Crisis Crusaders – Supporting Report for Plan of Action

November 19, 2020

The Challenge

The Head of Operations for a large NGO in Sierra Leone needs to share sensitive data with partner NGOs in order to track Ebola cases and stem a new outbreak of the disease. Speed and simplicity are needed; however, this is among the most sensitive data. What are her options?

Context and Situation Awareness

Crisis Crusaders is a non-profit consulting organization that specializes in crisis response and management and supports NGOs around the world. Many of our past and current projects have been supported by USAID. Our members have worked in several roles at various technological firms before joining Crisis Crusaders.

We have been mobilized by the Head of Operations at Charity Health Network (CHN)[1], a healthcare organization in Sierra Leone, to provide support in their mission to mitigate the current Ebola outbreak, which is now in the scaling-up phase of the crisis. CHN's current methods of storing and sharing data lack efficiency and security. They are in need of a technology solution that strengthens their capacity to quickly and safely share sensitive Ebola-related data with their partners. Crisis Crusaders intends to provide a secure and reliable method of data storage and sharing that will be compliant with HIPAA regulations and the Data Protection Act[2].

	Known	Unknown
Known	Data collection methods established; immediate need for increased data sharing and storage capacity. HIPAA + Data Protection Act regulations. Strong partnership with Charity Health Network, backed by USAID.	Business continuity Data confidentiality during data migration Extent of stigma surrounding Ebola Future uses of our technology solution (impact is unknown but existence is known)
Unknown	Ebola in general (life course of the crisis, long-term impacts) (risks)	Regulatory Changes Data Loss (unfathomable uncertainty)

Roles

Maheen Asghar: Data Scientist & Software Developer

Primary responsibilities and duties:

- Researching, designing, implementing and managing software programs
- Testing and evaluating new programs

- Identifying areas for modification in existing programs and subsequently developing these modifications
- Writing and implementing efficient code
- Determining operational practicality
- Developing quality assurance procedures
- Deploying software tools, processes and metrics
- Maintaining and upgrading existing systems
- Training users
- Working closely with other developers, UX designers, business and systems analysts

Tabassum Nisha: Information Assurance Analyst

Primary responsibilities and duties:

- Monitoring applications and hardware for any unusual activity
- Mitigate damages and patch software during current cyber threats
- Set up systems that prevent cyber threats including data breaches and traffic spikes
- Create security systems that prevent cyber attacks but still allow employees to work without issue
- Report current and future security concerns to management
- Analyze architecture and data for needed updates and patches
- Audit the entire network including desktops, servers, routers, switches and other systems for improvements and security issues

Stephanie Mecham: Project Manager

Primary responsibilities and duties:

- Leading project planning sessions
- Coordinating staff and internal resources
- Managing project progress and adapt work as required
- Ensuring projects meet deadlines
- Managing relationships with clients and stakeholders
- Designing and signing off on contracts
- Overseeing all incoming and outgoing project documentation
- Participating in tender process i.e. design, submission and review
- Designing risk mitigation plan
- Conducting project review and creating detailed reports for executive staff
- Optimising and improving processes and the overall approach where necessary
- Managing large and diverse teams

Erin Voichoski: Communications/Public Relations Specialist

Primary responsibilities and duties:

- Draft press releases, pitches, case studies, white papers, and media summaries
- Build relationships with new media contacts and maintain relationships with existing contacts
- Manage media requests in a timely and professional manner
- Pitch story ideas and content to media
- Ensure all communication is cohesive with the brand image
- Track and analyze media coverage to inform future campaigns
- Measure PR program impacts using regular reporting
- Organize, schedule, and prepare key leaders for press interviews

Approach

We will be utilizing an agile approach to the project[3] that will allow for the quick action and flexibility necessary for effective crisis response. The approach is outlined as follows:

I. Requirements: Interview with members of CHN to assess current structure and determine gaps, needs
II. Research and Preparation: Create budget, timeline, and plans for communication, implementation, monitoring and evaluation
III. Design: Application design with the client, CHN
IV. Implementation: Create and implement application
V. Test: Test with one CHN health center, monitor daily reports
VI. Deploy: Determine KPIs, metrics, and other reports for CHN

} Iterate

Key Assumptions

Crisis Crusaders:	**Clients:**
● A non-profit consulting organization based in New York, NY that specializes in crisis management and response ● 20 team members with $10M in funding budget ● 5 members in the consulting team sent to Sierra Leone (data scientist, information analyst, program manager, head consultant, communications specialist)	● Primary: Head of Operations of Charity Health Network headquartered in Freetown, Sierra Leone ● 500 employees in the ten centers ● $10M ● Secondary: Managers at CHN's branches; data-sharing partners

- We have strong partnerships with Charity Health Network, other NGOs and health partners in Sierra Leone.
    - CHN currently has ten health care facilities spread out throughout the country[1].

- CHN is currently storing their Ebola-related data in excel files throughout their data centers. They are in need of a technology solution that will increase efficiency and security for their growing number of sensitive data.

- The National Electronics Bill of 2020, designed to implement a comprehensive legal and regulatory framework for telecommunications in Sierra Leone, will be a key driver of our data security features[4].

Timeline #1 — Path to SMT Presentation

Milestone	Owner	Mentor	Deadline	Status
Form diverse team	All		Sep 21	Completed
Select a scenario and meet with mentor, Patrick Gordon	All	Patrick	Sept 30	Completed
Research the topic, technology, NGO rules and flesh out project plan	All	Patrick	Oct 11	Completed
Check-in with Patrick for POA I review	All	Patrick	Oct 12	Completed
POA I due	All		Oct 13	Completed
Prepare high-level budgeting	Maheen	Ed	Oct 19	Completed
Prepare people resource plan	Erin	Ed	Oct 19	Completed
Prepare second timeline including implementation of the solution, report, and budget	Steph	Ed	Oct 19	Completed
Define approach and team roles	Tabbie	Ed	Oct 19	Completed
Check-in with Prof. Happ to review previous tasks	All	Ed	Oct 19	Completed
Check-in with Prof. Happ for final POA review	All	Ed	Oct 26	Completed
Develop a risk register and mitigations	All	Ed	Nov 2	Completed
Investigate solutions, list pros and cons (+estimated time and costs)	All	Ed	Nov 2	Completed
POA II due	All	Ed	Nov 5	Completed
Create a proposal write-up and corresponding presentation for the SMT	All	Patrick	Nov 9	Completed
Send slides to Patrick for review	All	Patrick	Nov 11	Completed
Prepare presentation and practice with our team and Patrick	All	Patrick	Nov 16	Completed
Turn in final slide deck and supporting report	All	Patrick	Nov 19	In Progress
Presentations to SMT panel	All	Patrick	Nov 19	In Progress

Research

Currently, CHN is storing data in excel files throughout their data centers. They are in need of a technology solution that will increase efficiency and security for their growing number of sensitive data. Our team researched several options for both cloud-hosting services and software development methods, in order to address CHN's data storage and sharing needs. Our recommendation is to use a cloud hosting service and identify a third-party app that can be acquired and then customized in-house to meet CHN's specific data processing needs. Details of the research that led to this final recommendation are outlined in the table below.

Cloud Hosting	Software Development (Application)[9]
Amazon AWS[7] ● *Pricing*: Tiered. Over 500 TB / Month - $0.025 per GB + Most experienced vendor + Cheaper with storage only + Data stored in Cape Town, Africa - Expensive additional services - Less global scaled	**In-house** ● Pricing: $300,000 + Full control over code and project + Direct communication - More expensive to hire full-time employees - Much longer timeline
Microsoft Azure[8] ● *Pricing*: $0.058/GB per month + Cheaper with additional services + Global scale business + Data stored in Southeast Asia + Open resource - Expensive with storage only - Less experienced than AWS	**3rd-party** + Easy to scale projects up or down + Increased efficiency - Costlier - Potential security risks - Inability to customize
In-house[10] ● *Pricing*: Hard to estimate due to costs of buildings, infrastructure, human resources, but likely relatively high + Avoid the risks associated with third-parties - Very costly - Time consuming	**In-house + 3rd party** + Easy communication between groups + Not as costly as in-house + Ability to customize - Could take longer than 3rd party

Final Recommendation:

Cloud Hosting	Software Development (Application)
Amazon AWS ● This is an inexpensive option relative to Azure or in-house (on-premise) hosting. Our data will be located on a server in Cape Town, South Africa.	**In-house + 3rd party** ● Acquiring a 3rd-party app and then customizing will save time on start-up, meaning we can implement sooner. Our software developers, analysts, and security experts will work with CHN to integrate their current data into the app.

Budget

(Invert CHN and Crisis Crusaders and CHN will make a cost recovery program for costs)

Reasons for CrisisCrusaders to license the software

- Could sell as a service
- CHN owns data within app
- We own the privacy and security aspects/app

Link to Budget Spreadsheet:
https://docs.google.com/spreadsheets/d/1KMazVLapM7ZcD5_4M1qI85ykl9WoqkqGBMgSbb83ah4/edit?usp=sharing

Timeline #2 – Project Timeline

	Deadline	Phase	Milestone/Deliverable	Key milestone?
Create high-level project plan detailing scope, work breakdown, budget, timeline, communication plan, risk management strategy	**Nov 5th 2020**	**Initiation**	**Initial project plan complete**	
Revise project plan with stakeholder feedback	**Nov 11th 2020**	**Initiation**	**Revised project plan complete**	
Present finalized project plan to SMT team; demonstrate need and feasibility	**Nov 19th 2020**	**Initiation**	**Project approval & green light to advance to planning phase**	**Key milestone #1**
Conduct needs analysis ● Ensure compliance with HIPAA and Data Protection Act regulations ● Evaluate user workflows ● Technical analysis of current infrastructure	**Dec 3rd 2020**	**Planning**		
Finalize pricing model for solution development and IT support; choose Cloud hosting and software dev platforms	**Dec 5th 2020**	**Planning**		
Develop prototype	**Jan 3rd 2021**	**Planning**	**Initial prototype complete**	
Testing and obtaining feedback of prototype; deploy phase-one beta to users	**Jan 5th 2021**	**Planning**	**Beta prototype launch**	**Key milestone #2**

Monthly progress report (benchmarks, budget, challenges, modifications to the timeline)	**Jan 5th 2021**	**Monitoring**	**Monthly project update to SMT sent**	
Secure data-sharing agreements with relevant stakeholders	**Jan 10th 2021**	**Planning**	**DSA contracts finalized**	
Debug and perfect prototype into Beta solution ● Demonstrate compliance with HIPAA, EHR security regulations, Data Protection Act ● Demonstrate how its meeting the needs listed in initial needs analysis	**Feb 1st 2021**	**Planning**	**Revised prototype finalized**	
Monthly progress report (benchmarks, budget, challenges, modifications to the timeline)	**Feb 1st 2021**	**Monitoring**	**Monthly project update to SMT sent**	
Conduct trainings for CHN employees / IT help professionals at the pilot clinics	**Feb 10th 2021**	**Implementation**		
Migrate existing CHN data into new system & begin collecting new data using this system	**Feb 15th 2021**	**Implementation**		
Monthly progress report (benchmarks, budget, challenges, modifications to the timeline)	**March 1st 2021**	**Monitoring**	**Monthly project update to SMT sent**	
Monthly progress report (benchmarks, budget, challenges, modifications to the timeline)	**April 1st 2021**	**Monitoring**	**Monthly project update to SMT sent**	
Conduct real-time testing ● Workflows & user acceptability ● Data security ● Offline sync functionality ● Unexpected challenges	**May 5th 2021 (iteratively)**	**Monitoring**		
Monthly progress report (benchmarks, budget, challenges, modifications to the timeline)	**May 5th 2021**	**Monitoring**	**Monthly project update to SMT sent**	
Debug, modify, improve the data sharing solution to address needs found during monitoring ● Near end of this phase, prepare for final deployment and scale-up	**June 1st 2021 (iteratively)**	**Implementation**		
Monthly progress report (benchmarks, budget, challenges, modifications to the timeline)	**June 1st 2021**	**Monitoring**	**Monthly project update to SMT sent**	
Full system deployment	**July 1st 2021**	**Implementation**	**Go-live for all users**	**Key milestone #3**

User trainings & data migration	**July 10th 2021**	**Implementation**		
Monthly progress report (benchmarks, budget, challenges, modifications to the timeline)	**July 10th 2021**	**Monitoring**	**Monthly project update to SMT sent**	
Monthly progress report (benchmarks, budget, challenges, modifications to the timeline)	**August 10th 2021**	**Monitoring**	**Monthly project update to SMT sent**	
Conduct iterative real-time testing & modifying/debugging	**August 20th 2021**	**Monitoring**		
Monitor first quarter system reports and IT issues, budget, success of scale-up, areas of waste for future optimization ● Prepare for further scale-ups or adaptation to different types of disease surveillance	**September 01 2021**	**Monitoring**		**Key milestone #4**
Modify exit strategy as needed ● Ensure sustainability post-departure	**September 05th 2021**	**Closing**		
Develop final reports ● Post-mortem analysis ● What still needs to be done ● Suggestions for version 2.0	**September 20th 2021**	**Closing**	**Final deliverables submitted to SMT, CHN, and other relevant stakeholders**	**Key milestone #5**

The Bottom Line

Crisis Crusaders recommend the implementation of an AWS cloud-hosting service for data storage and the development of a software application with data-sharing capabilities. The Crisis Crusaders team will create the app using a combination of 3rd-party acquisition and subsequent in-house customization in order to specifically address CHN's needs amidst the ongoing Ebola crisis. This combination is the quickest and most cost-effective option that still allows for final customization. In order to move forward with this plan, Crisis Crusaders requires CHN's approval and commitment to the following:

Funding Costs	● Approximately $430,000 in total costs, including: ● A one-time implementation cost for Year 1 ● Recurring licensing fee for subsequent years, paid to Crisis Crusaders
Employees	● Labor costs for hiring, training, and retention of in-country employees, who will sustain the system following the eventual departure of the Crisis Crusaders team
Timeline	● Approval of the 11-month timeline, complete with key milestones and opportunities for iteration throughout

All in all, the implementation of this project will not only equip Charity Health Network with the technological tools to mitigate the current Ebola crisis and save lives in Sierra Leone, it will also enable both CHN and Crisis Crusaders to respond more quickly and effectively to similar crises in the future.

References

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