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精益生产
运行管理平台

FLEXENGINE

APS产品介绍

打 造 透 明 工 厂 - 实 现 智 慧 制 造

BUILD TEANSPARENT FACTORY - REALIZE WISE MANUFACTURE

EWININFO

易往信息技术有限公司

Ewin Information Technology Co., Ltd.

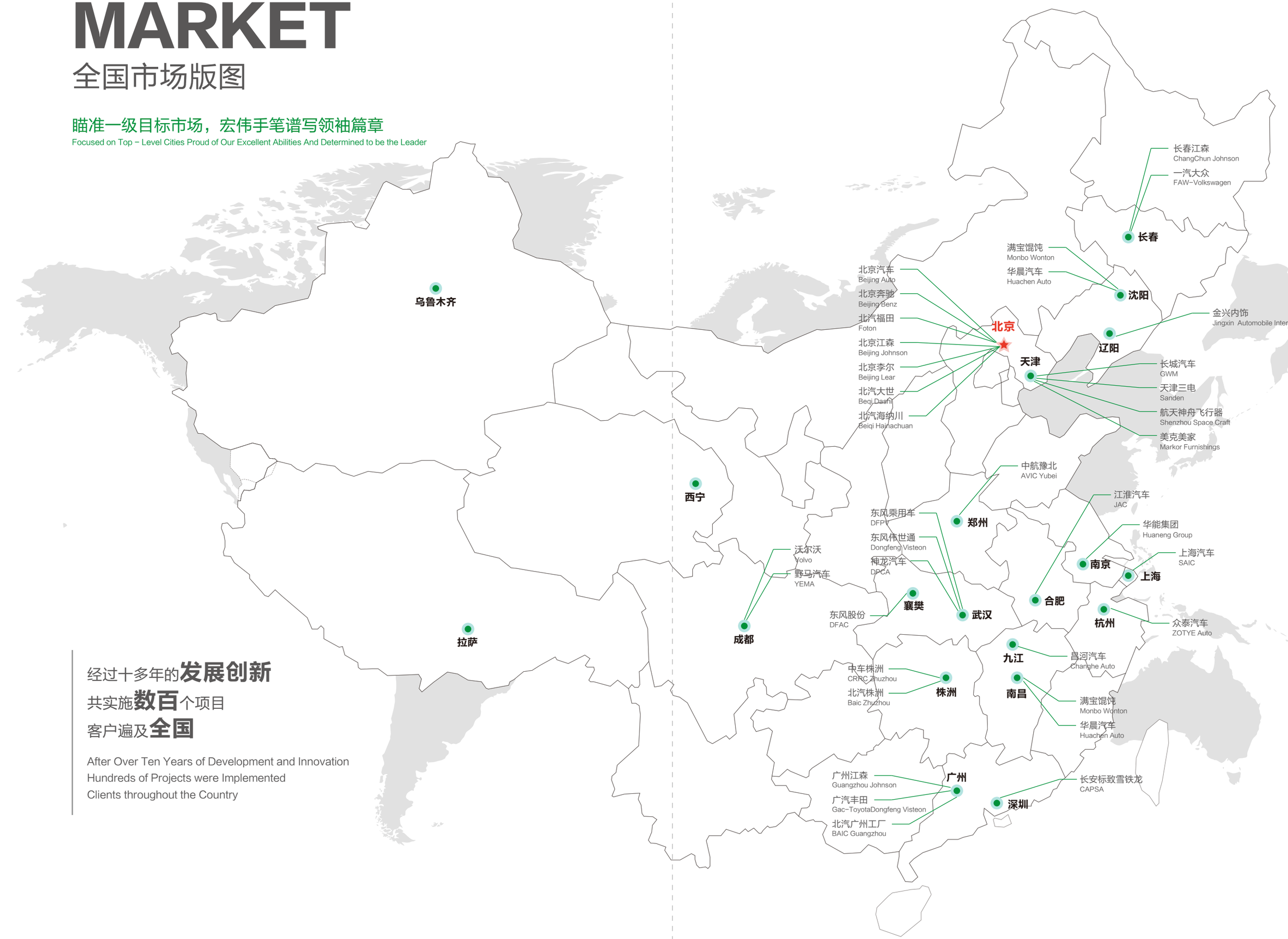

Integrity, Diligence, Responsibility, Innovation
坚持“正直、勤奋、责任、创新”的价值观
Serve each customer with full enthusiasm
饱满的热情，为每一个客户服务
Serve each customer with full enthusiasm
用激情去创造、去探索、跨越巅峰
OUR VALUES

MARKET

全国市场版图

瞄准一级目标市场，宏伟手笔谱写领袖篇章

Focused on Top – Level Cities Proud of Our Excellent Abilities And Determined to be the Leader



经过十多年的**发展创新**
共实施**数百**个项目
客户遍及**全国**

After Over Ten Years of Development and Innovation
Hundreds of Projects were Implemented
Clients throughout the Country

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ABOUT US

公司简介

易往信息技术有限公司成立于2003年。创立之初，易往经过缜密的数据分析，诊断出企业生产与决策的模糊区域性问题。针对大型制造企业的研发、采购、生产、销售和服务的全过程，以客户为导向，实践工业4.0理念，利用软件终端一体化信息技术，有效地结合各行业生产管理经验，为各企业量身定制工业4.0整体解决方案。

近年来，公司以“两化深度融合”为目标，以“中国制造2025”为发展纲领，结合“互联网+”思维将大型制造企业作为主要服务对象，业务遍及全国。先后为数十个全国主要汽车生产制造厂商，食品生产厂商以及其他行业厂商提供各类解决方案。

易往解决方案覆盖了全面的企业生产、管理与决策信息，涵盖内容丰富，是“工业4.0”的核心——信息物理系统（CPS）的完美诠释。其中生产制造执行系统（EW-MES），仓库管理系统（EW-WMS），高级计划与排程系统（EW-APS），一体化平台（EW-EIP）与供应链管理系统（EW-SCM）为易往核心软件产品。除此之外，易往还为客户提供能源管理系统（EW-EMS）、EW一体化移动平台解决方案（EW-IMPS）、IT服务（ITS）以及外包服务等各项领域的服务项目。

目前，在政府的大力扶持和相关政策的引导下，各类企业都在寻找可以提高生产效率的方法，积极投入“工业4.0”的实践中，包括汽车整车行业，汽车零配件行业、食品、制药、机械、能源、物流等行业企业也纷纷对“易往”提出了长期合作意向，因为易往信息的产品是让先进智能生产理念落地的最佳选择。易往被认定为“技术先进型服务企业”；“高新技术企业”。EW-MES制造执行系统，屡获市场肯定，被评为“中国制造业信息化优秀推荐产品”、“江西省重点新产品证书”、“第三届AI用户好评奖”。EW-WMS仓库管理系统，被评为“中国制造业信息化优秀推荐产品”。

为了促进企业科技进步，加快高科技成果产业化，推进产、学、研结合，2014年6月，公司与清华大学苏州研究院，合作成立清华大学苏州汽车研究院-江西易往联合研发中心，研发领域包括：汽车及相关制造业的制造执行系统（MES）、企业资源计划系统（ERP）、供应链管理、一体化平台、供应链大数据中心、企业移动化平台。2015年6月，易往信息与江西师范大学计算机工程学院达成战略合作协议，促进“工业4.0”等相关先进理念在高校中的传播，为行业未来的培养贡献力量，成立实验基地为新技术的研究和发展提供条件。

公司为应对不断扩大的业务，方便快捷地服务客户，顺利地解决运维过程中发生的问题；并分别在北京，上海，武汉，南昌，广州，天津、苏州设立了7个独立的工程中心，分区域科学管理全国市场。

EWIN Information Technology Co., Ltd. was established in 2003. In the early time, it diagnosed fuzzy area between enterprise production and decision-making through careful data analysis, and aiming at the whole process of research and development, procurement, production, sales and service, customer demand-oriented, implementing the thinking of Industry 4.0， using software terminal information technology, effectively combine various industries management practices experience, successfully tailored Industry 4.0 solutions for enterprises.

In recent years, the company take "fusion of industrial and information " as the goal, take "made in China 2025" as the development platform, combined with "Internet +" thinking to take large manufacturing enterprises as the main service object, business throughout the country. Provide all kinds of solutions for dozens of national major automobile production manufacturers, food manufacturers and other industry manufacturers.

EWIN solutions cover substantial content, including comprehensive enterprise production, management, and decision-making information, nd is the perfect interpretation for the core of the Industry 4.0- Cyber Physics System (CPS). Among them, Manufacturing Execution System (EW-MES), Warehouse Management System (EW - WMS), Advanced Planning and Scheduling（EW-APS）, and Integrated Platform (EW-EIP）and Supply Chain Management System（EW-SCM）are core software products of EWIN. In addition, EWIN also provide customers with Energy Management System (EW-EMS), EW Integrated Mobile Platform Solution (EW-IMPS), IT Services (ITS), and outsourcing services, and other services in the field of project.

At present, in the government's vigorously support and under the guidance of relevant policies, various types of enterprises are looking for methods to improve production efficiency, engaged in "4.0" industrial practice, include the automotive industry, auto parts industry, and other industries such as food and beverage, pharmacy, machinery processing, electronic appliances, warehousing logistics industries have also proposed the long-term cooperation to EWIN, because its product is the best choice for the advanced idea of intelligent production floor. EWIN was identified as "Advanced Technology Service Enterprise", "High-tech Enterprise". EW-MES manufacturing execution system, won the market certainly, was rated “China Manufacturing Information Excellent Products”, “Jiangxi Province Key New Product Certificate”, “The 3rd AI Favorable User Comment Award”. EW-WMS warehouse management system, was rated "China Manufacturing Information Excellent Products".

In order to promote the enterprises progress of science and technology, to accelerate the industrialization of high-tech achievements, promote the combination of production, learning and research, in June 2014 , Ewin jointly set up Tsinghua University Suzhou Automobile Research Institute - Jiangxi Ewin joint research and development center with Suzhou Research Institute of Tsinghua University, R & D areas include: Manufacturing Execution System for automobile and related manufacturing industry（MES）, Enterprise resource planning system (ERP), Supply chain management, Integration platform, Supply chain big data center, Enterprise mobile platform. In June 2015, EWIN and Jiangxi Normal University agreed a strategic cooperation agreement, to promote "industry 4.0" advanced concepts related to spread in colleges and universities, make contributions to the cultivation of the industry in the future, set up the experimental base for the research and development of new technology conditions.

The company in order to response to the expanding business customers, to provide convenient and efficient service, and solve the problem smoothly in operation and maintenance process; respectively set up seven independent engineering centers in Beijing, Shanghai, Wuhan, Nanchang, Guangzhou, Tianjin, Suzhou, to manage the national market by sub-regional scientifically.



FlexEngine

平台简介 Platform Profile

目前制造业所面临的“多品种、少批量、短交货期、多变化”的国际市场环境下，传统ERP的计划模型已经越来越不能适应现代企业的管理要求，扩展ERP的功能成了必行的趋势， 精益生产运行管理平台在此环境下应运而生。

精益生产运行管理平台综合考虑了订单、产能、调度、库存、成本等企业面临的各种难题，通过平台中的供应链管理、高级计划排程、制造执行、仓储管理结合设备通信、大数据分析、仿真模拟、态势监视以及运维管理等信息化系统管理工具的相互协同、协作、优化来解决企业面临的各种生产计划问题。

精益生产运行管理平台主要由
SCM（Supply Chain Management供应链管理信息系统）、
APS（Advanced Planning and Scheduling高级计划与排程）、
MES（Manufacturing Execution System制造执行系统）、
WMS（Warehouse Management System仓储管理系统）、
ECS（Equipment Conmmunication System设备通信系统）五大业务系统构成；
同时还有DES（Decision Evaluation System大数据分析系统）、
SMS（Simulation Model System仿真模拟系统）、
PMS（Posture Monitoring System态势监视系统）、
OMS（Operations Management System运维管理系统）四大支撑系统。

At present, manufacturing is under the " multispecies, small batch, short delivery time, many changes" international market environment, the traditional ERP planning model has increasingly can not adapt to modern enterprise management requirements, extend the functionality of ERP will become the trend, FlexEnginePlatform arises at the historic moment under the environment.

FlexEnginePlatform considering the various challenges which the enterprise facing, such as the orders, production capacity, scheduling, inventory, cost and so on, through the mutual coordination, collaboration, optimizing of information system management tools in the platform such as SCM (Supply Chain Management), APS (Advanced Planning and Scheduling), MES (Manufacturing Execution System) , WMS (Warehouse Management System) and ECS (Equipment Communication System), DES (Decision Evaluation System), SMS (Simulation Model System), PMS (Posture Monitoring System), OMS (Operations Management System), to solve the various production plan problem of enterprise facing.

FlexEngine platform is mainly composed of five business systems including SCM (Supply Chain Management), APS (Advanced Planning and Scheduling), MES (Manufacturing Execution System) , WMS (Warehouse Management System) and ECS (Equipment Communication System , as well as four support Systems including DES (Decision Evaluation System), SMS (Simulation Model System), PMS (Posture Monitoring System), OMS (Operations Management System).





FlexEngine-APS

高级计划与排程系统

FlexEngine-APS被誉为供应链优化引擎，在满足能力约束、原料约束、需求约束、运输约束、资金约束等各种生产资源约束的基础上，实时、同步地给出在不同生产阶段的最优生产排程计划，最大化优化用户目标，如准时交货、设备利用率、成本等，帮助生产企业优化生产管理及作业流程，最大限度的助力生产制造业，降低生产成本，提高整个生产及管理效率，缩短生产周期，降低库存成本，加快市场响应速度，减少企业的订单交期压力，从而全面提高企业服务水平和竞争力，帮助企业提升业绩，并在市场竞争中获得竞争优势，实现企业长期发展的目标。

FlexEngine-APS is known as supply chain optimization engine, on the basis of satisfying all sorts of production resource constraints such as capacity constraints, raw material constraints, demand constraints, transportation constraints and capital constraints, it can real-timely , simultaneously give some optimal production schedule plannings in different production stages, these plannings aim to maximize optimizing the user goals, such as on-time delivery, equipment utilization and cost, help enterprise to optimize production management and operation process, help production manufacturing to reduce production cost, improve the efficiency of the whole production and management, shorten the production cycle, reduce the inventory cost, speed up market response speed, reduce the order delivery pressure of the enterprise, all the above can improve the service level and competitiveness of enterprise , help enterprises to achieve superior performance, gain a competitive advantage in the market competition and achieve the goal of enterprise long-term development.

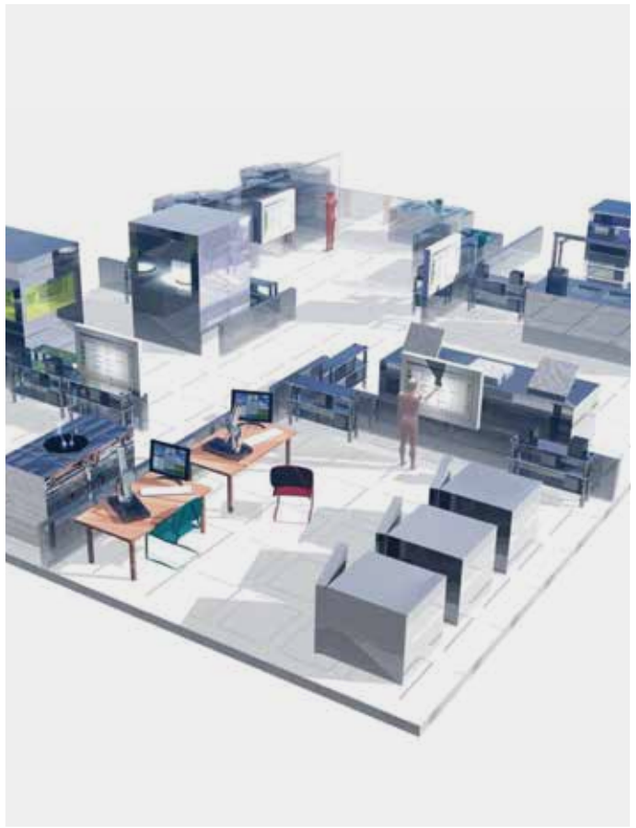


FlexEngine-SCM

供应链管理系统

FlexEngine-SCM是基于协同供应链管理的思想，整体性协调了从计划到执行不同供应链功能中的信息、人员、工作流程、财产、事件和任务，借助大数据分析与预测技术、云计算技术、物联网技术的应用，帮助企业供应链的上下游各环节无缝链接，形成物流、信息流、单证流、商流以及资金流五流合一的领先模式。

FlexEngine-SCM is based on the idea of collaborative supply chain management, overall coordinate differnt information, personnel, work processes, properties, events and tasks that derived from planning and performing different functions in the supply chain . With the help of big data analysis and prediction technology, cloud computing technology and things networking technology , the enterprises can realize seamless link among the upstream and downstream in the supply chain, and also can form a leading mode that achieved integration of logistics, information flow, document flow, business flow and cash flow .



FlexEngine-MES

制造执行系统

FlexEngine-MES衔接上层ERP与底层控制，由于其“上传下达”的集成作用，在企业车间底层与管理上层信息化架起一座桥梁，上接计划层规划时管理信息，将之分解为可执行任务，将完成信息反馈计划层，下接控制层时，监控底层自动化设备运行，传递运行指令要求，最终形成信息闭环。涵盖了生产执行过程主要的核心业务，各模块间相互集成，即可单独应用，也可整体应用。其强大的集成功能，能够与企业ERP/PLM/CAPP等其他信息化系统进行集成，全力为企业打造从生产现场到企业上层管理的全方位信息化解决方案。

FlexEngine-MES links up the upper ERP with the underlying control , because of its integration function, an informational bridge between the underlying workshop and the upper management has been built . When it links ERP, the management information will be decomposed into some executable tasks, and the finished information will be back to ERP; On the other side, when it connects to the control layer, it will monitor the operation status of the underlying automation equipment, and transfer operation instruction requirement, eventually form a closed information loop .it covers the main core business during production execution, the modules integrate each other, they can not only be used alone but also be used integrally . Its powerful integrated function allows it to integrate with other enterprise information system such as the ERP/PLM/CAPP systems , so the comprehensive information solutions from production field to upper management can be provided to the enterprises .



FlexEngine-WMS

仓储管理系统

FlexEngine-WMS是基于传统仓储物流行业，进行了商业模式的变革，利用互联网思维对传统仓储物流行业的需求痛点进行整合，致力于通过统包等思维，整合仓储物流行业内部资源及仓储规划，降低生产成本、提升响应速度、具有广泛的适用性与扩展性，可以满足不同行业客户的需求，实现客户仓库管理的诸多策略，为企业管理者、员工提供仓库管理行之有效的工具。

FlexEngine-WMS aims at traditional warehousing logistics industry, changes the business model, and integrates needs pain points of the traditional warehousing logistics industry using the Internet thinking , and the turn-key thinking has been used in some fields such as integration of internal resources and warehousing logistics industry planning, reducing the production cost and improving the response speed. So it has wide applicability and scalability, can satisfy the needs of customers of different industries, realize all kinds of customer warehouse management strategies and provide an effective tool of warehouse management for the enterprise managers and employees.



FlexEngine-DES
大数据分析系统

FlexEngine-DES是平台的大数据分析和计算引擎，贯穿整个C2M产品生态体系，为云定制电商平台和云制造生产平台提供数据分析、历史追溯、趋势预测、决策评估等服务，有效的避免信息孤岛和数据孤立，总体实现服务共享、数据共享。

FlexEngine-DES is a platform of big data analysis and calculation engine. It is throughout the whole C2M (Customer-to-Manufactory) product ecological system, and provide some services such as data analysis, the historical retrospection, trend prediction and decision-making assessment for the cloud custom electric business platform and cloud manufacturing platform . Because of this, it can effectively avoid information island and data isolation and overall realize data and service sharing.



FlexEngine-PMS
态势监视系统

FlexEngine-PMS对底层生产过程实时信息的采集和数据挖掘，通过信息集成形成优化控制、优化调度和优化决策等的判断或指令，提供图形组件分析、报表分析、预警告警等机制，实现企业生产过程的安全、稳定、均衡、优质、高产、低耗的目标。

FlexEngine-PMS takes charge of real-time data acquisition and data mining for the underlying production process. Through the information integration, optimization control, optimization scheduling and optimization decision, judgment or order can be generated and some mechanisms such as graphical component analysis, report analysis and early warning and alarm are also supported , all this will allow enterprises achieve their goals of security, stability, balanced, high quality, high yield and low consumption in the production process.



FlexEngine-SMS
仿真模拟系统

FlexEngine-SMS将仿真技术与虚拟现实技术相结合，利用虚拟现实技术进行仿真模型的建立和实验的模拟，使仿真的过程和结果可以实现图象化、可视化，使仿真的系统具有了三维、实时交互、动态感知等特征，实现对工厂、生产线、供应链、仓储规划、物流运输等领域的三维仿真。

FlexEngine-SMS combined simulation technology with virtual reality technology witch created the establishment of simulation model and made experimental simulation , Because of this, the process and result of simulation become visualized, and some excellent characteristics such as three-dimension, real-time interaction and dynamic has been acquired. So it will realize a 3D simulation for many fields such as perception of factories, production lines, supply chain planning, warehousing and logistics .



FlexEngine-ECS
设备通信系统

FlexEngine-ECS解析现场设备的通信协议，并将它们转化成符合OPC 标准的数据。统一现场不同通讯协议的标准化。是平台的最底层服务软件。用户添加新通讯类型设备，只需要添加相应设备驱动稍作配置即可。无需修改任何代码。安全、稳定、高效。

FlexEngine-ECS analyzes field device communication protocol, and puts them into OPC standard data. It is the bottom service software of the platform that standardizes different communication protocols . If Users want to add a new type of communication equipment, they just need to add the corresponding device driver and make a little configuration. This process is without any code changes, safe, stable and efficient.



FlexEngine-OMS
运维管理系统

FlexEngine-OMS是负责平台的运行维护工作，包括日志刷新、日志管理、后台服务管理、集群管理、硬件策略、远程监管、数据库管理、基础数据建模等主要功能，保证平台产品实施部署、用户管理、权限分配等的安全性和有效性，保障系统的正常运行。

FlexEngine-OMS is responsible for the smoothly running of the platform and maintenance work, including main functions such as log flush, log management, backstage management, service management, cluster hardware strategies, remote monitoring, database management and base data modeling ect., all this ensure the safety and efficacy of the platform product implementation, user management, authority distribution and so on, and also guarantee the normal operation of the system.

APS Profile
APS产品简介

01

APS在精益化管理中的作用

多品种小批量的生产模式，要求快速回答交货期，频繁变更生产计划，解决物料短缺及库存积压等，与以前相比需要更加细致的运营工厂计划。为了实现精益化管理，纯手工结合电子表格的生产计划方式已落伍，专业的生产排程软件是必不可少的，生产排程软件是支撑多品种小批量生产模式的管理手段之一。

02

APS在精益化管理中的特色

易往APS以方案为中心，提高制作计划的灵活性、可移植性，在方案上可以反复调整、对比、模拟直到确定为可执行方案后直接上传到服务器作为发布版本。计划人员随时随地下载发布版方案以及将发布方案下达到制造执行系统作为计划参考方案。

03

APS在精益化管理中的定位

易往APS系统弥补企业信息管理系统中ERP和MES的空缺，提供集团化工厂的排产方案以及工厂内车间计划，提供中长期计划以及短期计划，提供计划滚动排程，借助内存计算的优势，一键排程解决了企业计划层中存在的所有问题。

01

APS Function in Lean Management

Many varieties of small batch production mode, which requires quick answer delivery time, frequent change of the production plan, material shortages and inventory backlog, etc., and need to be more detailed operating factory planning than ever before.Pure manual in order to realize the lean management in combination with the spreadsheet way of production plan is out of style, professional production scheduling software is indispensable, production scheduling software is supporting one of the management means of many varieties of small batch production mode.

02

APS Feature in Lean Management

EWIN APS to solution as the center ,o enhance the flexibility of production plan, portability, on the program can be repeated adjustment, contrast, simulated until after identified as executable program directly uploaded to the server as a release.Planners anytime and anywhere to download distribution solutions and will be released to manufacturing execution system reference scheme for reference.

03

APS Location in Lean Management

To make up for enterprise information management system ERP and MES vacancies，EWIN APS provide group chemical plant production scheduling scheme and the factory workshop plan, provide long-term plan and short-term plan, provide the rolling schedule plan, take advantage of the memory calculation, a key scheduling to solve all the problems existing in the enterprise planning level.

用户交互
User Interaction

Client端展示
PC Client

操作界面布局：
方案栏、地图位置标定栏、消息输出、属性栏、菜单栏、工具栏

Interface layout
Bar, Location map calibration bar, Message output, Attributes bar, Menu bar, Tool bar



订单甘特图、设备甘特图、设备利用率、库存趋势图、工作顺序图
Order a Gantt chart、Equipment Gantt chart、Equipment utilization、Inventory trend diagram、Work sequence diagram



WEB端展示
Web Client

主页展示：
菜单栏、方案栏、属性栏、消息栏、地图位置标定栏。
Home page
Menu bar, Solution bar, Attributes bar, Message bar, Map location calibration bar.



报表展示：
订单甘特图、库存趋势负荷图、设备组利用率
Reports show
Order Gantt chart、Inventory trend load chart、Utilization rate of equipment group



APP端展示
Mobile Client

手机移动端由APS的概念图
可以编辑和浏览的方案表
工作生成和排程计算等操作功能组成

Mobile client comprised of operating functions
such as APS concept map
Editable and browse the schedule
Work generated and scheduling of calculation

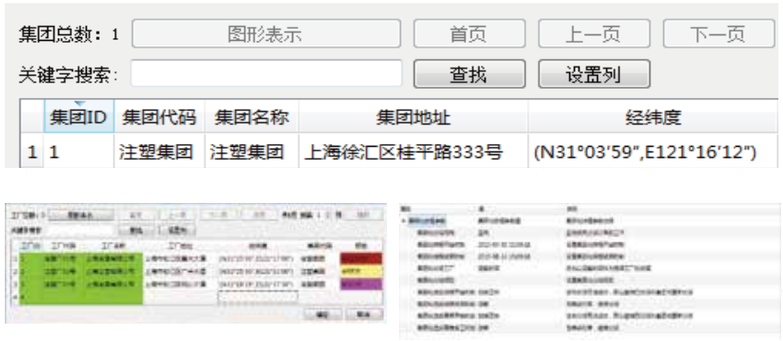


业务模型
Business Model

集团与工厂
Group & Factory

设定集团数据
设定工厂数据
设定工厂制造能力
设定集团化排产参数

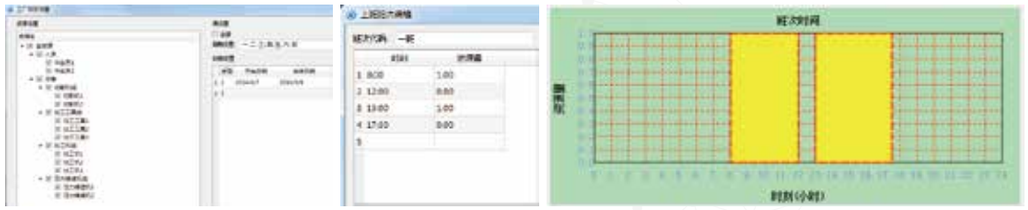
Set the group data
Set factory data
Set factory manufacturing capacity
Set a collectivize production scheduling parameters



日历和班组
Calendar & Shift

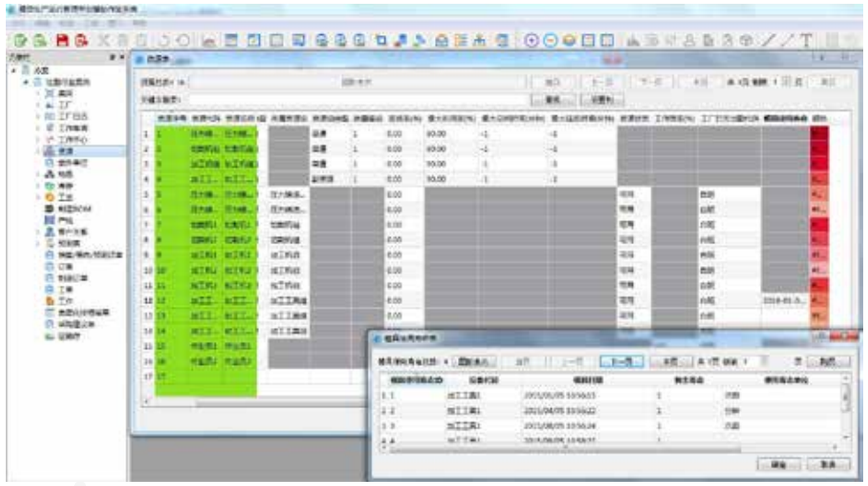
定义各个工作的可用资源的时间。
使用日历可以用较少的记述量定义每天/每个资源的可用时间。
使用日历来定义根据时间的工人的人数或者资源容量等的变化（资源量）

Defines the work of the available resources of the time.
Calendar can use less amount of account used to define/each resource availability time every day.
Use calendar day has traditionally been defined according to the number of the workers in time or the change of the resource capacity (resource)



资源
Resource

资源种类有：	Resource types are:
设备、机台、炉资源	Equipment, Machines, Furnace resources
模具、夹具、刀具等	Mould, Fixture, Cutting tools, Etc
人员	Personnel
工装	Tooling
模具寿命	Die life
制造效率	Manufacturing efficiency
瓶颈资源	Bottleneck resources



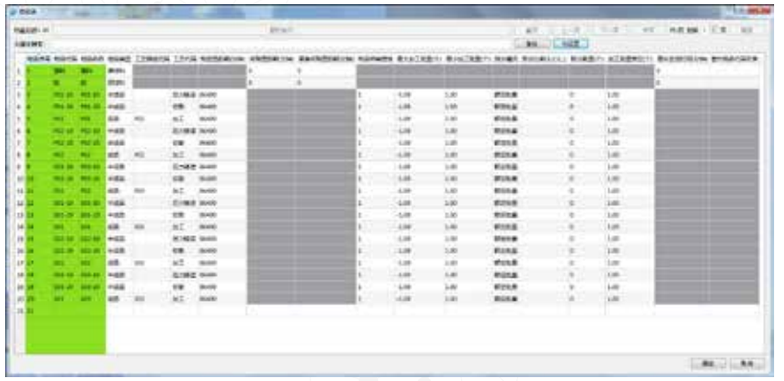
物品
Item

物品类型可以设定
- 原材料
- 半成品
- 在制品
- 成品

物品替代
拆分
制造提前期
物料采购提前期

Materials type can be set
- Raw materials
- Semi-finished products
- WIP
- Finished product

Materials replacement
Split
Manufacturing lead time
Material procurement lead time

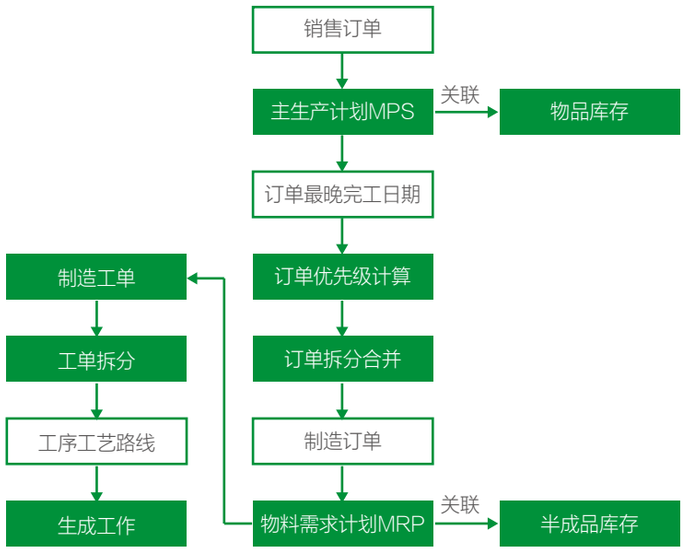


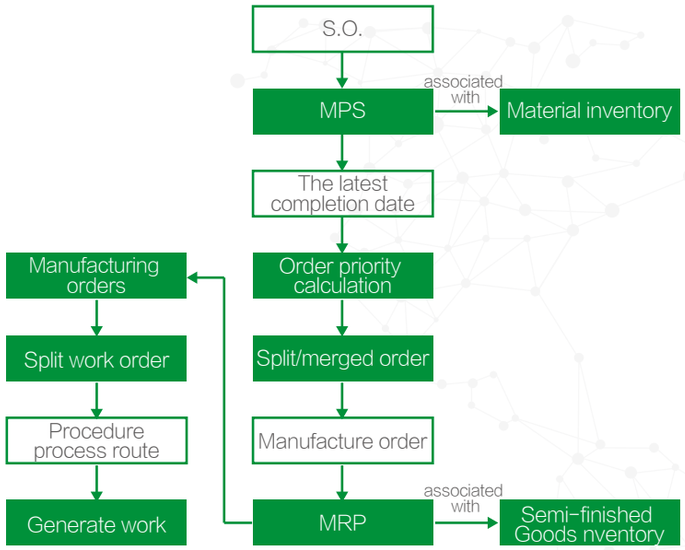
销售订单与工作

Sale Order & Work

销售订单经过主计划运算（MPS）和订单优先级计算生成制造订单
制造订单根据制造BOM产生工作以及工作之间的制约关系

Sales order after master plan operation (MPS) and order priority to calculate generation manufacturing orders, manufacturing orders according to the manufacturing BOM constraint relationship between work





排产功能

Scheduler Function

多种制约统一考虑

Considering Various Constraints

日历班次制约	Calendar shift restriction
模具、人员的制约	Mould and personnel constraints
设备加工能力制约	Equipment processing capacity constraints
物料时间约束	Material time constraints
最早开工和完工时间约束	The earliest starts and completion time constraints
订单制造周期制约	Order manufacturing cycle



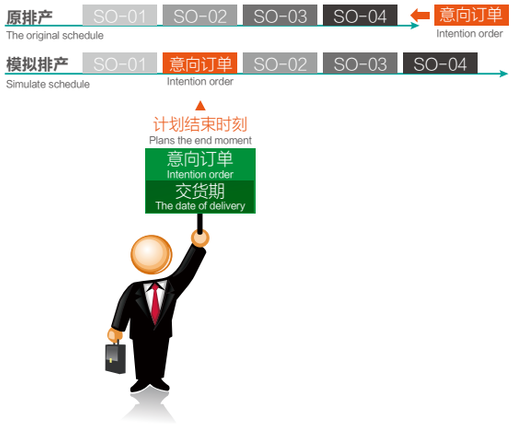
	作	工作代码	工艺代码	工单代码	订单代码	产品代码	层	排程标志	加工方式	计划排程数量	计划开工时间	计划完工时间
37	38	WO13_38	切割	WO13	S01-11_11	S01	2	参与	自制	59	2014/04/26 13:55:00	2014/04/27 09:20:00
38	39	WO13_39	加工	WO13	S01-11_11	S01	3	参与	自制	59	2014/04/27 09:20:00	2014/04/26 12:00:00
39	40	WO14_40	压力铸造	WO14	S01-C1_1	S01	1	参与	自制	47	2014/04/21 15:40:00	2014/04/23 09:25:00
40	41	WO14_41	切割	WO14	S01-C1_1	S01	2	参与	自制	47	2014/04/23 09:25:00	2014/04/23 14:20:00
41	42	WO14_42	加工	WO14	S01-C1_1	S01	3	参与	自制	47	2014/04/23 14:20:00	2014/04/25 12:00:00

交货期答复

Delivery time reply

交货期答复是客户经常提出的要求，也是制造业的难题之一。通过对意向订单的排程可快速、准确地答复交货期。当意向订单和正式订单一起参与排程时，现有库存和生产能力会优先满足正式订单，在正式订单分派后，再对意向订单分派。根据意向订单的计划结束时刻，可以答复其准确的交货期。

Delivery time reply is customers' often request, is also one of the problem of manufacturing. Through the intention to order scheduling can be quickly and accurately reply delivery date. When intention order and official order together participate in scheduling, existing inventory and production capacity will meet the official order first, after the official order dispatch, then the intention order dispatch. According to the intention order plans to end time, can reply the accurate delivery date.



销售订单 Sales order	优先顺序 Priorities	订单状态 The order status	交货期 The date of delivery	计划最晚结束时间 Plan the latest end time
SO-1	90	已确定	2012/2/22	2012/2/21
SO-2	70	已计划	2012/2/27	2012/2/23
意向订单	80	未计划	2012/2/25	?
SO-3	60	已计划	2012/2/26	2012/2/20
SO-4	30	已计划	2012/3/2	2012/2/21

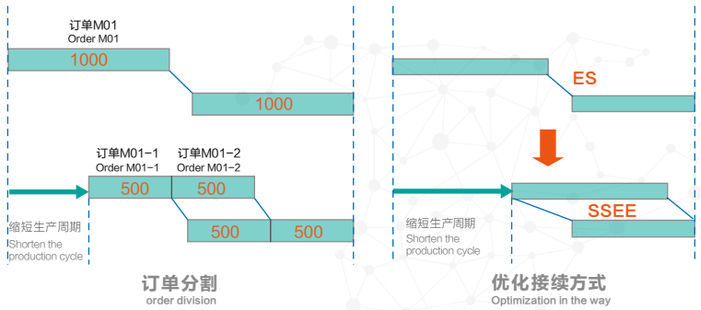


缩短制造提前期

Shorten the production lead time

订单分割
设置接续方式
工作分割多个设备并行加工

Division of the order
Set up continue on way
Work division multiple equipment parallel and processing





提高设备产能

Improve equipment capacity

相同规格，温度由低到高，颜色由浅到深，排产到一起，优化设备准备时间或者模具切换时间；
尽量使得各资源（产线、机台）的负荷均衡；
尽量集中、连续使用资源（产线、机台）；
尽量在最快的设备上生产；
尽量相同加工要求的产能连续生产；
尽量在优先级最高的资源（产线、机台）上生产。

The same specifications, from low to high temperature, color by shallow to deep, production scheduling, optimizing preparation time or mold equipment switching time.
Try to make the resources (production line, the machine) of load balancing.
As far as possible focus, continuous use of resources (production line, the machine).
As far as possible in the fastest production equipment.
As far as possible the same processing requirements of continuous production capacity.
As far as possible in the highest priority production resources (production line, the machine).



车床设备相同颜色工作一起加工优化了准备时间
Lathe equipment work the same color together to optimize the preparation time

降低库存

Reduce inventory

准确预测销售订单,以客户为需求导向，设置倒排产计划方式、订单交货期优先顺序有限能力排产实现准时交货。

Accurately forecast sales orders, customer demand oriented, setting up inverted production plan, limited ability production scheduling, order delivery priorities to achieve on time delivery.



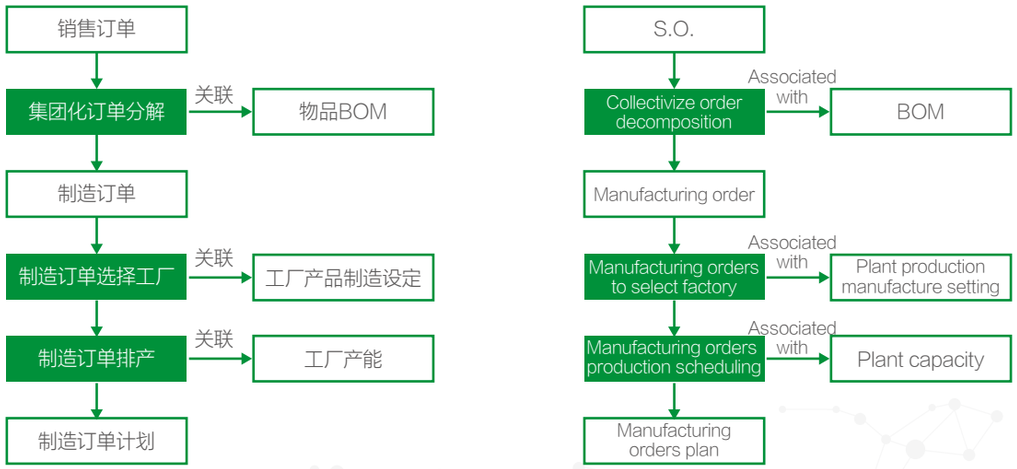
集团化排产

Collectivize production scheduling

- 设定工厂产品制造参数
- 设定工厂产能计算方式
- APS计算集团化排产建议方案

- Set factory product manufacturing parameters
- Set factory capacity calculation
- APS collectivize production scheduling plan

销售订单代码 Sale order code	产品代码 Product code	工厂代码 Factory code	数量 Amount	开始时间 Starting time	结束时间 Endig time
S01-01	S01-10	注塑厂0 号	40000.00	2014/4/6 0:00:00	2014/4/15 18:00:00
P02-03	P02-20	注塑厂01号	100000.00	2014/4/10 0:00:00	2014/4/20 0:00:00



排产计划调整

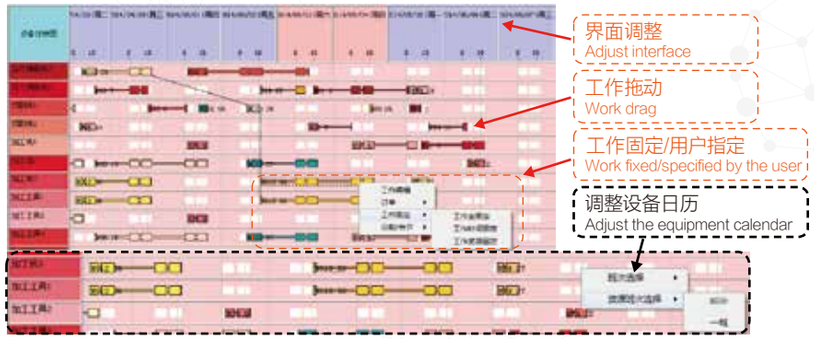
Production Plan Adjustment

提供丰富的功能支持用户对排程结果进行调整。

- 工作拖动
- 界面调整
- 调整日历
- 用户指定
- 工作固定
- 工作状态

Provide a rich function for supporting the user to adjust the scheduling result.

- Work drag
- Interface adjustment
- Adjust calendar
- User to specify
- Fixed work
- Working state

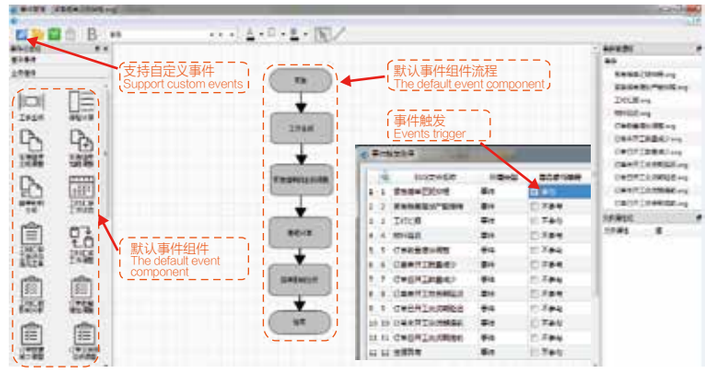


突发事件应对

Emergency response

- 紧急插单
- 设备故障
- 物料延迟
- 订单变更
- 工时汇报

- Rush order
- Machine equipment abnormality
- Material delays
- Sales order quantity/delivery-date alter
- Working hours report



物料计划

Material plan

工作生产指示：
需求物料的计划
需求物料的数量

Work production instruction:
The demand material plan
The demand material number

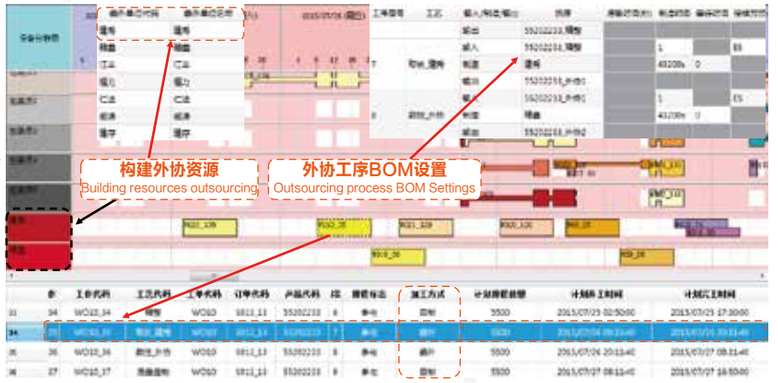


外协/委外的处理

Purchasing/outsourcing processing

- 支持外协工艺
- 支持外协工单
- 支持外协单位
- 外协无限能力排产

- Support outsourcing process
- Support outsourcing work order
- Support outsourcing units
- Outsourcing infinite capacity production scheduling

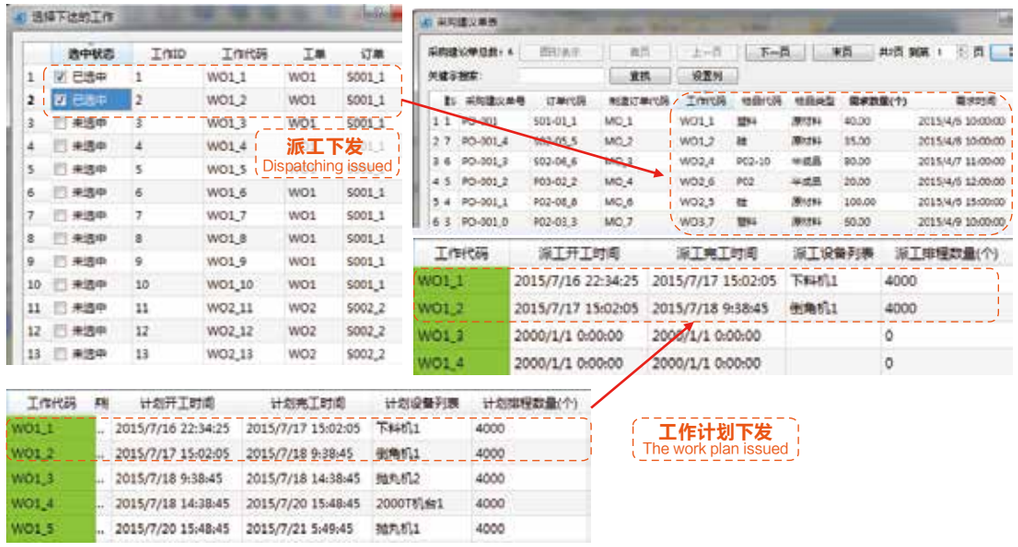


排产计划下达

Issue Production Plan

排产计划批量下达，定时下达，自定义选择下达

Production scheduling plan issued by batch, regularly, custom selection.



技术特点、接口与实施方案

Technical characteristics、
Interface and implementation plan

技术特点

Technical Features



成本最小化
利润最大化
Minimizing cost profit maximization

最小完工时间	最小完工时间要求所有加工的工单尽量早完工 迫使工单尽量早加工，且早加工周期尽量短	Minimum completion time	Minimum completion time require all the work order process-ing complete early as far as possible forced work order proc-essing early as far as possible and the processing cycle short as far as possible.
最小延迟时间	最小延迟时间要求尽量避免工单脱期 或者使得工单脱期降到最低	Minimum delay time	Minimum delay time requires to avoid the work order to miss a deadline, or made to minimize the order to miss a deadline
最小生产准备时间	合理的安排生产任务的加工次序 可以减少生产准备时间	Minimum production preparation time	Reasonably arrange production task order processing can reduce the production preparation time
最小流程时间	工厂的在制品库存希望减至最低 以降低存货成本	Minimum process time	Factory hope to minimizes the WIP inventory to reduce inventory costs
最大设备利用率	在生产过程中，尽量使设备满负荷进行生产 充分利用设备资源，提高产能	Maximum utilization rate of equipment	In the process of production, try to make the equipment at full capacity to make full use of equipment resources, increase production capacity
最大化瓶颈能力	在某一特定时间内 使瓶颈资源的产出量最大	To maximize the bottleneck capacity	In a particular period of time to make bottleneck resources biggest output
最小化库存	合理安排生产计划 使原材料半成品、成品的库存最小	To minimize inventory	Arrange production plans to minimize the inventory of raw material semi-finished products and finished products
准时交货	尽量保证产品在接近交货期完工 降低库存成本	On time delivery	Try to ensure that products should be completed by close to the date of delivery to reduce inventory cost

系统接口

System Interface

与外部系统接口方式分为基础数据和业务数据，其中基础数据有：

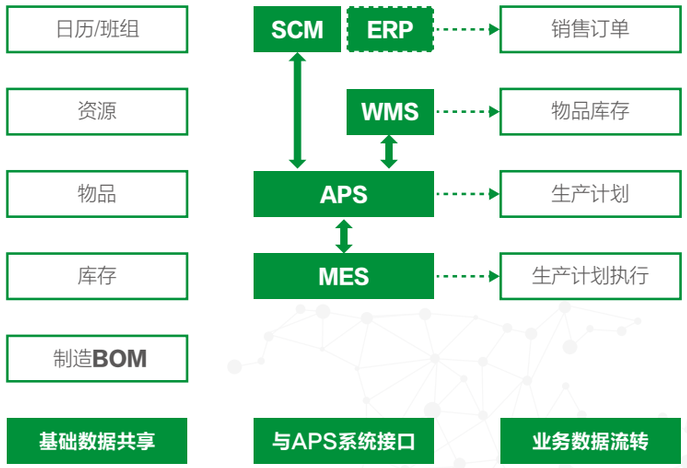
- 日历、班组
- 资源
- 物品
- 库存
- 制造BOM

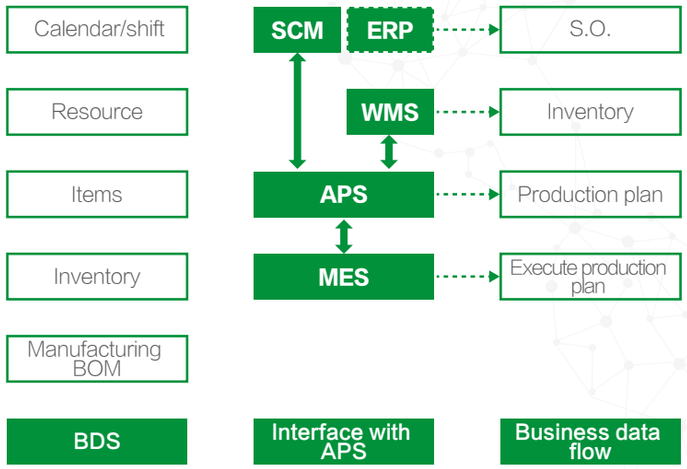
业务流转过程：SCM/ERP接到销售订单，关联WMS库存后经过APS计算产生生产计划
由MES执行生产计划，具体如有图所示：

With an external system interface mode is divided into basic data and business data, basic data are as follows:

- Calendar, shift
- Resources
- Items
- Inventory
- Manufacturing BOM

The business flow process:SCM/ERP received sales order, after related WMS inventory, APS computed production plan, and performed by the MES, specific as is shown in figure:





实施方案

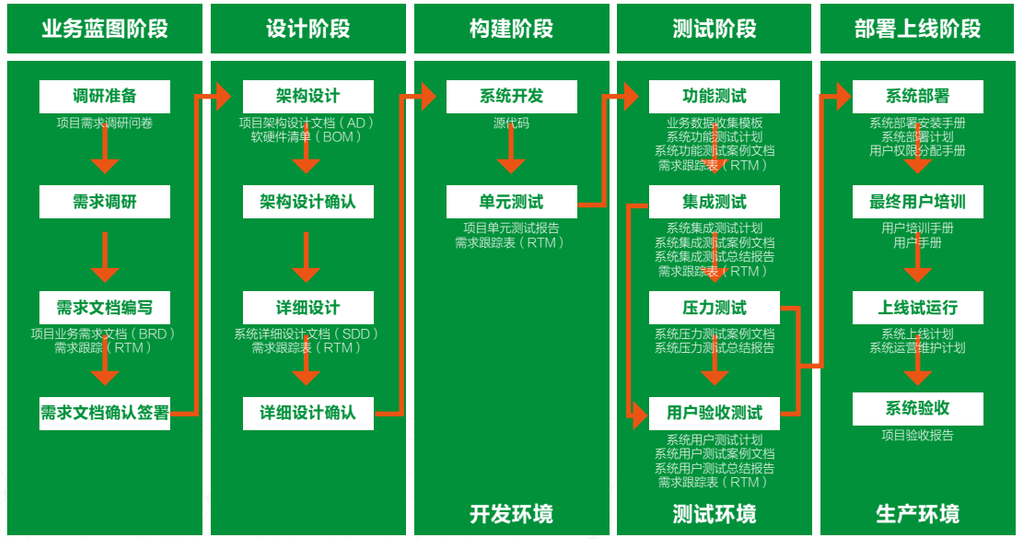
Implementation Solution

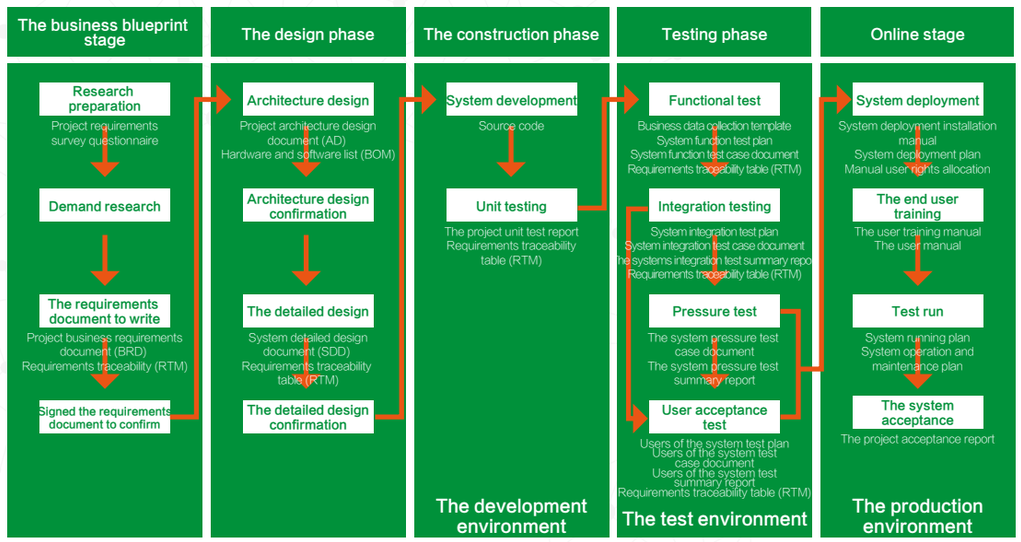
实施过程中关键节点如下：

- 业务蓝图阶段
- 设计阶段
- 构建阶段
- 测试阶段
- 部署上线阶段

In the process of the implementation of the key nodes are as follows:

- The business blueprint stage
- The design phase
- The construction phase
- Testing phase
- Online stage





产品功能清单
Function List

易往APS产品功能一览表			
	功能	功能子项	描述
用户界面	图表通用功能	图表行的自动配置	能够基于存在的资源、物品、订单自动重新配置图表行。能够指定行的排列顺序。
		指定显示范围	可以用时间指定每个图表的显示范围。
		限定显示时间段	通过只显示1天（24小时）中的特定时间段，可以有效地利用有限的屏幕。 可以在弹出菜单上简单切换这个功能的 ON/OFF。
		显示/隐藏假日	用弹出菜单能够简单地切换显示 / 隐藏事先定义的假日。
		鼠标滑轮的轻快操作	画面的滚动和纵轴、横轴的放大 / 缩小全部可以用鼠标滑轮进行。
		图表之间的连动	图表之间（资源甘特图表和复合甘特图）允许拖放，也实时反映到其它所有图表
		登记样式	将定义的显示设置命名登记，可以随时调用。
		标题设置	每个图表可以自由设定标题（窗口的名称），明确图表的用途。
		行查找	能够输入代码查找图表行。也可以使用通配符。
		打印设置	可以指定打印时的页边距和缩放比率。备有黑白打印模式。每个图表可以独自保持打印设置。
		保存默认显示设置	可以替换、还原新建图表时所使用的默认显示设置。
		连接线绘图相关	可以根据数据的内容和性能自定义工作之间连接线的绘制方法。
		显示颜色	在许多表格里都可以对每个记录指定画面上的显示颜色。
	设备甘特图	工作移动的撤消/重做	工作移动操作可以多次追溯修改。
		固定定与冻结	可以对于每一个工作设定、解除各种级别的固定属性。
		指定显示颜色	可以用各种各样的方法指定显示在图表上的工作的颜色。也可以高光显示满足某一条件的工作。
		自动固定工作	可以选择在工作移动后是否自动锚定。
		伸缩工作时间	通过鼠标拖拽，可以使工作时间伸缩。也可以禁止该操作。 通过指定显示字符串能够在甘特图表上显示工作的各种信息。
		自定义工作信息的显示方法	依靠显示位置的设置可以有效地利用有限的空间来显示更多信息。
		工作的数据提示显示	能够在数据提示里显示鼠标所指的工作的信息。
		拆分工作与合并工作	能够按任意比率拆分工作。也能够重新合并被拆分的工作。
		拆分订单与合并订单	能够按任意比率拆分订单。也能够重新合并被拆分的订单。
		查找工作	能够从各种面板查找工作并用雷达指针显示出来。
		编辑自由日历	能够添加/删除或者用鼠标移动 。
		查找日历	检索甘特图上的单元格的日历。
	订单甘特图	指定显示颜色	能够用各种各样的方法指定图表上工作的颜色。也能够高光显示满足某一条件的工作。
		查找工作	能够从各种面板查找工作并且用雷达指针显示出来。
		自定义工作信息显示	通过指定显示字符串可以将工作的各种信息显示在甘特图上。
		工作的数据提示显示	能够在数据提示里显示鼠标所指的工作的信息。
		显示逾期订单	能够用简单的操作高光显示逾期订单。
	设备利用率	指定显示形式	以指定期间汇总显示资源或者资源组的负荷率或资源量。
		图形显示与数值显示	能够选择图形显示和数值显示。
		超负荷预警显示	负荷超过 100% 的部分显示预警。
	库存量趋势图	指定显示形式	显示物品或者物品组的库存量推移以及库存量、制造量、消耗量、入货量、出货量在指定期间的汇总。
		图形显示与数值显示	能够选择图形显示和数值显示。
		指定刻度范围	能够指定刻度的上限和下限。没有指定的时候自动调整。
		违反制约预警显示	可以定义随时间而变化的汇总值的上限 / 下限，超出部分显示预警。
	项目设置	计划期间设置	可以根据实务的需求用绝对时间或者相对时间详细设置当前时间和计划开始时间等。
		假日设置	用星期或日期登记“假日”，可以在图表里隐藏。
		显示时间段设置	定义显示时间段，计划时可以在图表里隐藏不关心的时间段（夜晚等），从而有效地利用空间。
		自动固定工作	能够自动冻结或者锚定分布在冻结期间里的工作或订单。
		部分保存	能够各自单独保存项目的设置和数据。
		导入设置	可以导入其它项目的一部分设置（所登记的风格和工作面板的设置等）。

EWIN APS product features list			
Project	Function	Functional items	Descriptions
The user interface	The chart common functions	Automatic configuration chart	Can be based on the existing resources, goods, order automatically reconfigure the line chart. To specify the order.
		The specified range	Can use the time to specify each chart display area.
		Limit display period	By showing only a certain time period in 1 day (24 hours), can effectively use of the limited screen. Can be simple in the pop-up menu to switch ON/OFF of this feature.
		Show/hide the holiday	In the popup menu can simply switch show/hide define holiday in advance.
		The gaiety of the mouse wheel	Picture scroll and vertical and horizontal axis of enlarge/reduce all can use the mouse wheel.
		The correlation between the chart	Between chart (resource gantt charts and compound gantt chart) allowed to drag and drop, all other chart is also reflected in the real-time
		Registration style	Will define the display Settings after registration, can call at any time.
		The title is set	Each chart can be freely set title (the name of the window), clear the purpose of the chart.
		Line search	To enter the code line chart of search. Can also use wildcards.
		Print setup	You can specify print the page margins and zoom ratio. Equipped with black and white print mode. Each chart can keep alone print Settings.
		Keep the default display Settings	Can replace, reduction to use when new chart display Settings by default.
		Wire drawing	Can according to the data content and performance between customization wire drawing method.
		According to the color	In many forms can specify the screen display colors of each record.
	Equipment gantt chart	Undo/redo mobile work	Mobile operation can trace changes many times.
		Fixed and freeze	Can work for each set, remove all kinds of levels of fixed property.
		Display color	Can use all kinds of method specified is displayed in the color of the chart work. Also can work highlights to satisfy a certain condition.
		Automatic fixed work	Whether can choose after working mobile anchor automatically.
		Adjustable working time	Through the mouse drag and drop, can make work time scale. Also can prohibit the operation. By specifying a display string can work in the gantt chart shows all kinds of information.
		Customization information display method	Depending on the display position setting can effectively use limited space to display more information.
		Work data suggest show	To show to the data suggest the information referred to in the mouse work.
		Work split and merge	Able to work split in any proportions. United can be broken up.
		Order split and merge the order	To split the order in any proportions. May also be able to merge the split orders.
		Find work	Radar that can find work from all kinds of panel and pointer display.
		Edit the free calendar	The ability to add/delete or use the mouse to move.
		Find a calendar	Retrieve the gantt chart of cell on the calendar.
	Order a gantt chart	Display color	Able to use all kinds of method to specify the color chart work. Also able to work highlights to satisfy a certain condition.
		Find work	Able to work from a variety of panel to find and use radar pointer display.
		Custom work information display	By specifying the displayed string can will work all of the information displayed on the gantt chart.
		Work data suggest show	To show to the data suggest the information referred to in the mouse work.
		According to exceed the time limit orders	Can use simple operation highlights overdue orders.
	Equipment utilization	Specify the display forms	To specify the summary display resource or resource group during the period of load rate or resources.
		Graphical display and numerical display	Be able to select graphics display and digital display.
		Overload warning display	Load more than 100% of the part of a display warning.
	Stocks trend diagram	Specify the display forms	Display items or items of inventory and inventory, production, consumption, into the cargo, summary of shipments within a specified period of time.
		Graphical display and numerical display	Be able to select graphics display and digital display.
		Specify the scale range	To specify calibration of upper and lower limits. Automatic adjustment is not specified.
		In violation of the warnings	Can define changed over time, the sum of the value of upper/lower limit, beyond the part of a display.
	Project Settings	Plan set during	You can use absolute or relative time according to the requirements of practical detailed plan to set the current time and start time, etc.
		Holiday Settings	With a week or date of registration "holiday", can be hidden in the chart.
		Show time Settings	Defined according to time, the plan can hide in the charts don't care about the time period (night, etc.), and use a space effectively.
		Automatic fixed work	Automatically freezing or anchor distribution during the freezing of job or order.
		Part of the save	To separate save the project Settings and data.
		Import Settings	Can import the other part of the project Settings (style and the enrollment work panel Settings, etc.).

易往APS产品功能一览表

项目	功能	功能子项	描述
数据设定	日历表数据设定	差异部分定义	通过大范围使用的基本日历定义和特殊部分的差异定义的组合，能够用最少的数据量定义复杂的日历。
		指定日	可以对星期、日期或者用二者指定的期间定义日历。
		资源量指定	能够记述随着时间带变化的持有资源量（人数等）。
		模式登记	将1天中可利用的模式命名后登记，能够通过日历参照、从甘特图上轻松选择。
	资源表数据设定	资源优先级	可以对每个候补资源设定优先级。编入排程时的评估里使用。
		必要资源量	指定工作必需的资源量（人数等）。指定固定值或者与输入输出数量成比的值。
		制造能力定义	定义与输入输出数量成比的时间或固定时间。另外，也能够二者组合定义。 可以指定各种各样的单位（每小时的个数、每个的秒数等）。
		效率指定	可以把特定的实数值或从订单设定的数值规格的值作为系数伸缩制造时间。
		定义前后设置	设置时间可以指定为固定时间，或者参照设置时间表。
		定义最大中断时间	可以分别指定前设置、制造、后设置各部分可中断时间的上限。
		可用区分的有效期间	能够对每个工作的任务指定有效期间进行可用资源、设置时间和制造时间的能力值等的设置。
	物品表数据设定	分组	通过物品分组，能够简化数据设定。而且，能够在分组汇总的库存图表显示和基于特定条件 筛选汇总显示等的时候利用。
		最小库存量	可以指定库存量的下限，以此为制约条件进行排程。由原材料的库存量制约和补充生产功能参照。
		最大库存量	能够在库存图表里描画库存量的上限，显示预警。
		安全库存量	库存低于安全库存量时会生成补充订单以保证原料供应。
		规格与数值规格	可以设定物品固有的规格和数值规格，通过排程规则参照。
	制造BOM表数据设定	输入输出比率指定	可以随意指定各工序消耗 / 制造的数量比。
		工序选择器	可以定义多个制造产成品的工艺路线，通过订单选择。
		指定制约基点	工序之间时间制约的基点可以选择为制造的开始 / 结束、设置的开始 / 结束。
		成品率设置	每个工序设定的成品率反映到输入物品的数量和工作时间。
		指定拆分批量	能够任意指定横跨多个工序的批量进行拆分。有利于缩短订单提前期等。
		规格与数值规格	可以设定工序固有的规格和数值规格，通过排程规则参照。
	订单表数据设定	优先级	给每个订单指定优先级，控制排程。
		工作期间指定	可以指定能够分派从订单派生的所有工作的期间。另外，也可以只对特定的工作指定期间。
		规格与数值规格	可以对生成的每个工作设定任意规格和数值规格。通过分派资源的控制和资源主导分派方法等参照。
		分派方向	对每个订单指定分派方向（正向、逆向），控制排程。
		库存关联	可以在任意工序里指定中间品的一部分从中间库存关联而不是前工程。
		订单关联	多个订单之间可以指定n对m的关联关系。
		原料数量指定	指定消耗原料的数量，能够逆向展开并算出产成品数量。
		订单最早开工时间	对订单计划开工时间的约束。
		订单最晚开工时间	对订单计划开工时间的约束。
		订单最早完工时间	对订单计划完工时间的约束。
		订单最晚完工时间	对订单计划完工时间的约束。
		订单最长在线时间	对订单制造周期的时间约束。
	工作表	反映实绩	把工作现场反馈的实绩反映给工作，排程能够反映进展状况。
		工作实绩时间	取得准备、制造、等待各部分详细的进展状况作为实绩。
		反映实绩数量	反映实绩数量。
		利用资源的实绩	利用资源的实绩。
		工作状态	已结束，已确定，未计划，指示完毕。
排程	排程参数设定	分派规则	确定工作分派的顺序，例如订单优先级越大越优先分派，订单交货期越早越优先分派。 支持系统预定义分派规则组合以及支持用户自定义分派规则。
		分派方向	设定正向分派，逆向分派，强制正向，逆向分派，遵从订单分派。
		分派方式	设定分派到设备，分派到设备组。
		分派资源	设定工作选择设备的方式，例如：设备负荷均衡化，设备优先级等方式选择设备。
		制造时间计算方式	设定工作在设备上的制造时间计算方式，例如：遵从主资源，取所有可选设备的最大值等。
		工作违反制约处理方式	工作违反设备加工能力，违反排程开始和结束时间等制约的处理方式， 具体方式有：强制分派，不分派，忽略制约等。
		分派期间	设定工作分派的开始和结束时间。
		采购预测	设定采购预测的参数，例如：预测开始和结束时间等。
		制造预测	设定制造预测的参数，例如：预测开始和结束时间，分派方向等。

EWIN APS product features list

Project	Function	Functional items	Descriptions
The data set	The calendar table data set	Differences in partial definitions	Through a wide range of use of the basic calendar definition and special part of the definition of the differences of combination, can use at least the amount of data that define complex calendar.
		The specified date	Can the week, date, or use both define the period specified calendar.
		Specified amount of	Can hold of with change over time, the resources (number, etc.).
		Model registration	Will be available in 1 day model named after registration, can consult the calendar, easy to choose from the gantt chart.
	Set the table data resources	Resource priority	You can set the priority of each backup resources. Used to assess into the schedule.
		The necessary resources	Tasks required resources (number, etc.). Specify a fixed value or with input and output quantity than value.
		Manufacturing capacity definition	Definition and input and output quantity into than time or fixed time. In addition, also can combination of definition. You can specify a variety of units per hour (the number of, each of the number of seconds, etc.).
		The efficiency of specified	Can put the specific real value or from order set numerical specification value as the coefficient of scale manufacturing time.
		Define Settings before and after	Setup time can be specified for a fixed time, or reference to a timetable.
		Define the biggest break time	Can be set respectively before the specified Settings, the manufacture, after each part can interrupt time limit.
		During the effective period of available to distinguish	Able to work for each task specified during the effective period of available resources, such as setting time and the ability to create time value Settings.
	Anticipating the data set	grouping	By grouping items, can simplify the data set. And, in the group summary of inventory chart shows and based on specific conditions.Using filter summary display and so on.
		The minimum inventory	You can specify the lower limit of inventory, as restricted conditions on schedule. By the inventory of raw materials and supplementary production function reference.
		Maximum inventory	Can be painted in inventory chart inventory limit, according to early warning.
		Safety stock	Inventory is lower than the safety stock will generate added orders to ensure raw material supply.
		Specifications and numerical specifications	Can set items of the specifications of the inherent and numerical specifications, by scheduling rules.
	Manufa-cturing BOM table data set	Input/output ratio specified	To specify the number of consumption in each process/manufacturing.
		Process selector	Can define multiple process routes of the manufacture of finished goods, through the selection of the order.
		Specify constraints basis points	Process manufacturing on the basis of time constraints can choose between the start/end, set the start/end.
		Yield set	The yield of each working procedure to set the amount of items to be reflected in the input and the work time.
		Specify the split the batch	Can be arbitrarily designated batch split across multiple processes. To shorten the order lead time, etc.
		Specifications and numerical specifications	Can set the working procedure of the specifications of the inherent and numerical specifications, by scheduling rules.
	The orders table data set	priority	Assigned to each order priority, and control the schedule.
		During the work specified	Can be specified to be able to dispatch from order derived during all of the work. In addition, also can only work for a particular specified period.
		Specifications and numerical specifications	Can be generated for each work setting arbitrary specifications and specifications. Through the way to assign resources to control and dominate the dispatch resources such as reference.
		Dispatch direction	For each order specified dispatch direction (forward, backward), control the schedule.
		Inventory associated	Can be in any part of the products specified in the process from the middle inventory rather than the project.
		Orders associated	Between multiple orders can specify n relationship of m.
		Raw material quantity specified	Specifies the amount of consumption of raw materials, and calculate the number of finished goods to reverse.
		Order is the earliest time	The order plan starting time constraints.
		The order starting time at the latest	The order plan starting time constraints.
		Order the earliest completion time	The order plan completion time constraints.
		The order completion time at the latest	The order plan completion time constraints.
		Orders for the longest time online	The order manufacturing cycle time constraints.
	The worksheet	Reflect the actual	Reflect the work site feedback performance to work, scheduling can reflect the status of progress.
		Their achievements in work time	Preparation, manufacturing, and wait for the acquisition of a detailed progress as the actuals.
		Reflect the actual number of	Reflect the actual quantity.
		Use of resources of performance	Use of resources of performance.
		Working state	Is over, have been identified, plans, instructions to complete.
Schedul-ing	Scheduling parameters setting	Dispatch rules	Determine the sequence of tasks, such as order priority the bigger the priority dispatching, the earlier the order delivery date triage.Support system predefined combination of dispatching rules and support user-defined dispatching rules.
		Dispatch direction	Set forward dispatch, reverse dispatch, forced forward, reverse dispatch, obey orders for dispatch.
		Dispatch way	Set assigned to the device, the group assigned to the device.
		Assign resources to	Work setting method of equipment selection, for example: equipment load equalization, equipment priority methods such as choice.
		Manufacturing time calculation	Set to work on the equipment manufacturing time calculation, such as: follow the main resources, take the maximum of all optional equipment, etc.
		Work in violation of the constraints	ACTS violating the work equipment processing capacity, scheduling constraints such as start and end time, Specific ways are: forced dispatch, not dispatch, ignore the restriction, etc.
		During the period of dispatch	Set the referral of the start and end time.
		Purchasing forecast	Set the parameters of procurement forecasting, such as: predicting the start and end time, etc.
		Make forecast	Set manufacturing prediction parameters, such as: to predict the start and end time, the dispatch direction, etc.

易往APS产品功能一览表			
项目	功能	功能子项	描述
排程	排程参数设定	销售预测	设定销售预测的参数，例如：预测开始和结束时间，分派方向，预测模型等。
		订单拆分	设定订单拆分的参数，例如：拆分方式等。
		订单合并	设定订单合并的参数，例如：合并方式等。
		紧急插单事件	紧急插单中时间窗口定义，工作计划调整级别定义。
		设备故障事件	定义设备故障处理阈值，是否采用替代设备。
		工时汇报事件	定义工时汇报处理阈值，工作实际开工或者完工时间。
		订单变更事件	定义订单变更后数量，交货期等。
		物料延迟事件	定义物料延迟处理阈值，是否采用替代物料。
		订单优先级计算	定义计算订单优先级的方法和各个因素的权重。
		派工	工作派工方式定义。
		集团化排产	设定集团化排产的方式，分派方向等。
		消息输出控制	控制工作生成以及排程过程中消息是否输出到消息栏中。
		正向排程	按照订单前后工序之间的加工顺序，对每个工序计算计划开工和完工时间，选择计划设备。
		逆向排程	按照订单后工序的完工时间逆向计算工序的计划开工时间，选择计划设备。
	排程功能	混合方向排程	订单中某道工序计划确定后，前工序逆向分派，后工序正向分派。
		集团化排产	集团的销售订单选择工厂产生集团化排产方案。
		采购预测	原材料库存低于安全库存量时会生成采购订单以保证原料供应。
		制造预测	半成品库存低于安全库存时，会产生制造订单以补充半成品。
		销售预测	根据销售历史订单记录，选择适当的模型预测将来的销售订单。
		工作生成	销售订单根据制造BOM关联成品库存，半成品库存产生工序对应的工作。
		紧急插单事件触发	紧急插单发生后，根据预定义流程触发紧急插单事件。
		设备故障事件触发	设备故障发生后，根据预定义流程触发紧急插单事件。
		工时汇报事件触发	工时汇报发生后，根据预定义流程触发紧急插单事件。
		订单变更事件触发	订单变更发生后，根据预定义流程触发紧急插单事件。
		物料延迟事件触发	物料延迟发生后，根据预定义流程触发紧急插单事件。
		工作分批次排程	根据工作状态（已完成，时间固定，资源固定，未计划）将工作划分批次，各个批次工作排程。

EWIN APS product features list			
Project	Function	Functional items	Descriptions
Schedul-ing	Scheduling parameters setting	Sales forecast	Set the parameters of the sales forecast, for example: to predict the start and end time, the dispatch direction, forecast model and so on.
		The order split	Set the parameters of the order split, for example: split mode, etc.
		Order to merge	Set order consolidation parameters, such as: the way of merger, etc.
		Single event of emergency	Emergency time window of definition, work plan adjust the level definitions.
		Equipment failure events	Define equipment fault handling threshold, whether to adopt alternative equipment.
		Working hours to report events	Define working hours report processing threshold, the actual construction work or completion time.
		Order change events	Define order change after the quantity, delivery time, etc.
		Material delay events	Define material processing delay threshold, whether to adopt alternative materials.
		Order priority is calculated	Defines the methods of calculation order priority and the weight of each factor.
		dispatching	Job dispatching method definitions.
		Collectivize production scheduling	Set a collectivize production scheduling, dispatch direction, etc.
		Message output control	Control work generated in the process of the scheduling and message is output to the bar.
		Forward schedule	Order according to the order process between before and after processing, calculation of every working procedure plan starts and completion time, equipment selection plan.
		Reverse scheduling	According to the order after the work procedure of the completion time of the reverse calculation program starting time, equipment selection plan.
	Scheduling function	Direction of hybrid scheduling	A process plan is determined, in the order process before reverse dispatch, after the process is assigned.
		Collectivize production scheduling	Group sales orders to choose factories produce collectivize production scheduling plan.
		Purchasing forecast	Raw material inventory is lower than the safety stock will generate purchase orders to ensure raw material supply.
		Make forecast	Semi-finished products inventory is lower than the safety stock, can produce manufacturing orders to supplement the semi-finished products.
		Sales forecast	According to sales order history records, select the appropriate models to predict the future sales orders.
		Work to generate	Sales orders according to the associated manufacturing BOM fg inventory, semi-finished product inventory process corresponding to the work.
		Single event triggers an emergency	After emergency insert sheet, according to the predefined process single event triggering an emergency.
		Equipment failure event trigger	Equipment failure happens, according to the predefined process single event triggering an emergency.
		Working hours report the event trigger	Reporting after working hours, according to the predefined process single event triggering an emergency.
		Order change event trigger	Order change happens, according to the predefined process single event triggering an emergency.
		Material delay event trigger	Material delay happens, according to the predefined process single event triggering an emergency.
		Partial time scheduling work	According to the working condition (completed, fixed time, fixed resources, not plan) will work divided into batches, each batch job scheduling.

案例分享
Cases



内蒙古第一机械集团包头一机MES项目
Inner Mongolia First Machinery Group MES Project in Baotou

内蒙古第一机械集团公司（原国营617厂），是中国最大的主战坦克生产基地，是隶属于中国兵器工业集团公司的特大型军工企业，是国家"一五"期间156个重点建设项目之一，是国家520个重点企业之一，也是内蒙古自治区重点培育的20个大企业之一。

易往APS以作业计划管理模块嵌入到MES系统中，APS以追求精益生产计划管理(JIT) 为目标，涵盖了众多企业信息化成功实施方案、管理模型、优化及模拟技术，为复杂的生产计划调度提供优化解决方案，广泛适用于各类制造型企业。

Inner Mongolia First Machinery Group co., LTD. (original state-operated 617 factory), is China's largest production base of main battle tanks, also a part of China north industries group corporation of super large military enterprise, one of the national 156 key construction projects during "the First Five-year Plan", one of the national 520 key enterprises, is also one of the 20 large enterprises by the ministry of Inner Mongolia autonomous region.

EWIN- APS as operation plan management module embedded in MES system, APS in pursuit of lean production plan management (JIT) as the goal, covers a multitude of successful enterprise information solutions, management model, optimization and simulation technology, to provide sophisticated production planning and scheduling optimization solution, widely applicable to all kinds of manufacturing enterprises.

东风汽车有限公司 APS项目
APS Project for Dongfeng Motor Co., LTD.

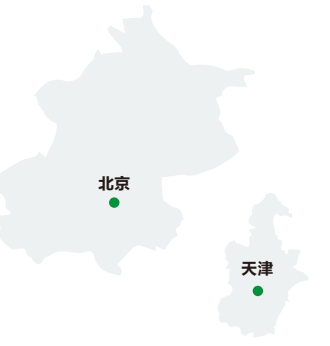
东风汽车有限公司装备公司，是东风、日产合资的汽车装备制造企业，公司下属三个专业生产厂和一个子公司：通用铸锻厂、设备制造厂、刃量具厂、东风模具冲压技术有限公司。

易往APS通过梳理业务流程，规范生产管理，借助排程软件处理复杂问题的能力，使计划员将更多的精力投入到更高层次的生产管理改进中，从而进一步提高企业管理水平，实现智能制造。

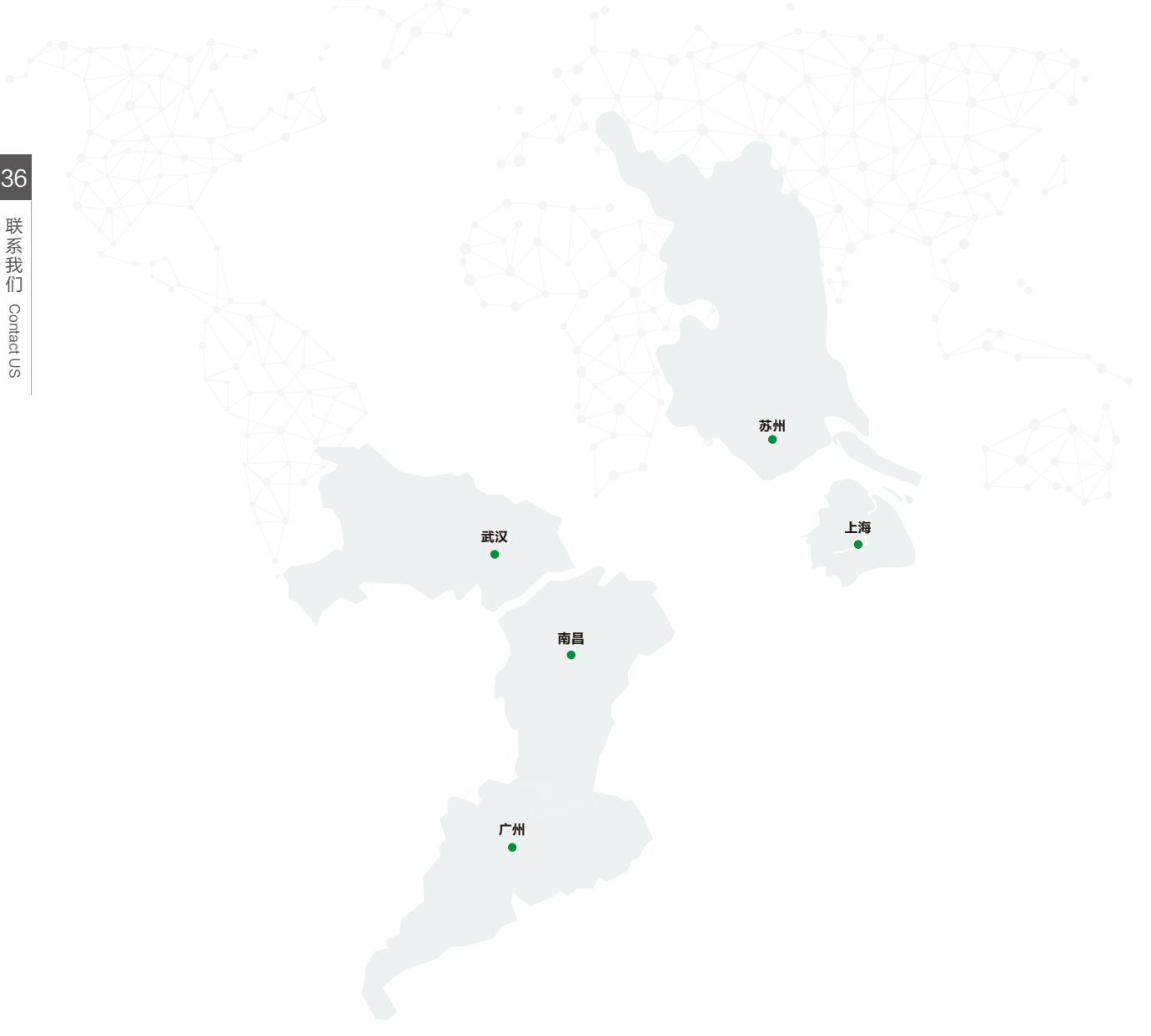
Jiangsu Senwei Precision Forging Co., LTD was founded in 2006 by Jiangsu Sen Wei Group and China Universal Wanxiang Group Venture Investment co., LTD. Company's main business for the automotive, mechanical precision cold and warm forging production and sales, is now an annual output of 50000 tons of various types of precision forging, with precision forging independent research and development ability.

EWIN-APS information control system takes in pursuit of lean uctionplan management (JIT) as the goal, covers a multitude of successful enterprise information solutions, management model, optimization and simulation technology, provide the optimal solution for complex production and supply problems, widely applicable to all kinds of manufacturing enterprises.





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