

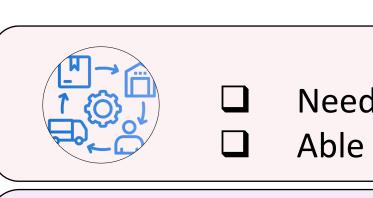
## **Enhancing Medical Supply Resiliency** For Public Health Institutions Through An End-to-End Dashboard

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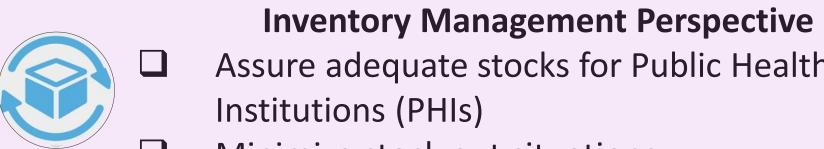
### 1. Introduction and Aim

As ALPS continues to transform Singapore's healthcare supply chain, the Supply Chain Service Operation's (SCSO) team faces challenges from various perspectives:



#### **Supply Chain Perspective**

- Need for visibility on the End-to-End process, to ensure medical supply resiliency
- Able to identify and mitigate potential issues that affects availability of medical supplies



Assure adequate stocks for Public Health Institutions (PHIs)

Minimize stock out situations



**Fulfilment Management Perspective** 

Assure optimal productivity for fulfilment Ensure delivery is made on time

To meet the challenges, the team started an initiative to develop an End-to-End dashboard, with the aim to:

- ☐ Develop an accurate and scalable solution that measures inventory and fulfilment metrics
- ☐ Enable data driven decision making that improves healthcare medical supply resiliency, ensuring timely availability of critical medical supplies

### 2. Methodology and Solution

The team adopt the PDCA framework to provide a structured approach to problem solving, ensuring a successful implementation in solution:

### A. Using PDCA to Identify and Complete Critical Tasks

# **1. P**lan

- 1. From workflows, SCSO team identified potential lagging and leading indicators for tracking
- 2. Joint discussion with ALPS IT team, leading to ALPS Pyramid with Enterprise Data Warehouse(EDW) as solution, supporting use cases such as large, historical datasets of at least 3 years, as well as a sizeable amount of ~ 30 users
- 3. In addition, 22 Data Sources from SAP and OMS were identified, to establish data pipelines to EDW

## **2. D**o

- 1. UAT conducted between Nov'23 to April'24 to test and validate data pipelines, to ensure requirements are met
- 2. Co-currently, prototypes were built to conceptualize ideas with and tested via Excel
- 3. Upon data pipelines being established, the **prototypes** were ported to Pyramid Solution for further testing and fine tuning

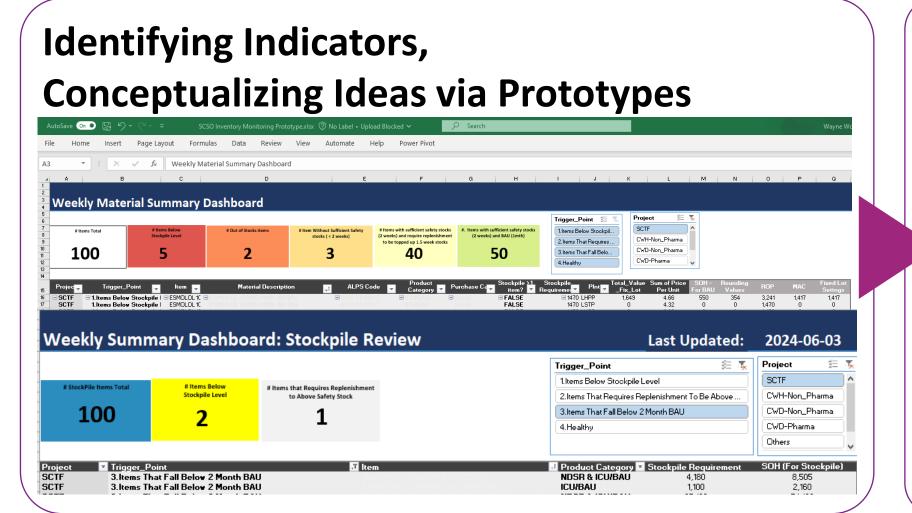
### 3. Check

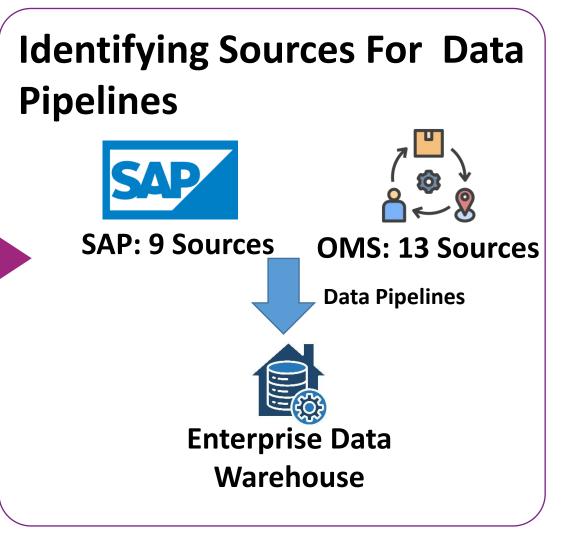
- 1. Gather feedback from stakeholders to refine and iterate on the dashboard design, ensuring an intuitive and userfriendly interface through continuous improvement
- 2. Conduct checks to ensure accurate reporting, including data accuracy, data freshness, data reliability and data accessibility

## **4. A**ct

- 1. Refine the dashboard based on feedback, ease of usage and insights
- 2. Monitor and evaluate the impact of the dashboard on decision-making and business outcomes
- **Document lessons learned** and **best practices** for future dashboard development

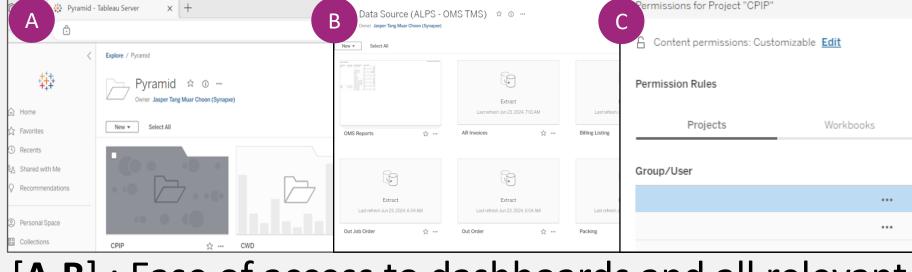
### B. Conceptualizing and Finalizing Requirements





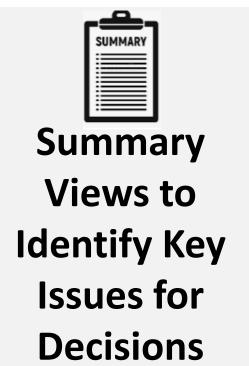
#### C. Implementing The Actual Solution

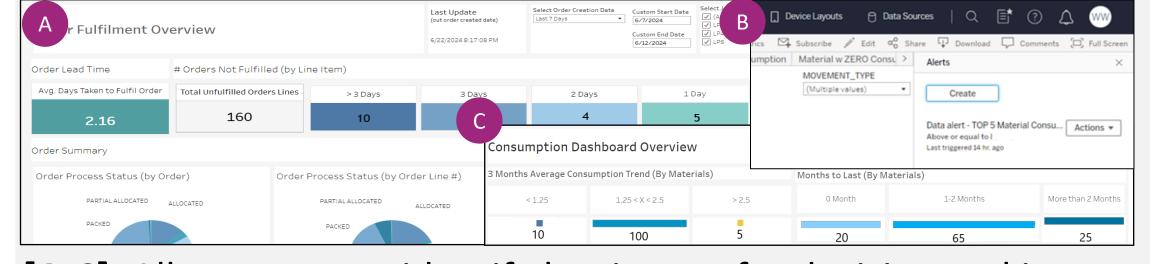




[A,B]: Ease of access to dashboards and all relevant data pertaining to inventory/fulfilment process.

[C]: Ease of maintaining user control, sharing across SCSO team

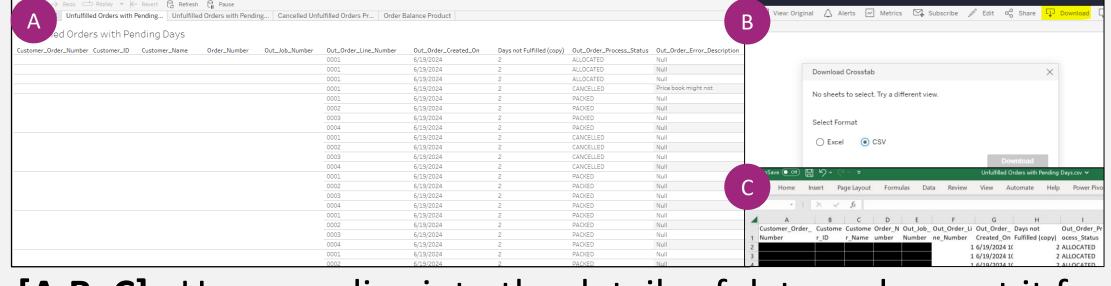




[A,C]: Allows users to identify key issues, for decision making [B]: Alerts can be customized, based on user's trigger point



**Data Drilldown** from Summary for Further **Analysis** 



[A,B, C]: User can dive into the details of data and export it for further analysis. Additional attributes can be added, if required Note: Actual data has been excluded from the visuals

### **Results & Conclusion**

There are numerous benefits generated from the project, including:



Visibility

- ✓ SCSO team is now able to review the inventory and fulfilment info, allowing better support to PHIs and the Healthier SG initiative
- ✓ Enables a more informed decision making and proactive management

**Enhanced** 

- ✓ Ease of sharing dashboards and relevant common data across different teams
- This enhances collaboration, enabling a Collaboration more cohesive and effective approach in solving supply chain issues



**Ease of** 

- ✓ Ease of customizing visuals, as well as calculation logic for indicators
- This allows iterations of dashboard to be done **Customization** efficiently, for continuous improvement and inclusion



Manpower

**Savings** 

✓ Comparing to a manual solution which requires 6 headcount, the solution frees at least ~ 14 hours, per headcount per day ✓ This works out to 1680 work hours per month. Assuming an average wage \$\$10 per hour, this

of new business rules works out to \$16,800 per month The implementation of the solution has enabled the respective teams to have improved visibility for better collaboration, ensuring reliable medical supply delivery to Public Healthcare Institutions. This initiative aligns with our goals of bolstering healthcare supply chain infrastructure against varying demands and ensures continuous patient care