

# Practical Methodology to control quality of IT project in upper stream (Science of Success of IT project)

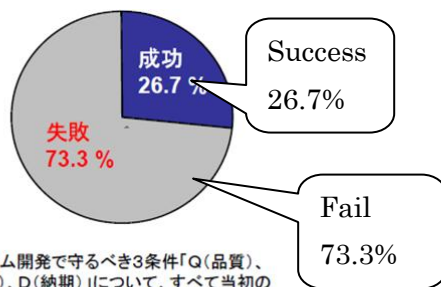
**Abstract:** In Japan, more than 70% of IT project was recognized as failure project. Major cause of failure is analyzed as low quality of upper stream processes. Quality of IT project plan is depending on human skills in current processes. The methodology to control the quality which can summarize and streamline all stake holders' initiatives is created based on QFD technology. The methodology consists of more than 100 steps, templates, business process models and tools. The methodology have been applied many projects and got excellent results.

## 1. Problems of Japanese IT projects

In Japan, currently, procedures of super upper stream of IT project is not clearly defined and automated, even lower process are clearly defined. As a result, lots of IT projects are not recognized success project.

More than 70% of IT projects were recognized as failure project in Japan. It originates in two following reasons.

1. Intentions of management are not extracted in upper stream of IT project. Only System which along the corporate strategy can achieve company goal. As a result, if intention of management is not reflect to system in planning phase, the system will not contribute to business.
2. Requirements of on-site are not are extracted and streamlined by managements' intention. System must along the on-site activities to bring effort and benefit to companies.



ユーザ側から見たシステム開発プロジェクトの成功率  
(有効回答企業数1198社)  
(出典)日経コンピュータ:情報化実態調査2003

**Fig. 1** Project success ratio. User recognizes that 73.3% is Failure, and 26.7% is Success. [Nikkei Computer, Fact-Finding of IT projects, 2003.]

It is very important to coordinate every stake holders' requirements with company strategies which are created by management. The system which fused with a company strategy and the business processes

must be required to build efficiency system.

If direction of system is not match stake holders mind in super upper stream, the gap grows big whenever a process advances. As a result, it may happen that a project to be never completed or the system which are not used by end users.

Currently, that very important planning procedure is not clearly defined; therefore, quality of the project plan is depends on human skill sets.

Another problem happens, as well. Total optimization of system must be considered because increasing company merger and branch shrine, and the speed of the global expansion accelerates steadily; however, there is no person who understands all business in company.

In conclusion, helpful methodology and tools are required to help project planner in super upper stream.

## 2. Overview of SUSD methodology

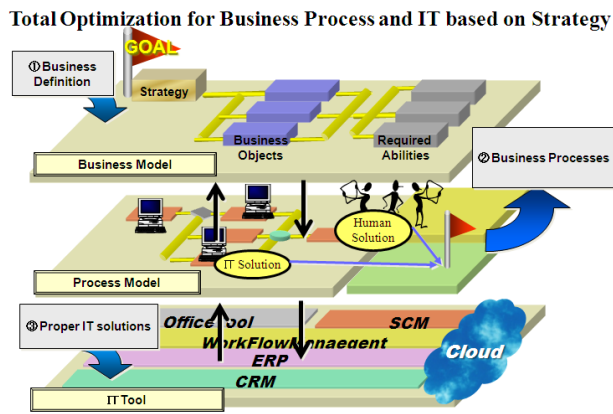
SUSD is created to resolve above problems.

SUSD is the methodology to create high quality IT project plan in super upper stream. SUSD stands for Super Upper Stream (1) Definition, (2) Design, (3) Develop. Last D has three meaning.

Most important things to create high quality IT project plan is identify what the company must improve to realize their strategy. It is goal setting. Clear goal setting is the first step to success.

We must identify intentions of management and initiatives of on-site to set goal and way to achieve it.

Strategy breaks down to Business Objects which achieve Strategy, Business Object breaks down to Abilities to achieve Business Object. It is Business definition. Ideal Business Processes are designed to achieve the goals, and appropriate IT solution is supporting to execute the processes.

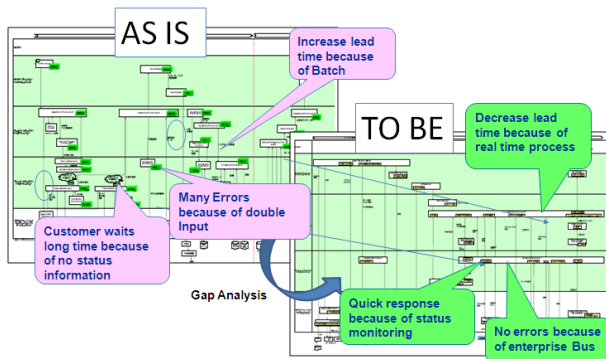


**Fig. 2** Relation of Business, Process and IT

SUSD is designed to identify those matters.

As final figure, we need to identify AS IS figure which include current business process and issues, and TO BE figure which include improved new business processes and solutions. Also, Estimation of ROI (Return on Investment) and Setting of KPI, key performance indicator, is required to evaluate the project efficiency.

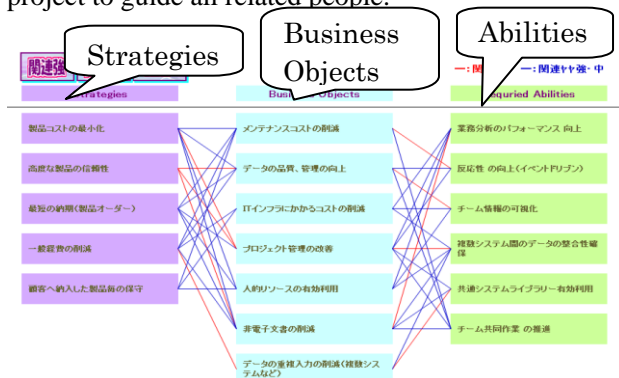
Identify AS IS model & TO BE Model



**Fig. 3** AS IS model and TO BE model

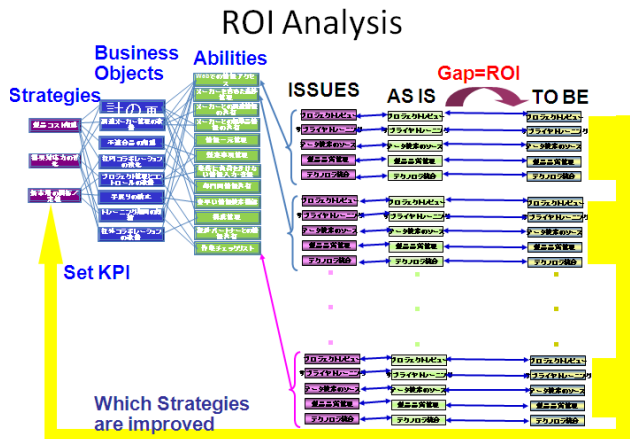
The models express Business Processes and linked IT solutions. The Gap of AS IS and TO BE is ROI.

Breakdown Picture of Business Definition is identified, as well. Those are kind of big picture of IT project to guide all related people.



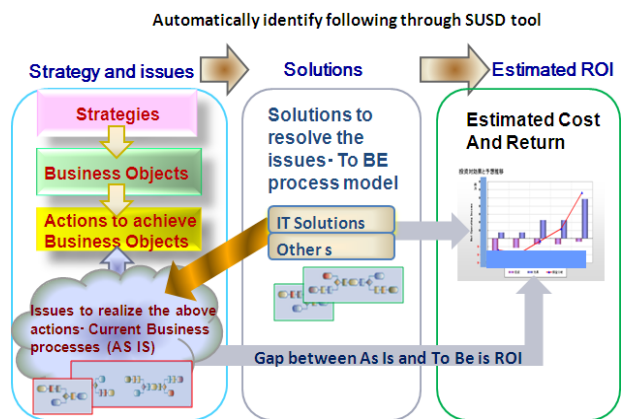
**Fig. 4** Relation of Strategies, Business Objects and Abilities

QFD is very good to identify above. Abilities are identified; it is easy to find current issues which prevent to achieve abilities, and how improve them. Total sum of those gaps will be ROI.



**Fig. 5** ROI calculation

Overview picture of SUSD concept is following. (Detailed SUSD procedure is following.)



**Fig. 6** Overview of SUSD concept

SUSD consists of two main parts.

Part one is workshop which extracts information from stake holders regarding to the project such as strategy, business objects, and required ability on their business processes. Required IT capability will be identified based on the information. Base number of ROI is also extracted in this workshop. That information are almost automatically identified through workshop by using the SUSD QFD tool. (Hereinafter SUSD QFD tool referred to as QFD tool.) The QFD tool is not only implements QFD logics, but also adds templates and issues/ROI analysis

capability. Template of QFD tool includes examples of strategy items, business object items, ability items and business process models.

Part two is documentation work. Identified information on part one will be classified and examined. Following are created and documented.

1. Identify Project scope and goals
2. Streamlined AS IS and TO BE model
3. Grand design of Required IT solution
4. ROI estimation and KPI setting
5. Rough project schedule

All the procedure to execute SUSD workshop and documentation work is predefined in QFD tool or SUSD guide.

SUSD part one takes one week and part two takes one week, as well. So, qualified IT project plan can be created in two weeks which is very fast.

### 3. SUSD procedures and How QFD tool works

#### 3.1 Define Scope

At first, we need to define scope to create IT project plan. If scope is not clear, nobody can identify anything. Scope must be very clear and agreed by stake holders.

Scope must define by three elements shown as following:

1. Organization (for example: sales division, design division and quality management division in Head quarter and factory A)
2. Business Processes (for example: quote, procurement and prototype creation)
3. Business line (for example; built to engineer products are included, however, assemble to order products are not included.)

#### 3.2 Preparation for Workshop

Identify stake holders and select participants for SUSD workshop. Arrange room and schedule.

#### 3.3 SUSD Workshop

Now, scope is very clear; however, every stake holder has different intention to improve their business. This is because they take different responsibilities in different environment; even they talk with every day. They do not know about business of other division.

We must find the directionality that all the members can make consensus.

SUSD workshop is consists of five part to clearly identify above matters by using QFD tool. It is very

useful to extract information and show focused point.

Facilitator of workshop leads the activities and guides participants during workshop.

#### 3.3.1 Identify Strategies in the scope

In this session, several managements participate in workshop as representative of scoped division. At first, we identify strategies in the project scope based on participants' input. And then, priority and importance of strategies will be defined by numeric by using QFD tool.

QFD tool is consists of 11 views which can select tab button on bottom line. Refer to Fig.4. It allows us to identify Strategies, Business Objects, Abilities, current issues, AS IS, TO BE and effects.

Facilitator asks participants to provide several most important strategies. Participant can refer the template before provide own strategies. Template gives them idea and clear direction what they must provide as strategies. Usually, Japanese management cannot provide strategies, if just ask; however participants and template is helpful to execute it. Provided strategies are input to QFD tool by facilitator. Facilitator promotes the discussion why other participant provides different strategy. To understand each others' opinion and business process is important to make consensus of priority and importance to strategies.

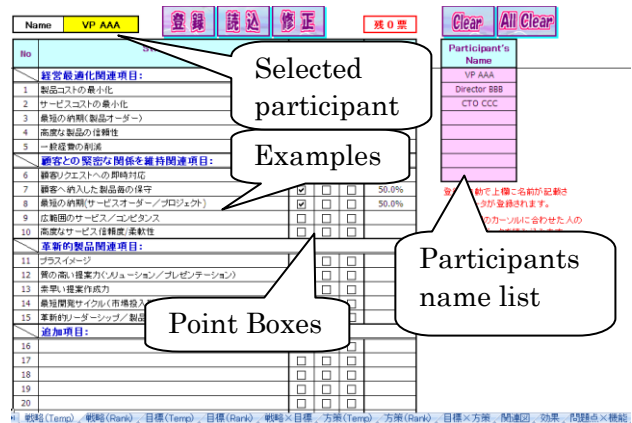
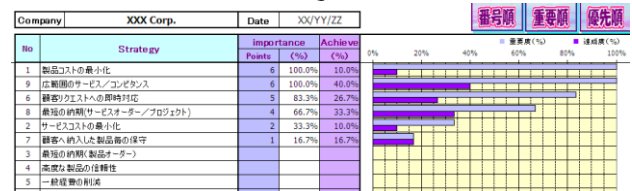


Fig. 7 Initial view of QFD tool (#1 tab)

After the discussion; each participant vote importance for each strategy. Facilitator put point on box. Facilitator can select participant name from most right columns to input his points. Result automatically reflects and visualized on QFD tool #2 tab.



**Fig. 8** Result of vote for Strategies (#2 tab)

Facilitator promotes participants to discuss based on result of their vote. Most important things in this session are to reach agreement about priority and importance of strategies with representatives.

Importance and priority of strategies are expressed by numeric and chart. Then, everybody can understand easily. Japanese people are not good at express by value.

Usually, it is very hard to make consensus by every management; however, this workshop provide environment to share information and efficient discussion.

Finally, participants tell the result of prioritized strategies and reason why those are selected to next workshop participants. This is also important the managements indicate their intention to middle managers to create unified big picture.

**3.3.2 Identify Business Objects based on priority and importance of strategies**

Several middle managers participate. Business Objects to achieve the strategies are identified. Priority and importance of Business Objects will be identified.

Examples of Business Objects are contained as template on tab #3 of QFD tool. Facilitator asks participants to write several most important Business Objects which realize given Strategies. Participants write Business Object on post-it card (one per card). Facilitator collects those and put them on white board.

Facilitator leads to sort the card with all participants, remove duplicated cards, and unify same and similar cards on whiteboard. Participants must ask if he or she face to unclear word on cards. Discussion is needed to share information. Facilitator adds Business Objects to QFD tool which is not included in template.

Each participants vote points for top 10 important Business Objects. Facilitator collects them and reflects to QFD tool #3 tab.

No	Business Obj	Category	Points	Attendees Name
1	コストの透明度の向上	コスト	7	Mr. A
2	経費の柔軟性の向上	コスト	4	Mr. B
3	プロジェクト管理の改善	コスト	10	Mr. C
4	各種基準、規格、認定(ISO9000)を確	コスト	10	Mr. D
5	設備コストの削減	コスト	1	Mr. E
6	従業員の人件費の削減	マネージメント	1	Mr. F
7	マネジメントコストの削減	マネージメント	3	Mr. G
8	保証に關するコストの削減	マネージメント	3	Mr. H
9	適切な従業員のスキル開発	人材	1	Mr. I
10	役割と責任の割り当ての改善	人材	1	Dr. J
11	人財リソースの有効利用	人材	1	
12	保証コストの削減			
13	従業員のモチベーションの向上			
14	コピーと配布に關する工数の削減			
15	社内の事務処理の削減			
16	非電子文書の削減	文書管理		
17	業務エラーの削減			

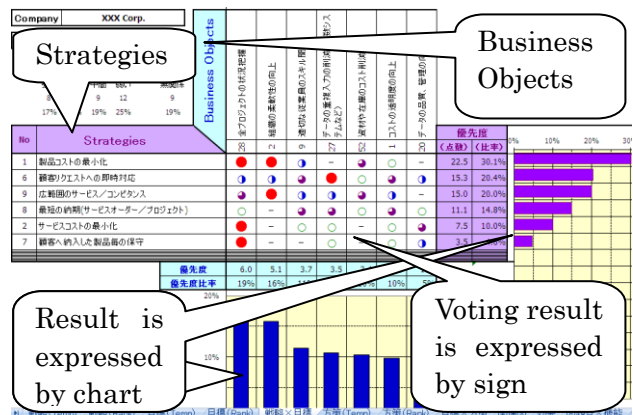
**Fig. 9** Business Objects template and voting point view (#3 tab)

Participant’s names are listed on most right columns; and facilitator can select the name to input participant’s point. Each participant’s point data is reflected to total sum of point’s view which is #4 tab.

Usually, number of participants is around 10. 10 participants submit several Business Objects to achieve given strategy. Some of them are duplicated; however, still more than 20 Business Objects are voted. It is too many to for farther examination. Facilitator promotes discussion to select top 7-10 Business Objects. Participants can refer total points and rank on view of QFD tool #4 tab during discussion. It is very important to share other participants’ opinion and business.

After selection discussion of top Business Objects, selected Business Objects are automatically reflected to next QFD tool tab. Selected Strategies are reflected, as well.

QFD tool #5 tab is now ready to evaluate importance and priority of Business Objects.



**Fig. 10** Identify Priority of Business Objects (#5 tab)

Fig. 7 shows typical QFD matrix. Strategies are already sorted by priority; and selected Business Objects are lined to identify priority. Facilitator promote voting workshop. All participants vote point for each cell depends on efficiency of Business Objects for each Strategy. Point is indicated by sign which represents point. It is easy to understand by participants. Result is reflected weight of Strategies; and draw as chart.

Point is decided by majority vote; however, if minority request to speak, it must be carefully listened. Because the participant may know something what no one in the session does not know.



Finally, participants tell the result and reasons to next workshop participants.

### 3.3.3 Identify Abilities based on priority and importance of Business Objects

Around 10-15 on-site experts in the scope divisions participate in workshop as representative of on-site. One – three representatives came from each division.

We identify Abilities to achieve the given Business Objects. Priority and importance of on-site Abilities will be defined by numeric.

Examples of Abilities are contained as template on tab #6 of QFD tool. Facilitator promotes discussion to add other activities other than template.

After the discussion, each participants vote points for top 10 important Activities. Facilitator collects them and reflects to QFD tool #6 tab; total sum for each activity automatically reflects to QFD tool #7 tab.

Then, facilitator promotes discussion to select top 7-10 Abilities. Participants can refer total points and rank on view of QFD tool #7 tab during discussion.

After the discussion results are automatically reflected to #8 tab of QFD tool. Prioritized Business Objects are reflected, as well.

QFD tool #8 tab is now ready to evaluate importance and priority of Business Objects. The #8 tab is similar as # 5 tab which is QFD matrix view. (Refer to Fig.7)

After voting, facilitator can create relation chart of Strategies, Business Objects and Abilities on #9 tab.

The chart is shown as Fig.4. This chart is very useful to everyone understand what they must achieve in the project. It is good for review for participants of workshop, as well.

In conclusion, Identified required Abilities is very important for project plan. Usually, if top 1-2 Abilities realized, more than 90% of problems are resolved.

### 3.3.4 Identify issues and business processes

This session is held separately every division. For example, workshop for representatives from sales division and workshop for representatives from customer services are held separately. It can save time for participants. If this workshop holds for all participants at same time, participants form non focused division just waits own turn.

We already identified required abilities to achieve Business Objects in previous workshop. So, we can identify what is the issue to prevent to realize the abilities in current business processes. Those issues,

cause, current business process, improved business process and effect of the improvement are found in this session.

Selected Abilities and Strategies are reflected QFD tool #10 tab; facilitator can select one of it from list on Ability cell.

Ability	Issue	Cause	As Is	To Be	ROI	Effectuated Strategy	Sub Total	Total
...	...	...	...	...	...	...	...	...

Fig. 11 Ability, Issues, Causes, AS IS, TO BE, ROI matrix (#10 tab)

Required Ability means that it is not realized now; and some issues prevent to realize it. Facilitator focus the Ability one by one; ask participants the issues, cause of issue, AS IS figure, TO BE figure, effected Strategies by the Ability and ROI.

Ability	Issue	Cause	As Is	To Be	ROI	Effectuated Strategy	Sub Total	Total
チーム共同作業の推進	0がでるため、やりこめ時間がかかる	作業状況が分らない	他の部は、通常の9倍の作業時間がかかる。	チームの作業状況が分らないので、他の部も所定時間がかかる	作業人数×月あたり稼働時間×チーム数×時間単価	製品コストの最小化	JP00000000	JP00000000
リアルタイム処理	AAが分らないので、調査に時間がかかる	情報の更新がいつのものか分らない	調査の時間が長くなる。更新が速い	更新が常に最新なので、調査に時間がかからない	調査時間×作業人数	最終の納期(製品オーダー)	0000 Hours	0000 Hours
業務の自動化	BBが分らないので、無駄な作業をする	無駄な作業が発生し、顧客への応答が遅くなる	連絡を待たずに作業をするので、効率、応答が遅くなる	待ち時間×回数	顧客リクエストへの即時対応	0000 Hours	0000 Hours	0000 Hours
プロセス統合	CCのために実行が完了せず	関連した情報で作業できない	正確な情報で作業できない	向上する受注率	向上する受注率×年おおよそ	質の高い顧客力(ソリューション/プロ)	JP00000000	JP00000000

Fig. 12 Example of filled in #10 tab

At the same time, identify business processes and overview of systems around the issues. In this time, it is not necessary to identify all detail business processes.

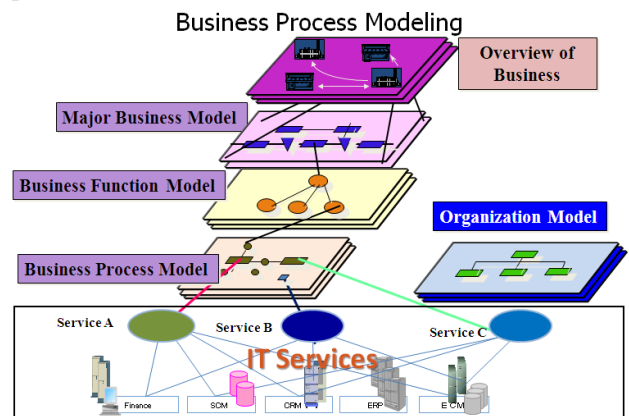


Fig. 13 Concept of Business Process model

Business Process model is expressed by four layers. Only Business Processes around issues and upper models for the Business Processes are required to get. I recommend BPMS modeling tool to draw Business Processes because it standard. Everyone can understand the format; it is easy to share information

with outsourcers of the project, as well.

### 3.3.5 Summarize and report

All activities in the workshop are summarized in QFD tool. Report it to all participants and stakeholders to get feedback from them.

### 3.4 Overview of SUSD Documentation

Bring back to office. All information extracted in workshop is in QFD tool and Business Process model drawing.

Focused Strategies, Business Objects and Abilities are identified and approved by all participants

Map all current issues to current business processes, and map all improved points on improved business processes which is TO BE process model.

Create grand design of IT solution to realize TO BE process model. # 11 tab of QFD helps to identify priority of IT solutions.

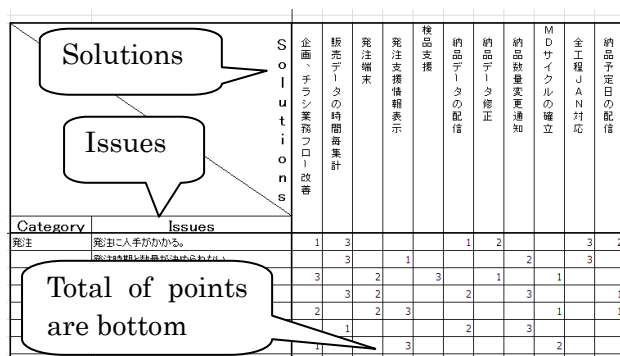


Fig. 14 Solutions/Issues Matrix

Evaluate efficiency of Solution corresponds to issue on each cell in matrix. Total sum of point is displayed bottom line. Order of importance of solution is calculated.

Create achievable project schedule based on above information. Implementation plan should be separated several phase to get early return. Most important solutions must put in first phase.

Create ROI chart for each project phases based on information of ROI matrix of QFD tool.

Finally, collect and unify them as IT project plan.

### 4. Effects of SUSD methodology

Summary of SUSD benefits which extracted from customers are following.

1. Unify all stake holders' initiatives in shape.
2. Total optimization is realized. Because every

targeted section sends participants for workshop as their representative.

3. Everybody who is related to the project can share clear view of IT project very easily, such as big picture, issues, milestones, expected effects. Because that information are expressed charts, picture by using real number extracted from stake holders.

### 5. Conclusion of QFD tool efficiency

QFD tool is not only very effective to extract valued information from management through on-site people accurately in short time, but also useful to classify items in numbers. Lists, charts and pictures in QFD tool allow smooth discussion to unify intentions and initiatives of participants. Big goal – small targets of IT project are identified by QFD tool very clearly.

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#### Referred Document:

(1) Fig. 1 Project success ratio. [Nikkei Computer, Fact-Finding of IT projects, 2003.]