

5. Conceptual nine-step model

The last chapter has shown that there are a lot of techniques available for finding requirements, but that these techniques are not adequate independently to solve the problems of this thesis. Therefore in this chapter a conceptual nine-step model (Figure 1) is developed, that can be used to find requirements in situations where:

- the proposed system enables distinct new business functions;
- the project is based on fairly new unexplored concepts;
- there is a lot of tacit knowledge of the business processes;
- requirements are complex and hard to discover, because people are not always aware of possible solutions;
- broad participation and commitment is important.

Based on the literature, several techniques are combined in this model. Interviews, study of documents, use cases, prototypes and brainstorming techniques are directly used in the model. Also elements of simulation games and requirements workshops are implemented.

Broadly speaking, by using this model ideas and goals are generated and collected from step 1 to 5. With these ideas and goals a *requirements game* can be designed. This is a simulation game with elements of a requirements workshop. In a requirements game the players act and discuss the information and material flows of processes following the route of concrete cases. Between the actual games the participants review the process and discuss possible solutions and co-create models and/or documents that can be used to represent their requirements. All these activities should create even more stimuli for new ideas. These ideas are explored and evaluated in the last two steps of the model.

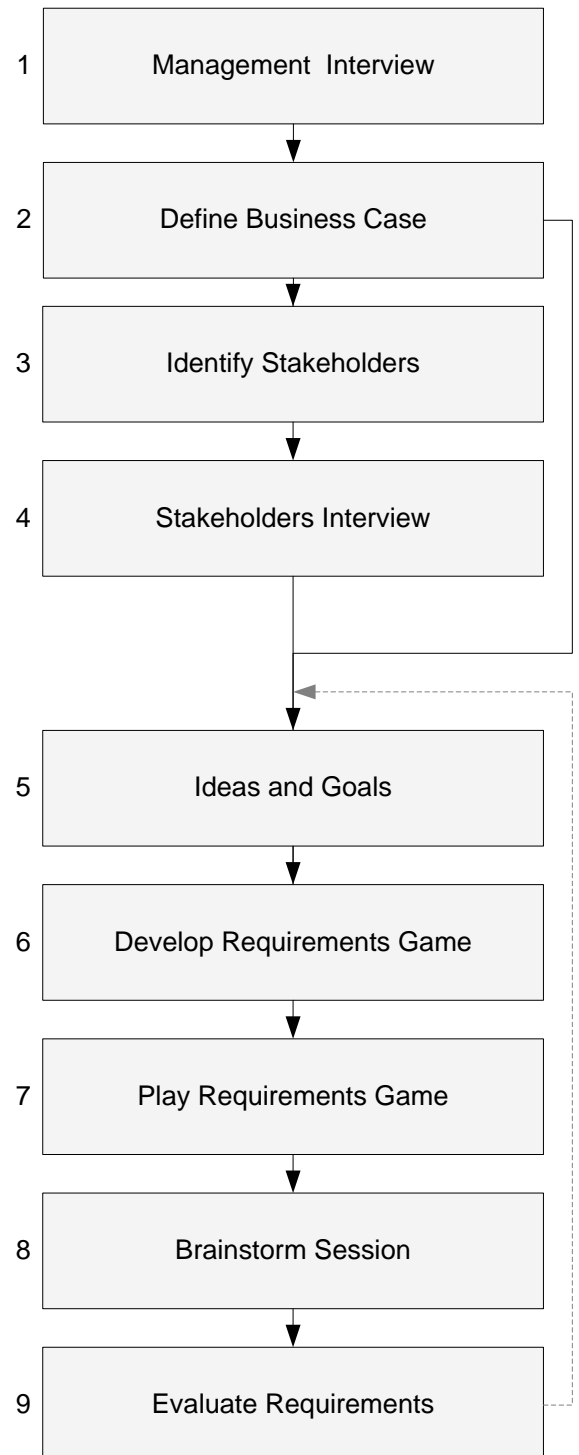


Figure 1 Conceptual nine-step model for finding requirements

The nine-step model is designed to:

- A. gather information on the business problem;
- B. bring ideas to the surface;
- C. use these ideas as stimuli to find even more ideas;
- D. set clear goals for the project;
- E. find undreamt of requirements by showing possibilities and offering possible solutions;
- F. support broad participation, commitment, innovation and learning for its participants;
- G. find and shape the requirements.

Table 1 shows how the nine steps of the model try to achieve these objectives (A to G). For example: the management interview is used to gather information on the business problem and brings the managers' ideas for solutions to the surface, it can be used to clarify the managers' goals for the project and it provides the initial requirements of the manager.

	A	B	C	D	E	F	G
1. Management Interview	✓	✓		✓			✓
2. Define business case				✓			
3. Identify stakeholders	✓						
4. Stakeholder interviews	✓	✓			✓	✓	✓
5. Generate ideas and goals			✓	✓			✓
6. Develop requirements game			✓				
7. Play requirements game		✓	✓		✓	✓	✓
8. Brainstorm session		✓	✓			✓	✓
9. Evaluate requirements						✓	✓

Table 1 How the nine steps achieve the objectives of the model

The model further explained step by step

To further explain the model it will be discussed step by step. First of all management (or the client) is interviewed to find the management problem. By interviewing management a first assessment can be made of the problem (**step 1**). Also management has the opportunity to suggest possible solutions and managerial requirements. The interview should be semi-structured, with fixed questions and in-depth questions, about arising subjects. Based on this interview the researcher can define the business case (**step 2**). The business case is a short summary in text of the problem and the proposed solutions. It explains the “why”, “what” and “how” of the research. The researcher can use this business case to clarify his research personally and can use it to explain the research to others.

The next step is identifying the stakeholders of this project (**step 3**). Particularly the stakeholders who are likely to have information on the business-case process are important. The primary way of getting information of these stakeholders is to interview them (**step 4**). This interview can be more structured than the management interview, because the business case is already defined and the interviewer already knows roughly what kind of information he is looking for. But also in this interview the interviewers should continue asking questions when striking information surfaces.

During the interviews, with the management and other stakeholders, various documents may come up. It is important that these documents are gathered and studied thoroughly. These are a valuable source of information for the design of the simulation.

With the results of all the interviews, the study of documents and his/her knowledge and ideas, the researcher can develop four artefacts that can act as goals and ideas (used as stimuli) for the next step:

- Possible problem solutions
- Prototypes
- General requirements list
- First use cases

The possible problem solutions based on ideas of management, ideas of stakeholders and the ideas of the developer joined with prototypes can be used as stimuli (ideas) for the next step. The requirements list and the first use cases can be used to clarify and define the goals of the project (**step 5, see also: Figure 2**).

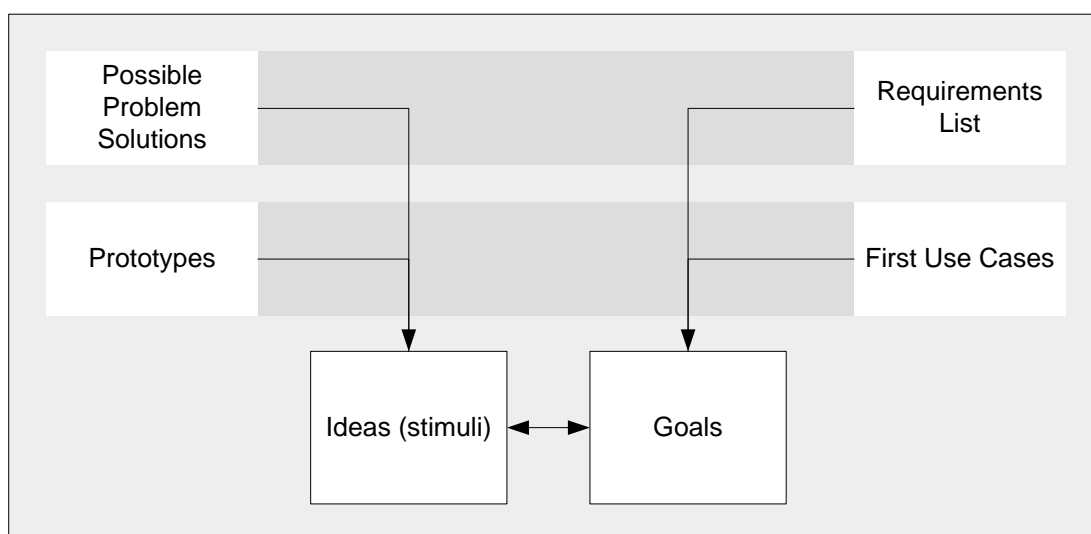


Figure 2 The fifth step: generating ideas and setting goals

With this information a tailored simulation game can be developed with a few well-chosen process models that are significant for the project (**step 6**). The processes are physically constructed in a room as a scale model of process. In this room the cases can be played. The developer develops at least two types of every case. The first type simulates the process as it goes at the moment; the second case simulates the same process with some adjustments suggested by the results of the interviews, and adjustments suggested by the researcher.

Attendees are invited and the games are played (**step 7**). The players act and discuss the information and material flows of the process following the route of the concrete cases. Between the actual games the participants review the process and discuss possible solutions. They co-create models and/or documents that can be used to represent their requirements. In this way the game should create extra ideas (stimuli) for the participants. These ideas can be explored and discussed during a short brainstorm session (**step 8**), which is executed immediate after the game. To avoid the blocking problem that may occur during the brainstorm session, this session can also be done electronically.

The new found requirements/solutions are evaluated (**step 9**) and if necessary discussed with the various stakeholders. The use cases and requirements list, prototypes and possible problem solutions are sharpened. The process can be repeated from step 5 until step 9.