To Ensure the Reliability of Information Systems

October 6, 2008

Koichi Hironishi
Corporate Senior Executive Vice President
Fujitsu Limited

Agenda

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- What is the reliability of information systems?
- What is needed to ensure reliability?
- Fujitsu’ s approach to ensure reliability
- Wrap up ~To Ensure Reliability

What is the reliability of Information Systems?

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From a User's point of view...

To realize the expected role
of the information system throughout its lifecycle

Both users and vendors must mutually understand the role of the system and make efforts to realize it.

What is needed to ensure reliability?

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Engineering cannot be the only solution to ensure reliability.

Users and Vendors must understand the requirements correctly

and

Vendors develop the function with quality based on the requirements.

Key Point: Elimination of ambiguity and visualization of the requirements

Fujitsu' s approach to ensure reliability

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To understand the requirements correctly

Fujitsu develops common views (measures) collaborating with other vendors and users.

To develop the function with quality based on the requirements,

Fujitsu is using the approach of "Four Innovations" to improve system development.

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Developing common views (measures) collaborating with other vendors and users

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1. Common framework for Software Lifecycle Process 2007（SLCP） (2006~)
2. Ensuring the quality with Top Executives (2004~)
3. Customers’ view study group (2006 -)
4. The Grades standards for Non-functional requirements（2007~)

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Developing common views (measures)

1 Common framework for Software Lifecycle Process 2007 (SLCP) (2006~)

Common measures for planning, development, operation and maintenance of Information Systems to help mutual understanding of each work item through the life cycle process.

2 Ensuring the quality with Top Executives (2004~)

Recommendation on involvement of Top Executives of users to clarify the role sharing between vendors and users in the development of Information Systems.

Developing the common views (measures)

3 Customers' view study group (2006 -)

Pursuing how to describe external specification in an easy-to-understand way for users and how to build consensus in business application development.

4 The Grades standards for Non-functional requirements（2007~）

Visualization of Non-functional requirements such as performance, operability, security and formulation of the guidelines for user-friendly methods for consensus building between users and vendors.

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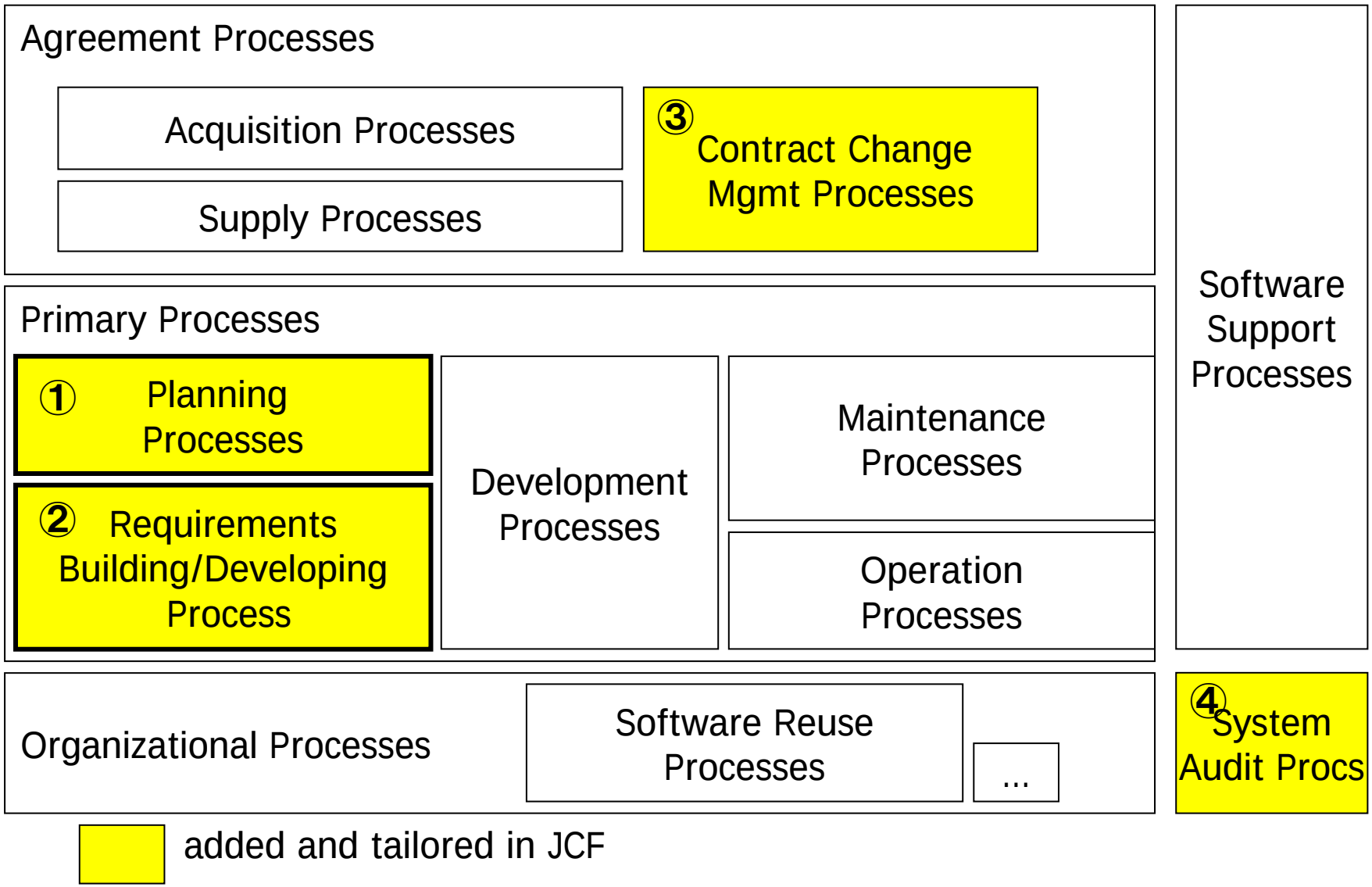
SLCP-Japan Common Framework 2007

Revised from SLCP-JCF '98



Fujitsu’ s approach to ensure reliability

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Appendix: Seventeen Principles

1. Expectations of users and venders often differ
2. Any decision consists of agreement and approval
3. Never postpone decisions crucial to the project
4. Never proceed to the next process without agreement by stakeholders
5. Multi stage contract decreases risks for both parties
6. System development costs you much more than software development does
7. Emphasize system life cycle cost
8. The objective of the project is meaningful only when everybody knows it
9. Requirements are attributed to users after all
10. Requirements definition is the baseline of development
11. Good requirements definition describes new business system in detail
12. Never implemented are unexpressed requirements
13. Qualitative expressions are interpreted in a developers favorite way
14. No such requirement as 'Just same as present'
15. An ideal business system will never be realized
16. Functional requirements diverge, cost and schedule converge them
17. Users are accountable for requirements definition

*for each principle, disciplines in action are described for both user and supplier

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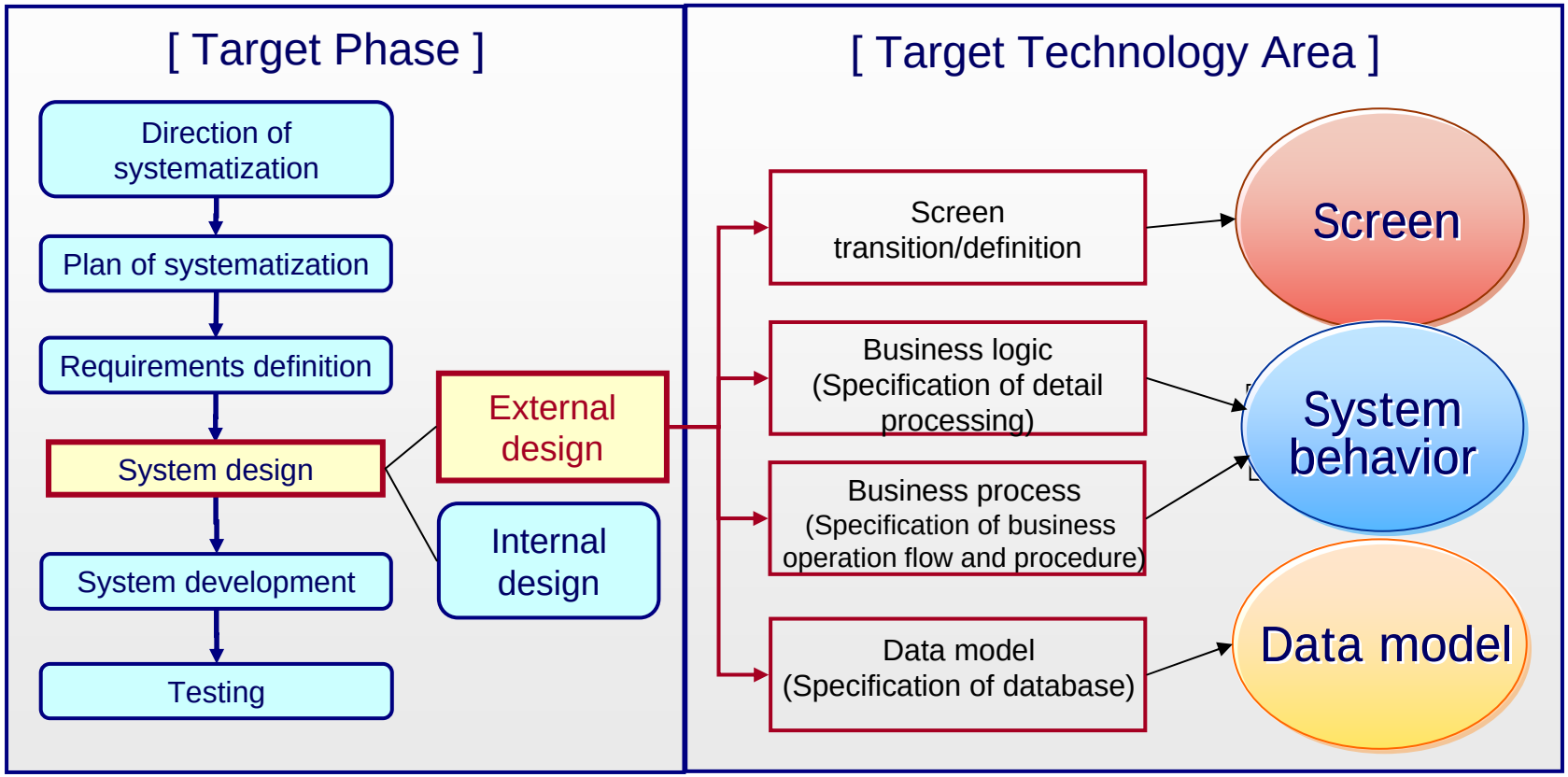
Customers' view study group

[Area targeted by Customers' view study group]
"Study group for customers' view on requirements specification based on a practical approach" (called "Customers' view study group" hereinafter) targeted the "External design" phase because it is the phase where developers have lots of contact with customers and customers are involved until program production.
Then the group targeted three technology areas: "Screen", "System behavior" and "Data model".



(Excerpt from the public presentation by Customers' view study group on March 18, 2008)

Customers' view study group

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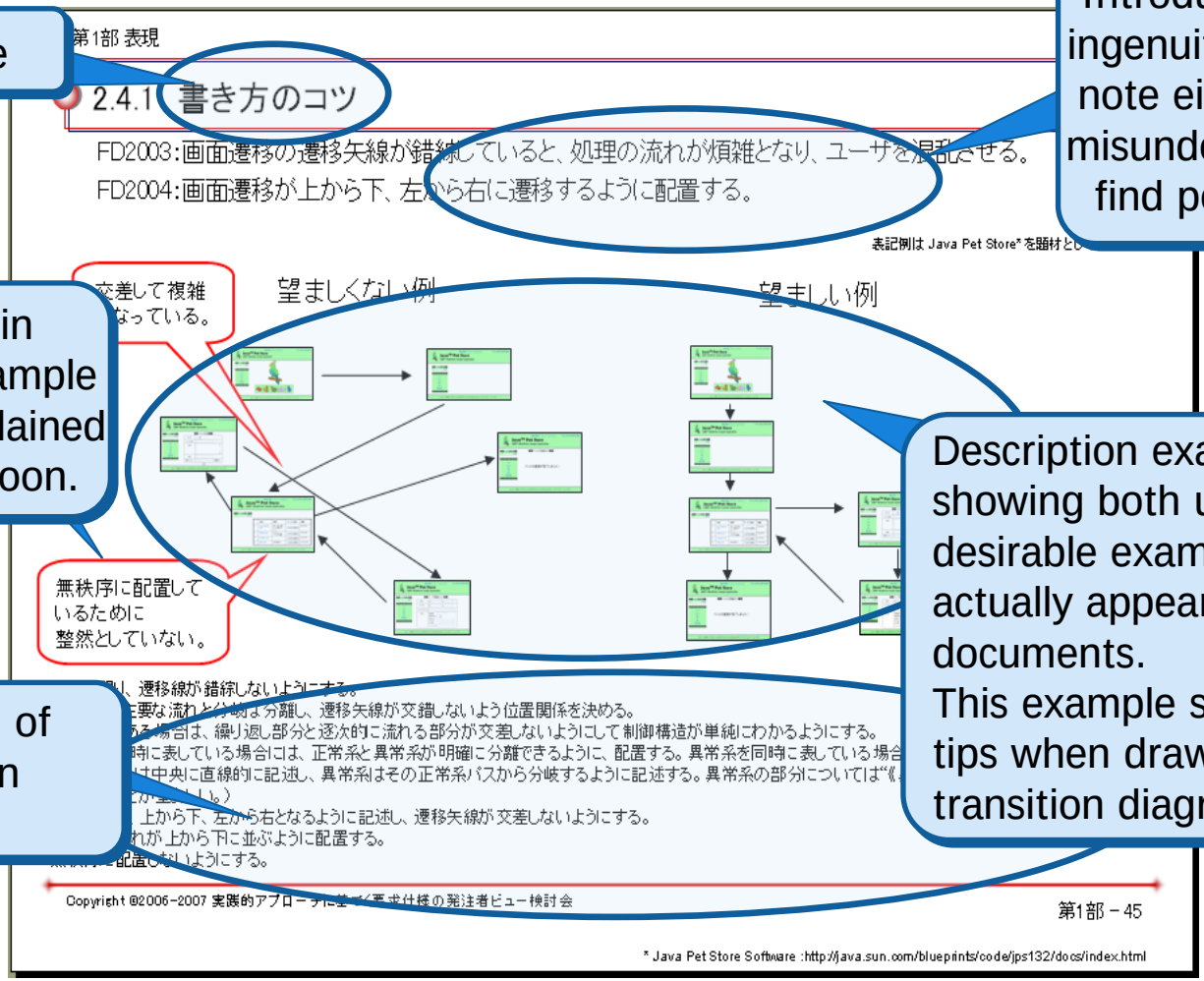
Customers' view guideline (Screen design edition)



Chapter title

Introducing , as a tip, ingenuity and things to note either to prevent misunderstanding or to find perception gap.

The points in description example are further explained in speech balloon.

Description example, showing both undesirable and desirable examples which actually appeared in design documents.
This example shows one of the tips when drawing screen transition diagrams.

Explanation of description example

(Excerpt from the public presentation by Customers' view study group on September 18, 2007)

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The Grades standards for Non-functional requirements

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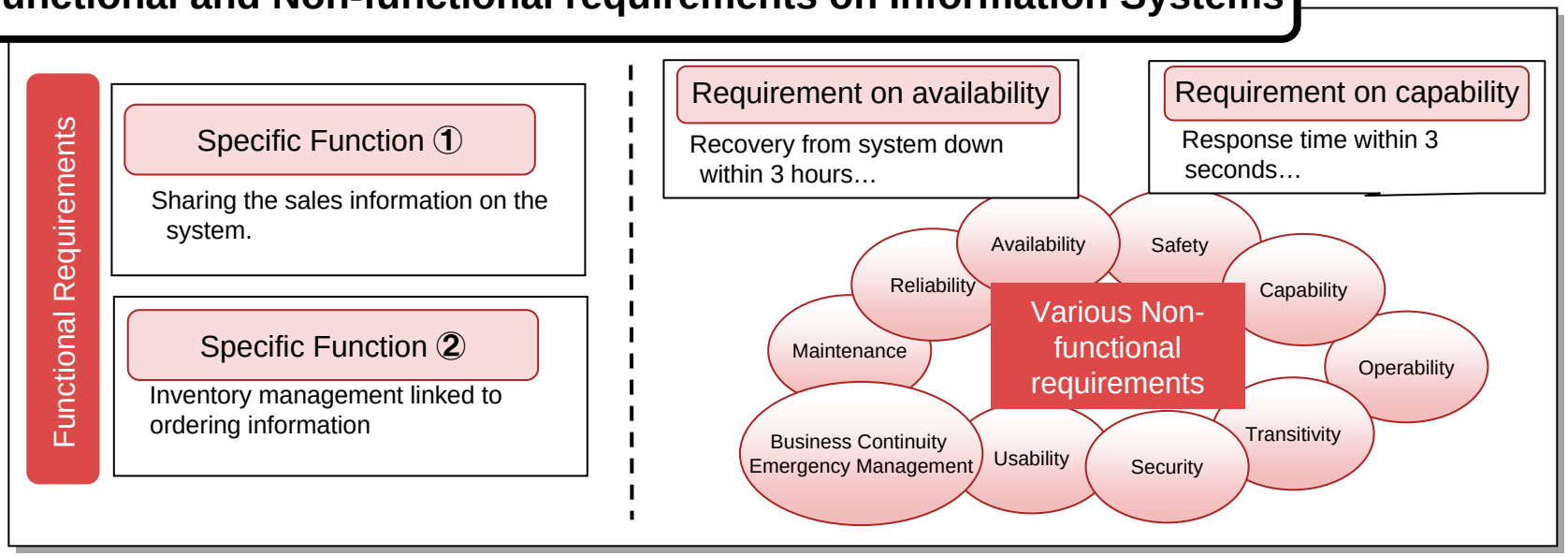
- Why the Grades (levels of) standards are needed…

Functional and Non-functional requirements on Information Systems



Challenges for Venders/Users on Non-functional Requirements

It is difficult to clarify Non-functional requirements at early stage of planning

As requirements or specifications are still vague in the upper process of the planning, venders and users cannot have mutual understanding on Non-functional requirements.

The Grades standards for Non-functional requirements

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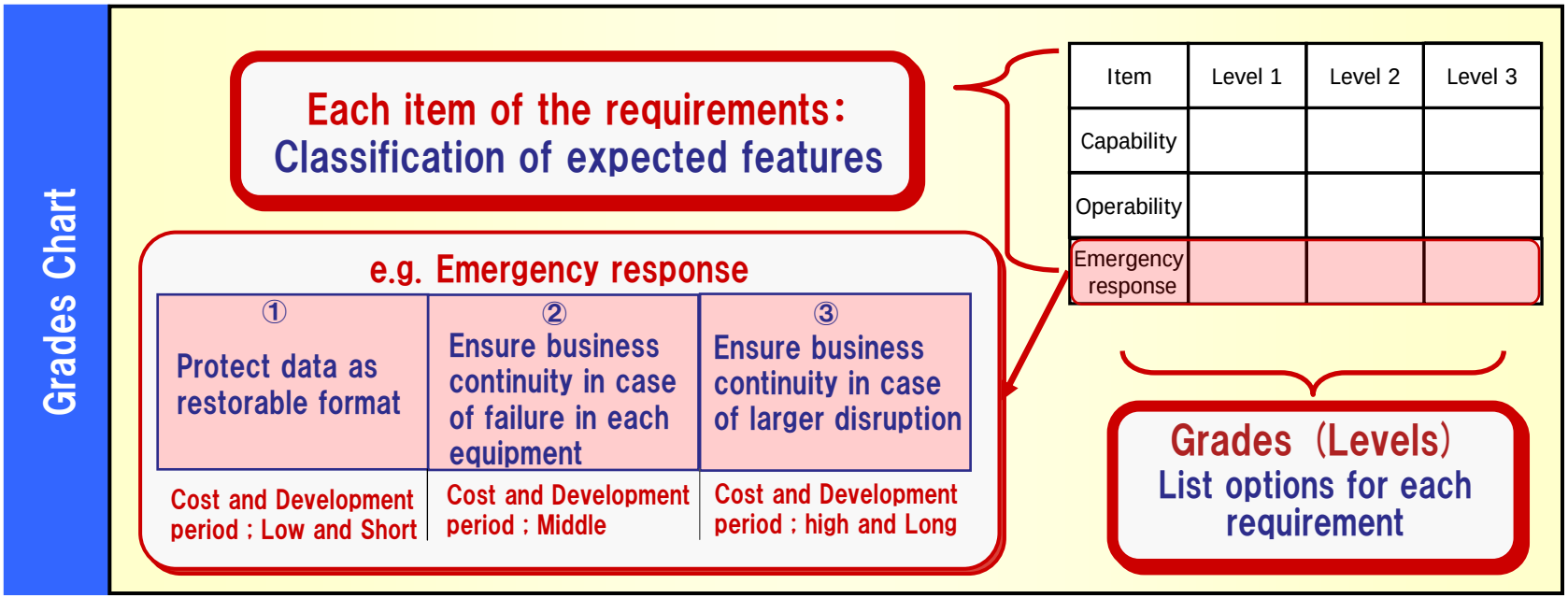
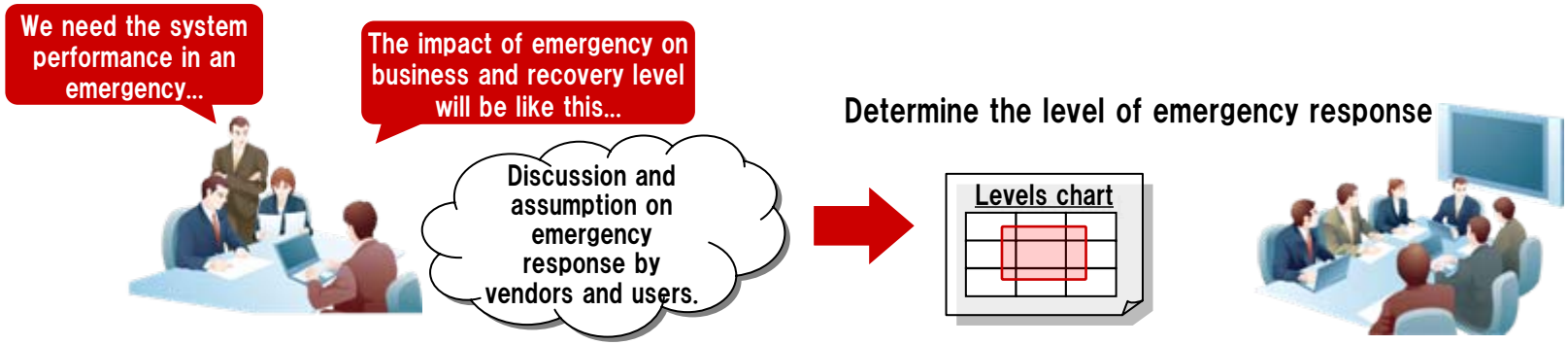
Image of the Grades standards



Help mutual understanding on requirements by indicating options for each requirement.



The Grades standards for Non-functional requirements

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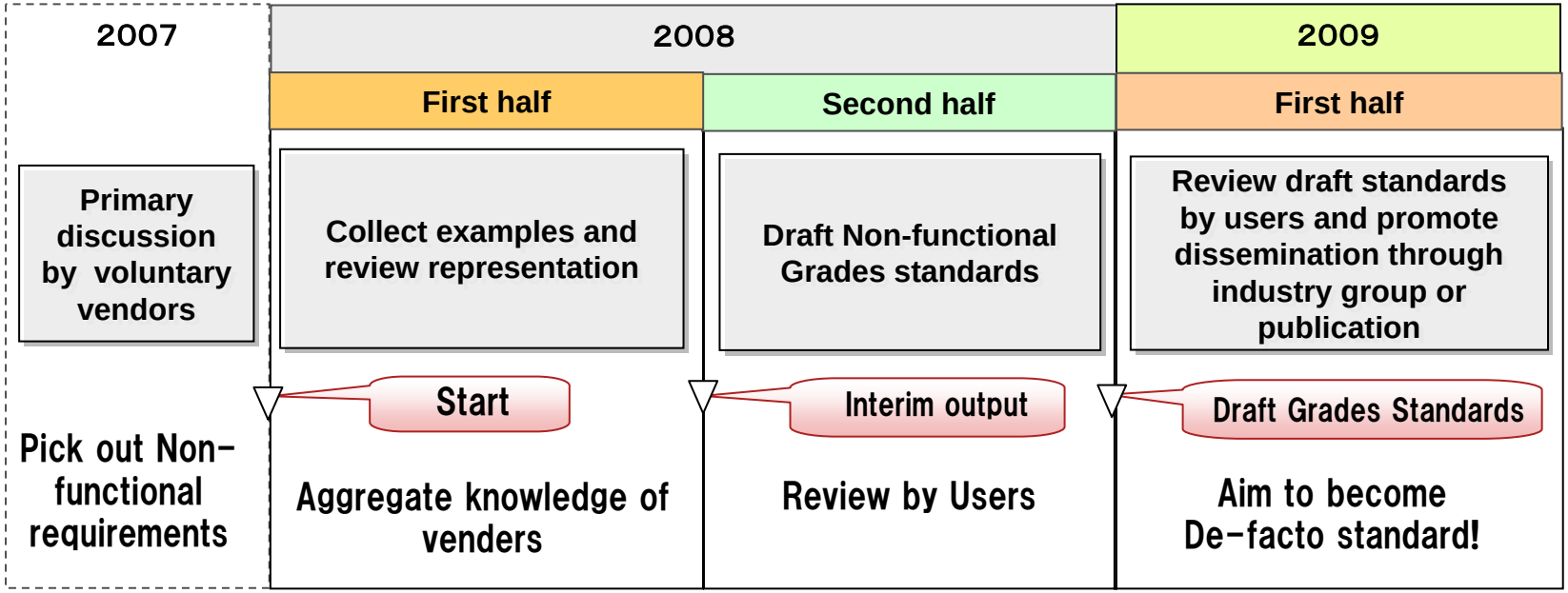
Schedule



How to utilize the Grades standards

○Through industry-wide
- Build consensus on Non-functional requirements between vendors and users.

○In each vendor
- Reflect the standards in requirements definition documents.

Fujitsu's practice:

"Four Innovations" in System Development

“Four Innovations” in System Development

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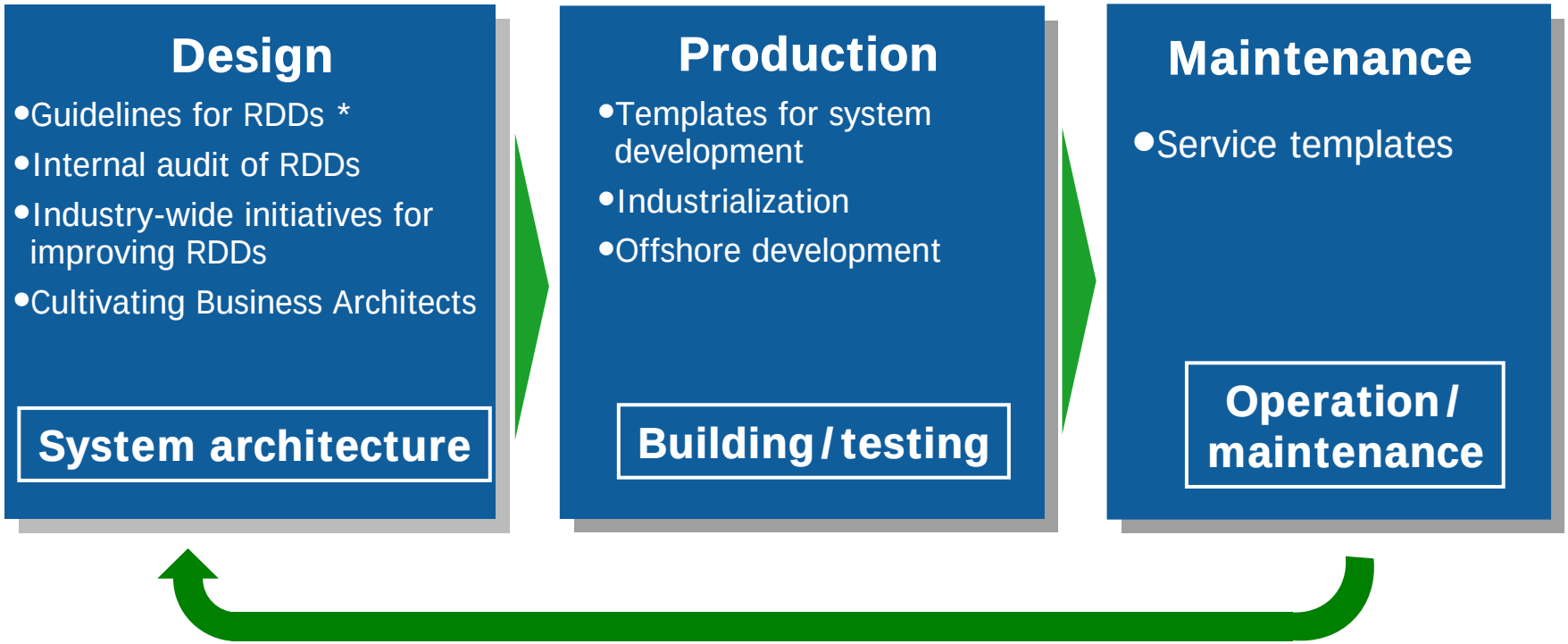

Way of working for system engineers

- TPS-based HR development, small group activities

***RDD: Requirement Definition Document**

Innovation in design

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- Improvement of the quality of planning and mandatory review by a third party within Fujitsu
  - Guidelines for RDDs*
  - Internal Audit of RDDs
  - Diagnosis of external specification

- Human development
  - Cultivate Business Architects who support planning, requirements building and developing processes.

*RDD: Requirement Definition Document

Innovation in design

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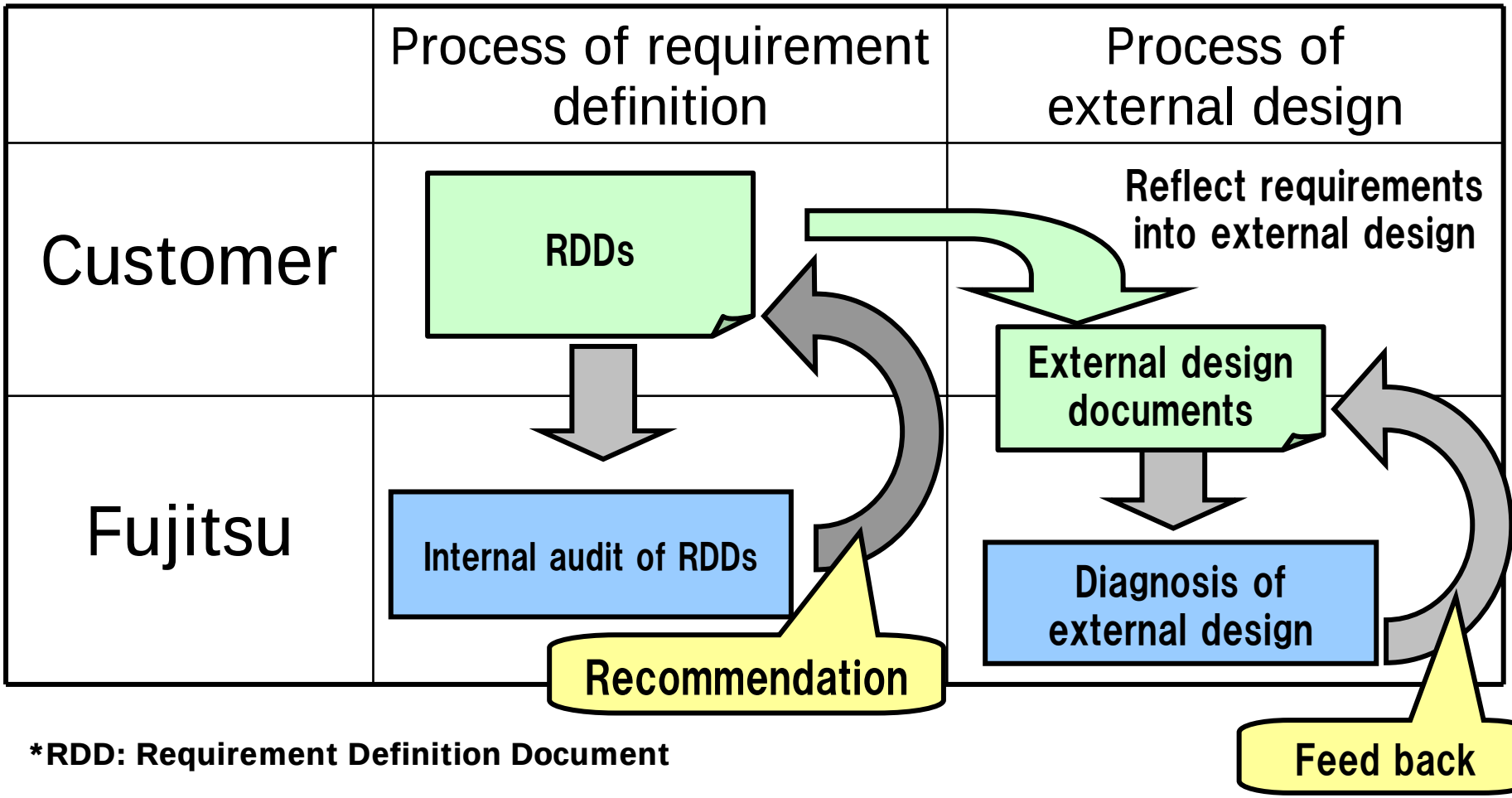
Mandatory review of the RDDs* of system integration exceeding certain size by third party within Fujitsu



*RDD: Requirement Definition Document

An example of Internal audit of RDDs

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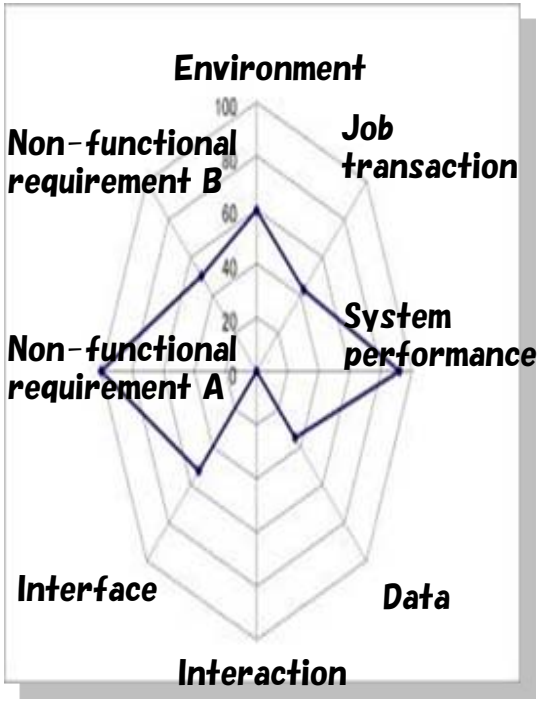
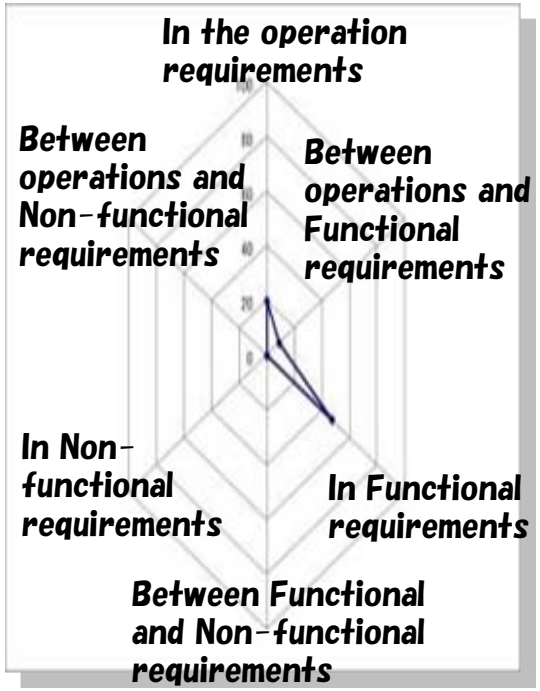
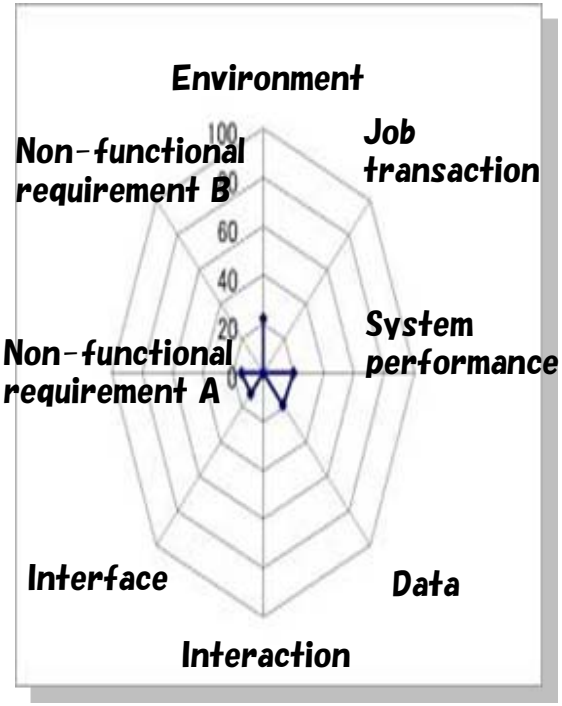
Aggregate Check



Consistency Check



Compatibility Check



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Wrap up ~To Ensure Reliability

To Ensure Reliability

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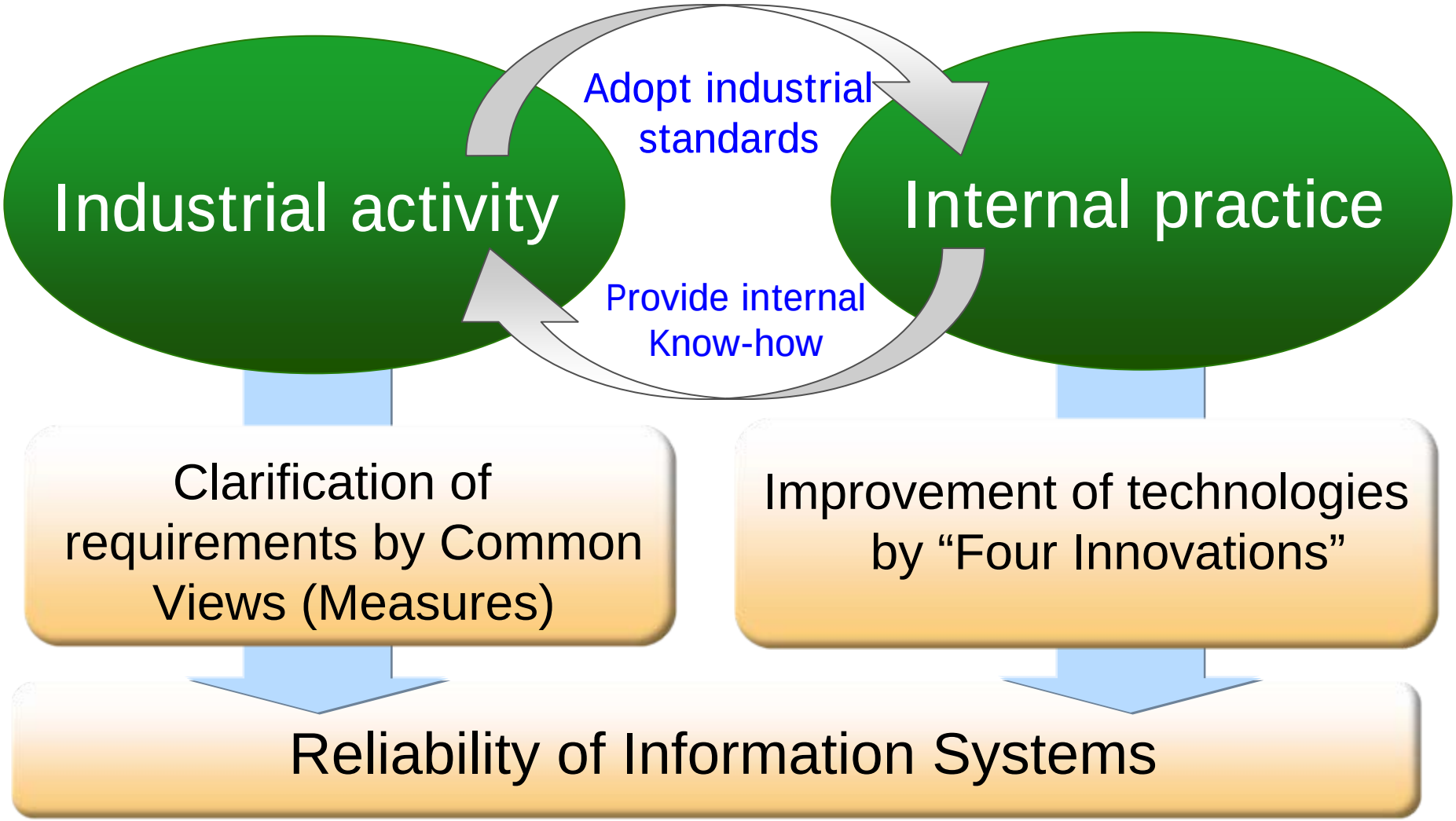
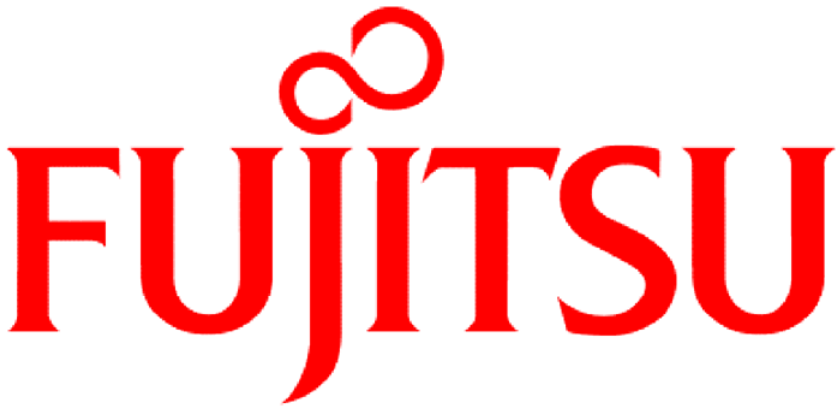
Improvement of the quality from two aspects





THE POSSIBILITIES ARE INFINITE