

SOLVE FOR X.

Planning and Implementing Your Automation Needs

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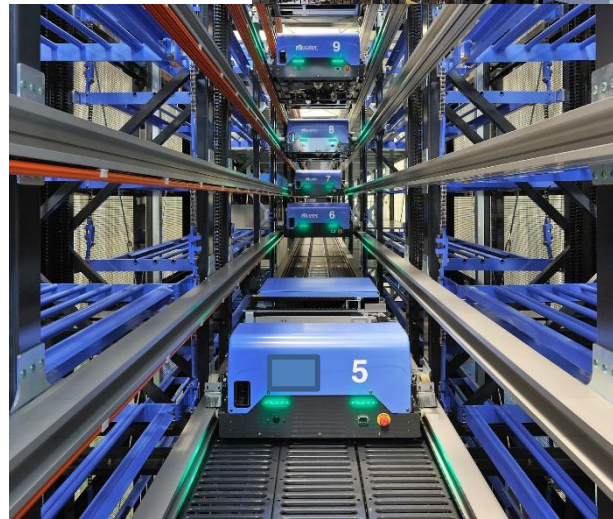
muratec

MURATA MACHINERY USA, INC.

SOLVE FOR X.

What's the **benefit** to using automated warehouse systems?

- *High performance* operation
- *High quality* operation
- *Low cost* operation



Benefits to Automated Storage System:

- 25% productivity improvement
- Requires as little as 1/7th of original footprint
- Elimination of Offsite Storage
- Visibility & Accessibility of all SKUs/items at one point
- 99.9+% inventory accuracy

What's the **RISK**

to using automated warehouse systems?

- If the commercial distribution changes
- If the machine stops





What's the **RISK**
to using automated warehouse systems?

- If the commercial distribution changes
 - > *You can keep using the system effectively
if you have a **flexible system plan***
 - > *You can meet future volume needs
if you have an **expansion plan***

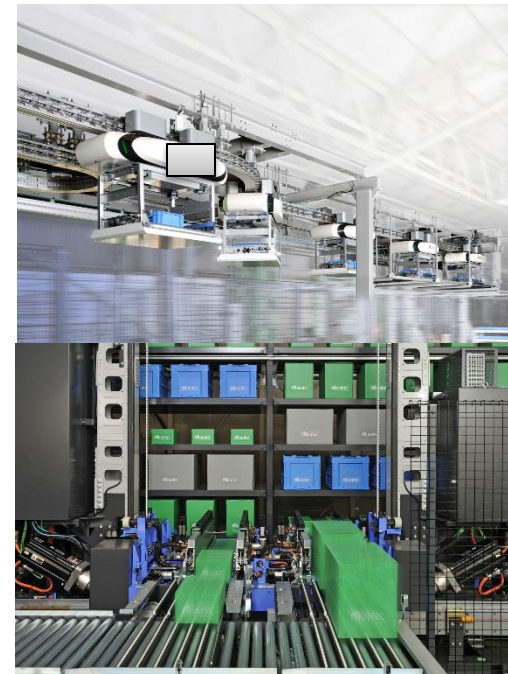
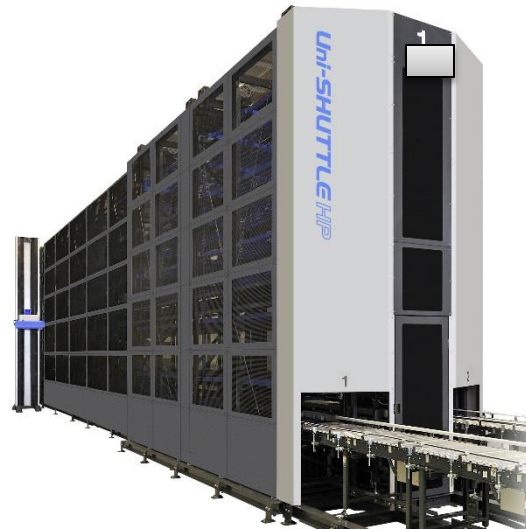
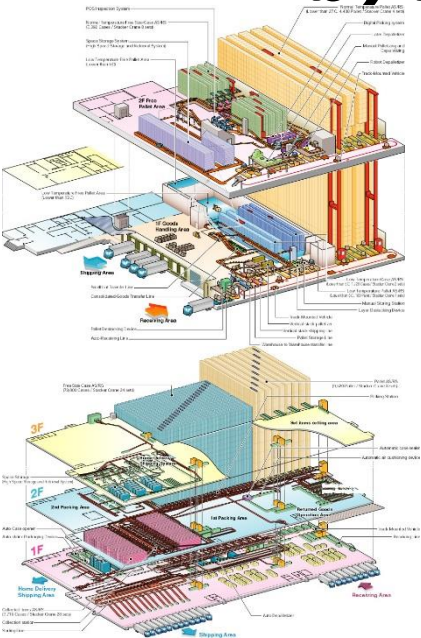


What's the **RISK**
to using automated warehouse systems?

- If the machine stops
 - > ***You can keep your business' operation going if you have a **back up plan*****
 - > ***You can avoid stopping production if you have a **good maintenance plan*****

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How can you create a beneficial automated warehouse system with low risks?
We will provide you with some solution ideas by introducing a few case studies.



KTH Parts Industries

KTH Parts Industries is a Tier-1 Automotive Supplier, for underbody structural parts, providing automotive components to companies worldwide.

Phases of automotive parts they are involved in include:

- Product development
- Product analysis
- Product formability
- Prototyping
- Production Stamping
- Forming
- Robotic Welding
- Assembly
- And Shipment of parts worldwide

System Location
St. Paris, Ohio



SOLVE FOR X. Case Study

KTH Parts Industries

The problem: Not enough storage to supply all of their parts and inventory at their main location.

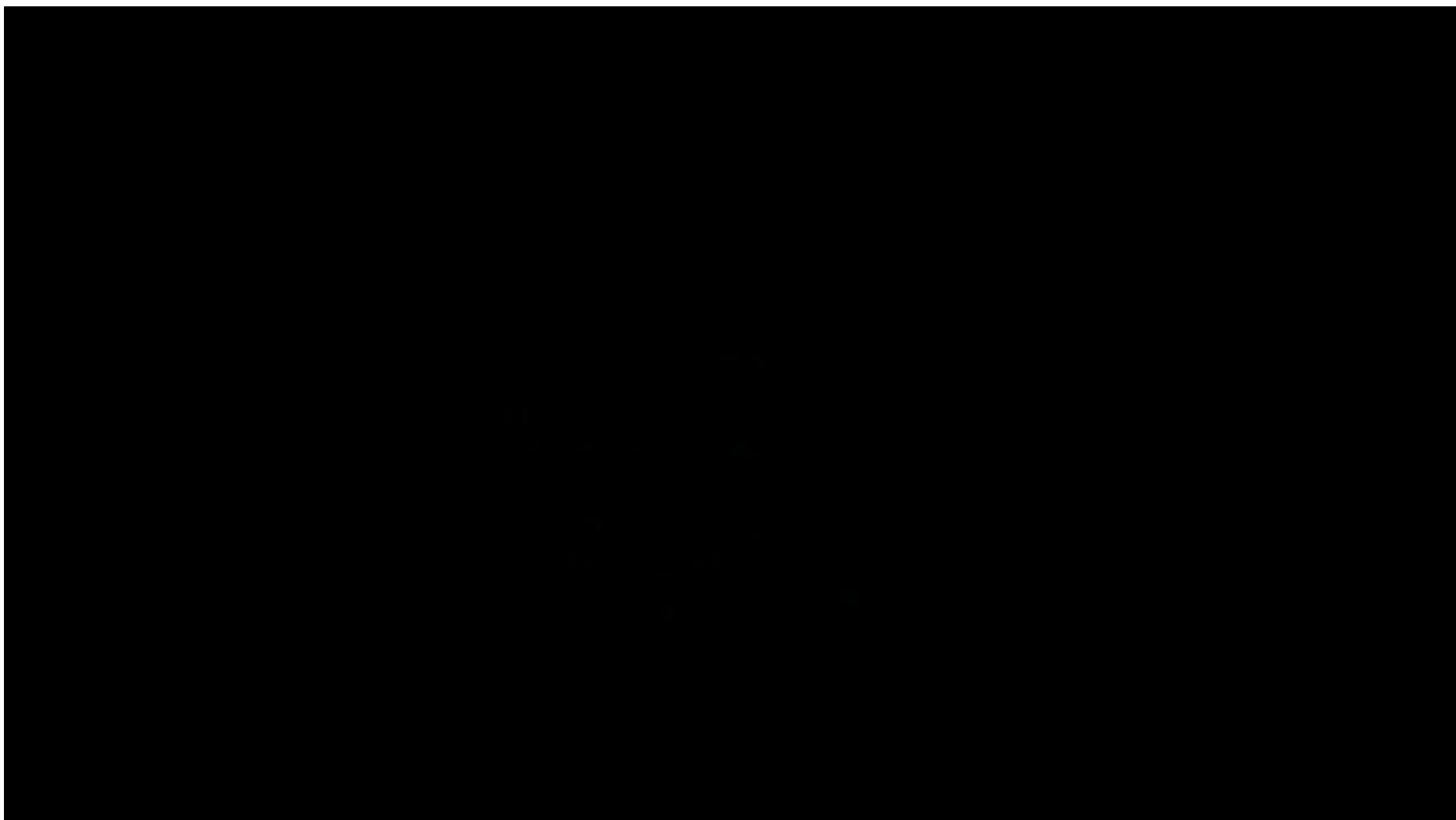
Solution: A 6-aisle automated storage retrieval system

This decision was based on:

1. Total storage capacity
2. System throughput
3. Adjacent available land for the expansion



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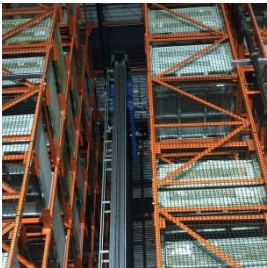
Jr. ASRS crane aisles
3,440 locations



KTH Parts Industries

Area left open for
future expansion
868 locations

4x4 ASRS aisles
3,472 locations



Inbound area



T-Car

Outbound area



RTNX



Building Construction started November 2013 and was completed May 2014
ASRS installation began April 2014 and was completed November 2014
Building = 21,720 square feet

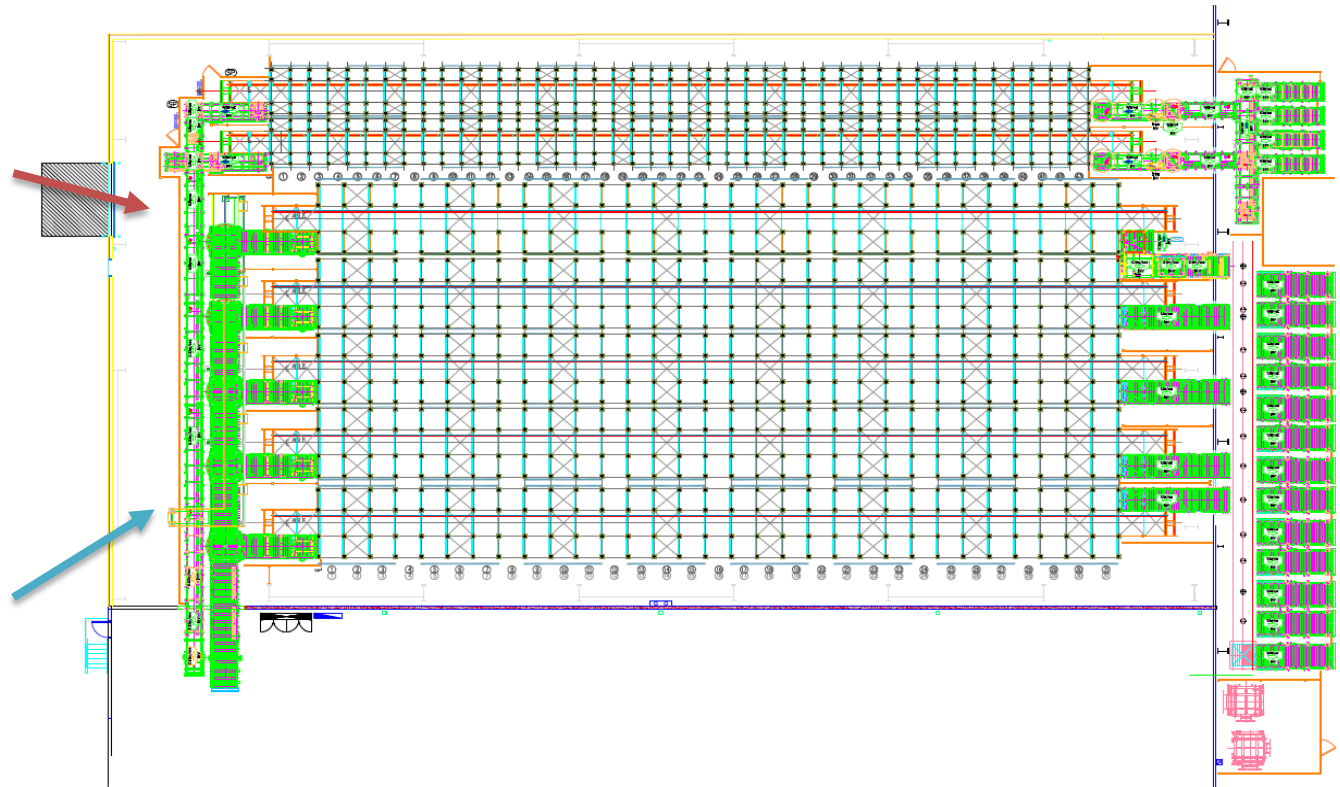
KTH Parts Industries

1. Flexible system plan

The number of cranes in action can be adjusted based on system needs

Round robin into 1 of 2 crane aisles which gives KTH the ability to pull parts from another cranes if 1 crane goes down

Round robin into 1 of 5 crane aisles which gives KTH the ability to pull parts from 4 other cranes if 1 crane goes down

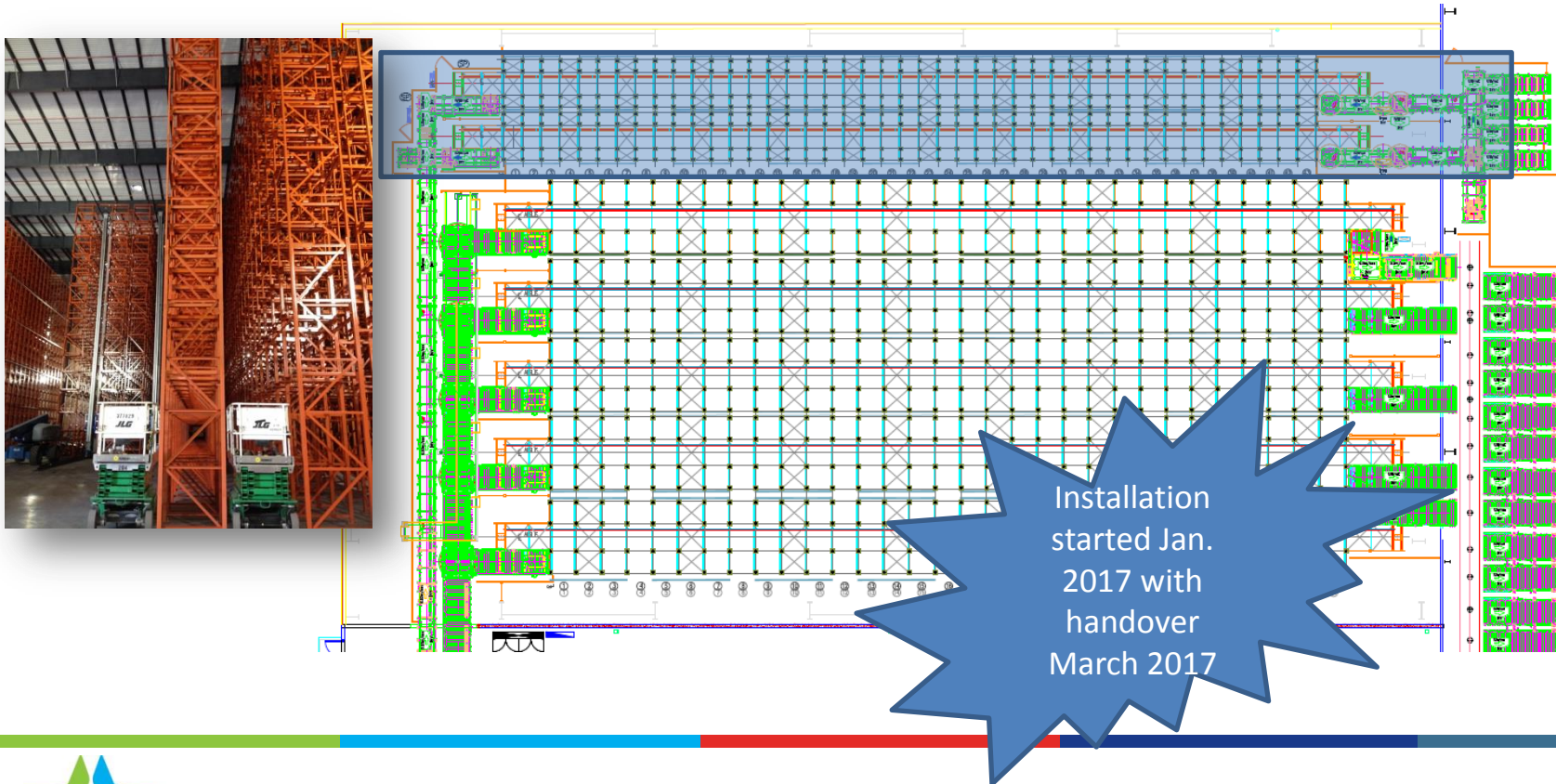


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KTH Parts Industries

2. *Expansion plan*

With early planning for future expansion, in August of 2016 KTH decided to add the 5th 4x4 crane aisle, adding 868 new locations



Plexus

Established in 1979, Plexus Corp. delivers comprehensive end-to-end solutions for customers around the world. Plexus is a leader in providing electronics design, manufacturing and aftermarket services to companies with mid-to-low volume, higher complexity products. We have been delivering these comprehensive Product Realization solutions to our customers for more than 35 years.

System Location
Neenah, WI

Specializing in the following markets:

- Industrial/Commercial
- Healthcare/Life Sciences
- Networking/Communications
- Defense/Security/Aerospace



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SOLVE FOR X. Case Study

Plexus

The problem: Maximize manufacturing footprint in new Neenah Operations facility.

Solution: Single aisle double deep storage retrieval system

This decision was based on:

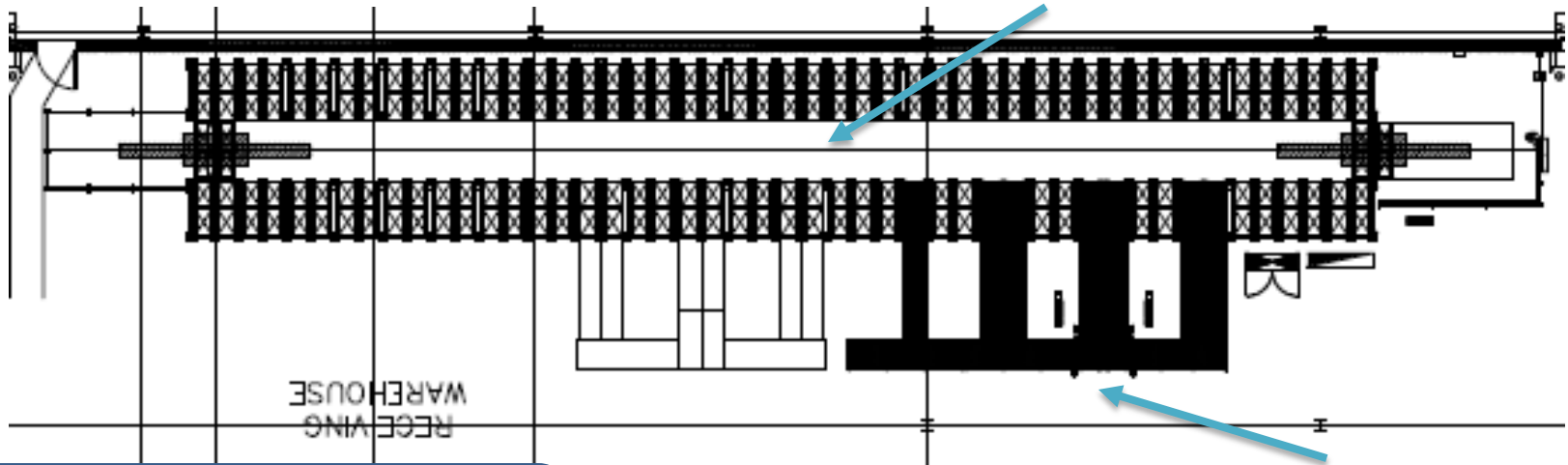
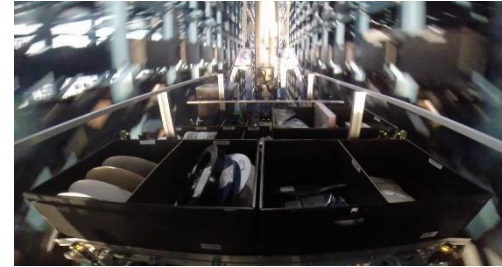
1. Productivity improvement
2. Inventory storage density
3. Limited footprint requirements



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Plexus

ASRS crane aisle
3,608 locations
20,000+ items



Over 20,000 items stored in compact footprint.

Input & output loops



SOLVE FOR X.

Plexus

1. Flexible system plan

Hot Pick
Workstation

If an item is needed right away,
then a hot pick / bypass zone is
available.



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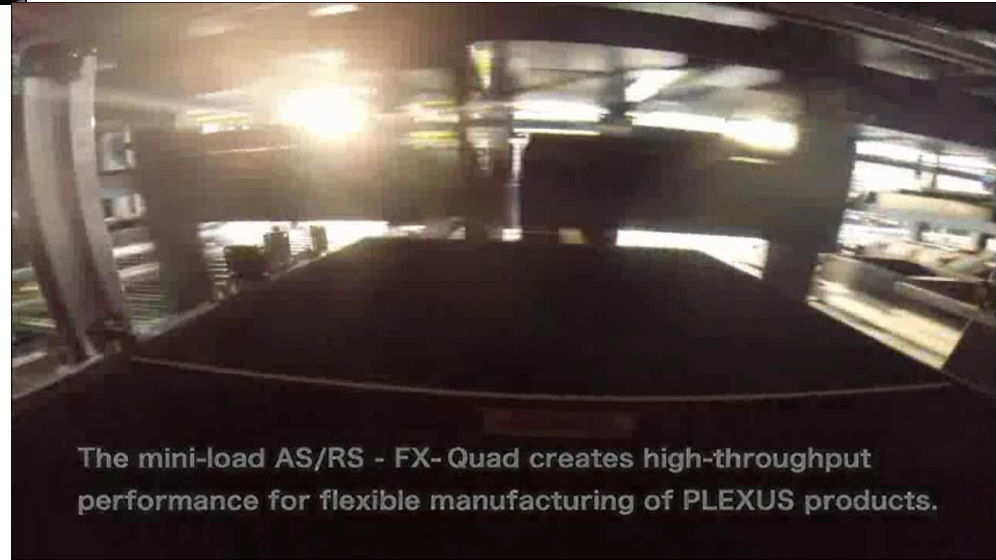
Plexus

2. Productivity Improvements

“...saves everybody 2 hours of walk time in an 8 hour shift.”



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Plexus

3. Total Project Results

The AS/RS at Plexus is the winner of AMER Region Best Technical Project for 2014.



Liberty University

Located in Central Virginia, Liberty is a liberal arts institution with 16 colleges and schools and offers programs in fields such as education, counseling, religion, law, aviation, cinematic arts, business, and more. Part of the Big South conference, Liberty fields 20 NCAA Division I athletic teams and 37 Club Sports teams, offering you an exceptional college sports experience.

Liberty graduates are sought after by prestigious companies for their integrity, personal discipline, and versatility. They are confident and competent, ready to make a lasting impact on their profession and their community.



SOLVE FOR X. Case Study

Liberty University

The problem: Not enough floor space/storage

Solution: 3 aisle, single-deep pin-extraction system

This decision was based on:

1. Limited footprint requirements
2. Time savings
3. Inventory & access control

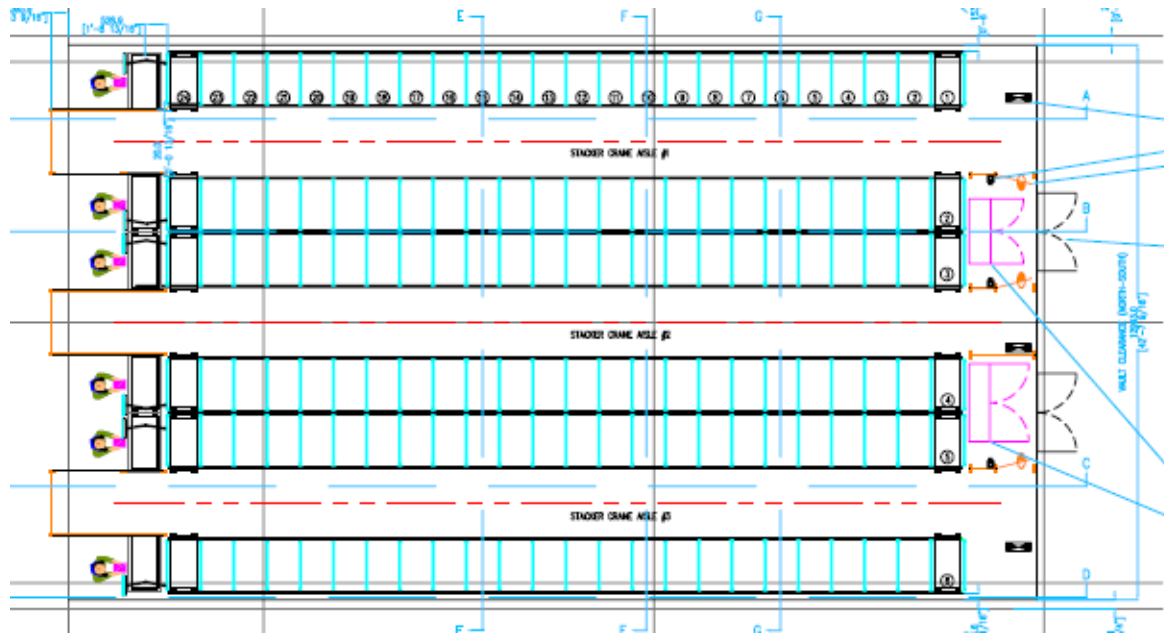


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Liberty University – document management system



Over 4,000 locations with over 400,000 items stored in compact footprint.



3 aisles – 4206 locations

750 lb. load capacity

11 operator work stations

3 vertical lifters

Warehouse control system

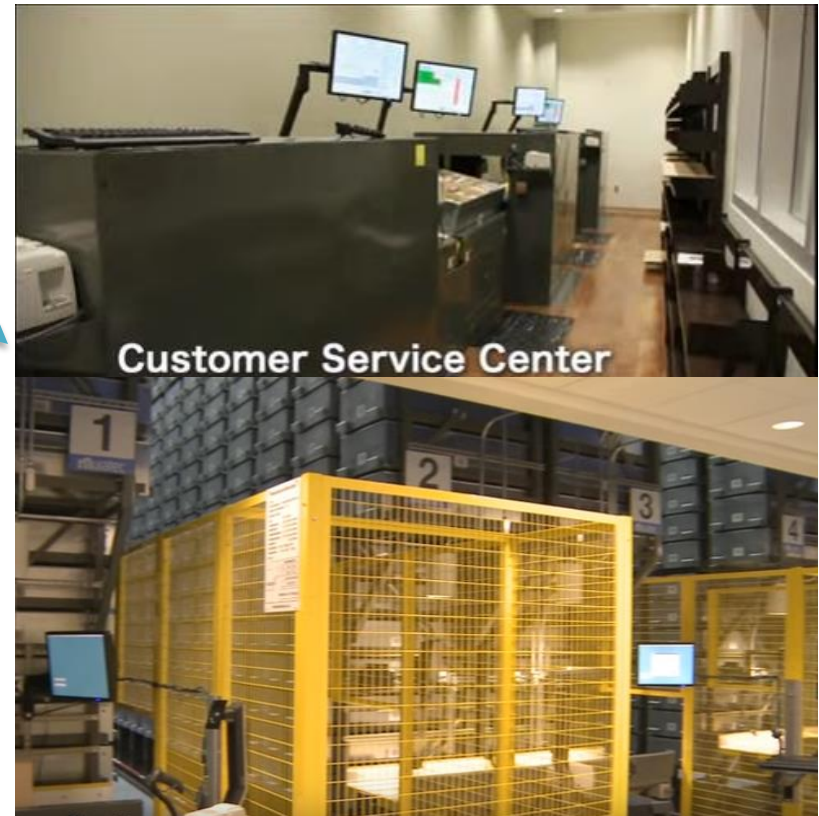
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Liberty

1. Flexible system plan

Customer Service
Center & Work
Station Center

Multiple access
points for loading and
retrieving – 2 levels



Liberty

2. *Productivity Improvements*

1. Operators load and retrieve from centralized access points

2. Items are always at an ergonomic level

3. Improved inventory access control



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Customer Service Center



Storage Station

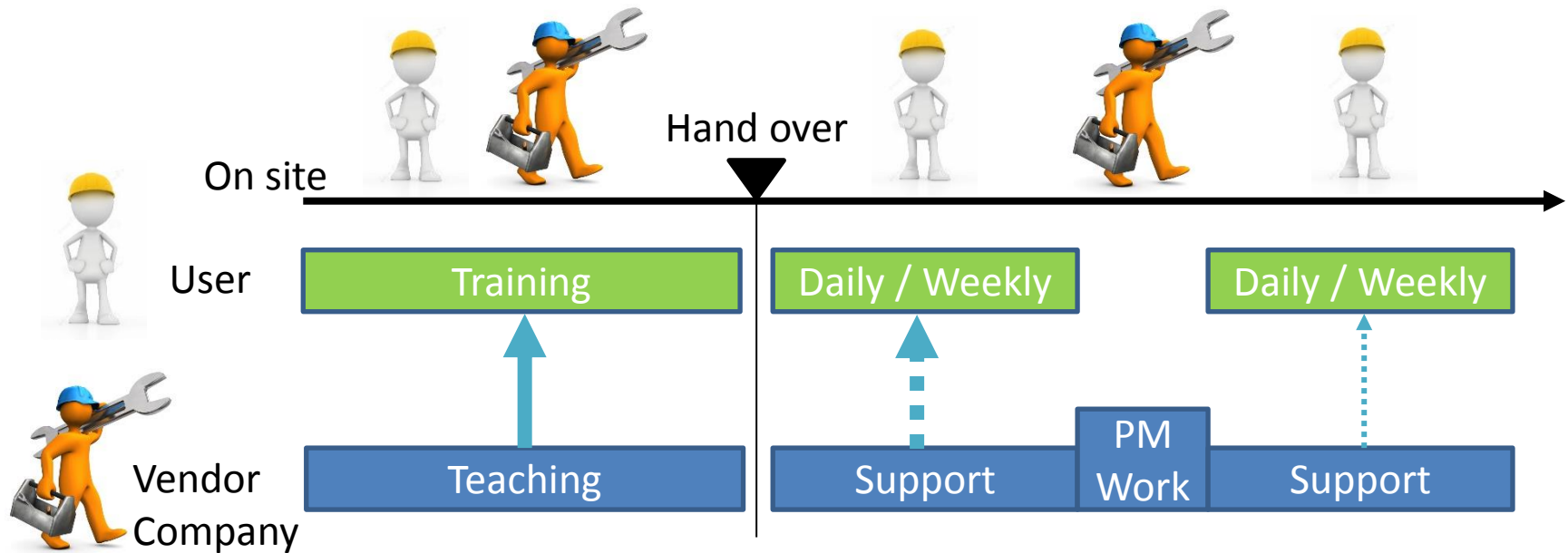


SOLVE FOR X. Case study

KTH, Plexus, & Liberty

4. *Good maintenance plan*

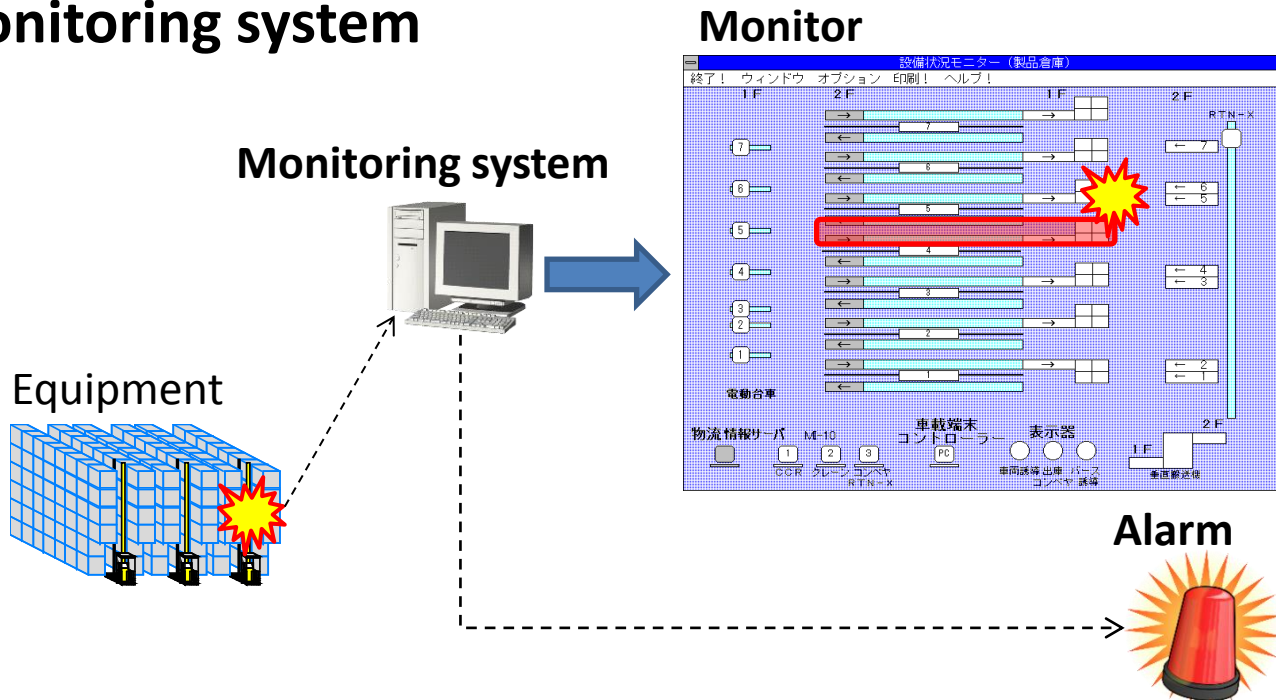
Partnership between the user and the vendor company



SOLVE FOR X. Case study

KTH, Plexus, & Liberty 4. *Good maintenance plan*

Monitoring system

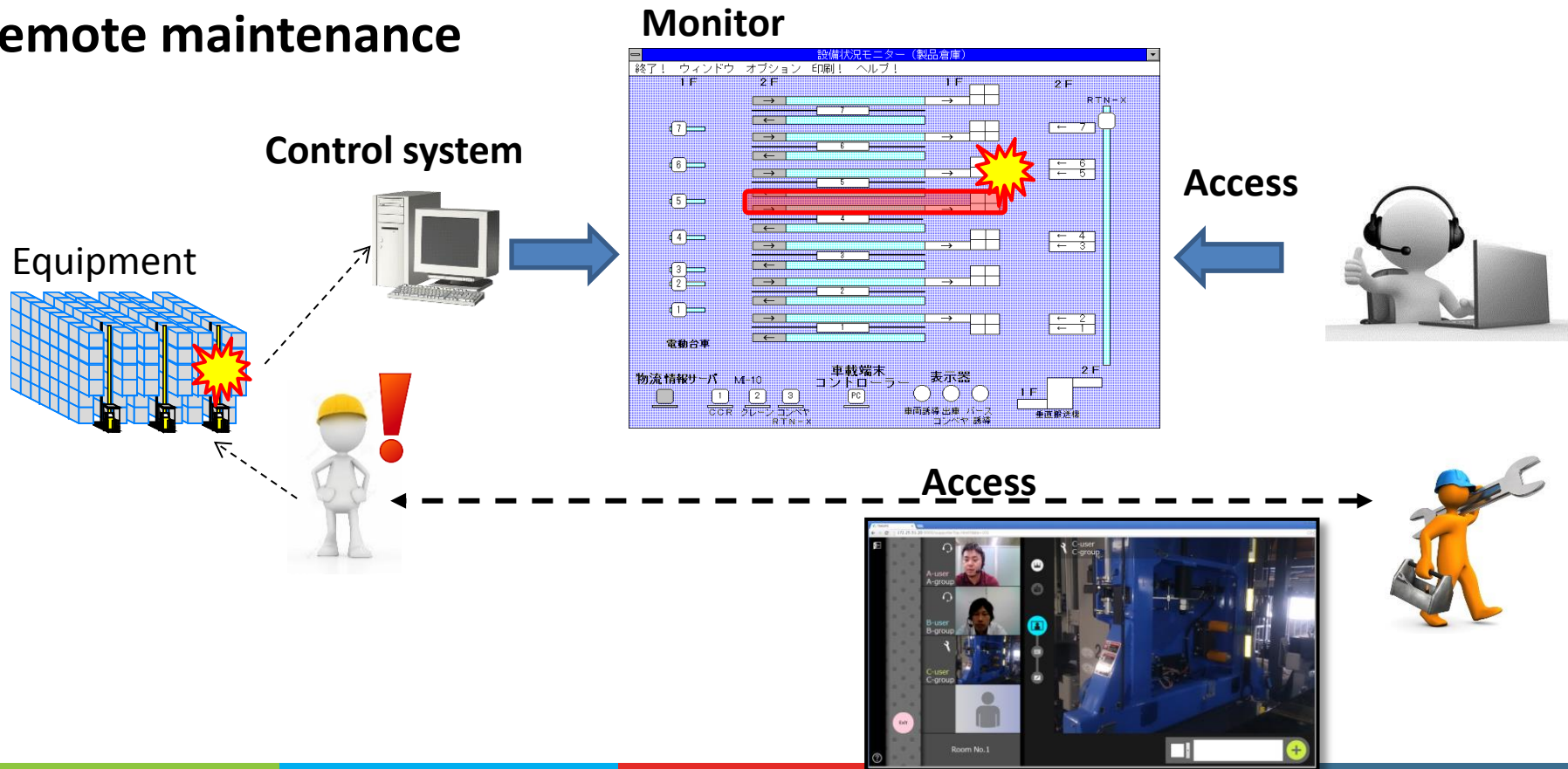


SOLVE FOR X. Case study

KTH, Plexus, & Liberty

4. Good maintenance plan

Remote maintenance



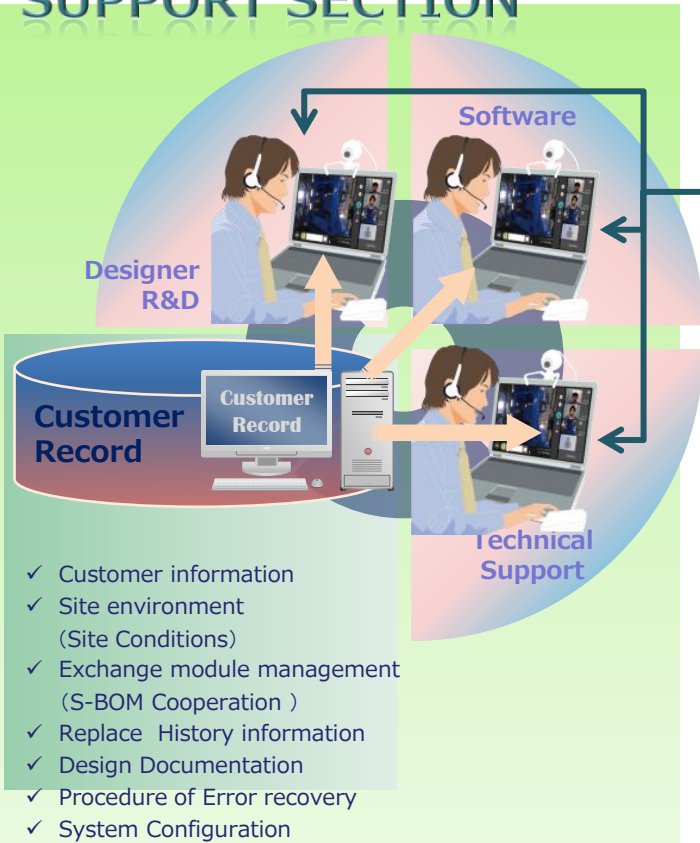
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Remote Site Manager

People and people of remote communication system

- The site and field engineers, technical support and software engineers, designer, R&D (such as the technical expert) can all remote in at the same time for logistical support. Each of the experts can support the fieldwork as if they are there, to achieve a quick solution to the problem.

SUPPORT SECTION



CUSTOMER SITE

Voice Chat

Multiple voice conversation

Text Chat

Text conversation that does not miss the important conversation

Field engineer

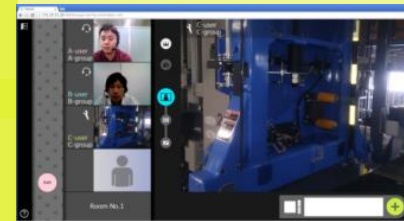
Wearable Solution

Live Chat

Live video field situation

White Board

To understand and use the documentation and on-site



Use the Tablet PC / smart glass in accordance with the work



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Questions?

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