across Europe.

### 1.1.2 Sustainable Development as an underlying principle

Sustainable Development was defined as the principle, that current generations should meet their needs without compromising the ability of future generations to meet their own needs. Linking economic, social and institutional development to improve the environment is seen as an important and operative step towards a sustainable future (see WCED, 1987).
Sustainable development is an underlying principle for the project, as it brings together environmental issues with social and economic aspects, as well as

institutional aspects[1]. Sustainability issues are addressed in the eCommunity tool: the social side with e-Participation in online decision-making polls, the economic side with addressing of potential investors for the region, the environmental side with dealing with the follow-ups of the environmental problems in the region, the institutional side in challenging the existing institutions to adapt. This tool shall be a helping hand towards sustainable development.

The following pages will give an overview about the environmental dimension of Sustainable Development and the connection to e-Democracy activities, as well as social and economic aspects of sustainable urban development. The goals of e-Democracy activities and the used terminology will be explained. We will show how citizens can be involved in decision making via ICT tools. Further the implementation of e-Governance will be discussed. The article presents recommendations for municipalities, what to consider alongside to the implementation of an e-Participation tool.

## 1.2 The use of ICTs for environmental Sustainable Development

The environmental dimension of sustainability recognizes the indisputable fact that people are completely dependent upon the natural world, and that without the resources and ecosystems services it provides, life and development are impossible. In order to sustain the viability of eco-systems, development must not degrade or deplete them to such an extent that they are unable to function effectively.

### 1.2.1 The urban environment

If we are concerned about sustainable development, then attention needs to be focused on the role and contribution of cities. In Europe, some 80 % of the population lives in urban areas and it is here, that the effects of many environmental problems (such as noise, poor air quality and heavy traffic) are felt most strongly (European Commission, 2004).

Poor urban environmental quality for example has impacts that range beyond the borders of cities. Urban centres are responsible for a significant amount of

[1] those are the values and norms by which we form our social organisations

greenhouse gas emissions, and are therefore major contributors in meeting the commitments under the Kyoto Protocol. Urban expansion can lead to the loss of prime agricultural land and sensitive environmental areas. Also the links between urban environmental quality and a healthy knowledge-based economy are becoming more pronounced – the increasingly severe economic impacts of traffic congestion on trade, for example, or the key role urban environmental quality plays in attracting and retaining the talent that drives wealth creation. Good quality of life is an increasingly important factor for motivating people to stay in their home town and to attract investors (see Curwell et al. 2002).

In a knowledge society, the use of ICTs is believed critically important for dematerialization of production and im-materilisation of consumption and lifestyles, green entrepreneurship, sustainable lifestyles, responsible living, corporate responsibility and sustainable communities (European Commission 2002).

Information systems play an essential role in reaching **environmental targets** for sustainable development. Numerous actions on environmental preservation cannot be realized without the support of ICT. Special importance can be given to the possibility of ICT to create comprehensive monitoring systems for the protection and conservation of ecosystems. The accumulation of very large amounts of data; their effective use and archiving for the far future, requires a global structure and management facilities (Club of Rome, 2003).

In the case of Narva, additional environmental issues need to be addressed. The most important ones are the power plants. These oil-shale power plants – located in Narva and generating most of the electricity serving entire Estonia – cause severe local environmental damage. The damage might get stronger, as the demand for electricity raises in Estonia.

The eComunity system creates the first system in Narva, which is able to host appropriate exchange possibilities with other ICT-based municipal e-Governance systems. Furthermore the eCommunity system is designed to create the following impacts on environmental sustainability:

- It will enhance the reduction of transactions carried out over distances (it is possible to communicate via internet, in the near future documents about city development can be obtained via internet too) which can lead to traffic reduction, reduction of storage space in archives and less fragmentation of the documents.
- Environmental data can be surveyed and stored in one place, which facilitates a quantitative analysis tremendously.
- New forms of communication between public, civil society, government and the private sector with unprecedented coverage and efficiency are possible.

### 1.2.2 Local Agenda 21

Chapter 28 of *Agenda 21*[2] includes the mandate for all local authorities to develop and implement a "Local Agenda 21" with their communities. The underlying emphasis, developed from the 1992 Rio Earth Summit, is "Think global, act local". This realisation recognizes the fact that sustainable development should be fulfilled in close cooperation with local stakeholders.

Development cooperation in the field of urban and municipal development is also committed to pursuing the vision of sustainable development, and supports the design of forward-looking options that respect natural resources. This requires an approach which involves all the various actors, which ensures that innovations are firmly anchored institutionally, and which brings together economic, ecological and social negotiating processes on future policy at local level (= local governance) (BMZ).

The role for eCommunity in that context is:

- to improve communication and information exchange between Municipality and the citizens.
- to avoid that by the use of ICTs the opportunities of weak social groups to take part in local decision-making processes are reduced, and additionally
- to improve the integration and participation of young people (and women) in the local development processes.

[2] The concept for Agenda 21 goes back to 1992 at the UN Conference for Environment and Development in Rio: Agenda 21 is a comprehensive plan of action to be taken globally, nationally and locally by organizations of the United Nations System, Governments, and Major Groups in every area in which human impacts on the environment are evident.

## 1.3 Goals of e-Democracy and their relation to social and economic Sustainable Development

### 1.3.1 Goals

What is the purpose of implementing ICTs for participation activities? What goals are to be reached? Do these goals coincide with the citizens' expectations? The main goals to meet are:

- A more open and transparent government, to be able to understand and track why a decision was made, based on access to information and knowledge.
- Increased trust by enhancing accountability and auditability, where government agencies and employees can be held responsible for their actions, processes and outcomes, in areas like budget and spending.
- Increased social cohesion through engagement and deliberation. Finding that one's opinion matters, enables the local government to create a better consensus in policy- and decision-making.
- Improved outcomes of policy processes via public engagement.

### 1.3.2 The social dimension

Equity and social cohesion are prerequisites for achieving sustainable communities, which need a certain amount of capacity-building to realize. Capacity-building has to be designed not only to support equity and social cohesion but also to reduce vulnerabilities, and to motivate local populations. Training for professional skills, by and for local people, at all levels of assimilation, provides the necessary long-term perspective for local entrepreneurship as well as for social integration (Club of Rome, 2003).

Creating and sustaining strategic networks and partnerships, creating the political and social support to implement policies successfully and to enhance the communication between the administration and the citizens are considered key to success.

The eCommunity system is creating an atmosphere where such a networking can be possible, as never before in Narva by facilitating fast, continuing and broad communication in between the administration as well as between the administration and the citizens.

### 1.3.3 Local economic development

Promoting ICTs is seen as good opportunity to improve local economic development. In this context the development of new industry and employment opportunities may generate potential positive impacts on sustainability. Private and public sector organisations play an important role in this respect. Their understanding of the role of the online economy and new ways of working will be a key factor of local economic development.

ICTs seem likely to offer capacity to enable economic growth, and to allow a more equitable distribution of wealth, without necessarily increasing consumption, pollution and energy use. Information sharing and knowledge sharing enables a better management of scarce resources.

### 1.3.4 Outlook

The points discussed above show that e-Democracy and ICT services on city level go in line with the requirements of a sustainable urban development.
The Information Society – a society whose most precious capital is information and knowledge – and ICTs are key elements for a broad range of economic, environmental, institutional and societal activities, offering new and promising opportunities. ICT can potentially provide a significant contribution to achieve an environmental, economical and social sustainable information society. ICT can thus help to widen the focus from merely economic goals to questions of sustainability both increasing wealth and social justice and decreasing the consumption of natural resources. It offers some attainable routes to sustainable development through its potential to contribute to the reduction of material consumption and by supporting increased eco-efficiency, through its ability to support more sustainable lifestyles and – last but not least – through improvements in the governance of society. We will concentrate on the latter point on the following pages.
Connecting sustainability issues and the information society means to focus on the information structure in Narva and the impacts of ICTs on environmental, economic, institutional and social issues in order to contribute to sustainable development. Spatial planning can be seen as the interface, where environmental problems meet participation for better decision making.

## 1.4 Involving Citizens in Decision-making

Politics and government are going online: not only in Estonia, but in all over Europe cities have increased participation in policy- and decision-making on their political agenda. The aim of implementing ICTs in democratic processes and activities at the local level in Narva is to enhance participation by reaching a wider audience. The ultimate goal is a civil society, participating actively in an inclusive, transparent and productive way – by getting more people involved and creating a consensus for better decisions.

### 1.4.1 Terminology of e-Democracy[3]

The following terms, frequently used in association with e-Democracy, need to be clarified:

E-Democracy is a concept used to define any activities or communication between governments and citizens of a political nature, utilizing information and communication technologies. Often it is divided into e-Voting for elections and e-Participation for communication.

**e-Voting** is a term used for formal elections in electronic form, requiring heavy security and legal formalities. It is related to decision making processes based on some electronic device or procedure (or simply ICT) and involving citizens where the result is, or can be, binding, based on voting such as referendums, elections etc**.**

**e-Participation** is the use of ICTs to enhance active participation of citizens and to support the collaboration between actors for policy-making purposes, whether acting as citizens, their elected representatives, or on behalf of administrations, parliaments or associations (i.e. lobbying groups, interest groups, NGOs) within the political processes of all stages of governance. It consists of three components: information provision, deliberation, and participation in decision-making.

**e-Government** is mostly used for services various government agencies provide to the citizens in electronic form, e.g. via the Web. Examples would include filing of tax-returns or payment of traffic tickets. It also covers inter agency activities and back-office solutions utilizing ICTs

**e-Governance** is formed from the merging of e-Participation and e-Government principles, and in its most basic form consists of the use of ICTs in the relations between citizens, politicians and government administrators to increase cooperation, participation and transparency at local and national level. Inclusion and accessibility are key-words for realizing e-Governance i.e. the rate at which people have access to the social and economic opportunities, and can use technology as a means to learn, work and thrive.

[3] Lennard Forsebäck (2004), in: Best Practices in eGovernance; Intelcities Project, Deliverable Nr. 11.2.1

### 1.4.2 e-Participation in political processes

E-Democracy is not a threat to or the end of representative government. E-Participation in a democracy must provide time and space for thoughtful consideration by representatives so they can make the difficult decisions and compromises required of their oath of office. Online protesting, advocacy and lobbying may actually make it more difficult, in the near term, to reach compromises and diffuse the growing partisan nature of politics.

Citizens will engage in governance when they feel they have a stake in the political outcome, if they think their voices will be heard, and where they feel their input matters. ICTs can be used to bring citizens' input and thoughts into representative political processes. These processes have direct political power and authority. They are not simply an external exercise or academic experiment. Therefore connecting ICT-enhanced participatory democracy to representative processes may be the most effective path toward deepening democracy through e-government and involving citizens in the democratic processes. It can open up the political process: more citizens can engage themselves in governance also *between* elections.

People tend to participate if they feel their participation makes a difference. Participation in policy making is therefore location-based: the nearer to your home, the more likely you are to participate. At local levels the use of ICTs in governance will thus reach a broader cross-section of citizens, who expect to see the results of their participation reflected in the local or municipal agenda setting and actions.

Successful participation requires access to information and government accountability. Citizens must be able to acquire the knowledge and information about governance needed to make informed choices. The dialogue between citizens and government must be continuous, open and committed. Most governments have an unbalanced ecology of governance that is still central and executive dominated where governance is closed and hierarchical, not transparent and participatory. Somehow this must be altered, a process which will take a long time. Perhaps ICTs will prove a convenient vehicle for this change.

Local governments need to play an active role to maintain existing democratic practices despite pressures coming from information outside. They need to incorporate and adapt ICTs to expand and enhance participatory democracy. Deepening citizen participation in democracy is vital to ensuring that governments at all levels, can both accommodate the will of their people and more effectively meet public challenges.

## 1.5 e-Governance as the final goal of e-Democracy activities

"Governance" has been a guiding principle for many European countries in the last decade (European Commission, 2003). The European Commission refers to it as to the "rules, processes and behaviour that affect the way in which powers are exercised at European (and other) level, particularly as

regards, participation, accountability, effectiveness openness and coherence" (European Commission, 2003).

e-Governance, that means designing governance processes with the help of ICTs, is therefore not just about implementing technology – it is about reinventing the way in which government and citizens interact, transforming government processes, providing community leadership, enabling economic development and renewing the role of government itself in society through the utilization of Information Technology.

### 1.5.1 Successful e-Government

According to the final update of the "e-Government Strategy" that was published by the Government of New Zealand[4], it is a common outcome that there are three main characteristics marking successful e-Government:

- Convenience and Satisfaction: People should have a choice of channels to government information and services that are convenient, easy to use and deliver what is wanted.
- Integration and Efficiency: Information and services should be integrated, packaged, and presented to minimize cost and improve results for people, businesses, and providers.
- Participation: People should be better informed and should be able to participate in government.

**Basic requirements for e-Governance systems:**

- Better services: More convenient and reliable, with lower compliance costs, higher quality and value.
- Cost effectiveness and efficiency: Cheaper, better information and services for customers, and better value for taxpayers.
- Improved reputation: Building an image of an attractive location for people and business.

[4] New Zealand is ranked third among 169 nations on a global e-Government leadership index according to the 2002 United Nations report Benchmarking E-government.

- Greater participation by people in government: Making it easier for those, who wish to contribute; and leadership – supporting the knowledge society through public sector innovation.

e-Governance requires an urban government working across boundaries within the public sector and between the public and the private and voluntary sectors to provide the capacity to act and achieve a set of desired policy goals. Strong leadership can speed the process of e-Government implementation, promote coordination within and among agencies and help reinforce good governance objectives.

### 1.5.2 Added value of e-Governance

For government added value can be created with a strong leadership role in a complex urban development, with efficiency and effectiveness becoming key criteria of its workings. For businesses, local e-Governance can add value to their earnings, provide more business opportunities and access to government services, generate new skills and capacities, and ensure their privacy and security. Citizens and civil society too have a stake in city e-Governance. Improving the quality and value of government services can increase their welfare.

## 1.6 Recommendations for municipalities, adopting e-Democracy solutions:

In the following pages we want to present a short checklist of the most important points to be considered by Municipalities before they start to adapt an e-Participation tool and what is needed to maintain the interest of the public.

### 1.6.1 Participation levels

Concerning the **level of participation**, the OECD report (2001) argues that democratic political participation must involve the means for citizens to be informed, the mechanisms to take part in the decision-making and the ability to contribute and influence the policy agenda. It specifically defines three levels of participation that can be used to characterise e-Democracy initiatives:

- Information: a one-way relationship in which government produces and delivers information for use by citizens.
- Consultation: a two-way relationship in which citizens provide feedback to government. It is based on the prior definition of information. Governments define the issues for consultation, set the questions and manage the process, while citizens are invited to contribute their views and opinions.

- Active participation: a relationship based on partnership with government in which citizens actively engage in defining the process and content of policy-making. It acknowledges equal standing for citizens in setting the agenda, although the responsibility for the final decision rests with government.
- To achieve sustainable development, municipalities should aim for the level of active participation.

### 1.6.2 When to address citizens?

In order to define the Stage in Policy-Making Process (i.e. when to engage the citizens, where in the policy process the particular ICT implementation fits), the following five stages are defined on the policy life cycle (OECD, 2001).

1. Agenda setting by establishing the need for a policy or a change in policy and defining what the problem to be addressed is.
2. Analysis: Defining the challenges and opportunities associated in order to produce a draft policy document.
3. Creating the policy: Ensuring a good workable policy document may include a formal consultation, risk analysis, pilot studies, and designing the implementation plan.
4. Implementing the policy: this can involve the development of legislation, regulation, guidance, and a delivery plan.
5. Monitoring the policy is the evaluation that may suggest an interactive process.

### 1.6.3 e-Participation Good Practice Guidelines

Kearns et al. have compiled a set of Good Practice Guidelines for the successful implementation of e-Participation principles. They follow here with some minor modifications.

**Promotion:** Citizens can only take part in e-democracy activities if they are aware of the possibilities. E-democracy initiatives must be well marketed to attract attention.

**Political commitment and responsiveness**: If citizens are to take part in e-democracy activities, they need to know that their views will be taken into account and their complaints dealt with. Local authorities must be responsive to e-communications from citizens (f. ex. setting rules to treat emails similar as letters).

**Clear purpose of the initiative:** What are the expected outcomes of the online initiative, how will they be used.

**Clear rules of engagement:** e-Participation is a new form of participation and the rules of engagement are therefore not obvious. Published rules and guidelines are important to clarify expectations and obligations.

**Inclusiveness:** To have any legitimacy in democratic terms, e-participation efforts must be as inclusive as possible and must not be allowed to become a channel where those who engage already can simply do so more easily and more conveniently.

**Use of moderators:** E-participation, particularly as it relates to online group interaction rather than simply e-communications between individual citizens and their local authority, requires moderation (which means that one designated person must clean the discussion forums of any old or misleading information). Moderation by an official[5] can aid to keep e-participation focused and useful and that any participation rules and guidelines are observed in practice, this must though not be experienced by the participant as censorship. In most local matters only allowing the participation of named users may help keep the focus on the subject.

**Privacy:** Privacy, and in particular a sense of freedom from surveillance and intimidation is important to democratic politics. In the digital age, privacy can be undermined by data gathering of local authorities. Hence, it is important that authorities both respect privacy in any e-participation activities and communicate clearly their data gathering practices to the citizens, by making it clear which, why and where information is stored. Also it must be explained why some activities should only be performed by named, authorized users.

**Working in partnership:** Given the levels of current disengagement, local authorities cannot simply expect that building e-participation spaces on the Internet will result in major increases in political involvement. Instead, they must work in partnership with NGOs and voluntary groups to develop successful e-democracy policies.

**Training:** The skills required to engage in e-participation must be recognized and training provided to develop them, tailored to specific user groups. F. ex. allowing children participate in decision-making in their own environment such as school yards may improve their adult participation.

For citizens to participate in on-line activities and become an e-Citizen there are a few things the government must keep in mind:

Assured Feedback. Active democratic participation will only be reached if the citizens are given a feedback soon after submission.

Empowering citizens requires real commitment from government

[5] Rating submissions by the participants is also a possibility. Compare www.kuro5hin.org, or www.slashdot.org

### 1.6.4 Options for contacting citizens via an online tool[6]

Research has been undertaken to find out the most valuable ways to motivate visitors of a website to interact. There are a number of ways by which to engage the citizens using ICTs. Those, we consider suitable for Narva municipality, are listed below:

**E-mail lists** interested people can actively sign up for, can provide greater use of the most important issues and help to announce and remind of dates. Although many constituent e-mail lists are built through in-person promotion in the district and not just online. All of these efforts connect citizens more closely with their elected representatives and the community.

**E-mail correspondence and newsletters** are usually an initial step in any policy making. **E-mail newsletters** can be good for information and promotion. The municipality can establishe e-mail newsletters to promote a range of activities and content including participatory democracy efforts both online and offline.

The advantage of a newsletter send out to an email list is, that it acts as a reminder, a short information source and as an activator, announcing events, polls, participation possibilities etc. Emails though should not be sent too often but still at a regular interval, and the length should not exceed one page.

**Information provision:** This is always the first stage towards e-Democracy, keeping the stakeholders informed.

**e-Petitions:** People can try to influence the setting of the agenda, using the method of collecting signatures.[7] Many municipalities worldwide offer this possibility as well as private organisations. The outcome of the petition might be heard or not.

**Discussion forums:** on the website are useful when setting an agenda or in any of the early stages of policy-making. Users can post with name or anonymous.

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[6] Lennard Forsebäck (2004), in: Best Practices in eGovernance; Intelcities Project, Deliverable Nr. 11.2.1

[7] See f. ex. http://www.petitiononline.com/petition.html

**e-Consultation:** strengthens the dialogue between citizens, politicians and government administrators using ICT. These are deliberation tools, results of consultations may be binding for a decision.

**e-Involvement:** uses ICTs to include broader and/or new groups in democratic processes, f. ex. political activity, the use of ICTs by political parties and action groups.

**Surveys and polls** on the internet can be made at any stage of the policy-making cycle.

## 1.7 References


BMZ, Topic Paper 10: Sustainable Urban Development http://www.bmz.de/en/topics/Handlungsfelder/umwelt/umwelt19.pdf, accessed in June 2004

Club of Rome (2003). Towards a New Age of Information and Knowledge for All. Statement of the Club of Rome to the World Summit on the Information Society, Geneva, 2003. http://www.worldsummit2003.de/download_en/CoR-WSIS-Statement-Final-14-8-03.pdf accessed on 7.9.2005

Curwell, St., Deakin, M., Hamilton, A., Paskaleva-Shapira, K., Soubra, S., Turner, J.(2002). A Research Roadmap for Sustainable Information Cities.

European Commission (2002). Vision and roadmaps for sustainable development in a networked knowledge society, Information Society Directorate general, new methods of work and electronic commerce.

European Commission, European Governance: A White Paper, 2003, http://europa.eu.int/eur-lex/en/com/cnc/2001/com2001_0428en01.pdf, accessed in August 2005

European Commission, 2004 (2004). Towards a thematic strategy on the urban environment. Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions [COM(2004)60]. Office for Official Publications of the European Communities, Luxembourg.

Kearns, Ian et al (2002), e-particpation in local government. IPPR, London

OECD (2001). Citizens as Partners: Information, consultation and public participation in policymaking: OECD.

WCED, (World Commission on Environment and Development (1987): Our Common Future. Oxford, Oxford University Press.

http://www.nrtee-trnee.ca/eng/programs/Current_Programs/Urban_Sustainability/Urban-SOD-Report/Urban_SOD_English.pdf, accessed in June 2004

# 2 The eCommunity – a Public Management of Environmental Info and Spatial Development

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## 2.1 Introduction

The development of a modern society is often considered to be in opposition to environmental health and the well-being of natural ecosystems. Due to the growing complexity of the society and its spatial representation in the utilization of rural and especially urban space, the understanding of the whole system has become increasingly difficult. Additional difficulties arise from the increasing alienation between the academic approaches studying the state and the mechanisms behind environmental change. Therefore, the best practices and tools which not only describe, but also provide are:

- an interdisciplinary understanding of the environment and its processes;
- a link to practical applications in society (eg. spatial planning, environmental management);
- the better understanding and involvement of the general public to provide favourable conditions to the decision making processes and the application of more sustainable ways in the development of society.

The eCommunity serves as a link between adequate environmental information and decision-making. The environmental information in the online GIS system and the spatial planning public process management module both lack the uniqueness and innovation of the eCommunity. The key benefit of this system lies in the fact that the environmental information and development ideas are found in the same spatial frame, making it easier to weigh and analyse the various steps of public planning and decision-making processes. Therefore, the eCommunity could be seen not only as an environmental management tool for analysing environmental information in the participation process but also as providing feedback to the development of the GIS systems analysing and providing environmental data for spatial planning.

In the following text the development of the municipal GIS systems organizing spatial environmental data is outlined and the links to the modern

understanding of the public planning process are provided. Also the wider context of the environment is discussed where in the gradient rural-urban environment there is a need to treat the classical aspects of the environment such as nature, its state and its conservation and public health in close connection to the social and cultural aspects of environment. And finally the perspectives of developing the eCommunity further are also discussed.

## 2.2 The Development of the GIS Systems and the Environmental Management in Local Communities

The rapid development of the cheap, easy to use and compatible GIS systems has lead to the wider application of the GIS systems in different fields including the environmental and development management of local communities. Apart from the well-known general use software platforms (e.g. ArcInfo, MapInfo) there are various GIS platforms specially designed for local communities for data administration purposes. Those systems also include the transportation analysis and planning. The systems are in their application generally ranging from the common resource allocation representation and analysis (such as nature resources GIS) to the more comprehensive analysis tools which in addition include natural resources data of various aspects derived from human induced processes and developments. This data could in principle be static (administered manually to the system) or dynamic (obtained and updated automatically via the internet or other links between GIS and source data administrator).

The wider application of the GIS systems has provided the municipal management with a more comprehensive understanding of the state of the resources behind the development of the community. As the updating of the data-layers has become easier, the data is now much more adequate. The concentration of the data to a few compatible systems has lead to the possibility of combining the various aspects of the data in the day-to-day spatial planning process. For example, the availability of economical data (e.g. production) in combination with the frequency of endangered species in a given area has great importance in assessing mutual development perspectives of the natural communities and species and the economical networks.

The wider application of the GIS systems was first used in Estonia by geographers. The most important tasks were various spatial analysis tasks in natural and human geography during the mid 1980s. This development was followed by various administrative GIS systems in the national, regional and municipal levels. The most recent development has lead to the better accessibility and applicability of general-use GIS systems – those are easily accessible through the internet and have various involvement levels (visitor-viewer, advanced user, manager etc) just as it is proposed in the eCommunity project. Also the subjects represented in the GIS layers have shifted from

unprocessed conventional environmental data to more combined data providing also both online updating and request management throughout the GIS layers. The information content has extended from just the physical environment to the social and cultural aspects thus broadening our concept of environment.

## 2.3 A Wider Understanding of the Environment

The understanding of the environment has undergone various changes in accordance with the development of environmental management methodologies and practices as well as the land use and development planning. This development has been a part of the general rise of environmental awareness as well as the development of participatory practices of comprehensive planning in modern society.

This development was acknowledged in the European political circles when the term “spatial planning” was presented in the Torremolinos Chapter (adopted by the 6th European Conference of Ministries Responsible for Regional Planning in May 1983)**.** This was stated in paragraph 8 of the Chapter: „Regional/spatial planning gives geographical expression to the economic, social, cultural and ecological policies of society.”

In the spatial planning of rural communities and even more in urban settlements the importance of a combined and comprehensive analysis of the environmental as well as the social and cultural aspects is of great importance. This has lead to the argument whether the term “environment” would have to be understood in narrower meaning as a physical phenomenon or does it have a wider understanding which includes both social and cultural aspects. There have been no firm statements on the issue neither in the academic nor administrative circles. For example there are contradictions in the understanding of the term “environment” in both Estonian and EU legislation.

Regardless of the actual outcome of the debate the issue clearly shows the practical need for a more comprehensive approach to environmental management practices.

## 2.4 Participatory Spatial Planning

Comprehensive spatial planning is the most important link between the effective utilization of environmental information and public decision-making. In the light of the concerns for environment and sustainable development trends the main goal of spatial planning is to promote representative and

interactive decision-making. It is not only a question of informing the public, but also of getting active feedback from people of different social groups and creating a dialogue between different stakeholders in the process. Citizens should become active participants in the decision-making process. The involvement of citizens in discussions about the complex choices of social needs is fostering a dialogue and also community harmony. Through participation in the spatial planning process the citizens start to understand the principles of environmental management and gain knowledge on how different decisions affect their lives in direct ways.

In reality, however, often no real effort is made to inform the public objectively. Even if this is done, the citizens are very often turned off by the static and seemingly „finished“ quality of a plan or physical model. They do not feel compelled to participate simply because they do not fully understand how a certain planning proposal will directly affect their lives. People do not have enough time to do the research and they simply do not feel equipped to make decisions. Even the language used in planning proposals and meetings is often difficult to understand. Thus it is hard to get the designer’s or planner’s idea or the impact of a development project across to local residents or the concerns of the latter back to the authorities. For example, people get frightened by the technical jargon used by professionals and the cryptic two-dimensional drawings can be very confusing. This kind of “instrumental” and top-down planning philosophy is not encouraging dialogue and community consensus.

The key to understanding a basic participatory planning process lies in the creation of a common language that fosters ideas that can be realized immediately in a convincing and easily understandable way. The participators must feel compelled and equipped to make decisions about their concerns.

Much like the common skill of interpreting realism through television, the initial idea of an eCommunity is the creation of a 3D computer model of an existing environment by a real-time modelling software package, which is easily understandable for everyone.

When this tool is used, citizens are no longer limited to being a passive audience that simply sees a proposed design in all its beauty but fails to understand any details. Instead they become active participants. During the planning process, citizens and community leaders alike will be able to work interactively in front of a computer. By simple movements of the mouse, they will be able to walk up to their own front porch while looking at the proposed shopping mall alternatives across the street from virtually any angle. The changes resulting from ongoing discussions can be viewed interactively again and again and design issues can be revisited or introduced by the participants at any time of the process. Participation can ultimately fuel ideas, bring them to life and encourage clearer communication for consensus building. The creation of an eCommunity web-based information system implies the

development of a "virtual reality" where the town's spatial plans drawn by specialists will have their own 3D spaces, i.e. realistic models of the planned area, which can be virtually walked through and where citizens will have the possibility to make additions and corrections to the plans and transfer them automatically to a new 3D model representing those recent changes.

The Narva eCommunity system promotes greater transparency in decision-making and therefore offers a window of opportunity to the Narva municipality to develop a more effective dialogue with local inhabitants and a better understanding among the public of decisions adopted by the municipality.

The system available through regular Internet will be developed tailor-made to meet the needs of specific stakeholder groups and will include components such as an "investor web" or a "tourist web". The system will include a wide range of thematic information sub-systems, such as a city master plan, a thematic plan of bicycle traffic, a public transport agenda; a thematic park of the old town etc.

The eCommunity project goal is to promote sustainable and democratic urban planning by using opportunities offered by modern information technologies and the internet. The project will apply innovative web-based software solutions to make information on the town spatial planning and development available to local citizens as well as to interested organizations and persons all over the world in order to promote public involvement in the decision-making process on important issues of local development and also to attract more investment to the economy of Narva. It is hoped that the project will demonstrate the use of the system as a tool for urban planning, so if the project experience is positive, the same tool could be used also in planning in other towns and regions all across Europe.

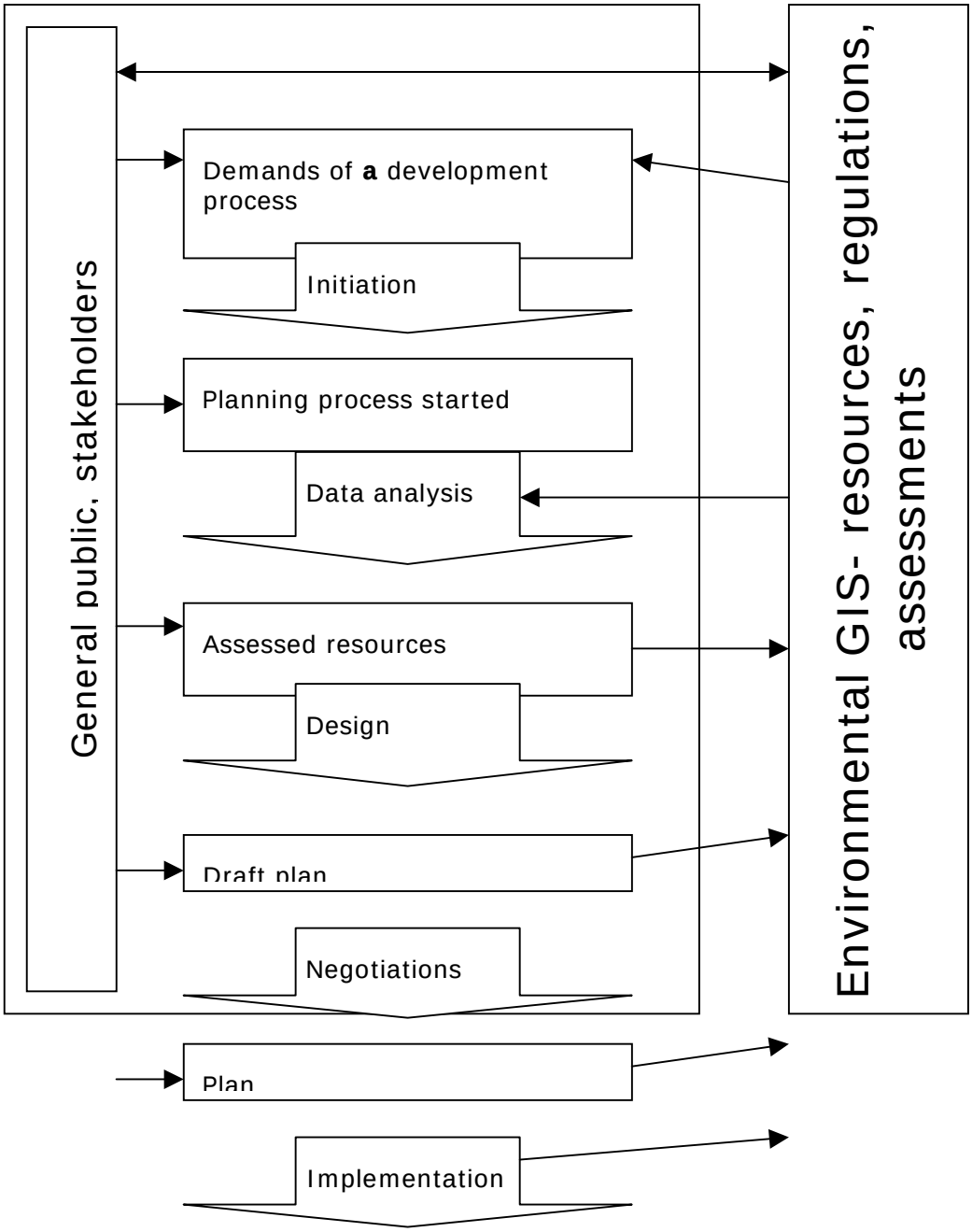


Fig 1. The principal stages of spatial planning.

As presented in figure 1 spatial planning has in principle links to public participation and GIS systems in every step of the process. The eCommunity is designed to act as a public discussion and information presentation platform through the process.

## 2.5 The Further Development of the eCommunity

The development of the eCommunity in Narva together with other similar initiatives has shown the following possibilities for further developing the e-Democratic platforms:

- More data can be presented in the system which would improve the in-system analysis tools;
- The online updating of the GIS layers would enable to present recent and fresh data;
- The development of internet access, especially easily accessible public internet access points will increase the involvement of new social groups into the system;
- Better compatibility of management systems of local communities (e.g. those required by the legislation) would enable the integration of the system to both national and municipal web based management systems.

# 3 E-Community in the context of Narva

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## 3.1 Introduction

During the past decade Estonian society has successfully adapted the opportunities offered by the development of information- and communication technologies (ICT). Advanced ICT makes possible to get useful information quicker and improves the communication.

Thanks to the information channels- such as post, phone, radio, mobile phones and e-mailing the decision making and implementation of ideas and projects is more flexible.

The fast development of Internet is gathering the knowledge and experiences collected into a big and easy to use system, for example residents of Estonia can already fill in the official documents, make money transfers and conduct polls through the Internet.

The Internet and digital signature gives an opportunity to use more and more the direct democracy- to develop the e-Community- it means that instead of elected politicians, people can decide the relevant questions themselves. This model is successful only if people are active, the question is important to them, and technologically- it is easy to use the tool.

ICT enables to solve the problems that may occur- the decision system can be built user friendly and attractive, to illustrate the future scenarios, it is possible to use the 3 dimensional models.

Seeing the results of their decision-making, people will see the importance of participating and will learn to make smarter decisions. This kind of feedback may create an experienced and active community.

Thanks to the funding of European Commission LIFE – Environment project, in 2002 city of Narva is the first in Europe to create that kind of society.

The goal of Narva e-Community system is to promote sustainable and democratic urban planning by using opportunities offered by modern information technologies and the Internet.

The system contains an innovative web-based software solution to make available information on the town spatial planning and development to the town citizens as well as to interested organizations and persons internationally in order to promote involvement of public into making decisions on the issues of local development and to increase investments into the economy of the Narva municipality.

The system acts as a tool for urban planning and it could be used also in urban planning in other towns and regions across Europe.

The Narva e- Community system promotes more transparency in decision-making in Narva town and therefore offers a window of opportunity to the Narva municipality to develop a more effective dialogue with the town inhabitants and better understanding among the public of decisions adopted by the municipality.

## 3.2 Context of Narva

The town of Narva with a population of about 70 000 is situated in the northeast of Estonia; it is the third largest town in Estonia after Tallinn and Tartu (see Figure 1). Narva is located on the border with Russia: the frontier goes along the Narva River that separates Narva from the neighbouring Russian municipality of Ivangorod with a population of 10 000.

Figure 1: Location of Narva in Eastern Baltic Sea area


It is worth to note that Narva was a beautiful town before the Second World; its architecture was competing with that of Tallinn. During the war, almost all architectural landmarks were bombed and destroyed. After the Second World War when Estonia was occupied by the Soviet Union, local Estonian population was deported and people from different parts of the Former Soviet Union arrived to North-Eastern Estonia to work at the newly built thermal power plants, the oil-shale mines and the chemical enterprises processing the oil-shale.

A new town of Narva was constructed with standard Soviet-style blocks of houses and this new Narva did not differ anymore in the way it looked from thousands of other towns all over the Soviet Union – in central Russia or Russian Far East, Ukraine or Belarus. One of very few architectural glandmarks left over was the Herman fortress on the bank of Narva River that overlooks the river to the Ivangorod fortress. During the Soviet time, Narva

and Ivangorod were not divided by any borders and were built as one town with shared municipal infrastructure. When the Estonian-Russian border regime was re-established at the beginning of the 1990s, the border cut the shared town infrastructure as well as personal connections between the two towns. Cutting the earlier existed economic connections and restructuring of Narva economy resulted in a high unemployment in the town.

Due to this described history of Narva, a demographic situation in the town and surrounding areas is very different from what it is in other regions of Estonia. In Narva out of more than 70 000 inhabitants only 3 000 are Estonians, and the majority of the Narva population is of a first and next generations of “newcomers” who arrived in Narva after the Second World War in connection with the industrialisation. The majority of the inhabitants of modern Narva therefore have not got any friends or family connections to other regions of Estonia, and therefore they do not usually speak Estonian language. By the citizenship 35,5% of the Narva population are citizens of Estonia; 28,1% are Russian citizens and 36,4% are registered as foreigners, i.e. own grey passports of “foreigners” or persons without citizenship but residing in Estonia. Due to the mentioned reasons, Narva remains isolated from the rest of Estonia. For inhabitants of other regions of Estonia, Narva is usually associated with issues of high unemployment, crime and other social problems. Estonian mass media supports this image rather often, and on Estonian level there are few positive news that can be heard about Narva.

Therefore, the Narva e- Community project had along with developing public awareness within the local community, an important mission of presenting Narva positively on the Estonian and international arena as a town of democratic and sustainable urban planning; a town of innovations.

## 3.3 Background information about Internet usage popularity in Narva.

The identification of the Narva e- Community information system user groups started with an analysis of the statistics of use of public Internet points in Narva (information available from "See the World Foundation" at www.vaatamailma.ee), survey conducted by "EENet" about Internet usage in Narva and survey conducted by "Narva Union for Child Welfare" to study children's Internet usage habits.

As a result of analyzing the statistics it showed that one of the biggest problems in Ida- Viru County is a small number of public Internet places[8]. According to the statistics there were (in 2002) only 11 public Internet places in Narva and 3 of them were mostly used for playing Internet games[9].

Due to the fact that Ida- Viru County has lower incomes as rest of the Estonia, there are very little households that have a computer at home and even less have a broadband Internet connection. So the public computers are heavily overpopulated- it means that about 20 people use the same computer in Narva and it makes 5-6 people more than it was on last year[10].

Through the seminars that "See the World Foundation" (www.vaatamaailma.ee) organized, about 3500 people learned basics about how to use Internet and what are the possibilities it gives to simplify their everyday life. The highest goal of the project is to bring people and Internet closer to each other. The participants are at the age group of 21 to 65 and more than half of them have at least education on a secondary degree, they are mostly employees or already retired people.

According to their statistics is the Internet mostly used for information search (both for pupils and grownups), reading news and press, and sending/ reading of e-mail messages.

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[8] Survey conducted by EENet in February and March 2003
[9] Survey conducted by See the World Foundation
[10] Survey conducted by EENet in February and March 2003

In the beginning of 2003 “Narva Union for Child Welfare” made a grand survey among 1784 (± 10) Narva schoolchildren in the age group 11 to 18. There was also studied, in addition to social subjects, the Internet popularity and its’ using skills of children in different age groups. The collected data showed that the number of students who are using Internet is quite small: for example frequently by only about 45 % of them are using a computer at school, the public Internet place is being used only by 20% of them. More than half of the students very seldom or never use the computer at school or in public places. The biggest percentage of students is using Internet often at home.

## 3.4 Why was Narva e-Community system started?

In May 2001 when the idea to make an e-Community system was formulated, following problems were considered to be relevant:

- Common document administration system (Amfora) of Narva Municipality was not functioning and therefore there was a big lack of information between the municipality departments and too much information was delivered only on the paper

- The vertical communication caused no efficient delivering via heads of the departments for other employees

- Delivering information about Narva for tourists and investors was difficult.

- There was a serious lack of attractive visual information about city planning

- The communication between the Narva municipality and inhabitants was quite weak

- Internet usage both among Narva inhabitants and authority was not efficiently used because of lacking knowledge

- The development priorities of the Narva city were not well formulated and prioritised, there was lack of knowledge for the project development

## 3.5 Users of the e-Community system

At the beginning of the project following groups were seen as active users of the Narva e-Community information system (further “information system”):

1) Local authorities who wanted to improve the quality of spatial and strategic decisions as well as to improve the communication with citizens;

2) IT companies who should assist the system installation in the target municipalities, and develop the system further, but the use of the system shall be easy enough that municipal officials will not need IT companies after the installation;

3) Active citizens who would like to participate in strategic planning, including inclusion of disadvantaged people;

4) Planning consultancies who must achieve new identities, it means that instead of suggesting entire plans, the consultancies shall assist authorities and citizens in the proper use of the system;

5) Decision makers- besides municipalities, the system has relevance in higher administrative levels, such as national level, and the system may help other big organizations (big companies and networks) to manage with spatial decision making;

6) Environmental organizations for whom the system serves as a tool for better environmental management towards sustainable development;

7) Commercial / industrial organizations that need to cooperate with municipalities in order to make proper business plans.

## 3.6 What is the Narva e-Community system?


Narva e-Community is an innovative web-based software solution that makes available information on the town's spatial planning and development.The urban planning and environmental information is completely available in Internet.

"Narva e-Community"is acts as s functioning spatial planning system. The system includes a wide range of thematic information sub-systems, such as a city master plan, a thematic plan of bicycle traffic, a public transport agenda; a thematic park of the old town; etc. The system available through the regular Internet system is developed to meet the needs of specific stakeholder groups, such as investors, tourists and other interested parties and will include components such as an "investor web" or a "tourist web" sites.

The e-Community stands for more transparency in decision-making in Narva town and therefore offers a window of opportunity to the municipality to develop a more effective dialogue with the town inhabitants and better understanding among the public of decisions adopted by the municipality.

Creation of the E-Narva web-based information system on spatial planning implies development of the "virtual reality" where the town spatial plans drawn by specialists will have their own 2 and 3 dimensional spaces.

The 3 dimensional spaces are realistic models of the planned area, which can be virtually walked through and where citizens have possibilities to make additions and corrections to the plans and transfer it automatically to a new 3D model representing recent changes.

The system is planned to be able to accept user requests in a fuzzy human form and convert it to a specification of what is to be displayed and how. This innovative IT tool will allow to synthesize concrete decisions from statements made by citizens, giving the decision-making process a new democratic identity in real time.

The credibility of the system is achieved by ensuring that anybody does not vote not more than once.

## 3.7 How to use the system?

Narva e-Community system opens on web address www.ecommunity.narva.ee.

Only registered users can use the system. The registration can be done via filling the application form, that can be found on system web site or if a Narva citizen the person is registered automatically.

The system website is usable in Estonian, Russian and English.

Opening site contains following menu points:

- DMM

Decision- making module is built into the administrative section to evaluate free text polls and give suggestions.

- Live polls

Menu point LIVE POLLS enables to vote the latest poll and view the attached 2 and 3 dimensional resources.

The illustrative maps can be navigated by using the arrow buttons on the side of the grid image.

Once voted the user will get a checkmark next to the poll indicating, that it has been processed.

The polls act as the tool to develop an effective dialogue with the residents of Narva on the town spatial planning.

- Results

The poll RESULTS become available once the poll has been closed.

Results are shown in graphical or in intelligent model.

- Q/A

QUESTIONS ASKED management of the Forum enables to set up a new question and view the answers given by the city authority.

This kind of tool will strengthen the relations between city residents and authorities. The questions set by residents will get an adequate answer from the responsible city authority.

- Forums

To participate in the FORUM means possibility to create new forum topics and respond to already created subjects. To attend the forum, user must be registered.

The forums acts as a tool that gives people a chance to argument the possible additions and corrections to the town planning and give their suggestions.

As the forum participants are always registered users, the system avoids exploitation of the system.

- 2 and 3dimensional maps

**The system contains 4 types of maps:**

Base 2D and 3D maps are simple maps of Narva.

Project related 2D and 3D maps, which are uploaded one by one by system administrator when creating a poll.

GIS maps are accessible via links from the map pages mentioned above.

DMM- *decision making module* – is built into the system and gives administrator analysis of possible outcomes of the open questions polls

The maps can be seen as a guidebook of Narva that gives a user a complete overview of hotels, restaurants, hospital, cinemas etc; or for more practical meaning, for example the air pollution maps, electricity lines etc.

Innovative 3D maps of Narva allow system users to walk through the city and see the present town and planned buildings in their actual size. The maps are being constantly uploaded as the situation in town changes.

## 3.8 The future perspectives of the Narva e- Community system

As the data is constantly uploaded to the system, the information seen is always adequate and present.

## 3.9 Technical overview

### 3.9.1 Hardware environment

The Narva server system is running on pc based servers. The pc platform has matured to be fully reliable over the past few years and can accommodate system components previously found only in expensive server environments – like raid and fault tolerant RAM.

The minimum requirements for running the Narva system is a P4 level CPU with the speed equivalent of 3000 Mhz, 512 Mb RAM and 120 Gb Hard drive.

### 3.9.2 Software environment

*Operating system*

The Narva system is operating system independent and is using operating system independent databases and solutions. The system can run just as well in a Windows environment as in a UNIX environment. We eventually implemented a UNIX server due to licensing and easy redistribution reasons. In our case we selected a Redhat Fedora based Linux distribution, but in different development phases we used Debian and CentOS without problems. There should be no problems using BSD based systems like FreeBSD.

*Database system*

We are using PostgreSQL database. PostgreSQL is a free, open source, object-relational database management system (ORDBMS). There are a number of advantages to using PostgreSQL, including low maintenance, reliability, stability, extensibility, and cross-platform support. The PostgreSQL database has most of the features common to many commercial databases.

*Web server*

The Apache HTTP Server is an open-source HTTP server for modern operating systems including UNIX and Windows NT. The server is secure, efficient and extensible as well as provides HTTP services in sync with the current HTTP standards.

Apache has been the most popular web server on the Internet since April of 1996. The February 2005 Netcraft Web Server Survey found that more than 68% of the web sites on the Internet are using Apache, thus making it more widely used than all other web servers combined.

*Programming language*

Most of the project has been written in PEAR enhanced PHP. The user experience is enhanced by the use of Javascript and Flash interface.

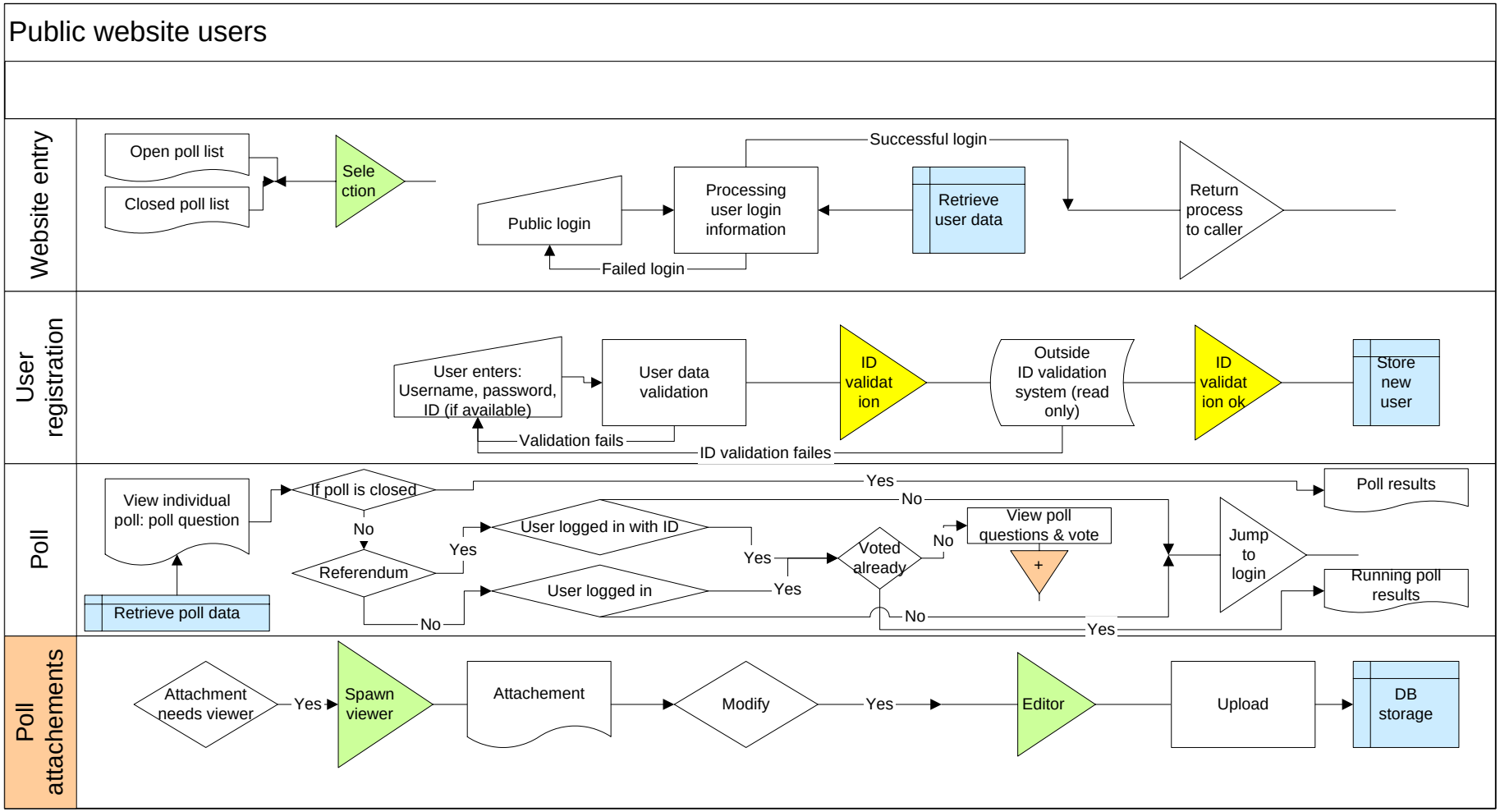
PHP (recursive acronym for "PHP: Hypertext Preprocessor") is a widely-used Open Source general-purpose scripting language that is especially suited for Web development and can be embedded into the web pages themselves. It is simple to use and fast to use for development, but at the same time it is mature enough to provide a scalabe infrastructure for most web applications. PHP has become the de-facto standard of web programming over the past few years.

The PEAR extensions are a framework and distribution system for reusable PHP components, meant to speed up development by providing library components that implement commonly required tasks with proper quality control and reliability

### 3.9.3 Workflow

We have implemented a complex workflow within the Narva system that includes several levels:

- workflow that involves the actions of public website users
- workflow that involves the actions of administrative staff (ex: question editor)
- workflow that involves the actions of the system administrator



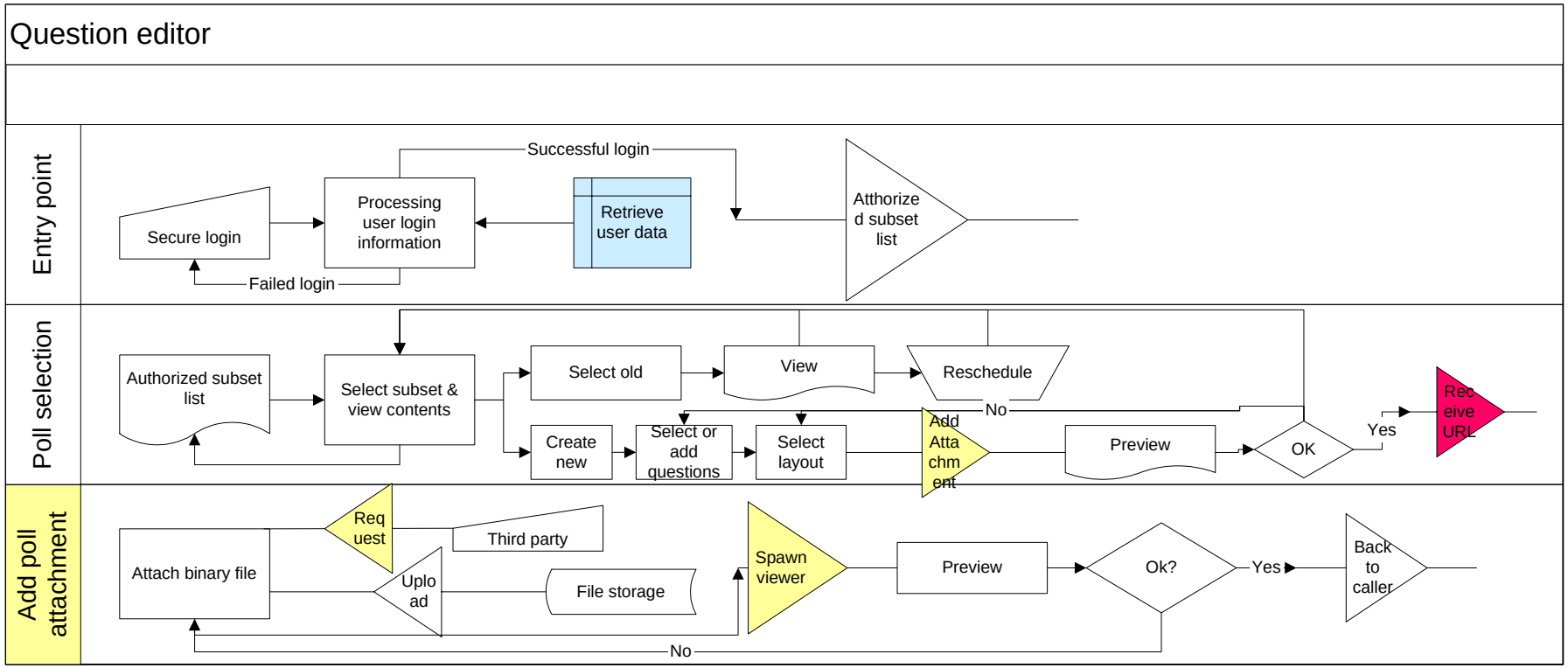

items are attachment point between different systems:

Blue: Database

Yellow: ID validation

Orange: Poll attachment technology – Includes questions from how the poll attachments are created to how and whether they can modified online

Green: Poll attachment display – Includes questions from poll attachment file format to the technology used to display inside or outside the brow

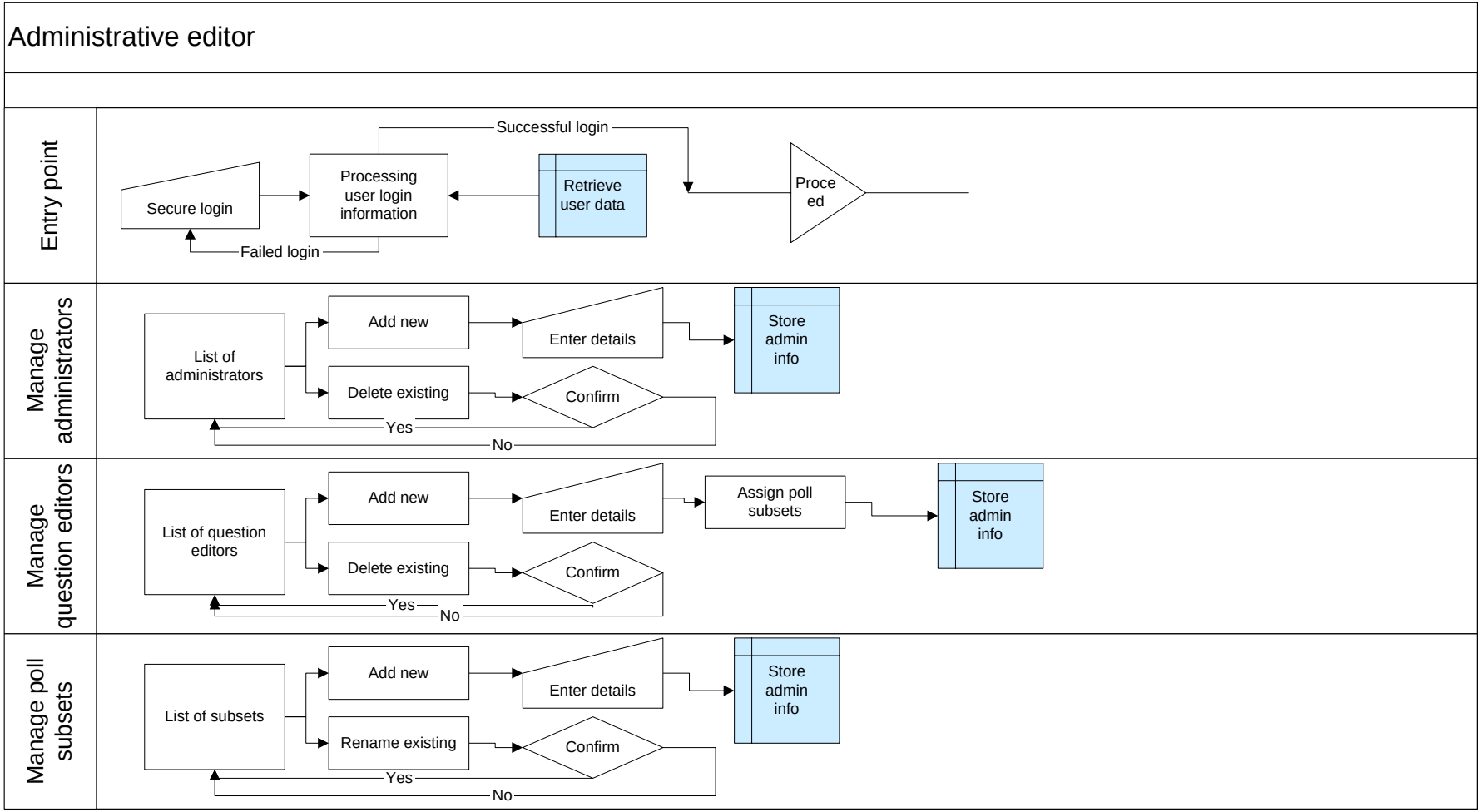



Colored items are attachment point between different systems:

Blue: Database

Yellow: Poll attachment technology – Includes questions from how the poll attachments are created to how and whether they can modified online

Red: Content management – Includes questions on how the retrieved URL will be incorporated into the site, should special layout or display requirements arise

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Blue: Database