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Presenting to:

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System analysis & design

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.

Civil registration has one HQ and 31 Administrations.
Administration quarters work nearly same as HQ.

Summary Copyright:

Wikipedia

11/27/2023

1402/9/5

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
Heritor/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 childs
 - 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

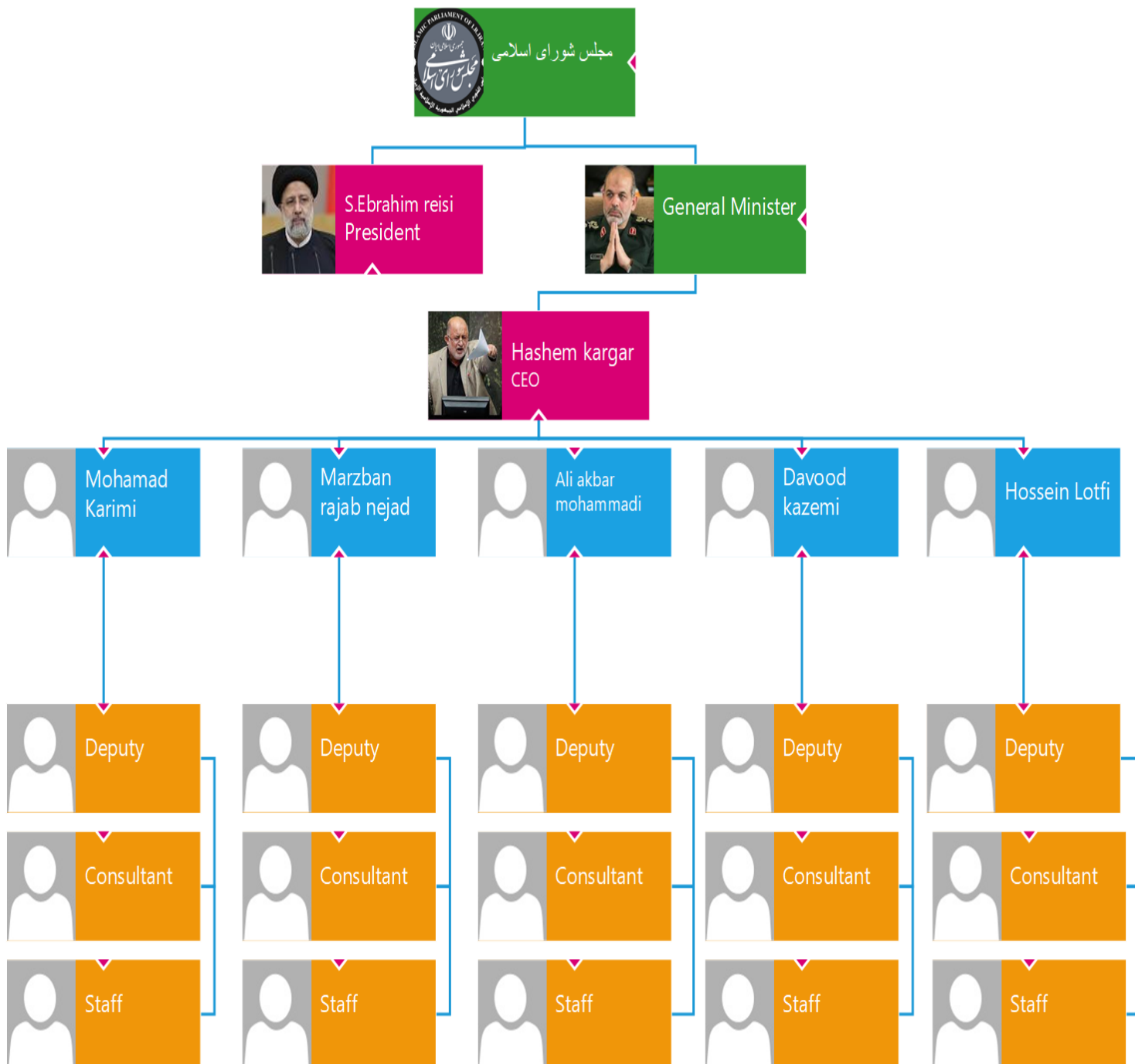
Next levels are the deputy departments:

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.

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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.

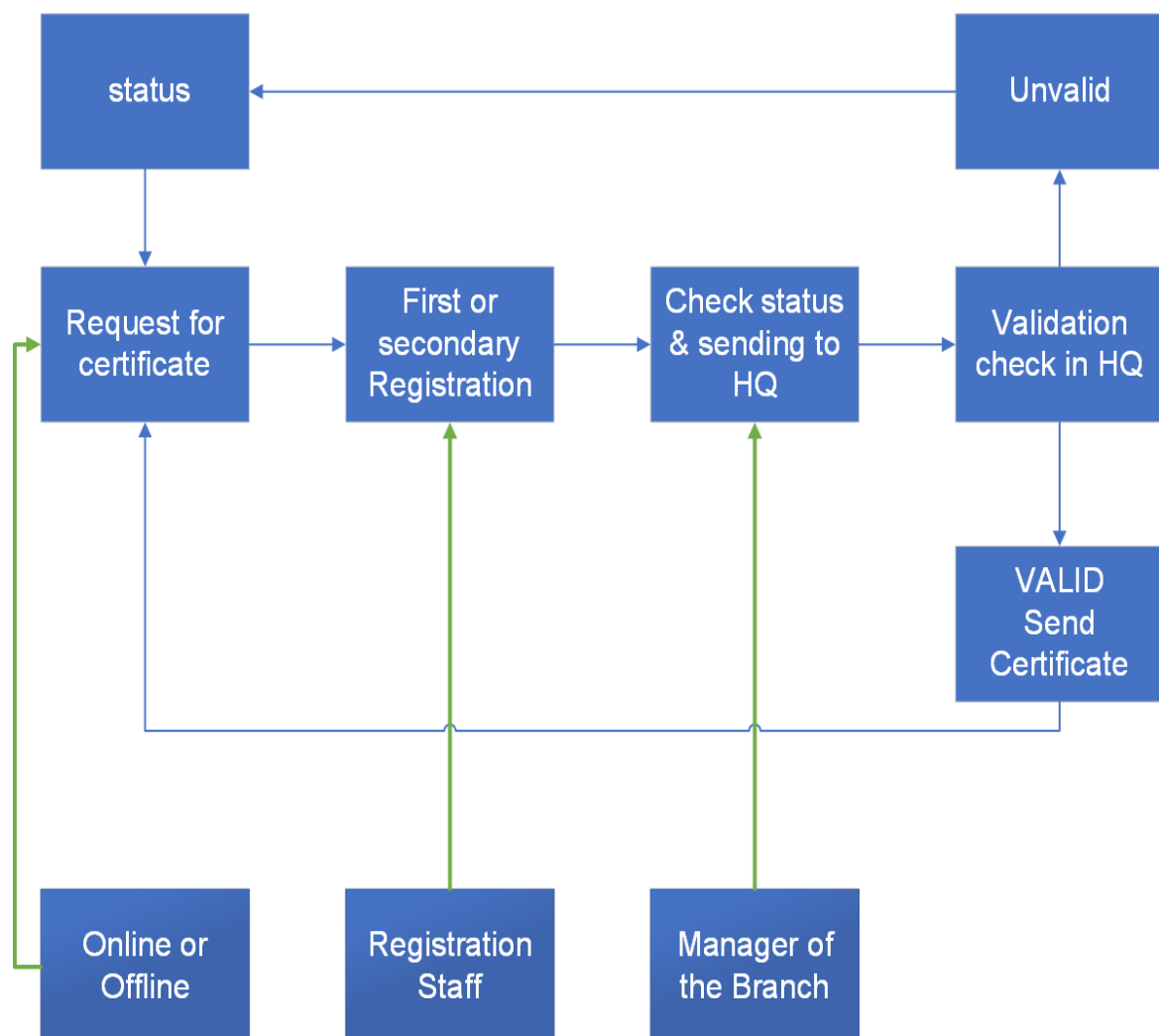
Security layers and organization rules

From the highest level of manipulating data in organization:

1. Managers at the Head Quarters at the capital
2. Staff at the Head Quearters 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

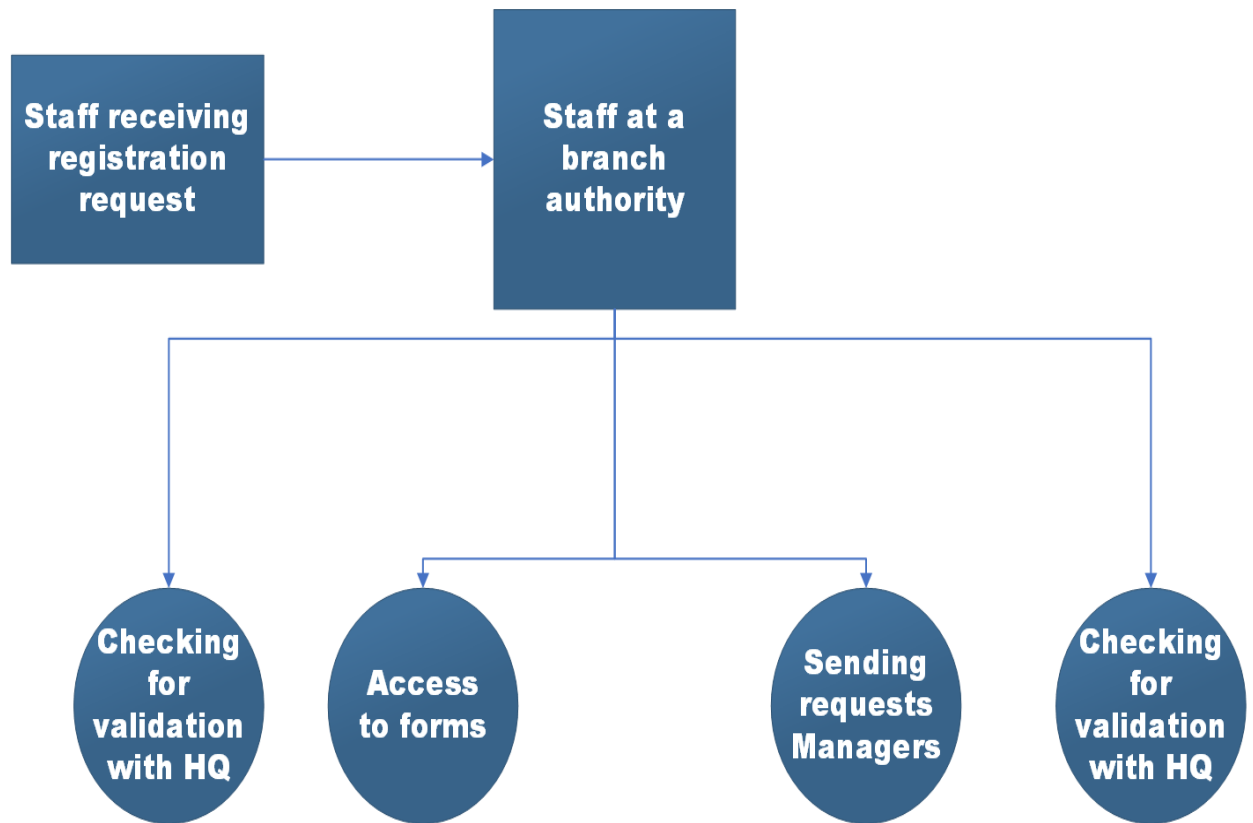
For understanding Sub-Layers will be introduced.
which can be understood by main process.

Related Diagrams)

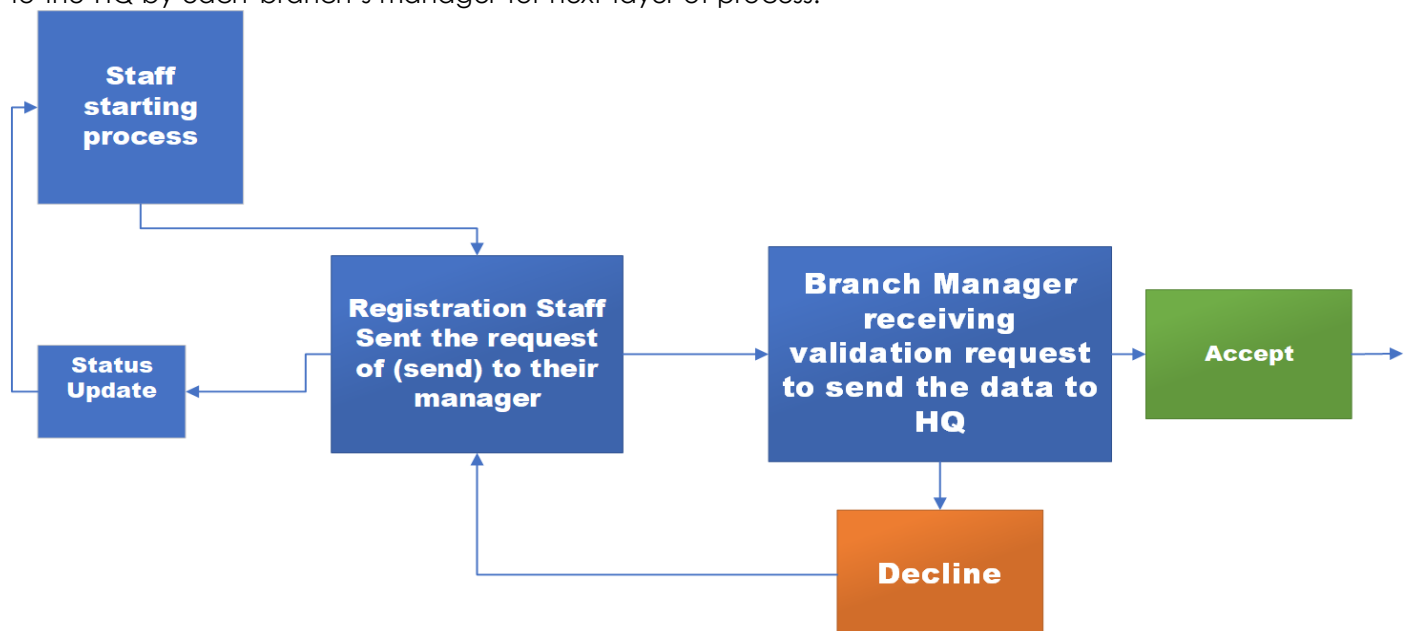


In above diagram staffs and managers all two main concept of the layers explained in previous page, I try to make their differences clear.

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.

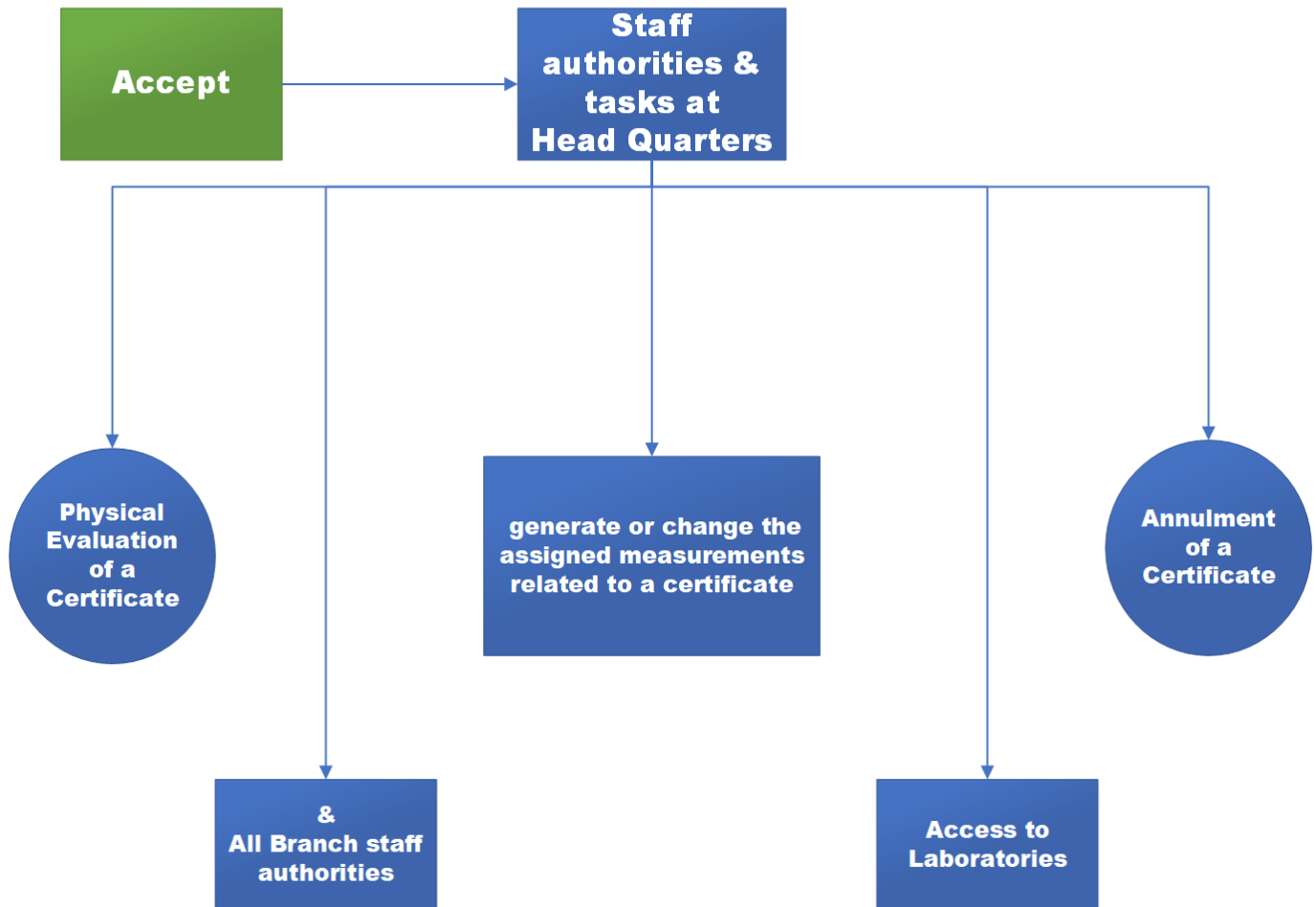


Managers at each branch will check out the received data from their registration staff so they can divide the decision by two:

- 1_ Accept
- 2_ Decline

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

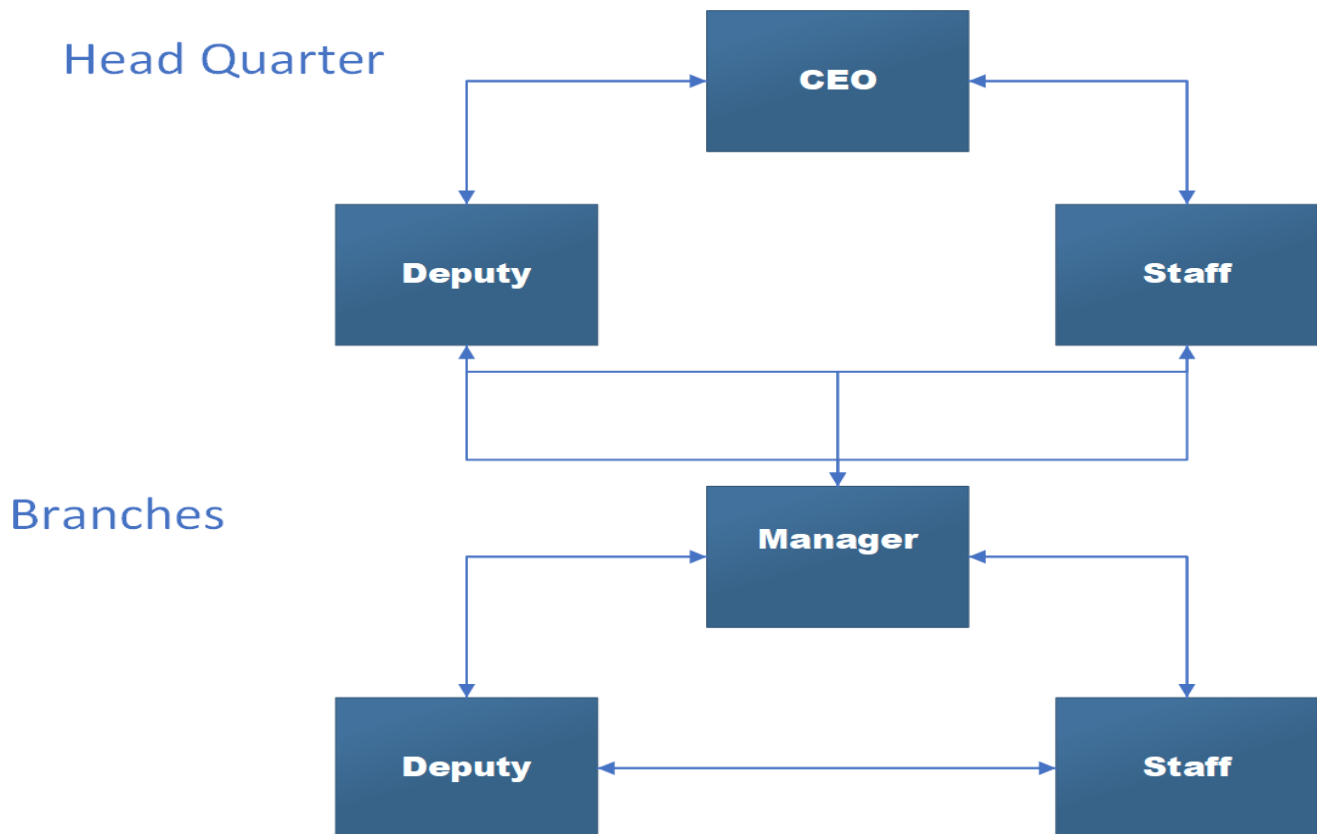
Which their reports are directed to the deputy of organization located at Main origin.

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.

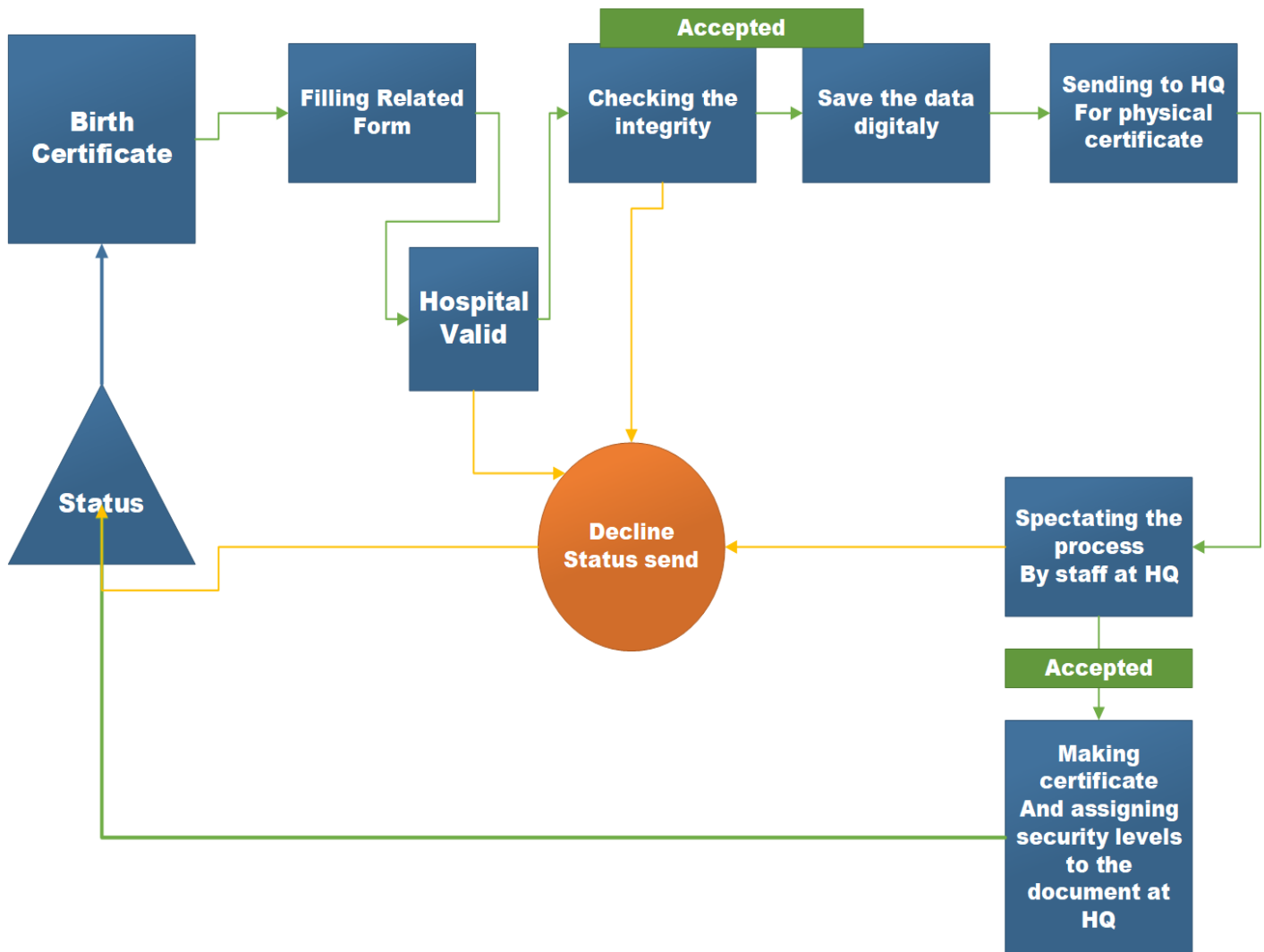
Process Model 1:

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**.

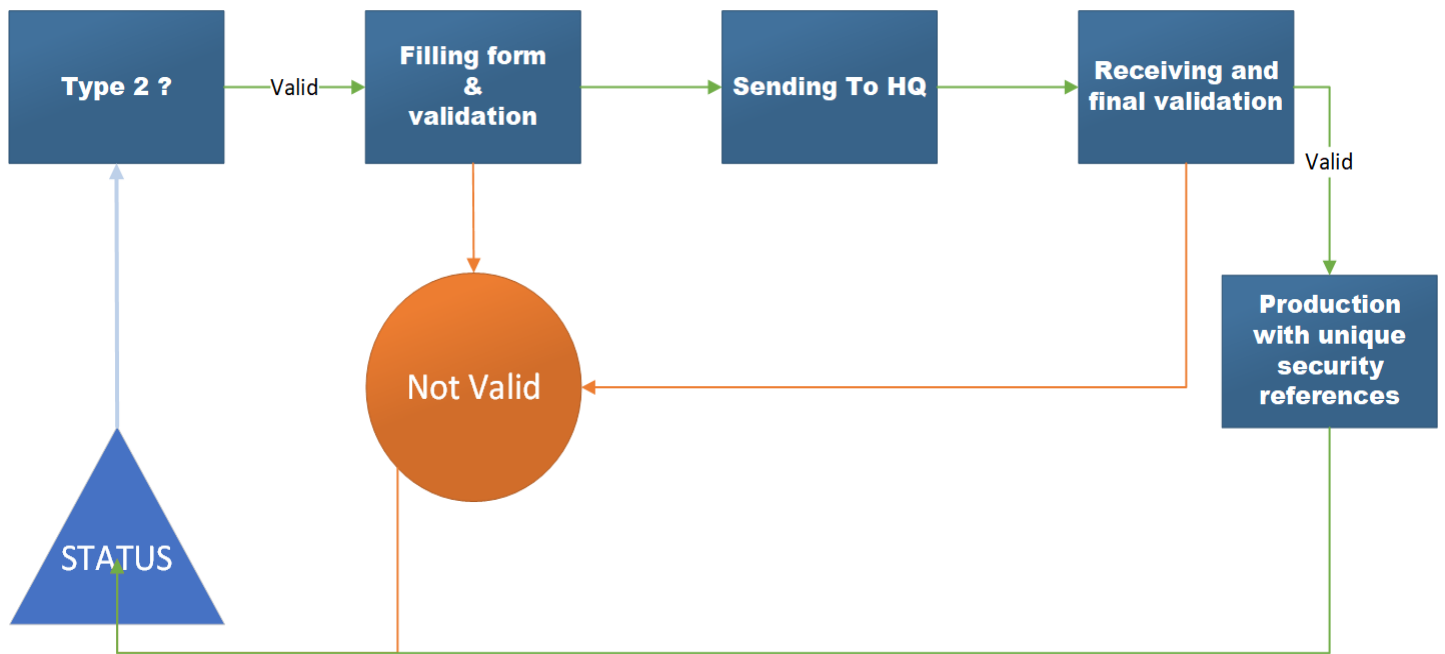
National card Issue

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.

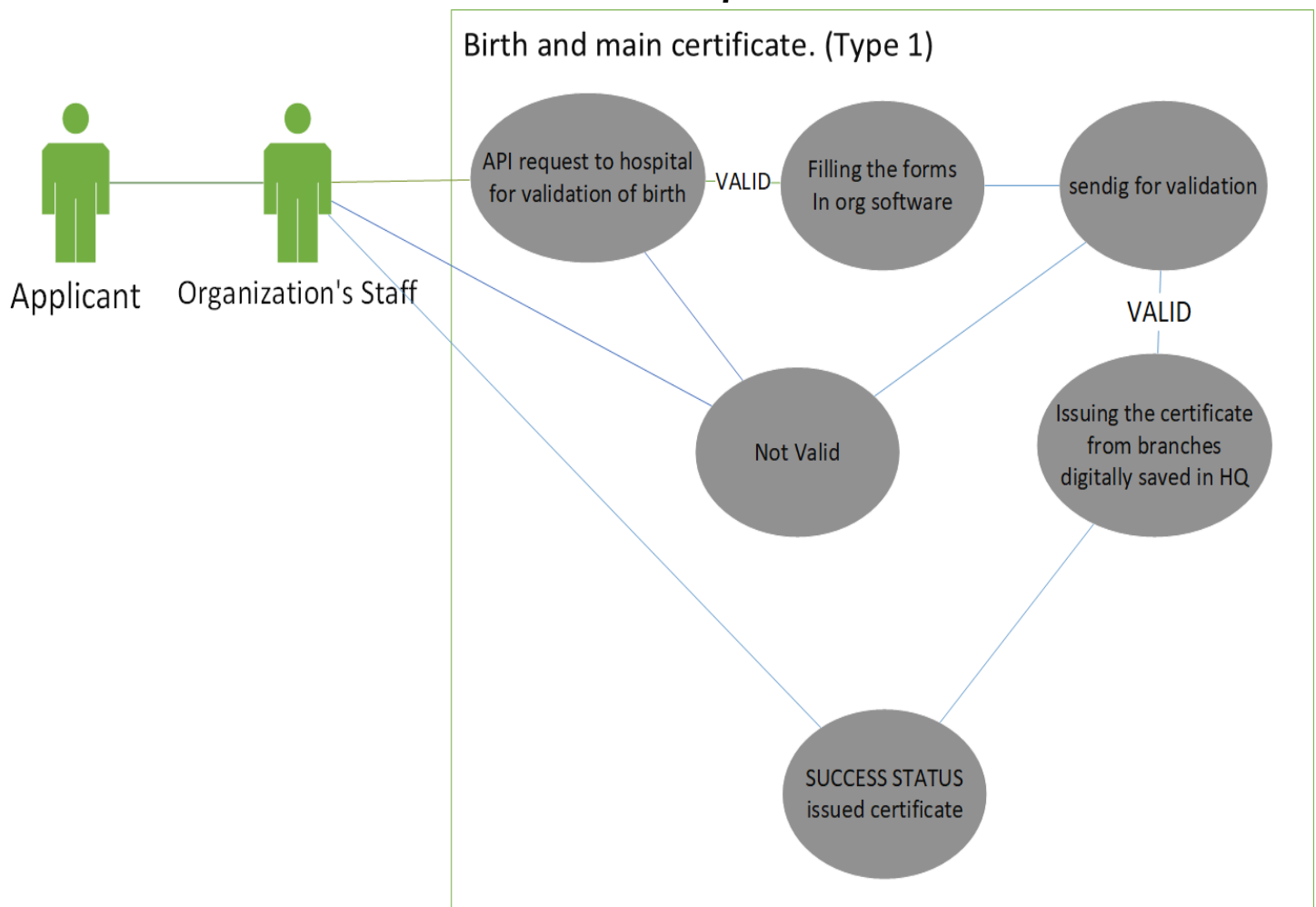
This card has a barcode that is being used for archives in the organization for annulments, missing cards destruction. in general, this perk makes destruction, second time issued cards process and other security stuff that is not easy to understand.

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

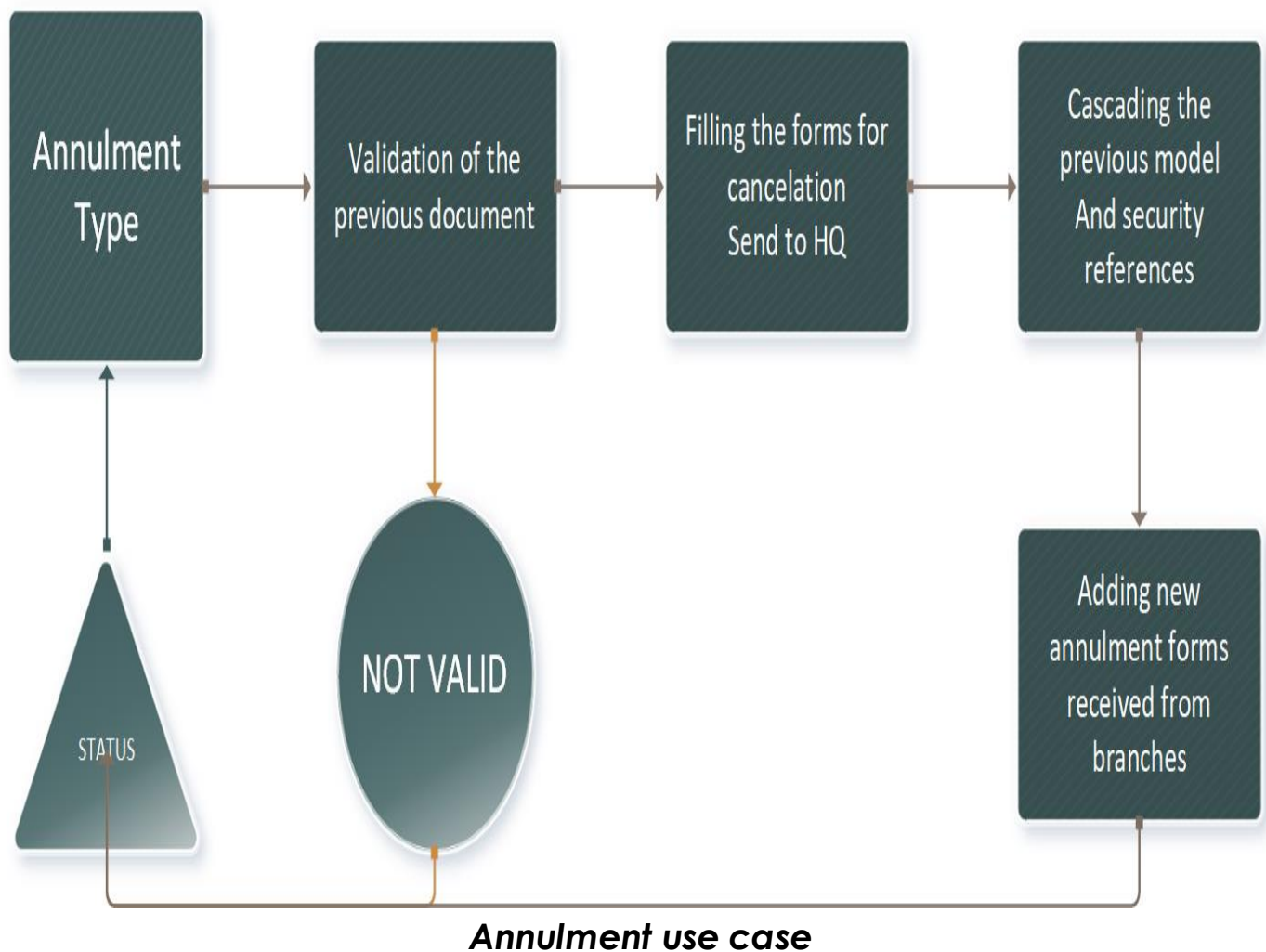
This is a general process, so it is connected to probably all if the main processes, such as:

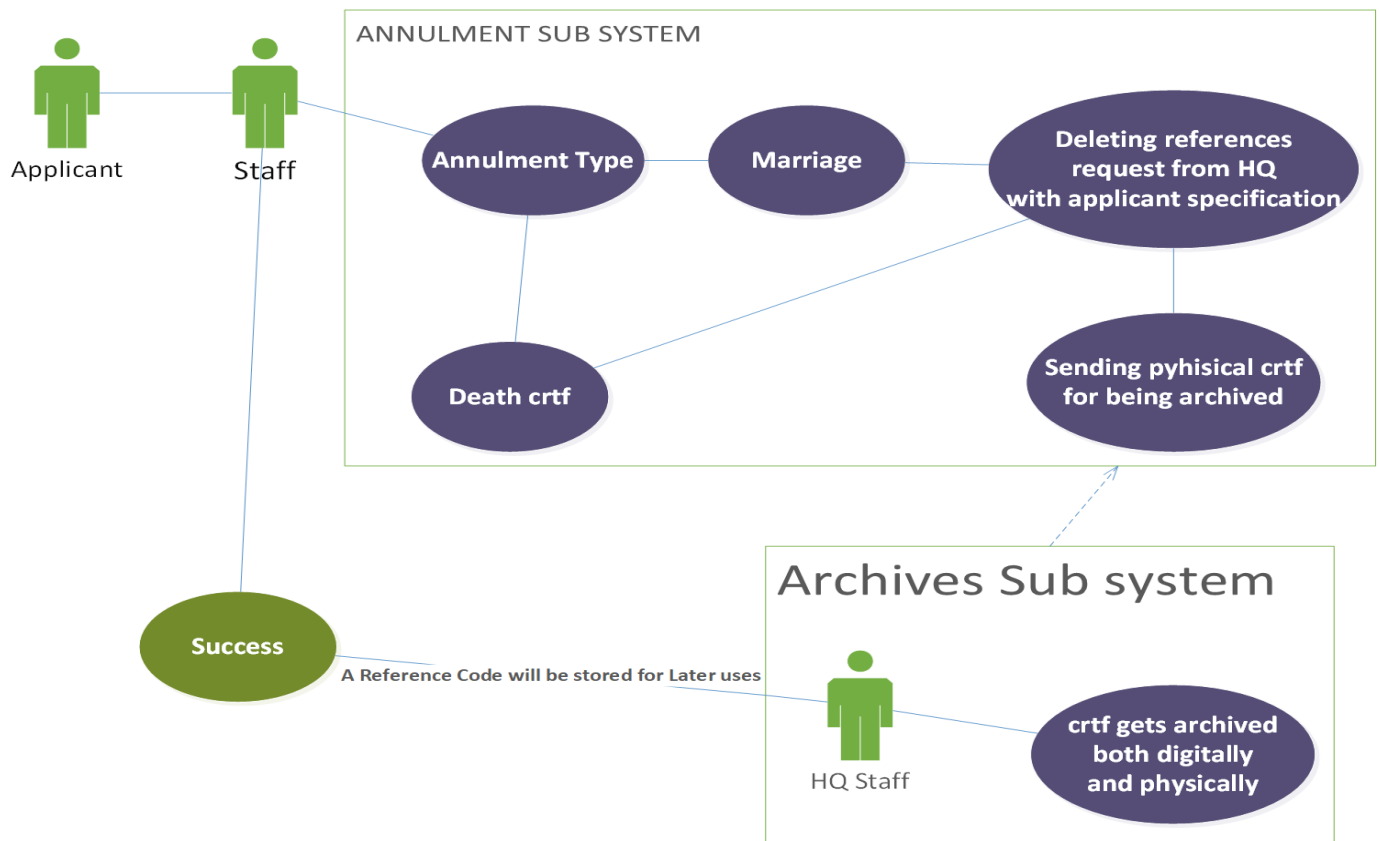
- **Registrations**
- **Death certificates**
- **Marriage certificate**

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.

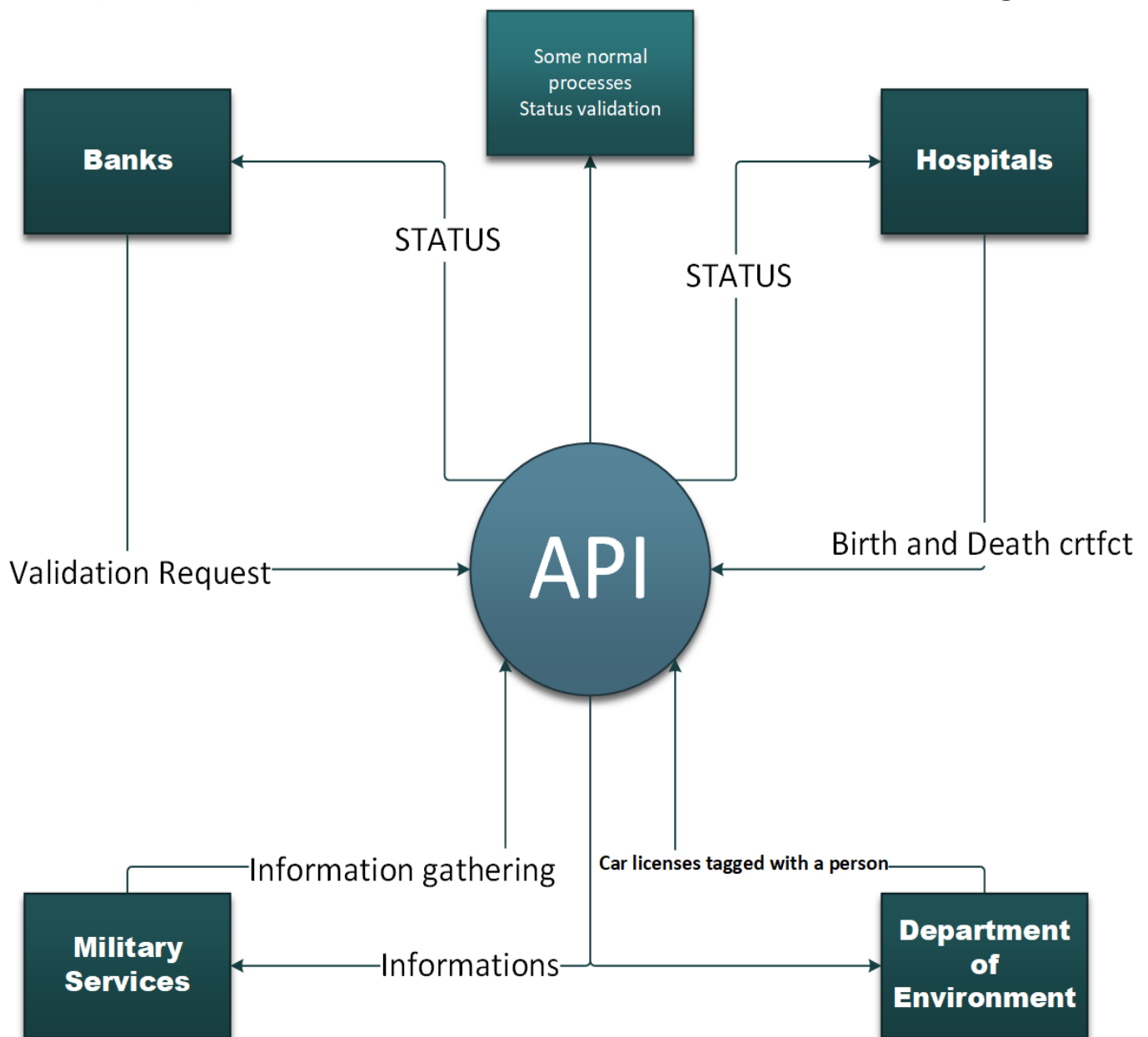
There would not be any UI/UX for this part only high security levels API that only accepts requests from verified Governmental organizations like:

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

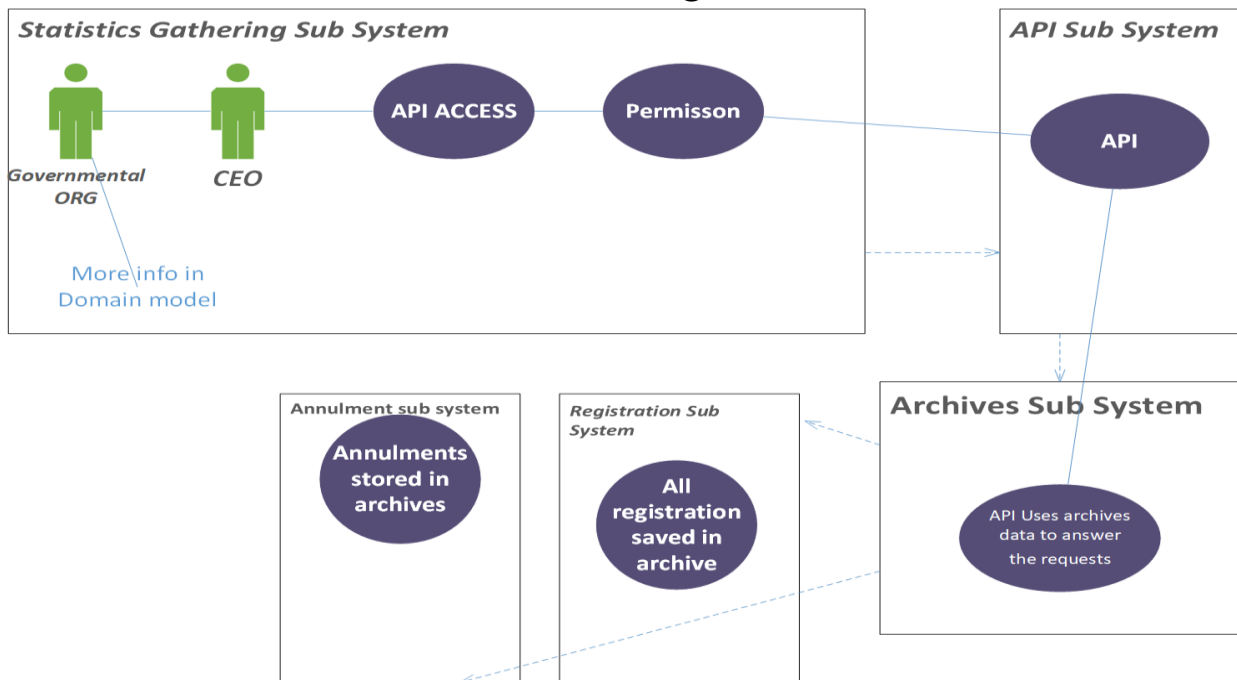
This REST API will be configured to accept and answer the needs of probably all other organizations that is obvious why, because this organization saves the data about everything that a person is being known for.

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.

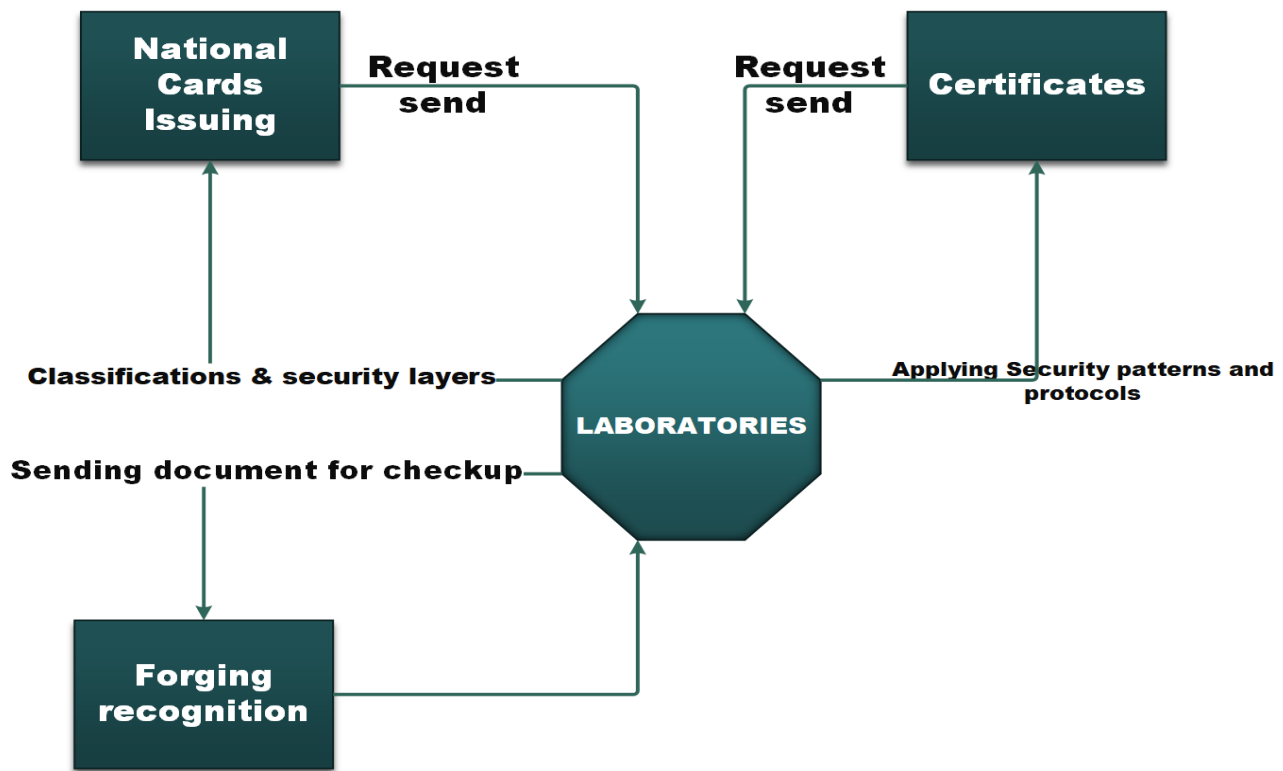
- **Paper's material used on certificates**
- **Chipsets on national cards**
- **Color patterns on certificates**
- **Simple patterns by shapes, numbers and lines**
- **Invisible colors and patterns with bare eye**
- **Ultraviolet visible lines, codes and other specifications**

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

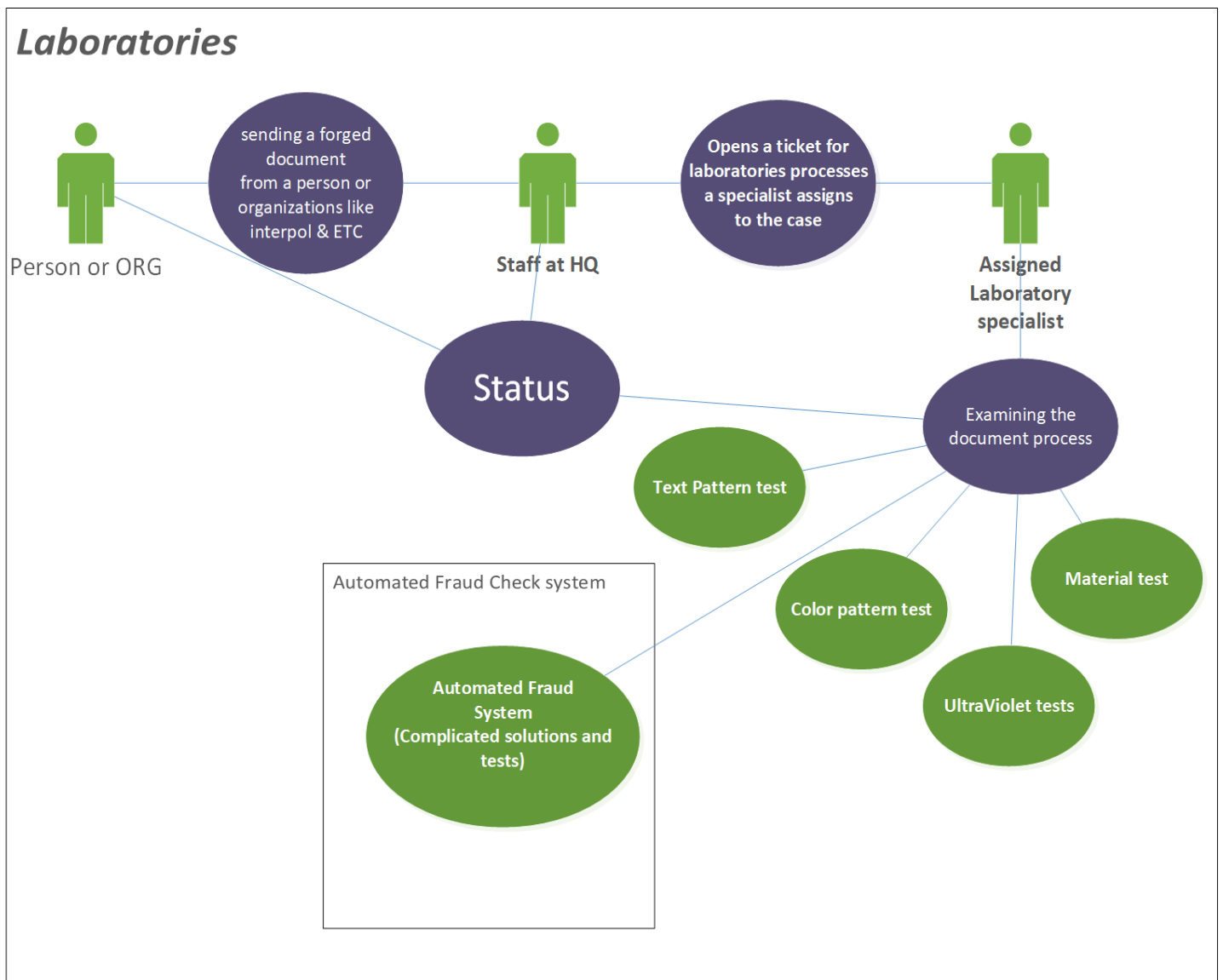
National card's chipsets are going to be encrypted by some random encryption system like using hash functions and

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



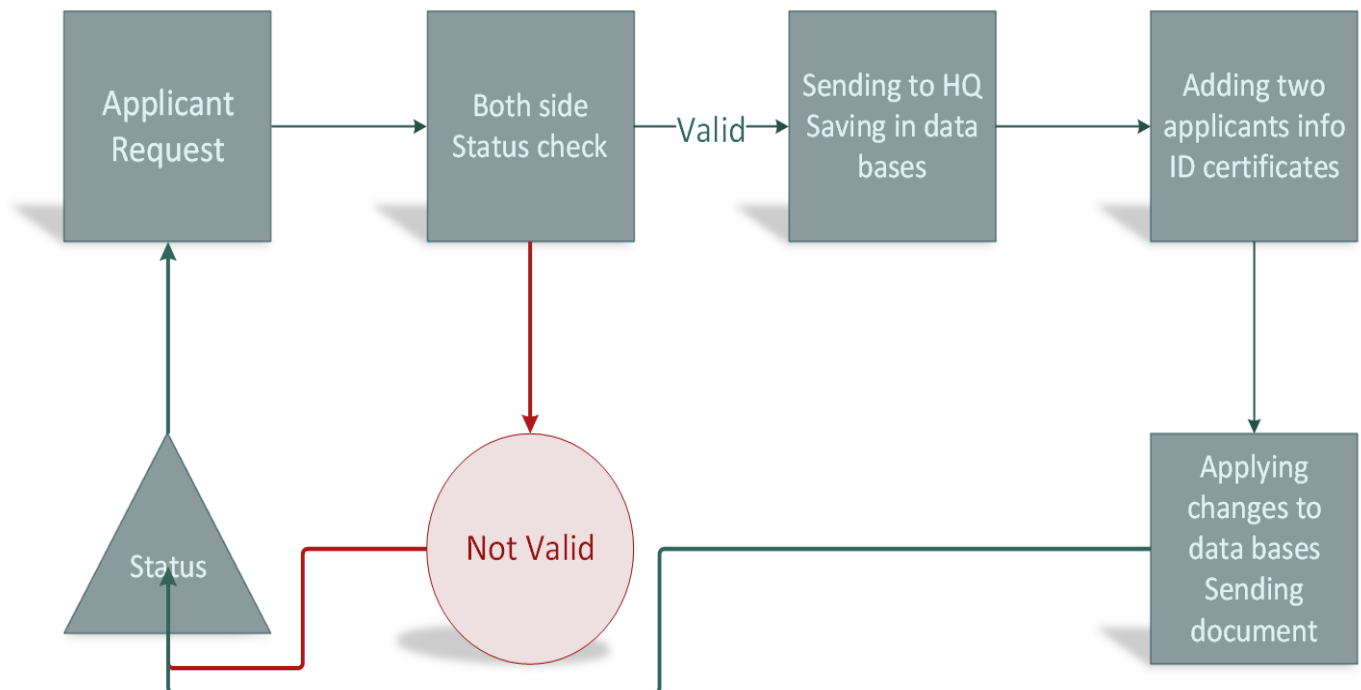
Marriage certificates process

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.

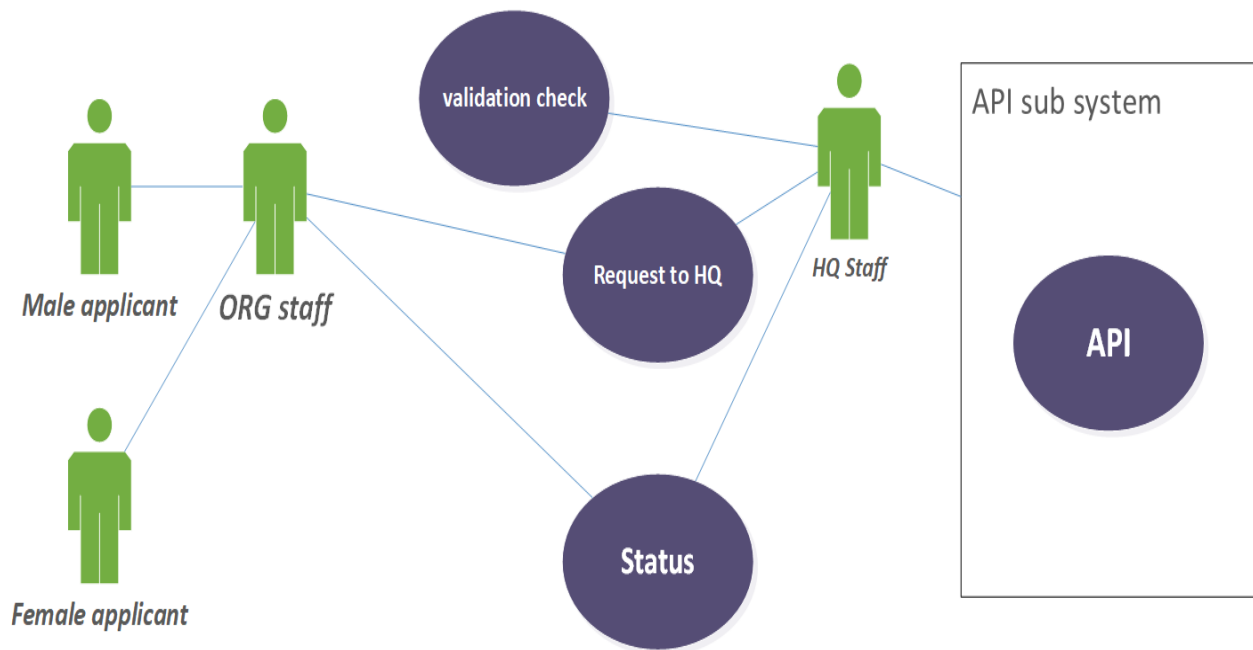
In this case problems that stops the process are:

- ***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.

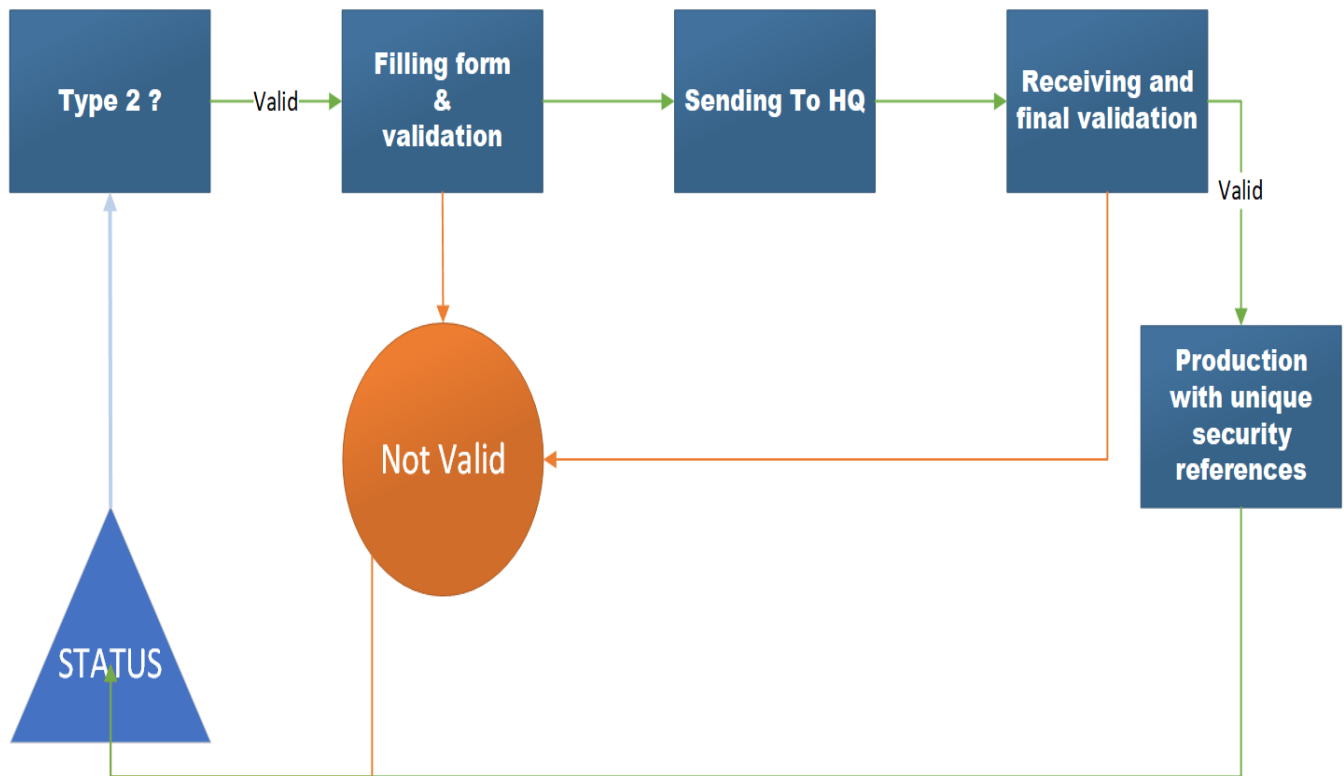
But implementing of the processes like API and fraud check sub systems would not be that easy more information in further diagrams and articles.

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.

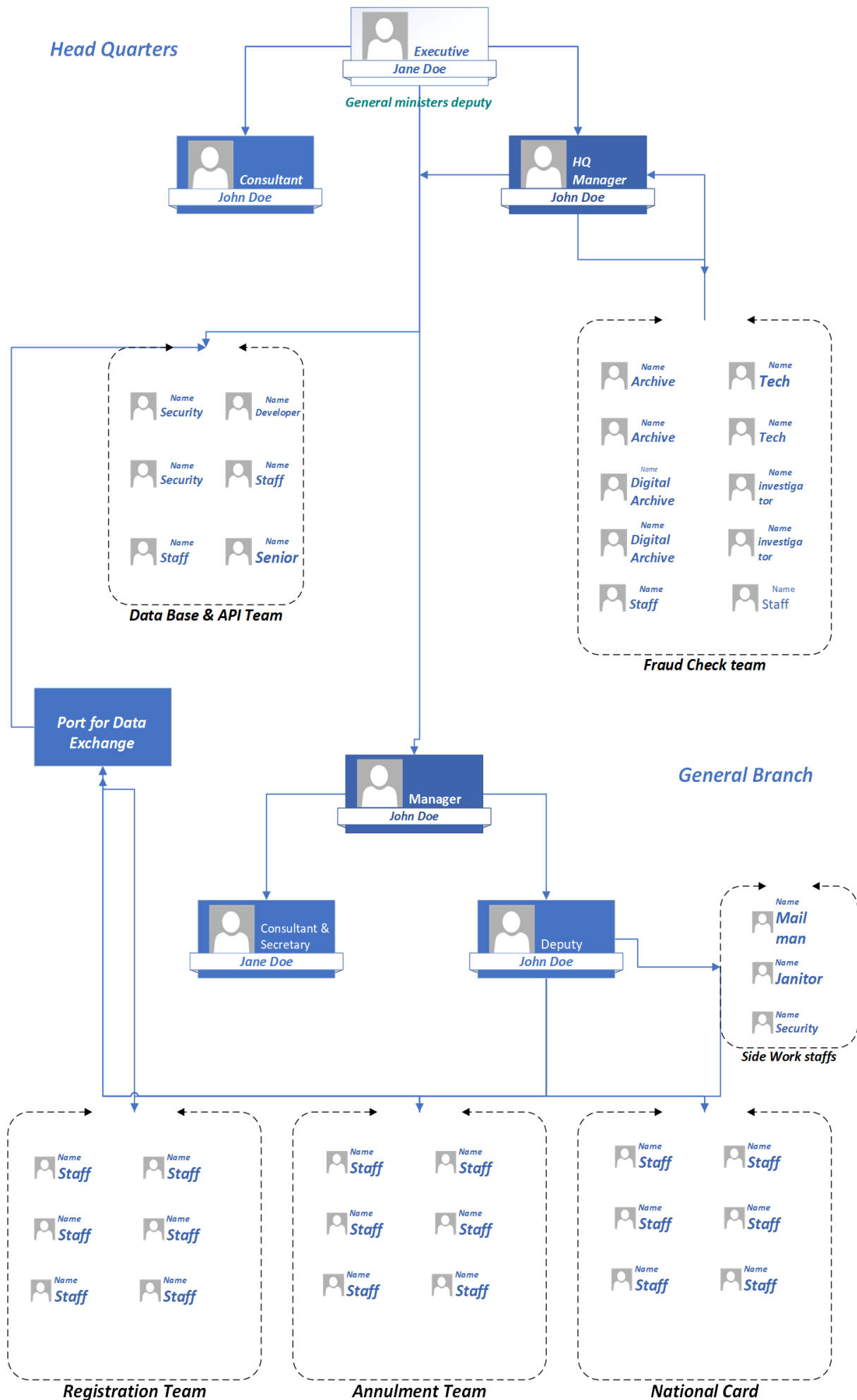
The forms will be filled by staffs or the API directly by adding the BCR (birth certificate registration) SN or ID's SSN/SN.

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 Dicator

Logged in User: Admin

Type 2 configurations

Picture Signature

Applicant info

First Name :

Last Name :

Date Of birth :

State :

City :

Parents Info

Father's Name :

Father's SSN :

State :

City :

Mother's fullname:

Mother's SSN :

State :

City :

Dedicated SSN :

Dedicated SN :

First Validation

Hospital Birth

Reference


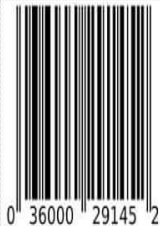
Status

☐ Alive ☐ Dead

☐ Married ☐ Single

Import UPDATE Import

Edit FingerPrints

Control Deck

TYPE 1

National Card Issue Form

National Card Issue

-

□

✕

National Card Issue

Reference Code :

Comes From API

Applicant Search

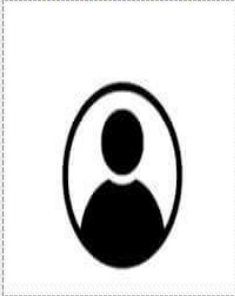
Applicant SN :

Secondary

Search


Visual info

Picture



Import

Signature



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

[illegible]

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

Death Certificate

Logged User : Admin

Hospital References

Reference Code :


Applicant Name :

Applicant lastName :

Death Reason :

Warrant

SSN : 99992222

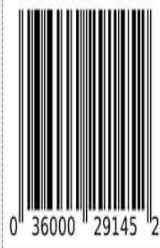


Internal Info

Applicant SSN :

Spouse SSN :

Children's SSN :


0 36000 29145 2

Judge Warrant :

Marriage Certificate Form

Marriage registration Form

Marriage Registration Form

Logged User : Admin

Male

FirstName :


LastName :


SSN :

Certificate SN :


NC Reference :

Health Warrant :





Digital SIG



Female

FirstName :


LastName :

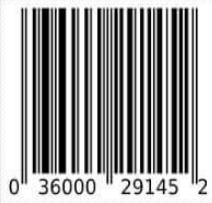
SSN :

Certificate SN :


NC Reference :

Health Warrant :





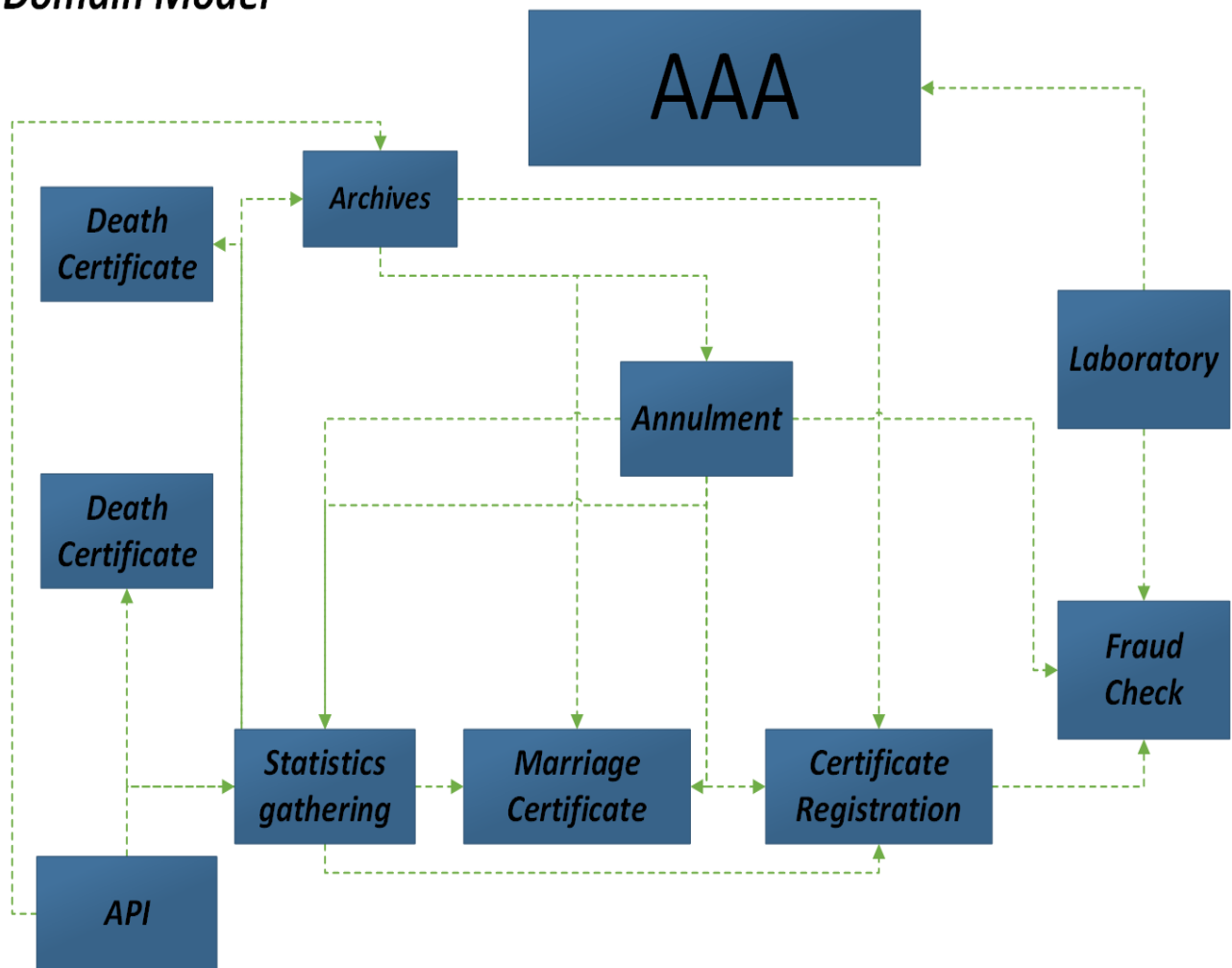
Digital SIG



25

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.

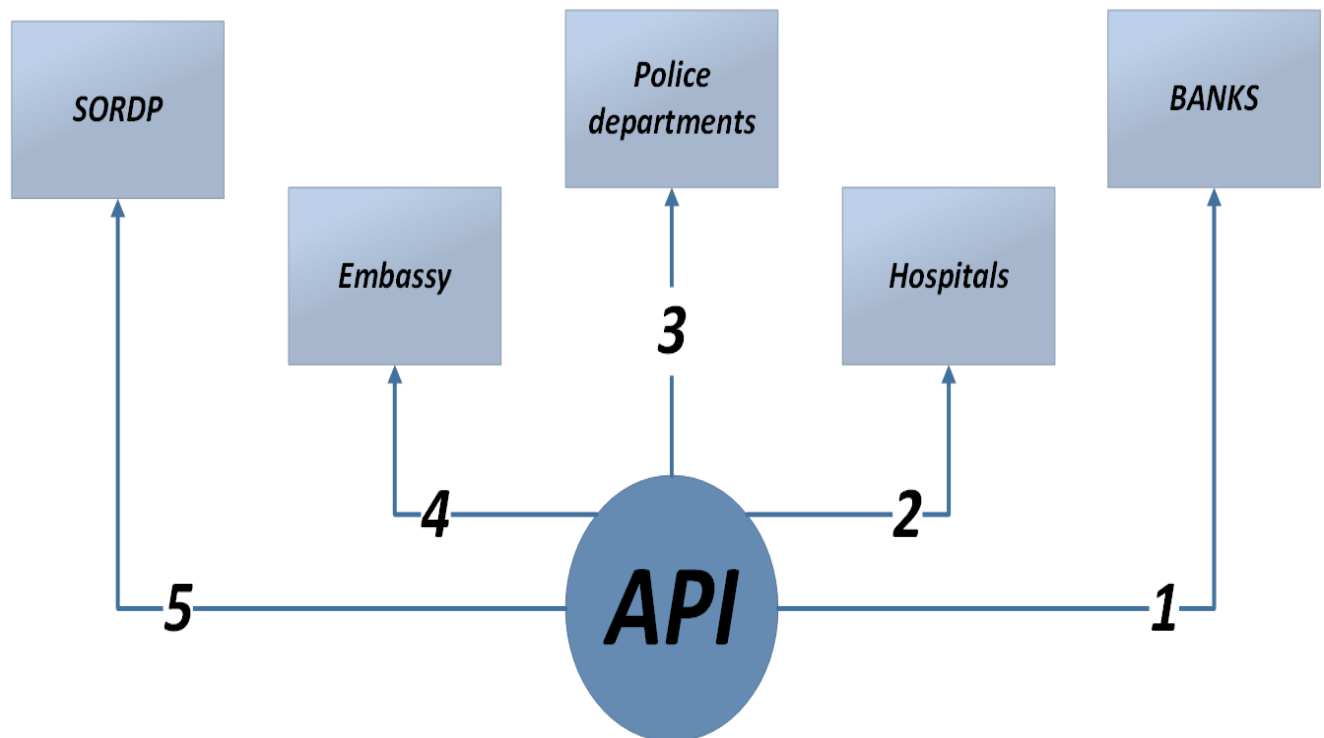
After that API is related to archives this sub system is useful for exchanging data with other organizations such as:

- **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

Organization

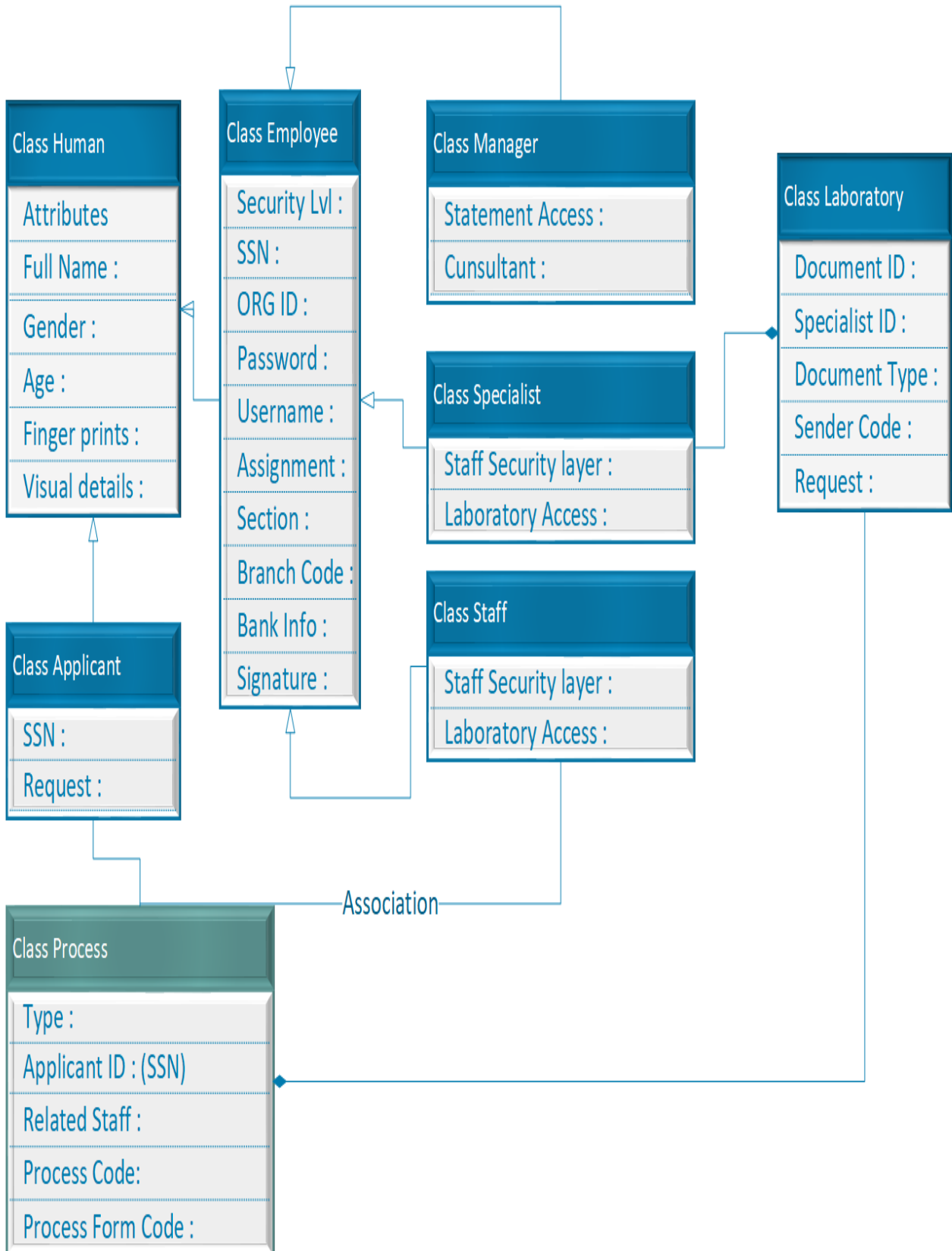


Diagram explanation

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 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:

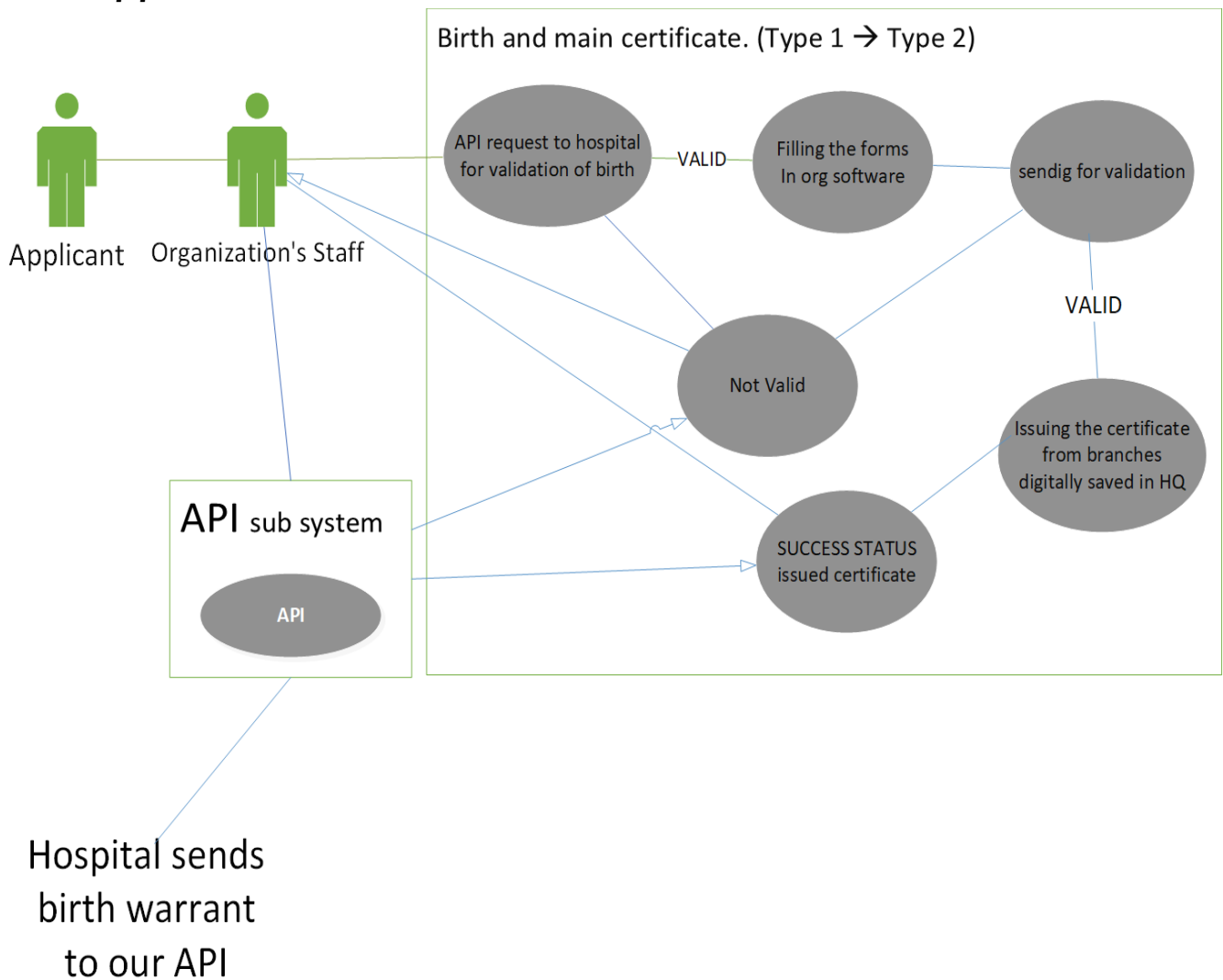
- 1. Birth certificate**
- 2. NC issue**
- 3. Annulment**
- 4. Death certificate**
- 5. Marriage certificate**

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.

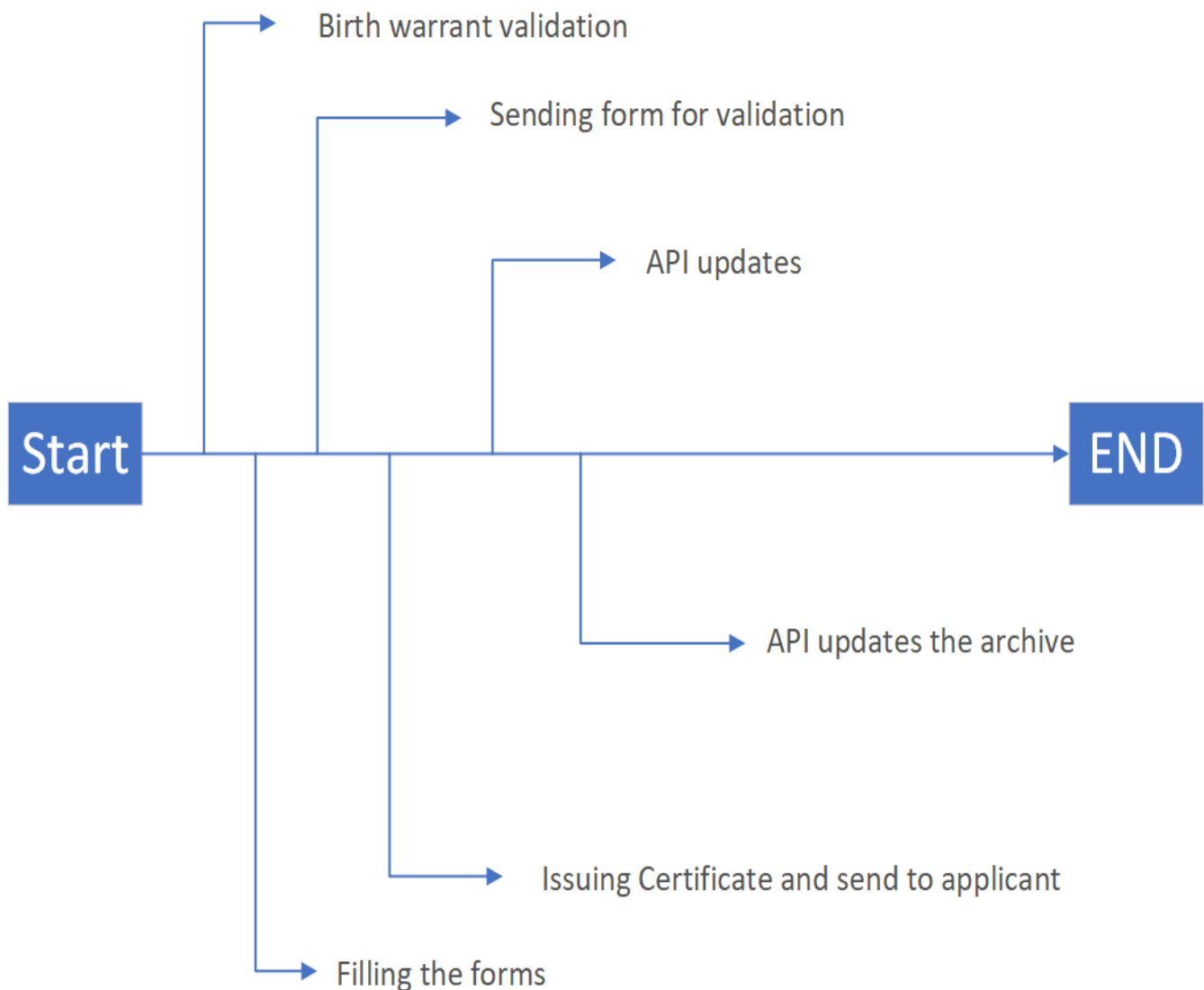
Use case explanation:

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.

Alternative flow:



Semantic Validation:

- 1) Birth warrant is the key for this process without it, it stops.
- 2) Filling form will be activated after warrant reference code insertion
- 3) Validation button will be activated after every field is filled
- 4) If validated Certificate will be issued and sent to the related branch.
- 5) After certificated issued API updates

Birth Certificate Registration Form

Birth Certification Form

Applicant info

FirstName :

Last Name :

Date Of birth :

State :

City :

Parents Info

Father's Name :

Father's SSN :

State :

City :

Mother's fullname:

Mother's SSN :

State :

City :

API Dicator

Dedicated SSN :

Dedicated SN :

First Validation

Hospital Birth

Reference

Status

☐ Alive ☐ Dead


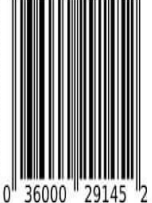
☐ Married ☐ Single

Logged in User: Admin

Type 2 configurations

Picture

Signature

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:

National Card Issue

Reference Code : Comes From API

Applicant Search

Applicant SN :

Secondary

Applicant info

SSN :

FirstName :

LastName :

Birth Date :

Father's Name :

Expires :

Visual info

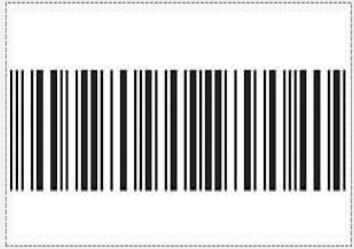
Picture

Signature

Fingerprints

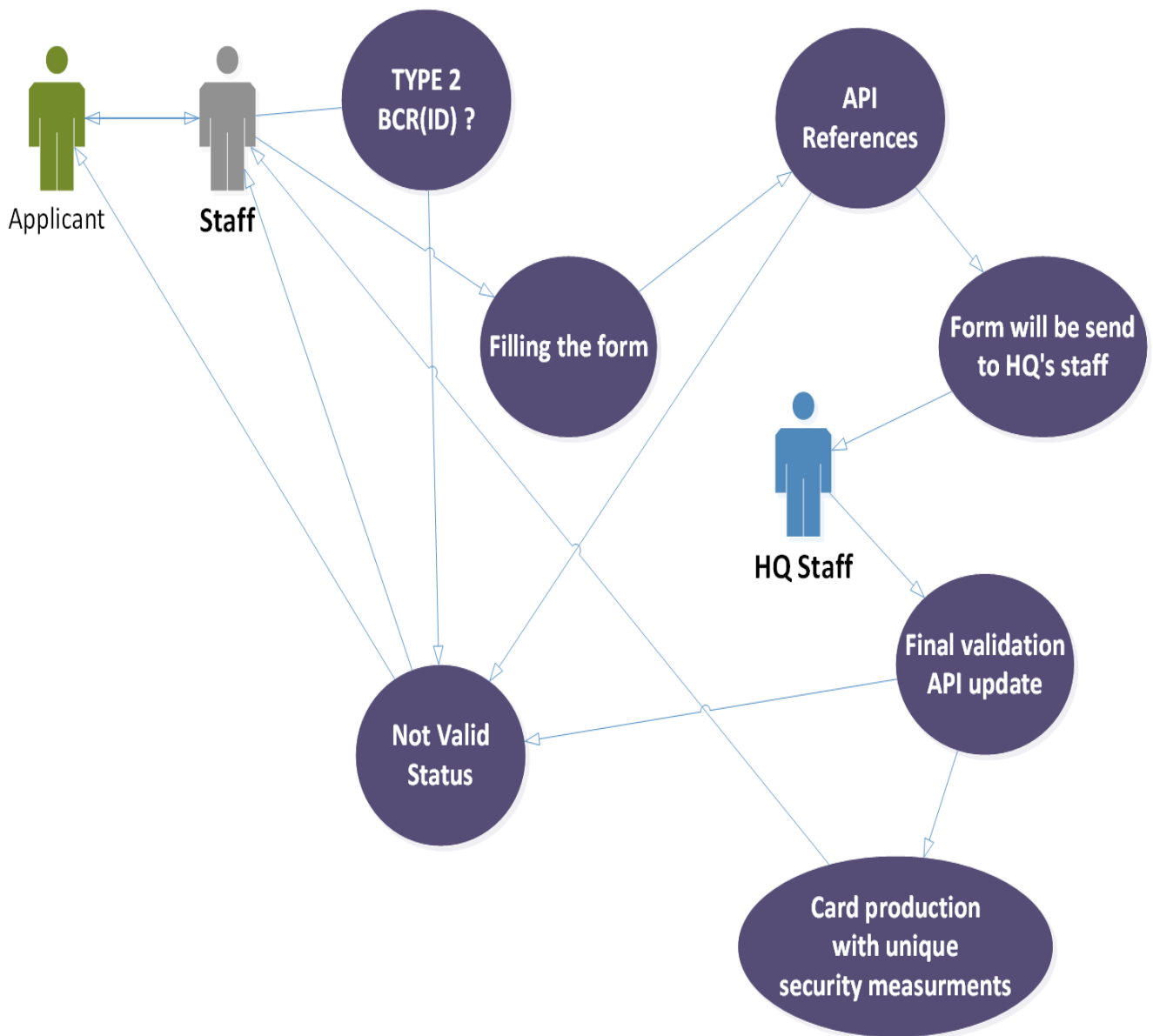
Control Deck

Validate



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 basses 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.

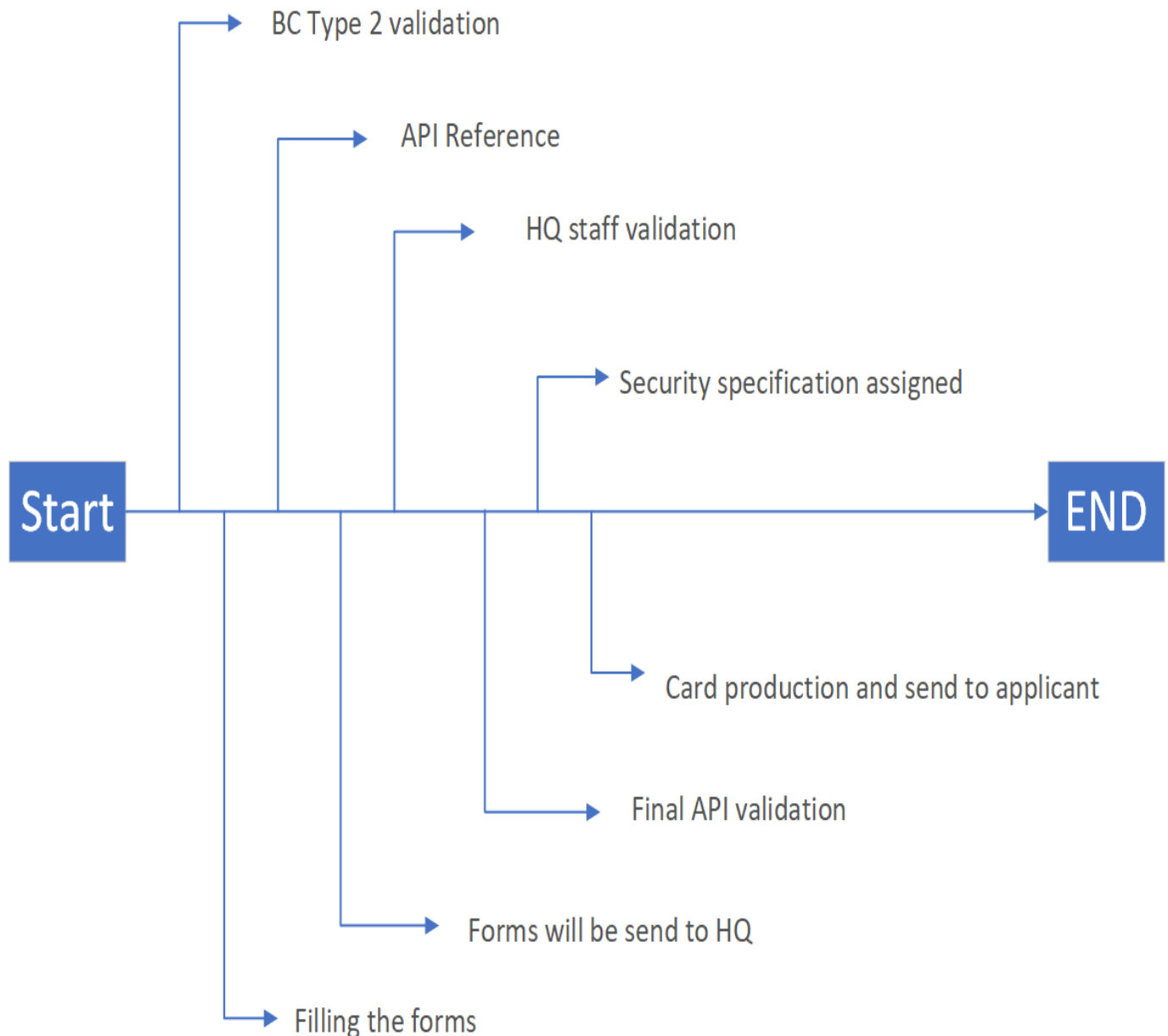
Actors: API

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.

Alternative Flow:



Semantic Validation:

- 1) Validation checks for BC(ID) Type 2
- 2) After successful validation form's fields would be activated
- 3) API sends a reference code dedicated to the document,
For security protocols.
- 4) Form will be sent to HQ for staffs to do the last validations

5) Last security specifications would be applied

6) NC will be produced and sent to the related branch/applicant

Annulment Use cases:

Because of the BCR/ID connection to other processes (every one of them are based on it) every annulment will be triggered from that form.

Birth Certificate Registration Form

API Dedicator

Logged in User: Admin

Type 2 configurations

Picture Signature

Import UPDATE Import

Edit FingerPrints

QR Code Barcode

0 36000 29145 2

Control Deck

Annulmant Secondary API Update

Integrity Check Validate

Birth Certification Form

Applicant info

FirstName :

Last Name :

Date Of birth :

State :

City :

Parents Info

Father's Name :

Father's SSN :

State :

City :

Mother's fullname:

Mother's SSN :

State :

City :

Dedicated SSN :

Dedicated SN :

First Validation

Hospital Birth

Reference

Status

☐ Alive ☐ Dead

☐ Married ☐ Single

TYPE 1

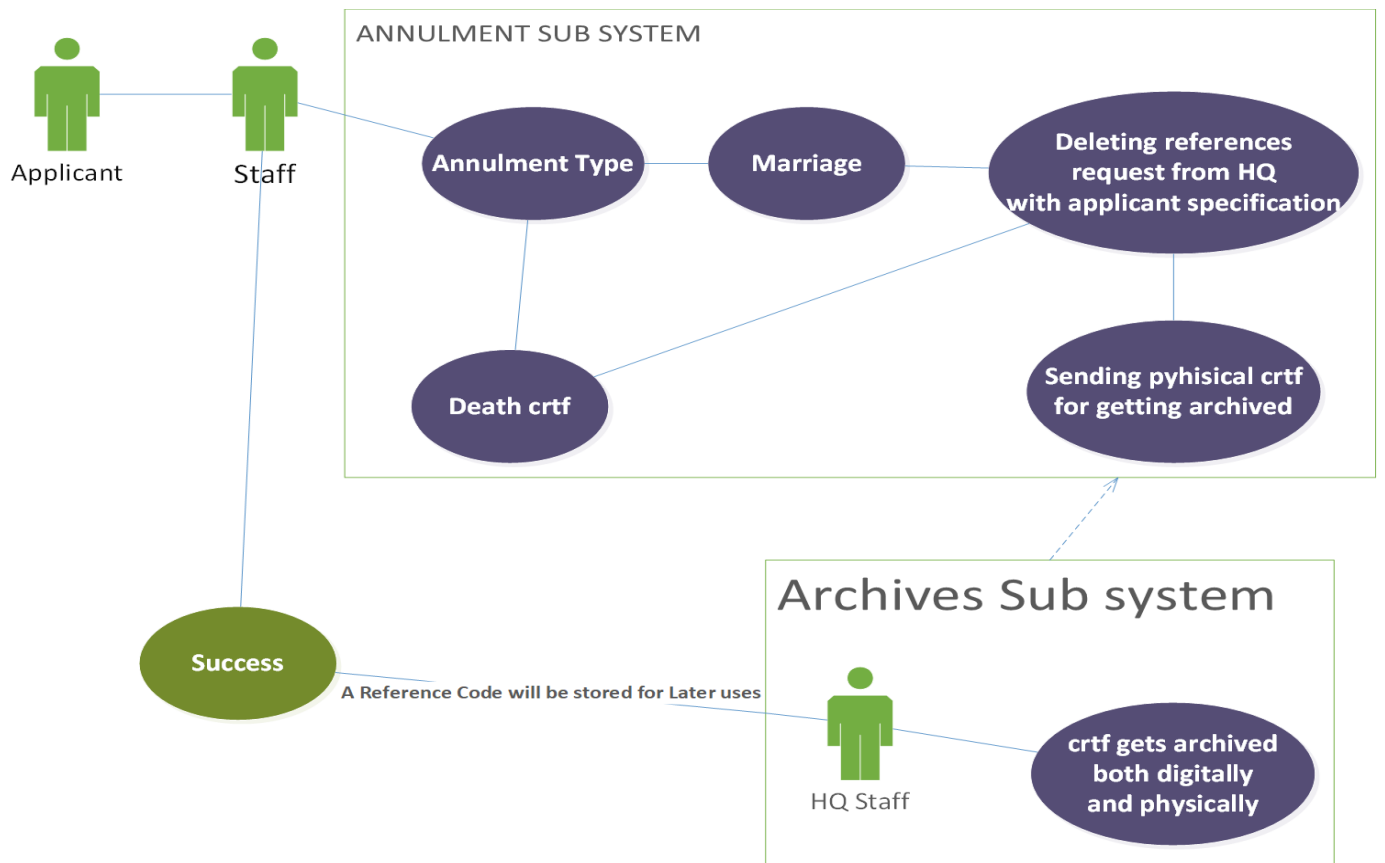
1) At first staff by scanning the BRC barcode will get access to form above with all data filled automatically from data bases

2) Next from control deck Annulment button should be triggered and opens another form shown down below.

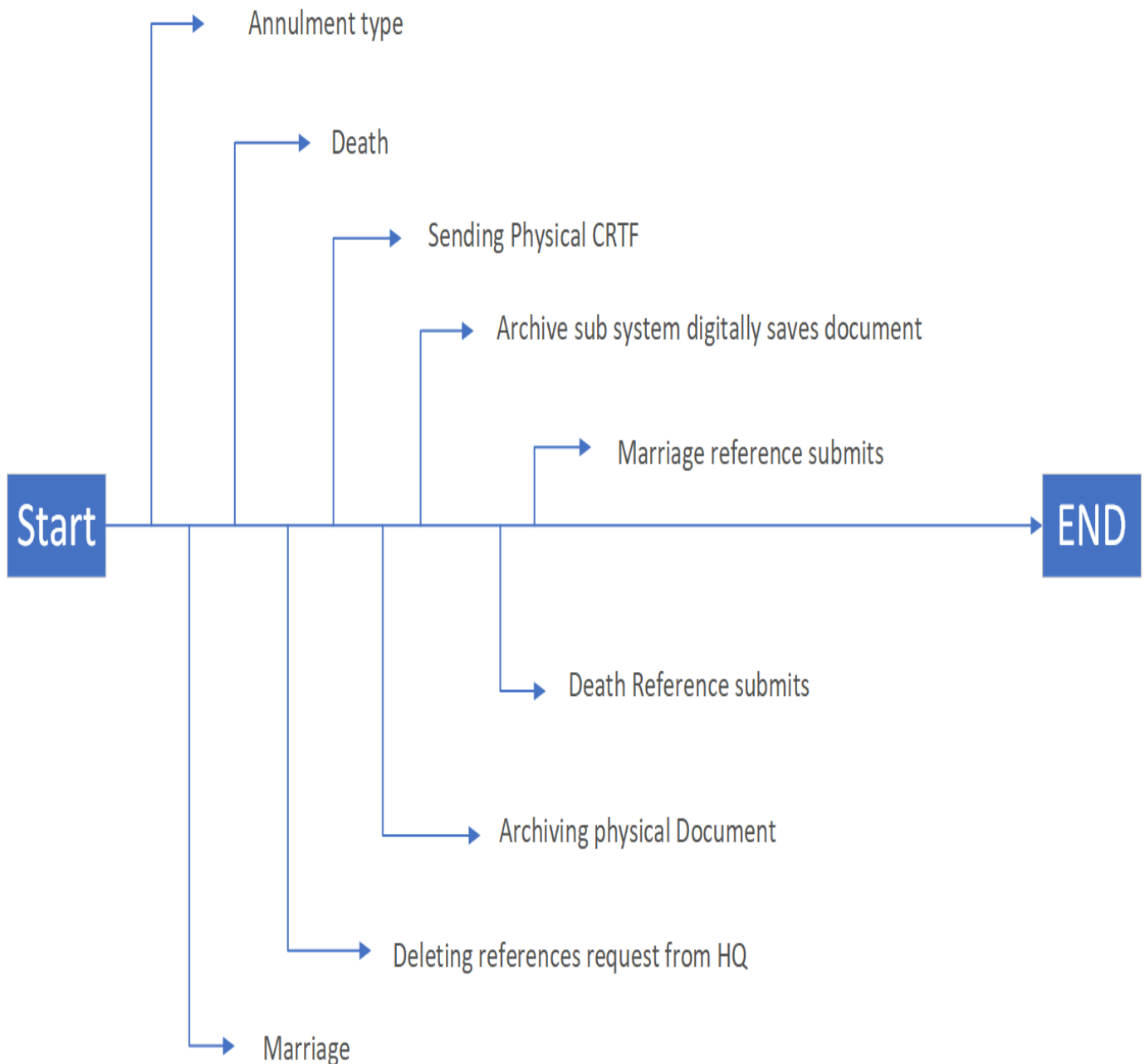
The screenshot shows a web application window titled "Annulment Form". The interface is divided into several sections:

- Top Left:** A large barcode labeled "Annulment Form".
- Top Center:** A "Search" section with a "Reference :" text input field and a "Search" button.
- Top Right:** A "Logged User : Admin" status indicator.
- Middle Left:** A "Marriage" section containing:
 - "Male SSN :" and "Female SSN :" text input fields.
 - "Registration Date :" text input field.
 - "agreement document :" text input field with an "Import" button.
 - "Judge warrant :" text input field.
- Middle Center:** A "CRTF Picture" section with a "Validate" button. It also contains a small thumbnail image of a document titled "ANNULMENT QUESTIONNAIRE".
- Right Side:** A "Death" section containing:
 - "Applicant SSN :" text input field.
 - "Name :" text input field.
 - "Last Name :" text input field.
 - Radio buttons for "Male" and "Female".
 - "Judge warrant :" text input field with an "Import" button.
 - "Hospital warrant :" text input field with an "Import" button.
 - A "Validate" button at the bottom.

Annulment use cases:



Alternative flow:



1) An applicant requests for an annulment. The first actor is human.

2) After that staff takes the request. Actor: Human

3) staff opens the annulment form from BRC form shown above at first and chooses the annulment type Marriage/Death by inserting the previous CRTF reference code and pressing search. Actors: both human and Software.

Marriage annulment: it can be mutual divorce.

Death annulment: Maybe the certificate has been issued for a wrong person or has physical issue or other problems.

4) As always, the form could be filled with both staff and automatically by API.

5) The annulment document gets a dedicated barcode by API, so this is a software actor in this part.

6) The previous CRTF picture will be loaded by the reference code inserted in previous use cases. Actor both Human and Software.

If marriage annulment: marriage certificate will be loaded.

If Death Annulment: previous Death Certificate will be loaded.

7) The staff branch checks the visual specifications and codes in imported form by API.

Only for marriage

8) After visual validation the agreement document will be imported by the staff.

9) After all, the staff pushes the validate button and that sends a request status to HQ for archiving all references and documents at HQ.

Only for Death CRTF Annulment:

10) For annulment of death certificate staff must import the judge warrant.

11) A hospital warrant must be imported too for annulment.

These two were only differences with the marriage annulment part.

12) the validation in this part is like before

13) The physical document will be sent to HQ for archive.

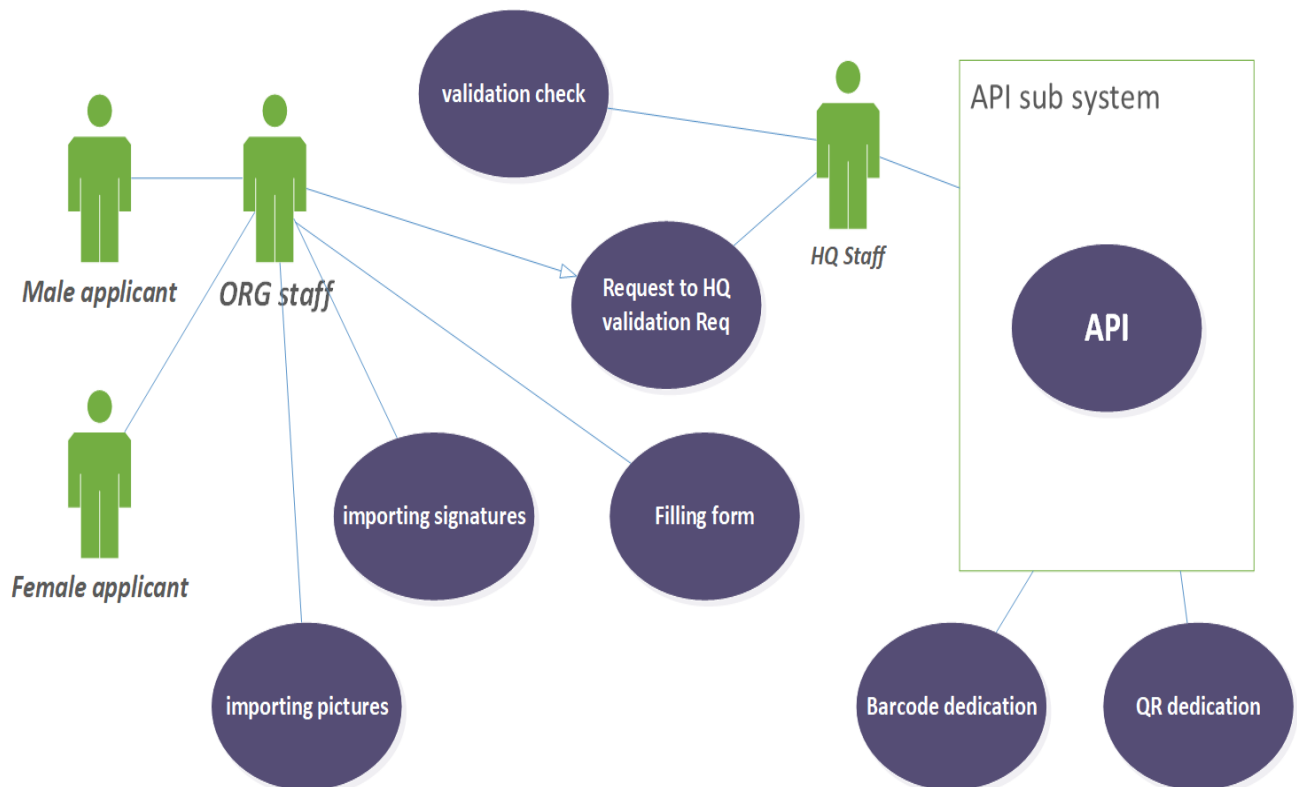
13) After everything is done in branch, the Staff at HQ physically and digitally archive the document.

14) By archive changing the API changes too for every change in API a reference code would be dedicated to the process like a hash code in block chain.

This perk gives us the mobility to revert our changes easily and our updates efficiently.

15) A success status will be sent to the staff at branch for closing the process.

Marriage certificate use case and form



Marriage registration Form

Marriage Registration Form

Logged User : Admin

Male

FirstName :

LastName :



SSN :

Certificate SN :


NC Reference :

Health Warrant :

Import

Digital SIG



Update

Validate

Import

Female

FirstName :

LastName :



SSN :

Certificate SN :


NC Reference :

Health Warrant :

Import

Digital SIG



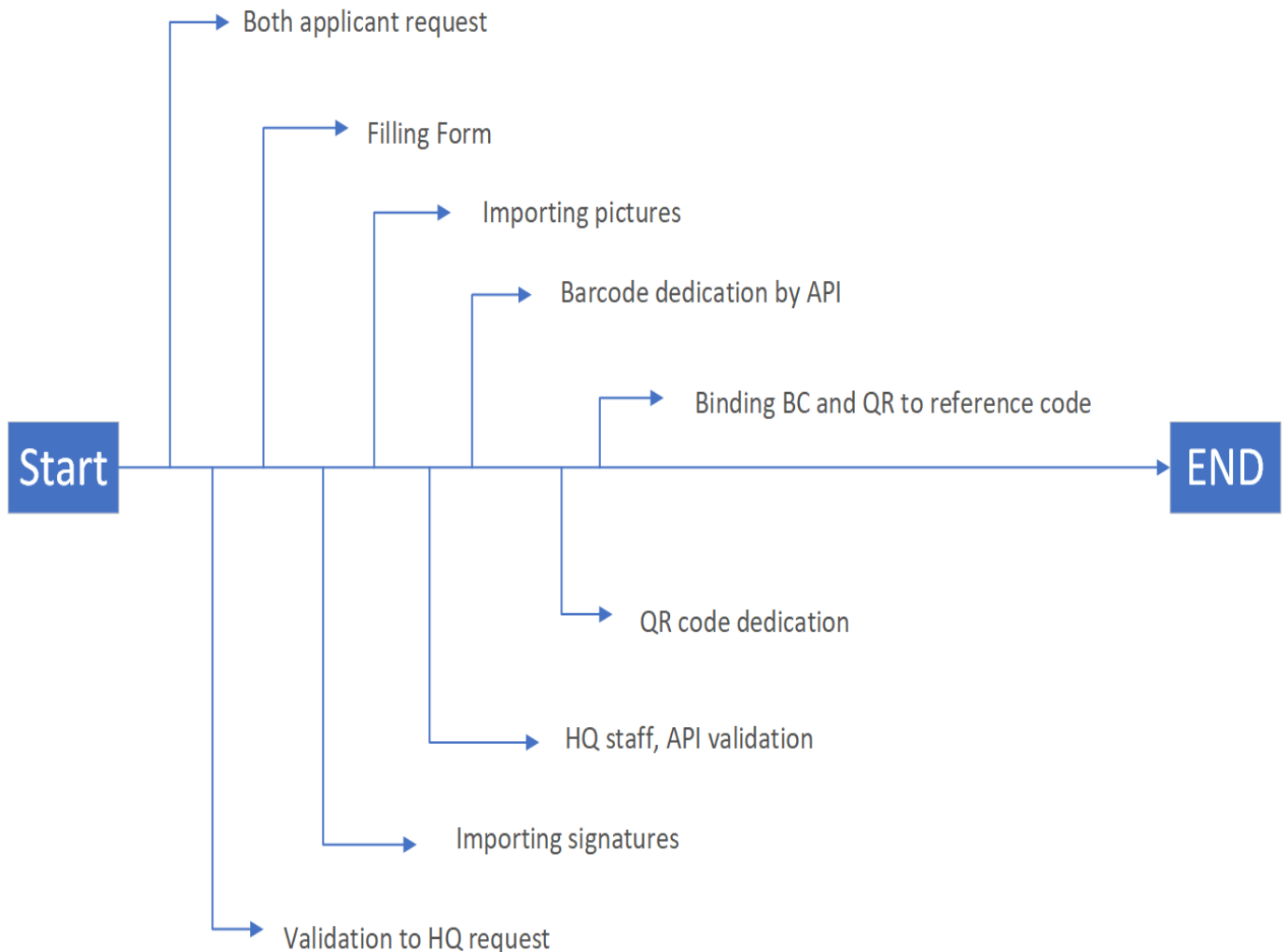
Update

Validate

Import

47

Alternative flow:



Use cases:

1) At first two requests come from applicants for marriage to staff.

Actors: Human

2) Staff must start over from BCR form and choose Marriage CRTF from status to be moved to this form.

Actors: Human

3) imports signatures.

Actors: Human

4) Fills Both side of the applicant's info Female/Male.

Actors: Human

5) By using validation at branches, a validation request will be sent to HQ.

Actors: Human

6) HQ staff with Direct access to API check the integrity of given information in forms after

Actors: Software, Human

7) Two QR code & Barcode will be automatically set in the fields by API after last evaluation.

Actors: Software

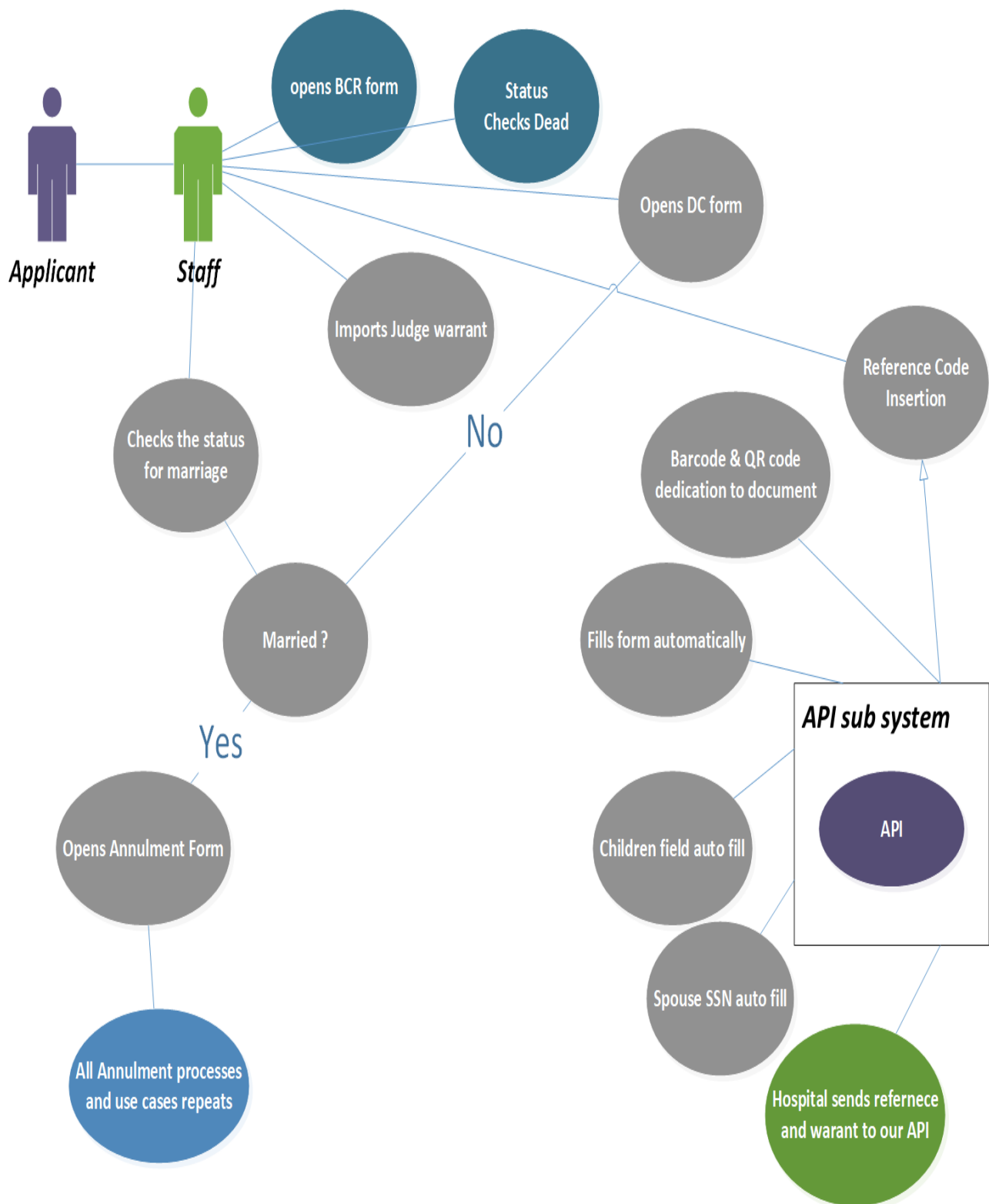
8) API updates with a reference code dedicated to process and the document registered and sends it to digital archive data bases.

Actors: Software

9) Physical document will be handed over to applicants as soon as it gets ready.

Actors: Software, Human

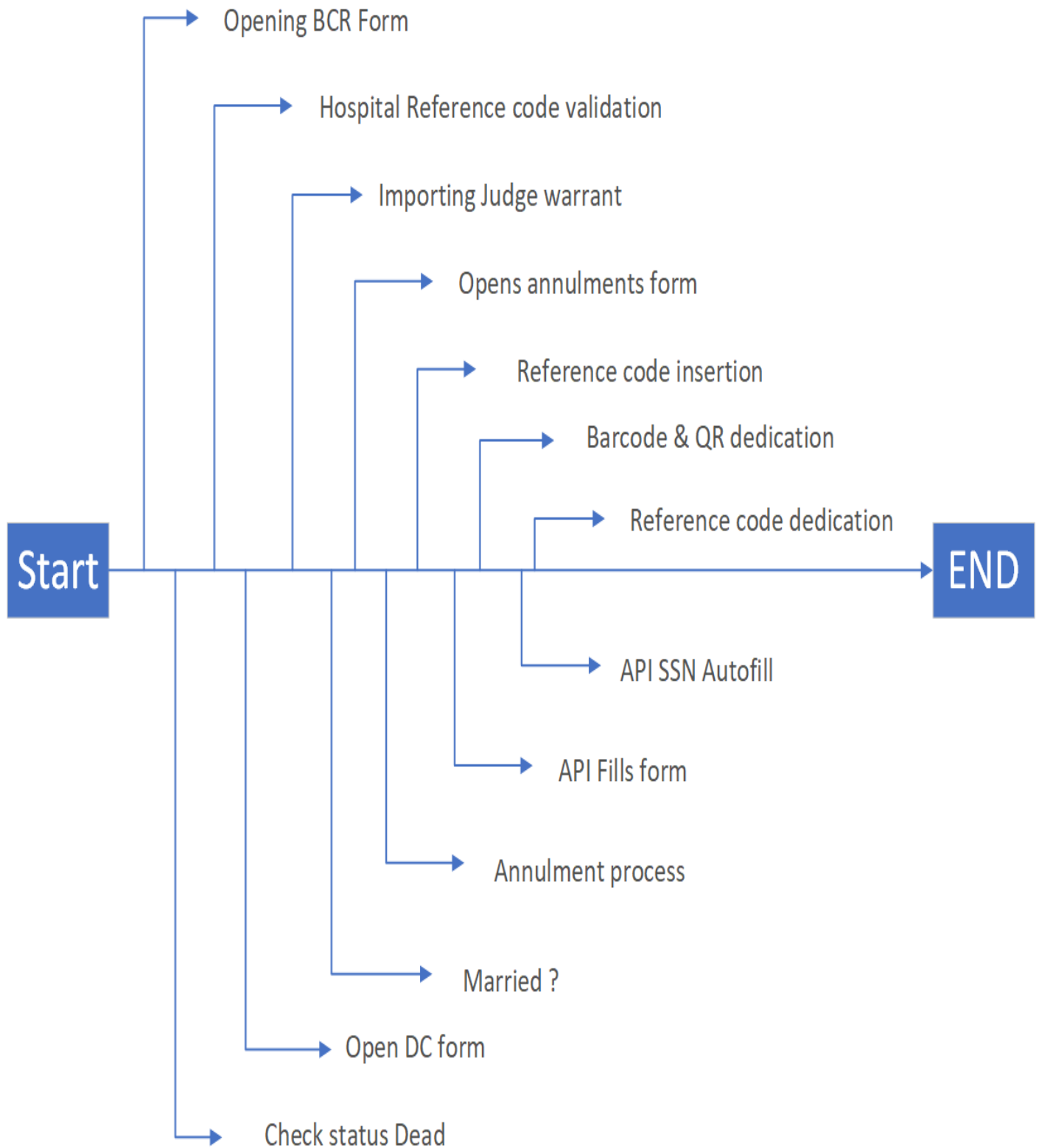
Death Certificate Use Case:



*This use case is mainly connected to API, archives (data base).
CRUD happens multiple times in multiple forms and requests.*

*Mainly a Huge change of data base, multiple annulments, multiple
reference codes and many other changes listed below the form*

Alternative Flow:



Death certificate

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 :

Import

References

Barcode: 0 36000 29145 2

All Actors: Human (Applicant, staff), Software (API)

- 1) An applicant as usual requests for DC to staff
- 2) Staff at first Opens BCR Form Because this form is the mother and base of other Forms.
- 3) Checks the status box for death or marriage.
- 4) Checks the radio box for death

5) If married goes to annulment for marriage/Divorce

6) Annulment use cases have been explained before and they are same as previous explanations in this case.

7) After the MCR Form from applicant status staff should get access to Death Certificate to be headed to DC form.

8) A hospital reference code must have been sent to our API so in this section staff gets the code from applicant and by inserting it to the form in **(Hospital References)** section API comes to work.

9) Data will flow to the form by API acceptance status from Reference code inserted before.

10) A QR code & Barcode will be dedicated to the document by API automatically as always.

11) A judge warrant comes from DOJ (Department of justice) it can be handled both physically and digitally. But in this case because of importance the document has It will be handed over physically to staff to be scanned and Imported to the Form.

12) API loads Applicant's Spouse data if exists.

13) API updates the relation control. This action makes the spouse able to be married again in case of desire.

14) By adding the dead applicant's Marriage annulment connected to alive spouse BCR orders the API permits the changes for Marriage certificate registration for the widow/widower.

15) Last part of this form are children if any data exist about them, they will be again filled automatically by our powerful API.

Use case 15 commonly is being used for probate that updates the API for SORDP.org Requests for delivering states and any possession of dead applicant to his/her heir.

16) API update works as a control flow for each child API update, it should happen exactly one time for each one of them.

17) references button gives each child a code for their dead mother/father probate processes at SORDP organization.

So, whenever they get a validation request from our organization's API, they get a status of dead parent.

Laboratories Use Cases:

In some cases, certificates and ID documents gets lost stolen or any other possibility that encounters cycle loss.

What is a cycle loss?

When the document with specific security & reference codes won't be used for any organizational uses.

Like marriage registrations, car & state ownership and ...

That dedicated document must be deleted from the live cycle of our System mainly our API.

What will happen if someone losses ID/BCR or what we call Shens name (شناسنامه):

It can be forged and even recycled to the live system.

So, annulments are practical if an applicant reports that they no longer have possession of the document.

But it is not enough. this is where the laboratories specialists join the system.

They re-design the security protocols of lost document with data represented from applicant report and data bases.

So, if the lost document ever enters the live cycle, API will inform not only our organization but also the other one that document is being used in their system by API status reports.

Like someone has tried to travel by an airplane with a forged document, in airport the security gates and staff has access to get document validations mainly via barcodes. To achieve the success status if not, the API informs them that document is out of live cycle, it is possibly forged.

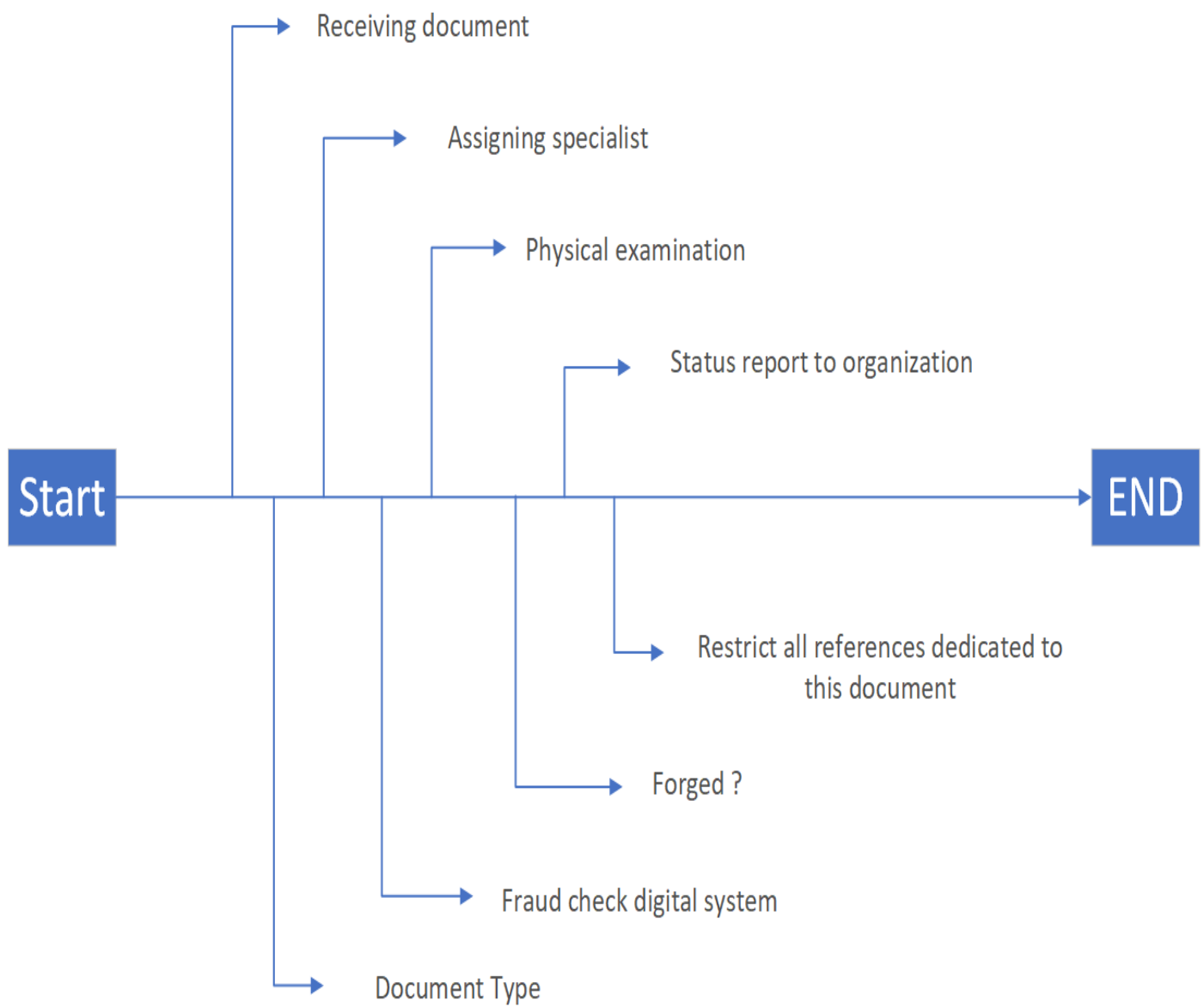
Our API sub system is a controller, with no exaggeration. It is connected to every single governmental organization.

After the executive organizations like Police departments and Department of justice gets the out of cycle status. They are permitted to seize the document and send it to our organization Head Quarters for examinations.

Laboratories' specialists are obliged to find the forging methods that are used in a document and try to stop these methods by changing the security protocols of issuing documents.

Changing color pattern methods.
Material of document or everything related to security which I am not totally aware of.

Alternative Flow:



API

This is one of the main use cases and sub systems which can be called the core of our processes. API is a bridge between models and views that can be called **(controller)** in MVC structure.

Our model is archive or data base, the view is our applications and forms inside.

This API handles processes like small blocks each block is dedicated to a process.

Imagine a person has requested for a BCR our API makes the first Block which we call mother block. This mother block contains every single data delivered From view.

Each block needs an important data called **(Reference)**, you must have seen it a lot in previous processes and use cases. This reference code will be a combination of SSN/SN and other randomized items.

Security Note: for more privacy and secure data, we make put references Through hash functions and then store them.

Reference Codes are going to chain each block and process to each other It will make the next processes more mobile and easier to handle and track.

Our API linearly deals with the blocks, their existence is constant, and they never vanish, they always exist.

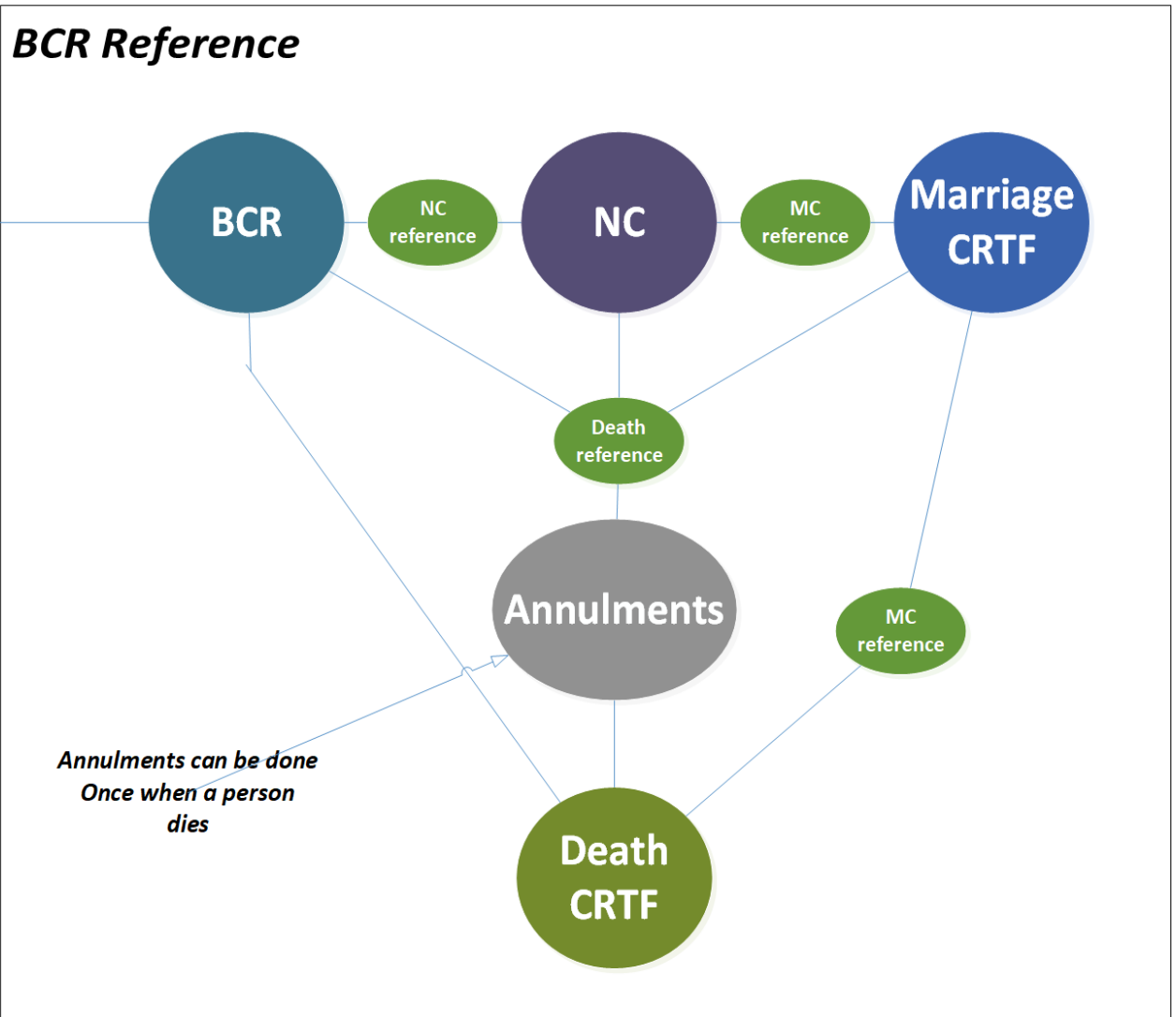
The structure that may always be changing is the reference code and status.

After BCR block (Mother block) shapes, another barricade comprises the whole blocks this is called **(Digital Applicant Chart)**.

This DAC is for foreign organization's validations requests.

(more about in API process page 26 (context diagram)).

The pointer to this barricade is the mother block's reference.



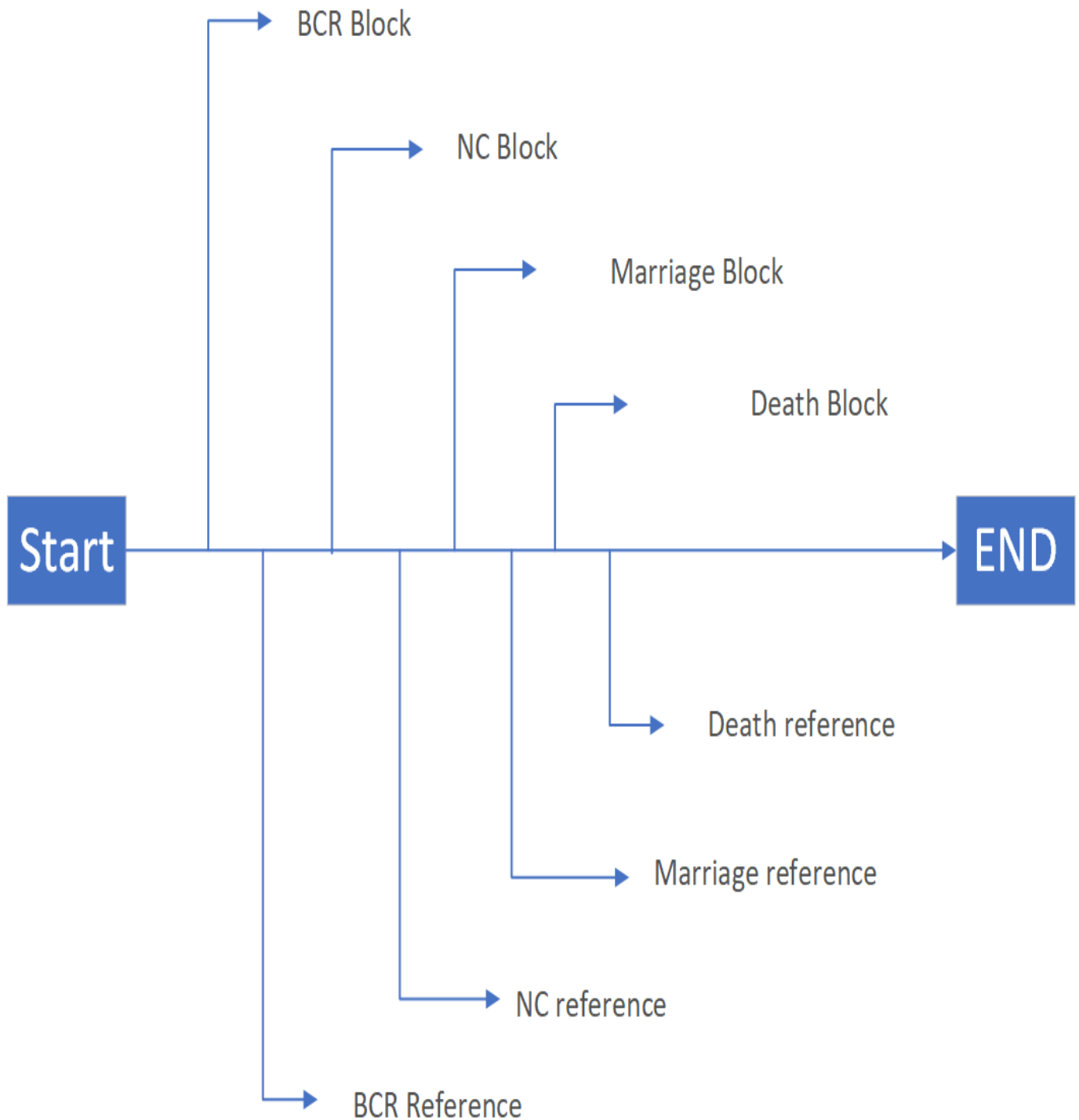
Most probably After BCR an applicant needs a NC. After process is finished block builds up with a reference code acting as a bridge between current and previous block (Process).

That is the main structure of API.

One last thing about this part if an applicant dies every other document issued would be connected to a different reference code called Death Reference. (Shown above Annulments)

This happens after registering a death certificate.
It could change DAC reference in some cases

Alternative Flow:



Population statistics gathering

General explanation:

This is the last main use case that is critically important to every country in the world.

This use case can present flexible data for every field that is needed for a society built by Humans for Humans.

Some of the uses are going to be explained with a close vision to each one:

This data is directly related to people's identity, and indirectly to a human existence. A person has a name that a personality builds up on that. A person has family, parents, children.

Long story Short, every act of a human is directed to our gathered data from birth to death and even after that because of the alive heirs.

A person with the identification data which we store, buys, sells, gets married and even commits crime.

Every single act is being watched and stored by unique direct and indirect signatures in our data bases by references.

For example, if P&B (planning and budget) organization is going to allocate a fund to a specific population how should they recognize their population to work with. In real life in Iran some people get a small amount of money each month.

That money comes from selling oil.

At first, they need to know how many people are eligible for receiving that amount of money.

*There are lots of organizations in this process, but our job is:
Offering data that we gathered such as:*

Whole population of the country.

Data of people that are eligible for this process.

*At some cases we must give each active organization in this process our
reference codes and access to using our API.*

*As explained before the API works with references as wires connected to
each bigger processes and acts happened in Archives and data bases.*

Eligibilities could be:

In this programmed process people above 18 are eligible.

Only Men or Women are eligible

Or a real example:

*در طرح جدید پرداخت یارانه‌های نقدی، تمام مردم کشور به ۱۰ قسمت تبدیل شده و هر
قسمت به عنوان یک دهک شناخته می‌شوند. اطلاعات درآمدی این افراد از طریق
بانک‌های اطلاعاتی دولت دریافت و مورد بررسی قرار گرفته است؛ سپس به ترتیب درآمد
از کمتر به بیشتر در دهک‌های ۱ تا ۱۰ قرار داده شده اند*

*Example above contains multiple use cases between Banks, organizations
that each person works.*

*There is a second way for offering the data and it is more secure. Data could
be delivered directly by us, but it needs more processes, use cases, and
even different software, but the API could give us this flexibility and drop a
little of the weight off our shoulders.*

In another case that I mentioned before if DE (Department of Environment) Wants to start a protocol for vehicles they should start with our data. How? They need to find the owners of the vehicles to be able to control them.

For example, if a person disobeys the rule and ignore the protocols what should they do?

So, they need our critical data here to control, forecast and be ahead of Every possible incident or even an accident.

Pollution policies could use our data, how many vehicles a person has in possession, how much fuel does he/she consume.

Some are directly connected to us, and some need our permissions to be connected to other organizations with validation requests as we talked before.

The main use cases are going to be:

Every single reference that gets created by each governmental and organizational access point and request, is getting stored in a named statistic population gathering data base.

Despite of the main processes that could be handy we just use the links between them, and we all know that they are called the reference. It might be like a hash table data structure.

CRUD Happens so many times in this UC.

One reason that we just save the references is to avoid blockage of more data for being stored.

We just store our process and the external process's reference, so it makes a link between processes and organizations.

It works like that the other organization has its processes we link the processes with a reference code to awakes history of the processes.

Awakens of the processes mainly happens automatically with organization's API request that works both ways.

About the security and access of the API for this part because of our organization is being controlled by direct supervision of the government Every single organization under supervision of the government can have the authority and access to the main data base or other connections between the systems.

The usage of data base is being controlled by Islamic Parliament of Iran Seal Programs or the government itself.
But the main authority goes to government.

This use case actors are mostly software and Mabe time in some cases. Humans are not the actual and direct actors in this process's reasons explained at **SECURITY** part in this article.

AAA use cases:

This part is not that complicated handling of logs happens by Staff id which I declared at organization chart.

At every form you can see who has access to the software or the forms online and live. Mainly above, right side of the forms.

Mainly The system is not open to every staff itself.

If a staff is assigned for birth certificate registrations, they will have no access to other parts of the software.

But if they send a validation check for the API at HQ or to HQ staffs, they can have the access of the process they requested for.

It happens for the processes that needs multiple validations like Death certificate registrations or commonly annulments.

So, they can have the authority of first layer of the validation to make the processes easier and more precise.

But the staff at HQ has every authority that the software can offer.

API & Laboratories

About the API and laboratories, Managers have the whole process under control, and they can change any possible thing to improve the system. Obviously, changing some things like API is not in their field of interest or knowledge, so we have the Data base specialists, Senior developers And project managers.

They all have the access to every single part of the API system and that is fair they build, update, improve and take care of the system 24/7.

As the API has no visual form to show in this platform and this case, I can only explain that they control the system by the servers, terminals and Mabe sometimes with web visualizations like HTTP, ... requests ETC.

They mainly have their focuses on keeping the system clean of any malwares, rootkits and every other cool stuff that a hacker uses.

Their acts are all being logged into servers, so any process is being saved And controlled by servers' logs.

As I have in mind the servers are using LINUX (ubuntu), so it is very optimized, Fast, so secure and most important the size of the OS, at most 5GB.

Log controls would be so easy and everything in the servers are going to work so smooth and well with the beautiful LINUX operating system.

Data base specialists and API developers are in direct touch to each other.

If a governmental program lunch happens, they need a whole new module for the processes to develop.

New processes need new data base new functional methods and everything that we need in our API is going to be added by the previous structure but with new levels of processes.

After all the explanations Developers have direct access to API functionality Data base containment, and everything that exist in the system.

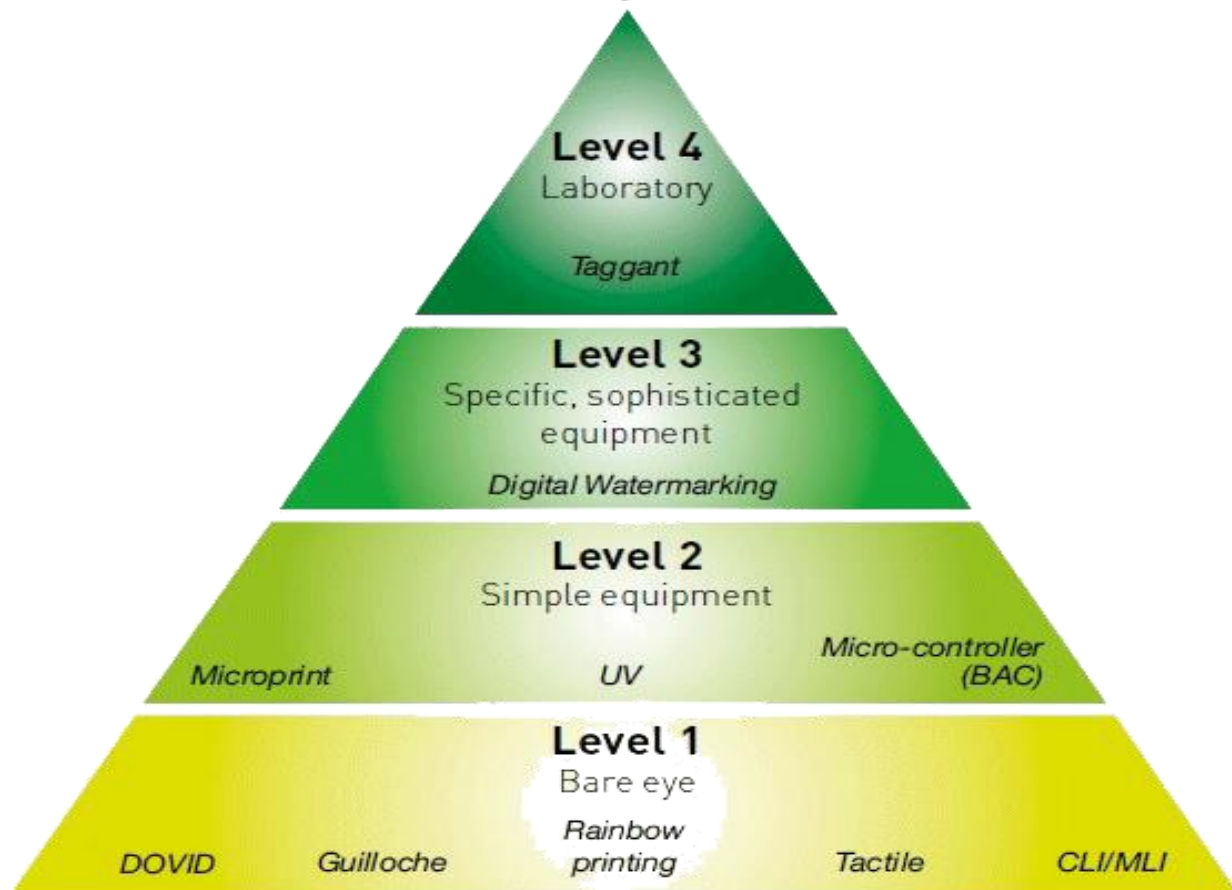
In the laboratories Specialists are mainly working on physical evidence and documents.

Their access to the system is all physical through hardware such as presence or absence situation at work.

It could happen with cards and the connection type of NFC (Near Field communication). Or dependent to the budget of the organization it could be fingerprint scanners iris sensors or any other type of authorization for their access.

They invent and introduce new methods for anti-forging systems, protocols and recognitions of fraud in the organization documents both direct and undirect relations.

Pyramid of security levels



It sounds simple. And it is.

Level 1 Security

The first level (overt) relates to security features that the public can easily check (in **KYC checks**, for example) without special aids.

Level 2 Security

Second-level (covert) relates to security features that can be checked with simple aids, such as magnifiers and UV lamps.

Level 3 Security

Third level (forensic) security features are for qualified forensic laboratories and other sophisticated laboratory equipment.

Level 4 Security

The fourth security level is secret and includes safety measures known only to a narrow range of experts, often the manufacturer only.

Source = <https://www.thalesgroup.com/en/markets/digital-identity-and-security/government/security-features/levels-identity-security>

Part above is not explained and described by my knowledge the source above is the owner.

specialists may introduce some patterns like below:



Patterns above makes a path for the fraud check system to start with every single detail is being planned and innovated by the specialists at the laboratories.

For NC document in our organization, we use the last cryptography to secure the applicants data.



One another security feature is UV-patterns such as below:



These were just visualized features we have talked about. our document's references stored in our API processes, so we are safe not only physically but also digitally, we are not afraid of leaking data from our data bases even if the possibility of leaking is near zero with our system.

Both our laboratories' specialists and Developers are in touch for the improvement of our security protocols. You may ask How? What is their relationship with each other.

So, it starts from the beginning as always it does.

Every human has a unique personality both physical and spiritual.

We just work with the physical part.

For example, we make a program that uses the applicant's fingerprints to Build a pattern for his/her document we could use machine learning, deep learning in these cases but this was all developers' duties what happens to laboratories specialists?

They make some samples about the security patterns and UV's, Shapes, Codes, materials, reflections and even the smell of the ID document,

After these routines the developers only must visualize it for the computers and digital systems to comprehend and understand our needs.

Last words:

Me Hossein Chahabdar, passionate and aggressive for learning in every single field of knowledge tried to accurately describe the civil registration organization of Islamic republic of Iran (CRIRI).

Software used for this project:

Online Word to convert the project to PDF

Visual studio for making the forms and even developing (but I haven't developed this project), but you can see my hospital Project in my GitHub linked below.

https://github.com/hosseinch0/university_project_2

VISIO for diagrams and visualizations.

This project is for my third semester at university presenting to master Eslam Nejad

System Analysis and Design