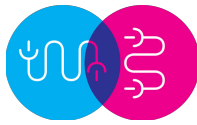


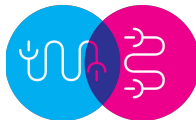
Project Acronym: **MusicBricks**
Project Full Title: **Musical Building Blocks for Digital Makers and Content Creators**
Grant Agreement: **N°644871**
Project Duration: **18 months (January 2015 - June 2016)**

D7.2 Case Studies of engagement with industry stakeholders

Deliverable Status: **Final**
File Name: **MusicBricks_D7.2.pdf**
Due Date: **30 June 2016 (M18)**
Submission Date: **1 July 2016**
Dissemination Level: **Public**
Task Leader: **Fraunhofer**
Authors: **Hugues Vinet (IRCAM), Steffen Holly (Fraunhofer), Jakob Abesser (Fraunhofer)
Michela Magas (Stromatolite), Andrew Dubber (Stromatolite), Thomas Lidy (TU Wien)**



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement n°644871



The #MusicBricks project consortium is composed of:

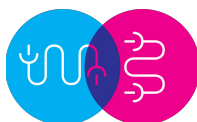
SO	Sigma Orionis (until Month 15)	France
STROMATOLITE	Stromatolite Ltd	UK
IRCAM	Institut de Recherche et de Coordination Acoustique Musique	France
UPF	Universitat Pompeu Fabra - Music technology Group	Spain
Fraunhofer	Fraunhofer-Gesellschaft zur Foerderung der Angewandten Forschung E.V	Germany
TU WIEN	Technische Universitaet Wien	Austria

Disclaimer

All intellectual property rights are owned by the MusicBricks consortium members and are protected by the applicable laws. Except where otherwise specified, all document contents are: "©MusicBricks Project - All rights reserved". Reproduction is not authorised without prior written agreement.

All MusicBricks consortium members have agreed to full publication of this document. The commercial use of any information contained in this document may require a license from the owner of that information.

All MusicBricks consortium members are also committed to publish accurate and up to date information and take the greatest care to do so. However, the MusicBricks consortium members cannot accept liability for any inaccuracies or omissions nor do they accept liability for any direct, indirect, special, consequential or other losses or damages of any kind arising out of the use of this information.



Revision Control

Version	Author	Date	Status
0.1	Steffen Holly (Fraunhofer)	20 June 2016	Initial Draft / Framework
0.2	Hugues Vinet (IRCAM)	21 June 2016	Extension of initial draft
0.3	Hugues Vinet (IRCAM)	24 June 2016	Completed texts on 4 projects
0.35	Steffen Holly (Fraunhofer)	25 June 2016	Completed text on 6 projects, for 1 st review
0.4	Michela Magas (Stromatolite)	26 June 2016	1st Review and Additions
0.5	Steffen Holly (Fraunhofer)	27. June 2016	Review and additions
0.6	Steffen Holly (Fraunhofer)	29 June 2016	Additions
0.7	Jakob Abesser (Fraunhofer)	30. June 2016	Review
0.8	Thomas Lidy (TU Wien)	30. June 2016	Review
0.9	Andrew Dubber (Stromatolite)	30 June 2016	Corrections / Editing
0.10	Michela Magas (Stromatolite)	1 July 2016	Final corrections and additions
1.0	Michela Magas (Stromatolite)	1 July 2016	Final Draft reviewed and submission to the EC

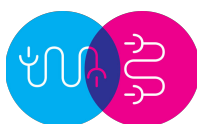
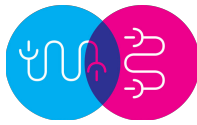
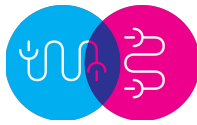


Table of Contents

1. Introduction	8
2. External stakeholder feedback about #MusicBricks Toolkit	9
2.1. Feedback about ensuring the toolkit sustainability	9
2.2. Feedback about toolkit integration with industry partners	10
2.2.1. Musimap	10
2.2.2. Sonarflow	11
2.2.3. Ninja Tune	11
2.2.4. SoundCloud	11
2.3. Feedback about supporting Open Innovation	11
2.3.1. Investor feedback	12
2.3.2. Civil officer feedback	12
2.3.3. Startup feedback	13
3. Methodology for business planning and new routes to market	15
3.1. The road to a draft business plan	15
3.1.1. Business plan questionnaire	15
3.1.2. Main business plan topics for #MusicBricks teams	17
3.2. Overview: new routes to market	18
3.2.1. Key findings	19
3.2.2. Updated Exploitation Chart	19
3.2.3. Market potential	21
3.2.4. How these markets can benefit from #MusicBricks	22
3.3. Open Innovation potential	23
3.4. Estimation of impact on market and society	24
3.4.1. Gesture-driven interaction	24
3.4.2. Horizontal applications	25
3.4.3. Early Adoption	25
4. Identified markets based on incubatee feedback and assessment	26
4.1. Airstrument	26
4.2. Dolphin	27
4.3. #FindingSomethingBondingSounding	27
4.4. Hi Note	28
4.5. GIRD	28
4.6. Manuphonia	28
4.7. Lightbeat	29



4.8. Interactive Cube	29
4.9. The Snitch.....	29
4.10. Sound in Translation	30
5. Conclusion	31



Executive summary

The present document is a deliverable of the #MusicBricks project, funded by the European Commission's Directorate-General for Communications Networks, Content & Technology (DG CONNECT), under its Horizon 2020 research and innovation programme.

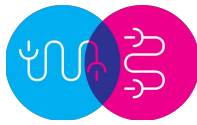
This deliverable D7.2 presents the results and metrics from the market testbed, generated by the robust prototypes from the industry testbed as a proof-of-concept together with the #MusicBricks toolkit. It explains the route from experimental prototype to rapid market-readiness and demonstrates that both the innovative news products as well as the #MusicBricks tools from which they were built were accepted by major industry, investors, and public institutions.

This report includes testimonies from a wide range of stakeholders involved in the consulting and communication with the #MusicBricks consortium and the teams. The experience based on the range of projects presented and the executed open innovation approach is further defined as valuable input to research, policy and society. The methodology for a road to individual business plans for each project is documented as well as the process and the outcome of these plans for every single #MusicBricks team.

The #MusicBricks consortium has created benchmarks to measure the prototype technology against its proposed market. The most successful projects are considered to be disruptive or potentially disruptive within their target markets. For all projects new routes to the market were specified together with analysis according to risks and opportunities, with key feedback from major industry stakeholders. The document presents the routes for the #MusicBricks projects to a global market based on this input from our external partners. Each final product output outlines the estimation of their further developments for the possible impact on the market and in society.

This assessment of projects considers Open Innovation an advantageous market characteristic in the new technological environment and as a result, where some projects may have fallen short on traditional Technology Readiness Levels and standard business assessment, their opening up of the technology provides early adopter feedback and high data yield that significantly improves the business potential of their innovation.

In the final section of this document, the feedback shows, how these results from #MusicBricks can facilitate the identification of future research directions and European innovation.

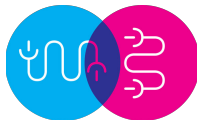


1. Introduction

This deliverable focuses on the reporting, statistics, and feedback obtained from various external stakeholders such as the companies, start ups and agencies that were involved for general input and practical guidance in the market testbed at #MTFBerlin. There was a particular focus on the quality of contacts in order to cover all areas of the business value chain to allow the #MusicBricks teams the best chance of market success.

The methodology of rapid business planning developed for the market testbed centres around a simple questionnaire that project teams were coached through in order to bring their idea from working prototype to a business proposition which can be pitched to investors.

The most important “product” created as part of the project is the #MusicBricks Toolkit. This document explains how this toolkit was accepted and expanded by the external stakeholders. Also, it describes how the project partners included in the incubation, the workshops, and the events have created an open innovation ecosystem. By delivering the reports and the feedback from incubates, a picture emerges about their experience of the Market Testbed. The last section presents data and statistics about newly identified routes to market and how many of these interests resulted in actual follow-up conversations with the teams.



2. External stakeholder feedback about #MusicBricks Toolkit

In the deliverables of WP2, all activities around exploitation, dissemination, communication and project branding are summarised. Not only is the quantity of contacts and results substantial, but also their quality. Consortium members, members of the creative community and the Innovation Ecosystem platform played important roles in the success of the project. However, there have also been significant interventions and activities undertaken in respect to the engagement of industry with the projects, and these are outlined below.

2.1. Feedback about ensuring the toolkit sustainability

The integration of external partners and brands played a significant role in the exploitation plan for the #MusicBricks project from a very early stage, and event planning in WP5 paid particular attention to this from the beginning. Although difficult to select the right partners and brands in advance, it proved necessary to get feedback from a lot of different angles, because of the requirement for a new service or product to be connected and networked in a way that bridges the gap in existing applications from different areas. In a company environment, it is essential to have a team of experts in research, development, design, marketing, business planning, finance, strategy and other areas. For every business relationship it's critical to have a context and structure within which to try to build up something new. For this reason, building and keeping the #MusicBricks infrastructure and toolkit was incredibly important, as was the need to keep the project active after the end of the funding.

The following quotes from partners are illustrative in this respect:

Egbert Juergens (Head of research at Native Instruments):

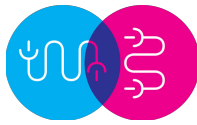
“As a music technology company releasing software and hardware products with an experience of nearly 2 decades in research, we highly appreciate to be involved to the #MusicBricks environment. Very often the breakthrough of new ideas are only possible with a strong input from outside. But we have to be very careful with our resources as well and the decision of this project to keep the #MusicBricks toolkit alive after the project will end, that has changed our mind at least. After we've started to collaborate, we hope to find a way to contribute a musical brick from Native Instruments in 2016.”

Dr. Ulrich Schmitz (Head of New technology at AxelSpringer SE):

“Starting with music in an open innovation environment is perfect – everybody likes it, it is emotional and it can force creativity.”

Henric Hungerhoff (Assistant to the CEO Dr. Matthias Doepfner):

“AxelSpringer is only that successful in digitizing the classical media publishing business, by adopting new ideas from outside. And as a publisher of music magazines (authors comment: Rolling Stone, Musikexpress, Metal Hammer) we got to provide our audience an outlook to new ideas, how the future may look like, therefore we support the #MusicBricks.”



Joerg Rheinboldt (General manager of Plug&Play Accelerator):

“We have organized a music hackathon and a media hackathon as well, but that was nothing like this, at that time we would have loved to have such a toolkit – and now we can cooperate!”

2.2.Feedback about toolkit integration with industry partners

Through partnership with external organisations and brands, it was possible to secure a much greater return on investment for the public funding awarded to the project. The extensive network established by the consortium provided the possibility to develop further projects, new ideas, and establish a platform for Open Innovation. On the basis of this interconnection across a wide range of external stakeholders ranging from large industries to creative developers and innovative SMEs, it was possible to persuade partners and brands to not only guide and support the ideas, but also to contribute their own IP as new #MusicBricks or proactively partner with the #MusicBricks project as an official vehicle for the creative content resulting from the innovative new products and processes:

2.2.1.Musimap

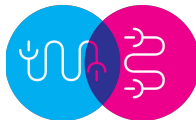
“Musimap is excited to officially contribute to #MusicBricks’ mission, which is to transfer state-of-the-art ICT to creative SMEs in order to develop novel business models. The European project is particularly interesting in our eyes because it creates bridges between the research and the industry, allowing to scale some of Europe’s greatest brains in the field while encouraging a dialogue between best practice and know-how.

We have had the opportunity to exchange with researchers and representatives from top EU research centres at different events where #MusicBricks has been heavily involved, such as the Music Tech Fest in Ljubljana and Berlin, and again at ISMIR and MIREX conference in Malaga. This exchange has notably revealed stimulating effect to reflect on our signal analysis solution.

We finally decided to utilise one of #MusicBrick’s technological bricks, namely TU Wien’s #RhythmTimbre. We additionally collaborated with some researchers involved in #MusicBricks to complement our Belgian team as well as to take our machine learning and neural network technology to the next level.

We have made significant bonds for the future and we are looking forward to exploring further synergies with some of the partners of #MusicBricks (notably the IRCAM) on its ambitious projects and applications. More concretely – as now official contributors of the #MusicBricks project - we will grant access to our powerful music recommendation API, by placing at developers’ disposal one of the most exhaustive database worldwide – this way serving the market as the European answer to The Echo Nest (as its API was closed on May 31st 2016).”

Vincent Favrat, CEO Musimap



2.2.2.Sonarflow

"We are delighted to provide our wide stack of software, catering the needs of professionals, app developers, and music consumers to the world – via #MusicBricks. #MusicBricks is the perfect platform to provide open-source tools that give people the liberty to use them together with their ideas and to create something new and bigger.

#MusicBricks understands, as no other activity in the digital music domain before, to gather the right blend of people related to the music industry: tech-savvy people, creative people, artists, hackers, startups, entrepreneurs and last but not least – musicians! This ensures that not one interest dominates, but a multitude of interests is gathered together. This can be lively witnessed at any of the events that have been – and still are – organised by the partners in #MusicBricks: The diversity of outcomes is astonishing, and we wouldn't be able to imagine this breadth of applications emerging of the #MusicBricks tools beforehand. Clearly, we'd like to stay on board of #MusicBricks, even beyond the project, and to support future generations of hackers and creators."

Thomas Lidy, former CEO of Spectralmind

2.2.3.Ninja Tune

"Really happy to be joining the awesome #MusicBricks project. The whole concept of making tools freely available, providing space for makers and hackers and then supporting what's made with them is just brilliant. This is a new cooperative Win strategy. Looking forward to see what comes out of our #MusicBricks offerings. Onwards!"

Matt Black, Coldcut / Ninja Tune

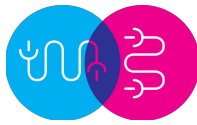
2.2.4.SoundCloud

"#MusicBricks is exactly the sort of open and collaborative music creation SoundCloud is about. It opens up new options for makers and musicians to be creative and we're excited to support it and see what amazing creations are born."

Matt Fenby-Taylor, VP Creator Product, SoundCloud

2.3.Feedback about supporting Open Innovation

A framework for open innovation such as #MusicBricks is uncommon and, as such, not immediately self-explanatory to all stakeholders. The majority of consortium members, particularly those from a research background, have been or are currently part of research projects under FP7 and H2020 and it is a novelty for these institutions to be involved in a project that does not focus on research in the same way. Contributing intellectual property and ideas to unknown communities, in order that they may be able to build something – often unexpected – with these tools is not only experienced as a risk but also as a complex process, which partners and brands



do not always fully understand in the beginning. For this reason, it was very important to develop an understanding of the #MusicBricks methodology and raise awareness of the #MusicBricks project at relevant events and in publications right throughout the entire funding period, in order to explain both the underlying concept and the new approach to innovation and knowledge exchange.

At #MTFBerlin in the Funkhaus, Music Tech Fest provided an ideal open innovation platform as well as the possibilities inherent in such a remarkable performance, installation and recording venue. The festival environment brought together an engaged and enthusiastic community of artists, makers, hackers and developers in a context that served as a playground for new ideas, as well as a place for the #MusicBricks teams to find potential partners and new ideas. Although #MTFBerlin in May 2016 was the final event of the project, it was not considered the end of the journey for the incubated projects: new opportunities, relationships and collaborations started at the festival that promise to bring a lot of benefit. The statements and connections that follow below are exemplary.

2.3.1. Investor feedback

In order to reach the goal of genuine market penetration, the simple activation of a target group or definition of key performance indicators for substantial growth is not something that is sufficient in and of itself. The business model behind a promising idea or product is much more important in a saturated market and the fast technology development of evolving ideas. For this reason, the consortium chose not only potential partners from the industry, but also drew from expertise from key professionals from within the consulting and agency field, as well as from the business start up and investment scene:

Thierry Baujard (General Manager Media Deals)

“As an investor in music and media companies, we can’t miss that party!”

Artur Reimer (Accenture Consulting AG)

“I’m wondering, if we could copy this innovative space to our open innovation strategy and environments, because I would recommend that to our clients. But we have a chance as an observer here, so we will follow the #MusicBricks.”

Christoph Raethke (Founder of German-Startups.de)

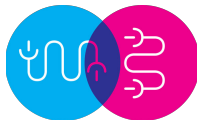
“We always wonder, where great ideas were born, but it is simple: just put emotion together with resources, music with technology ...!”

Prof. Asterix Westpahl (Copyright lawyer with a chair at Popakademie Mannheim)

“I never saw that many freaks in one room, and they can even start to develop with a toolkit without asking a lawyer first...”

2.3.2. Civil officer feedback

In addition to the industry partners, there are also a great deal of potential partners in political and cultural administrations, who also have to learn about the risks and the benefit of supporting open



innovation actions - particularly those based on creative (music) technologies. The learning from the Berlin environment is a demonstrates that there are a great deal of personal and administrative prejudices to overcome, and this is no less the case in Berlin, despite being widely regarded as the most agile start up environment in Europe, as well as the capital of music technology and the electronic music scene:

Olaf Kretschmar (General manager of Berlin Music Commission, the network of independent labels and clubs in Berlin):

“When I first entered the building and the event, it felt like “somehow” broken, there was a lack of perfection and I was walking around like a stranger. But more and more I’ve dived into this melting pot of ideas and I’ve discovered: it is something different, something unique, because there is a community, the attendees are playing a major role, with the goal to create something at the end. Such an event with such bottom up concept is something which hopefully brings in new input to the Berlin music business scene!”

Tatjana Kaube, Björn Böhning (Office of the Lord Mayor of Berlin) and Katja Luckert (Head of Berlin Musicboard):

“We didn’t expect to see that many new ideas, presented by a lot of people from all over the world to our city!”

Björn Döring (Head of Programming Hamburg Reeperbahnfestival, former Director of Berlin Music Week):

“I always felt that there is a big hole in the Berlin calendar when the city decided to move away from the successful combination of music and technology at the last Berlin Music Week nearly 2 years ago. Now this topic is back, and it is not depending on politics and city strategy. With the community and the potential in this city, there is no doubt about long term success – even if I would like to have such an event in Hamburg as well ...”

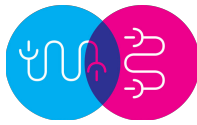
... and Tanja Mühlhans, Nadja Clarus (Berlin Senate for Economics, Dept. for Creative Industries & Technology), which were supporting the event by connecting all information to the official city marketing Berlin Partner GmbH

2.3.3.Startup feedback

During incubation in the Industry Testbed, several of the teams have been connected with founders of various startups, with the following objectives in mind:

- To exchange experiences of the early process of pushing ideas to the market;
- To discuss ways in which these new companies managed their first ‘go-to-market’;
- To provide some best practice cases;
- To learn about risks, chances and pivots.

The following founders took part voluntarily at #MusicTechFest to contribute this knowledge and engagement with #MusicBricks incubatees:



Karim Bhorania (CEO & founder Jamahook AG):

"The MusicTechFest and its included #MusicBricks open innovation approach was a unique experience for me. As the CEO of a start-up company in new technologies it was exciting to see how the future of music and the industry will look like as one gets introduced to ground-breaking new tools for creating music as well as impressive new gadgets in the live performance section. The facilities of this event were astonishing to see and especially exciting to hear the different performances in the different rooms of the building. Definitely worth seeing and a must for companies in the music industry that want to be at the verge of what the future will bring."

Peter Harris (CEO and founder of resonate.io):

"As a newcomer to Music Tech Fest I was quite overwhelmed by the intensity of the experience – the commitment to open innovation, the willingness to experiment, the depth of inclusiveness and the sheer breadth of brazen creativity was startling to behold. Very excited and honored to be welcomed into this new, incredibly unique family. Hope it lasts for many years to come."

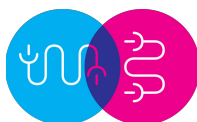
Mark Möbius (CEO and founder of Nagual Sounds):

"When we've performed with our idea at MusicTechFest in 2014 for the first time, we were very impressed by that free and creative environment. The feedback from the community was very important for us as a young company. It was immediately clear to give back that experienced support, when a member of the #MusicBricks consortium asked me to provide knowledge and help at the final event. And by communicating with the teams of the actual project and the community, we've discovered a lot, which we can re-use while stabilising our business model and product offering."

Vincent Favrat (CEO of Musimap SA):

"We have made significant bonds for the future and we are looking forward to exploring further synergies with some of the partners of #MusicBricks (notably the IRCAM) on its ambitious projects and applications. More concretely – as now official contributors of the #MusicBricks project - we will grant access to our powerful music recommendation API, by placing at developers' disposal one of the most exhaustive databases worldwide – this way serving the market as the European answer to The Echo Nest (as its API was closed on May 31st 2016)."

As a result of this very open and transparent process, some new and very different initiatives and series of personal consultancies were planned between these entrepreneurs and experts, the #MusicBricks team members, as well as with members of the #MusicBricks consortium.



3. Methodology for business planning and new routes to market

This section presents the data and the corresponding statistics about the new routes to market identified, as well as how much of this expressed interest resulted in actual follow-up conversations with the teams. These results are based on the questionnaire and business plan consulting between the #MusicBricks consortium and the team members in preparation for the final event, which is covered in deliverable 7.3 in detail.

3.1. The road to a draft business plan

When initial ideas are evolving, especially in the context of an open space with a lot of creative people and a lot of art, the experience is fun for participants. In environments such as the MusicTechFest, the community is not trying to solve the world's problems, but rather to come together to experiment with ideas, and attempt to solve sometimes very personal challenges. As artists find their developer counterparts and vice versa, the fun turns into serious work. At this stage, almost nobody has a detailed plan or a vision of how the idea will turn out at the end. For this reason there is also no set structure for a business which comes out of the results of a hackathon.

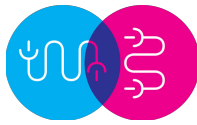
The solution for the #MusicBricks project has been to pick the most promising projects from the creative spaces that completed the incubation during the industry testbed (see D6.3) and start the process of identifying a business case with the market testbed (see D7.1). At the end of this project all teams were required to present and compete in the business arena on stage. While this happened in front of an audience of potential industry partners, members of the innovation community and face to face to investors and consultants, it was necessary to train for such an event, in line with business practices. The methodology for this process is described below.

3.1.1. Business plan questionnaire

A business plan is necessary to make decisions for the strategic and operational planning of an existing business or for a new startup. Everybody with a business needs to get an overview of the resources, research & development, investments, distribution channels and marketing of the product or the company. In addition, finance is also a very big topic, with costs and revenue being of primary importance to the fledgling organisation.

Such a business plan is a very time consuming process in which every detail has to be checked and managed before it can be presented to potential investors or business angels. Agencies and consultants are specialists in guiding startups in this process and those comprehensive resources can be very expensive and time consuming.

The #MusicBricks approach was to reach that detailed level, but based on the results of the industry and market testbed, we have prepared a structure and starting point for such a business plan for each team: we transferred the components of a standard business plan into corresponding



questions, giving a good overview of the information companies and startups have to provide in such a document.

The questionnaire presented to the #MusicBricks teams was as follows:

Your executive summary

- Describe your your business idea concisely.
- What is your market segment?
- What is your / the founders qualification according to the idea / success?
- What are the risks & alternatives?
- What are your mid term / long term KPIs (key performance indicators)?

Your company

- What type of enterprise and what structure of founding capital are you planing?
- What are the shares of your potential co-founders?
- What are the personal goals of the founders?

Your product

- Carve out the most important features clearly.
- What “pain” or need of the customer are you solving?
- Make a SWOT (Strength - Weakness - Opportunity - Threat) analysis.
- What is your competitive advantage and status of development?
- What are the requirements of manufacturing and costs?
- Provide your roadmap, potential diversifications and a forecast for maintenance and support.

Your market segment

- Provide detailed data about the market (size, volume, costs, profit etc.).
- What kind of trends are you seeing (innovations, chances etc.)?
- Who are your global and competitors and what are their market shares?
- What are the SWOT profiles of competitors?
- Describe the segments of target groups and reference customers.

Your marketing

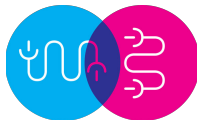
- What is your plan based on the previous analysis?
- Estimate sales and profit figures incl. roadmap.
- Make detailed specifications about the distribution channels and targeted marketing incl. budgets and staff.

Your management

- What is your / their qualification and experience?
- Who is (will be) in charge of what?

Your plan

- Explain your strategy according to planed investments, staff, technology, licenses.



- How will be the development of costs?
- What alternative ways you see based on risks and chances?
- What will be your personal investment / involvement?

Your funding and capital

- Explain need for capital and own investment.
- What other sources for external funding you are focusing on?

You

- Provide CVs, testimonials, certificates.

Various

- Provide technical explanations, patents, LOIs, statements of vendors, etc.

Once these questions are all answered, the result is a comprehensive draft business plan, that can be tuned, extended or changed. In the special case of #MusicBricks nearly all team members were unfamiliar with any business procedure so we edited questions to assist easier understanding of the tasks at hand. Below we list the main business plan topics developed for the #Musicbricks teams.

3.1.2.Main business plan topics for #MusicBricks teams

Seven most important questions were selected for a minimum viable business plan:

Your executive summary

1. Describe your your business idea concisely.
2. What is your market segment?

Your product

3. Clearly outline out the most important features.
4. What “pain” or need of the customer are you solving?

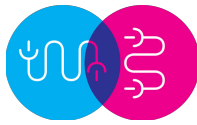
Your market segment

5. What kind of trends are you seeing (innovations, opportunities, etc.)?
6. Who are your global and local competitors and what are their market shares?

Your marketing

7. What is your plan based on the previous analysis?

These core questions have a significant impact on the end design of the business model for each of the teams, and the following questions are also an important piece of groundwork intended to help the teams after the #MusicBricks project ends (a total of **10 questions**):



Your executive summary

1. What is your / the founders' qualification according to the idea / success?
2. What are the risks & alternatives?

Your company

3. What type of enterprise and what structure of founding capital are you planning?

Your product

4. Make a SWOT (Strength - Weakness - Opportunity - Threat) analyse.
5. What is your competitive advantage and status of development?

Your market segment

6. Provide detailed data about the market (size, volume, costs, profit etc.).
7. What are the SWOT profiles of competitors?
8. Describe the segments of target groups and reference customers.

Your management

9. What is your / their qualification and experience?
10. Who is (will be) in charge of what?

All of the questions described at the beginning of this section 4.1. have to be answered when a project has to write their plan for an investor or business partner, but the process of refining and reducing the key ideas to these important core questions helped to focus and prepare the teams for the market testbed, and their engagement with industry.

3.2. Overview: new routes to market

After the pitch at the first day of MusicTechFest Berlin 27 May 2016, the team members and the #MusicBricks consortium received a great deal of positive feedback - not only for the showcase itself but also for the ideas presented as prototypes. The program management of MusicTechFest and the consortium planned also to give 3 teams an extra slot within the 3 days of the festival. These projects were not chosen by chance, but because they fit the performance requirement of the main festival programme - and in addition, all 3 of them - Airstument, GIRD and #FindingSomethingBondingSound had reached a very high level in terms of presenting and receiving attention and positive feedback at other events in Europe:

The first table below shows the development of the teams over the period of the market testbed, based on estimations in the exploitation chart in D7.1.



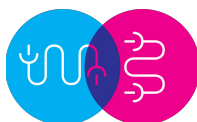
3.2.1.Key findings

- The best teams put in more effort and are still leading in terms of business opportunities (FS_BS, Dolphin, Airstrument, Hi Note)
- All other teams have developed their skills significantly, which means in total 9 out of 11 teams reached at least 80% of the maximum points (15 points for benchmarking the business DNA and 10 points for measuring the team)
- Only one team, Enboard, did not make sufficient technical progress, which led to the decision not to progress them to the market testbed
- One team, Interactive Cube, struggled with the standard business plan, but once a simple product approach was suggested involving a crowdfunding campaign the evaluation of the project improved considerably. The team's approach however, assessed in terms of Open Innovation potential, scores very highly (see section

3.2.2.Updated Exploitation Chart

Table 1 re-evaluates the teams for their exploitation potential based on their development since the previous evaluation outlined in deliverable D7.1.

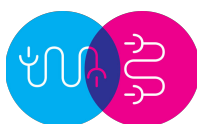
#MusicBricks project	Airstrument	The Snitch (Bionic Ear)	Dolphin	Enboard	FS_BS
Product Segement	Need	Fun	Need	Fun	Performance
Exploitation Option	Licensing, Company, JointVenture	Open Source, Service Integration	Licensing, Company, JointVenture, R&D	n/a	Licensing, Artist ("Company"), Consulting/ R&D
Business Model	Sale (per unit)	License free, pay per use for add ons	SDK/API, License (per unit/use)	n/a	Sale (per product, performance)
Business Readiness Level (BRL based on Points)	21	20	23	11	23
Business D.N.A.	12	10	14	5	13
Use Case	2	2	2	1	2
Core Value	2	2	3	1	2
Competitive Advantage	2	1	3	1	3
Partners	3	2	3	1	3
MVP Ready	3	3	3	1	3



Team	9	10	9	6	10
Complementary (2)	1	2	2	2	2
Creative Part (+1)	1	1	0	2	1
Communication	2	2	2	1	2
Progress	3	2	2	1	2
Future	2	3	3	0	3

#MusicBricks project	GIRD	Hi-Note	Interactive Cube	LightBeat	Manuphonia	Sound in Translation
Product Segment	Fun	Need	Fun	Need	Fun	Fun
Exploitation Option	Licensing, Company, Joint Venture	Licensing, Company, Joint Venture	Licensing, Company, Joint Venture	Licensing, own product	Licensing, Company, Joint Venture	Licensing
Business Model	License (per unit)	License (per unit)	Sale (per unit)	Sale (per unit), License (per unit)	License (per unit)	License (per unit)
Business Readiness Level (BRL based on Points)	20	23	16	20	19	19
Business D.N.A.	11	13	9	11	10	10
Use Case	2	2	2	2	2	2
Core Value	2	2	2	2	2	2
Competitive Advantage	2	3	1	2	1	2
Partners	2	3	2	2	2	2
MVP Ready	3	3	2	3	3	2
Team	9	10	7	9	9	9
Complementary (2)	2	2	2	2	2	2
Creative Part (+1)	1	1	0	0	1	1
Communication	2	2	2	2	2	2
Progress	2	2	1	2	2	2
Future	2	3	2	3	2	2

Table 1: Business Readiness Levels



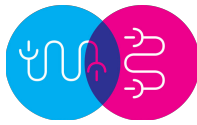
3.2.3. Market potential

Table 2 demonstrates the markets that can be entered by the #MusicBricks teams, divided in 3 possibilities: high chance of success (green), moderate chance with risks (yellow) and no chance (white). The structures and outcomes of the projects can be major benefits for the intended target markets, and these benefits may be unanticipated, independent from the original purpose of the project.

#MusicBricks project	Aistrument	The Snitch (Bionic Ear)	Dolphin	FS_BS	GIRD
Overall Chances	Green	Green	Green	Green	Green
Markets (Big Potential vs. Low Risks)	White	White	White	White	White
Music Education	Green	Green	White	White	Green
Entertainment Production, Collaborations	Yellow	Green	Yellow	Green	Green
AR and VR (Gaming)	White	White	Green	Green	Yellow
eHealth and Rehabilitation	Green	White	Green	Green	Yellow
IoT, Industry 4.0	White	White	Green	Yellow	White
Academia & Research	Green	Green	Green	Green	Green

#MusicBricks project	HighNote	Interactive Cube	Lightbeat	Manuphonia	Sound in Translation
Overall Chances	Green	Yellow	Green	Yellow	Yellow
Markets (Big Potential vs. Low Risks)	White	White	White	White	White
Music Education	Yellow	White	White	Green	Yellow
Entertainment Production, Collaborations	Yellow	Yellow	Green	Yellow	Green
AR and VR (Gaming)	Yellow	White	Green	White	Yellow
eHealth and Rehabilitation	Green	White	White	Yellow	White
IoT, Industry 4.0	Yellow	Yellow	Yellow	White	White
Academia & Research	Green	Green	Yellow	Green	Yellow

Table 2: Market Potential



3.2.4. How these markets can benefit from #MusicBricks

Music Education

Some groups of people are excluded from learning musical skills, there are barriers for people with disabilities, and development and research typically concentrates on existing musical instruments only. #MusicBricks considerably improves both learning and accessibility to music creation.

Collaborations

There is a lack of solutions for intuitive collaborations between artists in real-time, sensors for improving production are becoming common but need to be used with smart devices connected to (mostly) American data services. #MusicBricks offer novel solutions, often benefitting from Open Source components and relying on European-based content cloud platforms.

AR- and VR (Gaming)

There is a lack of tracking of data sources and multiple people when it comes to integration of gestures (body). #musicBricks provides both sensors and data libraries to effectively map body gestures.

eHealth & Rehabilitation

Musical feedback can provide motivation for some of the biggest challenges in rehabilitation. #MusicBricks and related products can aid social interaction and communication and can provide new approaches for treating mental illnesses (music + sensors, body, creativity, communication etc.).

IoT, Industry 4.0

Large companies may struggle with Open Innovation processes and environments and may lack access to existing communities of developers and innovators. #MusicBricks enables access to an entire Innovation Ecosystem of Early Adopters and Creative Testbeds for engagement by large companies. and enables transversal transfer of valuable ideas across industry verticals.

Academic & Research

Open innovation can help to bring new ideas from academia and research to a community of users, who will contribute productive feedback and create new demands based on original ideas from the field. #MusicBricks successfully ports knowledge from research over to innovators, and feeds back results from innovation testbeds for research progress through fast feedback loops.



3.3. Open Innovation potential

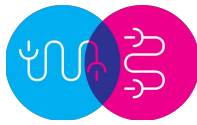
The Open Innovation potential has been assessed according to the MARLs criteria outlined in Section 8 of D7.1. Table 3 updates the team ratings according to their latest achievements. The key findings are as follows:

- The team Interactive Cube has increased their project score from 4 to 8 due to the publication of the product as a DIY kit on GitHub to be built by a wide variety of users. This strategy enables the project to be used for learning how to assemble electronic components; be customised, improved and altered by creative developers; and appeal to DIY enthusiasts and Early Adopters. This considerably reduces the product's production risk, increases its Early Adoption and Data Yield. It also improves its standing in terms of research and innovation and social impact.
- The Snitch (formerly Ear or Bionic Ear) has considerably increased its Early Adopter standing through both an Open Source release on GitHub (already in use by GIRD and Manuphonia) and through the release of an Android app for a wider user adoption of their tools. The Snitch is also progressing well with further development within the sister EU project of #MusicBricks - the Giant Steps RIA.
- Manuphonia has also created an Open Source repository on GitHub, which considerably improves their technology readiness. While their application was basic in terms of standard productisation (e.g. no patent registration could be suggested to safeguard the product), in the context of Open Source development and education, their contribution to the community is sufficient to attract Early Adopters and build their platform through social engagement.

#MusicBricks project	GIRD	HighNote	Interactive Cube	Lightbeat	Manuphonia	Sound in Translation
Open Innovation potential	6	5	8	7	8	6
Reduced Risk	2	1	2	2	2	2
Early Adopters	2	1	2	2	2	2
Data Yield	1	2	2	2	2	1
Technology Readiness	1	1	2	1	2	1

#MusicBricks project	Airstrument	Snitch/Ear	Dolphin	Enboard	FS_BS
Open Innovation potential	6	8	7	3	5
Reduced Risk	1	2	1	0	1
Early Adopters	2	2	2	2	0
Data Yield	2	2	2	1	2
Technology Readiness	1	2	2	0	2

Table 3: Open Innovation Potential



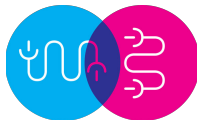
3.4. Estimation of impact on market and society

The above analyses reveal several aspects of the #MusicBricks ecosystem which have the potential for a greater impact on the combination of market and society.

3.4.1. Gesture-driven interaction

The majority of #MusicBricks projects use the R-IoT sensor - a unique tangible user interface (TUI), which translates gestures and other haptic input to enable control of content or other applications: GIRD, Manuphonia, Aistrument, Dolphin, FS_BS, Hi Note, Enboard, Interactive Cube. These applications demonstrate the potential of gesture-driven interaction to contribute significantly to a variety of industrial and social applications. Gestural interfaces are becoming an increasingly vital connection between human beings and the world of internet-connected objects.

- **VR- and AR-Applications:** 360 videos and virtual game design are heralded as a breakthrough in VR/AR. But without immersive sound, AR/VR fails to produce something close to reality. Some companies are investing in 3D sound for immersive audio renderings in virtual reality scenarios, but current audiovisual technologies do not typically address the control of movements, gestures and natural feedback loops, valuable to an AR/VR world. The combination of sound and gesture in the R-IoT allows to cater for these AR/VR challenges.
- **eHealth and Rehabilitation:** using music while running, biking, training, or doing fitness programmes can focus the mind and get the body into a state of flow. However, using music in the context of fitness may not be suitable for people with disabilities or for people rehabilitating after an accident. Training with gestures that connect to music creation can motivate and provide an incentive and context for activities. Even subtle movement can be programmed to trigger a loud feedback. To control the speed, even the tip of a toe can be mapped onto a sound. Gesture and sound mapping provides an opportunity for performative creativity and for the use of music as a tool for communication. This may enable disabled people to take part in socialising activities, as well as have an impact on rehabilitation programmes.
- **Industry applications:** In addition to entertainment applications, the control of machines, networks and processes is becoming more complicated. Exploring the use of gestures while communicating adds to the range and intuitive nature of those interactions. Industry verticals such as agriculture and forestry, which make use of heavy machinery require hands-free operation of communication technologies. These may benefit from gesture sensing and recognised movements of the body, as offered by the project Dolphin.
- **Music education:** Some applications can be easily directed towards music education, such as Aistrument and Manuphonia. Although these applications do not fundamentally change the way musical instruments are learned, they have the potential to help people gain access to music education, which has been shown to have an important effect on



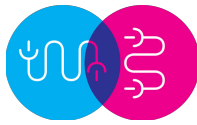
social competences and mathematics - core elements to help develop programming skills, increasingly more important for life and employment.

3.4.2. Horizontal applications

The combination of music and light (as in GRD, Interactive Cube or LightBeat) demonstrates ways in which the experience of music consumption in a connected living environment could potentially interact with our senses and our moods more intuitively and on a regular basis. The combination of sound and light creates opportunities beyond the traditional music technology market targeting horizontally both the entertainment and lifestyle markets. Other horizontal applications utilising this combination may influence the way in which users interact and collaborate within their everyday environment.

3.4.3. Early Adoption

Rate of user uptake is usually an unforeseeable variable. However, bringing together expertise from the world of research, creative developers, artists, makers, and market expertise from industry professionals ensures meaningful and interconnected participation. By placing creativity at the centre, new and unanticipated ideas provide an opportunity for genuinely disruptive innovation and Early Adoption. The competition in the world of technology and IT between Silicone Valley and European hubs is a significant factor, but it is not just technology alone that will give Europe an edge. Cultural and social integration, a focus on inclusion for health and wellbeing as well as acceptance of principles of Early Adoption from verticals such as manufacturing and telecommunications will ultimately impact a broader range of innovation opportunities and market potentials.



4. Identified markets based on incubatee feedback and assessment

During the Market Testbed, each of the project teams was guided through a rapid process in which they created a minimum viable business plan through mentoring, and guided by a questionnaire that required them to self-reflect, analyse their concept and match it to potential markets. The results of that business planning activity is presented below. By way of comparison, each project's actual achievements and results after the Market Testbed period are outlined in detail in deliverable D7.3

As an outcome of the industry testbed in WP6, 10 projects were guided towards a business plan, after they presented their results from the incubation (refer to deliverable D6.2), and nominated to be taken forward to the #MusicBricks market testbed. This process took place between June 2015 and May 2016 and offered an intensive incubation programme that supported the projects with:

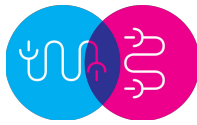
- assistance with a business plan questionnaire
- evaluation of new routes to market
- advice and connections for partnerships and technologies
- exploration of market potential & risks

Based on the methodology of creating a business plan and strategy the #MusicBricks consortium and the incubatees defined opportunities and risks for a potential market. The following sections (3.1 to 3.10) outline the new routes to market developed and discussed with each of the incubated teams that took part in the market testbed. These strategies were developed at the Music Tech Fest market testbed event itself, and the plans described are not fully fledged business reports, but rather the key notes and ideas that would lead to these reports being created and fine tuned. The methodology whereby the teams were guided to develop this market strategy has been explored above in section 3.1. to 3.3.

4.1. Airststrument

- One of the two teams with the biggest dissemination output in major tech events such as re:publica, NAMM and TEDx
- Market potential in musical education and AR-/VR-Games

New route to market: There is a big opportunity for developing applications in the field of rehabilitation and eHealth. The founder is already targeting more such specific use-cases by taking part in an innovation lab. In particular the #MusicBricks technology provider IRCAM for the RIoT board and its future implementations as products and associated gesture analysis and audio mapping software, will be available for considering tech licenses and collaborations. In particular, Frederic Bevilacqua at IRCAM has been involved in applications of gesture-based sound control for rehabilitation in several research projects including advanced gesture sensing/following technologies and clinic studies (see for instance <http://legos.ircam.fr>) and collaborations could be set up on this subject.



During the festival the team also started an exchange with the Berlin-based start up Nagual Sounds, who have experience in that field while delivering gesture and audio mapping solutions based on the Microsoft Kinect camera to clinics and rehabilitation centres. Fraunhofer will guide that connection, because there is a huge potential to create another research project together with another Fraunhofer Institute.

4.2. Dolphin

- Exhibited one of the most advanced business plans of the MusicBricks incubated teams
- Patent pending
- Creation of the Sojaner company

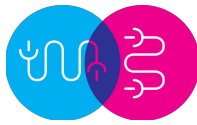
Beyond the expected feedback on the patent submission, a key factor of success will be the adoption by big game players (both the main hardware platform manufacturers and game publishers), which would ideally persuade the company to obtain a developer status and to gain momentum by participating in the production of one or several games implementing the developed user control features. The VR-AR business might be more open, with several companies currently integrating the audio part and binaural rendering with head movement compensation in the VR systems. The target product shall include a hardware part with headphones and movement analysis, either developed by Sojaner itself or in partnership with other manufacturers, the company then focusing on the software part.

In the short term and as a first stage, the development of applications for the heavy industry recently discussed with Swedish partners will enable to further elaborate the technology for relevant use-cases. #MusicBricks technology providers, including IRCAM for the RIoT board and its future implementations as products and associated gesture analysis and audio mapping software, will be available for considering tech licenses and collaborations. Beyond the #MusicBricks technologies, the company could also benefit from binaural rendering technologies including head movement compensation and management of inter-individual differences developed by some of the project partners including IRCAM.

4.3. #FindingSomethingBondingSounding

- Performance with significant aesthetic qualities
- Unique scientific research as creative input for future artistic projects

The team has set up the MuArts company, an unprecedented online platform that will give access to various state-of-the-art BCI data analysis pieces of software and will provide the digital media artistic community with a unified and plug&play interface to these algorithms through the OSC



protocol. Other categories of users including clinicians may also be considered with potentially paying access to BCI databases.

The technical field of brain data analysis is far from the core expertise of the MusicBricks project and does not in itself rely on any of its technology bricks. However, scientific exchanges on existing Hidden Markov Models (HMM) based algorithms for the recognition of multidimensional signal vectors (IRCAM's gesture following) are foreseen. The MusicBricks consortium partners will support the platform they plan to setup and will advertise it when it is ready through their promotional channels, including through the Music Tech Fest and IRCAM's forumnet.

4.4.Hi Note

- Several relevant music generation and performance scenarios for artists with disabilities

The future developments of the Human Instruments company will aim at providing a plug-and-play instrument, with the support of dedicated grants for specific use-cases. The company has been advised not only to exhibit demos of its use cases on its communication channels including its web site, but also a product/service offer which will make sense for promoting the developed instrument. Beyond the #MusicBricks project execution, further collaborations are foreseen between Human Instruments and IRCAM for integrating future commercial implementations of the RIoT board.

4.5.GIRD

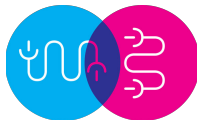
- Glove-based interactive system to control sound and lights

With the existing prototype the team is able to explore the market very deeply in order to find out which niche can be claimed. Doing experiments with artists from known communities which later can be used as testimonial is a perfect start, to learn more about the possible use cases. The focus on live remixing of music and collaborative music performances is very clear: perhaps there is an opportunity to figure out how exploitation of the product could work in the music education market. In addition, there is more potential in the AR-/VR-World which requires the team to explore these opportunities in other or relevant spaces or in the following MusicTechFest events, i.e., to benefit from the further developments of the R-IoT board and to find another developer resource for the core team.

4.6.Manuphonia

- Android application allowing users to record their own gestures
- Match these gestures to predefined samples and to create music

This team has created value that can only be had by using open innovation approaches, because they are various people from different countries who had never met before and yet took the opportunity to create something spontaneously and collaboratively. Supporting such environments



and focusing on the social impact music and technology can have, can turn a lot of initiatives to a new level of collaboration—and innovation. Their expertise covers all needed fields and the missing resource in specific technologies, i.e., the integration of sensors and data from the R-IoT were contributed by the #MusicBricks consortium. With this larger social setting in mind, the market of eHealth and rehabilitation has a big potential for this group, beside the music educational opportunities, particularly with a focus on children.

4.7.Lightbeat

- Android app created
- Uses two online APIs (Spotify and MusicBrainz) for beat detection + light visualization

This project has a big advantage over the competing product in the market, even it is ‘only’ a software based idea: the team has released their own Phono Music for Android in the Google Play Store at the end of May and the feature of ‘Lightbeat’ is planned to enhance this initial application with a "connected light feature". It is clear that the monitoring of the release marketing will reveal insights that may lead to a change in direction, and this would of course affect Lightbeat as well. By learning about the attractive market of media entertainment applications, the team will receive valid information about the potential users. Their unique integration of music and lights based on interactions and moods can lead closer to AR- and VR-applications, which would expand the potential revenue and market share for this project.

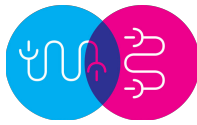
4.8.Interactive Cube

- Prototype created, published as a DIY kit
- Prepare set of features (requirements) for crowd funding campaign

This team had a very different experience of the process and had to master a lot of challenges. The project is an ambitious one and the last iteration of their cube, including the sensor controlling effects and sounds created in real time, is a very good prototype for a music production or live performance market. However the feedback they have had is that people want to experience their LED equipped cube, which can be programmed and is controlled from the music environment in a room, because the team has demonstrated this version of the product everywhere they enter a hackathon or similar. This spontaneous demand demonstrates that simple but unique ideas catch peoples attention more than very sophisticated ones. After a detailed business planning and calculation, a crowdfunding campaign could move the project to a valid business, by creating consumer goods for a certain community. Their existing DIY kit is accessible for free, as an example of combining additive production and 3D printing with the idea and remains another hot innovation topic (see above Section 3.3).

4.9.The Snitch

- Fully functional Android app
- Reliable recognition from chord or key from environment

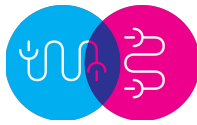


The team decided to hand over the complete source code to the community as open source, available through GitHub. The value of their business will be created by developing additional services on top of these sources and with this specialised knowledge. The Snitch basics can enable plug&play for musical instruments and lower entrance barriers built on musical training, forms, and theory, which covers a strong need in collaboration in musical live performances and productions. As a service-oriented team, and later a company, they are independent from a specific product, which could lead to another field that possibly could benefit from their knowledge of real-time transmission protocols between data sources from sensors and mobile connected environments, which we know as the central concepts of industry 4.0.

4.10.Sound in Translation

- Solid prototype of controller for interactive loop retrieval
- Extension from initial limited controller board to larger range of possible controllers

A niche problem-solving application like mastering the analysis of huge loop or beat libraries in the process of music creation and performance by offering real-time recommendation is unlikely to have a significant impact on the wider market. However, while not targeted at a mass audience, the proliferation of ideas like Sounds in Translation, situated within a strong music technology ecosystem is the reason, that Europe (and especially Germany) leads the music technology industry. Even if some brands do so under a foreign umbrella, the employment and the core knowledge is situated here: Native Instruments (Berlin), Steinberg (Yamaha Hamburg), Logic (Apple Hamburg), Ableton (Berlin), MAGIX (Berlin), Soundcloud (Berlin), Reason (Propellerhead Sweden) and of course digital audio codecs MP3 and AAC (Fraunhofer Germany). If music and production of audio is the missing core element in the future AR-/VR-World, then projects like these have the potential to secure employment and market innovation in Europe. Sound in Translation is positioned to influence the creative output of the extremely successful DJs and electronic music scene in Europe.



5. Conclusion

In the transition from the industry testbed to the market testbed, #MusicBricks partners have created a very strong set of relationships with a growing network of key partners from industry, the public sector and beyond. The advantages of these connections, brought together through the Music Tech Fest event in Berlin, had a significant impact on the visibility and potential long term impact of the programme - both for incubated teams and for the consortium.

Through innovation in business modelling it is possible to accelerate the process of open innovation and its routes to market. Through a process of checking, analysing, and adapting the environment and the toolkit with our partners and teams and by deploying rapid knowledge transfer and 'minimum viable' approaches to development, teams were prepared not just for the market testbed, but the commercial world. The #MusicBricks partners worked with a wide range of partners, with artists, with professional consulting agencies, investors, top managers from music technology companies, a lot of founders from the related start up scene, people from the administration in Berlin, public networks etc.

One team's progress meant that it was not ready for the market testbed. The consortium agreed to exclude the project because of the obstacles that it had faced. However, the project is being reworked and redeployed in a different fashion beyond the scope of the funded #MusicBricks project. All other teams completed the market testbed and final event and had extensive coaching to ensure their businesses would have as strong a chance as possible for success beyond the life of the project.

In addition, three teams have opened their work up to external contribution through Github and thus have allowed for open source collaboration, thereby providing the potential for their innovations to develop in a more ambitious way, find markets they may not otherwise have been able to meet and build ecosystems through early adopters.

All of the 10 projects fulfilled their goals for the incubation roadmap in the Market Testbed.