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**D02.02 Analysis and modelling of proactive services**

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| Authors | Dries Catteceur  Florian Barthélemy |
| Reviewed by | Brecht Wyns |
| Approved by |  |

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# Introduction

## Context

The Estonian Ministry of Economic Affairs and Communications states a proactive service as:

“*a public service that a public institution delivers following its own initiative considering the presumable will by the person and that is delivered based on the information stored in the data collections belonging to the state information system. Proactive service is based on life and business events and circumstances. Reactive service is a service that relies on the person to initiate the service process*”[[1]](#footnote-1)

Proactive services are expected to enhance the life of service providers and beneficiaries such as citizens by countering bureaucracy and minimizing the amount of administrative steps between the needs for a public service and its delivery. By implementing proactive services, the government makes sure that every citizen and business receives the services they are entitled to. However, some challenges arise from the new concepts and practices required to implement proactive services. How can a public administration determine the *presumable* will of a beneficiary? How can at the same time a public administration collect and manage personal data and provide a proactive service in total transparency for the external stakeholders?

Proactive services were introduced to the CPSV-AP Working Group in 2018 by some of its members during several events. This topic attracted a broad attention from the Working Group members. One of the questions raised is whether the CPSV-AP could be extended or not to account for proactive services. This report describes the activities and main findings for answering to this question.

## Objectives

The main objective of this report is to analyse how proactive services could be modelled as an extension of the CPSV-AP or as an independent model and to give recommendations based on this analysis.

## Approach

The following approach was adopted for collecting the information needed for our analysis in order to elaborate our recommendations:

* Qualitative research through several interviews.
* Define use cases from the interviews
* Derive requirements from these use cases
* Propose a representation of the requirements as an object diagram
* Give recommendations on how to model proactive services in relationship with the CPSV-AP

# Use cases

## Use case 1: Granting of transport subscription for disabled people

**Table 1: Granting of transport subscription for disabled people - use case description**

|  |  |
| --- | --- |
| **Element** | **Description** |
| Title | Granting of subscription for disabled people |
| Description | The legal tutor of a disabled person is acting as the intermediary for requesting a subscription for public transport to the responsible public organisation. This request is made through a webpage. When receiving the request, the public organisation proactively checks different criteria to verify if:   * the person introduced as the tutor can legally act as an intermediary for this service. * the price of the subscription can be reduced.   The evidence required to confirm or invalidate the criteria will be proactively collected from the data previously provided to or collected by the government and, when possible, automatically checked. If eligible, the person will buy the subscription at a lower price without having to request a discount. The government is actively collecting data to minimize the risk of citizens missing out on public services by outdated data. |
| Actors | Citizen, public administration through an automated system |
| Final recipients | Citizens |
| Preconditions | A system that has access to up-to-date and machine readable data from citizens and criteria needed for price reduction. |
| Flow | 1. Martin is the legal tutor of John, a disabled adult. 2. Martin demands a subscription for public transport for John from the online webpage of the public transportation company. 3. The system that processes the request has up-to-date and machine-readable information from citizens. First, the system checks the validity of the request introduced by Martin: can he act as the intermediary for John? If yes, the personal information from John is matched against the criteria for all the reduced rates that the public transport company offers. If some information is missing, Martin is asked to provide it through one or his preferred channel in accordance with the Only-Once Principle. In such a case, the newly collected data is managed as personal data. If not provided yet, Martin will also be asked about John’s preferences regarding proactive services. 4. The system acknowledges a match between John’s information and the criteria for disabled people. The price for the subscription is automatically reduced. 5. Martin pays the reduced price. John has automatically been benefiting from the rights he has. |

## Use case 2: Granting of child benefits

**Table 2: Granting of child benefits - use case description**

|  |  |
| --- | --- |
| **Element** | **Description** |
| Title | Granting of child benefits |
| Description | After a child is born, one of the parents is legally obliged to register the child at the local municipality. In accordance with the registration made, the personal data of both parents will be modified. Based on the criteria for child benefits, the system will recognize that the parents are entitled to child benefits. The system will automatically send out a request for benefits. The parent who registered the child is appointed as receiver. The up-to-date information that is available is important to:   * Assess if the parents have children already, in that case the system will adjust the corresponding benefits automatically. * Obtain payment data from the person who has been appointed as receiver. If for some reason no receiver is specified, than the mother of the child will be appointed as receiver. |
| Actors | Citizens, public administration through an automated system |
| Final recipients | Citizens (parents) |
| Preconditions | A system that has access to up-to-date and machine readable data from citizens including financial data linked to the parents. |
| Flow | 1. Sara gave birth to her first child. Afterwards she goes to her local government office with her husband Tom to register their child. 2. By registering their child, the personal data of Sara and Tom is modified. The system recognizes this change and matches their data against the criteria for receiving child benefits. The parents receive a certification proving the registration of their child. 3. The system recognizes that Sara and Tom are eligible for child benefits and Sara is appointed as receiver. Financial details of the parents are included in the personal data that is gathered. The system starts the process to pay the right amount of benefits to the parents. 4. Sara and Tom receive the right amount of child benefits every month. |

## Use case 3: Proactively informing businesses regarding hindrance from roadworks

**Table 3: Proactively informing business regarding hindrance from roadworks - use case description**

|  |  |
| --- | --- |
| **Element** | **Description** |
| Title | Proactively informing citizens regarding hindrance from roadworks |
| Description | Construction works can cause hindrance and affect mobility of businesses nearby. The government can assist these affected businesses by proactively informing them about possible hindrance in their area and automatically proposing them to apply for a compensation grant.  For doing this, the road workers responsible (e.g. private or public organisation) communicate detailed information about the roadworks and its impacts. In combination with open data and personal data stored by public administrations such as the preferred channel for contacting business’ owners, the public administration decides:   * The level of impacts for the businesses and citizens within the roadworks area; and * The level of compensation those profiles are entitled to.   Based on these decisions, businesses and/or citizens who will be affected by the construction works are contacted and informed they can apply for subsidies to compensate the hindrance. If some of them have marked their consent for directly receiving the compensation without prior validation, the public administration takes automatically the required actions for granting them the right benefits. |
| Actors | Public administration, businesses, external service provider |
| Final recipients | Businesses |
| Preconditions | The contractor shares the necessary data with the local government and the algorithm is able to analyze the data.  The public administration has access to up-to-date data from businesses. |
| Flow | 1. For upcoming roadworks, the local government is gathering data from the road workers concerning the project. 2. The data enables the public administration to estimate clearly and with a certain granularity the impacts of the roadworks during a certain period of time and for different areas affected. The estimation is based on algorithms available in a transparent manner. 3. The local government runs an algorithm to assess the possible impact on the mobility of the area. The algorithm checks certain criteria to only match the businesses which are affected by the roadworks. It indicates that a nearby grocery store will be affected since all transports will be cut-off for a period of two weeks in the street where the grocery store is located. 4. The government proactively estimates the amount of compensation the grocery store could benefit from and checks whether the grocery store’s owner has already marked her consent for proactively receiving such benefits. The local government contacts the owner through her prefered channel indicated within her personal profile and informs her about the cut-off and hindrance to her day-to-day business operations. Additionally, if she has not provided her prior consent, the government informs her about the possibility to apply for a grant to compensate for this hindrance. If the consent was available, the government takes the immediate actions to allocate the appropriate grant. 5. Depending on the availability and quality of the data describing the roadworks in near real-time, the public administration could still adapt the amount of the compensation granted. 6. The government publish periodically aggregated results of its proactive services including general results of its policy regarding roadworks compensations. |

## Use case 4: Control channel of the services proposed and of the usage of the data stored

**Table 4: Control channel of the services proposed and of the usage of the data stored - use case description**

|  |  |
| --- | --- |
| **Element** | **Description** |
| Title | Control channel of the services proposed and of the usage of the data stored |
| Description | While providing proactive services, the government should ensure that those services benefit the whole population without, for example, discriminating non-digitally aware citizens. Besides internal controls, the government must give the possibility to any person interested to verify the validity of the public actions. This means that the government must communicate in technical and non-technical terms a minimal set of information such as:   * The list of public services proposed proactively or reactively. * The actions undertaken to provide those services, e.g. to collect, store, secure and give ownership to the data. This should above all provide in total transparency the algorithms used and statistics applied to the data. * The results of the statistics and services provided in an anonymised and/or aggregated way.   This would help any person to verify the validity of the decisions and actions undertaken by the public administrations.  The government should take at any point the required steps to secure and anonymise the personal data being handled. |
| Actors | Governments, citizens, businesses |
| Final recipients | Governments, citizens, businesses |
| Preconditions | Data management practices within the public administrations.  Information shared by the citizens, businesses and other public authorities. |
| Flow | 1. The public administrations document and communicate about a proactive service provided to all citizens. 2. The control body of the government verifies that the required information is publicly available and understandable. If not, the control body gives clear actions and timeline to the responsible public administrations to correct their position. 3. A watchdog, using the list of public services provided online, the legal sources related to those services, the criteria for providing the service, the algorithm and the aggregated numbers about the results of a specific service, detects that a certain segment of the population could not benefit from the proactive service because the government did not collect their personal data beforehand. 4. The watchdog communicates the information to the government through an official channel, a parliamentary member or a newspaper. |

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# Requirements

Table 5: Information requirements

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| --- | --- | --- |
| **Information requirement** | **Description** | **Related Use Case and element identified** |
| **IR1** | The data model MUST describe that a public service has criterion | UC1 *criteria for reduced rate*  UC2 *criteria for receiving child benefits* |
|  | The concept of criterion MUST be defined | UC3 *criteria; estimates the amount of compensation*  UC4 *criteria for providing the service* |
|  | The data model MUST describe that an intermediary can legally act on behalf of someone else | UC1 *validity of the request* |
|  | The concept of agent SHOULD be defined | UC1 *citizens*  UC3 *businesses; grocery store*  UC4 *watchdog* |
|  | The concept of agent SHOULD include information about the location | UC3 *nearby grocery store; in the street where the grocery store is located* |
|  | The concept of intermediary COULD be defined | UC1 *legal tutor; Martin; Sara* |
|  | The concept of beneficiary COULD be defined | UC1 *disabled adult; John*  UC2 *receiver; child* |
|  | The concept of preference MUST be defined | UC1 *preferred channel* |
|  | The concept of channel MUST be defined as an entry point for a service request. | UC1 *online webpage* |
|  | The data model MUST describe that an intermediary can request a service through a channel to a public organisation | UC1 *Martin demands a subscription [...] from the online webpage* |
|  | The concept of public service MUST be defined | UC1 *subscription for public transport*  UC2 *register their child*  UC3 *informs her about the cut-off and hindrance to her day-to-day business operations; allocate the appropriate grant; apply for a grant to compensate for this hindrance* |
|  | The concept of public organisation MUST be defined | UC1 *public transportation company*  UC2 *local government office*  UC3 *local government;*  *public administration*  UC4 *public administrations* |
|  | The data model SHOULD describe that a public organisation offers services at certain cost(s) | UC1 *the price for the subscription is automatically reduced; all the reduced rates that the public transport company offers* |
|  | The data model MUST describe that evidence matches against criteria related to a service | UC1 *[..] personal information of John is matched against the criteria*  UC2 *The system recognizes the change and matches their data against the criteria for receiving child benefits* |
|  | The concept of a system COULD be defined | UC1 *automated system*  UC2 *automated system* |
|  | The concept of data MUST be defined | UC1 *personal data; up-to-date and machine-readable information from citizens*  UC2 *personal data*  UC3 *personal profile* |
|  | The data model SHOULD describe that an agent indicates his/her preferences | UC1 *Martin will be asked about John’s preferences*  UC3 *preferred channel* |
|  | The concept of event MUST be defined | UC2 *gave birth* |
|  | The concept of output MUST be defined | UC2 *certification* |
|  | The data model MUST describe that a public service can produce an output | UC2 *receive a certification proving the registration of their child* |
|  | The data model MUST describe that an output can trigger a public service | UC2 *system recognizes that Sara and Tom are eligible for child benefits* |
|  | The concept of consent MUST be defined | UC3 *consent* |
|  | The data model MUST describe that an agent gives his or her consent | UC3 *marked her consent* |
|  | The data model MUST include payment data linked to the agent | UC2 *Financial details*; *payment data from the person who has been appointed as receiver* |
|  | The concept of special circumstance SHOULD be defined | UC3 *roadworks* |
|  | The data model MUST describe that a public service can be triggered by a special circumstance | UC3 *informs her about the cut-off and hindrance to her day-to-day business operations* |
|  | The concept of special circumstance SHOULD include information about its starting date and ending date | UC3 *data; certain period of time* |
|  | The concept of special circumstance SHOULD include information about its location | UC3 *data; different areas affected* |
|  | The concept of service provider SHOULD be defined | UC3 *road workers* |
|  | The data model MUST describe that an agent can represent another agent | UC3 *grocery store’s owner* |
|  | The concept of a control body SHOULD be defined | UC4 *control body* |
|  | The data model SHOULD describe that the validity of a request is checked by a system | UC1 *request for subscription* |
|  | The data model MUST describe system access to the necessary data | UC1  UC2 |
|  | The data model SHOULD describe that an agent can play different roles as part of a public service | UC1 *legal tutor*  *UC2 receiver*  UC4 *detects* |
|  | The data model MUST describe that an agent interacts with a public organisation through a channel | UC1 *If some information is missing, Martin is asked to provide it through one or his preferred channel*  *UC3 The local government contacts the owner through her prefered channel*  UC4 *online*; *through an official channel, a parliamentary member or a newspaper* |
|  | The data model SHOULD describe that the system appoints the receiver of benefits resulting from a service | UC2 [..] Sara is appointed as receiver |
|  | The concept of legal resource MUST be defined | UC1 *rights*  UC4 *legal sources* |
|  | The concept of algorithm COULD be defined | UC3 *algorithms*  UC4 *algorithms* |
|  | The concept of document COULD be defined | UC3 *aggregated results; general results of its policy*  UC4 *required information; list of public services; aggregated numbers about the results of a specific service* |

# Representation of the requirements for modelling proactive services

Based on the findings from the analysis and consolidation of the input from interviews, an example of how proactive service could be modelled is proposed. This object diagram will meet the extracted requirements. The purpose is to define whether an adaption of the CPSV-AP is needed in order to include proactive services.

The object diagram is available on GitHub:

<https://github.com/catalogue-of-services-isa/proactive_services>

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1. <http://docplayer.net/101275547-Estonia-s-proactive-services-and-q-a-isa2-webinar.html> [↑](#footnote-ref-1)