

# DT.1.3.6 Report on P2P Knowledge Exchange Visits

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Deliverable D.T.1.3.6

Version 2

Report on P2P Knowledge Exchange  
Visits in Ljubljana PP 7/Rog Lab

11 2017

Author: Marco Fellin

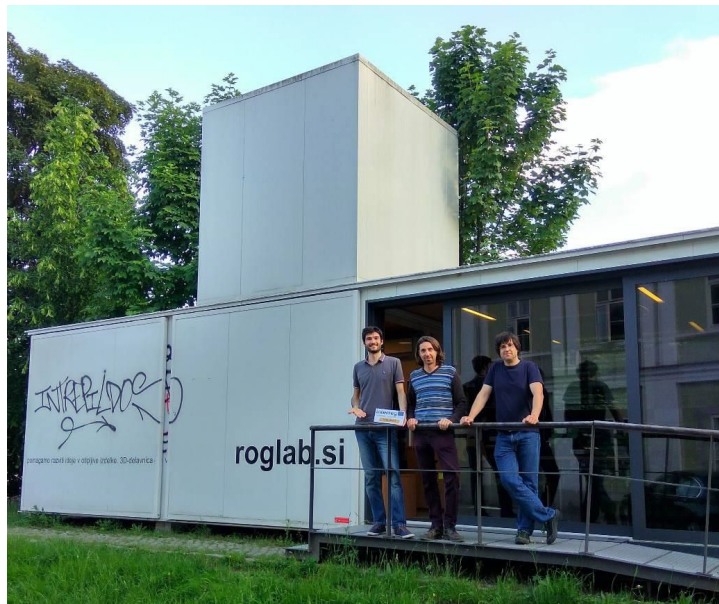
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## 1. Visit outline



The visit has been organized from May 16th to 18 th, 2017. The participants where Marco Fellin, MUSE and the hosts was PP7, Roglab, in details: François Friderich (FabLabNet Project Manager), Tomo Per (FabLabNet technical Manager and Mentor ), Meta Štular ( FabLabNet Communication Manager - Head of RogLab), Ivan Turk (RogLab Technician). The program of the visit was the following: - Guided tour through PP7 FabLab, Presentations of RogLab past projects, best practices, background and perspectives; - Visit to RogLab partners: RAMPA, Biotehna, Kapelica, Presentation of RogLab partnership with an NGO focused on interdisciplinary artscience field; - Visit to RogLab home institution: Museum and Galleries of Ljubljana, Guided tour of the exhibition New age is coming - Industry - Labour - Capital; - Walk through Ljubljana Cultural and Industrial Heritage Guided Tour, Learning about cultural and industrial context of RogLab; - Exchanges on future activities of FabLabNet project and management issues; - Lighting Guerilla Festival (Interdisciplinary artistic and technologic festival) Presentation of RogLab partnership with an artistic NGO.

## 2. Lessons learned:

Roglab is a running engine in a vibrant and dynamic city. The idea beside this FabLab (FL) is to be a working example on the possible utilization of the ROG, a former mechanical factory that lies few



meters near it. The factory had an hard time in the Industrial and economical transitions following the political events of the ex Yugoslavia. It was first used as temporary cultural venue in the nineties' when different festivals took place in the old factory. In 2002 the City of Ljubljana bought the factory and developed in 2007 the first programme with aid of experts from the fields of architecture, design and visual arts. The same year the factory was occupied by the different groups of temporary users, who are still using that wide spaces for heterogeneous activities (activism, poetry readings, circus, bicycle repairs, skate park...). The entire city is very dynamic and active, especially in artistic and social aspects such the refugee crisis and LGBT rights. In 2010 the City of Ljubljana and the Museum and Galleries of Ljubljana joined the European Second Chance Project, whose aim was to revitalise former industrial sites in five European cities. In 2012 RogLab was funded as result of this development project - a small scale prototype of the future Rog Centre with aim to stimulate the cooperation among the community, it is now running and involving members. It is a catalyst. Every year they succeed to involve more and more people, and the knowledge of the FL potential is wide spreading year after year. They were the first public FL in Ljubljana, now there are 8! The knowledge of the FL is increasing: the Faculty of Natural Sciences and Applied Arts starter as one of the RogLab partners , 5 years later they have funded their own lab! The presence of young (and not so young!) minds is a huge potential for FL, but their involvement is challenging due to the official role FL has: RogLab is part of the Museum and Galleries of Ljubljana, therefore the municipality, therefore that political framework that wants to stop the activities running now in the ROG. As seen also during the evening exhibition, Art could be used as a common language to involve these young minds. Another challenge they faced (and face), is the limited knowledge of what a FL is. Possibly also because of the programmed obsolescence of the object: young generations have lost the knowledge and the mental attitude in creating and repairing objects.

## 2.1 Location and equipment:

Roglab is made out of a luxury container, where necessarily everything is well organized and in order. The access is wheelchair friendly, as well as the internal spaces, which can be used by members with motion disability (the motion of huge electrical wheelchairs can be difficult). It is located in the town, at walking distance with the major cultural and historical heritages, university and the two social poles where young's meet, of which one is the ROG.

Roglab is a tiny well-organized space, where members can find all basic FabLab equipment (hand tools, power tools, 3D printers, CNC, laser cutter...). In just 28 m2 there is even space for workshops (up to 10 kids). Roglab thinks green: the thermal insulation is optimized and just little energy is needed for cooling and heating.

The major challenges for this FL are the absence of a toilet, running water and wi-fi. For each of these problems the staff has found a good alternative!

## 2.2 Management and Organization of the FabLab:

RogLab is a public FL, they decided to keep low access prices for promoting the knowledge of FL. Paying 30€ a member gets 3 h machine training and a month of use of the machine. Adding an extra month of use is just 15€ more. Students have discounted rates, and unemployed and refugees have free access. Thanks also the FLN project, now RogLab is open 8h/day allowing a wide variety of members to participate in the activities: geeks, students, engineers, motorbike lovers, grandma's, hipsters... A technician, a project manager and a coordinator are hired on the FL, and some external professional joins the team when needed. They are managing the booking with an online system, but they look forward to adopt the FabMan (INNOC, AT).

## 2.3 FabLab work, projects and connections:

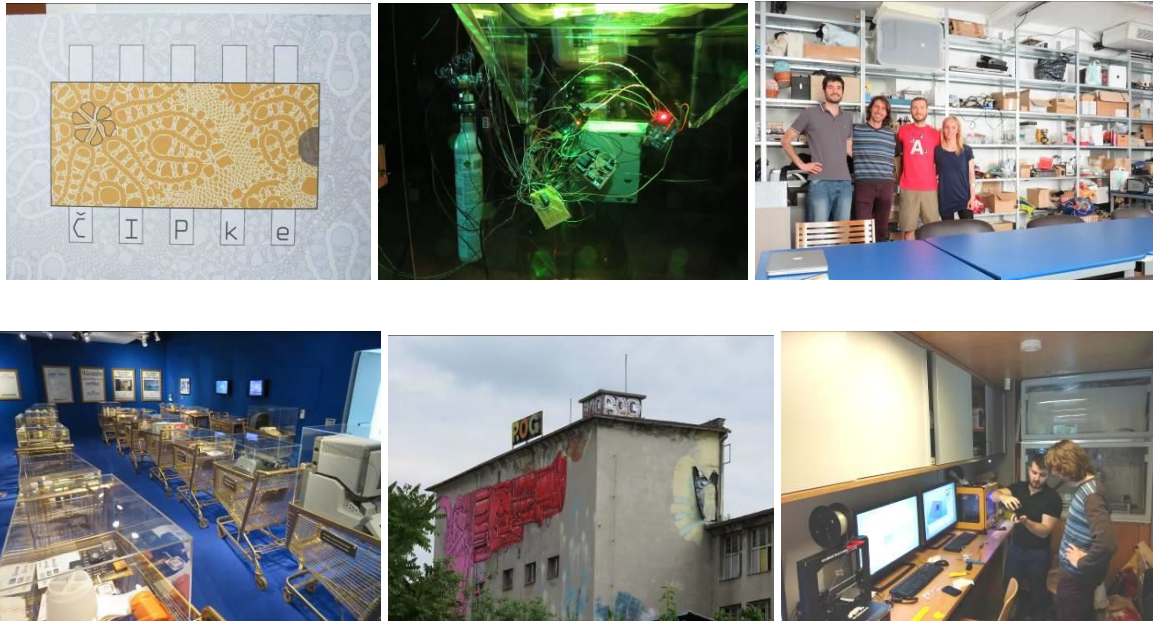
Roglab has several active projects:

- Education: they teach to children, usually by narrating a story. Students need the facilities for their exams projects.
- Members training and access: more than 400 members so far.
- Connection with artists: Art is a universal language, and Ljubljana is well known for its active community of modern artists.
- Every 2 years they do a big project: RogLab - a factory that makes itself ([http://roglab.si/en/projects/2013/exhibition\\_prototypes](http://roglab.si/en/projects/2013/exhibition_prototypes)) , The Design and Disability project (presented in Budapest) (<http://www.design-dis-ability.com/english-home/>).
- 3DKitchen: co-working programme where members can develop their 3D models from scratch with support of experienced mentor.

## 2.4 Mutual benefit and challenges - Exchange of info:

The visit to RogLab partners Kersnikova ( Kapelica gallery, Rampa Lab, Biotehna) is a very good example of an original connection in between art, technology and biology (biotechnology, medicine...).

- A vertical garden with an aquaponic system (with local fish and algae for water purification) and a spider-robot which controls the plant status.
- Cipke community: a STEAM project to involve women in technology ( Cip = chip, Ke = woman ).
- A temporary exhibition (Mojca Založnik) of a 2 years project on quantum biology and medicine, with 2 incubators with living cancer and healthy cells, and interaction with visiting public.
- DIY-BIO group member.



The visit of Museum and Galleries of Ljubljana, home institution of RogLab, and in particular of the exhibition on “A new age is coming! Industry, Labour, Capital”, was an interesting overview of the economical, social, political, industrial changes on the last century. From the first steam factory (XVIII c.) to the role of Slovenia transiting from being the “underdeveloped” part of Austria-Hungarian Empire to be the “silicon valley” of the new Yugoslavia, a key role that was particularly important as trading pole with the entire Central Europe.

The exhibition presents the various transitions had during invasion of Ljubljana by Italians (!), socialism, work automatization, the social benefits of prosperous enterprises (in the ‘70s), the bankruptcy of the govern certificates. In this perspective, the 4th industrial revolution we hope to be part of with the FLN project, it is just the next transition on a new system which will involve political, social, economical consequences.

### **The role of ART**

Artists are producing ideas all the time. Art is universal, it is without cultural, technological border. It can be used as a cradle of creativity, which can be brought to practical realization into a FL.

### **Fundraising**

Fundraising on project that are not related to electronic gadgetry is difficult. E.g. the disability project (a rain coat and other easy wearable clothes) have struggled and failed to find funders, despite being professionally presented, solving a real-life problem. Possibly the Kickstarter addresses those geeks not so interested in these objects.

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Report on P2P Knowledge Exchange  
Visits in Ljubljana

11 2017

PP7/ RogLab 30.06.2017

Author: Joanna Kowolik

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## Visit outline



**Date:**

30<sup>th</sup> June, 2017

**Venues:**

RogLab, Petkovškovo nabrežje 67, 1000 Ljubljana <http://roglab.si/en/>

Rampa Lab, Kerniskova 4, 1000 Ljubljana <http://kersnikova.org/rampa/>

Cirkulacija 2, <http://www.cirkulacija2.org/>

Poligon [www.poligon.si](http://www.poligon.si)

Cultural Center Tobacna 001 <http://www.mgml.si/kulturni-center-tobacna-001/>

**Host Partner:**

PP7 -SI RogLab



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**Attendees:**

PP2 AT            Joanna Kowolik, Innoc  
PP7 SI            François Friderich, Tomo PER, RogLab

**Agenda:**

Wednesday 28th June 2017

11:30 - 14:00    Tour and exchange on Management practices at RogLab  
14:00 - 16:00    Visiting Rampa Lab, Cirkulacja 2, Poligon, Tobacna 001

**Photos and videos of this visit:**

<https://drive.google.com/drive/folders/0ByoAACxWsR9WVU1yaVRLMmZvUG8?usp=sharing>

## 1. FabLab Reality:

## 2. Location



*Photo: RogLab Ljubljana*

RogLab is production space in Ljubljana, focused on offering production tools; stimulating creative use of 3D technologies; enabling interdisciplinary collaboration as well as research and innovation-oriented creativity; bolstering connections between creative activities and business; developing projects that deal with pressing issues in urban environments and address current challenges in architecture and design with the emphasis on social and environmental responsibility.

### **Focus**

RogLab's programme orientation is focused on offering production tools; stimulating creative use of 3D technologies; enabling interdisciplinary collaboration as well as research and innovation-oriented creativity; bolstering connections between creative activities and business; developing projects that deal with pressing issues in urban environments and address current challenges in architecture and design with the emphasis on social and environmental responsibility.

### **Users**

RogLab is open to a wide spectrum of users - students and professionals in the fields of design, architecture and visual arts, and companies, innovators, researchers, creative hobbyists, children, inhabitants and visitors of Ljubljana.

### **Partnerships**

The RogLab programme is based on collaboration with companies and NGOs, as well as cultural,



research and educational institutions. The partner network provides the implementation of the planned programme and activities, the optimal usage of the established public cultural infrastructure, the inclusion of the widest possible circle of professionals and the general public. At the same time, it enables the transfer of know-how, experience and complementing infrastructure, as well as the synchronisation of activities within the partner network.

#### **Location**

The Second Chance pilot investment, positioned in the wider area of the former Rog factory - Petkovškovo riverbank (at its corner with Rozman Street) - is acting upon the benchmarks of the programme Central Europe, the main financier of Second Chance, as well as the planned beginning of construction work on the Rog factory in 2012-13. However, RogLab activities are not confined to the physical location of RogLab but also take place in spaces of partner organisations, including public interventions, the World Wide Web, etc.

#### **Timeframe**

Considering the rules of the Central Europe programme - the main financier of Second Chance - RogLab will be in operation at least until 2018, i.e. it will be included in the new Rog Centre compound once the former Rog factory is renovated.

### **3. Ljubljana Maker Ecosystem**

In Ljubljana you can find several workshops, makerspaces and laboratories which some of the were visited during the exchange meeting. Besides RogLab there are:

**RAMPA** is a laboratory for hacking science, art and society, and operates in the framework of the Zavod Kersnikova institute. Its advanced experimental and research environment offers artists, researchers and youth basic technical infrastructure and consultations with the support of inspiring mentors who assist independent creatives on their respective research paths. Rampa is home to the production of art projects, ČIPke and CodeCatz initiatives for women working in science, technology and media arts, creative workshops for children and youth - 5HEK, Crafty Builders 3D modelling workshops as well as other initiatives, projects and societies.

Since 1994, **Ljudmila Art and Science Laboratory** has served as a hub connecting arts, the Internet, civil society, culture and science. Its well-equipped digital and media laboratory complements the technological community infrastructure and is an active producer of computer and media arts. Ljudmila develops and popularises open-source culture through their organisation of exhibitions, creative-workshops (3D printing, audio and video production, e-textiles) and PIFcamp hack-camp. As a recipient of numerous domestic and international awards it develops information portals with the Ministry of Culture and cooperates in European projects such as the international audio-visual festival Strictly Analog.

**Poligon Maker Lab** is one of the most important platforms within the Creative Centre Poligon. The input of engineering skills, services and technological view of the world in the creative centre provides the "ground" for (frequently) intuitive projects run by other creators. The Poligon Maker Lab team offer their services both to companies and individuals working in different walks of life (high-technology and creative industries, social entrepreneurship and culture). R&D, rapid prototyping,



specialised workshops and lectures as well as residential programs are but a few of the activities on the “menu” of this friendly, curious and accessible Ljubljana makerspace.

**Cirkulacija 2** is an artists’ collective, a workshop and a showroom currently employing the work and knowledge of nine individuals. The initiative was formed in 2007 in the former Rog factory, but for the last two years the collective has been renting 700 m<sup>2</sup> in a complex of the former *Tobačna* tobacco factory in Ljubljana. It could well be described as a house of artists. Cirkulacija 2 as an artists’ initiative disseminates creative culture born predominantly out of the marriage of art and technology. With its fascinating “fleet” of tools it offers space for dynamic operation and creation, and promotes interdisciplinary collaboration, mainly in the arts.

**MakerLab Ljubljana** is a dedicated open laboratory at the Faculty of Electrical Engineering of the University of Ljubljana that provides access for creators, students and researchers to all tools and skills related to information and communication technologies, and technologies of the Internet of Things. MakerLab provides equipment such as 3D printers for the fabrication of mechanical assemblies, a CNC milling machine for manufacturing printed circuit boards, a reflow oven for soldering circuit boards, various instruments and equipment for developing electronics and more. MakerLab also offers free workshops where participants can acquire new skills in innovative technologies, while the support of other faculty laboratories, mentors and links with companies provide an excellent creative starting point for new innovations.

**Zavod 404**, a centre for technological research for the young, was founded with the aim of communicating technical skills to the young and inspiring them to pursue science and research. The workshop found its home in the building of the Institute for Metal Constructions. The centre is divided into two parts: the machinery section offers everything from hand tools to planes and a CNC milling machine, while the electrical-technology section comes with two 3D printers and several computers. Anyone looking to make and create is offered assistance and space to acquire new knowledge and skills (that schools can’t always provide), and the possibility to work on different materials while taking advantage of a wide array of educational activities through which they can develop and boost their creativity.

**3D-LAB**, creative laboratory at the Faculty of Natural Sciences and Engineering of the University of Ljubljana is primarily intended to provide support to teaching and research as well as to the creative, project-based work of students at the Faculty of Natural Sciences and Engineering (especially graphic artists and designers, textile and clothing designers). At the moment the lab has four 3D printers and two scanners. In the future it will be opened up to the wider public as well, and will serve mainly as a venue for workshops and other forms of mentor-guided work.

## 4. Tools and equipment

RogLab provides the following machines and tools to their users:

- Laser Cutter CO2 glass tube Hermetic  
<http://www.roglab.si/en/footcol1/equipment/2013/laser-cutter>
- Several 3D printers <http://www.roglab.si/en/footcol1/equipment/2013/3d-ortotip>  
<http://www.roglab.si/en/footcol1/equipment/2017/3d-print-raise>  
<http://www.roglab.si/en/footcol1/equipment/2017/3d-print-form2>



- Vinyl Cutter and press <http://www.roglab.si/en/footcol1/equipment/2013/vinyl-cutter>
- CNC milling machine, CNC USA Step S270  
<http://www.roglab.si/en/footcol1/equipment/2013/cnc-machine>
- Embroidery machine by bernina  
<http://www.roglab.si/en/footcol1/equipment/2013/embroidery-machine>

## 5. Management and Organization of the FabLab, Communication

RogLab is a pilot investment for the future Rog Centre, which is unfolding within the frame of the European project Second Chance. The Ljubljana partners in the Second Chance project are the City Municipality of Ljubljana and the City Museum and Galleries (MGML). Their collaboration in the project concerns the development of the former Rog bicycle factory into the Rog Centre for architecture, design and contemporary art. RogLab is being managed by MGML.

RogLab's purpose is to develop and test contents, partnerships and working modalities that could be further developed and built in the new Rog Centre following the renovation of the former bicycle factory.

<https://youtu.be/G2jKorV-Kh4>

[https://www.facebook.com/roglab.ljubljana/?hc\\_ref=SEARCH](https://www.facebook.com/roglab.ljubljana/?hc_ref=SEARCH)

<http://roglab.si/en>

### Opening Hours

Monday, Wednesday, Thursday and Friday 12pm till 8 pm.

### MEMBERSHIP

Courses for the machines and one month membership: 30 EUR (20 EUR for students)

After that the monthly prices is 15 EUR (10 EUR for students)

Lab Manager Service our for additional training 25 EUR

Regular training programme for independent use of 3D technologies provides you with a Licence for independent use of [RogLab machinery](#) with professional support at Open days.

The price for each training is 30,00 EUR and includes one month membership that covers free consultation and use of all machines at Open days.

RogLab trainings on Tuesdays from 5 pm to 8 pm are held separately for

- 3D Printer

- Vinyl Cutter and T-shirt press
- CNC Milling Machine
- Embroidery Machine
- Laser Cutting and Engraving Machine

#### Price and Payment

The price for each training is 30 EUR and includes one month membership that covers free consultation at Open days. The price for each training for members with valid membership, students and high school youth is 20,00 EUR.

All the trainings and memberships are free of charge for asylum seekers.

On the day of the training the price is 5 EUR higher.

## 6. Personal exchange summary

RogLab is really well organized and structured, since they have just 30 square meters, it is crucial to use the space as efficient as possible. First we talked about the background of RogLab, the connection to the city of Ljubljana and possible new billing models and memberships for RogLab. One of our main focuses of the exchange visits appeared to a knowledge exchange and possible future strategies on community building strategies and ways to attract new members for our services, like

- × Looking for a cooperation with an university teacher that is interesting in new technologies and visiting the class on regular bases, e.g. in the beginning of the semester to attract students to use the Fab Lab more. In Ljubljana there are several universities, which recommend RogLab to their students on regular bases. In Vienna a lot of students are already visiting the Lab, but maybe it would be useful to establish a stronger relationship with university teachers and the faculties. Knowing what machines they are using in the university workshops/labs to make handling easier e.g. and knowing what kind of trainings the students get in the university when it comes to machine handling
- × Workshop for kids and cooperation with “sobotnica” a kids holiday workshop, are there any possibilities to set up cooperation with the “kinderuni Wien” the kids university that is organized annually in different faculties in Vienna.
- × Is it effective and sustainable to encourage cooperation’s between the lab and co working spaces?
- × Storytelling formats and community building strategies. How we can track and document success stories of our users and what can be offered to the community in addition like monthly exchange meetings on different topic.
- × 3D kitchen offered by members to new members. This is a concept that we also want to work on, how current members can provide their knowledge to the community.

# REPORT ON P2P KNOWLEDGE EXCHANGE VISIT

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PP7 Roglab visit made by PP3 FabLab  
Budapest

Version 1  
06 2017

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Author: David Pap







## 1. Visit outline

Date: June 8-9, 2017.

Venue: Roglab, Ljubljana, Slovenia

Host Partner: PP7 Roglab

Visiting Partner represented by: David Pap, Peter Varga

Other Partners attending the same visit: PP10 MakerSpace Munich

## 2. Visit report

Although our visit to Ljubljana was very short - practically only 24 hours - it was packed with experiences and fun things. After our arrival we were guided through Roglab. It is located in a container next to an old bicycle factory on the bank of Ljubljanica. The city itself is a convenient place in a way that practically everything is in walking distance, so Roglab is accessible for everyone quite easily. The fact that it is located in a container of course means several restraints (lack of toilet, tap water, wifi), but as soon as you step into the lab, you can see that everything is planned very carefully and they made quite an effort to use every available space.

After the tour, Francois presented the brief history and user/workshop statistics of Roglab, as well as their operation methods, other projects and best practices. Roglab was founded by the Museum and Galleries of Ljubljana during in 2012 during the European Second Chance Project serving as a prototype for the much larger Rog Centre which shall be built on the abandoned old bicycle factory. They were the first FabLab in Ljubljana and have been growing and influencing people ever since. Roglab is running on a monthly membership system. The fee is 15 Euros for a month, and if you buy a membership for an extended period of time, you get a discount! (3 months for 40 Euros, 1 year for 100 Euros). Students also get discounts, and unemployed people and refugees can enter free of charge. They offer three regularly happening education packages: 3D printing, laser cutting and CNC milling. They usually happen once a week, with a maximum of 8 people participating, who then will be able to operate the machines by themselves. What particularly caught our interest was the online booking system they use, which is powered by simplybook.me, and synched with Google Calendar and their webpage. So far we have been doing this manually and we were looking for alternatives. Roglab also organizes workshops on a regular basis: every other Saturday, together with Rampa Lab, they hold a kid's workshop on various topics, and every Tuesday there is a so-called 3DKitchen, a co-working event where members create their own 3D-model from scratch with the help of experienced mentors.

After the Roglab tour we visited the lab's home institution and had a guided tour of the exhibition "New age is coming - Industry - Labour - Capital". It was really interesting to see the similarities and differences of Slovenian history compared to ours, and it gave a nice frame and narrative to our efforts to make the perks of 4<sup>th</sup> industrial revolution accessible to everyone.

In the evening, we visited the Lighting Guerilla Festival, which is an interdisciplinary artistic and technology festival in which Roglab participated teamed up with an artistic NGO.

The second day we were guided through Ljubljana and visited four of Roglab's partners, the Faculty of Natural Sciences and Engineering, the Faculty of Electrotechnics, the Cirkulacija - an interdisciplinary art production community - and the co-working space Poligon. I could use all the superlatives I know to describe how inspiring these visits were and how friendly and welcoming they were (my personal favourite was the MakerLab of the Faculty of Electrotechnics and its leader, Mr. Luka Mali - the whole place has a really friendly vibe, they made extremely promising projects and Luka seemed like a really inspiring and



motivating leader), but instead I just want to emphasize the revolutionary role Roglab played in Ljubljana's innovation and co-making ecosystem: they were the first Fablab in the city and inspired others - for example the faculties of the university - to create their own labs.

Overall, it was a really interesting visit, and to me, the moral is that you do not necessarily need a huge place or million-euro worth of equipment to build a great community and influence/inspire others.

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Visits in Ljubljana

11 2017

PP 7/Rog Lab 08/09.06.2017

Author: Martin Laarman

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## 1. Visit outline

### Date:

08./09. June, 2017

### Venues:

RogLab, <http://roglab.si/en/>

Museum and Galleries of Ljubljana, <http://www.mgml.si/en/>

Faculty of Natural Sciences and Engineering, <https://www.ntf.uni-lj.si/en/>

MakerLab Ljubljana - Faculty of Electrotechnics, <http://www.maker.si>

Cirkulacija 2, <http://www.cirkulacija2.org/>

Poligon [www.poligon.si](http://www.poligon.si)

### Host Partner:

PP7 -SI RogLab

### Attendees:

PP3 HU	David Pap, Peter Varga, Vidor Veres-Szekely (FabLab Budapest)
PP7 SI	François Friderich, Meta Stular, Tomo Per, Tanja Gawish (RogLab)
PP9 HR	Roberto Vdovic (FabLab Zagreb)
PP10 DE	Phill Handy, Lana Handy (MakerSpace)

### Agenda:

Thursday, June 8th 2017

14:00 - 15:30 Guided Tour through RogLab

15:30 - 17:00 Visit to RogLab home institution: Museum and Galleries of Ljubljana (MGML)

17:00 - 18:30 Networking and informal discussion

21:30 Lighting Guerilla Festival

Friday, June 9th 2017

09:00 - 10:00 Meeting Point at RogLab

- 10:00 - 10:45 Partner Visit: Faculty of Natural Sciences and Engineering  
11:00 - 12:00 Partner Visit: MakerLab Ljubjana - Faculty of Electrotechnics  
12:30 - 14:00 Lunch  
14:00 - 15:00 Partner Visit: Cirkulacija - Association of interdisciplinary art production  
15:00 - 16:00 Partner Visit: Poligon - Co-Working Space and MakerLab

## 2. FabLab Reality:

### 2.1. Location



*Photo: RogLab Ljubljana*

RogLab is a little workshop installed in a 30 m<sup>2</sup>-container which is conceived as a production, educational and presentation space for big ideas. It is dedicated to activities in the fields of architecture, design and contemporary art, their mutual connecting and cross-sector collaboration (education, science, economy, environment, space...) as well as international networking. The



integral part of RogLab is the 3D Workshop offering technology and services for rapid prototyping, supporting creativity and stimulating professional development in the three targeted fields. RogLab's efforts are also bundled towards creating connections between creative activities and business as well as addressing pressing issues in urban environments, architecture and design with the emphasis on social and environmental responsibility.

#### **Focus**

RogLab's programme orientation is focused on offering production tools; stimulating creative use of 3D technologies; enabling interdisciplinary collaboration as well as research and innovation-oriented creativity; bolstering connections between creative activities and business; developing projects that deal with pressing issues in urban environments and address current challenges in architecture and design with the emphasis on social and environmental responsibility.

#### **Users**

RogLab is open to a wide spectrum of users - students and professionals in the fields of design, architecture and visual arts, and companies, innovators, researchers, creative hobbyists, children, inhabitants and visitors of Ljubljana and many more.

Roglab is running on a monthly membership system where the fee is 15 Euros for a month. If you buy a membership for an extended period of time, you get a discount to buy a 3 month membership for 40 Euros or 1 year for 100 Euros. Students also get discounts, and unemployed people and refugees can enter free of charge. RogLab offers three types of regular trainings: 3D printing, laser cutting and CNC milling which usually take place once a week, with a maximum of 8 people participating, who then will be able to operate the machines by themselves.

#### **Partnerships**

The RogLab programme is based on collaboration with companies and NGOs, as well as cultural, research and educational institutions. The partner network provides the implementation of the planned programme and activities, the optimal usage of the established public cultural infrastructure, the inclusion of the widest possible circle of professionals and the general public. At the same time, it enables the transfer of know-how, experience and complementing infrastructure, as well as the synchronisation of activities within the partner network.

#### **Location**

The Second Chance pilot investment, positioned in the wider area of the former Rog factory - Petkovškovo riverbank (at its corner with Rozman Street) - is acting upon the benchmarks of the programme Central Europe, the main financier of Second Chance, as well as the planned beginning of construction work on the Rog factory in 2012-13. However, RogLab activities are not confined to the physical location of RogLab but also take place in spaces of partner organisations, including public interventions, the World Wide Web, etc.

With RogLab being conveniently situated in the city of Ljubljana everything is in walking distance and through that easily accessible to everyone. Of course there are some restraints stemming from the fact that it is located in a container (no lavatories, tap water, WIFI), but as soon as you step into the lab you can see that everything has been planned carefully and that everyone is making an effort to use the available space efficiently.

### Timeframe

Considering the rules of the Central Europe programme - the main financier of Second Chance - RogLab will be in operation at least until 2018, i.e. it will be included in the new Rog Centre compound once the former Rog factory is renovated.

## 2.2. Ljubljana Maker Ecosystem

The Maker Ecosystem in Ljubljana is vast and consists out of several workshops, makerspaces and laboratories of which we visited some during our exchange visit.

**RAMPA** is a laboratory for hacking science, art and society, and operates in the framework of the Zavod Kersnikova institute. Its advanced experimental and research environment offers artists, researchers and youth basic technical infrastructure and consultations with the support of inspiring mentors who assist independent creatives on their respective research paths. Rampa is home to the production of art projects, ČIPke and CodeCatz initiatives for women working in science, technology and media arts, creative workshops for children and youth - 5HEK, Crafty Builders 3D modelling workshops as well as other initiatives, projects and societies.

Since 1994, **Ljudmila Art and Science Laboratory** has served as a hub connecting arts, the Internet, civil society, culture and science. Its well-equipped digital and media laboratory complements the technological community infrastructure and is an active producer of computer and media arts. Ljudmila develops and popularised open-source culture through their organisation of exhibitions, creative-workshops (3D printing, audio and video production, e-textiles) and PIFcamp hack-camp. As a recipient of numerous domestic and international awards it develops information portals with the Ministry of Culture and cooperates in European projects such as the international audio-visual festival Strictly Analog.

**Poligon Maker Lab** is one of the most important platforms within the Creative Centre Poligon. The input of engineering skills, services and technological view of the world in the creative centre provides the “ground” for (frequently) intuitive projects run by other creators. The Poligon Maker Lab team offer their services both to companies and individuals working in different walks of life (high-technology and creative industries, social entrepreneurship and culture). R&D, rapid prototyping, specialised workshops and lectures as well as residential programs are but a few of the activities on the “menu” of this friendly, curious and accessible Ljubljana makerspace.

**Cirkulacija 2** is an artists’ collective, a workshop and a showroom currently employing the work and knowledge of nine individuals. The initiative was formed in 2007 in the former Rog factory, but for the last two years the collective has been renting 700 m<sup>2</sup> in a complex of the former Tobačna tobacco factory in Ljubljana. It could well be described as a house of artists. Cirkulacija 2 as an artists’ initiative disseminates creative culture born predominantly out of the marriage of art and technology. With its fascinating “fleet” of tools it offers space for dynamic operation and creation, and promotes interdisciplinary collaboration, mainly in the arts.





**MakerLab Ljubljana** is a dedicated open laboratory at the Faculty of Electrical Engineering of the University of Ljubljana that provides access for creators, students and researchers to all tools and skills related to information and communication technologies, and technologies of the Internet of Things. MakerLab provides equipment such as 3D printers for the fabrication of mechanical assemblies, a CNC milling machine for manufacturing printed circuit boards, a reflow oven for soldering circuit boards, various instruments and equipment for developing electronics and more. MakerLab also offers free workshops where participants can acquire new skills in innovative technologies, while the support of other faculty laboratories, mentors and links with companies provide an excellent creative starting point for new innovations.

**Zavod 404**, a centre for technological research for the young, was founded with the aim of communicating technical skills to the young and inspiring them to pursue science and research. The workshop found its home in the building of the Institute for Metal Constructions. The centre is divided into two parts: the machinery section offers everything from hand tools to planes and a CNC milling machine, while the electrical-technology section comes with two 3D printers and several computers. Anyone looking to make and create is offered assistance and space to acquire new knowledge and skills (that schools can't always provide), and the possibility to work on different materials while taking advantage of a wide array of educational activities through which they can develop and boost their creativity.

**3D-LAB**, creative laboratory at the Faculty of Natural Sciences and Engineering of the University of Ljubljana is primarily intended to provide support to teaching and research as well as to the creative, project-based work of students at the Faculty of Natural Sciences and Engineering (especially graphic artists and designers, textile and clothing designers). At the moment the lab has

four 3D printers and two scanners. In the future it will be opened up to the wider public as well, and will serve mainly as a venue for workshops and other forms of mentor-guided work.

## 2.3. Tools and equipment

RogLab provides the following machines and tools to their users:

- Laser Cutter CO2 glass tube Hermetic  
<http://www.roglab.si/en/footcol1/equipment/2013/laser-cutter>
- Several 3D printers <http://www.roglab.si/en/footcol1/equipment/2013/3d-ortotip>  
<http://www.roglab.si/en/footcol1/equipment/2017/3d-print-raise>  
<http://www.roglab.si/en/footcol1/equipment/2017/3d-print-form2>
- Vinyl Cutter and press <http://www.roglab.si/en/footcol1/equipment/2013/vinyl-cutter>
- CNC milling machine, CNC USa Step S270  
<http://www.roglab.si/en/footcol1/equipment/2013/cnc-machine>

- Embroidery machine by bernina  
<http://www.roglab.si/en/footcol1/equipment/2013/embroidery-machine>

As we are currently working on an online booking system for the machines we were particularly interested in the online booking system that is currently in place at RogLab (Simplybook.me), which is synched to the Google Calendar and RogLab's web-page and represents an interesting and simple fix to the problem of synchronizing all the relevant FabLab data. RogLab is planning to implement FabMan (INNOC,AT) through the FLN project.

Generally it is amazing to see the revolutionary role of RogLab throughout Ljubljana's innovation and co-making history and ecosystem. RogLab played a leading role and inspired others, like the faculties of the university, to embark on their own journey of providing facilities to promote the Do-It-Yourself mindset and innovation.

## 2.4. Management and Organization of the FabLab, Communication

In 2010 the City of Ljubljana and the Museum and Galleries of Ljubljana joined the European Second Chance Project with the aim to revitalise former industrial sites in five European cities. The Ljubljana partners in the Second Chance project are the City Municipality of Ljubljana and the City

Museum and Galleries (MGML). Their collaboration in the project concerns the development of the former Rog bicycle factory into the Rog Centre for architecture, design and contemporary art. RogLab's purpose is to develop and test contents, partnerships and working modalities that could be further developed and built in the new Rog Centre following the renovation of the former bicycle factory. In 2012 RogLab was funded as a result of this development project - a small scale

prototype of the future Rog Centre with aim to stimulate the cooperation among the community, it is now running and involving members and is supposed to serve as a catalyst.

<https://youtu.be/G2jKorV-Kh4>  
[https://www.facebook.com/roglab.ljubljana/?hc\\_ref=SEARCH](https://www.facebook.com/roglab.ljubljana/?hc_ref=SEARCH)  
<http://roglab.si/en>

### 2.4.1 Opening Hours

Monday, Wednesday, Thursday and Friday 12pm till 8 pm.

## 2.4.2 Membership

Courses for the machines and a one month membership cost 30EUR (20 EUR discount for students). After that monthly prices are at 15 EUR (10 EUR discount for students) and Lab Manager Service our for additional training are 25 EUR. A regular training programme for an independent use of 3D technologies provides you with a licence for independent use of RogLab machinery with professional support during open days. The price for each training is 30,00 EUR and includes a one month membership that will cover free consultation at open days.

RogLab trainings are on Tuesdays from 5 pm to 8 pm and are held separately for

- 3D Printer
- Vinyl Cutter and T-shirt press
- CNC Milling Machine
- Embroidery Machine
- Laser Cutting and Engraving Machine

## 2.4.3 Price and Payment

The price for each training is 30 EUR and includes a one month membership that covers free consultation at open days. The price for each training for members with a valid membership, students and high school youth is 20,00 EUR.

All the trainings and memberships are free of charge for asylum seekers. The price is 5 EUR higher on the day of the training.

## 3. Personal exchange summary

It is amazing to see how RogLab is making use of the small container through being very well organized and structured and using the space as efficiently as possible. Even though RogLab is accommodated in a small container it already has had a great impact on its surrounding ecosystem. As the biggest FabLab in the Interreg project it is great to see that in order to have an impact the thing you need most is inspiration.

During the visit we focused on exchanging ideas concerning the online booking system and the planned future implementation of FabMan in both FabLabs.