

ENGINEERS' DESKTOP

**the “Sixth Sense”
... for engineers and management**

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Nippon Chemical Industrial Co., Ltd. (NCI, Japan)

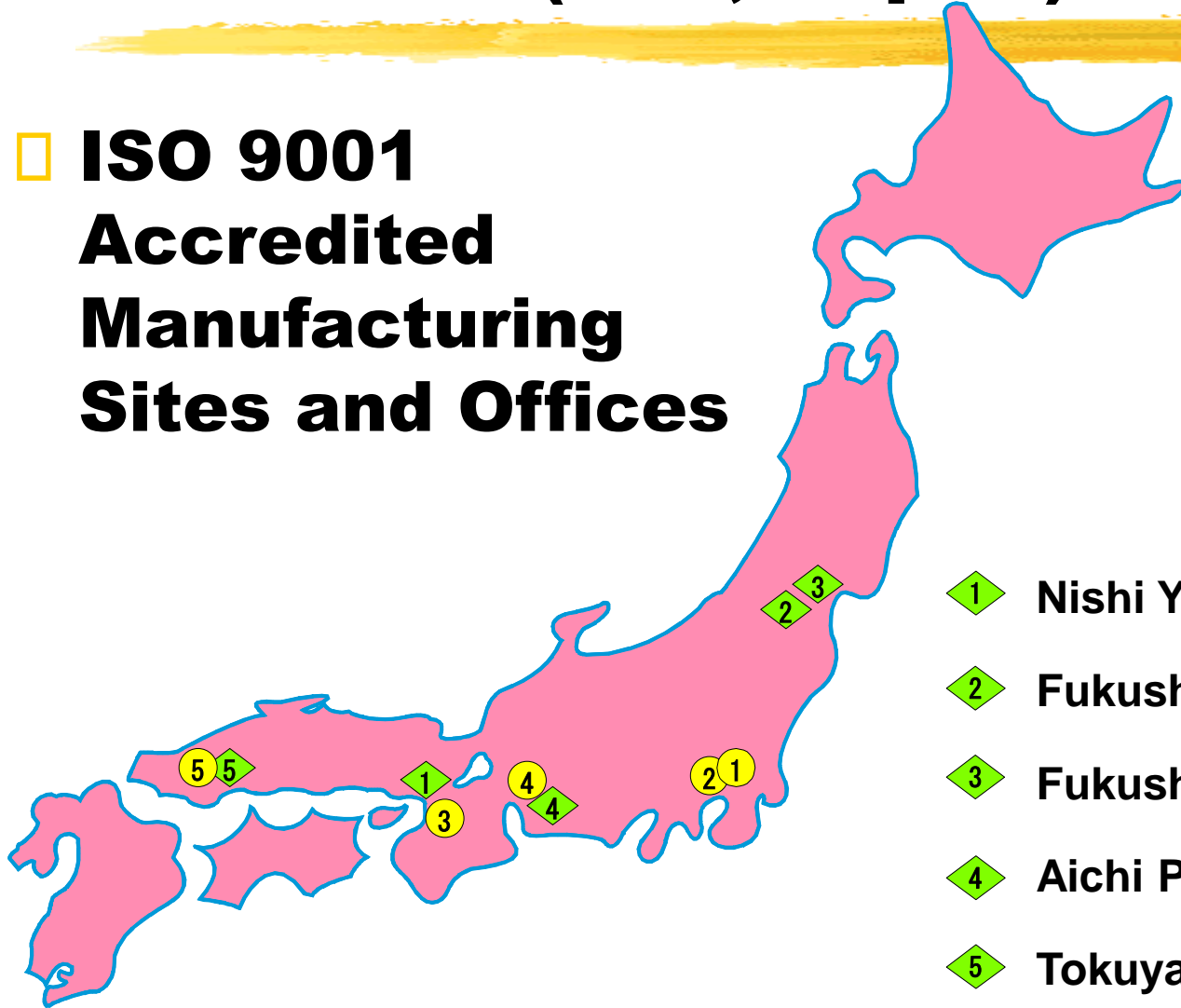


- NCI is a leading manufacturer of inorganic industrial chemicals, with an annual sales of approximately 50.0 billion-yen.
- The Main Office and R&D Center is located in Tokyo.

Nippon Chemical Industrial Co., Ltd. (NCI, Japan)



□ ISO 9001 Accredited Manufacturing Sites and Offices



- ① Head Office
- ② Sales Headquarters
- ③ Osaka Chemicals Div.
- ④ Nagoya Office
- ⑤ Tokuyama Office

- ◆ 1 Nishi Yodogawa Plant
- ◆ 2 Fukushima No.1 Plant
- ◆ 3 Fukushima No.2 Plant
- ◆ 4 Aichi Plant
- ◆ 5 Tokuyama Plant

OLI Systems Inc.



- Corporate History
 - Founded 28 Years Ago (1971)
 - Full Time Mission: Simulation of Complex Chemical Systems
 - World Leader in Simulation Tools for Aqueous Systems
 - Authored DIPPR 811 Aqueous Electrolyte Handbook
 - Authored Chapter 7 of “Models for Thermodynamics and Phase Equilibrium Calculations”
 - Partnerships with Several Prominent Universities

OLI Systems Inc.



- The OLI Philosophy
 - It is our belief that the predictive modeling of aqueous systems requires that the system be fully speciated
 - Use of incomplete chemistry can give inaccurate results
 - Be predictive over a wide range of systems and conditions

ENGINEERS' DESKTOP (EDT)...



- is a concept to support all levels of engineering (including, but not limited to plant engineering)
- is a method to perform **all** engineering work from MS-Excel worksheet
- takes so much burden off process analysis and process data reconciliation
- **is good news** for SCM & ERP!



What is ENGINEERS' DESKTOP?

Good news for:	<i>All</i> ENGINEERS Engineers in a wide sense, including management. (both software specialists & beginners)
Objective:	(1) PC beginners -- No more worrying about accessing chemical engineering software. (2) Professionals -- Spend more time on your business and less time developing interface.

What is ENGINEERS' DESKTOP?



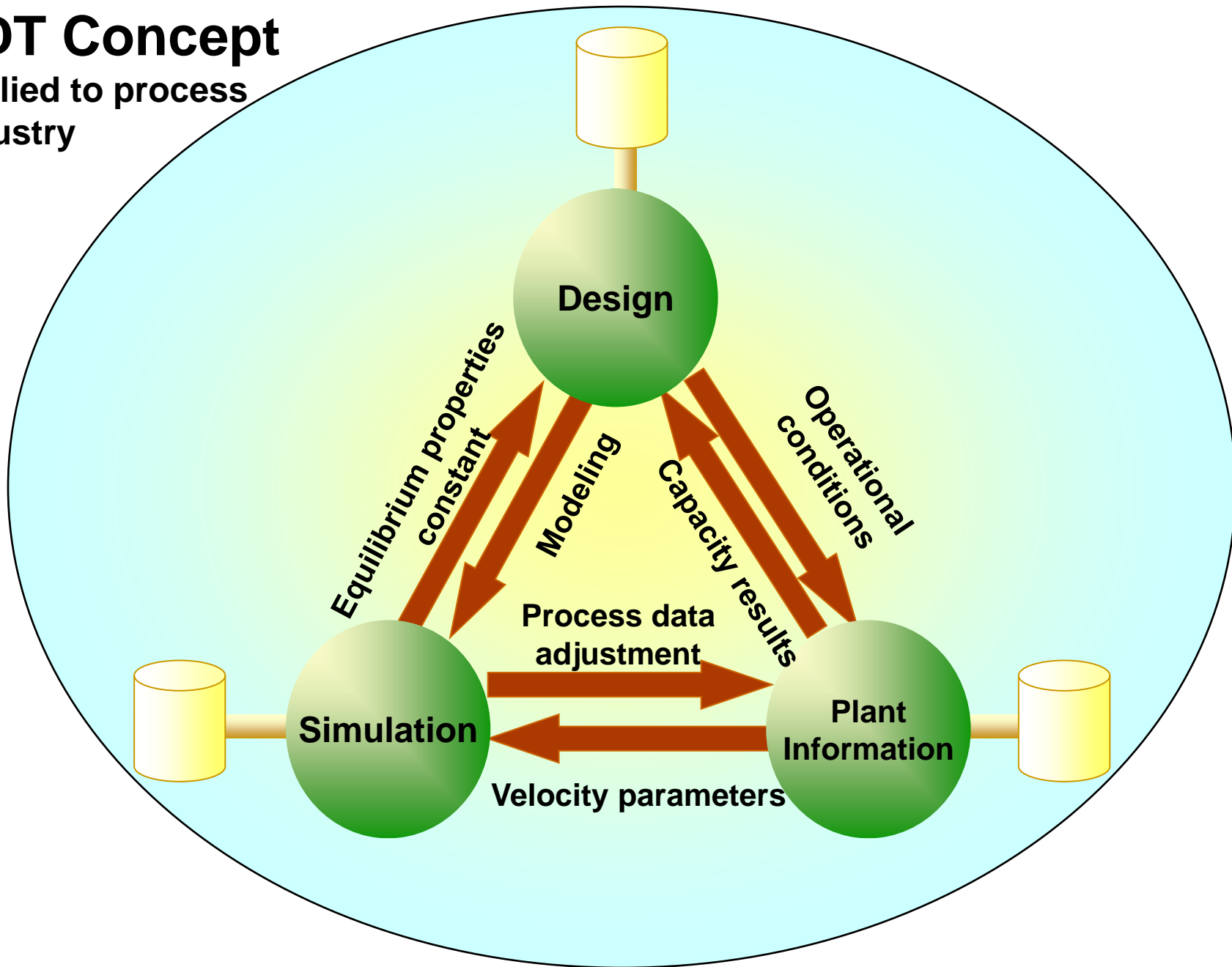
ENGINEERS' DESKTOP does **NOT**



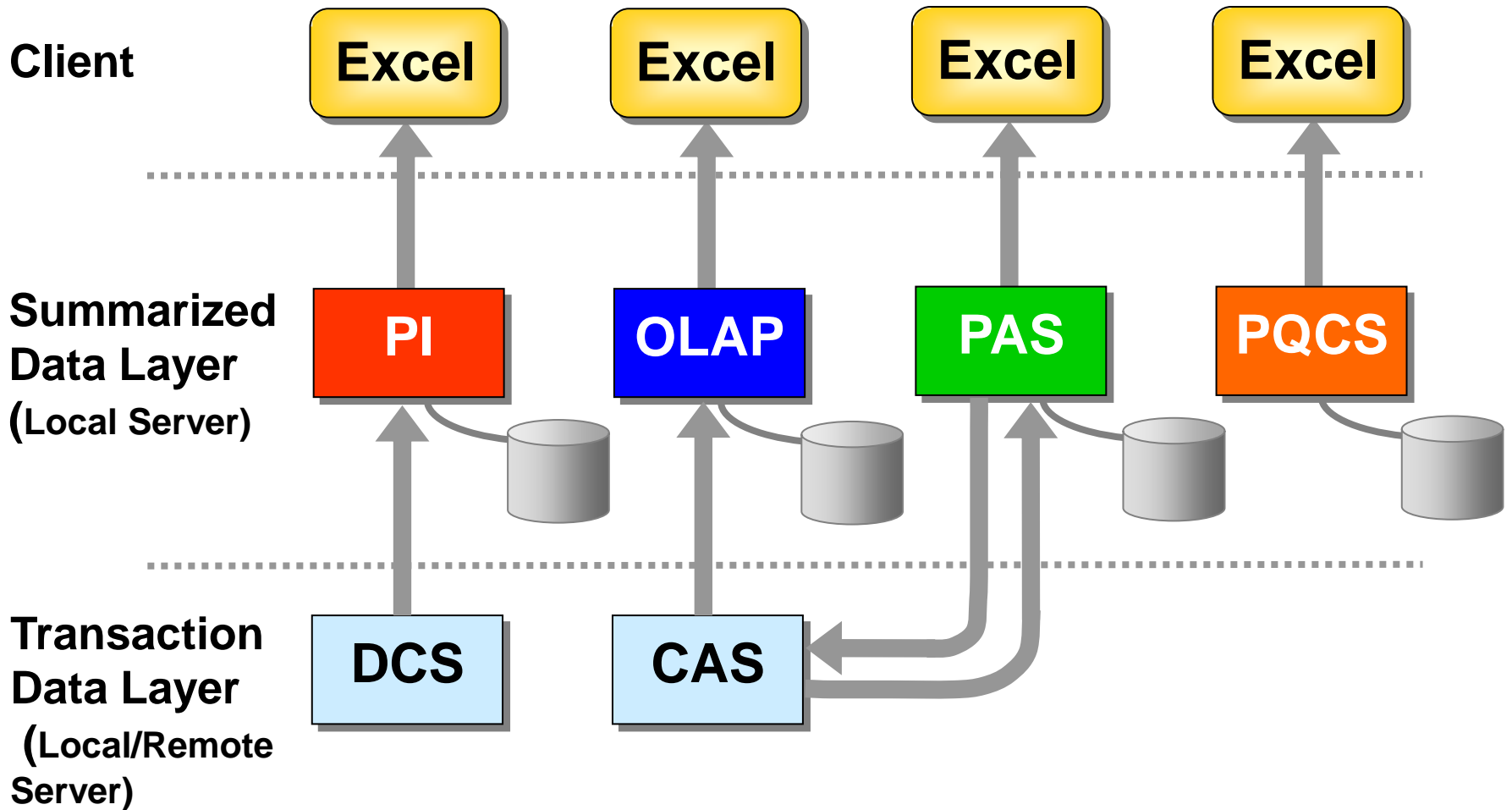
- use original menu
- require new interface
- make users worry about security
- make management worry about cost
- ask for so many megabytes of memory
- give you pain-in-the-neck!

EDT Concept

applied to process industry

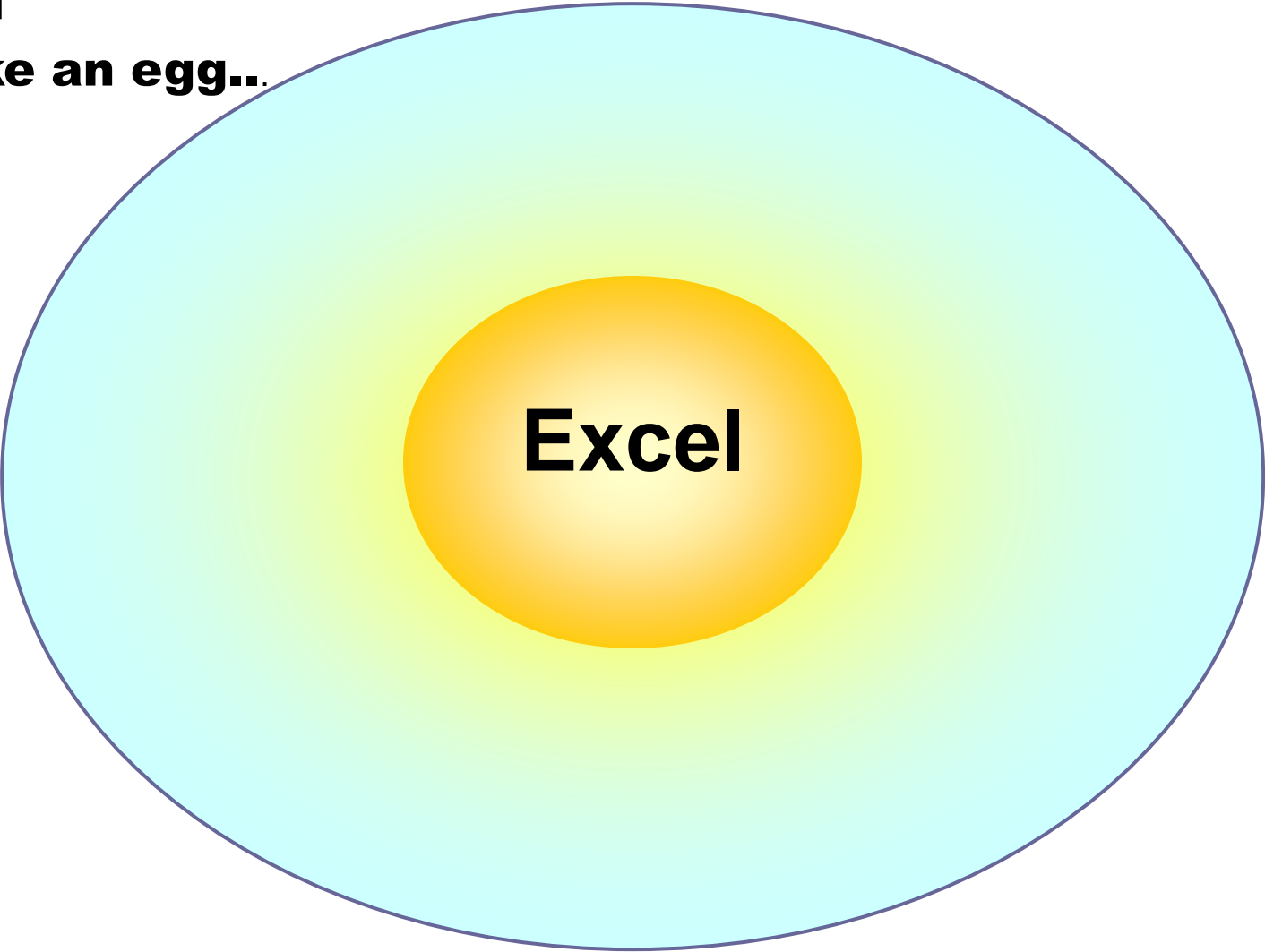


Three-Layer Model of EDT

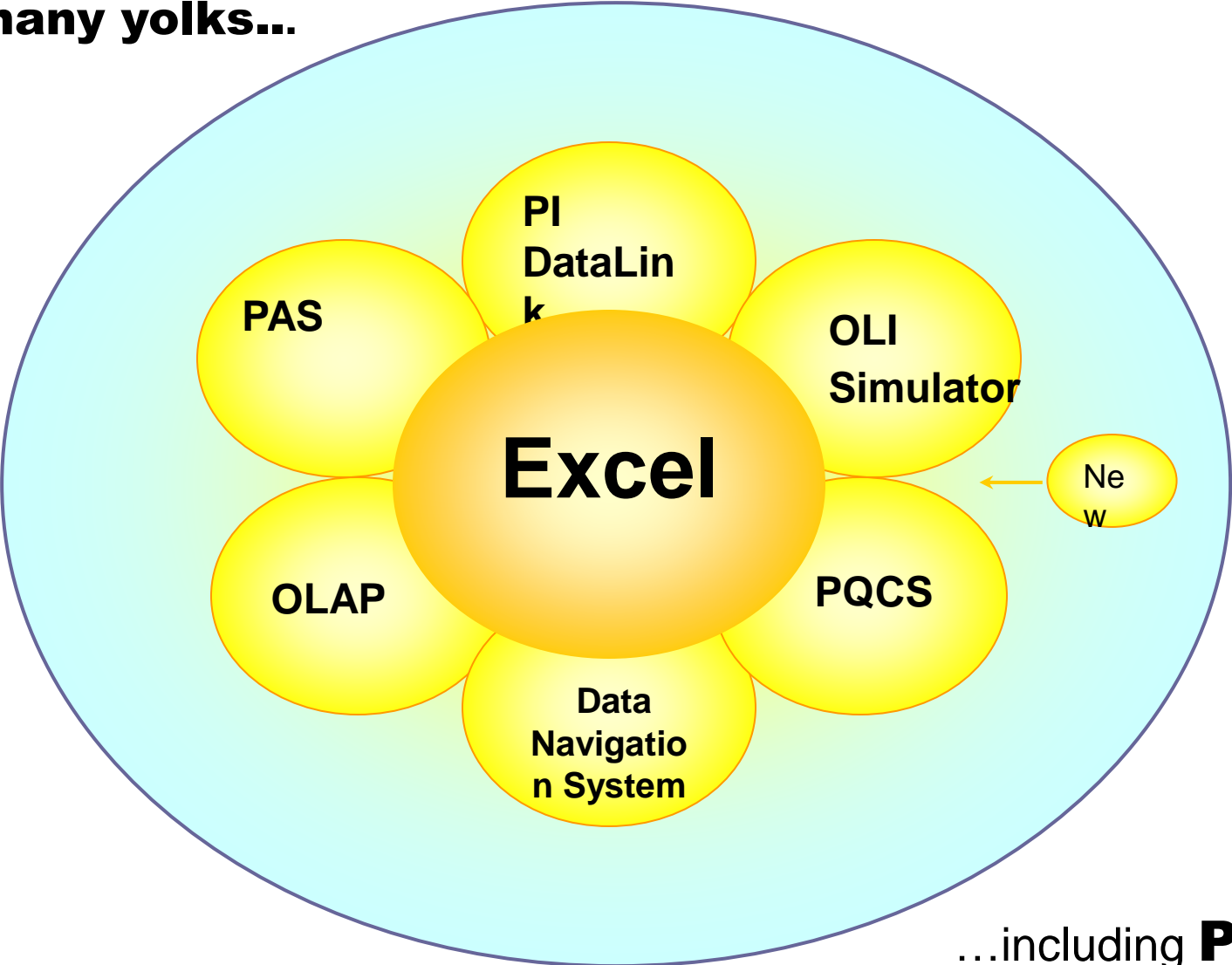


EDT

...is like an egg..

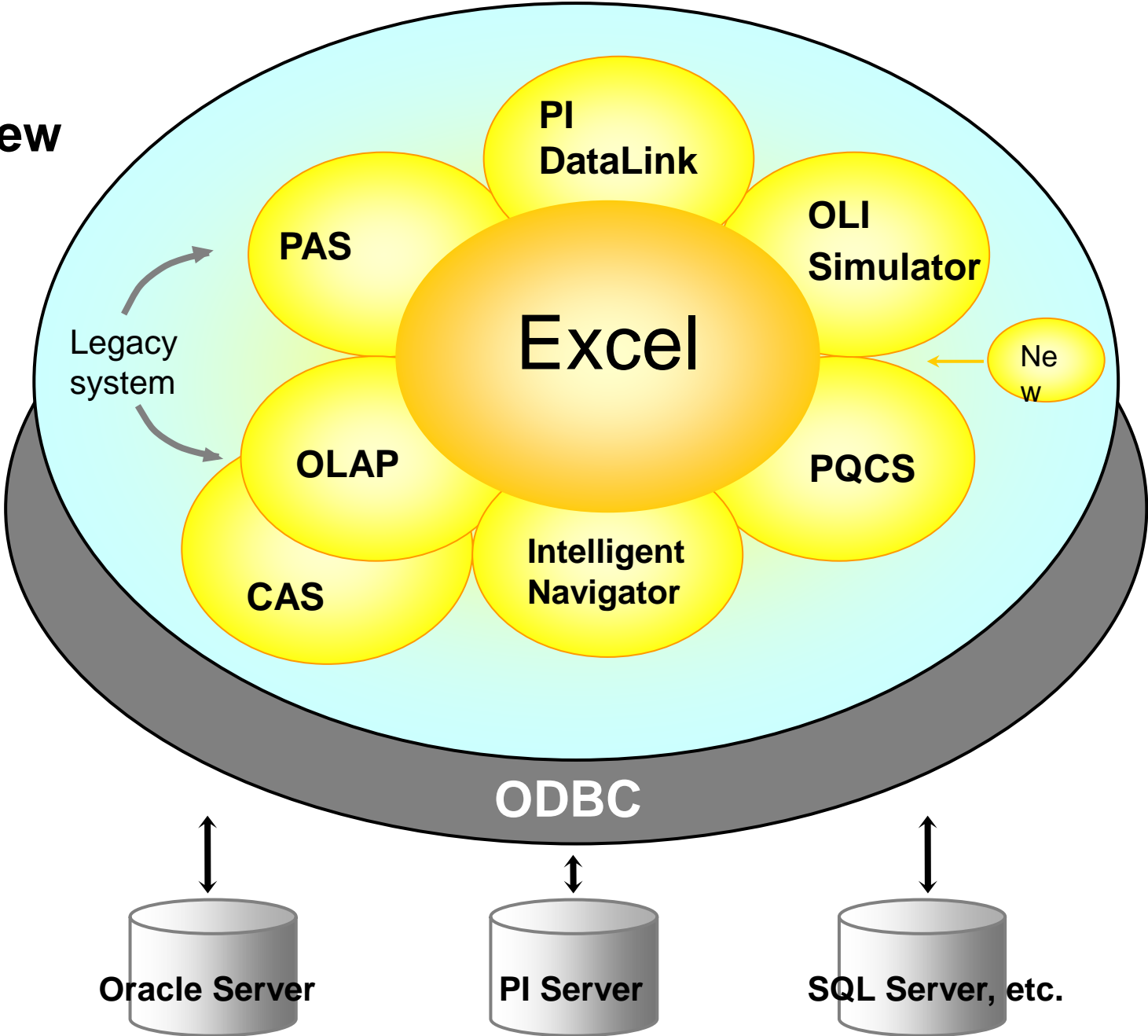


...with many yolks...



...including **PI!**

EDT Overview



PI & OLI Simulator



DEMO

PI & PQCS



DEMO

PQCS (Product Quality Management System)



□ FEATURES

- Data sharing among different divisions
- Standardization of work for input operators and output operators
- Satisfying the more strict inner-company standards
- Qualitative characteristics included, as well as quantitative

PQCS (Product Quality Management System)



□ FEATURES

- Eligibility judgment based on frequency of analysis, taking into account distribution in lots.
- Various Statistical Quality Control (SQC) methods applicable
- Security - reliable!
- Excel Addin included

Institute of JUSE

- The Institute of Japanese Union of Scientists & Engineers (I-JUSE) was established in June 1958, as sister companies of The Union of Japanese Scientists and Engineers (JUSE), which had been tried for quality control, operations research, and other management techniques.



JUSE

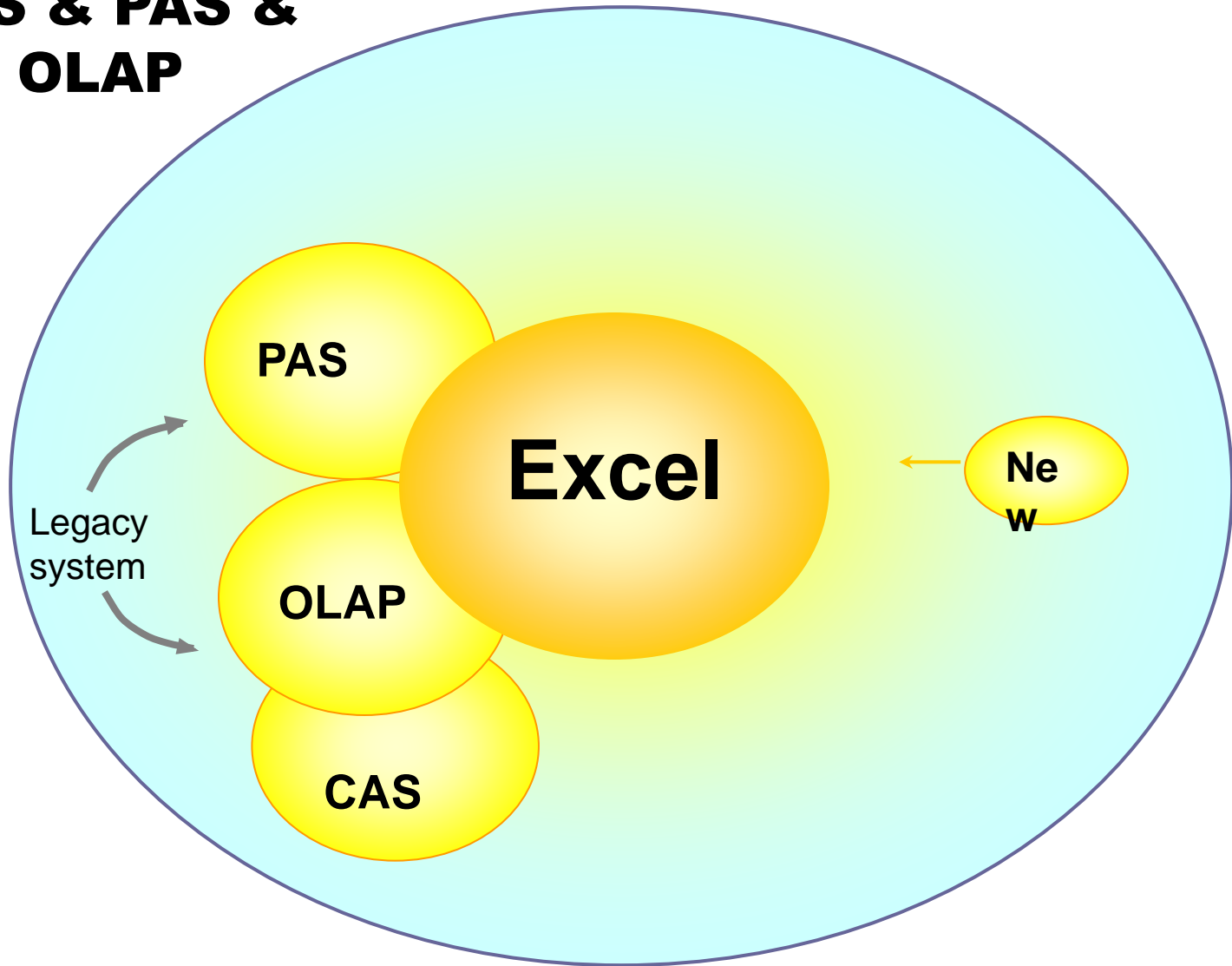
- I-JUSE developed Japan's best selling QC software: *Quality Control Assisting System.*

Other examples of EDT



- CAS & PAS & OLAP
- Data Navigation System

CAS & PAS & OLAP



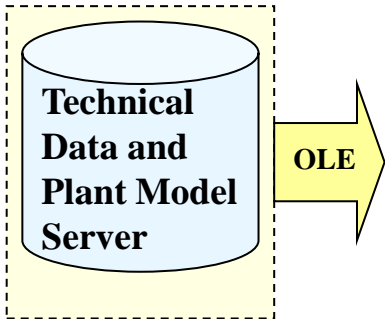
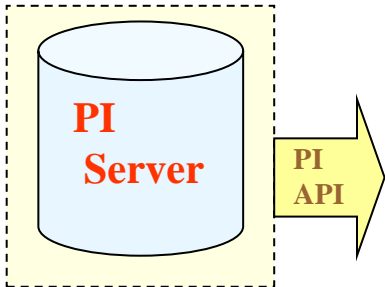
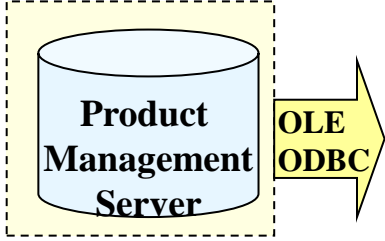
Database Navigation System (Intelligent Navigator)



- TAG correlation
- Process Analysis

Database Navigation System --- Intelligent Navigator ---

Data Warehouse



Data Mining

Data Extracting

INT-NAV TAG相関検索

相関グループ: Master Folder, User Folder

表示 TAG 選択

<input type="checkbox"/>	SIK00012	Srv1	原動1 1F1 電力量	KWH
<input type="checkbox"/>	002-0001	Srv1	原動1 1F1 CO2排出量	T-C
<input type="checkbox"/>	SIK00013	Srv1	原動1 1F1 電流値	A
<input type="checkbox"/>	SIK00014	Srv1	原動2 1F2 電力量	KWH
<input type="checkbox"/>	002-0002	Srv1	原動2 1F1 CO2排出量	T-C
<input type="checkbox"/>	SIK00015	Srv1	原動2 1F2 電流値	A
<input type="checkbox"/>	SIK00020	Srv1	事務所 1F3 電力量	KWH
<input type="checkbox"/>	002-0002	Srv1	原動1 1F1 CO2排出量	T-C
<input type="checkbox"/>	TRG-0002	Hin	製造量/月実績	数

検索設定 | 検索結果

データ検索条件(期間): 開始 1999/02/29 23:59:59, 終了 2000/02/28 23:59:59

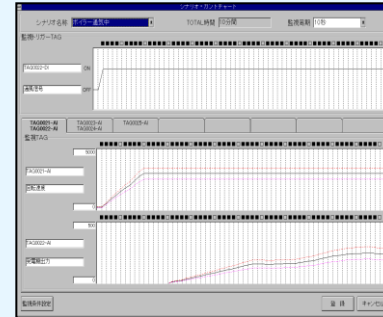
データ検索条件(予→範囲): 相関 Gr 内 計数 TAG, データ 1 ≤ データ 2

SIK00012	Srv1	原動1 1F1 電力量	99999.99	99999.99
SIK00013	Srv1	原動1 1F1 電流値		
SIK00014	Srv1	原動2 1F2 電力量		
SIK00015	Srv1	原動2 1F2 電流値		
SIK00012	Srv1	原動1 1F1 電力量	99999.99	99999.99

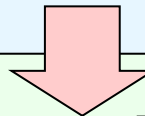
検索 | クリア | 設定 | 閉じる

EUC/EUD

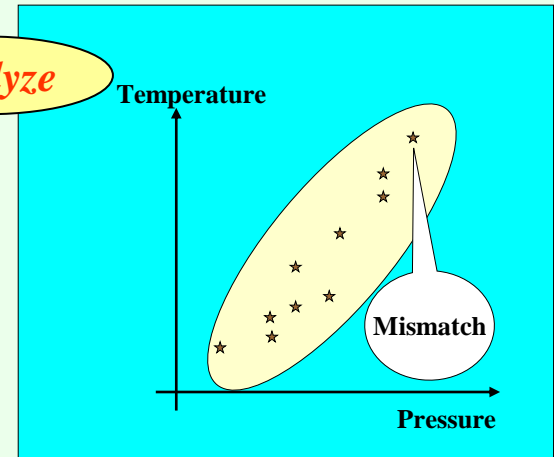
Plant Behavior Check



Alarm Check



Analyze



Verify

Improvement!

Hypothesize

Modeling
Simulation
Design (Soft-sensor)



Fuji Electric Engineering Co.,Ltd. The technical service specialist

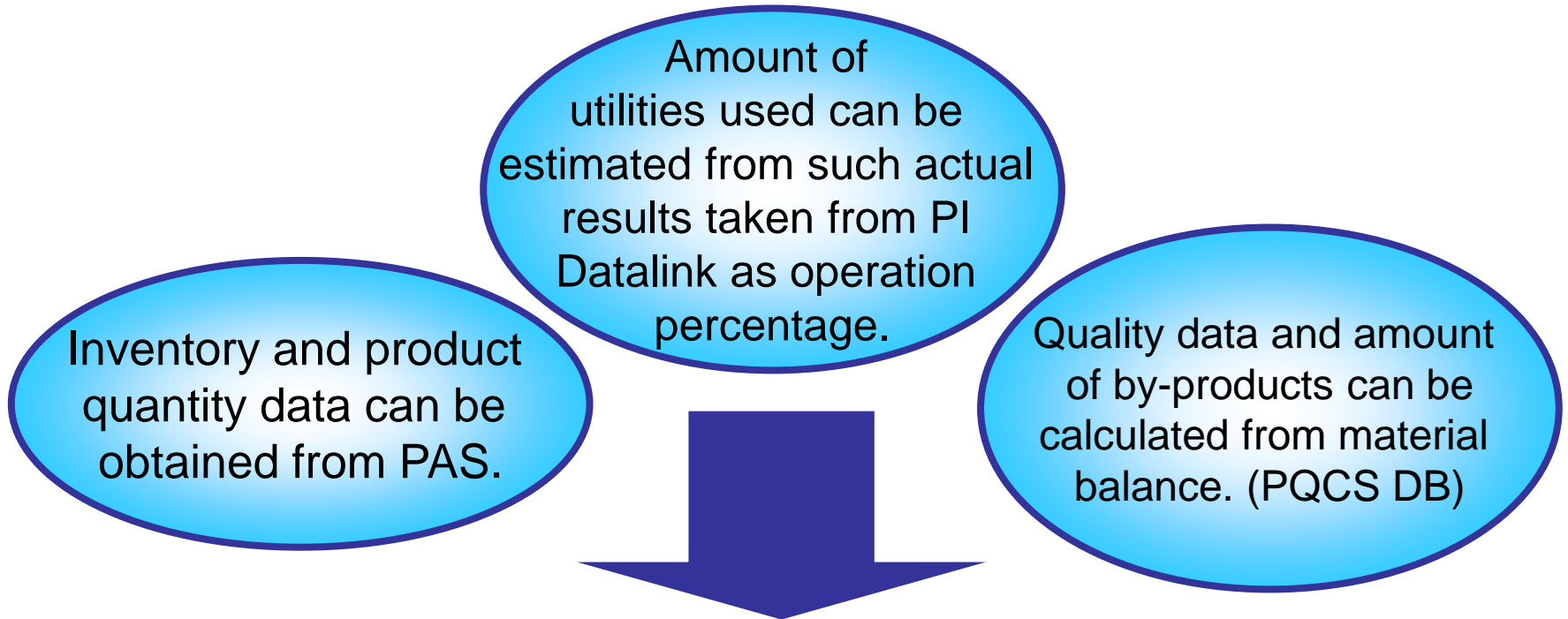
Systems Integration

Maintenance and servicing

Job-site engineering



EDT - basic features - SCM



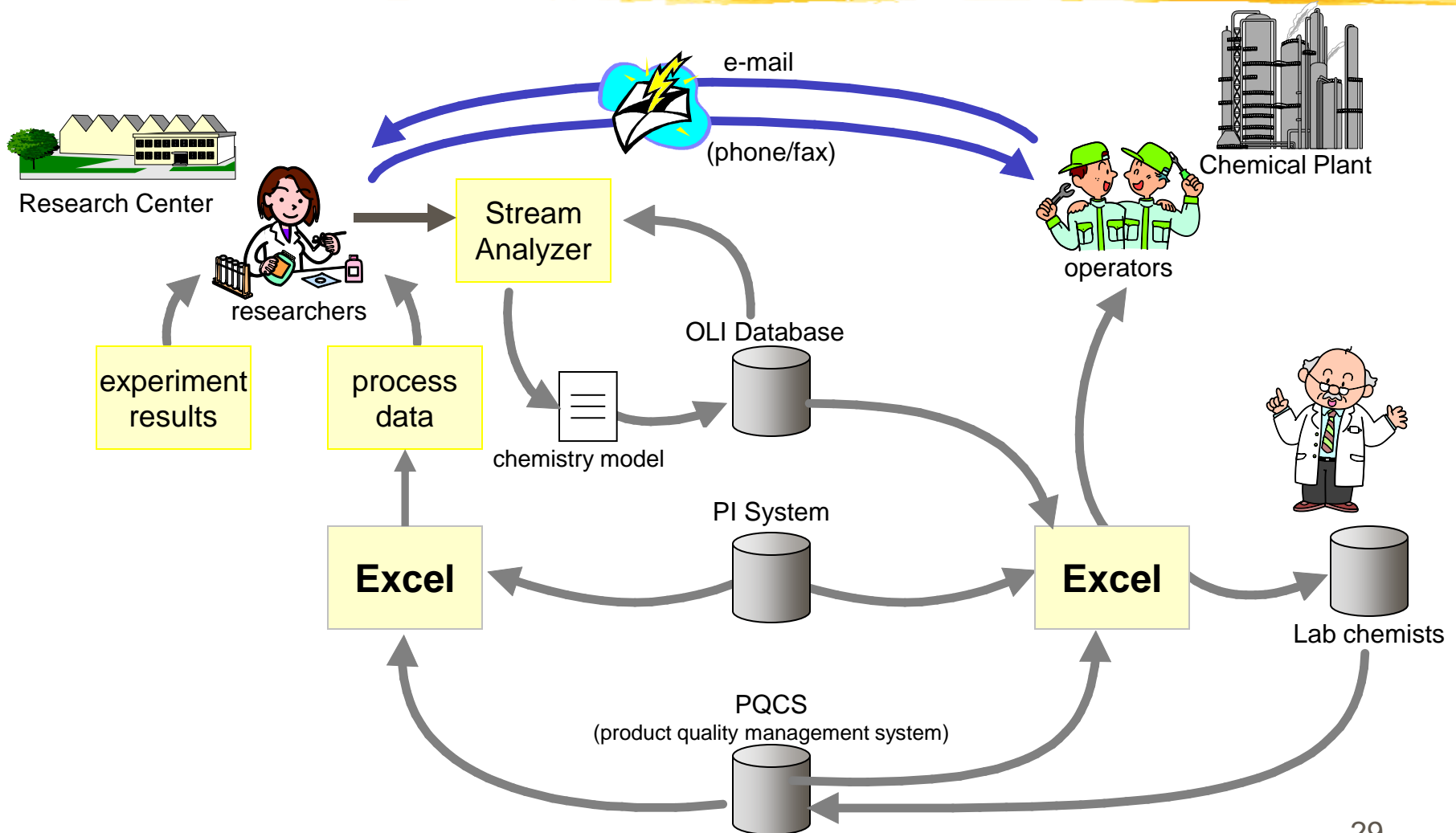
SCM System is complete with just the Excel interface!

EDT - basic features



- Proposes standardization of functions to enable easy combination of different systems
- Security Management
- Interesting ways to use Excel Add-in
 - Generalized Add-in
 - Customized Add-in
- Database Navigation System (Intelligent Navigator)

EDT - one example



EDT & PI 4 ever!

...How much saved, and how much will be saved

Item	Saved, or will save...	Notes
Number of frequent PC users	Increase of 20%. 758 (October, 1999) from 581 (October, 1997)	Expected to increase more.


EDT & PI 4 ever!

...How much saved, and how much will be saved

Item	Saved, or will save...	Notes
Time taken to control process	Decrease of approx. 1500 hrs/month expected for fiscal 2000 = roughly \$35,000/month = roughly \$420,000/year	Only operators are considered. Numbers expected to jump for engineers and researchers.

EDT & PI 4 ever!

...How much saved, and how much will be saved

Item	Saved, or will save...	Notes
Number of manpower per month needed to develop system	Decreased to 1/2. 3 specialists  1.5	Development of the system itself became simpler and easier.

EDT & PI 4 ever!

...How much saved, and how much will be saved

Item	Saved, or will save...	Notes
Software development fee	Expected to save approx. \$400,000, (as a start) compared to same kind of development using similar but different software	Expected to save much more!

EDT - future plans



- SCM & ERP
- Provide ideas to expand usage of **PI Datalink**
- Easier process analysis and process reconciliation
- Let users worry more about what they do than how to work the software
- ... and more!

Interested?



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Thank You!



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Thank You!

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