

ERP Recommendation: Hupp Aerospace/Defense

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Project Description

In this project, our team was asked to recommend a best-fit Enterprise Resource Planning (ERP) system for Hupp Aerospace/Defense. ERP software is used to manage and coordinate resources and activities across a business, including sales, inventory management, and finances.

Company Background

Located in New Haven, IN, Hupp Aerospace/Defense employs more than 35 people in the sale and assembly of aerospace maintenance and electrical interconnect kits. Hupp's customers include both government agencies and private organizations.

Hupp's products include kits for aircraft such as the UH-60 and CH-47 helicopters, and Hupp holds an ISO 9001: AS9120B quality management certificate. In keeping with this requirement, Hupp must be able to document the procurement and distribution of thousands of individual components in more than 100 customizable kits as shown in the images below.

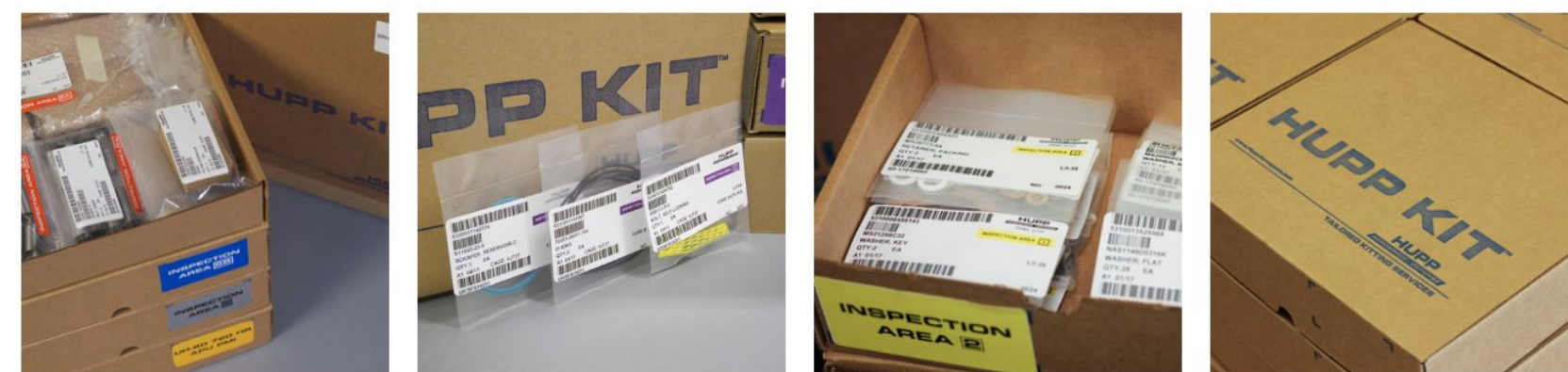


Figure 1: Sample aerospace kits (huppaerospace.com)

Project Background

Hupp's current ERP system, Quantum, has proven to be woefully inadequate, requiring significant workarounds and wasted time. For this reason, Hupp is interested in a new ERP which can provide real-time inventory tracking and barcoding, a complete accounting system, seamless use of multi-level BOMs, and other features which are required by their operations or would significantly increase efficiency.

Hupp plans to introduce a new ERP system by the end of 2023, and have made a preliminary survey of potential options. Hupp now requires more detailed information on the specific capabilities of each potential ERP system, to determine whether it suits their business and is economical.

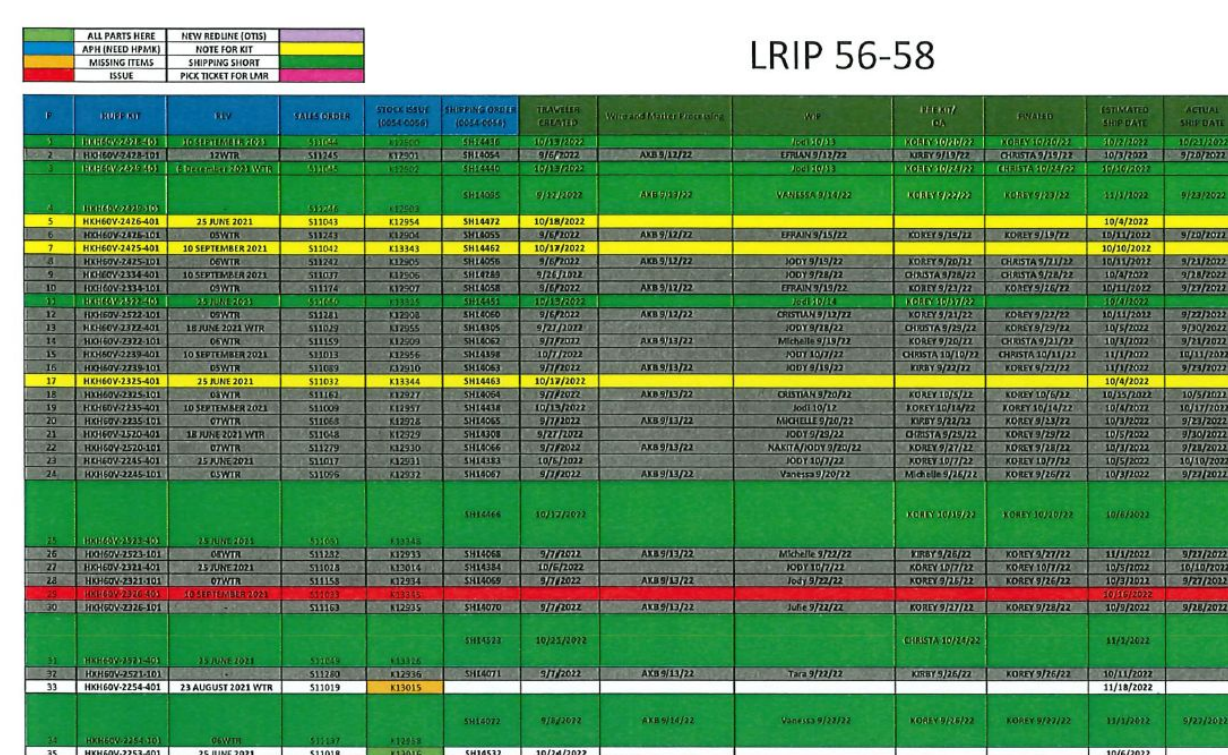


Figure 2: Order tracking workaround

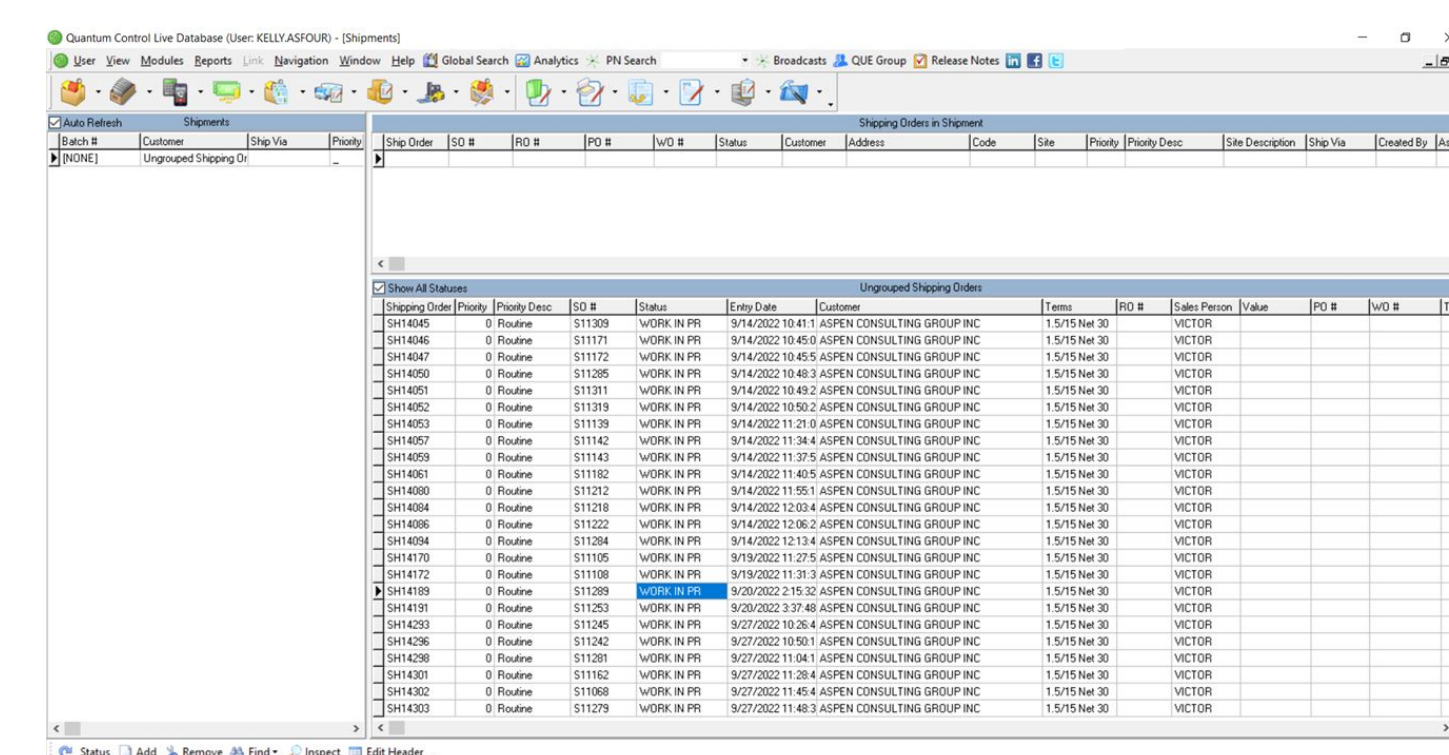


Figure 3: Quantum user interface

Methods

Our team divided the project into two phases. In the first phase we conducted a site visit and video meetings with Hupp employees to understand Hupp's processes and requirements from a new ERP system. A summary of our research is shown in the Findings section below.

The second phase consisted of research on candidate ERP systems including a list provided by Hupp and others found during online research. Based on each ERP vendor's website, our team identified candidates for further study in which case we contacted the company to speak with a representative about detailed features of the ERP.

During these meetings, we evaluated the ERP system against Hupp's requirements and scored each feature from zero to five. Each feature was given a weight out of 100, and the system's total score equalled the sum of each features score multiplied by its weight. Additionally, an ERP had to include all critical features to be considered for recommendation. The scoring system is shown in Table 1.

Table 1: ERP Scoring Criteria

Feature	Scoring Weight
Accounting reports with FIFO costing	12*
Support kit-based BOMs	12*
Track inventory real-time	12*
Serial number traceability	6*
Sales/CRM capability	10
Order processing workflow	10
BOM revision/comparisons	8
Custom attributes/reporting	10
Shipping/labeling function	4
Other	16

Note: Asterisk on scoring weight indicates critical feature for candidate ERPs

Findings

Table 2: Summary of Hupp's ERP Requirements

Department	Work Activities & Tasks	Priorities for new ERP
Sales	Generate quotes/sales orders from customers	Improved data entry, visibility, and transfer
Order Mgmt & Procurement	Process vendor quotes and purchase orders, create production documents	Improved stock issue process, deconflict inventory, order revisions
Production & QA	Pick, pack, inspect, and ship orders	Component barcoding, shipping, order status
Misc. (inc. Finance)	Track costing and improve process efficiency	FIFO COGS, automated order workflow, reporting

ERP Recommendations

Acumatica

- + All important functionalities present, in user-friendly interface
- + Variety of options for cloud and non-cloud implementation
- + Manufacturing module offers improved version of many relevant features
 - + Highly capable barcoding module
- High annual fee (esp. if all desired modules are licensed), but possible long-term savings due to flat unlimited-user pricing

MIE Trak PRO

- + Detailed multi-level BOM functionality
- + Extensive CRM functionality with custom online reporting for customers
 - + Full accounting packing and quoting feature
- + Customizable interface and reporting within module structure
 - Pricing per user could significantly expand costs over time

DEAR Systems

- + Streamlined user interface and workflow
- + Flexible integration with 3rd-party software
- + Customizable reporting and visualization
- + Low cost while meeting all requirements from Hupp
- Cloud-only model limits interface customization to Hupp's processes



Conclusions

Over the last twelve weeks, our team attempted to analyze the production system used by Hupp Aerospace and apply a process improvement through the recommendation of the above ERP systems.

Due to the significant flaws in the current Quantum system, all of the recommended ERPs should provide a substantial improvement for Hupp estimated at over \$150,000 of value, but there are some limitations to our project that should be considered.

First, our team did not have an opportunity to directly use either Quantum or other ERP systems. Our research of ERPs also relied on salespeople with a strong incentive to bias information presented. Additionally, we could not recommend several potential systems since the vendors chose not to communicate sufficiently with our team. Finally, comparison of ERPs was done primarily by subjective evaluation due to the nature of the systems.