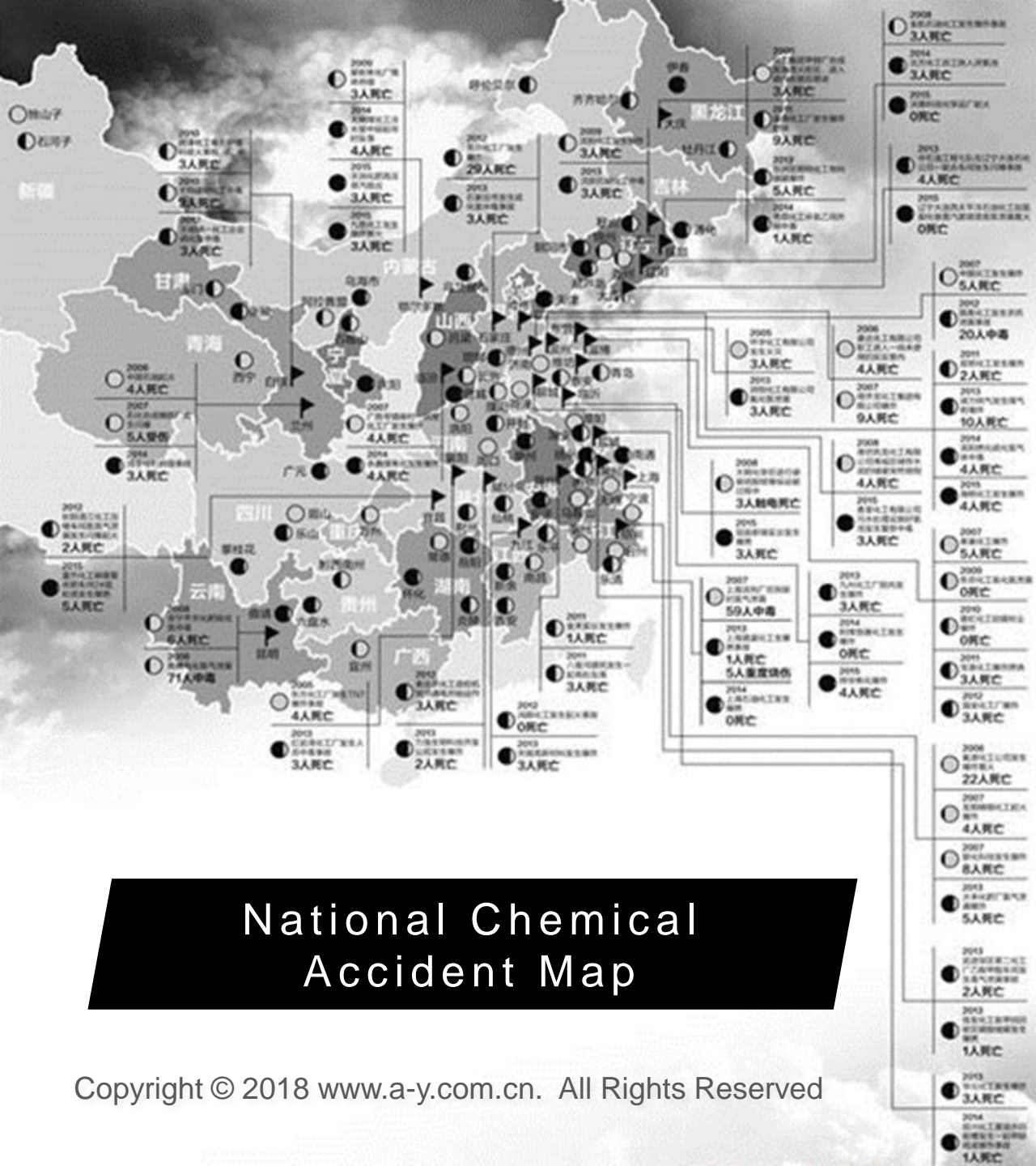


Safety Risk Management Cloud Platform for Chemical Enterprise

2018.09.12



National Chemical Accident Map

RISK CONTROL

- Risk Planning - **Definition**
- Risk Identify - **Judge**
- Risk analysis - **Assessment**
- Risk response - **Development**
- Risk Control - **supervision**

INDUSTRIAL DEVELOPMENT POLICY OF DOMESTIC CHEMICAL ENTERPRISES

《Guiding Opinions of the General Office of the State Council on Promoting the Relocation and Reform of Hazardous Chemicals Production Enterprises in Population-intensive Areas of Towns and Towns》

Before the end of 2018

Small and medium enterprises and major enterprises with major risks have been relocated.



Before the end of 2025

In densely populated areas of cities and towns, dangerous chemicals production enterprises that do not meet the requirements of safety and health protection distance are rebuilt locally to meet the standards, relocated to industrial parks or closed down and withdrawn.



Before the end of 2020

The first stage of relocation and transformation is completed, and other large enterprises and super large enterprises are being relocated.



PRACTICAL RESULTS OF INDUSTRIAL ENTERPRISES



Extensive & convenient



Closed loop



Internet plus



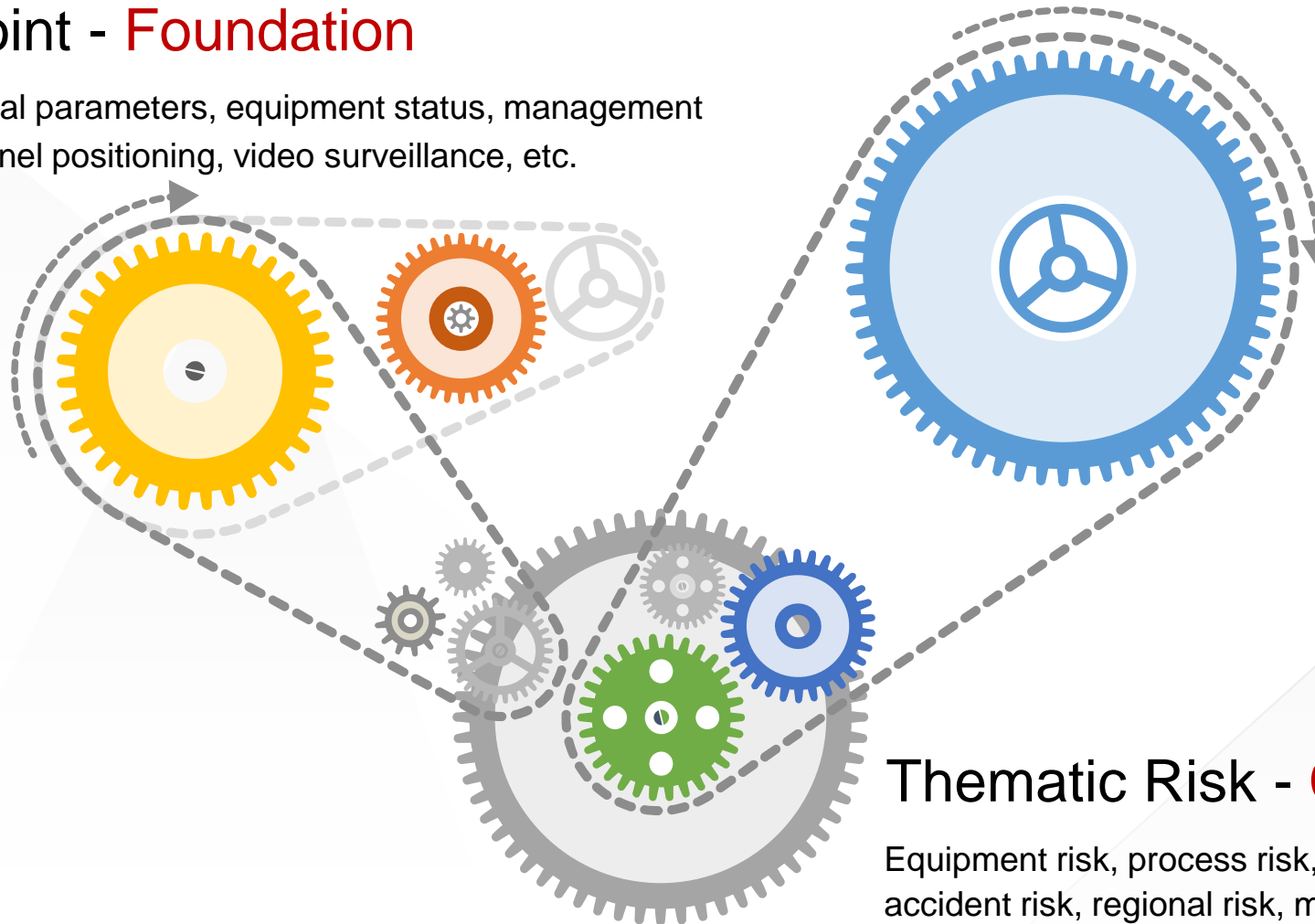
RISK MANAGEMENT AND CONTROL SYSTEM PLANNING FOR DOMESTIC CHEMICAL ENTERPRISES

Risk Point - **Foundation**

Environmental parameters, equipment status, management data, personnel positioning, video surveillance, etc.

Overall Risk - **Overall Situation**

Early warning index of enterprise safety production, regional social risk, etc.



Thematic Risk - **Core**

Equipment risk, process risk, operation risk, system risk, accident risk, regional risk, management risk, etc.

FOCUS ON RISK PREVENTION AND CONTROL OF DOMESTIC CHEMICAL ENTERPRISES

The main factors of chemical risk identification and prevention are fire, explosion and poisoning accidents.



Process deviation analysis

- Pre-warning of process parameters



Process stability analysis

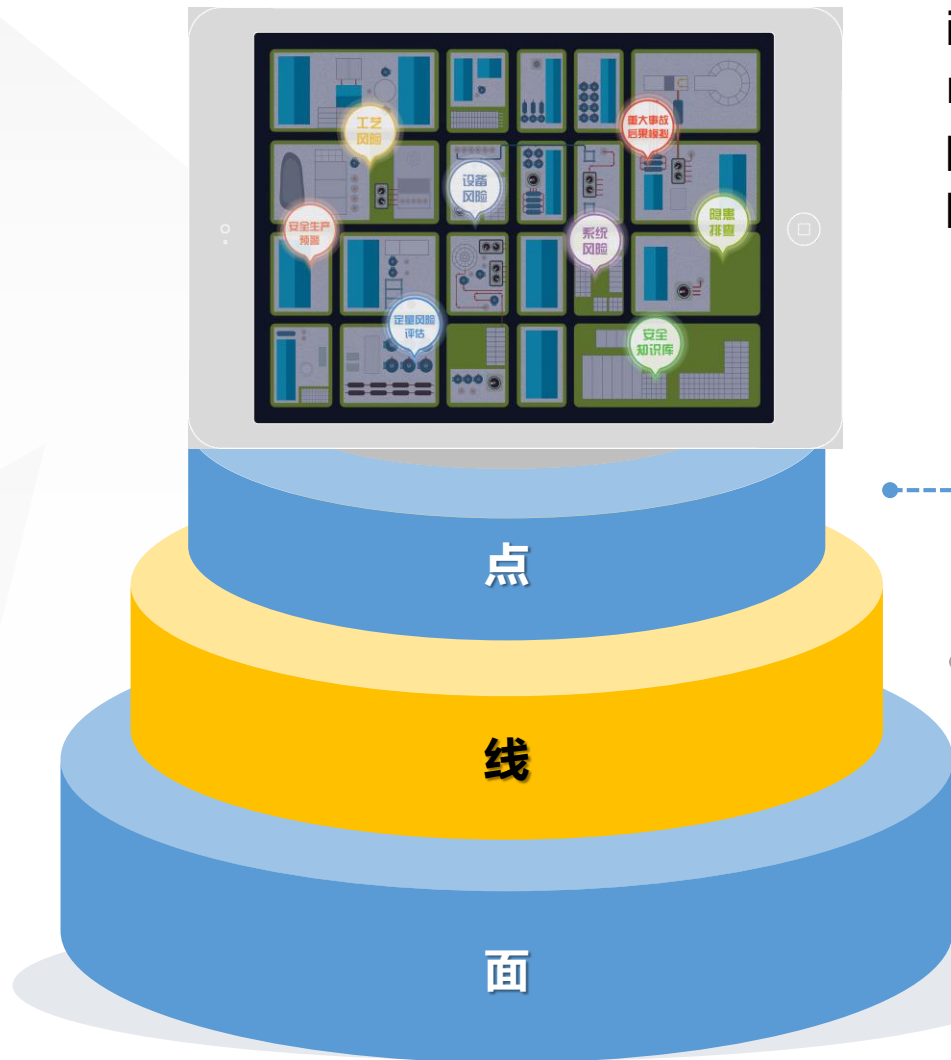
- Corrosion failure of equipment



Equipment risk RBI

- Corrosion life of equipment

SAFETY RISK MANAGEMENT CLOUD PLATFORM FOR CHEMICAL ENTERPRISE



The platform is based on the design idea of scientific identification, quantitative evaluation and unified grading of risks, so as to realize the dynamic pre-control of safety production risks and help the enterprises change from passive protection to active control.

Thematic Risk - **Core**

系统风险、管理风险、工艺风险

Overall Risk - **Overall Situation**

指数预警、区域风险

Risk Point - **Foundation**

设备数据、管理参数

OVERALL FRAMEWORK OF RISK MANAGEMENT AND CONTROL SYSTEM FOR CHEMICAL ENTERPRISES



15%

Risk Perception - **Acquisition & Screening**

Obtain environmental parameters, equipment working conditions through platform.

15%

Risk Identification - **Definition & Allocation**

Risk categories, indicators, visibility and the process of management activities

45%

Risk Assessment - **Indicators & Methods**

Risk assessment model selection, risk calculation.

25%

Risk Control - **Grading & Closed Loop**

Risk classification, hierarchical management and risk control closed loop management.



In view of the major hazards, key sites and key parts of enterprises, the intelligent terminal equipment of the Internet of Things is used to realize on-line safety monitoring and early warning of enterprises, and the platform is connected to realize joint defense and control mode.

- Enterprise security
- Equipment monitoring
- Production monitoring



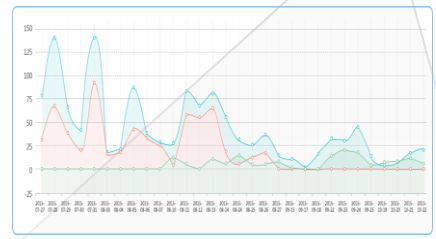
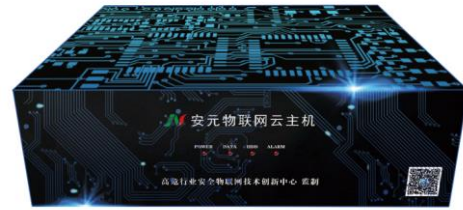
- Safety monitoring
- Environmental monitoring
- Fire control monitoring



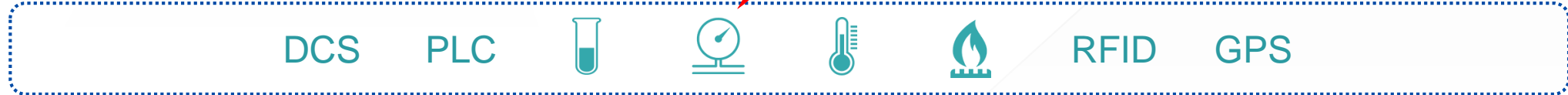
Video Intelligent Analysis

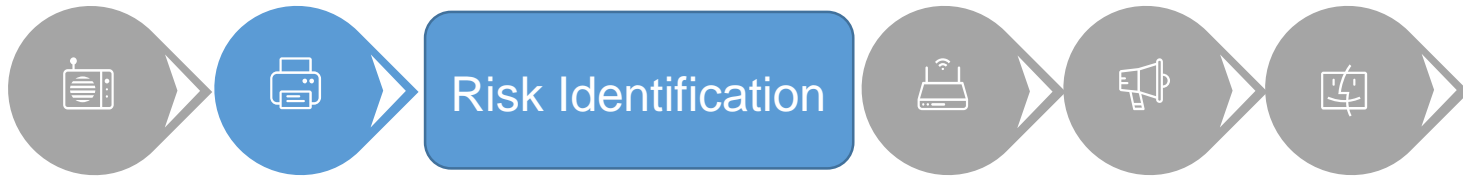
Remote Inspection ↓

↑ Data Acquisition



Data Mining Analysis





Risk Identification

Unit Partition, Hazard Identification & Level Setting.

From the operation activities/equipment facilities as the most basic unit, clear the unit risk and harmful factors, and set the classification.

职业危害辨识

重大危险源辨识

	二项重大危险源	一项重大危险源	合计
球罐控制水平	3	4	19
储罐控制水平			
球罐控制水平	1	2	5
未评估	124	1	125
合计	136	7	153

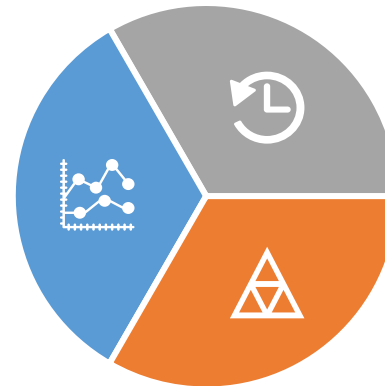
储罐腐蚀辨识

管道寿命辨识

管号	操作压力 (Mpa)	管径 (mm)	材料公称壁厚 (mm)	管道公称直径 (mm)	管道腐蚀速率 (mm/a)	管道剩余壁厚 (mm)
Slurry@P-10-03@PSV-1007A-1008A	20.2	A106B	129.94	20	100	0.57057 18.705180008075
Slurry@P-10-03@PSV-1007A-1007A	20.2	A106B	129.94	20	100	0.57057 18.705186271404
Slurry@P-12-04@HV-1201B	20.2	A106B	129.94	26	150	0.57057 21.582154863085

Category setting

危险源类别 (第一类、第二类)
诱发事故类型

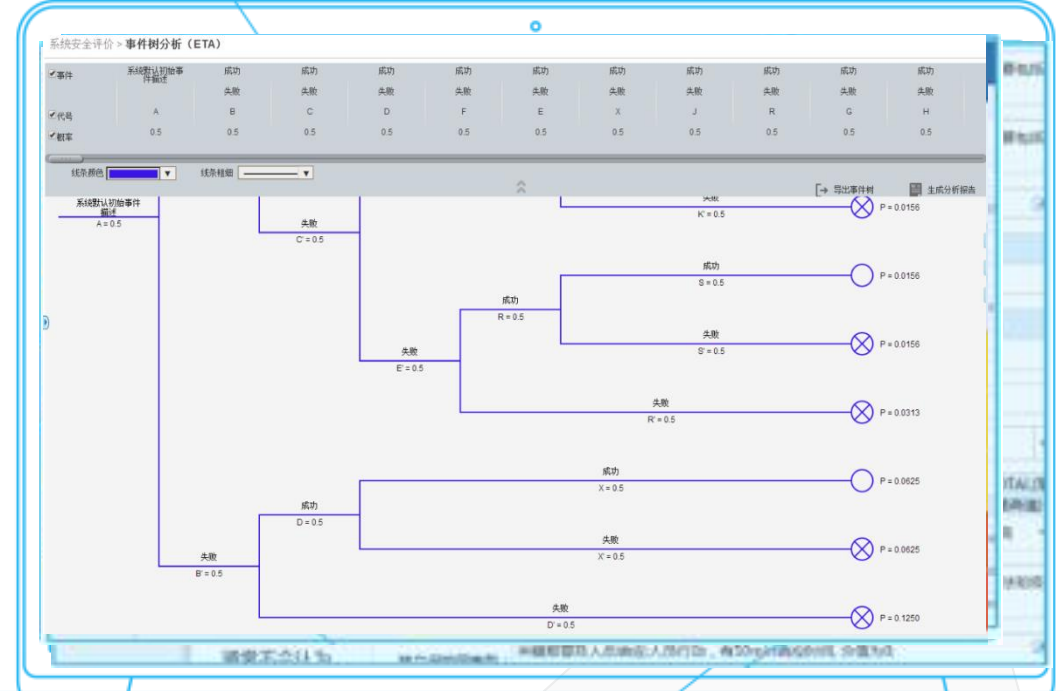


Hazard identification

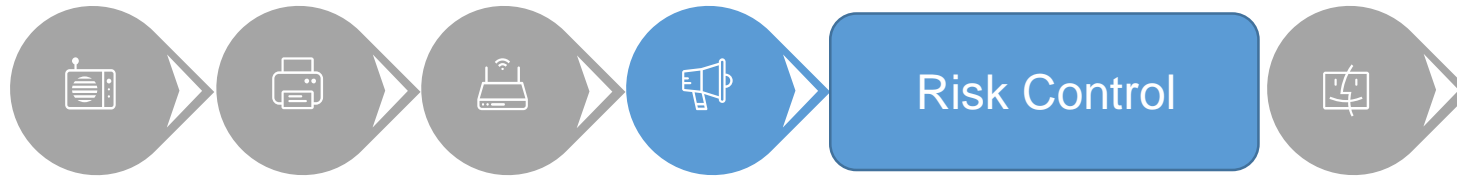
基于GB13861-2009 识别危险有害因素

Unit division

辨识评估单元的划分



Risk assessment model selection, risk calculation.



The influence level of ISD on the intrinsic safety of major hazard sources is determined mainly by the ability of application and elimination or mitigation.



CONTROL MEASURES

Develop Risk Control Measures Library

- 固有风险控制指标
- 作业人员风险控制指标
- 周边脆弱风险控制指标
- 设备风险控制指标
- 环境风险分析指标

MEASURE EXTRACTION

Risk Control Measures Extraction & Quantification

- 设定风险可接受程度标准；
- 对危险源提出ISD控制措施

REGRESSION DETERMINATION

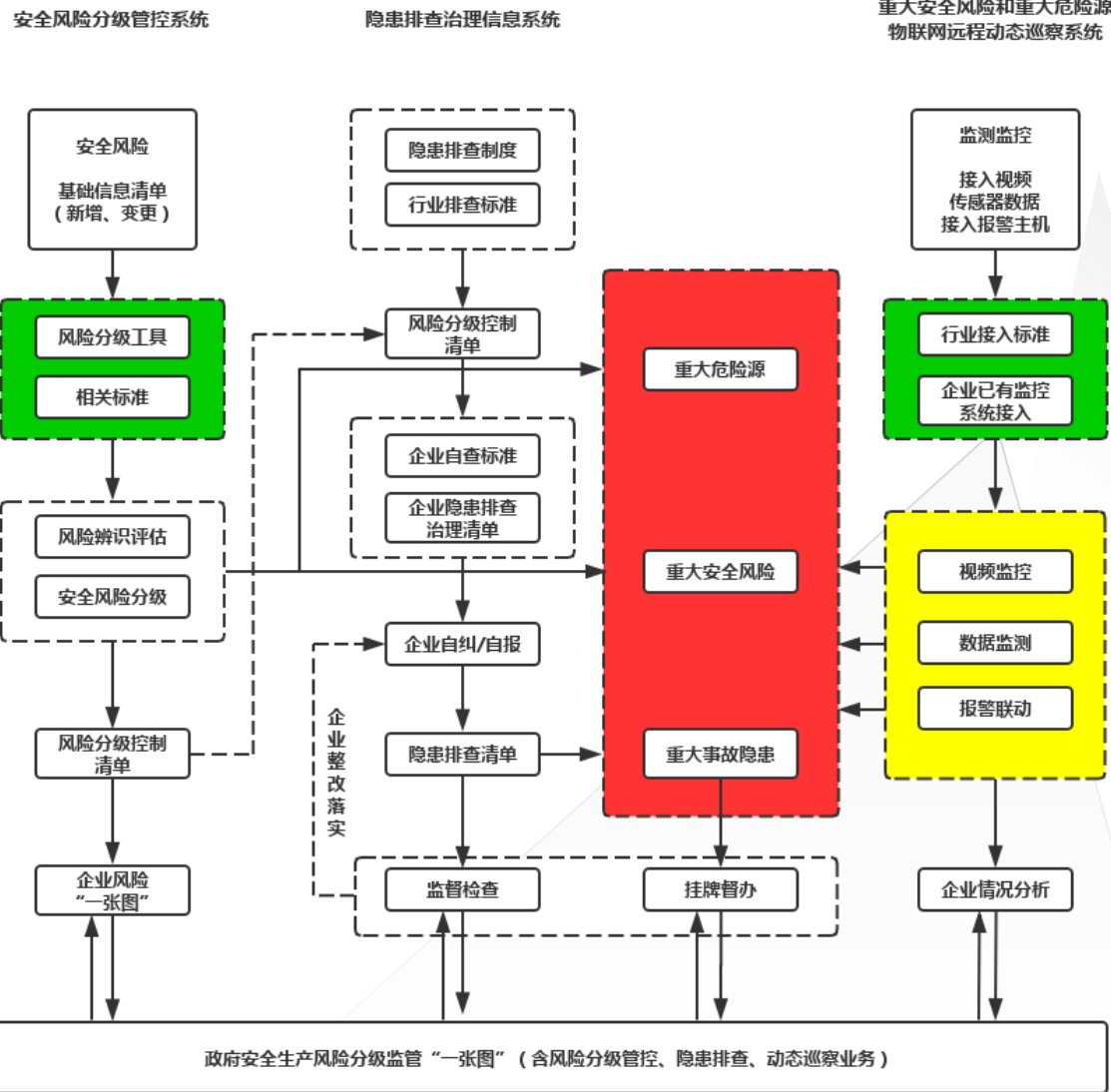
Regression To Determine Risk After Management & Control

- 以风险值最小化为目标的风险管控组合策略

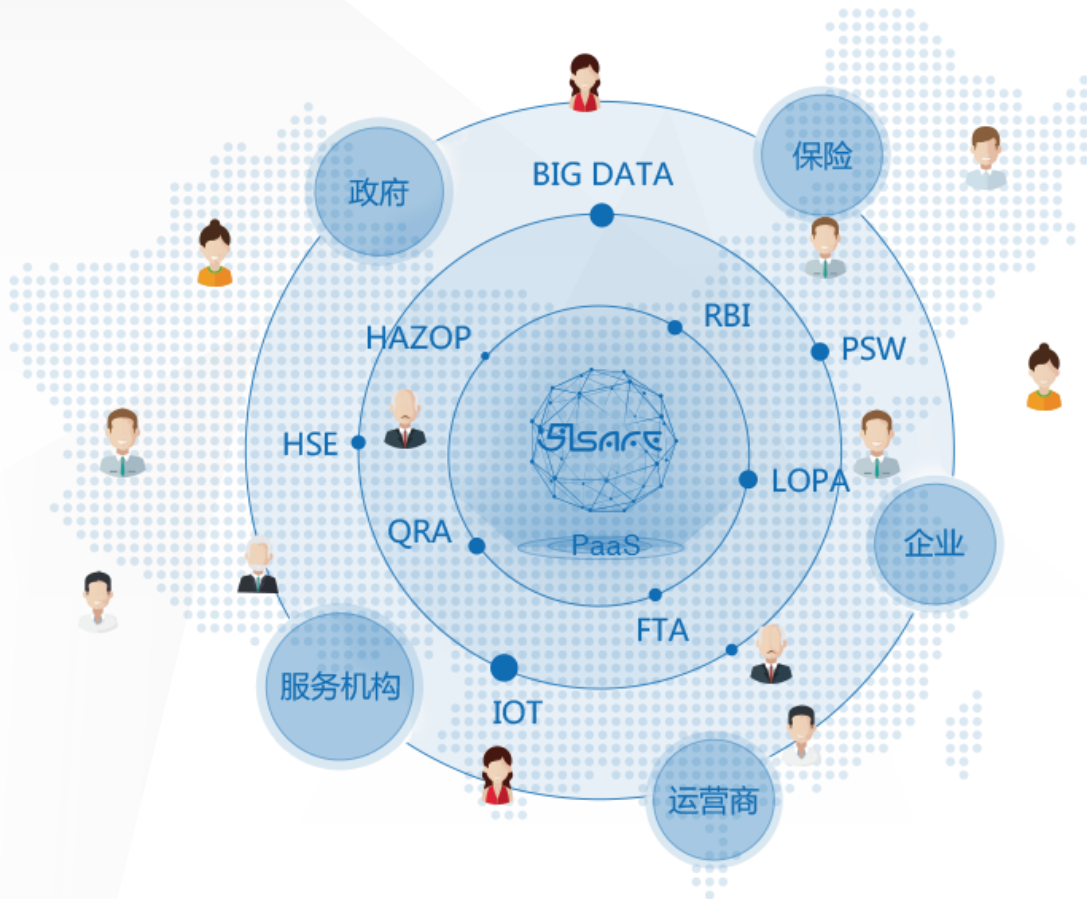


RISK & HIDDEN

RISK CLASSIFICATION CONTROL & HIDDEN TROUBLE INVESTIGATION & MANAGEMENT



SAFETY PRODUCTION & RISK SERVICE ECOSYSTEM



启业云®

基础PaaS平台



安全无忧网™

行业SaaS应用



安翼物联网

物联网应用与硬件集成

Through the integration of enterprise risk management and accident prevention service system on-line and off-line, the service requirements and standards are formulated, covering the functions of various products on-line, and a high-standard, high-quality, real-time traceability expert service system is established under-line to realize the integration of enterprise risk management and control services on-line and off-line.

THANK YOU

2018.09.12