Visio Project

J. Embree

Department of Information Technology, SNHU

IT-200: Information Technology Fundamentals

June 29, 2025

Visio Project

Description

The Lost Pines Outfitters (LPO) store has a retail store as well as an online website, and both are stocked with inventory from the same warehouse. A point-of-sale system is used to collect data on store purchases, and the inventory database (connected to the warehouse) is updated weekly. One feedback loop occurs after the point-of-sale and inventory updates are processed in the inventory database, which eventually triggers the need for more stock to be ordered in the warehouse. The warehouse's inventory management cycle is a type of causal loop, where orders decrease stock, a low stock alert is triggered, and more stock is purchased (see **Figure 3**).

Online orders are processed directly through the warehouse, where items are collected and prepared for shipment. A single computer is used to track orders, find inventory locations, and update the inventory system. The fulfillment department then finishes packaging the orders and monitors and updates the delivery status in the system.

For either in-store or online orders, associates will send a "thank you" card with a request for a review. However, for in-store orders if the customer is a loyalty program member they will also be sent coupons for their next purchase. One feedback loop is created through sending the review request card and the customer leaving a review on the website. Another feedback loop is created through a loyalty member customer using a coupon that was sent after their purchase.

The following flowcharts and demonstrate LPO's retail store system (**Figure 1**) and the online website system (**Figure 2**). The third diagram represents the inventory management causal loop (**Figure 3**), a pivotal part of both the store and website systems.

Figure 1. LPO's Retail Store Purchase Flowchart.

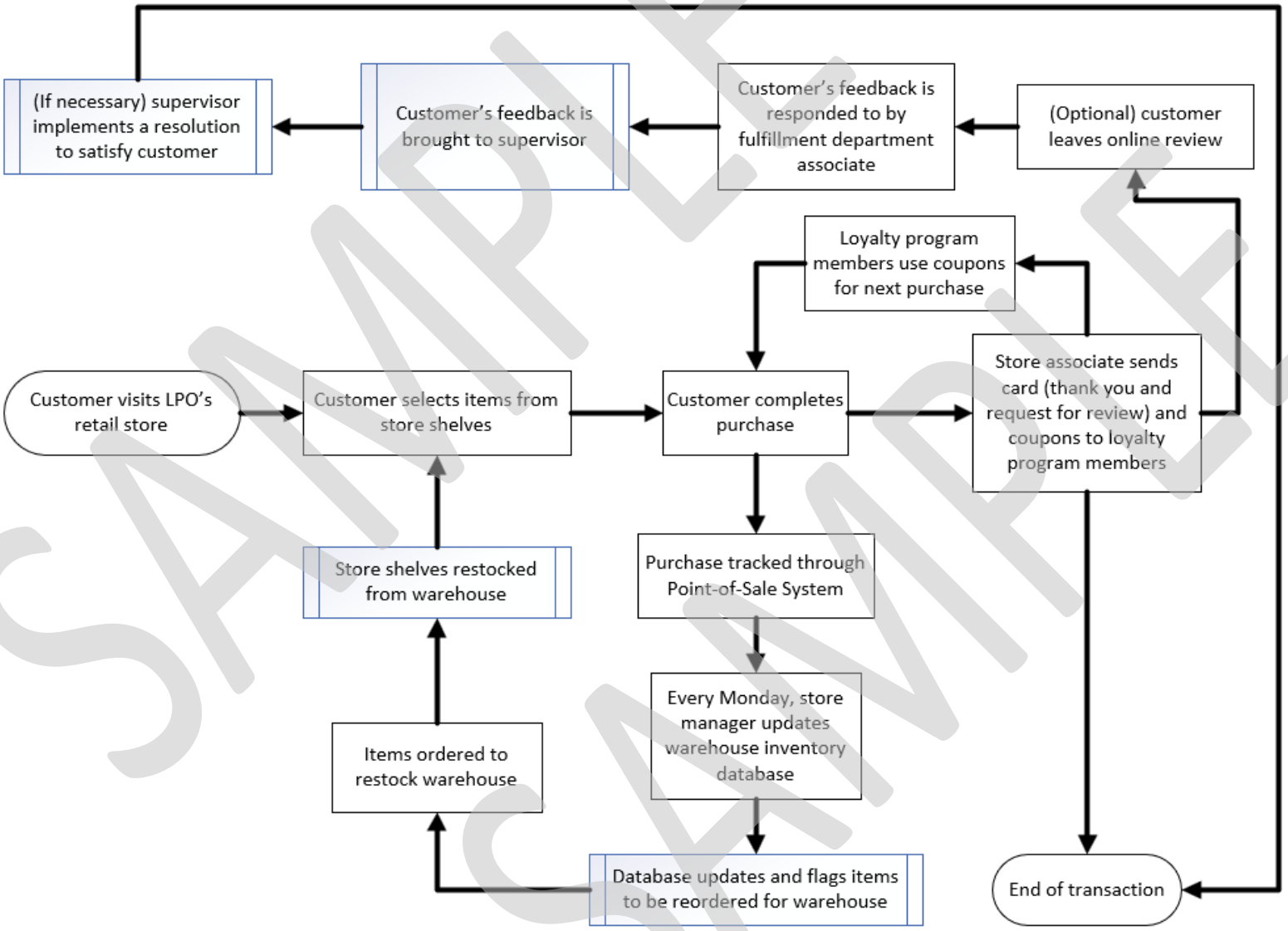
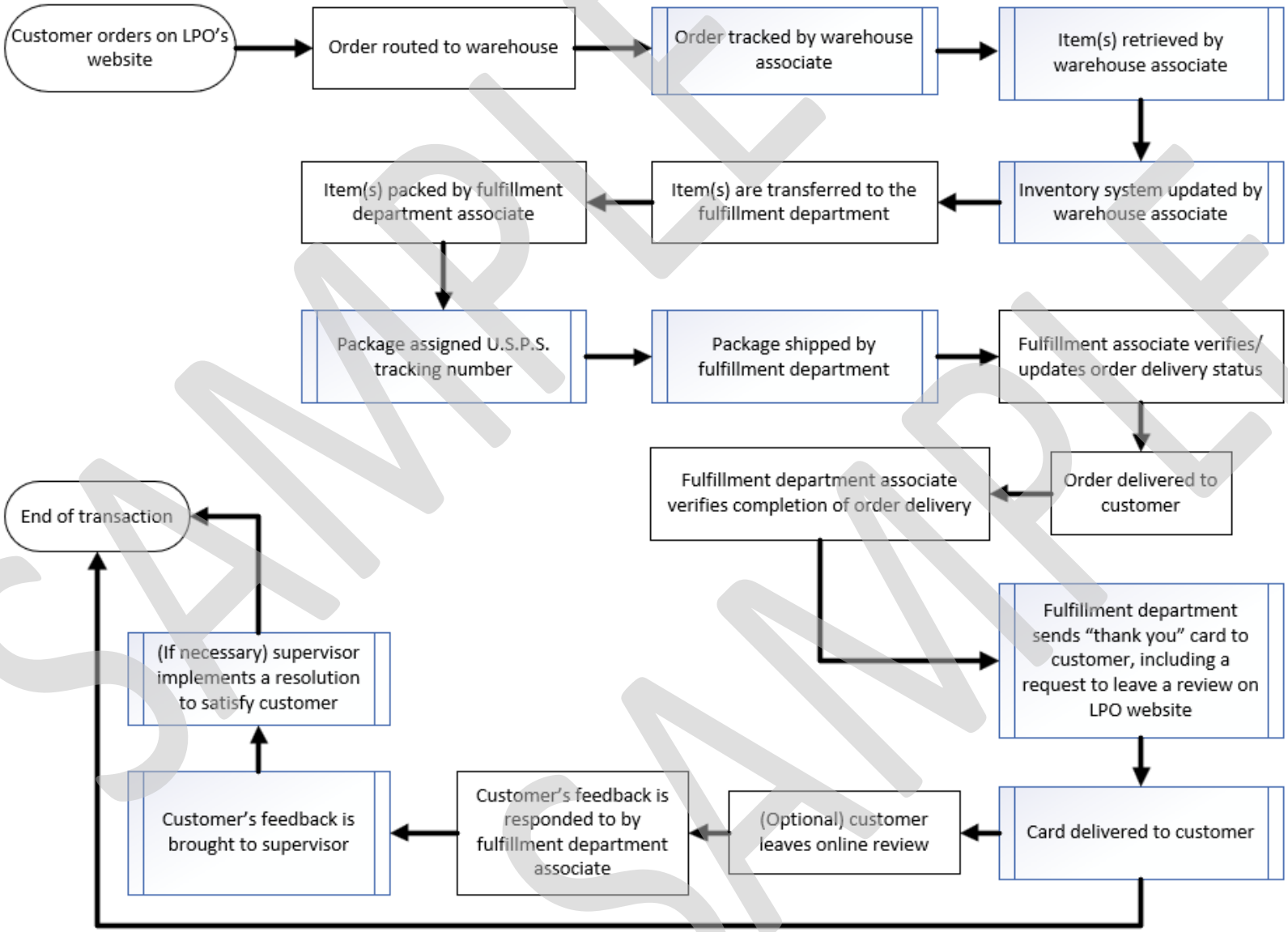
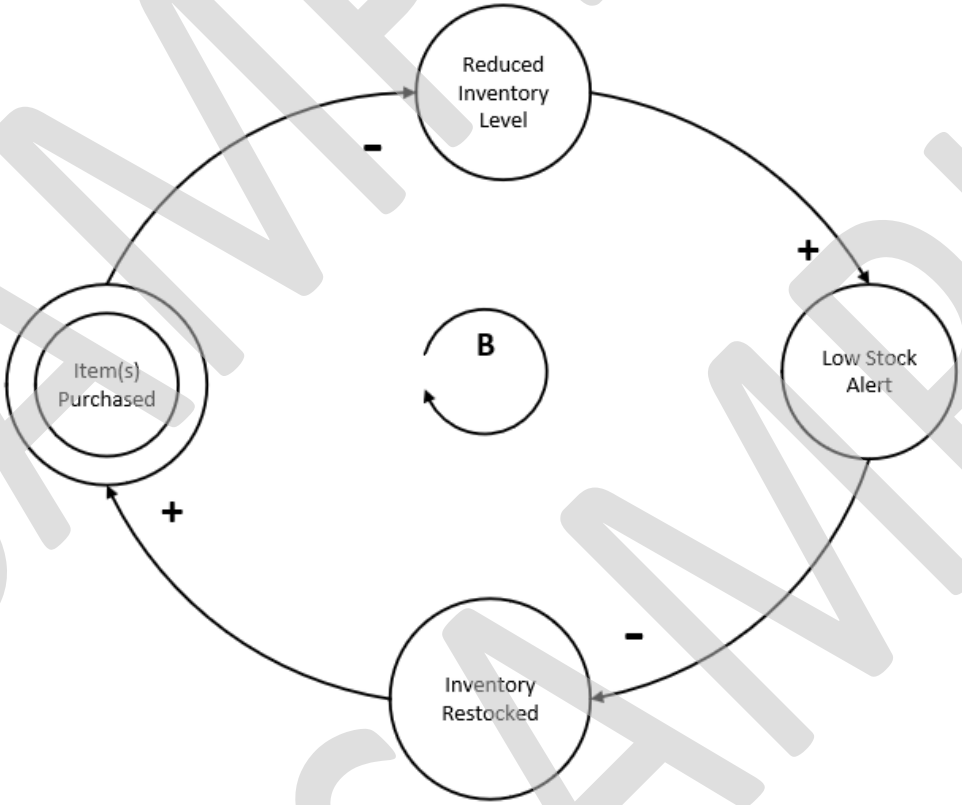


Figure 2. LPO's Online Purchase Flowchart.



The following inventory management causal loop is a balancing loop – purchases lead to reorders, and the goal is stabilization of the inventory levels. As items are purchased by customers (a negative stock adjustment), the reduced inventory level triggers a low stock alert (an increase or positive change). Inventory is reordered, to restock the warehouse and store supply (a positive change).

Figure 3. Inventory Management Causal Loop Diagram.



Recommendations

Inventory Discrepancies

One issue that has been discovered by the CEO, is that a lack of communication has created inconsistencies between the inventory database and inventory tracking system. This effects the store buyer from acquiring enough stock for the store. This may be caused by the store sales and inventory database updates being performed by the store manager only once a week.

Ideally, the updates should be performed at the end of every business day and through an automated system. Obtaining inventory management software such as Fishbowl would be beneficial since it can integrate with a variety of other platforms, such as Shopify, USPS, QuickBooks, and Adobe. (Fishbowl, 2025). Utilizing this software would improve overall efficiency, avoid discrepancies caused by delayed updates, and improve the inventory management balance causal loop (see **Figure 3**).

Inventory management software typically requires licensing with restricted user access. Therefore, a comparison analysis needs to be conducted to determine the most suitable option for the organization's size and operational needs.

Warehouse Computer

Another challenge is that warehouse associates only have one computer to process all orders, perform order tracking, and check and update inventory. This is extremely inefficient and causes unnecessary delays by associates being required to wait until the computer is available to complete tasks. Not only are online orders processed through the warehouse, but also the inventory needs for the physical store.

It would be best to purchase more computers for the warehouse, and install the appropriate software (order tracking, inventory database, and order fulfillment) on all computers. Depending on the size of the company and how many warehouse associates are employed by LPO, at least 3-5 more computers should be installed in the warehouse. No more than two associates should be expected to share a computer – this way when one person is using the computer, another person can be collecting items for an order from the

inventory shelves. This will temporarily increase the operating costs for the company, but in the long term it will enable more orders to be processed and encourage customer loyalty by providing faster service.

An alternative to using more computers for inventory tracking would be to install the inventory management app (such as Fishbowl Drive) on tablets or phones. (Fishbowl Drive, 2024). This would increase efficiency and decrease delays by allowing associates to use a portable device to check warehouse inventory and collect items for orders. When not in use the tablets must remain at visible stations within the warehouse, to minimize the potential for confidential data leaving the facility.

Other Recommendations

Instead of sending coupons through the mail to loyalty program members, it might be beneficial to ask for customers' email addresses and send coupons electronically. Also requests for customers to leave a review could be sent to their email address. This could be set as automatic emails and save employees' time. From a systems thinking viewpoint, this would reduce some feedback loops for both the store and online systems.

Recommendation Models

The following diagram demonstrates the Local Area Network (LAN) configurations for the LPO store and warehouse, and a Wide Area Network (WAN) connection between them. Both the store and the warehouse most likely have modems, firewalls, routers, servers, switches, printers, and a few computers. The store and warehouse both might require access to a virtual private network (VPN), to enhance security. The diagram also shows the addition of three more computers (or one computer and two tablets) to the warehouse, all with order processing and inventory database software installed. An online customer's connection to the LPO's website through the internet is also represented.

The final two flowcharts (**Figure 5** and **Figure 6**) show updated systems with the influence of automated software to assist with the inventory database and automated emails.

Figure 4. LPO Store and Warehouse Network Diagram.

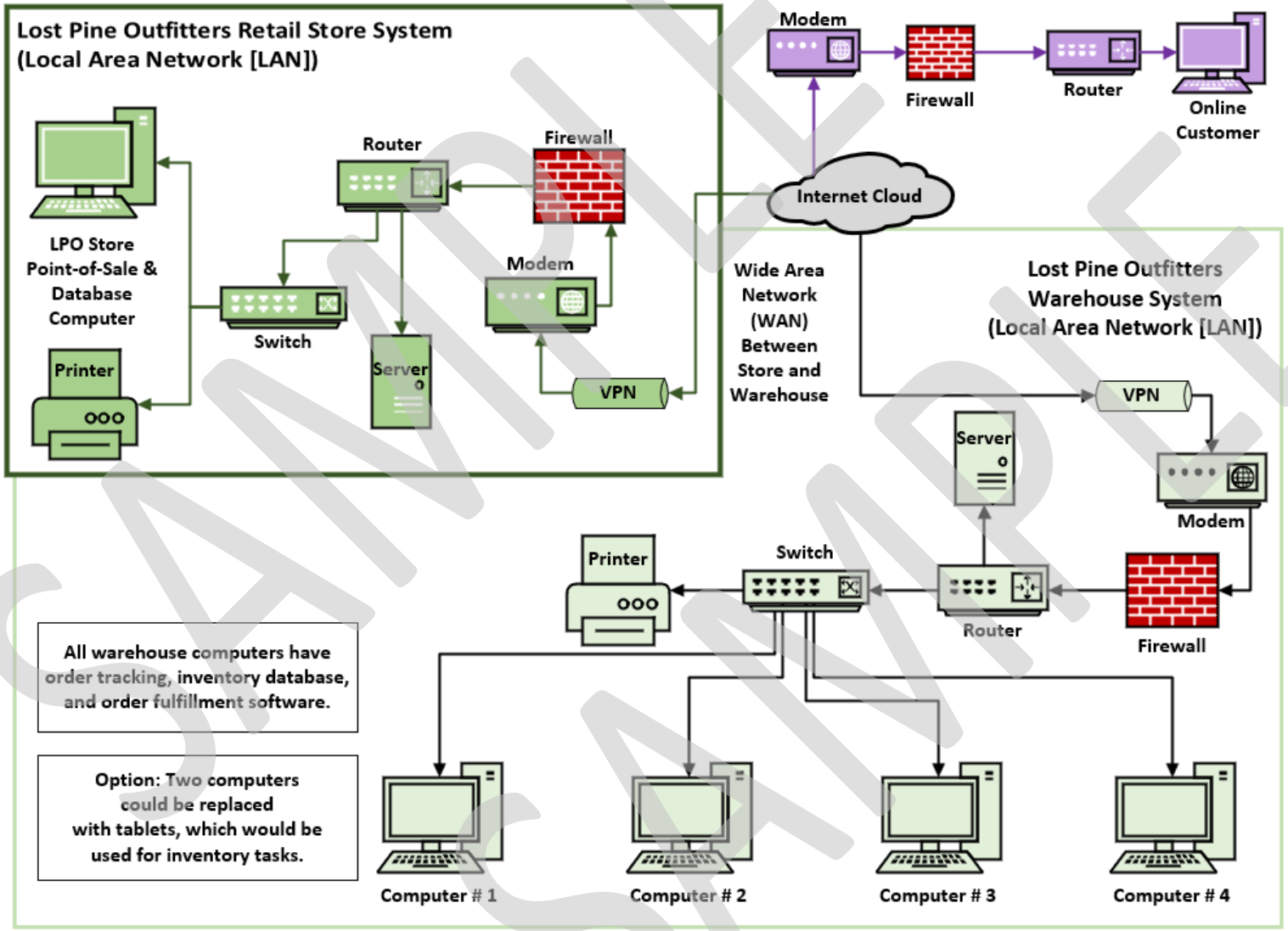


Figure 5. Recommended LPO Retail Store Purchase Flowchart.

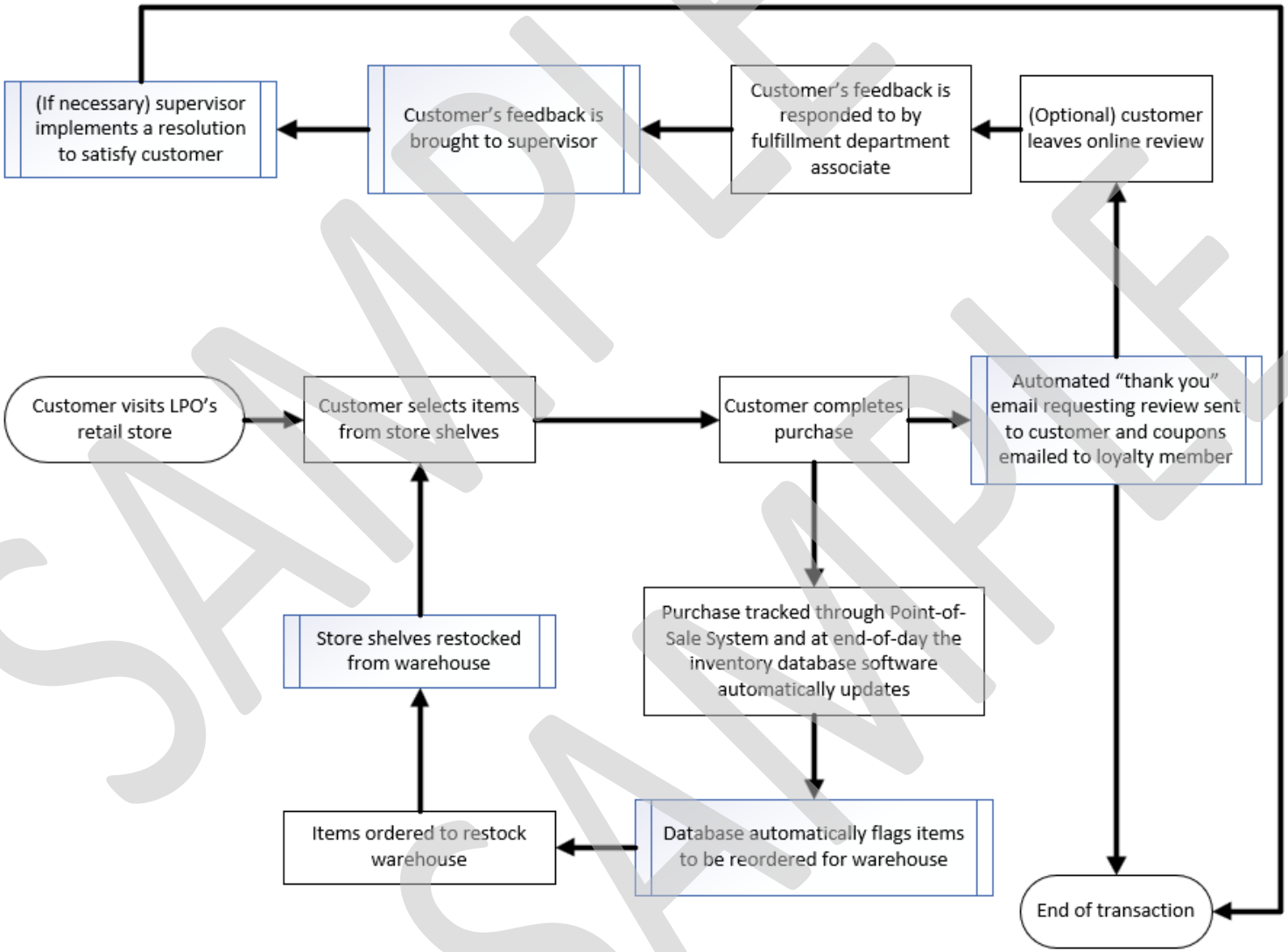
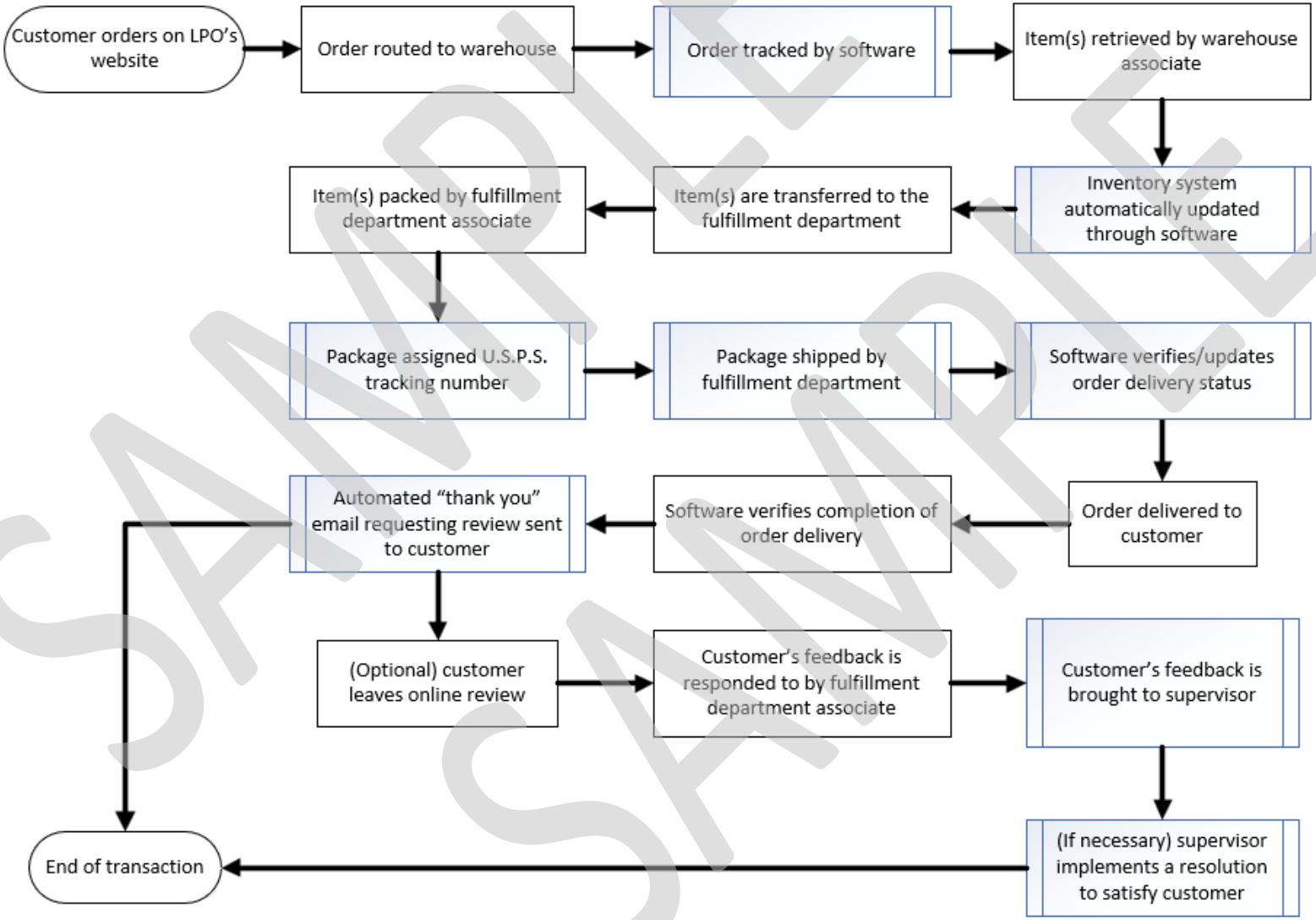


Figure 6. Recommended LPO Online Store Purchase Flowchart.



Conclusion

In a business environment, using systems thinking can diagnose areas for improvement, map behaviors, and encourage development. It helps to encourage thorough analysis of recurring situations instead of leaping to a conclusion. Systems thinking is a "diagnostic tool", that can be used as "a disciplined approach for examining problems more completely and accurately before acting." (Goodman, 2018). Some of the major themes of systems thinking include interconnectedness, emergence (outcomes), feedback loops, causality, and systems mapping. (Westover, 2021).

Feeback loop analysis is a great way to change or improve behaviors and systems through showing evidence, relevance, consequences, and action. (Goetz, 2011). Considering the feedback loops of the LPO systems revealed the need for inventory management improvements. Even without the instruction's issues statements (about inventory discrepancies and a single warehouse computer), systems thinking emphasized the need for solutions to these areas to decrease delays.

As shown in the previous flowcharts (**Figure 5** and **Figure 6**), by incorporating automated software into the systems, the feedback loops are not completely removed but merely condensed. Although these changes do not alter the underlying causal loop (**Figure 3**), they do result in improved inventory equilibrium Overall, utilizing systems thinking helped achieve a more streamlined approach to the LPO processes.

References

Fishbowl. (2025). *Fishbowl Seamlessly Integrates with Dozens of Software Platforms*. https://www.fishbowlinventory.com/integrations

Fishbowl Drive. (2024). *Cloud-Based Inventory & Warehousing*. YouTube. https://www.youtube.com/watch?v=2NeeJi2qDS8&t=82s

Goetz, Thomas. (June 19, 2011). *Harnessing the Power of Feedback Loops*. Wired. https://www.wired.com/2011/06/ff-feedbackloop/

Goodman, Michael. (2018). *Systems Thinking: What, Why, When, Where, and How?* The Systems Thinker. https://thesystemsthinker.com/systems-thinking-what-why-when-where-and-how/

Westover, Jonathan H. (December 10, 2021). *The Role Of Systems Thinking In Organizational Change And Development*. Forbes. https://www.forbes.com/councils/forbescoachescouncil/2020/06/15/the-role-of-systems-thinking-in-organizational-change-and-development/