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**Designing for adaptability and evolution in system of systems engineering**

**DANSE Exploitation Forum**

D\_8.7.1

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## CHANGE HISTORY

Version	Date	Reason for Change	Pages Affected
1.0	14.06.2013	Initial Version	All

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# 1 Introduction

## 1.1 Overview, Purpose and Scope

This document is an accompanying document to deliverable 8.7.1 – DANSE Exploitation Forum. The deliverable itself is an IBM Connections website with public access, containing DANSE exploitation and dissemination materials as a whole and per work packages. The individual work package and tasks owners are responsible for their respective content.

Website address:

<https://www-304.ibm.com/connections/communities/service/html/communityview?communityUuid=8c32ad8d-973f-4d7f-8975-66fb631d1d6f>

**Important Note:** In the IBM Community website the individual discussion is called a “forum”. To eliminate the confusion between the terms the originally defined (in DOW) “exploitation forum” will be referred to as “exploitation community” or simply “community”.

The main purpose of this accompanying document is to outline the structure of the exploitation community with intent to organize it and guide the partners in creating additional topics in an easily navigatable manner.

## 2 Community structure

### 2.1 Overall structure

The community is separated into three main areas:

- Generic – deals with community management, structure, rules and general DANSE information.
- Technology – discussions and information about technologies in DANSE, their purpose, non-confidential description and links to material in the art. This section will also contain workflows build on joint (sequential or simultaneous) usage of several DANSE technologies.
- Use cases – discussion about potential applications domains, including the four DANSE use cases.

### 2.2 Generic section

This section will include several topics:

- Community structure – this topic will have an initial post outlining the principles of the community and its organization. Members and guests will be able to suggest changes in order to increase effectiveness.
- Rules of conduct – this topic will have an initial post outlining the rules of conduct for the community and the guidelines for posting information, non-confidentiality, etc.
- List of publications – this topic will include a list of DANSE related publications from all partners with links (where applicable) to the publication. Publications will not be posted on the website in order not to violate the rules of publication (publisher) for the original publication venue.
- List of related events – past and future events either in SoS area or with relevance to one or several technologies in DANSE.

### 2.3 Technology section

This section will include topics for the technologies that are used and evolved in DANSE. The responsibility for leading and moderating the topic lies with the specific technology provider.

The topics shall also include stories of successful and unsuccessful application of the specific technologies and the best known methods for such.

Table 1 outlines the topics of the section.

Technology	Partner	Task in DOW
SoS Architecture Definition	LU	WP5
GCSL	ALES	T6.3
SoS Meta-Modeling	OFFIS	T6.4
Simulation	ALES	T7.1
Abstraction	OFFIS	T7.3

Technology	Partner	Task in DOW
Statistical Model Checking	INRIA	T7.4
Formal Verification	ALES	T7.5
Optimization	IBM	T7.8
DANSE Tool-net	IBM	WP8

Table 1 – List of topics in the technology section of the exploitation community

## 2.4 Applications section

The application section is for exemplifying the usage of the specific technologies in various engineering workflows. Thus in addition to the technologies the topics will discuss other important aspects, such as:

- Prerequisites for starting a workflow and the setup required
- The information flow between tool and tool
- The expected results
- Effort and skill required to implement and execute
- Other aspects as may deem appropriate by the members of the community

Similarly to the technologies section the topics shall also include stories of successful and unsuccessful application of the specific workflows and the best known methods for such.

Table 2 summarized the initial list of workflows to be included in the forum.

Workflow	Partners	Notes
Pattern based Architecture Synthesis	IBM, LU	Usage of patterns as input into architecture optimization via the tool-net
Design Verification	ALES, INRIA, EADS FR	Usage of simulation and statistical model checking for verifying the design requirements defined in GCSL

Table 2 – List of workflows

## 2.5 Methodology and Use cases

This section will include the overall discussions on DANSE proposed methodology, based on the technologies and workflows. The objective of the discussion is to elicit the overall perceived value from applying all the DANSE developments.

This section will also include discussions on the specific use cases and the respective applicability of the technologies and workflows (i.e. what methodological subset may be used). It is intended that with time there will be additional use cases, from the DANSE partners and from external parties.

Table 3 outlines the initial list of use cases (essentially the four original DANSE use cases per the DOW).

Use case	Partner
Emergency response	EADS DE
Air Traffic Control	Thales

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Use case	Partner
Integrated Water Treatment and Supply	IAI
Autonomous Ground Transport	Carmeq

Table 3 – List of use cases



## 3 Abbreviations and Definitions

DANSE	Design for Adaptability and evolution in System of systems Engineering
GCSL	Goals and Contracts Specification Language
DOW	Description Of Work
IAI	Israeli Aerospace Industries
EADS	European Aeronautic Defense and Space Company
LU	Loughborough University
ALES	Advanced Laboratory for Embedded Systems
IBM	International Business Machines corporation
SoS	System of Systems

## 4 References

[1] DANSE Exploitation Community Address:

<https://www-304.ibm.com/connections/communities/service/html/communityview?communityUuid=8c32ad8d-973f-4d7f-8975-66fb631d1d6f>