Position Paper for GQM+Strategies Session:
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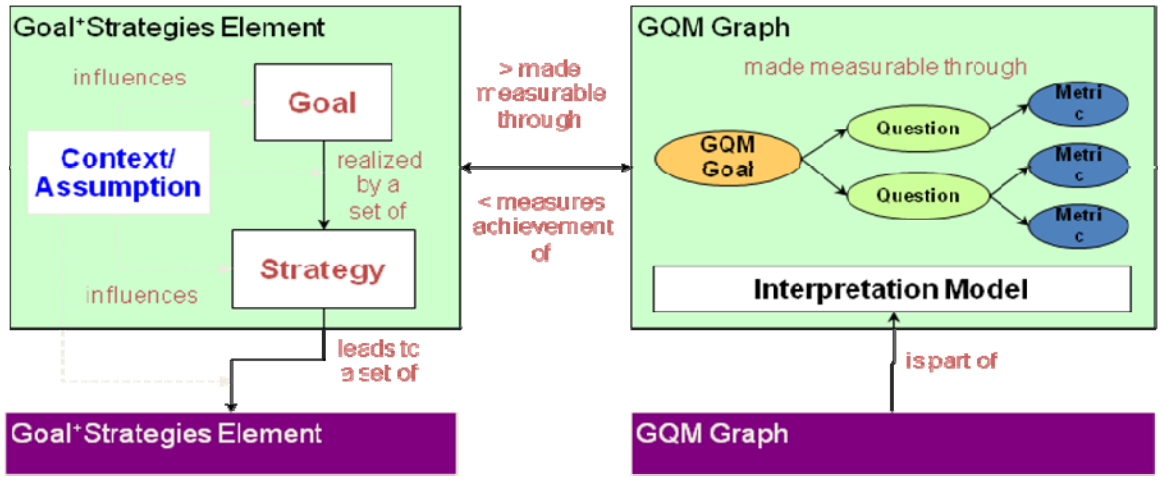
- What are you working on?

We have developed GQM+Strategies in a joint project between Fraunhofer Maryland and IESE. This includes a process, templates, and measureable links between business goals and low level project goals. We use several basic concepts: business goals, context, assumptions, strategies, lower level goals, integrated interpretations of the lower level goals back to the higher level goals. The Goal +Strategies element organizes the goals and strategies influenced by the context and assumptions. The goal is measured and interpreted by a GQM measurement goal. The strategies lead to lower level goals which are then refined into lower level strategies.

The basic concepts are:

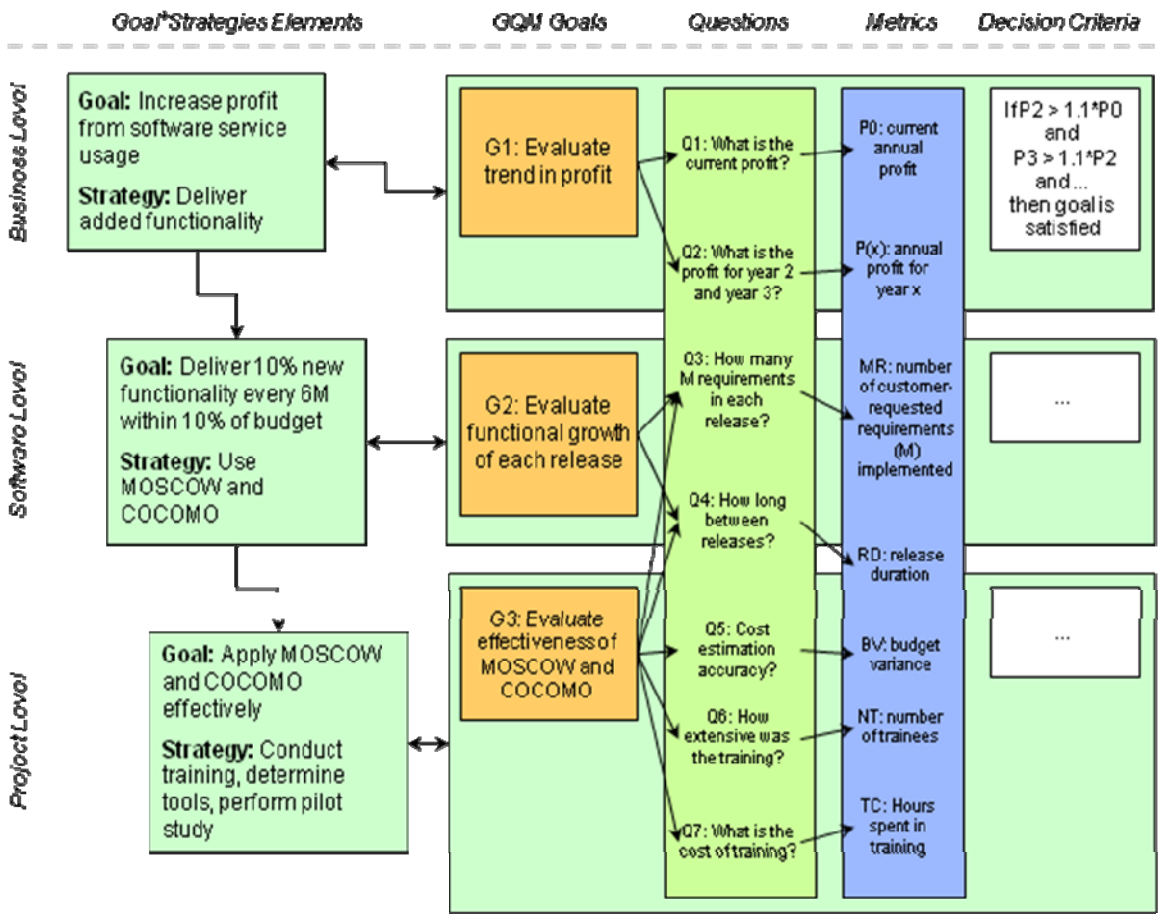
Business Goals: Goals the organization wishes to accomplish in general in order to achieve its objectives
Context Factors: Environmental factors representing the organizational environment
Assumptions: Estimated unknowns affecting the interpretation of the data
Strategy: A possible approach for achieving a goal that may be refined by a set of concrete activities (i.e., business or development processes)
Level i Goals: A set of lower-level goals inherited from level i-1 goals as part of the level i-1 goal strategy
GQM Goals: Measureable goals associated with each business goal
Interpretation Models: Models that help interpret data to determine whether goals at each level is achieved

An example of a Goal+Strategies element and a GQM Graph are given below:

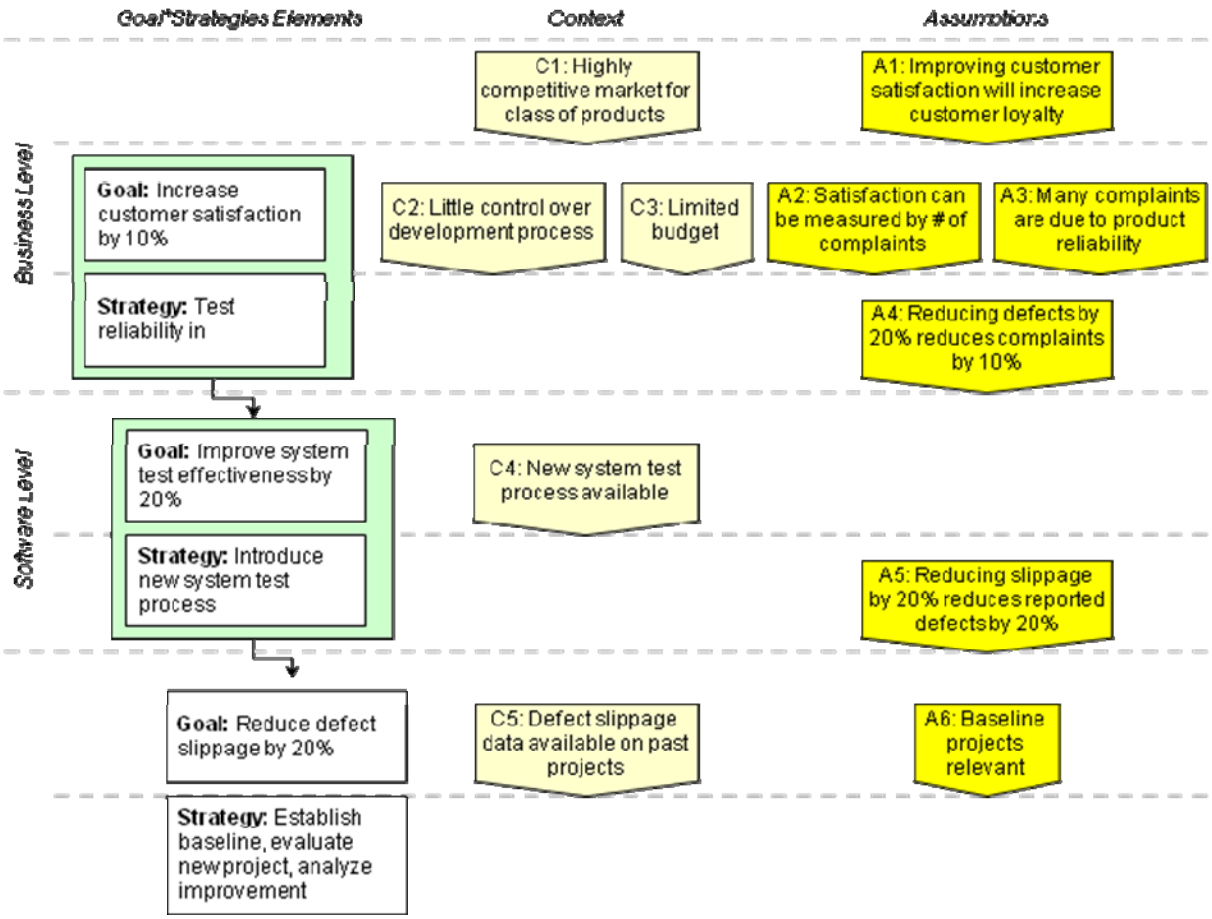


The detail of the goal are given in a goal template which expresses the activity, focus, object of study, magnitude, timeframe, scope, constraints, and relationship to other goals. A sample grid for this business goal is also given below.

Activity	Increase
Focus	Net Income
Object	ABC Web Services
Magnitude (degree)	10% per year
Timeframe	Annually, beginning in 2 years
Scope	Development Groups: 15%/year for all CMMI projects with maturity level > 1
Constraints (limitations)	Available resources, ability to sustain CMMI levels, …
Relations to other goals	CMMI Goals



The context and assumptions used for this example are:



We have developed a process in some detail covering roles, procedures and documentation. We have also begun to define a process for collaboration with other organizations.

- How have you used / are you using / or plan to use the GQM?

We have used the approach, in part and in whole with several companies. Some case studies were performed in conjunction with the University of Oulu. The main benefit has been to allow us to refine the ideas and see where there are problems in applying the approach, improve our process for applying the approach and creating a business model.
Further work is on broadening the application scope of GQM+Strategies, e.g., going beyond pure software development organizations. Some of the case studies have shown that the method is not limited to the software domain only, but helps to integrate different organizational units, their goals and strategies within a company.

- What are the possible unexplored domains / uses in which you think the GQM can be used?

We have struggled with the concern of introducing the approach to companies at various levels of maturity. For example, if an organization has a good measurement project for projects, how do we take advantage of that and how does it affect our approach vs. going into a company that does not measure at all and needs to build a basic measurement program at the same time. Moreover we have seen that there seem to be typical patterns within a GQM+Strategies model (e.g., typical strategies for a specific goal such as increasing productivity). Explicitly describing these patterns might help to improve the efficiency of the deployment of the approach.

- What are integrations / extensions of the GQM approach that you think might be worth to explore?

We have seen that effectively building up the complex GQM+Strategies grids require mechanisms for editing and visualizing the structures. Corresponding tool support for visualization is currently under development. It might also be worth developing tool support for identifying inconsistencies in the model.

Another extension of the model would be to integrate a ROI model that provides feedback to the organization on whether their strategies are worthwhile. This involves extending the basic concepts above with a new concept of **value goals** to utilize GQM+ to analyze the business value of the particular GQM+Strategies grid. The purpose of introducing the value goals is to enable procedures for effectively analyze the business values represented by the business goals and strategies, handling uncertainties or risk, monitoring, and value-based tracking of the implementation of strategies. By defining a value goal, we can use the GQM+Strategies process and tools to determine the context and assumption variables. The cost structure is specified by the context variables, while expected costs and benefits are specified by the assumption variables. The actual costs and benefits are tracked through cost-benefit GQM graph.

- What are the major needs of use of the GQM or its extensions?

Major needs include providing tool support for weaving through the goals and strategies and measures, developing an experience base of goals and strategies, and measures, and dealing with the goal conflicts and interactions.

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