



## Ghana CRVS Digitization Project

### User Stories

## User Stories

### **1. Birth Registration in the BDR Office**

Felicia Kovie, 26, lives in a rural village in the Northern Region of Ghana. 6 weeks ago, she gave birth to her son Godwin at her nearest health center. Felicia checks Godwin's child health record book to see when Godwin requires his next vaccine. Today Felicia walked 45 minutes on a dusty road to attend her nearest immunization clinic.

Felicia waits at the Medical centre with Godwin on her lap. Godwin is due to receive his 6 week dose of DPT-HeaB+Hib and OPV. The receptionist calls Felicia and searches for Godwin's record on the health centre's electronic medical record (EMR) system. Godwin's record is found on the system and Felicia is sent to see nurse Malikah. Nurse Malikah assesses Godwin and proceeds to administer the DPT-HeaB+Hib and OPV vaccines. Nurse Malikah updates Godwin's record on the EMR and she notices that the birth notification which was created by the health center's EMR system when Godwin was born is still pending. This means that Godwin's birth has not yet been registered with the Birth and Death Registry (BDR). Felicia explains that when Godwin was born she had not decided on the child's name and could therefore not register his birth. Malikah gives Felicia clear instructions as to how to find the BDR office.

Felicia walks 15 minutes to the BDR office which is closest to the health center, and waits 20 minutes to be seen. Gharam, a BDR Registrar, calls Felicia into her office and asks for Godwin's child health record book. Gharam searches for Godwin on the civil registration system by entering in Godwin's first name, surname and date of birth **(Step 2)**. Godwin's birth notification record is located on the Civil Registration (CR) system because when Godwin was born, his birth details were entered on the Health centre's EMR system and a birth notification was automatically sent to the CR system. **(Step 1)** Gharam selects the birth notification and reviews all the existing details including Godwin's and Felicia demographics and address details. Gharam notices that the father's details are not complete. Gharam asks Felicia for her husband's name and date of birth and searches for them on the CR system. Felicia's husband has never been registered on the CR system so a further search is automatically carried out on the National Identification Authority (NIA) database **(Step 3)**. The CR system returns matching results for Felicia's husband from the NIA database. Felicia helps Gharam to select the correct record for her husband based on his name and date of birth. The CR system now displays all of the details birth registration details for Godwin. **(Step 4)**. The civil registration system automatically generates a unique birth record number. In addition, the civil registration system automatically sends a message to the health centre's EMR to update Godwin's birth registration status to show that the process is complete. The CR system automatically updates the status of the VE notification to processed. The CR system automatically sends a new birth notification to the NIA system. The NIA system automatically creates a PIN which is returned to update the birth record on the the CR system. **(included in Step 4)**. Gharam prints the birth certificate from the civil registration system, signs it and hands the certificate to Felicia **(Step 5)**.

Felicia requires a certified copy of Godwin's birth certificate. She accesses the Civil registration system website on her mobile phone and requests and pays for a certified copy **(Step 6)**. Over the next two weeks Felicia can track the progress of her request. 2 weeks later Felicia receives a text message notifying her that the certified copy is ready for collection **(Step 7)**.

#### **1.1 Civil Registration Solution Steps**

Step 1. Creates VE (Vital event) notification

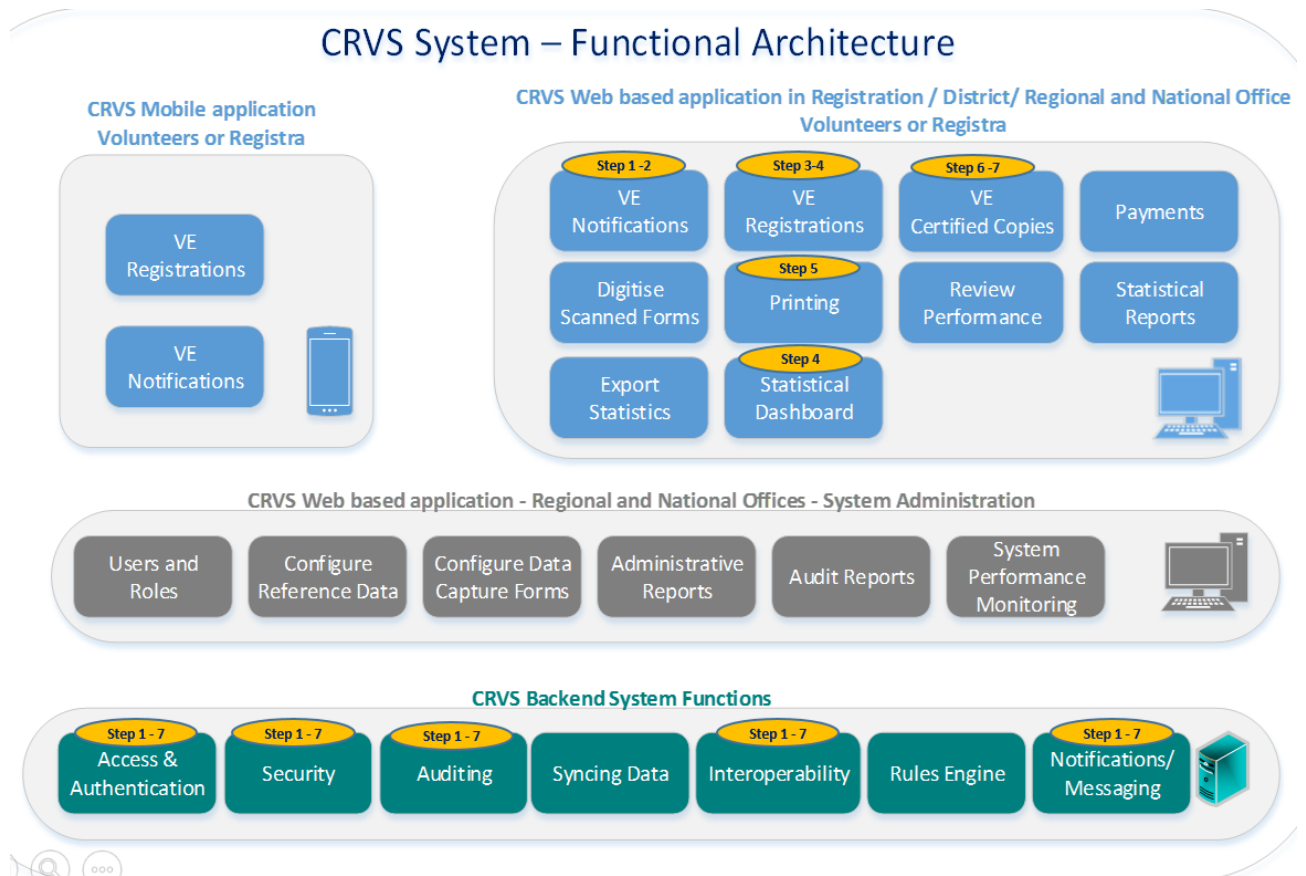
Step 2. Search for VE notification

Step 3. Search for Person record

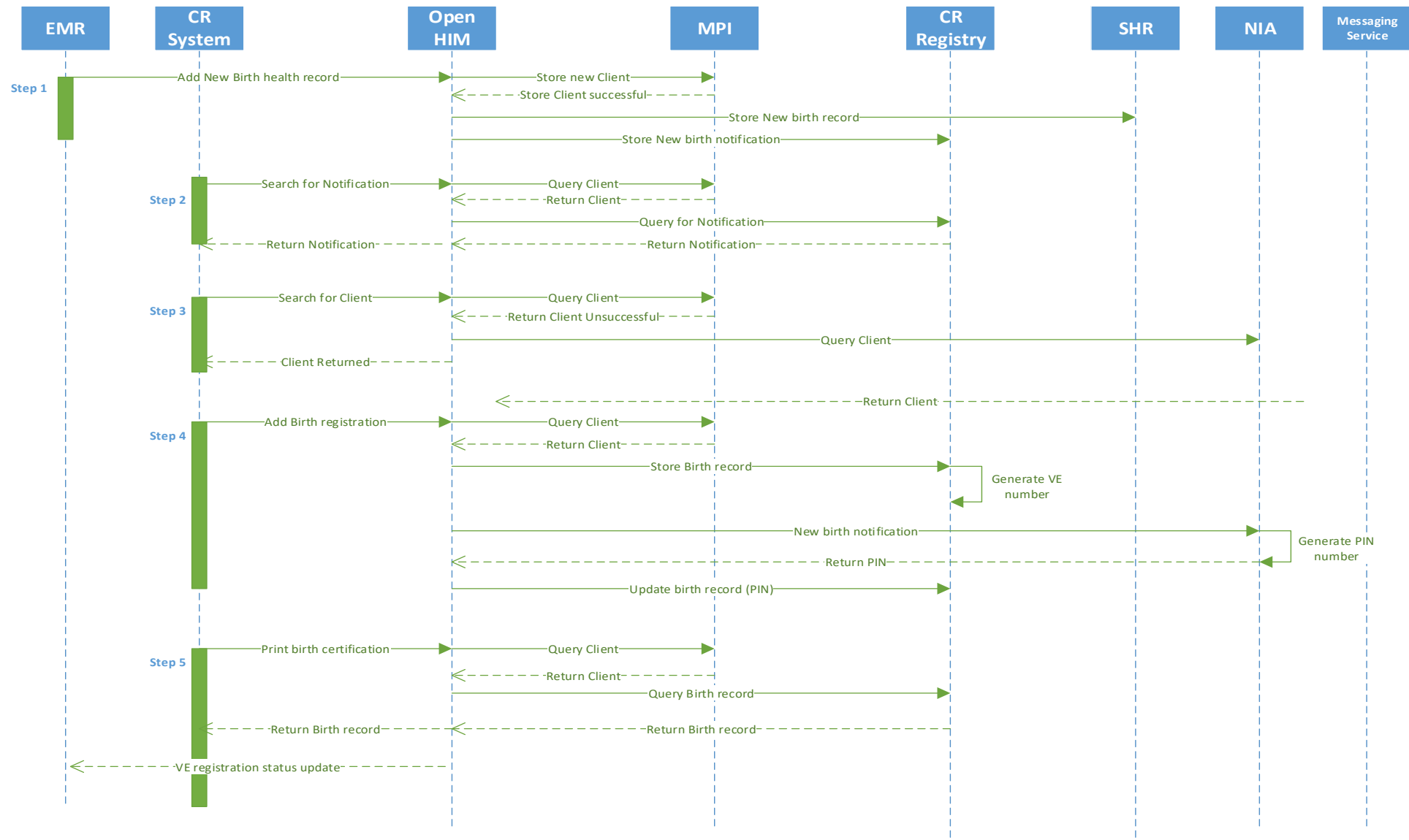
Step 4. Create VE record

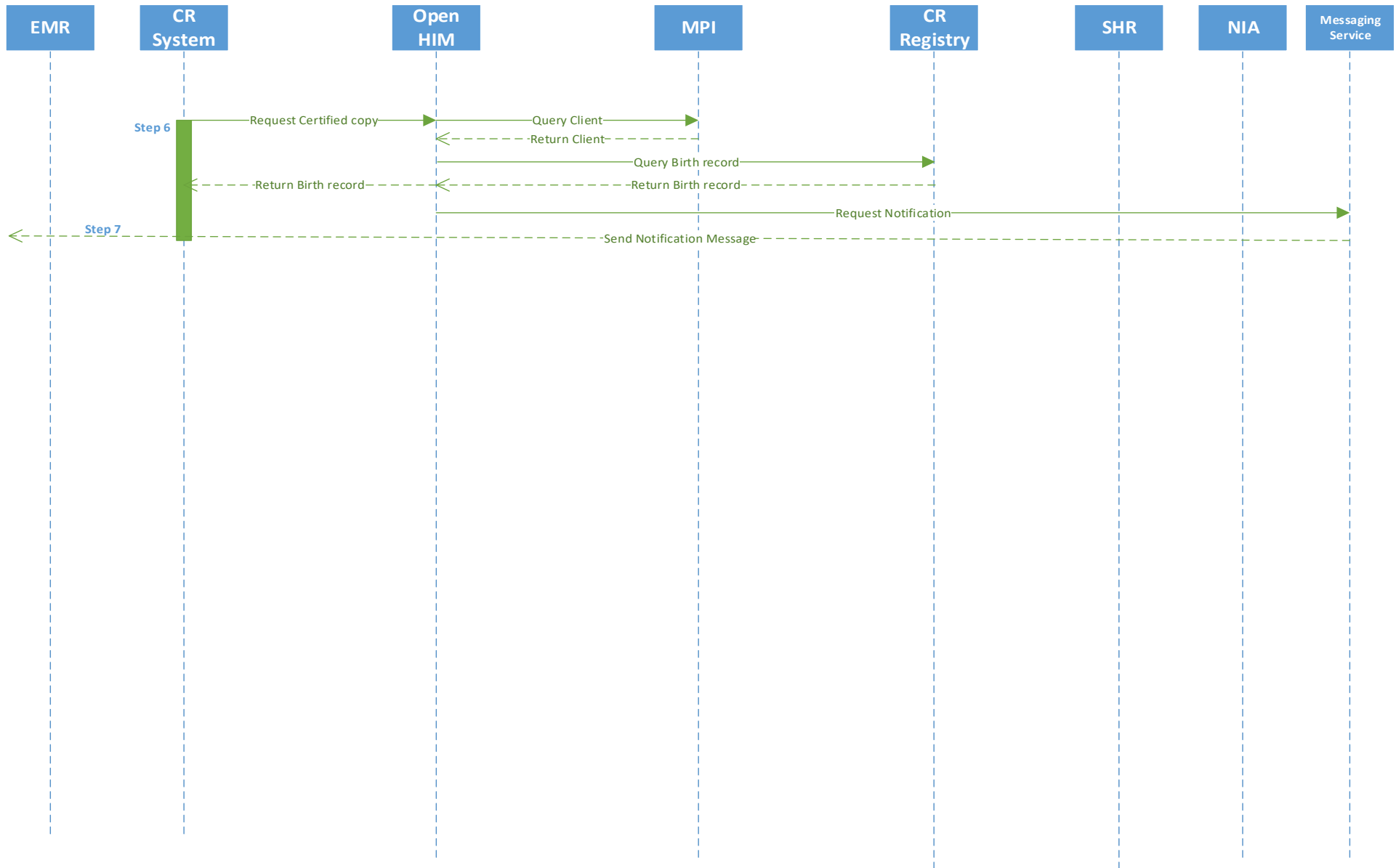
- Step 5. Print VE certificate
- Step 6. Request certified copy
- Step 7. Process certified copy and Sent Notification for collection

**Figure 1. Map of User story steps to the Functional Architecture**



**Figure 2. Map of User story steps to the System Architecture**





## **2. Birth Registration by a mobile BDR registrar**

Gloria Beza, 21, gave birth to her daughter Joy 8 weeks ago in her closest health facility, 10 kilometers from her home. When Gloria delivered Joy in the health facility, the health workers created a birth record for Joy in the hospital's web-based EMR system as part of their standard routine. After entering all the details about Gloria and Joy required for the health system, the health worker saves the information. The EMR system automatically sends a birth notification to the central civil registration (CR) system. **(Step 1)** Gloria also received a new birth health record book for Joy.

Thandi is a BDR volunteer who works out of a BDR office 15 kilometers from Gloria's home. Each morning she is allocated by her supervisor to visit a different village in the community which her office is responsible. Today she is visiting the village where Gloria lives. She logs onto the CR system on her smart phone and reviews the list of outstanding birth notifications that have been assigned to her in order to plan her route based on the locations of the uncompleted birth registrations displayed on her screen. **(Step 2)** Thandi ensures she has the right number of pre signed birth certificates for the day.

Joy is on the list of children to be registered today so Thandi, the BDR volunteer, calls Gloria before leaving the BDR office to confirm she will be coming to her home. Gloria confirms that she will be home today and that she is in possession of Joy's child health record book which will be used to confirm the information which has been received to the CR system about Joy's birth. Thandi is given a ride to the central village market and then walks for about 45 minutes to Gloria's house which is in a more remote village. On arrival, Thandi logs onto the CR mobile application and searches for Joy's birth notification **(Step 3)** and selects to complete the birth registration. Thandi validates that Joy's health record is in order. She then reviews the existing details captured when the birth notification was completed and continues to capture any remaining birth registration details. Gloria does not know who the father is so the father's details are left blank. Thandi saves the birth registration details and the CR system automatically generates a unique birth record number. **(Step 4)** The CR system automatically updates the status of the VE notification to processed. The CR system automatically sends a new birth notification to the NIA system. The NIA system automatically creates a PIN which is returned to update the birth record on the the CR system. **(all included in Step 4)**

Thandi proceeds to complete the pink paper birth certificate where she also enters the PIN which was generated by NIA and is unique to Joy. Joy will use this PIN number to access any government services throughout the rest of her life. Thandi selects the option to take a photo of the birth certificate using the CR mobile application. The photo is automatically linked to the CR system's birth record for Joy. **(Step 5)** Thandi gives the birth certificate to Thandi and tells her to keep it safe because she will need it in order for Joy to access other government services such as primary school.

### **2.1 Civil Registration Solution Steps**

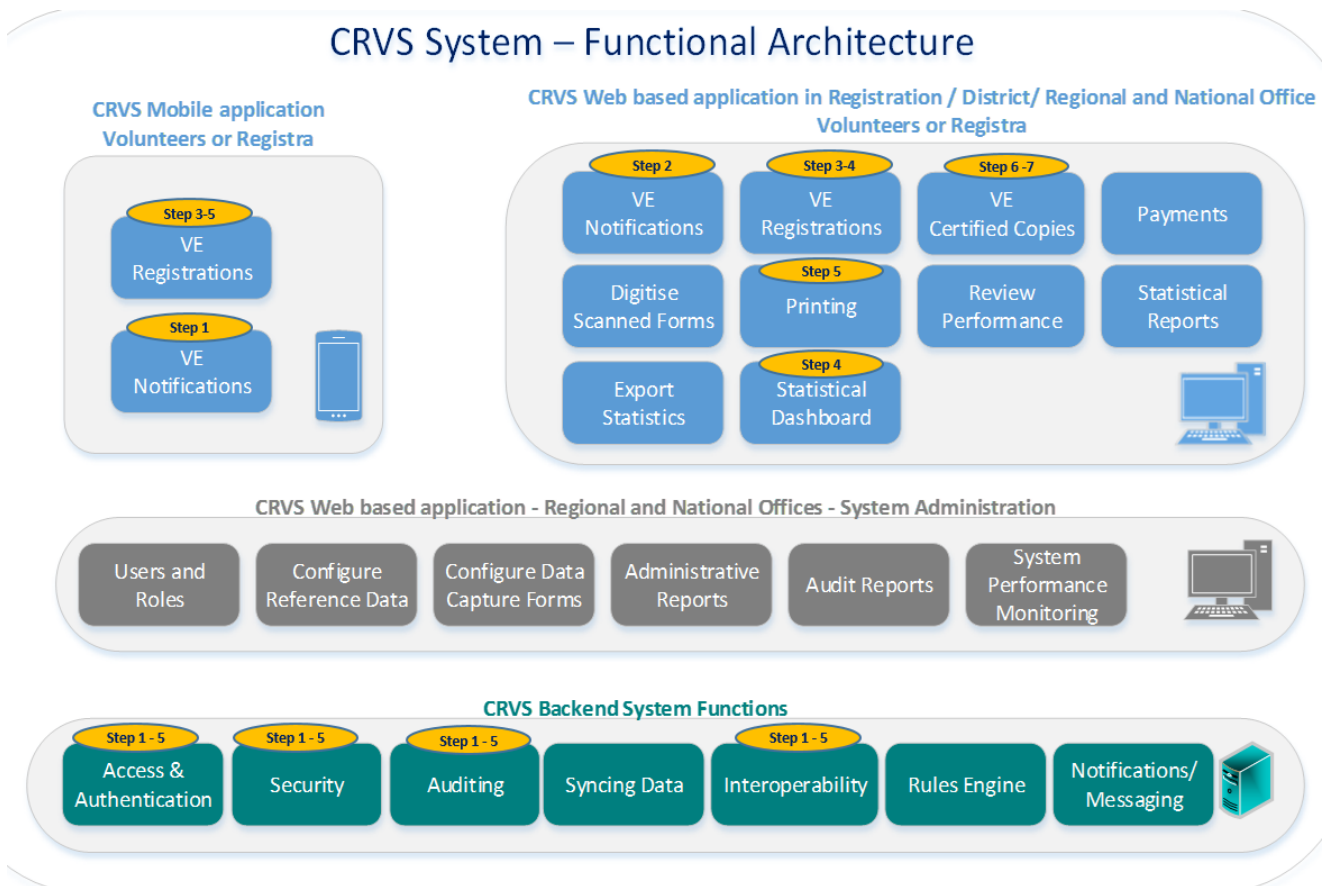
Step 1. Create VE notification

Step 2 and 3 Search for VE notification

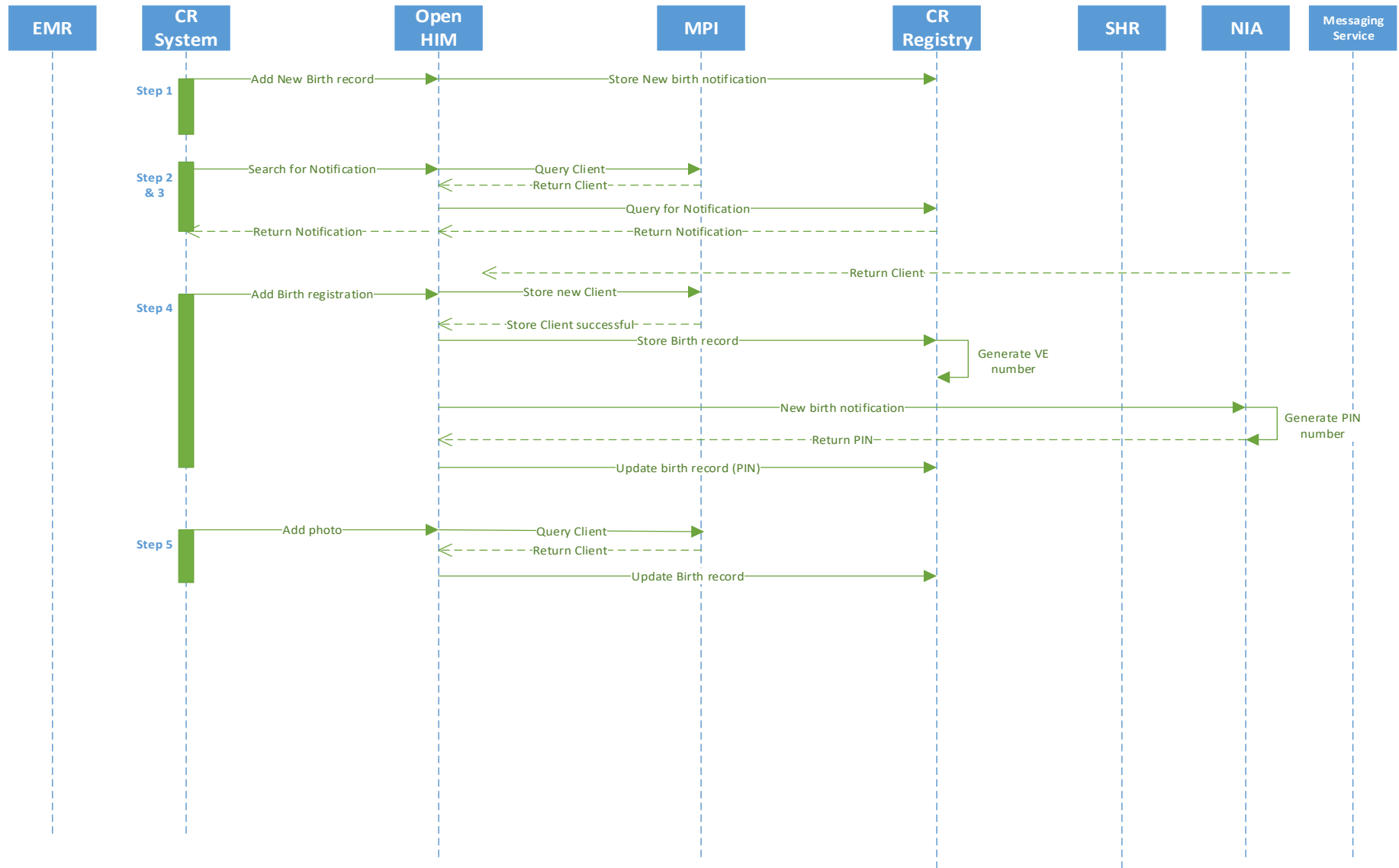
Step 4. Create VE record

Step 5: Update VE record

**Figure 3. Map of User story steps to the Functional Architecture**



**Figure 4: Map of user story steps to the System Architecture**





### **3. Death Registration in the BDR office**

Evans Mutali was a 48 year old farm worker in rural Ghana. He died at home of unknown causes. Evan's son, Kwame, requests permission from the Chief to bury his father in the village burial ground. The Chief asks Kwame for the BDR burial permit, as he has been trained of the importance and purpose of the permit and as well as informed about the consequences for both him and his community if he allows burials of unregistered deceased people to take place.

Kwame does not have a burial permit, so the Chief provides him with the information of the local mortuary and BDR office where Kwame should go to get the burial permit. Kwame takes his deceased father to the local mortuary where the chief mortician calls the police because they cannot easily determine the cause of death. As a result, an autopsy is requested. The coroner concludes that the cause of death (COD) is a massive heart attack due to a Hypertrophic cardiomyopathy, and completes his report noting this. Kwame is given a copy of the coroner's report and informed to bring it with him to the BDR office where he will register the death and receive the burial permit.

Kwame walks to his local district BDR office, where the BDR registrar asks Kwame for the coroner's report as proof of death. Kwame confirms that his father has not yet been buried, and the BDR Registrar logs onto the civil registration (CR) system. Kwame provides Evan's PIN number which he knew to bring because he had heard information about it on the radio some weeks before Evan's passed. The BDR Registrar searches for and finds Evan's record using the PIN. **(Step 1)** The BDR Registrar reviews all the existing details to confirm the details matched with the provided PIN matches Kwame's details at the time of his passing. Any additional details required for a death registration including the coded cause of death is entered. The BDR Registrar scans the coroner's report and attaches it to the death record matched with the PIN number in the CR system. Kwame is asked to validate all the details and the BDR Registrar captures his electronic signature as proof of the validation taking place. The BDR Registrar also captures his own electronic signature and saves the death registration details in the CR system. The CR system automatically updates the NIA system using the PIN to show that Evans is deceased. **(Step 2)** The BDR Registrar prints the death certificate. **(Step 3)**. The BDR Registrar's electronic signature appears on the death certificate. The systems saves the link between the birth and death records for reporting purposes. Kwame is now able to bury Evans, and has the proof needed to show his legal right to inherit the land owned by Evans.

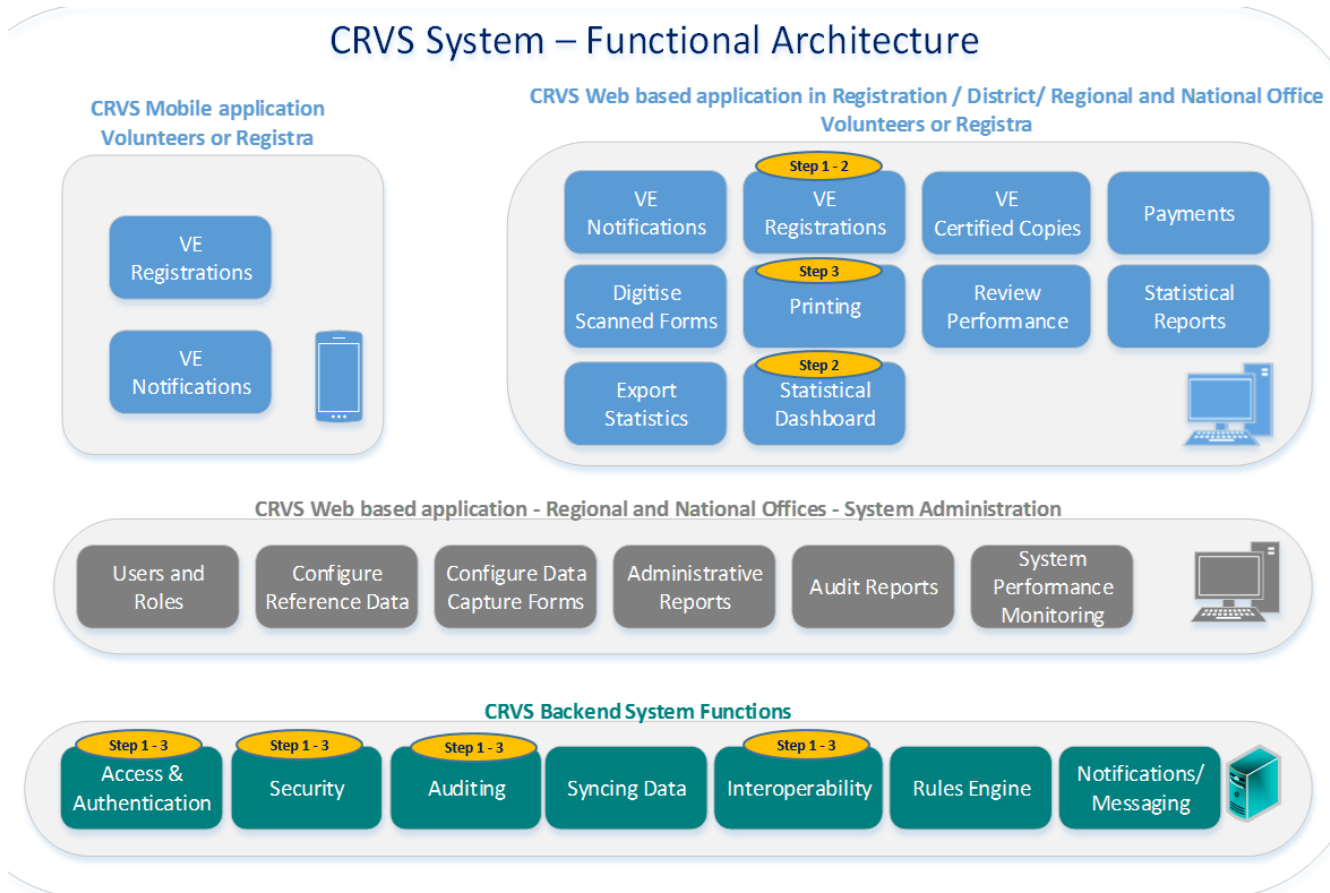
#### **3.1. Civil Registration Solution Steps**

Step 1. Search for Birth record

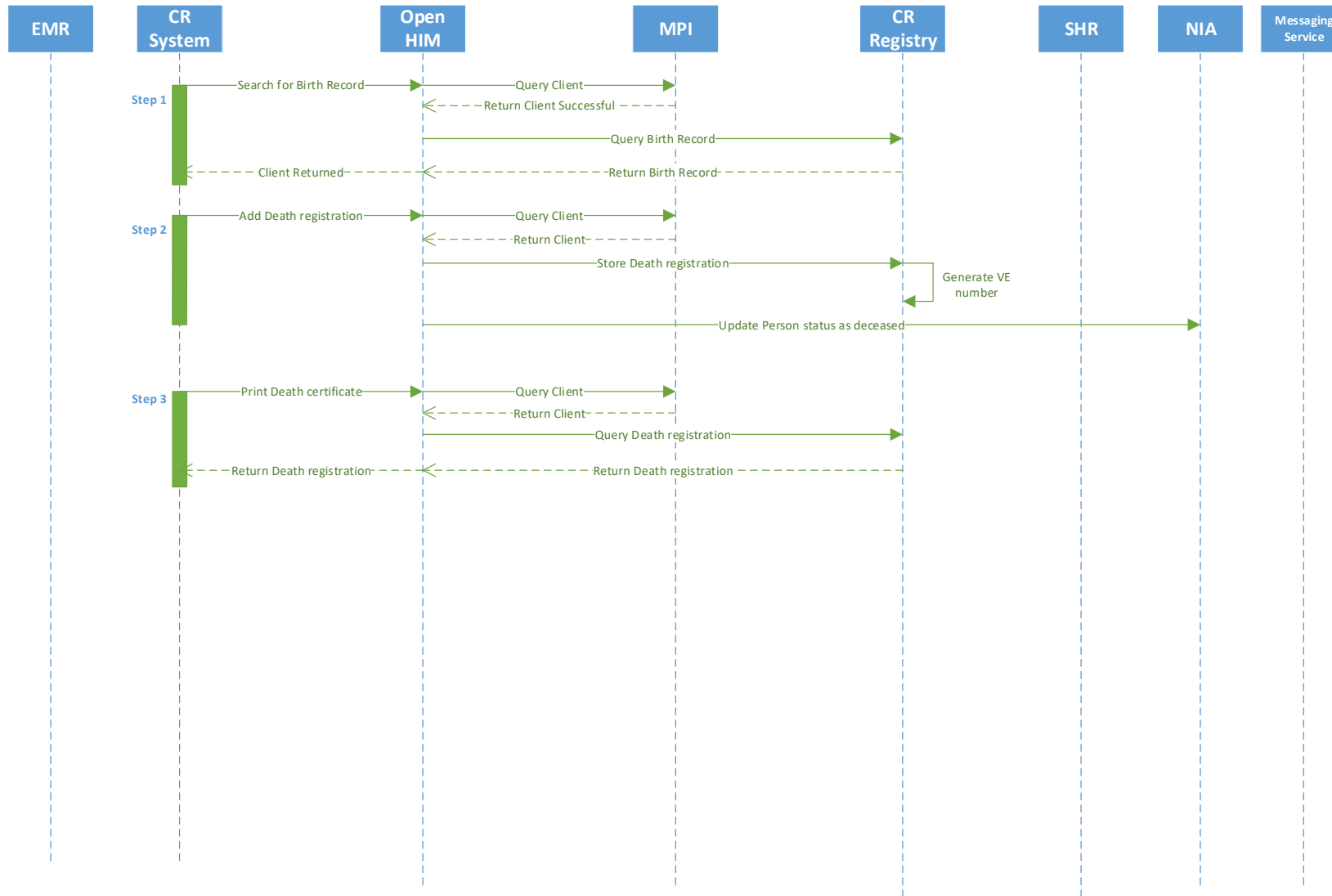
Step 2. Create Death record

Step 3. Print Death certificate

**Figure 5. Map of User story steps to the Functional Architecture**



**Figure 6: Map of User story steps to the System Architecture**



#### **4. Divorce Registration via the Civil Registration System Person Portal**

Abina and Nyamekye were married in 2010 and after 7 years of marriage they have decided to file for a divorce. Abina logs onto the civil registration (CR) system person portal and enters in her PIN. The system returns the couple's record of marriage, and Abina confirms it is correct **(Step 1)**. Abine selects to complete a petition for divorce. The system shows a screen which is populated with the existing details that were entered when Abina and Nyamekye's registered their marriage. Abina updates their current address and contact details as well as captures the reason for divorce. She selects the option to attach a copy of their marriage certificate and the couple's signed affidavits agreeing to the divorce. Abina saves and submits the petition for divorce **(Step 2)**.

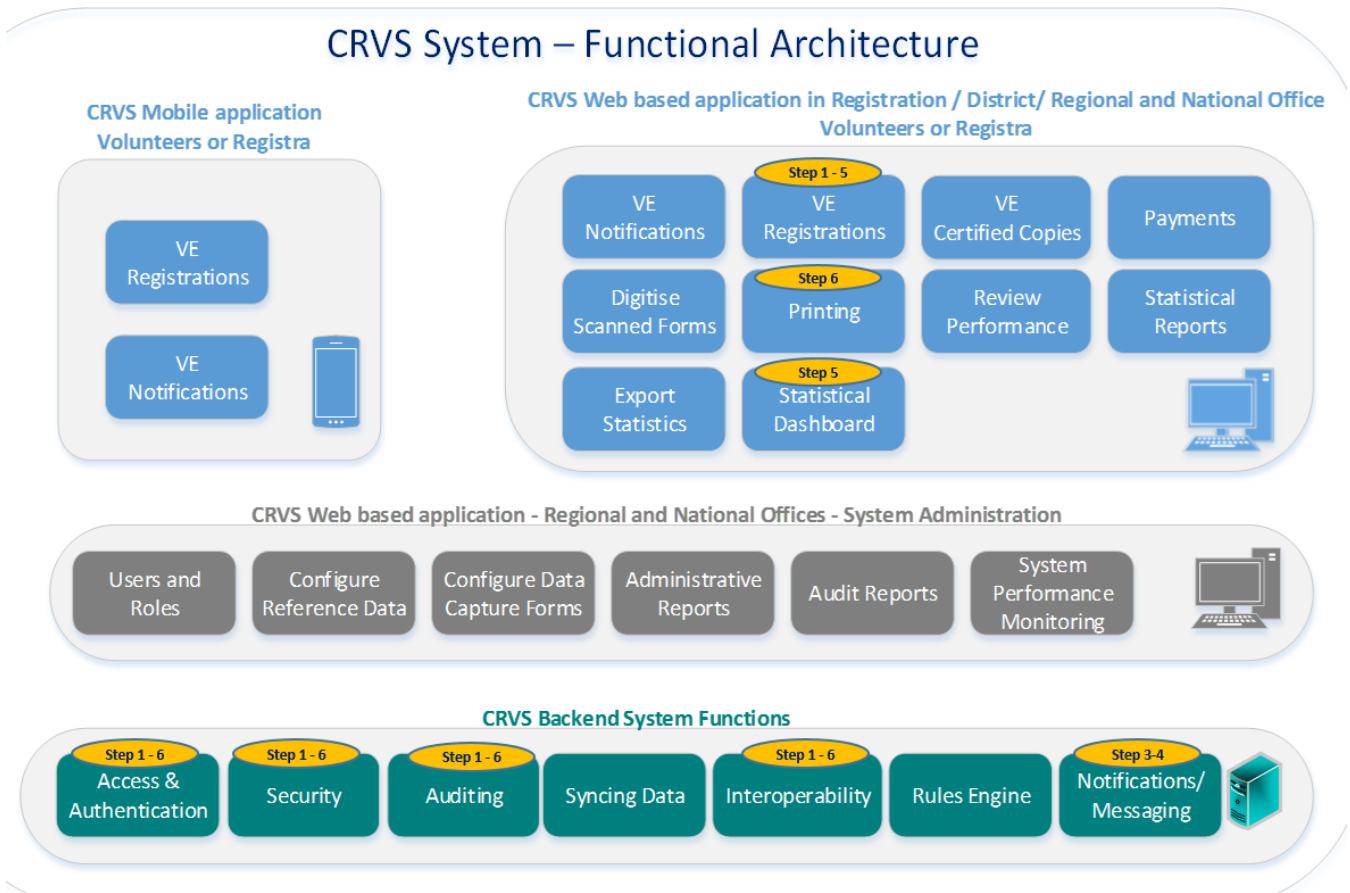
The Officer of the High Court, logs onto the CR system and reviews the list of petitions for divorce. He opens Abina's and Nyamekye's application and validates the reasons for divorce against all of the attached documents. He proceeds to accept the application in the CR system. Abina now receives a message on her phone notifying her that the petition for divorce has been accepted. She is given a choice of 3 court dates for the hearing **(Step 3)**. She responds with her preferred date for the hearing, and the status is automatically updated to show that a hearing has been scheduled. One week prior to the hearing Abina and Nyamekye receive a reminder **(Step 4)**.

On the day of the hearing, Abina and Nyamekye appear in court. The judge reviews all the documentation and after questioning both parties he grants the divorce. Abina and Nyamekye are ushered to the Office of the Officer of the High Court. The Officer of the High Court logs onto the CR system and searches for the petition for divorce. He updates the record to show that the court granted the divorce and adds additional details required for the certificate of divorce before saving. The system saves the link between the marriage and divorce records and automatically updates NIA's PIN records to indicate Abina's and Nyamekye's marriage status is now single **(Step 5)**. The Officer of the High Court also prints and signs two originals of the certificate of divorce for Abina and Nyamekye **(Step 6)**.

##### **4.1 Civil Registration Solution Steps**

- Step 1. Search for Marriage record
- Step 2. Request petition for divorce
- Step 3. Search for and accept petition for divorce
- Step 4. Schedule hearing date
- Step 5. Create Divorce record
- Step 6. Print Divorce certificate

**Figure 7. Map of User story steps to the Functional Architecture**



**Figure 8: Map of User stories to the System Architecture**

