



Driving Innovation in Crisis Management for European Resilience

D44.11 - Capacity building and capacity mapping tools experiment report

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List of Acronyms

| Abbreviation / acronym | Description |
|------------------------|---|
| CAP | Common Alerting Protocol |
| CECIS | Common Emergency and Information System |
| CM | Crisis Management |
| EDI | EDISOFT |
| EDXL | Emergency Data Exchange Language (EDXL) |
| FP6 & FP7 | 6 and 7 Framework Program |
| GMV | GMV Innovation Solutions |
| IAO | Institut für Arbeitswirtschaft und Organisation |
| RTM | Reference Task Model |
| SOA | Service Oriented Architecture |
| SOS | System of Systems |
| TSO | Tactical Situation Object |
| WWU | University of Münster |

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Project Description

DRIVER evaluates solutions in three key areas: civil society resilience, responder coordination as well as training and learning.

These solutions are evaluated using the DRIVER test-bed. Besides cost-effectiveness, DRIVER also considers societal impact and related regulatory frameworks and procedures. Evaluation results will be summarised in a roadmap for innovation in crisis management and societal resilience.

Finally, looking forward beyond the lifetime of the project, the benefits of DRIVER will materialize in enhanced crisis management practices, efficiency and through the DRIVER-promoted connection of existing networks.

DRIVER Step #1: Evaluation Framework

- Developing test-bed infrastructure and methodology to test and evaluate novel solutions, during the project and beyond. It provides guidelines on how to plan and perform experiments, as well as a framework for evaluation.
- Analysing regulatory frameworks and procedures relevant for the implementation of DRIVER-tested solutions including standardisation.
- Developing methodology for fostering societal values and avoiding negative side-effects to society as a whole from crisis management and societal resilience solutions.

DRIVER Step #2: Compiling and evaluating solutions

- Strengthening crisis communication and facilitating community engagement and self-organisation.
- Evaluating solutions for professional responders with a focus on improving the coordination of the response effort.
- Benefiting professionals across borders by sharing learning solutions, lessons learned and competencies.

DRIVER Step #3: Large scale experiments and demonstration

- Execution of large-scale experiments to integrate and evaluate crisis management solutions.
- Demonstrating improvements in enhanced crisis management practices and resilience through the DRIVER experiments.

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Executive Summary

In order to evaluate the several available tools that can support SP4, a presentation session was held in Aix en Provence (at POLE Risque) from Nov.24th – 28th, 2014. During this 1st SP4 experimentation week, all the tools were presented and evaluated.

The Task 44.1 Capacity building and capacity ,mapping tools aims at improving the preparation of the efficient and effective deployment of resources and their expected use during the crisis response including crisis characterization and definition of objectives on functional and performance views risk assessment, contingency plans and optimal selection of resource levels based on their demand and supply forecast. Result of capacity building process will be evaluated and improved by simulation of formal proof.

As result for the T44.1 Initial inventory tools, four tools were selected:

The Protect Tool is a Multilanguage web-based alert and notification system for emergency management (and early warnings) situations concerning civil protection. The main features are: the communication of the emergency situation between several CM entities; the support to the requests for assistance between several crises management entities and the support to the several offers of the different requests for assistants. Protect also allows resources level management that includes: organizations (understood as entities, units...), equipment/material, facilities and personnel, and a lessons learned sharing module.

The Protect Tool is the result of several EDISOFT CM tools development skills, and includes the features and best practices obtained from the experience in the development of different tools like: CECIS (Common Emergency and Information System), Alert4All (FP7) and TSO developed for the OASIS project (FP6). The tool is now in a prototype validation, and being supported by local Portuguese Civil Protection Authorities. The Protect tool it was developed with a SOA (Service Oriented Architecture) implementation approach in order to allows the interaction with other existing tools, in the several Portuguese Local Authorities.

The IO-DA Tool is a Research tool dedicated to the establishment of collaborative processes as responses to crisis situations, in two parts: the gathering of “persistent” knowledge during the preparation phase, i.e. the partners’ capabilities, the potential risks and associated contextual elements and the relevant doctrines principles; and the gathering of the crisis specifics during the early stage of the crisis (response phase), in order to automatically build and infers collaborative BPMN (Business Process Modelling Notation) processes to answer the faced situation, according to the available capacities of responders.

HumLog[em] is a modelling tool able to support various modelling languages. It can be used for the application of reference models as well as for model reporting and pattern search. In the context of DRIVER HumLog[em] supports the application of the Reference Task Model for Humanitarian Logistics (RTM).

AnyLogic is a multi-method (discrete event, agent based, system dynamics) simulation tool. The main functionality for DRIVER will be the run of discrete event and agent based simulations. For this

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purpose the process models generated with HumLog[em] will be applied using its model reporting function. Within the specific simulation environment HumLogSIM several scenarios and network settings will be simulated and compared in order to identify and cope with bottlenecks and cascading effects. According with the Analysis of Results the necessary features to cover the T44.1 task are fully or partially covered by the several tools, with the exception of the feature Crisis Characterization – Supply Forecast. Thus the feature Crisis Characterization – Supply Forecast, must be developed in one of the tools or as alternative the team must select and use other existing tool in order to fulfil this feature.

This set of tools represents basically by an operational tool (Protect), two modelling tools (IO-DA and HumLog[em]) and a discrete agent-based simulation tool (Anylogic), and the D44.1 objectives have been achieved with a validation study of a planned orchestration with the set of inputs and outputs of the several tools. In order to achieve a tools orchestration, an integration and information exchange process strategy must be examined aiming a specific experiment development. This planned orchestration can include the necessary inputs and outputs in order to support other WP44 Tasks.

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1 Introduction

1.1 Scope

The purpose of this document is to report on the experiment related activities led by SP4 and more specifically by task T44.1 – Task 44.1 Capacity building and capacity mapping tools during the first period (before MS1).

The work associated to task T44.1 started in September 2014 and concludes with the release of this deliverable D44.11 in February 2015. Only a small part of the effort performed during this period corresponds to the preparation of this deliverable, as most of the work has been devoted to plan, design, prepare, execute and evaluate the Initial Inventory of tools, on which the experimentation activities related to T44.1 were centred during this period.

The Initial Inventory of was held from Nov. 24th to Nov. 28th in Aix-en-Provence, with the aim of presenting and demonstrating the available tools and evaluating their initial status. The Initial Inventory of tools has been the first step of the SP4 experimentation process.

While all the tools available in SP4 were presented and evaluated during the Initial Inventory of tools week, this deliverable is focused only on those tools related to T44.1 – Capacity building and capacity mapping: it summarizes the evaluation results of those tools.

The general summary and conclusions of this experimentation week are factored out in a common document, D41.1.1 – Initial Inventory of Tools SP4 level experimentation report [1], applicable to all deliverables D4x.y1, including the present one.

1.2 General Context

1.2.1 Task 44.1 Capacity building and capacity mapping tools

T44.1 aims at improving the preparation of the efficient and effective deployment of resources and their expected use during crisis response including crisis characterization and definition of objectives on functional and performance views, risk assessment, definition of contingency plans and optimal selection of resource levels based on their demand and supply forecast.

Task 44.1 takes into consideration the outputs from Task 41.2 (State of the Art), reported in the corresponding deliverables [1] and [2].

The main features to support are: the Deployment of Resources; the Contingency Plan definition; the management of the Resource Level; the Selection of the Resources Management, the Risk Assessment and the Crisis Characterization. Therefore the specific methodologies, processes and workflows followed by the end-users in the Crisis Management domain must be analysed in order to arrive to a common approach that could better guide the efforts put on achieving the interoperability of the presented tools. This will be one of the main activities to be developed during the SP4 2nd round of experiments and refined in later on. The work will include interviews and workshops

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between platform providers and their associated stakeholders and, to the extent possible, the participation of the latter in the execution of the corresponding experiments.

1.2.2 SP4 experimentation process

SP4 DRIVER experimentation process consists basically of the execution of a set of experiments aimed at allowing interaction between end users by enabling interoperability of existing tools. After each experiment, the necessary tool adaptations and lessons learnt, as well as any other required modifications are defined in order to be used as input for the joint experiments.

The general objective is to complement the value of existing legacy systems and procedures defining and implementing a SoS (System of systems) approach exploring synergies and achieving pooling and sharing capabilities. The definition of the architecture of this SoS is the main purpose of WP42. This architecture will be based on a Common Information Space in which the different tools will be integrated forming a collaborative Crisis Management network aimed at enhancing the European Crisis Management capabilities. The DRIVER's SoS architecture will be evaluated and continuously refined successively in the SP4 experimentation process.

The first step of this process has been the Initial Inventory of tools, where the different tools that could be candidates for being part of later experiments have been presented and demonstrated in order to evaluate their initial status. Therefore, the Initial Inventory of tools will be followed by the 2nd Round of Experiments, which is expected from Sep 2015 to May 2016. This second activity will use the outputs and feedback from the Initial Inventory of tools and will again involve the corresponding planning, design, preparation and execution of the corresponding experiments with a deeper involvement of end-users and platform providers. In this round of experiments, clear objectives and research questions will be defined in coordination with the community of stakeholders of the corresponding platform providers.

1.2.3 SP4 Initial Inventory of tools

The Initial Inventory of tools was aimed at presenting and evaluating the initial status of those tools candidates to be part of later SP4 experiments. As in these experiments tools are expected to be integrated into a Crisis Management SoS (System of Systems), the Initial Inventory was a necessary first step to procure a global overview of tool capabilities and interoperability possibilities and reach preliminary agreements about the approach to follow for subsequent experiments.

As previously said, most of the work related to task T44.1 during the first period (before MS1) has revolved around the Initial Inventory of tools, and can be divided into the activities performed before, during and after the SP4 Initial Inventory of tools week, including the preparation (design + planning) and execution of the corresponding tool demonstrations and the analysis and evaluation of the corresponding results.

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Before the SP4 Initial Inventory of tools

The following activities were agreed and performed previous to the experimentation week:

- To collaborate in the preparation of the corresponding tool descriptions, tool features and tool evaluation sheets, which would be used during the experiments execution. For the tool features and evaluation sheets, a series of features mapped to the SP4 WPs and tasks were defined at SP4 level, in order to guide tool demonstrations and help evaluators assess how task-related features were covered by the corresponding tools. In the case of T44.1, the features and sub-features shown by Table 1 were identified.

| Task | Feature | Sub-feature | Tool specific implementation |
|--|------------------------------|--|------------------------------|
| T44.1 Capacity building and mapping tools | Deployment of Resources | Decision Support | < description per tool > |
| | | Mapping to different Crisis types and levels | |
| | | Monitoring of current status of deployed resources | |
| | Contingency Plans Definition | Mapping to different Type of Crisis | |
| | | Mapping to different crisis levels | |
| | | Supporting relief actions (citizen as a volunteer) | |
| | Selection of Resources Level | Monitoring of current resource level | |
| | | Decision Support | |
| | Risk Assessment | Risk catalogue | |
| | | Simulation tools | |
| | Crisis Characterization | Crisis Modelling | |
| | | Supply Forecast | |

Table 1: Evaluation sheet framework

- To agree and define the partners that were participating on the tool demonstrations and the roles they were performing. Each partner with effort allocated to T44.1 was assigned at least a role to be performed during the initial inventory of tools:
 - o **Experiment leader** (by default the task leader): Coordinated the contributions of the participating partners and controlled the experiment execution.

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- **Tool provider:** Responsible of the tool demonstration.
- **Facilitator:** Provided organizational support and guidance during the preparation (questionnaires) and moderated the execution of the experiments.
- **Evaluator:** Controlled the alignment of the experiment set-up and execution with the pre-defined goals, observed the experiment from a neutral perspective and evaluated the results of the experiment by filling the corresponding tool evaluation sheets. In the case of T44.1, evaluators were both selected from task partners and end-users present in tool demonstrations.
- Each tool provider to:
 - provide a presentation that include a brief description of the tool they were showing during the *SP4 Initial Inventory of tools* and an overview of the demonstration they were going to perform.
 - assess which features were covered by their tools and fill the tool descriptions and tool features sheets with the required information.
 - check that the tools were conveniently allocated in the agenda for the Initial Inventory of tools and interact with the corresponding T44.1, WP44 and SP4 leaders in order to provide feedback and refine the agenda.
 - assess and inform platform providers about the specific technical requirements for the tool demonstrations.

Previous activities were controlled and supervised by the corresponding task, WP and SP4 leaders.

In addition to those listed above, the following activities were required from each of the corresponding tool providers in order to prepare the demonstrations:

- Develop a demonstration script focused on demonstrating the way in which their tools covered the features they were supposed to support.
- Configure and/or develop the corresponding tool adaptations in order to prepare tool demonstrations and facilitate the evaluation of them. For instance, some efforts devoted to adapt interfaces to the Crisis Management domain were required.
- Prepare presentation slides that support the tool demonstrations.

During SP4 Initial Inventory of tools

The demonstrations were divided into several sessions corresponding to SP4 tasks. During them, people involved in the experiment had to perform their assigned role.

There were also some bilateral demonstrations of tools to other partners and presentations aimed to introduce DRIVER to end users.

In the particular case of task T44.1, four tools were presented and evaluated. This evaluation was based on the evaluation sheet templates that were prepared in advance by the tool providers. In this template, tool providers indicated which features and sub-features (from those shown in Table 1) their tools were supposed to cover and how they were doing it. Based on this, the corresponding evaluators filled the tool evaluation sheets with their comments and suggestions and graded the tool features according to their relevance, maturity, potential and usability.

The corresponding evaluation results are compiled and analysed in the present document.

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The experimentation week finished with a wrap-up meeting where preliminary conclusions were drafted and ideas for the following rounds of experiments were gathered (feedback on methodology and organisation, ways to group the different tools for future experiments, end users involvement, interests of platform providers, etc.).

After the **SP4 Initial Inventory of tools**

The main activity regarding T44.1 after the *SP4 Initial Inventory of tools* was the preparation of the D44.11 report (this document). As said, this report summarizes the corresponding evaluation results and includes an assessment of the gathered feedback. It also includes the main conclusions extracted from the first experimentation week and some considerations about the future work.

The work performed to prepare this deliverable included:

- The collection of the evaluation sheets filled by the corresponding evaluators in order to compile all the feedback gathered for each of the four tools related to T44.1.
- The assessment of the evaluations sheets, extracting the more relevant aspects and providing a statement from the tool provider in response to main evaluators' observations.
- Drafting the general conclusions that could be extracted from the first report period regarding T44.1. These conclusions took into consideration not only the feedback from evaluators but also all the lessons learnt from the experimentation week and the preparatory work performed before it.
- Writing the D44.11 itself.

After and during the preparation of the deliverable, some work was also started to take the first actions arising from the conclusions:

- Analysis of gathered feedback to define a first set of required modifications on the demonstrated tools.
- Definition of a new approach to the experiments, not directly linked to different tasks but trying to match the interest of the end-users and platform owners.
- Definition of the interfaces between the demonstrated tools and the Common Information Space (CIS), understood as the architectural framework for the integration of tools into the Crisis Management SoS.

1.3 Document overview

This document contains the following chapters:

- A first chapter presents an introduction to the document
- A second chapter presents the work done and results at SP4 level, as an initial inventory of tools.
- A third chapter presents the analysis of previous results.
- The fourth chapter is the Conclusion extracted from this first period for Task 44.1.
- The fifth chapter is the Annex of the document with a copy of the several original evaluation sheets.

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2 Results from initial inventory of tools

This Chapter summarizes the evaluation results gathered from the Initial Inventory of tools regarding Task 44.1. A general description of these tools is provided in Table 2.

| Tool | Provider | Session | Evaluators |
|---------|----------|---------|--|
| Protect | EDI | T44.1 | Hector Naranjo (GMV); Adam Widera (WWU); Mats Bornstrom (MSB); Marcel Vander (TNO); Johannes Sautter (IAO) |

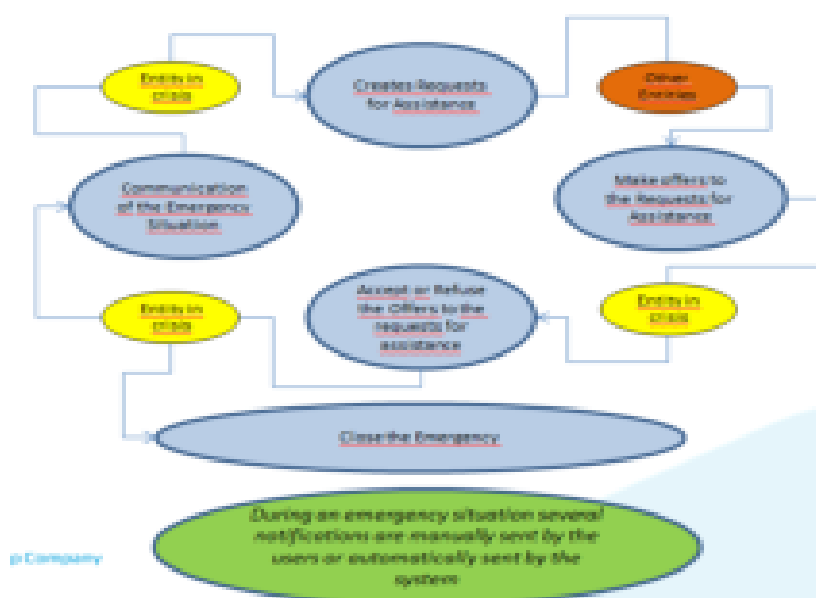
Protect allows the management of the Capability Building process in a crisis situation, as well as monitoring its development.

For the 1st round of experiments, Protect features have been illustrated through a Crises example.

Protect Crisis Management Timeline:

When a crisis occurs, the situation is handled recursively in the following way:

1. The entity that is handling the crisis communicates to the other entities the Emergency Situation using Protect.
2. Creates a Request for Assistance in the System
3. The other entities offer to the Request for Assistance.
4. The Entity responsible for the crisis accepts or refuses the offers to the request for assistance.
5. The Entity responsible for the crisis updates the emergency situation status.



During an emergency situation several notifications are manually or automatically exchanged between the several entities involved in the CM.

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Main Features

Requests for Assistance



Resource management



- Resources can include: Organizations (understood as entities, units...), Equipment/Material, Facilities, and Personnel. Therefore, CM organizations type, including volunteers organizations are considered as resources.
- Resources characterization: Category, type, quality, availability, cost, allocation cost, preparation time.

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Emergency characterization



- Emergencies characterized by: type, geographic position, on-going status, type and necessary resources.

Others

- Pooling and sharing platform between entities of different Civil Protection Authorities, using different languages.
- Lessons learned sharing between the several entities.

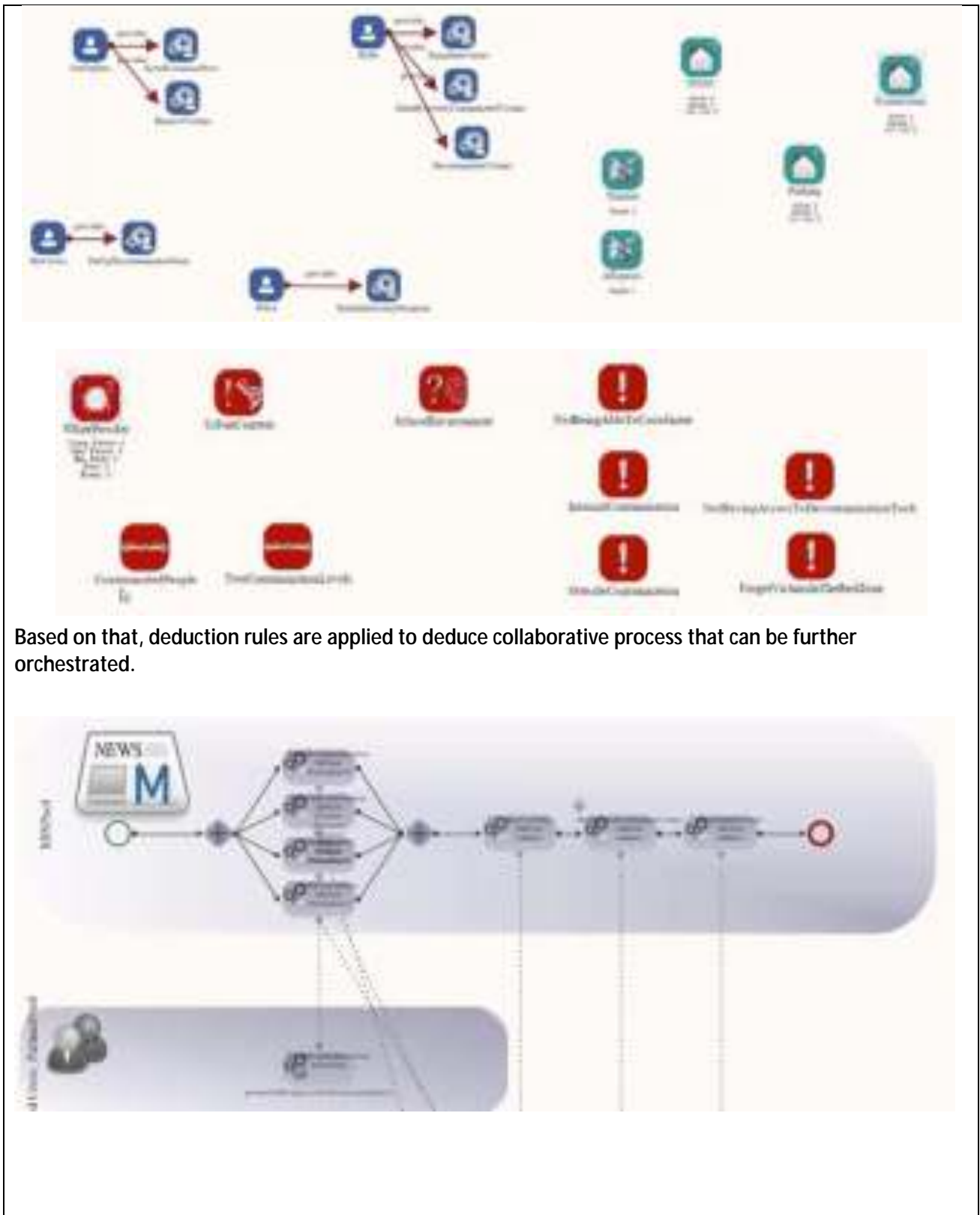
| Tool | Provider | Session | Evaluators |
|-------|----------|---------|--|
| IO-DA | Armines | T44.1 | Mats Bornström (MSB), Marcel van der Lee (TNO), Hector Naranjo (GMV) |

IO-DA (Interoperability of Organizations – Design Assistant) supports crisis managers to gather relevant data, to formalize it as models and then to exploit this information to deduce relevant collaborative crisis management process. Thus, IO-DA aims at providing four main features:

- Collect and model (offline, during the preparation phase) capabilities of responders (and to store them in knowledge bases).
- Formalize (during the preparation phase) doctrines and business rules (also in knowledge bases)
- Characterize crisis situation (continuously, during the response phase).
- Automatically build and infer collaborative processes (with BPMN notation) relevant for the faced situation, according to the available capabilities of responders.

For the 1st round of experiments, IO-DA's features have been illustrated through a NRBC crisis case. The preparation phase is dedicated to make a system ready to deal with unpredictable but not unexpected events, based on the implementation of graph databases as knowledge bases. Then, data are gathered to define and model stakeholders' capabilities, and the doctrine and business rules associated. During the response phase, the crisis situation is characterized, using tools, principles and results of the preparation phase. The approach implies gathering of actual data regarding context and crisis situation to build three models (crisis situation, treatment system and studied system).

| | | | | | | | |
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Based on that, deduction rules are applied to deduce collaborative process that can be further orchestrated.

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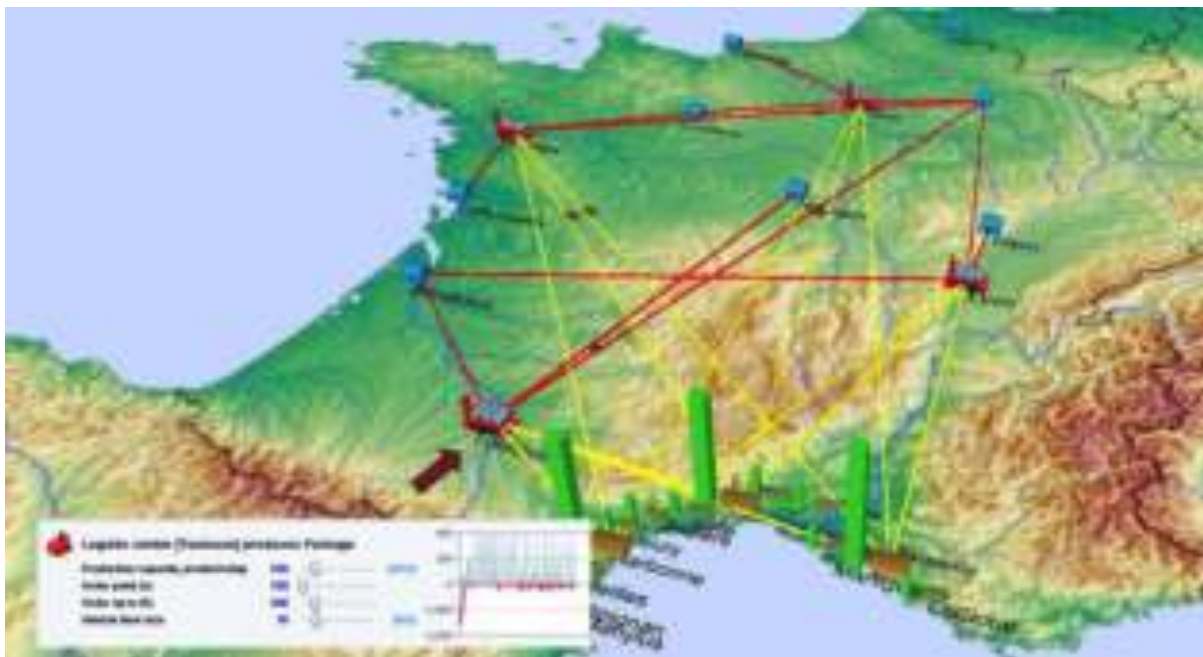
| Tool | Provider | Session | Evaluators |
|---|----------|---------|---|
| HumLog[em] | WWU | T44.1 | Hector Naranjo Setien (GMV); Frederick Benaben (Armines); Julia Zillies (DLR); Carsten Dalaff (DLR) |
| <p>HumLog[em] is a modelling tool able to support various modelling languages. It can be used for the application of reference models as well as for reporting and pattern search within process models. In the context of DRIVER HumLog[em] supports the application of the Reference Task Model for Humanitarian Logistics (RTM).</p> <p>To demonstrate an exemplary use of the HumLog[em], a simulation model was designed and tested for the 1st round of experiments. The simulation scenario was prescribed by the SP leader (Thales) and contained an Earthquake (EQ) in the Mediterranean Sea triggering a Tsunami. For this purpose an according disaster relief operation has been simulated. The EQ caused a tsunami affecting the coastal region of Southern France. In HumLog[em] the processes of a relief organization have been modeled using the stored reference processes. In result, we identified case-specific process models for the procurement, warehousing, transport and distribution of relief goods for some pre-defined suppliers, logistics centers, cross docking points, storage centers as well as field distribution centers and beneficiaries. A general relation of the flows between all actors is depicted in the following figure.</p> | | | |
| <p>The HumLog[em] models are expressed with the Business Process Modeling Notation (BPMN) up to the process level. This procedure ensures an adequate consideration of all actors, processes/procedures as well as information and material flows involved in the disaster relief operation which should be simulated with Anylogic. Hence, for the 1st round of experiments the HumLog[em] process models have been transferred into the simulation environment in Anylogic by defining a specific network structure and process logic. During the tool presentation, an exemplary process was modeled, including the addition of further relevant attributes like process descriptions, the assignment of performance indicators or best practices. Besides, the pattern search was demonstrated in order to show how the automated process analysis functions work. Finally, the reporting function was tested. The prepared process models have been transferred into the simulation environment, being a combination of both tools HumLog[em] and Anylogic, is called HumLogSIM in the following.</p> | | | |

| | | | | | | | |
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| Tool | Provider | Session | Evaluators |
|----------|----------|---------|---|
| AnyLogic | WWU | T44.1 | Hector Naranjo Setien (GMV); Frederick Benaben (Armines); Julia Zillies (DLR); Carsten Dalaff (DLR) |

AnyLogic is a multi-method (discrete event, agent based, system dynamics) simulation tool. The main functionality for DRIVER will be the run of discrete event and agent based simulations. For this purpose the process models generated with HumLog[em] will be applied using its model reporting function. Within the specific simulation environment HumLogSIM several scenarios and network settings will be simulated and compared in order to identify and cope with bottlenecks and cascading effects in regards to prepositioning, routing and scheduling.

For the 1st round of experiments, HumLogSIM has been used to conduct an exemplary simulation run mentioned above. In the prepared scenario setting, citizens in Marseille, Montpellier, Narbonne and Perpignan had been affected and a theoretical relief organization was tasked to deliver medicine, water and food supplies. The calculation of demands was based on a combination of the official data on inhabitants in the affected cities and the beneficiaries' needs following the SPHERE standards. The simulation run itself illustrated the performance of the material flows over a period of three months looking at ordering times and amounts; transport modes, routing and scheduling; deliveries and backlogs as well as on the consequences for the affected population (like security of supply or survival rates). During the simulation run a 3D model illustrates the particular operation, while all relevant data and key performance indicators got tracked and documented within a separated Excel sheet. An exemplary snapshot of the network and the performance of the logistics centre in Toulouse is depicted in the following screenshot:

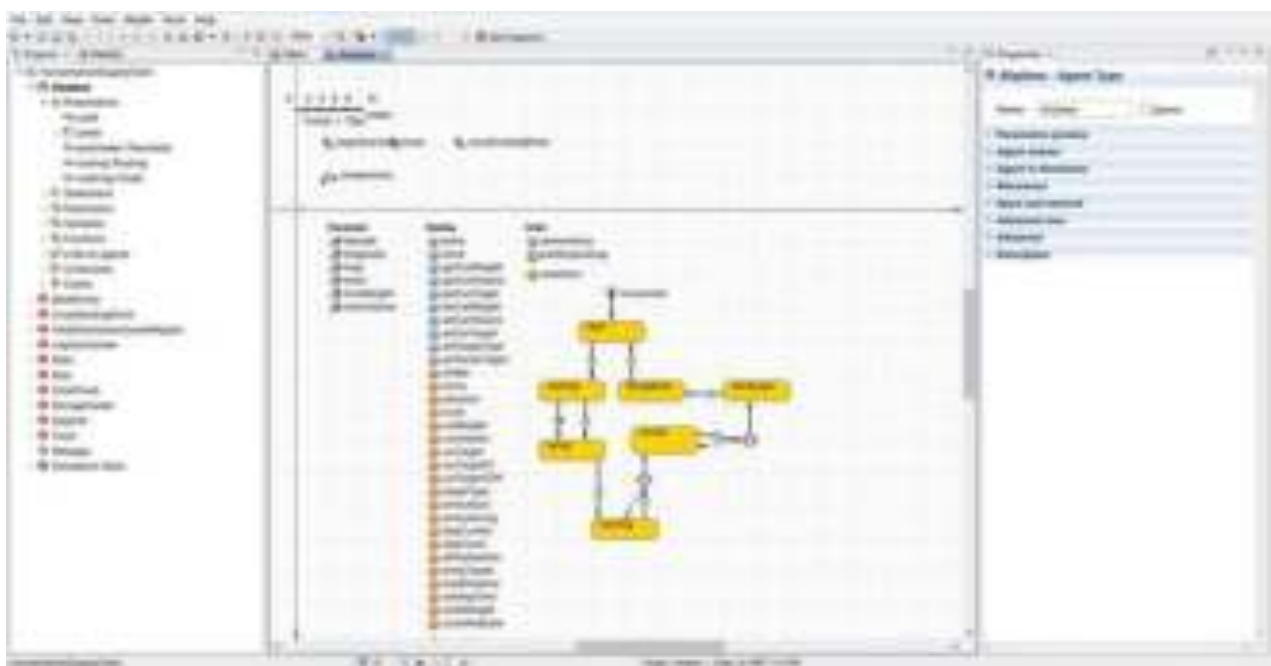


Regarding the technical point of view, the simulation environment is constructed primarily by Agent-based modelling (ABM) and Discrete-event Simulation (DES) facets. The distinct components (e.g. suppliers or logistics centres) are represented as agents and DES elements are utilized for the disaster modelling and the multiple event constraints within the procedures of a humanitarian supply chain. The dynamic

| | | | | | | | |
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behaviour and the processes are formed by state charts. State charts are a common instrument to describe event- and time-driven behaviour. While, the statuses of state charts are alternative which means that the object can only be in one state at a time, transitions between the states may be triggered by user-defined conditions. Since state charts are simple to modify and can be comprehended well, this methodology was chosen instead of SD components. Nevertheless, this does not neglect the implementation of SD components in the future. The simulation environment consists of six fundamental components: stationary agents, moveable agents, disaster components, collaboration, communication and finally, performance measures.

During the 1st round of experiment both the simulation environment HumLogSIM and the exemplary simulation run itself were presented. Regarding the tool basically all relevant stationary and movable components were described shortly as well as some exemplary state charts, e.g. the mechanism behind checking if the beneficiaries needs are covered or the utilization and scheduling of available vehicles (airplanes, trains and trucks). The HumLogSIM modelling frontend is depicted in the following figure.



Within the left frame, all modelled elements can be configured using the properties settings frame on the right side of the figure. In the middle of the figure the process logic of the chosen element can be defined, e.g. by the definition of the shown state chart.

Besides, the exemplary simulation run has been presented in order to demonstrate how the material flows are processed and illustrated in order to identify the overall performance (both in total and over time), relevant bottlenecks and cascading effects as well as appropriate configuration parameters. While some variations can only be adjusted before the actual simulation run (e.g. locations of stationary agents or the ordering policy), some realistic variations can be configured during the simulation run itself (e.g. the transportation frequency or the inventory capacity). The frontend of the simulation run is depicted in the following figure.

| | | | | | | | |
|----------------|---|----------------|----|----------|-------|----------|-------|
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In the snapshot the logistics center in Paris is selected. For this facility the user is able to adjust the following parameters: production capacity (products/day), order point and size, and vehicle fleet size. By these means, practitioners become the opportunity to experiment with decisions based on particular observations, like the emergence of huge order backlogs or other bottlenecks during the operation. The experiments including all decisions made during the particular simulation runs can be analysed afterwards by using the Excel sheet in which the metrics of all material flows during the experiments are recorded. The tool presentation ended with an explanation and analysis potentials of the recorded simulation run. Based on the feedback and discussions at the 1st round of experiments the HumLogSIM simulation environment has been identified as an appropriate tool for the EXP44 logistics experiment together with DLR and THW.

Table 2: Tools involved in T44.1

| | | | | | | | |
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The evaluation results are based on the feedback provided by the tools evaluators in the corresponding evaluation sheets. The feedback has been summarized in the tables included in next sections. Two tables have been included for each of the tools above: A features feedback table and an evaluators conclusions table.

The first one compiles the evaluators' comments and suggestions for each feature and sub-feature (related to task T44.2) of the tool in question. It also includes the average of the "grades" given by the evaluators to the tool performance with respect to each feature, according to its relevance, maturity and potential:

- **Relevance** was graded from 0 (none) to 3 (fully).
- **Maturity** was graded from 1 (basic) to 9 (proven) and represents the TRL associated to the feature according to the tool evaluators.
- **Potential** was graded from 0 (not at all) to 3 (fully).

Table 3 shows the template of the *features feedback* table. It has to be noted that T44.1 features and sub-features present in each table will be those from Table 3 that are covered by the corresponding tool according to the tool provider.

| Feature | Sub-feature | Tool Tool provider | relevance | maturity | potential | Suggested improvements / comments | | |
|------------------------|------------------------------|---|-----------|----------|-----------|--|-----|--|
| | | | | | | Evaluator 1 | ... | Evaluator m |
| <i>T44.1 feature 1</i> | <i>T44.1 sub-feature 1.1</i> | <i>Description (by the tool provider) of the tool performance regarding sub-feature 1.1</i> | 0..3 | 1..9 | 0..3 | <i>Comments and/or suggestions from evaluator 1 about tool performance regarding feature 1 ("-" if none)</i> | ... | <i>Comments and/or suggestions from evaluator m about tool performance regarding feature 1 ("-" if none)</i> |
| | ... | ... | | | | | | |
| | <i>T44.1 sub-feature 1.p</i> | <i>Description (by the tool provider) of the tool performance regarding sub-feature 1.p</i> | | | | | | |

| | | | | | | | |
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| Feature | Sub-feature | Tool <i>Tool provider</i> | relevance | maturity | potential | Suggested improvements / comments | | |
|------------------------|------------------------------|---|-----------|----------|-----------|--|-----|--|
| | | | | | | Evaluator 1 | ... | Evaluator m |
| ... | ... | ... | ... | ... | ... | ... | ... | ... |
| <i>T44.1 feature n</i> | <i>T44.1 sub-feature n.1</i> | <i>Description (by the tool provider) of the tool performance regarding sub-feature n.1</i> | 0..3 | 1..9 | 0..3 | <i>Comments and/or suggestions from evaluator 1 about tool performance regarding feature n (“-“ if none)</i> | ... | <i>Comments and/or suggestions from evaluator m about tool performance regarding feature n (“-“ if none)</i> |
| | ... | ... | | | | | | |
| | <i>T44.1 sub-feature n.q</i> | <i>Description (by the tool provider) of the tool performance regarding sub-feature n.q</i> | | | | | | |

Table 3: Features feedback table template

The second table (*evaluator’s conclusions* table) provided for each tool summarizes the evaluators’ overall impression about the tool as well as their opinion about its usability and its potential position within the DRIVER System of Systems. The usability of the tool was also graded by the evaluators from 1 (none) to 3 (fully usable). The table includes the average of the “grades” given by the evaluators.

Table 4 shows the template used for this *evaluator’s conclusions* table.

| | | | | | | | |
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| | Evaluator 1 | ... | Evaluator m |
|--|--|-----|--|
| Overall impression | <i>Overall impression of evaluator 1 about the tool ("-" if not provided)</i> | ... | <i>Overall impression of evaluator m about the tool ("-" if not provided)</i> |
| Usability 1..3 | <i>Opinion of evaluator 1 about the tool usability ("-" if not provided)</i> | ... | <i>Opinion of evaluator m about the tool usability ("-" if not provided)</i> |
| Position within the DRIVER System of Systems | <i>Opinion of evaluator 1 about the potential position of the tool within the DRIVER System of Systems ("-" if not provided)</i> | ... | <i>Opinion of evaluator m about the potential position of the tool within the DRIVER System of Systems ("-" if not provided)</i> |

Table 4: Evaluators conclusions table template

The original Evaluators Conclusion Tables are in the Annex of this document.

| | | | | | | | |
|----------------|---|----------------|-----------|----------|------------|-----------------|--------------|
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2.1 Protect

2.1.1 Explicit feedback tables

| Feature | Sub-feature | Protect | relevance | maturity | potential | Suggested improvements / comments | | | | |
|-------------------------|--|---|-----------|----------|-----------|---|--|---|---|----------------------|
| | | | | | | Hector Naranjo Setien (GMV) | Adam Widera (WWU) | Johannes Sautter(IAO) | Marcel Vander(TNO) | Mats Bornstrom (MSB) |
| Deployment of Resources | Decision Support | Not applicable | 3 | 7 | -2 | No relation between the crisis types and required resources have been made. | Difficult to estimate, during the demo no relation between the types/levels and required resources have been made | | Expand the toll to cover also interregional capacity request afford | |
| | Mapping to different Crisis types and levels | Detailed description; type; geographic position; on-going status; type and necessary resources. | | | | | | | | |
| | Monitoring of current status of deployed resources | Type and necessary resources monitoring. | 3 | 7 | - | | The feature itself (balancing demands and supplies) in the crises demand context is a trend, but other established | Link to existing CC systems of authorities. | | |

| | | | | | | |
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| Feature | Sub-feature | Protect | relevance | maturity | potential | Suggested improvements / comments | | | | |
|------------------------------|--|--|-----------|----------|-----------|---|--|-----------------------|--------------------|----------------------|
| | | | | | | Hector Naranjo Setien (GMV) | Adam Widera (WWU) | Johannes Sautter(IAO) | Marcel Vander(TNO) | Mats Bornstrom (MSB) |
| | | | | | | | solutions could be considered (e.g. aid matrix). | | | |
| Contingency Plans Definition | Mapping to different Type of Crisis | N | | | - | | | | | |
| | Mapping to different crisis levels | N | | | - | | | | | |
| | Supporting relief actions (citizen as a volunteer) | | | | | | | | | |
| Selection of Resources Level | Monitoring of current resource level | Monitoring of the assigned resources. The resources level can be easy controlled, with a simple change. | 3 | 6 | - | The tool seems to only monitor the request and the assigned resources but not the resources level | More information required | | | |

| | | | | | | |
|----------------|--|----------------|----|----------|-------|---------------|
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| Feature | Sub-feature | Protect | relevance | maturity | potential | Suggested improvements / comments | | | | |
|-------------------------|------------------|---|-----------|----------|-----------|-----------------------------------|-------------------|-----------------------|--------------------|----------------------|
| | | | | | | Hector Naranjo Setien (GMV) | Adam Widera (WWU) | Johannes Sautter(IAO) | Marcel Vander(TNO) | Mats Bornstrom (MSB) |
| | Decision Support | | | | | | | | | |
| Risk Assessment | Risk catalogue | Covered by the tool, but not available when the in experiment session. | | | | | | | | |
| | Simulation tools | N | | | | | | | | |
| Crisis Characterization | Crisis Modelling | Crises modelling using a training mode. The tool allows also the contribution of the several resources to lessons learned. | 2,5 | 2 | | | | | | |

| | | | | | | |
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| Feature | Sub-feature | Protect | relevance | maturity | potential | Suggested improvements / comments | | | | |
|---------|-----------------|---------|-----------|----------|-----------|-----------------------------------|-------------------|-----------------------|--------------------|----------------------|
| | | | | | | Hector Naranjo Setien (GMV) | Adam Widera (WWU) | Johannes Sautter(IAO) | Marcel Vander(TNO) | Mats Bornstrom (MSB) |
| | Supply Forecast | | | | | | | | | |

Table 5: Protect tool - features feedback table

General remarks to the tool

| | Hector Naranjo Setien (GMV) | Adam Widera (WWU) | Johannes Sautter(IAO) | Marcel Vander(TNO) | Mats Bornstrom (MSB) |
|--------------------|---|--|-----------------------|--|----------------------|
| Overall impression | The tool seems to be an exchange platform for pooling and sharing. Such a function is highly relevant, but due to the presented status is not possible to estimate the potential of the tool. | The tool seems to be an exchange platform for balancing demand and supply. Such a function is highly relevant, but due to the presented status it is hardly possible to estimate the available potential of the tool. Maybe the application of the initially planned use case (Tsunami) could be useful to showcase the functionality. | | In CECIS the features are proven, but in Protect is now a prototype. | |
| Usability | Difficult to estimate | Difficult to estimate (see above) remarks: | | | |

| | | | | | | | |
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| | Hector Naranjo Setien (GMV) | Adam Widera (WWU) | Johannes Sautter(IAO) | Marcel Vander(TNO) | Mats Bornstrom (MSB) |
|--|---|--|-----------------------|--------------------|----------------------|
| Position within the DRIVER System of Systems | Could be integrated with other tools in resource management, but due to the presented status it is not possible to estimate the potential of the tool | (potential integration with..., complementary to...): potential to be integrated with various other tools (esp. in the part of resource management). However, when talking about the resource management task in DRIVER it should be considered to involve the actually deployed resource management tools of end users in order to ensure relevance and their participation. In combination the connection to Protect could be interesting. | | | |

Table 6: Protect tool – General remarks table

2.1.2 Statement of the tool provider

The Protect tool is a web-based alert and notification system for emergency (and early warnings) situations concerning civil protection authorities. In Protect, the main concept is the Emergencies management and the management of a pool of resources to support the assistance to the emergencies. Before a crisis occurs, every entity registered in Protect inserts the resources that has available to offer to third Entities. The Protect Tool is the result of several EDISOFT CM tools development skills, and includes the features and best practices obtained from the experience in the development of different tools, like: CECIS (Common Emergency and Information System) ; Alert4All (FP7); TSO developed for the OASIS project (FP6). The tool is now in a prototype validation stage since that the integration of the several features is ongoing, which caused some difficulties to demonstrate the entire tool’s potential in the In the Initial inventory of tools as the reviewers well noted. At this moment the features: Risk Assessment and the Contingency Plan integration, a GIS (used in Alert4All project) maps oriented support, and the several “Suggested improvements / comments” underlined by the reviews during the round of experiment session is on-going, including the relation between the crisis types and the required resources. This integration is now being supported by local Portuguese Civil Protection Authorities. Other important feature is a SOA (Service Oriented Architecture) implementation in order to allow the interaction with other existing tools, not only in the several Portuguese Local Authorities but also in projects like Driver.

| | | | | | | | |
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2.2 IO-DA

2.2.1 Explicit feedback tables

| Feature | Sub-feature | IO-DA ARMINES | relevance | maturity | potential | Existence Suggested improvements / comments | | | |
|----------------------------|--|--|-----------|----------|-----------|---|----------------------------|--|--------------------------|
| | | | | | | M.Bornström (MSB) | M. van der Lee (TNO) | H. Naranjo (GMV) | Johannes Sautter (IAO) |
| Deployment of Resources | Decision support | Not applicable | 3 | 5 | 3 | - | - | It would be useful if the metamodel would be following any standard of the domain | Link to existing systems |
| | Mapping to different crisis types and levels | Fully open metamodel to model any kind of context/objectives (i.e. any kind of crisis) | | | | | | | |
| | Monitoring of current status of deployed resources | Monitoring of activities to define if actors are available or not (binary affectation) but no quantitative monitoring | | | | | | | |

| | | | | | | | |
|----------------|---|----------------|----|----------|-------|----------|-------|
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| Feature | Sub-feature | IO-DA ARMINES | relevance | maturity | potential | Existence Suggested improvements / comments | | | |
|---------------------------------|---|---|-----------|----------|-----------|---|---|--|---|
| | | | | | | M.Bornström (MSB) | M. van der Lee (TNO) | H. Naranjo (GMV) | Johannes Sautter (IAO) |
| Contingency Plans Definition | Mapping to different types of crisis | The deduction mechanism allow the IO-Suite to treat any kind of crisis | 3 | 6 | 3 | - | Very innovative tool. Potential needs to be proven. | Very useful tool for the definition of contingency plans | Allow plan definition & execution in field |
| | Mapping to different crisis levels | IO-Suite manages any kind of crisis level, depending on the granularity level of models | | | | | | | |
| Selection of Resources Level | Monitoring of current resource level | Capabilities of actors are invoked at the granularity level they have been defined | 3 | 2,5 | N/E | - | - | - | Use for resource deployments for middle and long term support |
| | Decision Support | Capabilities of actors are selected at the granularity level they have been defined | | | | | | | |

| | | | | | | | |
|----------------|---|----------------|----|----------|-------|----------|-------|
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| Feature | Sub-feature | IO-DA ARMINES | relevance | maturity | potential | Existence Suggested improvements / comments | | | |
|-------------------------|------------------|--|-----------|----------|-----------|---|---------------------------------------|---|------------------------|
| | | | | | | M.Bornström (MSB) | M. van der Lee (TNO) | H. Naranjo (GMV) | Johannes Sautter (IAO) |
| Risk assessment | Risk catalogue | Not applicable | - | - | - | - | - | - | |
| | Simulation tools | Not applicable | | | | | | | |
| Crisis Characterization | Crisis modelling | The metamodel allows to model any kind of crisis | 3 | 7 | 2,5 | - | Models are basis of the whole system. | Very interesting tool to be used for crisis modelling | |
| | Supply forecast | Not applicable | | | | | | | |

Table 7: IO-DA tool - features feedback table

| | | | | | | | |
|----------------|--|----------------|----|----------|-------|----------|-------|
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General remarks to the tool

| | Mats Bornström (MSB) | Marcel van der Lee (TNO) | Hector Naranjo (GMV) | Jonannes Sautter (IAO) |
|--------------------|--|---|--|---|
| Overall impression | Uses proven business models can merge information and visualize needs assessments. | Human experience outperforms the system in exercises. | IO-DA is a very interesting tool very useful for Definition of Contingency Plans, Crisis Characterization and Crisis Dynamics. | High potential and advanced vision, probably difficult to bring in the field all features at once. Better start with particular sub features in small experiments |
| Usability | Not so easy to use, but has potential. | <p>Maybe this system can assist in checking plans for human first responders.</p> <p>Suggestion: might be useful in automation of large-scale volunteer management.</p> | <p>The tool seems to be more oriented to the Preparation Phase than to the Response Phase (although the estimation of the Crisis Dynamics would be very useful during this phase).</p> <p>In any case, I think that it could be combined with other tools to work on TSK44.2.</p> <p>Finally, some modelling knowledge is required by the user what would require some previous work and would probably make the tool easier to use in not so large scale disasters.</p> | Not able to judge usability |

| | | | | | | | |
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| | Mats Bornström (MSB) | Marcel van der Lee (TNO) | Hector Naranjo (GMV) | Jonannes Sautter (IAO) |
|--|--|--------------------------|---|---|
| Position within the DRIVER System of Systems | As a system of sharing information it could be integrated with any system except for simulation tools. | - | <p>The tool is very relevant for DRIVER and it seems that several tools could interact with it.</p> <p>SOCRATES SUITE could be fed by the information about Contingency Plans, Crisis Characterization and Crisis Dynamics.</p> | Potential integration with supply chain modelling (WWU) or Common Operational Picture (FRQ) |

Table 8: IO-DA tool – General remarks table

2.2.2 Statement of the tool provider

As the reviewers have underlined it, some modelling knowledge is required in order to characterize the crisis situation and the resources. IO-DA is still a research prototype, so it is not yet perfectly user friendly. Reviewers have also pointed out the possibility to integrate IO-DA with other tools, which is relevant in the DRIVER context.

The average estimated Technical Readiness Level (TRL) of IO-DA's feature is equal to 4, which fits with ARMINES estimation regarding the average maturity on the whole IO-DA features.

| | | | | | | | |
|----------------|---|----------------|-----------|----------|------------|-----------------|--------------|
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2.3 HumLog[em]

2.3.1 Explicit feedback tables

| Feature | Sub-feature | HumLog[em] | relevance | maturity | potential | Suggested improvements / comments | | | |
|------------------------------|--|---|-----------|----------|-----------|--|-----------------------------|---------------------|----------------------|
| | | | | | | Hector Naranjo Setien (GMV) | Frederick Benaben (Armines) | Julia Zillies (DLR) | Carsten Dalaff (DLR) |
| Deployment of Resources | Decision Support | Tool supports the modelling of organization specific logistics processes using a reference model for humanitarian supply chains | 2.3 | 6.6 | 2 | The definition of Metamodels and Models are feasible and they are easy to define and modify using the tool | | - | - |
| | Mapping to different Crisis types and levels | Process models can be flexibly enriched by additional information (e.g. capacities) | | | | | | | |
| Selection of Resources Level | Monitoring of current resource level | Manually predefined resource levels can be adjusted based on related information systems (e.g. ERP systems) | 2.3 | 6.6 | 2 | Automated interaction with other systems could be useful | | | |

| | | | | | | | |
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| Feature | Sub-feature | HumLog[em] | relevance | maturity | potential | Suggested improvements / comments | | | |
|---------|-------------------------|--|-----------|----------|-----------|--|-----------------------------|---------------------|----------------------|
| | | | | | | Hector Naranjo Setien (GMV) | Frederick Benaben (Armines) | Julia Zillies (DLR) | Carsten Dalaff (DLR) |
| | Decision Support | The interaction with HumLogBSC enables a feedback on the structural process analysis | 2.3 | 6.6 | 2 | Automated interaction with other systems could be useful | | | |

Table 9: HumLog[em] tool - features feedback table

General remarks to the tool

| | Hector Naranjo Setien (GMV) | Frederick Benaben (Armines) | Julia Zillies (DLR) | Carsten Dalaff (DLR) |
|---------------------------|--|-----------------------------|---|---|
| Overall impression | The functionality provided by the tool is very useful but the main difficulty is in the definition of an accurate model. | - | Seems useful for simulation support, but it remained unclear how the results would be fed into the simulation tools | Seems like a good tool to model the process |
| Usability | The difficulty to define an accurate model can make the usage of the tool difficult (or useless in the other case) | - | Interface languages mixed | - |

| | | | | | | | |
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| | Hector Naranjo Setien (GMV) | Frederick Benaben (Armines) | Julia Zillies (DLR) | Carsten Dalaff (DLR) |
|--|--|-----------------------------|---------------------|--|
| Position within the DRIVER System of Systems | This suite of tools would be very useful to define the contingency plans that will be required to plan the tasking in the SOCRATES – Suites. Additionally, information provided by the tool should be also considered during the response phase so define tasks that would allow to tackle the identified bottlenecks and cascading effects. | - | - | Is showing generally. Could be defined a more detailed way |

Table 10: HumLog[em] tool – General remarks table

2.3.2 Statement of the tool provider

Regarding the accuracy of models it should be clarified that it is actually the application of the RTM which significantly supports the generation of accurate process models – esp. when compared to the opposite option which is from scratch modelling is time consuming and coming along with a high error prone. The idea of reference models is to support the construction of other models (see Oliver Thomas 2006). In the case of HumLog[em] reference processes are already stored in the tool and have only to be adjusted (changed and extended) during process mapping procedures in order to figure as organization- or scenario-specific models. The process mapping approaches are following a pre-defined and structured procedure which can be complemented with other qualitative data gathering approaches if required. Besides, the included pattern search supports an additional accuracy check.

| | | | | | | | |
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2.4 Anylogic

2.4.1 Explicit feedback tables

| Feature | Sub-feature | Anylogic | relevance | maturity | potential | Suggested improvements / comments | | | |
|------------------------------|--|---|-----------|----------|-----------|---|-----------------------------|---|---|
| | | | | | | Hector Naranjo Setien (GMV) | Frederick Benaben (Armines) | Julia Zillies (DLR) | Carsten Dalaff (DLR) |
| Deployment of Resources | Decision Support | Transformation of process models (HumLog(em)) into AnyLogic | 2.8 | 7.3 | 2 | This is manually done Some import capability from HumLog[em] would be required | - | Manually The legend is missing some descriptions | Has to be done manually. No automatic transformation |
| | Mapping to different Crisis types and levels | ? | | | | | | | |
| | Monitoring of current status of deployed resources | Tracking of resources during simulation runs | 3 | 7,6 | 2 | | | | |
| Selection of Resources Level | Monitoring of current resource level | Tracking of resources during simulation runs | 2.8 | 7.8 | 2 | Uncertainty could be included in the models using system dynamics | | | Shown exchange of goods could be used as demand in a traffic simulation. Should be checked. (Tool |

| | | | | | | | |
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| Feature | Sub-feature | Anylogic | relevance | maturity | potential | Suggested improvements / comments | | | |
|---------|------------------|----------------------------------|-----------|----------|-----------|---|-----------------------------|---------------------|--|
| | | | | | | Hector Naranjo Setien (GMV) | Frederick Benaben (Armines) | Julia Zillies (DLR) | Carsten Dalaff (DLR) |
| | | | | | | | | | Sumo?) |
| | Decision Support | Comparison of simulation results | 2.8 | 7.8 | 2 | Uncertainty could be included in the models using system dynamics | | | Shown exchange of goods could be used as demand in a traffic simulation. Should be checked. (Tool Sumo?) |

Table 11: Anylogic tool - features feedback table

| | | | | | | | |
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General remarks to the tool

| | Hector Naranjo Setien (GMV) | Frederick Benaben (Armines) | Julia Zillies (DLR) | Carsten Dalaff (DLR) |
|--|---|-----------------------------|--|--|
| Overall impression | The functionality provided by the tool is very useful but the main difficulty is in the definition of an accurate model. | - | Powerful tool to determine efficient logistic strategies, statistical modelling approaches could help to address uncertainties | Commercial tool. Well known software |
| Usability | The difficulty to define an accurate model can make the usage difficult (or useless in the other case) | - | All good and clearly structured | - |
| Position within the DRIVER System of Systems | The suite of tools would be very useful to define the contingency plans that will be required to plan the tasking in the SOCRATES-Suite. Additionally information provided by the tool should be also considered during the response phase so define tasks that would allow to tackle the identified bottlenecks and cascading effects. | - | Integrations with traffic simulation systems & proper use of the tool requires training (expert tool?) | Usage and combination with other driver tools should be investigated e.g. Tools SUMO [DLR] |

Table 12: Anylogic tool – General remarks table

| | | | | | | | |
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2.4.2 Statement of the tool provider

The evaluations reflect the relevance, potential and maturity level of the tool for the DRIVER project. The manually transferred process models of HumLog[em] are only part of the whole simulation model. The process models are used to represent organization-specific practices of the relief chain actors. In some cases they are expressed as state charts, in other cases they have to be translated as possible relations between sources and sinks. Due to this complexity, an automated translation of process model into the simulation model is not recommended. The accuracy of models itself is managed in two different ways: (1) a high accuracy of process models is ensured through the application of the reference model (see also the evaluation of HumLog[em]); (2) the accuracy of the whole simulation model is ensured through the design and application of a dedicated simulation study following the VDI guideline 3633 (The Association of German Engineers) containing a dedicated evaluation.

| | | | | | | | |
|----------------|---|----------------|-----------|----------|------------|-----------------|--------------|
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3 Analysis of results from initial inventory of tools

The Initial Inventory tools was an important first step for the Driver SP4 experimentation process, however there is a set of out comings that arise when analyzing the results of the previous section of this document.

The set of comments and suggestions from the evaluators to the features that the tools supposed to cover were influenced by the following issues:

- The understanding of the Task 44.1 features and sub-features allows different interpretations from the evaluators and also from tools providers, which turned more difficult the evaluation process.
- Some tools providers tried to demonstrate that their tools could be used in different SP4 work packages and tasks. This turned the related Task 44.1 features and sub-features tools performance even more difficult to evaluate.

Thus an anticipated classification of the several tools into the SP4 Tasks prior to the Initial Inventory of tools would help the evaluation performance.

Furthermore, and according with the tools providers comments, other important issue to take into account is that almost all tools providers claimed that the presented tools cover the most part of the features associated with the Task 44.1. However it is difficult to have a precise view of the tools actual performance status, related with some tools features to fill Task 44.1:

- Protect tool is in a prototype evaluation process and the integration of the several new features is ongoing, which caused some difficulties to demonstrate the entire tool potential.
- IO-DA tools providers also claimed that the tool it is still a research prototype, so it is not yet perfectly user friendly.
- HumLog[em] reference processes are already stored in the tool and have only to be adjusted (changed or extended) during process mapping procedures in order to figure as organization- or scenario –specific models.
- AnyLogic is a multi-method (discrete event, agent based, System dynamic) simulation tool that will use the process model generated with HumLog[em] that will be applied using its model reporting function.

Thus, although this Initial Inventory of tools represents an important step, the tools evaluation must be reworked and analyzed aiming to verify in the field if they match entirely Task 44.1 needs.

So, we consider that it is fundamental to analyze the specific methodologies, processes and specific workflows followed by the end users in the Crisis Management domain must be analyzed aiming to orchestrate the tools features with the Task 44.1 requirements features and sub-features. This important issue must be developed using specific experiments; SP2 and SP4 experiment reports for the 2th round of experiments.

| | | | | | | | |
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The A4All tool was not presented in the 1 round of experiments because; according to Edisoft all the A4All features will be included in the Protect tool. The integration development is on-going. Although GMV - ESS tool was analysed initially as a potential Task 44.1 tool candidate, it was integrated in Task 44.2 and considered not useful to integrate Task 44.1 tools portfolio.

| | | | | | | | |
|----------------|---|----------------|-----------|----------|------------|-----------------|--------------|
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3.1 Tools feature coverage overview

As a summary, the Table 13 below show how tools addressed in these deliverable cover features of task T44.1, according to the analysis carried out in previous chapter. Note that the following colour code has been used:

- **White** for features/sub-features not covered by the tool according to the tool provider.
- **Light green** for features/sub-features that are covered according to the tool provider but were not properly demonstrated taking into account evaluators' feedback and the considerations in the analysis above.
- **Dark green** for those features/sub-features fully covered and demonstrated in the Initial Inventory of tools.
- **Yellow** for those features/sub-features only partly covered according to the evaluators' feedback and the considerations in the analysis above.

The table shows the tools presented during sessions corresponding to WP44's tasks sessions in the 1st Initial Inventory of tools:

| | | Task session | T44.1: Capacity building and mapping tools | | | | |
|---|----------------------------|--|--|---------|------------|----------|--|
| | | Tool supplier | EDI | Armines | WWU | WWU | |
| | | Tool name | Protect | IO-DA | HumLog[em] | Anylogic | |
| Task | Feature | Sub-feature | | | | | |
| T44.1 Capacity building and mapping | Deployment of Resources | Decision Support | Fully | Fully | Partly | Fully | |
| | | Mapping to different Crisis types and levels | | | | | |
| | | Monitoring of current status of deployed resources | | | Fully | Fully | |

| | | | | | | | |
|----------------|--|----------------|----|----------|-------|----------|-------|
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| dark green=FULLY COVERED and DEMONSTRATED; light green=COVERED ACCORDING TOOL PROVIDER BUT NOT DEMONSTRATED, yellow=PARTLY COVERED, white=NOT COVERED | | Task session | T44.1: Capacity building and mapping tools | | | | |
|--|------------------------------|--|--|---------|------------|----------|--|
| | | Tool supplier | EDI | Armines | WWU | WWU | |
| | | Tool name | Protect | IO-DA | HumLog[em] | Anylogic | |
| Task | Feature | Sub-feature | | | | | |
| tools | Contingency Plans Definition | Mapping to different Type of Crisis | | Fully | | | |
| | | Mapping to different crisis levels | | | | | |
| | | Supporting relief actions (citizen as a volunteer) | | | | | |
| | Selection of Resources Level | Monitoring of current resource level | Fully | Fully | Fully | Fully | |
| | | Decision Support | | | Fully | Fully | |
| | Risk Assessment | Risk catalogue | Fully | | | | |
| | | Simulation tools | | | | | |
| | Crisis Characterization | Crisis Modelling | Partly | Partly | | | |
| Supply Forecast | | | | | | | |

Table 13: Tools features coverage of D44.1

| | | | | | | | |
|----------------|--|----------------|----|----------|-------|----------|-------|
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As a result of this first evaluation of the Initial Inventory of tools, we can conclude that the necessary features are fulfilled by the several tools: Deployment of Resources; Contingency Plans Definition; Selection of Resources Level; Risk Assessment are mostly covered by the evaluated tools. However Crisis Characterization is not completely covered by the tools, because Protect and IO-DA can support Crisis Modelling but don't have a Supply Forecast capability. This issue must be solved with the development of the Supply Forecast capability in one of the tools, or as alternative with the use of other tool that fulfils this important feature.

| | | | | | | | |
|----------------|---|----------------|-----------|----------|------------|-----------------|--------------|
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3.2 Summary of the evaluators feedbacks

Figure 1, Figure 2 and Figure 3 illustrates and sum up the different feedbacks given on the four tools. They are oriented towards the three key axis of study: relevance, potential and maturity of the tools that were described in Chapter 2.

Although, not all the evaluators fulfil the evaluation template grades for all the tools features, the following grades resume were provided by the evaluators to the tool performance regarding Task 44.1 features.

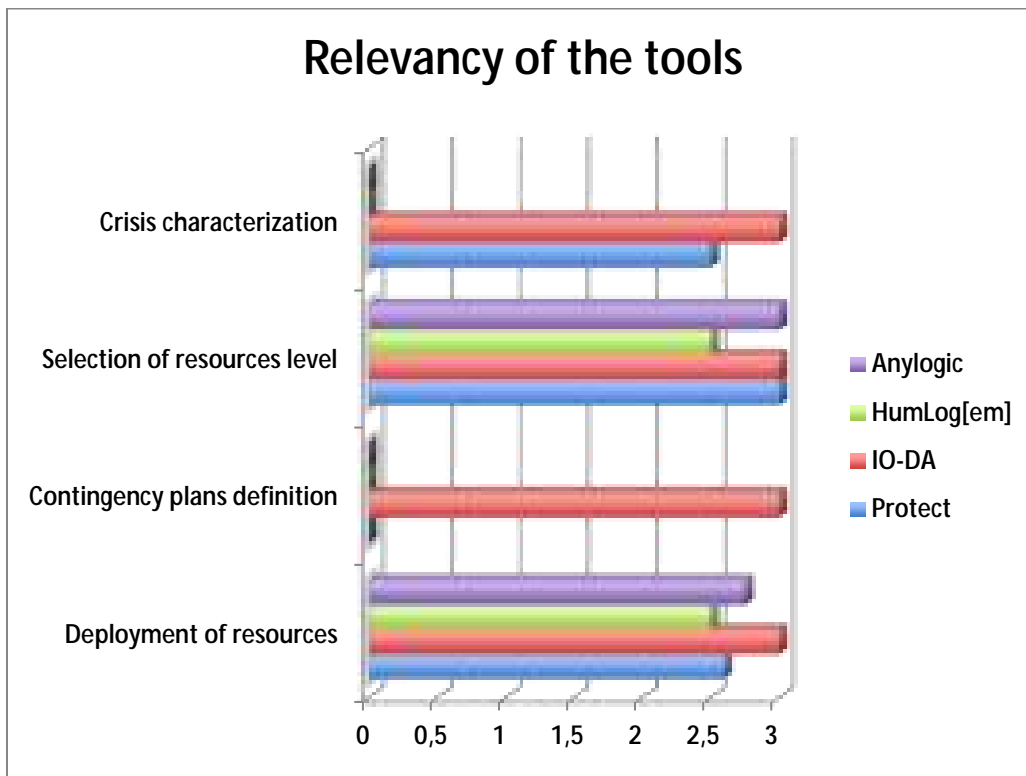


Figure 1: Feedbacks on the four tools, on relevance study axis.

For the relevance we can conclude that IO-DA is considered a relevant tool in all the Task 44.1 features, although Protect is considered very relevant with the exception of the Contingency plan. AnyLogic and HunLog[em] are also very relevant in all the presented features.

| | | | | | | | |
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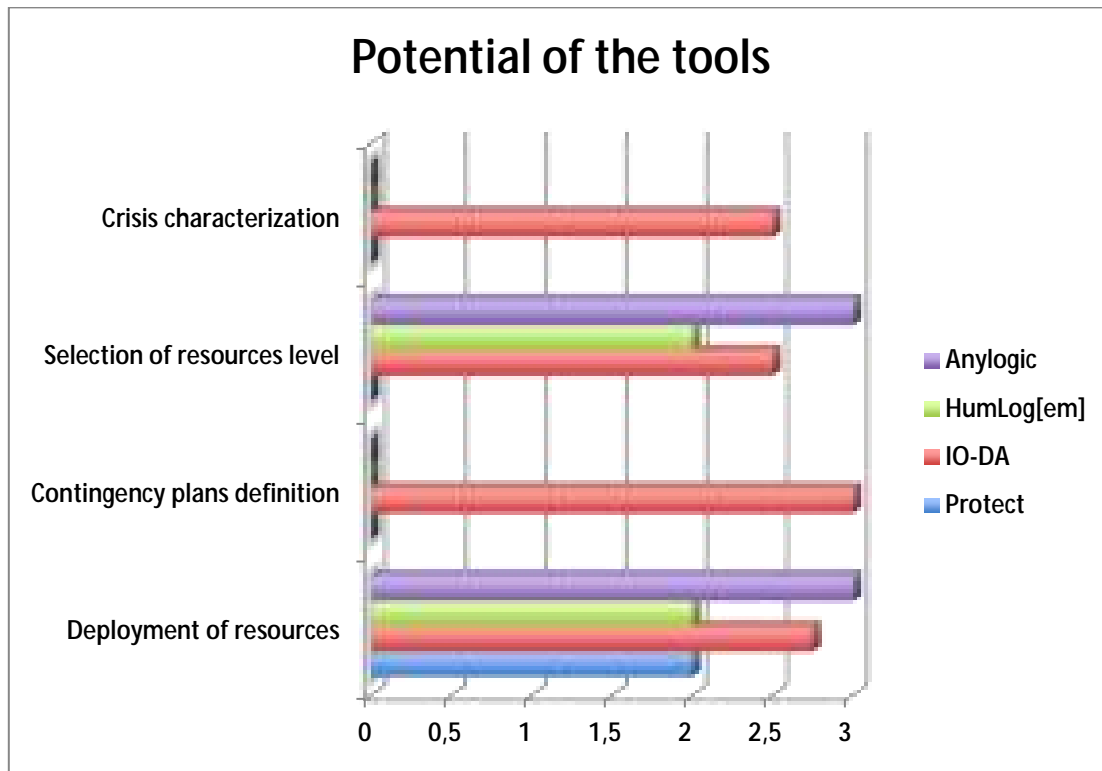


Figure 2: Feedbacks on the four tools, on potential study axis.

According with the evaluators the presented status didn't allow to conclude exactly the real potential of the Protect tool, since that there were some features that were not available at the moment. However the Anylogic and IO-DA tool is considered to have a very Potential, as well HumLog[em] also have a good Potential classification.

| | | | | | | | |
|----------------|--|----------------|----|----------|-------|----------|-------|
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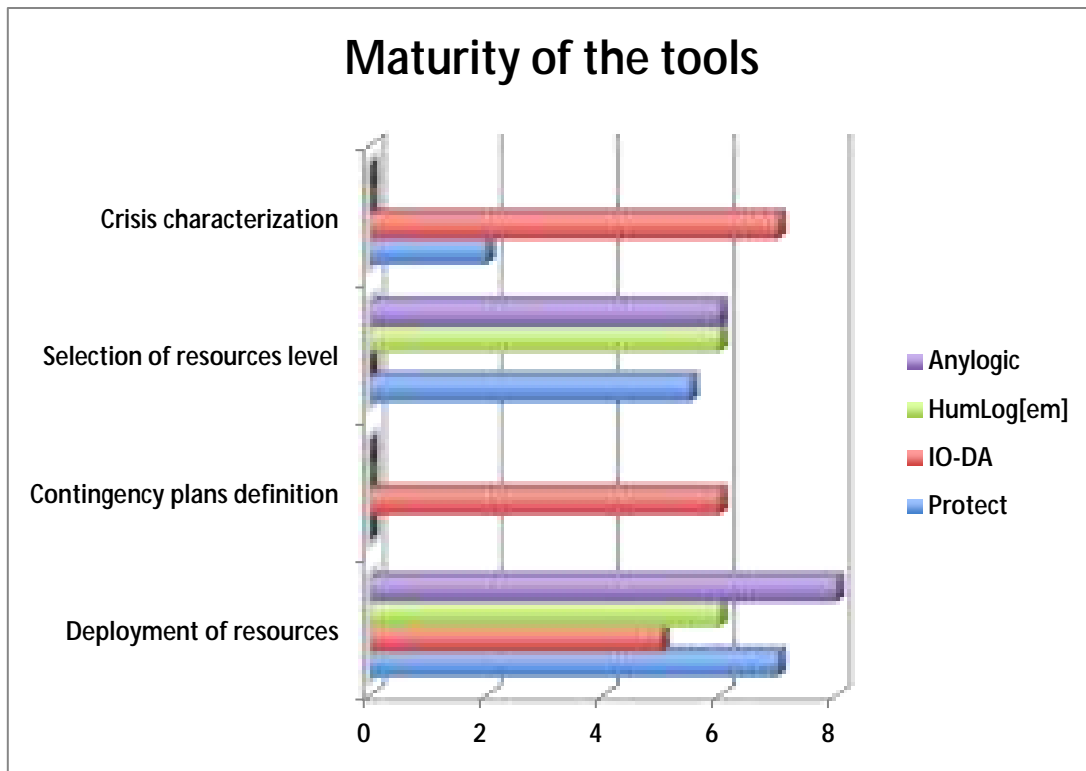


Figure 3: Feedbacks on the four tools, on maturity study axis.

For the maturity the Anylogic tools stands out as a tool in a high maturity level, as well as HumLog[em] in the Selection and Deployment of resources. IO-DA is the only that offers a good level in the Contingency Plan definition.

| | | | | | | | |
|----------------|--|----------------|----|----------|-------|----------|-------|
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4 Conclusion

The presented tools represents basically an operational tool (Protect), two modelling tools (IO-DA and HumLog[em]) and a multi-method simulation tool (Anylogic), and according with the presented evaluation this set of tools can support Task 44.1 – Capacity building and capacity mapping tools with the exception of the feature Crisis Characterization – Supply Forecast. Thus the feature Crisis Characterization – Supply Forecast, must be developed in one of the tools or as alternative the team must select and use other existing tool in order to fulfil this feature.

The necessary features: Deployment of Resources; Contingency Plans Definition; Selection of Resources Level; Risk Assessment; and Crisis Characterization are mostly covered by the evaluated tools in different levels: strategic, tactical and operational planning horizons are supported, as represented in the Figure 4:

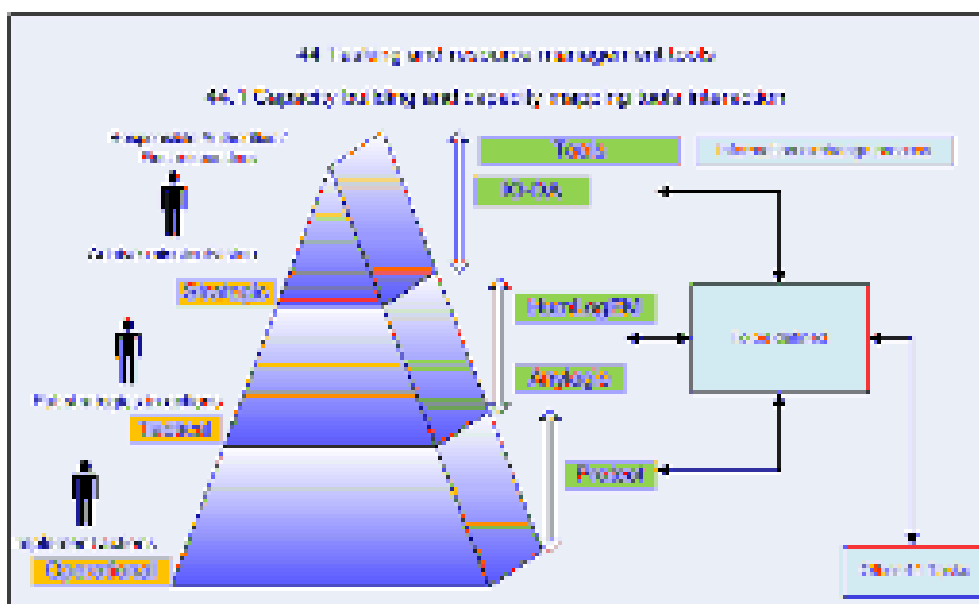


Figure 4: Capacity building and capacity mapping tools interaction

Figure 4 represents a possible cross-level approach of the tools features, although each tool can influence or be used by different levels and by users with different roles. In fact this would depend of the internal organization of each entity.

The D44.1 objectives have been achieved with a validation study of a planned orchestration with the set of inputs and outputs of the several tools. In order to achieve a tools orchestration, an integration and information exchange process strategy must be examined aiming a specific experiment development. This planned orchestration can include the necessary inputs and outputs in order to support other WP44 Tasks.

According with the DOW, the results of the capability build process will be evaluated and improved by simulation or formal proof. Thus specific experiments must be developed and report content will include the particularization of the Driver experimentation process to task 44.1, and a detailed

| | | | | | | | |
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specification of how the inputs and outputs of the several tools should be modelled in order to orchestrate the tools features aiming to evaluate by simulation or formal proof task 44.1, as well as the orchestrating between Task441 and the other WP44 tasks. These contents will be included in those specific experiments report.

| | | | | | | | |
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References

- [1] Dubost, L. et al (ed.): D41.1.1 - Initial Inventory of Tools SP4 level experimentation report. Deliverable of DRIVER Project, 2015.
- [2] Stolk, D. et al (ed.): D41.22 - State-of-the-art Response Systems. Deliverable of DRIVER Project, 2016.

| | | | | | | | |
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Annex

1.1 Protect Evaluation MSB

30/11/2014 MSB MRS BORSTRÖM
 2-4 ADDRESS COUNT PROJECT / MSB

| Task | Project | Sub-Project | Project Summary / Milestones / Deliverables | | | | Project Status / Phase |
|--|---------|--------------------------|---|-------|-------|-------|------------------------|
| | | | Yes/No/Part | Score | Phase | Notes | |
| Capacity Building and Capacity Mapping Tools | MSB | Mapping to Address Count | Yes | 3 | 9 | | |
| | | Capacity Mapping Tools | Yes | 3 | 9 | | |
| | | Address Count | | | | | |
| | | Address Count | | | | | |
| | | Address Count | | | | | |
| | | Address Count | Yes | 3 | 9 | | |
| | | Address Count | | | | | |
| | | Address Count | Yes | 2 | 9 | | |

SPA MSB SERVICES

| | | | | | | | |
|----------------|---|----------------|----|----------|-------|----------|-------|
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1.2 Protect Evaluation TNO

(project van der Loo, TNO)

Protect EPT

TNO Evaluation sheet

| Task | Task description | Task status | Protect possible | Protect evaluation | Protect features | Expected results (short / long term considerations) | Value potential of the feature (long / short term considerations) |
|---|-----------------------------|---|------------------|--------------------|------------------|--|---|
| Task 1 Capacity building tool Capacity mapping tool | Identification of Resources | Ability to identify different types, sizes and shapes | yes | 3 | 3* | expand the tool to cover also inter-organisational level capacity requirements fully defined | 3 |
| | Identification of Resources | Ability to identify different types of resources | yes | 3 | 3* | | 3 |
| | Identification of Resources | Ability to identify different types of resources | no | | | | |
| | Identification of Resources | Ability to identify different types of resources | ? | | | | |
| | Identification of Resources | Ability to identify different types of resources | no | | | | |
| | Task description | Task description | | | | | |
| | Task description | Task description | | | | | |
| Multi-organisational support | | | yes | 3 | 3* | | 3 |
| Automatic identification | | | | | | | |
| Capacity building | | | | | | | |
| Capacity mapping | | | | | | | |

* = In CECS the features are present, but in the Protect it is not possible

* = In CECS the features are present, but in the Protect it is not possible

| | | | | | | | |
|----------------|---|----------------|----|----------|-------|----------|-------|
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1.3 Protect Evaluation WWU

| 27.11. | WWU | Adam Widera | | Feature available | Feature relevance | Feature maturity | Suggested improvements / additional considerations (positive/negative) | Future potential of the feature? Taking trends into consideration |
|--|-------------------------------|--|--|-------------------|-------------------|---------------------|--|---|
| Task | Feature | Sub-feature | | Yes / No / Partly | 0=none 3=fully | 1=basic 9=proven | free text | 0=not at all ... 3=fully + free text |
| T44.1 Capacity Building and Capacity Mapping Tools | Deployment of Resources | Mapping to different Crisis types and levels | | Not clear | - | - | Difficult to estimate, during the demo no relation between the crisis types/levels and required "ressources" have been made. | - |
| | | Monitoring of current status of deployed resources | | Yes | 3 | - | | 2 The feature itself (balancing demands and supplies) in the crisis management context is a trend, but other established solutions could be consideeed (e.g. aidmatrix). |
| | *Contingency Plans Definition | Mapping to different Type of Crisis | | - | - | | | |
| | | Mapping to different crisis levels | | | | | | |
| | Selection of Resources Level | Monitoring of current resource level | | Partly | unclear | | The potential relevance is high, but in the demonstrated status the tool seems only to monitor requests and offers, not the existing resource levels (i.e. fulfilled requests and offers). | more information required |
| | | Decision Support | | | | | | |
| | *Risk Assessment | Risk catalogue | | | | | | |
| | Crisis Characterization | Simulation tools | | | | | | |
| | | Crisis Modelling | | No | - | | - | - |
| | | Supply Forecast | | | | | | |
| | Multilanguage support | | | | | | | |
| | Automatic Notifications | | | | | | | |
| | Lessons learned registry | | | | | | | |
| | Other | | | | | | | |
| Overall impression: The tool seems to be an exchange platform for balancing demand and supply. Such a function is highly relevant, but due to the presented status it is hardly possible to estimate the available potential of the tool. Maybe the application of the initially planned use case (Tsunami) could be usefull to showcase the functionality. | | | | | | | | |
| Usability (1=none ... 3=fully): difficult to estimate (see above) remarks: | | | | | | | | |
| Position within the DRIVER System of Systems (potential integration with... complementary to...): potential to be integrated with various other tools (esp. in the part of ressource management). However, when talking about the resource management task in DRIVER it should be considered to involve the <i>actually deployed</i> resource management tools of end users in order to ensure relevance and their participation. In combination the connection to Protect could be interesting. | | | | | | | | |

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1.4 Protect Evaluation GMV

| T44.1 Evaluation sheet | | | | | | | |
|--|-------------------------------|--|--|--|---|---|---|
| Task | Feature | Sub-feature | Feature available Yes / No / Partly | Feature relevance 0=none 3=fully | Feature maturity 1=basic 9=proven | Suggested improvements / additional considerations (positive/negative) free text | Future potential of the feature? Taking trends into consideration 0=not at all ... 3=fully + free text |
| T44.1 Capacity Building and Capacity Mapping Tools | Deployment of Resources | Mapping to different Crisis types and levels | Y | 3 | 4 | No relation between the crisis types and required resources have been made. | |
| | | Monitoring of current status of deployed resources | P | 3 | 2 | | |
| | *Contingency Plans Definition | Mapping to different Type of Crisis | N | | | | |
| | | Mapping to different crisis levels | | | | | |
| | Selection of Resources Level | Monitoring of current resource level | P | 3 | 2 | The tool seems to only monitor the requests and the assigned resources but not the resource levels. | |
| | | Decision Support | | | 2 | | |
| | *Risk Assessment | Risk catalogue | N | | | | |
| | Crisis Characterization | Simulation tools | P | | 2 | 2 | |
| | | Crisis Modelling | | | | | |
| | | Supply Forecast | | | | | |
| | Multilanguage support | | | | | | |
| | Automatic Notifications | | | | | | |
| | Lessons learned registry | | | | | | |
| | Other | | | | | | |
| * To be developed | | | | | | | |
| Overall impression: The tool seems to be an exchange platform for pooling and sharing. Such a function is highly relevant, but due to the presented status it is not possible to estimate the potential of the tool. | | | | | | | |
| Usability (1=none ... 3=fully): difficult to estimate (see above) remarks: | | | | | | | |
| Position within the DRIVER System of Systems (potential integration with..., complementary to...): Could be integrated with other tools in resource management.) but due to the presented status it is not possible to estimate the potential of the tool. | | | | | | | |

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1.5 Protect Evaluation IAO

EDP:inf -> Class - led ← case not present

| Evaluation sheet | | Feature available | Feature required | Feature required | Suggested requirements / additional considerations (non-negotiable) | Score possible if the feature? (Using breakdown combination) |
|-------------------------------|---|-------------------|------------------|------------------|---|--|
| | | Yes / No / Partly | Score: 0-4 | Score: 0-4 | Score: | Score: 0-4 - 0-4 |
| Feature | Sub-Feature | | | | | |
| Implementation of Resources | Mapping to different class types and levels | X ₀ | 1 | | | 1 |
| | Monitoring of current status of / updated resources | 3 partly | 1 | | Link to existing COE-type of activities | 2 |
| Confidence / Reliability | Ability to reference / refer to | - | | 1 | | |
| | Ability to reference / refer to | - | | 1 | | |
| Selection of Resources Level | Monitoring of current / historical / predicted / expected | 4 | 3 | | | 0 |
| Task Automation | Task automation | | | | | |
| Class Characterization | Class monitoring / supply forecast | 4 | 3 | | | 0 |
| Monitoring / Support | | X ₀ | 1 | | | 1 |
| Automatic Notifications | | X ₀ | 0 | | | 1 |
| Automatic Resource / Capacity | | X ₀ | 2 | | | 1 |
| Other | | 1 | | | | |

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| | | | | | |
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| | | | | Status: | Final |

1.6 IO-DA Evaluation GMV

| Task | Subtask | Tool/Software | IO-DA | Priority/Complexity | Business Relevance | Business Maturity | Organizational Implications / Additional Considerations (Positive/Negative) | Subject potential of the feature / Value of the consideration (Scale of 1 - 5) (Yes/No) |
|--|--------------------------------|--------------------------------|-------|---------------------|--------------------|-------------------|---|---|
| Task 1: Design and Assessment | Supporting data from the Study | Supporting data from the Study | | Priority | 3 | 3 | | |
| | Business Analysis | Business Analysis | | Yes | 3 | 3 | | 3 |
| | Business Support | Business Support | | Yes | 3 | 3 | | 3 |
| Task 2: Capacity Building and Capacity Mapping Tools | Deployment of Resources | Deployment of Resources | | Yes | 3 | 3 | | 3 |
| | Contingency Plans Definition | Contingency Plans Definition | | Yes | 3 | 3 | | 3 |
| | Crises Characteristics | Crises Characteristics | | Yes | 3 | 3 | | 3 |
| Task 3: Training and Capacity Assessment | Resource Monitoring | Resource Monitoring | | Priority | 3 | 3 | | 3 |
| | Planning & Sharing | Planning & Sharing | | Priority | 3 | 3 | | 3 |
| | Crises Management | Crises Management | | Yes | 3 | 3 | | 3 |
| | Information Sharing | Information Sharing | | Yes | 3 | 3 | | 3 |

| Task | Subtask | Tool/Software | IO-DA | Priority/Complexity | Business Relevance | Business Maturity | Organizational Implications / Additional Considerations (Positive/Negative) | Subject potential of the feature / Value of the consideration (Scale of 1 - 5) (Yes/No) |
|--|--------------------------------|--------------------------------|-------|---------------------|--------------------|-------------------|---|---|
| Task 1: Design and Assessment | Supporting data from the Study | Supporting data from the Study | | Priority | 3 | 3 | | |
| Task 2: Capacity Building and Capacity Mapping Tools | Deployment of Resources | Deployment of Resources | | Yes | 3 | 3 | | 3 |
| Task 3: Training and Capacity Assessment | Resource Monitoring | Resource Monitoring | | Priority | 3 | 3 | | 3 |
| Task 4: Crisis Management | Crises Management | Crises Management | | Yes | 3 | 3 | | 3 |
| Task 5: Information Sharing | Information Sharing | Information Sharing | | Yes | 3 | 3 | | 3 |

| | | | | | | | |
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1.7 IO-DA Evaluation IOA

TABLE 104 - List of experiments - IOA evaluation

calc. IOA value →

| IOA | IOA description | IOA name | IOA ID | IOA type | IOA status | IOA priority | IOA description | IOA description | IOA description |
|--|--|---|----------|----------|------------|--------------|-----------------|-----------------|-----------------|
| IOA 1 - Capacity building and capacity mapping tools | IOA 1 - Capacity building and capacity mapping tools | IOA 1.1 - Capacity building and capacity mapping tools | IOA 1.1 | IOA 1.1 | IOA 1.1 | IOA 1.1 | IOA 1.1 | IOA 1.1 | IOA 1.1 |
| | | IOA 1.2 - Capacity building and capacity mapping tools | IOA 1.2 | IOA 1.2 | IOA 1.2 | IOA 1.2 | IOA 1.2 | IOA 1.2 | IOA 1.2 |
| | | IOA 1.3 - Capacity building and capacity mapping tools | IOA 1.3 | IOA 1.3 | IOA 1.3 | IOA 1.3 | IOA 1.3 | IOA 1.3 | IOA 1.3 |
| | | IOA 1.4 - Capacity building and capacity mapping tools | IOA 1.4 | IOA 1.4 | IOA 1.4 | IOA 1.4 | IOA 1.4 | IOA 1.4 | IOA 1.4 |
| | | IOA 1.5 - Capacity building and capacity mapping tools | IOA 1.5 | IOA 1.5 | IOA 1.5 | IOA 1.5 | IOA 1.5 | IOA 1.5 | IOA 1.5 |
| | | IOA 1.6 - Capacity building and capacity mapping tools | IOA 1.6 | IOA 1.6 | IOA 1.6 | IOA 1.6 | IOA 1.6 | IOA 1.6 | IOA 1.6 |
| | | IOA 1.7 - Capacity building and capacity mapping tools | IOA 1.7 | IOA 1.7 | IOA 1.7 | IOA 1.7 | IOA 1.7 | IOA 1.7 | IOA 1.7 |
| | | IOA 1.8 - Capacity building and capacity mapping tools | IOA 1.8 | IOA 1.8 | IOA 1.8 | IOA 1.8 | IOA 1.8 | IOA 1.8 | IOA 1.8 |
| | | IOA 1.9 - Capacity building and capacity mapping tools | IOA 1.9 | IOA 1.9 | IOA 1.9 | IOA 1.9 | IOA 1.9 | IOA 1.9 | IOA 1.9 |
| | | IOA 1.10 - Capacity building and capacity mapping tools | IOA 1.10 | IOA 1.10 | IOA 1.10 | IOA 1.10 | IOA 1.10 | IOA 1.10 | IOA 1.10 |

| | | | | | | | |
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| | | | Feature available | Feature reference | Feature maturity | Suggested requirements / additional considerations (positive/negative) | Value potential of the feature / being tested, into consideration |
|--------------------|------------------------|--|---|-------------------|------------------|--|---|
| | | | General remarks to the tool | | | | |
| Name | | | <p>General remarks:</p> <p>High potential and advanced AI/ML, probably difficult to bring in the field w/ features of ours, but likely with potential substantial in some experiments</p> | | | | |
| Description | | | | | | | |
| Main Use Scenarios | | | <p>Ability to ...</p> <p>2 (not able to judge usability)</p> | | | | |
| Provider | | | | | | | |
| Origin | Internal | | <p>Position within the DSSSE System of Systems (potential integration with ... components to ...)</p> <p>Potential integration with supply chain modelling (WUM), cross op picture tools (e.g. FRQ)</p> | | | | |
| DRIVER Type | | | | | | | |
| CA Phases | Concepts & Planning | | | | | | |
| | Response | | | | | | |
| | Planning | | | | | | |
| | AI status (internal) | | | | | | |
| Target Role(s) | | | | | | | |
| | Full reach | | | | | | |
| | Out reach | | | | | | |
| | Low engagement | | | | | | |
| | Fit (urgent) | | | | | | |
| | AI status (external) | | | | | | |
| Accessing | Commercial | | | | | | |
| | Free | | | | | | |
| | Open source | | | | | | |
| | Proprietary / Academic | | | | | | |
| Maturity | Level | | | | | | |
| | | | | | | | |
| Platform | Software architecture | | | | | | |
| | Software environment | | | | | | |
| Host | Web | | | | | | |
| | Standalone / Local | | | | | | |
| Output | Web | | | | | | |
| | Standalone / Local | | | | | | |

| | | | | | | |
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1.8 HumLogEma Evaluation DLR1

| Activity ID | Activity Name | Activity Description | Start | End | Duration | Category | Priority | Responsible |
|-------------|---------------|-----------------------|-------|-----|----------|----------|----------|-------------|
| T-2.11 | N/A | Activity Description | | | | | | |
| Task 1.1 | Task 1.1 | Task 1.1 Description | | | | | | |
| Task 1.2 | Task 1.2 | Task 1.2 Description | | | | | | |
| Task 1.3 | Task 1.3 | Task 1.3 Description | | | | | | |
| Task 1.4 | Task 1.4 | Task 1.4 Description | | | | | | |
| Task 1.5 | Task 1.5 | Task 1.5 Description | | | | | | |
| Task 1.6 | Task 1.6 | Task 1.6 Description | | | | | | |
| Task 1.7 | Task 1.7 | Task 1.7 Description | | | | | | |
| Task 1.8 | Task 1.8 | Task 1.8 Description | | | | | | |
| Task 1.9 | Task 1.9 | Task 1.9 Description | | | | | | |
| Task 1.10 | Task 1.10 | Task 1.10 Description | | | | | | |
| Task 1.11 | Task 1.11 | Task 1.11 Description | | | | | | |
| Task 1.12 | Task 1.12 | Task 1.12 Description | | | | | | |
| Task 1.13 | Task 1.13 | Task 1.13 Description | | | | | | |
| Task 1.14 | Task 1.14 | Task 1.14 Description | | | | | | |
| Task 1.15 | Task 1.15 | Task 1.15 Description | | | | | | |
| Task 1.16 | Task 1.16 | Task 1.16 Description | | | | | | |
| Task 1.17 | Task 1.17 | Task 1.17 Description | | | | | | |
| Task 1.18 | Task 1.18 | Task 1.18 Description | | | | | | |
| Task 1.19 | Task 1.19 | Task 1.19 Description | | | | | | |
| Task 1.20 | Task 1.20 | Task 1.20 Description | | | | | | |
| Task 1.21 | Task 1.21 | Task 1.21 Description | | | | | | |
| Task 1.22 | Task 1.22 | Task 1.22 Description | | | | | | |
| Task 1.23 | Task 1.23 | Task 1.23 Description | | | | | | |
| Task 1.24 | Task 1.24 | Task 1.24 Description | | | | | | |
| Task 1.25 | Task 1.25 | Task 1.25 Description | | | | | | |
| Task 1.26 | Task 1.26 | Task 1.26 Description | | | | | | |
| Task 1.27 | Task 1.27 | Task 1.27 Description | | | | | | |
| Task 1.28 | Task 1.28 | Task 1.28 Description | | | | | | |
| Task 1.29 | Task 1.29 | Task 1.29 Description | | | | | | |
| Task 1.30 | Task 1.30 | Task 1.30 Description | | | | | | |
| Task 1.31 | Task 1.31 | Task 1.31 Description | | | | | | |
| Task 1.32 | Task 1.32 | Task 1.32 Description | | | | | | |
| Task 1.33 | Task 1.33 | Task 1.33 Description | | | | | | |
| Task 1.34 | Task 1.34 | Task 1.34 Description | | | | | | |
| Task 1.35 | Task 1.35 | Task 1.35 Description | | | | | | |
| Task 1.36 | Task 1.36 | Task 1.36 Description | | | | | | |
| Task 1.37 | Task 1.37 | Task 1.37 Description | | | | | | |
| Task 1.38 | Task 1.38 | Task 1.38 Description | | | | | | |
| Task 1.39 | Task 1.39 | Task 1.39 Description | | | | | | |
| Task 1.40 | Task 1.40 | Task 1.40 Description | | | | | | |
| Task 1.41 | Task 1.41 | Task 1.41 Description | | | | | | |
| Task 1.42 | Task 1.42 | Task 1.42 Description | | | | | | |
| Task 1.43 | Task 1.43 | Task 1.43 Description | | | | | | |
| Task 1.44 | Task 1.44 | Task 1.44 Description | | | | | | |
| Task 1.45 | Task 1.45 | Task 1.45 Description | | | | | | |
| Task 1.46 | Task 1.46 | Task 1.46 Description | | | | | | |
| Task 1.47 | Task 1.47 | Task 1.47 Description | | | | | | |
| Task 1.48 | Task 1.48 | Task 1.48 Description | | | | | | |
| Task 1.49 | Task 1.49 | Task 1.49 Description | | | | | | |
| Task 1.50 | Task 1.50 | Task 1.50 Description | | | | | | |
| Task 1.51 | Task 1.51 | Task 1.51 Description | | | | | | |
| Task 1.52 | Task 1.52 | Task 1.52 Description | | | | | | |
| Task 1.53 | Task 1.53 | Task 1.53 Description | | | | | | |
| Task 1.54 | Task 1.54 | Task 1.54 Description | | | | | | |
| Task 1.55 | Task 1.55 | Task 1.55 Description | | | | | | |
| Task 1.56 | Task 1.56 | Task 1.56 Description | | | | | | |
| Task 1.57 | Task 1.57 | Task 1.57 Description | | | | | | |
| Task 1.58 | Task 1.58 | Task 1.58 Description | | | | | | |
| Task 1.59 | Task 1.59 | Task 1.59 Description | | | | | | |
| Task 1.60 | Task 1.60 | Task 1.60 Description | | | | | | |
| Task 1.61 | Task 1.61 | Task 1.61 Description | | | | | | |
| Task 1.62 | Task 1.62 | Task 1.62 Description | | | | | | |
| Task 1.63 | Task 1.63 | Task 1.63 Description | | | | | | |
| Task 1.64 | Task 1.64 | Task 1.64 Description | | | | | | |
| Task 1.65 | Task 1.65 | Task 1.65 Description | | | | | | |
| Task 1.66 | Task 1.66 | Task 1.66 Description | | | | | | |
| Task 1.67 | Task 1.67 | Task 1.67 Description | | | | | | |
| Task 1.68 | Task 1.68 | Task 1.68 Description | | | | | | |
| Task 1.69 | Task 1.69 | Task 1.69 Description | | | | | | |
| Task 1.70 | Task 1.70 | Task 1.70 Description | | | | | | |
| Task 1.71 | Task 1.71 | Task 1.71 Description | | | | | | |
| Task 1.72 | Task 1.72 | Task 1.72 Description | | | | | | |
| Task 1.73 | Task 1.73 | Task 1.73 Description | | | | | | |
| Task 1.74 | Task 1.74 | Task 1.74 Description | | | | | | |
| Task 1.75 | Task 1.75 | Task 1.75 Description | | | | | | |
| Task 1.76 | Task 1.76 | Task 1.76 Description | | | | | | |
| Task 1.77 | Task 1.77 | Task 1.77 Description | | | | | | |
| Task 1.78 | Task 1.78 | Task 1.78 Description | | | | | | |
| Task 1.79 | Task 1.79 | Task 1.79 Description | | | | | | |
| Task 1.80 | Task 1.80 | Task 1.80 Description | | | | | | |
| Task 1.81 | Task 1.81 | Task 1.81 Description | | | | | | |
| Task 1.82 | Task 1.82 | Task 1.82 Description | | | | | | |
| Task 1.83 | Task 1.83 | Task 1.83 Description | | | | | | |
| Task 1.84 | Task 1.84 | Task 1.84 Description | | | | | | |
| Task 1.85 | Task 1.85 | Task 1.85 Description | | | | | | |
| Task 1.86 | Task 1.86 | Task 1.86 Description | | | | | | |
| Task 1.87 | Task 1.87 | Task 1.87 Description | | | | | | |
| Task 1.88 | Task 1.88 | Task 1.88 Description | | | | | | |
| Task 1.89 | Task 1.89 | Task 1.89 Description | | | | | | |
| Task 1.90 | Task 1.90 | Task 1.90 Description | | | | | | |
| Task 1.91 | Task 1.91 | Task 1.91 Description | | | | | | |
| Task 1.92 | Task 1.92 | Task 1.92 Description | | | | | | |
| Task 1.93 | Task 1.93 | Task 1.93 Description | | | | | | |
| Task 1.94 | Task 1.94 | Task 1.94 Description | | | | | | |
| Task 1.95 | Task 1.95 | Task 1.95 Description | | | | | | |
| Task 1.96 | Task 1.96 | Task 1.96 Description | | | | | | |
| Task 1.97 | Task 1.97 | Task 1.97 Description | | | | | | |
| Task 1.98 | Task 1.98 | Task 1.98 Description | | | | | | |
| Task 1.99 | Task 1.99 | Task 1.99 Description | | | | | | |
| Task 2.00 | Task 2.00 | Task 2.00 Description | | | | | | |

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1.9 HumLogEma Evaluation DLR2

26.11.2019

| Item | Reference | Category | Priority | Impact | Effort | Complexity | Dependencies | Notes |
|------|-----------|----------|----------|--------|--------|------------|--------------|-------|
| 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 |
| 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 |
| 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 |
| 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |
| 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 |
| 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 | 1.10 |
| 1.11 | 1.11 | 1.11 | 1.11 | 1.11 | 1.11 | 1.11 | 1.11 | 1.11 |
| 1.12 | 1.12 | 1.12 | 1.12 | 1.12 | 1.12 | 1.12 | 1.12 | 1.12 |
| 1.13 | 1.13 | 1.13 | 1.13 | 1.13 | 1.13 | 1.13 | 1.13 | 1.13 |
| 1.14 | 1.14 | 1.14 | 1.14 | 1.14 | 1.14 | 1.14 | 1.14 | 1.14 |
| 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 | 1.15 |
| 1.16 | 1.16 | 1.16 | 1.16 | 1.16 | 1.16 | 1.16 | 1.16 | 1.16 |
| 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 | 1.17 |
| 1.18 | 1.18 | 1.18 | 1.18 | 1.18 | 1.18 | 1.18 | 1.18 | 1.18 |
| 1.19 | 1.19 | 1.19 | 1.19 | 1.19 | 1.19 | 1.19 | 1.19 | 1.19 |
| 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 | 1.20 |
| 1.21 | 1.21 | 1.21 | 1.21 | 1.21 | 1.21 | 1.21 | 1.21 | 1.21 |
| 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 | 1.22 |
| 1.23 | 1.23 | 1.23 | 1.23 | 1.23 | 1.23 | 1.23 | 1.23 | 1.23 |
| 1.24 | 1.24 | 1.24 | 1.24 | 1.24 | 1.24 | 1.24 | 1.24 | 1.24 |
| 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 |
| 1.26 | 1.26 | 1.26 | 1.26 | 1.26 | 1.26 | 1.26 | 1.26 | 1.26 |
| 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 | 1.27 |
| 1.28 | 1.28 | 1.28 | 1.28 | 1.28 | 1.28 | 1.28 | 1.28 | 1.28 |
| 1.29 | 1.29 | 1.29 | 1.29 | 1.29 | 1.29 | 1.29 | 1.29 | 1.29 |
| 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 | 1.30 |
| 1.31 | 1.31 | 1.31 | 1.31 | 1.31 | 1.31 | 1.31 | 1.31 | 1.31 |
| 1.32 | 1.32 | 1.32 | 1.32 | 1.32 | 1.32 | 1.32 | 1.32 | 1.32 |
| 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 | 1.33 |
| 1.34 | 1.34 | 1.34 | 1.34 | 1.34 | 1.34 | 1.34 | 1.34 | 1.34 |
| 1.35 | 1.35 | 1.35 | 1.35 | 1.35 | 1.35 | 1.35 | 1.35 | 1.35 |
| 1.36 | 1.36 | 1.36 | 1.36 | 1.36 | 1.36 | 1.36 | 1.36 | 1.36 |
| 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 | 1.37 |
| 1.38 | 1.38 | 1.38 | 1.38 | 1.38 | 1.38 | 1.38 | 1.38 | 1.38 |
| 1.39 | 1.39 | 1.39 | 1.39 | 1.39 | 1.39 | 1.39 | 1.39 | 1.39 |
| 1.40 | 1.40 | 1.40 | 1.40 | 1.40 | 1.40 | 1.40 | 1.40 | 1.40 |
| 1.41 | 1.41 | 1.41 | 1.41 | 1.41 | 1.41 | 1.41 | 1.41 | 1.41 |
| 1.42 | 1.42 | 1.42 | 1.42 | 1.42 | 1.42 | 1.42 | 1.42 | 1.42 |
| 1.43 | 1.43 | 1.43 | 1.43 | 1.43 | 1.43 | 1.43 | 1.43 | 1.43 |
| 1.44 | 1.44 | 1.44 | 1.44 | 1.44 | 1.44 | 1.44 | 1.44 | 1.44 |
| 1.45 | 1.45 | 1.45 | 1.45 | 1.45 | 1.45 | 1.45 | 1.45 | 1.45 |
| 1.46 | 1.46 | 1.46 | 1.46 | 1.46 | 1.46 | 1.46 | 1.46 | 1.46 |
| 1.47 | 1.47 | 1.47 | 1.47 | 1.47 | 1.47 | 1.47 | 1.47 | 1.47 |
| 1.48 | 1.48 | 1.48 | 1.48 | 1.48 | 1.48 | 1.48 | 1.48 | 1.48 |
| 1.49 | 1.49 | 1.49 | 1.49 | 1.49 | 1.49 | 1.49 | 1.49 | 1.49 |
| 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 | 1.50 |

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1.10 HumLogEma ARMINES

| Item | Item ID | Contributor | URL | Access | Access | Access | Expected outcomes / additional information / comments | Value provided by the project using current data collection |
|---|---------|-------------|---------------------|-----------|--------|--------|---|---|
| Item | Item ID | Contributor | URL | Yes/No/NA | Access | Access | Expected outcomes / additional information / comments | Value provided by the project using current data collection |
| 261M | ARMINES | F. GONZALEZ | https://armines.com | Yes | 2 | 6 | | 2 very relevant |
| | | | | Yes | 2 | 6 | | 2 very relevant |
| <p>ARMINES is a leading tool used by several countries including Portugal, it can be used for the collection of operational reports as well as the transfer reporting to the public sector.</p> <p>ARMINES is a leading tool used by several countries including Portugal, it can be used for the collection of operational reports as well as the transfer reporting to the public sector.</p> | | | | | | | | |
| <p>ARMINES is a leading tool used by several countries including Portugal, it can be used for the collection of operational reports as well as the transfer reporting to the public sector.</p> | | | | 2 | | | | |
| <p>ARMINES is a leading tool used by several countries including Portugal, it can be used for the collection of operational reports as well as the transfer reporting to the public sector.</p> | | | | | | | | |

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| | | | | Status: | Final |

1.11 HumLogEma GMV

| Date | Evaluator org. | Evaluator name | Aspects | Feature available | Feature relevant | Feature maturity | Suggested improvements / additional considerations (positive/negative) | Future potential of the feature? (taking trends into consideration) |
|-----------------------------|----------------------------|--|--|-------------------|-----------------------|-----------------------------------|--|---|
| Test | Feature | Sub-feature | | Yes / No / Partly | Relevant / Irrelevant | Submature / Submature / Submature | Free text | General or not - Safety critical test |
| 26/11/2014 | GMV | Markus Harango | | | | | | |
| Name | | AnalLog | General remarks to the tool | | | | | |
| Description | | AnalLog is a multi method (drivers event, agent based, system) | Overall impression | | | | | |
| Main functionalities | | Modeling and simulation | The functionality provided by the tool is very useful but the main difficulty is in the definition of an accurate model. | | | | | |
| Provider | | The AnalLog Company | | | | | | |
| Origin | Invental | Third party | | | | | | |
| DIRT II Task | | T441, T443, T445 | | | | | | |
| DM Phases | Pre-assessment & Planning | | Usability (Errors - Safety) : - none The difficulty to define an accurate model can make the usage of the tool difficult (or useless in other cases) | | | | | |
| | Response | emphasis | | | | | | |
| | Recovery | | | | | | | |
| | All phases (General) | not | | | | | | |
| Target Body | | | Position within the DIRT II System of Systems (potential integration with ... complementary to ...) This suite of tools would be very useful to define the contingency plans that will be required to plan the testing in the SOCRATO-bus Additionally information provided by the tool should be also considered during the response phase to define tasks that would allow to handle the identified test levels and cascading effects | | | | | |
| | Public health | | | | | | | |
| | Collectivity | | | | | | | |
| | Law enforcement | | | | | | | |
| | Traffic logs | | | | | | | |
| | All bodies (general) | not | | | | | | |
| Licensing | Commercial | Yes | | | | | | |
| | Free | No (License keys available) | | | | | | |
| | Open source | No | | | | | | |
| Maturity | Technology Readiness Level | 5 | | | | | | |
| Platform | Software architecture | Hardware | | | | | | |
| | Software environment | Windows, Mac OS, Linux | | | | | | |
| Input | API | ODBC, Various file import options | | | | | | |
| | Standard Format | XML | | | | | | |
| Output | API | ODBC, Various file export options | | | | | | |
| | Standard Format | XML | | | | | | |

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1.12 Anylogic Evaluation DLR1

| Category | Item | Value | Weight | Score | Comments |
|----------|----------|-------|--------|-------|--|
| 1.12.1 | 1.12.1.1 | 5 | 1 | 5 | Accuracy |
| | 1.12.1.2 | 5 | 2 | 10 | The report is well structured |
| | 1.12.1.3 | 5 | 1 | 5 | Not practical including capacity, location |
| 1.12.2 | 1.12.2.1 | 5 | 1 | 5 | Accuracy |
| | 1.12.2.2 | 5 | 1 | 5 | Accuracy |
| | 1.12.2.3 | 5 | 1 | 5 | Accuracy |
| 1.12.3 | 1.12.3.1 | 5 | 1 | 5 | Accuracy |
| | 1.12.3.2 | 5 | 1 | 5 | Accuracy |
| | 1.12.3.3 | 5 | 1 | 5 | Accuracy |

not to be improved
(accuracy)

| Category | Item | Value | Weight | Score | Comments |
|----------|----------|-------|--------|-------|----------|
| 1.12.4 | 1.12.4.1 | 5 | 1 | 5 | Accuracy |
| | 1.12.4.2 | 5 | 1 | 5 | Accuracy |
| | 1.12.4.3 | 5 | 1 | 5 | Accuracy |

help to improve accuracy
(Report tail)

| | | | | | | | |
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1.14 Anylogic ARMINES

| 26/04 ARMINES F. LAMANEV | | | Anylogic | | | Overall score (0-10) | | Overall score (0-10) | |
|---|--------------------------|----------|----------|----|-------|---|-------|----------------------|--|
| Category | Sub-category | Item | Yes | No | Score | Comments | Score | Comments | |
| General | Availability of software | Anylogic | Yes | 3 | 9 | | | 3 very complete | |
| | | ARMINES | Yes | 3 | 9 | | | 3 very complete | |
| General | Availability of hardware | Anylogic | Yes | 1 | 5 | Not so clear | | 2? | |
| | | ARMINES | Yes | 2 | 6 | | | 2 | |
| General | Availability of training | Anylogic | Yes | 3 | 9 | | | 3 | |
| | | ARMINES | Yes | 3 | 9 | | | 3 | |
| <p>ARMINES is a tool used to simulate social agent-based systems.</p> <p>Anylogic is a tool used to simulate agent-based systems.</p> <p>ARMINES is a tool used to simulate social agent-based systems.</p> <p>Anylogic is a tool used to simulate agent-based systems.</p> | | | | | | <p>ARMINES is a tool used to simulate social agent-based systems.</p> <p>Anylogic is a tool used to simulate agent-based systems.</p> <p>ARMINES is a tool used to simulate social agent-based systems.</p> <p>Anylogic is a tool used to simulate agent-based systems.</p> | | | |
| <p>ARMINES is a tool used to simulate social agent-based systems.</p> <p>Anylogic is a tool used to simulate agent-based systems.</p> <p>ARMINES is a tool used to simulate social agent-based systems.</p> <p>Anylogic is a tool used to simulate agent-based systems.</p> | | | | | | <p>ARMINES is a tool used to simulate social agent-based systems.</p> <p>Anylogic is a tool used to simulate agent-based systems.</p> <p>ARMINES is a tool used to simulate social agent-based systems.</p> <p>Anylogic is a tool used to simulate agent-based systems.</p> | | | |

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1.15 Anylogic GMV

| Date | Evaluator org. | Evaluator name | Anylogic | Feature available | Feature relevanc | Feature maturity | Suggested improvements, / additional considerations (positive/negative) | Future potential of the feature? |
|------------------------------------|----------------|----------------|----------|--|------------------|--------------------|---|--------------------------------------|
| Task | Feature | Sub-feature | | Yes / No / Partly | Genomic / Fully | 1-basic / Improved | Free test | Genot or all ... / Fully / Free test |
| 26/11/2024 | idra | Hector Moranjo | Anylogic | | | | | |
| Name | | | | General remarks to the tool | | | | |
| Description: | | | | Overall impression: | | | | |
| Main functionalities: | | | | The functionality provided by the tool is very useful but the main difficulty is in the definition of an accurate model. | | | | |
| Provider: | | | | | | | | |
| Origin: | | | | | | | | |
| DBMR Task: | | | | | | | | |
| CM Phases: | | | | Usability (Lincom ... / Fully): 2 | | | | |
| Response: | | | | remarks: | | | | |
| Recovery: | | | | The difficulty to define an accurate model can make the usage of the tool difficult (or useless in other case) | | | | |
| all phases (Genetic): | | | | | | | | |
| Target Body: | | | | | | | | |
| Public health: | | | | | | | | |
| Civil aspects: | | | | | | | | |
| Law enforcement: | | | | | | | | |
| Fire brigade: | | | | | | | | |
| All bodies (generic): | | | | yes | | | | |
| Licensing: | | | | Position within the DBMR system of systems (potential integration with..., complementary to...) | | | | |
| Free: | | | | This suite of tools would be very useful to define the contingency plans that will be required to plan the tasking in the SOCRATES-suite. | | | | |
| Open-source: | | | | Additionally information provided by the tool should be also considered during the response phase to define tasks that would allow to tackle the identified bottlenecks and cascading effects. | | | | |
| Technology/Readiness Level: | | | | | | | | |
| Platform: | | | | | | | | |
| Software architecture: | | | | | | | | |
| Software environment: | | | | | | | | |
| Input: | | | | | | | | |
| API: | | | | | | | | |
| Standard Format: | | | | | | | | |
| Output: | | | | | | | | |
| API: | | | | | | | | |
| Standard/Format: | | | | | | | | |

| | | | | | | | |
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