

New Paradigm of The Profit and Loss Planning and Simulation for Process Industry

: Planning and Simulation for Process Industry
: Contribution of OR

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1. Points not yet Matured in Practice

1. Day to day Requirements

- : Top-management; I want to know current company-wide profit quickly.**
- : Engineer; I want to know the result of my effort as company-wide profit.**
- : There must be a function able to evaluate profit from economic and engineering point of view.**

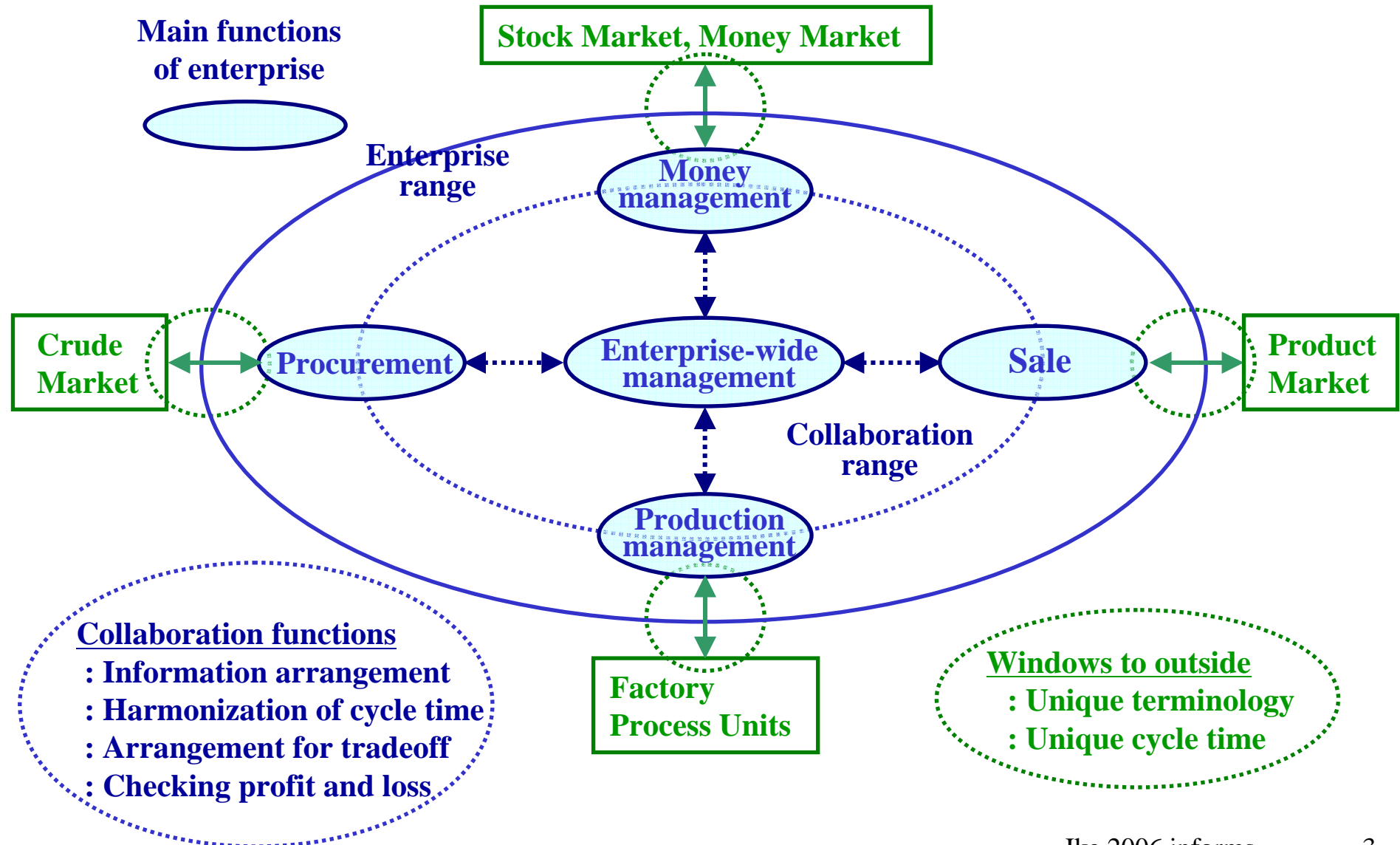
2. Current system architecture

- : Process Industries feel something is incomplete.**
Illusion for ERP, Incompleteness of SCM, Rigid DCS, Incomplete PDCA system
- : Establishment of Plan-Do-Check-Action system**
Improvement of P function, closing loop of PDCA, speedup in PDCA cycle time

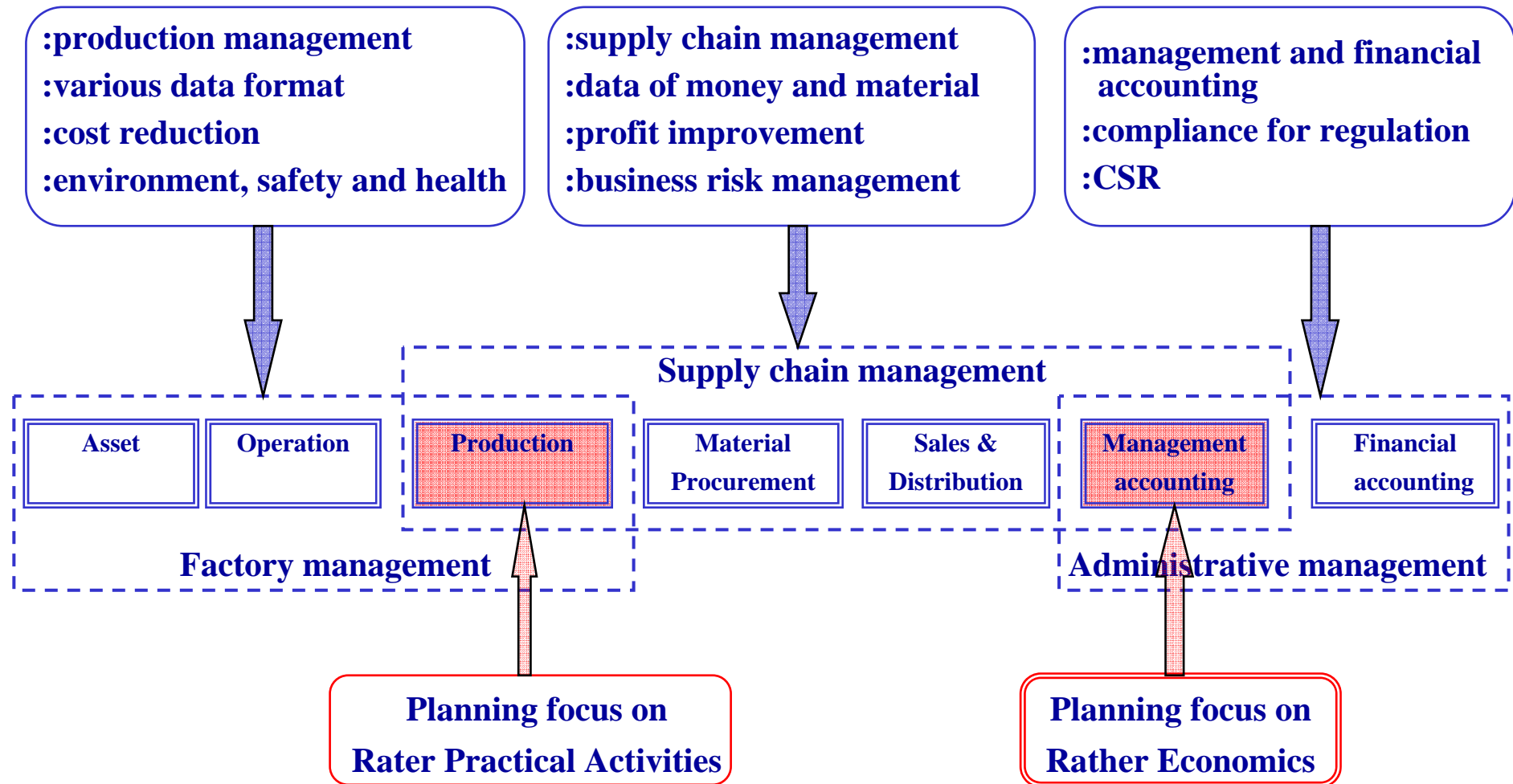
3. Renovation of organization and IT systems

- : Work process of human activity for PDCA mechanism supported by IT systems**
- : Enterprise-wide working process of a small decision making group**
- : Cooperation between engineer, businessman and accountant**

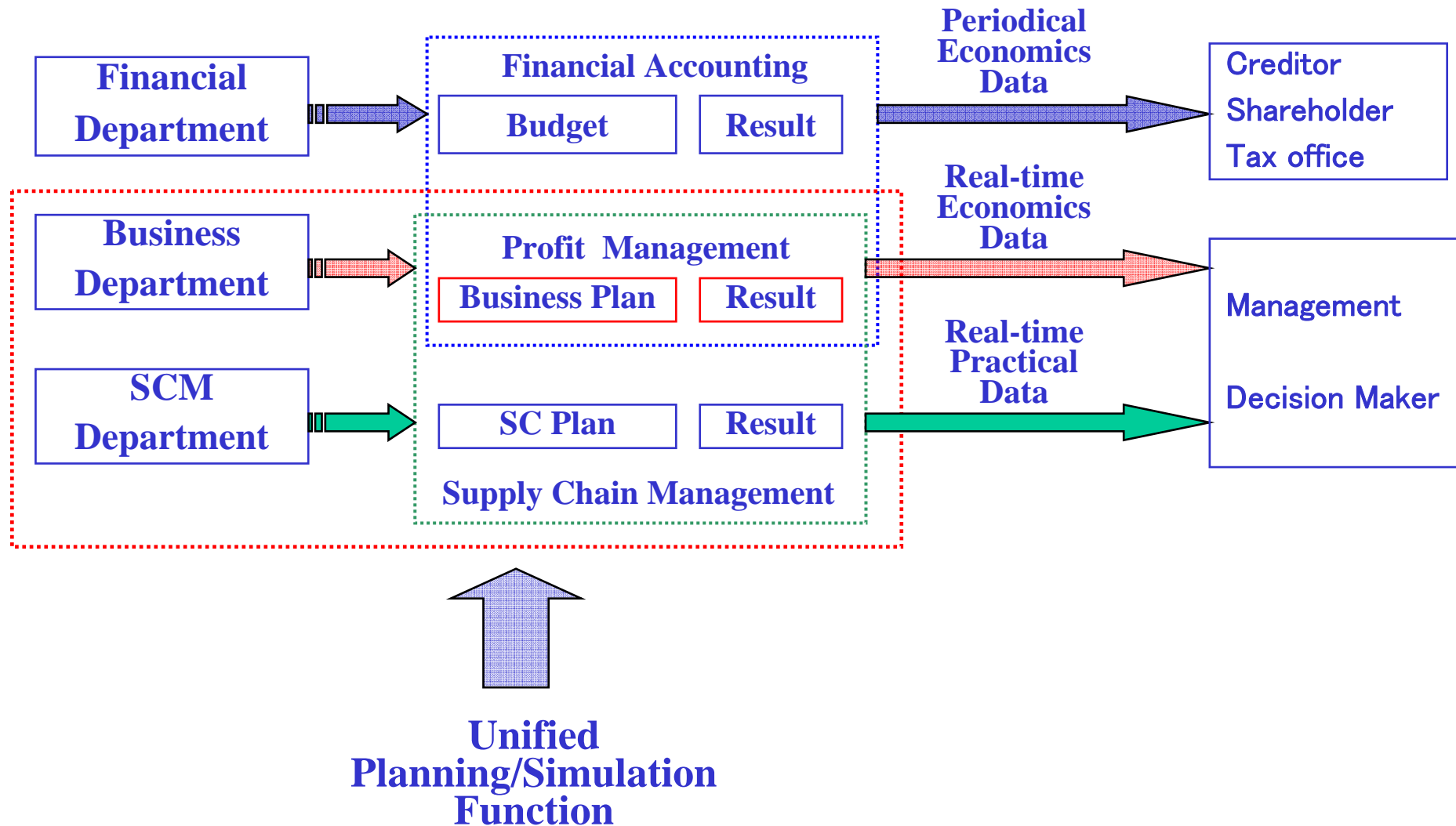
2. Collaboration Work in Productive Management



3. Framework of management system



4. Cooperation with Manager, Engineer and Accountant



5. Contribution of OR to Process Industry

Until now

1. Practical LP applications for Process Industry

- : Oil, Chemical --- starting in 1950's
- : Object --- crude selection, plant operation, marketing, facility investment

2. Understanding of end-user

- : As a tool --- good model for case study, business model for enterprise
 - solving problems with complicated selection and tradeoff
 - supporting decision by quantitative and economics view
- : For business --- only one practical tool for daily planning work

3. Current condition of application and software

- : Stable operation --- stagnation and obsolescence
- : Lack of experts --- retirement of veterans
- : Specific software product --- rigid and non flexible
- : High price of software --- difficult to implement for small companies

Improvement by implementation of LP

- : Flexibility, free modeling --- expansion of application
- : Visualization of model --- easy to understand for person without math background

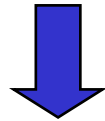
--- easy to build and to maintain model

- : Data handling --- easy to handle large data of huge models
- : All united in personal computer --- to reduce cost as a whole

6. Planning and Simulation Environment for Daily Work

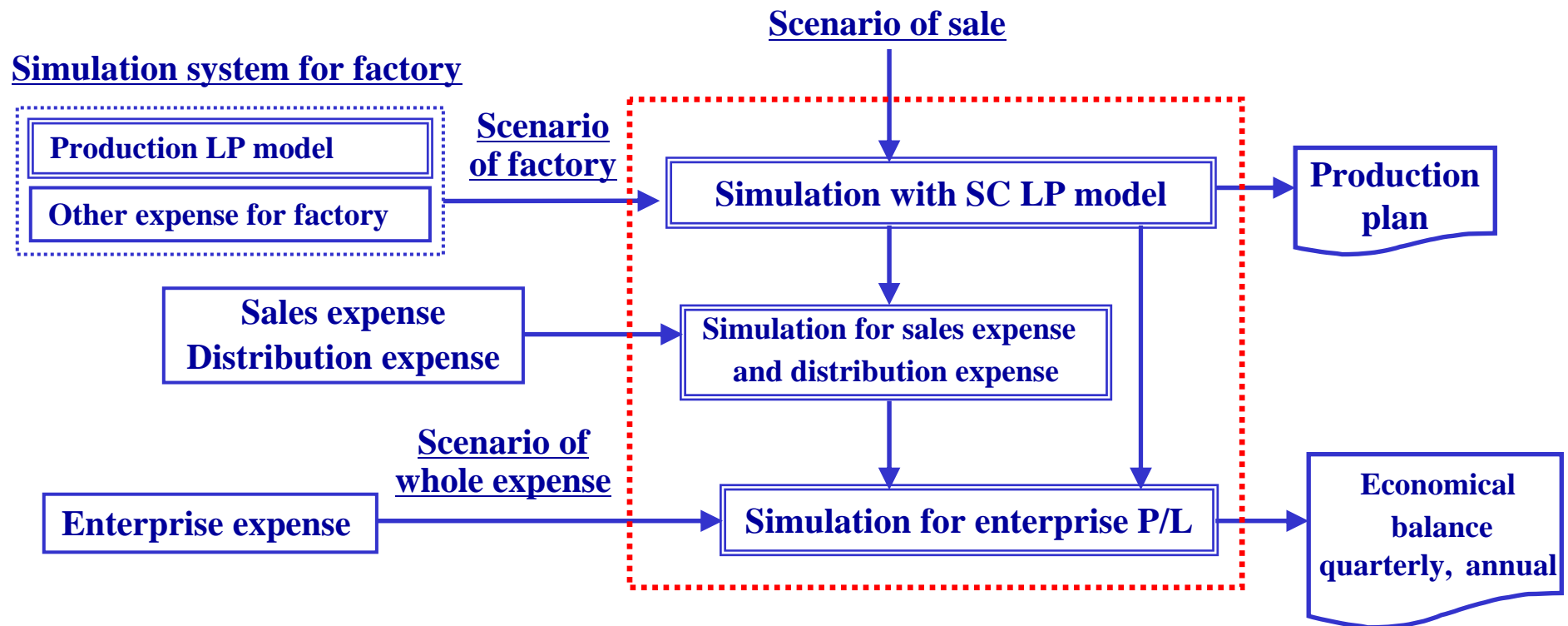
Planning work atmosphere

- : For planner and engineer --- simple and smooth operation**
- : Format of information --- flow chart and table in daily use**
using these flow chart and table directly to modeling
- : Format of data --- no change of data from daily use to model**
- : Common understanding --- common tool for collaboration work**
- : Operation in PC network --- enterprise-wide common representation**



Improvement of model, functions, GUI, database, etc.

7. Unified Planning/Simulation Model for Enterprise-Wide



- : Practical system for enterprise including supply chain LP model**
- : Collaboration work with accounting and whole SCM management**
- : System for ordinary management work, getting along with changes**

8. Improvement of Planning Work Process

Current planning work

: Work process --- separated, sequential and one way

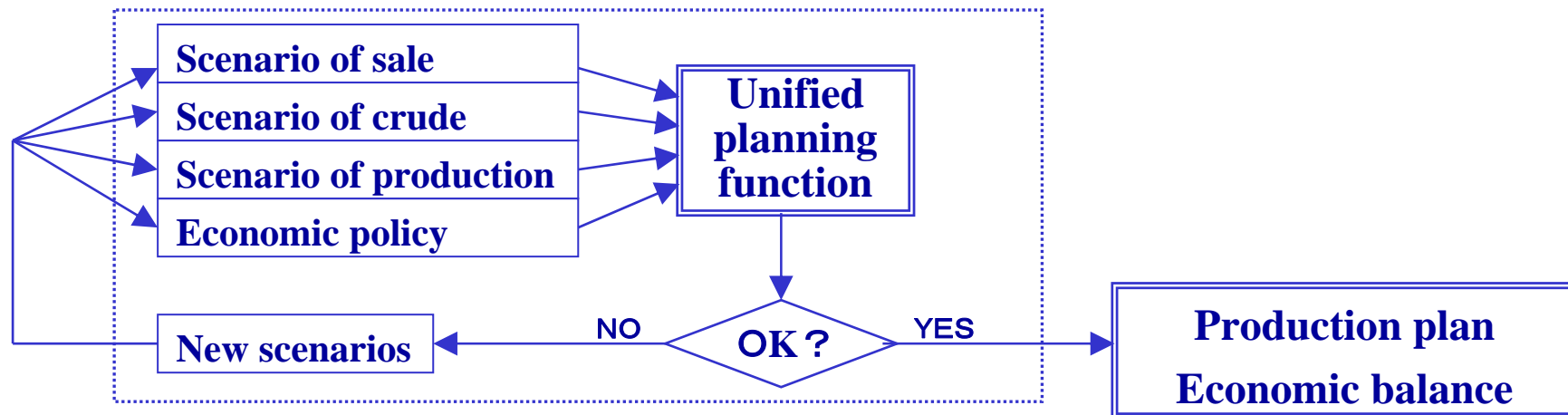
Integration of separated planning work

: Consideration at once for all scenarios of each department

: Many case studies for enterprise plan within a very short period

: Setting collaborative environment for planning work

: Re-build PDCA loop starting from new optimization planning function



9. From Now On

Let's extend applications in practice further.

- : Work process analysis on decision making
- : Development good model and operational environment
- : Establishment of competitive proprietary system