

# Reduces 3<sup>rd</sup> interregional meeting Conference report

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## Opening and keynote (9.00-10.00)

### Welcome (9.00-9.10)

*Dr. Cyrille Krul, director research center Healthy and Sustainable Living*

Ruben Vrijhoef says hello and introduces dr. Cyrille Krul, director research center Healthy and Sustainable Living from HU University of Applied Sciences.

Cyrille Krul welcomes all partners and stakeholders on behalf of HU, she gave a short introduction on the institutions education and research department. And she stressed the importance of research projects like Reduces, because Utrecht and the research institutions on Utrecht Science Park *De Uithof* aim to create a healthy and sustainable urban area.

Cyrille wishes us good luck and a lot of success.

### Assignment to participants (9.10-9.20)

*dr.ir. Ruben Vrijhoef, professor of Building Future Cities*

*(presentation slides in shared folder: 'Reduces 3<sup>rd</sup> int.meeting – Assignment for today')*

(We had a small hick up, because the key note speaker was not joining the right session jet. Ruben Vrijhoef therefore started with his assignment for today.)

The Reduces project aims to exchange experiences and knowledge within and between the regional authorities. This is key in developing the best action plans to support environmentally sustainable business models for each region and policy. Therefore participants and moderators were asked to distill learnings from the sessions they attend.

More precise the assignment for the morning was to:

- Distill learnings presented and discussed in the break-out sessions.
- Moderators report briefly on learnings in roundup session.
- Add to the learnings for policy improvement in the own region.

For the afternoon participants were asked to:

- Write down what can be learned from cases and policies in other regions.
- Exchange and wrap up learnings within the region.
- Roundup session: one spokesperson per region reports on learnings from other regions.
- Take the lessons learnt home.

### Keynote: Circular Economy policy in Utrecht (9.20-9.55)

*drs. Marin Zegers, policy advisor circular economy (City of Utrecht)*

*(presentation slides in shared folder: 'Reduces 3<sup>rd</sup> int.meeting – Keynote Circular Utrecht')*

Marin Zegers held a keynote presentation on circular economy policy from the City of Utrecht. Mr Zegers is one of the major experts on circular economy policy in the region and has been working on CE-policy since 2016. When he started working at the City of Utrecht, the municipality had no policy on circular economy, and a lot has changed since.

His presentations starts with a little history, mentioning that Utrecht is more than 2000 years old. When looking at the last centuries a considerable change with regard to economic development and industrialization can be seen. Today the same holds true. Recent developments called for a more sustainable development and that is why Utrecht speeds up the transition to a circular economy. The city's goal is to be 100% circular in 2050.

In general Utrecht focusses on healthy urban living. An important focus regarding circular economy for the City of Utrecht is the building and construction industry. This industry uses 50 percent of all raw materials, and is responsible for 3 times the waste households cause. It is especially relevant because Utrecht is the fastest growing major city in the Netherlands, the coming years over 60,000 new houses will be build. Besides, the City of Utrecht wants to play its part by being a launching customer for circular products and services. This should help in scaling up.

An important way to progress circular economy in the Netherlands are the city deals. Mr. Zegers initiated these in Utrecht in 2016. A noteworthy effect is that in 2016 one alderman incorporated environment in his responsibility, now four aldermen have it included in their responsibilities. Environment and sustainability has become an integral part of the policy in the City of Utrecht, according to mr. Zegers. More concrete, the policy focus led to three circular economy goals in Utrecht:

- Circular building & disassembly
- Waste = raw material
- Circular procurement

On the route to a circular city, Utrecht worked on several (regional) agreements, plans and projects. One of those is an investment in a specific area for experimenting and learning – see also breakout session *Circular Urban Development*. This experimenting helps as an engine for circular development, and is an inspiration for other initiatives. Central to the city's approach is to build on bottom-up initiatives. The city concentrates on those projects that are more likely to be innovative and can excel at circular economy.

Questions raised after presentation include: How do you get an overview of all the circular economy initiatives? And how do you give direction? In his response mr. Zegers shared three starting points:

- Focus on where the energy is.
- Involve colleagues and use them as ambassador.
- We report to the city council on the progress of all initiatives.

Another interesting question was about the complementary between circular and smart cities. Mr. Zegers answered that Utrecht definitely makes this link, for example by making use of Building Information Modeling (BIM). More concrete mr. Zegers refers to Madaster, a database for raw materials in buildings. What is more, circular economy policy also includes educations at all levels: universities, universities of applied sciences and vocational education. For instance, HU University of Applied Sciences Utrecht has a minor 'Smart Sustainable Cities'.

## Lessons from the keynote

At the end of the opening 15 points for lessons learned can be summoned:

1. Act regionally not locally.
2. Set ambitious goals: 100% circular in 2050.
3. Need numbers, to understand current situation and monitor goals.
4. View city as an urban mine.
5. Appoint focus areas and domains.
6. Define what circular economy is and what to do.
7. Sign deals with private sector and dedicate budget; and give responsibility, trust and freedom to initiatives from the area.
8. Aim for scaling up of initiatives.
9. Put circular economy in the bigger picture of sustainability, economy, social, wellbeing.
10. Mobilize frontrunners and newcomers.
11. Declare circular economy to be a solution to needs.
12. Spread the word and put on stage award winning initiatives and motivate others.
13. Compare and benchmark with other regions nationally and internationally.
14. Introduce circular economy thinking into regulation.
15. Involve business and academia in developing new policy.

## Morning breakout sessions (10.00-11.15)

After the keynote, participants choose between two breakout sessions: social enterprise and circular urban development.

### Social enterprise: MOYU (10.00-11.15)

*Mr. Roel Schatorjé*

Social entrepreneurs aim to both establish a sound business model, and add social value to society. This can be done by creating for example environment or cultural benefits. Many examples exist, such as voluntary organization, micro credit financiers. And also several manufacturing companies. In this session the case of MOYU is presented. MOYU sells stone paper notebooks, to eliminate paper waste and associated energy use for paper production.

MOYU is a company in sustainable and circularly developed notebooks made of stone paper. The challenges of developing a business, sustaining this company through a crisis and getting on top again. Roel Schatorjé, an alumnus of University of Applied Sciences Utrecht is the CCO of the company and took participants through the development of the company.

### Circular Urban Development (10.00-11.15)

*dr. Evert-Jan Velzing*

*(presentation slides in shared folder: 'Reduces 3<sup>rd</sup> int.meeting – Circular Urban Development')*

Urban development aims to improve the socio-economic wellbeing of neighborhoods, districts and cities. Since the 2000s the role of creatives in developing cities has been stressed. In recent years developing a circular economy has become more important. In this

session we discuss circular urban development. What is it that makes the case circular? Where does it lead to? And how to assess and appreciate the impact made? The presentation specifically looked at the case of Werkspoorkwartier: creative circular industrial area.

### **Roundup of morning sessions (11.30-12.00)**

We had very interesting sessions about what is happening in Utrecht. During the roundup of the morning sessions the moderators shared some key learnings. An important learning with regard to larger initiatives, such as circular urban development, was the need for long term policy, or continuation of policy. The change to circular economy is seen as a long term process, that needs long term attention and investment.

For small social entrepreneurs, such as MOYU, it proves to be really hard to find a launching partner. Participants agreed that public procurement would be a really good instrument to help develop this kind of circular business. Public organizations can both function as a first customer and communicate about the products in use.

The regions shared that they have sustainable and circular goals and see several circular actions, for example in circular purchasing. Though, the question is: Are they going to meet that goals and will regions not get stuck at a certain percentage? Some indicated that they for example struggle with how the policy will lead to sustainable/circular business, how people are putting value to circularity, value that creates business. Another important issue raised is the lack of demand, both public and private. Even though the strategy is quite strong, without the demand we cannot have the highly needed systemic change. In relation to circular urban development the importance of including all inhabitants, and not get stuck in gentrification, was also stressed. This led to a discussion about the need to embed circularity in education.

### **Lunch (12.00-13.30)**

Hopefully all received their closed loop package – thanks IVE for sharing the picture.



## Regional best practices (13.30-16.00)

In the afternoon the regions presented their best practices on recycling and product-as-a-service circular economy business models. Below, a description of each session – the presentation slides can be found in the shard folder.

### Southwest Finland (13.30-14.30)

#### Murtolan Hamppufarmi Oy

*Presenter: Virve Kettunen, owner Hamppufarmi Oy*

*Moderator: Jenni Suominen, Turku UAS*

Hamppufarmi cultivates hemp and produces different hemp products, such as oil, construction fibers and cosmetics. Hemp is a fast-growing, energy-rich plant which grows even in modest conditions and does not need artificial watering or large amounts of fertilizers or insecticides.

Initially, Hamppufarmi started to grow hemp with government support for an experiment. Later different products were added, that proved more successful. Currently, government is not involved and the company is customer led. The product line is still growing. The success of Hamppufarmi is its value proposition of organic and sustainable products, which prove to be attractive to customers. The company has a loyal customer base. In terms of circular economy, biological farming makes the impact relatively low, the company generates its own solar energy and the production of the products leads to minimal waste, which also is biologically degradable.

#### Foodduck – With automation against plastic and food waste

*Presenter: Timo Mieskonen, Turku UAS*

*Moderator: Jenni Suominen, Turku UAS*

The Foodduck service innovation for spread dispensing makes mass dining areas more ecological and more hygienic, because the spread dispensers are touchless. Clients of Foodduck include schools, restaurants, daycare centers, hospitals and gas stations. The company leases the product, including updates, maintenance and service.

Advanced remote monitoring makes measuring benefits more visible. The design is simple and replaceable (design for disassembly): efficient materials are used, software updates via IoT, and service is planned based on IoT. Other circular effects are reduction of food waste and food packaging waste.

Foodduck is an award winning and a certified Finnish 'key producer'. The Finnish innovation agency Sitra finds Foodduck an example firm, which functions as a kind of government support. Direct financial governmental support was granted for building a pilot factory.

### Maramures (13.30-14.30)

#### Kema Tronic

*Presenter: Ioana Bercu*

*Moderator: Mihaela Lite*



Kema Tronic is a Romanian engineering company from Maramures, specialized in renewable energies, having five patents in wastewater treatment (one in circular economy) and more than 200 projects all over the country. The company is strongly involved in tackling the circular principles in wastewater treatment. Its good practice on renewability is related to the advanced anaerobic digestion technology used for a major waste water treatment plant, that has increased the renewable energy production, reducing the excess sludge at the same time.

With implementing the technological development, Kema Tronics tackled two issues: high operations cost, because treating waste water required a lot of energy; and the sludge management issue, reducing the amount of sludge by 30 percent. The developed process resulted in the production of biogas, that was used to cogenerate electricity and heat. From a circular economy perspective this means: less waste, less CO<sub>2</sub> and the production of circular electricity.

An important challenge for these kind of state of the art developments is that tender documents typically ask for conventional technologies. Innovative solutions need a special approval, an important barrier to implementing and scaling up. A useful cooperation was with two research institutes. There is a clear need to push this cooperation and the research associated further, research that needs long term investments from both governments, research institutions and companies.

### **Cepronef Energo Invest**

*Presenter: Mihaela Lite*

*Moderator: Margareta Capilnean*

Cepronef is a Romanian company located in Maramures. Cepronef offers integrated services in architecture, engineering and consultancy in renewable energy, industry, environment and energy management. Its good practice on renewability refers to the realization of a unit for electricity production from solar source in the benefit of a local community in Maramures and its capitalization on the profile market benefiting from the Green Certifiers mechanism. The results include up to 20% reduction of energy costs.

Key to the success of Cepronef is its cooperation with major stakeholders, such as energy specialists, public officers and local communities. For the latter, the challenge proved to overcome mentalities concerning the different use of land. Transparent communication and using clear arguments helped convincing local communities about the benefits of the projects. This communication involved showing that unused land, that was not appropriate for other uses (living agriculture) was used to produce energy. Besides, Cepronef showed how benefits returned to local communities involved, through new investments by the local governments involved.

### **ONE IT**

*Presenter: Nicolae Ontiu*

*Moderator: Mihaela Lite*

ONE IT LTD is a successful business in the IT&C sector, situated in Baia Mare, Maramures County – Romania. The company has distinguished itself on the regional market by the quality of products and services and offering personalized IT solutions for businesses. The



company is also strongly involved in circular economy and its good practice on product-as-a-service is 'managed print services' – integrated services that provide printing equipment with consumables included and payment only in regime per printed page.

The major benefit of the product-as-a-service business model from ONE IT is that clients do not have to invest in equipment. The specialized service by ONE IT includes monitoring equipment, data security and implementing waste reductions. Furthermore, experience shows that costs can be reduced by 30 percent.

## **Sofia (13.30-14.30)**

### **Buyomic Ltd**

*Presenter and moderator: Vihra Andonova*

Buyomic specializes in new generation packaging materials. The company converts organic waste from agro-production into sustainable packaging materials, applying circular economy principles for these materials. The materials used are any organic material that meets the requirements; this can be wood materials or in the example given, the materials left from growing mushrooms. The materials are processed, dried and pressed into packaging materials that can be used to safely transport gentle materials like glass. The materials can be used for dry materials, warm and wet materials, like food containers. Clients can choose the material and the next phase of use for the packaging after the use for packaging. It could be composting of the packaging, or the material can be used as fertilizer, depending on the choice of base material used.

Several industries showed interest in the solution. So far mostly companies and industries for luxury goods have been early adopters as they can spend relatively more on the packaging materials. Scaling up of production would lead to a significant lowering of the production cost, making it available to more industries. The material is compliant with regulations for use for most consumer products.

### **Konica Minolta**

*Presenter: Elena Drechev*

*Moderator: Vessela Petrova*

Konica Minolta Business Solutions Bulgaria provides optimized printing services to its customers from all over the country. The company offers step by step solutions for document processing. This entails the following: Smart processing in the printers, with an internet connection on each machine, making it possible to print anywhere within companies, resulting in large savings in papers when unnecessary prints were not automatically printed. The machines can also signal low levels of printer toner and potential errors so the amount of movements of refill and maintenance employees has been strongly limited.

When contracts on the printers run out, the client gets the chance to either recontract the same machines at a new rate or to order a new machine. For the machines that are replaced, a secondary market is active, meaning the machines last longer than originally. The initiative has led to a lower use of paper, a strong drop in kilometers travelled by maintenance employees, less machines taken out of service, and a lower level toner use.

## Greater Manchester (14.45-15.45)

### Waste Logics

*Presenter: Geeta Chandra*

*Moderator: Russell Yates*

Waste Logics offers cloud-based waste management software that can be used to manage waste operations and material flows more effectively, providing 'actionable insights from real-time data' that enable better control and evaluation of valuable waste streams. The software provides a simplified and intuitive CRM system that can be easily used by both customer/end-user and waste collector to offer transparency in how much waste is collected, where it goes, how it is utilized and the implicit costs.

Having a lot of experience from waste management, Waste Logics is able to play a major role in the transition to a more circular economy. The company enables clients to make better operational decisions on issues such as: What to do with certain waste? How to operate more efficiently? And, how to communicate with clients effectively? A future development is how to connect customers across different market places. According to Waste Logics this network element is very interesting and has a lot of potential.

More information: <https://www.wastelogics.com>

### Oldham Community Power

*Presenter: Andrew Hunt*

*Moderator: Russell Yates*

The Oldham Community Power project seeks to provide affordable, sustainable and low carbon energy by using both council owned and community-based buildings for solar installations. The scheme is primarily funded through a community share scheme, with secondary support through grants and loans provided by the local council.

Oldham Community Power can be seen as a kind of cooperation, working for the benefit of the community. The benefit for the community is formalized through community shares. The several initiatives have shown to contribute to a circular economy by reducing carbon emissions. At the same time customers' energy bills are reduced and funds are generated to invest in environmental community projects. A general yield is that citizens are engaged in the climate agenda.

More information: <http://oldhamcommunitypower.org.uk>

## Utrecht (14.45-15.45)

### Bouwhub

*Presenter: Mark Dudink*

*Moderator: Holger Hooimeijer*

As one of the main construction companies in the Netherlands, Volker Wessels has set up an independent business unit dedicated to smart building logistics. This so called Bouwhub, situated at the edge of a large city, helps to efficiently and effectively bridge the last mile to the building site. The initiative has significantly lowered CO<sub>2</sub> emissions for building traffic, but also allowed for an efficient reuse of building materials and waste from building sites. This for

example has led to a collaboration on the reuse of wood and a marketplace for reusable building materials in several cities.

The initiative has led to two developments. The pilot has led to an integrative initiative to building logistics for the whole company. It has also led to changes in the construction value chain, leading to less waste and a strong reduction of CO<sub>2</sub>. In terms of circularity, the newly planned Bouwhub in the region Amsterdam will be completely circular. Volker Wessels has also started collaboration with waste management company Beelen to reuse materials from the building sites; either as building materials or furniture made from usable waste material. This furniture is made by people with low employability.

## **Sympany**

*Presenter + moderator: Holger Hooimeijer*

Sympany, a social enterprise for the recycling for clothing, has developed several circular initiatives for the reuse of clothing from the materials that cannot be sold. The company collects clothes and fabrics, and separates the collected material in grades of resalable clothes, and potential streams for reuse. The company has developed a partnership to develop new cotton thread from reconstituted cotton from clothes and fabric no longer fit for integral reuse. This initiative follows several other ventures for blue jeans and shoe soles. In the blue jeans venture, Sympany provided the processing partner with jeans materials, that the processing partner refitted to isolation matting.

In the venture in which Sympany is a shareholder, in 2019 the company broke even after ten years of development and market making. In most ventures Sympany provides several resources: streams of material from their operations that have no value in its primary activities, know-how and networking skills. Most ventures include technological partners that help transform the material from Sympany to new materials for future use.

## **Valencia (14.45-15.45)**

**Projar:E<sup>2</sup>STORMED project**

Presenter: Ana Llopis

Moderator: Javier Orozco (UPV)

The project realizes 'green roof' installation on a senior center (public building) for the improvement of energy efficiency and water retention. This practice shows the results about energy saving of the green roof on buildings with Mediterranean climate, evaluating also its benefits for the water management.

The overflow of water is stored in tanks for irrigation of green roofs in dry periods. The effect is particularly to lower temperature in apartments in summer, also resulting in energy savings in summer for air condition. An additional benefit is that water quality drainage is much better. A current barrier to scaling up, is the lack of (public) funds and the need to feel the urgency of implementing the solution by government and customers need to feel urgency.

## **Sunnerbox**

*Presenter: Alberto Martinez*

*Moderator: Vera Valero*

The main objective of Sunnerbox is to take the most of solar radiation to as many uses as possible. Solar PV energy is mostly used in large photovoltaic production plants or in small-medium installations for self-consumption in homes/industries. Photovoltaic energy has great potential that could be extended to many uses and locations. With that idea in mind, the company has developed solar energy collection and storage units that can be moved and installed in different locations, allowing access to electrical energy practically anywhere.

Sunnerbox offers and sells a PV module and battery, that can be used for many applications: on streets for charging e-scooters, e-steps, but also on ships, in harbours, refugee camps, camp sites, and for military applications. Several municipalities buy the boxes for urban transport. The company started without external financing and used its own investment.

## Final wrap up (16.00-17.00)

The final wrap up discussion, after an afternoon of regional knowledge exchanges, led to general learnings for action plans to support environmentally sustainable business models and effective policy instruments for each region. Two points of interest with regard to policy initiatives could be identified.

First of all the need was identified to distinguish between long term policy support and long term (public-private) partnerships on the one hand; and the availability of seed money for startup initiatives, where short term policy support is relevant, on the other hand. The experience of the best practices from the regions showed for several examples that long term attention was needed, this could be in terms of finance, partnerships, regulations or standards. At the same time market incentives proved to be insufficient and therefore other initiatives seem to be viable with relatively small, short term investments to stimulate business model development.

In order to better assess which kind of policy could be effective, the following policy matrix can help to map circular economy initiatives – figure 1. The matrix distinguishes public and private involvement on the horizontal axis, with obviously public-private partnerships being at the center. On the vertical axis shorter and longer term involvement are being distinguished.

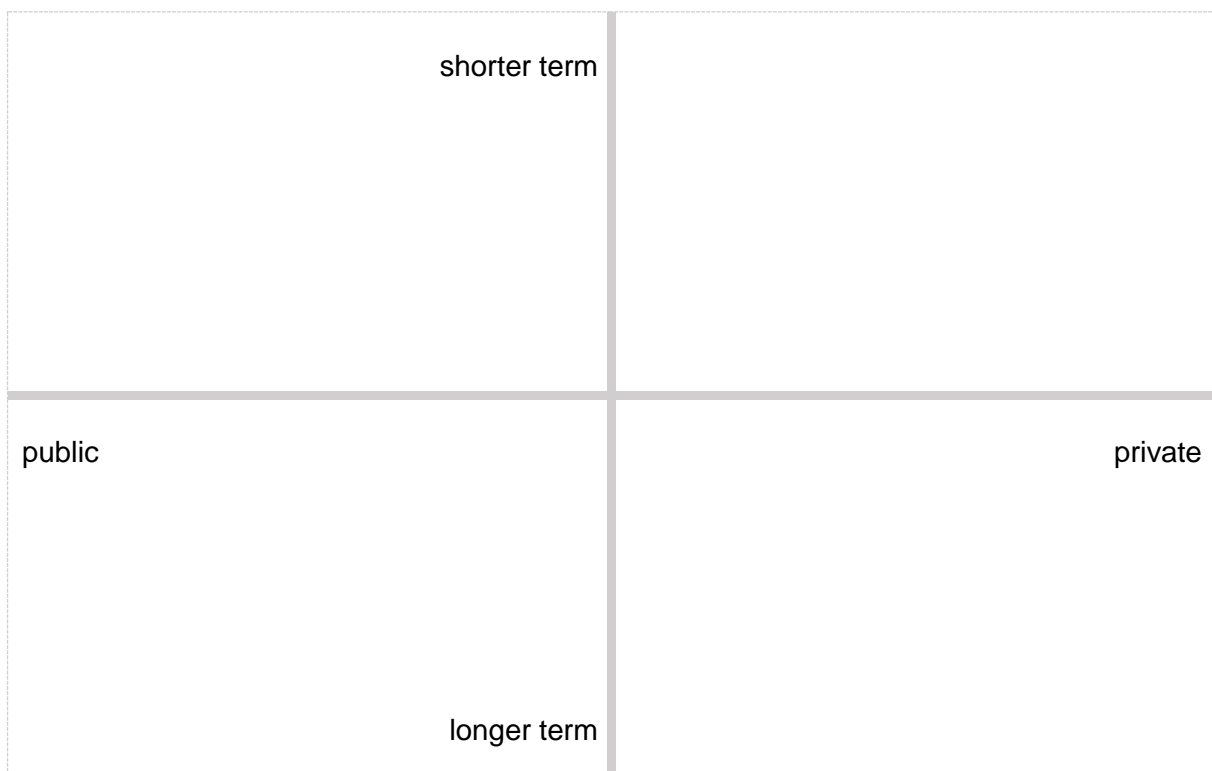


Figure 1: policy assessment matrix.

Secondly, an important role was ascribed to governments to create and stimulate demand for circular products and services in their local communities and regions. This could for instance be with public purchasing and procurement, but could also involve motivating private buyers to move in this direction.

The plenary discussion and the points raised, are a good basis for the next interregional learning events, and the action plan development in the remainder of the project. Best

practice experience show that CE policy involves many areas, such as: education, financial, economic/business/employability, urban planning, innovation, social, and regulation. Furthermore, the experience show that policy must be aimed at moving from to: Planned to organic growth of CE; Public to private initiatives/investment; Happy few to the many.

Promising directions for the regional action plans seem to be:

- Create demand/public procurement/subsidise circular investments of businesses/residents.
- Give seed money to viable ideas; longer term support of less viable initiatives;
- Develop standards and requirements (eg for building sector);
- Real costing/true pricing;
- Create market incentives;
- Capital/fiscal support;
- Skills development/education;
- Urban development;
- Community building (society);
- Community of practice (business/academia/experts).

## Appendix – Attendees

<b>Name</b>	<b>Area</b>
Andonova, Vihra	Sofia, Bulgaria
Baird, Andrew	Greater Manchester Area, UK
Bercu, Ioana	Maramures, Romania
Bloemheuvel, Jan	Utrecht, the Netherlands
Calabuig Moreno, Raimon	Valencia, Spain
Capilnean, Margareta	Maramures, Romania
Chandra, Geeta	Greater Manchester Area, UK
Drechec, Elena	Sofia, Bulgaria
Dudink, Mark	Utrecht, the Netherlands
Heyes, Graeme	Greater Manchester Area, UK
Hooimeijer, Holger	Utrecht, the Netherlands
Hooper, Paul	Greater Manchester Area, UK
Hunt, Andrew	Greater Manchester Area, UK
Jareño, Christian	Valencia, Spain
Kettunen, Virve	South-West Finland, Finland
Klap, Aleksis	South-West Finland, Finland
Lee, Sheryl	Greater Manchester Area, UK
Lite, Michaela	Maramures, Romania
Llopis, Ana	Valencia, Spain
Marketta, Virta	South-West Finland, Finland
Martinez, Alberto	Valencia, Spain
Matarredona, Nuria	Valencia, Spain
Mieskonen, Timo	South-West Finland, Finland
Ontiu, Nicolae	Maramures, Romania
Orozco Messana, Javier	Valencia, Spain
Petrova, Vessela	Sofia, Bulgaria
Poza Plaza, de la, Elena	Valencia, Spain
Randles, Sally	Greater Manchester Area, UK
Schatorjé, Roel	Utrecht, the Netherlands
Stoyanov, Vensy	Sofia, Bulgaria
Suominen, Jenni	South-West Finland, Finland
Szansizlo, Paul	Maramures, Romania
Valero, Vera	Maramures, Romania
Velzing, Evert-Jan	Utrecht, the Netherlands
Vreeswijk, Kitty	Utrecht, the Netherlands
Vrijhoef, Ruben	Utrecht, the Netherlands
Yates, Russell	Greater Manchester Area, UK
Zegers, Marin	Utrecht, the Netherlands