



CAMELEON Project

R&D Project IST-2000-30104

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Abstract

This document describes a preliminary risk analysis for the CAMELEON project.

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1. Introduction

This document concerns a preliminary risk analysis about possible risks in which the Cameleon project could run into during its life cycle, together with some previsions about the probability of their occurrence (and how the Cameleon consortium could cope with them).

1.1. Risk Areas

Two areas have been identified in which the project might deviate from the expected plan and compromise the final outcome. They have been identified according the nature of their causes:

1. Technical causes (internal to the Project)
2. External causes

The technical causes are all the aspects that concern technical decisions that have been made within the consortium (e.g.: selection of development environments and languages), whereas the external causes are the aspects that are basically external to the project but that could detrimentally affect it in some ways.

1.2. Technical Causes

As far as the technical aspects are concerned, a possible risk is represented by the lack of resources in order to develop engineered tools.

Another possible aspect concerns the possibility that the Consortium made decisions that only subsequently reveal not to be the best ones. An example is represented by the selection of the wrong target environments or languages (e.g. Flash supports portability, scalability but not necessarily usability).

Regarding the first issue (lack of resources) we can say that the project budget is certainly tight but partners have teams with good experience in tool development. For example, at ISTI the CTTE tool was developed in a previous European project and is currently used in many sites at world-wide level.

For the second type of issue, we can highlight that in the project various directions will be explored before making final strategic decisions. In addition, the good balance between academic and industrial partners allows the consortium to have an integrated view of both innovative concepts and the issues raised by the market.

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1.3. External Causes

As external causes we intend any unpredictable event that may cause a partner to leave the consortium.

These include bad conditions of the market/economy that may affect industrial partners strategy, as well as organizational changes that may affect the academic partners.

We are optimistic in this respect, because the university groups involved have a long and well established tradition in the CAMELEON domain, IS3 is a young but active company that has already found a good market for its applications and services, whereas the importance of the main issues addressed in CAMELEON are certainly in the strategic agenda of a company such as Motorola.

In any event, in the remote case that one partner will not be able to continue its participation in the project we have already a good number of other companies and research groups who have expressed interest in being more involved in the project.

1.4. Risks Summary

Risk exposure is a measure created by combining the impact (severity on cost, time, performance) and probability of occurrence of the risk, should it materialize. The table below defines these terms at the level of detail suggested by the SEI [CMU/SEI-99]: four levels of impact and three of probability, translating to three levels of risk exposure.

- **High:** Major impact on the project and possibly serious consequences.
- **Medium:** Significant impact
- **Low:** Little impact.

Table 1-1 Risk Exposure Matrix

Probability	Impact			
	Catastrophic	Critical	Marginal	Negligible
Very Likely (P=0.6-1)	High	High	Medium	Medium
Probable (P=0.3-0.6)	High	Medium	Medium	Low
Improbable (P=0 – 0.3)	Medium	Medium	Low	Low

In the following the risks previously mentioned are summarized and prioritised according with the Risk Exposure Matrix.

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RISK: Over-ambitious specifications		
Probability: Very likely	Impact: Critical	Exposure: High
EFFECT: Development costs become more than the foreseen.		
CAUSE: Functional requirements are very ambitious.		
MITIGATION PLAN: Prioritisation of the functionalities implementation. The realization of some very advanced functionalities may be left for an eventual continuation of the project.		

RISK: Lack of resources/failure to meet deadlines		
Probability: Probable	Impact: Critical	Exposure: Medium
EFFECT: Impossible to deploy the first version of tools at the end of the first year. Development of prototypes, evaluation and test can't be done in time. Impossible to deploy second version in time and to complete the final evaluation of tools and methods on time.		
CAUSE: Project budget tight, small number of people involved		
MITIGATION PLAN: Regular monitoring of technical progress. Good experience of people involved.		

RISK: Choice of new technologies		
Probability: Very Likely	Impact: Marginal	Exposure: Medium
EFFECT: Consortium-made decisions about programming languages, development and target environments subsequently reveal not to be the best ones.		
CAUSE: The technology improvements are very quick in the domain addressed by CAMELEON project.		

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MITIGATION PLAN:

Various directions will be explored before making final strategic decisions.

In addition, the good balance between academic and industrial partners allows the consortium to have an integrated view of both innovative concepts and the issues raised by the market.

RISK: Difficulty in integration		
Probability: Probable	Impact: Marginal	Exposure: Medium
EFFECT:		
Impact on delivery time.		
CAUSE:		
CAMELEON is based on different software components developed by different groups and dealing with different technologies.		
MITIGATION PLAN:		
Identify the interfaces between the components.		
Validate the interfaces through functional test.		

RISK: Changes in the consortium composition		
Probability: Improbable	Impact: Critical	Exposure: Medium
EFFECT:		
Impossibility to successfully complete the project objectives.		
CAUSE:		
A partner may have to leave the Consortium for different reasons: conditions of the market/economy may affect the industrial partners strategy, while universities organizational changes may affect the academic partners.		
MITIGATION PLAN:		
Involve other partners that have an interest in project goals and can ensure the successful completion of planned tasks.		

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4. References

[CMU/SEI-99] Software Risk Evaluation (SRE) Method Description (Version 2.0), Ray C. Williams, George J. Pandelios, Sandra G. Behrens, December 1999, <http://www.sei.cmu.edu/pub/documents/99.reports/pdf/99tr029-body.pdf>