1. **ORGANIZATIONAL MODEL:**

Ministry of Health

Website

Citizen

ASL

Email

Phone number

Base doctor

Border authority

1. **FUNCTIONAL MODEL (CRASO, PROCESS TABLE, UML PROCESS, BPMN): N.B Vedere se bisogna farlo per AS IS o TO BE**

**CRASO:**

|  |  |  |
| --- | --- | --- |
| REQUEST | CUSTOMER | OUTPUT |
| covid swab | citizen | swab result |

**PROCESS TABLE:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| NAME | INPUT | OUTPUT | DESCRIPTION | OU INVOLVED |
| fill form | Personal data of the citizen  Trip data  Signed commitment | Form filled | The citizen fills the form on the Ministry web site and remain quarantined until the result of the swab. At arrival the citizen delivers it to an authority. | Citizen, Ministry’s web site |
| Form check | Form data | Check result | At the border, the border authority checks the form from the Ministry’s web site. | Border authority, Ministry’s web site |
| Sending data to ASL | Citizen data and form check | Data sent to ASL | If the form is filled, the ministry sends citizen data to the ASL | ASL, Ministry of Health |
| ASL contact | Personal data of the citizen  Trip data  Signed commitment | Appointment arranged | The ASL contacts the citizen and arrange an appointment. | ASL, citizen |
| Swab performing | Citizen | Swab done | At the defined time and date the citizen performs the swab. | ASL, citizen |
| Swab analysis | Swab result | Contact doctor and citizen | When the swab result is available, the ASL contacts the citizen and his doctor (if positive starts another process, if negative the process ends) | ASL, citizen, doctor |

**UML PROCESS:**

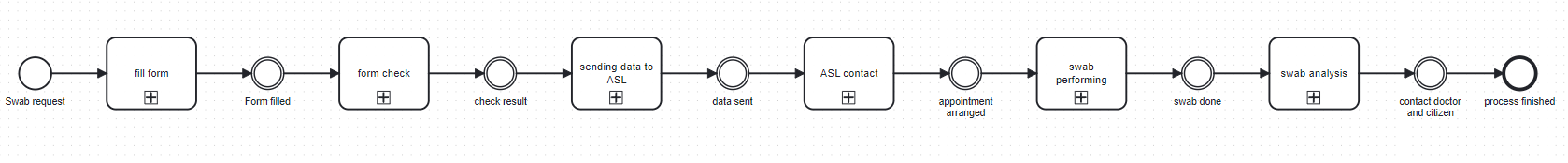
Immagine che contiene testo, diagramma, Piano, Disegno tecnico

Descrizione generata automaticamente

***PATTERN***

* **CARDINALITA’** opzionali

**BPMN:**

* + **OVERALL:**
  + **SWAB ANALYSIS:**

**Immagine che contiene testo, diagramma, Disegno tecnico, Rettangolo

Descrizione generata automaticamente**

***PATTERN***

* Bisogna scrivere il BPMN del **CRASO** (**OVERALL**) e poi quello relativo ad un **PROCESSO** (es. **SWAB** **ANALYSIS**) oppure solo il BPMN relativo a **tutti i PROCESSI.**
* Nel singolo **PROCESSO** (es. **SWAB** **ANALYSIS**) mettiamo i vari **QUADRANTI** che sono le **ENTITA’** protagoniste nel processo e all’interno di ogni ENTITA’ scrivo le azioni che eseguono.

1. **IT/TECNOLOGICAL MODEL (DEPLOYMENT UML, BUSINESS RULE):**

**DEPLOYMENT UML:**

**Immagine che contiene diagramma, testo, Piano, linea

Descrizione generata automaticamente**

*f*

***PATTERN***

Gurdare **l’ORGANIZATIONAL MODEL**:

* Per ogni **ENTITA’ ORGANIZZAZIONE** (es. ASL, MINISTRY ecc…) creare un **SERVER** dedicato con una **WEBAPP** (<<artifact>>) dedicata e un **COMMENTO** sui DATI GESTITI.
* Per ogni **ENTITA’ UTENTE** (CITIZEN, DOCTOR ecc…) creare un **DEVICE** dedicato con un **BROWSER** (<<artifact>>).
* **CARDINALITA’** possiamo non metterle

**BUSINESS RULE (almeno una):**

1. Citizen has to perform a Covid swab within 48 hours from entering Italy
2. Doctor cannot take a swab by himself

***PATTERN***

* Bisogna scrivere almeno una business rule, ovvero regole e vincoli nell’IS **(LOGICA o ARITMETICA**).
* Si possono inventare/ipotizzare business rule a piacere.

1. **DEFINE KPIs:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| CSF  Name | KPI  Category | KPI  Name | KPI Description | Unit of measure |
|  | General | **N\_** swabs | Number of swabs taken per ASL |  |
| CSF1 | Service | **LT\_**appointment | Lead time to take an appointment for a citizen | t |
| CSF2 | Efficency | **C\_**swab | Cost of a swab including personnel, chemical materials, analysis, machines of the lab | euro |
| CSF1 | Quality | **Q** | N\_swabs/N\_citizens | % |

***PATTERN***

* Prendo le varie categorie KPIs e descrivo il processo/processi presente/i nel CRASO
* Associo i vari CSFi alle singole righe
* NOMI:
  + General 🡪 N\_
  + Service 🡪 LT\_
  + Efficency 🡪 C\_
  + Quality 🡪 sempre e solo Q
* COMPLETAMENTO TABELLA:
  + QUALITY Description 🡪 sempre un **RAPPORTO** (**non\_conformi/totali**)
  + SERVICE Description 🡪 sempre **Lead time** di qualcosa
  + GENERAL Unit of measure 🡪 **VUOTA**
  + SERVICE Unit of measure 🡪 t
  + QUALITY Unit of measure 🡪 %
  + GENERAL CSF name 🡪 VUOTO
  + EFFICENCY CSF name 🡪 il CSFi che parla di costi/numeri
  + SERVICE e QUALITY CSF name 🡪 I CSFi astratti

1. **COMPARE** the previous and the current situation, using the KPIs defined above:

|  |  |  |
| --- | --- | --- |
| KPI | AS IS | TO BE |
| **N\_** swabs | Number of swabs taken | No change |
| **LT\_**appointment | Time to compile form  Time to deliver form to authority  Time to contact ASL  Time to collect data for the ASL | No change  Decreases (check online)  Decreases (asl contacts first, so no queue for citizen)  Decreases (same form sent by authority to asl) |
| **C\_**swab | personnel cost  cost of chemical materials, analysis, machines of the lab  cost of delivering data | No change  No change  Decrease |
| **Q** | N\_swabs/N\_citizens | No change |

1. Considering the ministry of health + ASLs and the infrastructure they have to build or acquire for the TO BE, define **the software functions** needed:

|  |  |
| --- | --- |
| **PROCESS/ACTIVITY** | **SW FUNCTION(S) NEEDED** |
| **Filling form** | Fill form (web site, application on device)  Receiving data (ministry server) |
| **Checking form** | Check form (web site, application on device) |
| **Sending form** | Send form (application on device)  Receive data (asl server) |

1. Considering the comparison in point 5, summarize **pros and cons** for the actors in the TO BE situation:

|  |  |  |
| --- | --- | --- |
|  | **PROS** | **CONS** |
| **Citizen** | Instant sending of form (online)  Automatically contacted by ASL for appointment | Cost of servers and applications |
| **ASL** | Automatically receive data form of citizen (sent by authority online) | Cost of servers and applications |
| **Ministry** | Control on citizen data (form online) | Cost of servers and applications |
| **Authority** | Fast check (online) | Cost of servers and applications |

1. Consider the case of exercise 1. Analyze it applying the concepts of Agency theory.

Principal: Ministry

Agent: Citizen

Agency costs:

* Bonding: filling form
* Monitoring: checking form

1. Describe the ‘Conway’s Law’ and its application to Information systems

The Conway’s Law says that if an IT AREA CENTRALIZED is not controlled properly inside the IS it degenerates in DECENTRALIZED.

1. Describe the differences between ‘time and material’ and ‘fixed price’ market transactions

In market transactions ‘time and material’ is a method to obtain the price of the transaction, that is computed proportionally to work load (time) and materials used. On the other hand ‘fixed price’ suggests a stable price for the transaction independent from others factors.

1. Describe the high level software functions offered by an ERP

They are Administration support, operations support and management support.

1. Describe the multi sided business model, and provide an example of it

This is a type of business model canvas and regards all that organizations that offer products/services of different areas and domains.

An example of it is ‘Carrefour’ that sells food, but also home tools, school tools and so on.