



## D8.3 INTERIM EVALUATION REPORT



<b>Grant Agreement nr</b>	856879
<b>Project acronym</b>	PRESENT
<b>Project start date (duration)</b>	January 1st 2018 (36 months)
<b>Document due:</b>	31/08/2021
<b>Actual delivery date</b>	24/08/2021
<b>Leader</b>	Brainstorm
<b>Reply to</b>	<a href="mailto:jmontesa@brainstorm3d.com">jmontesa@brainstorm3d.com</a>
<b>Document status</b>	Submission Version

**Project funded by H2020 from the European Commission**

<b>Project ref. no.</b>	856879
<b>Project acronym</b>	PRESENT
<b>Project full title</b>	Photoreal <b>RE</b> altime <b>SENT</b> ient <b>ENT</b> ity
<b>Document name</b>	Interim Evaluation Report
<b>Security (distribution level)</b>	Confidential
<b>Contractual date of delivery</b>	31/08/2021
<b>Actual date of delivery</b>	24/08/2021
<b>Deliverable name</b>	D8.3 Interim Evaluation Report
<b>Type</b>	Report
<b>Status &amp; version</b>	Submission Version
<b>Number of pages</b>	62
<b>WP / Task responsible</b>	BRA
<b>Other contributors</b>	FS, ICERT
<b>Author(s)</b>	Javier Montesa, Andrea Castelli, Francisco Ibañez
<b>EC Project Officer</b>	Ms. Diana MJASCHKOVA-PASCUAL Diana.MJASCHKOVA-PASCUAL@ec.europa.eu
<b>Abstract</b>	Report describing the interim evaluations carried out by FS, BRA and ICERT
<b>Keywords</b>	Evaluation, Present, agent, sentient
<b>Sent to peer reviewer</b>	Yes
<b>Peer review completed</b>	Yes
<b>Circulated to partners</b>	No
<b>Read by partners</b>	No
<b>Mgt. Board approval</b>	No

## Document History

<b>Version and date</b>	<b>Reason for Change</b>
0.1 01-07-2021	Document created by Javier Montesa
0.2 11-08-2021	Document ready for internal review
0.3 20-08-2021	Document updated as per internal review and ready for submission

## Table of Contents

<b>EXECUTIVE SUMMARY</b>	<b>5</b>
<b>INTRODUCTION</b>	<b>6</b>
<b>PROTOTYPE EVALUATIONS</b>	<b>6</b>
<u><b>Agent - Optimised Animation</b></u>	<u><b>6</b></u>
Background information	6
Criteria	7
Evaluation	8
Conclusions	9
<u><b>Agent - Character Generation</b></u>	<u><b>10</b></u>
Background information	10
Criteria	11
Evaluation	11
Conclusions	14
<u><b>Virtual Studio - Broadcast Sport</b></u>	<u><b>15</b></u>
Background information	15
Criteria	16
Evaluation	30
Conclusions	48
<u><b>Registration Authority Virtual Officer (ICERT)</b></u>	<u><b>51</b></u>
Background information	51
Criteria	51
Evaluation	51
Conclusions	51
<b>GLOBAL CONCLUSIONS (BRA)</b>	<b>51</b>
<b>ANNEXES</b>	<b>52</b>
5.1 Questionnaire for viewers evaluation	52
5.2 Questionnaire for virtual operator evaluation	55
5.3 Questionnaire for knowledge base operator evaluation	60
5.4 Objective parameters evaluation	61

## 1 EXECUTIVE SUMMARY

This manuscript analyzes all the work related with the trials that the different partners have carried out in order to test and evaluate the developments related with the PRESENT project.

Framestore resumed the processes realized in WP6 to develop the Virtual agent's graphical assets and operations in order to obtain an optimized animation pipeline. This started with a synthesis of the neural network algorithm capable of reproducing the actor skin deformation in real time, enabling the same quality results of post processing operations. The results of these operations have been assessed in this document through the evaluation of the developed optimization process. It has been carried out taking into consideration the following points: fidelity of rig translation and rig evaluation speed, assessment of animator speed, assessment of animation quality. The evaluation of these points has been performed with different methodologies, and respectively: empirically through disparity visualisation comparison, computationally through new developments speed assessment and qualitatively by the evaluation of a senior animators expert panel.

The following FrameStore contribution has been the evaluation of the high-end Digidouble asset production developed in WP3. This assessment has been carried out taking into consideration the opinion of best digital characters creators professionals to ensure that the results are comparable with the latest state of the art methodologies. The quality assessment has been performed asking the experts to quantify their observations on the resulting digital human.

Afterwards Brainstorm assessed the integration of the Unreal 3D graphics engine with their virtual set solution. The integration of these systems and the introduction of the virtual agent led to the production of a sport show broadcast proof of concept in order to assess many details and aspects and how these items influence the quality of the produced show. The main issue of this experiment has been the introduction of a real presenter at the side of the virtual agent. The simulation made it possible to reproduce many interesting interactions of the virtual agent with the virtual environment and the real presenter and to assess them in order to understand how to improve the virtual character and its related features.

To assess accurately the systems integration and the virtual agent performance, the following characteristics have been taken into account for the assessment: graphic quality of Unreal and eStudio render integrations, connection between agent and virtual set, agent response, virtual scenario response, system operation, the audience quality of experience. For every characteristic many different aspects to evaluate have been described and their evaluation criteria defined.

The quantitative aspects assessment of the systems integration was performed by developers, taking measurements on the working integrated solution.

Instead, for those aspects that needed a qualitative assessment, they have been classified according to the following details: who is the actor whose perception is affected by the considered aspect and the impact level that the aspect applies to the user experience.

The aspects were assessed by collecting the data extracted from two UX quantification methodologies: a questionnaire for the audience (12 viewers interrogated) and a focus group for the Virtual Set operators (4 operators involved).

This information was then analyzed in order to obtain action points to improve the systems integration, the virtual agent performance and the involved users' experiences at different levels.

The document finalizes with ICERT contribution where the developed virtual agent identity is used to validate the identity registration service and proofing process through a set of differentiated interactive sessions between a human (infocert UX and compliance experts personnel pretending to be a real user) and the virtual agent.