Cash & Voucher Assistance at Scale: Integrating Systems in St. Maarten & Aruba

Red Cross' road to digitalization in the Dutch Caribbean

How to set up digital Cash support when scaling up from serving 100 to over 40.000 people affected? This was the question 510, the data and digital initiative of the Netherlands Red Cross (NLRC), faced when they launched a cash assistance program in St. Maarten and Aruba. This case study will inform about what systems were used to make this scale up possible, the challenges faced, and the lessons learned. It's intended to assist those who are looking into establishing a digital cash support system.

Firstly, this case study will elaborate on how a local IT expert on Aruba modified an open-source CRM system into a beneficiary data management tool fit for humanitarian purposes. Secondly, it will get into how the system was integrated with other systems (KoBo Toolbox, RedRose, and Twilio) with the use of API's. Finally, it will get into what is being done now and where support for setting up a Cash IM project can be requested.

1. The Humanitarian Challenge
1.1 Situation St. Maarten and Aruba

When the global COVID-19 pandemic began, St. Maarten, Curacao, and Aruba were hit hard. In addition to the health impact, the COVID-19 policies and global travel restrictions had a significant economic impact on the islands. It was found that the most vulnerable people affected were already struggling to meet their basic needs after just three weeks of semi-confinement measures (social distancing and the closing of non-essential businesses). This is when the Dutch Government decided to finance the COVID-19 response program in the Dutch Caribbean.

1.2 Cash Feasibility Assessment

The COVID-19 response program started with a Cash Feasibility Assessment. A cash feasibility assessment determines whether cash or vouchers are the most appropriate response given the needs and circumstances. The following factors were considered as part of this evaluation:

- Potential modalities (cash, voucher, in-kind)
- Delivery method (paper voucher, e-voucher, e-cash, direct cash)
- Conditionality (requirements for the participants to take certain action before receiving cash support)
- Restrictedness (where the cash can be spent).
- The main findings from the Cash Feasibility Assessment on the islands were:
- The biggest needs were food and hygiene;
- The markets for these items were functional;
- The target community lacked access to existing financial infrastructure such as banks or mobile money.

Based on the outcome of the Cash Feasibility Assessment, 510 decided that vouchers would be the best solution because they are less reliant on existing financial infrastructure and vendors could be chosen based on the needs that were identified. Because of scalability and the need to minimize contact with the people affected due to COVID-19, e-vouchers were chosen and we started implementing the programme. Implementation consisted out of the following parts (see figure 1):

2. Registering People Affected / Self-Registration In Kobo

Following the Cash Feasibility Assessment and the decision to implement a voucher program, the teams on the islands began registering people in need. The teams were already familiar with the KoBo Toolbox and registrations in the field. However, they quickly realized that the usual approach needed to be modified due to COVID-19 social distancing and movement restrictions, as well as the anticipated scale. Self-registration KoBo web-forms were built on both islands and were made accessible to the public via websites, Facebook, and other means. Simultaneously, some capacity was set aside for those who did not have access to devices or the internet. Through the local communities, these people were identified and visited for registration.

2.1 Steering away from Excel

The decision for self-registration influenced the choice to steer away from Excel as a data management tool. This was because of data protection concerns and the fact that Excel allows for more human errors to go unnoticed. Also, the team realized that Excel has a pretty steep learning curve and the staff capacity was still in development. This is where the search for other data management tools began.

3. Managing Data Of People Affected; Scaling Up Through EspoCRM
3.1 Finding EspoCRM

"I knew there were a lot of open-source CRM applications" (Anuar Habibe)

Anuar Habibe, a local IT expert in Aruba, believed he could come up with a better data management solution. The lack of resources was a barrier to designing a new system from the ground up. The team
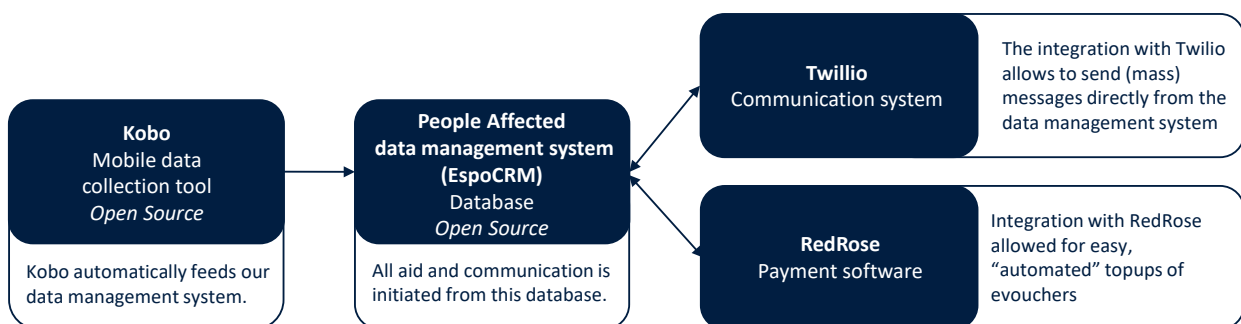

Figure 1 Systems integration

required an easy-to-customize, low-cost solution that could be tailored to their requirements. Habibe started looking at CRM applications since he knew there were a lot of open-source CRM applications. Eventually, he found that EspoCRM was best matched to the requirements of the situation. EspoCRM is a program that is open-source, well-maintained, documented, and easy to tweak and develop. EspoCRM has a lot of advantages over Excel. It is a relational database with more features and capacity than Excel. It is customizable, and has detailed role-based access control (meaning user rights can be assigned to partners and other users). Habibe set up a quick demo and presented it. After he got the go-ahead, he started customizing it further.

3.2 EspoCRM structure

EspoCRM core structure is based on three standard entities:
• Contacts: people affected
• Cases: something people affected and the organization share information on
• Tasks: follow-up based on the registrations of a people affected or activities in a case

There are a lot of other ready-to-use features available, which are geared toward the private sector. There is no one-size-fits-all approach to setting up this system. As a result, Aruba and St. Maarten have two separate configurations.

Aruba & EspoCRM

Habibe decided to use the core structure described above. There were two entities that he removed from the system: accounts and leads (both were used in St. Maarten). "Accounts" through which various levels of access to the system can be assigned to different partners, and "Leads" which is made to find potential clients, from potential client to customer.
The team in Aruba decided against directly connecting KoBo to EspoCRM. During

registration, it was discovered that people affected would sometimes register multiple times or write their phone number or name incorrectly. Therefore, they decided to clear up the most obvious mistakes in Excel first. Afterwards, the data was imported into EspoCRM as contacts.

St. Maarten & EspoCRM

The team in St. Maarten learned about EspoCRM in a coordination meeting with Aruba. Following a demo of the set-up, the team decided on implementation. In addition to the basic entities, the St. Maarten team also adopted the accounts and leads entities:
• Accounts: used for implementing partners. Specific partners were linked to an account, enabling them to only access data which was relevant to them.
• Leads: used for registrations. The registrations collected in KoBo web-forms were imported through the REST API into EspoCRM. The team double-checked the data by contacting the applicant before converting the applicant (lead) into a participant (contact). They had all of the data in EspoCRM this way, but they made sure to run a data check/cleaning round before creating the final record.

3.3 Running multiple programs simultaneously

EspoCRM was also chosen because it could run multiple programs at once with different modalities such as "hot meals," which is an in-kind distribution, and "additional programs," which is a direct cash distribution in Aruba. Multiple modalities were also included in the St. Maarten system setup, but only one could be active at a time; this was a deliberate choice.

3.4 The EspoCRM dashboard module option

In St. Maarten, the team had to provide 2000 people affected with cash support in 7 days. This is when Tijs Ziere created a

planning tool (a new entity that was added to EspoCRM). This planning tool allowed the team to quickly determine who had been invited and who had turned up thanks to automated reports and dashboards.
"We were able to watch the action unfold in real-time." (Tijs Ziere)
The dashboard is a module in EspoCRM, and it is only available in the advanced EspoCRM package. The advanced package is a subscription-based service that costs $395,- per year[1].

3.5 Using EspoCRM vs using Excel

When EspoCRM was introduced it was noted that EspoCRM is considerably easier mastered than Excel. 510 developed manuals and conducted short training sessions for all end-users during the setup of the EspoCRM system. The teams found that after only a few hours of training and one day of practice, people felt confident in using EspoCRM.

Learnings EspoCRM

- EspoCRM is customizable with very limited material costs and with basic Information Management knowledge.
- Create a process description and align ideas before customizing EspoCRM to avoid miscommunications and snags in the system setup.
- Register people affected as Head of Household and family as household members, this way EspoCRM can find duplicates quickly.
- EspoCRM enables users to open cases of potential duplicates and other issues, that can be assigned and investigated.
- At the beginning of the project agree on data standards to avoid data cleaning as much as possible.
- St. Maarten worked with two implementing partners and a coordinating partner. All of the partners had accounts with varying levels of access. They could only see their

beneficiaries. This encouraged the workflow because there was no need to ask for data. This also enhances data protection.
- EspoCRM includes a track record that induces a good workflow and increases flexibility. You can see who is entitled to what kind of assistance and why. You can also see what someone has received and whether or not they have contacted the organization.
- EspoCRM is simple to use, also for people with limited data literacy.
- EspoCRM allows for more control over beneficiary management and voucher administration.
- EspoCRM has an active forum. Developers reply quickly and are helpful.
- Potential people affected would register with the same passports multiple times. EspoCRM excels at detecting this quickly.
- The extra EspoCRM package comes with the possibility to create dashboards.
- Hosting is required for EspoCRM. The expenses are minimal, but it requires some specific technical capabilities.

4. Integrating Data Management With Redrose

Because the target community lacked access to local financial infrastructure, RedRose e-vouchers were chosen as the delivery mechanism. With EspoCRM in place, RedRose would serve the role of Financial Service Provider (FSP). This was a conscious decision based on two factors. Firstly, it was uncertain if the National Societies could continue to pay for RedRose when finance support ran out. Secondly, the National Societies were used to the case-management approach. Because EspoCRM is an open-source system and because of the ease of customizing data fields in EspoCRM, it was a better fit.
E-vouchers were created and distributed using RedRose. The teams had requested that RedRose develop an API endpoint that

---

[1] There is a 30% reduction for the Red Cross available

would allow them to add people affected and change their status.
"The API ensured that the system had the most up-to-date information at all times." (Lars Stevens)
Also, if a beneficiary profile was built in EspoCRM, it was also automatically generated in RedRose. Payments were conducted in RedRose, based on transfer values that were defined in EspoCRM. Payment details were then pulled back into EspoCRM allowing the helpdesk to see the profile of a person affected and their aid history in one location.

Learnings RedRose

- The RedRose e-voucher was a very effective way to scale up disbursements to a large number of people affected.
- The RedRose technology allows minimum contact for the cash transfer to people affected.
- Look into the potential of API-based interfaces, when looking for a financial service provider; this can take automation and data-driven insights in the cash program to the next level.
- The integration between EspoCRM and RedRose provides an overview that gives a good grip on what is happening, which can be visualized in a dashboard.
- If someone needed to be removed from the system, their profile could be deleted in EspoCRM, which would also cancel their RedRose account.
- The integration between EspoCRM and RedRose is less error-prone.
- RedRose is a commercial Software-as-a-Service solution, build on proprietary technology. Some features and customizations bring additional costs.
- RedRose is not designed as a case management system.

- Finding duplicates and adding information on people affected was found to be difficult with RedRose.
- In EspoCRM all the data on people affected are stored. RedRose contains a subset of the data.

5. Integrating Data Management With Twilio

After starting up the distribution process, the teams noticed that some beneficiaries were not turning up for distribution. There was a need for a system that would allow the teams to communicate with the people affected quickly and easily. A system that could be linked to EspoCRM so that messages could be customized based on the profiles of people affected.

Based on previous experiences with communication solutions build by 510, the choice was made to use Twilio. This is a system from a commercial organization that offers discounted rates to non-profit organizations. By integrating Twilio with EspoCRM with the use of a REST API, a message type (WhatsApp, SMS, Email) could be chosen in EspoCRM, and message input, such as the person's affected name, could be collected from their profile in EspoCRM. The integration also allowed messages to be sent in the registered language for that particular individual. Furthermore, it was possible to send mass messages to all of the people affected or specified groups of people affected[2].

Learnings Twilio

- You can view the status of SMS and WhatsApp messages by integrating Twilio and EspoCRM (sent and arrived).
- This set-up is a lot less error-prone than using Excel for mass messaging

---

[2] In case that a system set-up does not use EspoCRM or RedRose but still aims to send messages through the Twilio API, an Excel and Microsoft Power Automate setup can be used (see this manual on the CashHub). This kind of setup is however more prone to human error and requires a separate database for message sending.

- It is a good idea to include an automated confirmation message with a code, "We received your application", while self-registering online.
- Twilio receives answers to the automated messages in a portal. If the responses are linked back to EspoCRM, EspoCRM can also be used as a helpdesk and to collect feedback. The messages can also be linked to the people affected profiles that sent them in EspoCRM.
- In the advanced EspoCRM package a dashboard can be developed that gives an overview of the status of messages.

Example: Get A Balance Update

The following example demonstrates one of the many opportunities when integrating systems like this. RedRose e-vouchers can be topped up remotely. When the e-vouchers were toped-up people affected were notified by SMS/WhatsApp. However, collected feedback revealed that many people had trouble determining how much balance they had left. Even though they could ask vendors for their balance to ensure that they were using the entire amount they were entitled to, in several cases people would not do so for personal reasons. As a result, the team devised a method for requesting a person's balance over WhatsApp or SMS. This is how it worked (also see Figure 2):

1. A person affected sends a message to the Red Cross phone number, asking "Hey, what is my balance?". Balance is the keyword initiating the process;
2. In an automated response, the sender is asked for his or her RedRose ID

consisting of 5 letters "ABCDE" which they could find on their E-voucher card;
3. The person affected then replies to the Red Cross phone number with their RedRose ID "ABCDE";
4. The system verifies that "ABCDE" is a valid RedRose ID and that it corresponds to an EspoCRM ID.
4.1. EspoCRM creates an Excel file with data on RedRose IDs and EspoCRM IDs;
4.2. The "ABCDE" is sent into a Microsoft Power Automate flow, which checks the Excel file;
4.3. Microsoft Power Automate flow then sends a http request to EspoCRM using the EspoCRM ID.
5. EspoCRM then sends a request to RedRose for the balance;
6. RedRose sends back the balance to EspoCRM which updates the balance for the right EspoCRM ID;
7. EspoCRM sends Twilio an instruction to send out an SMS/WhatsApp with the balance to the phone number registered to the EspoCRM ID;
8. A person affected receives a message "Dear (name), your balance is $ (amount)".

Conclusion

In summary, the basic system set-up that enabled scaling up a cash program from 100 to 40000 people affected consisted of four systems:

1. KoBo Toolbox: an open-source tool for registering people affected.
2. EspoCRM: an open-source case management system that has been adapted for humanitarian purposes.
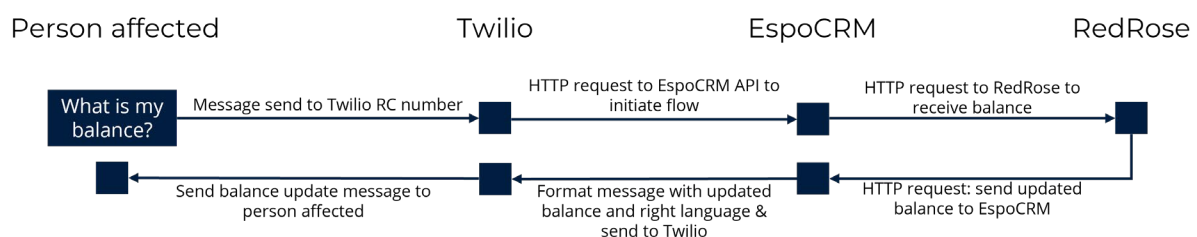

Figure 2: Simplified Balance request flow

3. RedRose: a platform for managing E-vouchers and cash programs.
4. Twilio: a platform to build communication apps.

Challenges

Along the way, several important challenges were identified. First and foremost, digital transformation is as much a people game as it is a technological one. The importance of training people on how to use these systems should not be underestimated. 510 produced multiple manuals and conducted short but successful training sessions for all end-users that could be easily replicated. Second, EspoCRM and full household registration reduce the likelihood of duplication. There is, however, a trade-off in terms of how much time you want to spent to avoid it completely. The systems will be tampered with, and to some extent, that has to be accepted. Third, though RedRose was willing and able to develop an API endpoint in this situation, Financial Service Providers may not always have this capacity. It is a good idea to double-check as soon as possible and to have backup plans. Finally, EspoCRM requires hosting. The costs are minimal, but one must possess the necessary technical abilities. 510 can be contacted for assistance if necessary.

Advantages

Despite the difficulties, there are several important benefits to employing a system setup like the one described. Firstly, integrating these systems decreases uncertainty and increases autonomy. Automatically confirming that people's applications have been received, keeping individuals up to date on disbursements,

and giving people control over asking their balance are just a few examples. Secondly, 510 has discovered that Excel might be a steep learning curve for local aid workers. EspoCRM, on the other hand, has a user interface that is pretty straightforward to learn and master. After only a few hours of training and one day of practice, people felt confident in their ability to use the system. What helps is that the interface can be translated into the local language. Thus using systems like this lowers the barriers for non-Information Management staff to do more data cleaning, data analysis, and data visualization. Lastly, these activities were greatly aided by the role-based access management provided by the EspoCRM system. Since role-based-access allows for multiple partners to use one system without accessing each other's data. All of these advantages empower National Societies to do large-scale, effective, efficient, and accountable Cash & Voucher Assistance (CVA).

What is next?

510 is further developing the EspoCRM set-up for CVA purposes, based on its experience with Aruba and St. Maarten. If you are interested in this solution, want a demo, or are looking for integrations with mass messaging platforms, feel free to contact us.

If you have any other questions or need assistance, please email lstevens@redcross.nl or tziere@redcross.nl.