Deliverable D5.3 Summary

The NEWTON Project platform has as main goals the development, integration and dissemination of innovative technology enhanced learning (TEL) methods and tools. It intends to create or inter-connect existing state-of the art teaching labs and to build a pan-European learning network platform that supports fast dissemination of learning content to a wide audience in a ubiquitous manner.

One of the results of Deliverable 5.3: NEWTON Platform software modules will present a summative overview of the NEWTON Platform software modules, in compliance with the functional, technical, operational and transitional requirements described in the D5.1 and D5.2. The document, part of WP5, will be lead and performed by SIVECO along with other partners involved in the development of NEWTON platform modules, according to NEWTON DoA.

The NEWTON system modules are the following:
- Content
  - Virtual Lab
  - VR/AR
- Fab Lab
- LMS
- Gamification
- Adaptation

All NEWTON project platforms' module will communicate using well defined service architecture.

The content developed inside the NEWTON project and which is available in public or private stores outside of the platform's Content Repository will communicate with the platform using the Tin CAN standard. The content will authenticate and authorize the user that accesses it and sends the learner's progress and actions to the platform, through LRS, using statements described in Annex 1 of the document. The platform then reads the statement from the LRS - part of the platform, but external module of the LMS - and persists the data in reports. The communication is one-way and the content does not expect nor receives any info from the platform besides the acknowledge responses. Other type of e-learning content that will be available in the Content Repository will communicate with the platform using SCORM standard. This type of content as well as the standard content (PDFs, DOCs, etc.) will be described as being part of the LMS module.

The Fab Lab communicates with the platform using custom REST API functions. Those APIs wrap machine status and features (i.e., machine type, machine vendor, machine status and availability, etc.) and Fab lab general information (i.e., Fab lab contact info, Fab lab geo-localization information, available machines and available materials) and are updated in real time.

The gamification module communicates with the platform using custom API functions. As already described in D5.2, where an example of integration schema was presented, the basic idea is to create a single gamification environment for each course-definition within LMS and then to connect the gamification mechanics to specific learners' actions related to a course's content or their own behaviour,

using direct communication through APIs. Finally, the information about the players' status is persistent to the gamification component and can retrieve by LMS using appropriate APIs.

The adaptation module communicates with the platform using custom API functions. A first definition of these APIs was provided in D5.2. More specifications will be provided in the context of WP3 remaining deliverables.