**AVRIL:**

COVID-19 was one of the worst, economic, social, and political issues that the world has confronted in recent years. Gladly, today, we’re lucky to have returned to (mostly) our normal lives, and we owe it all to our amazing healthcare workers. These people have worked tirelessly for the past two years, and even until today, to make sure that everyone gets the care they need, so now, it’s up to us to help make their work a little easier.

Vancouver Coastal Health always strives to be better, which is why we are here to make things better and easier for your staff, managers, nurses, and the communities you serve.

Good afternoon everyone, my name is Avril and I’m joined today by my colleagues Bryan, and Callum, and Roxanna and we are ABC-R consulting and we are so excited to be here to present our strategy for how VCH can continue to meet their strategic goals, in a safer, more effective manner.

**AVRIL:** Executive Summary

**AVRIL:** Strategic direction (main pain points)

Currently, VCH offers a free influenza vaccination clinic for all of its 16,000 employees. However, the are several key issues with the current vaccination process that hinder its’ efficiency

1. First, there exists an over-reliance on self reporting, which increases the risk of human error and decreases the accuracy of the vaccination data
2. Second, the process consists of extensive manual labor due to multiple manual data entry points which greatly decreases the efficiency of the overall process
3. Finally, there is a misallocation of resources and COVID-19 Program Assistants are currently tasked with data entry which affects the quality and time allocated to tasks that are consistent with their actual position.

**ROXANNA:** Previous System/Catch-up (combine with decision matrix)

* Let's go over why we choose our solution
* Here is our decision matrix for our recommendation
* we decided on this because of major pain points in the old system where there were inaccurate data and errors, took up a lot of time for VCH staff, and it wasn’t sustainable for the long term by not being adaptable or suiting VCHs long term goals
* So our recommendation will be fully digital and use AWS and DocuSign to protect data and security, provide accurate data to databases, save time from doing manual and repetitive tasks, and help VCH in the long term by being easily adaptable.
* This will help staff, be efficient and save time, and safely provide accurate data to immsbc and VCH

**AVRIL:** SEA strategy

Now, the way that we are going to approach this full digitization of the vaccination process is through the use of our SEA strategy that targets safety, efficiency, and accuracy.

1. Safe: With our fully digitized system, we are able to control the security and confidentiality of the data inputted in the system, ensuring the safety of this highly sensitive data
2. Efficient: With our system, the multiple data entry points will be completely eliminated, allowing for decreased manual labor and decreased risk of human error.
3. Accurate: Our system will also be able to accurately quantify results and provide VCH with analytics on their vaccination process

**ROXANNA:** Flow chart (simple)

* Our recommendation is a complete digitalization of your system, here is just a quick overview of how it is, right from the start instead of using paper forms we will use a digital form with DocuSign to immediately erase that potential error for inaccuracy and for the use of [ICR or IWR], the PNI will also be able to fill out the rest digitally from their ipads. Then the form will be spent to the various process and RPA system
* And importantly the data will be spent to the ImmsBC database and VCH’s staff WHITE database without the need for program assistants nor those who are getting vaccinated to input data manually anymore.
* Safety, accuracy, and efficiency

**PROTOTYPE DEMO**

Callum:

I’ll jump into our prototype demonstration. I’ll play the role of the nurse, and my colleague Roxanna will play the part of the employee to be vaccinated. I’ll start by going to our prototype website and requesting a new vaccination form with the correct passphrase. I’ll wait a moment and will be redirected to the newly created vaccination form to fill out. I then pass the form on to our employee, Roxanna and she will fill out her portion of the form.

Roxanna: …

Callum:

And then once I receive the form back from Roxanna, I enter my information and click submit. I will then be redirected back to the original site and I can begin my vaccination. In a couple of minutes, the data from the digital form should be saved to the databases necessary.

**BRIAN/CALLUM:** System overview (technical advantages - safety, efficiency, accuracy, INCLUDE DOCUSIGN) **\*\***can be split into more than 1 slide**\*\***

Callum:

Our system leverages DocuSign, Amazon Web Services (also referred to as AWS), and UIPath to simplify and optimize the employee vaccination tracking process.

Brian:

Firstly, our system provides a high level of data safety. Using cryptography techniques in our software, we can validate that our data comes from a source we can trust. Proper software engineering concepts such as the encapsulation principle also reduce the surface of attack of our systems by restricting access to data and functions within our software. Our chosen e-signature system DocuSign is already being used in the healthcare industry to track electronic health record data and complies with provincial and federal healthcare privacy laws. Finally, AWS provides many ways of restricting access to data and ensuring that our system is safe from cyber attacks such as injection attacks and denial of service attacks.

Callum:

Second, our system is accurate. Since we are using digital forms, handwritten text recognition is not necessary as the data inputted into the form is already in a format that a computer can understand. I’m sure we all know the adage about doctors’ handwriting; our lack of need for machine learning eliminates a massive source of error that comes along with text-in-image recognition. Furthermore, as we have access to the VCH employee database, we can automatically validate that vaccination records that enter our system have correct data identified with a VCH employee. If this data is incorrect, we can even send an email with another online form requesting said employee to amend the data on their own time. Finally, due to our use of online forms, there is no need for self-reporting; we can simply add a checkbox which allows employees to give consent to having their vaccination data recorded, and it will be automatically.

Brian:

Lastly, our system is efficient. The user interface will be simple and have a clear structure, allowing for as little time as possible spent on it. Our automated data entry and validation processes streamline data flow, removing the need for program assistants to waste their time doing repetitive tasks. As well, using AWS provides a way to scale the services required as the need arises, providing easy scalability as the number of VCH employees increases. Furthermore, using cloud computing removes the need for hiring system administrators to set up and manage complicated proprietary server infrastructures.

**BRIAN/CALLUM:** System architecture

Brian:

We have three key services which interact with one another and host our system.

The first is Amazon Web Services, which performs four key jobs in our system. It provides a public URL which is triggered by DocuSign once vaccination forms are submitted, and one subsystem will process the form data. As well, it provides another URL to request the creation of new forms, and returns a signing link which can then be directly opened and the form can immediately be signed. We can also execute code to fetch and analyze the vaccination data on AWS, and can even schedule this to run on a set time interval, when requested, or both. Lastly, we are using AWS to host our UIPath RPA, removing the need for a dedicated server to be set up to host our automations.

Callum:

Our second system is DocuSign, which primarily provides the frontend for signing our online vaccination forms. We also use DocuSign to notify our AWS system once forms are completed so the data can be processed. This data is retrieved via the DocuSign application-program-interface, which allows us to request new forms and form data from DocuSign.

The last system used is the UIPath RPA, which performs the task of writing our processed data to the ImmsBC database and VCH database, as well as reading data for validation from the VHC database.

**ROXANNA: data flow diagram**

Backend - flow chart (probably a more simplified version, because I’m not sure if I have everything correct)

Rewrite:

This is our Data flow diagram of where I formation is going around in the backend, our sources of data are the PNI, staff getting vaccinated, program assistants, and managers, the data stores are VCH white database and immsBC.

Let's just go over how the information will flow through the backend

After the employee has filled out their data along with the PNI the data will be sent from the DocuSign API to the AWS gateway where it will be send to data processor and that will validate and confirm the data by comparing it to your existing database data then if there are errors a notification will be sent to the program assistants and they will correct it

Validated data will be sent to ImmsBC and VCH white automatically. Then data will also be sent to the RPA EC2 processes and that will be sent to another RPA that will be able to form graphs and reports that can be sent to managers/hr/people safety automatically

**AVRIL:** As for the timeline for the implementation of our strategy…

**ROXANNA:** Cost-benefit analysis

* The main costs for our recommendation are the costs for the various AWS process, UI Path, and the System development we anticipate spending this much in the first year and saving 2,400 hours a yearThese are the benefits we see in time saved as well as intangible benefits such as the accuracy of information and ability to quantify data as well

**AVRIL/CALLUM:** Risks and mitigations (look to include technical risks)

**AVRIL:** Conclusion