eCraft2Learn

Digital Fabrication and Maker Movement in Education
Making Computer – supported Artefacts from Scratch

Deliverable D1.1a (VER3)

eCraft2Learn Progress Report M6

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 731345.

PROJECT DESCRIPTION

Acronym:	**eCraft2Learn**
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Coordinator:	University of Eastern Finland
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Theme:	Technologies for Learning and Skills
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Duration:	24 months
Website:	http://www.project.ecraft2learn.eu/
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Consortium:

University of Eastern Finland, Finland, (UEF), Coordinator

Edumotiva, Greece (EDUMOTIVA)

Mälardalen University of Sweden, Sweden (MDH)

Zentrum für Soziale Innovation, Austria, (ZSI)

The University of Oxford, United Kingdom, (UOXF)

Synyo GmbH, Austria, (SYNYO)

University of Dundee, Scotland, (UNIVDUN)

University of Padua, Italy, (UNIPD)

Technopolis City of Athens, Greece (TECHNOPOLIS)

Evothings, Sweden (EVOTHINGS)

Arduino, Sweden (ARD)

Ultimaker, United Kingdom (ULTIMAKER)

DELIVERABLE DESCRIPTION

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Version Control:

Version	Date	Person in charge (Organization)	History of changes	Quality Assurance
1	19.06.2017	Calkin Suero Montero	Draft version ready for input from partners	UEF
2	26.06.2017	Calkin Suero Montero	- Updating input from WP leaders - Updating input from industry partners	UEF
3	27.06.2017	Calkin Suero Montero	-text grammar correction - work plan correction	TECHNOPOLIS UOXF

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EXECUTIVE SUMMARY

This deliverable provides a report on the progress of the project from M1 to M6. The report shows a summary of the general progress of the project during the period covered by the report. This progress is measured against the objectives of the project and through the performance indicators as given in the description of action (DoA). This deliverable indicates that the eCraft2Learn action is progressing smoothly within the proposed objectives as highlighted by the achieved Milestones table below:

Milestone N°	Milestone name	Lead beneficiary	Delivery date from Annex I	Achieved Yes/No	Actual achievement date (or forecast)	Comments
1	Project kick-off, planning and conceptualization	UEF	1 Apr 2017	Yes	1 Apr 2017	- Project kick-off meeting was successfully completed. - The project website has been running since M2. - D3.1 reporting on the eCraft2Learn pedagogical approach has been completed
2	eCraft2Learn design and strategic dissemination	SYNYO	1 Jul 2017	Yes	1 Jul 2017	- Project communication and dissemination strategy report timely submitted (D6.2) - Use case report M5 (D3.2) timely completed and uploaded through open access repository - Project demonstrator ready - DYI electronic components for digital fabrication

1 PROGRESS WORK PLAN

1.1. GENERAL PROGRESS

From the project DoA, the problem that the eCraft2Learn project is set to tackle is described as follows:

> *There is no relevant pedagogical model for personalised learning and teaching within science technology, engineering, arts and math (STEAM) education. Furthermore, there is a skills gap between the skills learned at schools and the skills needed in the ICT sector, which hinders economic growth. Digital technology assets can be used to help create an education and innovation ecosystem to overcome these problems.*

In order to provide a suitable solution to these issues the eCraft2Learn project proposes to ***research, design, pilot, and validate*** a learning ecosystem for making computer-supported artefacts in both formal and informal learning contexts. The eCraft2Learn project works towards establishing *digital fabrication* and *making* as 21st century learning activities in formal and informal educational contexts. Furthermore, the project aims at encouraging a *paradigm shift in technology education* from black box and silo products to the white box paradigm. The sought-after result is that learners change roles from consumers of digital technology to designers and makers of transparent problem solving artefacts. In order to achieve this vision the project has a triad of interrelated Pedagogical, Technological and Business objectives as shown in Figure 1.

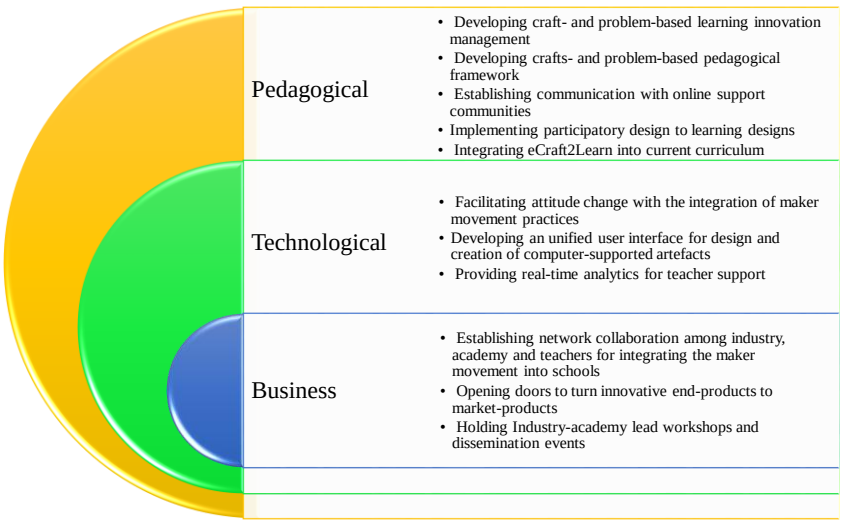

Figure 1. eCraft2Learn project objectives interrelation

During the period M1 to M6 these objectives have been advanced as follows:

Pedagogical Objectives

These objectives have been advanced by the creation of the foundations for developing the craft- and project-based learning methodology for flexible and open learning scenarios given in D3.1 and submitted in M3. The deliverable shows a description of personalised and adaptive learning scenarios that will serve the pedagogical development of craft- and project-based science, technology, engineering, arts, and mathematics (STEAM) education during the eCraft2Learn piloting sessions. Furthermore, D3.2a (M5) establishes different use case scenarios for development of a craft- and project-based learning innovation management in formal and informal education settings. Participatory design has been reflected in the interaction between partners working on the development of technical core of the project (WP4) and the development of the pedagogical core (WP3) as well as the innovation management processes (WP2) of the action.

Technical Objectives

These objectives have been advanced by establishment of the vision and early definition for the eCraft2Learn technological environment with a focus on the software components and early design requirements though D4.1 submitted in M3. This is a fundamental step in the development of the technical core platform of the eCraft2Learn ecosystem. Furthermore, D4.2 (M6) provides the practical do-it-yourself (DIY) electronics and digital fabrication (3D printers) tools recommendations to be implemented with the technical core. These tools were chosen to suit the needs of the crafts- and project-based pedagogy of the eCraft2Learn ecosystem (D3.1), especially with respect to artefact design, printing and programming. The unified user interface (UUI), educational extensions, as well as the real-time learning analytics development will be based on the results of D4.1 and D4.2.

Business Objectives

These objectives have been advanced through the development of cooperation and collaboration between industry and academy partners to carry out dissemination events on behalf of the project (WP6). For instance, the eCraft2Learn workshop during SciFest 2017[1] was developed and organised in a collaborative effort between UEF, UNIVDUN, ZSI, UOXF and ARD. During the creation of the workshop industry and academic partners alike provided inputs on best practices to follow for task creation, data collection and on-site problem solving. This type of experience fosters the creation of strong links and networks between industry and academy, which will be expanded to include teachers and other stakeholders (e.g., school administration, etc.) as the project progresses.

[1] http://www.scifest.fi/home_en.php

1.2. PROGRESS ON ALL WPS

WP1 – Project coordination and (UEF)	
Description of activities (M1-M6) *Provided by: Calkin Suero Montero, UEF WP Leader*	During the first 6 months of the action, the coordination has worked on establishing smooth internal communication guidelines for the running of the project and facilitating the collaboration and dialogue among project partners for the timely fulfilling of the project objectives. Furthermore, the coordination has worked on preparing the ethical guidelines of the project in order to carry out the small scale project pilots taking into account all the regulations and directive provided at the EU level and at national level, as requested by the Commission. To this end, an ethical statement request from the UEF Ethical Board was prepared, formally submitted and obtained. Moreover, the project Data Management Plan (DMP) has also been drafted to be submitted to the EC in M6. An internal Project Progress Report, also due in M6, is been prepared by the coordination.
Deviation or problems	No significant problems altering the course of the action were encountered during this period for WP1

Deliverables submitted during the reporting period

Del. N°	Deliverable name	Type/level	WP N°	Delivery date from Annex I	Delivered (yes/ no) and status (draft/final)	Actual delivery date (or forecast)	Comments on progress
D1.1	Activity Report (M6)	Report/PU	1	30 Jun 2017	Yes/draft	30 Jun 2017 *(internal deliverable)*	This activity report presents information on the actual progress during M1-M6 (including due deliverables on M6). The report is to be uploaded to the project ZENODO[2]. The activity reports are part of D1.1 – General Report on Project Results, with EC submission date 31 Dec 2018
D1.2	Data Management Plan (M6)	ORDP/CO	1	30 Jun 2017	Yes/Final	30 Jun 2017	Report has been finalised and submitted (EC) timely

[2] https://www.zenodo.org

<table>
<tr><th colspan="8">WP2 – Managing innovations and future use scenarios (ZSI)</th></tr>
<tr><td colspan="2">Description of activities (M1-M6)

Provided by: Christian Voig, ZSI
WP Leader</td><td colspan="6">Activities in WP2 have started with T2.1 “First version of innovation management techniques and analysis of current innovation". For this, we differentiated between different stakeholder groups (in line with the triple and quadruple Helix). Already were there a few subtypes visible:

• Research: University Research (pedagogical departments, computer science departments, innovation & spin off agencies), Non-university research (for profit, non-profit)
• Industry: Product developers, Software providers, Consultants
• Government: National curriculum planning, funding for schools and out-of-schools activities
• Civil Society: Schools (private, public, related to teacher education- practice schools, big city and rural schools), Civil society (science workshops, festivals,
Since research and industry are strongly represented in the consortium we have already identified interview partners who can inform about current innovation management techniques (these need to be mostly top-level personnel). The relevant data collection via interviews will happen in the coming weeks. First structures for the interviews and possible questions have been discussed:

A. existing innovation mgmt. Activities (including past innovations and their views on innovations)
B. innovation barriers
C. innovation enablers
D. innovation measurement
Moreover the discussion within WP2 is to support eCraft's development work in that we discuss current technologies (coming out of WP4) not only in terms of their novelty but also in terms of their potential to get adopted within pilots and the wider educational landscape. Hence WP2 serves as a meeting point between technical development, pedagogical experts and pilot champions.

This work will be reported in D2.1 - Report on needed innovation conditions (M8).</td></tr>
<tr><td colspan="2">Deviation or problems</td><td colspan="6">No deviations or problems were identified.</td></tr>
<tr><td colspan="8">Deliverables submitted during the reporting period</td></tr>
<tr><td>Del. N°</td><td>Deliverable name</td><td>Type/level</td><td>WP N°</td><td>Delivery date from Annex I</td><td>Delivered (yes/ no) and status (draft/final)</td><td>Actual delivery date (or forecast)</td><td>Comments on progress</td></tr>
<tr><td colspan="8">No deliverables were due from this WP during this reporting period</td></tr>
</table>

WP3 – Development of personalised craft- and project-based learning framework (UEF)	
Description of activities (M1-M6) *Provided by: Kati Mäkitalo-Siegl, UEF* *WP Leader*	In WP3, the activities we have performed so far are connected to Task 3.1 ”Development of personalised, craft- and project-based learning framework” and Task 3.2 ”Participatory design approach within pilots”. This WP devises the development of a user-driven holistic learning methodology inspired by the white box paradigm, where learners will be makers of computer-supported artefacts. This WP produces learning scenarios for the deployment of the technological environment (WP4). In Task 3.1, we designed the framework for personalised, craft- and project-based learning, which offers the basis for the whole project of eCraft2Learn. All partners included to this task, were actively discussing in online/offline, creating and commenting the work during the process, which started in January 2017 and was finished on March, when this work was submitted to the EC and published as D3.1 in the eCraft2Learn website. In the future, the work of the task (T3.3) involving the development of open educational resources for learners and teachers has been started and it is scheduled to be ready by September (M9). In the Task 3.2 ”Participatory design approach within pilots” led by ZSI, the aim was to develop the methodology for designing the use cases (D3.2a, M5). The context screening was planned and performed via workshop during the kick-off meeting with all the consortium partners. Collaboration with the partners UEF, UNIVDUN and EDUMOTIVA was established. The next task is to redesign the participatory design approach within pilots (D3.2b; M10) and the deliverable will be ready by the end of October, 2017. So far, the design of the framework and participatory design approaches within pilots have been successfully established. Since not all the tasks are not delivered yet, the final results of the success of the framework and pilots are seen in the future work. We were minimising the risks by providing clear descriptions on learning framework and design approach, having meetings in order to create a joint understanding on the learning framework and improving communication and collaboration supported with different technology. Collaboration with other work package leaders and teams is necessary to ensure that the framework, which is basis for all the work, will be taken into account. This is done with close collaboration with the partners and when necessary the discussion between the collaborators will be organized more often so that the discussion will be more intensive in order to share the joint goals and understanding (language usage, e.g. technical vs. pedagogical; and different perspectives, e.g. different disciplines represented here).
Deviation or problems	*None reported*

Deliverables submitted during the reporting period

Del. N°	Deliverable name	Type/level	WP N°	Delivery date from Annex I	Delivered (yes/ no) and status (draft/final)	Actual delivery date (or forecast)	Comments on progress
D3.1	Description of personalised and adaptive learning scenarios	Report/PU	3	31 Mar 2017	Yes/Final	31 Mar 2017	Report has been finalised and submitted (EC) timely
D3.2	Description of use cases (M5)	Report/PU	3	31 May 2017	Yes/draft	1 Jun 2017 *(internal deliverable)*	This is the 1st version (internal deliverable report) of D3.2. The report has been uploaded to the project ZENODO repository. This report will be further developed as the project progresses. The EC submission date is 31 Mar 2018.

WP4 – Designing and implementing the technological environment (MDH)	
Description of activities (M1-M6) *Provided by: Baran Cürüklü, MDH* *WP Leader*	The main focus of the activities in the WP4, during this period, has been the tasks T4.1 and T4.2, as well as the integration of the whole system (in T4.3). Task 4.1 ended in M4 with a a clear outcome, in line with the initial objectives, whereas the latter ends at M6. Also, in this case the work is in line with the initial objectives. T4.3 is also under progress. There are no deviations from the initial objectives. Key equipment, primary Ultimaker 3D printers, needed for the tests, and demonstrations have been already purchased by the partners (or the purchase process is near completion), in line with the initial plans. In addition, Arduino have distributed their recent systems, Arduino MKR1000, to the WP4 partners.
Deviation or problems	*None reported*

Deliverables submitted during the reporting period

Del. N°	Deliverable name	Type/level	WP N°	Delivery date from Annex I	Delivered (yes/ no) and status (draft/final)	Actual delivery date (or forecast)	Comments on progress
D4.1	Architecture analysis and specification	Report/PU	4	31 Mar 2017	Yes/Final	31 Mar 2017	Report has been finalised and submitted (EC) timely
D4.2	Tools for a digital maker space in schools	Demo/PU	4	30 Jun 2017	Yes/Final	30 Jun 2017	Report on the demonstrator has been finalised and submitted timely

<table>
<tr><th colspan="8">WP5 – Small scale validation pilot studies (EDUMOTIVA)</th></tr>
<tr><td colspan="2">Description of activities (M1-M6)

Provided by: Dimitris Alimisis, EDUMOTIVA WP Leader</td><td colspan="6">Activities planned in WP5 have started with the T5.1 - Space structuring, equipment establishment and integration of the eCraft2Learn learning ecosystem in the selected pilot sites (planned for M6-M8).

EDUMOTIVA and UEF have already made arrangements to assure the required pilot sites in both school and informal educational settings in Athens and Joensuu where training courses for teachers (M9) and pilots with students (M10-13) will take place later on.

More specifically, EDUMOTIVA has agreed with a secondary school in Athens to offer a school lab that will be equipped to host the pilots in school settings; 6 school teachers will participate as trainees first and educators later within the eCraft2Learn lab (Greek school version). The partner TECHNOPOLIS CITY of ATHENS will offer the place for establishing a second eCraft2Learn lab in Athens (Greek informal education settings).

EDUMOTIVA has published an open online call for Greek teachers/educators who will act as educators in the informal settings after receiving training. More than 40 applications were received and considered and interviews were held with 20 teachers; finally, 10 teachers were selected to participate in the pilots.

For the pilots to take place in Joensuu, UEF has already established communication with Joensuu Media Centre, the umbrella organization through which the participating pilot schools will be selected.

Based on joint discussions with partners (WP4), EDUMOTIVA and UEF have already purchased some first equipment to be used in the pilot sites. The purchase of the equipment for the 1st round of pilots will continue next months in close cooperation with the technical partners and in accordance with recommendations coming from WP4 (M7-M8)

This work will be reported in D5.1 - Pilot Protocol (M9).</td></tr>
<tr><td colspan="2">Deviations or problems</td><td colspan="6">No deviations or problems were identified.</td></tr>
<tr><td colspan="8">Deliverables submitted during the reporting period</td></tr>
<tr><td>Del. N°</td><td>Deliverable name</td><td>Type/level</td><td>WP N°</td><td>Delivery date from Annex I</td><td>Delivered (yes/ no) and status (draft/final)</td><td>Actual delivery date (or forecast)</td><td>Comments on progress</td></tr>
<tr><td colspan="8">No deliverables were due from this WP during this reporting period</td></tr>
</table>

WP6 – Dissemination and exploitation (SYNYO)	
Description of activities (M1-M6) *Provided by: Bernhard Jäger, SYNYO WP Leader*	WP6 is focusing on the project communication, dissemination and exploitation. Within the first six months of the project SYNYO created with support of the project partners a unique project identity. To boost the project communication right from the start a project website was created that holds all relevant information on the project as well as provides updates and links to social media channels (Twitter and Facebook) that were established to reach out to all defined target groups (including teachers, students, schools, STEAM community, researchers etc.). Furthermore, SYNYO created a large set of materials including factsheets, rollups, stickers and digital elements (such as logos) and provided it to partners as a growing media kit. Besides this a set of tools were created on the project shared space which allows all partners to support the project communication and dissemination most efficiently. This includes for instance a collaborative events list, a dissemination-reporting template, a contact directory and a communication plan. In project month six a comprehensive Communication and Dissemination Strategy document was created to provide the consortium with a complete overview on available materials, tools and processes to ensure all partners can make use of the available resources most efficiently and support the project communication and dissemination efficiently. During the upcoming project months, all related actions will be monitored and measured to make adaptations to the strategy in case this becomes necessary. Furthermore, the consortium will spread information on the project and outcomes via the project website and social media channels and attend events to present eCraft2Learn to the relevant target groups.
Deviation or problems	*None reported*

Deliverables submitted during the reporting period

Del. N°	Deliverable name	Type/level	WP N°	Delivery date from Annex I	Delivered (yes/ no) and status (draft/final)	Actual delivery date (or forecast)	Comments on progress
D6.1	Project website and social media channel	Website/PU	6	28 Feb 2017	Yes/Final	28 Feb 2017	Report on project website has been finalised and submitted (EC) timely. See http://project.ecraft2learn.eu/
D6.2	Communication and dissemination strategy documentation	Report/CO	6	30 Jun 2017	Yes/Final	30 Jun 2017	Report has been finalised and submitted (EC) timely

Figure 2 shows the interrelation among the deliverables of the project.

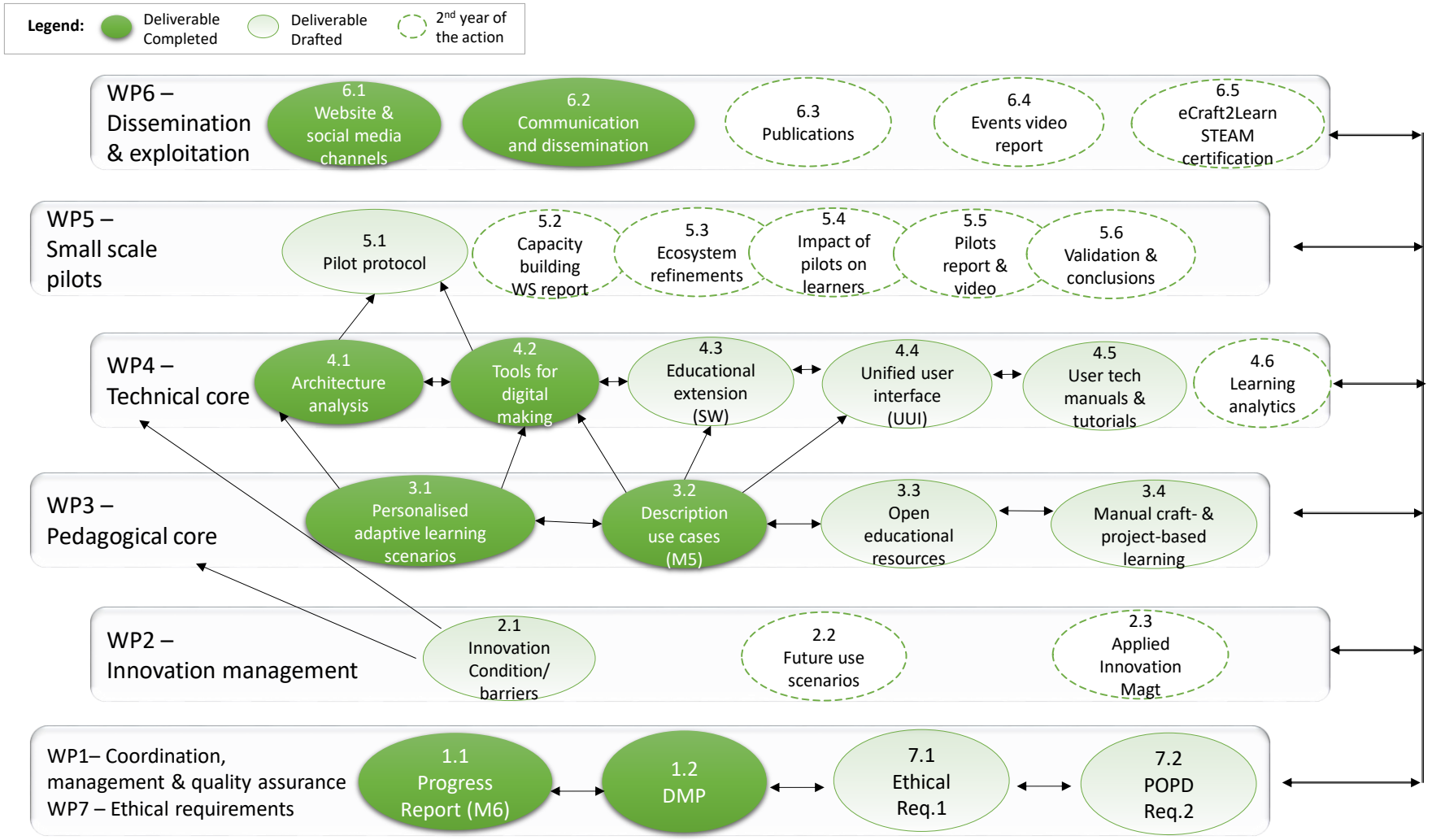

Figure 2. WPs and Deliverables interrelation - 1st year of the action

1.3. Deviation, Problems and Corrective Actions

During this period (M1-M6) there has not been any major deviation or problems in the progress and implementation of the action. Each partner has timely responded to the fulfilment of their duties within the project. Minor changes in the name of one partner (ARD) and the legal identity of one partner (EVOTHINGS) have taken place during this period. However, the development of the project has not been affected.

1.4. Progress Regarding Performance Indicators

The eCraft2Learn project performance indicators are given by the achievement of the project milestones as indicated in the DoA for this reporting period. Table 1 shows details.

Table 1. Performance indicators of project achievements M1-M6

Milestone N°	Milestone name	Lead beneficiary	Delivery date from Annex I	Achieved Yes/No	Actual achievement date (or forecast)	Comments
1	Project kick-off, planning and conceptualization	UEF	1 Apr 2017	Yes	1 Apr 2017	- Project kick-off meeting was successfully completed. - The project website has been running since M2. - D3.1 reporting on the eCraft2Learn pedagogical approach has been completed
2	eCraft2Learn design and strategic dissemination	SYNYO	1 Jul 2017	Yes	1 Jul 2017	- Project communication and dissemination strategy report timely submitted (D6.2) - Use case report M5 (D3.2) timely completed and uploaded through open access repository - Project demonstrator ready - DYI electronic components for digital fabrication

2 PROGRESS REGARDING MARKET UPTAKE AND EXPLOITATION*

The consortium network has been fruitful for the development process, since both practical real-life scenarios and theoretically possible ideas have been exchanged, tested, and built upon in a sustainable way. With the inclusion of companies that develop products and services for STEAM education, learners will be presented with user friendly and current maker technologies through the eCraft2Learn service.

ARD, ULTIMAKER, and EVOTHINGS are entrepreneurs and makers that practice 21st century skills in their everyday work, and are able to support the leading partners in the shaping of tools and services to bring the 'Maker' skillset into schools. Our industry partners work on a daily basis to increase awareness of the need for digital fabrication and making technologies in education, and to spread eCraft2Learn through their own education user communities, events such as Arduino Day, their social media channels and the planning of future dissemination activities.

Learning by making is a very important aspect in an education or research field where there are many parts intertwined to create services. Within eCraft2learn, addressing interplay between constrained devices and a user interface on a computer or mobile device, learners need to cope with hardware, firmware, connectivity, HCI skills, scripting and underlying networking. In theory, it's complicated while in reality the abstractions of modern development frameworks allow even younger learners to create end-to-end services with a bit of practice when preparations are done right.

A central task is to shape a learning curve almost like in a gaming scenario, suitable for various stages of a learner's journey; from the first contact with tools for making and robotics, through assignments appropriate for the younger learner — into more advanced scenarios with more degrees of freedom and more ambitious goals. And it's not only about the technical tools as such, it's just as much about the examples, templates and building blocks, all needed to reach goals achievable inside course curriculum and beyond. This in turn, especially important for us representing companies within the consortium, requires continuous and rich interplay and discussions between service providers and platforms, between software and hardware groups to interchange information on usage and challenges. We strive also to define how to create possible abstractions to overcome the fact that there are these many moving parts; chipsets, formats, standards, deviations and anomalies and non-technical aspects requiring domain knowledge. The end goal is to support learners focus on their ideas, their projects and their learning rather than being caught in details or peripheral showstoppers.

Inventing new things is a necessity, while very few inventions come out of nowhere. Therefore, having templates and modules at hand, which provide set functionalities – whether they are hardware or software – is a necessary precondition for rapid innovation and prototyping. Our on-going collaboration and discussions already point in a healthy direction within the eCraft2Learn consortium for bringing new components to life, allowing learners to focus on the task, to achieve their goals.

**Perspectives provided by industrial partners:*

Marie Ehrndal, ARD and Alex Jonsson, EVOTHINGS

3 WORK PLAN FOR NEXT PERIOD (M7-M12)

3.1. PLANNED ACTIVITIES

The activities for the next six months of the project (period M7-M12) in terms of work packages, tasks and deliverables are summarised in Table 2 below. Deliverables marked as *internal* refer to initial versions of the deliverable report in question. This intermediate initial version report will be submitted to the ZENODO repository, according to its publication level. A final version of the report is to be submitted to the EC at a later stage.

Table 2. Upcoming deliverables (2017)

Del. N°	Deliverable name	Type/level	WP N°	Delivery date from Annex I	Comments on progress
D2.1	Innovation conditions and barriers	Report/PU	2	31 Aug 2017	This deliverable will handle the collection of the systemic innovation conditions of the diverse stakeholders involved, needed to support craft- and project-based learning in secondary schools and other relevant educational places for the project's age group (13 - 17). Interviews with participating users are to be carried out.
D4.3	Software solution for educational extension (v1)	Demonstrator/PU	4	30 Sept 2017 *(internal deliverable)*	This internal deliverable will present the 1st version of the educational extension solution software to be created during the action. This prototype will be used during the piloting sections. The report will be uploaded to the ZENODO repository of the project. The final version of this deliverable will be submitted to the EC on M22.
D4.4	Unified user interface (v1)	Demonstrator/PU	4	30 Sept 2017 *(internal deliverable)*	This internal deliverable will present the 1st version of the unified user interface (UUI) software to be created during the action. This prototype will be used during the piloting sections. The report will be uploaded to the ZENODO repository of the project. The final version of this deliverable will be submitted to the EC on M24.
D4.5	User manual (v1)	Report/PU	4	30 Sept 2017 *(internal deliverable)*	This internal deliverable will present the 1st version of the user manual and tutorial for programming of computer-supported artefacts using the educational extension and the UUI. This manual will be used during the piloting sections. The report will be uploaded to the ZENODO

Del. N°	Deliverable name	Type/level	WP N°	Delivery date from Annex I	Comments on progress
					repository of the project. The final version of this deliverable will be submitted to the EC on M18.
D5.1	Pilot protocol	Report/PU	5	30 Sep 2017	The protocol will provide guidance on the integration of the learning ecosystem and will detail the methodology for selecting and preparing teachers (pre- and during pilot study implementation with students) and running the validation activities within pilots. This deliverable will be carried out collaboratively with WP2, WP3 and WP4
D7.1	H- Requirement No. 1	Ethics/CO	7	31 Dec 2017	The coordination is working on developing the ethical guidelines and procedures for obtaining informed consent/assent from the students that participate in the project pilots (and their parents).
D7.2	PODP – Requirement No. 2	Ethics/CO	7	31 DEC 2017	The coordination will provide templates of the informed consent forms used to obtain consent/assent from the students that participate in the project pilots (and their parents). Furthermore, an ethical statement from the UEF Ethical Board will be provided alongside a confirmation by the Data Protection Officer of the UEF.

3.2. PLANNED MEETINGS

Table 3 shows the planned meetings for the next 6 months of the action.

Table 3. eCraft2Learn consortium upcoming meetings (2017)

Meeting	Date	Details
Project Synchronisation Meetings (Monthly)	5 Jul 2017 2 Aug 2017 6 Sep 2017 4 Oct 2017 1 Nov 2017 6 Dec 2017	This is a project-wide monthly meeting. During the discussion the entire consortium participates and is synchronised with the advancements in the development and implementation of the action. Strategies to achieve upcoming deliverables are discussed. Issues related to the project implementation are reviewed.
Project Meeting with the External Advisory Board (EAB) members (email/telepresence)	7-11 Aug 2017 (TBC)	During the meeting the project progress will be discussed with the EAB. Their opinion and perspectives on the project technical and pedagogical development as well as the project dissemination activities will be discussed.
Project General Assembly (GA)	19-20 Oct 2017	The 1st GA of the project. All project partners are requested to attend. Issues of project implementation, development and societal uptake will be discussed. The project External Advisory Board will be invited, to provide advice on the theoretical and technical development of the project.
Project Technical Review (TR)	7 Nov 2017 (TBC by the PO)	1st TR of the project. The review will be carried out at the University of Eastern Finland premises in Joensuu, Finland. The WP leaders and tasks leaders will be present. This *TR will not be followed by payment from the EC.* This tentative date is to be confirmed by the project officer (PO).
Project Management Committee (PMC) meeting	11 Dec 2017	Management committee (WP leaders + coordinator) meeting to strategise the project deliverables and milestones for 2nd year of the action.

4 EFFORT OVERVIEW

Table 4 shows the percentage effort (PM) that each partner has spent during the period M1- M6 as compared to the entire estimated effort for the 2 years of the action as given in the project Description of Action (DoA).

Table 4. Reported PM effort per partner (M1-M6)

	WP1		WP2		WP3		WP4		WP5		WP6		Total		
PM per Partners	PM (DoA)	Spent	PM (DoA)	Spent	PM (DoA)	Spent	PM (DoA)	Spent	PM (DoA)	Spent	PM (DoA)	Spent	PM (DoA)	Total Spent	% Spent
UEF	8.5	3.11	4.0	0.33	25.5	6.02	10.0	3.98	12.0	0.89	1.0	0.61	61.0	14.94	24.49%
EDUMOTIVA	0.5	0.20	4.0	0.20	4.0	1.00	2.0	0.50	17.0	1.00	1.5	0.40	29.0	3.30	11.38%
MDH			2.0		2.0	0.50	18.0	3.50	1.5		0.5		24.0	4.00	16.67%
ZSI	0		9.0	1.78	5.0	1.46	4.0	1.88	5.0	0.03	2.0	0.02	25.0	5.17	20.68%
UOXF					4.0	0.50	13.5	4.00	1.0		0.5		19.0	4.50	23.68%
SYNYO	0.5	0.20	3.0	0.10	3.0	0.10	4.0	0.20	0.5	0.01	10.0	3.80	21.0	4.41	21.00%
UNIVDUN*			3.0		2.0	0.35	10.0	5.60	2.5		0.5		18.0	5.95	33.06%
UNIPD			1.5	0.77	2.0	0.54	10.0	2.48	2.0	0.08	1.0	0.35	16.5	4.22	25.58%
TECHNOPOLIS			2.0	0.60	1.0	0.20			3.5	0.02	2.5	0.02	9.0	0.84	9.33%
EVOTHINGS			3.0	1.00	1.0	0.20	3.0	0.50	1.0		1.0		9.0	1.70	18.89%
ARD			0.5	0.13	1.5	0.12	4.0	0.53	1.0	0.06	1.0	0.08	8.0	0.92	11.50%
ULTIMAKER			1.5	0.06	1.5	0.07	3.5	0.28	1.0		1.0	0.07	8.5	0.48	5.65%
Total PM per WP	**9.5**	**3.51**	**33.5**	**4.97**	**52.5**	**11.06**	**82.0**	**23.45**	**48.0**	**2.09**	**22.5**	**5.35**	248.0	44.18	20.33%

Table 5 shows the percentage PM effort spent per WP for the reporting period.

Table 5. Percentage of PM spent per WP (M1-M6)

% Project PM already spent x WP (as compared to DoA)	WP1	WP2	WP3	WP4	WP5	WP6
UEF	36.6%	8.3%	23.6%	39.8%	7.4%	61.0%
EDUMOTIVA	40.0%	5.0%	25.0%	25.0%	5.9%	26.7%
MDH		0.0%	25.0%	19.4%	0.0%	0.0%
ZSI		19.8%	29.2%	47.0%	0.6%	1.0%
UOXF			12.5%	29.6%	0.0%	0.0%
SYNYO	40.0%	3.3%	3.3%	5.0%	2.0%	38.0%
UNIVDUN		0.0%	17.5%	56.0%	0.0%	0.0%
UNIPD		51.3%	27.0%	24.8%	4.0%	35.0%
TECHNOPOLIS		30.0%	20.0%		0.6%	0.8%
EVOTHINGS		33.3%	20.0%	16.7%	0.0%	0.0%
ARD		26.0%	8.0%	13.3%	6.0%	8.0%
ULTIMAKER		4.0%	4.7%	8.0%	0.0%	7.0%
Total % x WP	**36.9%**	**14.8%**	**21.1%**	**28.6%**	**4.4%**	**23.8%**