




# Applying the GQM+Strategies® Method

Documentation of the GQM+Strategies Model



# Workshop Overview



Activity	Session	Description
Define Scope	#1	Define the scope of the application and select the areas that are most important for goal setting
Define Environment	#1	Elicit and document the general context according to the defined scope and identify any general underlying assumptions
Define Levels	#1	Define the different abstraction levels of the organization
Elicit Existing Assets	#2	Gather existing goals, strategies, and measures
Perform Gap Analysis	#2	Identify and document any gaps in your assets, including missing linkages
Select Top-Level Goals	#3	Prioritize goals and select the most important ones
Formalize Top-Level Goals	#3	Formalize the selected top-level goals
Build up Grid	#3, #4	For each top-level goal, perform the following activities and afterwards iterate the activities for each level of the organization
Define Goals and Strategies		Define goals and strategies
Define GQM Graphs		Define GQM graphs for all goals and strategies defined
Review and Provide Feedback	#4	Review and discuss the documented grid

Context and Gap Analysis

Grid Definition



## Applying the GQM+Strategies® Method

- **Context and Gap Analysis**
- **Grid Definition**



## Define Scope

- Define the scope of the application (i.e., those parts of the organization that will apply the method) and select the areas that are most important for goal setting.
- Scope:
  - ☐ <will be filled out during the tutorial>



## Define Environment

- Elicit and document the general context according to the defined scope and identify any general underlying assumptions (e.g., application domain, project organization, processes, organizational structure, already available measurement data, etc.).
- **Context Factors:**
  - ☐ <will be filled out during the tutorial>
- **Assumptions:**
  - ☐ <will be filled out during the tutorial>



## Define Levels

- Define the different abstraction levels of the organization that will be used to structure all goals and strategies (e.g., business, software, and project levels).
- Levels:
  - ☐ <will be filled out during the tutorial>



## Elicit Existing Assets

- For each specified organizational level, identify
  - ☐ already defined goals and strategies
  - ☐ already collected data
- Order them in the hierarchy, linking them to each other and to the measures, ...

Level	Goals	Strategies	Data



## Perform Gap Analysis

- Identify and document any gaps in your assets, including missing linkages (e.g., measures not related to goals, unrelated goals and strategies on different levels, goals and strategies not measured, etc.).
- Identify any new high-level goals (i.e., goals on the top-most level of the organization).
- Gaps:
  - <will be filled out during the tutorial>





## Applying the GQM+Strategies® Method

- Context and Gap Analysis
- **Grid Definition**



# Example

## Documenting the Grid using the Excel Template

Microsoft Excel - GQM+Strategies-Templates-v01.xls

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A26 Step

	A	B	C	D
1	<b>Derive Goals and Strategies</b>			
2				
3	<b>Step</b>	<b>Worksheet Link</b>		
4	<b>a) Elicit General Context &amp; Assumptions</b>			
5	1. Gather the general context for your organization	<a href="#">Context&amp;Assumptions</a>	-	
6	2. Identify general underlying assumptions	<a href="#">Context&amp;Assumptions</a>	-	
7	<b>b) Define Top-Level Goals</b>			
8	1. Identify an initial set of potential high-level goals (document C&A)	<a href="#">Goals</a>	<a href="#">Context&amp;Assumptions</a>	
9	2. Prioritize goals and select most important one (document C&A)	<a href="#">Goals</a>	<a href="#">Context&amp;Assumptions</a>	
10	3. Formalize selected goals using the goal template (document C&A)	<a href="#">Goals</a>	<a href="#">Context&amp;Assumptions</a>	
11	<b>c) Make Strategy Decisions</b>			
12	1. Brainstorm potential strategies for each selected goal (document C&A)	<a href="#">Strategies</a>	<a href="#">Context&amp;Assumptions</a>	
13	2. Decide on a strategy (document C&A)	<a href="#">Strategies</a>	<a href="#">Context&amp;Assumptions</a>	
14	<b>d) Add Next Level</b>			
15	1. Can one or more strategy be refined by another goal level? If not, stop process, else continue.	<a href="#">Strategies</a>	-	
16	<b>e) Define Goals</b>			
17	1. Elicit the implications of the chosen strategy with respect to the next level (document C&A)	<a href="#">Goals</a>	<a href="#">Context&amp;Assumptions</a>	
18	2. Identify potential goals for the chosen strategy (document C&A)	<a href="#">Goals</a>	<a href="#">Context&amp;Assumptions</a>	
19	3. Select the most promising goals considering feasibility, cost, and benefit (document C&A)	<a href="#">Goals</a>	<a href="#">Context&amp;Assumptions</a>	
20	4. Formalize selected goals using the goal template (document C&A)	<a href="#">Goals</a>	<a href="#">Context&amp;Assumptions</a>	
21	5. Goto c)	<a href="#">Goals</a>	-	
22				
23				
24	<b>Derive GQM Graphs</b>			
25				
26	<b>Step</b>	<b>Worksheet Link</b>		
27	<b>a) Define GQM Graphs</b>			
28	1. Define GQM goals for each selected GQM+Strategies goal on the appropriate level	<a href="#">GQM-Goals</a>	-	
29	2. Specify the GQM graph for evaluating the achievement of the goal	<a href="#">GQM-Graph</a>	-	
30	3. Identify relationships between the interpretation models on this level and the ones for the level above, if existing	<a href="#">GQM-Graph</a>	-	
31	<b>b) Add Next Level</b>			
32	1. Are there GQM+Strategies goals defined on the next lower level in the grid? If not, stop process, else goto a).	<a href="#">Goals</a>	-	
33				
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38				

Start Context&Assumptions Goals Strategies GQM-Goals GQM-Graph

Ready



# Example

## Context and Assumptions

Microsoft Excel - GQM+Strategies-Templates-v01.xls

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	A	B	C	D	E	F	G	H
1	<b>Context and Assumptions</b>							
2								
3	C&A ID	Influences (Enter list of Goal IDs, Strategy IDs, Goal=>Strategy relations, or Strategy=>Goal relations)	Type	Short Description				
4	C1	G1	Context	The market for our class of product is becoming highly competitive and there is a need to safeguard our place in the market.				
5	A1	G1	Assumption	Improving customer satisfaction with each new product will lead to customer loyalty, which will help safeguard our place in the market				
6	A2	G1=>S1	Assumption	Customer satisfaction can be measured by # of customer complaints				
7	A3	G1=>S1	Assumption	Many customer complaints are due to product reliability problems				
8	C2	G1=>S1	Context	Little control over development process (too late)				
9	C3	G1=>S1	Context	Limited budget for process improvement				
10	A4	S1=>G2	Assumption	We can decrease total # of customer complaints by 10% by reducing customer-reported software field defects (i.e. those that slip by system test) by 20%				
11	C4	G2=>S2	Context	There is a new system test process that seems appropriate for our context				
12	A5	S2=>G3	Assumption	Reducing slippage by 20% reduces reported defects by 20%				
13	C5	G3=>S3	Context	Baseline data exists on defect slippage				
14	A6	G1=>S1; G2=>S2; G3=>S3	Assumption	The projects that form the baseline are relevant to the current project				
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Start Context&Assumptions Goals Strategies GQM-Goals GQM-Graph

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# Example

## Goals

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A3 Goal ID

	A	B	C	D	E	F	G	H	I	J	K
1	Goals										
2											
3	Goal ID	Level	Short Description	Formalized Goal Activity	Focus	Object	Magnitude	Timeframe	Scope	Constraints	Relations
4											
5	G1	Business Level	Increase customer satisfaction for the next product	Increase	Customer satisfaction	Product "Splash"	10% reduction in number of customer complaints	12 weeks after release	Web Products Division, Splash Project Manager	Splash price and functionality	Can conflict with development cost goals, schedule goals, ...
6	G2	Software Level	Decrease customer reported defects by improving system test effectiveness	Decrease	Customer reported software defects	System test process for Splash	by 20%	12 weeks after release (might check every week)	Web Products Division, Splash Software Manager	Development cost and functionality	Can conflict with development cost goals, schedule goals, ...
7	G3	Project Level	Reduce system test defect slippage by 20%	Decrease	Defect slippage	New system test process for Splash	by 20%	12 weeks after release (might check every week)	Web Products Division, Splash Software Manager	Development cost and functionality	Can conflict with development cost goals, schedule goals, ...
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Start Context&Assumptions Goals Strategies GQM-Goals GQM-Graph

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# Example

## Strategies

Microsoft Excel - GQM+Strategies-Templates-v01.xls

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Type a question for help

Arial 10 B I U

A3 Strategy ID

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Strategies												
2													
3	Strategy ID	Level	Short Description	Realizes Goal (Enter a list of Goal IDs)	Leads to Goal (Enter a list of Goal IDs)								
4	S1a	Business Level	Test reliability in	G1	G2								
5	S1b	Business Level	Build reliability in	G1	-								
6	S2	Software Level	Introduce new system test process	G2	G3								
7	S2	Project Level	Establish baseline, evaluate new project, analyze improvement	G3	-								
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Start Context&Assumptions Goals Strategies GQM-Goals GQM-Graph

Ready



# Example

## GQM Goals

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Type a question for help

Arial 10 B I U

A3 GQM Goal ID

	A	B	C	D	E	F	G	H	I
1	<b>GQM Goals</b>								
2									
3	<b>GQM Goal ID</b>	<b>Short Description</b>	<b>Makes Measurable (Enter a list of Goal IDs)</b>	<b>Formalized GQM Goal Object</b>	<b>Purpose</b>	<b>Quality Focus</b>	<b>Viewpoint</b>	<b>Context</b>	
4									
5	GQM1	Evaluate trend in customer complaints	G1	Customer complaints trend for Splash	Evaluation	10% improvement over history	Quality management	Web Products Division of XYZ	
6	GQM2	Evaluate trend in complaints related to software defects	G2	Trend in unique customer complaints that are due to software defects	Evaluation	20% reduction when compared to prior projects	Quality management	Web Products Division of XYZ	
7	GQM3	Analyze representative projects to build a defect slippage baseline	G3						
8	GQM4	Analyze pilot project using new test process with respect to defect slippage	G3						
9	GQM5	Analyze new test process with respect to defect slippage improvement	G3	System test process for Splash	Evaluation	20% defect slippage compared to prior projects	Quality management	Web Products Division of XYZ	
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Start Context&Assumptions Goals Strategies GQM-Goals GQM-Graph

Ready



# Example

## GQM Questions, Metrics, and Interpretation Models

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Type a question for help

B41 Related To (Enter a list of GQM Goal IDs)

	A	B	C
1	<b>GQM Questions</b>		
2			
3	<b>ID</b>	<b>Related To (Enter a list of GQM Goal IDs)</b>	<b>Short Description</b>
4	Q1	GQM1	How many customers do complain for baseline products?
5	Q2	GQM1	How many customers do complain 12 weeks after the Splash release?
6	Q3	GQM2	How many software defect-related customer complaints are reported for baseline products?
7	Q4	GQM2	How many software defect-related customer complaints are reported 12 weeks after the Splash release?
8	Q5	GQM3	What is the ratio of defects found in system test to defects found after test for baseline projects?
9	Q6	GQM3	What is the ratio of defects found in system test to defects found after test for the pilot project?
10			
11	Q7	GQM1	Did the amount of customer complaints improve 12 weeks after the Splash release?
12	Q8	GQM2	Did the amount of customer complaints related to software defects improve 12 weeks after the Splash release?
13	Q9	GQM3	Did the defect slippage improve after the pilot project?
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19			
20	<b>GQM Metrics</b>		
21			
22	<b>ID</b>	<b>Related To (Enter a list of Question IDs)</b>	<b>Short Description</b>
23	CCB	Q1	# customer complains for baseline products
24	CCS	Q2	# complains 12 weeks after the Splash release
25	CDB	Q3	# software defect-related customer complains for baseline products
26	CDS	Q4	# software defect-related customer complains 12 weeks after the Splash release
27	DB	Q5	% defects slipped for baseline projects
28	DP	Q6	% defects slipped for pilot project
29			
30	CCR	Q7	Customer Complaints Ratio CCS / CCB
31	CDR	Q8	Ratio of Customer Complaints Related to Software Defect DDS / CDB
32	DSR	Q9	Defect Slippage Ratio DP / DB
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36			

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