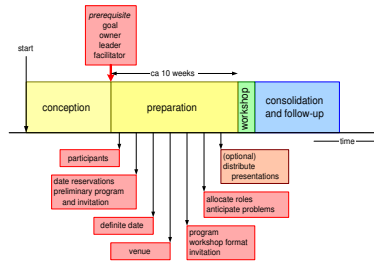


# Workshop How To

-



Gerrit Muller

Embedded Systems Institute

Den Dolech 2 (Laplace Building 0.10) P.O. Box 513, 5600 MB Eindhoven The Netherlands

[gerrit.muller@embeddedsystems.nl](mailto:gerrit.muller@embeddedsystems.nl)

## Abstract

Workshops can be an effective means to share and accelerate team activities such as product specification, design or business strategy.

### Distribution

This article or presentation is written as part of the Gaudí project. The Gaudí project philosophy is to improve by obtaining frequent feedback. Frequent feedback is pursued by an open creation process. This document is published as intermediate or nearly mature version to get feedback. Further distribution is allowed as long as the document remains complete and unchanged.

All Gaudí documents are available at:  
<http://www.gaudisite.nl/>

version: 0.1

status: preliminary draft

February 10, 2011

# 1 Introduction

A workshop is a very powerful means in many different circumstances, especially in *multi-multi* situations. Typical *multi-multi* situations are:

- multi-disciplinary
- multi-site
- multiple products
- multi-vendor
- multiple applications

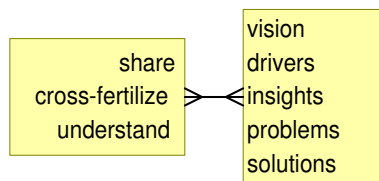


Figure 1: Purpose of a Workshop

The main purpose of a workshop is to share, cross-fertilize and to understand vision, drivers, insights, problems, or solutions, as shown in Figure 1. A workshop is an event where a group of people work together to achieve this sharing, cross-fertilization and common understanding. The shared vision and understanding is an enabling factor for further concurrent individual work. After the workshop the individuals become more effective, because of a better understanding of purpose, context and rationale.

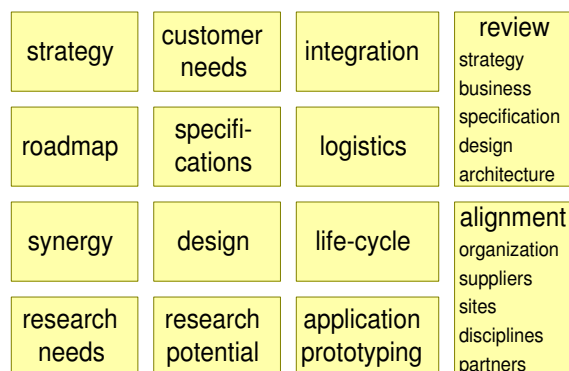


Figure 2: Example Subjects

A workshop can be used for many different subjects, as shown in Figure 2. The workshop scope can be broad and address vision, strategy, synergy over products, research needs. A more focused scope, for instance at product level, the workshop subject can be customer needs, specifications, design, research potential, integration, logistics, life-cycle, and application prototyping. Workshops can be used for alignment, for example of organization, suppliers, sites, disciplines, or partners, and review, for example of strategy, business, specification, design, or architecture.

## 2 Planning

A workshop is a significant investment of time, capacity of people, and individual energy of participants. A good preparation can help to make this investment worthwhile. Figure 3 shows a typical time-line for a workshop. Once the decision for a workshop is taken about 10 weeks are needed for preparation. Prerequisites for starting the preparation are:

- the goal is clear
- the owner, leader, and facilitator are identified

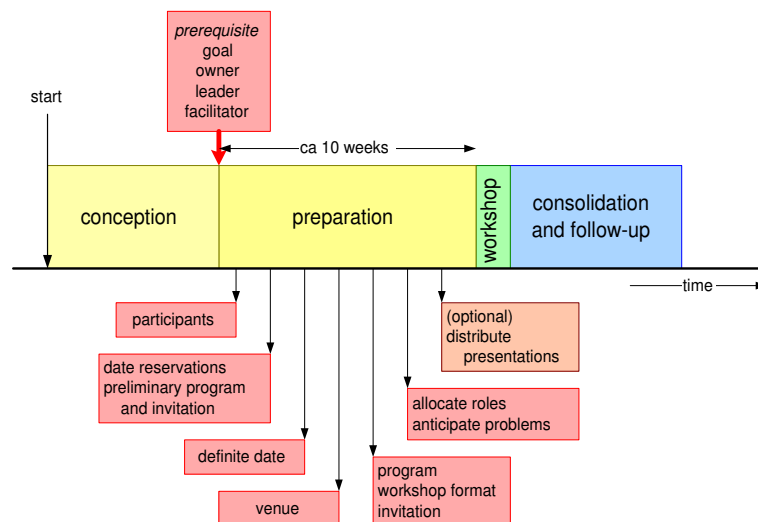


Figure 3: Workshop time-line

During the 10 weeks of preparation the following activities have to be performed:

- selection and invitation of the participants
- date and venue are chosen

- workshop program and format are determined
- roles are allocated
- potential problems are anticipated and discussed
- material, such as presentations, is distributed as far as available

The selection of the participants, the venue and the date often requires two or three iterations in order to fit all together.

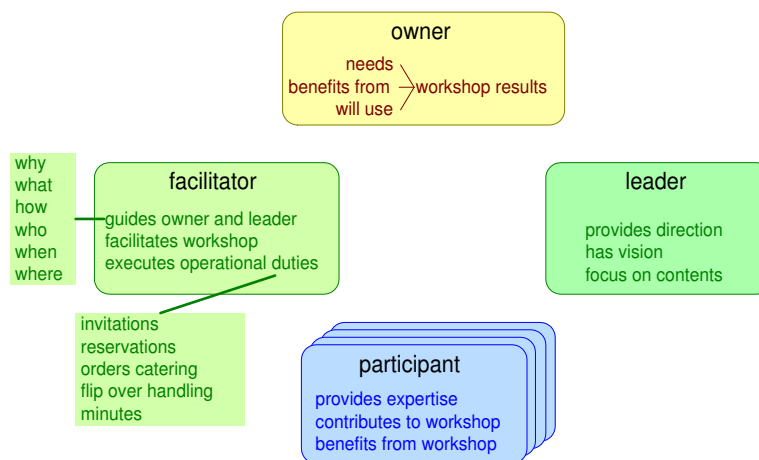


Figure 4: Roles

As mentioned in the prerequisites a few roles are crucial in the workshop process. The owner is the manager that needs the results of the workshop. The owner must benefit from the workshop results and should be able to use these results. The duo leader-facilitator is a replacement for the chairman-secretary combination. The leader-facilitator decomposition frees the leader entirely for *content* oriented work: direction, vision, and the many details of the subject. The facilitator supports the leader by guiding the leader, by facilitating the workshop itself, and by executing operational duties. Guidance of the leader is done by using the WWHWWW (Why, What, How, Who, When, and Where) questions. Examples of operational duties are: sending invitations, making reservations, ordering the catering, handling of flip overs, and making minutes. The participants provide expertise, contribute to the workshop, and benefit from the workshop.

The participants and the format of the workshop depend on the type of workshop. Figure 5 shows several different types of workshops:

- Problem exploration
- Analysis

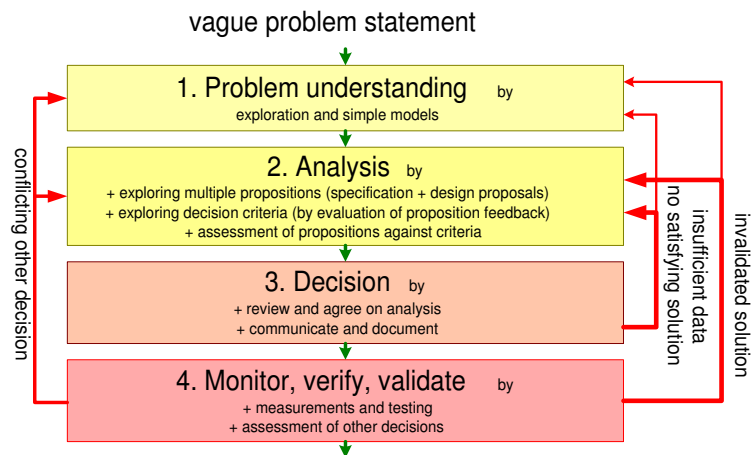


Figure 5: Different Workshop Types

- Decision
- Monitoring, verification and validation

The problem exploration workshop starts often rather diverging, exploring facts and options for solutions. During analysis more focus is applied, based on the criteria for an acceptable solution. The analysis and decision are on-purpose decoupled. The decision making process often tempts people to reason reversely (from preferred outcome to arguments for a selection). The decoupling of analysis and decision opens the way to a more objective analysis. In between the different types of workshops it is recommended to have a few weeks to digest the results and to process related information. During the workshop preparation the type of workshop must be determined, communicated and used to create the workshop program.

The different types of workshops as discussed above are often run sequentially. Figure 6 shows this sequence of workshops and the typical ratio of the amount of time needed per workshop. It also shows that typically a few weeks in between the workshops are needed.

The purpose of a workshop is to share information in a group of people. A common misconception is that participants expect a lot of progress in the subject itself during the workshop. However, in practice the progress of the subject itself is rather slow during the workshop. The time needed to discuss or analyze a subject is directly proportional to the number of people involved: more people require more time! In other words subject results are obtained by the concurrent work of many people. However, in order to let them do their work effectively they need to understand the goals and the context. As shown in Figure 1 that is exactly the purpose of the workshop. Figure 7 visualizes the progress of the subject itself, as increasing in between workshops, and the progress of the shared understanding,

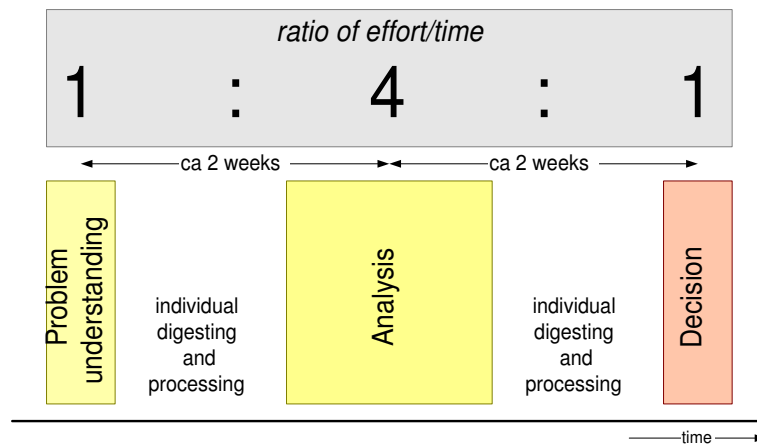


Figure 6: Sequence of Workshops

increasing during the workshop, but decreasing steadily between workshops.

### 3 Workshop Format

Fundamental to an effective workshop is to get all participants actively involved with the subject. Frequently people organize passive workshops, where information is shared by a lot of alternating presentations. The amount of information exchanged in these workshops is quite high, while the level of involvement and actual understanding is rather low. To stimulate involvement and actual understanding it is imperative to dive into the subject and to have interaction between the participants.

We recommend that the program of the workshop and the format of the workshop is such that at least 70% of the time is used for active participation. Figure 8 shows an example of a one-day workshop with three sessions. Every session is shortly introduced by a seed presentation, followed by discussions in break-out groups. The session is concluded by a plenary discussion to review and integrate the results of the break-out groups.

Break-out groups have the benefit that small teams are more interactive and make therefore more progress per hour than large plenary groups. The disadvantage is that the sharing and cross-fertilization is limited to the break-out group. Some form of broader sharing after the break-out discussion is needed. The risk is that this plenary discussion gets boring and repeats the break-out discussion. The facilitator and leader must cooperate closely to get sufficient value from the plenary discussion.

In practice about three sessions fit in one day. Participants reach their absorption limit after three sessions. Together with some time for start-up and introduction,

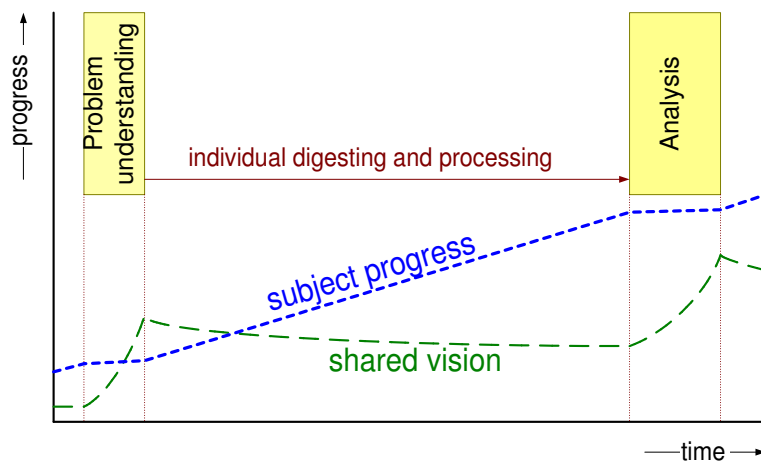


Figure 7: Most Subject Progress Outside Workshop

and for wrap-up and evaluation a day is then completely filled.

Seed questions are a good way to trigger a discussion. The facilitator creates a one page or slide instruction including a seed question. Figure 9 shows an annotated instruction for a discussion. Recommendations for the seed question are:

- The seed question(s) must be compact and open.
- The formulation must such that the question itself does not bias the discussion.
- The seed question should provide direction and focus for the discussion.

A common pitfall in workshop discussions is that discussions drifts away in more generic statements, an escape in broadness. A good counter-measure is to instruct participants to make more generic statements concrete by illustrating them with specific examples. Specific examples tend to expose differences in interpretation quite fast; The generic statement provides a lot of room for different interpretations, the specific example enforces concreteness.

It is sometimes nice to start shortly with some individual activity. Especially for the somewhat more introvert participants this helps to get all different view-points on the table. If the discussion starts right-away then the risk is that the discussion explores one view-point extensively. When all participants have had some time to consider the questions, then it is more probable that other view-points will be discussed as well.

The discussion is facilitated by the use of sketches, diagrams, key-words and key-phrases. Flip-over sheets and yellow notes are ideal media for this purpose. The low-tech nature of these media makes the use very robust and flexible. The consolidation on paper also makes the discussion less volatile, preventing repetition

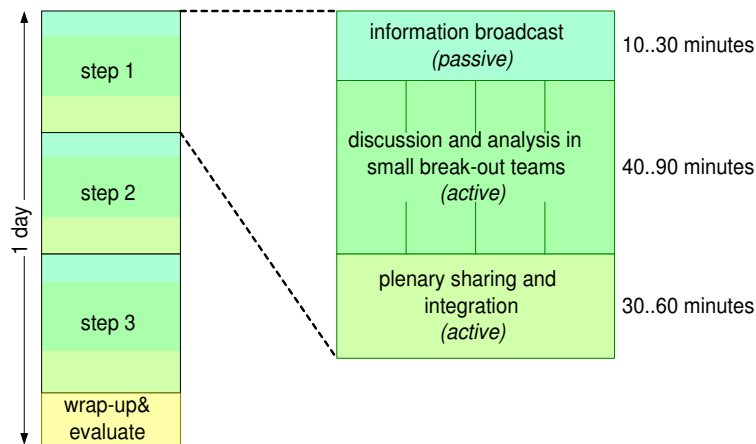


Figure 8: Example of Active Workshop Format

pose compact and open question(s)  
avoid bias by question formulation

What are the top five design issues? provide focus

Illustrate every design issue with 2 specific examples.  
avoid generic motherhood statements  
stimulate specific discussions via examples

Start with 5 minutes individual preparation  
enable every individual  
prevent too early narrowness

Figure 9: Annotated example of an instruction for a discussion

and easing the later reporting. Figure 10 shows media that can be used to support discussions, analysis and interaction. More high-tech media should only be used if appropriate. For instance using a spreadsheet to build a table of options and criteria and evaluating the options in terms of these criteria.

Many techniques are available for workshops. We recommend to be creative in the preparation of the workshop in the selection and adaptation of techniques. Figure 11 provides a proven collection of techniques for workshops.

**brainstorm** A frequently used technique is brainstorming, from the brainstorm itself to a smaller discussed subset for further analysis. The brainstorm itself starts with the individual generation of topics, using a thick pen<sup>1</sup> on yellow

<sup>1</sup> With a thick pen only a few words fit on a yellow note. This forces the participants to capture the essence in a few words. If the brainstorms result would be a large collection of extensive described



and to get participants involved. Voting as a decision making approach is a very bad idea.

**guided discussion** based on a list of specific questions. For example asking for stakeholders, their concerns and a quantification of these concerns. If the questions are sufficiently clear and specific, then the discussion can become very productive and focused.

**time-boxing** is a very generic technique that can be applied simultaneously with any of the other techniques. Highly recommended in workshop context. Most people have difficulty in stopping at the 80/20 point. Setting a reasonable time-box is a good alternative, which often comes close to the 80/20 point.

**role-play** assigning different roles to the participants helps them to envisage the needs of the assigned stakeholder-role. Provide some time for the individuals to prepare the role-play: who is this stakeholder, what drives this stakeholder, what are the related emotions. An observer role helps in the retrospective discussion at the end.

**rotation of participants over teams** The assignment of persons to groups can be done more dynamic, for instance by rotating participants over teams.

**intermediate exchange of results** Cross-fertilization can be improved by sharing intermediate results. For instance by opening the break-out rooms to other teams, during a synchronized coffee break. An alternative format is to show and explain results in a kind of market or bazaar setting.

**specific analysis** Story telling and use case analysis techniques are very useful as workshop instrument. The power of these techniques is that they force to be very specific. The discussion can become very factual and quantitative with a lot of focus. Distractions by generalizing questions can be parked, these are for later consideration.

**standard techniques** For reliability, safety, and security standard techniques are available that fit well in a workshop setting. For example FMEA (Failure Mode Effect Analysis) and hazard analysis techniques.

The workshop should be finished explicitly by a wrap-up and evaluation, as shown in Figure 12. The leader or facilitator gives a short summary with conclusions. The facilitator prevents that discussions are repeated at this time, since this does not add any new value. The leader or facilitator also formulates the follow-up: *Who* will do *what when*? Finally the workshop itself is evaluated. The facilitator asks for balanced feedback, either plenary if sufficient time is available or individual on yellow notes. One way of doing this is by asking for benefits and concerns (on separate yellow notes). Feedback may address the subject, the context

short summary and conclusions (leader or facilitator)	don't repeat discussions
follow-up (leader or facilitator)	who, what, when
evaluation; ask for balanced feedback (facilitator)	for instance benefits & concerns plenary or individual on yellow notes

Figure 12: Wrap-up and evaluation

or the workshop format. The facilitator processes the feedback (solves a number of concerns without losing the benefits) and communicates the results back to the participants.

## 4 Participants

minimize the number of participants	time needed ~ # participants
individual contribution	knowledge skills, experience function or role
interpersonal relations	political, social psychological
availability	full-time during workshop vs workshop timing vs workshop effectiveness

Figure 13: Carefully select participants

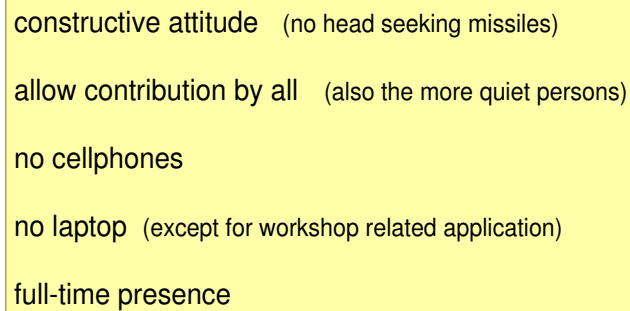
Crucial success factor for a workshop is to have the right participants. Figure 13 provides guidelines for the selection of the participants. Realize that the time needed to go through a subject is proportional to the number of participants: more participants will take more time to achieve the same depth in discussion. We recommend to keep the number of participants as low as possible.

An important selection factor is the expected contribution of a participant: what is the knowledge, skill-set and experience of this person? How does this fit in the

total group of participants, how is the coverage and the overlap between participants?

The interpersonal relations determine how fruitful and effective discussions will be. How are the political and social relations? How is the psychological profile? We recommend to envisage the workshop with the proposed participants from this view-point. Do you foresee animated discussions, or do you expect nitpick behavior?

Participants must be available the entire workshop. Incoming and going participants are very disturbing. It takes some time to transform a set of individuals into a cooperating team. Such a transformation process is preempted if participants are partially available. Sometimes it pays off to delay the workshop to a time when all participants are fully available. Another choice is to work without some of the intended participants, where the major criterium is to achieve the intended workshop result (workshop effectiveness).



- constructive attitude (no head seeking missiles)
- allow contribution by all (also the more quiet persons)
- no cellphones
- no laptop (except for workshop related application)
- full-time presence

Figure 14: Rules During the Workshop

We recommend to state a few rules at the beginning of the workshop, for instance as shown in Figure 14:

**constructive attitude (no head seeking missiles)** The workshop atmosphere should be constructive: participants should feel invited and stimulated to contribute. Direct negative criticism is not allowed, because it inhibits many of the participants.

**allow contribution by all (also the more quiet persons)** Some participants will actively participate by nature, while others are more introvert. Facilitator and participants together must create an ambiance where also the less-dominant participants participate actively.

**no cellphones, no laptop (except for workshop related application)** Cellphones and laptops are both rather distracting devices that penetrate in the workshop setting. Making phone-calls, reading or exchanging e-mail, chatting, and exchanging sms-messages are forbidden during the work-group activities.

**full-time presence** The team-process is disrupted when people leave or arrive at any time, so full-time presence is a prerequisite.

## 5 Venue

The workshop effectiveness can be influenced by the venue. Factors such as noise, lack of oxygen or fresh air, and limited space have a negative impact. Figure 15 shows how the venue may look like, and some of the requirements are mentioned.

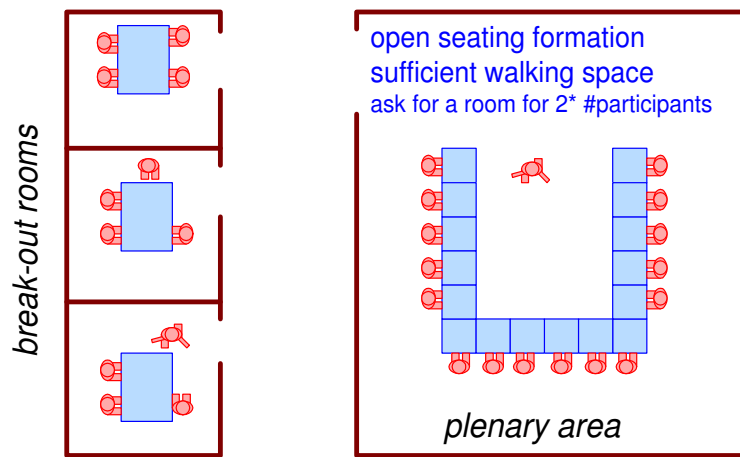


Figure 15: Venue Requirements

We recommend to ask for the plenary sessions for a room for twice as many people as will participate. Most facilities provide a maximum occupation that is twice the practical capacity. For discussion purposes an elliptical or a U-form seating is preferred. Outside of the seats sufficient walking is required. The walls should be free and reachable to attach flip-over sheets with tape, or alternatively special stands can be used for attaching flip-overs and brown paper. The flip-over sheets on the wall serve as collective memory during the workshop. The team builds a vision together. This process is facilitated by a collective memory that is entirely visible during the workshop.

Several smaller rooms are needed for the break-out discussions. These rooms must allow for the use of flip-over sheets as well.

## 6 Summary

Figure 16 shows the secret of successful workshops:

**active** More than 70% of the workshop time is spent in (inter)action. Passive parts, such as introductory broadcasts must be kept short.

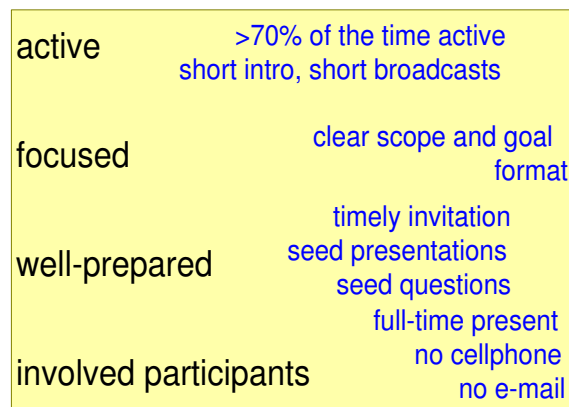


Figure 16: Secret Workshop Success Factors

**focused** Clear scope and goal, facilitated by a matching workshop format.

**well-prepared** Selection of seed presentations and formulation of seed questions, timely invitation of participants.

**involved participants** Full-time presence, not distracted by cellphones or e-mails.

## References

- [1] Gerrit Muller. The system architecture homepage. <http://www.gaudisite.nl/index.html>, 1999.

## History

**Version: 0.1, date: July 12, 2006 changed by: Gerrit Muller**

- Added many diagrams
- Added text

**Version: 0, date: February 1, 2006 changed by: Gerrit Muller**

- Created, no changelog yet