



BACKGROUND AND PROBLEM STATEMENT

Farrer Park Hospital uses a single system to support all clinical care, purchasing, inventory management as well as finance and accounting needs. Logistically and conceptually, the system is useful as it is able to generate a live inventory status as well as drug utilization reports. However, it was challenging to consolidate and utilize those information for operational needs such as purchasing due to large amount of data generated in different formats. Consequently, as shown in Figure 1 below, the data is extracted as 2 separate reports, spanning easily from 80 -90 pages worth of data to sieve through. While such data is useful, the buyers are highly prone to miss order due to the immense amount of time required to consolidate for purchasing decision-making support. Hence, the drugs usage and inventory status data needed to be compiled to streamline the downstream process of creating purchase orders as well as ensure that no medications are missed during inventory monitoring.

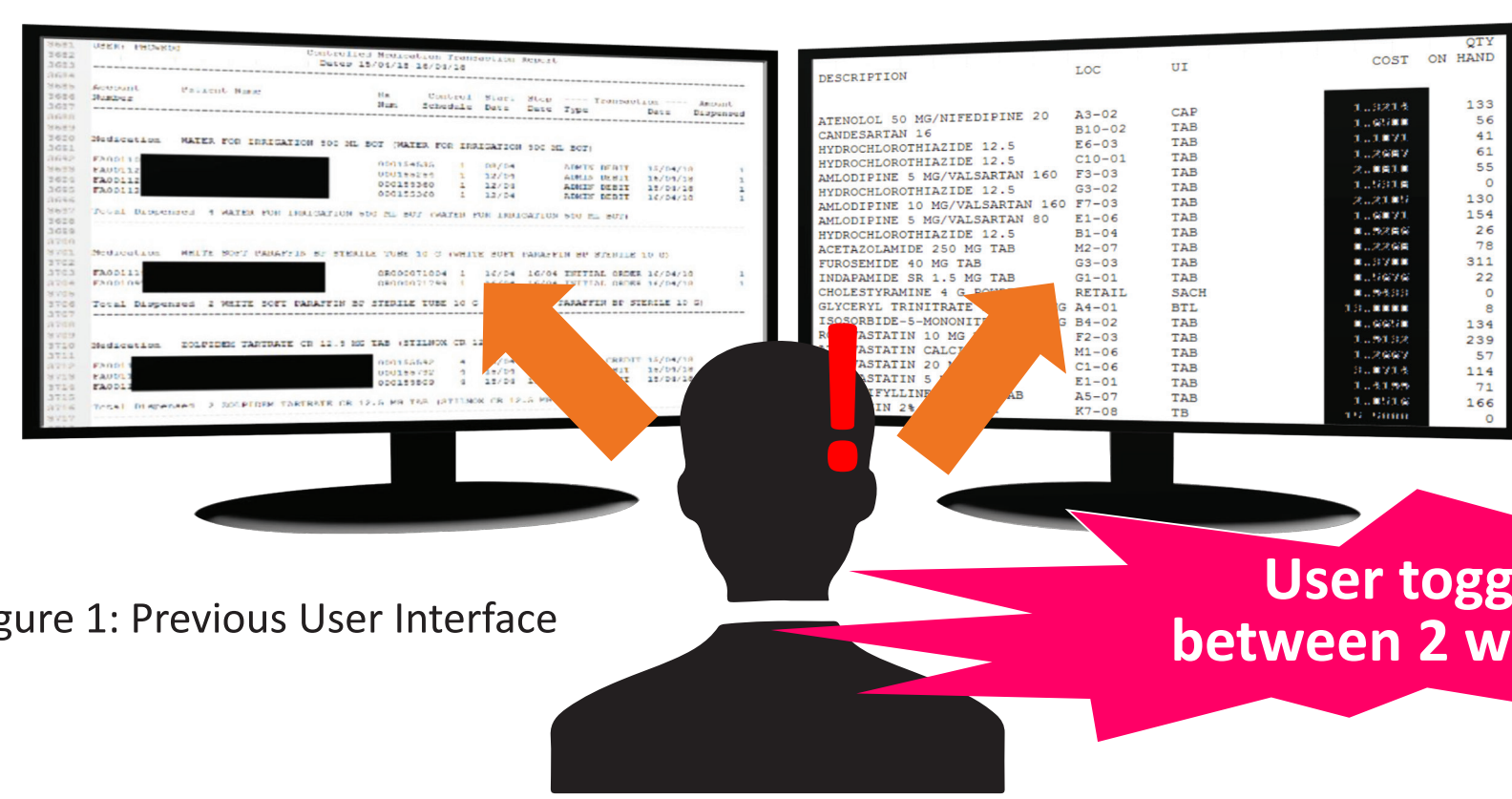


Figure 1: Previous User Interface

Pressing Issues:

- ✓ Time consuming to vet through different reports
- ✓ Error-prone as high risk to miss out line items
- ✓ Low staff satisfaction

METHODOLOGY

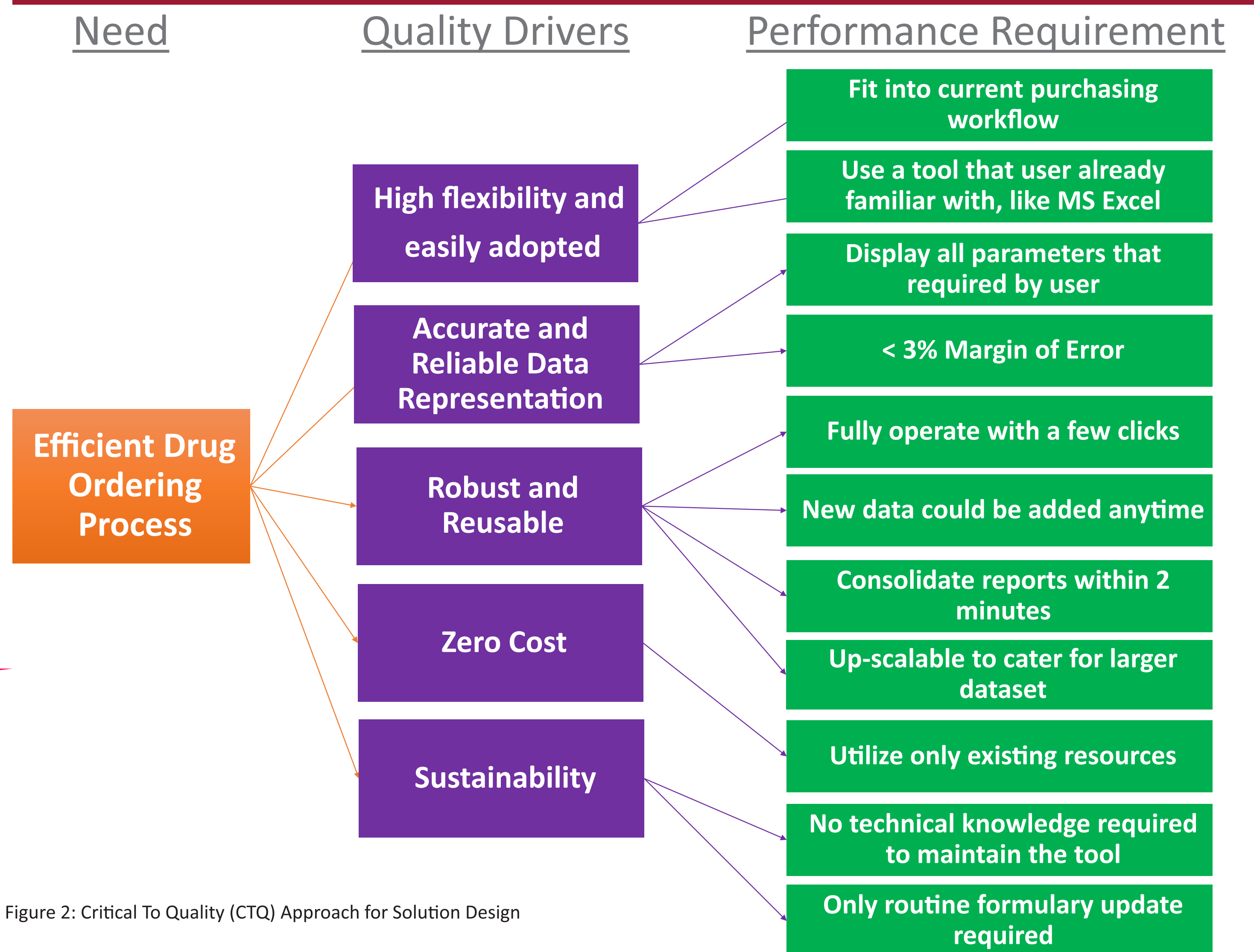


Figure 2: Critical To Quality (CTQ) Approach for Solution Design

THE DESIGNED TOOL

Filter by Day on Hand

Enables buyer to get the sense of urgency to replenish the products in context with the daily usage. This also indirectly serves as slow moving items indicator.

Highlight Items that hit MRP

Enables buyer to quickly identify items that are at the minimum order point (MRP) for timely stock replenishment.

Filter by Quantity on Hand

Enables buyer to filter through whole inventory based on quantity on hand to cater for day to day inventory control needs.

FEATURES

- ✓ Zero cost
- ✓ Fit into existing workflow
- ✓ User friendly with minimal learning curve
- ✓ Easy to use and maintain
- ✓ Intuitive interface
- ✓ Scalable
- ✓ Future proof
- ✓ Reduce risk of ordering omission

Limitations

- x Manual extraction of individual reports are still required
- x Data needs to be refreshed manually

Filter by item

Enables the buyer to display drug-specific usage to decide if the item is available for loan/sale for other institutions.

Items sorted by vendor

Collates stock by vendors to raise Purchase Order accordingly. This reduces number of purchase requests daily raised per vendor.

Items under MRP

Assists buyer in decision making by focusing on items that require more attention. The color-coding allows fast and accurate tracking of inventory status such as contrasting between quantity on hand and items with pending orders fulfillment.

Check if item is on order

RESULTS

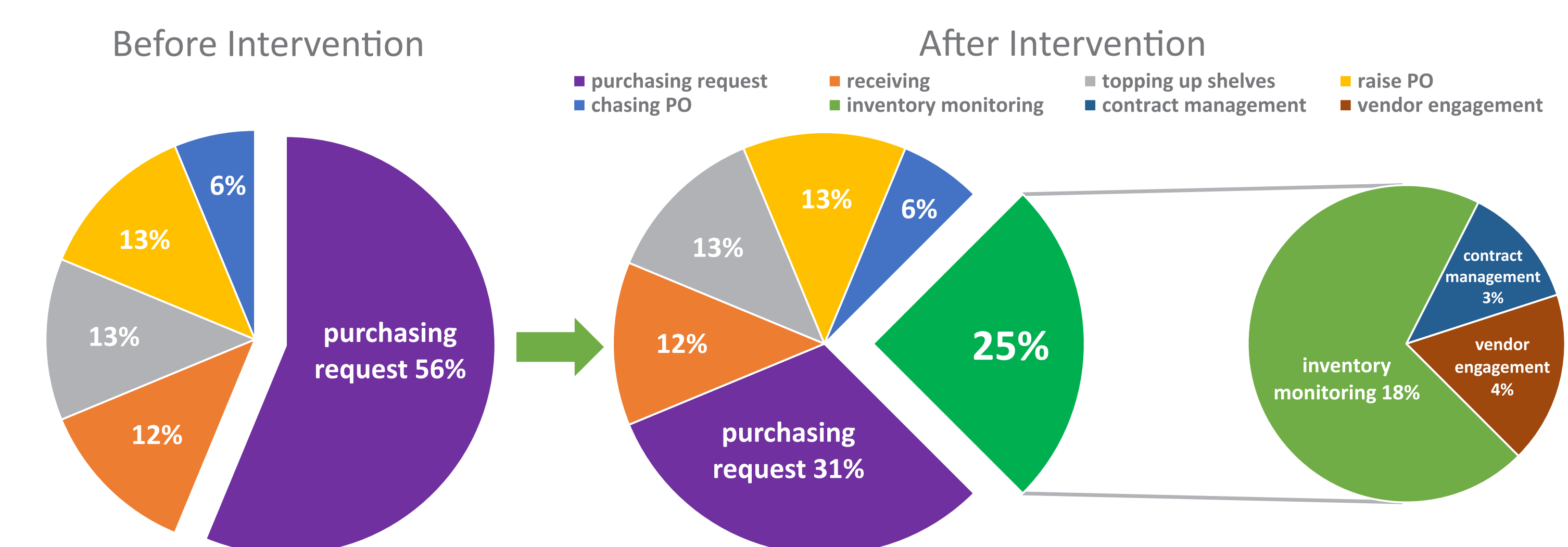


Figure 4: Pre and Post Implementation Outcomes

The pie chart above shows the daily distribution of activities for buyer over an 8-hour day. Percentages were calculated by using average time spent on each activity based on the drugs usage. After intervention, buyer is able to free up 25% (2 hours of the 8-hour workday) of working hours for other tasks.

POST-IMPLEMENTATION REVIEW

The tool was implemented in Apr 2018 with zero operational lapse during the integration phase. With the optimized workflow, a full list of drugs with quantity to be purchased can now be generated within **2.5 hours** as compared to **4.5 hours** in previous workflow. That is **44% reduction** in time-consumed, or equivalent to freeing up **10 hours weekly**. The buyer has shifted from being passively ordering to actively being able to maintain healthy inventory levels. On top of that, less contingency planning and remedial actions required for low or stock out drugs thanks to increased accuracy of drugs ordering. Emergency sourcing of formulary drug could then be avoided.

The productivity gains from the initiative has dual benefits; the buyer has more time to perform value added activities such as active inventory monitoring (stock rotation, inventory transfers and etc.), while contributing to daily operational needs. The buyer is also positioned to undertake a proactive stance for par level monitoring, contract management and vendors engagement.

Upon utilization of the tool, limitations due to the manual extraction of data was observed. Potential enhancements could be automated pulling of required data directly into the Excel via secured SQL query. This would help to fully utilize the benefits of a live inventory server.

CONCLUSION

Overall, with zero cost spent, the optimized workflow brings great value to the buying team as well as the organization. The productivity gained enables buyers to allocate more time to actively perform other value added activities and most importantly, buyers are satisfied with new process.