A digitized and automated service for Consent to vaccination and health interviews

A SEROI analysis- In Kramfors, Västernorrland, Sweden

ERUDITE
Interreg Europe

Table of contents

Introduction

The public sector needs to deliver welfare services with sustained or higher quality, even if there are several challenges to overcome. Västernorrland is a region where the demographic conditions indicate that we, like many regions in Europe, have an ageing population and slow population growth. We also need to successfully overcome various types of physical and other distances, and to do so in the long-term.

We believe that if we can successfully automate and digitize time consuming services that are performed partly manual today, we will increase the accessibility, transparency and efficiency in public administration. They will provide to a simpler everyday life for individuals and companies in their digital meeting with the officials in the municipalities in the region of Västernorrland.

In this project we will develop a service where the school nurses can obtain the consents that are now obtained through paper copies. The digital solution allows you to customize information, work with information in different languages, link to movies, etc. t provide information and prepare both students and parents for the vaccination. The consent will be signed by your personal bank ID.

Policy goals the project support

Västernorrland regional development strategy, RUS, is a strategy document containing visions, goals and long-term priorities for development work in the county for the years 2011-2020. RUS is the starting point for all growth efforts in the county, including the strategies and programs developed within the EU cohesion policy.

Future Västernorrland! - Regional development strategy (RUS) 2011-2020

The relevant overall strategy goals for this project are:

- Increased Accessibility
- Enhanced Innovation

In 2020, Västernorrland will have widely reached a competitive and sustainable accessibility and measures shall be implemented until 2020, to give private and public services a level of accessibility and quality that increases the appeal of the entire county.

To achieve these goals, RUS focuses on four key perspectives, two are being addressed within this project: *Sustainability perspective* – economic, social and ecological sustainability shall permeate concrete efforts and policy dialogues within all sector programmes and the entire regional growth and development work and effective communication – *effective information* flows must be utilised at all times, and our possibilities are to be marketed in a way that creates an attractive image of the county and makes it a natural, cross-border collaboration partner for many."

eCollaboration – regional cooperation on digital services

Our regional cooperation on digitization, called 'eCollaboration', has been going on for some years. The

region has a tradition of high density of IT companies and several government authorities with high IT skills are in the region. These are gathered in an authority network that collaborates on several levels. The new Digitalization Authority is also determined to be established in the area. Kommunförbundet Västernorrland brings together business managers and developers in several areas to collaborate on a wide range of common development areas and challenges. The prerequisites for cooperation in general and cooperation on digitization are therefore good. Between 2011 and 2014, the project RIGES was in progress, a structural fund project in which Härnösand, Sundsvall, Timrå, Kramfors and Örnsköldsvik participated. The project developed a common platform and 12 e-services for companies and the public to apply for online building permits, to find information easier, as well as using the municipal tools for maps.

Today, the platform is used by about 90 municipalities. RIGES was inspired by the Interreg project PIKE. In autumn 2014, the five mentioned municipalities started the project eCollaboration, to utilize the RIGES delivered and spread to more business areas. Today, all municipalities in Västernorrland (Härnösand, Kramfors, Sollefteå, Sundsvall, Timrå, Ånge and Örnsköldsvik) participate as well as the municipalities of Hudiksvall and Nordanstig. During the first stage, the necessary anchoring process for digitization and knowledge building has led to involvement, working methods and collaborative forms within the participating organizations.

The number of automated and digitized services in the municipal sector are very few and this is where the municipalities have a large potential for impact assessment. One sub-project in eCollaboration aims to fully or partially automate two selected errand processes and contribute to learning and experience for continued automation of municipal activities.

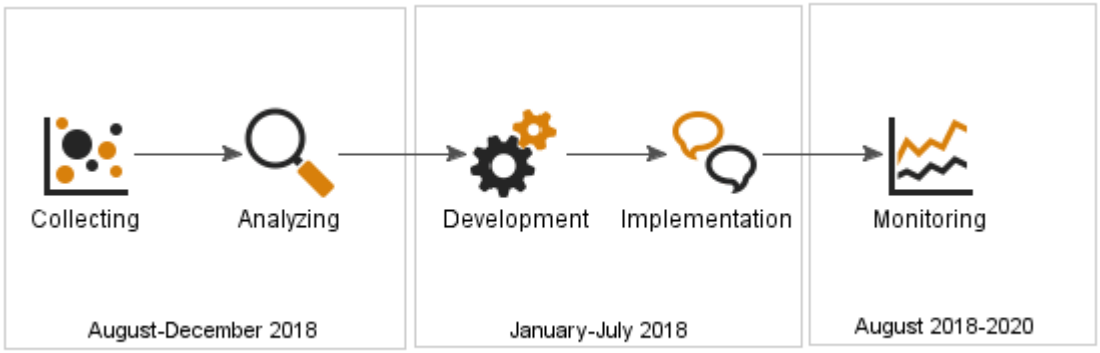
The two new digitized and automated services will increase the accessibility, transparency and efficiency in public administration. They will provide to a simpler everyday life for individuals and companies in their digital meeting with the officials in the municipalities in the region of Västernorrland.

With the information described below as a base, two errand processes have been selected for automation; Consent to vaccination and health interviews and Application for social assistance.

The working process applied in the project

The SEROI+ method

In this evaluation we will use the Socio-Economic Return on Investment (SEROI)+ method as an evaluator of the performance in this defined project. The socioeconomic values will be described in words, using a qualitative method, and it will also include a calculation on the Return on Investment (ROI) to evaluate how the beneficence is relating to the costs that have been invested. That is, this service can be provided more efficient, and we will calculate this in monetary terms. The plus (+) means that the process for developing the service has been including the end users needs and coproduction activities.



Collecting

Several workshops were carried out in the municipalities in Västernorrland. The aim of the work-shops was to create a gross list of potential errand process for partly or full automation. The stake-holders involved in the workshop were management and/or business-related officials. During the workshops the stakeholders also rated the process within a four-panel array consisting of the indicators; number of errands and time spent from the officials involved in the process.

1 = smaller number of errands, shorter time of processing
2 = larger number of errands, shorter time of processing
3 = smaller number of errands, longer time of processing
4 = larger number of errands, longer time of processing

A criterion was also the automation potential – some services were immediately put aside as there were no possibility to develop them within this project. Depending on the ratings a top 10 list was created with the errand processes that had a high number of errands and that also took a long time to process, with one or more officials involved in the process.

Analysing

To gain more knowledge about these 10 potential services a more thorough mapping was carried out where the staff immediately involved in the processes was interviewed. The purpose of this mapping was to identify the legal requirements and gain a more thorough understanding of the process.
For example:

-Number of errands per month
-The number of hours/days it takes to handle the errand
-If there is an eService today
-What IT-system is being used today
-What legal requirements is surrounding the errand process

Developing

A procurement of IT-expertise and designers has been done. Together with them we will develop a new process for handling the errand which will include an e-service as the interface for the users and an integrated and automated solution on the other side, where the officials take care of the results.

Rough sketch of the development process

- RPA (Robot Process Automation) process design
- Robot development. Program the robot in development tools
- Perform controlled tests and test it within the production
- Continuous improvement. Analysis of deviations and development of corrective actions.

Methods for service design methods will be used, applying what within the ERUDITE project is referred to as co-creation activities, ensuring the perspective and needs of the end users and involving them in the process.

Service design is a way to actively develop a service by co-creating based on users (i.e., the guardians. Nurses and school staff) experiences and needs. Service design involves activities where the users are invited to participate in the design of the service. The purpose of the service design is to customize a service so that it meets and cater to the needs of users as much as possible. Service design is expected to lead to increased quality of the service. Depending on the type of service being developed both the individual, business and organizational level will be involved.

The service design will be carried out in four steps:

- Create understanding by capturing the experiences from users
- Analyse the experiences we found
- Create understanding and make the necessary changes
- Apply the new way of working

The primary users for the development of the automated errand processes are staff within the municipalities. But within the process end user's opinions also will be considered. Using the service design method and co-creating with the users the selection of final indicators will be done to prepare for the monitoring phase.

Implementing

The implementation is ongoing now. The eservice has been prototyped and will be tested in autumn 2018.

The results from the pilot will be evaluated together with the developing teams and school nurses in Kramfors and in Timrå.

The next phase will be to integrate the results between the incoming answers to the business system

in use with robotics process automation, RPA. The data provided by parents and children for a health interview will be feed directly into the two different systems that are concerned. All administration and paper handling that is currently necessary will therefore be significantly reduced, possibly eliminated.

Information on the service

Vaccination

Children are vaccinated on several occasions during their upbringing, starting around three months of age. The vaccinations offered to all children in Sweden are commonly called for the general or basic vaccination program.[1]

School Health Care, which is the medical competence in student health, has been given responsibility for monitoring and preserving students' health.

As a guardian or parent, you will receive a message when it is time for vaccination. Children up to five years are vaccinated at a child welfare centre. The nurse is documenting in the child's journal and health card which vaccine the child has received. Information is also available in a national vaccination register. Children who have started school are vaccinated by the student health, by a school nurse. When the child goes to school, you always must sign a form/certificate confirming that you consent to that your child will be vaccinated.

Guardians/parents receive information about the basic program for this in relation to parent meetings in the autumn each semester. The teachers are giving information via weekly newsletter that vaccination will take place in certain weeks. (There is the possibility of joining children, for example, if they are afraid of syringes).

If the child is allergic, there is a risk of an allergic reaction, then the child must be vaccinated at the children's clinic. Children who newly arrived at Sweden are following other programs because they probably did not receive the same vaccinations as Swedish-born.

Health interviews

Based on Skollagen (The School Law) SFS 2010: 800 § 27, every student in elementary school, primary school and special school shall be offered at least three health visits to the school nursery that include general health interviews. In high school and upper secondary school, students will be offered a health visit. In Västernorrland, students in pre-school class, grade 4, year 7 and first year of high school are offered this.

The results from these interviews are compiled into a report. The survey is part of the county's public health work. It is used as a knowledge and decision-making basis for the actors, politicians and other spokesmen involved, and provides a unique opportunity to follow the development of health in children in Västernorrland, its municipalities and schools[2].

[1] https://www.1177.se/Vasternorrland/Fakta-och-rad/Behandlingar/Vaccinationer-av-barn/
[2] https://www.1177.se/Vasternorrland/Fakta-och-rad/Behandlingar/Vaccinationer-av-barn/#section-4

School health care is the activity that has been assigned to the community to organize and offer health care for children and adolescents. School health care means interventions by school nurse and school physician to promote the student's health. As part of this assignment, the school health care system performs a so-called basic program that includes all children of school age. This includes vaccination and recurring health interviews.

In addition to be a registered nurse, the nurse is also a specialist trained as a district nurse, child nurse or other equivalent specialist education. Working as a school nurse requires several years of experience and competence.

The same school nurse often works in both two and three schools and can have hundreds of students as patients. The National Association of School Nurses Recommends 400 Students / Full-Time Nurses, but in the reality, it can be up to 800 students.

How the service Consent to vaccination and health interviews works now

A form is sent by mail as a personal letter, by the nurse. This mail also includes information about the vaccine that is actual. The information is also available in several languages via the public health authority.
The children must bring the form back in writing. Only about 50% will be back in time. Both guardians must sign the form. This means major difficulties for the school nurses to handle the fact that the children who have guardians living on different addresses, with joint custody, it may take several weeks to find them etc.). When the form does not return, which is most common- the nurse often must have contact again with the teachers, for them to remind the children on this.

Preparation of the child - parents if necessary (suggestions from the school nurse that parents could get information, for example, through a link to a video clip how to support children who are afraid). When the vaccination is carried out, there is always two school nurses in service.

Consent to health interviews is handled in the same way. A health questionnaire is sent out to the guardians/parents and children to fill together and then bring to the health check. The parents leave their consent for the information in the form to be submitted to the regional database used by the school healthcare service. In this case, there is only need for one of the guardians to sign the consent.

What do we expect to change – different stakeholder groups

The guardians/parents and their children/students

The starting point is favourable because there is a great deal of trust for the school and the system which makes residents less susceptible to information. Vaccination though is a difficult issue where sentences break apart and it is difficult to know what long-term effects the vaccine may have. When "someone else" comes with a recommendation, you are welcome to receive help.

Guardians want to have access to vaccination history. The service may link to that information that comes from another database.

The children don’t have to bring this important form home or back to school. That is, they no longer

need to be responsible at all for this task to collect signatures from their guardians.

The guardians will get the information in an easy way and close upon the time for when their action is needed. Reminders of when vaccination or health interviews will happen will be sent automatically.

One guardian/parent does not need to take responsibility for the other one to also sign the document.

The nurses and teachers at school – service providers

The nurses can use working time to work preventive with student health instead of spending time on this administration. The process for contact with the guardians will be far easier to handle and more straight forward. They do not have to contact the teachers first, to get them contact the children and guardians who have not signed the consent.

It will be easier to share more information on vaccination and about the health interviews in an effective manner. The nurses can send out reminders about these events at their and the guardians desired rate.

The policy makers

The main interest for the policy makers is that the municipality can provide statutory health services to a lower cost but with maintained quality or even with improved and increased quality.

Impact map

Stakeholder	Impact	Indicator	Value
Guardians Children End users of the service 1. Monitoring	Increased availability (24/7) and user friendliness.	Enhanced user´s experience. Easier to handle, for example notifications as reminders. Info reaches both guardians.	Qualitative values from survey results based on current/previous attitudes rating vs new.
	More thorough information, links o different media. Different languages?	Enhanced user´s experience. Information in the right time.	Qualitative values from survey results based on current/previous attitudes rating vs new.
Providers of the service in the municipality 2. Monitoring	Faster errand processes	Time spent for executing # of errands (per period)	Time (and cost) savings in executing the vaccinations and health interviews → monetary value
	Support in reaching out with information and getting the consents in time.	Time spent on reminding guardians/pupils (per period)	Time (and cost) savings in executing the vaccinations and health interviews → monetary value
Staff category 1 Nurses 2.1 Monitoring	Focus on health actions aimed toward the pupils. More "customized" interaction w pupils	Time spent on preventive health care and training. Accessibility 1-to-1 interaction with pupils. Experience of enhanced quality of work.	Time studies: preventive health care and training. Survey: Measure increased satisfaction of work carried out.
Staff category 2 Teachers 2.2 Monitoring	Faster errand processes	Time spent for executing # of errands (per period)	→ monetary value
Policy makers 3. Monitoring	Increased access and more cost efficient services	SEROI Costs for providing and increasing the quality level of service.	→monetary value + enhanced quality-of-work due to more preventive actions on students' health

Monitoring

1. Improved quality from the end user's experience

This service will be used for just over 2 400 students in Kramfors. This means that it will have an effect for about 2400-4800 guardians/parents as well.

Guardians/parents in 11 different households have been interviewed before the new service is implemented. All of them were positive to this change, just a few sceptics and in mostly of the families, the parents were living together. There might be other possible solutions that will come up when we are interviewing and involving the guardians' groups in the process again.

We still need to understand more about:

• Guardians/parents who do not live together.

• Guardians/parents with language impairment.

The survey results on their attitudes in this first baseline measurement will be compared with their answers in a new survey, that will be carried out during the autumn 2019.

2. The total time (and cost) savings for providing the service

Together with the school nurses, we will conduct three measurement periods every four weeks each (with a period between each). If possible, we will carry out a further measurement at the end of the project period as well.

A baseline measurement will be carried out for all the indicators listed above and then we will monitor the indicators at least three times.

The largest time gain will probably be achieved when the RPA transfers the answers from the form for the health check into the system and regional database that gathers this information.

The sum of all costs to provide the service, investments and ongoing costs, will be summed up.

Total costs:

- Service Design
- eService development
- RPA development, implementing and maintenance
- Staff

2.1 Improved quality from the service provider's perspective, i.e school nurses

We will use a form where the school nurses estimate how they perform their work and use their time, divided into five different categories:

1. Health interviews and health checks according to the basic program

2. Vaccinations (execution)
3. Student health work (work together with other student health staff and health interviews/checks outside the basic program)
4. Continuous training (joint or own)
5. Administration (sending's, documentation, reminders)

Our working hypothesis is that the reduced time for administration will contribute to a more fruitful preventive work for better health, and that this change will probably lead to better school results.

3. A SEROI analysis for policy makers

Increased access and more cost-efficient services SEROI Costs for providing and increasing the quality level of service. Monetary value + enhanced quality-of-work due to more preventive actions on students' health, investment costs → monetary value and increasing the quality level of service → new and improved policies.