



L4S Report Summary

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Periodic Report Summary 2 - L4S (Learning 4 security)

Project context and objectives:

The aim of L4S project is to provide a clear understanding and to further develop existing know-how, in both interdisciplinary scientific / academic models and best / worst practices and experiences in the field of transportation. It focuses on the factors inhibiting effective collaboration dynamics in crises and leading to the failure of effective crisis management and of the interventions required to reduce these risks.

This know-how is integrated into an innovative framework for addressing the development of collaboration competencies of crisis managers in the transportation sector. This L4S framework is validated through the implementation of state-of-the-art highly interactive and experiential learning solutions that enable the effective understanding and management of the challenges in crisis situations, as validated with the participation of practitioners in the field during the second project year. These challenges include:

1. acting under extreme time pressure;
2. facing the lack, ambiguity, and / or asymmetries of information;
3. dealing with human factors like cognitions, attitudes and emotions; and
4. addressing the interpersonal relationship dimension like fast relationship building and activation for the mobilisation of social resources, trust building, cohesion and role definitions and also handling diversity and conflicts.

L4S objectives are to develop simulation based learning experiences and provide supporting guides and tools for developing the soft skills necessary in effective crisis management. These learning experiences would be deployable for a variety of purposes, including:

- training security managers and crisis managers in organisation, particularly in the transportation sector;
- preparing and testing security / crisis readiness of organisations and of their employees;
- auditing the organisational preparedness for crises in security domains and beyond (i.e. financial crises);
- preparing the broader public on appropriate behaviours and responses to security incidents;
- conducting research (e.g. experimental tests) on the impact of different responses to the reaction of the public or the effects of the security incident.

Project results:

The scientific and technological methodology and associated work plan of L4S project evolved from a model for the design process of small world simulations developed by Angehrn (2006). The L4S project is advanced through a continuous interplay between technological and educational development, on field trials and observations, implementation and validation of simulation learning activities in different learning environments. Domain experts remain strongly involved in key roles throughout the process. The evaluation of the project's impact is performed according to a concrete and methodological scheme which is developed in the framework of the project. A dissemination strategy was devised at the beginning of the project and has been performed in stages during the project's duration. Additionally, an evaluation plan covering both technical as well as learning aspects ensures that the final deliverables are suitable for their purposes and can be naturally integrated in the different environments.

The implementation scheme of the project was planned to be developed across three main axes:

- collaboration challenges and related competencies and dynamics for crisis managers (WP1);
- knowledge processes and community building (WP2);
- advanced technological tools for simulation games (WP3).

The pathways document the full network of options and the choices actually explored within the project. They also document separate trends of development that may occur as a result of the different trial environments. More concretely, the objective of WP1 is to produce a comprehensive integrated collection of models and insights emerging

from both scientific theory and practical experiences relevant to the human collaboration dimension in crisis situations as a foundation to be integrated in the L4S knowledge community (KC) (WP2), in the L4S framework and in the L4S simulation games (WP3).

The objective of WP2 is the design and development of two tools to support the simulation design and deployment: The L4S KC and the L4S online workshop tool (OWL4S).

The objective of WP3 is to develop a first version of the L4S framework for the design of effective simulation based learning experiences addressing collaboration dynamics and competencies development in crisis management, and to use it to drive the design and implementation of a first prototype of four L4S simulation games reflecting the knowledge gathered in WP1 and WP2.

All three pathways have produced at regular intervals analytical reports from the meetings and the workshops, observations and reports from the field trips, technical, pedagogical and evaluation reports produced during the development of the tools -four simulation games prototypes - and their components. These reports also compare with the state of the art in their respective areas. The interconnection amongst the three pathways is facilitated through the extended pilots that were realised during the second year of the project and strengthen the involvement of domains expertise.

During the first pilot round, a total of 10 different pilots has been carried out, involving 246 pilot users, while in the second piloting phase an additional set of 12 different pilots was conducted involving a total of additional 201 pilot users in which the L4S Prototypes and their components have been deployed. It is evident that a significant number of pilot trials were conducted, in a variety of corporate and academic environments, engaging a respective number of players (close to 500) and creating significant opportunities for the exploitation dimension of the L4S prototypes. Important pilot and commercial activities are already planned for the post-L4S phase, engaging hundreds of players. Furthermore, a lot of effort was carried out in the refinement and fine tuning of all applications, in order to deliver learning experiences of high value.

Concerning the identification of the best way of diffusing this type of high-value learning experiences Europe-wide, the consortium has conducted a market analysis, which produced detailed and relevant market information focusing primarily on the countries that partners are originating from.

The L4S consortium has now clear evidence that L4S learning experiences have a high potential for diffusion and impact through various exploitation streams, that offer to the L4S partners distinct but valuable high quality assets in their internal and / or external operations and to transportation and security stakeholders an innovative portfolio of advanced learning experiences on crisis management.

Potential impact:

L4S project exploits the reality and the needs of organisations to help their managers and personnel in order to develop key skills and competencies in crisis management area through an innovative, highly involving, effective and easy deployable life-long learning service. More precisely, L4S simulation-based learning experiences on crisis management reflect in a very realistic way crisis management and collaboration dynamics in modelled disastrous situations in air and sea transportations. Players are involved in role-playing crisis incidents in which they can validate and develop specific competencies through learning-by-doing in realistically modelled scenarios. L4S learning experiences portfolio, includes the following simulation games on air and sea transport crisis management:

i) Impact: The crisis readiness online simulation experience' a set of three-leveled simulation games; ii) Reckon and choose simulation; iii) Crisis team.

Apart from simulation games the portfolio contains the WEB 2.0 advanced networking and sharing tool 'crisis tube leadership learning network' as well as the supportive online workshop tool OWL4S. The L4S consortium has clear evidence that L4S learning experiences have a high potential for diffusion and impact through various exploitation streams, that offer to the L4S partners distinct but valuable high quality assets in their internal and / or external operations and to transportation and security stakeholders an innovative portfolio of advanced learning experiences on crisis management.

From a business perspective, on the basis of the work conducted over the last 25 months, we believe that both the diffusion and the financial targets set can be achieved, with value generated at all levels - from the personnel and decision makers experiencing the value of the proposed simulation-based learning sessions, to the facilitators, the organisations' representatives, the network of companies diffusing the L4S learning experiences Europe-wide, the designers of advanced crisis management learning simulations and the academic staff and learners that will experience these learning environments. There is a real opportunity to make significant impact.

A multilevel exploitation plan has been thus defined, and its execution is commencing straightforward after the project's completion. The work done clearly indicates that the currently available and immediately deployable L4S simulation games and applications can provide impact and visibility, along with the generation of a strong stream of revenue to support this growth. The longer-term strategy and vision is to set up an efficient Europe-wide B2B channel for the diffusion of game-based learning experiences.

Such a channel would:

- be positioned to run in parallel and synergistic to traditional publishing or software diffusion channels, including consulting;
- achieve the mission of efficiently diffusing new game-based learning experiences (developed by a variety of players) which fulfil quality standards set for L4S simulation games;
- aim at rapid extension to other relevant educational / impact areas.

The development plan is:

- to expand the basic project results and customise them to the needs / characteristics of other critical infrastructures (energy, financial services, food industry) and throughout Europe and beyond;
- support the growth of a variety of players, increasing our involvement in the design, production and delivery of simulation games and game-based learning experiences.

This is an ambitious but, we believe, achievable long-term objective and vision. Its focus extends over and beyond the horizon addressed in this Seventh Framework Programme (FP7) project. L4S partners will continue to learn through the organisation of new pilot workshops in new countries and with new organisations, through the development and testing of more advanced customisations, through experimentation with new deployment modes (e.g. via smart phones and devices), and finally through considering of special versions (e.g. addressing particularly the consulting and financial services sectors, or the specific needs and challenges of small and medium-sized enterprises (SMEs)). Basically though, most of the necessary evidence is now there.

Related information

Result In Brief	Computer 'games' for learning crisis management skills
Documents and	Periodic Report 2 - L4S (Learning 4 security)
Publications	

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Subjects

[Information and communication technology applications](#)

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