



## Integrated Project on Pervasive Gaming

FP6 - 004457

WorkPackage WP8: *Showcase – Crossmedia*

### **Deliverable D8.8: Final Crossmedia report**

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## **EXECUTIVE SUMMARY**

This document summarizes the work done in the Crossmedia work package of IPerG. During the first year, we designed, implemented and staged a first version of Epidemic Menace. In the second year of this work package, we revised the first version of the game and staged it as a public game event.

This document lists the objectives of the Crossmedia showcase, describes the two versions of Epidemic Menace, gives an overview of the main results and outcomes, and reflects upon some failures, successes and lessons learnt.

In our research we gained many valuable insights about the nature of Crossmedia games. In particular, we found that Crossmedia games foster collaboration among players, which strongly contributes to the fun of a game, Crossmedia games are attractive to a wide audience and have commercial potential.

To master the technical challenges of Crossmedia games with the many gaming interfaces, we decided to use gaming devices that are handed out to players at a game event. In future, it would be interesting to investigate pervasive Crossmedia games that can be played with potentially any devices that surround players in their everyday lives.

## Deliverable Identification Sheet

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<b>Abstract (for dissemination)</b>	<p>This document summarizes the work done in the Crossmedia work package of IPerG. During the first year, we designed, implemented and staged a first version of Epidemic Menace. In the second year of this work package, we revised the first version of the game and staged it as a public game event.</p> <p>This document lists the objectives of the Crossmedia showcase, describes the two versions of Epidemic Menace, gives an overview of the main results and outcomes, and reflects upon some failures, successes and lessons learnt.</p>
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## 1 INTRODUCTION

Crossmedia games are *games where the game content of a single game instance is made available across different gaming interfaces.*

The term Crossmedia is known from “Crossmedia publishing” in the domain of print and online media. Crossmedia publishing means that the same content is made available on different media in a single production workflow.

For traditional computer or video console games, this aspect of “Crossmedia publishing” is relevant too. Many computer games are developed to run on different target platforms (e.g. on a Sony Playstation II as well as on a Windows XP computer).

Crossmedia games differ from these multi-platform games in the fact that the gaming interfaces are *designed to be different* to support an *interesting game play across media.* Although multi-platform games might be interconnected and the interconnected gaming interfaces might differ as well, traditional network computer games do neglect rather than design for different gaming interfaces.

Crossmedia games were one of the pervasive game types that were researched during the first two phases (September 2004-December 2006) of the IPerG project. This document represents the final report of work package 8 – Showcase Crossmedia. The focus of the document is to describe and summarize the showcase in an understandable and easily readable manner, providing pointers to more information as needed.

From September 2004 to December 2006, the following persons worked in the Crossmedia showcase: Irma Lindt (showcase lead, technical development, game production, game design), Sabiha Ghellal (game design, movie, graphics design and game production), Jan Ohlenburg (technical development), Christof Danzl (development of mobile phone application), Uta Pankoke-Babatz (evaluation of Epidemic Menace I), Joel Fischer (evaluation of Epidemic Menace I+II), Matt Adams (game design), Leif Oppermann (staging Epidemic Menace I and II), Tom Soderlund (game design), Christian Wenninger (website, communication station), Sabine Kolvenbach (development of orchestration application), Wolfgang Prinz (game production), Karl-Heinz Klein (development of positioning application), Gerd Woetzel (revision of game engine), Nina Dautzenberger (graphics design), Jaakko Stenros (evaluation of Epidemic Menace II), Peter Seuffert (WiFi coverage), and Daniel Mertens (network infrastructure support).

The document is structured as follows:

Section 2 describes the motivation of the showcase, the main goals and how they were addressed.

Section 3 gives an overview of the main results and outcomes of the Crossmedia showcase.

Section 4 describes the two version of Epidemic Menace that were designed, developed and tested within the showcase.

Section 5 reflects upon the showcase and describes failures and successes.

Section 6 concludes the report.

## 2 GOALS AND BACKGROUND

The motivation to investigate Crossmedia games within IPerG is based on the presence of different devices surrounding us in our professional and private lives such as desktop PCs,

mobile computers, mobile phones, TV sets, and public displays. Games that are built upon this variety of devices will have the following distinct features and properties:

- Different gaming interfaces based on different computing devices.
- Different forms of participation depending on the individual functionality gaming interfaces offer.
- Different content types depending on the capabilities of the different gaming devices.
- Different user experiences supported by a single game.

Some interesting research questions that arise from these features and properties of Crossmedia games are:

- Device-specific roles. Do device-specific roles emerge from the fact that player can use devices for playing the game? Do players enjoy that?
- Collaboration across gaming interfaces. How well can players collaborate when they are using different gaming interfaces? Do different gaming interfaces foster collaboration?
- Coherent game experience. How can it be achieved that a Crossmedia game is perceived as a coherent whole despite the different gaming interfaces and media?

To investigate Crossmedia games, we developed the game Epidemic Menace. Two versions of Epidemic Menace were realized in an iterative design process within the Crossmedia work package: Epidemic Menace I and Epidemic Menace II. Both game versions were tested and evaluated.

For Epidemic Menace I, our objectives were to create a typical Crossmedia game. We tried to support many different gaming interfaces with distinct features. Therefore we included stationary and mobile devices in the game exhibiting distinct technical functionality and ranging from low-cost to high-cost.

For the evaluation of Epidemic Menace I we focussed on:

- The game concept and story.
- The game play across media.
- The integration of movie parts.
- The role of devices.

Based on our experiences with Epidemic Menace I and the results of the evaluation, our main objectives for the second version were improving the game flow and the player's game experience and improving the commercial viability.

For the evaluation of Epidemic Menace II we focussed on:

- Modes of participation and social play incl. interaction and collaboration across devices and device-specific roles.
- Game-story and game play incl. immersion and game flow as well as comprehensiveness, learnability and support of players.
- Joy of use and game experience.
- Pervasive design aspects.

### 3 MAIN RESULTS AND OUTCOMES

The following paragraphs summarize the main results of the Crossmedia work package.

**Epidemic Menace I.** Epidemic Menace I is a Crossmedia game prototype that was staged for two days in August 2005 with eight players on campus Birlinghoven, Sankt Augustin, Germany. The game is described in Section 4.1; a detailed description of the game design is given in D8.3. Epidemic Menace I was widely covered by the press (print + TV). Aspects of Epidemic Menace I were published in several scientific papers.

The realization of Epidemic Menace I included a core game application implementing the game logic, an application running on an outdoor mobile Augmented Reality system, a mobile phone application and a mobile music application running on a PDA. In addition, a meteorological station was used to allow real-world properties to influence the game.

For the different components of Epidemic Menace I, results regarding the advantages and constraints of using the technology in a Crossmedia game were gained and published in scientific papers (see publication list in the appendix).

**Design guidelines for Crossmedia Games.** The design guidelines used for Epidemic Menace I are made available as a report (D8.1). The report introduces the design of Crossmedia games and outlines the challenges and research themes of Crossmedia games. The design guidelines were published on the IPeRG website and as a workshop paper [Lindt, 2005].

**Evaluation of Epidemic Menace I.** The evaluation of Epidemic Menace I is published as a report (D8.5). For the evaluation of Epidemic Menace I, an evaluation plan as well as several evaluation instruments were developed and used. The evaluation results were used for the redesign of Epidemic Menace leading towards Epidemic Menace II.

**Epidemic Menace II.** Epidemic Menace II is a Crossmedia game prototype and represents a revised version of Epidemic Menace I. Epidemic Menace II was staged with app. 30 players in July 2006 on campus Birlinghoven, Sankt Augustin, Germany. The game is described in Section 4.2; a detailed description of the game design is given in D8.7. As Epidemic Menace I, the second version of Epidemic Menace was also widely covered by the press (print + TV) and different aspects of Epidemic Menace II were published in scientific papers.

**Movie elements in a Pervasive Game.** This result is a concept that was implemented in Epidemic Menace II. The concept suggests using movie clips that explain the background story and explain the main tasks and gaming objectives of the game. The movie clips are closely interwoven with the active game play through a number of different aspects. The concept is published in D8.7 and in scientific publications.

**Live Augmented Video Streams.** Live augmented video streams were used in Epidemic Menace II as a spectator interface for people interested in watching the game. The result comprises the technical realization of live augmented video streams as well as experiences with live augmented video streams in a pervasive game. Both aspects are described in scientific publications (see publication list in the appendix).

**Tablet Augmented Reality system.** We developed a tablet AR system that consists of a tablet PC, a webcam, a GPS receiver and an inertia sensor. This system was developed for Epidemic Menace II as alternative gaming interface and is less expensive than the other employed mobile AR system using a head-up display.

## 4 GAMES

In the Crossmedia work package two major prototypes were implemented as originally planned. The first prototype is Epidemic Menace I, the second prototype is Epidemic Menace II. Epidemic Menace II is a revised version of Epidemic Menace I based on the outcomes of the evaluation of Epidemic Menace I.

As described in Section 2, the main objective for Epidemic Menace I was to create a typical Crossmedia game with many different devices offering distinct functionality within the game. The second version of Epidemic Menace was an attempt to improve the game flow and the player's game experience and also to improve the commercial viability of the game. In particular, major changes from Epidemic Menace I to Epidemic Menace II include the selection of gaming interfaces, the technical robustness of the game and the course of the game.

In the following, the design, development and evaluation results of Epidemic Menace I and Epidemic Menace II are described.

### 4.1 Epidemic Menace I

Epidemic Menace I was staged for two days on August 25<sup>th</sup> and 26<sup>th</sup> 2005.

Epidemic Menace is built upon the story of a humankind-threatening virus epidemic. A villain scientist, craving for power, creates a lethal virus mutation and contaminates a university campus. From there the virus shall spread and infect all humans. The virus can move, replicate and mutate into a more dangerous form. The virus behaviour depends on real-world weather conditions influencing its movement direction and speed.

Epidemic Menace is played in teams. Each team plays the role of an expert team of medical detectives. The game lasts for several hours over two days and the game flow is interrupted by video messages which entail surveillance material.

Supporting collaboration and social interaction among players with different roles to see how this influences the game experience. Although it is possible to play Epidemic Menace as a lone fighter, it should be beneficial to communicate and collaborate with team players. Epidemic Menace should facilitate a new kind of experience beyond video console and computer games by providing social and bodily interactions.

The game is opened with a live performance and the introductory movie. The intention of the introductory movie is to provide necessary background information, game rules, explain the role of the players and, most importantly, create an atmosphere of tension and suspense and add to the realism of the story line.

Then the players are guided into one of the of the team rooms. In the team room, an "instructor" explained to all players of both teams the facilities available for the stationary play mode. Then the players walked to the device station, where another instructor explained how to use the mobile devices, i.e. smart phone for communication and for scanning and capturing a virus.

Viruses are the primary villains; evil NPCs that roam around the game arena. Each virus consists of one or more "cells", which affect the virus' behaviour, appearance, and sound. The viruses appear on several devices as graphic design and/or sound installations.

The design of Epidemic Menace I is detailed in *D8.3 Game Design Document – "Epidemic Menace"*.

#### 4.1.1 Technological Realization

Epidemic Menace is set up using a classical client/server network layout. The game server receives all data from each of the devices and interfaces and distributes the current game state to all connected interfaces. The game state consists mainly of the current location of all players, their currently assigned devices, the location and the composition of the viruses as well as the current weather information. This game state is sent to each of the different gaming interfaces at different frequencies, depending on their real-time capabilities, e.g. the smart phone receives game state updates at a lower frequency as the stationary game board. Each gaming interface displays the current game state in its own way, since each device should provide a different level of presence and capabilities.

In order to provide the location of all mobile players, each of them was equipped with a PDA and a Bluetooth GPS receiver. Every few seconds, the PDA sends the current GPS location via a WiFi connection to the game server. Although the game area had a very good WiFi coverage, there were a lot of spots where the PDAs had no or very bad connectivity. Since the game server would not receive position updates in such areas and the interaction with the viruses is limited, the players get an audio feedback about the signal quality.

The game server takes care of the virus behaviour like movement, growth and infection of players and connects to a weather engine to adapt the behaviour of the viruses to the current weather situation, e.g. the viruses move with the wind.

The stationary game board receives the changed game states and displays all the information on the screen, i.e. the locations of the mobile players and viruses are updated. A special kind of the stationary game board, which is used by the game administrators also allows to create new viruses and change the location and the size of the viruses. Additionally, this orchestration game board is used by the technical staff to assign devices to the outdoor players. These updates are fed back into the game server.

The virus analysis tool is informed by the game server each time the team has caught a virus, which is displayed in a list and which can be selected by a player in the stationary play mode in order to analyse it.

The mobile AR system displays the viruses as high resolution 3D models, which morph from one type to the other, at the correct location on the campus, allowing the user to walk around the virus and look at it from different perspectives. A hidden virtual model of the campus and its buildings is used to obscure viruses behind buildings which cannot be seen by the players. The mobile AR system also receives the game state updates at a high frequency. The locations of the viruses are updated and the viewpoint of the user is adapted according to the current GPS location. An inertia tracker is used to track the orientation of the head of the user. The spraying can of the mobile AR system sends the action spray to the game server as long as the mouse button is pressed. The game server will evaluate the action, update the size of the viruses and the ammunition of the spray, the result of the action is not returned directly, but through the next game state update.

Contrary to the mobile AR system, the smart phone receives an updated game state at a much lower frequency, since it is connected via 3G to the game server making game state updates a limited resource. According the new location of the player the map is centred around the player and the virus in the proximity are shown. Using a small crosshair and the keys of the phone the players can try to catch the virus. The action catch is send to the game server, where the result is evaluated depending on the crosshair and the distance between the player and the virus. In case the catch is successful, the virus is removed from the map and is send to the virus analysis tool. The result – whether it was successful – of the catch action is send

directly back to the smart phone and a dialogue with the information is shown to the user. All devices notice the removal of the virus by a new game state update.

The mobile malleable music developed by Tanaka [Tanaka 2004] is a streaming server, which streams an individual audio stream to each player depending on his location and the location and composition of the viruses in her surroundings. Therefore it is also depends on the game state updates of the game engine. Each cell type, i.e. growth, stealth, damage and wind, has a unique sound. The sound of a virus is mixed together by the individual sounds of each of the cell types. The amount of cells of a type influences the volume of that sound. Therefore each virus has a quite unique audio footprint. For each mobile player, who uses the mobile malleable music, the sounds of each virus in the proximity are mixed in real-time and streamed to the PDA of that player. While the player walks around the campus and while the viruses move themselves and mutate, the sound stream for the player will change, giving the player a hint whether viruses are near or whether a very threatening virus is coming closer.

The technology of Epidemic Menace I is detailed in *D8.2 Technical specification of the Crossmedia platform*.

#### **4.1.2 Main Results from Evaluation**

The first prototype of the Crossmedia showcase, the “Epidemic Menace” game, was evaluated to improve the understanding of the game and the game dynamics, to provide a basis for future game events and for future development of the game. First a paper based mock-up of the game was evaluated. Based on the respective results a prototype was set up and staged during two days at campus Birlinghoven and played out with 8 players. We evaluated the game story and game play and found early answers on the crossmedia research questions.

The evaluation was based on detailed field observations as documented. Observations were combined with player feedback discussions and questionnaires. During the play test we got results with respects to the game story and game concept, the social play, the suitability of devices, and the technical aspects and game orchestration experiences. In the following we will outline some of the results.

Players liked the story and how it unfolded in the course of the game through video clips. To them, the story and the location campus Birlinghoven fit the game play. The intermediate video material interlinked the different play sessions during the two days and contributed to the players feeling of being part of the story.

Players liked the two play-modes: stationary play in the team room and mobile play outdoors on the campus. We observed that collaboration across media and play modes worked well. Surprisingly, the speed of movement was rather high in both play modes. The speed of movement was suitable as a means to indicate high player immersion.

Players easily understood the meaning and use of devices. However, it turned out that players preferred to play in pairs of two in both play modes, and that device specific roles emerged. The players liked communication and collaboration within their team and competition with the opposite team.

Overall, the concept of the game was approved by the players. They found it was “a new kind of game” as one player put it. They liked the mixture of story, movie, bodily action, collaboration, strategy, adventure, the diversity of devices and techniques to be used.

The play test disclosed that players missed all those parts from the full game concept which were not implemented for the first prototype (e.g. complex virus behaviour, etc). It also gave a large number of details how the game could be improved for the second iteration.

The evaluation is described in detail in *D8.5 Evaluation Report of the small scale evaluation of the Crossmedia Game*.

## 4.2 Epidemic Menace II

Epidemic Menace II was staged for two days in 4 sessions on July 6<sup>th</sup> and 7<sup>th</sup> 2006.

The background story of Epidemic Menace II is very similar to the background story of Epidemic Menace I. Changes include that certain elements of the background story were skipped that were difficult to understand such as the different cell types of viruses.

Based on the outcomes of the first game event, we decided to shorten the game experience to two to three hours, similar to the duration of a cinema or theatre visit in order to improve the commercial viability of the game and to create a more dense game experience. In July 2006, the second version of Epidemic Menace was played by app. 30 players, in four subsequent games. Each game was played by six to ten players in two teams. Below, we describe the course of a game of the second game event.

Players were asked to be at a certain point in time at the main gate of the campus. Players were picked up by an actor and brought into their team game rooms. Each team was equipped with matching shirts to be easily identified as a team member. To create a moment of suspense, we let the players wait for a few minutes. Then, a video and an interrogation transcript were given to them. The video explained the story of the game. Players were told that somebody released deadly viruses on the campus and that they are here as medical experts to clear the campus and to uncover how this could have happened. A few minutes later, another actor walked into the team room and started to explain the stationary gaming interfaces to each team separately. This explanation was disrupted by an alarm: some viruses were discovered on the game area. The actor asked one player from each team to follow him. The actor rushed outside with two players and explained the mobile phone based gaming interface to them.

The course of the game followed a prescribed dramaturgy. After the alarm went off, two players went outside and started to destroy viruses. For each destroyed virus, the team received some points. If a mobile player got infected, he had to switch with a stationary player of her team, since her gaming interface started to malfunction. After the mobile game play started, more and more viruses appeared leading to an “out of control” situation. Teams were then given more smart phones to fight the virus. After a certain number of points was reached, the team received the mobile Augmented Reality system allowing to destroy more viruses at a time.

### 4.2.1 Technological Realization

The technical implementation of Epidemic Menace II is based on the technical implementation of Epidemic Menace I. For Epidemic Menace II, several extensive modifications were made in order to improve the robustness and scalability of the core game application and the gaming interfaces as well as the orchestration of the game (in particular the switching of the gaming interfaces) and in order to accommodate the changes in the game dramaturgy.

Epidemic Menace II supports the configuration of variants of the game. The configuration includes the names of the players, the number and kind of gaming interfaces, the gaming duration as well as the requirements for certain game events. The configurability of Epidemic Menace II allowed us to make last-minutes changes regarding e.g. the gaming interfaces or the game dramaturgy.

#### 4.2.2 Main Results from Evaluation

The second version of the Epidemic Menace game was evaluated with respect to game design including the different modes of participation and social play, the game story and game play, the usability, joy of use and experience design, and pervasive design aspects, with respect to technological issues, ethical and business issues. The game was evaluated in four subsequent sessions with a total of 32 players. Each session lasted about three hours. The main data collection method was observation. The following paragraphs summarize the main results from the evaluation.

Collaboration and cooperation proved to be a crucial factor for a fulfilling experience of Epidemic Menace. The findings were repeated across quantitative and qualitative methods.

The difficult task of intertwining an immersive story and a competitive game building towards an experience of flow did not quite succeed. Players wished to have a more complex story on the one hand and felt a breaking point between playing indoors and outdoors on the other.

The story and the goal of the game were comprehended by almost all of the players. The game mechanics were manageable, despite of the respectable number of interfaces on different devices.

In spite of the dispersed character of the gaming interfaces, 78% of the players stated that the game felt like a coherent whole.

Regarding pervasive design aspects, the findings suggest that the players clearly prefer an isolated gaming area to a public, e.g. a crowded city centre. This implies that the notion of social uncertainty – uncertainty about who belongs to the game and who does not – is unattractive to the players.

From a business point of view, Epidemic Menace was a success. All of the players would recommend EM to a friend and almost all of them would play it again and play it if it was commercially available.

The evaluation of Epidemic Menace II is described in detail in the second part of the final Crossmedia report *Deliverable D8.8: Final Crossmedia report (part II) – Epidemic Menace II Evaluation Report*.

### 5 POST MORTEM

This section reflects on the failures and successes of the Crossmedia showcase and emphasises the lessons-learned.

*Underestimated technical problems in the Epidemic Menace I play test.* Epidemic Menace offers a wide variety of gaming interfaces to players. For the play test of Epidemic Menace I, eight mobile phones, up to eight PDAs, eight stationary computers and further clients were connected to the core game application. The game was not tested with that many clients before and at the game event we had technical problems, such as poorly working gaming interfaces or a crashing core game application that resulted from the fact that so many clients were connected to the core game application.

Testing a pervasive game in the same or at least a similar setup as for a publicly planned game event is a difficult thing to do, especially if the game supports many players, since it requires resources and costs a considerable amount of money (almost as much as the game event or even more if several full-scale tests are carried out). From our experience, however, there is no way around full-scale tests. If the game event fails due to scalability problems, many research questions cannot be answered.

For Epidemic Menace II, we tried to do many tests before the game event. To avoid too much effort, we used test applications. E.g. for Epidemic Menace II, we used an application that sends pre-recorded GPS position data to avoid having test players each time we tested the game. Nevertheless full-scale tests in the same setup as for the game event are necessary to identify possible scalability issues and to fix them before the game event takes place. Otherwise, it is difficult to evaluate the game and some research questions cannot be answered.

*Problems in staging Epidemic Menace I.* Epidemic Menace I was staged by more persons than persons that actually played the game, which did not only demonstrate a commercially rather unviable game but also confused players, since there were several persons that were in contact with the players. We had many persons staging Epidemic Menace I due to several reasons. One of the reasons was that the technology used for Epidemic Menace I was rather immature and we wanted to make sure that if anything goes wrong there are the right persons around that can fix the problem. Another reason was that there were numerous persons that were somehow involved in the game and were keen on seeing the game. Another reason for a lot of persons staging Epidemic Menace was that we did not have experience in staging a Crossmedia game and we thought that it is better to have too many than too little persons. Apart from the too large number of persons staging Epidemic Menace I, there was the problem, that we did not have clearly assigned roles for the involved persons, which also confused players.

What we learned from the problems in staging Epidemic Menace I is that it is very important to pre-script the course of the game in advance and stick to it in order to avoid too many persons to stage the game and in order to avoid confusing players.

*Pre-scripted game dramaturgy.* A major change from Epidemic Menace I to Epidemic Menace II that turned out to be a success regarding a more fluent and better game experience but also regarding the above mentioned problems in staging Epidemic Menace I is the pre-scripted game dramaturgy. The pre-scripted game dramaturgy allowed us to design the game experience and to plan the course of the game in detail. This way, it was possible to stage the game with only three persons.

## 6 CONCLUSION

This paper summarized the research objectives, the game prototypes, the results of the evaluation of the games and the major findings of the IPerG Crossmedia showcase.

The game Epidemic Menace developed in two major iterations demonstrates an example for a Crossmedia game. The design, realization and evaluation of Epidemic Menace were widely published at scientific conferences and drew a lot of attention in particular by German press and TV.

Crossmedia games have some distinct characteristics. Having different gaming interfaces in one game fosters collaboration among players which in turn contributes to the fun of a game. Crossmedia games offer different modes to participate in a game which can be seen as a way of adapting a game to a player's preferences. Crossmedia games are closely interwoven with the physical world by exhibiting the capabilities of the underlying gaming devices and finally, they support different user experiences in a single game.

Crossmedia games are complex with respect to the technical realization. To cope with this complexity, we used a pre-scripted dramaturgy and we decided to use gaming devices that are handed out to players.



An interesting Crossmedia game would be also one that employs public display and devices as well as player-owned devices to achieve a pervasive game via the pervasiveness and ambiguity of all the devices that surround us in our everyday lives.

## **7 REFERENCES**

- [1] Tanaka, A. Malleable Mobile Music. In Proc. Ubicomp 2004. Springer-Verlag (2004).

## **APPENDIX A: PUBLICATIONS**

This section lists the public deliverables, the scientific papers, public tasks and TV coverage, and press coverage of the Crossmedia work package.

### **Reports**

#### **Deliverable D8.1: Design Guidelines for Crossmedia Game Production.**

This document is an early deliverable that introduces into the design of Crossmedia games. It outlines game design, technical and ethical challenges of Crossmedia games and suggests interesting research themes to be explored in Crossmedia games. The deliverable also provides some of the guidelines that were used in the design process of Epidemic Menace I.

#### **Deliverable D8.3: Game Design Document – “Epidemic Menace”.**

This document contains the game design for the first version of Epidemic Menace. It highlights the design goals, gives an overview of the game design, and finally describes the game design in detail providing detailed use cases describing different actions and elements of the game.

#### **Deliverable D8.4 B: Crossmedia game prototype, phase one.**

This document describes Epidemic Menace I in a uniform IPerG standardized game design structure explaining the game design, game flow, game content, employed technology and user interfaces.

#### **Deliverable D8.5: Evaluation Report of the small scale evaluation of the Crossmedia Game.**

This deliverable describes the evaluation of Epidemic Menace I that was mainly based on detailed field observations. Observations were combined with player feedback discussions and questionnaires. Major results are gained with respect to the game story and game concept, the social play, the suitability of devices, and the technical aspects and game orchestration experiences.

#### **Deliverable D8.7: Delivery of the second Crossmedia prototype.**

This document is based on D8.3 and updates it. The document describes Epidemic Menace II in a uniform IPerG standardized game design structure explaining the game design, game flow, game content, employed technology and user interfaces.

### **Software**

There is no public software available for the Crossmedia work package, since the source code is rather game specific and depends on specific hardware. Some parts of the Epidemic Menace I and Epidemic Menace II source code that were generalizable were delivered as public software in the infrastructure and in the tools and interfaces work packages. If you are interested in the Epidemic Menace software, please contact Irma Lindt ([irma.lindt@fit.fraunhofer.de](mailto:irma.lindt@fit.fraunhofer.de)).

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## **APPENDIX B: INTERNALLY DISTRIBUTED RESULTS**

### Reports

#### **D8.2 Technical specification of the Crossmedia platform**

This deliverable describes the technical characteristics and features of the Crossmedia platform and served as a starting point for the realization of the 1st prototype. The Crossmedia platform was changed and extended based on the particular game design for the 1st prototype (see deliverable D8.3 due in month 8) and subsequent design decisions.

#### **D8.6 Technical specification, second phase Crossmedia game**

This document describes the technical specification of the 2nd phase Crossmedia game. The document gives an overview of the game and describes all gaming interfaces and additional system features in detail. Additionally, it specifies the internal system interfaces such as the game engine interface and the augmented video stream interface in detail and explains other non-functional requirements. The specification builds up on the specification of the 1st phase Crossmedia game (D8.2) and updates it.

### Software

#### **Source code of Epidemic Menace I**

All the source code developed for Epidemic Menace I is available via a CVS system. Please note that the source code is game-specific. Some parts of the source code were generalized and delivered as part of the infrastructure or tools work package. Please contact [irma.lindt@fit.fraunhofer.de](mailto:irma.lindt@fit.fraunhofer.de) if you would like get access to the Epidemic Menace I source code.

#### **Source code of Epidemic Menace II**

All the source code developed for Epidemic Menace II is available via a CVS system. Please note that the source code is game-specific. Some parts of the source code were generalized and delivered as part of the infrastructure or tools work package. Please contact [irma.lindt@fit.fraunhofer.de](mailto:irma.lindt@fit.fraunhofer.de) if you would like get access to the Epidemic Menace II source code.