



Grant Agreement No. 687676

Innovation Action

ICT-20-2015

D5.2 Integrated BEACONING platform test analysis

Due date	Month 18
Actual date	Month 18
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Version	14
Status	Final
Dissemination level	Confidential

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Version control				
Version	Date	Author	Institution	Change and where applicable reason for change
1	02/03/17	Aikaterini Bourazeri	COVUNI	First draft
2	23.05/17	Antoniou Ştefan	ATS	Defined workflows for integration testing
3	26/06/17	Neil Judd	HFC	Accessabar test cards
4	26/06/17	Adrien Tievant	PLAYSOFT	Plot editor / Authoring tool test cards
5	26/06/17	Massimiliano Cazzaniga	IMAGINARY	Minigames test cards
6	26/06/17	Cristina Fernandez	UCM	Analytics test cards
7	26/06/17	Tomasz Skupinski	IFINITY	Location based test cards
8	26/06/17	Antoniou Ştefan	ATS	Integration testing update
11	28/06/17	Michael Loizou	COVUNI	Integration of reviewers comments
12	29/06/17	Antoniou Ştefan	ATS	Address reviewer comments
13	29/06/17	Michael Loizou	COVUNI	Final integration of reviewers comments
14	29/06/17	Antoniou Ştefan	ATS	Reformatting

Quality control				
QA Version	Date	QA Responsible	Institution	Change and where applicable reason for change
9	27/06/17	Ioana Andreea Ştefan	ATS	Internal Review
10	28/06/17	Ivan Martinez-Ortiz	UCM	Internal Review
11	29/06/17	Jayne Beaufoy	COVUNI	Language check and formatting
12	29/06/12	Jannicke Baalsrud Hauge	BIBA	Check for final submission

Release approval				
Version	Date	Name	Institution	Role
14	30/06/2017	Jannicke Baalsrud Hauge	BIBA	QM

Statement of originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

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1	all	Draft TOC concept	COVUNI	Aikaterini Bourazeri
13	3	Accessabar test cards	HFC	Neil Judd
13	3	Plot editor / Authoring tool test cards	Playsoft	Adrien Tievant
13	3	Minigames test cards	IMAGINARY	Massimiliano Cazzaniga
13	3	Analytics test cards	UCM	Cristina Fernandez
13	3	Location based test cards	IFINITY	Tomasz Skupinski
13	3	Location based test cards	Geomotion	Pau Yanez
13	3	Location Based component	Succubus	Fred Compagnon
13	4	Defined workflows for integration testing	HFC	Neil Judd
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TABLE OF CONTENTS

EXECUTIVE SUMMARY7

1 INTRODUCTION8

1.1 BACKGROUND 8

1.2 ROLE OF THIS DELIVERABLE IN THE PROJECT 8

1.3 APPROACH..... 8

1.4 STRUCTURE OF THIS DOCUMENT 8

2 COMPONENT OVERVIEW9

3 TESTING METHODOLOGY11

3.1 ACCESSIBILITY TEST CARDS 11

3.2 GAME PLOT EDITOR, AUTHORING TOOL 13

3.3 MINIGAMES TEST CARDS 15

3.4 LEARNING ANALYTICS TEST CARDS..... 16

3.5 LOCATION BASED TEST CARDS 18

3.6 PREPARATION OF THE TEST ENVIRONMENT 21

4 INTEGRATION TESTING23

4.1 TEACHER GUI EXPERIENCE 23

4.2 AUTHORING SYSTEM 24

4.3 STUDENT GUI EXPERIENCE 24

4.4 PLAY EXPERIENCE..... 24

4.5 CONTEXT AWARE ACTIVITIES 25

4.6 RISKS 26

4.7 ANALYSIS..... 28

5 CONCLUSION29

5.1 RESULTS 29

5.2 IMPACT 29

6 REFERENCES30

LIST OF TABLES

Table 1. Accessabar and Teacher UI test card no.1..... 11

Table 2. Accessabar and Teacher UI test card no.2..... 11

Table 3. Accessabar and Teacher UI test card no.3..... 11

Table 4. Accessabar and Teacher UI test card no.4..... 12

Table 5. Accessabar and Teacher UI test card no.5..... 12

Table 6. Accessabar and Teacher UI test card no.6..... 12

Table 7. Accessabar and Teacher UI test card no.7..... 12

Table 8. Accessabar and Teacher UI test card no.8..... 13

Table 9. Game editor and Authoring tool test card no.1 13

Table 10. Game editor and Authoring tool test card no.2 13

Table 11. Game editor and Authoring tool test card no.3 14

Table 12. Game editor and Authoring tool test card no.4 14

Table 13. Minigame and meta game test card no.1 15

Table 14. Minigame and Learning Analytics component test card 15

Table 15. Minigame and meta game test card no.2 15

Table 16. Learning Analytics System start-up test card 16

Table 17. Learning Analytics System log-in test card 16

Table 18. Learning Analytics System new-game test card 16

Table 19. Learning Analytics System new-class test card 16

Table 20. Learning Analytics System new-activity test card 17

Table 21. Learning Analytics System new-activity within a class test card 17

Table 22. Learning Analytics System add-teacher test card..... 17

Table 23. Learning Analytics System and Minigames test card 17

Table 24. Location Based Component, Authoring Tool and Platform core services test card no.1 18

Table 25. Location Based Component, Authoring Tool and Platform core services test card no.2 18

Table 26. Location Based Component, Authoring Tool, student app and Platform core services test card..... 18

Table 27. Location Based Component, Authoring Tool, Minigames, Student App and Platform core services test card..... 19

Table 28. Location Based Component, Authoring Tool, Learning Analytics, Student App and Platform core services test card..... 19

Table 29. Location Based Component, Student Application and Platform core services test card no.1..... 20

Table 30. Location Based Component, Student Application and Platform core services test card no.2..... 20

Table 31. Location Based Component, Student Application and Platform core services test card no.3..... 20

Table 32. Location Based Component, Student Application, Minigame webview and Platform core services test card no.1..... 21

Table 33. Location Based Component, Student Application, Minigame webview and Platform core services test card no.2..... 21

ABBREVIATIONS

DoA	Description of Action
API	Application Programming Interface
GUI	Graphical User Interface
XML	eXtensible Markup Language
JSON	JavaScript Object Notation
ANE	Air Native Extension
POI	Point of Interest
iOS	iPhone OS
UI	User Interface
URL	Uniform Resource Locator
xAPI	Experience API
GPS	Global Positioning System
QR code	Quick Response Code
GPL	Gamified Lesson Plan

EXECUTIVE SUMMARY

To optimize the project outcomes, D5.2 Integrated BEACONING platform test analysis focuses on testing the components' readiness for integration and the platform integration workflows, in order to ensure a streamlined interaction for end-users across the platform components. The deliverable builds upon the outcomes of D3.6 System architecture and the initial outcomes of T5.1 Test of the single components. In M18, the key BEACONING components were partly ready for testing (Alpha version of the Platform), and a global test can be performed in M28 when the integrated BEACONING Ecosystem is due. This deliverable includes test cards for testing component-to-component integration. It also includes theoretical guidelines for the testing when not feasible to actually test components at this point. It describes possible risks and recommendations for risk mitigation. When all of the components have been completed, performance evaluation will involve a review of the integration phase of the system and a global test to verify the performance of the system in a laboratory environment. The tests will include assessment of accuracy, general system reliability, communication performance between multi-agents, and usability. The validation will also be in-line with the pre-pilot stage (for WP6) in order to evaluate the proposed indicators and measures for pre-pilot readiness.

A revised version of the testing architecture will be produced after the development effort has concluded, and will address specific integration issues and improvements needed that will arise during pilot testing.

1 INTRODUCTION

1.1 BACKGROUND

Quality control and improvement are key factors in providing a valuable experience for end users and enabling a successful adoption of the innovative BEACONING learning solution. A thorough functional testing process ensures the identification of non-conformance and establishes corrective actions that need to be taken, in order to improve the usability, quality, accessibility, and performance of the interactions across the BEACONING Platform. Checklists have been used to support the integration review (see section 2). Based on [1], the following criteria will be considered:

- Testability, measuring how difficult it is to test a certain requirement;
- Acceptance, defining what it would mean for a certain requirement to be fulfilled;
- Use cases, describing how a certain requirement will be used by stakeholders to achieve a specific goal or a useful result;
- Unique identifiers and traceability, highlighting the relationship between requirements and associated tests;
- Versioning, allowing monitoring versions numbers and change history.

1.2 ROLE OF THIS DELIVERABLE IN THE PROJECT

This deliverable sets the stage for the testing of the integrated BEACONING Platform and it considers component-to-component testing, as well as workflow optimisation at Platform level. It builds upon the initial outcomes of T5.1. Performance evaluation will involve a review of the integration phase of the system and a global test to verify the performance of the system in a laboratory environment. The tests include assessment of accuracy, general system reliability, communication performance between multi-agents, and usability. The validation will also be in-line with the pre-pilot stage (for WP6) in order to evaluate the proposed indicators and measures for pre-pilot readiness.

1.3 APPROACH

This document has been prepared following specific guidelines described in the BEACONING DoA and has been structured around the different test cases defined for the project. The aim of this deliverable is to provide an integration testing plan for the overall BEACONING platform and verify that the BEACONING platform (as a whole) satisfies its functional requirements. These tests will ensure whether or not each functionality defined for the BEACONING platform workflows has been implemented according to the DoA and end-users' needs.

1.4 STRUCTURE OF THIS DOCUMENT

The deliverable is structured as follows:

Section 2 details the test cards for testing the integration between the key components of the BEACONING Platform. It defines the key measurable indicators: accuracy, general system reliability, communication performance, and usability. It also describes the planning for the integration testing.

Section 3 lays out the integration testing workflows: Authoring System, teacher GUI Experience, Play Experience, Student GUI Experience, and Learning Analytics System.

Section 4 presents the results and the impact of the integration testing.