

Civil registration

Summary of the organization routines and tasks

National Organization for Civil Registration:

Mainly in this specific organization registration, issuing and validations of various certificates are being handled.
Such as:

- Birth certificates for babies
- Death certificates
- Changing the ID certificate
- National card issue
- Marriage and Divorce certificates
- Population statistics gathering

This organization works under the supervision of the country's minister.

System analysis & design

Targets of this system.

- Main concept of this organization's system analysis & design is tracking the population statistics such as:
- Population count
 - Birth and death control
- This organization's system is the base of all other orgs.
- Imagine if you don't have an ID or SSN
And you are willing to book a room in a hotel or
you want to have an insurance.
- Or if a person dies how should his/hers
Heir(s) approach the law for claiming their
inheritance.
- After all the data this organization provides
could be effective in many
Fields, pollution policies, DOJ (Department of
Justice) system.
- Each SSN only can have 2 vehicles in possession.
 - Referring to the population density of this area needs for hospitals, Fire Stations and are high.
 - All male* citizens that are informed for military service and has never shown their presence by below conditions can be freed of doing the service.
 - Over 30 years old
 - Having 2 or more children
 - Being married more than 10 years

System analysis & design

This part refers to the problems, complications, Solutions, that could be Offered and deployed to The Project.

System analysis & design

Challenges & Security

Security Levels of such an important organization is a Challenge so we need the Organization roles and Assignments for every single one of the employees.

At top of the pyramid, we have:

The countries General Minister

whom that presents the connection between

The government and the people.

All the operations are being controlled directly &

Un directly by General Minister.

Choose By: President

Next person at second position:

the General minister's deputy

**Who has the direct and effective vision
on the organization**

Choose By: General Minister

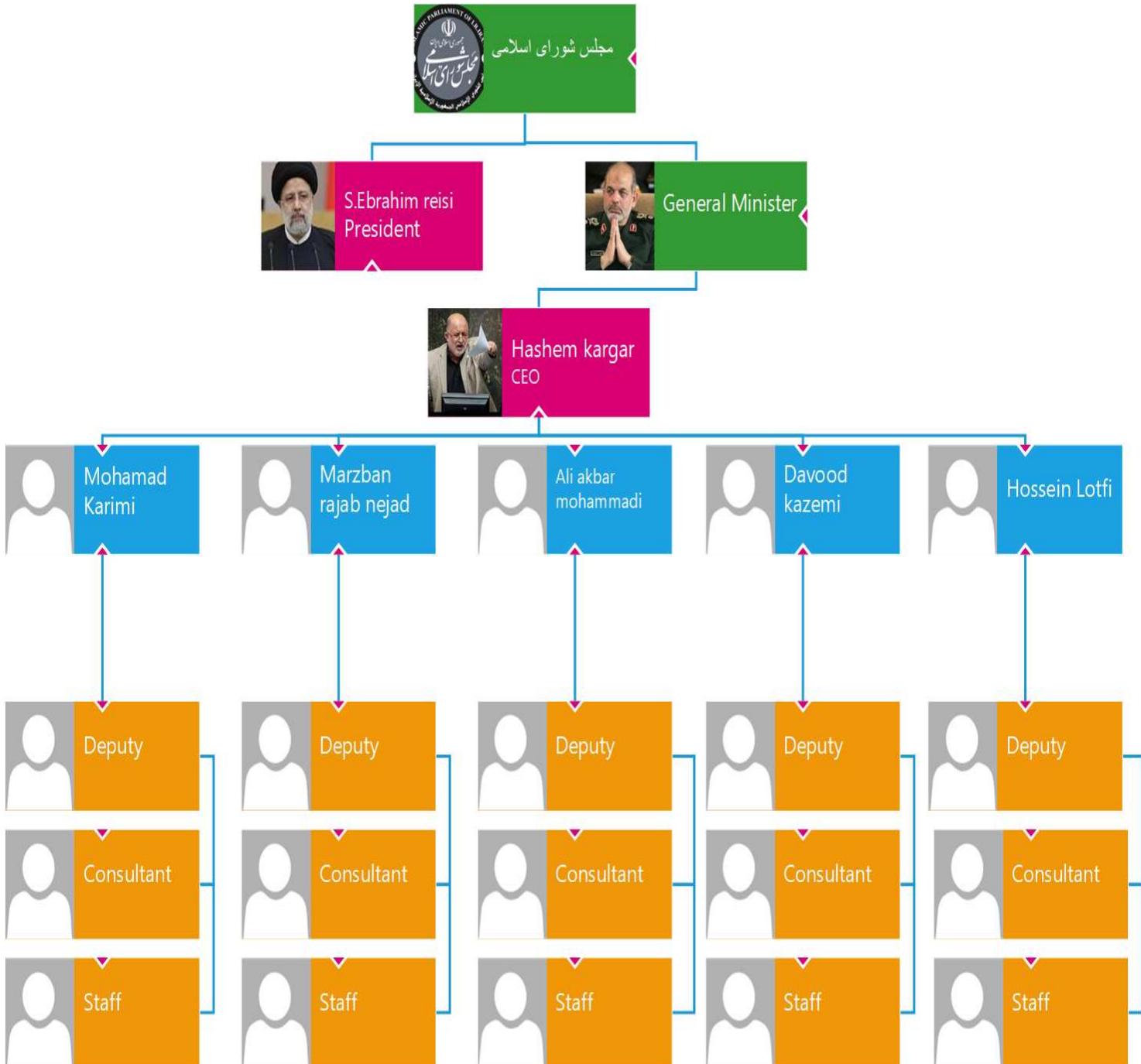
Next levels are the deputy departments:

Every one of them are obliged to serve

In one specific department & state.

Choose By: Minister's Deputy

Chart and Tree of the organization roles would be available in next pages.



This is a general chart.

**More specific inheritance chart and layers of access to statistics &
Data for employees and staff will be
Shown later after some explanation.**

Security layers and organization rules

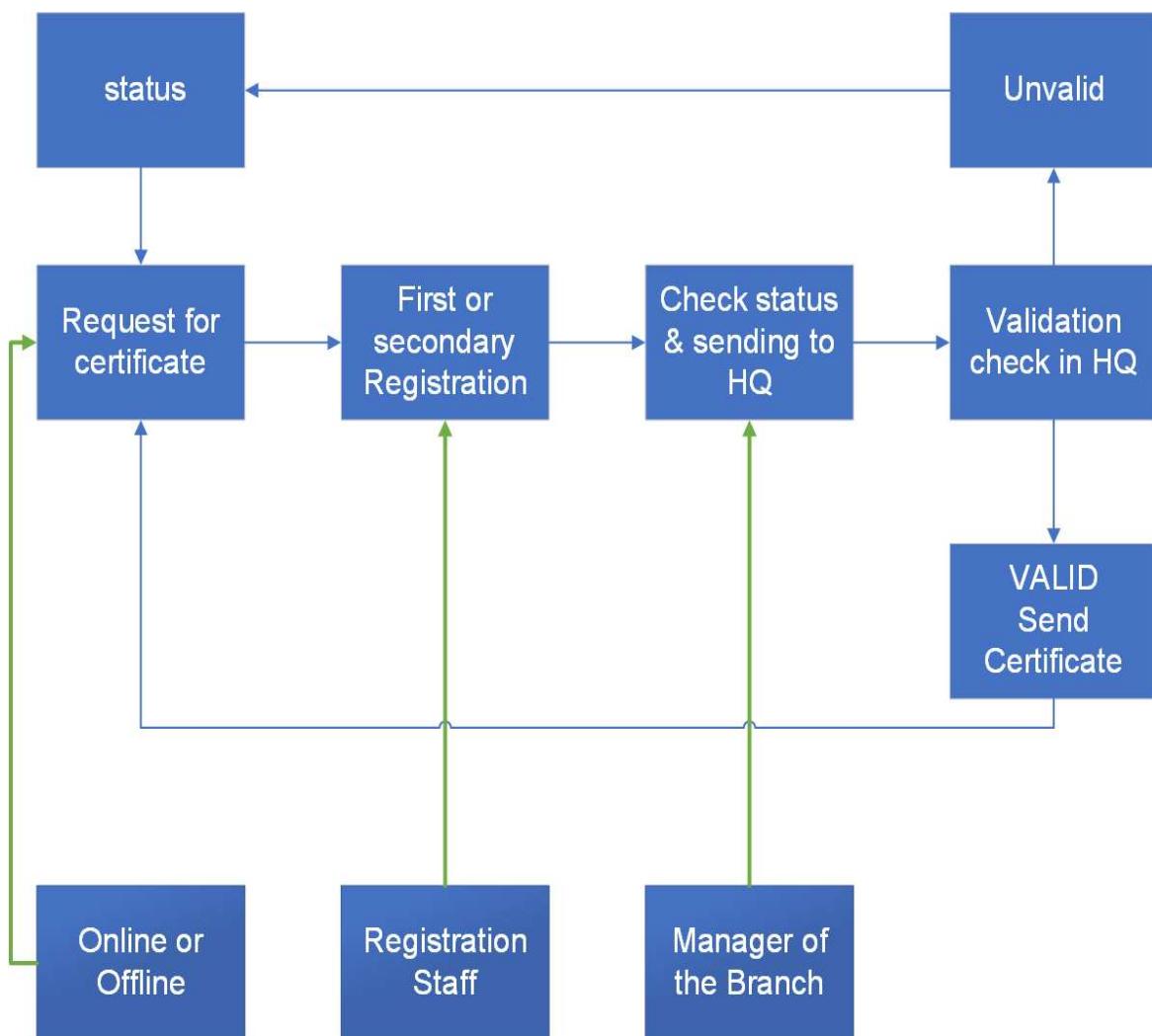
From the highest level of manipulating data in organization:

1. Managers at the Head Quarters at the capital
2. Staff at the Head Quarters at the capital
3. Managers at all branches in different states
4. Staff at branches in different states
5. Normal staff that has no authority in the system

For understanding Sub-Layers will be introduced.

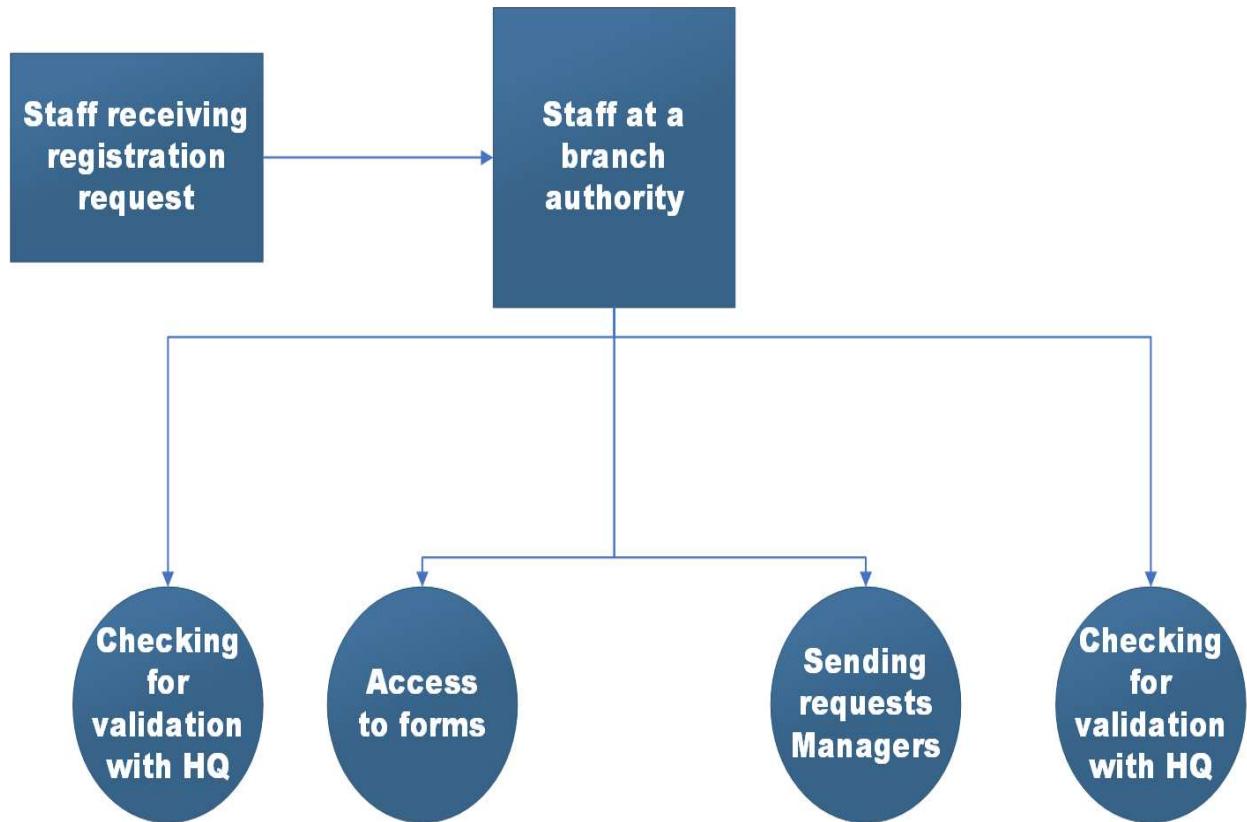
which can be understood by main process.

(Related Diagrams)

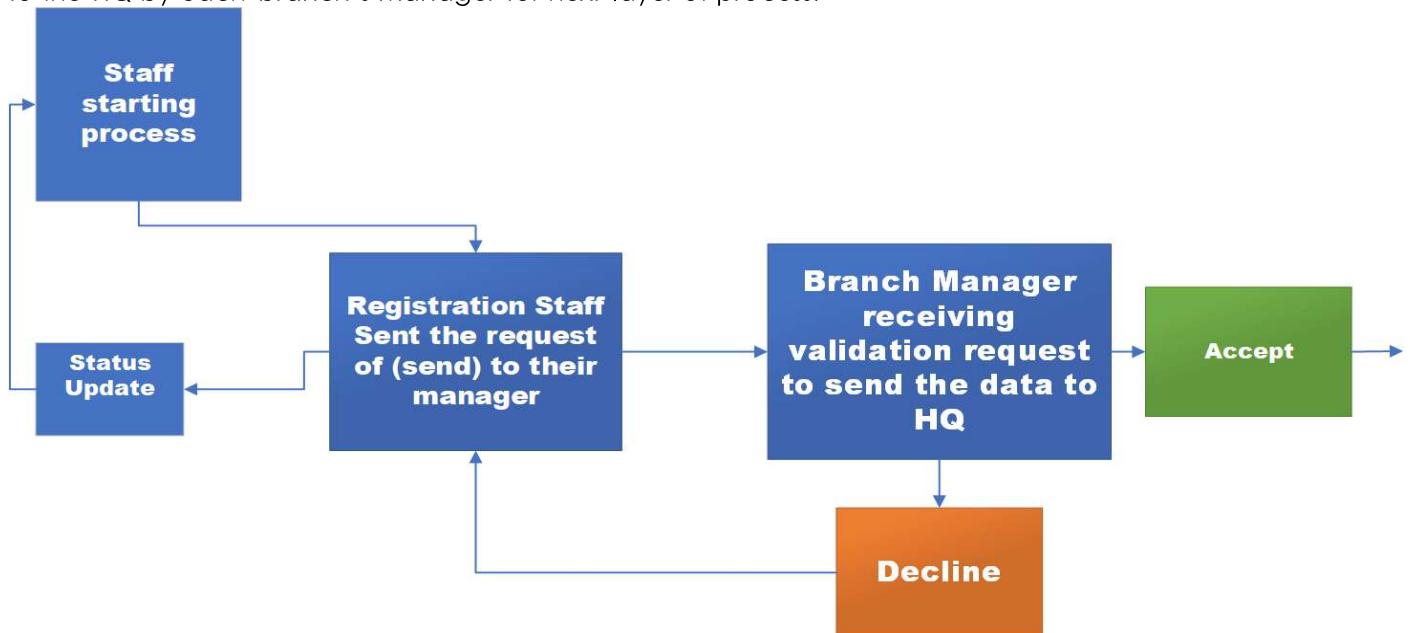


In above diagram staffs and managers all two main concept of the layers explained in previous page, I try to make their differences clear.

Let's start with staff:



Registration staff at all branches of the organization have access to the containment of circles above. After they start the registration process if integrity of the request is valid, they should start filling the forms With specified protocols and sending them to their managers. Afterwards filled registration form will be sent to the HQ by each branch's manager for next layer of process.

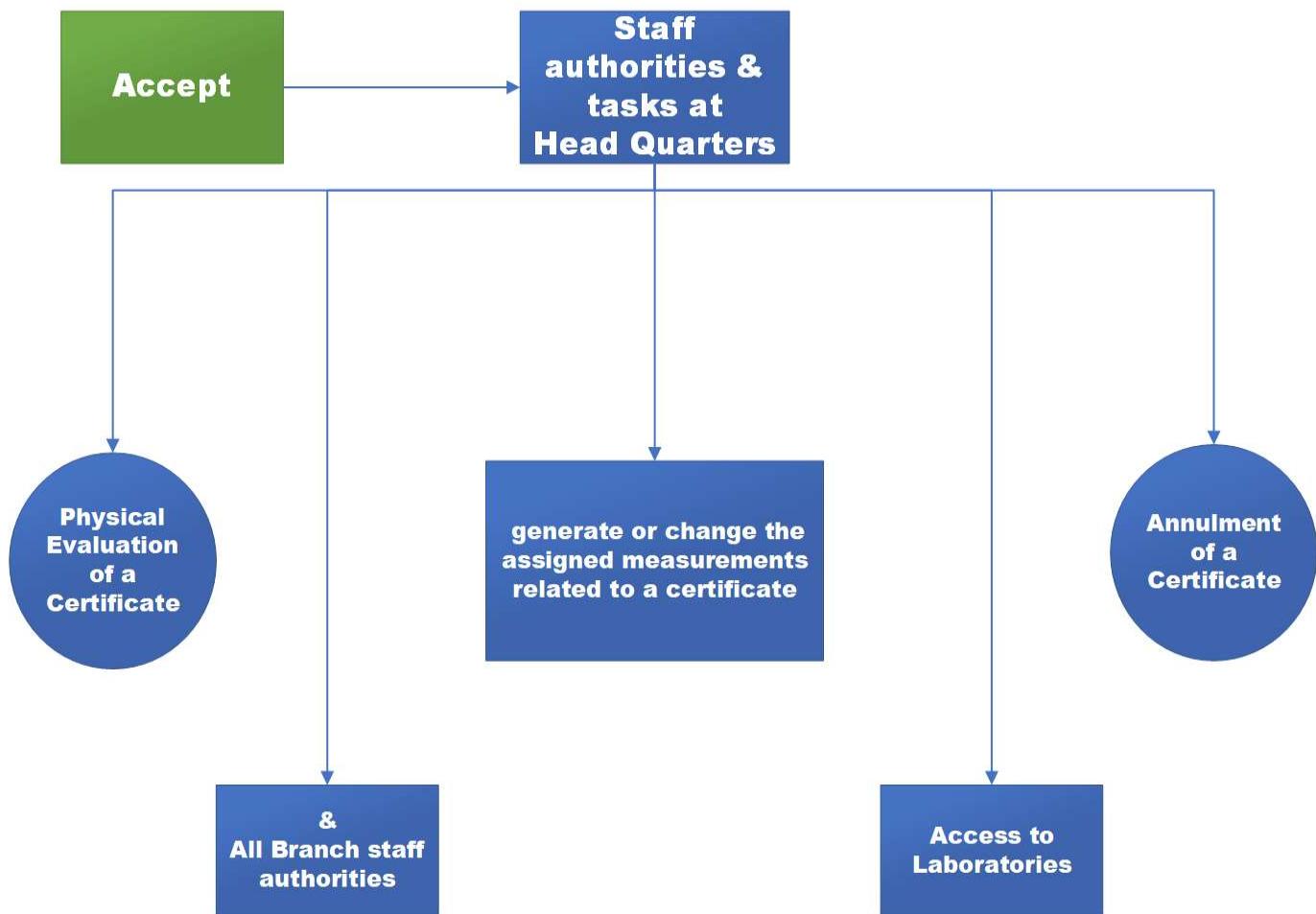


Managers at each branch will check out the received data from their registration staff so they can divide the decision by two:

- 1_Accept
- 2_Dcline

In case of relinquishment a decline status and reason will be sent to related registration officer and the case owner.

But if the request gets accepted the process will go on to next level.



All Staff at HQ has authorities as above

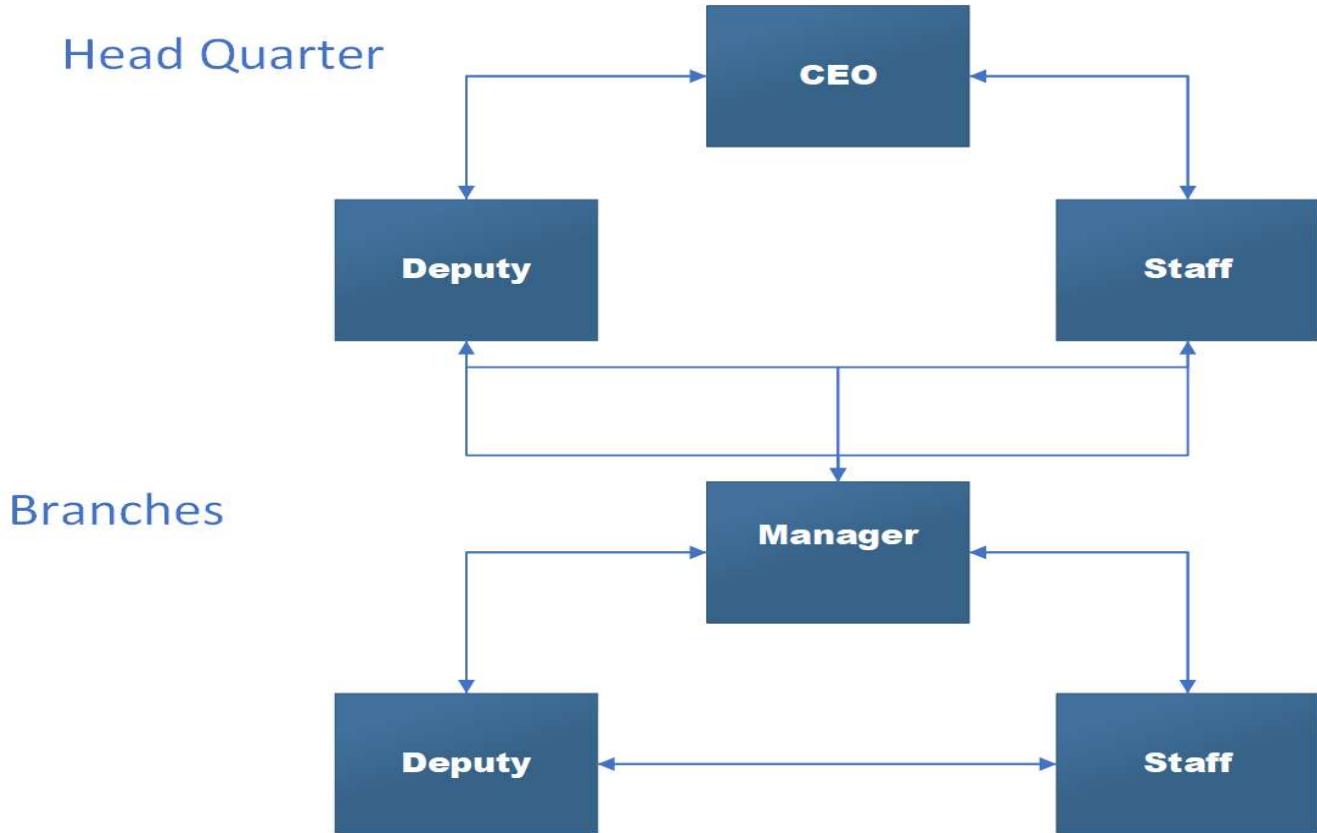
Which their reports are directed to the deputy of organization located at Main origin.

These authorities of staff make them the last and the most internal layer of the journey.

More will be covered about the details of each authority and task in business process.

Business Process

After all those general explanation about business modeling, organization Rules & Roles it's time to dig deep to main process, start point would be for all processes. Main control flow of the procedure.



Technically, all processes that we would handle in this organization has to pass this procedure.

All the process needs multiple validation by managers and Deputies, so every send request has a receive request for taking the status and sending to next person and layer.

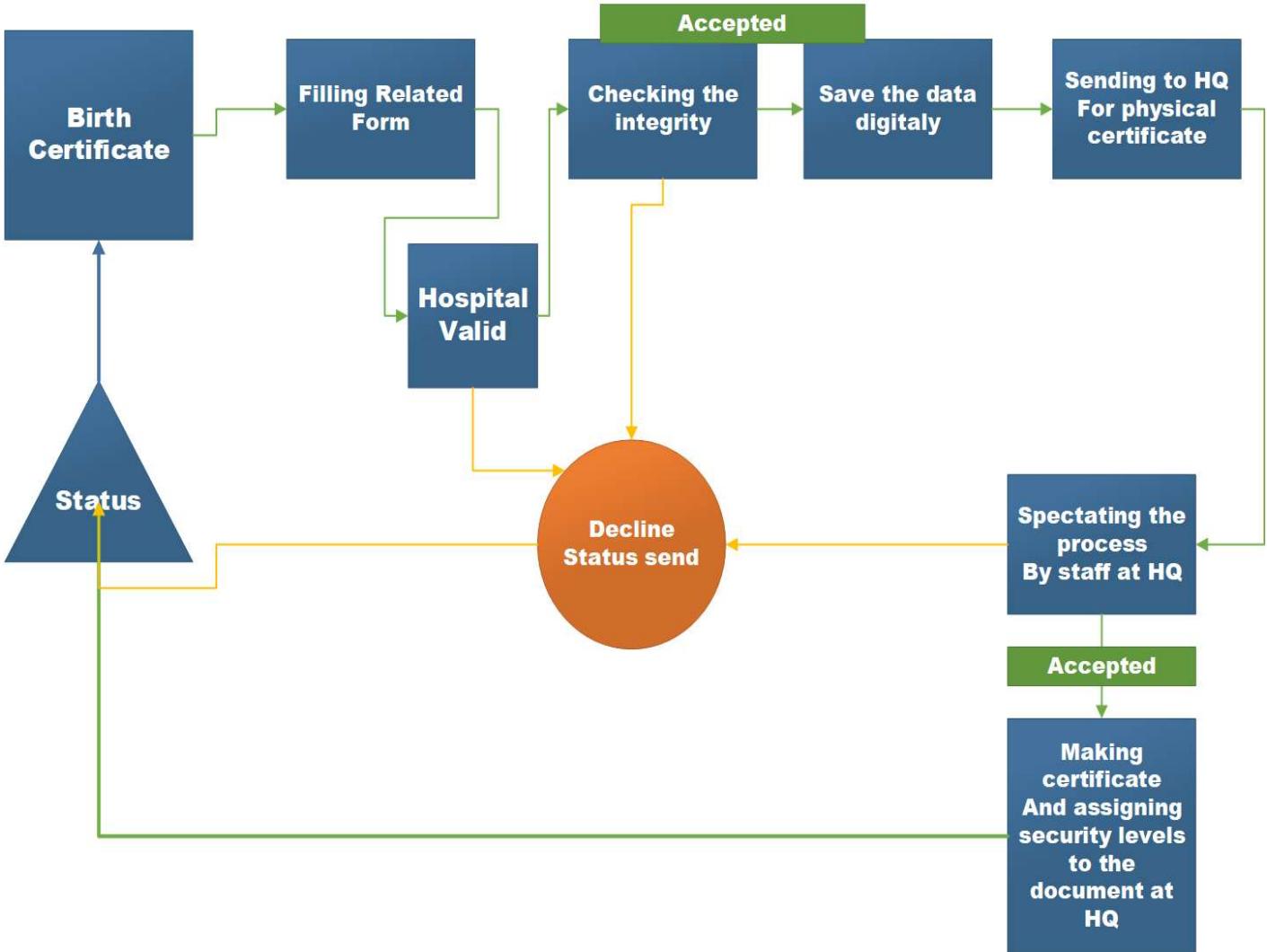
Process Model 1:

Forms will be introduced later for all processes.

Birth certificate process

- 1- Request comes from a person to staff at organization.
- 2- Staff fill the forms and check the validation of input with managers and deputy's permission with main data base at HQ if everything was accepted moves to next level.
- 3- Managers at branches send the status back two ways: accepted or relinquished.
- 4- After accept status from HQ references the status or certificate will be returned to Deliver to the person's request.

Check the diagram below.



There is another process like this one that is for a person's certificate that has no visual recognition of the person.

So, the process can be done as an update which adds a picture of a person (over 18) to the certificate without changing any other assignments.

Their form would be same with a picture dialogue that will open if date of birth counts to now for 18 years. (or any other condition)

This kind of certificate will be called **Type 2**.

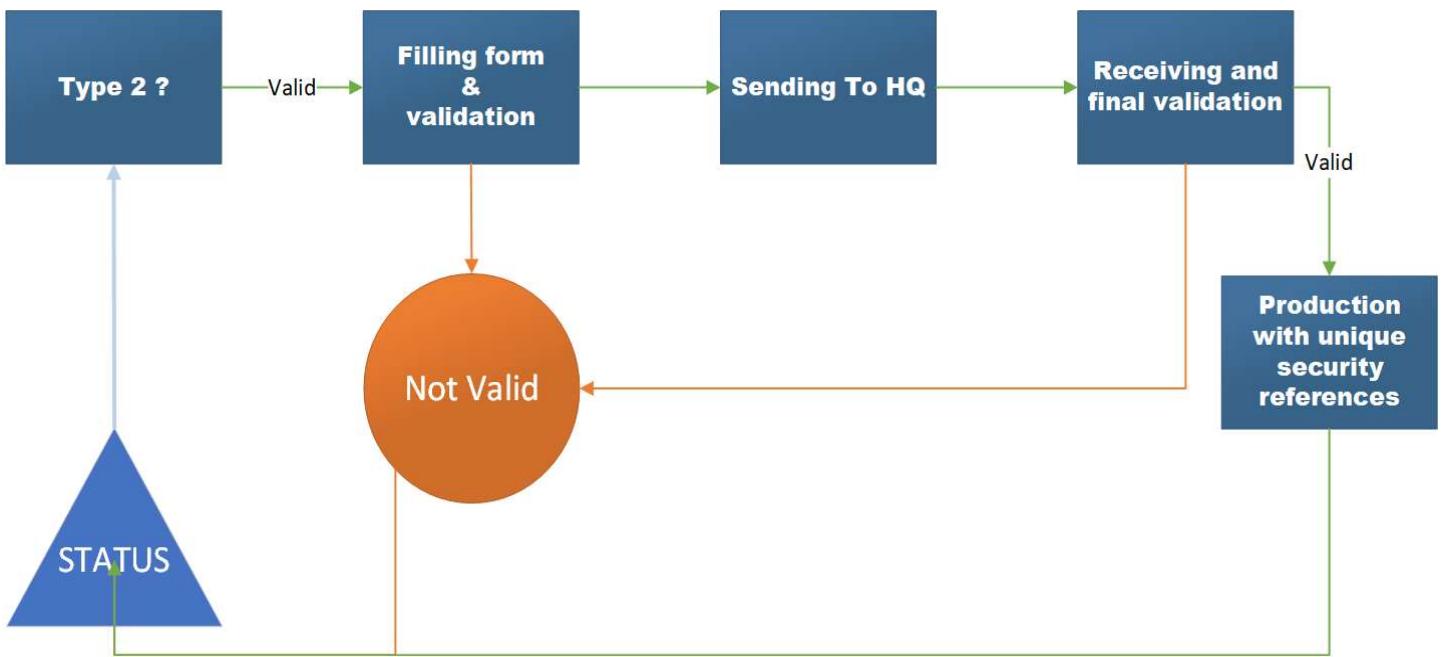
National card Issue

This process is related to Type 2 Certificate owners. Which can only be issued for people that have Type 2 certificate. It has a unique chipset which would be programmed to act as a fingerprint.

This chipset will be practical at near future.

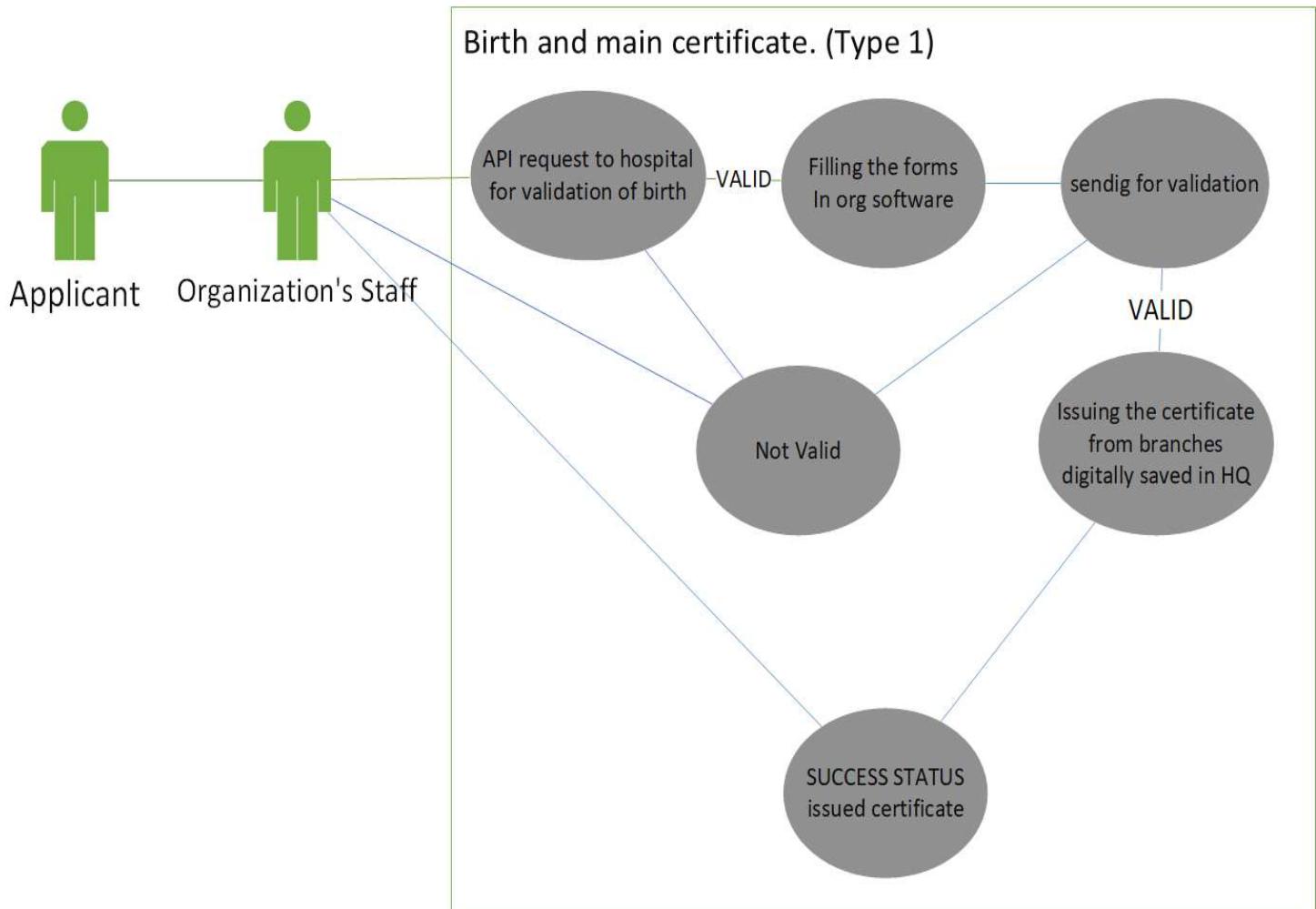
This card has a barcode that is being used for archives in the organization for annulments, missing cards destruction. in general, this perk makes destruction, second time issued cards process and other security stuff that is not easy to understand.

There is need of a hardware at HQ and those 6 main branches at big states for registration, update & etc.



More about this process and security protocols in forms and domain model

Use Cases for this process



Annulment Process

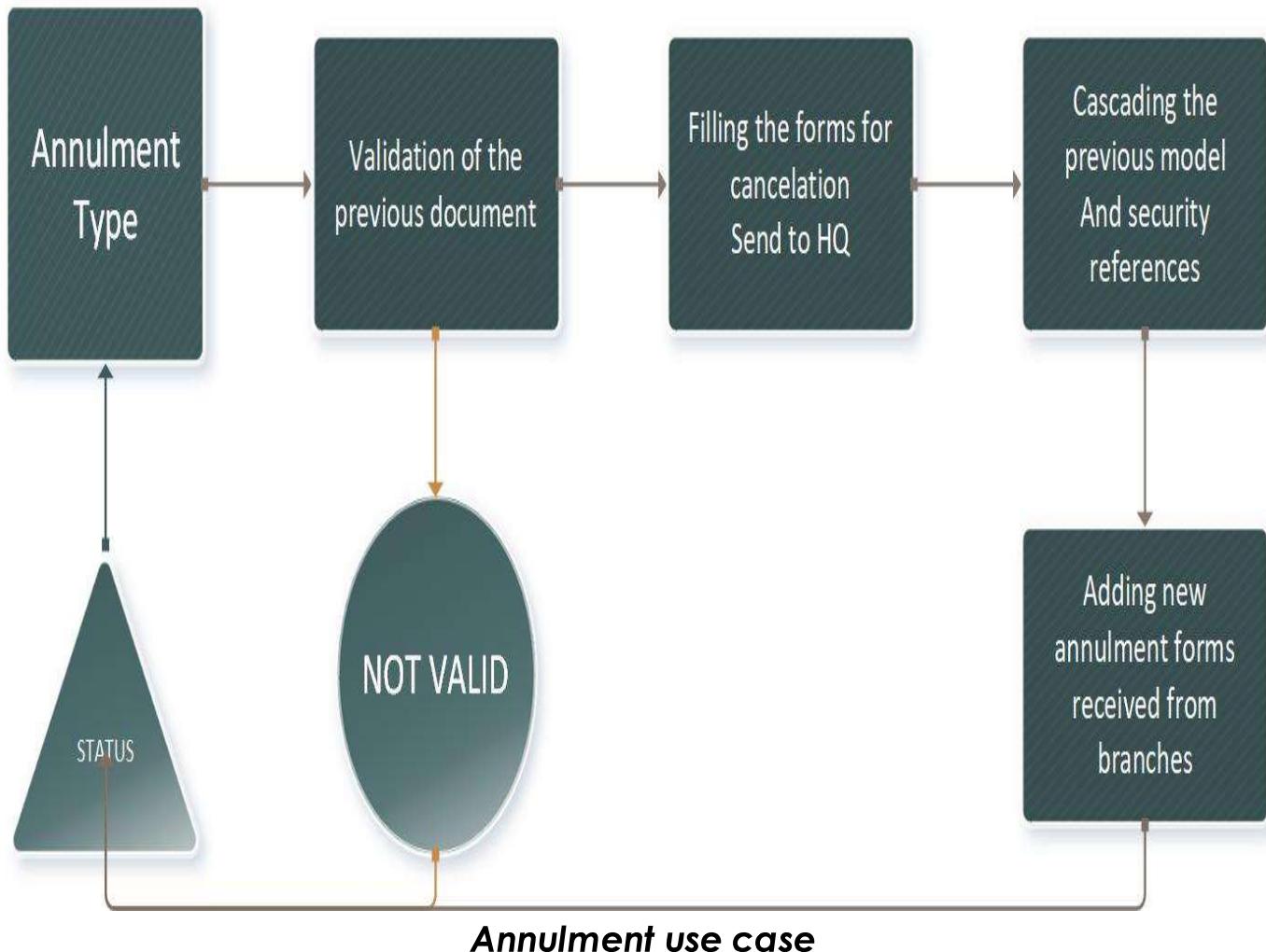
This is a general process, so it is connected to probably all of the main processes, such as:

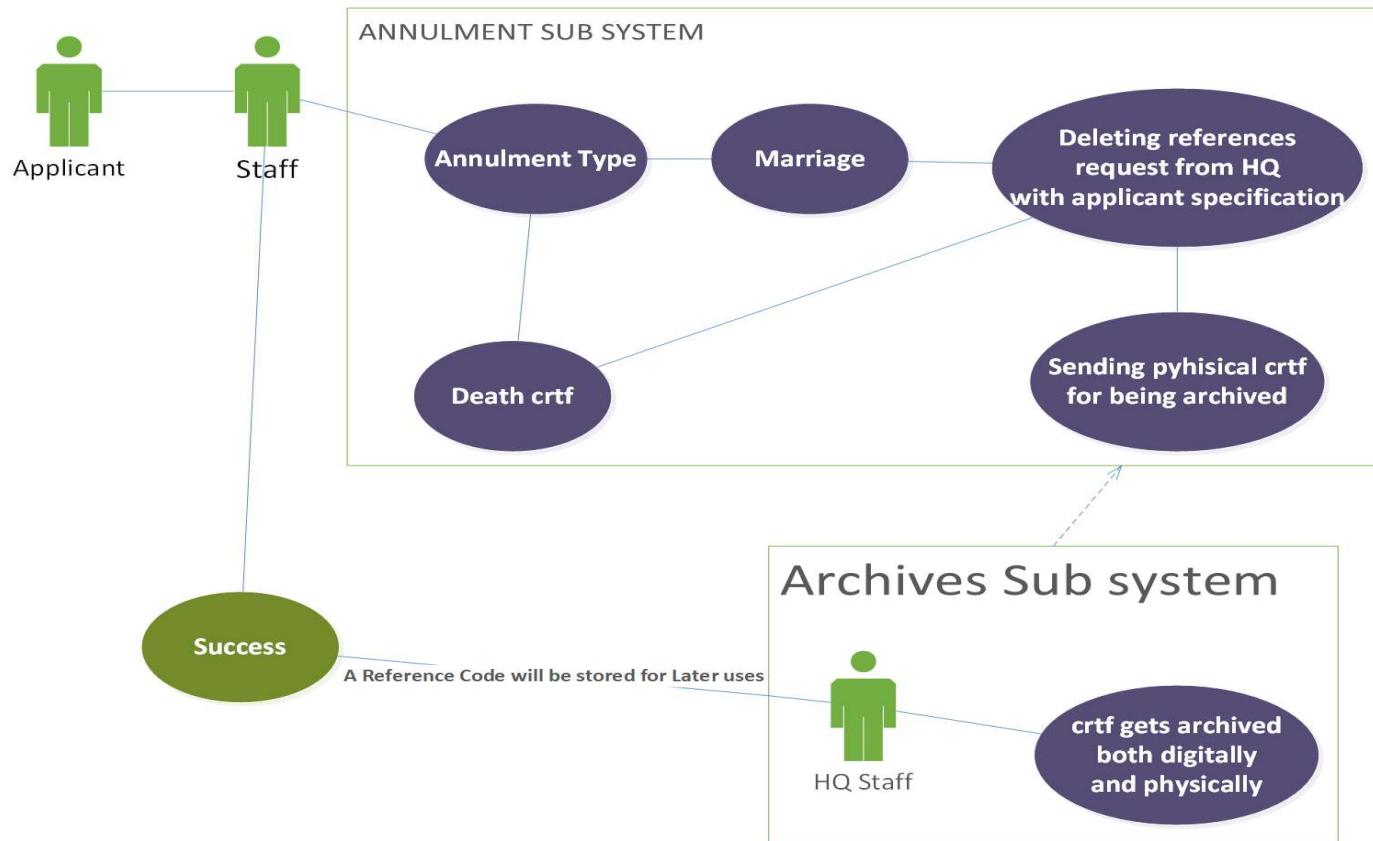
- **Registrations**
- **Death certificates**
- **Marriage certificate**

This part comes to play when something has gone wrong internally in organization or externally with a person specification.

For example, a birth date filled wrong, or the fathers SSN was included incorrectly. Or a couple decided to get a divorce or an annulment of a marriage.

So, all the annulments and cancelations will be handled in this process explained Below.





Population statistic gathering process

This organization is under supervision of the government, so they have the authority to use people's personal information such as age, name ETC.

This kind of information could be used for population control, and many other policies related to people.

- **Age Control**
- **Population Density**
- **Pollution Policies & protocols (API for other governmental organizations)**

This Process is completely in touch with data bases and data that has been stored in data bases are critically important and classified.

Security layers are very different for this part.

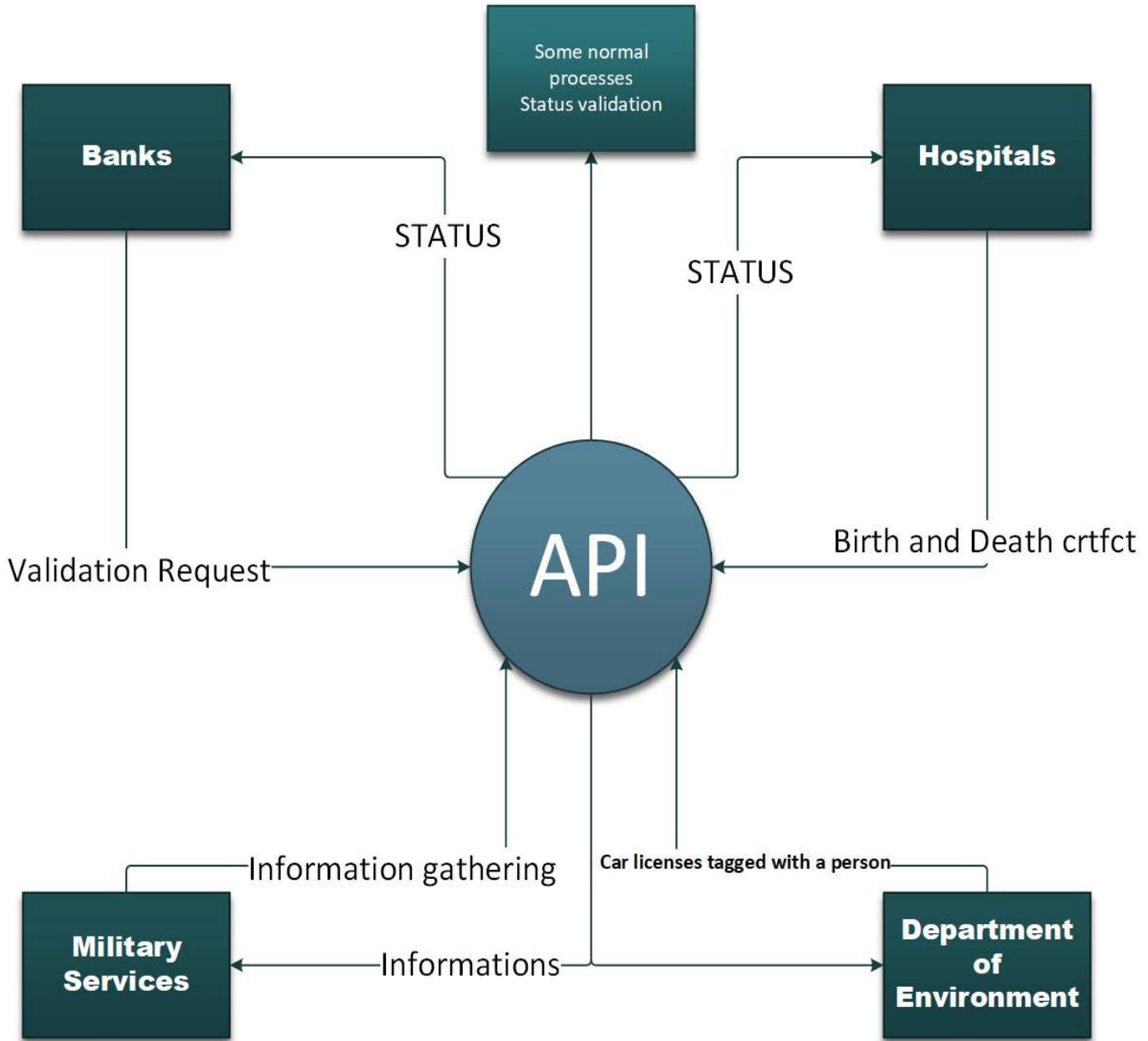
There would not be any UI/UX for this part only high security levels API that only accepts requests from verified Governmental organizations like:

- **Banks**
- **Statistics organization**
- **Hospitals**
- **Military services**
- **Department of Environment**
- **Police Departments**

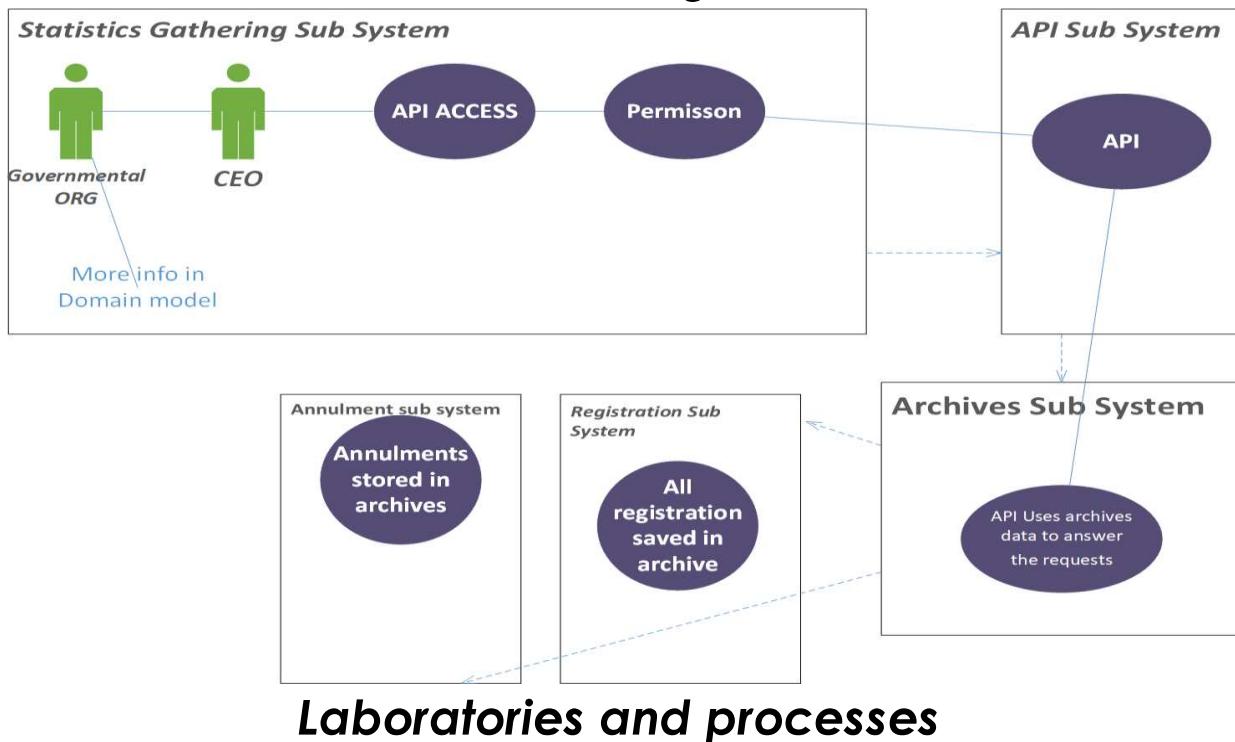
This REST API will be configured to accept and answer the needs of probably all other organizations that is obvious why, because this organization saves the data about everything that a person is being known for.

Like any other API (Application programming Interface) base of the flow is requests, status and raw information answers like JSON or could have any kind of web interface but mainly the servers and data bases handle this part of the process for security nearly under 4 or 3 persons have access to this part and process.

Mainly Requests, status and raw information exchange.



Statistic Gathering use case



Laboratories and processes

Like previous process this one is very critically important, most of the security layers are unknown to majority of people, but there are some that can be explained.

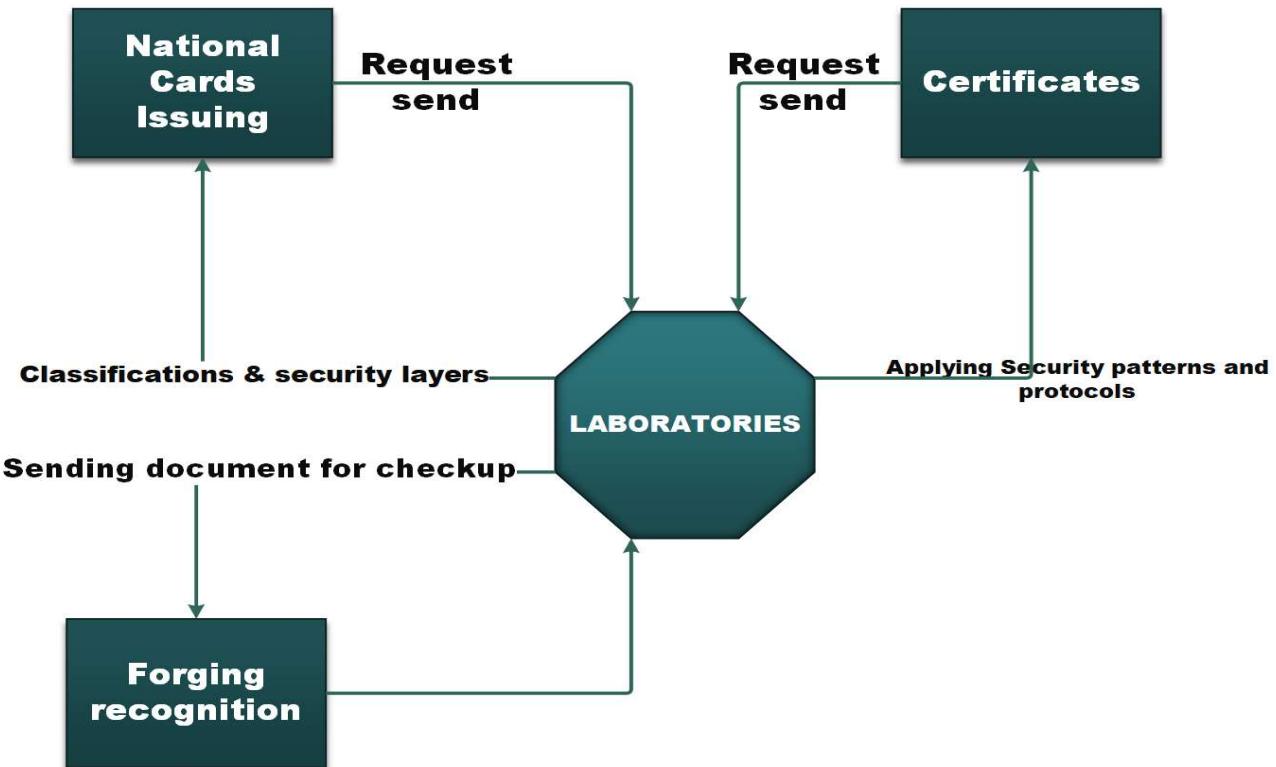
- **Paper's material used on certificates**
- **Chipsets on national cards**
- **Color patterns on certificates**
- **Simple patterns by shapes, numbers and lines**
- **Invisible colors and patterns with bare eye**
- **Ultraviolet visible lines, codes and other specifications**

This part of the process has its own special staff that are familiar with forging, specialized signatures like, color patterns, shapes, ultraviolet patterns and ...

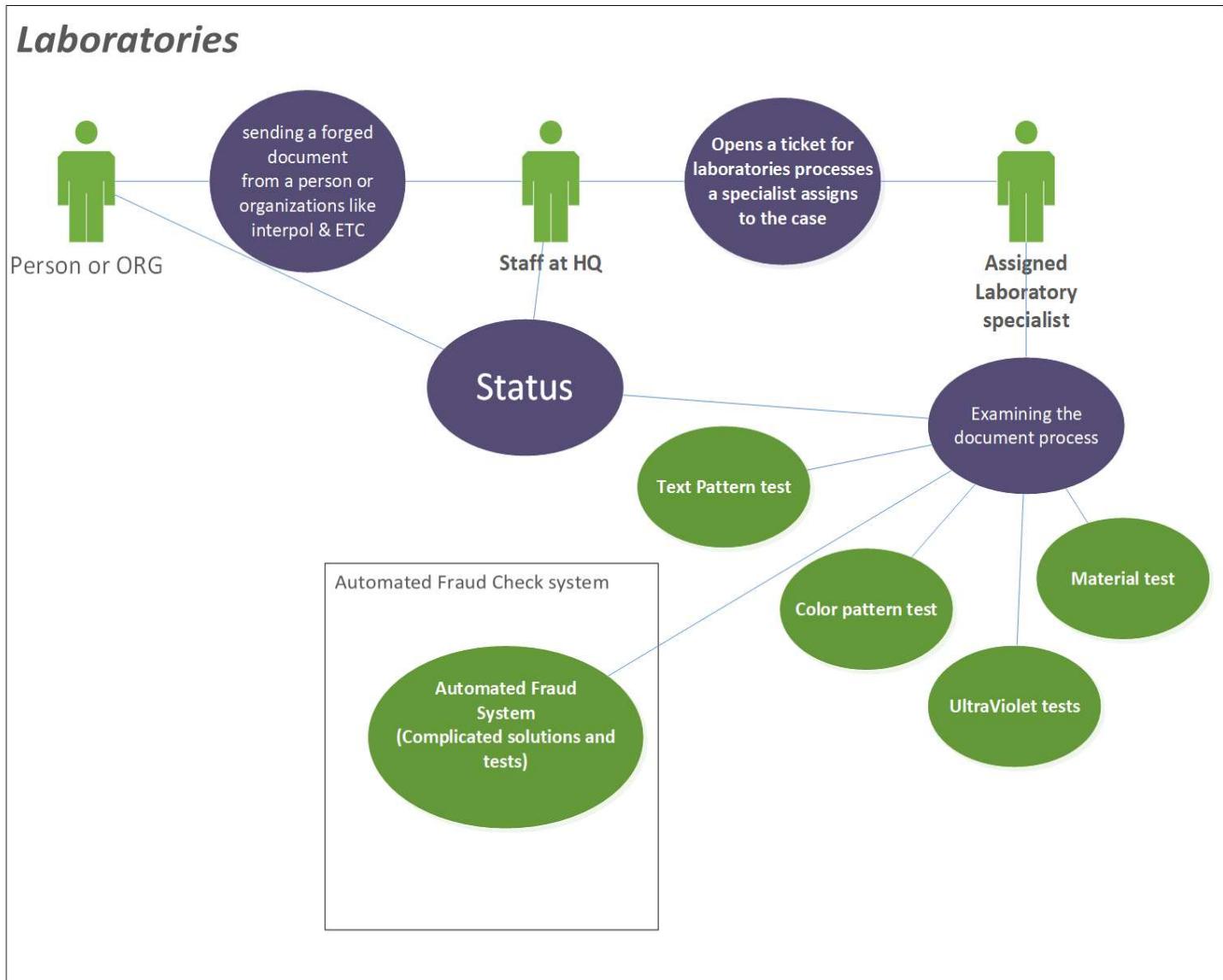
National card's chipsets are going to be encrypted by some random encryption system like using hash functions and

Decryption of the chipsets for showing the data can only happen within this organization system.

If it is necessary to see the data a request with the hash specifications will be send to the API and if the status sends back successful, the process will be continued in other organization.



Laboratories use case



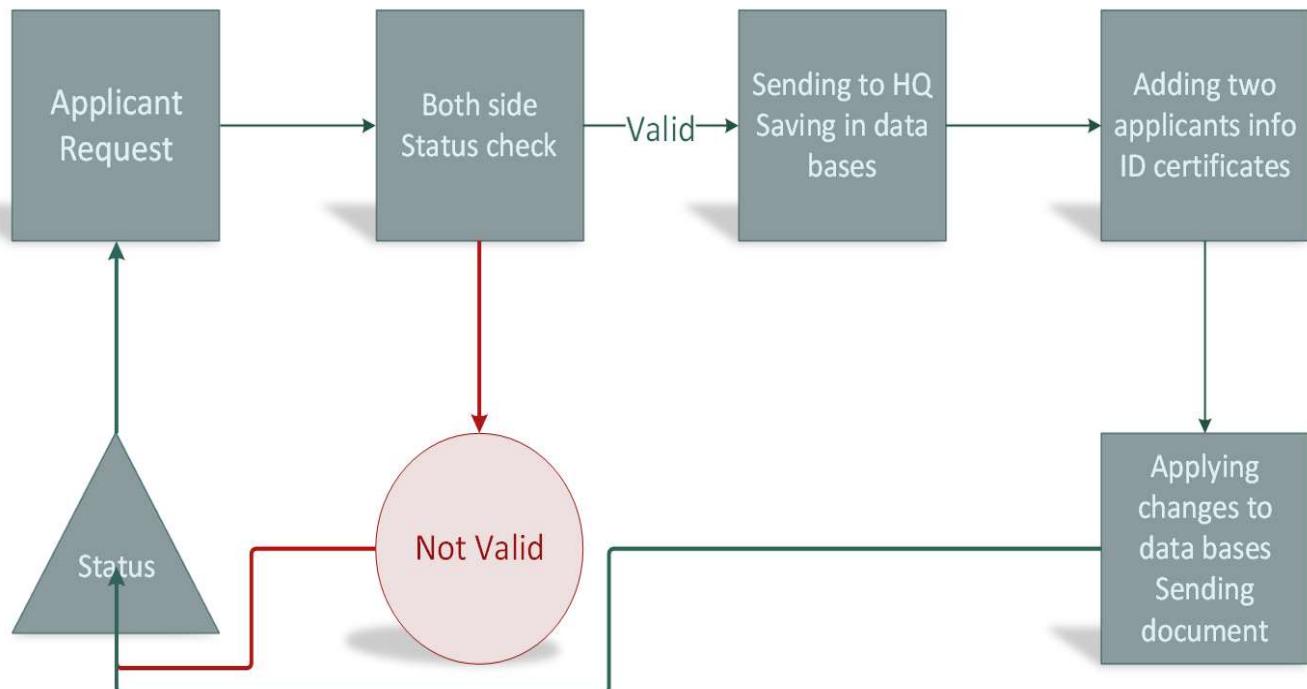
Marriage certificates process

For marriage certificates task and routine is simple.
Both sides Men/Women must have eligibility of marriage.
The possession of certificate and national card necessary.
Process needs multiple internal organization validation.

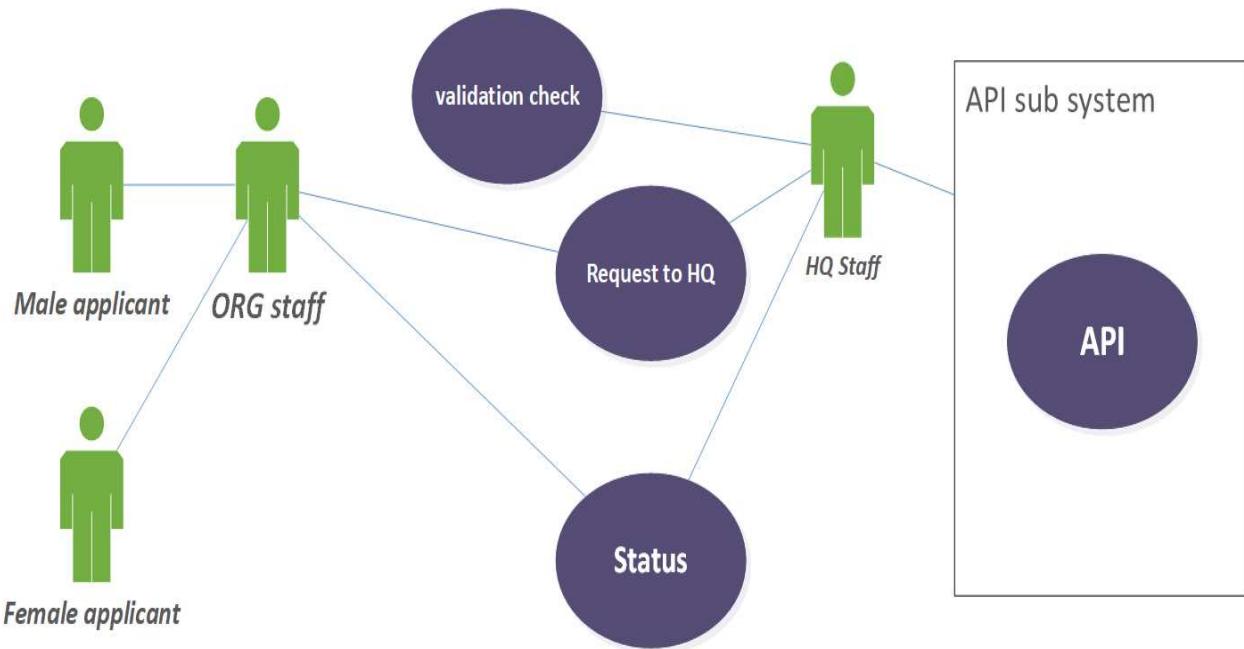
In this case problems that stops the process are:

- **Male/Female applicant is married**
- **Male/Female applicant has disorders and syndromes like AIDS, HIV, Hepatitis**
- **Male/Female applicant has unknown status of a child custody**
- **ETC**

The diagram will explain better:



Marriage certificate use case



This use case is not that complicated.

General Explanation

Generally, activities and tasks that has direct interaction with staff or applicants are not that sophisticated.

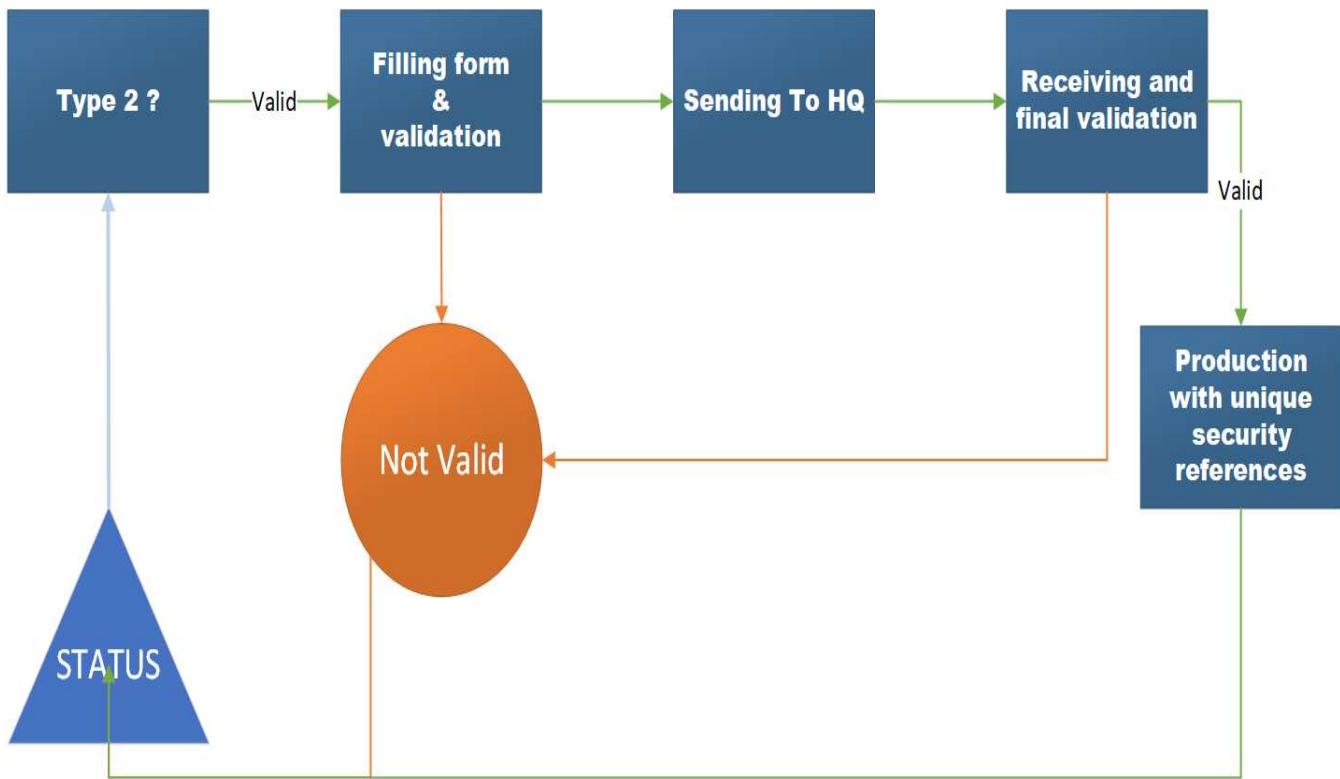
But implementing of the processes like API and fraud check sub systems would not be that easy more information in further diagrams and articles.

The complexity of the API and Fraud check Systems are obvious, Because of the importance of data that is being stored and exchanged Through different systems and Organizations so even a little leak could Make the whole system vulnerable.

Making less direct interaction of a human being is a simple way to cover and hide the layers of the processes.

The main idea would be obvious but the way that machine does it would not be easy to get.

NC issue process



Process starts by an applicant request for issue.

If the applicant has Type 2 Certificate with visual validations, fingerprints and other security measurements the system will validate the request to be continued.

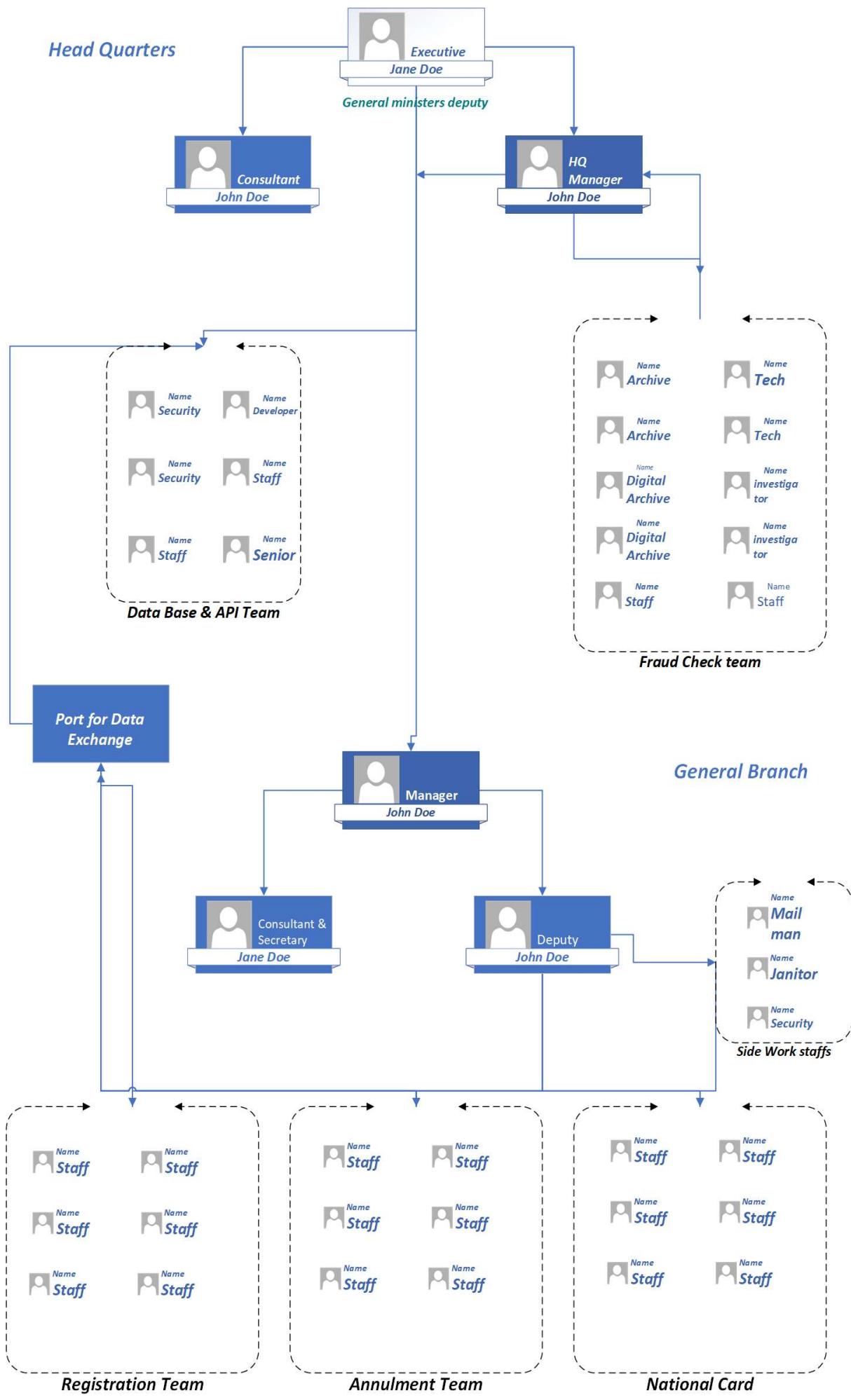
The forms will be filled by staffs or the API directly by adding the BCR (birth certificate registration) SN or ID's SSN/SN.

The information filled in the form will be sent to HQ or to API for data validation and security references for archives and API updates.

After that if the process has no complications, the National Card will be produced by significant and special architecture chipset and material.

This card will be significantly different from others that are produced.

The reference key lasered back of the card and Chipset makes the card very unique and not copyable.



Forms and Stored data

Birth certificate Registration form:

Instructions explained in process models for all forms, but another catalogue will be presented.

Birth Certificate Registration Form

API Dedicator

Dedicated SSN :

Dedicated SN :

First Validation

Hospital Birth

Scan / Import

Reference

Send

Status

Alive Dead

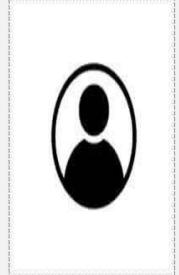
Married Single

Marriage CRF Death CRF

Logged in User: Admin

Type 2 configurations

Picture Signature




Import UPDATE Import

Edit FingerPrints


0 36000 29145 2

Control Deck

Annulmant Secondary API Update

Integrity Check Validate

TYPE 1

National Card Issue Form

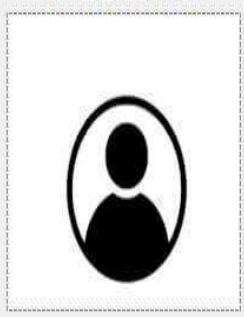
National Card Issue Reference Code : Comes From API

Applicant Search

Applicant SN :

Secondary Search

Visual info

Picture  Signature 

Import  Import 

Fingerprints 

Applicant info

SSN :

FirstName :

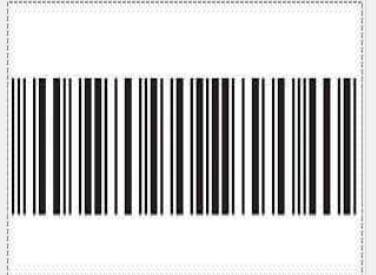
LastName :

Birth Date : Saturday , December 16, 2023

Father's Name :

Expires : Saturday , December 16, 2028

Control Deck

Validate 
API

Annulments Form

Annulment Form

Barcode

Marriage

Male SSN :

Female SSN :

Registration Date :

agreement document :

Judge warrant :

Search

Reference :

Search

ANNULEMENT QUESTIONNAIRE

Male SSN :

Female SSN :

Registration Date :

agreement document :

Judge warrant :

CRTF Picture

Validate

Logged User : Admin

Death

Applicant SSN :

Name :

Last Name :

Male Female

Judge warrant :

Hospital warrant :

Validate

Simplicity of this part is because API, handles reference ID's redirected to any Document so human errors can be reduced and dogged There Will be a Complete and Complex Explanation about how does the API handles and exchanges inserted data.

Death Certificate Form

Death certificate

Logged User : Admin

Hospital References

Reference Code : Search

Applicant Name :

Applicant lastName :

Saturday , December 16, 2023

Death Reason :

Warrant

SSN : 99992222



Validation

Internal Info

Applicant SSN :

Spouse SSN :

Children's SSN :

API Update

Judge Warrant :
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Import

References

Marriage Certificate Form

Marriage registration Form

Logged User : Admin

Male

Female

FirstName :

LastName :

SSN :

Certificate SN :

NC Reference :

Health Warrant :



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Digital SIG



FirstName :

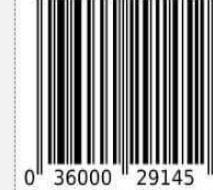
LastName :

SSN :

Certificate SN :

NC Reference :

Health Warrant :

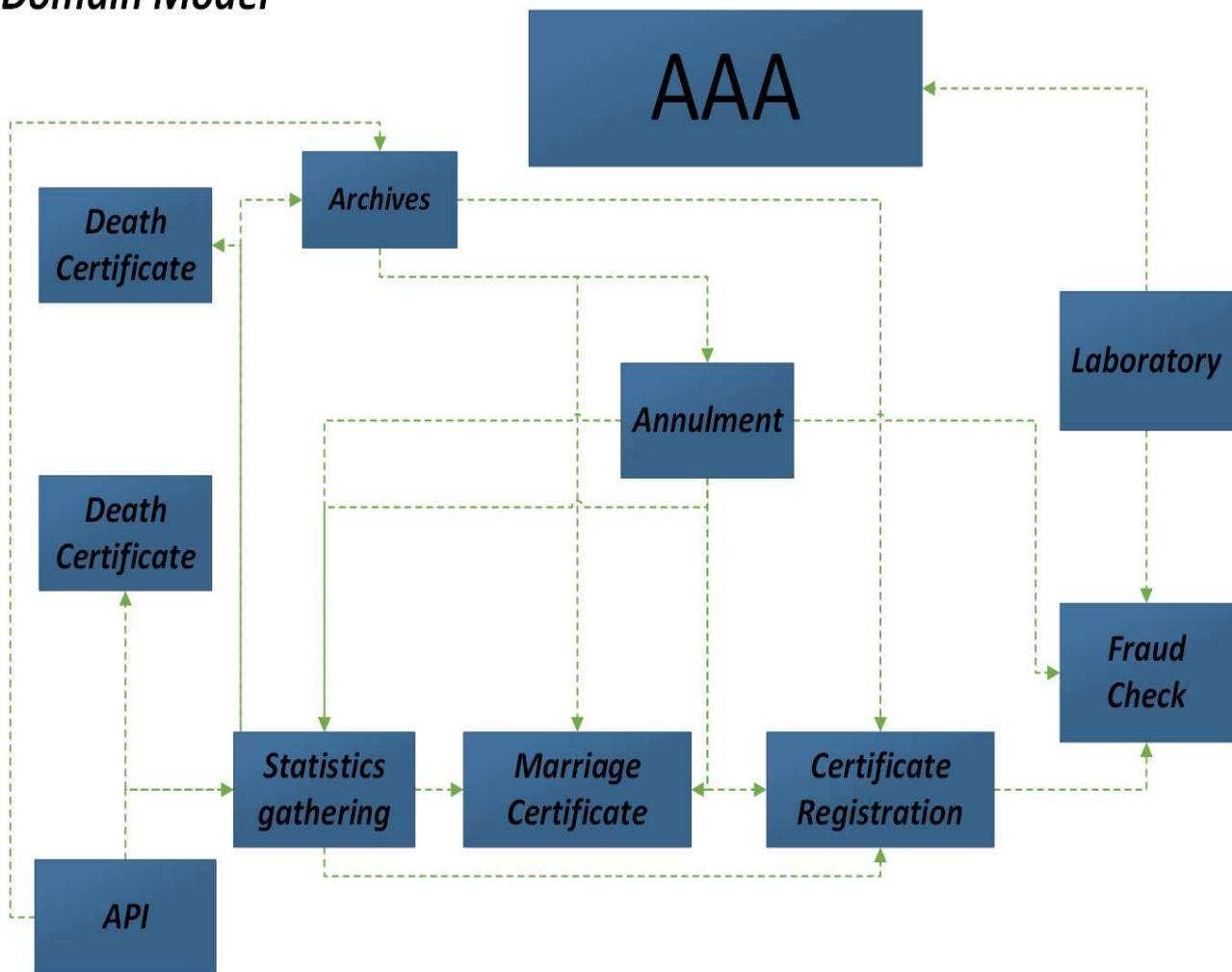


0 36000 29145 2

Digital SIG



Domain Model

Domain Model



*More About API
in context Diagram*

Diagram above shows dependency of internal organization sub systems.
With a single change in one sub system there could be a lot to change in others.

Archive is the most dependent one.

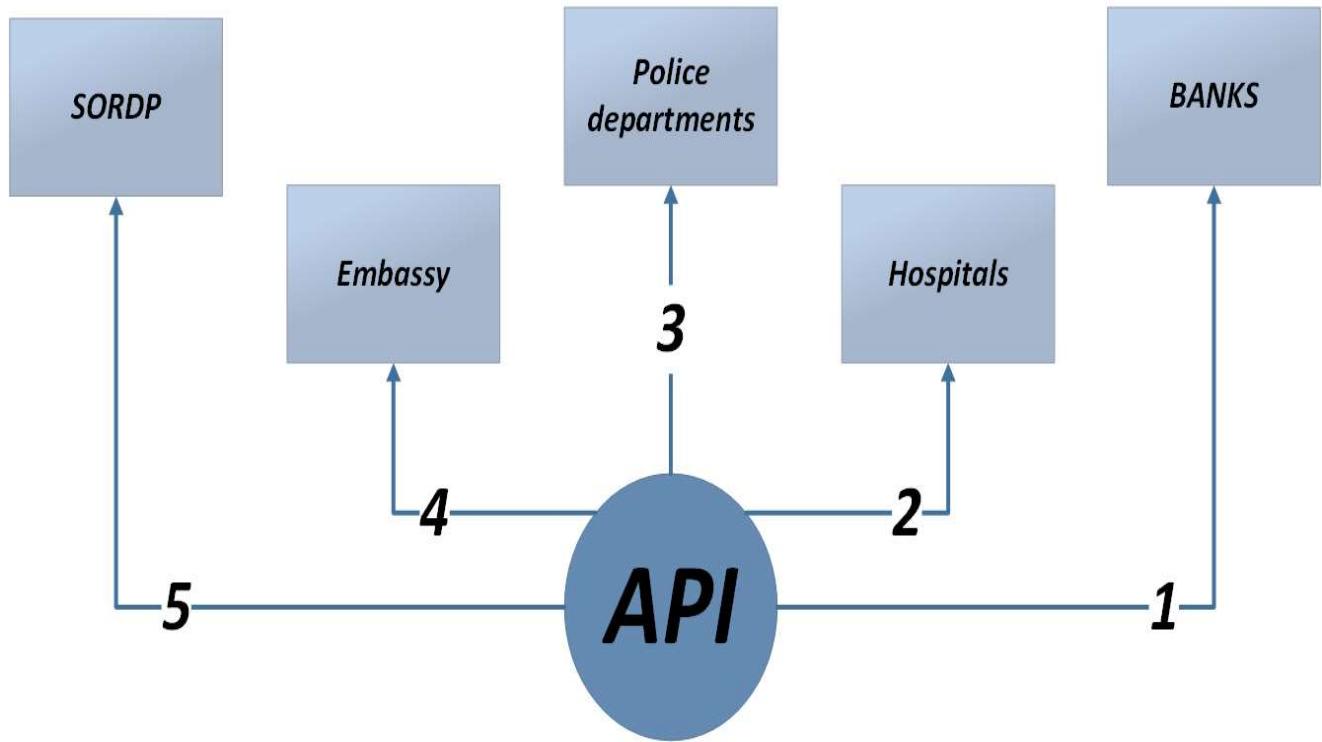
After that API is related to archives this sub system is useful for exchanging data with other organizations such as:

- **Police Departments**
- **Hospitals**
- **Department of justice**
- **Military services**
- **Banks**

The API works both way sends and receives data so the API could get updated from any other authorized organization and make changes to this organization archive.

Context Diagram

Context Diagram



SORDP: State Organization for Registration of Deeds and Properties

- 1) When a person tries to open a bank account the registration information is already stored in civil registration ORG so the wise thing to do is use current data it decreases the use of sources, power and time and of course MONEY.

So, bank sends a request to our API for validation of the registration certificate presented by the applicant. After that a status with complete authorized information will be send to the bank system for continuing the internal process of account registering.

- 2) Hospitals are significantly important in our systems, they handle many people from any part of the society, teachers, thieves, Officers and even medical personals.

Birth certificate process depends on a birth warrant from hospitals to our organization, Hospital sends the warrant with a reference code handed to applicant.

The reference code is the key for API to accept the changes for registration certificate (ID).

Hospitals effect the statistic gathering too.

How many people have been born or died and Where/When did they born or die.

Causes of deaths for Health/Security policies of the government and country and population controls.

Death Certificates not only needs a warrant from hospitals but also from a Judge to confirm the death of a person so both warrants can be handled at ORG.

3) Police departments carry data as important as our organization, so the connection between must be controlled very well.

PD mainly use this API for validation of people's critical information, But sometimes

They send documents such as NC, IDs and even passports to be checked with our Fraud Check system, this could be both physical and digital integrity check, after that the document will be archived and a complete report will be sent back with a status to the PD.

4) Embassy Also uses the API for validation of civilians and Make a small percentage of chance to send forged Documents.

5) SORDP this ORG can be the first one that has the most interaction with our API, they control the possession of Houses, cars, lands and everything that a person can have in a Document with his/her name on it.

Their interaction makes changes to our Archive rapidly, so our API is updating again and again multiple time, for uses like statistic gathering:

A person buys a car with an SSN: 234234938032

The government policy is every person can have one car in possession.

Our API won't let him/her register his/hers SSN for any more car purchases.

**Or a person dies what happens to all that lands, properties and money,
Thats the place our organization shows up with a death certificate and
reference code to any first-degree family member only Authorize them to
manipulate and do the process of document transfers ETC.**

Hardware requirements

After all those forms and input fields we can see there are some barcodes in the forms saved.

So, one of the requirements are barcode scanners & readers that we be able to fill the forms.

Obviously, we need printers for printing the forms.

Staff presence and absence must be monitored, then we need a system for that.

Computers, monitors, mice, keyboards, ...

Communication is important so radio towers and internet in shape of fiber or something fast and stable are needed more than any other parts that has been talked about.

Some general hardware such as cooling system, ventilation, illumination And ...

Classes and classifications

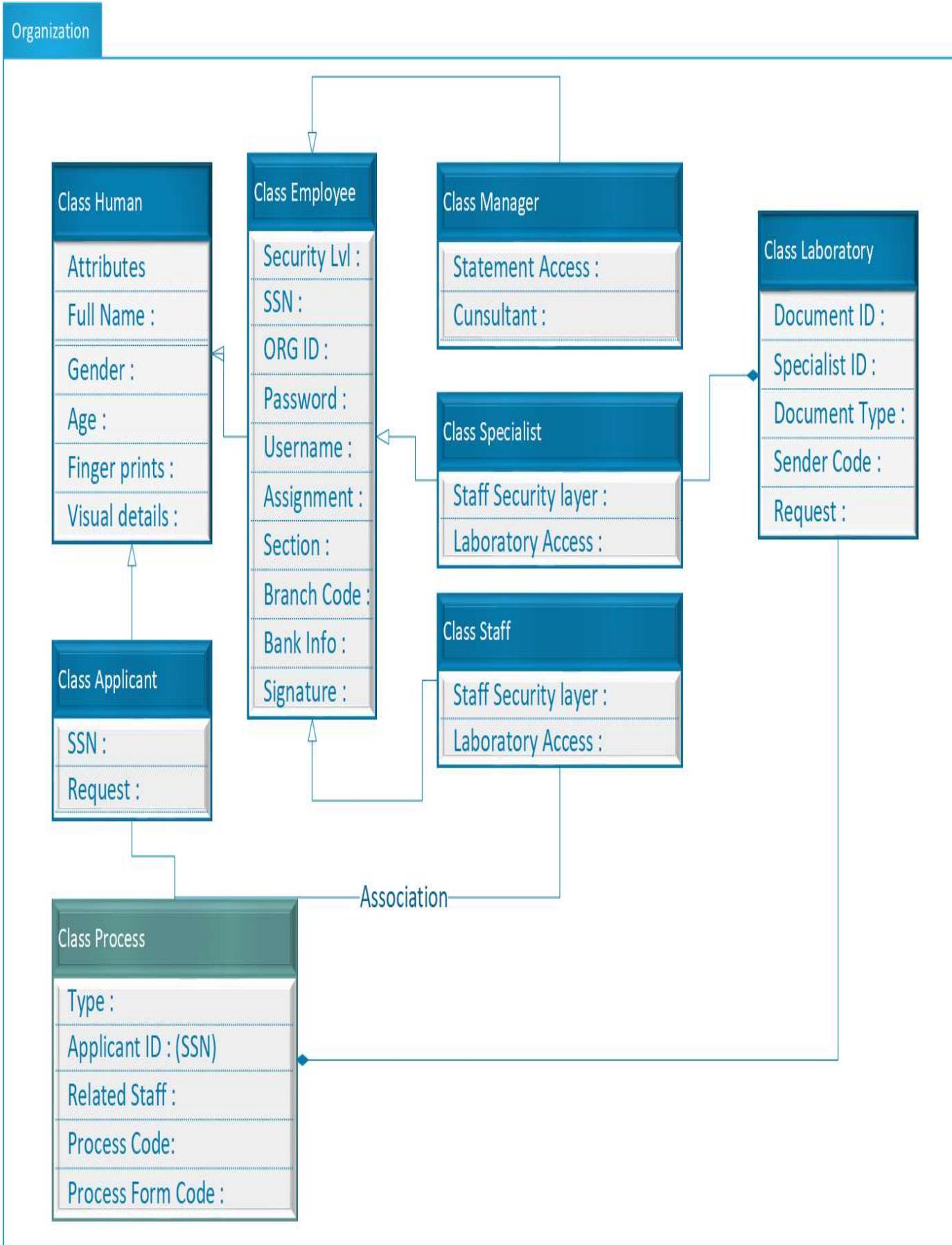


Diagram explanation

Classes above starts with a human class that represent whole system of the Classes that has two heredities with both applicant and employee classes.

Class applicant has an association relation with class applicant

Class employee has three heredities for managers, staff, specialist classes.

Class staff has association relation to class process because all staff are bound to every process such as registrations, annulments and ETC.

Those three classes inherit everything that employee class has.

Class Laboratory has composition to class specialist and this class has composition of class process, imagine a class laboratory which can handle multiple processes which all are different, so all those processes have relation direct and undirect to laboratory class.

Main and Sub use cases

We have generally talked about use cases in process models but now it's time to dig deeper in this case so let be it.

We have 9 main processes that are listed below:

- 1. Birth certificate registration (Type1----> Type2)**
- 2. NC (National card) issue**
- 3. Annulment**
- 4. Death certificate**
- 5. Population Statistics gathering**
- 6. Marriage registration**
- 7. Divorce or Annulments**
- 8. API**
- 9. Laboratory (Fraud Check, ETC)**

List above shows origin of both main and sub use cases, I will detach them later.

Sub use cases are:

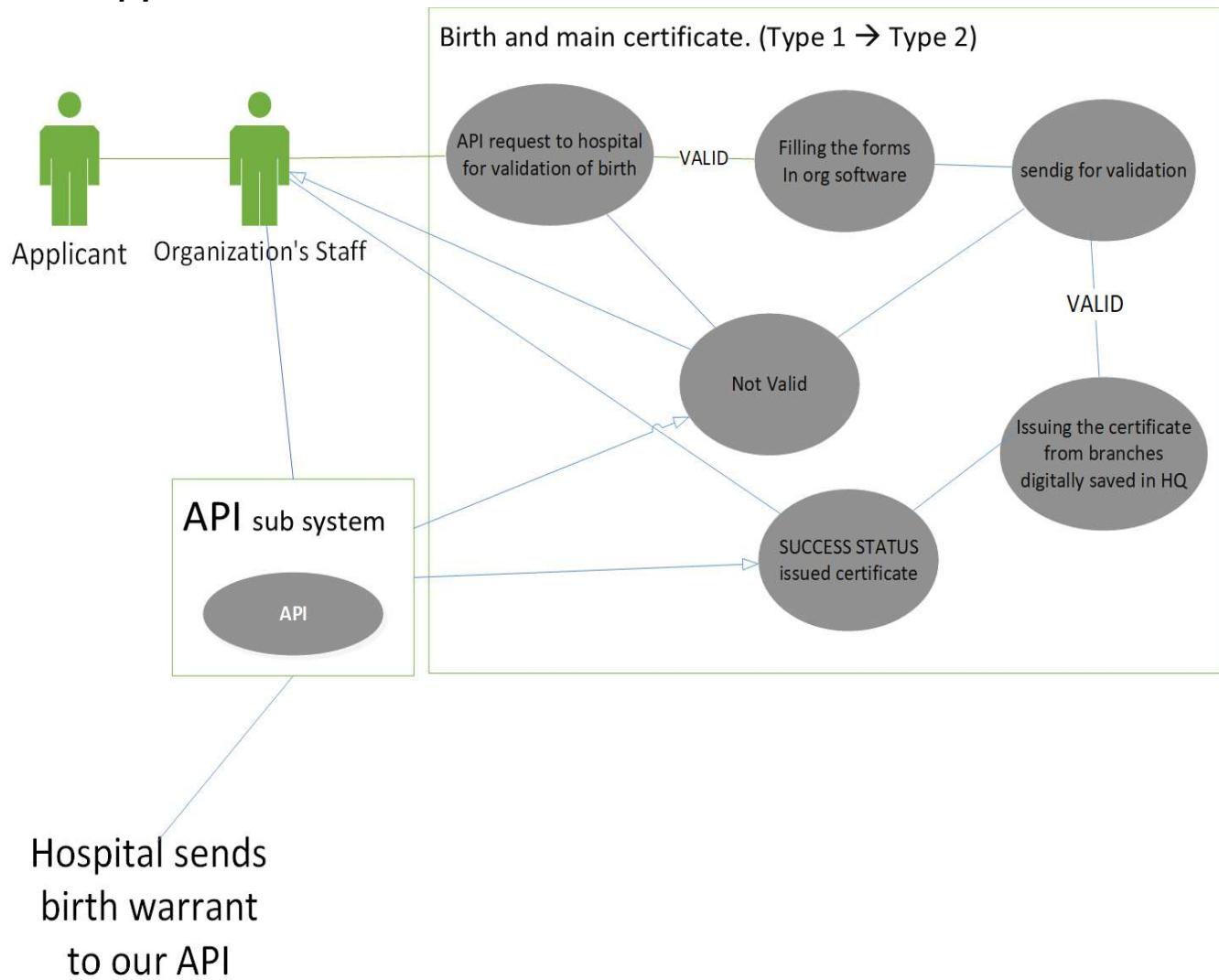
- 1. Birth certificate**
- 2. NC issue**
- 3. Annulment**
- 4. Death certificate**
- 5. Marriage registration**
- 6. Divorce**

Main use cases are:

- 1. API Processes**
- 2. Laboratory**
- 3. Population statistics gathering**

Birth certificate use cases

Actors: applicant, staff and API



Type 1 in this case means that the certificate is for under aged applicants like new Borns.

Use case explanation:

1) First an applicant requests a certificate to an organization staff at any branch it will make no change to the process. Addition to actors (Hospital)

The staff first validates the claim of applicant with the warrant that has been sent to our API from the hospital you can see it in form below at **(first validation)** section box. Staff either scans or enters the reference code delivered by applicant from hospital.

If the status comes back as (unsuccessful) it means that there are complications with the birth warrant. And it would be hospital's duty to fix.

Birth Certificate Registration Form

API Dedicator

Dedicated SSN :

Dedicated SN :

First Validation

Hospital Birth

Reference

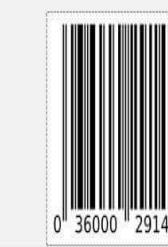
Status

Alive Dead
 Married Single

Marriage CRF

Type 2 configurations

Picture  Signature 

 
0 36000 29145 2

Control Deck

TYPE 1

But if status is a success the process continues.

2) The reference code, acts like a key in API, it shows the state and city of the dedicated reference code and hospital, and it will change our API configuration for dedicated SSN and SN. Actors are just software communicating to each other.

3) SSN and Sn are dedicated by API system explained above, so it is a software actor, and no human interferes in this part

4) registration Staff starts filling the form from applicant info.
The system has this ability to fill the parent's info by scanning their certificates
Or they can be filled by hand.
So, this part includes both software and human actors.

5) Until now we inserted unqualified data, the staff needs to Start a **(Validation)** from control deck. Actor (Human)

6) API checks the Inserted info and sends back a status. Actor (SFTW)

7) If status is Ok **(API Update)** in control deck starts a chain action by updating API, permissions for physical certification are guaranteed. Actor (SFTW)

8) Staff now has the authority to print out the certificate and hand it over to the father in this case.

9) In control deck an option called **(Secondary)** is for the situation that the previous one has gone through annulment process and another certificate is being registered, in cases of losing the certificate or any condition that ends the possession of applicant's certificate.

10) The annulment part will be described later.

The other parts of form are related to other processes and use cases.

The **TYPE 2** part is for updating the certificate for applicants over 18 years. This part activates a process for being able to issue national card too. In fact, this certificated is the core and middle of all processes.

NC issue use cases

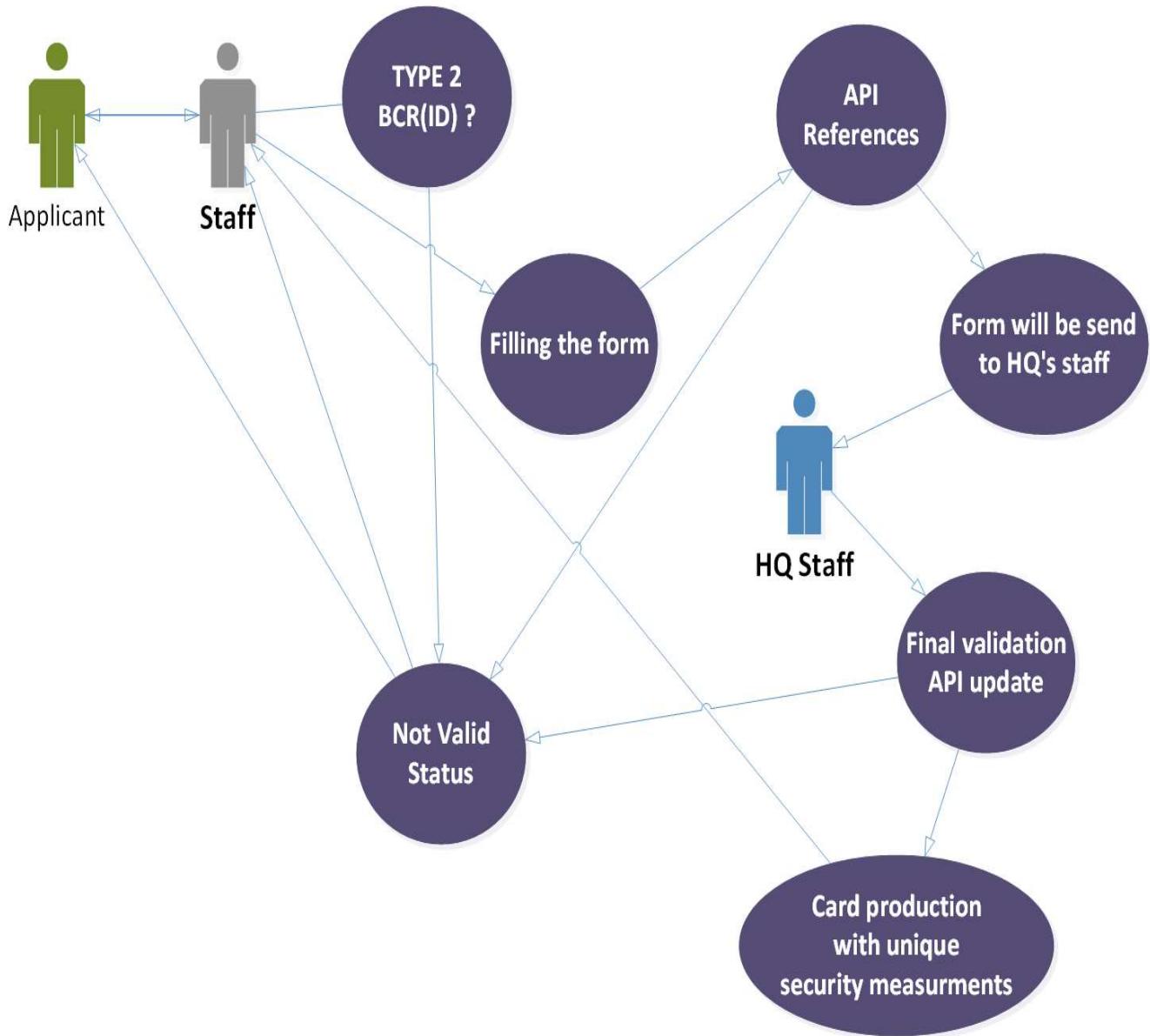
NC issue form:

The screenshot shows a Windows-style application window titled "National Card Issue". The top right corner features standard window controls (minimize, maximize, close). Below the title, the text "Reference Code : Comes From API" is displayed. The main interface is divided into several sections:

- Applicant Search:** Contains a label "Applicant SN :" followed by an input field, a button "Secondary", and a button "Search".
- Visual info:** Contains two boxes: "Picture" (containing a placeholder user icon) and "Signature" (containing a placeholder signature icon).
- Applicant info:** Contains five input fields: "SSN", "FirstName", "LastName", "Birth Date" (with a date picker showing "Saturday, December 16, 2023"), and "Father's Name".
- Control Deck:** Contains two buttons: "Import" (next to the "Picture" box) and "Fingerprints" (next to the "Signature" box). It also includes a barcode representation.
- API:** A button labeled "Validate API".

This process's use cases are:

Actors: applicant, branch staff, HQ staff and as always API



- 1) Applicant requests for issue, staff at first searches from (**Applicant search**) In form if it finds data from the data bases reference comes from the API which is another actor in this use case this code is the main concept of security and uniqueness of the architecture. **Actors:** **applicant, staff/HQ**
- 2) After the search and success in this case by the SN the other parts of the form will be filled automatically, part (**Applicant Info**). **Actors:** **Staff, API**
- 3) The **picture** will be taken physically and be imported to the form.
Actors: **staff**
- 4) the **signature** will be taken physically and be imported to the form
Actors: **staff**

5) The **fingerprints** will be taken physically and be imported to the form
This part already exists from ID/BCR, but a duplicate will be handled by API

Actors: staff, API

6) After all, from control deck, staff asks for a validation which the status makes the API to send the form to HQ or negative status to applicant.

Actors: staff, API

7) In case of negative and complications in issue process the status will be send to staff and the applicant directly from API.

Actors: staff, API

8) But if the status is positive API sends a notification and the form for a staff at HQ.

Actors: API

9) Staff at HQ validates once more and updates the API from **(Control Deck)** In the form.

Actors: staff, API

10) API after updating sends a barcode visualized based on the security chains and references connected to data base keys.

Actors: API

11) After all this process the card is ready to be produced and delivered to staff that got the request from an applicant.

Actors: staff

Base protocols for security and issue process are vivid because they are Critically classified and important for every country and government So, I am not that aware of the main process, that is why I can't explain the details, but I will try my best at the Laboratory use cases and processes.

