Keys of Success

for CBR in Practice

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Motivation

- **Newcomers to CBR often have a tendency to believe that the most important problem to solve is choosing the right CBR tool**
- **In order to solve this problem they surf the web and make long lists of features an ideal CBR tool should have**
- **In spite of all the existing evaluation results they re-do own evaluation studies and in the end**
  - they typically do nothing or
  - start to implement their own CBR tool
- **This is explicitly NOT the best way to a successful CBR application**

Motivation

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- From today's talks you have seen that you can build successful CBR applications with more than one CBR tool (e.g. KATE, k-commerce, CBR-Works, CBR-Answers, CBR-Sells etc.)
- Therefore with this last talk I would like to focus on other topics I have experienced to be more important for a CBR system's success than the tool decision
- The topics will be illustrated by both positive and negative examples (real cases to learn from...)

Choosing an Appropriate Application Problem

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What are important points to consider:

- **cases should be a “natural unit” within the domain**
- **solving a problem should require some experience**
- **similar problems should occur more than once**
- **modelling the whole domain should be infeasible (too complex, too expensive, etc.)**
- **modelling how to adapt a similar solution should be feasible (even if it is done by the users)**

Choosing an Appropriate Application Problem

- Less appropriate application domains:

  - decision support for buying or selling stocks

  - weather forecast etc.

- Appropriate application domains:

  - technical diagnosis of mass-produced equipment

  - brokerage based on rational profile matching (new or used goods, personnel, etc.)

  - routine design and construction tasks where adaptation is both needed and well understood

Recruiting the Right Team

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- First and most important: you need a real champion who is or becomes responsible for the project
- You need a manager behind the project who wants the application, provides the budget and defends both the project and the team
- You need more than one domain expert who is able and willing to author cases and to assure or improve the quality of cases
- You need software engineers experienced enough to build the system right
- And it is important to keep all these people on board of the project ship

Raising enough Money for Making Professional Choices

- Starting the first prototype with a small budget can help to streamline your thoughts, your team and the application as well
- But as soon as a serious real-life application is to be built the budget should be sufficient to guarantee the project's survival even when some unexpected problems occur
- E.g. quicker success than planned costs money
- E.g. integration into existing business processes and software systems will save work but requires effort etc.

Building the CBR System Right

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Important points are:

- **simple, robust and efficient user interfaces**
- **short retrieval and response times**
- **ability to grow with larger amounts of users**
- **low maintenance efforts for the case base**
- **high degree of portability to new platforms**
- **adequate solutions for data protection and security**

Convincing the Users of the First Prototype

- The users of the first prototype more or less decide about the future of the system
- Therefore they should be carefully selected and very well informed, involved and prepared
- Make them understand the system and its benefits
- Try to select persons who are good “key users” within their group and who are able to share their knowledge and experience with their colleagues
- Be aware that the experts mostly don’t need the CBR system and don’t force them to use it

Converting the Prototype to a real-life Application

- Carefully listen to the feedback from the first users
- Organise the usage and the maintenance processes
- Make a technical and organisational concept how to deal with much more cases and users without loosing the necessary performance, precision etc.
- Test each step and proceed only if it has met the requirements
- Plan nearer to a worst case scenario than to a best case scenario and check your plan against the bad experiences of people who have fielded similar applications before

Marketing the System to Achieve Intensive Use

- **The more users and usage a CBR system accumulates**
  - the more money is saved
  - the more ideas for improvement arise and have a chance to influence the further development
  - the more robustness and stability is necessary and will eventually be achieved from improving the system
  - the longer lasts the life time of the system and
  - the more likely there will be a follow-up system because the organisation can’t do without it...

Harvesting an Impressive Return on Investment

- Most firms try to keep secret how much money their software systems help to save each year
- A good example for the contrary is Siemens A&D: they say that the SIMATIC Knowledge Manager saves about 1.5 Mio. EUR or USD this year
- One of the best marketing messages within a firm is that using the system will save for each solution found by the system e.g. 20 USD
- For the customers the messages should be different: we solve 90% of the incoming problems at first try or we always provide you with the best known solution

Conclusion

- **For successful CBR applications in practice it is of primary importance to have**
  - an appropriate application problem
  - the right people in the team and in the background
  - enough time and money to build a system for users and
  - growing numbers of users and CBR solutions reused
- **Good choices concerning the CBR technology and CBR tool usage are not completely unimportant - but this is something that can be changed during the project - and it is of little help when other things go wrong ...**

Questions and Discussion

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