





Knowledge Preservation and Data Collection on FR in China

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1. Overview

Issues

- FR is a kind of special technology that is need long time to develop. But a few reasons will induce the knowledge lost, such as:
 - Dimission
 - Retirement
 - Illness
 - Team reorganization
 - Mission changing, etc.

Issues

- **Explicit knowledge**



- documents, drawings, calculations, designs, procedures or manuals;



- databases.

- **Tacit knowledge**



- technical expertise, methodological, experience, etc.

Issues

- Some works have to be repeated.
- Some mistake appeared again because of weak feedback.
- The quality is not good.
- The plan is always delay.
- The budget is always not enough, etc.

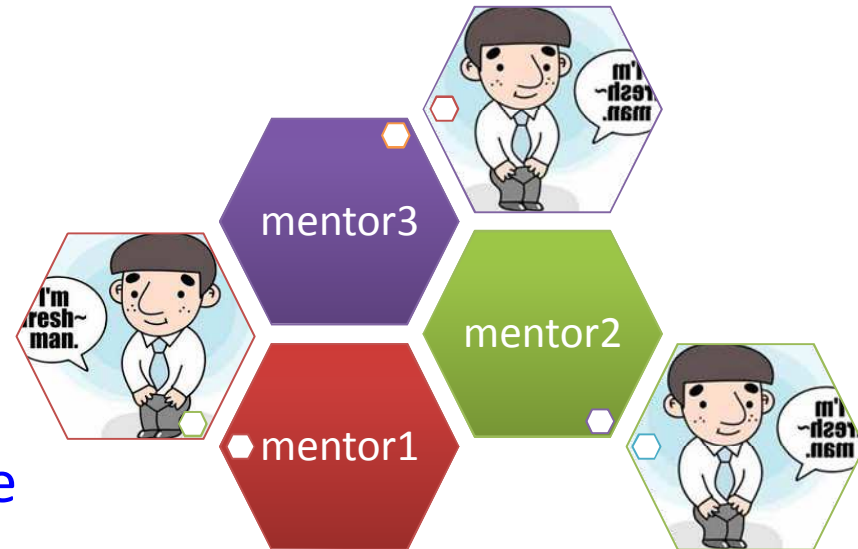
Countermeasures

- Training
- Fix working process
- Collection data
- Improve administration

2. Knowledge preservation

Training

- All of the employee should be trained and retrained.
- Every new employee will has one skilled mentor.
- The training course should consist all internal knowledge and necessary external knowledge.
- The new employee should make a report to his/her job skill to show if he/she has master enough knowledge to the job.



Working process

- Identify two kinds of process: administration process and technical process.
- The employee with high level skill are asked to create or improve the process.
- The experts group is asked to make the checklist to all main work.



Administration

- Standardization
- System establishment
- Performance assessment
- Continuously improve



3. Data collection

Rules

- Collect all of the data about FR activities;
- The data of CEFR is real time;
- Establish informatization system to collect most activities material;
- Keep the interface to accept external data.

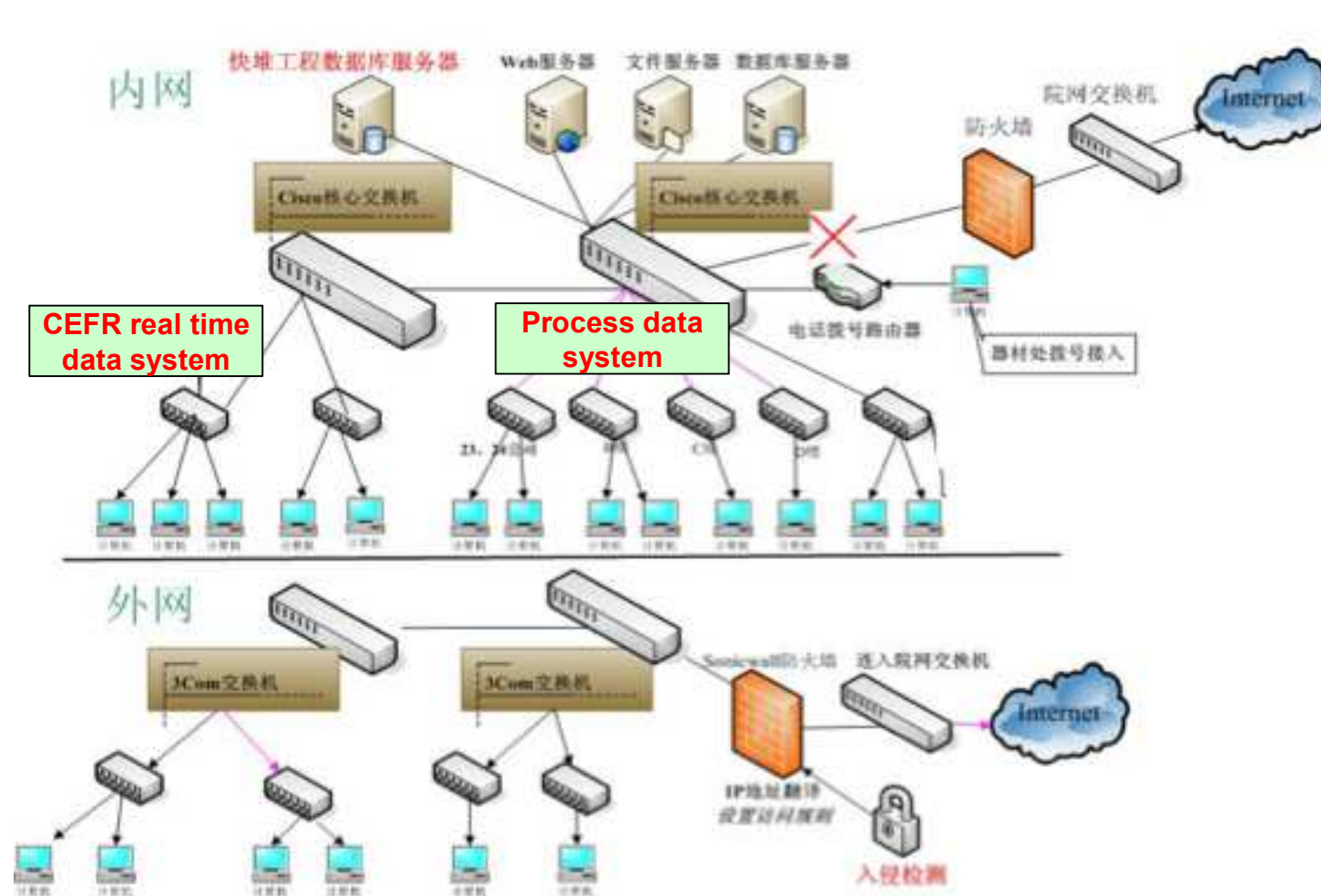
The China FR data base system



Structure of China fast reactor information database (preliminary)



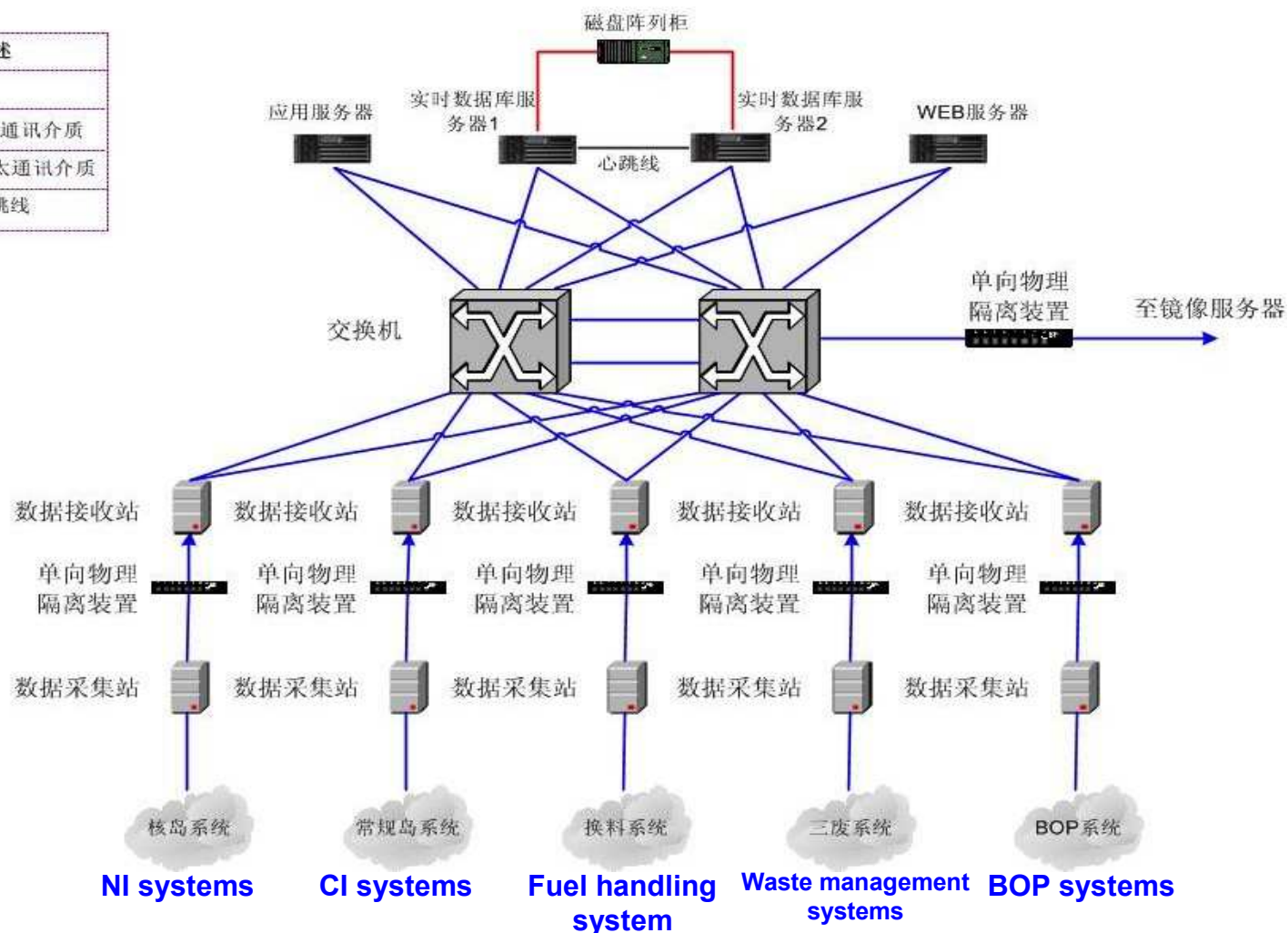
Topological graph



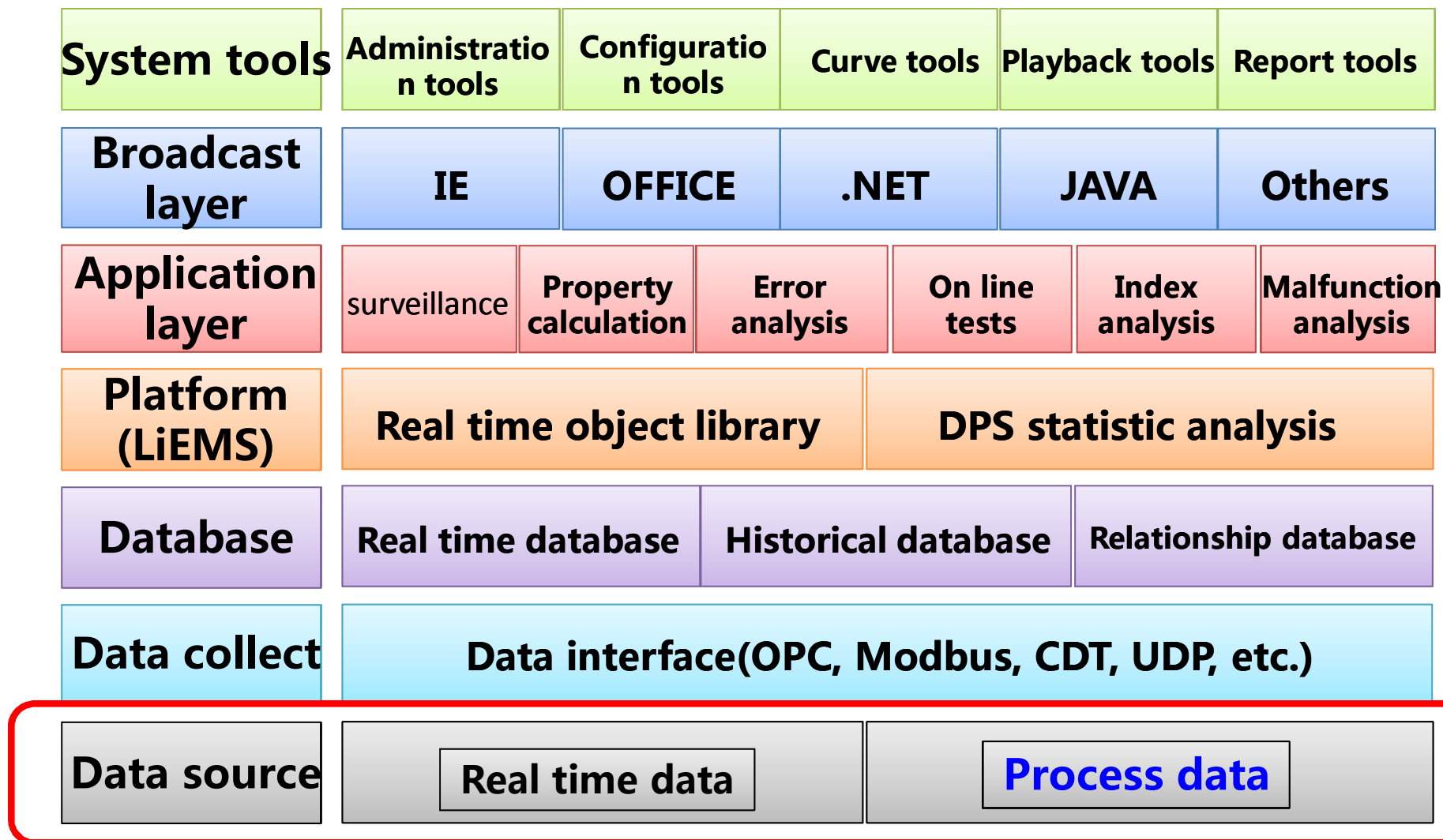
Real time data system

图例说明

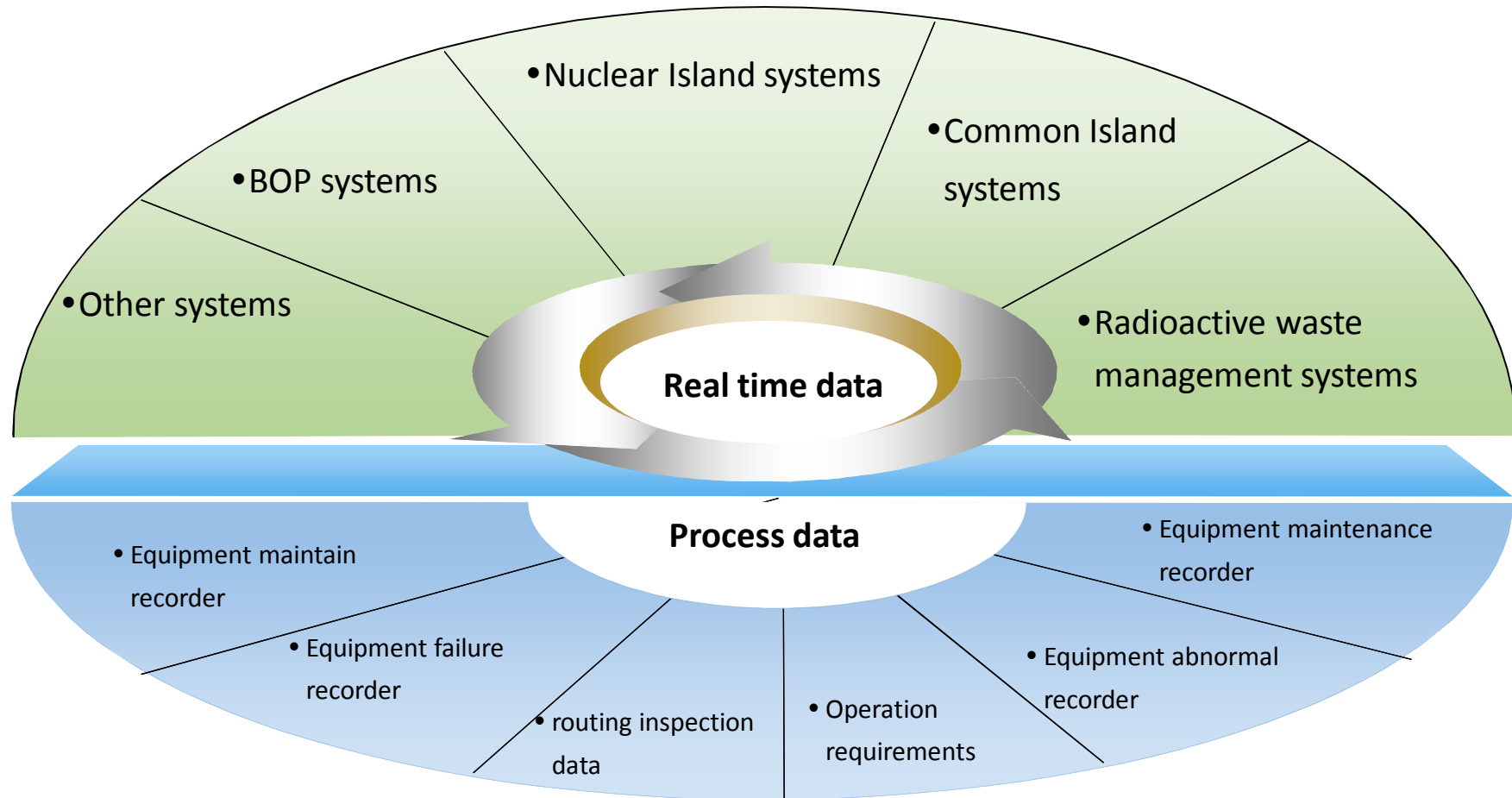
图例	描述
	心跳线
	100M以太通讯介质
	1000M以太通讯介质
	多模光纤跳线



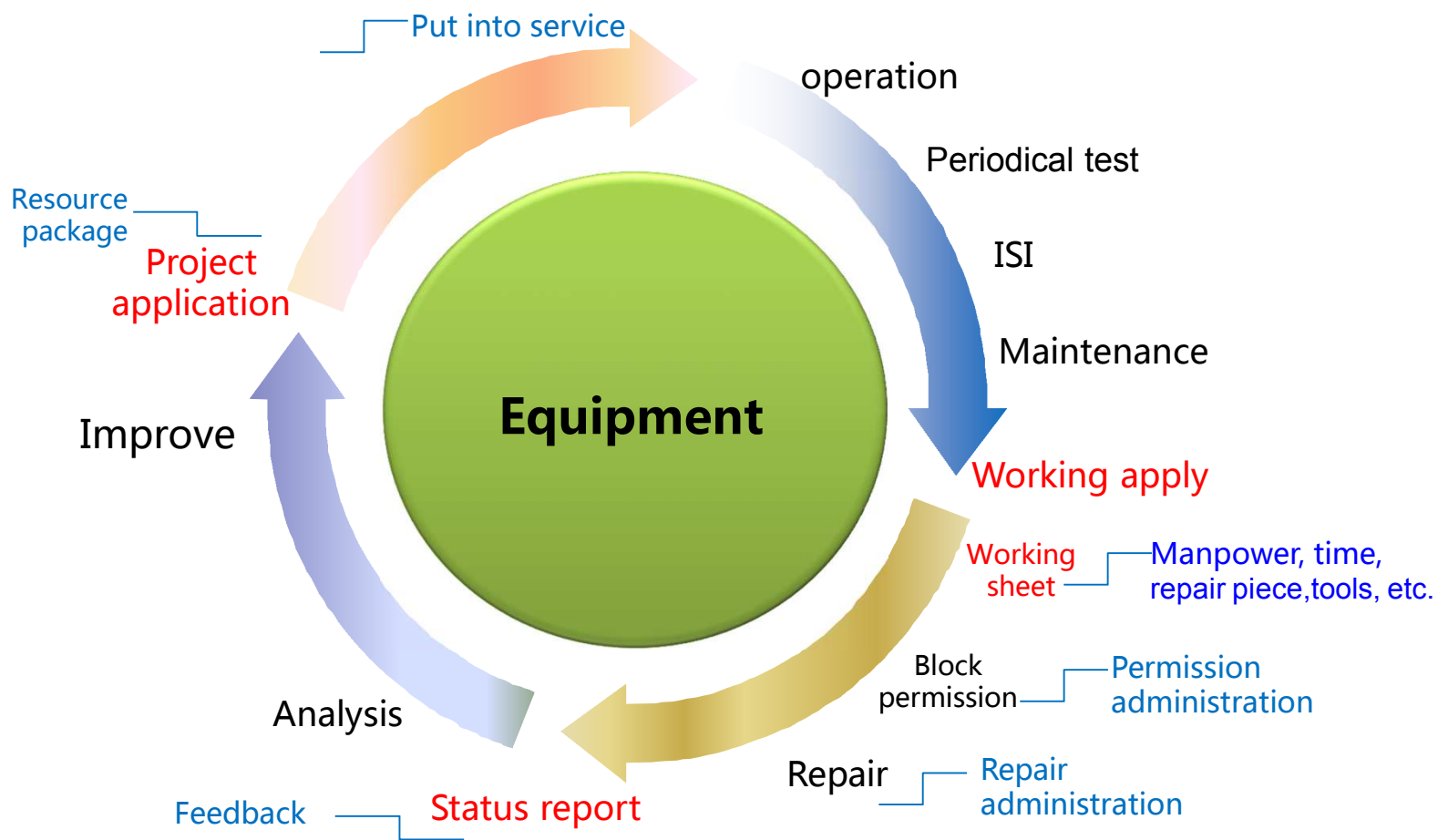
CEFR data system structure



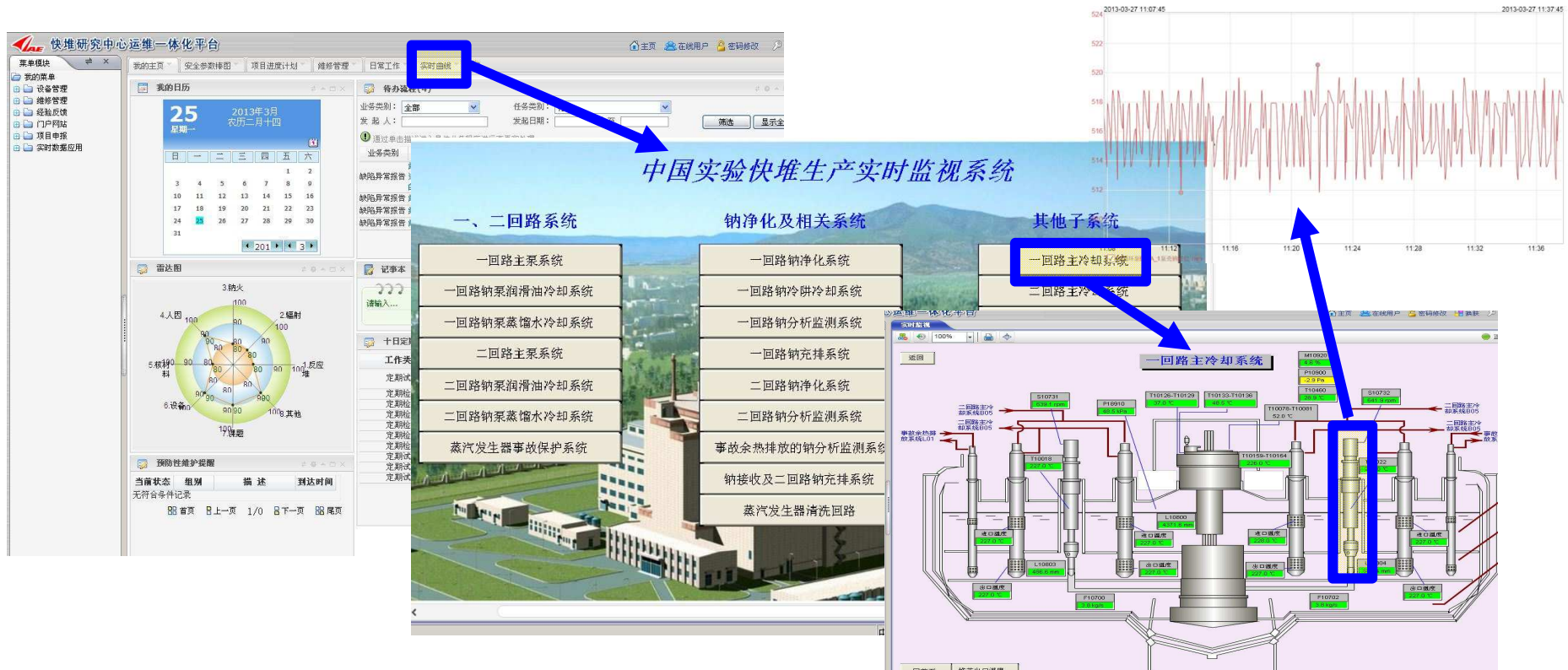
Data source



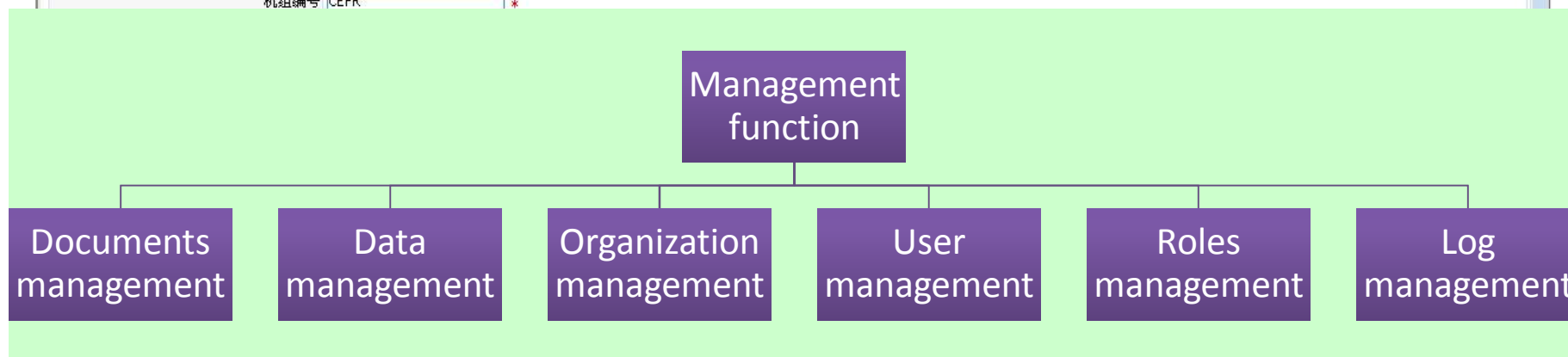
LiEMS



LiEMS



The management function of China FR database



Example: equipment

实验快堆工程数据库信息系统 - Microsoft Internet Explorer

地址: http://182.168.0.20:9001/01dMainPage/Index.aspx

密码设置 注销 返回首页 今日日历: 2011年6月2日 星期四 sgb002 [设备部]

快堆工程数据库信息系统

Fast Reactor Database Information System

系统首页 设备信息 设备维修 设备老化 设备可靠性 快堆燃料 快堆材料 实验管理 辐射防护 异常事件 文档数据库 信息发布

设备维修

设备故障和维修(设备分类导航) 设备故障信息 设备维修信息 相关文档

设备

设备编号: 设备名称:

规格: 所属系统: 请选择:

序号	设备故障	设备维修	设备异常维修	设备基本异常	设备编号	设备名称	所属系统编号	设备大类	设备分类名称	相同型号设备数量	投入使用时间	设计寿命
1	查看	查看	查看	查看	sb_NO_11c75834D	设备名称22c	B05	热交换器类	热交换器类2	0		
2	查看	查看	查看	查看	sb_NO_11c75834Dffffffffffff	设备名称22	B05	仪控电类	仪控电类1	67	2011-06-02	67
3	查看	查看	查看	查看	sb_NO_11FD45ED8	设备名称22设备	L01	热交换器类	热交换器类2	0	2011-05-27	
4	查看	查看	查看	查看	sb_NO_1227029C6	设备名称122	B05	静止机械类	静止机械类1	0		
5	查看	查看	查看	查看	sb_NO_1227029C6fffffffffffff aaa		B05	运动机械类	运动机械类2	0		

- Include equipment maintenance information, equipment failure information, failure mode, failure grade, failure cause, etc.

Example: Radiation Protection



实验快堆工程数据库信息系统 - Windows Internet Explorer
 地址(D) http://10.1.0.119/ccfr/OldMainPage/Index.aspx
 密码设置 注销 返回首页 今天日历: 2011年8月2日 星期四 戎永华 [辐射防护组]

快堆工程数据库信息系统
 Fast Reactor Database Information System

系统首页 设备信息 设备维修 设备老化 设备可靠性 快堆燃料 快堆材料 实验管理 **辐射防护** 异常事件 文档数据库 信息发布

个人信息 快堆个人剂量管理目标值 辐射场信息 放射源信息 固体废物排放 液体废物排放 气体废物排放

个人基本信息 个人剂量单次信息 个人剂量总信息 热释光剂量计监测数据 个人体检信息

辐射防护-个人剂量单次信息

新建 删除 查询 >>Excel

人员姓名	<input type="text"/>	人员编号	<input type="text"/>
人员部门	<input type="text"/>	工作组	<input type="text"/>
工作地点	<input type="text"/>	查询	<input type="button"/>

<input type="checkbox"/>	序号	人员姓名	部门	工作组	本次工作内容	工作地点	开始时间	结束时间	所受剂量 (mSv)	查看	修改
<input type="checkbox"/>	1	曹文峰	回路室	回路组	回路巡视	回路巡视区域	2011-01-13 07:30:33	2011-01-13 07:45:48	0.0000	查看	修改
<input type="checkbox"/>	2	曹文峰	回路室	回路组	阀门操作	回路巡视区域	2011-01-12 09:35:40	2011-01-12 10:05:54	0.0000	查看	修改
<input type="checkbox"/>	3	曹文峰	回路室	回路组	系统操作	回路区域	2011-01-05 09:30:47	2011-01-05 10:05:59	0.0000	查看	修改
<input type="checkbox"/>	4	唐龙	回路组	回路组	保温层拆除	905/1.905/2	2011-04-25 10:25:49	2011-04-25 11:30:49	0.0000	查看	修改
<input type="checkbox"/>	5	唐龙	回路组	回路组	回路巡视	回路巡视区域	2011-02-26 06:50:26	2011-02-26 07:05:40	0.0000	查看	修改
<input type="checkbox"/>	6	唐龙	回路组	回路组	回路巡视	回路巡视区域	2011-02-16 09:50:29	2011-02-16 10:15:39	0.0000	查看	修改
<input type="checkbox"/>	7	唐龙	回路组	回路组	回路巡视	回路巡视区域	2011-01-26 08:50:04	2011-01-26 09:10:13	0.0000	查看	修改

- Include individual basic information, individual dose information, radioactive waste, radioactive source, etc.

4. Summary and discussion

- China has established the knowledge preservation and data collection system on FR preliminary. And some data has been used to design new fast reactor, such as CFR600.
- The best way to preserve FR knowledge is to construct a real fast reactor. All of the FR member countries should push FR commercialization forward together.
- The agency could push the FR data collaboration based on some necessary roles.

Thank you for your attention!