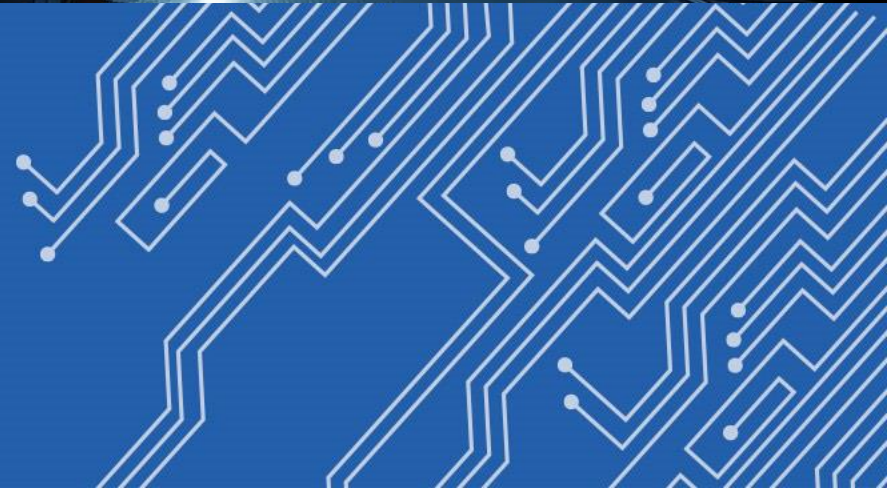# THINCKIN ASSISTS IN THE DIGITAL TRANSFORMATION OF INTELLIGENT MANUFACTURING

THINCKIN 森克

Contrast Between Traditional Production and Intelligent Manufacturing

Traditional Production VS Intelligent Manufacturing

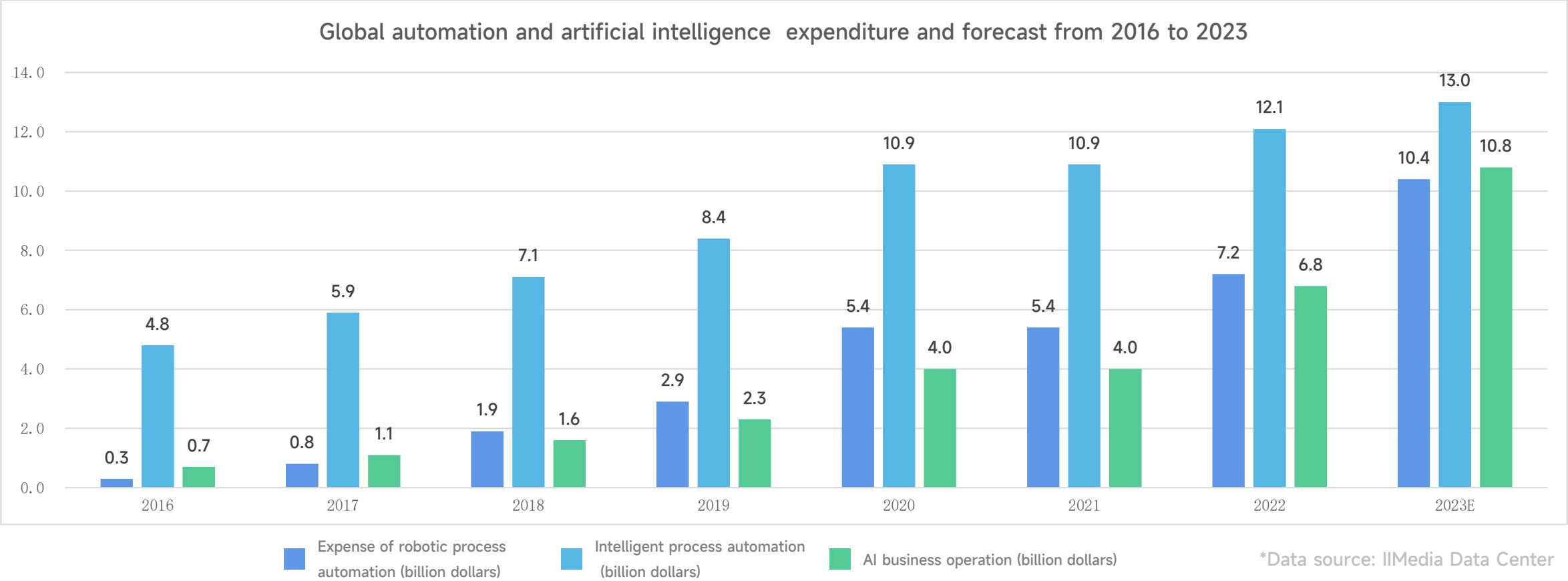| Traditional Production	Intelligent Manufacturing
Assembly line	Cellular manufacturing
Process-based production	Self-regulated production
Centralized control	Decentralized control
Limited communication	Wireless limitation
Cannot monitor the real-time location	Monitor the real-time location

Three Advantages of Intelligent Manufacturing

- Improve production efficiency, combine data to reduce cost and increase efficiency
- High-quality products, low error rate
- High-flexibility production

The Realization Routes of Intelligent Manufacturing

1

Data collection and processing

·Code-scanning
·RFID
·Chip card
·Bluetooth

2

Personnel→Machine、Machine→Communication

e.g: props with chips; CNC

3

From data and information to decision making

·Internet of Things and LAN coverage enterprises
·Data sharing and interaction at all levels from device to ERP

4

Predictive intelligent manufacturing

From batch manufacturing to flexible individual manufacturing
Intelligent factory: intelligent equipment, intelligent network, intelligent manufacturing
1. From intelligent ordering to intelligent shipment;
2. Realize intelligent perception of all devices;
3. Based on big data application, the device health status can be sensed in advance;
4. Predict equipment condition in advance, to reduce maintenance cost

Global Automation and Artificial Intelligence Transformation Layout

Global automation and artificial intelligence expenditure and forecast from 2016 to 2023

Year	Expense of robotic process automation (billion dollars)	Intelligent process automation (billion dollars)	AI business operation (billion dollars)
2016	0.3	4.8	0.7
2017	0.8	5.9	1.1
2018	1.9	7.1	1.6
2019	2.9	8.4	2.3
2020	5.4	10.9	4.0
2021	5.4	10.9	4.0
2022	7.2	12.1	6.8
2023E	10.4	13.0	10.8

- Expense of robotic process automation (billion dollars)
- Intelligent process automation (billion dollars)
- AI business operation (billion dollars)

*Data source: IIMedia Data Center

With the development of global automation, artificial intelligence and other technologies, the expenditure of global enterprises in the field of automation and artificial intelligence also increases. The combination of automation, artificial intelligence and traditional industries, especially manufacturing, will be an important factor for enterprises to improve labor efficiency and competitiveness in the future.

Thinckin Intelligent Manufacturing Solutions

Warehouse Mangement

盘点 / 叉车应用 / 入库 / 出库

Warehouse management is a very important link in intelligent manufacturing. With Thinckin handhelds/mobile PC series products supporting background ERP and WMS management systems, warehouse can achieve an efficient and accurate management.

Workshop Management

电子看板 / 机器视觉检测 / 资产管理 / 无纸化生产 / 来料检查

Intelligent manufacturing has very strict requirements for workshop management and operations. Thinckin focuses on the complex needs of the manufacturing workshop, providing hardware and software solutions to help enterprises to improve workshop efficient and accurate operations.

Global Automation and Artificial Intelligence Transformation Layout

Slow Manual Speed

The traditional management mode requires that the warehouse personnel must manually check the category, specification and quantity of the materials when they are put in and out of the warehouse.

High Manual Error Rate

The whole process is rather tedious, resulting in low efficiency and high error rate. When a large number of materials need to be put in and out of storage, this manual counting method consumes a lot of time and causes data deviation.
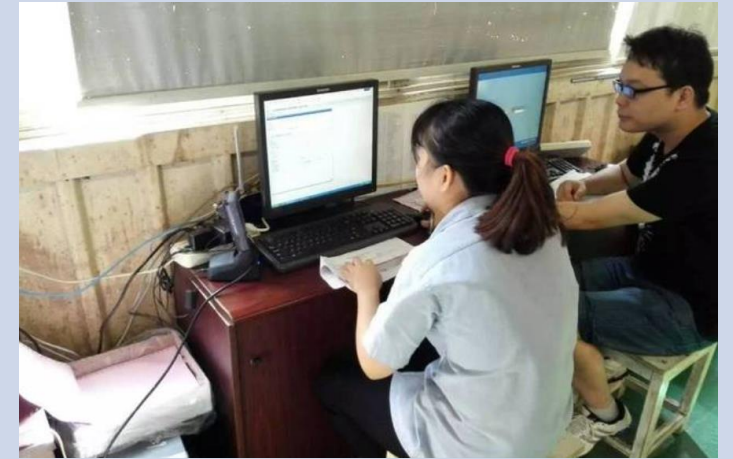
Data Failure to Synchronize

If the managers can't grasp the real use condition of the warehouse in time, they can't make a reasonable warehousing plan according to the actual inventory, which is not conducive to the efficient operation of the warehouse.

In/Outstock

Rugggged Handheld

5G

Full-Screen

2D

HD

● Full coverage: Material information is transmitted to the database system in real time through 5G and WiFi networks.

● Digital: A slim and large screen designed for more comprehensive display of information.

● Visualization: barcode reading replaces visual identification of material information, which is faster and more accurate.

● Visualization: The front and rear dual-photography can take pictures of abnormal materials for file.

Warehouse Management - Current Status of In/Outstock

Long Labor Time

Regular stock-taking is an essential link in warehouse management. Traditional stock-taking mainly relies on manual bookkeeping, which is heavy, tedious and time-consuming.

Fallibility of Manual Work

Human factors often lead to inaccurate inventory data, misalignment, leakage and other situations.

Secondary Entry

When there are problems and abnormal packages, they cannot be dealt with in time, and the packages that have been unloaded need to be manually entered into the logistics system twice.

Stock-Taking

Rugged Handheld+Hand-Strap+Lanyard

- Information: ARM architecture processor coupled with management system, to check and report statistics

- Long endurance: 4500mAh/3.8V detachable battery, supports 18W fast charge, to meet the needs of all-day work

- High protection grade: Passed the MIL-STD-810H certification, and IP65 waterproof and dustproof class for multiple protection

ARM CPU

All-day battey

GNSS

IP65

盘点

入库

叉车应用

出库

Warehouse Management-Application Status of Forklift

High Labor Cost

With the rapid development of intelligent warehousing, the cost of artificial intelligence and labor increases, and the cost of enterprises increases as well.

Unfamiliar With Product Information

Employees are unfamiliar with the product information, which leads to low selection efficiency, tedious workflow and untimely communication, increasing the difficulty of obtaining task instructions.

Chaotic Management Mode

The inaccurate control of the forklift operating position and state coupled with the lack of organized management mode, makes it difficult to effectively improve the utilization rate of forklift.

Forklift Application

Vehicle PC+Vihicle Mount

1000Nits

Multi-networks

GNSS

I/0 Ports

- Visual information: query and positioning of goods information , real-time data sharing and other functions

- **Real-time tracking:** Precise GPS positioning function for real-time location tracking of forklifts

- Intelligent optimization: According to the location of the goods to provide the shortest route to pick up goods

盘点

入库

叉车应用

出库

Workshop Management-Traditional Workshop Operation

Loss of Documents

Prone to loss and damage of documents.

High Operation Cost

A large number of paper documents wastes a lot of manpower and material costs in management. And it's hard to trace the sources when something goes wrong.

Information Asynchronism

The operation documents obtained by field equipment operators are kept in the hands of the operators, which cannot be collected and filed in a timely manner, making it difficult to share and track information.

Rugged Mobile PC+Hand-Strap+Stylus

High-Performance

700 Nits

Multi-Networks

2D

- More intelligent: Intel i5/i7 processor, suitable for various software to operate efficiently;

- More efficient: Scanning the bar code to set off the system to automatically locate, search production documents and quickly push them to the onsite terminal of the work station

- More convenient: WiFi6/4G/BT5.1 multi-functional networks for real-time task instructions, and real-time transmission of job status.

电子看板
机器视觉检测
资产管理
无纸化生产
来料检查

Workshop Management-Incoming Material Management

Demanding Labor Work

Manual query of material batch and quantity information one by one is time-consuming and labor-intensive and prone to errors.

High Manual Error Rate

Manually inputting relevant data and documents into the database for the second time is cumbersome and inefficient, and it is easy to produce data errors due to human factors.

Unclear Division of Responsibilities

When material anomalies occur, the lack of effective real-time records may lead to unclear division of subsequent responsibilities.

Incoming Material Management

Rugged Mobile PC

ARM Octa-Core

Scanning Modules

All-Day Battery

Rich I/O Ports

● Intelligent verification: Identify the two-dimensional code/bar code on the material for information verification, instead of manual verification;

● Data interconnection: With a variety of communication networks, data information can be uploaded to the system background through stable 4G and Wi-Fi;

● Abnormal tracing: front and rear HD cameras can take photos and record abnormal situations at any time.

Workshop Management-Digital Signage & Displays

Unsatisfactory Display

Traditional digital signage adopts LED display, which has less content and poor effect.

Unable to Expand Functional Modules

The complex MANET cannot be expanded to more functional modules.
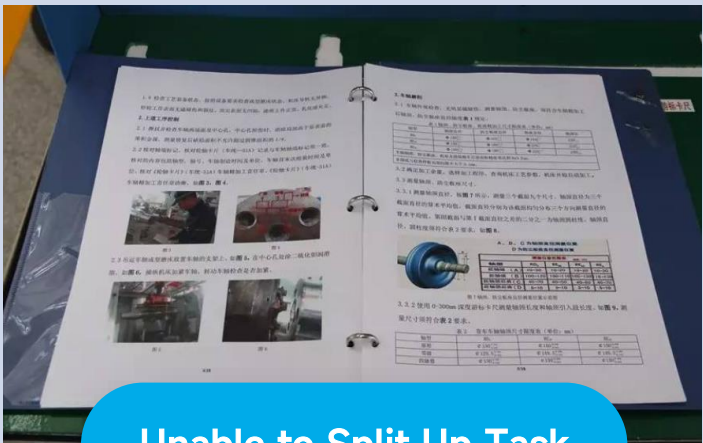
Unable to Split Up Task

Unable to make drawings clear to every operator, and unable to keep up with the update of schedules/drawings.

Panel PC

● HD large screen: 15.6" HD large screen to provide more display space for products, drawings,and other information;

● Save time and labor: remote one-button control to change the drawing information, dynamic display of the real-time data in the production process;

● Unlimited expansion: Rich interfaces, network ports, serial ports, enabling more application of diverse industry scenarios.

HD

Multi-Networks

Rich I/O Ports

All-Day Battery

电子看板

机器视觉检测

资产管理

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来料检查

Loss of Assets

Low Efficiency

Difficult Process Supervision

Chaotic management mode of enterprises often results in the loss of fixed assets, and the inconsistency with the actual information

It is hard for large enterprises to make an inventory of thousands of fixed assets with various types and complex distribution.

Asset management mode lacks effective process supervision.

Rugged Mobile PC

● Efficient operation: High-performance Intel quad-core processor,can quickly running to process softwares;

● Data transmission: Efficient networking ensures that the inventory data can be transmitted to the background in real time, forming a ledger without manual secondary processing;

● Bar code identification: Adopt bar code identification technology instead of manual counting, making it faster, and more accurate to indentify information;

High-Performance

Multi-Networks

QR scanning

Rich Modules

资产管理

电子看板

机器视觉检测

无纸化生产

来料检查

Case-Air Conditioning and Ventilation Equipment Management in Southeast Asia
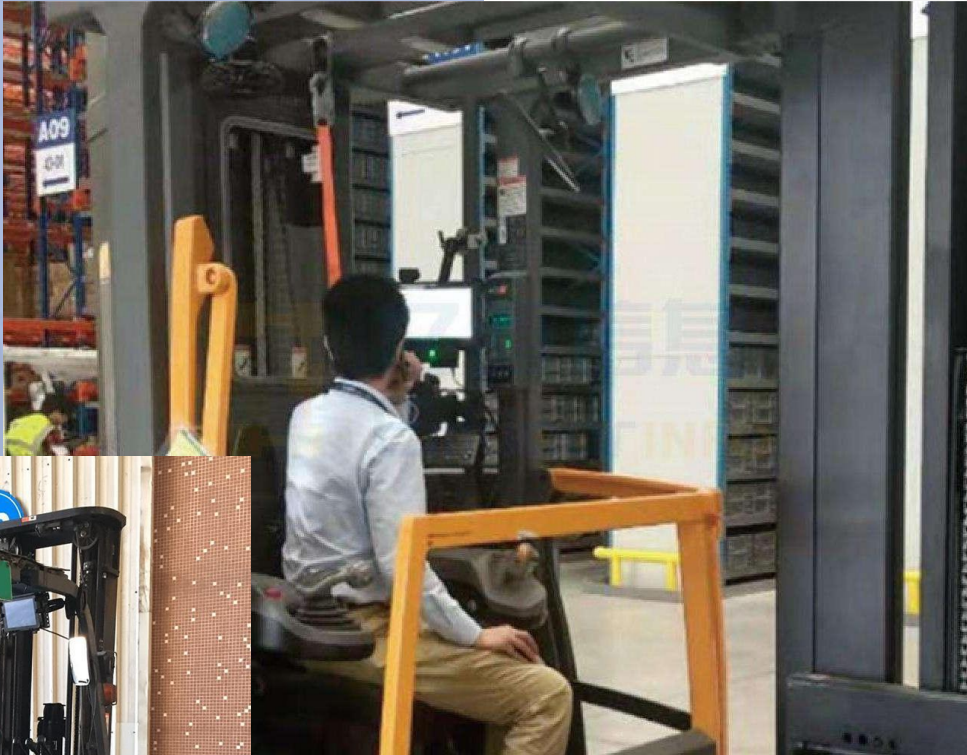

Rugged Mobile PC

Client's pain points

Client's employees are not familiar with the information of goods, leading to a low efficiency in selecting goods. At the same time, they do not know about the operation position and status of forklifts as well. The chaotic management and low utilization rate of forklifts,also result in cumbersome workflow, late communication and difficulty in obtaining instructions.

Solutions

1.The Thinckin rugged mobile PC is coupled with a vehicle mount, which can be integrated with the forklift perfectly.

2.M20J is able to check and locate the goods information and real-time data sharing, which helps to improve work efficiency and reduce communication costs.

3.A real-time tracking of the forklifts through GPS, to achieve real-time scheduling and comprehensive monitoring and management;

Vehicle PC

Client's pain points

Client's employees are not familiar with the information of goods, leading to a low efficiency in selecting goods. At the same time, they do not know about the operation position and status of forklifts as well. The chaotic management and low utilization rate of forklifts,also result in cumbersome workflow, late communication and difficulty in obtaining instructions.

Solutions

1.The Thinckin vehicle PC is coupled with a vehicle mount, which can be integrated with the forklift perfectly.

2.V80J is able to check and locate the goods information and real-time data sharing, which helps to improve work efficiency and reduce communication costs.

3.Guide the forklifts to the next shelf by the most efficient route, allowing the operator to complete more work in a shorter time, making the forklift management more intelligent.

Case-Industrial Digital Mobile Computer Cart Solution

Rugged Mobile PC+Vehicle Mount

Client's pain points

In the production process, there are many types of workshops, processes and materials, so it is necessary to obtain timely and accurate production conditions. However, traditional computer only works in a fixed position and cannot conduct mobile operation.

Solutions

1.Through Storage, communication and real-time reference are carried out through Thinckin M20A integrated MES and ERP management and control platform, which enables the mobile computer cart to run through the whole production link of the factory to collect, view, manage and feedback the production information in real time.

2.Carts can carry out mobile work in each station, production equipment and other aspects of the factory.

3.IP65 industrial protection of waterproof and anti-fall.

Product Gallery

YOUR ONE-STOP SUPPLIER OF RUGGED
COMPUTING SOLUTIONS

Thinckin Intelligent Manufacturing Solutions

Give full play to the value of intelligence and lead the new trend of manufacturing