BRENNEREI: HOW WE WORKED

BRENNEREI: HOW WE WORKED

How We Approached the Task by DLR

With regard to the analysis, it is important not to consider it as a scientific research. We are neither sociologists, nor was the group of interviewees large enough to consider the conclusions as empiric. However, you will get an idea of the knowledge and opinions of part of the public on the topic of space. It might be reasonable for the DLR to strengthen this approach in order to understand the interests and concerns within the public better and to find ways to explain and promote the work of DLR.

Furthermore, we chose the narrative form of an essay because our work and the outcomes are based on our personal experiences.

As we are an international team, we mainly work and communicate in English. Since the project took place in Germany the interviews were conducted in German. This is the reason why the book about the Lagrange Points is in German.

The BRENNEREI

BRENNEREI – next generation lab is an initiative developed by *Bremen Economic Development* (WFB GmbH). In conjunction with young professionals, experts and mentors BRENNEREI develops new concepts to find answers to the economic, technological and social challenges of tomorrow. Each year, BRENNEREI has partners that suggest projects. BRENNEREI partners are companies and organizations that look for new ideas and concepts to solve their current challenges or to open-up their future scope. In BRENNEREI, we believe that the ideas of today are the reality of tomorrow, this is why a lot of enterprises are keen to create and develop more ideas and concepts for the future. We are an interdisciplinary team, each one has a different background. Our approach will be explained on the following pages.

The BRENNEREI Team

BRENNEREI tries to bring together young creative graduates alongside mentors to propose new ideas and concepts for its partners for economic, industrial and social challenges. The team is interdisciplinary with different backgrounds.

- Lukas Adolphi: Communication Design
- Simon Denecke: Integrated Design
- Sabine Hirsch: Interior Design
- Charlotte Herbst: Urban Design
- Ahmed Mahmoud: Communication and Information Technology
- Chiara Ratti: Environmental Architecture
- Marthe Trottnow: Integrated Design

The team is accompanied by Dennis Paul, professor for digital media at the HfK University of Arts in Bremen. The project manager is Mrs Andrea Kuhfuß, an art historian and cultural manager from WFB GmbH.

Briefing

The German AeroSpace Centre (DLR) is one of our partners in 2015. The DLR is the national aeronautics
and space research centre of the Federal Republic of Germany. Its extensive research and development work in aeronautics, space, energy, transport and security is integrated into national and international cooperative ventures. The DLR representative in the project between DLR and BRENNEREI is Dr. Franziska Zeitler. She works as the coordinator for the innovation and new markets at the Space Agency of DLR and is the responsible for the initiative *INNOSpace*. This initiative strengthens the link between industry, science and space administration to promote targeted innovation and transfers.

The project that Mrs Zeitler suggested is to fill the void between sceptical and visionary opinions about space. The project should provide ideas about how to engage with the perceived lack of public interest in Spaceflight and how the DLR can reach public interest.

Methods

Methods of Organization

Weekly Meetings – Jour Fixe
To organize the team we had a weekly meeting with Mrs Kuhfuß. Within these meetings, we used to set up a schedule of the week and check the results of the previous one. Also, we planned future actions. It helped us to stay informed about the different research approaches and work tasked. Early on with the second project starting another coordination was needed. The team decided to have weekly changing responsibilities. Two people structured the week with work tasks and meetings.

Workshop with Mentor Dennis Paul
The team is comprised of seven members, the project manager Mrs Andrea Kuhfuß and the mentor Prof. Paul. We had a follow up meetings with Dennis Paul to discuss our findings. Dennis' task was to give hints and to point out the main direction through this phase. He also helped us by proposing a focus point on which to dig deeper.

Workshop on Qualitative Qnalysis
Steffi Brewig and Paul Baumgarten joined our team for two days. They taught us about qualitative analysis. It was a helpful input that focused on how to conduct interviews and how to set up a questionnaire. Next to it we learnt about theories and methods on how to analyze the collected data. They focused the presentation on the *Grounded Theory* which, based on our research within the *Lagrange Points*, is the best method to analyze our interview results. This method is not thought to verify theories. Instead it is a "procedure to break up the data, to conceptualize and assemble it in a new way. It is a central process to develop theories from the data."[1] At a second meeting we followed the method "learning by doing." Together we analyzed an interview using codes as a tool.

1 Strauss/Corbin (1993): About coding with Grounded Theory

Visits and Events About Space

During the six-month period, we had the opportunity to visit various events and facilities related to space – the presentations we heard, the experiments we could see or even try, and the discussions we had.

- *DLR :envihab Cologne*: The early visit to the *DLR Institute of AeroSpace Medicine (:envihab)* was the first experience during the project. As part of this visit, we got our impulse when Dr. Zeitler introduced the DLR activities to us and introduced the task. We could see where space research is actually happening. Thanks to that, we learned about the Zero-G experiment and we talked to a researcher who tries to make bricks out of moon Sand. We got a first impression of what space research means for the company and how broad the topic is.

- *Drop Tower (ZARM)*, Bremen: On this visit we got to know one topic of space research better: zero gravity research. It is important to learn about the condition and behaviour of materials or elements in zero gravity.

- *Space Start-Up,* Bremen: We not only visited, but also participated at the *Start Up Weekend Space* in Bremen. It was a big event with many participants from all over the world interested in New Space. New Space wants to open up the field of space to entrepreneurs. We met leaders in the global space community, like the head of the technology transfer at ESA, the CEO of *Zero2Infinity* and many more. Young people that are trying to start their venture in space inspired us. We recognized that fascination was an important factor for these people to fall in love with space.

- *Women in AeroSpace,* Airbus Bremen: At this event, applied space research was presented, for example regarding cartilage. Our fascination grew when we walked through a life size ISS mock-up and. There we experienced how astronauts live in space. We also had a look into the hall were parts of the Ariane rockets are constructed. These experiences pushed our fascination to the edge.

- Dr. Peter Vits, Bremen: Mr. Vits, a consultant for space flight and space research in Bremen visited us for several hours. After a brief presentation from his side, we started a discussion. On this day we heard the first time about the *Lagrange Point* which was important for the final result of this project. Mr. Vits was accompanied by Barbara Cembella, Innovationmanager Space, and Andreas Eickhoff, Innovationmanager AeroSpace, WFB GmbH.

- *DLR School Labs,* Bremen: We learned about the activities of the DLR School Lab in Bremen. The School Lab Team showed us technical and physical experiments they conduct with pupils. It also worked for us, we had a fun day while learning many new facts about physics in space.

Get in Contact with the Public

At an early point in our research process we realized that we were learning a lot about space and our opinions were changing. But we wanted to know what the public's opinions and thoughts were about space. What are they interested in? On what can we build on? So we went out onto the streets and approached people with the questions "What do you know about space?" and "Can you name ten words with regard to the topic of space?" This first contact with the public was a very important moment for the entire project. It opened up a new field of research, showed new points of view (for example space as a transcendental matter) and helped us to define our role in the project.

Following our interviews on the street with adults, we decided to talk to children. We therefore went to a kindergarten and met a group of 20 children. We talked with them about space and explained our solar systems in a playful way. They also drew pictures. The results were so beautiful and revealed that children have an amazing knowledge about space.

Lagrange Point
The *Lagrange Point* is a method of conducting interviews to gather public opinion about space. This method was a result of our first research part and became a very important part. It will be elaborated and explained later.

Desk Research
In addition to the talks, events and interviews we simply started to look up space. For example in Cologne, Mrs Zeitler introduced us to a medical test that simulates the body to be space. Back in Bremen we continued our research, read articles from people who went through this procedure and continued to explore about body functions in space.

Feeling short-sighted about space in the beginning we went to the library and got many children books about space. They get to the point, focus on the big questions and tend to explain things very easily. The cultural part got us especially interested so we ordered exhibition catalogues from space-related exhibitions and researched artistic approaches towards the topic.

Furthermore, we started watching many videos about
space. The *Sendung mit der Maus*-Episode with Alexander Gerst was one of the first things we watched. From there we continued watching Youtube videos explaining everyday life in space. Even the most banal activity on earth becomes interesting in space. We were fascinated when we observed how astronauts washed their hair, made breakfast, drank water or went on the toilet.
Our personal favourite was *Mixed Nuts in Space* from the Canadian Space Agency. We were delighted by this little footage, but also 7.5 million people worldwide. At this point we also realized that it is not just a big mission, an incredible finding or technical device that people get interested in space research, it's also something as simple as mixed nuts in space.

Team meeting

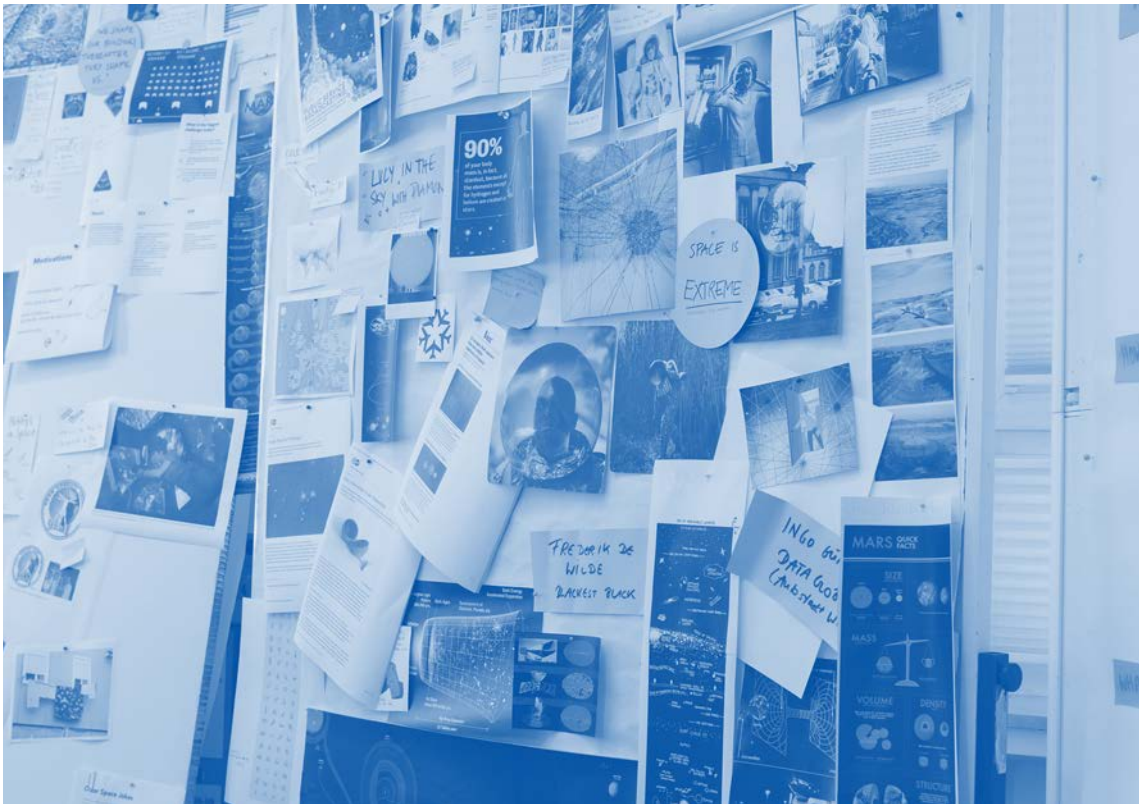
Interview workshop

Mentor Dennis Paul

Desk research

Visit at DLR Institute of AeroSpace Medicine (:envihab), Cologne

Visit at Drop Tower (ZARM), Bremen



Space Wall, work in progress

Visit at DLR School Lab, Bremen

Journey through the void

The Universe of Interest

We started our personal space venture by digging into many aspects about the project. The team participated in space events and carried out interviews with both space experts and non-space experts. This input led to new questions and new topics to read up on. In conjunction with this research, we also created a playlist with space songs, tumbled over a lot of fun facts and started a fun fact collection, and read about incredible scenarios like the concept of an elevator into space. With our different methods and approaches we gathered a lot of information, data and opinions. We realized that the research was like a pinball machine. In the beginning every one decided on two aspects to do research on, but it quickly changed. Starting at one point everybody ended up at a completely different point through clicking, watching and reading.

The Space Wall was our tool to record our research. We pinned all our results and findings on it. It became somehow an artwork in itself, or our personal *Universe of Interest.* In the beginning the information was pinned randomly. Later we started to organize our research findings into following categories: Ethics, technology, politics, economy, social aspects, history, military, culture, philosophy, ecology and mood. At one point the pictures, articles and notes stuck to each category started to mingle.

Cluster the Findings

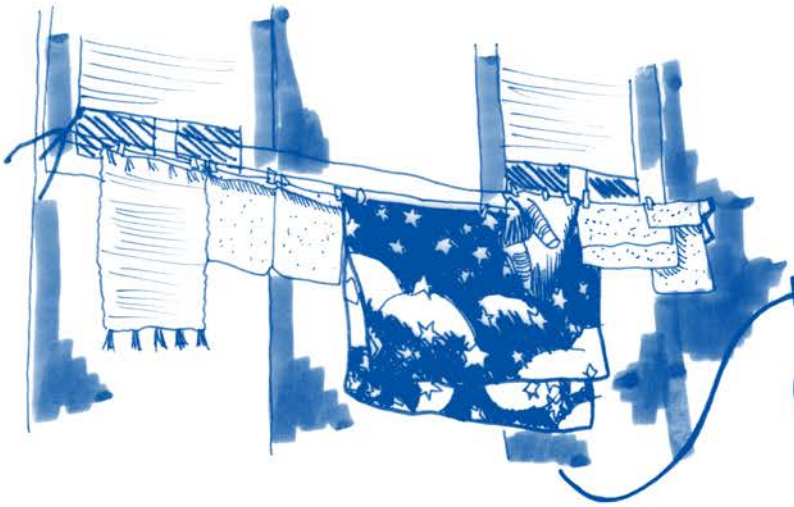
The amount of information in our *Universe of Interest* was overwhelming. We had to connect all these little dots into meaningful findings. After a first phase
of research, we entered a second phase in which we analysed the information.

As we already had realized, it wasn't always easy to decide on categories on our Space Wall. They started to mingle together and blur because everything was somehow connected. That's when we decided to not focus on categories, but on connections. We structured our research into clusters. Each cluster combined categories such as mood, politics or culture and is linked together by its superior connection.

The Cluster that we decided on are called:

- *Space is visual* – from printed stars to James Webb Telescope
- *Space is transcendental* – from the meaning of heaven, sky and space towards *Rosetta* Mission
- *Space is visionary* – from Space inspired architectures in the 1960s to modern water treatment installations
- *Humanities in space* – from the question "Are there nations in space?" to the long term space missions
- *Space makes everything more interesting* – from mixed space nuts to cartilage research
- *The limits of space* – from the fact that we are all in space to the invention of a space hover
- *Space as a place of strange attraction* – from historical space research to private entrepreneurship and *Mars One Mission*
- *The deepness of space* – from infinity to Galileo Satellites

A cluster is interconnected and flexible because everything merges together. In addition to the ones we mentioned, many more are possible. The main characteristic of a cluster is that its connection leads through our Universe of Interest. Each cluster has a story to tell about space. The cluster *Space is visual* takes a blanket with printed stars as a starting point. From the question "What is the colour of space?" we got to leggings with space prints and asked ourselves the question "Where do the space pictures we know come from? That's when we started to research *Hubble* and even learned about the new James Webb telescope that will be launched in the next few years. The role of a cluster is really to guide through our *Universe of Interest* and combine things that may be seem banal with actual space technology or missions.



Black!
♂46y

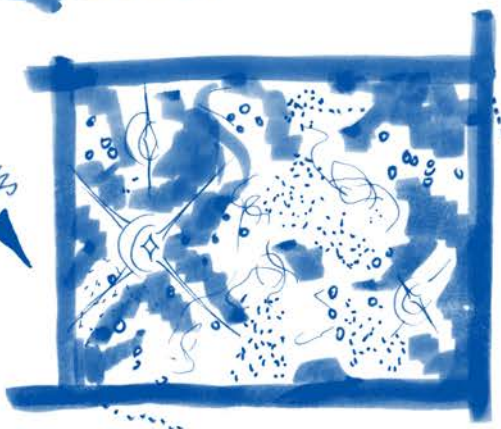
WHICH COLOR HAS Space ?

♀14y
Galaxy, Purple and Black

Actually, black isn't a colour. So Space is colourless ?
♀46y

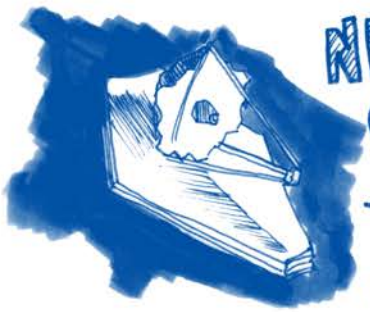
Galaxy Leggins

needs photos of galaxys

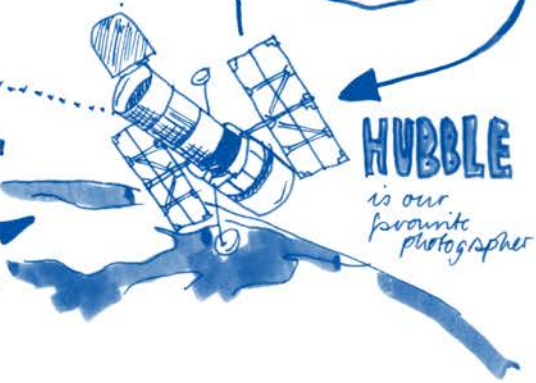


Klick

By the Way:
HAPPY LAUNCH DAY!
25



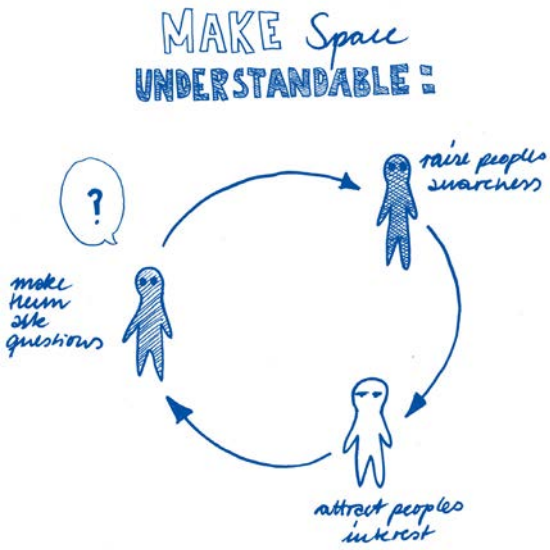
NEW GENERATION
James Webb Telescope



HUBBLE
is our favorite photographer

In this phase, we carried out many brainstorming sessions and in general discussed a lot. Working in an interdisciplinary team created contradictory thoughts, but the results were worth it. The group was encouraged to think visually and create wild ideas. Collecting all these inspirations on walls helped us organize and cluster them.

At the end we realized, that the research phase was actually a journey for each and every one of us. And everybody has their own story to tell. But what is the most important is that we went through *the Void* ourselves. The Void is the undefined area that stretches between visionary opinions and scepticism about space.

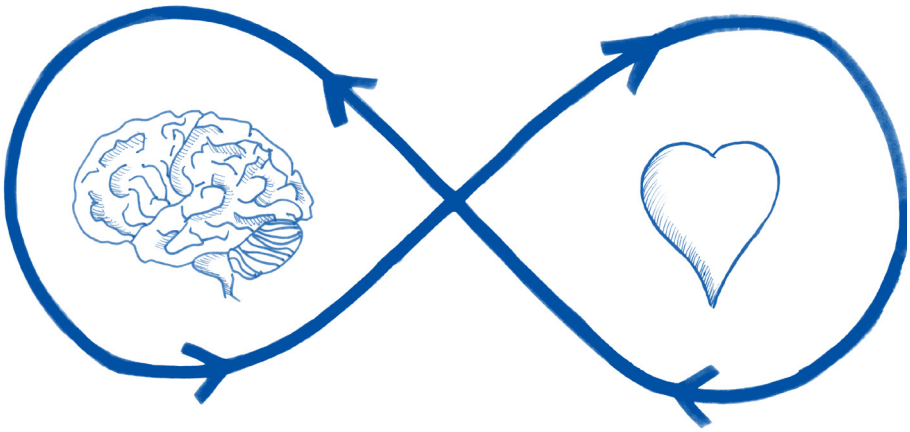


Our Role: Attract People's Interest

In our briefing we were given a general task: Make space understandable – bridge the Void! At a certain stage it became clear that we were lab rats in this process, we did the journey on our own, we bridged the void. We didn't know a lot about space in the very beginning, but by dealing with all the information we were able to make up our own opinion about space science and research. We became aware – and fascinated! Fascination bridges the void. Furthermore, we realized that *the Void* itself is not a black hole with two poles of visionary perception and technical information that repel each, but they are bound to each other in an ongoing process of exchange and interaction.

Fascination not only bridges the void, it is also a catalyst for creating awareness. Fascination is a personal perception, we can't make people fascinated, we can only give incentives that trigger fascination. Therefore the first step is to attract people's interest in space. If you are interested you start to ask questions by yourself and you do research on your own. The level of awareness is rising. That leads to more interest, more questions and more awareness.

The most difficult part is to attract as many people as possible. But we think it's actually only difficult to reach the person that doesn't feel at all affected by space research or is interested in space, the *no-opinion-guy*. If we find a communication strategy to reach him, we can reach everybody.



Ideas on How to Create Interest

With the clusters in our mind and the knowledge that fascination can bridge the Void we started the process of finding solutions to our task. We came together and started brainstorming, but what we realized was that everybody had already so many ideas. Each team member was affected on their personal journey through the *Universe of Interest*. The ideas were therefore already in our minds, we just had to bring them on paper. Quickly we realized we can't and we don't want to slim it down to one or two main ideas or approaches on how to make space understandable. The potential of our work lies in the vast variety of ideas.

We figured out that there are for us five main parts on how to attract people's interest in space, which is by

- Making space physical
  (e.g. with a *Space Food Truck*)
- Educating about space
  (e.g. with a *Planet Fruit Basket*)
- Making space emotional
  (e.g. by setting up a TV show called *Germanys Next Astronaut*)
- Confronting people with space
  (e.g. with a video stream from the ISS on public transport screens)
- Pointing out the obvious
  (e.g. with a sticker saying space inside that can be attached to every product that contains space applications)

The Lagrange Point As a Research Tool to Talk with the Public About Space

Coming up with ideas on how to attract people's interest is an important thing, but what was necessary as well for this step was to know about people's opinion. In our first milestone meeting, we presented some quotes from the public. With encouragement from Mrs Zeitler, we decided to also focus on learning about the state of opinion of the public. We were unsure how to do it. The first time we literally just went outside the door and asked people's opinion. Most of them felt swamped by the questions and we as the interviewer didn't feel comfortable either.

But on our meeting with Mr Vits, we heard about the Lagrange Point. Scientifically the Lagrange Point describes a spot between two celestial bodies where no gravity has an effect on an object, which is situated between them. We liked this idea and thought about what a *Lagrange Point* would be like here on earth. We imagined it as a perfect spot to hang out and relax. We combined our idea of a "Chill out area" with our wish to conduct more interviews and developed the Lagrange Point as a research tool. We set up a series of these public interventions to get in contact with the public. Instead of just getting answers from the people, we wanted this activity to be interactive and to offer
something in return. We used cookies and space Cocktails to attract people to our *Lagrange Point*, but also as an exchange value: a Cocktail for an Interview.

Conducted Lagrange Points:

- The first *Lagrange Point* took place on 11 June in the Bürgerpark in Bremen. The passers were mainly students, families with children and friends of us. We got 48 questionnaires filled out and conducted seven interviews.
- The second *Lagrange Point* took place on 16 June at the *Glocke*, the concert hall in Bremen. The audience consisted mainly of elderly people. At this occasion we received 32 questionnaires and did nine interviews.
- The third *Lagrange Point* took place on 2 July at the dike at the river Weser in Bremen. The audience consisted of students, pupils and a few older people. There we received 56 questionnaires and conducted eight interviews.

Outcome

Looking back on six months of work, we realized that we have two kinds of outcomes: ideas to attract people's interest and many statements about
space that we collected at *Lagrange Point*. Hence, we decided to also divide the outcome in two parts: the *Lagrange Point* and a *Collection* of all the ideas developed by us. The entire final outcome is printed matter.

The book about the *Lagrange Point* contains a visual documentary from the interventions. The interviews carried out and questionnaires are summarized in two parts of analysis. The book also offers a manual on how a *Lagrange Point* can be set up by someone else.

The second part of the outcome is a *Collection* of ideas we developed. Because of their nature we separated them into three topics. Each topic is a separate booklet:

- *Expand the Horizon* focuses on the topic humanities and culture in Space
- *Public Space* focuses on the method of public interventions, the *Lagrange Point* was one example that became already real
- *Many more ways to go* focuses on other communication strategies

The entire *Collection* of ideas is also a starting point to show how many more things are imaginable. These ideas provide different levels of communication strategies and all ideas differ in range, intensity and difficulty of implementation. Some of them you could realise on the go, others need a lot more time – and money. But what they also have in common is that these ideas are providing new perspectives and manifold possibilities to generate collaborations with different target groups, such as people from three to 99, science institutions, enterprises, schools and others – perfect multiplicators for DLR to spread the word, to inform and to fascinate.

So – there are (at least) three ways you can work with this *Collection*:

1. Pick an idea and implement it.
2. Pick an idea, develop it further and adapt it to an existing project.
3. Reach out for potential partners and collaborate with them.

This *Collection* and also the *Lagrange Book* is first and foremost an inspiration tool for DLR to become active. There are not only new horizons in space to be discovered, but also on the ground!

Imprint

BRENNEREI – next generation lab 2015
Lukas Adolphi
Simon Denecke
Charlotte Herbst
Sabine Hirsch
Ahmed Mahmoud
Chiara Paola Ratti
Marthe Trottnow

Management
Andrea Kuhfuß

Mentor
Dennis Paul

Paper
Munken Lynx 130 g/m²

Printing & Binding
D.O.C.H. Risographie Bremen

Edition
40

Contact
lukasadolphi@gmail.com
simon.denecke@gmx.de
charlotteherbst@gmx.de
sabine.hirsch@gmx.net
a.mostfa@uni-bremen.de
chiarapaola.ratti@gmail.com
info@marthe-trottnow.de

Gefördert durch:
Bundesministerium für Wirtschaft und Energie
aufgrund eines Beschlusses des Deutschen Bundestages