	HoliDes **Holi**stic Human Factors **Des**ign of Adaptive Cooperative Human-Machine Systems	

D8.4 Tailored HF-RTP and Methodology Vs1.0 for the Control Room Domain

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13.04.15	Final version for release	Ian Giblett – EAD-UK

Table of Contents

Executive Summary

The following document describes the process of adaptation of the HF-RTP, which is being developed in the HoliDes project (WP1), to the Control Room domain, with a special focus on the description of the AdCoS and tool chains developed by the partners. It is the follow up deliverable of D8.. It is explained how the tailoring methodology provided by WP1 is applied in the Control Room Domain.

This document is the result of many collaboration activities between the AdCoS developers in WP8 and the method tools and technology (MTT) providers in WP 2 to 5. There are many MTTs in HoliDes but not all of them are relevant for every AdCoS. Those which can assist in the energy control room design processes are listed here.

At this stage, not all

1 Introduction

This deliverable describes how the HF-RTP methodology Vs1.0 and the HF-RTP, which are being developed in WP1, are applied and tailored in the Control Room domain. In particular, it focuses on the application of the tailoring rules provided by WP1 and defined in D1.4.

1.1 Objective of the document

Deliverable D8.4 describes the results of the HF-RTP tailoring methodology applied to the Control Room domain for the first project cycle.

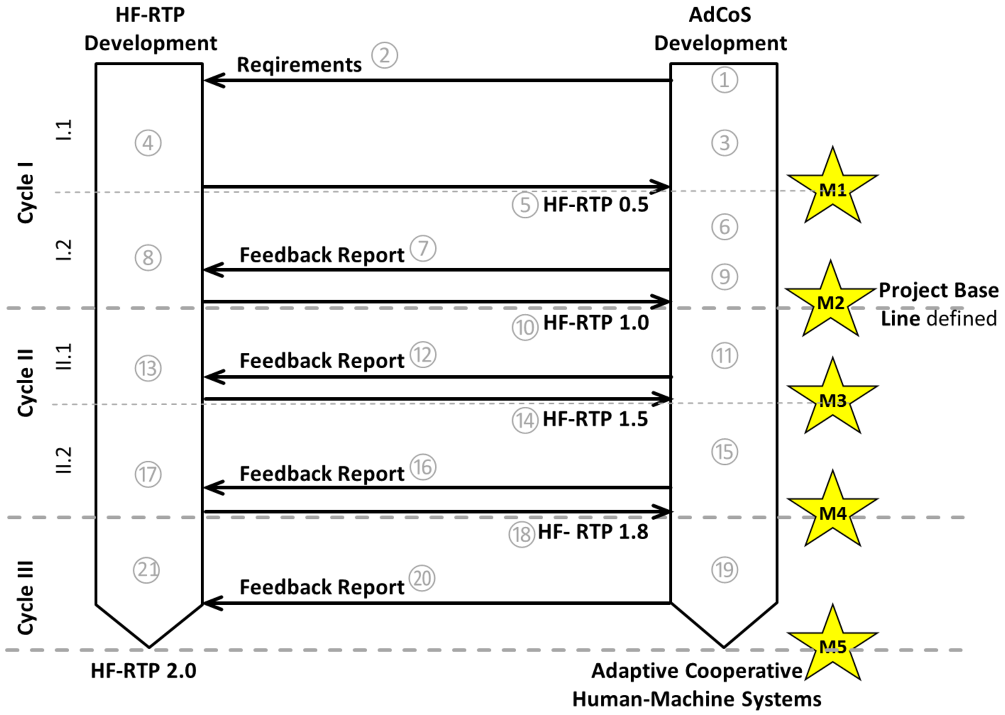

Figure 1: Overall workflow taken from the HoliDes proposal.

The HF-RTP and the tailoring methodology (version 1.0) developed in WP1 and delivered in D1.4 are applied to the AdCoS of the control Room domain.

A detailed description of the starting point for the tailoring of the HF-RTP in WP8 has already been provided in D8.2, which was based on the HF-RTP version 0.5 (M1).

In the HoliDes context, D8.4 is the first application of the HF-RTP methodology to the control room domain and the AdCoS developed in WP8.

1.2 Structure of the document

This document is divided into 5 chapters. After the introduction in Chapter 1,
Chapter 2 summarizes the tailoring methodology provided by WP1. Chapter 3 defines detailed development workflows for each of the WP8 AdCoS, which are the basis for the deployment of the tailoring rules. Chapter 4 summarizes the conclusions of the tailoring process for the control room domain and Chapter 5 gives an outlook for future activities.

2 HoliDes Reference technology platform (HF-RTP)

A Reference Technology Platform is a set of workflows, methodologies and tools which support engineers during the design development of a system.

In the last 20 years there has been a rapid explosion in the number of tools available for use in the development lifecycle. This has had many benefits and now engineers can perform tasks with ease which were previously not possible or just too time consuming.

Unfortunately, the collaboration between the different engineering tools in domains across the spectrum has not seen such a rapid rise of maturity. See Fig 1.

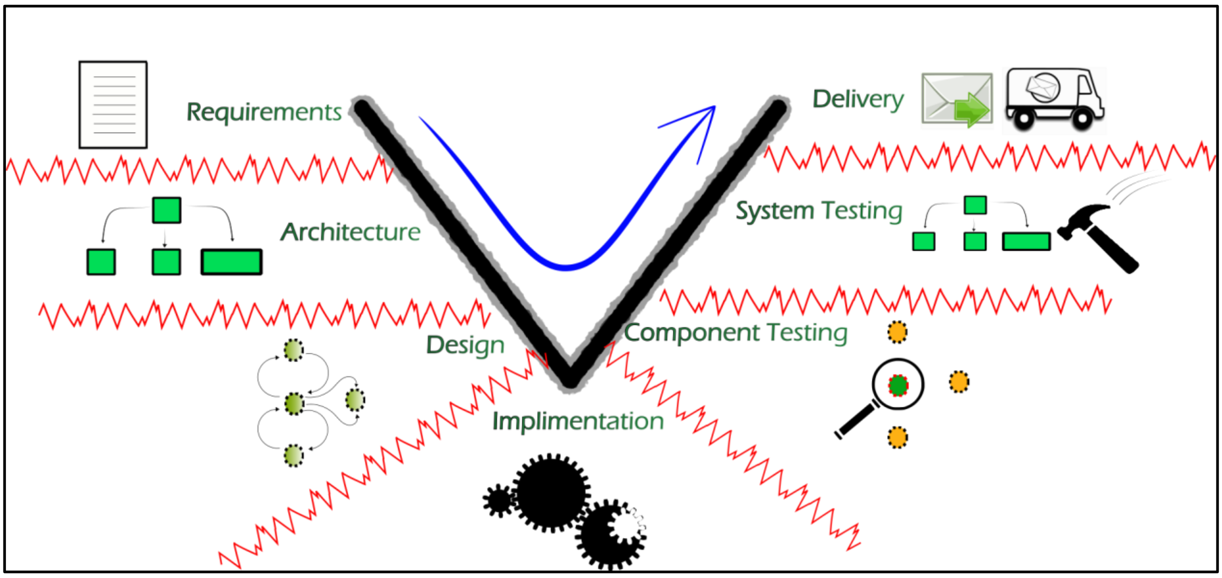

Figure 2 - Currently, many domains works in silos

There is of course the possibility to create tool connections but these proprietary connections are weak. They are prone to failing when software is upgraded. Proprietary connections leave you vulnerable to vendor tie in which can cause problems should a software vendor decide to increase licence costs dramatically, they stop trading or decide to withdraw support for a product.

Proprietary connections also do not scale well. For every tool you add to your design process you would need to create a tool adapter for all of the existing tools which making support of the tool connections extremely difficult.

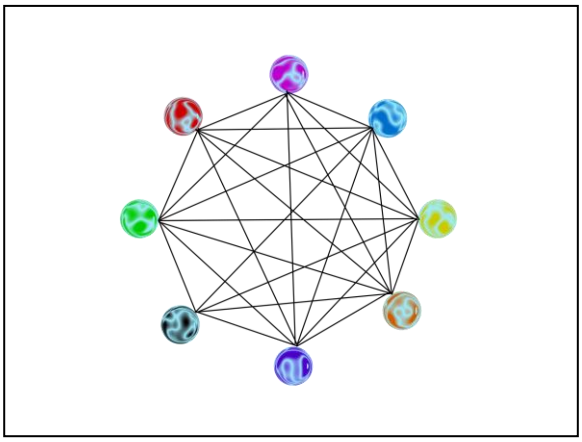

Figure 4 - Proprietary connections do not scale well

2.1 HF-RTP tailoring Methodology

The tailoring methodology applied in this deliverable is the outcome of WP 1 in the first project cycle. The methodology has been reported in D1.4 and defines the following four tailoring steps:

1. Identification of the purpose of the project and the used tool chain
2. Selection of methods and tools
3. Definition of semantics and information mapping between methods and tools
4. Implementation of information models and connectors.

By actually tailoring the HF-RTP on the real needs of the AdCos owners, we discussed with the partners in WP1 in order to slightly rephrase the steps. The new version of the methodology, as a result of the collaboration of the AdCos owners (WP6-WP9) with the partners in WP1, includes the following steps:

1. Identification of issues in the existing development process
2. Selection of methods and tools (MTTs)

3. Integration and interfaces between existing development process and MTTs
4. Implementation of information models and connectors.

The difference between tailored and non tailored components

There is a subtle but important difference between a tool being classed as part of the RTP and tailored in the RTP. To say that a tool is part of the RTP represents a commitment to say that a tool should share resources in compliance with the HolIDes interoperability specification (IOS). (I.e Tools will share data using RDF XML which is compliant to a HoliDes meta model and made available through a Restful interface.)

To say that a tool is tailored in the HoliDes RTP you are making a commitment to that two tools are exchanging information in accordance to the IOS to satisfy a Use Case. One tool is making its data available as RDF XML and is considered to be an OSLC provider. The second tool is asking for the data and is considered to be a consumer. In essence if a tool is tailored it 'understands' how to use that data.

Please refer to D1.3 chapter 2 for further information on this topic.

2.1.1 Tailoring Step 1 – Development process and issues

The first step is to provide a description of the overall purpose of the RTP within the development process to be supported.
This defines the specific development process of each AdCos, and describes the issue faced by the AdCos owners in the development of the adaptive system, mainly in terms of Human Factors and adaptivity.
Such issues might include a lack of traceability of engineering data or issues using information from one tool in another.
The design process is in part driven by use cases. The modelled use cases are not only used to refine the requirements but also to give structure to the AdCoS and the RTP. The tools needed to develop the AdCoS will therefore have a large bearing on what the final RTP instance will look like.

2.1.2 Tailoring Step 2 – Selection

By starting from the development process and relevant issues defined in step1, in step 2 MTTs are selected to fit the needs of the project purpose (in terms of issues described in the first step). A detailed rationale is given for each of the selected MTTs which will be included in the workflow.

The definition of step 2 in D1.4 also covers some issues about OSLC compliance of selected tools, which can be achieved for some tools during the project, but is not available yet.

2.1.3 Tailoring Step 3 – Integration and interfaces

Step 3 of the tailoring methodology is about the integration of the MTTs into the actual tool chain that is part of the development process of each AdCos.

In particular, the mapping step describes the interfaces that defines which and how information is exchanged between MTTs and existing tools. Interfaces with the HF-RTP are also defined when needed (e.g. for sharing data that could be reused by other AdCos's, such as datasets to create models).

2.1.4 Tailoring Step 4 – Implementation

Step 4 is the implementation of the mappings defined in step 3 (i.e. implementation of parsers to allow the tools to correctly interpret the information receive according to a predefined communication protocol).

The actual implementation of the communication protocols and parsers for the sharing of data among tools and with the RTP relies on the definition of the information to be shared (still in progress in collaboration with WP1). Therefore, this activity will be completed in the next versions of the tailoring of the HF-RTP.

The application of step 1, 2 and 3 will be provided for each AdCoS in chapter 3.

3 Deployment of the HF-RTP tailoring steps

The tailoring steps defined in D1.4 and outlined in chapter 2 will be deployed to all WP8 AdCoS in this chapter. A list of the AdCoS can be found in the table below.

AdCoS	Partners involved	AdCoS Description
Border security	**EAD-UK, EAD-DE**	A control room for the monitoring of a country border to provide appropriate response to suspicious activity.
Energy Network Control Room	**IRN, REL**	A control room which receives emergency calls for leaking gas and service outages and provides a response.

Table 1: List of AdCos in WP8

For each MTT currently available in the HF-RTP, the usage for the AdCoS is presented in **Fehler! Verweisquelle konnte nicht gefunden werden.**

				WP8	
			Use Case:	8.1 Border Control Room	8.2 Energy Control Room
MTT	**Type**	**Used Models**	**Partner + Contact**	Nadine Krawietz - EAD-DE-CAS	? - IRN
WP 2					
djnn	Tool	UI / Interaction Model	ENA / Mathieux Magneudet	MTT no	MTT interest
Human Efficiency Evaluator	Tool	Task Model, Human Behaviour Model (CASCaS)	OFF / Sebastian Feuerstack	planned	
MagicPED	Tool	Task Model	OFF / Jan-Patrick Osterloh	MTT no	MTT interest
WP 3					
CBR: Case Based reasoning	Technique	return of experience	EAD-F / Nicolas Schneider	MTT interest	

AEON	Tools	cloud message managment	ATOS / Jose Jato (Lorenzo?)	MTT no	
LEA: Learning classifier system	Tools	Learning behaviors	EAD-F / Nicolas Schneider	planned	
HF-Guidline	Technique		EAD-IW-DE / Martina Becker	MTT interest	
WP 4					
RT-MAPS	Tool	Base for HF-RTP	INT / N. Dulac	MTT interest	
I-DEEP	Tool	Observation and playback	INT / N. Dulac	MTT interest	
GreatSPN	Tool	Petri Net	UTO Susanna Donatelli	MTT interest	MTT interest
WP 5					
HF Filer	Tool	OSLC data / filings of human factors evaluations	AWI / Morten Larsen	MTT interest	MTT interest
Modelling of AdCoS data from a means-ends perspective	Technique	observations / task model	AWI / Morten Larsen	MTT no	MTT interest
Detection of operators' head orientation	Tool	videos of human operators' heads / description of operators' heads orientation	BUT, HON / Adam Herout	MTT interest	MTT no
Behavioural Validation Tool	Tool	XML representation of finite-state machine / spreadsheet with report	REL / Elisa Landini	MTT no	in use
Empirical analysis of cognitive and communication processes	Technique	empirical data	SNV / Simona Collina	MTT no	MTT interest
Detection of driver distraction based on in-car measures	Tool	driving data, audio data, video data / measure of distraction	TWT / Svenja Borchers	interesting	MTT no
Surrogate Reaction Task	Tool	empirical data	DLR / David Käthner	MTT no	MTT interest

Table 2. The status of usage can be:

- **in use**: first results expected to be presented at the next review November 26th, 2015
- **planned:** MTT & AdCoS agreed on an evaluation of the MTT. If the evaluation result is positive, results can be demonstrated at the final review
- **interesting:** MTT & AdCoS agreed that this MTT is relevant and should be evaluated but because of time or effort constraints an evaluation is currently not possible
- **no:** The AdCoS has understood the MTT. Both are able to argue why the MTT is not relevant for this use case.

			Usage	**2**	**1**
				WP8	
			Use Case:	8.1 Border Control Room	8.2 Energy Control Room
MTT	**Type**	**Used Models**	**Partner + Contact**	Nadine Krawietz - EAD-DE-CAS	? - IRN
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			Usage	**2**	**1**

Table 2: AdCoS specific MTT usage

Note – MTTS which are not relevant to either AdCoS in the control room are not shown in Table 2.

3.1 Energy Control Room AdCoS

In order to understand the development process of REL, and the issues REL faces, it is important to highlight that REL develops prototype solutions, not products. This characteristic affects the development process, because it must meet the expectations of the customer who commission the prototype:
- Very short development process, in order to assess the feasibility of the prototype as soon as possible
- Ability to understand (and implement) vague and sometimes generic requests (often even the customers don't know what they clearly want and commission a prototype in order to see if an idea is feasible and how it can be used)
- Flexibility in the definition (and refinement) of requirements and constraints, and ability to adapt to the changes required during the development
- Prototyping of a single part of the product (often without having a global vision of the overall product)

Moreover, since REL develops HMI in different domains (automotive, control rooms, medical equipment, industrial machinery, etc..), its tools and development processes must adapt to each domains (with different standards, constrains, etc..).

Therefore, the development process of REL includes tools and methodologies that are:

- cross-domain
- flexible (they should allow including text, notes, images, schemas, etc..)
- can be shared with customers (as well as project partners) in order to fasten the achievement of a common understanding

When tailoring an instance of the HF-RTP for our HMI, all mentioned aspects have been taken into consideration.

3.1.1 Status of the AdCoS development

In HoliDes, REL develops an Android app to facilitate the communication between the operators in the Control room and the technicians who are actually responsible for the intervention on the energy network.

So far, for the development of the Android app, the analysis of the interactions between the operators and the technicians has been performed, and a preliminary draft of the graphical interfaces has been completed.

As regards the current activities, the actual implementation of the Android app has started, and the definition of the metrics and experiments for the evaluation is in progress.

3.1.2 Issues in the existing development process –Step 1

Step 1 foresees the description of the development process of REL and the identification of issues where MTTs could help to improve the workflow and the system quality.

The existing development workflow is shown in Figure 5.

The blocks in the diagram show the activities performed for the actual design, implementation and evaluation of the Android app. Arrows between the blocks indicate the flow of information.

Issues in the development process are indicated with yellow markers and described in Table 3.

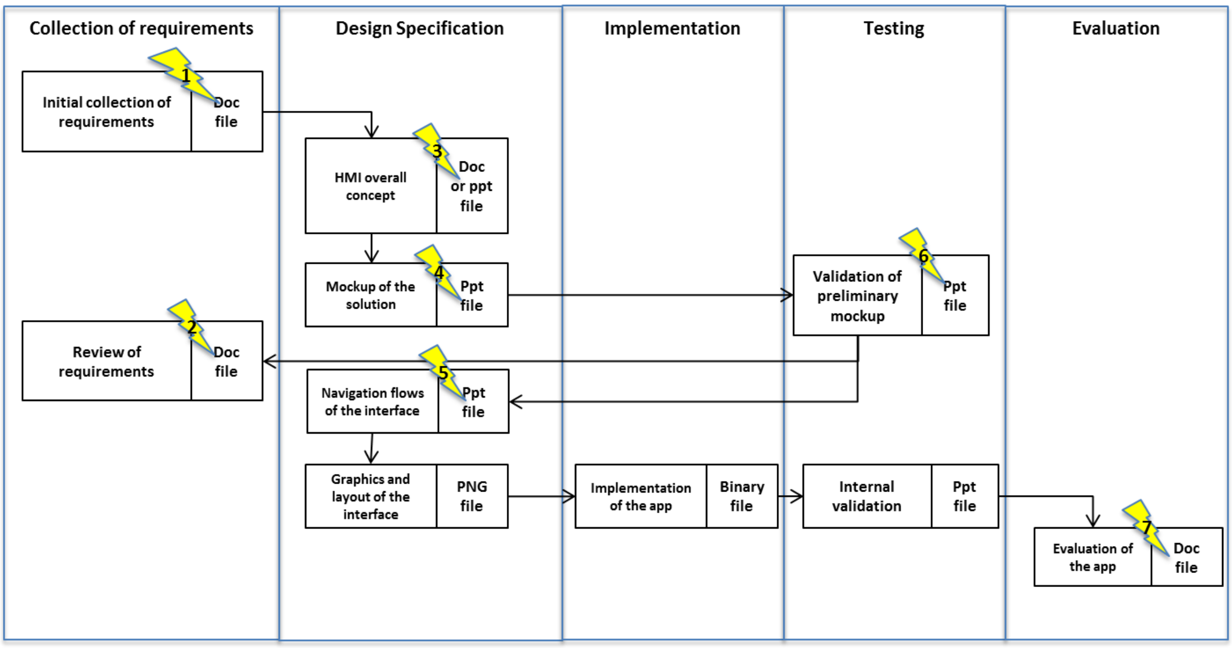

Figure 5: development process and existing tool chain for the HMI of the Energy Control Room

Issue	Challenges
Collection of requirements	1) Since REL develops prototype solutions (and not products), it tries to shorten up the development process. Usually the requirements and constraints are defined only at a high level and, by writing down the vague and sometimes generic requests of customers. 2) No refinement of requirements is performed if changes are requested (as always happens) so there is no chance of tracking them back.
Design specification	3) So far, Microsoft Power Point is used to draw the interconnection between the operators and the technicians in the field. This tool presents several advantages (mainly regarding the flexibility it allows and its cross-domain nature). However, it has also relevant drawbacks, such as: - It does not support the designer in the definition of the interactions - It does not provide any graphical support to

	create and modify the activities - The representation of a non-trivial tasks (such as managing the whole life-cycle of an intervention) requires several subtasks and sublevels, that could be hardly represented in a single Power Point slide (or even a set of slides). 4) Microsoft Power Point is also used for the creation of the mock-up, but no modelling of the HMI and any different interaction modality is provided in order to test how it adapts to the different inputs. 5) Microsoft Power Point is also used for the HMI navigation flows, but no simulation is available to assess whether the design of the navigation is correct.
Testing and evaluation	6) and 7) REL has a consolidated experience in human factors and empirical experiments with users. However, due to the limits of time of the prototype development, unless explicitly requested by the customer, REL usually does not apply empirical methods for the final testing and evaluation.

Table 3: Issues of the existing development process

3.1.3 Selection of methods and tools (MTTs) – Step 2

Tailoring step 2 is the selection of MTTs which can be integrated into the development process to solve some issues. The selected tools are shown in Figure 5 (in place of the yellow markers corresponding to the needs of REL) and detailed in **Fehler! Verweisquelle konnte nicht gefunden werden.**.

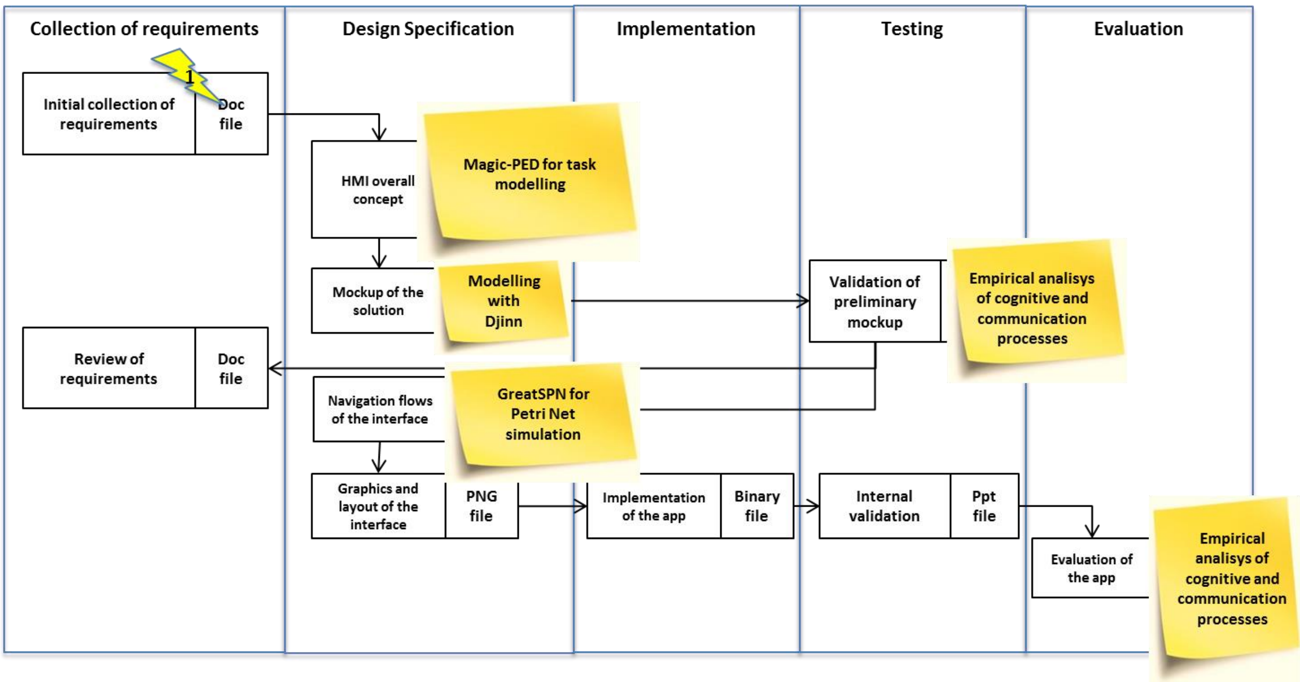

Figure 6: selection of MTTs to improve the development process of the HMI

MTT	Description
Magic-PED (OFF) *planned*	Magic-PED could be used to perform the task modelling of the interaction between the operators in the control room and the technicians in the field.
DJNN (ENA) *interest*	The Djnn could be tested to check if it can easily model the HMI interaction of the Android app, in order to evaluate how it adapts to the different inputs.
GreatSPN *interest*	The GreatSPN could be employed to check if it can effectively simulate the navigation flows and evaluate the performance of the app when the number of requests from the operators suddenly increses (to simulate an emergency with a great number of interventions to be assigned to the technicians).
Empirical analysis of cognitive and communication processes *interest*	It could be interesting to identify new MTTs to empirically test and evaluate the prototypes while meeting the time constrains of the prototype development.

Table 4: MTTs selected to be integrated into the development process of REL

No MTT has been identified to resolve the issue which was raised on requirements, so it still remains unresolved and is listed below, together with the currently used tools.

3.1.4 Interfaces between development process and MTTs - Step 3

Integration and interfaces between existing development process and MTTs.

The integration of the MTTs into the development process will rely on sharing data between tools. Therefore, as a starting point for the definition of the logical interfaces to share this data, it is important to understand which data is produced by the existing tools, and in which format.

The following list shows the outcomes, and the corresponding formats, of each step of the development process of REL for the implementation of the HMI for the LCA of CRF:

- Collection and refinement of requirements: .doc (or excel) file with the list of requirements.
- HMI overall concept: doc or ppt file with the graphic elements of the HMI concept.
- Mock-up of the solution: .ppt file with a low-fidelity representation of the HMI.
- Validation of preliminary mock-up: ppt file with comments and feedback on the validation conducted with users on the mock-up.
- Navigation flows of the interface: .ppt file with the overall navigation of the HMI.
- Graphics and layout of the interface: .png file with the actual graphics of the HMI.
- Implementation of the Android app: binary file of the application.
- Internal validation: ppt file with comments and feedback on the internal validation conducted on the mock-up.
- Evaluation of the app: .doc file with the final evaluation.

3.1.5 Implementation of models and connectors - Step 4

Implementation of information models and connectors - Step 4
Step 4 will not be carried out in this version of the tailoring.

3.1.6 Conclusions

By following the methodology defined by WP1 in D1.4 (and partially adapting it to the actual needs of the AdCos owners), the first 3 steps of the tailoring of the HF-RTP for the HMI developed by REL have been performed.

In particular, the development process of REL has been formalized and the issues have been identified (step1).
The MTTs that have the potential to address these issues have been identified and selected to be tested in order to check if they can be included in the development process of REL.
Finally, the outputs (and the corresponding format) for each existing tool have been identified in order to understand how to interface them with the MTTs and the HF-RTP.

3.2 Border Security AdCos

3.2.1 Status of the AdCoS development

Explanation for discontinuing Use Cases 7-9

The Airbus AdCoS in the WP 8 Control Room domain identified nine potential use cases for illustrating adaptations using HoliDes MTTs. Since those initial use cases were defined, better criteria emerged for assessing the quality of those use cases:

- The consortium developed a clearer understanding of what establishes an adaptation in HoliDes terms (adaptations happen in real time, automatically and address the whole system including human and machine agents; they need to be differentiated from co-operation and customisation).
- The list of RTPs was finalised and the scope and functionality of each RTP has been presented by the owner to the application WPs 6-9.

Based on this information, WP8 revisited the list of nine use cases (Airbus AdCoS) and decided not to continue the work on Use Cases 7 (layered help function), 8 (context-dependent help) and 9 (localization issues).

The rationale for this decision is:

- None of those three use cases is an adaption in the sense mentioned above
- Use Cases 7 (layered help) and 8 (context-dependent help) can be considered state of the art);
- Use Case 9 (localization) addresses customisation and does therefore not qualify as a candidate for adaptation;
- Unlike initially anticipated, no content materials have been made available for Use Cases 7 and 8 (help) and would have to be created as part of the HoliDes project;
- No RTPs were identified that would support any of those three use cases.

With those three use cases discontinued, Airbus will focus its efforts on the remaining six use cases, ensuring a convincing contribution to WP8 and therefore to HoliDes.

Current Use Cases

The following use cases be used to drive the AdCos of the border control room.

Table 5 - The Use cases carried for by the control room AdCoS

Use Case No.	Use Case Name	Use case Description
1	Operator absent from workplace	An operator is absent from his workplace for a longer than accepted period of time. The system calls the operator back to his workplace. If he doesn't return to this workplace after a defined length of time, his supervisor is informed.
2	Operator idle at workplace	An operator is present at his workplace but idle for a longer than accepted period of time (idle is defined as motionless suggesting that the operator is asleep). The system contacts the operator. If he doesn't display any activity after a defined length of time, his supervisor is informed.
3	Operator tired at workplace	An operator is present at his workplace but displays signs of fatigue. The system contacts the operator with a warning. If he doesn't acknowledges the warning after a defined length of time, his supervisor is informed.
4	Registration of unusual operator behaviour patterns	Individual and cumulative instances of operator absence can be plotted with the aim of allowing the border security management to identify behaviour patterns of the crew that can be exploited by third parties in order to compromise a station's security.
5	Load balancing on operator level	The system is able to recognize the load of a single operator compared to the overall load of all operators in one headquarters. To avoid overloading an individual operator, the system shall distribute incoming events to operators with a lower current workload and offer the redistribution of events from operators who are dealing with a number of events above a critical threshold.
6	Monitor and update the status of employees	Based on a set of parameters, the system can support the border security centre management in categorising their staff into meaningful categories such as 'basic experience', 'advanced experience', and 'expert experience'. These categories can be used for selecting appropriate functional, help and training levels.

Modelling

Currently all modelling at Airbus Defence and Space is typically done in System Architect which is made by IBM or Enterprise Architect which is made by Sparx. Typically architectural frameworks are used such as DODAF, NAF and MODAF. Both tools have support for all of these frameworks. Airbus Defence and Space would like to explore further the expansion of NAF which adds the human views to its list of available models. Currently, neither tool support the human views meta model out of the box and would require modification to support them.

The details of the modelling tasks will be described in much greater detail in the D8.5.

Requirements

Currently, Requirements are managed in Airbus Defence and space with DOORs by IBM which is considered to be the industrial leader. DOORS next generation will be used because it supports OSLC.

3.2.2 Issues in existing development process –Step 1

Identification of issues in the existing development process –Step 1

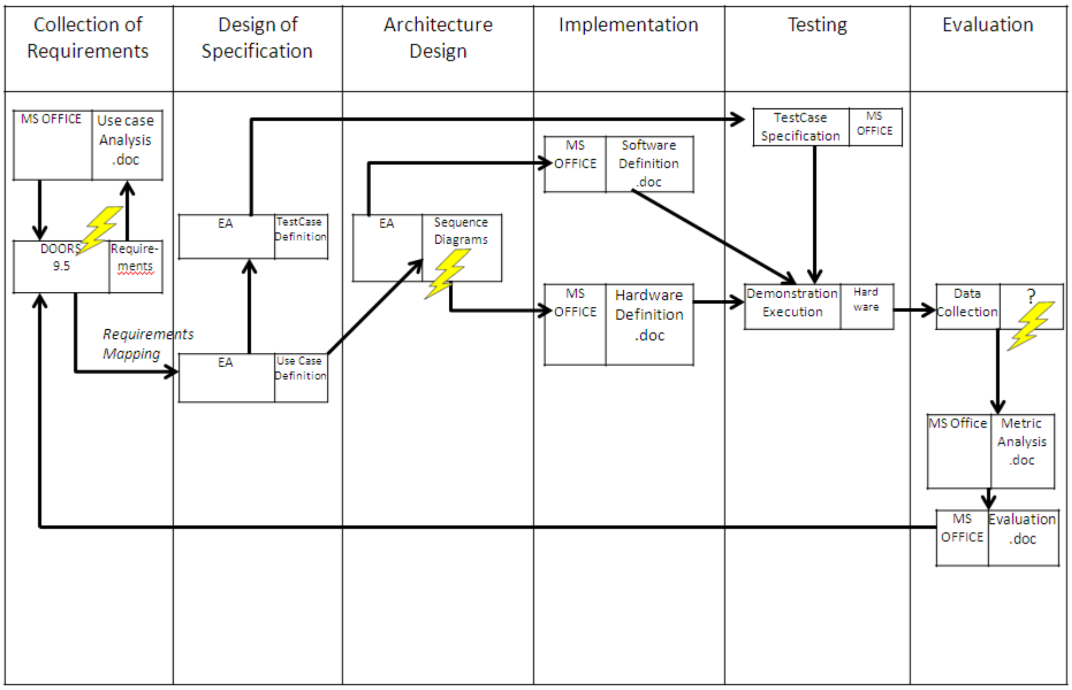

Figure 7: development process and existing tool chain

Note, this model is a simplified version for readability in the document. A more complete version of this figure can be seen in Figure 9.

Development phase	Challenges
Collection of Requirements	1) Traceability Traceability of requirements is not a new challenge and has plagued complex systems engineering projects for as long as there have been requirements. The next generation of integration with the HoliDes RTP is moving towards linked data. The challenge in HoliDes is how requirements which are built in linked data are incorporated into the design process. The design process shouldn't just only include the links between models and

	artefacts but also the results of the analysis which have come from human factors analysis.
Architecture Design	2) The current modelling efforts are done in Enterprise Architect. The main issue here is that the human views to extend to the current architecture frameworks do not exists as an official profile.
Evaluation	3) It is not known at this stage exactly how data will be recorded. The problem here is the void of human factors analysis in the current design process.

Table 6: Issues of the existing development process

3.2.3 Selection of methods and tools (MTTs) – Step 2

Tailoring step 2 is the selection of MTTs which can be integrated into the development process to solve some issues. The selected tools are shown in Figure 5 and detailed in **Fehler! Verweisquelle konnte nicht gefunden werden.**.

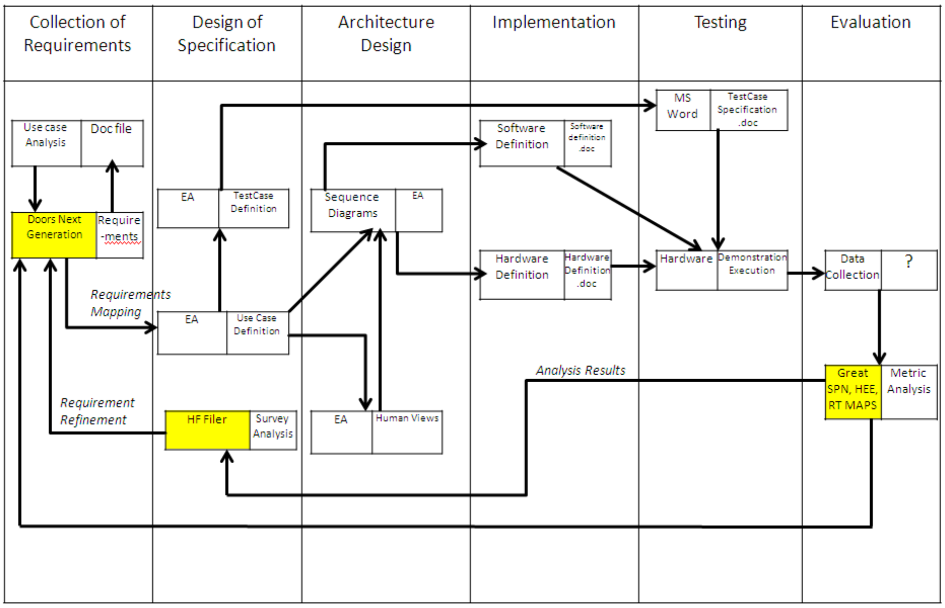

Figure 8: selection of MTTs to improve the development process of the HMI

MTT	Rationale
HF Filer	**Planed -** The HF Filer will be used to present the result of human factors analysis as linked data which could be referenced in other tools of the RTP. This would give good linkage between a the design of the border control room and the human factors work.
GREAT SPN	**Interest -** Depending if a sufficiently complex example could be provided, Great SPN has the potential use petrinets to model how resources are allocated in different border control room scenarios.
RTP MAPS	**Interest -** RT-MAPS is a modelling tool which can process inputs from a multitude of sources, model them to produce some logic and then effect some outputs. It works both as a development tool but the model can also be deployed as an engine to control the system. This is interesting for its potential in modelling user behaviour in the area of attention span and fatigue.
HEE	**Planed -** The Human Efficiency Evaluator is a software application in which you can model a graphical user interface and define a variety of scenarios. Each event through the interface is assigned a time which is used to assess the duration efficiency of performing certain tasks. It is assumed that the HEE tool can be of use in evaluating the software which the border control room operative uses.

Table 7: MTTs selected to be integrated into the development process

3.2.4 Interfaces between existing development process and MTTs

Integration and interfaces between existing development process and MTTs - Step 3

The interfaces in here are defined as the meta models which describe the information exchanged between tools. In terms of requirements the standard OSLC requirements specification will define the interface between Enterprise Architect and DOORs Next Generation.

It is not clear at this stage which interfaces will be implemented for other tools in the design process. This will be defined in further iterations of this document.

3.2.5 Implementation of models and connectors - Step 4

Implementation of information models and connectors - Step 4

The current approach is still document centric. Where integration is needed it is hoped that OSLC adapters will be created in order to exchange information between all areas of the border control room tool chain. It is not expected that OSLC adapters will be available for all parts of the tool chain by the end of the HoliDes project so the Use Cases will concentrate on the most relevant parts of the tool chain. For the parts of the tool chain where it is not possible have OSLC adapters made, this use case will only seek to define the information that is exchanged and proceed to collaborate in a more manual fashion. (I.e. re-entering the data manually and therefore storing multiple versions.)

As of writing the implementation comprises an adapter written for Enterprise Architect which allows it to consume requirement resources from Doors Next Generation.

3.2.6 Conclusions

By following the HF-RTP tailoring principles, the border control room use case is working towards a smarter design process with a focus on linked data instead of different engineering teams working with silos of project data. The workflows which will result will be more scalable and allow easier access to further technologies as they become available.

4 Conclusion and Summary

This document has presented how the HF-RTP would be tailored to two to the energy and border control domain. Each of the AdCoS described their current design flows and areas within it which could be improved upon. All MTTs in the context of the HoliDes project were presented to the AdCoS and a selection of potentially useful MTTs were picked. The tool chains formed for these AdCoS represent the tailored RTP instances of the Use Cases.
Note, even though now the tools have been identified, the tool chains are not yet RTP compliant as they don't all yet exchanged data using linked data which conforms to the meta models as defined by the HoliDes project.

5 Way forward and upcoming activities

For the AdCoSs to develop, the following things need to happen:

- Where two or more tools need to collaborate, adapters which make them OSLC compliant need to be built.
- The exact information being exchanged for collaboration needs to be finalised and fed into the meta-modelling tasks of WP3.

These tasks will be done in collaboration with WP1 in task 1.4. WP1 can assist in the technical capability of bringing tools in line with the RTP methodologies. In return, WP8 will provide WP1 with input to the RTP to ensure its relevance with the needs of industry.

Glossary

ACC = Adaptive Cruise Control

ADAS = Advanced Driving Assistance Systems

AdCoS = Adaptive Cooperative Human-Machine Systems

AUT = Automotive

CAS = Collision Avoidance Systems

COSMODRIVE = COgnitive Simulation MOdel of the DRIVEr

DAS = Driving Assistance Systems

EV = Ego Vehicle

FCW(S) = Forward Collision Warning (System)

HF = Human Factors

HF-RTP = Human Factors Reference Technology Platform

HMI = Human Machine Interaction

HMS = Human Machine Systems

HoliDes = Holistic Human Factors Design of Adaptive Cooperative Human-Machine Systems

MOVIDA = Monitoring of Visual Distraction and risks Assessment

MTTs = Methods and Techniques

PADAS = Partially Autonomous Driving Assistance Systems

RTP = Reference Technology Platform

UC = Use Cases

V-HCD (platform) = Virtual Human Centred Design (platform)

WP = Work Package

6 Appendixes

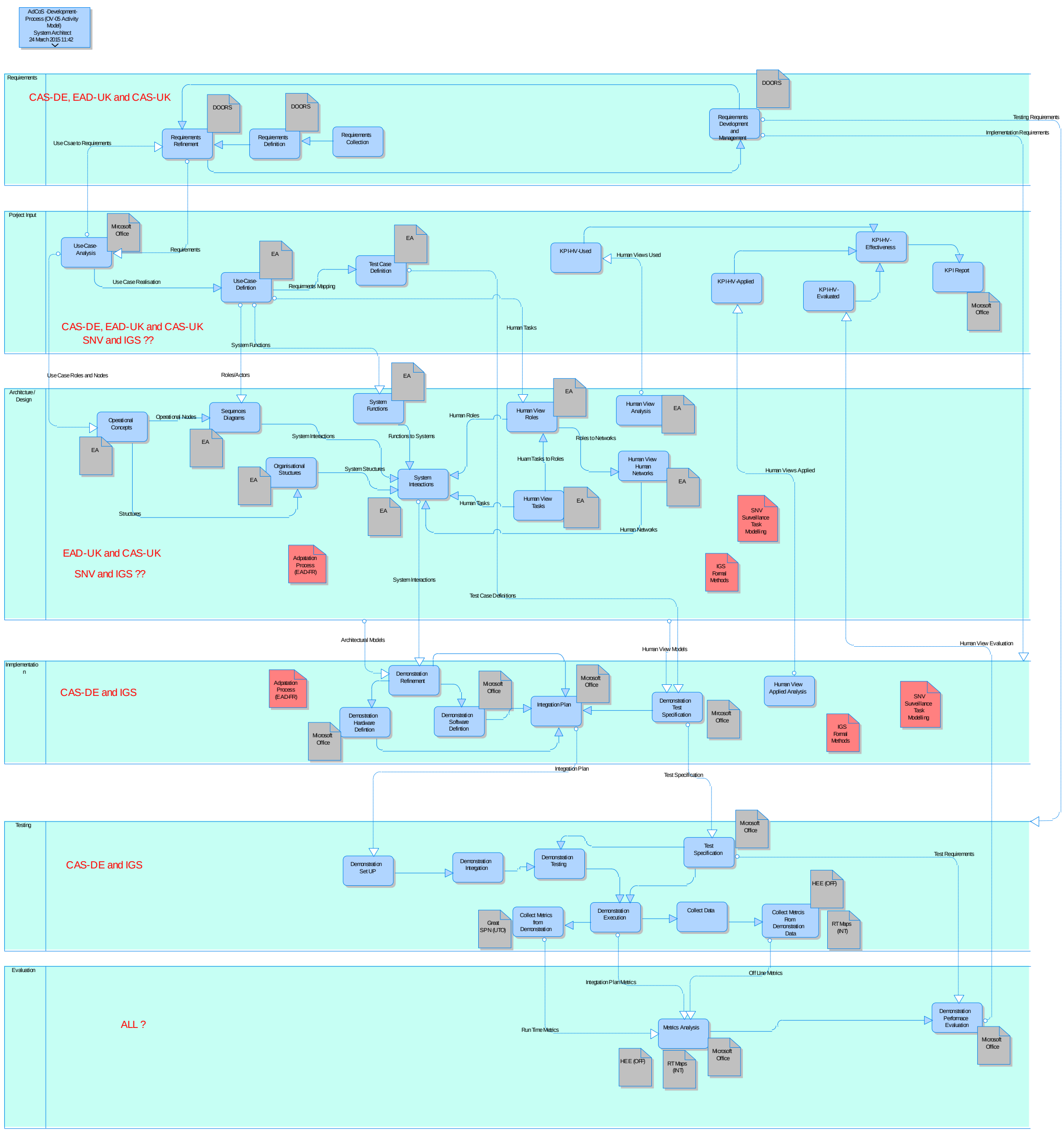

Figure 9 - ADCOS Flow diagram for the border control room in full