

# Warehouse Automation Introduction



**WMS / Reuse Component / OODM**



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**Company Outline**  
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**Personal Organization**  
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**Business Area**  
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**Automated WMS or Manless WMS?**  
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**Purpose of AWMS and MWMS**  
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**Solution Introduction**  
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**MAGIC-I Constitution**  
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**MAGIC-I Functions**  
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**Application scale & effect**  
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**Solution Applicable Objects**  
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**Configuration**  
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**Operation Flow**  
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**Project References**  
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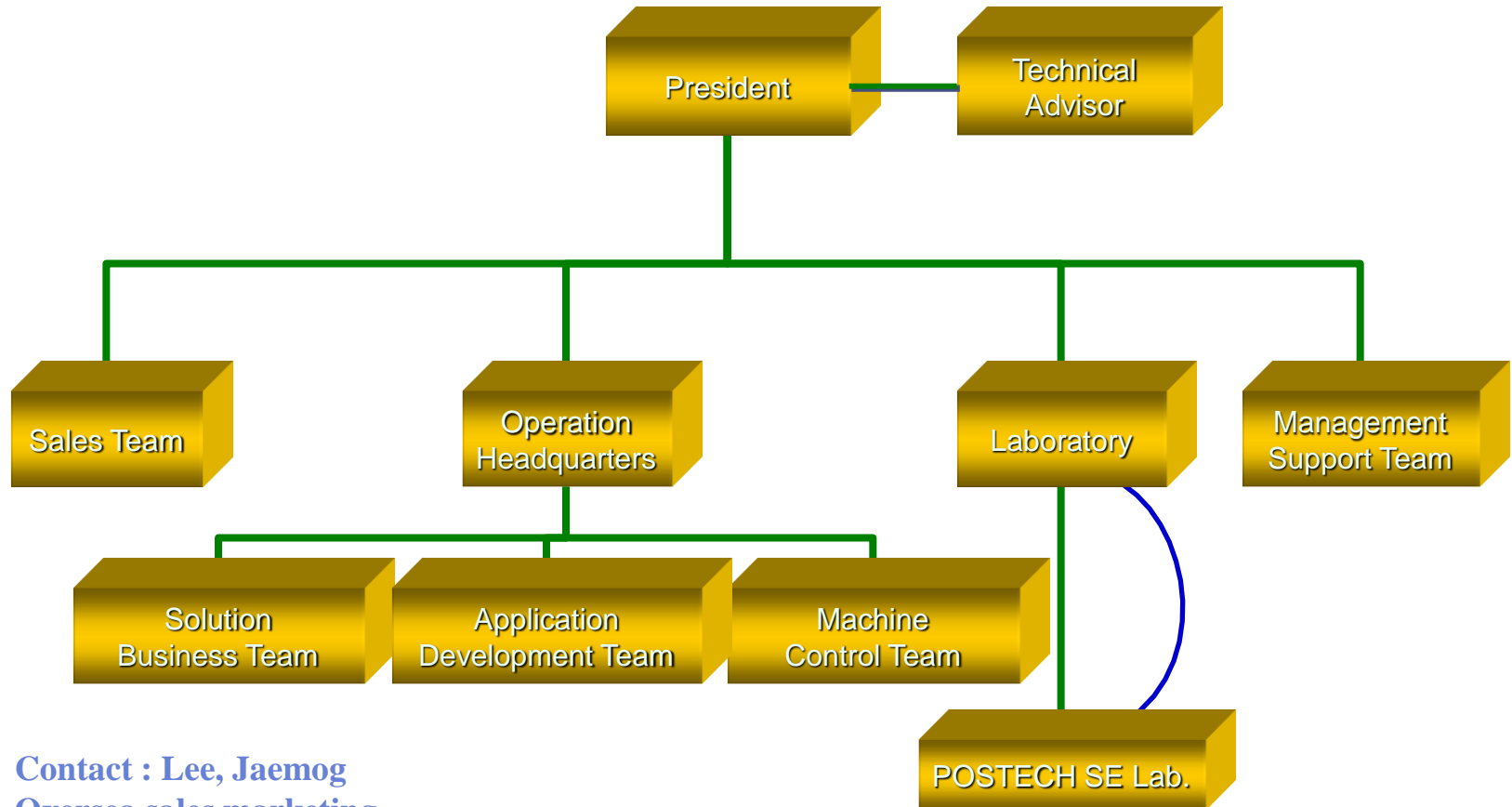
# Company Outline.

USING TECHNOLOGY  
REUSE COMPONENT

<b>Company Name</b>	<b>USINGTECH Co., LTD</b>
<b>Business Date</b>	<b>From 1999Year 11Month 01Day</b>
<b>Business No.</b>	<b>506-81-39832</b>
<b>President</b>	<b>Lee Jae Mog</b>
<b>Head Office</b>	<b>790-826, 3floor, Korea Rural Community Corporation, Saecheonnyeon-daero 422beon-gil, Nam-Gu, Pohang-city, Gyeongsangbuk-do, KOREA</b>
<b>Factory</b>	<b>790-834, 301 Room, 2th Laboratory, 394, PohangTP, Jigokro, Nam-Gu, Pohang-city, Gyeongsangbuk-do, KOREA</b>
<b>Contact</b>	<b>☎ +82 54-231-3500~1 Fax : +82 54-231-3506</b>
<b>Business Part</b>	<b>Automatic Material &amp; Machinery Control System / Consulting</b>
<b>Employee Count</b>	<b>23 Person</b>
<b>Homepage, E-mail</b>	<b><a href="http://www.usingtech.co.kr">http://www.usingtech.co.kr</a>, <a href="mailto:tree@usingtech.co.kr">tree@usingtech.co.kr</a></b>

# Personal Organization

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## Electrical Control & Warehousing & Manufacturing

### Warehouse Management

WMS Solution : MAGIC-I  
Warehouse Simulator  
POP Solution : MAGIC-P  
MES Solution : MAGIC-M

## Object Oriented Development Methodology

### OODM

Re-use Development  
methodology  
Object Oriented  
Development Methodology  
Re-use Development area  
Tools

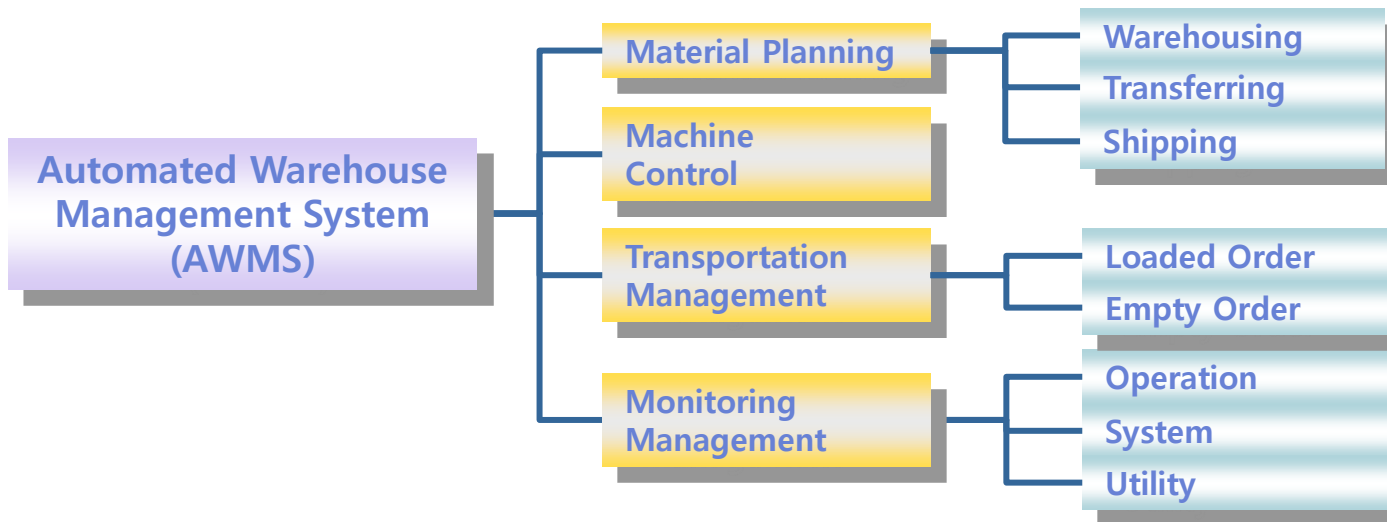
## Consulting

### Consulting

Warehouses and logistics  
automation construction.  
POP  
MES  
Re-use Object Modeling  
Re-use Component

# Automated WMS or Manless WMS?

- **Automated** Warehouse Management System(AWMS) : Intelligent and Integrated System interworking with Production Process to manage **Material Plan and Machine Control, Transportation Management, Monitoring, Etc.** for Warehouse and Warehouse-to-Warehouse Distribution

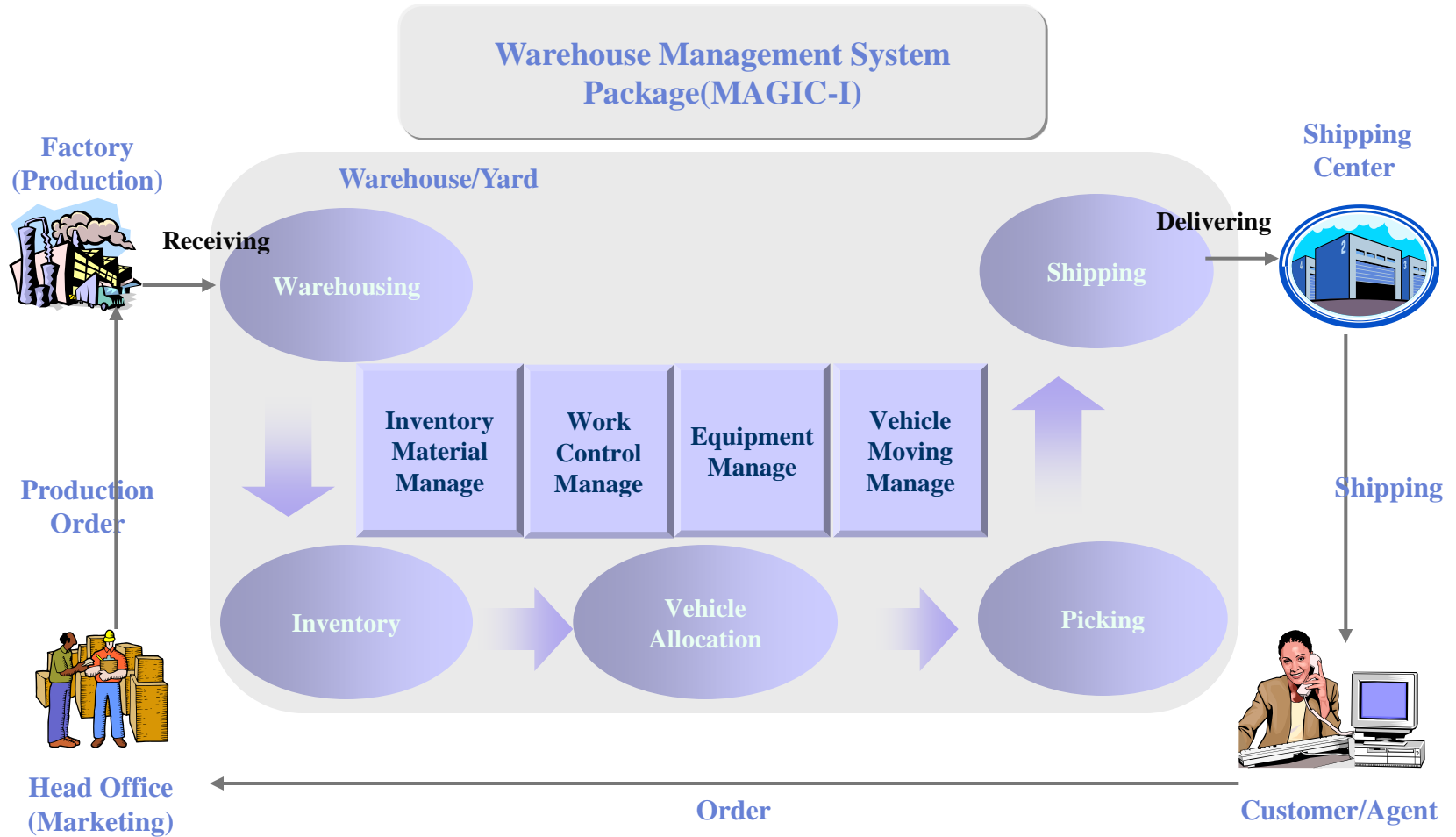


- **Manless** Warehouse Management System(MWMS) : **Manless Distribution Management and Manless Transfer Machine Control System** by Automated Warehouse Management System
  - Transfer Machine : Crane and Transfer Car, Roller Table, Etc.

- **Productivity Improvement and Manpower Reduction**
  - ☞ A Fast accurate Stock Management by Warehousing and Shipping Management System
    - Remove of Handwritten Works and Stocktaking Works, Printing
  - ☞ Manpower Reduction as Automated Warehousing and Shipping, Work-in-Process Stock Management by System
  - ☞ Manpower Reduction as Manless Control for Transfer Machine by System
    - Transfer Machine : Crane, Transfer Car, Conveyor, Roller Table, Etc.
  - ☞ Minimax of Production Delay as A fast accurate Material Supply
    - ☞ Productivity Improvement
- **Quality Improvement**
  - ☞ Production Quality Improvement by Accurate Material Supply
  - ☞ FIFO System for Minimax of Quality Debasement caused by Supply of Long Time Material and Product
- **Stock Reduce**
  - ☞ Minimax of Stock as A fast accurate Material Supply and Product Delivery
- **Customer Satisfaction Improvement**
  - ☞ Product Reliability Improvement and Delivery Period Reduction as A fast accurate Product Delivery

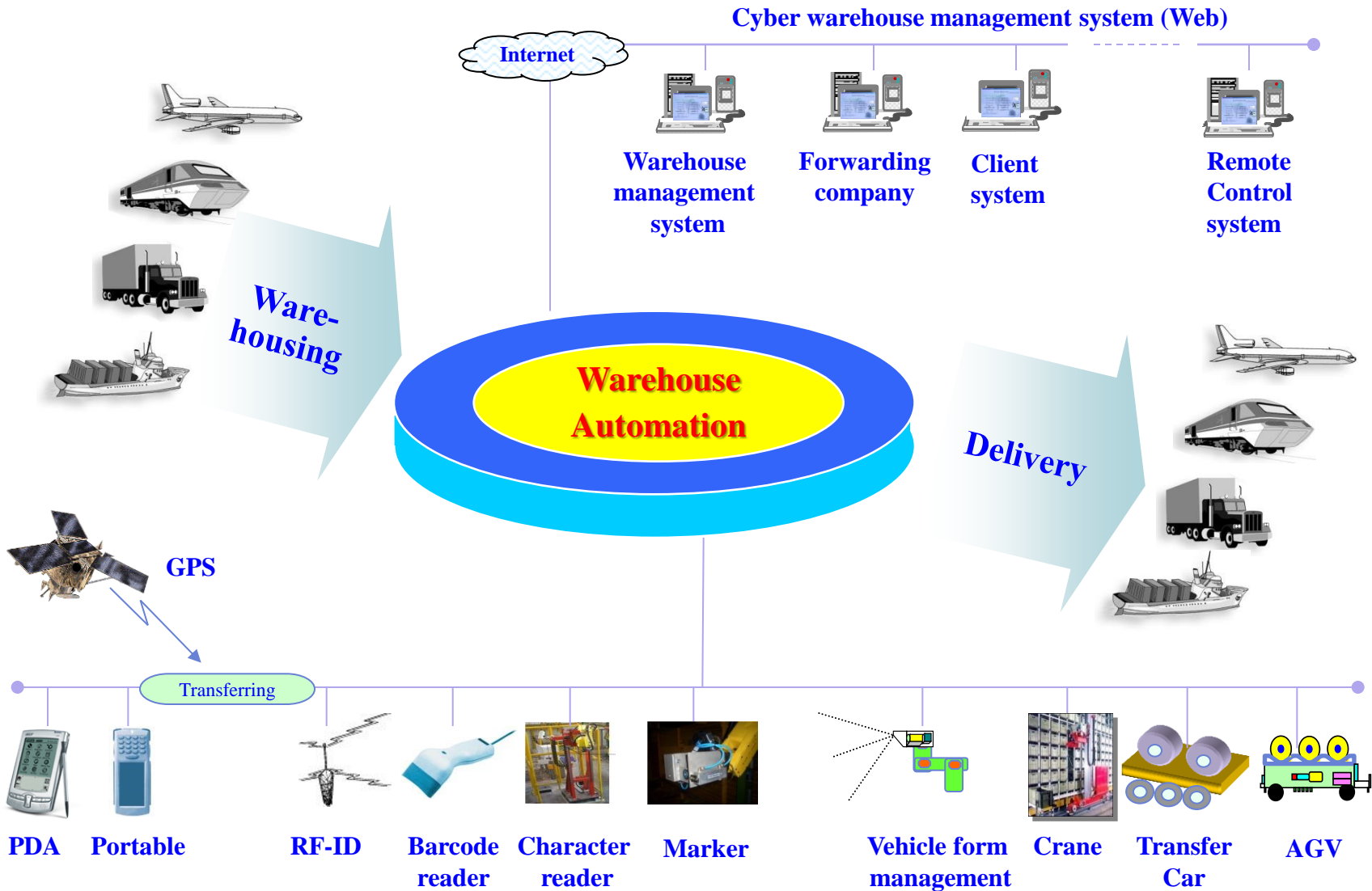
# Solution Introduction

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# MAGIC-I Constitution

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## Warehouse Management

- In-Storage
- Out-Storage
- Return goods
- Stock optimization
- Container Optimization

## Operation Control management

- Operation
- operation status
- System
- Utility
- Statistical analysis
- Other system interface
- Container optimization



## Vehicle Movement

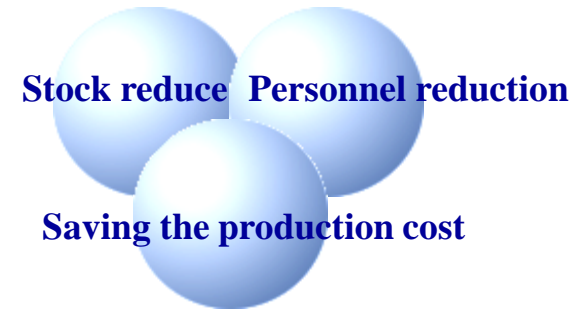
- Pick up directive
- Drop off directive

## Equipment

- Pickup movement directive
- Shift movement directive
- Peripheral interface

## MAGIC-I application scale

- Warehouse & Yard auto-management system construction
- Warehouse & Yard system upgrade to auto system
- Down the build up and maintenance cost by function upgrade
- Optimum estimate to old and new warehouse
- Using to training of warehouse worker
- able to component from other system (CBD)

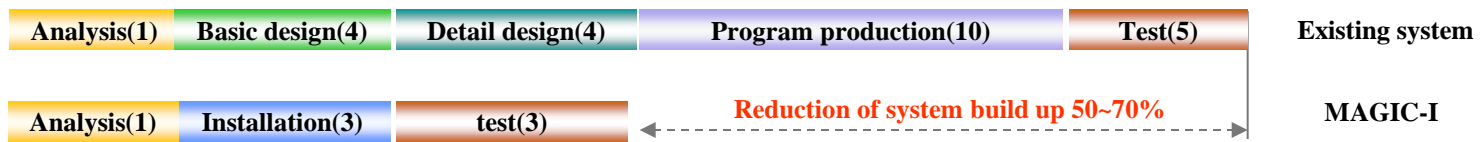


## MAGIC-I effect

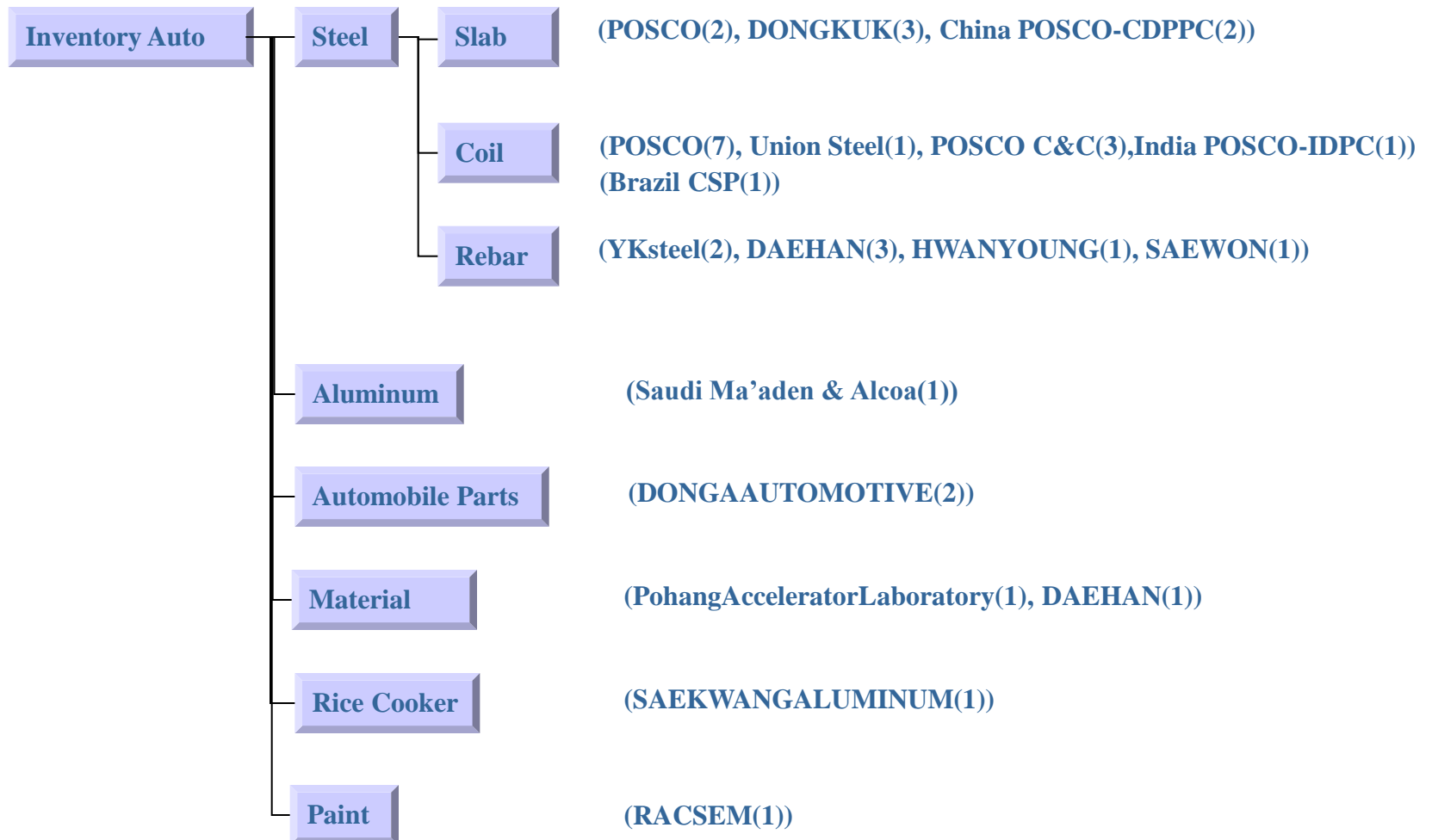
- Saving the System build up cost : 50~70%



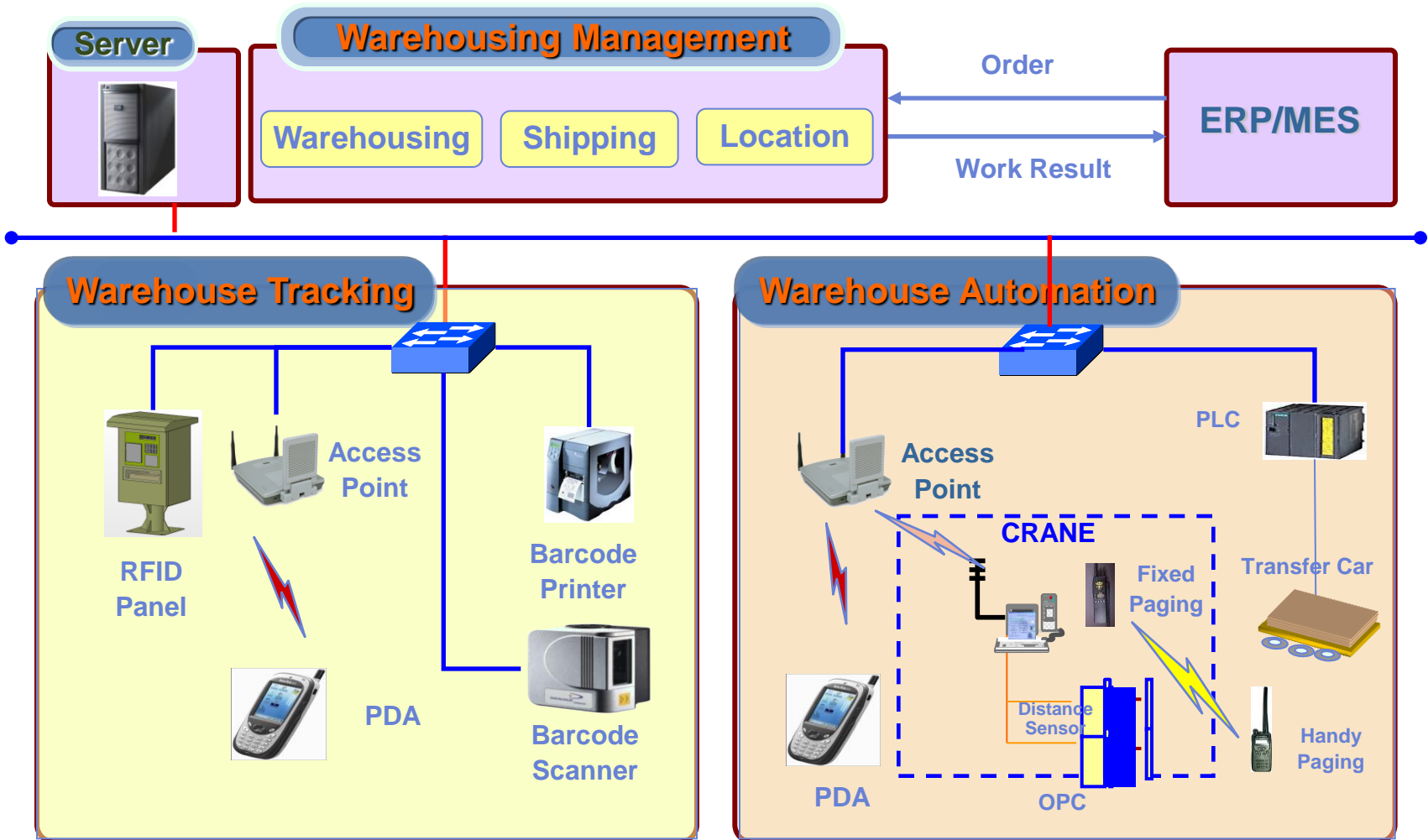
- Reduction of build up period

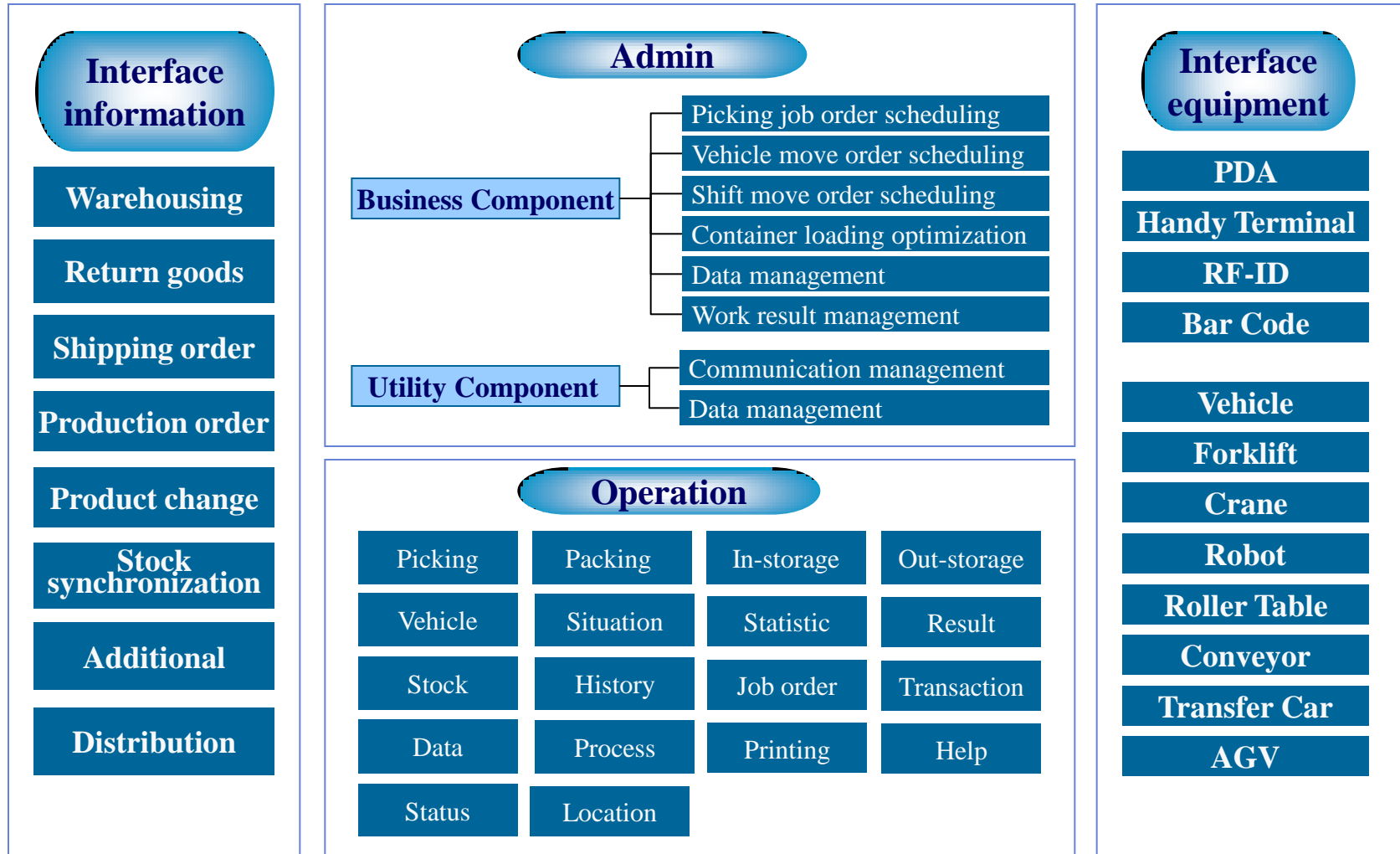


## ※ Inventory Automation Package References : 36 Sites



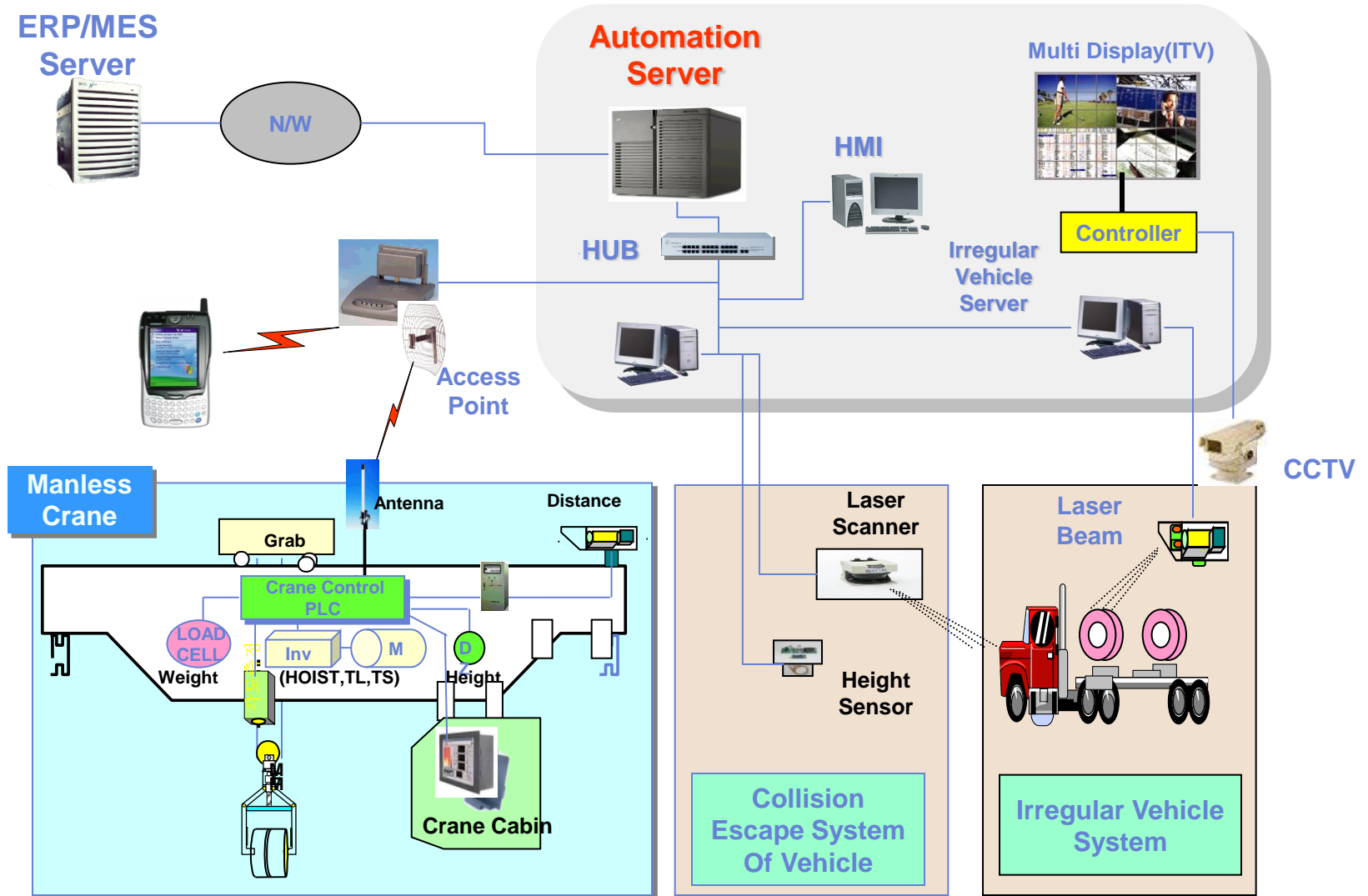
# Hardware Configuration





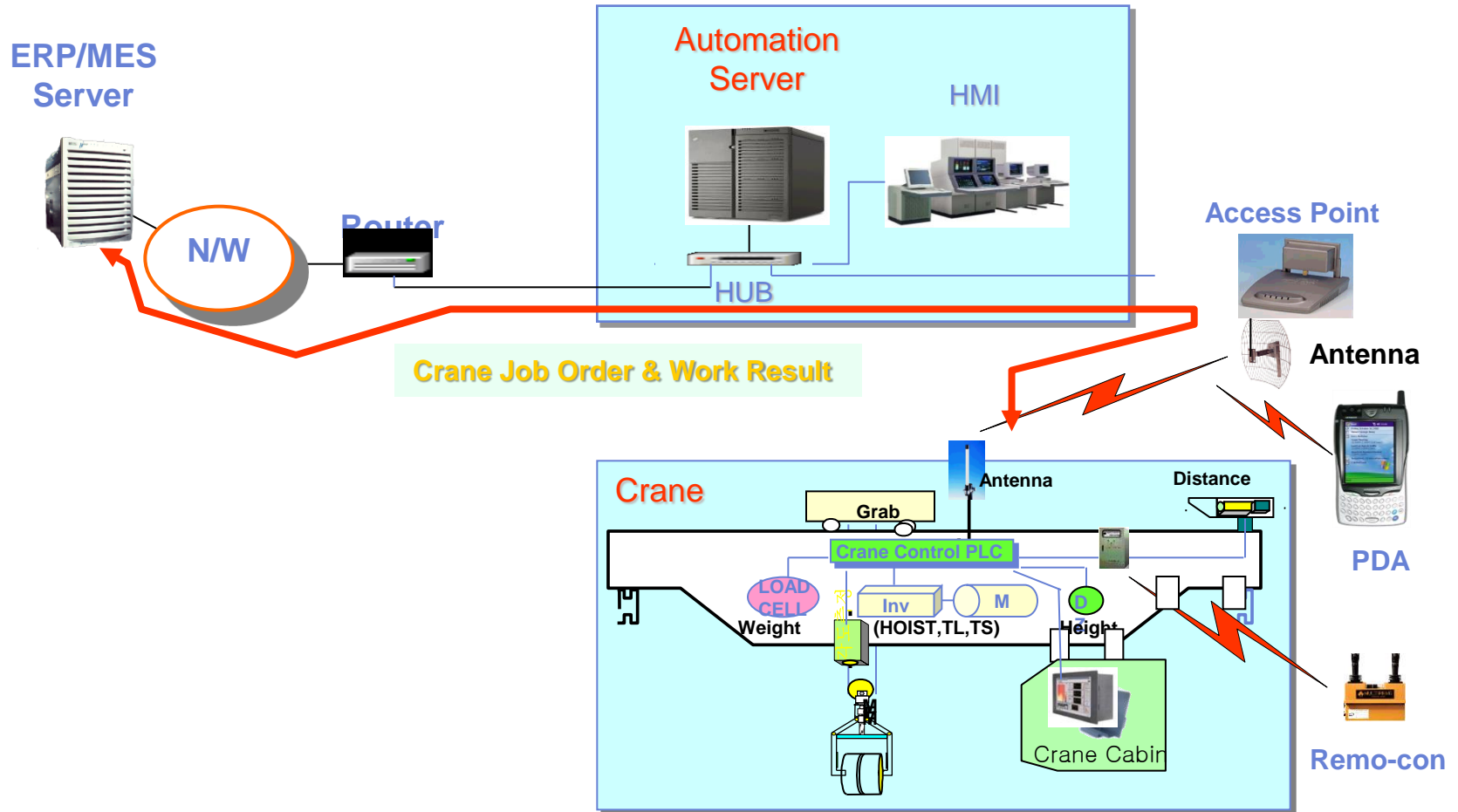
# Manless Control System Configuration

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# Operation Flow

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# Project References

No.	Nation	Company	Project	Year
1	Korea	POSCO	Manned WMS for Slab/Coil Yard in No.2 Hot Mill plant	1998
2	Korea	POSCO	Manned WMS for Slab Yard in No.2 Thick Plate plant	
3	Korea	POSCO	Manned WMS for Cast Strand Yard in No.3 Continuous Casting plant	
4	Korea	POSCO	Slab Yard Automation System Packages	
5	Korea	POSCO	Unmanned WMS for Incoming Yard in Tin-Plate plant	2003
6	Korea	POSCO	Unmanned WMS in F-building of No.2 Thick Plate plant	
7	Korea	POSCO	Unmanned WMS for Coil Warehouse of No.2 Hot Mill in Gwangyang plant	
8	Korea	POSCO	Unmanned WMS of Re-Structured No.2 Thick Plate plant	2004
9	Korea	YK STEEL	Manned WMS in YK STEEL	2005
10	Korea	POSCO	Unmanned WMS for Incoming Yard in Electrical Steel Sheet plant	
11	Korea	POSCO	Unmanned WMS using AGV for Coil Yard	
12	Korea	Hwan-Young	Manned an Outbound WMS	2006
13	Korea	DONGKUK STEEL	Manned Yard Management System of Pohang Thick-Plate plant	
14	Korea	POSCO	1'st stage Unmanned Crane Operating System in Pohang plant	
15	Korea	POSCO	Unmanned Crane Operation System for T4 cranes of No.2 Continuous Casting plant	
16	Korea	UNION STEEL	Manned MTS(Material Tracking System) & Automation	2007
17	Korea	POSCO C&C	Automatic Warehouse Integration System for Color Steel Plate plant	
18	Korea	DAEHAN STEEL	Manned MTS(Material Tracking System) & Automation	2008
19	Korea	POSCO	Unmanned Gantry Crane Control PLC for No.2 Thick Plate Plant	
20	Korea	POSCO	2'nd stage Unmanned Crane Operating System in Pohang plant	
21	Korea	SEWON STEEL	Manned WMS for Steel Bar machining plant	
22	Korea	POSCO	Unmanned S/Y Crane Control PLC for No.1 Hot Mill Plant	
23	Korea	POSCO	Unmanned Crane Control PLC for Electrical Steel Sheet Plant	

# Project References

No.	Nation	Company	Project	Year
24	Korea	DONGKUK STEEL	Manned WMS for Slab Yard in DANGJIN Thick Plate plant	2009
25	Korea	POSCO	Unmanned WMS for NEW STEEL Plant	
26	Korea	POSCO	Unmanned Overhead and Auto Pickup Crane for STS Cold Mill Plant	
27	Korea	POSCO	Manned WMS for correction Yard of No.3 Continuous Casting plant	
28	Korea	POSCO	Manned WMS for Slab Yard in Thick Plate plant of GWANGYANG plant	
29	Korea	POSCO	Unmanned Auto Pick-Up Control System of No.2 Continuous Casting plant	2010
30	China	POSCO-CDPPC	WMS of Raw Material Yard in Thick Plate plant	2011
31	Korea	POSCO	3'rd stage Unmanned Crane Operating System	
32	Korea	SAMIL	Unmanned Management System for Steel-Coil Auto warehouse	
33	Korea	POSCO	Warehouse Management System for China-Gwangdong-CGL plant	2012
34	China	POSCO C&C	Yard Automation & Automatic System for Color Steel Plate plant	
35	Saudi	Ma'aden, ALCOA	MTS(Material tracking System) for Aluminum Mill Plant	2013
36	Korea	POSCO	Crane Operating System for No.4 STS Steel Making	
37	Korea	POSCO	Crane Operating System for No.4 Continuous Steel Making	
38	India	POSCO-IDPC	Manned WMS for Coil Yard of Cold Mill Plant	
39	Brazil	CSP	Unmanned Control System of Transfer Car of Raw Material Yard	
40	Korea	POSCO	Unmanned Control System of Transfer Car of No.4 STS Yard	
41	Korea	POSCO	Unmanned Control System of Transfer Car of Annealing Pickling Plant	
41	Korea	POSCO	Manned WMS for correction Yard of No.4 Continuous Steel Making	