Tallinn University of Technology

School of Information Technologies

Department of Software Science

E-Governance Technologies and Services

Vadim Smirnov 192507IVGM

The project of the portal for fairs and public events as e-government service: perspectives and possible solutions

Master's Thesis

Supervisor: Jaak Tepandi

PhD

Tallinn 2021

Tallinna Tehnikaülikool

Infotehnoloogia teaduskond

Tarkvarateaduse instituut

E-riigi tehnoloogiad ja teenused

Vadim Smirnov 192507IVGM

Messide ja avalike ürituste portaali projekt e-valitsuse teenustena: perspektiviid ja võimalikud lahendused

Magistritöö

Juhendaja: Jaak Tepandi

PhD

Tallinn 2021

Non-exclusive licence

Plain licence for allowing the thesis to be available and reproducible for the public

I, Vadim Smirnov, 30.10.1985

1. Allow the Tallinn University of Technology without any charges (Plain licence) my work:

"**The project of the portal for fairs and public events as e-government service: perspectives and possible solutions**" supervised by Jaak Tepandi

1.1. to be reproduced for the purpose of conservation and electronic publication, including the digital repository of the Tallinn University of Technology, until the end of copyrighted time limit;

1.2. to be available to the public through the Tallinn University of Technology online environment, including the digital repository of the Tallinn University of Technology, until the end of the copyrighted time limit.

2. I am aware, that all rights, named in section 1, will remain to the author.

3. I confirm that by allowing the use of the Plain licence, no intellectual rights of third parties will be violated as set in the personal data protection act and other legislation.

Vadim Smirnov

10.05.2020

Author’s declaration of originality

I hereby certify that I am the sole author of this thesis. All the used materials, references to the literature and the work of others have been referred to. This thesis has not been presented for examination anywhere else. Author: Vadim Smirnov

……. ……..

Date *Author’s signature*

Acknowledgements

I would like to thank my supervisor Professor Jaak Tepandi (PhD) for sharing his experience and knowledge with me.
I would like to thank the library of Tallinn University of Technology and its personal for hospitality and long opening hours during the exam session, which enabled me and my teammates to spend a lot of time, working in the library. I am also grateful to my fellow students Serkan Koch and Natalja Vinogradova for their support, and friendship during our study. I am also very grateful to the whole eGov team, especially Ingrid Pappel, Anastasiia Dudko, and Karin Oolu, who always found a solution to our problems and answers to our questions.

And of course, I want to thank my family and my friends for supporting me throughout writing this thesis and my life in general.
Thank you!

Abstract and Foreword

In this Master's thesis, we discuss the prospect of creating an electronic state service in Estonia for holding fairs and other public events. In the introduction part of the thesis, I will explain research methodology, give theoretical background and define research questions. The main research question of the thesis will look at how we can determine that Estonia needs an e-service and how to determine what it should be. It supported by short research about similar existing Estonian e-services and the project perspectives in general.

After the introduction, the thesis is divided into seven main chapters, which are followed by the summary and conclusions. The scope of this work covers a short overview of the current situation in Estonia with e-government services, connected to this topic, sociological research, and perspectives of the creation of such a service. After that I will give an overview of the likely requirements of the project, develop a possible design and possible way to it implementation.

This thesis is written in English and is 70 pages long, including 10 chapters and 15 figures.

Keywords: agile, e-governance, e-services, Estonia, fairs, interoperability, public events, public services, project outcomes, stakeholders, waterfall, X-Road.

Annotatsioon

Käesolevas magistritöös käsitleme väljavaadet luua Eestis elektrooniline teenus laatade ja muude avalike ürituste pidamiseks. Lõputöö sissejuhatavas osas selgitan uurimistöö metoodikat, annan teoreetilise tausta ja määratlen uurimisküsimused. Lõputöö peamiseks uurimisküsimuseks on, kuidas saame kindlaks teha, et Eesti vajab e-teenust, ja milline see peaks olema. Seda toetab Eesti olemasolevate e-teenuste ja projekti perspektiivide põhjalikum uurimine.

Sissejuhatuse järel on lõputöö jagatud seitsmeks peatükiks, millele järgnevad kokkuvõte ja järeldused. Lõputöö hõlmab ülevaadet selle teemaga seotud e-valitsuse teenuste hetkeolukorrast Eestis, sotsioloogilistest uuringutest ja sellise teenuse loomise perspektiividest. Lisaks annan ülevaate projekti tõenäolistest nõuetest, töötan välja võimaliku projekti ja võimaliku viisi selle rakendamiseks.

See lõputöö on kirjutatud inglise keeles ja on 70 lehekülge pikk, sealhulgas 10 peatükki ja 15 joonist.
Märksõnad: Avalikud üritused, avalikud teenused, Eesti, e-teenused, e-osalus, juga, koostalitlusvõime, messid, projekti tulemused, sidusrühmad, vilgas, X-tee.

List of abbreviations and terms

ABR	*Administrative Burden Reduction*
API	*Application Programming Interface*
EC	*European Commission*
EIS	*European Interoperability Strategy*
eGA	*e-Governance Academy*
GDPR	*General Data Protection Regulation*
ICT	*Information and Communications Technology*
ID	*A form of identification, like an ID card*
ISA	*Interoperability solutions for European Public Administrations (public administrations, businesses and citizens)*
KIS	*Court Information System*
KPI	*Key Performance Indicators*
OGD	*Open Government Data*
UCD	*User Centered Design*
UN	*United Nations*

Glossary

Interoperability "*Interoperability, within the context of European public service delivery, is the ability of disparate and diverse organisations to interact towards mutually beneficial and agreed common goals, involving the sharing of information and knowledge between the organisations, through the business processes they support, by means of the exchange of data between their respective ICT systems."* (European Commission, 2010)

e-Goverment "*The delivery of government information and services online through the Internet or other digital means.*" (Darrell, 2001)

Open data "*in this paper understands OGD as an open system, influenced by its context and environment, where actors use human understandable, machine-readable, government collected and maintained data to drive transparency and the creation of public value."* (Mcbride K., 2020)

User-centered design *"is an iterative design process in which designers focus on the users and their needs in each phase of the design process. In UCD, design teams involve users throughout the design process via a variety of research and design techniques, to create highly usable and accessible products for them."* (Interaction Design Fondation)

Table of contents

1 Introduction

In my research, I will analyze the situation in Estonia by informing the population about fairs, festivals, sports, culture, and other events through e-services. First of all, I would like to point out that e-services are very developed in Estonia, which is recognized in many international studies. We have an X-road, Mobil ID, we are successful in developing ICT tools and EU strategy, including EIS, ISA, many e-government services and we even have an organization like the e-Governance Academy (eGA). Estonia's achievements in the field of information technology are cited by researchers, and then by the media. (Mallory et al 2019) In this regard, the issue raised in this paper may seem insignificant against the problems and challenges facing other countries. This thesis will also touch upon the eGA's experiences and assess their possible impact on the development of the proposed service.

The main research question can be divided into two parts. The first is to assess the state of Estonia's electronic services in the field of public events and related sociological research. In order to answer this question, we have to conduct a study in the field of existing electronic services created to inform the population about the events taking place. This study will allow us to understand how efficient and cost-effective the current system is. to answer the first question, a sociological study was carried out among the population, which will allow answering the question of whether such an e-service is needed by the population. Furthermore, to answer the first question, a sociological study was carried out among the population, which will allow answering the question of whether such an e-service is needed to the citizens of Estonia. The second question is what such a service should be and how best to organize it. In order to better answer this question, we will draw up requirements for the project of such an e-service based on existing practices and methods of creating electronic projects.

In this thesis, we will also consider the possible results and consequences of the implementation of such a project. In the last part of this thesis we will also have a look at a possible strategy for the implementation of such a project and on what role the stakeholders and the customer will have to play in this project. This master's work does not aim to create a working prototype of such a project due to its volume, complexity and the need for access to state and municipal databases.

1.1 The relevance of the topic

In this thesis, I examine the relevance of this issue from three perspectives.

1) From the point of view of practical benefits for Estonia in the case of creating a service for fairs and other events.

2) From the point of view of the evolution of the approach to the creation and development of state e-services.

3) From the point of view of the compliance of the proposed service with the strategy of creation and development of electronic services adopted in the EU and in Estonia.

The first point is important for Estonia, as it will reduce the costs of public events, which meets the goals and objectives of the e-services development strategy adopted by the Ministry of Communications (Government Coalition Agreement, 2017).

If this project is implemented and proves its effectiveness, then its experience may be useful for the EU, since *"the reduction of administrative costs is one of the priorities for the EU development"* (European Commission, 2014). Thus we can conclude that this topic is also relevant for the EU. Also, the topic is relevant on an international level, because the world is being more digitized overtime (Amelia Gunn, 2020). This means that countries also need to *"digitize their governments and services to be better accessible to the citizen, public sector employees"* (Välba K. 2016) and, as we can add, to business. As was declared first by World Bank in its report in 2002 and later by Misuraca in his research, e-government *"resulting benefits can be less corruption, increased transparency, greater convenience, revenue growth, and/or cost reductions."* (Misuraca, 2007, p. 26).

Another important aspect may be a change in the approach to the creation of public services in favor of their greater flexibility, democracy, and focus on the end-user which is also important for both Estonia and the EU (European Commission, 2018).

This thesis considers the option of creating a project that will be supported and developed not only by state IT specialists but also by representatives of local governments, as well as by citizens themselves. It is important because the number of

electronic services is constantly growing and the question of reducing the cost of e-services will arise over time.

1.2 Research problem

Estonian success in ICT and e-government area widely *"recognized in word and used as a story of success in many research"* (Kattel, et al, 2019). As we can see from the book e-Governance in practice (EGA, 2016), Estonia reaches most of the goals, set by the government. However, despite rather impressive results in general (e-Estonia showroom and e-Estonia.com), some areas still mostly forgotten.

We found that the organization of fairs and public events in the regions remains largely at the same level as 30 and 50 years ago. To understand the research problem, we need a description of the situation with fairs and public events in Estonia at the moment (the situation as it is). According to a survey of entrepreneurs, officials and local government deputies, a fair or other event today most often look like this.

Entrepreneurs arrive on the day of a fair or festival, look for a parking place (if there is any), then look for a person who collects participation fee, while most of the time the payment is possible only in cash, then entrepreneurs seeking a place for trade and for parking. All this takes time, so an entrepreneur should arrive early in the morning and instead of trading, deal with administrative problems. At the moment there is not a single place where an entrepreneur can find information about where, how, and when the fairs will take place, how much it will cost an entrepreneur to participate in them, it there is any Wi-Fi nearby (it is important because without internet customers can't pay by card).

At the moment, if it is necessity arose to find any reliable and accurate information about the fair, the entrepreneur should take the following actions.

All information needs to be searched for on the websites of different cities and regions, and there is no single place where one could get acquainted with it, which is inconvenient for both entrepreneurs and consumers, and for local authorities. Frequently this information doesn't exist on the city portal and can be found only in local

newspapers that are not distributed outside the city. Thus, the entrepreneur must first search for information on various regional and city sites in order to find all the available data. As a rule, there are not enough of them, but there is a contact for communication with the official responsible for organizing the fair or festival. And only he can answer all questions by phone or e-mail. This is an unproductive waste of time for both entrepreneurs and a city official who has to answer the same questions from different people over and over again.

This has created a situation when an entrepreneur, for example, from Tartu, will not go to the fair in Jõhvi or Narva, because he will not know about it. It should also be noted that fairs in different cities are often held on the same days due to a lack of awareness among local authorities. Ordinary citizens who came to the fair and bought a product will not be able to buy it again if they liked it, because there is no seller's data and it is not known when and at which fair it will appear again. Estonia does not have data on how people were interested in this or that fair, what format of such an event is more effective, how much money spend and how much money it brought in the form of taxes and fees, and how to make it more efficient, better, and more convenient for everyone. Despite the impressive level of development of government services and technologies in Estonia fairs and public events remain unaffected.

It should be noted that situation with festivals and music concerts better. There are several sites such as https://www.piletilevi.ee/, http://kuhuminna.ee/ http://laadale.ee/ and https://www.piletimaailm.com. These websites provide a lot of information about leisure and recreation for the average citizen, but they have a number of disadvantages.

1) All of them ignore fairs (beside laadale.ee) and free festivals (beside http://kuhuminna.ee/pere/), and none of them have full information about all events in Estonia. These websites cannot fully satisfy the needs of users for complete and timely information
2) These websites cannot collect or necessary data can’t make questionnaires or assessments for citizens.
3) As it was found out experimentally, all these portals are created primarily as information portals/e-shops and do not have the functionality required by entrepreneurs, consumers/citizens and city officials
4) All these portals almost completely ignore free events like local festivals, fairs, sporting events like marathons, spring and fall cleanups. Thus, we come to the

logical conclusion that information that is not profitable is not of interest to commercial websites.

5) If a state service is created on the basis of one of these services, the question of interaction between the state and the owners of a private website will inevitably arise. As we have been able to see recently on the example of Australia (Clayton, 2021), this is not at all a simple and not trivial question, as it might seem at first glance, since it affects a tangle of complex issues such as private property and state necessity, the fairness of the price set by a private service if it is a monopolist. etc.

The purpose of this work is to try to understand whether it is possible to change the existing order of things by creating an electronic service and platform for posting information. But to do this, first, we need to interview entrepreneurs, local authorities, and citizens and find out if they need such an electronic service and how it should look like. Further, based on their wishes, it is necessary to design such an electronic service and describe what functions there should be, with which databases it should be connected, and what requirements should be imposed on it. Thus, the final result of this work will be a study of the situation in Estonia with fairs and festivals as it is, research on how people (entrepreneurs, consumers, local authorities) want to see it, and the project of an electronic service based on these wishes. It would be great if this work formed the basis of a real e-service in Estonia and was implemented in one way or another. According to the author's idea, this master's work will have both theoretical and practical applications.

The question naturally arises as to why such a service has not yet appeared. This may be due to various reasons, which should also be considered separately. However, in this study, we first all need to determine what functions such an e-service could and should perform, what benefits it will bring to interested parties (the state, local authorities, entrepreneurs, citizens) and determine whether such a service is necessary or at least useful. It is also necessary to answer the question to what extent it fits into the concept of development of Estonian e-government services, and whether it will offer any new ideas for the development of existing Estonian e-services.

Before starting the research, we already knew that many entrepreneurs and some citizens and local deputies were not satisfied with the organization of fairs in the city of

Narva, Sillamäe and in the city of Narva-Jõesuu. However, this also poses a number of questions for researchers.

1) How representative is the sample?

Probably, the majority of the population is not close to such problems and their solution is not required.

2) If people are interested in solving these problems, can the creation of an e-government service be able to solve them?

3) Is it necessary to create a separate state electronic service for this, or is it possible to develop an existing e-service or even a local government website?

4) If there is a need to create such an e-government service, what problems can it solve?

5) What should be the e-government service in order to solve the existing problems in an optimal way?

In the interlude above, we have outlined the problem in general terms, but from a scientific point of view, it is necessary to clarify its importance for other stakeholders in Estonia. To solve this problem we used a survey, personal interviews with people on the streets, interviews with entrepreneurs with city deputies, city officials, and an Internet survey on the popular Ida-Viru County web portal seti.ee. These surveys are designed to find out the point of view of people on the problem of the lack of electronic services for holding public events such as fairs, local festivals, sporting events like marathons, spring and fall cleanup and etc. People were asked whether they would like to create such an electronic state service, in addition, various clarifying questions were asked. Although the problem of electronic services and technologies is widely covered in scientific literature, the description of specific services or changes to existing ones is quite rare. As an exception, for example, one can cite:

Cracking the Monolith: California's Child Welfare Services Disrupts Technology Procurement (A) Case Study Analysis & Solution", (Anjani Datla et al 2017). This study touched upon the transition of public services to new management principles such as "waterfall" and "agile". In our opinion, the new electronic government service will be more successful if it is initially built according to the principles of agile (or hybrid model) management and user-center design.

However, at the same time, it should be noted that there is no single research devoted to the need to create a service/platform for fairs and festivals. In this sense, this work will be innovative and new, since this topic will be touched on for the first time. At the moment, I have not found any research on this or a similar topic, information about which would be available in search engines such as Google Scholar.

For this work, it is necessary to conduct a survey of people (entrepreneurs, local authorities, and citizens) about whether they need a service with information about all fairs and festivals taking place in Estonia. It is also necessary to check with the Estonian Ministry of Economy which data collected by such a service/portal is most needed by the state. The preliminary survey shows that there is not enough information about the ongoing events, and there is a lack of coordination between the local authorities of neighboring cities and regions. Thus, summing up, we can shorten and simplify the objectives of our work to the following theses.

1.3 Research questions:

1) ***Research, if this new service is needed?***
   a) *What is a citizen opinion?*
   b) *What is the entrepreneur's opinion?*
   c) *What is local government's opinion?*
2) **What perspectives will have such project?**
   a) In terms of reducing the administrative burden
   b) In terms of implementation

The first task of this work will be to describe the situation as it is and to interview stakeholders.

1) Are the stakeholders satisfied with the current situation: fair organizers, local entrepreneurs and consumers/citizens?

2) Does local authorities need to change something in the process of organizing the fairs and festivals or not?

3) Will the creation of state e-service help the decision of problems, listed above?

The second task of this work will be to offer a project of such a service that would satisfy all stakeholders.

A preliminary survey shows that people are not happy with this situation, however, a larger study will be conducted and more people will be interviewed and subsequent analyses of their opinions and wishes will be carried out. As researchers, we need to understand what exactly stakeholders would like to change and what would they want to have from an e-service/platform for fairs and events? How much government could invest in such a project? How to make such a project more useful and profitable for Estonia?

What are the main research questions?

The result of this master's work should be an analysis of the current situation and a conclusion about whether the proposed service is needed or not and how it should be implemented. If such a service is needed, then the final of this work should be a project of such a service, which, if necessary, can be used.

1.4 Research methodology

The methodology of this work includes empirical and theoretical research. Empirical research consists of collecting primary information (survey, interviews, and online survey) and analyzing it. The theoretical part consists of searching for information on similar projects, selection, analysis of literature, critical analysis, clarification of terminology, systematization of information and comparative analysis.

1.5 Framework

At the moment, there are a number of studies on the theory of e-services, theories regarding e-services maturity, the experience of their creation and application, and

predictions regarding the digital transformation of society and government services. However, most of them concentrated on OGD as the most efficient tool for c-creation and co-production. Examples are:

1) I. Mergel, R. Kattel, V. Lember., (2018) "*Citizen-oriented digital transformation in the public sector*".
2) K. McBride, M. Olesk, A. Kütt, D. Shysh, (2020), *"Systemic change, open data ecosystem performance improvements, and empirical insights from Estonia: A country-level action research study"*.
3) V. Lember (2018), *"The Increasing Role of Digital Technologies in Co-Production and Co-Creation"*

In addition, much of the latest thinking about digitally enabled co-production is related to the idea of *"government as platforms"* (Linders, 2012). Fundamentally, platforms are *"frameworks that permit collaborators – users, peers, providers – to undertake a range of activities, often creating de facto standards, forming entire ecosystems for value creation and capture"* (Lember V. 2017, p 5)

We also should mention here *"Co-creating an Open Government Data Driven Public Service: The Case of Chicago's Food Inspection Forecasting Model)"* (K. McBride et al 2017).

These studies present what can be achieved with the help of digital technologies if society and the state work together. These works help to understand how the creation of e-services makes the work of the state more efficient and changes outdated approaches to many familiar things and problems. However, no materials could be found on the topic of creating such (or a similar) e-service/portal. Detailed overview of the research design which we plan to implement (including all methodological aspects).
That is applied research because this work aims to research practical problems, develop product and procedures.

1.6 Detailed overview of the research design

For this work, we will need first developing research questions to understand the situation and id such a service will be needed or not, does it important for the country and society or not.

Some or research questions already listed above in chapter 2 Introduction and chapter 3 Problem description. In our case, we have exploratory research aims since we want to describe the situation as-is and find what it should be for stakeholders.

That would be the deductive type of research since we going to develop existing e-government theories and inductive type of research since we going to research if such services/portal is needed and what it should be.

In this work we plan to use primary and secondary types of research data, using surveys, government surveys, and scientific publications. For this work, **quantitative research** (Bhandari, 2019) methods will suit more than **qualitative research** (Bhandari P. 2019) methods but we also need interviews or focus groups. This way that would be a mixed approach. In this work, we plan to stick with descriptive research type of research since we need do not conduct any experiment.

1.7 Strategy

As a strategy for this work, I intend to use the survey method and deductive type of research as was mentioned above. For sampling methods/techniques in this study will be used the probability sampling methods, to be more precise - simple random sampling since for this research is not important the age, gender, or nationality of people.

Data collection methods/techniques

This research will use the following data collection techniques:

interviews, **questionnaires**, and **relevant documents**. (Robert K. Yin, 2014)

Data recording/transformation/analysis methods/techniques

This study will use the following methods: statistical analysis and for this, we need to define data requirements then use, data collection, data analysis and data interpretation.

2. Stakeholder's survey

The main goal of this thesis is to analyze the need to create a service that is supposedly useful to the people of Estonia. Whether the creation of a new electronic portal will bring the expected benefits or not is a difficult question, largely related to how this project will be implemented. However, it is possible to make an assumption about the need for such a service/state portal in Estonia based on surveys. Of course, we are aware that people may be mistaken, that their opinion may be wrong, and that the electronic portal they deem necessary may end up being useless for one reason or another. However, in any case, the survey data gives a certain picture of whether such a portal is needed by different stakeholders, such as:

1) Entrepreneurs
2) Citizens
3) Local authorities (city, rural municipality, etc.)
4) State authorities represented by the Ministry of Economic Development.

In this paper, we follow the guidelines outlined in P. Nardi's book *"Doing Survey Research: A Guide to Quantitative Methods"* to avoid the most common mistakes while conducting surveys.

Among those, he indicated the following (Nardi, 2018, p 74):

1) **Biased questions**
2) **Limited sampling**
3) **Selective attention**
4) **Pseudoscience**

1) There are no biased questions in our survey, the proposed questions were detailed and informative. But they did not carry emotional coloring or assessments.
2) During the survey of citizens, questions were asked to completely random people who are representatives of different age groups, gender, wealth and social status. However, it should be noted that in a survey concerning entrepreneurs, limited sampling cannot be completely avoided, since the target group of people who will be directly affected by the creation of such a portal, however, they are also people of different ages, gender, and social status. They are only united by

the fact that they are private entrepreneurs, for the most part participating in fairs held in Estonia.

3) We do not promote selective attention since we don't suppose what other people feel or though. When the respondents were asked clarifying questions for one reason or another, they were always open and did not imply any limited choice of two or three options.
4) To prevent this work from becoming part of pseudoscience, the following interview methods were used - for polling citizens and entrepreneurs and quantitative surveys through questions by mail and a survey on the website seti.ee

Polls in the form of short interviews were conducted in Tallinn, Sillamäe, Narva, Narva-Jõesuu. Such a survey made it possible to find out the opinion of all citizens, regardless of how actively they use the Internet and electronic government services and thereby provide a more objective opinion. For the survey, random people were selected, regardless of age, gender and income, with the exception of children and very elderly people.

2.1 Results of a survey among entrepreneurs.

A question was asked.

Will the creation of a special state portal with the ability to get all the data in advance (like data and time of fair, parking location data and the ability to book a parking space in advance, available Wi-Fi, etc), leave your information for consumers and pay for participation in the fair help you in your work?

Answer options:

1) Yes, such a portal will help
2) No, such a portal will not help
3) I have no answer.

A survey of 50 respondents gave the following results:

1) Forty (40) people think that such a portal would help them

2) Six (6) people believe that they do not need such a portal, since they do not participate in fairs and don't plan to participate
3) Four (4) people Found it difficult to answer

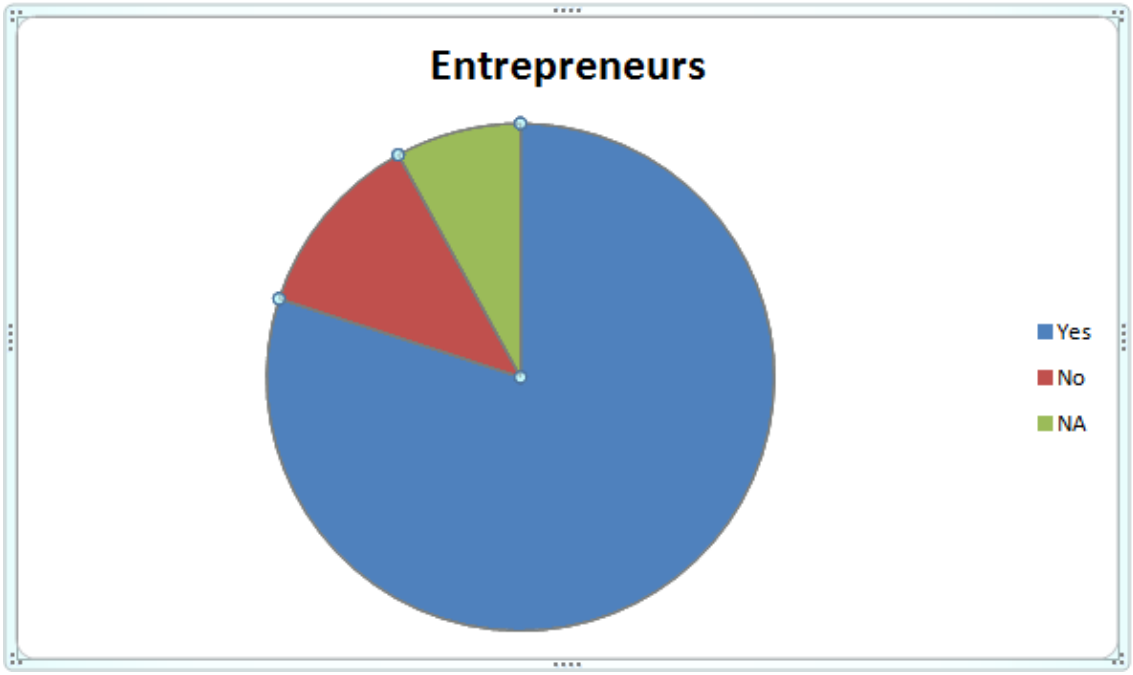
An explanation is needed here. Almost everyone who sells goods in shopping centers such as Centrum is self-employed and almost all of them participate in fairs. Therefore, this survey makes sense, since they are one of the target groups of this study. According to their confessions, their income for two days of the fair sometimes reached a monthly income at normal times (without fairs).

It should also be noted that entrepreneurs who found it difficult to answer are women of pre-retirement age who are not sure that they will be able to properly take advantage of such a portal if it is created. We will give one of the answers as a typical example.

"Well, I don't know, this is a difficult question. Here it is necessary to look at what kind of portal it will be, whether I could figure it out or not, I am not very friendly with the computer." (Galina Pivovarova)

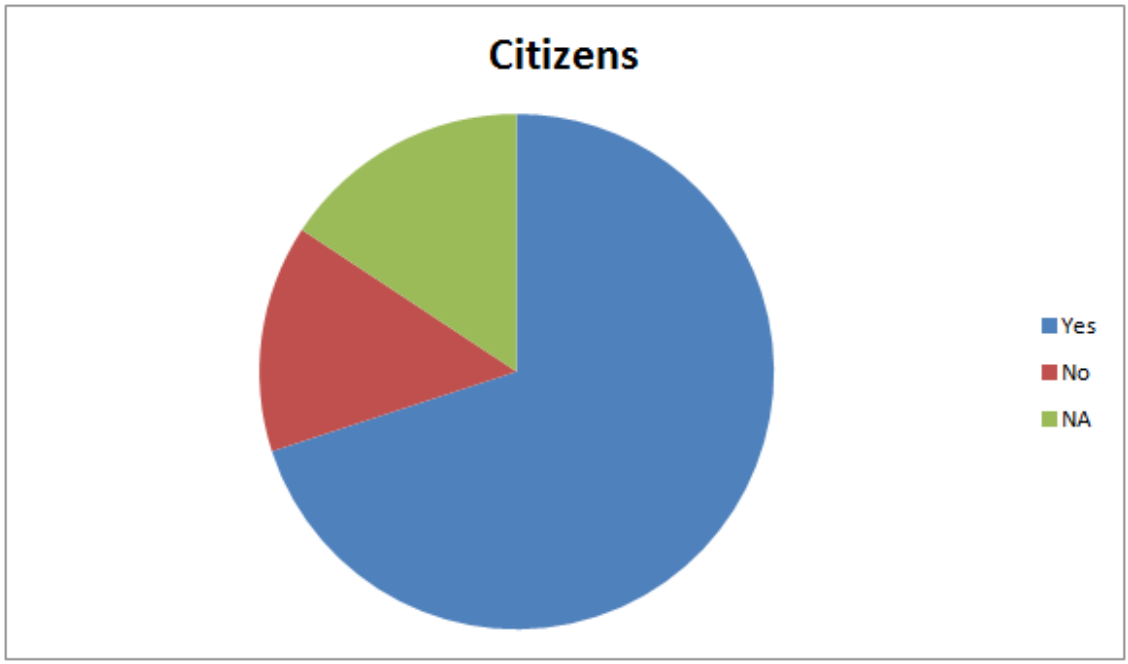
That is, doubts arose mainly due to the low skills of the respondents in working with information systems.

The survey of entrepreneurs was also conducted in the form of interviews.



2.2 Results of a survey among citizens

A survey was conducted among the population of the cities of Tallinn, Narva, Sillamäe and Narva-Jõesuu about whether they need such a portal and whether they will use it.
70 people were interviewed and the following results were obtained.
Question.
Would you like to have a state portal with the ability to receive all information about fairs, festivals, and other events taking place in Estonia in advance? A portal where you can find contacts of local producers and find out how much money was spent on certain social events.
1) Yes - 49
2) No - 10
3) I find it difficult to answer - 11



Citizens who felt that they would not need such a service were asked clarifying questions.
After clarifying questions and a request to clarify what exactly caused the negative reviews, the citizens gave the following explanations.
1) I don't go to fairs. Therefore, I do not need such a portal - five (5) respondents

2) I do not use the Internet and these portals will not help me in any way - three (3) respondents

3) Two respondents (2) did not state the reason.

As we can see such a project opposed by citizens who believe that they will not need such a service. They explained this by the fact that they do not go to fairs and public events or go to them very rarely and therefore they personally do not need such an electronic service or because they not use electronic services.

However, it should be noted that some of the people who are not going to use this service in the future voted "yes" in the poll. They explained this by the fact that what is good for society should be developed, even if it personally does not bring them any benefit.

The survey of entrepreneurs was also conducted in the form of interviews.

The survey was conducted among people not only with different incomes and social status but also with varying degrees of awareness of the situation with the organization of fairs and festivals, including among the acting officials and deputies of the city assemblies of Narva and Narva-Jõesuu (T. Pagajeva and V. Mizui)

2.3 Results of a survey among peoples on websites

The poll was conducted on the website of the seti.ee and gave the following results.

(https://www.seti.ee/modules/AMS/article.php?storyid=12584)

A question was asked.

Would you like to have an electronic service for organizing fairs in Estonia?

There also was an additional explanation.

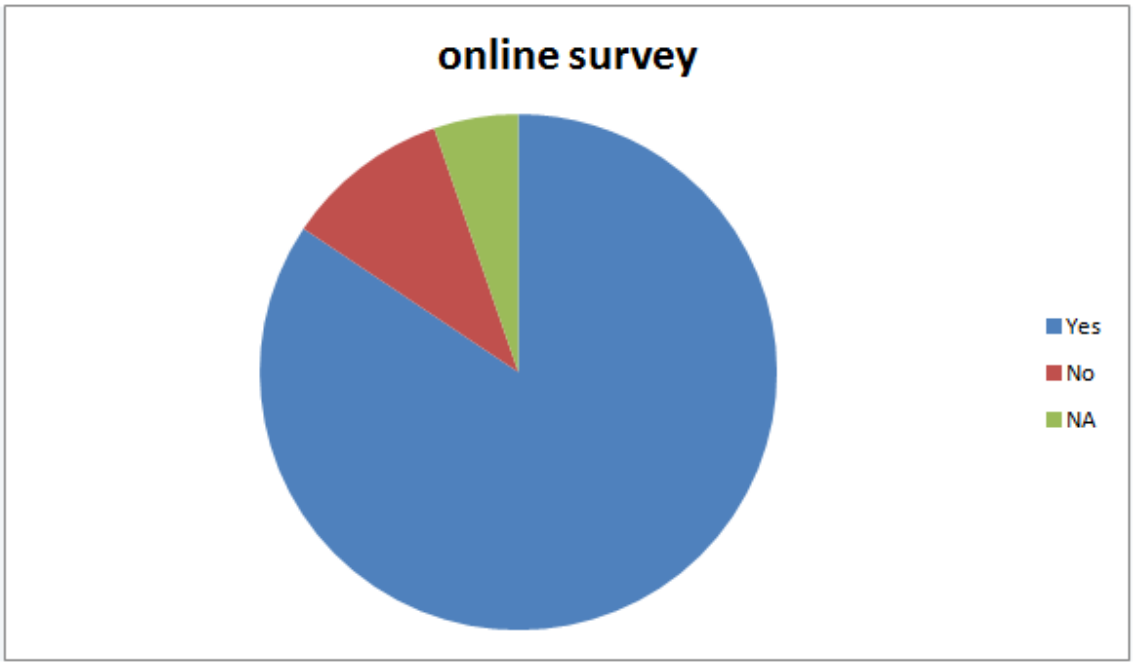
It is assumed that this portal will have a calendar of fairs and festivals, where it will be possible to find out all the necessary information about the place and time of fairs and festivals in different cities and villages of Estonia. Also, on this portal, it will be possible to resolve (pay) all issues with renting a parking lot and a place of sale (if you are an entrepreneur), pay in advance to participate in the fair and post information for everyone who wants to buy goods.

A survey gave the following results:

1) Yes - **84.39%** (319)

2) No – **10.32%** (39)

3) NA - **5.29%** (20)



Local governments of Narva and Tallinn have not planned such projects and are not yet ready to assess their possible usefulness.

The reaction of the Ministry of Economy and Development was the same. At this moment, not Ministry of Economy and Development planning such projects and are not yet ready to assess their possible usefulness. A survey among local municipalities shows that at the moment, the city authorities (Narva, Narva-Jõesuu, Tallinn) find this idea interesting, but no one is developing such a project.

2.4 Analysis of the stakeholder's survey and requirements

As clearly follows from the results of the polls, the majority of the respondents would like to create the proposed portal and find it useful. The indicators of online polls and live interviews on the street differ, which is quite logical since people answering questions on the Internet are more inclined to use it to find information than the Estonian population on average.

Having determined through the data collected through surveys that this portal is needed by stakeholders, we moved on to the following questions:

1) Why do they need it?

2) What the stakeholders want from this e-service?

3) What problems should solve this project?

4) What kind of e-service should be in order to meet the interests and requests of all stakeholders?

Based on this, it will be possible to roughly imagine the required functions and design of the e-service project.

But in order to answer these questions, we first had to ask them to all stakeholders. Then we had to collect them and analyze them, which we did.

3.5 Conclusions from stakeholder's survey

The final goal of local governments can be summarized as follows.

Receive a convenient service that will allow them to organize any public events faster, cheaper, and with less effort, coordinate all controversial issues with local governments, receive feedback and the most complete information about how such an event went.

Summing up the wishes of different parties, it can be stated that all interested parties, in theory, can get what they want, since these desires generally do not contradict each other.

The final goal of local governments can be summarized as follows.

Get a convenient service that will allow them to organize any public events faster, cheaper, and with less effort, coordinate all controversial issues with local governments, receive feedback and the most complete information about how such an event went.

Summing up the wishes of different parties, it can be stated that all interested parties, in theory, can get what they want, since these desires generally do not contradict each other. Digital services are always a superstructure over the real sector, something that allows you to use its resources in the most efficient way to achieve optimal results. And if local authorities hold some kind of fairs and events, then at a certain point in time

there will be a need to create a service. described in this work. and here we come to the question of how the proposed project can be useful for Estonia.

Firstly, it is better to initially create such a project as a single one for the whole country, because if each region of the country tries to create something similar, then the costs of such services will be 15-20 times higher. Such an assumption is made on the basis of the fact that there are 15 regions in Estonia, in addition, large cities such as Tallinn, Tartu, Narva and Pärnu may try to create their own analogs of such a service. The practice of Switzerland led to similar results when creating its own electronic services for each canton but on a completely different scale. Each canton created its own electronic service and in 2005 it became clear that this was not the optimal policy. (Fraefel, et al, 2013). Estonia is much smaller and much poorer than Switzerland, at the same time, thanks to reasonable centralization, it has advanced much further into e-state technology and it would be simply unreasonable to repeat other people's mistakes today, which are almost 20 years old.

In this project, we propose to take into account the mistakes made earlier when creating an electronic service and use a user-centered approach. Previously, very often, even critical services were created without regard to users. An example of this can be the story of the development of the Estonian Judicial Information System (KIS). During creation of it *„became clear that the first two iterations of this system did not achieve their goal"* (Asgarova, et al, 2020). KIS made it easier for judges in some aspects of their work, but at the same time, the system created new problems. Not all KIS functions worked as they should, and the staff was not trained to use the new system. The problem arose because during creating KIS work group used the waterfall development method familiar to software developers, and only in the third iteration of this system did its creators realize their mistake and switched to user-centered design.

In this case, we will allow ourselves a quote from our previous work on KIS, which explained the essence of the problem. *"Waterfall methods of system design involve outlining a clear set of objectives to be completed within a certain time frame and budget. It includes objective stages that align on a continuum, which layer development features on top of another in conjunction with the criteria defined by the project."* (Asgarova, et al, 2020). Carraro illustrated waterfall method this way.

(Carraro, 2011)

As we mentioned in our work above "IT development departments in private and public sector applied a waterfall method for a variety of reasons, *primarily risk aversion"* (Asgarova, et al, 2020).
As we also noted in our work, *"Waterfall method offered a tried and tested formula that both management and finance departments were clearly able to define and apply." (*Asgarova, et al, 2020). However, it also have drawback, and *"in worst case scenarios ... the project might not be nimble enough to adapt to changing requirements of the user"* (Asgarova, et al, 2020)..

It is exactly what can happen if we will use waterfall methods for the proposed e-service (e-fairs project). It can also create problems when interacting with IT departments of local governments. The User-Centered Design *"prevents that the risk exceeds the investment required for each iteration"* (Carraro, 2011). As we mentioned in our work it is *"average 35% more efficient than the waterfall methodology due to better requirements definition and better control of deviations"* (Carraro, 2011). With UCD approach *"the project is broken into smaller iterations: testing, with the user at the center of the project, targets the requirements of the user more directly" (*Asgarova, et al, 2020).

In our study, we found that mainly the problem with KIS was lack of user-centric design. It is difference and disconnection *"between the needs of the user and competing interests that we observed through our interviews"*. (Asgarova, et al, 2020) As we observed from the experiences of different stakeholders, the court system had a *"lot of issues of complexity and difficulty with coordination on technical, cultural, and change management levels."* (Asgarova, et al, 2020). Therefore, the repetition of such mistakes must be avoided. As practice shows, this is possible. The story of California can be taken as an example.

Agile and end-user focus approach combined with government data (OGD) achieved even more impressive results in California and Chicago cases (Anjani Datla, et al, 2017), *Cracking the Monolith: California's Child Welfare Services Disrupts Technology Procurement (A) Case Study Analysis & Solution*, (2017).and *Co-creating an Open Government Data-Driven Public Service: The Case of Chicago's Food Inspection Forecasting Model* (K. McBride, et al, 2017),. At the moment, there is a fairly wide discussion among experts about the waterfall versus agile approach in e-government service development and we and we suppose that in our project a flexible (including hybrid model) approach is much better suited.

When discussing possible user-centered design and user-friendliness, we must not forget about the required support for this service (Appendix 6). Problems will inevitably arise anyway. In addition, even the most user-oriented design does not equalize the average user without a technical background with an IT specialist (Howcroft et al 2003 p 8-10).

One of our main goals is to increase efficiency and reduce costs, and as we know, this is digitalization's main purpose. *"Digitalization can increase efficiency and productivity while reducing production, transaction and trade costs."* (UNCTAD, 2019)

The novelty of this project lies in the following points:

1) It involves assembling a service based on existing solutions and existing databases. Previously, all projects in Estonia were created from scratch, here it is also planned to combine the existing municipal databases

2) It will be a network project uniting all Estonian local governments and their joint work in this project

3) There will be an open platform for discussing local problems, which is not available in any state service of the Republic of Estonia.

4) This project will allow the coordination of the work of local governments, entrepreneurs, and civil society, which has also not been previously practiced in public services.

5) This project, if successfully implemented, will not only reduce costs and increase government revenues but also increase the level of transparency and democracy at the grassroots, municipal level, which is also a new word in Estonia's electronic services.

6) This project should initially be created on the principles of user-centered design
7) The project initially implies constant development and addition of new data by different users (representatives of the state, as well as representatives of city and rural municipality administrations).
8) This is an initially proactive project that will allow you to send invitations to participate in fairs or other events to categories of people who are affected. So, for example, all entrepreneurs, whose data is in the business register, will be able to receive notifications. All schools, sports clubs and clubs will be notified of sports events, etc.

In the previous chapters of this study, we have already proved that there really is a need for some kind of e-government service to fix the current situation. However, this raises a number of questions, the main of which is the following.
What should such a service be like?
Above we have described what principles it should be built to meet the requirements of modern public service, but they do not explain what kind of functionality should be present in such a service. Moreover, this creates a new question - who exactly should determine the functionality of this e-government service? At first glance, the question may seem strange, because for decades educated, experienced people who were in the public service have been engaged in the creation of services, and this service will also be created by the Estonian government. However, if we look at this question from a different angle, the answer becomes less obvious.
However, if we look at this question from a different angle, the answer becomes less obvious.
This service will be used by
1) Entrepreneurs
2) Municipal authorities
3) Citizens
4) Statistics Department of Estonia
5) Ministry of Economic Affairs and Communications of Estonia
This means that it is their opinion that you need to ask about what should be in this service and, based on the data received, create something that satisfies the majority.

3 Requirements for e-service

When considering a possible option for creating such an e-service, we must, first of all, identify the stakeholders. In our case, these are 4 main groups:

1) ordinary users (citizens and tourists)

2) Entrepreneurs

3) Organizers

4) local authorities

We believe that in most cases points 3 and 4 will coincide; however, it is quite likely that points 1 and 3 or 2 and 3. That is, active citizens could be organizers of some events (for example, clean-ups) or entrepreneurs acting as the organizers of an event.

In this case, we think that we can support Karin Axellson, that ”*the stakeholder concept often used when describing and analyzing private firms, can be fruitful to use in the e-government context as well*” (Axellson et al., 2004, p. 84).

3.1 Requirements for service from entrepreneurs

Entrepreneurs want more information and spend less time getting information and registering to participate in fairs, as well as finding a place for trade and parking.
1) Entrepreneurs want to be able to receive information through mailings and/or electronic portal. At the moment, you can find the calendar of the fairs in the formats of a pdf file. But the data in it does not always correspond to reality, since after publication at the beginning of the year it does not change, and sometimes events of irresistible force, force majeure occur (like Covid19), which is not reflected in this file in any way (no one is editing it). And if there is a certain shift in the event, in time or by day, say from Saturday to Sunday, then it would be great to receive a notification about this and learn about it in advance, and not after the fact, upon arrival at the event with a load of goods.

2) An interactive map of the area, where you can reserve places in advance when paying the participation fee. It should look something like booking a seat on a bus on luxexpress.eu or booking a seat in a movie theater. Such a system will allow you to immediately book a parking space and a place for trade. This is important because at the moment the best seats are received by the one who arrives earlier than everyone else, which makes entrepreneurs waste their time and come long before the start of the fair to get the best seat.

3) Possibility to pay for participation in fairs through an electronic bank. Now such a payment in some places is still carried out in cash locally (Narva, Narva-Jõesuu, Sillamäe), which is not always convenient.

4) Entrepreneurs want to be able to see all the fairs in the vicinity, for which they need a database and a data filtering system, for example: make a possible query like this.
Fairs only in Ida-Virumaa from 01.01 to 30.10. Also necessary to make the function of filtering data by the city, for example, user can choose Sillamäe, Narva, Narva-Jõesuu, etc. It is also desirable to make the function of filtering data by the parishes and districts. It is especially actual In the case of Tallinn, where a population of one district like Mustamäe or Lasnamäe outnumbered population cities like Sillamäe, Jõhvi, and Kohtla-Järve.

5) The ability to post information for communication (or information about your products), get feedback, listen to suggestions, find colleagues involved in a related or similar business to organize joint work.

6) A forum for communication and a means of obtaining information. Usually, government services do not use this tool. All information is posted on the pages, instructions and FAQs (frequently asked questions) are made. But in this case, it is the forum that can be the optimal form of interaction between citizens/consumers and entrepreneurs. There it will also be possible to discuss the advantages and disadvantages of certain goods, events, time and place of organizing a fair or festival, ask questions that are not in the standard FAQ and which will inevitably arise. It will also be possible to arrange polls and questionnaires there. Now there are no polls on the topic of whether the population of a city, rural municipality or district is satisfied with the format, place, time and organization of the fair or festival, or they need something else. Moreover. often local authorities have to pay to advertise fairs on third-party resources (websites and newspapers). Examples:

https://www.seti.ee/modules/news/article.php?storyid=114240 and https://www.seti.ee/modules/news/article.php?storyid=113774

Also, the forum can become a place of communication for entrepreneurs and local authorities, serve as a basis for the creation of some kind of joint projects in the future. Coordination of local authorities and entrepreneurs can be s the basis for social partnership and joint projects.

According to Bainova, ”*social partnership is the interaction of state institutions and civil society (government structures, trade unions and associations of employers, and entrepreneurs)*” (Bainova et al., 2017, p.111).

In our case, it is possible to expand the use of the term social partnership by adding all interested parties to it, and not be limited only to employees and employers, as the authors of this term suggest.

3.2 Requirements for service from citizens

The requirements of ordinary citizens and tourists (which in this work are not singled out as a separate group, but also referred to as citizens) differ from the requirements of entrepreneurs and organizers. It turned out that the simpler and fewer functions, the better it will be for citizens.

1) Receive up-to-date and accurate information about where and when public events, festivals and fairs will take place. This is especially true for tourists, which is not yet relevant now, in the era of the coronavirus, but it was a problem before that and will become it again in the future when the pandemic will be defeated.
2) Citizens want to have access to detailed information about the event program on the Internet (it is not always available).
3) Citizens want events in neighboring cities, if possible, not to take place on the same day. It has happened more than once or twice that an interesting event takes place in Narva-Jõesuu, Sillamäe and Narva on the same day, which many

people would like to visit. After all, if possible, you can spread these events on different days and, for example, hold one festival in Narva-Jõesuu on Saturday and the second one on Sunday in Narva. Now no such approvals are being held at the official level (there is no reliable information about agreements at the personal level).

4) Citizens want to have information about what products were at the fair, how to get them, how much they cost, etc.
5) Citizens want to have access to information about how much money local governments have spent on holding a particular fair or festival, and what this money was spent on. Also, people may be wondering who sponsored these events, how much money was raised through the charity lottery, and what he went to and other questions. Such transparent reporting, in fact, is beneficial for local governments as well, since it will avoid political scandals and accusations of corruption and unnecessary spending to gain votes before local elections.
6) Citizens want to be able to influence the conduct of festivals, fairs and any other public events. Since all these activities concern them in one way or another and are often financed from their taxes, people want their voices to be heard and taken into account by local authorities.

3.3 Requirements for service from government

In this case, we are empirically trying to present what the state needs since we do not have sufficient material to draw such conclusions based on the words of experts and Estonian officials on this issue. However, we have the program documents of the Estonian government and we know the direction in which the state wants to develop electronic services, so we can confidently assume how our service can help the Estonian government.

1) The state needs support for small and medium-sized businesses (a fair is a direct advertisement of goods and services of local entrepreneurs). As we know only after a service has been registered and advertised, it can be discovered by customers. (Casati et

al 2001) It also would be a good idea to exempt local producers and/or local entrepreneurs from participation fees.

2) The state needs to increase the collection of taxes. Support for small and medium-sized businesses among local entrepreneurs will already increase tax collection, but besides this, two more points should be taken into account:

a) With a high degree of probability, if such a service is created, both the number of entrepreneurs and the number of citizens will increase, and, consequently, income.

b) There will be more complete information about participating in fairs (both entrepreneurs and buyers) and more complete information about the income of entrepreneurs, thereby reducing the share of the "gray" sector of the economy.

3) The state needs to have actual and complete information about the state of business and entrepreneurial activity in the region. It is very easy to register your company online in Estonia - it can be done in 20-30 minutes. However, the process of closing a non-performing company will take much longer and may take years. Therefore, having additional indicators of business activity, the state, with the help of the created service, will be able to collect more accurate data on operating companies in the regions.

4) The state needs to know the level of satisfaction of citizens and entrepreneurs with the work of local governments.

5) The state needs to know cost-effective/profitable the festivals and fairs were in comparison across different regions. Based on this information, it will be possible to analyze and draw up a number of recommendations for local authorities on measures to hold such events, to attract tourists with their help, etc. And this can become one of the steps towards creating the digital economy of the future when the array of processed data allows making sufficiently accurate forecasts and making the most useful recommendations.

6) Complete and transparent information on the cost-effectiveness of local governments for various public events also will benefit the state.

7) The state needs a convenient platform for conducting polls and counting opinions t save money on social advertising.

3.4 Requirements for service from local authorities

In our case, local authorities would like to work with less effort, that is, to automate the performance of their duties as much as possible. For example, a local government representative does not want to waste time sending an invoice for participation in a fair to an entrepreneur, let it be better done automatically by an algorithm.

1) Local authorities need the opportunity to inform entrepreneurs not only through websites and newspapers but also by direct mailing to all enterprises of a particular field, registered in the ariregister system (register of entrepreneurs). They can now send out invitations to participate in fairs to local entrepreneurs who are listed in their local databases. But if this project will combine databases of all local governments via X-Roads, then the state will receive much more accurate information about the state of affairs in the economy, which will have a positive effect on its manageability and development opportunities. This is another step towards real-time regulation of the economy, which is one of the priority tasks of Estonia.

2) Local authorities need the opportunity to send mass invitations to creative teams and offers to participate in public events.

3) Local authorities need the opportunity to simplify the organization of events (festivals, fairs, marathons, etc)

4) Local authorities need the opportunity to automate payment for participation in events and simplify the placements of participants.

5) Local authorities need accurate final figures: how many people attended the fair, how much money was spent/earned, what is the level of satisfaction with the event, how many locals and how many tourists took part in it. Also, such a service will allow you to more accurately answer the question of whether this event was more successful in terms of attracting citizens and making a profit, or, conversely, less successful. Moreover, over time, statistics will be collected that will allow local authorities to determine which activities are more successful and which are less successful and find out why optimizing their costs.

6) Local authorities need the opportunity to coordinate fairs and festivals with neighboring municipalities for greater efficiency.

7) Local authorities need to have feedback from participants in fairs, festivals, and other events (including fairs, festivals, cleanup, marathons, etc.)

4 Possible results and outcomes

Let's suppose that the result of this work interested the Ministry of Economy and Development and the proposed project was implemented. We should consider the possible scenarios for the development of events.

1) The optimal (best) result may be something like the following.

1) The portal has been created

2) Databases of different municipalities are combined and successfully integrated.

3) The portal has been successfully launched and functioning.

4) FAQ is written and usable.

5) Representatives of local governments know about this resource and know-how to interact with it.

6) A person responsible for this resource has been appointed.

7) The work was exactly as discussed and written down in the contracts, in full, on time and did not go beyond the budget.

8) The population of the country and tourists learned about this portal through social networks, popular sites, social advertising, billboards and other sources of information.
9) All set goals have been successfully achieved.

4.1 Positive result and outcomes

Achieving the results described above led to the following outcomes.
1) Increase the coherence and coordination of the work of local governments. A new tool for horizontal communication between neighboring cities, counties and local governments will appear
2) The awareness of citizens about local firms and manufacturers will increase.
3) As a consequence of point three, the role and importance of the domestic market and local producers will increase
4) Tax collection will increase (both in relative numbers, percentages, and in absolute terms)
5) There will be a new way of coordinating civil society
6) It will make it easier to hold public events, which over time will lead to an increase in their number, which means that Estonia will become more attractive for tourists and entrepreneurs.
7) The level of internal discipline in local governments will increase. As we have known for a long time, people can lie, and logs usually do not cheat and it is easy enough to determine who is to blame for making a mistake or simply not completing it.
8) The level of transparency in the conduct of public events for civil society will increase. People will see how much money local authorities spend on organizing public events and on what, how much private sponsors contribute and what, etc.
9) Better awareness of spending and its effectiveness will enable local authorities and the Estonian government to make more informed and rational decisions.
To achieve such results, we will need:
1) Funding
2) Specialists
3) Good project management

In particular, point 3 requires, according to Mihkel Lauk, 2019:

1) Appoint a responsible person

2) To know the stakeholders and their opinions and desires on this issue, participate in the process, and invest in relationships.

3) Make an e-Service Strategy creation – plan policy, impact of the change for all aspects of the organizations involved (local governments, Ministry of Economic Affairs and Communications):

a) Organizational setup, split of responsibilities;

b) Changes in the processes;

c) Changes in the knowledge required for the changed processes;

d) Changes in the ICT tools enabling the e-service. {Mihkel Lauk, 2019}

Also necessary:

Setting the KPIs supporting the evaluation and assessment of the project.

Risk management - all important risks must be considered during the planning phase in order to properly plan their mitigation.

Project proposal and plan creation – the initiating & planning phase has to end with the comprehensive document package, which is an input for the budgeting phase.

Complex analysis, which should include Business process analysis, Architectural analysis, and Regulation analysis (Mihkel Lauk, 2019}.

It is already obvious that good project management important in every software of an e-government service project. As we know,*"good project management skills does not completely eliminate problems, risks, or surprises."* (Barron M, et al, 2020, chapter 2). But in same time, *"applying good project management discipline is the way to help reduce the risks"* (Barron M, et al, 2020, chapter 2).

4.2 Negative result and outcomes

A negative result (worst) result can be something like the following.

1) Databases of different municipalities for one reason or another have not been combined

2) The portal has been launched but is not fully functional.

3) FAQ is not written or leaves a lot of questions

4) Some representatives of local governments know about this resource, but do not know how to interact with it

5) Responsible for this resource has not been assigned

6) The work was not completed in full, the performers did not meet the deadline or went beyond the budget

7) The population of the country and tourists do not know about this portal. No work has been done to draw attention to this project through social networks, popular sites, social advertising, billboards and other sources of information.

8) Not all goals were successfully achieved

9) Loss of funds spent on this project.

Failing to achieve desired results led to the following outcomes.

1) There was no increase in the coherence and coordination of the work of local governments. There is no new tool for horizontal communication between neighboring cities, counties and local governments

2) The awareness of citizens about local firms and manufacturers has not increased.

3) As a result of point three, the role and importance of the domestic market and local producers did not increase

4) Tax collection will not increase either in relative or absolute numbers

5) There will be no new way to coordinate civil society

6) The holding of mass events will not be facilitated, but on the contrary, it will become even more difficult due to a bad portal that cannot be used

7) The level of internal discipline in local governments will not increase.

8) The level of transparency in matters of holding public events for civil society will not increase. People will still not know how much money the local authorities spend on organizing public events and on what, how much private sponsors contribute and what, etc.

9) The level of awareness of spending and its effectiveness will not become higher and will not allow local authorities and the government of Estonia to make more informed and rational decisions.

10) Lessons will be learned from unsuccessful project implementation.
In this case, it will be almost more difficult to achieve a completely negative result than a positive one, and this is possible only if the funding is completely spent on something else and nothing is done at all.

4.3 Mixed result outcomes

A mixed result in our case means that result is acceptable, but not optimal which will mean the implementation of the project in general, but not all of the goals will be achieved. Outcomes are mixed, some points accepted, some not. This project may well be working, even if it is not optimal, and some goals cannot be achieved at the first attempt to implement it.
But even in the case of a mixed result, the movement towards the implementation of this project will lead to its successful implementation, if not on the first, then on the second attempt. Over time, digital infrastructure will complement and optimize all spheres of human life. The project proposed in this work is based on the need to supplement the existing infrastructure which will become increasingly important both for citizens/consumers and for local producers and local authorities.
Many have already written about the need for cooperation between civil society and the state through joint work on projects important for the country.
This, for example, was mentioned by McBride.
"As co-creation requires the involvement of non-traditional stakeholders, any technologies that removes or decreases the barriers for stakeholders to participate in co-creation would theoretically allow for more co-creation and thus higher levels of public value." (McBride et al, 2017, p. 89)

In our case, such *non-traditional stakeholders* are citizens and entrepreneurs since it is because in our case, entrepreneurs do not mean investors who create a project with their own money, but another large amorphous group of the population, which does not directly affect the project at the stage of its implementation.

4.4 Possible advantages for stakeholders in case of success

As already written earlier, this project, if successfully implemented, will benefit all its participants and stakeholders: local authorities, entrepreneurs, citizens and the state (central government).
With a slight exaggeration, we can say that the implementation of this project will help everyone living in Estonia, as well as tourists visiting it.

1) A unified calendar of events will increase awareness of all people who want to participate in the fair, be it customer or entrepreneur. This will enable entrepreneurs to better prepare and organize their commercial activities during the fair period, and local governments will not hold fairs at the same time and will be able to partially use the best practices and experience of other local governments, which will save on costs and advertising (the principle of cooperation). The population also benefits - people can plan their attendance in advance, as well as attend events not only on their own but also in neighboring municipalities. It also will benefit the government since it gives more information to predict tourist and economic activity. All four primary stakeholders will benefit.
2) Creation of a unified database of local entrepreneurs working in the domestic market and interested in regular participation in fairs will benefit government and local authorities. By combining the local databases of business departments with this service, it will be possible to filter out all operating enterprises operating in a particular field (for example, food or agriculture) and invite them to take part in the fair. The same applies to entrepreneurs organizing leisure activities at these fairs. In this case, entrepreneurs also will benefit from the creation of a unified database. It can be assumed that more entrepreneurs mean competition, which means lower prices and higher quality and can benefit citizens. All four primary stakeholders will benefit.
3) The proposed project can be real support for local entrepreneurs. The fair is not just a place of trade. This is, first of all, the development of local business (the most effective advertising), assistance in establishing corporate ties, as well as ties between entrepreneurs and local governments. For example, in the entertainment business, it is very difficult for entrepreneurs to attract the mass of people that usually go to fairs

during normal times. The entrepreneurs, local authorities and the state will benefits from such a portal in the medium term (from 5 to 15 years).

Entrepreneurs will make a profit and possibly expand their production, having more opportunities to market their products. This means they will pay more taxes, from which they will benefit local governments and state.

4) The creation of such a service will also allow the state to support entrepreneurs through co-financing. For example, support for business participants by paying for their participation in fairs (payment for a place) or paying for the travel of residents from another local government to the place of the fair (free bus). This creates convenient leverage for better government control of the market. In other words, the state will develop this service and become a regulator of market relations for Estonian entrepreneurs. It will be possible to support the development of a particular industry, be it agriculture or some others. Co-financing from the state will benefit entrepreneurs, the government and local authorities. It will not benefits citizens in a short-term perspective (about 5 years), since such support will divert resources from some other social projects, but will be profitable for citizens later in the mid-term perspective (from 5 to 15 years). Such tools are necessary for markets to be properly regulated in order to prevent market failure. (Bailey, 2018 p 1-2)

5) Such a service will help to advertise the products of local entrepreneurs by attracting them to fairs and this can and most likely will increase local entrepreneurial activity. Entrepreneurs will benefit most from this point and to a lesser extent local authorities and the state. Indirectly, the residents of the country will also benefit, because more taxes coming into the treasury means more funds for social projects, which one way or another will affect most of the inhabitants.

6) Such a portal will give more transparency of costs and expenses for organizing and holding fairs, festivals and other public events (state and public control).

On this site, for example, you can publish open data on the costs of holding a particular fair, which will increase the transparency of municipal expenses and reduce corruption.

It is possible that such a prospect is causing resistance from some representatives of local authorities. However, it should be noted that in the long term, this item will bring more benefits to local governments themselves, since they will somehow have to carry out digitalization and unite their bases for better awareness of the state and ministries, and it will be cheaper and better to do this centrally within the framework of a common

for all areas of the project, rather than reinventing the wheel 15 times (according to the number of regions in Estonia) by combining the databases of each local government with the state databases each time in a new way. Citizens and central government will benefit most from this point, but it also will benefit local authorities in medium to long terms perspectives.

7) Creation of a convenient service where entrepreneurs can book participation in advance and pay and pay the necessary expenses. At the moment, they pay in cash on the day of the fair, which is not very convenient and not transparent enough. Entrepreneurs and local authorities will benefit most from this point, and to a lesser extent state.

8) Determination of the effectiveness of the fair in one format or another

For example, you can arrange a lottery among those present. Based on the number of applications, it will be possible to roughly guess how many people were at the fair. It is also interesting to know the ratio of the number of visitors to the fair and the amount spent on holding the fair by the municipal authorities. It is another point where citizens and central government will benefit most from this point, but it also will benefit local authorities in medium to long terms perspectives.

9) The state will receive the necessary data which help to understand the needs and perspectives of cities and regions of Estonia. In this case, the central government will benefit most from this point and in a lesser extent all others stakeholders.

10) Citizens will be able to find the information they are interested in about participating in the fair, local producers, if they like their products, their coordinates. All stakeholders will benefit from this point.

11) Developing the digital infrastructure of local markets to develop them and increase their income, which in turn will lead to greater tax collection. In the short-term perspective, a more accurate assessment of the volume of the domestic market and more accurate taxation are not beneficial to entrepreneurs, since no one likes to pay taxes. However, it should be borne in mind that every year the tax services more and more accurately determine the earnings of this or that entrepreneur thanks to ICT tools, which means that in the medium term, in the interval from 5 to 15 years, more complete and accurate taxation will occur one way or another, regardless of whether how fully and accurately the project proposed in this work will be implemented. Other stakeholders will benefit from this point.

We can conclude that all our assumptions we put forward turned out to be correct and confirmed by polls and research. As we could see above, if the project is successfully implemented, all stakeholders will benefit from it.

5 The goals and values of the project

In order to propose a project, it is necessary to formulate its values and goals. In our work, we have already outlined them above, but now we need to transform them into the goals of the project. Unlike many other e-services, project E-fair.ee should be completely driven by its users and focuses on what matters to them. It also an e-service that should benefit all stakeholders.

- Increase people awareness
- Create a unified database of local entrepreneurs working in the domestic market and interested in regular participation in fairs
- Became real support for local entrepreneurs
- Reliable way for state support local entrepreneurs through co-financing.
- Advertising the products of local entrepreneur
- Obtain more transparency of costs and expenses for organizing and holding fairs, festivals and other public events (state and public control)
- A convenient service where entrepreneurs can book participation in advance and pay and pay the necessary expenses.
- Creation of a way to the determination of the effectiveness of the fair and other public events
- Obtain information from the state about the needs and prospects of Estonian cities and regions
- Developing the digital infrastructure of local markets to develop them and increase their income, which in turn will lead to greater tax collection.

5.1 Critical properties of the system for the organization

Operability and Usability: The system should be simple and easy to understand by the Users.
It should work mainly in English, Estonian and Russian Language, preferable if it can be translated to any of the languages.
Also, the operation of the web portal should be self-explainable for the Users.
Adaptability: The system should be adaptable for future upgrades since such a project will be changed and modified over time. The web –portal should be equally good for PC and for mobile devices.
Accessibility & Accuracy: The system should be accessible 99 percent of the time. It is not critical system but as a government service, it should be available for users.

System security: E-fairs.ee portal will hold plenty of personal data and connection to government databases. It should guarantee the security of customers and state data.
Recoverability: The system data should be recoverable in case of a system failure.

5.2 Stakeholders and their expectations

In this case, it is logical to assume that the organization. best suited for the creation of this project will be the Ministry of Economic Affairs and Communications of the Republic of Estonia.
The project can be called E-Fair.ee or http://www.e-fair.ee/. The purpose of this project is to create an electronic service for a number of stakeholders:
1) For citizens (information function)
2) For entrepreneurs (the ability to register for participation, pay expenses, book a place, and, if necessary, order services if they are needed)
3) For local authorities
4) For the central government
The interests of all stakeholders must be taken into account during creating a portal.

For citizens, first of all, you need a simple and convenient functionality that will be the main one for the site. Registration on the site should not be mandatory for him. The user should be able to open the calendar of fairs and events, see which ones will be near his place of residence, for which he will need a filter by region and city. If a user wants to subscribe to the newsletter, receive a reminder in the smartphone's diary. If we are talking about a marathon or some other specific event, it may be necessary to provide other information. They also need information about the participants of the fair, but it will be provided by the entrepreneurs themselves. They also need a forum for feedback, questions and information about local government spending on events, etc. And one more function, which is usually absent on all state electronic services, is the ability to rate an event and give it a grade, from 1 to 10 (or from 1 to 5) with the ability to leave a comment and explain why this particular rating was chosen. A similar approach to assessment can be found on hundreds of sites (amazon.com aliexpress.com), it has long established itself well, is widely and successfully used in all kinds of electronic services and web portals.

In a sense, this experience - the assessment of the portal by users, in our opinion, should become fundamental in the creation of any electronic service in Estonia. Especially when the electronic service involves the use of a significant part of citizens. This will help make services better, more convenient, more accessible and will give IT specialists and developers valuable experience that will be useful to them in the development and implementation of other projects.

Only a registered participant should be able to leave a comment and rating. The possibility of registration must be implemented in the form of "registration of the participant". Such a plate should appear during registration with the choice of:

1) Participant registration
2) Registration of an entrepreneur/sponsor
3) Registration of the organizer

Register as a participant, entrepreneur/sponsor or event organizer. By, the organizer of the event means, first of all, local authorities (city, county, rural municipality, district or representatives of the state). Each type of registration should differ in the amount of information available and functionality.

Entrepreneurs need a special registration (entrepreneur registration), where they can register for participation in the event and pay all necessary expenses in advance. There should also be a function to select a location on an interactive map of the event. An analog of this has long been realized in cinemas. When buying a ticket, you can choose the seats for boarding. You also need a program that will allow you to build a 3D model of a stand or tent at the venue of the event. Such programs have also existed for a long time both among sellers, furniture installers and in the fair.ee project. From this, we can assume that the implementation of this function in this project should not create unsolvable problems.

Local authorities require a third type of registration and additional features. First of all, they need verification. They also need functionality to add information about new fairs and other events to the system. In addition, it may be necessary to create a page on the forum, answer questions in the comments below the event, and upload a report on the event for government statistics and/or for a public report. It should also be possible to send all active firms about the fair if their type of activity is suitable for this. Ideally, a form for the report should be developed, the data from which will immediately go to the servers of the Ministry of Economic Affairs and Communications.

Thus, a project will have to be implemented, where there will be three different types of accounts with different functions and access levels, and this is one of the things that, in our opinion, will also be actively developed in the future. The fact is that the standard approach for ordinary users and administrators is not always convenient, while the division by functions and access level initially, even during registration, is convenient and saves a lot of time and effort.

The central government needs data that will be sent directly to the servers of the relevant ministries (primarily the Ministry of Economic Affairs and Communications). As representatives of local authorities, representatives of ministries also should be able to publish their announcements, which means that they should also have the opportunity to register as representatives of local authorities, with the same opportunities. They should also be able to view the data that will not be published in the public domain for one reason or another. The administrator and organizers must be able to add advertisements of a social or commercial nature.

All of the above casts doubt on the possibility of creating such a portal by commercial structures for a number of reasons.

1) Databases of entrepreneurs, as well as information about all ongoing events and reports on them, may contain sensitive information that should not be accessed by intruders and which cannot be freely sold on the darknet web or in any other similar source.
2) You cannot rely only on the goodwill of an entrepreneur. Earlier in this paper, the example of Facebook and Australia was already given.
3) This is a rather large project, it requires financial investments and it is logical to assume that the entrepreneur will want to compensate for them, and this project does not imply significant direct financial profit, and therefore it is difficult to imagine who will be an interested person in this project.

5.3 The final goals

1) Creation of an up-to-date, functioning online service for fairs and other events.
2) Integration of local government databases with state databases
3) Obtaining the necessary data by the state on the state of its economy and business activity of small and medium-sized businesses
4) Registration on it for all events taking place in Estonia
5) Registration of 90 percent of the participants in these events among entrepreneurs.

5.4 KPI for the project

What should be the KPI for this project:
1) Total number of visits
2) The total number of original visitors
3) Number of registered users (citizens)
4) The number of privileged users (organizers)
5) Number of privileged users of entrepreneurs/sponsors

6) Number of people attending the event

7) Increase in the number of registered users

8) Increasing the number of privileged users (organizers)

9) Increase in the number of privileged users of entrepreneurs/sponsors.

10) Increase in the number of registered events

11) Income from the site.

5.5 Financial prospects of the project

As is known probably everyone related to this topic, often many electronic services are created as part of the digital infrastructure for the benefit of the country and the whole society and are not created with purely the aim of generating direct profit, and even indirect profit is not taken into account anywhere, due to the objective difficulties of accounting. "*Governments can legitimize STI policy actions not only based on economic rationales (market and system failures) and patterns of technological development (entrepreneurial state argument), but also based on societal needs grounded in political value sets and interests where R&D and innovation is not only a goal per se, but a means for achieving the goals of other policy domains"* (Erkki Karo et al, 2016 p .6).
More often e-services created to *"reduce administrative burdens"*. (EU Commission, 2021) Fully understanding this fact, we, nevertheless, conducted an analysis of how this project can be made at least partially self-sustaining. How exactly this project should earn is a very important issue, so we decided to get acquainted with the experience of other similar projects.

Possible sources of income in the project.

Advertising banners are the main source of income for the site http://kuhuminna.ee/.

The site https://www.piletimaailm.com is the main source of income, a percentage of the ticket price for events. The site acts as an aggregator, advertiser and intermediary

The site http://www.fair.ee/?lang=en - the main source of income is the provision of services for the rental of visits, furniture and the provision of similar services to entrepreneurs wishing to participate in the largest fairs in Estonia such as Tourest. Foodfair, Eestbuild, Meremees, Motorshow, Instrutec, Interior and others.

Can this experience be applied in our proposed project? It is possible, but only to a very limited extent.

There cannot be a big number of advertising banners on the portal of state service, especially the most profitable and most dubious part of it from the morally ethical side - advertising bets on sports and online casinos, "wonderful" drugs that have never helped anyone, and the like. Conclusions about the profitability of ethically questionable banners are made on the basis of personal experience in advertising and are not the purpose of this study.

Most local fairs are free for visitors, so the aggregator and ticketing option is also not suitable for our project.

Can the proposed portal compete with fair.ee in terms of renting premises, providing stands, renting furniture and office equipment to those wishing to take part in major fairs? This is possible in theory, but extremely unlikely in practice, ordinary fairs held in cities and municipalities do not need a large number of stands, furniture and office equipment and do not rent furniture or equipment. At the same time, this electronic service may take a small percentage of the cost of renting a place for an entrepreneur. Even a small fee of 1-2 euros per person will ultimately mean quite large sums for the whole of Estonia. It is also possible to place advertisements of a social nature on the site, thereby reducing the cost of state campaigns aimed at combating smoking, domestic violence, alcoholism, etc. Some of the services can be paid, such as commercial announcements, advertising or promotion of goods and services on the site and forum. Also, this project can be profitable by providing the service of conducting a paid survey among the population for various companies. This is widely practiced by various sites, including seti.ee, where a survey was conducted on whether such an electronic service is needed by the population.

We can summarize the ways to make money on this electronic service.

1) Take a small additional fee when paying for participation in the fair or paying for services.

2) It is possible to place advertisements of a social nature on the site, thereby reducing the cost of state campaigns aimed at combating smoking, domestic violence, alcoholism, etc.

3) Some of the services can be paid, such as commercial ads, advertising or promotion of goods and services.

4) Providing services for conducting a paid survey among the population for various companies

However, the main economic benefit will lie elsewhere.

1) In the preservation and development of local entrepreneurs and producers.

2) In reducing administrative costs and increasing the level of a labor organization of officials and employees of local governments.

3) In attracting more tourists, to a lesser extent through fairs and more through cultural and recreational activities.

Regarding the last point, it should be noted that fairs also serve as one of the ways to entertain and attract tourists and are doubly profitable, since local producers often sell their products there, which means that most of the income does not go to Latvia or another country, as happens in the case when a customer buys a product, for example, in the Maxima retail chain.

It should also be noted that *"before the COVID epidemic, Estonia was visited by 223,000 tourists in January alone"* (Kireeva, 2020), and one way or another, after the end of the pandemic, Estonia will need to somehow return to these indicators, and one of the tools for this can be the implementation of the project we are proposing.

6 Methods of implementation of this project

This project implies combining information from the databases of local governments, which can lead to its failure due to insufficiently coordinated actions on the part of local governments if its implementation of the waterfall method can be performed both by the agile model and by the Hybrid method. (Cohen, 2019,)

The proposed project does not imply complex technical solutions, most of its elements have already been successfully created in one way or another in other projects.

It takes five primary steps to complete the project:

1) Initiation

2) Planning

3) Execution

4) Performance/monitoring

5) Project close.

6.1 Restriction on the cost

This project can be compared to the Lego constructor - it also consists of elements that have been successfully used in other projects for years. E-services could use such an approach a long time ago. We can assume that the reason why it does not happen yet in habit of Public sector organizations is utilizing new technological possibilities, but mostly t focus on internal administrative processes (Tõnurist P. et. al.2015). One of the main objectives of this project is to make it inexpensive and of high quality. The task is not the simplest, but its complexity is not so high, since this is not a priority and demanding in terms of implementation time: it can be done for half a year, or a year, or a year and a half.

6.2 Introducing requirements for the system

Besides being web-portal, e-fair.ee should be a new government s-service which means that it should be a system to work with.

1) The project should unite the databases of entrepreneurs, as well as fairs and festivals of local governments.

2) A function should be created that will allow an employee of the local government to send out invitations to participate in a fair or another event, both local entrepreneurs and from neighboring regions, by sending an e-mail.

3) There should be four types of accounts: one for administrator - non-public, and three for the public.

1) Citizen (simple user),

2) Entrepreneur (or sponsor)

3) Organizer (event organizer)

Each type of account should have different registration requirements and different account functionality.

4) Representatives and employees of local governments should get a convenient interface for filling in the necessary data in the calendar of events and drawing up reports. There should be a form where a local government employee can enter the date of the event and select an event from the list: fair, festival, marathon, cleanup, etc. There should also be a form where he will enter the budget for the event, another form where he will enter or select from the available venues.

5) There should be a convenient way to publish event reports on the website for the public. For example, to enter data on how much money was spent on the event and where they went, how many entrepreneurs took part in the fair, what is the approximate number of people who attended the event, etc.

6) There should be a convenient and simple functionality for entrepreneurs so that they could pay for the services they need or the participation fee.

7) There must be a connection to the bank payment system and identification both by ID card and via mobile-ID

8) There should be a system that will notify local government representatives of their intention to hold public events on the same day within a certain radius - for example, up to forty kilometers. Obviously, this functionality should not apply to all events, for example, national holidays. Therefore, it is necessary to develop a gradation for the holidays - dividing them into local and national

9) This project involves the creation of a forum as a place for communication between citizens, entrepreneurs and organizers. It is needed for a number of reasons:

a) For feedback to the organizers. Even if 8 out of 10 reviews are not helpful, the rest will help make the next event better.

b) To create informal communication between entrepreneurs, organizers and citizens

c) To increase the level of transparency and a greater level of democracy

6.3 Analysis of necessary parts of the portal and design

Some requirements demand to define the design of the project:

1) There must be a form with data: date, day of the week and month

2) Under this form there should be another - the calendar of the month, by clicking on which you can select the day for displaying events.

3) The loading speed of the site should be about 2 seconds, provided that there is a normal connection and a normal Internet and a modern device.

4) The cost should correspond to the cost of similar projects, that is, be in the range of 10,000-20,000 euro.

5) Project execution time.

6) There should be a button "find nearby events" - when pressed, a person receives a list of events closest to him by his geolocation. This button should be at the center of the page.

To begin with, we can consider a possible version of how the first page of the application will look like (attached file First_page.JPEG)

In the upper right corner, there are four squares - EST, EN, FIN; RU (the main languages of users).

Three squares - Citizen, entrepreneur and organizer - three different types of accounts, where a person can immediately enter to reduce the time he needs to find the information he needs or to perform some other tasks that are impossible for an unregistered user.

The button "Find nearby events" is needed in order to find the closest events to a person by the place of request through the use of geolocation. It is an important element of a proactive service because it allows people to get information quickly and with minimal effort. The search function for upcoming events will be especially helpful for owners of mobile devices.

If a person wants to choose not the nearest place, but some other, he can do it through the "Choice of the region" - and then either through the choice of parish or through the choice of the city.

The drop-down list will allow for more thorough and accurate filtering of data by events if the user is only interested in sports events, only festivals or something specific.

List of events of chosen type - an example of how data can be displayed approximately

The following data should be displayed when searching:

5) Place (City/Village),

6) Address

7) Date

8) Time of the event

When displaying data about each event, a hyperlink to the event page must be formed. The event page is created by the organizer, and without it, the event creation notification cannot be added to the event database. It should be possible to download the list of events that can be downloaded to a Smartphone with IOS and Android operating systems.

At the bottom of the page, in the center, there should be a "Contacts" button, when you click on which, the page should load.

However, in order to create an event, the user will first need to register their account.

User Registraion form

In this work, we can consider how the user registration form may look like in the User_ Registration jpeg application file.

It should be an simple and understandable form with a minimum of elements. For example, three forms (citizen, entrepreneur and organizer) and a "Contacts" button at the bottom of the page.

6.3.1 Entrepreneur registration form

After clicking on the register entrepreneur button, the page should load. It may look like an attached file (entrepreneur.jpeg).

It seems to us that we should pay attention only to the form Register with Mobil-ID and Register with ID-Card, which should be automatically filled in by a person, while he

will be able to change the e-mail. The name and surname cannot be changed through registration via Mobil-ID and ID-Card. It is necessary because all Estonian e-services connect via X-Roads and can recognize ID card and mobile ID certificates. In the same time, *"ID certificates are linked to various registers through PIC, which functions as a unique identifier for Estonian citizens and residents in e-government services"* (Pedak, 2013). In Estonia, *"PIC is included as a serial number on certificates of electronic ID cards and mobile ID"* (Pedak, 2013).

You should also pay attention to the "Select your company" dropdown list form; it is needed because some people are owners or board members of more than one company. By clicking on the highlighted companies, the user can select the company that the entrepreneur wants to associate with him on this e-service (he is going to somehow use them, for example, to participate in fairs or other events, as an organizer, entrepreneur, or sponsor). All companies also can be selected

There should also be a form for messages in case of technical problems described earlier (application file Contacs.jpeg).

6.3.2 Citizen registration form

After clicking on the button to register as a citizen, the page should load. It may look like an attached file citizen.jpeg.

It seems to us that we should pay attention only to the form Register with Mobil-ID and Register with ID-Card, which should be automatically filled in by a person, while he will be able to change the mailbox. The name and surname cannot be changed through registration via Mobil-ID and ID-Card. There should also be a form for messages in case of technical problems described earlier (application file Contacs.jpeg).

6.3.3 Organizer registration form

After clicking on the register entrepreneur button, the page should load. It may look like an attached file organizer.jpeg. We should pay attention to the form Register with Mobil-ID and Register with ID-Card, in which the person should automatically fill in all the data, while he will be able to change the mailbox. The name and surname cannot be changed through registration via Mobil-ID and ID-Card.

You should also pay attention to Form 8. Insert your local government position. In it, you will need to enter data regarding the position of the person at the time of registration. This can be changed in the profile at a later date as positions can be expected to change.

The host registration page also has a "Select your company" dropdown list form. It is needed because some people own or serve on the board of more than one company. By clicking on the highlighted companies, the user can select the company that the entrepreneur wants to associate with him on this e-service (he is going to somehow use them, for example, to participate in fairs or other events, as an organizer, entrepreneur, or sponsor). In this case, only one company can be selected.

There should also be a form for messages in case of technical problems described earlier (application file Contacs.jpeg). To register an event, the organizer needs to go to the create event form. It can be implemented either only in his account or in his account and on the first page of the site.

6.3.4 Registration of the event

How the event registration page might look is in the attached file create _an_event_form.jpeg. The first four forms are needed to enter data - location, address, date and time of the event. The next form is to select the type of event from the drop-down list - it can be a fair, festival, sports or another event. The next form is a lead, a headline proposal that explains the essence of the event.

For example: May Day Spring Garden Fair in Narva

Also, the user can enter the text of the announcement about the event to draw attention to his event or clarify some details. Type of event from the dropdown list
The type of event implies division into **national** and **local.** Participation cost - will be visible only to entrepreneurs in their accounts if they want to participate in this event. But for this, entrepreneurs need to register and we move on to the design of the registration page, to the registration_page.jpeg file There should be three different forms on this page - register as an entrepreneur, register as a citizen, register as an organizer. There should also be a form for messages in case of technical problems described earlier (application file Contacs.jpeg)
Another important design question is the shape of the question. It may look like the one shown in the attached file Contacts.jpeg.
Contact form
The Contacts page should have 3 forms:

1) Your name:
2) Your e-mail:
3) Drop-down list with four possible options:

a) General issues
b) Technical Issues
c) Advertising
d) Partnership

The last two forms are not comprehensive and will depend on the wishes of the customer. If the state is going to show only its own social advertising on the site, then they are not needed. And if the Ministry of Economy and Communications wants to earn extra money, then this option is probably possible (albeit doubtful).

6.3.5 Administrator section

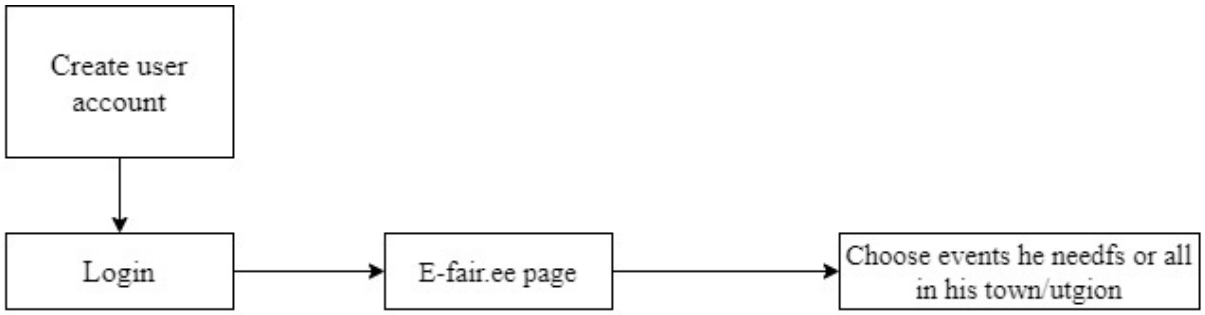
Also, the site must have an administrator section, which must include:
1) Settings (Technical part)
2) Notifications
3) Mailbox

4) Accounts (giving users the status of the organizer if his position does not allow it)
There may be other functions at the request of the customer. One of the features of this project is that it has many analogues - in the form of news portals. Only there written articles are usually sent for pre-moderation by the editors of the portals. However, our project takes a step forward, since it does not need pre-moderation, since all people allowed to work are people from local authorities or companies working with them under a contract. This means a decrease in the required workers, and therefore, to a decrease in the cost of project work. At the moment, one specialist is enough to support the site. But since no one can keep the system running 24/7, you may have to share some of the responsibilities with other specialists (for example, with those who deal with databases) or hire another specialist. We can quote Linnar Vijk (eGA)
„States should (and necessary) to act like experienced entrepreneurs, anticipating beneficial social investing and adopting management strategies processes from the knowledge and experience of the private sector.”

6.4 Model for users

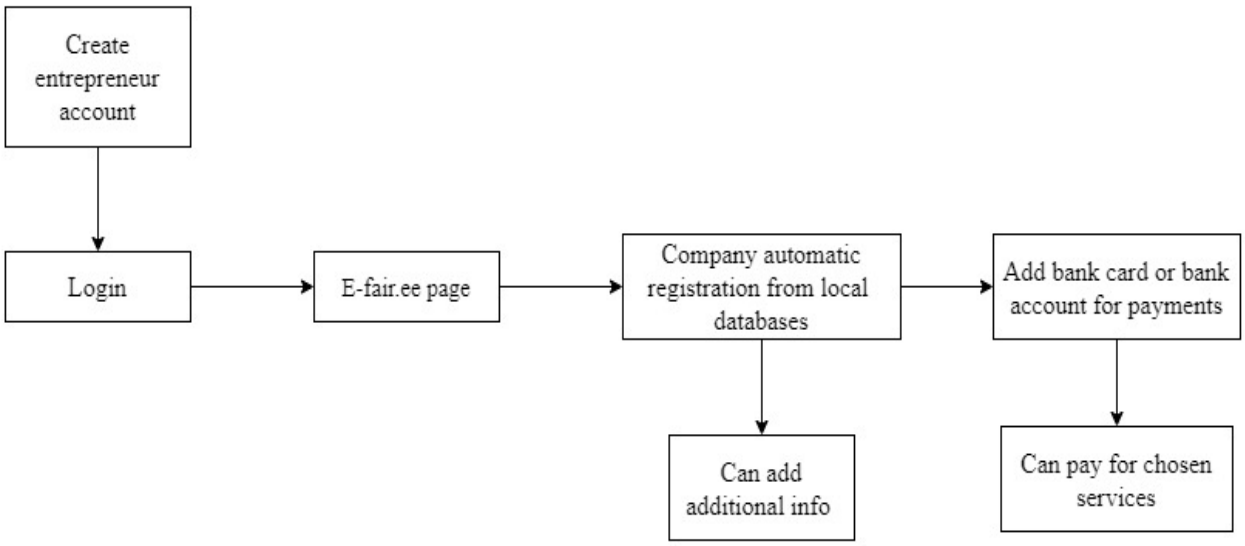
This part of the work describes a model of interaction between users and an e-service by means of figures. In our case, it is assumed that there are separate models for ordinary users, entrepreneurs. organizers and administrators.

6.4.1 Model for users citizen/ordinary user



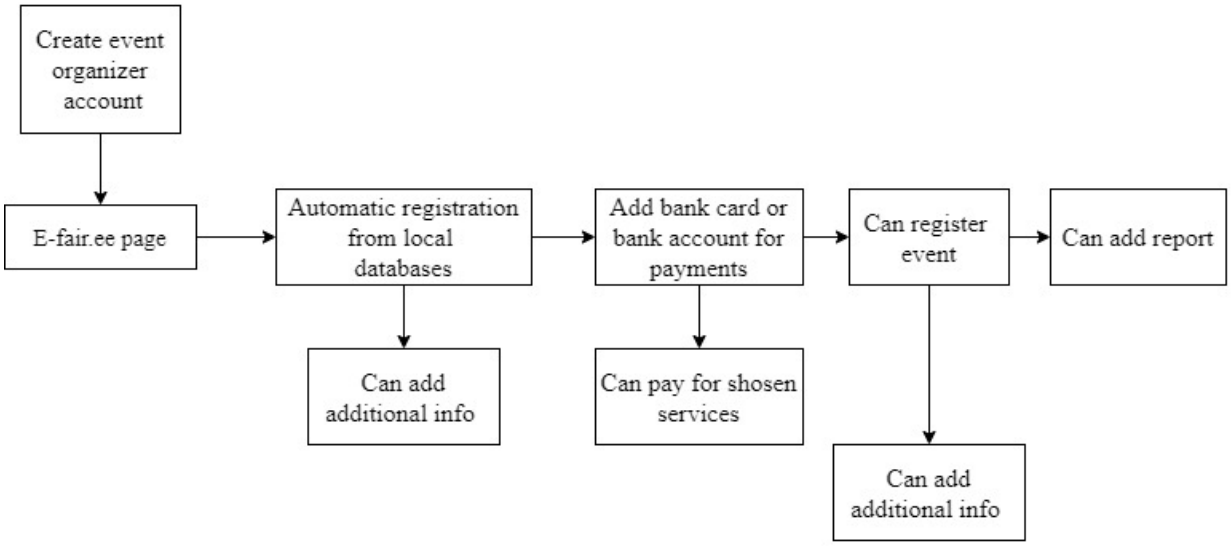
There shoild be a way to register user data via Mobil Id or Id cart. It is really important for users with mobile devices.

6.4.2 Model for enterpreneur



There should be a way to register user data via Mobil Id or Id cart. It is really important for users with mobile devices. Model for entrepreneurs should have additional features like adding additional information about their company and products/services. He also should have a way to pay for additional services.

6.4.2 Model for organizer



There should be a way to register user data via Mobil Id or Id cart. It is really important for users with mobile devices. Model for organizer should have additional features like adding additional information about his event and way to add public report about this event.

6.4.3 Model for Administrators

This e-service, like many other projects, will need administrators to solve emerging problems. They need to log in first, then administrators can see a problem from the admin's interface, fix it and check if correction fixes the problem and shows in the database.

6.5 Menu management system module

This component provides functionality for only the administrators. It will not be open to any other users of the system e.g. customers of the e-fair.ee.
We will be using a graphical interface; this allows the admin department to manage the menu that is displayed to the end-users of the fair and event system:

- Update information in client account (all changed will be logged and could be seen later)
- Add/delete/update account information or account
- See the status of fair or any other event (expected in 3 days, in progress, completed) and information about it
- Before any customer can actually use this system and its functionality that is provided by the system component, it needs to be configured and tested first

6.5.1 Menu client's system module

This component enables customers to enter information, add necessary details and pay money for service. Users of the system, customers will be provided the following functionalities:

- Choose his region, fair or other events and receive information
- Create an account
- Log in to the system via login/password or e-mail/password or via Mobil Id or Id cart
- Navigate the menu
- Add additional information about his ongoing fair or event
- Customers will be able to manage their account
- Add payment information
- Pay for services (registration of fair or event, rent place, payment of bills (electricity, garbage collection, etc.)
- Receive confirmation (bill, invoice, etc)

E-fair would be a defining, critical system for fairs and events in Estonia. By its nature, it should be a centralized system. No calculations should be done by other computers and no launcher installed.

It is preferable that the main system would be developed with the same team, that will support it in the future. This is necessary because in the future this service needs to be maintained and developed, and for this team the backbone should remain. However, it is also possible that the developer will be a private person and, after the contract has been completed, will train specialists from the state apparatus in the administration of this project. This point is not critical and both options are possible, which one will be more profitable is difficult to predict without a tender and a full calculation of the project cost.

6.6 Components to be procured

Components to be procured are following:

- Application with source code
- Documentation
- Support and maintenance services

6.7 Right to be procured

Rights to the source code. Rights to use Jira, Bitbucket and MS Teams.

7. Developing the requirements

This part will cover functional and non-functional requirements to cover few important features of the e-fair project. This paper does not aim to describe all the possible details of a future project for several reasons.

1) There is no real need for this since in the end the requirements for the project will be made by the Ministry of Economic Affairs and Communications of Estonia based on its own considerations and law's provisions and strategies for the development of electronic services.
2) The inability to accurately indicate all the necessary details without consulting the representatives of local governments and specialists who will create this project, since they will also have an impact on what the final project will be like.
3) Also should be noted that not each and every requirement is written here as some features might come during the development of the project and also some might change in time. But some solid requirements like interoperability are listed in this section.
4) All these functional and non-functional requirements here serve more for examples and direction, not a strict template that cannot be deviated from.

In this project, the approximate number of functional requirements are more than: 4(Create, delete, read and update operations) X 4 (user permission based on different role privilege) X 8 (entities) = 128. Major API functionality and internal operations should be mostly covered by unit test cases. The other functional test cases should be covered by Test Engineers. Minimum Required Coverage: 75%
Requirements are usually divided into two main categories: functional requirements and quality requirements. Quality requirements are also known as non-functional requirements, quality constraints, or –ilities. While functional requirements specify the function that a system or component must be able to perform, quality requirements focus on the quality or the degree to which a system meets the specified requirements. (Ali Shahrokni, 2013).
All the requirements are prepared based on the examples of **user case**.

7.1 Functional requirements

Use Case ID	EMT_FR001
Use Case Name	Create Account
Primary Actor	All users who want participate in fair or events
Preconditions	1. Application/software is installed perfectly 2. Internet connection is OK 3. Application User interface/login screen is open 4. Create account button is enabled and should be working
Postconditions	1. User gets email for verification to create the account 2. User will be redirected to the login screen to login again.
Main Success Scenario	1. Users will get a new account 2. Users can login to the system to perform further activities like registration on event or leave comment.

Use Case ID	EMT_FR002
Use Case Name	Login to account
Primary Actor	All users who want participate in fair or events
Preconditions	1. Internet connection is OK 2. Application User interface/login screen is open
Postconditions	User is logged in to the system to proceed further operation
Main Success Scenario	1. Users can perform desired operations 2. Users can add their account details as well as update their profile and sign up for participation in fair or other event.

Use Case ID	EMT_FR003
Use Case Name	Update Profile
Primary Actor	Logged in user

Preconditions	1. Connected to internet 2. User is logged in 3. My profile page is open 4. All fields are in edit mode.
Postconditions	Users can see their details information after update their profile
Main Success Scenario	1. User can see updated profile information 2. User can see updated profile pictures 3. User can see updated demographic all details 4. User can see their updated address

Use Case ID	EMT_FR004
Use Case Name	Sign up for fair (if entrepreneur) or event
Primary Actor	Logged in user
Preconditions	1. Connected to internet 2. User is logged in 3. Fair or event page is open 4. Event active and ready for signing 5. There is place for participants
Postconditions	Users can see their details information about fair or event
Main Success Scenario	1. User can see notification/information about fair or event 2. User can see data of fair or event. 3. User can see place fair or event.(address)

Use Case ID	EMT_FR005
Use Case Name	Payment for participation in fair (if entrepreneur) or event
Primary Actor	Logged in user
Preconditions	1. Connected to internet 2. User is logged in 3. Fair or event page is open 4. Event active and ready for signing 5. There is place for participants

	6. Bill appeared and payment option active 7. Payment successful and there is confirmation about it
Postconditions	Users can see their details information about fair or event
Main Success Scenario	1. User can see notification/information about fair or event 2. User can see data of fair or event. 3. User can see place fair or event.(address)

7.2 Non-functional requirements

Non-functional requirements often harder to define (Chung, L., et al, 2009). In our case as a example we can define next one.

Requirement ID	Requirement	Main Success Scenarios
EMT_NFR001	System's Availability	The system should be available to its users 24/7. The backed server must be available 24/7 as well
EMT_NFR002	Privacy	The system will collect and store only the required information and privacy should be strictly maintained according to the law.(GDPR)
EMT_NFR003	Interoperability and compatibility	The system should be interoperable and compatible with existing government databases systems via X-Road
EMT_NFR004	Usability	Understandability: the system should be very user friendly and easy to use. And also should understand and learn how to use it within a very short time.
EMT_NFR005	Maintainability	The system should be maintainable. For any bugs or any new feature the systems should be easily maintained.

7.3 The software development life cycle

Here we will restrict ourselves to theses, assumptions of how the development of this project should proceed. We proceed from our knowledge, but we understand that in reality, the development of an electronic service can go in a completely different way.

We assume that the development will presumably use a flexible environment that takes advantage of the iterative and incremental life of software development: cycle, because it has a clearly defined plan, do check and adjust steps. In our case, this will be especially important when integrating data from local governments, when the time of project execution will depend on them.

There are program increments or PIs that are 2.5 months long. Each PI is split into smaller iterations or sprints, which are 2 weeks long, except for the last iteration, which is called innovative iteration and is 1 week long. So there is one week for PI planning, 4 iterations for development, testing, documentation and 1 sprint for innovative purposes.

For each PI there are some parts of the system in other words features introduced that need to be developed. Developers have to gather requirements and split the feature into smaller tasks throughout the iterations. Each iteration has a planning meeting, where a more concrete plan for the tasks is made. Every iteration ends with a review meeting, where team members show what they have done so far. Product owner gives some feedback if everything is going as expected and how development should continue. There are also daily meetings for discussing progress and impediments so that interested parties are well informed about the progress. Once the feature is completed, the team has to demonstrate it to interested parties. As the clients are flexible there shouldn't be any hard deadlines or cost restrictions as long as the team explains progress or delays during daily meetings and while the product owner can understand these reasons. I must repeat that this is only a guess. The project could be done in a completely different way.

7.4 Participation of the procurer

Procurer's employees should plan to take part in iteration review meetings and demos. Procurers should include the following people: project manager, product owner and stakeholders. Meetings are arranged to demo the smaller releases and progress, also to discuss impediments and how to resolve them. Necessary equipment is one Android device and one iOS device with a suitable version so that the client can test the site on a mobile device.

7.5 Change management for requirements

The client (a representative from the Ministry of Economic Affairs and Communications) should propose changes based on the current progress of the features and the feedback from interested parties. Some features could be left out or improved or added, design is also subject to change.

If this happens then the project managers would discuss a new contract based on the size of the new features and the expertise of the developers. If many more features are to be added and work scope increases drastically then they would be planned for the next program increments and with every program increment, a new contract would be made. However, if smaller changes are made then they should be done in the current PI without any changes to the cost or schedule. However, it is necessary to understand that in the future, over time, the project will change, as well as the databases and e-services with which it is connected, and therefore additional changes will be required. Whether this will take the form of a long-term contract or will take place as one-time interventions under a contract of employment, it is impossible to predict at the moment, since it is unclear exactly how it will be implemented (and whether it will be implemented at all).

7.6 Acceptance plan

The system is accepted by the client when all the features are completed by the development teams and integration tests have been successful. The time allocated for this system is 2 PIs meaning 5 months. It's possible to complete the system even sooner without a reduction in the cost. Payment to the supplier is made after every PI.
Features are individually tested by developers both manually and with automatic tests. Some of the tests should be defined by the customer. Features are also tested manually by the test team of the client. Integration tests are done by this same test team. Android and iOS devices are needed for testing purposes (if a mobile version will be required). The final step is to make the system available to trusted users who could try and test the system. Once all the issues and bugs have been fixed then the whole system is released publicly.

7.7 Analysis of necessary resources

When creating this service, it will be necessary to consult with representatives of local governments who are responsible for organizing fairs and festivals. Hence, it is logical to assume that the meetings will be held virtually, which means that all sides will need MS-Teams or similar software. In the process of creating this project, professionals may need task tracking and bug tracking software like Jira. To host this project at the time of this creation, specialists may need a web service for hosting projects and their joint development, based on Mercurial and Git version control systems like Bitbucket or Github.

For activity and cost estimation we would choose the three-point estimation method (Sebastian, 2020) because it is the best technique for developing estimates with project team members. With this method, the team members can provide their pessimistic, optimistic and best guess estimates for their deliverable.

The difficulty in assessing the cost and time of creating such a project is that it is necessary to interact with the databases of local governments. In this case, a lot will depend not on the state, but on local governments and on them and on specialists. According to preliminary estimates, such a project can cost from 10,000 euro to 20,000 euro. The price is low due to the relatively small amount of work (for electronic service) and the fact that many elements have been successfully worked out on the creation of other electronic services and websites. However, the cost of work can skyrocket due to the cost of creating and combining databases and will depend on the situation in the labor market. In this work, it makes no sense to present all the calculations, because during the approval process, additional risks, obstacles and delays may arise that will increase the cost of the project. The main costs for this project will include employee salaries and taxes. One of the main difficulties is that in the case of poorly organized interaction of local authorities, the integration of local databases will be delayed, and the cost of the project will increase accordingly. Another reason why it will not be possible to present all the calculations in this work is their volume. They will take about 25-30 pages, which will go beyond all possible limits for a master's work.

7.8 Processes

The price of this project will be largely determined by the processes of organizing the work of the electronic service since this organization will influence both the process of its creation and the process of functioning and duration of this electronic service.
All processes could be divided into three groups.

1) Creation of e-service
2) Support of e-service
3) Closing of e-service

The creation of e-service means a group of processes associated with the creation of an e-service. It can be roughly divided into two parts - preparation for the creation of e-service and its direct implementation.

8 Preparation for the creation of an e-service

1) A project plan must be drawn up, possible risks assessed, an estimate drawn up and a deadline determined.
2) Representatives of local governments should be notified about the project because their cooperation and assistance will be needed.
3) The project must receive support and funding from the government and/or European funds.
4) A responsible person must be appointed for the process of creating an e-service.
5) A team of specialists should be assembled - either by tender or on the recommendation of the Ministry of Economy and Communication.
6) The intermediate stages of the project must be determined and the WBS created
7) A Gantt chart should be created for the project deadline and all documentation approved.

8.1 Implementation of an e-service

1) Shared databases should be created, or databases on entrepreneurs and on ongoing activities should be combined through the X-road. They also need to be tested.
2) The administrative part of the e-service must be created and tested, which will allow
   a) Make changes to the e-service portal
   b) Receive, collect, store and analyze data collected by the e-service
   c) Add and remove user and administrator accounts.
3) A forum should be created
4) The portal itself must be created as a page e-fair.ee.
5) It should be possible to create an account for a citizen (ordinary user), entrepreneur and organizer, and tested the work of registration forms.
6) The functionality for each of the accounts must be created. So it should be possible for the user to receive letters and notifications about them, rate the

event and write comments (ask questions) under the event page. The entrepreneur should be able to receive letters and notifications about them, as well as register a trading and parking space for himself at the fair. Also, the entrepreneur will need to add information about their participation, as well as a link to their products. The organizer will need the ability to receive letters and notifications about them, create an event and the ability to attach a file with a report about the event.

7) An error message form must be created and tested (Contacts)
8) The created e-service will need to be tested for errors and vulnerabilities.

8.2 Support of e-service

Support of e-service means the processes associated with supporting the operation of the service, they must include:

1) A responsible person must be appointed for the operation of the e-service.
2) The service must be functional 99.9% of the time
3) Each year, a budget must be assigned to support the operation of the service
4) Every month there should be a report on the work of the service, the work carried out and the planned work for the next month.
5) The data received by the e-service should be automatically collected and analyzed by algorithms.
6) The service must adapt to the needs of consumers without big and expensive changes.
7) If the change is not possible, the request should be saved and it should be explained why it is impossible on the basis of the current service and what is needed for this. It is possible that in the future this will become possible due to the development of technology.

8.3 Closing of e-service

1) Notification of the closure of the e-service
2) Data transfer and archiving
3) Closing all contracts

9 Validation

We know from dictionary, validation is *"the act of confirming something as true or correct"* (https://www.dictionary.com). However, in case of project management we have a different meaning, which we going to use in this work definition for **validation** as *"the documented process of demonstrating that a system or process meets."* (Ofnisystems.com). As an example of possible criteria for validation, I selected the requirements used on website (Ofnisystems.com, 2021).

1) **Validation Planning**

The project must reach this stage after points 1, 2 and 3 described earlier in the preparation for the creation of an e-service part.

A Validation Plan should include:

- **Deliverables (documents).** In our case it should be generated during the validation process. This work can serve as a part of such documents.
- **Resources, departments, and personnel** to participate in the validation project.

  This will be approved directly by the customer.
- **Time-lines** for completing the validation project.
- **Acceptance criteria** to confirm that the system meets defined requirements
- **Compliance** requirements for the system, including how the system will meet these requirements

Validation requires that the plans should be approved, at a minimum, by the System Owner and Quality Assurance.

2) **Requirement Gathering** – *"System Requirements are identified. Requirements are documented in the appropriate specifications. Specification documents are reviewed and approved"* (Ofnisystems.com, 2021).

The project must reach this stage after the creation WBS and technical requirements. This work has already given earlier some technical requirements for this project and it could be used.

3) System Testing – *"Testing Protocols are written, reviewed, and approved. The protocol is executed to document that the system meets all requirements."* (Ofnisystems.com, 2021)

This part should be disclosed in more detail. Testing has already been written about earlier in this work in relation to parts of the project, but it should be additionally noted the need for

Performance Qualifications tests if the customer requires more than just time stability and loading speed. In this work, only they are noted, as they seem to us to be the main ones.

10 **System Release** –*"The Summary Report is written and the system is released to the end-users for use"* (Ofnisystems.com, 2021)

This part cannot be performed without access to the databases of Estonia and its local governments; therefore it can only be performed after the successful completion of this project. If the project is successfully completed, the end-user should be the Estonian Ministry of Economic Affairs and Communications, and the owner should be the designated person responsible for the operation of the e-service.

Change Control – *"If changes need to be made after validation is complete, Change Control ensures that the system changes do not affect the system in unexpected ways."* (Ofnisystems.com 2021)

In our work, this issue has not been given much attention for two reasons.

1) **Change management** will be required after the creation of this e-service, and until this has happened, any theories and assumptions will not have at least some justification.
2) **Change control** will be managed by the Ministry of Economy and Communications in accordance with its statutes and adopted rules.

9.1 Product

If the proposed project is implemented, we will get a website/portal that will become an e-service that will make life easier for many citizens, tourists, entrepreneurs and local authorities, save them time and money. The final product will also be interesting in that it will be a combination of already familiar and proven technologies, brought together and used together.

There are dozens, if not hundreds of thousands of sites in the world where you can publish news or notes, and there is not one where they would publish about all the fairs and events in the country.

There are many sites, such as luxexpress.ee or ticket sales sites, where you can book and choose a seat (in a bus or a cinema) and there are Google maps, but there is not a single service where a small entrepreneur could pay for their participation in the fair and book own parking space for cars and trade. There are many sites that collect information in all areas of life (housing, taxis, services, movies, videogames, and so on) and analyze it based on user ratings https://www.rottentomatoes.com/ and https://www.imdb.com/ and reviews, but this technology is not used in any way in government e-services. The Estonian state wants to know the needs of its residents and help small and medium-sized businesses. To do this, he needs data that can be provided by both local governments and Estonian residents themselves through the implementation of this project. The Estonian state wants to increase the role of civil society and the level of cooperation with citizens in all spheres of life, promote democracy and enhance transparency, and this can also be done with the help of this project. A forum where representatives of local governments can find out about the problems of their citizens and entrepreneurs and try to solve problems together is also not something new. There are hundreds of thousands, if not millions of forum sites on the Internet. But are there any among them

where a citizen can point out to an official the shortcomings of his work (albeit only in a limited area of events) but also offer a better solution? This is precisely the novelty of this work and the proposed project - in the combination of well-known and proven solutions into one project and a new application of old solutions. Why should a user of an e-service be only a consumer if he can rate, criticize and offer the best solutions?
The product we proposed in this work - an e-service, is designed not only to make life easier for people and local government but also to give the government the necessary data and help it to regulate the market. The project also may help reduce the level of the shadow economy and financial abuse by local authorities. This can happen due to the accumulation of a mass of information on the basis of which analysis can be made. If local governments spend a disproportionate amount of money on entertainment and cultural events before the elections, then thanks to this e-service it will become obvious very soon. If an entrepreneur declares no income by constantly registering at all local fairs and receives good reviews and high ratings from consumers, then this will quickly become evident based on data analysis.

10. Summary and conclusions

The purpose of this master's work was to propose a project for a new electronic service, to investigate the need or uselessness of its creation, its prospects and possible benefits, functionality and estimated cost. In the course of the study, it turned out that this portal would be extremely useful for small entrepreneurs who constantly participate in fairs and other events, citizens who want to have a single site where they can get all the information about events of interest to them and local government representatives, as it would allow them to facilitate and streamline carrying out these activities. The next logical step was to conduct a survey on whether entrepreneurs and citizens of Estonia consider it necessary to create such a resource.

As a result of our survey among stakeholders (Estonian residents and entrepreneurs), the following results were obtained:

Results of a survey among **entrepreneurs.**

1) Forty (40) people think that such a portal would help them
2) Six (6) people believe that they do not need such a portal, since they do not participate in fairs and don't plan to participate
3) Four (4) people Found it difficult to answer

The next stage of the study was a survey among citizens and it also shows that majority would like to have such a portal.

Online survey
As of 05/04/2021, the results of the online survey have changed as follows:

1) Yes - 83.69% (354)

2) No - 9.69% (41)

3) NA - 6.62% (28)

Thus, it can be argued that the majority of the Estonian population supports the creation of such an e-service. It can also be concluded that if such an e-service appears, there will be demand for it, and its absence really causes certain inconveniences for the population of Estonia, otherwise, they would simply not vote for its creation, knowing full well that it will be financed from their taxes. In chapters number one we define our methodology and research approach. Chapter number two was about the methods and results of the survey. In chapter three, I discussed the possible outcomes of the proposed project. In chapter four we considered possible results and outcomes. In chapter five, we considered the goals and objectives of the proposed project in the case of its implementation. In chapter six, we looked at the options for creating this project and its possible design. In Chapter Seven, we discussed the possible requirements for the project from the client's side and the necessary documents for the implementation of the project. In chapter eight, we sketched out the issues of the project life cycle, its support and closing in the case of its creation. In Chapter Nine, I clarified the details of what such a product should be in my understanding and suggested the order of its validation.

In this work, we have answered these and many other questions and would like to summarize.

1) Estonia has a developed e-sector and there are a number of resources that can partially solve the tasks that the proposed project should solve. However, even all together they do not solve all of the tasks for which our e-service project is proposed.
2) Moreover, the existing websites were originally created for other purposes and will not be able to fully fulfill these tasks, since a private project most like will not be able to fulfill the tasks of public service in our case due to a lack of interoperability with government and regional databases and services.
3) The e-services offered can be called innovative as they offer a new approach to e-services based on closer interaction with users and local authorities.
4) Also, the project we propose offers a combination of tested elements that have not been used previously in government services - such as much greater independence of users (unmoderated posting of announcements about events), the ability to evaluate events by entrepreneurs and users and a forum, which is unusual for state e- services.
5) Also, this project proposes elements of proactive service to facilitate work with it

10.1 Conclusions

Estonia has a developed e-sector that covers almost all spheres of life. Digitalization makes all spheres of the economy more profitable and transparent; however, fairs and public events are not covered by them at present. Moreover, even what is in the given is decentralized and far from ideal. This project, if successfully implemented, will help solve these problems, and probably bring some of the earnings out of the shadows, as well as help entrepreneurs and local governments, making their life easier and reducing their time spent on the actions they need. Moreover, this project will allow better control over the spending of local authorities and track the most successful events in order to subsequently learn and disseminate this experience. After all, if Estonian researchers are right, the driving forces of the evolution of the innovation bureaucracy are often conflicts and different expectations (Erkki Karo & Rainer Katt, 2016), and they are inevitable when integrating databases and services of local municipalities into a single electronic system. But most of all, we hope that this e-service will help change the approach of the state and make future Estonian e-services more user-friendly and more focused on mutual cooperation.

Bibliography

1) Ali Shahrokni, 2013, *"Software Robustness: From Requirements to Verification"*, Available at: https://publications.lib.chalmers.se/records/fulltext/187161/187161.pdf, [Accessed 1 May 2021].
2) Anjani Datla, David Eaves, 2017, *"Cracking the Monolith: California's Child Welfare Services Disrupts Technology Procurement (A) Case Study Analysis & Solution"*, pp 6-7
3) Asgarova, B. Castle, S. Chigogidze N. Kennedy, R. Smirnov. V., 2020, *"Cross Examining the System: Lessons from the Estonian Court."* Available at Taltech university servers.
4) Axellson K, Melin U, Lindgren I, 2009, *"Developing public e-services for several stakeholders - A multifaceted view of the needs for an e-service"*, p 1, https://www.researchgate.net/publication/221408784_Developing_public_e-services_for_several_stakeholders_A_multifaceted_view_of_the_needs_for_an_e-service
5) Bainova, M.S. Kataeva V.I., 2017. *"Fundamentals of Social Management"*, Moscow-Berlin: DirectMedia p.111.
6) Bailey M., (2017) *"Analysing the need for Market Regulations"*, p-1, URL https://www.researchgate.net/publication/340363474_Analysing_the_need_for_Market_Regulations [Accessed 1 May 2021].
7) Barron M, Barron, A., 2020. *"Project Management"*. 1st ed. [ebook] Available at: https://opentextbc.ca/projectmanagement/chapter/chapter-2-what-is-a-project-project-management/ [Accessed 1 May 2021].
8) Bhandari P., 2019, *"An introduction to quantitative research"*, web knowledge base, Available at: https://www.scribbr.com/methodology/quantitative-research/, [Accessed 1 May 2021]

9) Bhandari P., 2019, *"An introduction to qualitative research"*, Available at: https://www.scribbr.com/methodology/qualitative-research/ [Accessed 1 May 2021]

10) Carraro, J.M., (2011, August 23), Why user-centered design is more efficient than waterfall development (part 1 of 2). *Usabilla.* https://usabilla.com/blog/why-user-centered-design-is-more-efficient-than-waterfall-development-methodology-part-1-of-2/ [Accessed 5 May 2021].

11) Carraro, J.M., (2011, August 30), Why user-centered design is more efficient than waterfall development (part 2 of 2). *Usabilla.* https://usabilla.com/blog/why-user-centered-design-is-more-efficient-than-waterfall-development-methodology-part-2-of-2/ [Accessed 5 May 2021].

12) Casati F., Shan M-C, 2001, *"Dynamic and adaptive composition of e-services", 26 (3),* p 145.

13) Clayton J., (2021, February 18), *"Facebook blocks Australian users from viewing or sharing news"*, BBC, https://www.bbc.com/news/world-australia-56099523 [Accessed 5 May 2021].

14) Chung, L., & do Prado Leite, J. C. S. (2009). *"On Non-Functional Requirements in Software Engineering. Lecture Notes in Computer Science," p 364–366.* [Accessed 1 May 2021]

15) Darrell M. West, 2001, *"State and Federal E-Government in the United States"* URL http://www.insidepolitics.org/egovt01us.html [Accessed 1 May 2021]

16) Dictionary.com, Available at: https://www.dictionary.com/browse/validation#:~:text=noun,requires%20validation%20through%20further%20testing.

17) e-Estonia Showroom, 2019. Digital society - e-Estonia.

18) *"e-Governance in practice"*, 2016, https://ega.ee/wp-content/uploads/2016/06/e-Estonia-e-Governance-in-Practice.pdf

19) *"e-Governance Yearbook Academy of Electronic management" ,* 2019, p 11,

https://ega.ee/wp-content/uploads/2021/03/EGA_Aastaraamat_ENG_web.pdf

20) Erkki Karo & Rainer Kattel, *"How to Organize for Innovation: Entrepreneurial State and Organizational Variety"*, pp 7-8 Available at: http://hum.ttu.ee/wp/paper66.pdf [Accessed 1 May 2021]

21) Esther Cohen, (2019), *"The Definitive Guide to Project Management Methodologies"*, Available at: https://www.workamajig.com/blog/project-management-methodologies [Accessed 5 May 2021].

22) European Commission, Directorate-General of Communications Networks, Content & Technology European Commission, 2014. *"Study on eGovernment and the Reduction of Administrative Burden,"* p. 1-2, Available at: https://digital-strategy.ec.europa.eu/en/library/final-report-study-egovernment-and-reduction-administrative-burden-smart-20120061 [Accessed 1 May 2021].

23) COMMISSION EUROPEAN COMMISSION, *"DIGITAL STRATEGY A digitally transformed, user-focused and data-driven Commission"*, p 51-52, URL https://ec.europa.eu/info/sites/default/files/file_import/digitally-transformed_ user-focused_data-driven_commission_en.pdf [Accessed 5 May 2021].

24) Fair.ee, www.Fair.ee

25) Fraefel M., Selzam T., Riedi R., 2013, *"Organizational Requirements for Building up National e-Government Infrastructures in Federal Settings, 46th Hawaii International Conference on System Sciences*, p 1646*"*.

26) *Government Coalition Agreement*, 2017, Available at:

https://www.mkm.ee/en/zero-bureaucracy [Accessed 1 May 2021].

27) Gunn A., 2020, *"Living in a digital world: the causes and the consequences"*, URL https://medium.com/digital-society/living-in-a-digital-world-the-causes-and-the-consequences-4c5aca11b03a [Accessed 10 May 2021].

28) Howcroft, D., and Wilson, M. *"Participation: 'Bounded freedom' or hidden constraints on user involvement,"* New Technology, Work, and Employment., 2003, 18:1, pp. 2-19.

29) Interaction Design Fondation, *"User Centered Design"*, Available at: https://www.interaction-design.org/literature/topics/user-centered-design [Accessed 10 May 2021]

30) Karo E., and Lember V., 2016, *"Emergence of a societal challenges based innovation policy in market-based innovation systems: lessons from Estonia"*, URL https://www.researchgate.net/publication/299514579_Emergence_of_a_societal_challenges_based_innovation_policy_in_market-based_innovationsystems_lessons_from_Estonia, p 6, [Accessed 5 May 2021].

31) Kattel R,, Mergel I., 2019, *"Estonia's Digital Transformation: Mission Mystique and the Hiding Hand,"*: p 2-4, Available at: https://www.researchgate.net/publication/338954441

32) Kireeva I., (2020, March 6), ERR,"Статистика: число зарубежных туристов в Эстонии за год выросло на 13%", URL https://rus.err.ee/1060607/statistika-chislo-zarubezhnyh-turistov-v-jestonii-za-god-vyroslo-na-13 [Accessed 5 May 2021].

33) Kuhuminna.ee, http://kuhuminna.ee

34) Laadale, http://laadale.ee/

35) European Commission, 2010, *"European Interoperability Framework (EIF) Towards Interoperability for European Public Services,"* p. 2, Available at: https://op.europa.eu/en/publication-detail/-/publication/c8d6514e-e729-45a1-81c1-ea3ee811d7a6

36) Lember V. 2017, *"The Increasing Role of Digital Technologies in Co-production and Co-creation,"* Available at:

https://www.researchgate.net/publication/319504628_The_Increasing_Role_of_Digital_Technologies_in_Co-production_and_Co-creation, [Accessed 1 May 2021]

37) Mallory E. Compton, Paul T. Hart, *"Great policy successes"*, 2019, Oxford University press, pp. 154-156.

38) Members' Research Service, September 2015 — PE 565.890 EN eGovernment *"Using technology to improve public services and democratic participation"*, p 4, https://www.europarl.europa.eu/RegData/etudes/IDAN/2015/565890/EPRS_IDA(2015)565890_EN.pdf [Accessed 1 May 2021].

39) Mihkel Lauk, 2019, *lecture 2 ITE4240 Impact and Measurement of e-Governance*

40) McBride K., Aavik G., Kalvet T., Krimmer R., Tambouris. E., Panopoulou E., Kalampokis E., Tarabanis K., 2017, *"Co-creating an Open Government Data Driven Public Service: The Case of Chicago's Food Inspection Forecasting Model."* Government Information Quarterly, 36 (2019) p. 95

41) McBride K., Olesk M, Kütt A., Shysh D., 2020, *"Systemic change, open data ecosystem performance improvements, and empirical insights from Estonia: A country-level action research study."* URL Systemic_change_open_data_ecosystem_performance_improvements_and_empirical_insights_*from_Estonia_A_country-level_action_research_study* [Accessed 5 May 2021].

42) Misuraca C. Gianluca, *"E-Governance in Africa, from theory to action: a handbook on ICTs for local governance"*, IDRC, p. 26. Available at: https://idl-bnc-idrc.dspacedirect.org/bitstream/handle/10625/30103/IDL-30103.pdf?sequence=28&isAllowed=y, [Accessed 5 May 2021].

43) Nardi, P., 2019. *"Doing survey research"*. 4th ed. Kindle:, Routledge pp 76-77.

44) piletilevi.ee, https://www.piletilevi.ee

45) Piletimaailm, https://www.piletimaailm.com

46) Pedak M, 2013, *"eID Estonian experience"*, p 3, URL https://nvvb.nl/media/cms_page_media/758/13%20Mari%20Pedak%20eID%20Estonian%20experience.pdf [Accessed 1 May 2021]

47) Robert K. Yin, (2015) *"Qualitative Research from Start to finish"*, pp 6-8, URL https://in.bgu.ac.il/humsos/politics/Documents/Ethics/Yin%20Qualitative%20Research%20from%20Start%20to%20finish.pdf [Accessed 5 May 2021].

48) United Nations, 2019. *"Enhancing productive capacity through services"*, p 14.

URL: https://unctad.org/system/files/official-document/c1mem4d20_en.pdf [Accessed 1 May 2021]

49) Seti, https://www.seti.ee

50) *"Three-Point Estimating and PERT Distribution (Cost & Time Estimation)", URL* https://project-management.info/three-point-estimating-pert/, [Accessed 10 May 2021].

51) Trade and Development Commission, *"Enhancing productive capacity through services."* 2019. United Nations Conference on Trade and Development. [online] Geneva: UN, p.14. Available at: https://unctad.org/system/files/official-document/c1mem4d20_en.pdf [Accessed 1 May 2021].

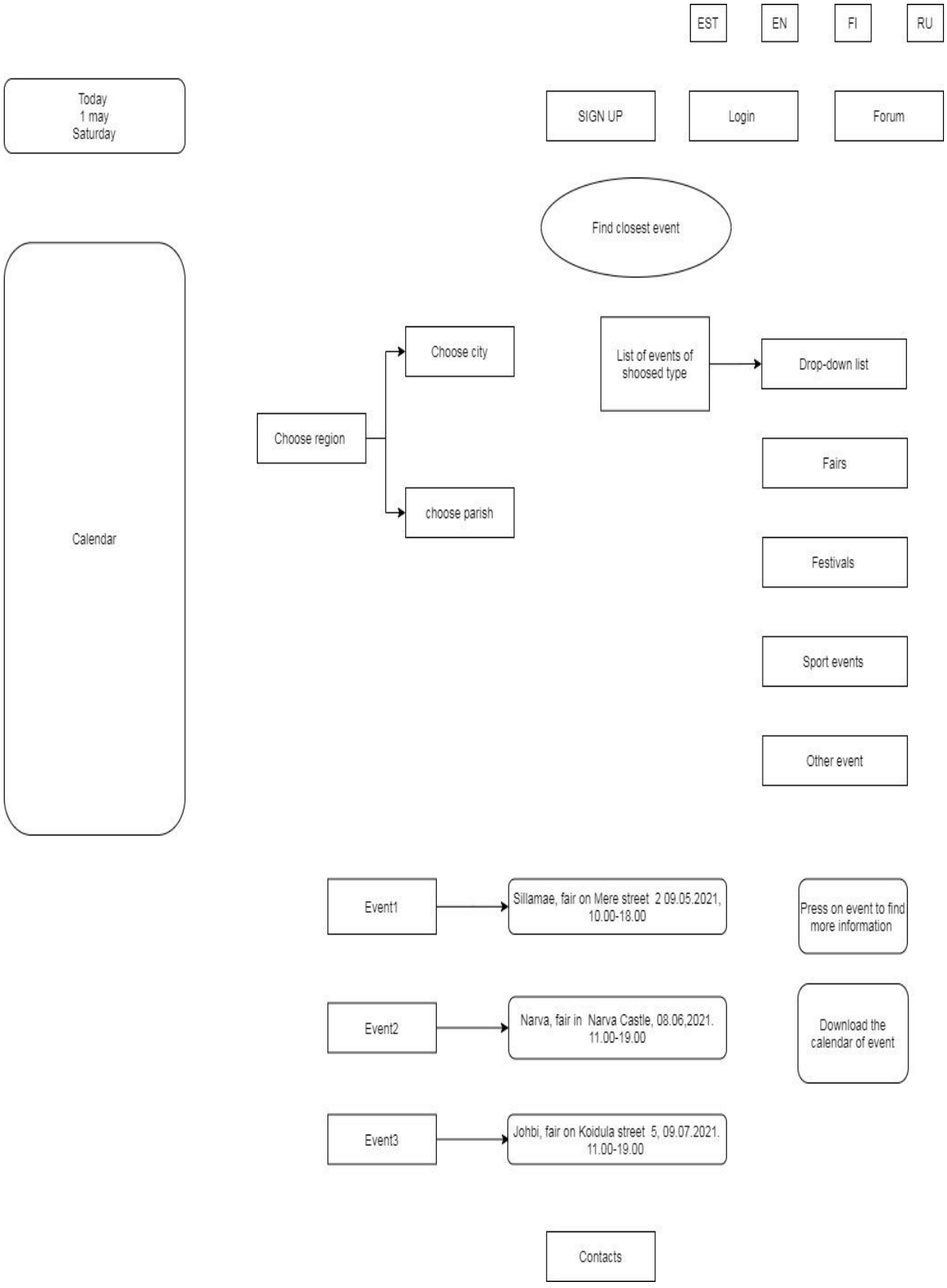
52) Tõnurist, P., Kattel, R., and Lember, V. (2015*) "Discovering Innovation Labs in the Public Sector"*, p 6, https://www.researchgate.net/publication/280021789 [Accessed 5 May 2021].

53) The World Bank, *"e-Government"*, 2015, Available at: https://www.worldbank.org/en/topic/digitaldevelopment/brief/e-government [Accessed 5 May 2021].

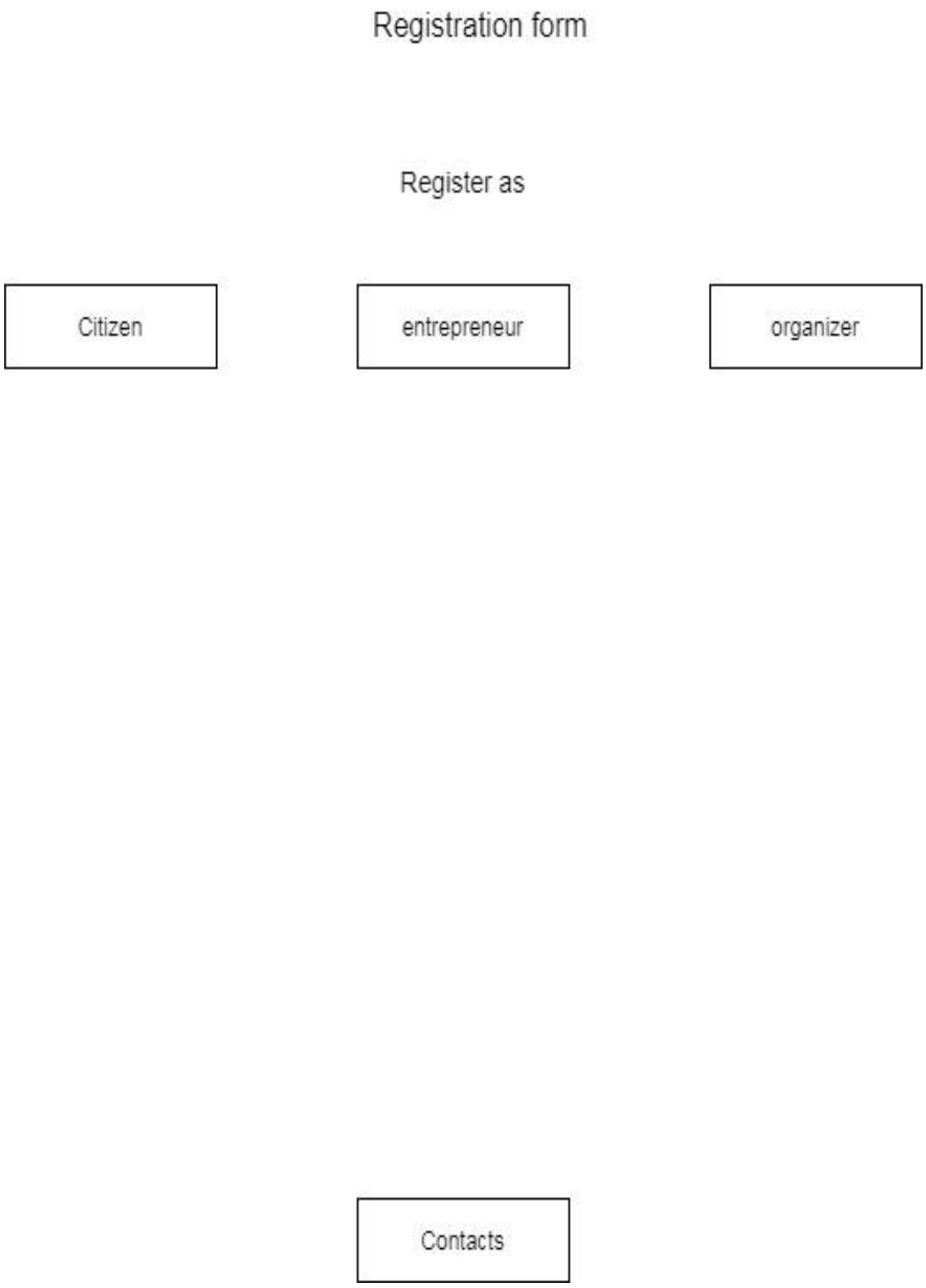
54) Välba K., 2016, *"Improving Knowledge Transfer Processes of e-Governance Competence Example of Estonia"*, (Master's Thesis). Tallinn University of Technology. URL https://digikogu.taltech.ee/en/Download/a8d9d902-8c47-4cf4-9564-52afc946fd79

55) Ofnisystems.com, (2019) *"Overview of Validation Documents and Projects"*, URL http://www.ofnisystems.com/services/validation/validation-resources/#:~:text=Validation%20is%20the%20documented%20process,made%20to%20validate%20the%20system [Accessed 5 May 2021].

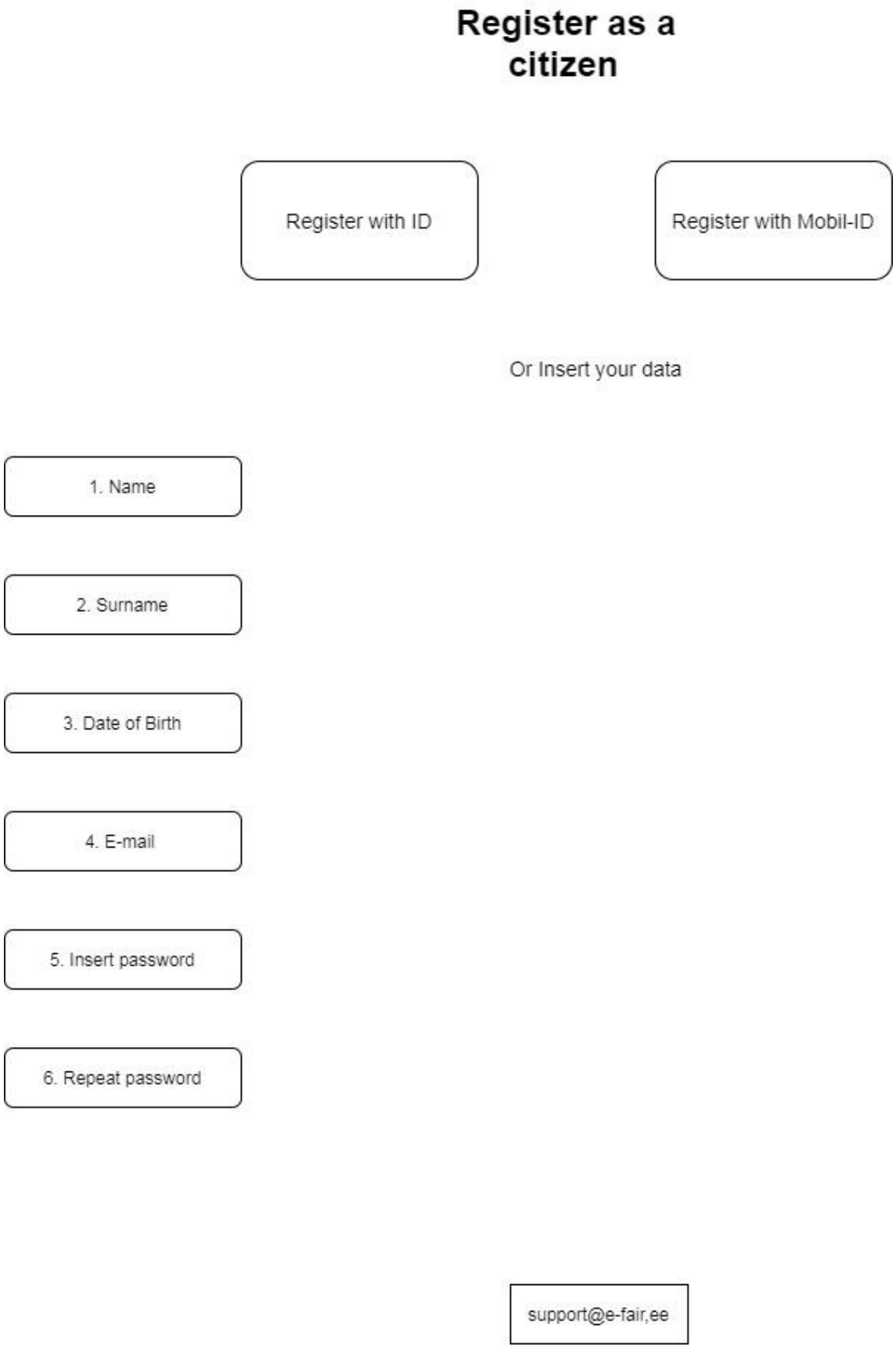
Appendix 1 (Project e-Fair.ee First page possible Design)



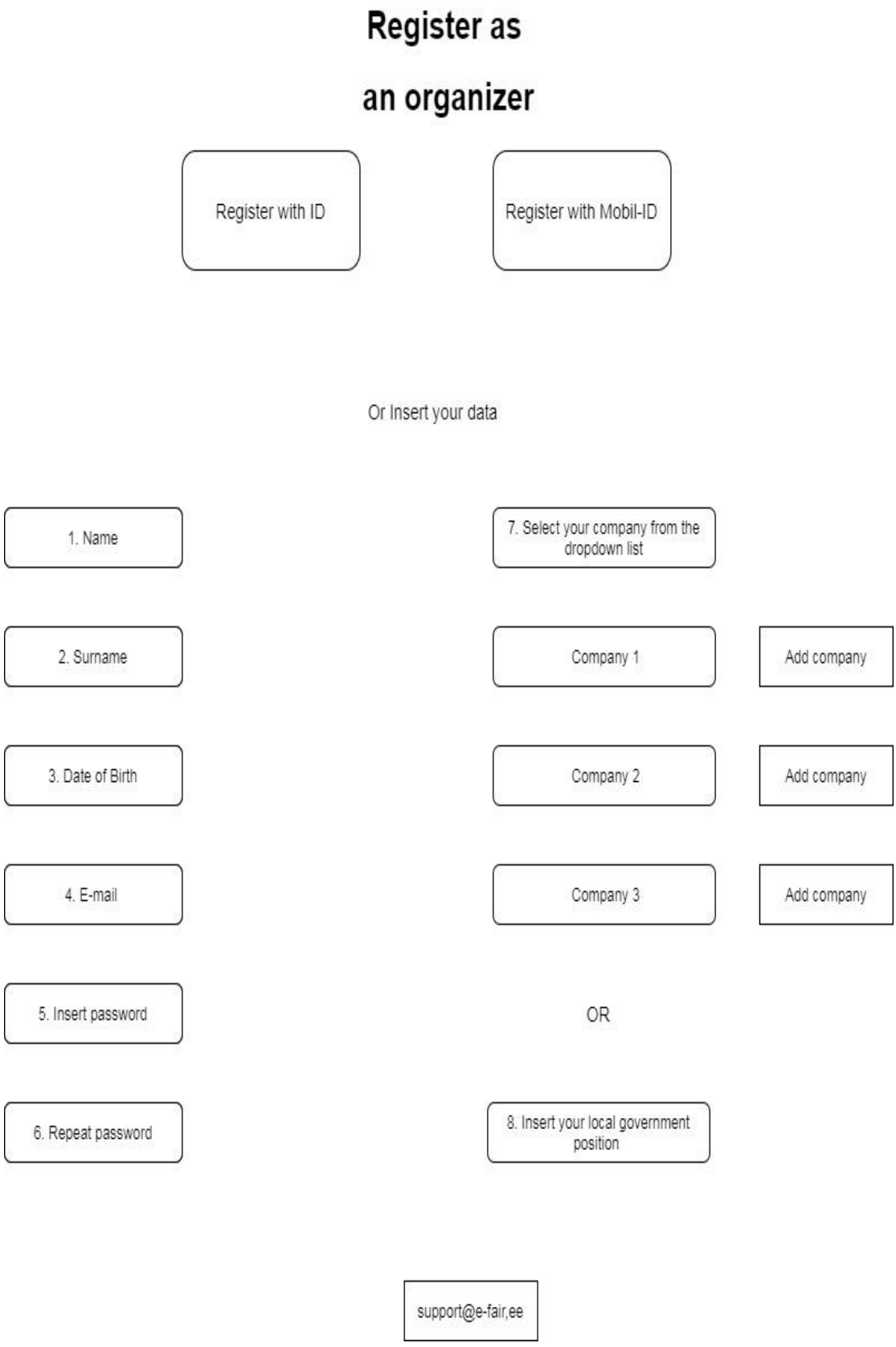
Appendix 2 (Project possible first registration form page)



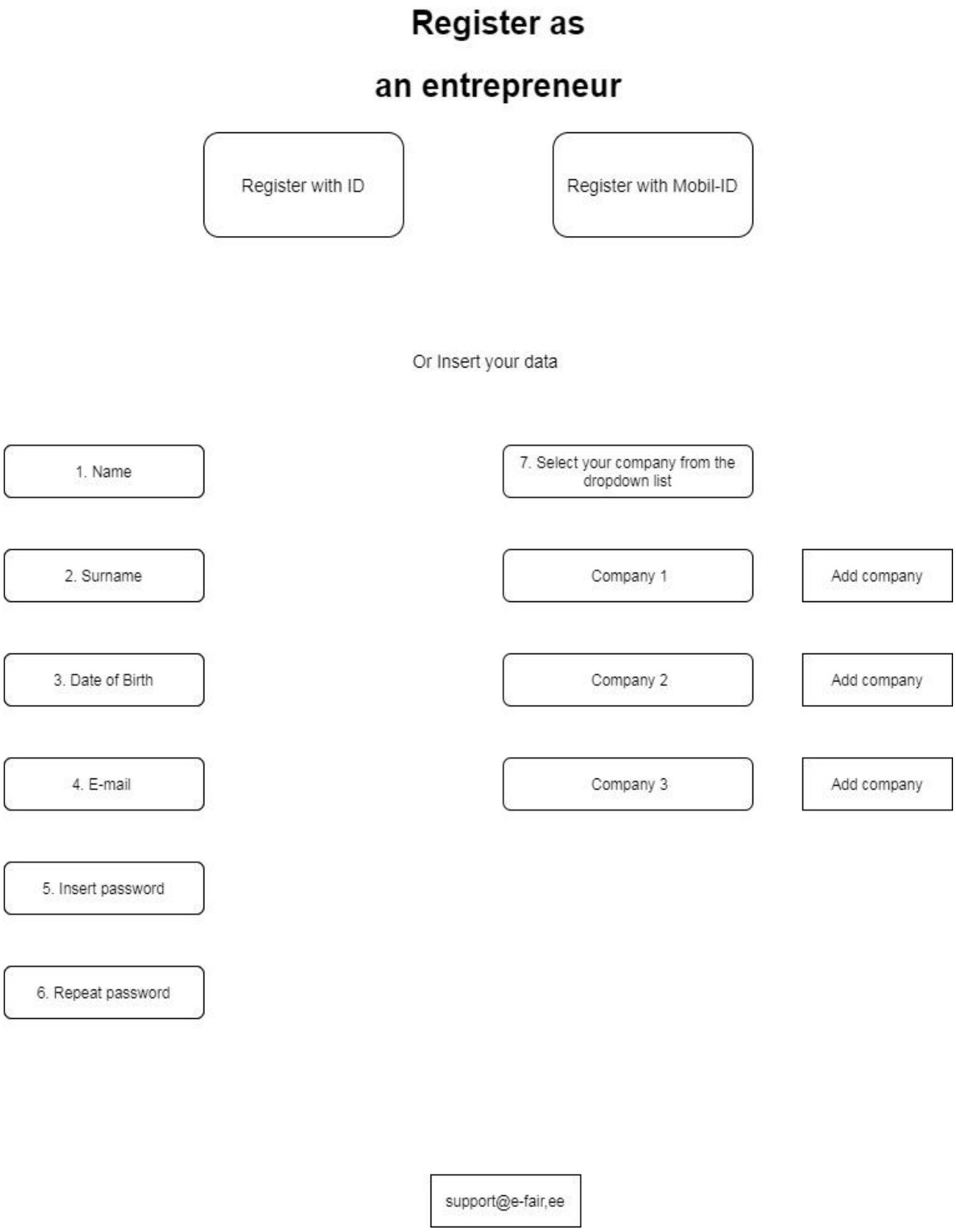
Appendix 3 (Project Registration form for a citizen)



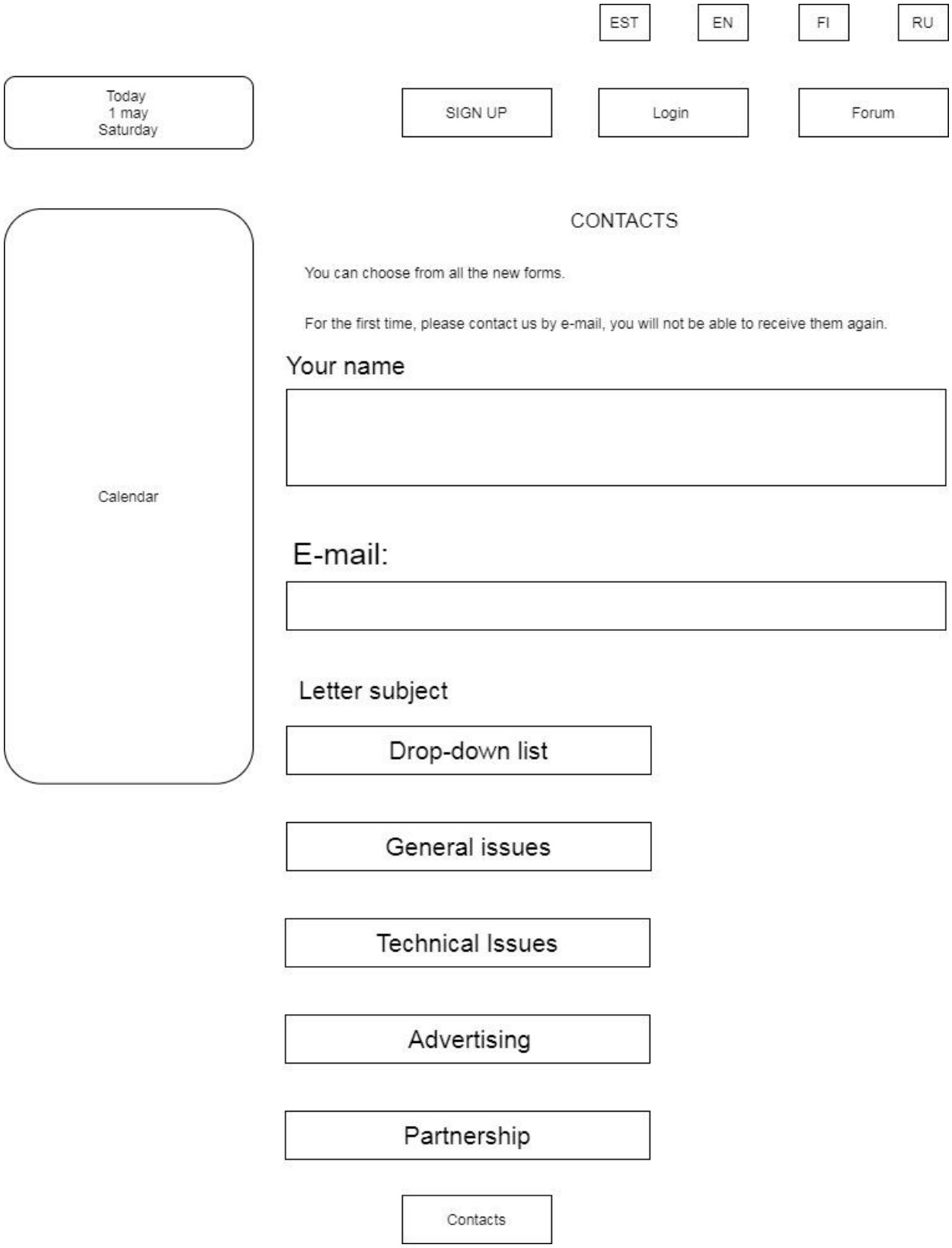
Appendix 4 (Project Organizer registration page)



Appendix 5 (Project Entrepreneur registration page)



Appendix 6 (Project Contact/Support Form)



Appendix 7 (Project form for registration on event)