Deliverable D2.1 Summary

This document addresses the following aspects of the NEWTON platform:

1. The hardware and software infrastructure necessary to deploy Fab Labs, Virtual Labs, and to deliver mulsemedia contents into the NEWTON platform.

2. The teaching and learning activities that will be carried out through the NEWTON platform leveraging the deployed infrastructure.

NEWTON project entails the deployment of a distributed platform to deliver learning content in different media formats to its end users. The platform design and deployment process implies several steps that include:

1. Design appealing teaching and learning contents.

2. Choosing the suitable hardware and software cloud-based technologies to effectively deliver those contents.

3. Reduce the deployment costs while maintaining a high quality and availability of service.

4. Leverage inexpensive off-the-shelf hardware equipment to allow stakeholders (mainly in primary and secondary education) to develop new contents based on the NEWTON platform.

5. Leverage cloud technologies to share expensive equipment across the Internet as web services

6. Design adaptive algorithms to match the NEWTON learning environment to the particular needs and learning pace of its users, monitoring user progress and weakness in particular subjects or activities.

7. Integration and interaction of all the designed subsystems into the NEWTON platform.

Teaching and learning contents are available in different media formats and delivered to the end users through:

1. Fab Lab activities, and

2. Virtual Lab activities.

In such context a transversal gamification model will be developed to link the Fab Lab and Virtual Lab activities into a uniform teaching and learning flow.

In this report we deal with the following aspects:

1. Design and deployment of virtualisation hardware and software infrastructure for Fab Labs.

2. Fab Lab application lifecycle and workflow.

3. Fab Lab teaching and learning activities.

4. Design and deployment of the Virtual Lab hardware and software infrastructure.

5. Integration and delivery of mulsemedia contents through the Virtual Lab infrastructure.

6. Virtual Lab teaching and learning activities.

7. Creation of a 3D object repository usable within Virtual labs