5th World Congress for Software Quality – Shanghai, China

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shaping tomorrow with you

Quality Management Organizations for CMMI® ("QMOC") Establishment & Optimization Methodologies

1st November , 2011

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Background

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<QM process improvements in Fujitsu>

Many business units of Fujitsu head office and subsidiaries are implementing QM (quality management) process improvements by CMMI® application & implementation.

<CMMI® WG>

We have established center of excellence for CMMI® named “CMMI® WG”
We have held monthly meetings for practical QM process improvement knowhow exchange regarding CMMI®.

<Critical Issue proposed by CMMI WG>

Development of **practical** QMOC establishment & optimization methodologies was proposed by CMMI WG members as a critical issue for CMMI application & implementation.

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Subjects of This Study

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We discussed existing “QMOC” establishment & optimization methodologies in CMMI® WG.

Note “QMOC”: Quality Management Organizations for CMMI®

<Discussion Results>

(1)Establishment methodologies

No practical methodologies except for the existing concept : “QMOC” = EPG + QAG

(2)Optimization methodologies

Some concepts have been proposed ,but no **practical** methodologies

Through trial and error

Difficult to establish & optimize “QMOC” intentionally & strategically

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Figure 1. The Existing Concept for “QMOC” Establishment

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“QMOC” = EPG + QAG

	EPG Engineering Process Group	QAG Quality Assurance Group
Definition	A group for establishment and optimization of standard quality management process based on CMMI®	A group for institutionalization of standard quality management process based on CMMI®

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Classification Analysis (1st Analysis)

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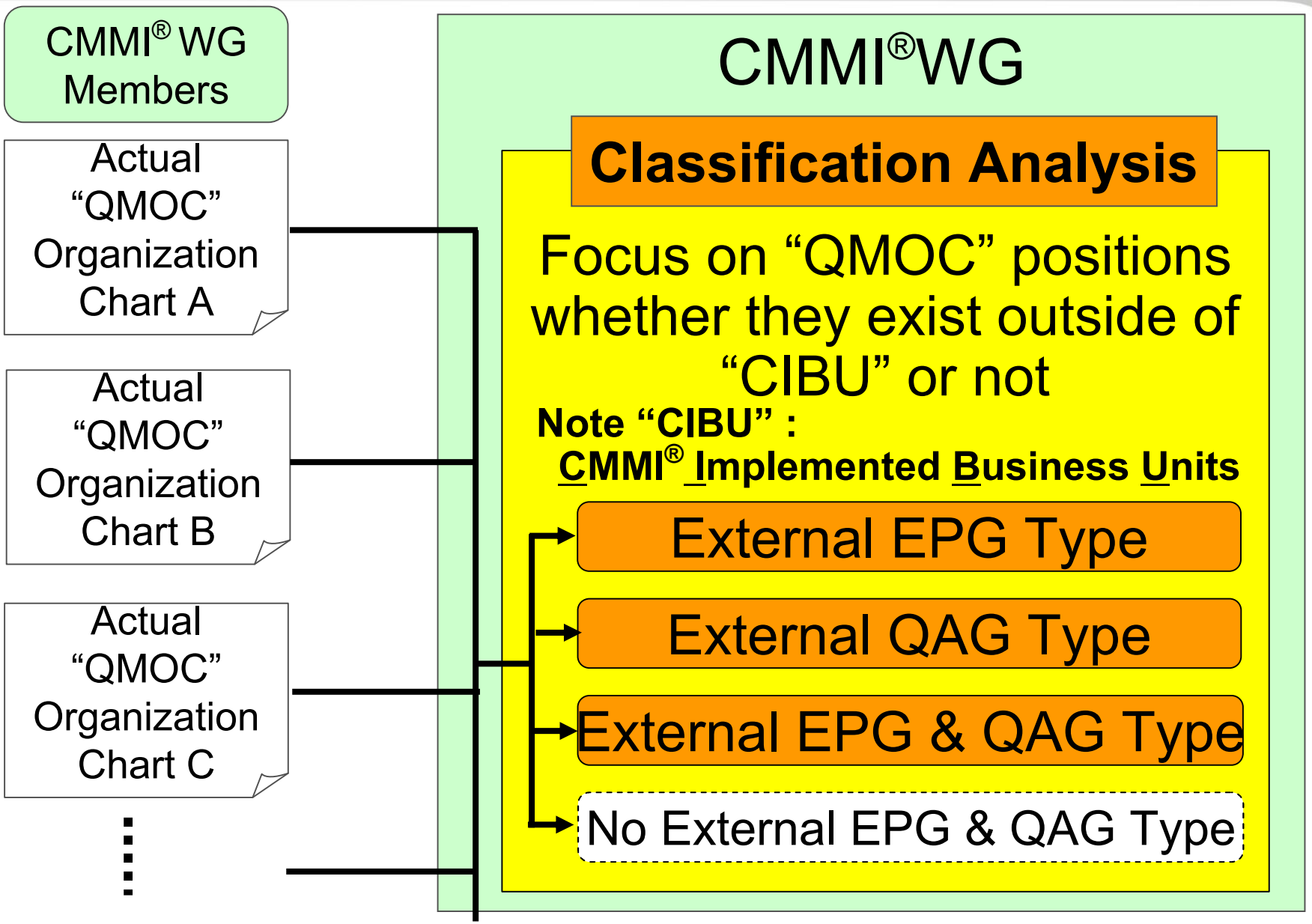

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Targets of Classification Analysis

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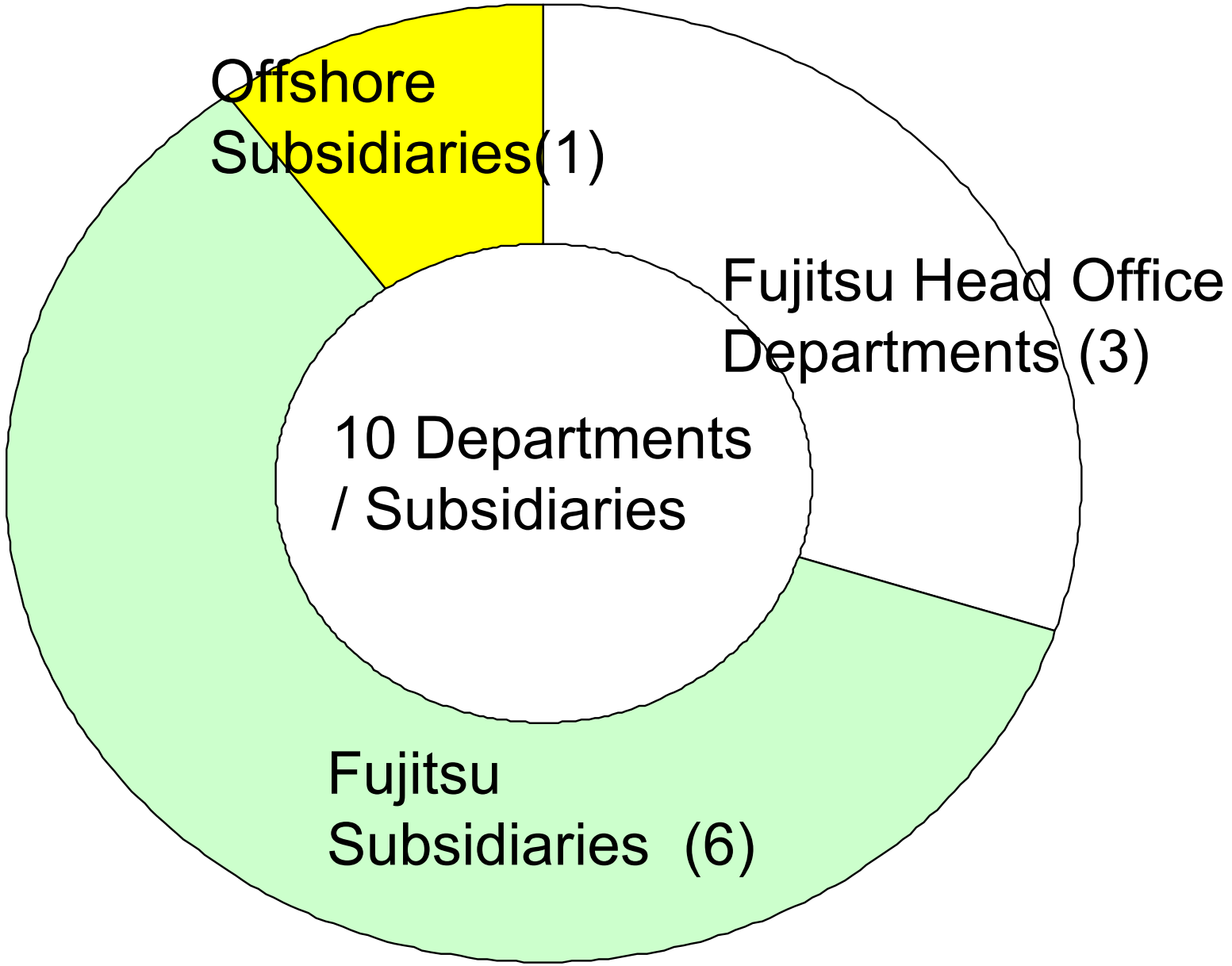

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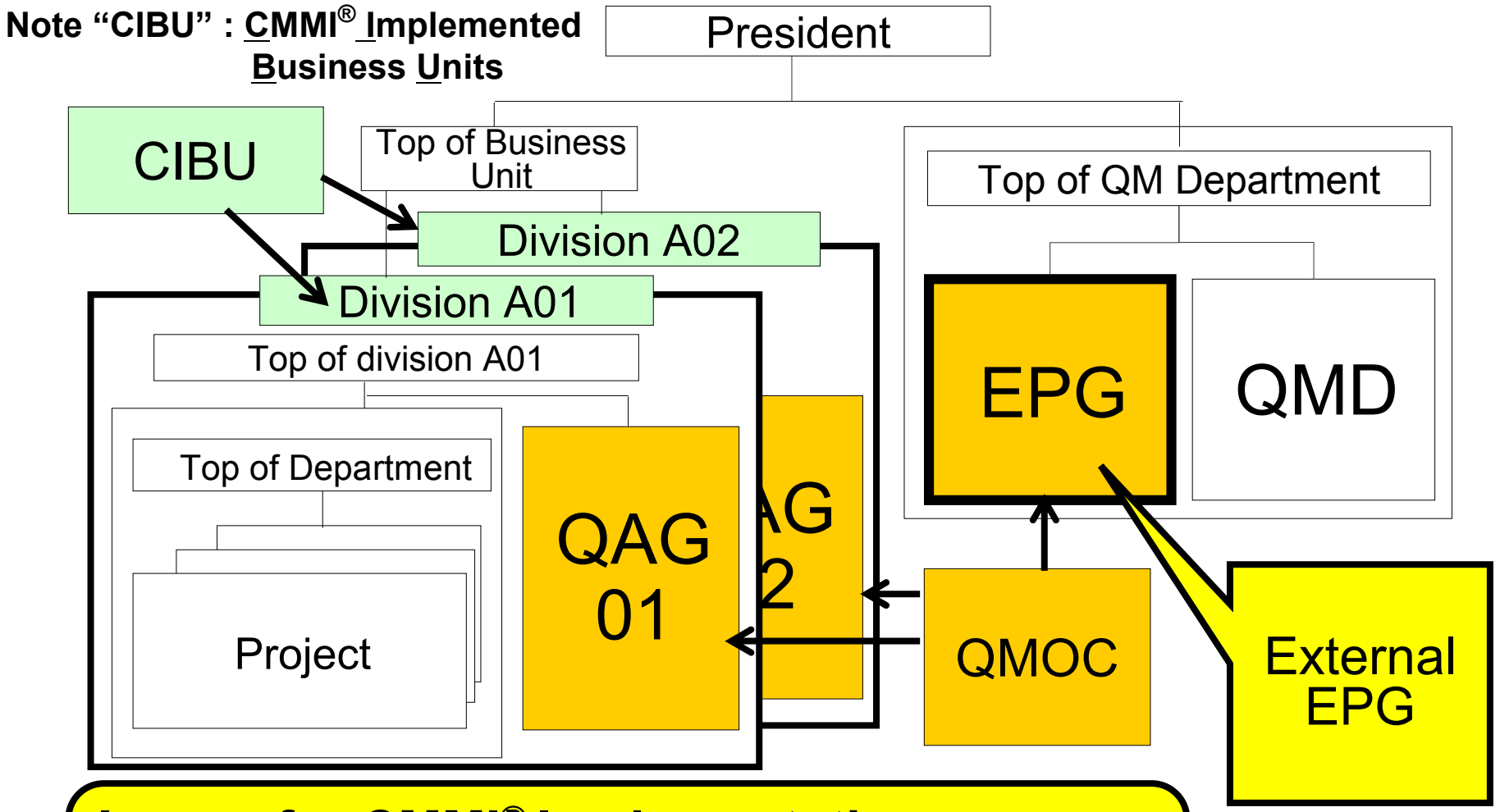
Figure 2. A Case of External EPG Type - Subsidiary A



Issues for CMMI® Implementation

1)Collaboration between EPG & QAG

2)Functions of 3rd Party Verification

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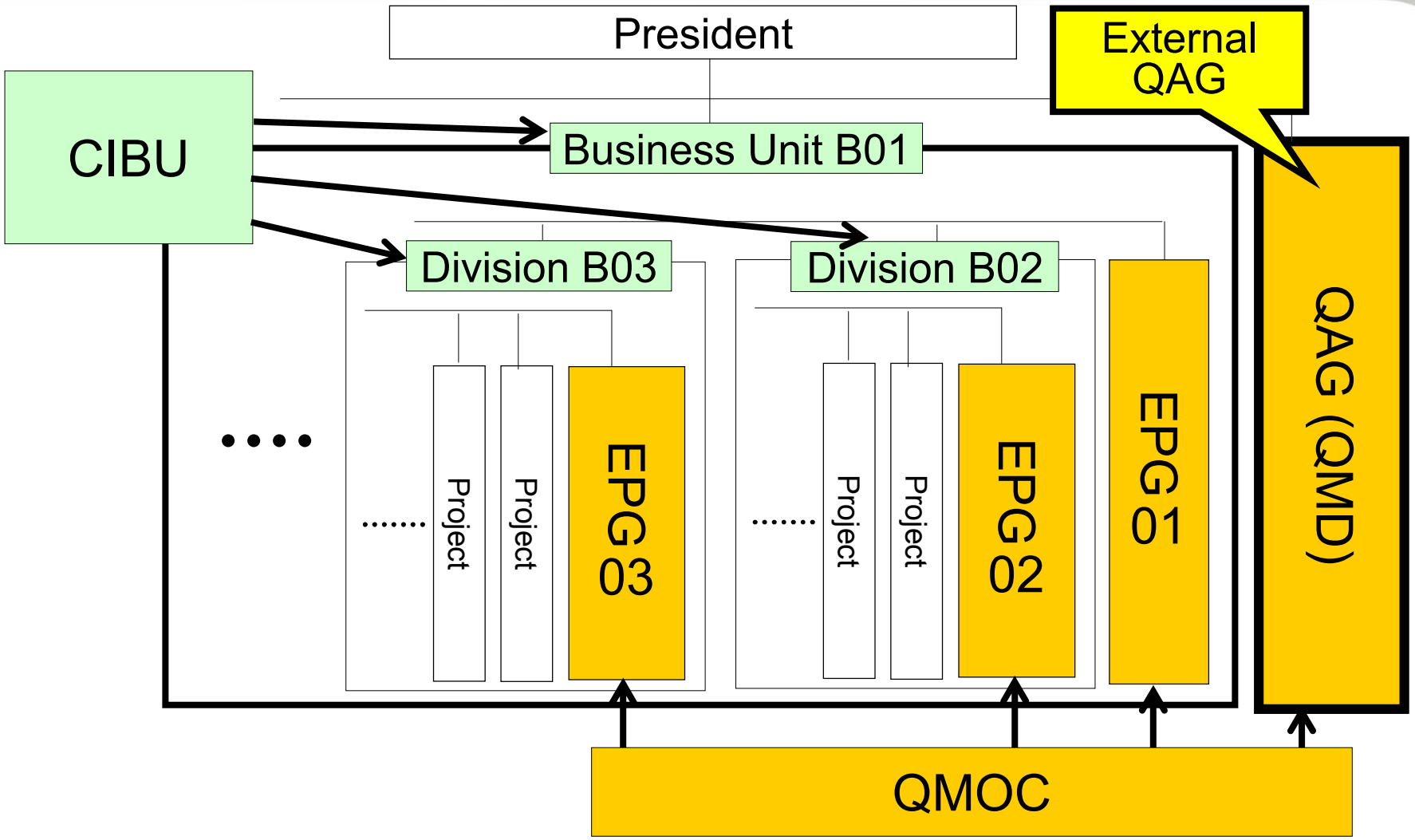
Figure 3. A Case of External QAG Type - Subsidiary B



An Issue for CMMI® Implementation
Institutionalization of tailored standard process is not good.

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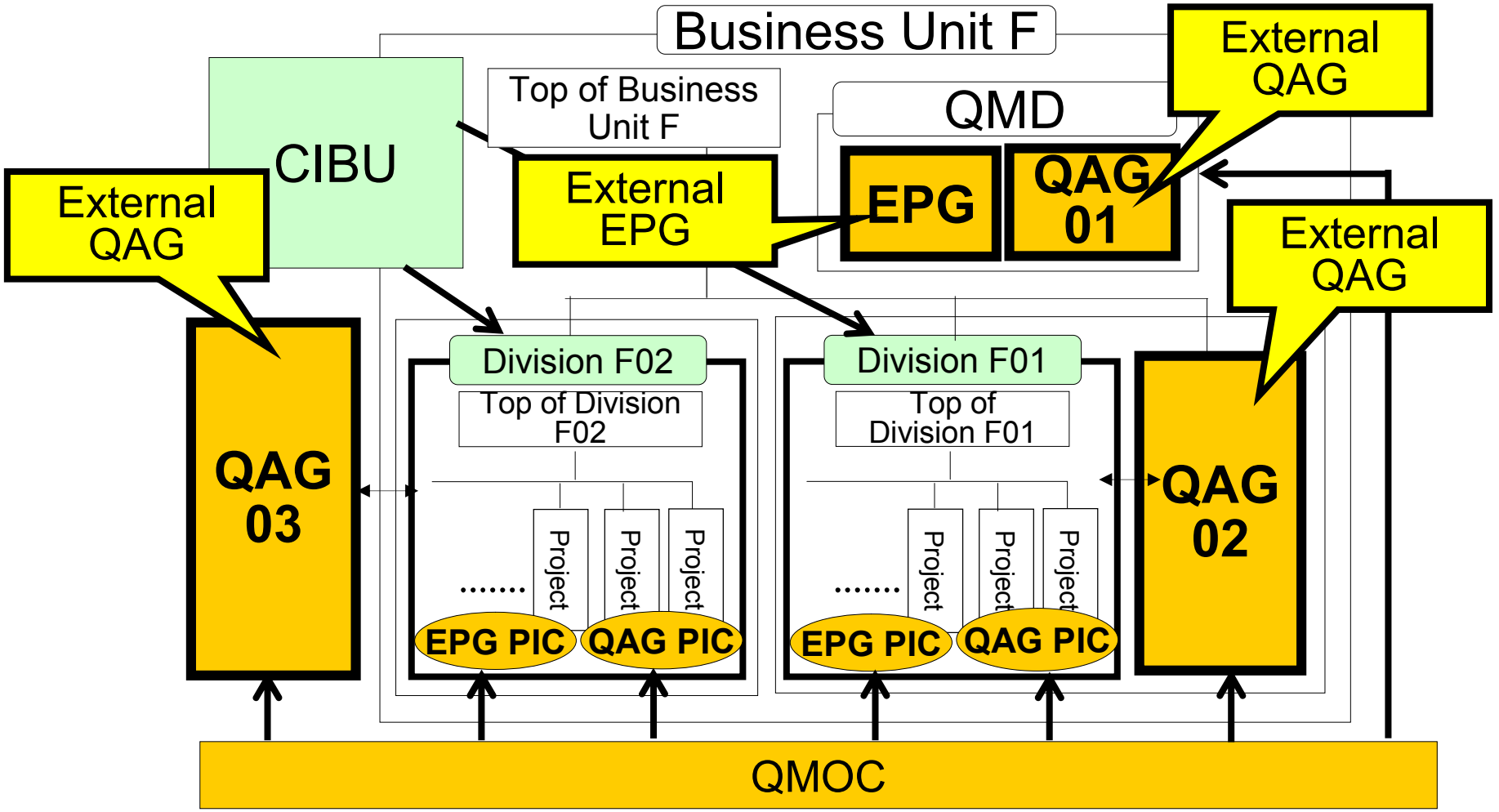
Figure 4. A Case of External EPG & QAG Type - Business Unit F, Fujitsu Head Office



An Issue for CMMI® Implementation
Next steps of "QMOC" optimization for further quality improvement ?

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Classification Analysis Results(1/2)

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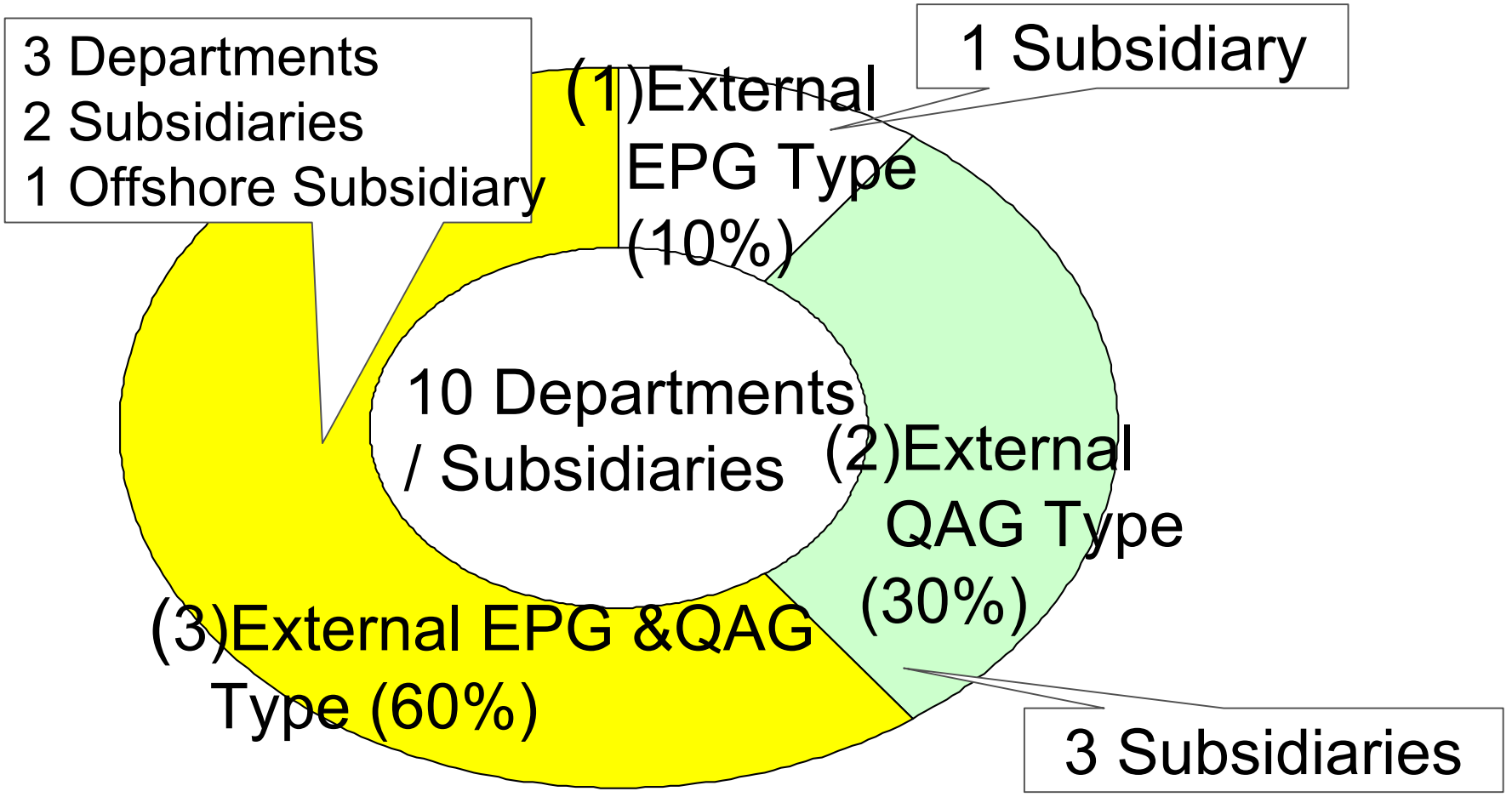

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Classification Analysis Results(2/2)

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Summary

(1)We classified existing “QMOC”s under **three types.**
(2)Actual organizations structures were very **complex and multifarious**
Even if same type, no same organization structure.
(3)“QMOC”s were combination of four kinds of EPG and QAG.
1)External EPG, 2)External QAG, 3)Internal EPG, and 4)Internal QAG.

New Issue

Not all “QMOC” cases had four kinds of EPG & QAG
Why some “QMOC” cases don’t need all four kinds of EPG and QAG?
Four kinds of EPG & QAG have their own reasons for existence and their own peculiar functions.

We made an assumption to solve this issue.

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Our Assumption

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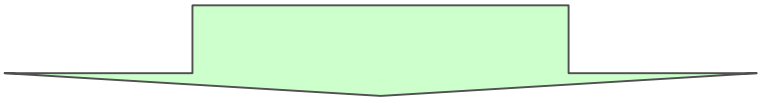
We assumed that the reason for this issue was that “QMOC”s were analyzed **as organizations, not as functions**.

There are so many limitations of organizations, such as **budget, number of employees, skill of staff etc**.,
then not all “QMOC” cases **seemed to** have four kinds of EPG and QAG.



Our Assumption

If “QMOC”s are re-analyzed **as functions**, we would find four functions in all cases.

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Figure 5. Four Functions of “QMOC”

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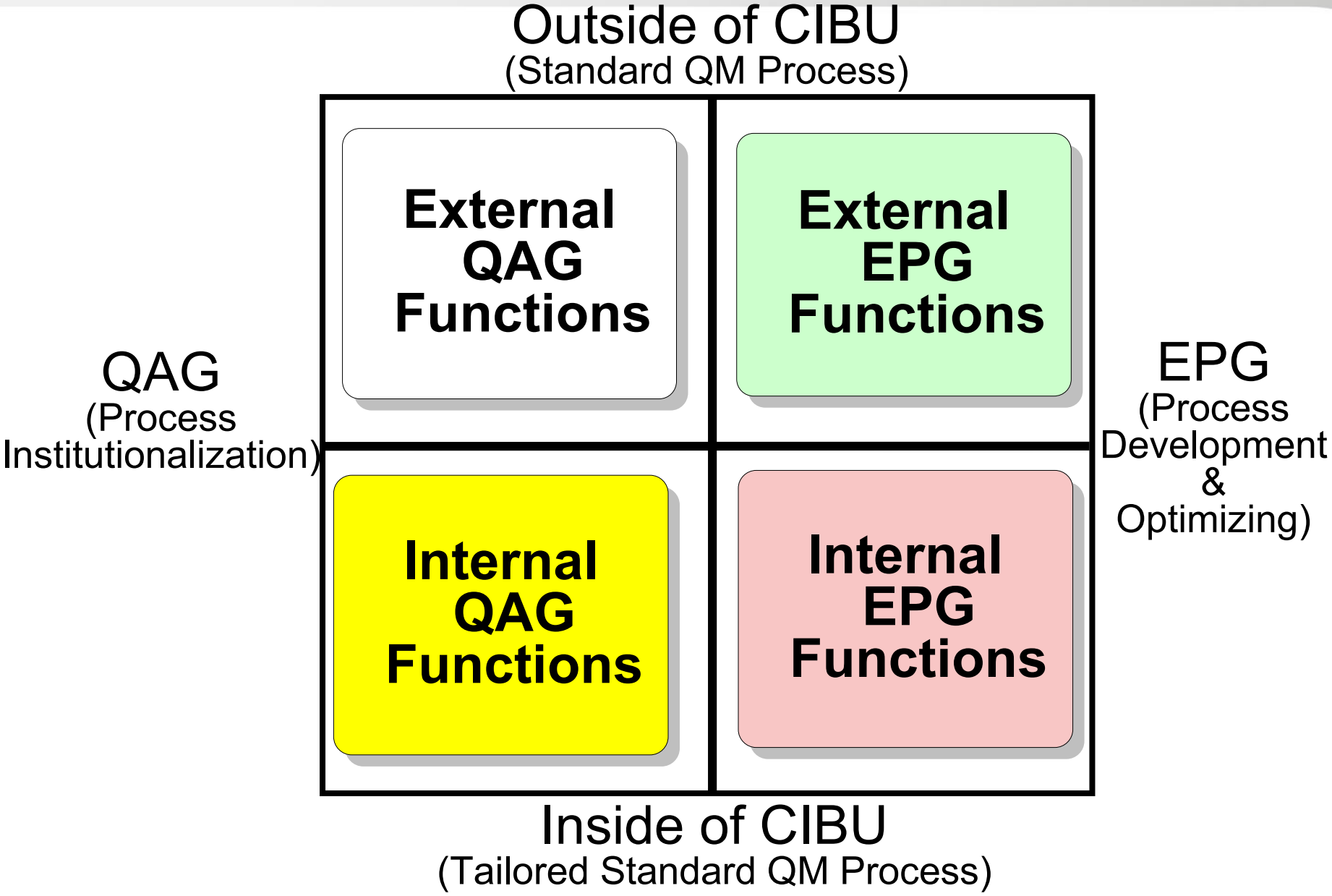

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Four Functions Analysis(2nd Analysis)

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We re-analyzed actual “QMOC” organization charts based on **“QMOC Functions Matrix”**.

<Analysis Procedures>

(1)Actual “QMOC” organization charts were to be reviewed **from view of “QMOC” Functions Matrix,** by CMMI WG members who established “QMOC”.

(2)They assigned four functions of “QMOC” to actual “QMOC” organization charts.

<Objectives of This Analysis>

Four functions were not clear in actual organization charts because of many limitations of organizations.

To show four functions clearly in actual “QMOC” organization charts.

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Figure 6. A Case of External EPG Type - Subsidiary A

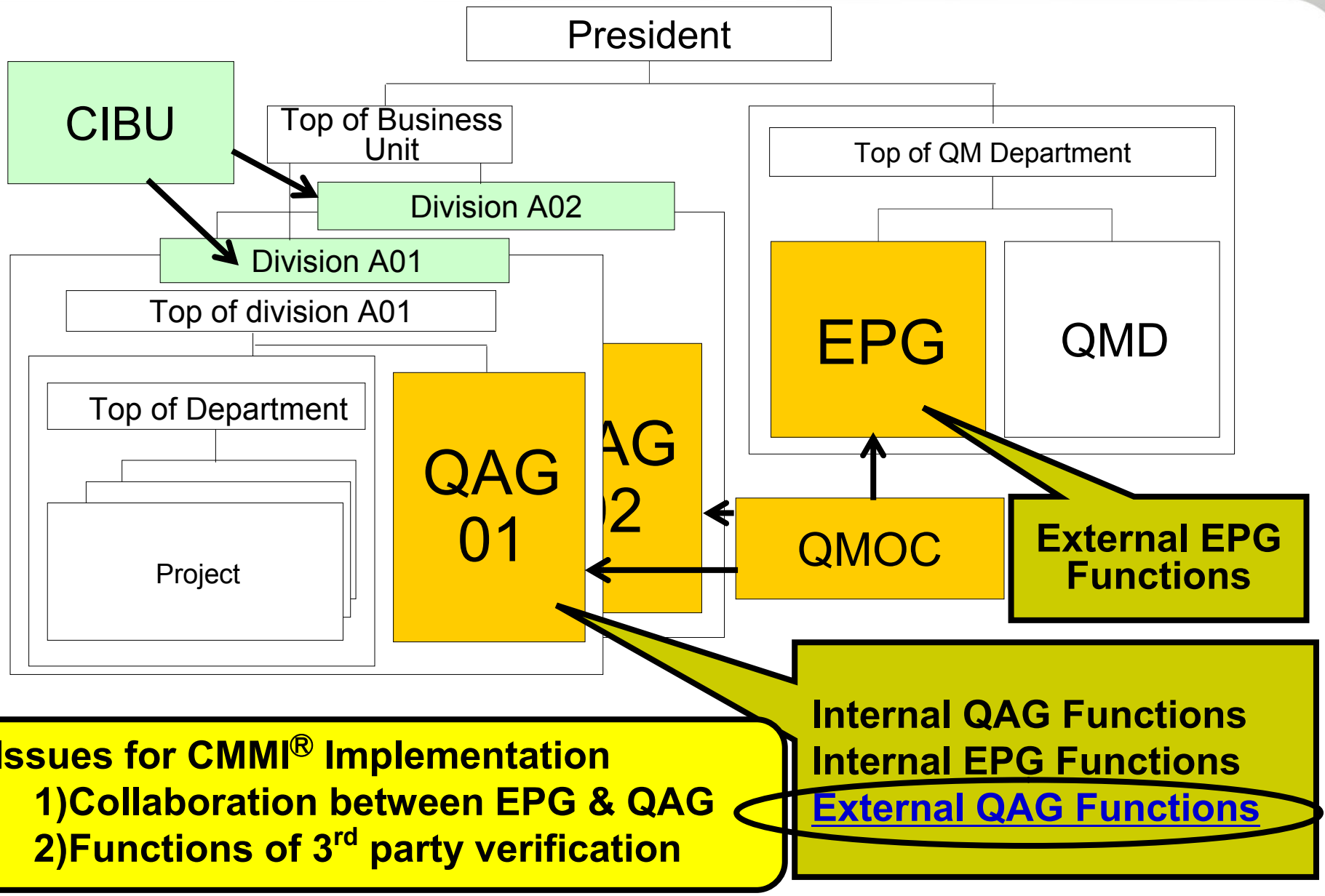

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Figure 7. A Case of External QAG - Subsidiary B

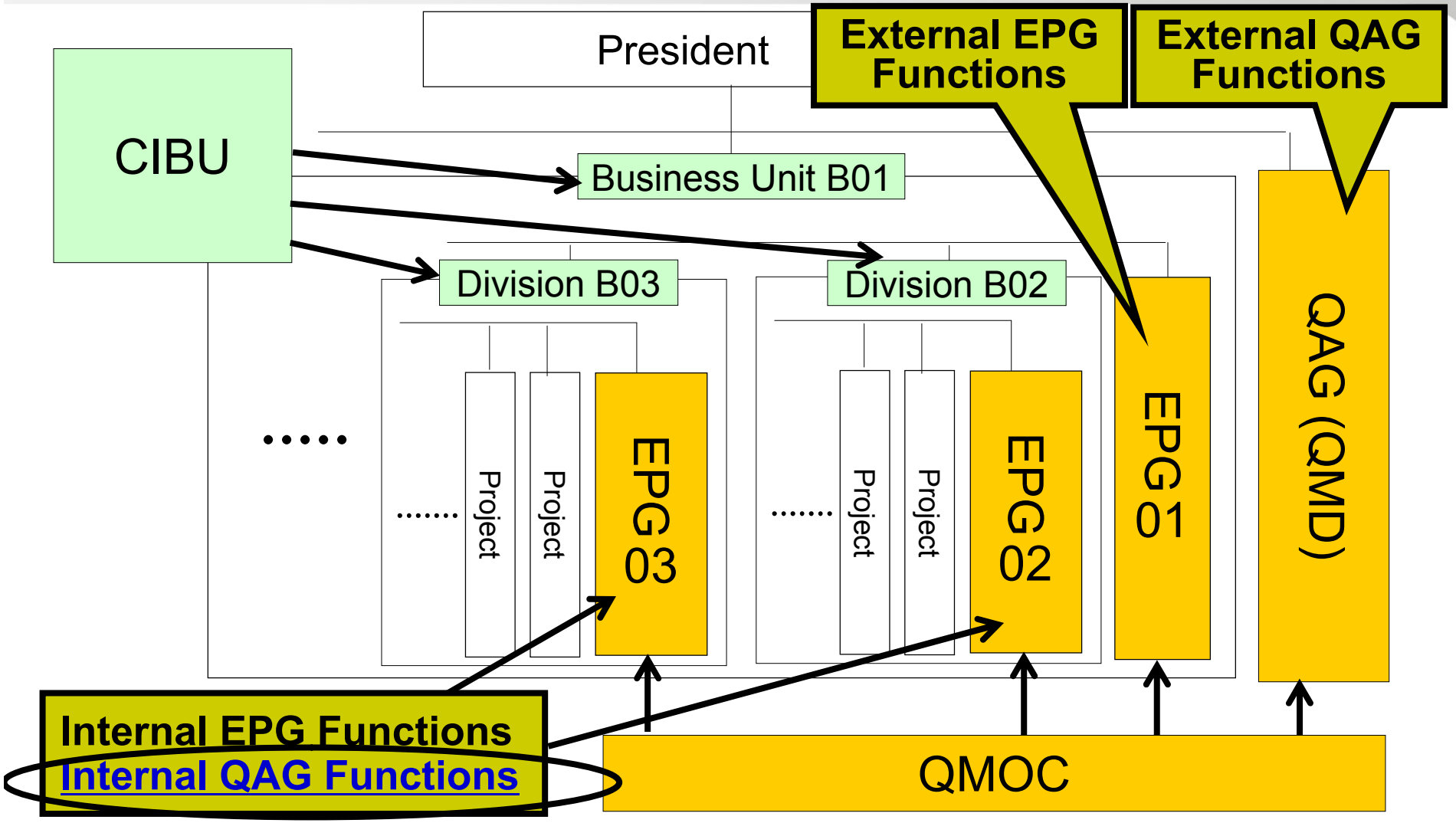

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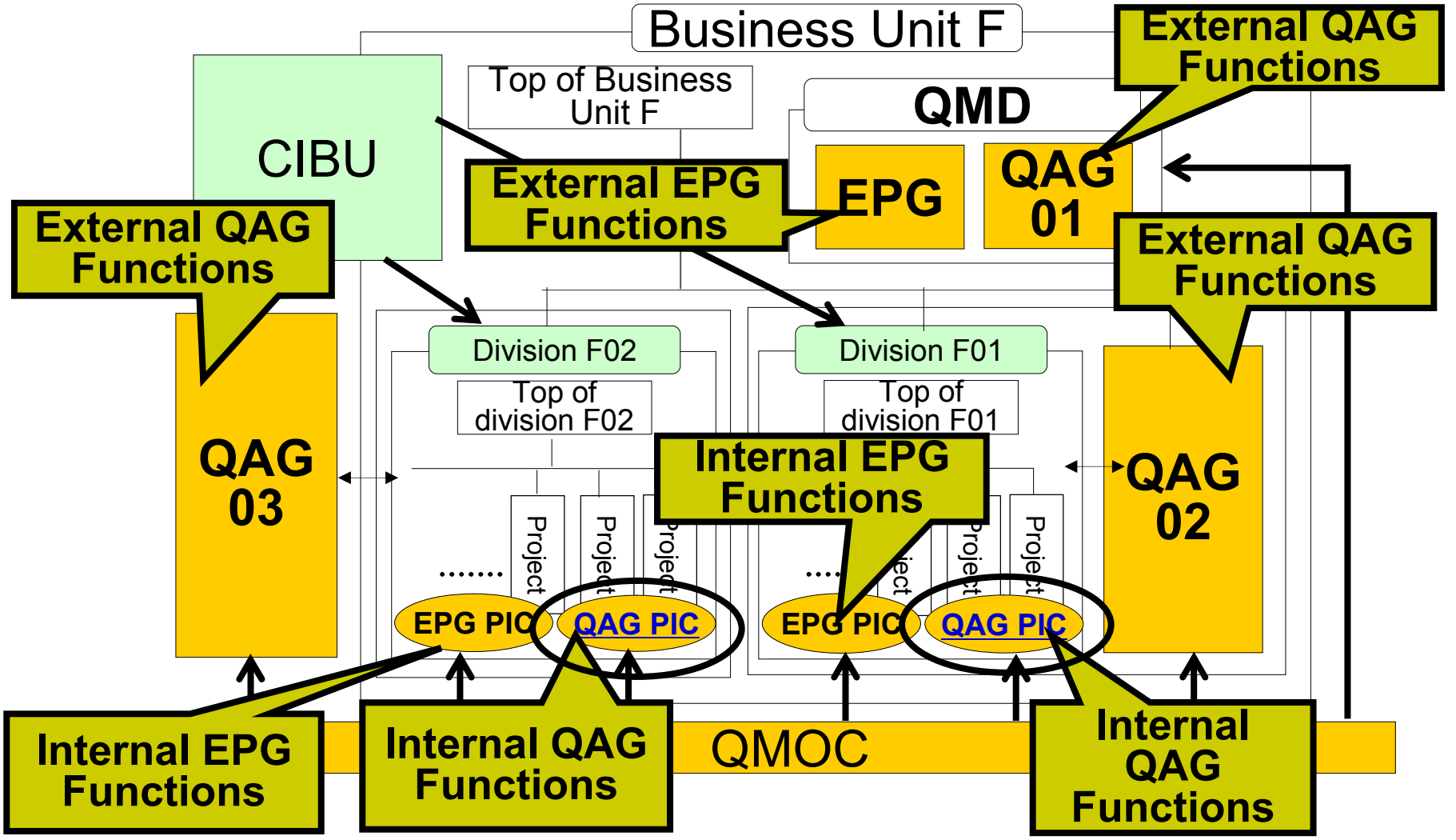
Figure 8. A Case of External EPG and QAG - Business Unit F, Fujitsu Head Office



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Next steps of "QMOC" optimization for further quality improvement ?

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Four Functions Analysis Results

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(1)We found four functions in all “QMOC” in our analysis result.

These four functions are **inevitable functions** for “QMOC”. Our assumption is verified.

(2)Four functions are inevitable for “QMOC”; however they don’t always exist **as departments**. Many actual organization types, **department, PIC, external organization etc.**

We have to decide a **suitable organization type** for each four functions of “QMOC”

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Figure 9. Standard Type of “QMOC”

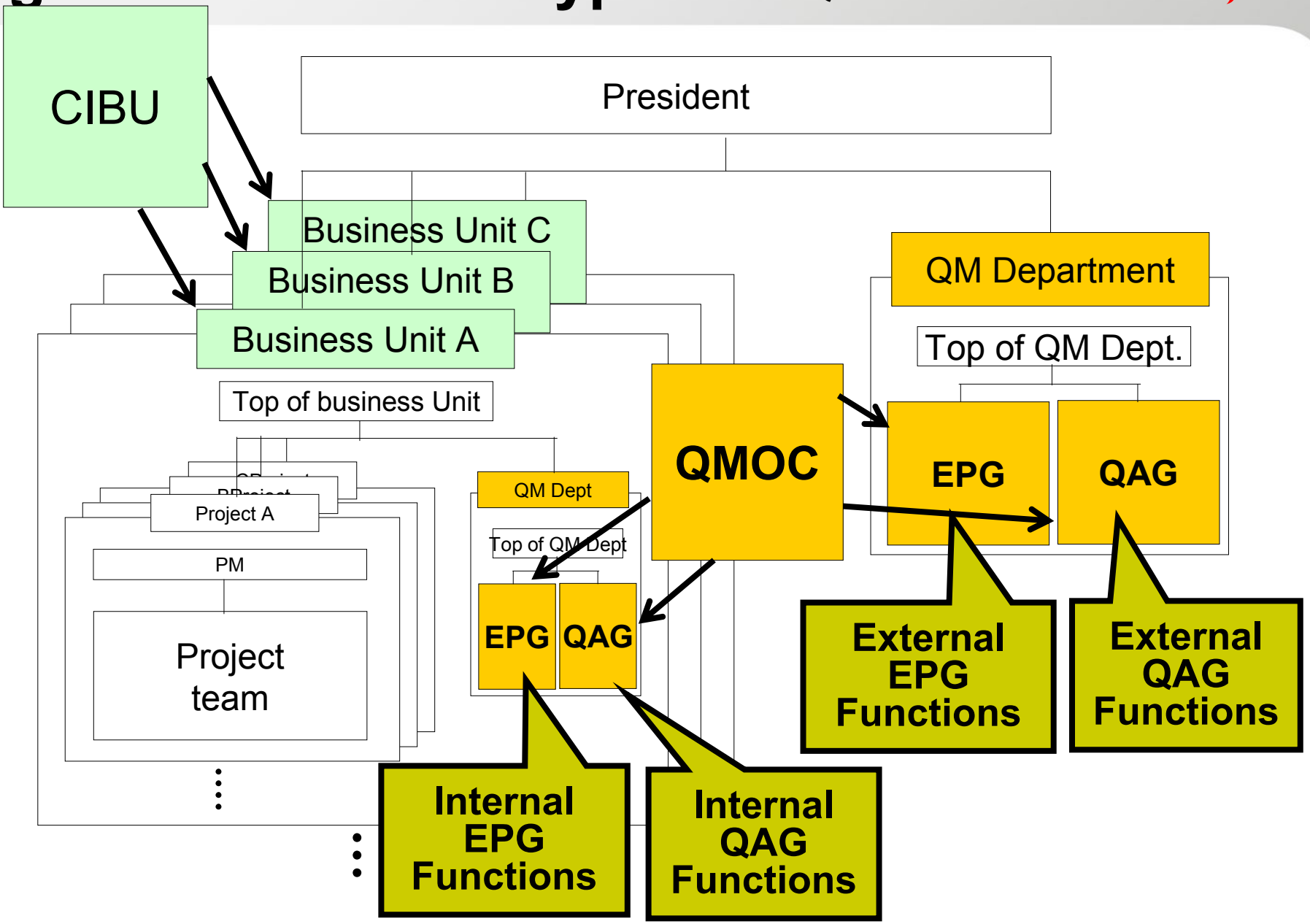

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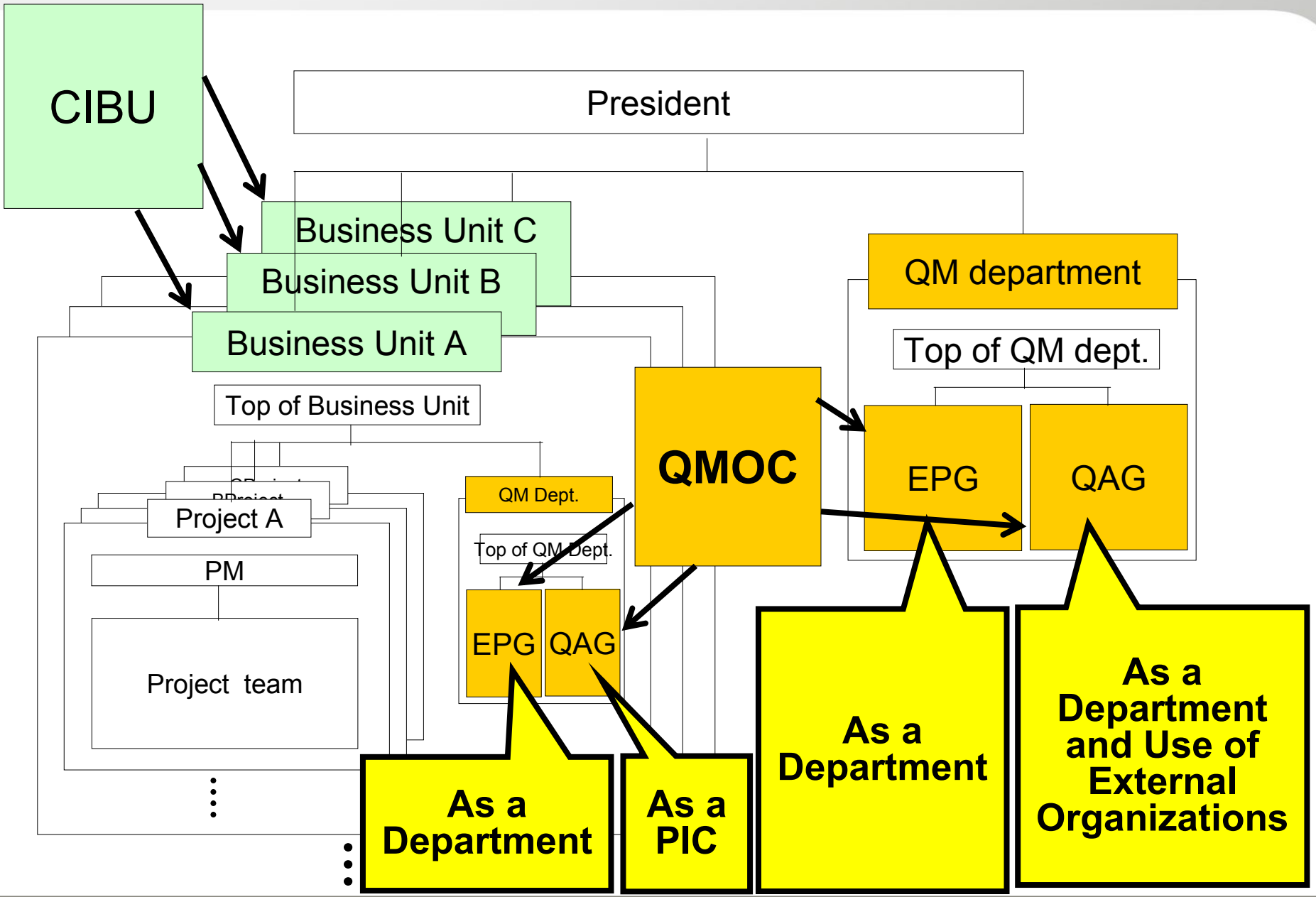
Figure 10. An Example of “QMOC” Establishment Plan



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Evaluation Results by CMMI® WG Members

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Development of **practical** "QMOC" establishment & optimization methodologies" which was proposed by "CMMI® WG" is solved to a certain extent by our methodologies.

(1)"QMOC" optimization process have been improved by this methodology

(2) Departments or subsidiaries which will start to apply CMMI® also can establish "QMOC" intentionally and strategically

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Next Steps

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There are many departments and subsidiaries which have already applied and implemented CMMI® in Fujitsu group.

(1)We would like to analyze these “QMOC”s and verify and modify our methodologies based on additional analysis results.

(2)Our methodologies are not numerical methodologies now. We would like to analyze these “QMOC”s numerically and modify our methodologies to numerical ones.

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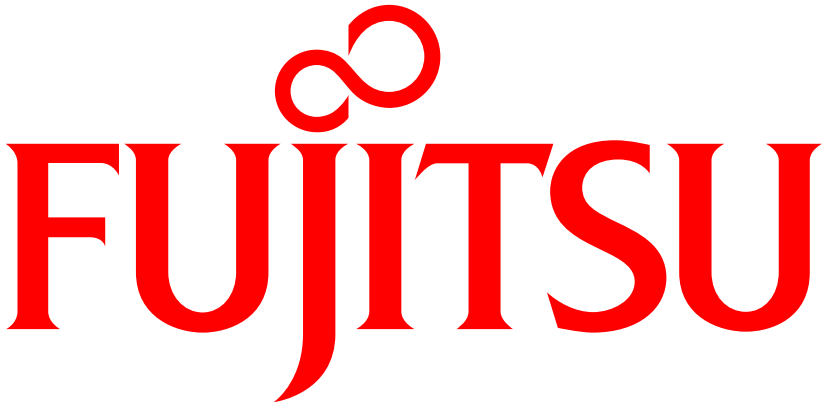

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