

Auto-store Solution in HealthCare Distribution Facility

Problem Statement:

Delay in order fulfilments, error in delivery preparation, and warehouse space limitation in pick piece area are serious challenges in the operation of Healthcare distribution industry

Multiple consequence solutions were applied in the last decade in the main warehouse centers for one of the biggest Healthcare distributors in Saudi Arabia, the digital transformation started when deciding to initiate the first layer of the Automation by implementing Oracle Warehouse Management System, then moving to have semi-automated conveyor solution integrated to the running WMS to reduce the travel time within the warehouse and improve the accuracy and the team productivity.

Despite all the above effort the market expectation tremendously increased, demanding faster order fulfilment for common and urgent patient requirements that include live saving cases.

Existing researches, and advancement in the technologies provides a wide range and variance type of trending automation solutions. However, in the same time it raises many concerns and indicated challenges that could cause a delay to move forward with the automation such as big investment cost, team resistance, expected integration and cyber security issues.

Therefore, clear need for research to evaluate and explore the possibility of utilizing the Auto-Store solution in the new mega Distribution Center located in Riyadh city to be one of the first of its kind in the region. The study tried to balance between the conceptual benefits mentioned in the published papers, and the actual implementation with real customer reference that prove the case and confirm the potential ROI that could convenes the business owners to fund and support the project

Trend of the Industry

The automation is not an option any more, and the global warehouse automation is expected to exceed 41 billion USD by 2027 (McKinsey - 2023), hence, automation is not an option and must occur but definitely in the correct manner, and following the right approach to avoid impacting the sensitive healthcare operation.

As mentioned in the submitted literature review that Inventory volume and inventory complexity were identified as the main driver to accommodate the automation, along with the organization internal capabilities and external demands that jointly shape the logistics automation approach (A Study on the Application of Logistics Automation in the Healthcare Industry)

Moreover, some of the reference researches clearly highlighted that the gained precision of the automation in Healthcare sector increased by 40% which is one of the ultimate goal here. (Recent Advances and Challenges in Industrial Robotics: A Systematic Review of Technological Trends and Emerging Applications)

Research Objective

The research aims to solve and accelerate the operation of the order fulfillment process cycle, improve the space utilization along with the accuracy of the picked material that's critical for healthcare patients

1. To review the related recent studies and researches, their recommendations and encountered challenges. The main purpose is to count on formal references prior to move to the selection and to figure out the best in class solution that would definitely improve the process and still fulfill the SFDA requirements to keep the products and batches physically isolated
2. To assess the different options, and ensure the selected solution is the best fit for the healthcare industry, and piece picking scenarios
3. To Validate the current implementation of auto store solution, and quantify the outcomes based on real live scenarios avoiding any assumptions or hypothetical expectations
4. Consider the frequently highlighted market challenges in the previous papers that include slow adoptability, team resistance and long term ROI
5. Identify the key operational success factors, the reliability of the solution, and compatibility to integrate with the current version of Warehouse Management System to avoid any hiccups or surprises at later stage

The overall objectives are aligned with the highlighted challenges in the problem statement, elaborating the current status que and what could be offered to bridge the gap and deliver the right solution considering many business concerns

References:

McKinsey & Company. (2023). Automation in logistics: Big opportunity, bigger uncertainty

Hanna Kwak 1, Thai-Young Kim 2,* and Dong-Hyeok Lee 2. A Study on the Application of Logistics Automation in the Healthcare Industry: Exploratory Qualitative Research. <https://www.mdpi.com/2673-4117/6/9/205>

Claudio Urrea *ORCID and John Kern. Recent Advances and Challenges in Industrial Robotics: A Systematic Review of Technological Trends and Emerging Applications. <https://www.mdpi.com/2227-9717/13/3/832>