Studiolab - A new European platform for Creative Interactions between Art and Science

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Coordination and support actions (supporting)

Studiolab Project Summary Report

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Executive summary

Studiolab, inspired by the merging of the artist's studio with the research lab to create a hybrid creative space, was one of the first specific art science calls funded by the European Commission in Framework 7. During the course of Studiolab, project partners created and utilised a European platform for creative interactions between art and science. Studiolab brought together major players in scientific research with centres of excellence in the arts and experimental design and leveraged the existence of new networks of "hybrid" spaces to pilot a series of projects at the interface between art and science.

On conclusion of the project with ran from 1 July 2011 until 31 December 2014, Studiolab partners together with participants piloted 112 activities which were developed on the platform made possible by the EC FP7 grant. A wealth of work including specific exhibits, exhibitions, co-creation workshops, educational programmes, conferences, business ideas, start-ups and e-books have been devised, developed and created. These projects spanned the three overarching themes of Studiolab with 12 activities crossing the boundaries of two or all three themes, 49 projects related to the Future of Social Interaction, 15 to the Future of Water and 37 to Synthetic Biology.

The common thread in all of these endeavours is the close collaboration of individuals and collectives from arts, science, design, engineering and technology in the creative process. From architects and synthetic biologists to local politicians and artists, the Studiolab consortium have harnessed the creative prowess of a range of people and stakeholders to produce ground-breaking work that crucially engages the public in all levels of development not just the final outcome.

Developed by a group of practitioners breaking new ground, in this space, across Europe, these projects integrate processes of incubation, education and public engagement (the three key Studiolab strands) to develop actual products and activities with an educational, social, cultural, or commercial value.

Further integrated by three over-arching themes – Future of Water, Future of Social Interaction and Synthetic Biology the projects have provided a template of innovative art science collaborations as well as a unique programme of activities that promote 21st century learning skills and creativity among Europe's citizens.

A summary description of project context, objectives

Studiolab was a four-year project that ran from 1 July 2011 until 31 December 2014 that focused on creating a platform for creative interactions between art and science in which major players in scientific research work together with experts in art and experimental design. Like a giant 'idea accelerator', Studiolab facilitated these interactions and the results led to over 100 activities – which were produced and developed on the platform made available by the European Commission funding. All the activities developed within Studiolab were of an experimental nature, designed to be pilot projects from which the partners could observe and learn what worked and what didn't work, what were the conditions under which innovation develops, and what were the obstacles to fruitful collaboration.

At the initiation of the project, Studiolab partners identified three content areas on which they would focus that reflect major scientific, technological and societal challenges where the borders of knowledge are rapidly shifting: The Future of Water, The Future of Social Interactions, and Synthetic Biology. These themes were chosen because they provide a fertile ground for interrogation from both art and science perspectives, connect with key areas of research currently of focus in European research centres, and are both appealing and uncomfortable, carrying the inherent ambiguity that invites artists, designers, scientists and citizens to inquire and interpret.

Studiolab was furthered structured into six work packages, three support and administrative packages that provided: a digital platform (WP1), a tangible network (WP2), and objective evaluation (WP6). The other three work packages formed three different but interlinked processes and approaches to nurture and sustain innovation: Incubation (WP3), Education (WP4) and Public Engagement (WP5).

The following table outlines the key objectives of each of the Studiolab work packages:

WP1 - Idea bank Calendar and Activities Coordination
- To coordinate the work of the consortium and the expert partners to schedule the work in WP 3-4-5 using a web platform - To build a repository of art and science ideas that can be developed as incubation, education and public engagement modules - To support the networking and brokerage actions with an open call scheme and a map of collaborators
WP2 - Network and Brokerage
- To extend the international partnership of Studiolab - To identify additional expert partners and collaborators - To manage the contributions of the experts partners to Studiolab
WP3 - Incubation Modules
The development of ideas and concepts into tangible products or services - where artists, scientists, researchers and designers who are professionals, academics, students or

amateurs can work together with mentors overcoming the conventional and institutional obstacles, and develop actual products - educational, social, cultural, or commercial. This process is always visible and transparent to the public who interact with it at different points in the process.

- To stimulate collaborative creative projects involving artists, scientists, and designers throughout Europe
- To support and facilitate these projects and the dialogue between participating artists, scientists and designers
- To assess the incubated projects for potential impact in the cultural, humanitarian and commercial domains through the development of new products and services
- To encourage greater understanding of the creative process in science and art by allowing the public to experience the results of different stages of the incubation process
- To pilot and evaluate different incubation models and processes, building on experiences from different European organizations

WP4 - Education Modules

Promoting interdisciplinary learning and art-science approach in education **-** by applying concepts of creativity and art & science collaboration to secondary school (2nd level) and university (3rd level) curricula, and prepare a baseline of students at both 2nd and 3rd level who can be directly involved in mentorship programs with the partners in Studiolab.

- To develop programmes which offer young adults opportunities for creative experiments in art and science To develop these programmes in formal and informal education settings
- To support and facilitate the development of these projects incorporating principles of 21st century learning and leadership skills
- To recruit and work with mentors in art, science and design to deliver these mentoring programmes
- To link these mentors with the Studio Lab Science Advisory panel established for the incubation process
- To pilot and evaluate different education models and processes, building on experiences from different partner European organizations

WP5 - Public Engagement Modules

Initiating and sustaining dialogue and interactions between the public, science and art. Enable a cultural dialog between the public and the partners involved in the incubation and education modules. An active participation of the public in all the phases of development is not only a mechanism to include the competencies and ideas that the public brings, but most importantly it is a powerful way to hold the developers (artists, scientists, and in general the "creators") accountable to the public, to make sure that the outcomes of the experiments and installation bear relevance to a wider audience and ultimately that the processes which are at

the basis of the interactions between science and art in Studiolab are in fact social processes.

- To develop exhibitions, programs and events, which expose the creative and collaborative process between science and art.
- To develop new methods and opportunities for public participation in incubation and education activities.
- To increase the role and participation of scientists in the development of public engagement activities.

WP6 - Evaluation

- To monitor, assess and evaluate the project

Work results and achievements

The following is an overview of the work carried out by partners for each work package summarizing the progress for each task and highlighting significant results. The project management and consortium management tasks and achievements are reported in the management section following.

WORK PACKAGE 1

WP Title	**Idea bank Calendar and Activities Coordination**
Leader:	**MediaLab Prado (P5)**
Participants:	**P1, P2, P4, P5**
Period:	**M1 – M12**

WP1 had two main lines of work:

- Development of an on-line system to support StudioLab
- Coordination of the activities of the partners.

The development of the on-line system for Studiolab consisted in a "smart aggregation" of already existing tools for collaboration and sharing (such as the online boards currently maintained by the partners, social networks and on-line calendaring platforms) and the development of ad-hoc instruments to support the Idea Bank and map of collaborators.

Instead of "building a website", partners aimed to create a functional platform that relies on the on-line tools that the partners already manage, adding two major tools:

- the Idea Bank, a database that will include the science and art ideas to assess as candidates for incubation, education and public engagement modules;
- the Map of collaboration, a visualization tool built into the Idea Bank which will be used to display the collaborations available for each project and activity developed in WP 3 through 6.

This work package will also coordinate the activities of the partners for the three modules (WP 3 to 5). All the projects will fall into a grid designed by the three dimensions of work (incubation, education and public engagement) and the three themes The Future of water, The Future of Social Interaction and Synthetic Biology.

Although delayed significantly by legal issues in the lead partner organisation MediaLab Prado, the web platform to support Studiolab and coordinate the activities of the partners was developed and implemented and can be found at http://studiolabproject.eu.

Despite this delay, the web platform and community site was utilised by partners and collaborators throughout the project, serving as a collaboration tool, a repository, and an

information source for networking and brokerage e.g. The joint open call for a collaborative exhibition was administered using the Studiolab web platform.

The significant result of the platform is the number of collaborators that have signed up 819 and still active, even after the conclusion of the project (53 users in January 2015), this is predominantly due to the success of the open call process in generating interest in the incubation and education strands of the project and the success of the network in driving a range of artists, designers and scientists from a wide variety of disciplines to the platform.

WORK PACKAGE 2

WP Title	**Network and Brokerage**
Leader:	**TCD (P1)**
Participants:	**P1, P2, P4, P5, P7**
Period:	**M6 – M32**

WP2 focused on the expansion of the international partnership of Studiolab, by furthering relationships that core partners had with local organisations and expert partners. With the support of Studiolab core partners, Studiolab expert partners were able to identify other collaborators and partners and implement the collaboratively designed activities. The support was offered via online sources (Studiolab web platform), regular skype and phone calls, consortium meetings, and group emails and face-to-face interactions for example July 2012 during the ESOF conference in Science Gallery, Dublin, and December 2012 at Mutamorphosis in Prague.

There was little effective differentiation between expert partners and core partners in terms of input of creativity. Expert partners were invited to the consortium meetings and this only strengthened the communication between expert and core partners and improve the quality of the activities proposed.

The network of partners has been largely a success over the lifetime of the project with collaboration between most partners across work packages with intense collaboration between some partners. In addition, particularly in the case of the Open Call process a significant number of artists and scientists new to the consortium have been channelled through their contact with a partner in their own country and have gone on to work with other partners in the consortium. Thus the project served not only to incubate ideas through WP3 but also new talent in WP2. This is evidenced by the Database of Collaborators, which is reviewed in detail in deliverable 2.1 and by the community still active on the Studiolab website. There is also evidence of a number of spin out projects beyond the Studiolab project occurring due to the interactions and collaborations fostered in Studiolab.

It cannot be overstated the significant contribution from expert partners and their networks to activities within Studiolab with very little distinction between core and expert partners beyond administrative duties, resource allocation and comparable outputs.

WORK PACKAGE 3

WP Title	**Incubation Modules**
Leader:	**Le Laboratoire (P2)**
Participants:	**P1, P2, P3, P4, P5, P6, P7, P8, P9, P10, P11, P12, P13**
Period:	**M6 – M36**

WP3 relates to the incubation of art-science collaborations outside a formal school or university setting facilitated by participating organizations. A number of different models for incubation exist and rather than impose a single top-down model of incubation in this project, Studiolab instead piloted a variety of models, playing to the strengths and experiences of the different participating institutions, united by three themes: The Future of Water, The Future of Social Interaction, Synthetic Biology.

The activity of Incubation Activities for Studiolab can be considered a success.

Studiolab partners and their collaborators have devised, developed, and delivered 112 unique activities that initiated in incubation activities. These activities spanned the three overarching themes of Studiolab with 12 activities crossing the boundaries of two or all three themes, 49 projects related to the Future of Social Interaction, 15 to the Future of Water and 37 to Synthetic Biology.

The incubation programmes that delivered these activities have involved a spectrum of participants e.g. through major exhibitions such as Grow Your Own… and Project Genesis - both were developed collaboratively using open call systems, involved novel processes for involving citizens in the process (e.g. brainstorms and public interrogation sessions), tens of participants (researchers, artists, designers, engineers, technologists, social scientists, psychologists and mathematicians) as well as hundreds of thousands of visitors.

The final outcome of these activities was also varied – with close integration with WP4 education and others linked in with WP5 Public Engagement while others where all three strands were intertwined e.g. Interactivos? championed by Medialab Prado in collaboration with Science Gallery and Ljudmila art and Science Laboratory in Dublin, Madrid and Ljubljana.

Conception and development of the incubation activities was based on the partners involved and played to their particular strengths – with public involvement at every stage.

Science Gallery took a focus on brainstorms, open calls, and open workshops where the public were invited to take part in the development of exhibition themes and project proposals as well as content, while **Medialab Prado** focused on more intensive iterative workshops open to anyone with an interest in the area. **Le Laboratoire** also used intensive workshops sessions with different participants with follow up sandboxing of promising projects leading to product development and sale as well as pairing artists, designers and scientists, perfumers, and even a Buddhist monk to take student ideas to the next level of development – with the establishment of two start up companies. **Ars Electronica** trialled master classes, artists in residence, open calls, matchmaking and an educational template

with the development of new talent/contributors to Synthetic Biology the result. **RCA** and **ERG** used multidisciplinary workshops and artist in residence style intensive research while **Synergetica** and **Medical Museion** also trialled artist in residence programmes and co curation, while **ISI Foundation** developed a collaborative laboratory that merges the competences of complex systems science, communication design, and computer science. **CIANT, RIX-C, Leonardo** and **Bloomfield** trialled new format conferences and symposia across themes.

Multiple collaborative workshops, labs, residencies, open calls, conferences and symposia created manifold opportunities for thousands of scholars, artists, scientists, researchers and designers to meet, exchange information and develop further projects and activities.

All of these formats were successful in bringing diverse participants from art, science, design and technology together to explore broad themes and the variety of approaches led to different work and outputs and was also successful in bringing a deeper understanding of the creative process and practices in art and science to the public.

The incubation projects for the project are investigated in more detail in deliverables 3.1 to 3.3, and 6.1 as well as the outputs of the Summer Idea Translation workshops covered in deliverables 3.4 to 3.6. To summarise over the course of the project – over 20 different incubation activities were devised and initiated – these ranged from Open Calls for upcoming exhibition programmes and workshops to 3 day, one week and two week workshop formats, to co-created exhibits and exhibitions involving artists, scientists and even a Buddhist monk, to brainstorms on project themes. Each format was unique in being thoroughly open and accessible to artists, scientists and participants across the core and expert partners as well as people and organisations linked to them.

These programmes have primarily demonstrated the variety of ways – events, workshops and other programmes can be constructed to facilitate incubation of ideas between creative individuals from different disciplines. A reoccurring theme through all of the programmes experimented with is the openness – it is apparent from the development and delivery of these programmes that an openness of approach and a wide circulation of invitation to participate is crucial in developing an environment that is flexible, open and dynamic and as such ripe for the incubation of new ideas. Alongside this openness it is also clear that a well-defined model and structure for the programme is important but not always defined objectives or outcomes. This provides the necessary processes and boundaries (that can be broken if wished) for the projects to develop, without dictating or fixating on an end goal – ensuring that the entire process of incubation keeps moving forward and does not get “stuck” at one point/ junction.

WORK PACKAGE 4

WP number	**WP4**	**WP Title**	Education Modules
Leader:	**Le Laboratoire (P2)**		
Participants:	**P1, P2, P3, P4, P5, P6, P8, P11, P13**		
Period:	**M6 – M32**		

Work Package 4 took a similar 'bottom up' approach as WP3 and involved the development and adaptation of a variety of new and existing education models with direct links between education activities and the broad values and outcomes of the incubation and public engagement strands. This strand provided both formal (university courses) and informal opportunities (workshops and events) for 2nd level and 3rd level students to exercise their creativity with opportunities to access equipment and expertise and develop their own ideas.

A template curriculum (D 4.1) for education projects was developed by Science Gallery in the initial phase of the project. This curriculum specifically was developed with 2nd level students in mind and is outlined in more detail in deliverable 4.1. However, it was apparent early in the project that it difficult for some organisations to engage with this age group through formal education channels. As such, for many partners the focus of the education modules remained firmly within the 3rd level student cohort. Not wanting to stifle opportunities for the development of creative education programmes, the consortium worked to ensure a testing of a range of formats throughout the participating partners. Over 30 programmes were delivered through partner organisations over the course of the project with over 5000 students involved, taking part in incubation activities including workshops, prototyping and commercialization, creating exhibits and taking part in exhibitions, overlapping with aims and outcomes for WP3 and WP5. Additionally over 100 mentors worked with partners to deliver these programmes - all are outlined in greater detail in deliverables 4.2 to 4.6 and 6.2.

Science Gallery ran the Idea Translation Lab, both for 2nd and 3rd level students - a multi-week course where students developed a creative idea into a product, intervention or artwork. This course has now become a regular part of the curriculum at Trinity College Dublin - students who participated in this programme went on to take part in the summer workshop in Paris and exhibit at Ars Electronica. Science Gallery also trialled ‘in-exhibition’ educational workshops inspired by similar successful programmes at **Medialab Prado** and **Ars Electronica**. **Le Laboratoire** also used intensive student workshops sessions with different participants and follow-up sandboxing of promising projects leading to product development and in two instances the establishment of start-up companies. **ISI Foundation** organized a postdoc in design and computer science to train a new generation of students skilled and comfortable in both domains. **ERG School of Design** also focused on training new talent in art science by introducing a master in Art & Science focused on the visualization of dynamic social networks. **Synergetica** developed 2 curricula, one about three-dimensional spheroidal projection techniques and one about the mechanics of subatomic vacuum. These curricula were used in schools in the Netherlands and Spain. The **Bloomfield Science Museum** created a 4-month course for design students in collaboration with the Bezalel academy of arts and design. **CIANT** developed 3 day-long

intensive workshops to address actual blind spots in educational system with practical consultations for students with experts in cutting edge technologies. The **Royal College of Art** introduced a dynamic form of education in which research, education and creation were united in an integrated process; involving students that have just finished formal studies in the creation of projects. It offered their recently completed students the opportunity to literally “come back to school” and experiment with their newly acquired professionalism in an educational environment. The result was the exhibition Blueprints for the Unknown.

In terms of structure of the three different strands of Studiolab – the integration considerable overlap between programmes focused on incubation and those on education and particularly with the development of new formats, it was difficult to make the distinction between different strands.

In terms of the methodology of development while the events and formats have occurred in a number of formal and informal settings and with a variety of 2nd and 3rd level students and the public, what does consistently show through is that the workshop format run over a period of time was the most preferred. Workshop lengths in this WP have varied from sessions over one day up to two years – with significant depth of engagement occurring from sessions of just a few days length. The one day event formats included in the table above which are more traditional in terms of format, taking a talk or lecture shape but reach a greater audience.

WORK PACKAGE 5

WP number	**WP5**	**WP Title**	Public Engagement Modules
Leader:	**Ars Electronica (P4)**		
Participants:	**P1, P2, P3, P4, P5, P6, P7, P9, P10, P12**		
Period:	**M6 – M36**		

The overall outcomes of the public engagement activities are outlined in detail in deliverable 6.5. The activity of public engagement activities (WP5) over the course of Studiolab can be broadly considered a success – just over 650,000 (**656,905**) European citizens have been engaged in the processes and outputs of the incubation (WP3) and education (WP4) activities of approximately 1000 artists, scientists, designers and students.

The underlying philosophy of Studiolab was to enable a cultural dialogue between the public and the partners involved in the incubation (WP3) and education (WP4) modules. One of the main markers of success for WP5 was that education, incubation and public engagement were so closely interconnected for many activities that they were often realised simultaneously.

For example “Interactivos?’ workshops at Medialab Prado involved incubation, education and exhibition in one activity – all entirely open to the public. This integration even spanned across partner organisations e.g. students from Trinity College Dublin followed education modules at Science Gallery with public intervention, incubated their ideas at Le Laboratoire with a public pitch and displayed their idea, a speculative product (“Opimilk”), in a public

exhibition at Ars Electronica reaching hundreds of thousands of visitors.

This public engagement across strands was identifiable in each of the three themes of the project - the future of water, synthetic biology, and future of social interaction. Thus WP5 can be considered a considerable success.

Science Gallery, for example, liaised with other partners and external collaborators, to develop and stage several large exhibitions based on Studiolab themes, namely SURFACE TENSION (the Future of Water), HACK THE CITY, GAME, BLOOD (the Future of Social Interaction) and GROW YOUR OWN… (Synthetic Biology), as well as collaborating on the development of Project Genesis (Synthetic Biology) - a multi-partner, exhibition organized and delivered by **Ars Electronica**. **Medical Museion** also developed and hosted a large exhibition focusing on Synthetic Biology, including an open biology lab/installation from 2013-2014, alongside a series of public events from January-March 2013, and an online exhibition, all incorporating incubation and public engagement activities. **RCA** also presented Synthetic Biology exhibitions, *Blueprints for the Unknown* both with Studiolab partners (Science Galley and Ars Electronica), and with external collaborators Z33 House for Contemporary Art, Hasslet, (Belgium), and V_2 Institute for the Unstable Media, (Netherlands). **Le Laboratoire** developed two exhibitions focusing on The future of social interaction with the Olfactive Project – a multi sensory exhibition exploring different modes of social interaction, as well as Vocal Vibrations.

As well as these interactive exhibitions, a number of diverse and collaborative events including linked performances (Sphaerae, **Synergetica Lab**), talks, talk series (e.g. Culture Labs at **Le Laboratoire**), workshops (Interactivos?, **Medialab Prado**; Biotricity, **RIX-C**), symposia (Water in the Air, **Leonardo**), conferences (Mutamorphosis, **CIANT**; Flora and Fauna, **Bloomfield**) etc. occurred during the project. These events are recorded in detail in deliverables 5.5 and 6.3.

Each of the Studiolab partners developed new formats but the uniting principle of all the projects was the development of open processes including the Open Call practices ensuring that the opportunity to create in Studiolab was open to all of the public – not just as passive consumers but as active participants.

The partners developed these exhibitions and events to facilitate integration of the general public with the creative process at the basis of Studiolab.
The partners will follow three mechanisms to develop public engagement opportunities:

Projects were developed to expose the process not just the results. For example displaying the work in progress of its teams, making available to the public the concepts, prototypes and early versions of the products being developed – MediaLab Prado's "Interactivos?" was completely open to the public from start to finish.

Exhibitions and events leveraged on the knowledge and expertise of the public who visited the labs, workshops, talks or exhibitions – though public brainstorms, feedback and event through leaving behind a piece for the exhibition e.g. in Science Gallery's hack lab - bringing new points of view to those of the mentors and participants of the workshop.

The projects developed by partners in WP5 also all directly involved scientists in public engagement. Studiolab tackled this problem with interdisciplinary teams, for example paired scientists, artists and designers (e.g. as in Vocal Vibrations and the Oflactive Project at Le Laboratoire) in a process focussed on understanding the benefits of creative exploration and experimentation, yet another marker of success of this strand of work.

WORK PACKAGE 6

WP number	**WP6**	**WP Title**	Evaluation
Leader:	**TCD (P1)**		
Participants:	**P1, P2, P7**		
Period:	**M13 – M36**		

The evaluation of the project was carried out by external evaluators that were subcontracted after selection through a public international tender. The work of the evaluators was carried out in full autonomy – with the full cooperation of all Studiolab partners.

Within the consoritium the evaluation process was lead by Science Gallery Studiolab coordinators and WP6 leaders. However all partners were involved in the process – with the creation of terms of reference informed by all partners at Studiolab consortium meetings and the evaluator selected following an open tendering process, advertised through partner networks.

The successful tender took an innovative approach (thought necessary for evaluating a hybrid project like Studiolab) structured on two levels, “now” and “next”. Under “now” the evaluator assessed the visible side of Studiolab: what the partners developed, how the results met heir expectations, the collaborative level of the platform, the problems encountered and the unexpected results. Under “next” the evaluator looked at the gains of the institutions involved in Studiolab and their partners. The aim was to find out if and how the interactions developed during Studiolab can be used as instruments for further activities. This level of evaluation looked at the broader impacts of the project, at the changes that took place in the institutional culture of the organizations involved in Studiolab and at the obstacles and barriers to innovation identified during the project.

The work of the evaluator was carried out in full autonomy and involved;

- site visits to all the five core partners and three expert partners (ERG - Ecole de Recherche Graphique, ISI – Institute for Scientific Interchange, and Synergetica Lab)
- Quantitative and qualitative data collection from each partner using an online questionnaire developed using Qualtrics software
- 10 in-depth interviews with the project leaders of all the five core partners and two expert partners (ERG and ISI)
- Open access to the project website, the community website, and all reporting and communication documentation provided by each partner.

The evaluator submitted the final evaluation report (D 6.4) that will be published by the work package leader (Science Gallery) as a monograph for public dissemination. Additionally the evaluator will look to submit the evaluation for scientific publication in a peer-reviewed journal with the assistance of the consortium partners. Both publications will be disseminated through all the communication channels of the consortium.

Project Management (WP7)

Overall the project management of Studiolab has been successful. Consortium partners have worked well and very closely together, collaborations and interaction has been strong the exchange of ideas and formats has occurred and activities in the three core work packages (WP3, WP4, WP5) has been devised, developed and implemented. However, while the project has been incredibly successful in its collaborations and creative outputs, several tasks, deliverables and milestones were delayed for various reasons. Included below is a brief summary of delays and impacts by work package.

Work package 1
WP1 was delayed significantly due to major legal issues in the work package leaders organisation. At the early stages of the project (M6) Medialab Prado underwent a significant change in governance, resulting in a delay to their ability to subcontract for the web platform aspect of the project. This significantly delayed the delivery of the web platform itself as well as the idea bank. However, on completion of these deliverables, the website and the idea bank (community) was used by all partners as a tool and as a repository and is still and active resource beyond the lifetime of the project.

Work package 2
As the web platform was an underlying aspect of the entire delivery of the project in terms of the network and brokerage as outlined in WP 2, the delay in WP1 put a significant strain on the timeline for these activities. However the projects themselves continued, with increased efforts by all partners to communicate via existing tools (phone/skype/google documents etc.) and at the point of delivery of the web platform, a number of collaborations and projects already existed ready to populate the website.

Work Package 3
Summer workshops were delivered on time and as described in Annex 1 (DoW) for Studiolab, and despite the delays to supporting tasks (WP1-2) due to the close communication between the WP leader (Le Laboratoire) and coordinator (Science Gallery). The incubation activities for WP3 overall were also a considerable success with almost 2000 collaborators working on over 100 activities across Studiolab themes and partners. The final reviews of these activities D3.1 to D3.3 were one month delayed due to late addition of some novel incubation projects by partners e.g. *Bot-time stories* by Ars Electronica, and due to a late delivery of the project evaluation report (WP6).

Work Package 4
WP4 posed several challenges for many partners with the delay of many of the deliverables due to an amendment procedure to the DoW. At an early stage it was evident that Studiolab partners would work with both higher level and second level education centres as part of the activities for WP4, in part due to variations in education systems across the consortium (tying in with the activities of WP3) and as reflected in the text of Part B of the DoW for the project. Thus the work package leader (Science Gallery), gathered feedback from partners and instigated an amendment procedure, required to update the text in the Workplan Table for WP4 to consistently reflect this. As a result several deliverables were delayed for this work package, as partners were hesitant to embark on activities in the absence of an approved framework. However despite the slow start, the education activities for Studiolab were a considerable success with over 3000 students benefiting from curricula designed by

the partners and delivered by over 300 expert mentors drawn from the worlds of science, arts, and design.

Work Package 5
Public engagement activities were delivered on time and as outlined in Annex 1 (Dow) for Studiolab with public exhibitions at Ars Electronica from 2011 to 2013 and the addition of an extra exhibition in 2014 due to the extension of the project. Studiolab also had public presentation at ESOF 2012 with a symposia session and an exhibition on the future of social interaction. Over 650,000 people from across Europe engaged in public activities of Studiolab over the course of the project. Again the review of public programmes (D5.5) was somewhat delayed due to a delay in the final evaluation report (D6.4).

Work Package 6
Following an open international tender informed by all partners, an external evaluator for the project was selected to carry out an independent evaluation. The final evaluation report, although delayed is of a very high standard and as a result will be published as a book by the work package leaders (Science Gallery) and made available online as a pdf. In addition aspects of the evaluation report will be published in peer-reviewed journals by the evaluator together with the co-ordinator following the conclusion of the project.

Changes in the consortium:
There have been no changes in the consortium make up, although two organisatins underwent legal and governance changes since the initiation of the project requiring an amendment procedure. These are:

- **MediaLab Prado (governance) -** MACSA (MADRID ARTE Y CULTURAL S.A.) established in (Montalbán 1,28014 Madrid, Spain) represented by, Jose Miguel Medrano (LEAR and authorised signatory), for the purposes of the Studiolab grant agreement took over the rights and obligations of AYUNTAMIENTO DE MADRID, as of 01/01/2012.
- **Studio Optofonica** (legal name change) - Synergetica Lab (STICHTING SYNERGETICA LAB) established in (Damrak 70 1012 LM Amsterdam, The Netherlands), represented by, Evelina Dominitch, (LEAR and authorised signatory in charge of administrative, legal and financial aspects of this project), for the purposes of the Studiolab grant agreement took over the rights and obligations STICHTING OPTOFONICA, as of 31/10/2012.

List of project meetings, dates and venues:
Regular collaborations of all the project partners have taken place throughout the project and these are outlined in more detail in deliverables 3.1-3.1, 5.5, and 6.1- 6.3.
Official consortium meetings were timed to coincide with other major events relevant to Studiolab partners and stakeholders in order to maximise benefits to travel for all partners.
Project consortium meetings were held in:

- Ars Electronica - Linz – September 2011 during the Ars Electronica Festival
- Science Gallery – Dublin - July 2012 during the ESOF conference
- CIANT – Prague – December 2012 during Mutamorphosis conference

Studiolab Ethics:
At the request of the Commission, Studiolab partners set out an ethics review procedure and an ethics panel. An ethics review of the development of projects within WP3 and the

incubation phase took place in M12 where it was established that all partners were undertaking work in compliance of these procedures, with full approval of the ethics procedures of their organizations. All projects developed and implemented within the Studiolab project adhered to best practice within the museum/gallery setting as set out by International Council of Museums – ICOM Code of Ethics, 2006 and the code of ethics of each individual institutions involved in the consortium.

Project Impact

The impact of the Studiolab can be looked at from the prospective of what can be learned from the project. When looking at what Studiolab has achieved there are the visible outcomes of Studiolab: new projects, events, education programmes, exhibitions that partners developed, how the results met their expectations, the collaborative level of the platform, the problems encountered and unexpected results. However the impact of the project is much broader than that and includes the gains of the institutions involved in Studiolab and their collaboration partners. The ultimate test of this impact is if and how the interactions developed during Studiolab can and will be used as instruments for further activities.

Thus we can identify the impact of Studiolab under several headings:

- The development of new formats for hosting, shaping and strengthening the creative collaborations between scientists, artists, and the public;
- The direct involvement of the public in the art and science creative process
- The development of education curricula and modules for students based on 21st century skills
- The stimulation of professional growth of institutions and individuals participating in creative collaborations

The development of new formats for creative collaboration involving the public:
Over 100 different activities took place over the course of Studiolab, with over 650,000 participants, nearly 2000 artists, scientists, designers and other experts, and over 3000 students. The innovative nature of the activities developed under each strand of the project (Incubation, Education and Public engagement represents a significant impact of the project. The project allowed partners and the large number of participants (artists, scientists, students and citizens) to focus on the process that leads to creativity and innovation, and not only on the outcomes – allowing space for new ideas to grow and develop. Partners operated under the model that process matters more than results - very often at the beginning of the creative process partners were not sure what the results would be. This resulted in some real successes e.g. the Hack Lab space at Science Gallery engaged a diverse and large number of people in the Future of Social Interaction through fluid and relatively unstructured workshops, with this participative lab feature now a major part of most Science Gallery exhibitions.

However at times this meant that aspects of the project did not live up to expectations - Failures are normal in a creative process. They are not something to hide, but rather to benefit from, and build from. For example, the Idea Bank was intended as an on-going resource for people and ideas, meant for the artists and scientists themselves. However in reality it became more of a working space for active projects (the community site) and a repository for past work. Partners gave input to it however the site ‘call to action’ was not strong enough. Partners stated that in hindsight, a crowd funding facility or micro funding open calls might have attracted the activity that was initially intended.

New frontiers in Education
Studiolab allowed students (science, art and graphic design) to meet other students from other countries, and experts beyond their field of study and work together through the summer workshops and exhibitions.

The Studiolab programme also offered the opportunity for students to produce research-led creative work around the themes of Studiolab, developing skills beyond their specialist area. For example design students involved with Blueprints For The Unknown at RCA developed projects on the theme of Synthetic biology mentored by scientists, biohackers, artists and designers. This aspect of the education activities also provided new experiences and contexts for early career scientists/designers/researchers interested in science and society, outside of a purely academic setting e.g. Ars Electronica's "master-classes", CIANTs workshops, and ERGs new masters curriculum.

The real measure of success of this aspect of the project is that it has also impacted on the organisations within Studiolab. For example ERG will continue their masters programme in graphic practices and scientific complexity beyond the scope of Studiolab, Science Gallery will continue the Idea Translation Lab.

These courses and curricular are not the only aspects of the education strand that will "live on" after Studiolab - Two start-up companies (Fuso and Glowee) are currently in development and building their businesses with seed funding obtained beyond the remit of Studiolab with both economic and social impact.

Thus Studiolab showed how an art-science hybrid approach and a collaborative way of working innovates education and professional training. We might call it "teaching by problem": where a mentor presents students with a problem that is open. The mentor benefits from the creative input from the students, and the students benefit from the knowledge and the contextualization of the mentor. In the end, both the mentor and the students gain from the experience and a possible solution to a scientific, cultural, social or economic "problem" is created.

Professional growth of institutions and individuals participating in creative collaborations
Stronger/larger Networks - Participation in the Studiolab project provided all partners with the opportunity to develop and strengthen relationships between key European art science stakeholders. The benefits that arose from the network are numerous and include: sharing common concerns and strategies for supporting and developing projects in this domain; sharing of projects and resources for the development of public exhibition programs; the extension of the network of artists scientists and other collaborators; the development and support of a new generation of practitioners that engaged with partner organisations for the first time through Studiolab related projects. New audiences are also produced through the engagement with new topics and the links forged and strengthened between Studiolab partners across Europe will extend beyond the scope of Studiolab e.g. Science Gallery and Ars Electronica are already collaborating on another EC funded Art Science project - The Art & Science network in collaboration with the European Space Observatory http://www.aec.at/artandscience/en/network/.

Increased Knowledge - Perhaps the hardest to quantify benefit is the increase in knowledge within partner organisations on the thematic topics e.g. Synthetic Biology is now a term understood by all partners, their staff, and the several hundred thousand visitors that

engaged with Studiolab events or exhibitions on the theme. The resultant knowledge transfer within the organisation benefits the broader research team. Many partner organisations now have staff that are capable of building and running functioning biological labs.

Reinforcing best practice and shaking up old ones – through sharing of activities and processes (e.g. Interactivos), Educational curricula (Summer Workshop), partners were able to learn from each other, reinforcing best practice and encouraging new forms of working within organisations. Partners not only learned from each other but from the numerous collaborators e.g. residencies exposed partner teams to new mediums, and new modes of working. All partners have fully embraced the Studiolab model of incubation / education / public engagement model and have introduced new programmes or adapted old ones as a result.

Disseminating knowledge and exploiting Results

Given the nature of the project, an integrated and wide reaching approach was taken to the dissemination of the programme for Studiolab. Communication and promotion was aimed at a range of diverse target audiences; Local, national and international artists, developers, scientists, students, and any other person interested in taking part in a collaborative process of creation. Local, national and international media, both general and specialized (media dedicated to contemporary art, visual arts, electronic and digital art, and the intersection between art, science, culture and society) were also targeted.

Leveraging Networks
Dissemination to the community of artists, designers, engineers, scientists and any other potential individual or group who might be interested in taking part in the activities as an active element was carried out first using partner networks e.g. Science Gallery Mailing list (over 40,000 subscribers), the Leonardo/Olats Mailing list etc. On the establishment of the Studiolab website, the community site was used as a tool and a resource for disseminating to and engaging with this community and was promoted through all partner websites and social media. The use of video documentation was particularly useful in this aspect and was utilized by many partners as a both a documentation tool and a promotional tool for the project.

Scholarly articles and publications
Formal dissemination through peer-reviewed articles was also used with two published articles to date in specialist publications, two published books with several articles from consortium partners, and numerous written guides addressing all aspects of the three Studiolab themes. The consortium has plans for further publication – with the dissemination of the evaluation report both as a published book and as several peer-reviewed articles.

PR and Media
General and specialized media were also used by several partners to channel the information to the potential participants and audience of the project showcase, and also to communicate the format and results of the activity to help spreading new ways of collaborative creation and production within art science Europe-wide and internationally. Over 30 articles in general and specialized media were generated by partner activities including Wired, Scientific American, Gizmodo, and the Guardian. E.g. the open call for

GROW YOUR OWN.., was published in Wired in April 2013 (See Media and Web dissemination table below).

Multi-media approaches were also used to disseminate the results of the project: written, spoken, and electronic interaction with journalists (press, radio, TV and online platforms, both national and international), specific mailing lists directed to an international audience, specialized newsletters to a large number of subscribers, distribution of print publications reporting on the outcomes of the project. E.g. RIX-C gained on national TV news coverage for their Synthetic biology workshops.

Public Engagement Activities
Finally and not surprisingly given the nature of the Studiolab project, major public events were utilized to promote the project and its outcomes, associated with the consortium and expert partners. This included public presentations and exhibitions at the Ars Electronica Festival (2011 to 2014); ESOF City of Science in Dublin 2012; RCA Graduate Show, London 2011-2013; ESOF 2014 in Copenhagen; Mutamorphosis in Prague 2012, as well as the numerous public events that made up the core of Studiolab activities.

Project Website and contact details

The public website address for the project is:
http://studiolabproject.eu/

This website hosts a public workspace for the project at: http://community.studiolabproject.eu/

The point of contact for the project is the coordinating institution:
Science Gallery
Address: The Naughton Institute, Pearse Street, Trinity College, Dublin 2.
Phone: +353 1 896 4091
Email: info@dublin.sciencegallery.com
Twitter: @SciGalleryDub

STUDIOLAB
Project Summary

#	Type of Activity	Main Leader	Title/Hyperlink
1	Press Release	Science Gallery	HACK THE CITY PRESS RELEASE
2	Media Coverage	Science Gallery	22.06.2012 Quadcopter drone group held in London airport on suspicion of terrorism
3	Media Coverage	Science Gallery	21.06.2012 - Aerial assault on Facebook and Google as part of Dublin 'Hack the City' attempt (video)
4	Media Coverage	Science Gallery	11.07.2012 - #ESOF2012 – Science Gallery launches international art-science initiative Interactivos?12
5	Media Coverage	Science Gallery	June 22, 2012 - Morning Ireland, RTE Radio One
6	Media Coverage	Science Gallery	24 October 2013: Top Ten Future Organisms - Dazed Digital/Sam Hart (Online)
7	Media Coverage	Science Gallery	05 November 2013: The Nose Knows - Dazed Digital / Stephen Fortune (Online)
8	Media Coverage	Science Gallery	24 October 2013: Would You Eat This Cheese Made from Human Armpit Sweat? - Gizmodo/Adam Clarke Estes (Online)
9	Media Coverage	Science Gallery	28 October 2013: Grow Your Own: where scientists and artists are shaking up creation - The Guardian/Oliver Wainwright (Print/Online)
10	Media Coverage	Science Gallery	28 October 2013: Human cheese and Elvis mice: the future of bio-design – in pictures - The Guardian (Online)
11	Media Coverage	Science Gallery	29 October 2013: Des Fromages Humains, Trop Humains - Paris Match (Online)
12	Media Coverage	Science Gallery	25 October 2013: Dublin Science Gallery's Grow Your Own Exhibition - RTE News/Will Goodbody (TV/Online, 2m02s)
13	Media Coverage	Science Gallery	25 October 2013: Science Exhibition explores life after nature - RTE Morning Ireland/Will Goodbody (Radio/Online, 5m10s)
14	Media Coverage	Science Gallery	29 October 2013: Human Cheese and the Microbial Highway - Scientific American / Christina Agapakis (Blog)
15	Media Coverage	Science Gallery	30 October 2013: 'Grow Your Own' exhibit explores synthetic biology via belly button cheese - CBC Radio/As It Happens (Radio/Online 6m32s)
16	Media Coverage	Science Gallery	31 October 2013: Crazy Bio-Hacks: A Mouse Cloned From Elvis's DNA And A Human-Born Dolphin - Co.Design/ Carey Dunne (Online)
17	Media Coverage	Science Gallery	01 November 2013: Interview with Alexandra Daisy Ginsberg - Twin / Anna-Karin Wikstrand (Online)
18	Media Coverage	Science Gallery	02 November 2013: Ratones con el ADN de Elvis, queso con una bacteria de los mocos, yogur a partir de heces... - 20 Minutos (Online)
19	Media Coverage	Science Gallery	13 November 2013: Synthetic creatures could "save nature" says Alexandra Daisy Ginsberg - Dezeen/ Marcus Fairs (Online)
20	Media Coverage	Science Gallery	14 November 2013: Animal cells could be used to make "Frankenstine-esque hybrid organs" - Dezeen (Online)
21	Media Coverage	Science Gallery	18 November 2013: I Wanna Deliver a Dolphin...concept for humans giving birth to their own food by Ai Hasegawa - Dezeen (Online)
22	Media Coverage	Science Gallery	20 November 2013: Olafur Eliasson's tears to make human cheese - Dezeen/ Alyn Griffiths (Online)

23	Media Coverage	Science Gallery	02 November 2013: DNA experimentation - Design Indaba (Online)
24	Media Coverage	Science Gallery	20 November 2013: Gallery - Design will save the world - inhabitat / Lori Zimmer (Online)
25	Media Coverage	Science Gallery	20 November 2013: Let's Talk About Cheese - Indechs (Online)
26	Media Coverage	Science Gallery	20 November 2013: Ew, this human cheese was made with belly button and toe bacteria - Gizmodo Sploid / Casey Chan (Online)
27	Media Coverage	Science Gallery	27 April 2013: Beyond the beyond: Call for Project Proposals: GROW YOUR OWN, Science Gallery - Wired / Bruce Sterling
28	Media Coverage	Science Gallery	25 October 2013: Artisanal cheeses created from human body bacteria - PSFK / Yi Chen (Online)
29	Media Coverage	Science Gallery	28 October 2013: Selfmade: Πανάκριβα τυριά παρασκευασμένα από μύκητες του ανθρώπινου σώματος! - Queen (Online)
30	Media Coverage	Science Gallery	20 November 2013: Eliasson and Obrist: Now available as cheese - Phaidon (Online)
31	Media Coverage	Science Gallery	20 November 2013: Quesos humanos - Folio Digital (Online)
32	Web publication	Bloomfield	Synthetic Flora and Fauna (Hebrew)
33	Web publication	Medical Museion	Hacking the museum – thoughts on building a biohacker space by Ane Pilegaard Sørensen, 27 Nov 2012.
34	Web publication	Medical Museion	DIY microscopy: A hack for Medical Museion by Karin Tybjerg, 11 Oct 2012
35	Web publication	Medical Museion	Social Studies of Hacker Culture at Labitat by Karin Tybjerg, 11 Oct 2012
36	Web publication	Medical Museion	Thomas Söderqvist's speech for the lab/installation opening
37	Web publication	Medical Museion	Meta-Life book on Medical Museion website and via social media:
38	Web publication	Medical Museion	The Date Body on the Dissection table videos
39	Web publication	Medical Museion	The Date Body on the Dissection table videos
40	A video trailer	Medical Museion	http://www.museion.ku.dk/2013/01/video-trailer-for-biohacking-do-it-yourself/
41	A web exhibition	Medical Museion	http://www.museion.ku.dk/biohacking-web-exh/
42	Web publication	Medical Museion	Biohacking: Do It Yourself!
43	Web publication	Medical Museion	Doing and Debating DIY Biology at Medical Museion: Symposium, March 21st 2013
44	Web publication	Medical Museion	Hackers in the House Open Days, February 9th, 16th, 23rd, 2013
45	Web publication	Medical Museion	Hands-on DIY Bio Workshop, March 14th 2013
46	Web publication	Medical Museion	http://www.museion.ku.dk/opening-of-biohacking-full-description/

47	Web publication	Medical Museion	http://www.museion.ku.dk/2013/01/opening-the-biohacking-lab-at-medical-museion/
48	Talk recording	Medialab Prado	A catalogue of citizen-run infrastructures
49	Talk recording	Medialab Prado	Opensource City: acceso a los recursos y democracia radical
50	Talk recording	Medialab Prado	Diseño, Inclusión y Artefactos Políticos
51	Talk recording	Medialab Prado	The future as a shared asset
52	Talk recording	Medialab Prado	Identidad personal y sentido de comunidad: el cuerpo inscrito en la convivencia, en la ciudad
53	Talk recording	Medialab Prado	Diversidad funcional: un nuevo enfoque para comprender nuestra relación con los entornos
54	Talk recording	Medialab Prado	Segregación urbana e innovación social
55	Talk recording	Medialab Prado	Simbiontes 2.0
56	Talk recording	Medialab Prado	La gobernanza del procomún en las telecomunicaciones
57	Video file	Medialab Prado	Desarrollo de proyecto para las Cosas que Importan
58	Video file	Medialab Prado	Finding the equations for behaviour
59	Video file	Medialab Prado	From the average individual to interaction networks
60	Video file	Medialab Prado	Innovation as a Complex System: Technological evolution and Emergence of Computational Creativity
61	Video file	Medialab Prado	Crowdcrafting: making science together
62	Video file	Medialab Prado	OpenSystems or when science becomes participative
63	Video file	Medialab Prado	Tools for the new digital democracy
64	Video file	Medialab Prado	Decisions in collectives
65	Video file	Medialab Prado	Creativity and Creation in Collectives
66	*Video File*	Medialab Prado	Molecularity and algorithms. The invisible collectivities