

Materialising new artifacts and imaginaries for local/regional Circular Economies: The catalytic role of design research

Alastair Fuad-Luke

Full Professor of Design Research and Vice-Dean of Research, Faculty of Design & Art,

Free University of Bozen-Bolzano

Autonomous province of Alto Adige/Südtirol/South Tyrol, Italy

EU Design Days 2019. Sustainability and Circular Economy.

Representation of the European Region Tyrol-South Tyrol-Trentino, Rue de Pascale47, Brussels.

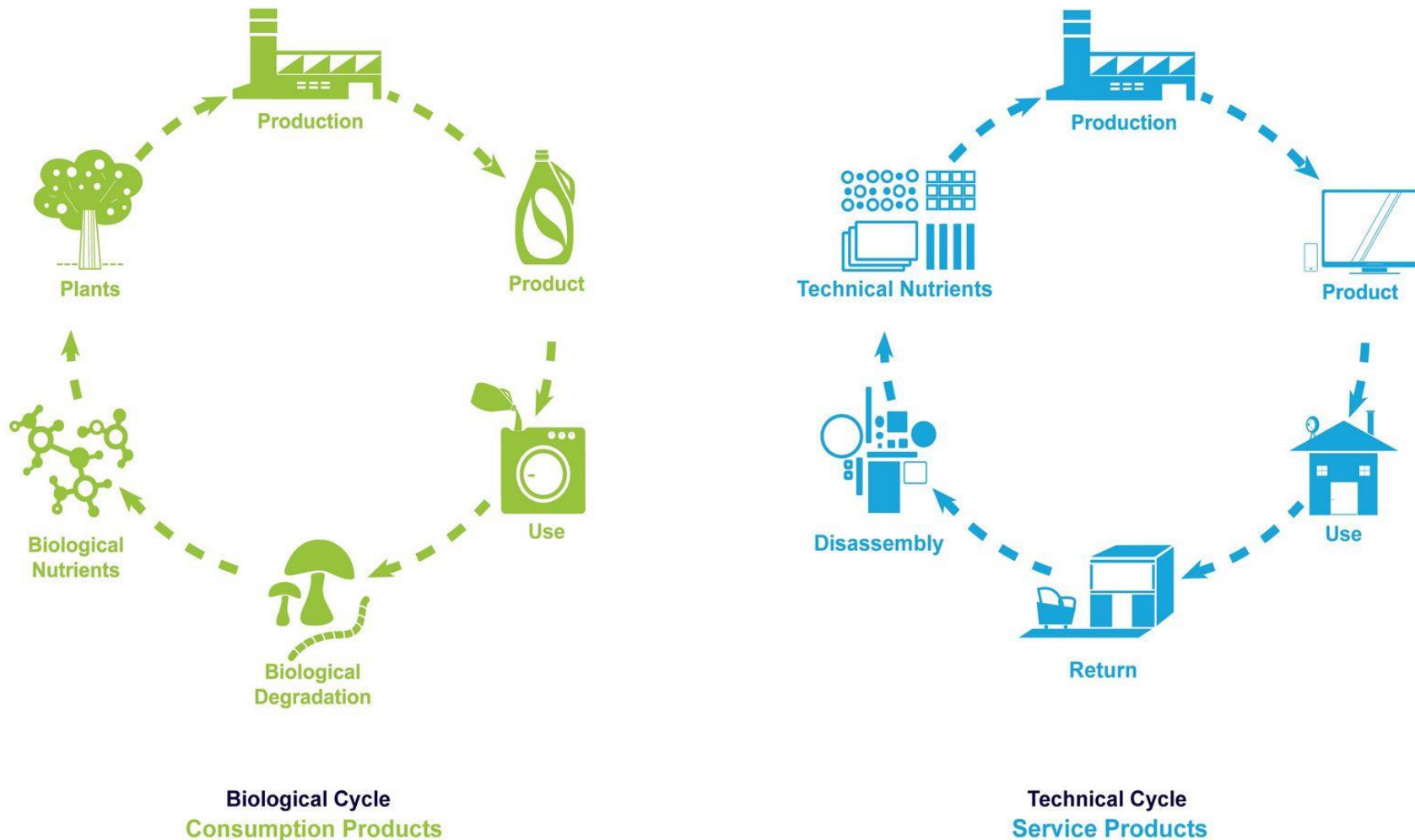
26th November 2019, Unibz

Defining «Circular Economy» through design

«an industrial economy that is **restorative** or **regenerative** by intention and **design**»,
Ellen MacArthur Foundation, 2013

«a **regenerative system** in which resource input and waste, emission, and energy leakage are minimised by slowing, closing and narrowing material and energy loops. This can be achieved through long-lasting **design**, maintenance, repair, reuse, remanufacturing, refurbishing and recycling», Geissdoerfer et al., 2017.

design(ers) have been active in «Circular Economy» thinking for several decades



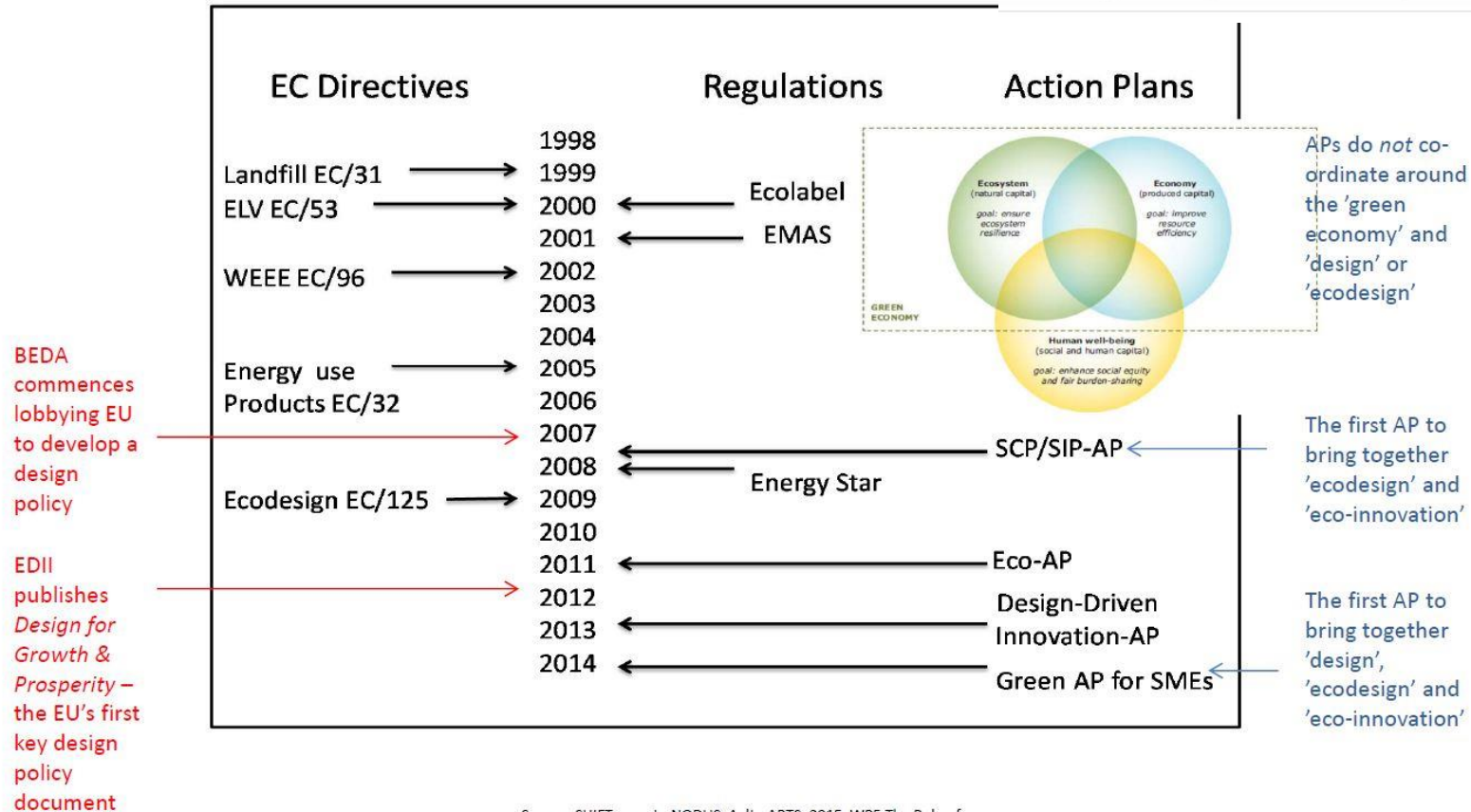
The Cradle to Cradle Products Innovation Institute is a global non-profit Institute founded in 2010 by William McDonough and Dr. Michael Braungart, who first introduced Cradle to Cradle® as a circular design philosophy in the 1990s. Co-authors of Cradle to Cradle: Remaking the Way We Make Things and The Upcycle: Beyond Sustainability -- Designing for Abundance, McDonough and Braungart formalized the principles into the first version of the Cradle to Cradle Certified Product Standard in 2005.

C2C, <https://www.c2ccertified.org/> and see C2C Platform, Belgium <https://www.c2cplatform.be/cradle-to-cradle/>

Embedding design in European policy and Action Plans

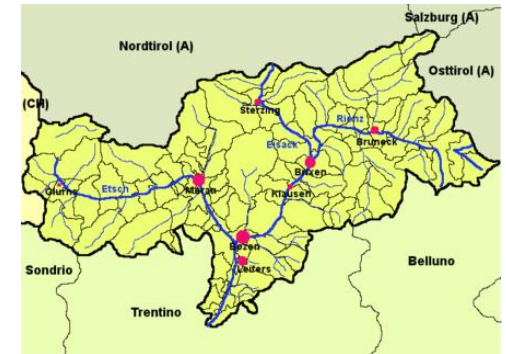


Policy fragmentation



Source: SHIFT report - NODUS, Aalto ARTS, 2015, WP5 The Role of Design Service Providers, p14, Figure 2.
Green economy diagram by European Environmental Agency, 2014.

Location of the Autonomous Province of Alto Adige/Südtirol/South Tyrol



The Euroregion Tyrol-South Tyrol-Trentino

Source: **Autonome Provinz Bozen – Südtirol** in German, **Provincia autonoma di Bolzano – Alto Adige** in Italian and **Provincia autonoma de Bulsan – Südtirol** in Ladin, https://en.wikipedia.org/wiki/South_Tyrol

The economy of South Tyrol

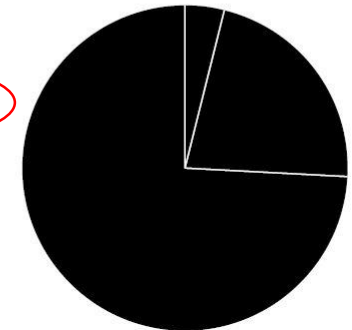


South Tyrol's Economy in Figures

Gross domestic product or GDP (nominal):	euro 18,664 billion (2011)
GDP per capita (nominal):	euro 36,604 (2011)
Business investment, as share of GDP:	26.7 % (2011)

GDP by economic sector (2009):

Agriculture:	4.1 %
Industry (including handicrafts):	21.9 %
Services (including tourism):	74 %



The economy of South Tyrol



CHAMBER OF COMMERCE,
INDUSTRY, CRAFTS AND
AGRICULTURE OF BOLZANO

Economic portrait of South Tyrol



Authors:
Oswald Lechner
Barbara Moroder

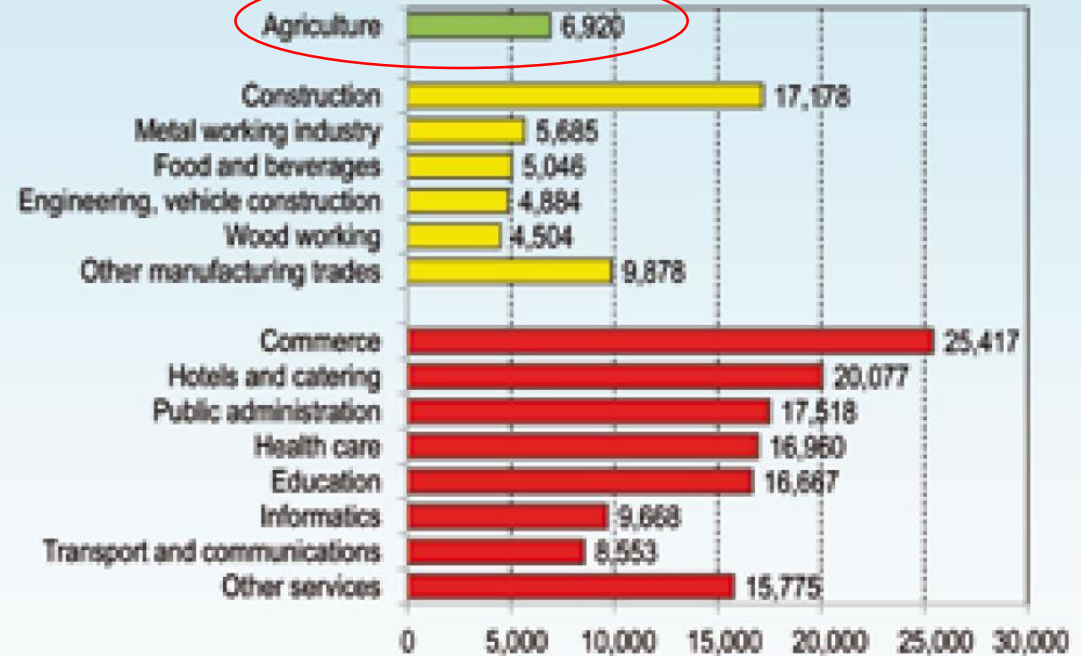
Bolzano/Bozen, August 2012

Project collaborator:
Alberta Mahlknecht



IER
INSTITUTE FOR ECONOMIC RESEARCH

Employees according to economic sectors



Evaluative analysis: IER

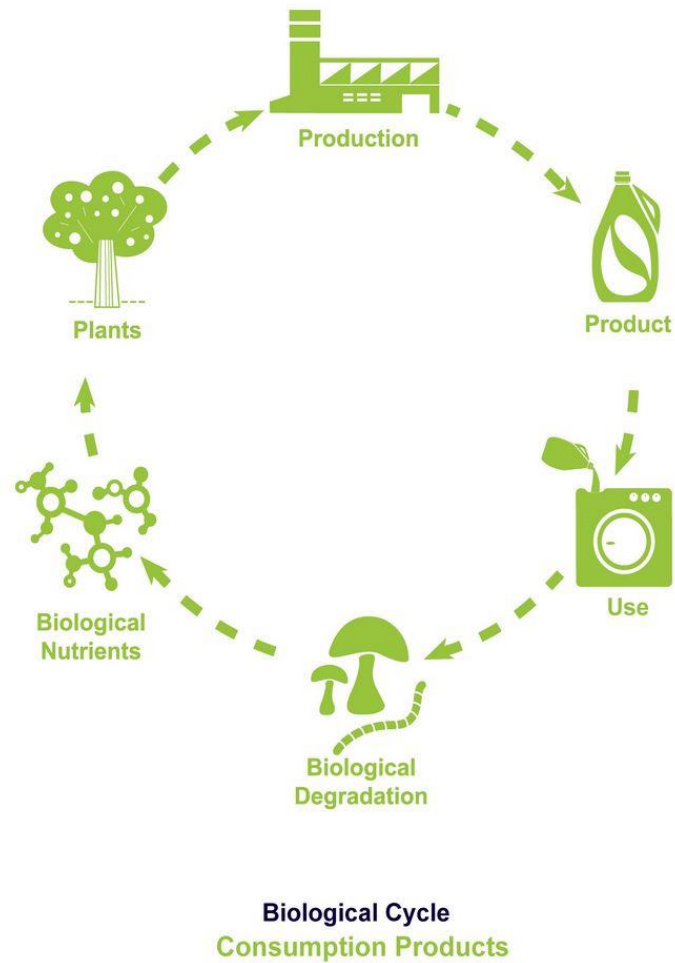
Data source: Department for labour market research (2007)



IER - Institute for economic research of the Bozen/Bolzano Chamber of commerce



Re-imagining products of the Biological Cycle at the Faculty of Design and Art, unibz



make research cluster – Innocell2



Masters in Eco-social design
Re-animate



trans-form research cluster – What Could A Farm Be?



Masters in Eco-social design
Campo Libero

Innocell2 – new materials from apple waste



From food waste to bio-degradable products, exploring the innovative potential of microbial cellulose.

2018 onwards. PI: Nitzan Cohen; CI: Matteo Mario Scampicchio; Morozova, Giovanna Ferrentino, Nabil Haman. External partners: Queensland University of Technology; The Edge, State Library of Queensland ; The International Design Museum Munich; Batzen Brewery Bolzano; Bio Vineyard Othmar Sanin; Fructus Meran. All photos Emma Sicher. <https://www.unibz.it/assets/Documents/Faculty-Design/Research/Running/Make/Cohen-InnoCell2.pdf>

Innocell2 – new materials from apple waste



From food waste to bio-degradable products, exploring the innovative potential of microbial cellulose.

All photos Emma Sicher. <https://www.unibz.it/assets/Documents/Faculty-Design/Research/Running/Make/Cohen-InnoCell2.pdf>

What Could A Farm Be?

Explorations

Explorations is an open format for practice-based investigations. Explorations can be initiated by any member of muu-baa and are tangible examples of the activities of the network members.

Explorations can be a workshop, an event for pitching ideas, a video or documentary, a specific intervention on a farm, a prototype product, an art piece, a collective walk, or other proposal.



EXPLORATIONS #06 RAW WOOL

EXPLORATIONS

LET'S GET INSPIRED BY THE MATERIAL! 16+ 17. OF NOVEMBER 2019 With Theresa Bader. Freshly sheared raw wool from local sheep gets washed, coloured with sourced material, carded, felted and processed to a product. This workshop is exploring the relationship between sourcing and making with wool, as well as the...



REFLECTIONS ON EXPLORATIONS #05 THE MANURE ECONOMY

EXPLORATIONS

Specialists from agricultural economics, farming, innovation and sustainable environmental development met with eco-social designers on June 1, 2019 (the first sunny day!) to discuss the state of the art of the "Manure Economy" in South Tyrol as a means to develop new ideas. The results? A unique collective mapping of...



EXPLORATIONS #04 YELLOW DAY

EXPLORATIONS

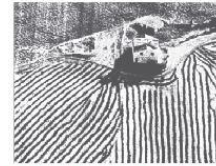
Yellow Day is a "new tradition" to celebrate the coming of summer. Join a hands-on workshop to dye your clothes using the brilliant yellow of the dandelion flower. Participants are invited to bring along a light-coloured or white item of clothing – a shirt, blouse or T-shirt made of cotton...



REFLECTIONS ON EXPLORATIONS #03 MAKING WOOL FUTURES

EXPLORATIONS

Mountain wool: New applications, products and perspectives A muu-baa workshop held at Stanglerhof, St. Konstantin, Völs am Schlern, Südtirol on Saturday, 19 January 2019. This workshop was attended by 13 participants comprising teachers, researchers, students and alumni from the Faculty of Design & Art, unibz, a founder of BAU and...



#02 LAND-(WIRTSCHAFT: AN INVITATION

EXPLORATIONS

17 November 2018, 9.00 – 16.00 at Frötscherhof. We shape our landscapes and our landscapes shape us. This is the second co-design workshop from muu-baa, an agri-cultural network of explorations. Sign up now for to secure your free place.

[#agriculture](#) [#architecture](#) [#landscape](#) [#South Tyrol](#) [#transformations](#) [#workshops](#)



#01 (BIO) DIVERSITY? OPPORTUNITIES FROM CRISIS

EXPLORATIONS

Farmers, designers, artists, researchers, a communications specialist, a specialist in corporate governance and innovation, and a regional development manager worked together on the topic of diversity, from biological, agronomic and anthropological perspectives. This participatory design workshop enabled the participants and facilitators to share their perspectives to generate a co-understanding of (bio-)diversity. The workshop was hosted at Aspmayhof, Wangen-Vanga, courtesy of Margareth Kaserer and Simon Steinburger.

[#agri-culture](#) [#bio-diversity](#) [#biodiversity](#) [#collective learning](#) [#explorations](#) [#food](#) [#timeline](#) [#opportunities](#) [#workshop](#)



EXPLORATIONS #05 THE MANURE ECONOMY

EXPLORATIONS

Cow waste as a valuable resource: opportunities and challenges Saturday 01 June 2019, 10.00 – 16.00 Bistrot Wiesl, Bozen-Bolzano Dairy and beef farming make an essential contribution to the economic and social life in South Tyrol, building on the rich heritage of farming practices...



REFLECTIONS ON EXPLORATIONS #04 YELLOW DAY

EXPLORATIONS

Snow was falling as we arrived in Malles, Val Venosta / Mals, Obervinschgau on the morning of Saturday 14th April as we set up the equipment for our experimental Yellow Day dye workshop with dandelions. Fortunately, ten participants braved the weather including local dyer and weaver Cornelia Larcher of Merano...



REFLECTIONS ON EXPLORATIONS #02 LAND-(WIRTSCHAFTS

EXPLORATIONS

We shape our landscapes and our landscapes shape us A muu-baa workshop held at Frötscherhof, Brixen/St. Andrä, Südtirol on Saturday, 17 November 2018. This workshop was attended by 22 participants including farmers, representatives from the tourism industry, LAG advisors, architects, a food network entrepreneur, a baker and university researchers from...



EXPLORATION #03 MAKING WOOL FUTURES: AN INVITATION

EXPLORATIONS

Mountain wool: New applications, products and perspectives 19 January 2019, 10.00 – 16.00 at Stanglerhof This hands-on making workshop* is a collaboration between muu-baa and revollite (Theresa Bader and Melissa Fröhle) focusing on the potential of 60 tonnes of waste sheep wool produced annually in South Tyrol...

[#co-design](#) [#design](#) [#prototypes](#) [#wool](#)



#00 OPEN FARM-(ING)

EXPLORATIONS

What are the benefits of sharing in open-source agriculture? What is being shared and what farming communities need to share in the future in Alto Adige - Südtirol?

[#agriculture](#) [#collective learning](#) [#open source](#) [#agriculture](#) [#openness](#) [#workshop](#)

muu-baa

Workshop themes:

What do farmers share?

Bio-diversity

Landwirtschaft

The Manure economy

Local wool

Local dyes

www.muu-baa.org

Towards viable agri-cultures for small European farms through interdisciplinary design, art and social practices.

PI: Alastair Fuad-Luke; CI: Erica Boito. External collaborators: LEADER group managers South Tyrol, Innovation department of Südtiroler Bauernbund, BAU, NOA, various individual farmers. Websites: Network and platform, <http://www.muu-baa.org> and Blog, Diverscape, <https://diversescape.wordpress.com/>

Tyrolean colours

**Tiroler Farben
Colori Tirolesi**



The Tyrolean landscape is famous for its seasonal colours, its wool and felt products, yet we believe the real beauty of Tyrolean colour is under-exploited. Nearby every farm you will find common plants such as dandelions/denti di leone/Löwenzahn (*Taraxacum officinale*) in the meadows and orchards, eider/ sambuco comune/Schwarzer Holunder (*Sambucus nigra*) around farm buildings and common walnut/ noce bianco/Echte Walnuss (*Juglans regia*) shading the south façade of the farmhouse. Particularly abundant are the dandelions in the over-fertilised meadows (Fettwiesen) and orchards with spectacular displays of yellow flowers from April to September.

These plants provide natural dye colours that are easily extracted to colour the fibres of the local Bergschaf, either as yarn or felt. Here we show some recent dyeing experiments, the range of colours produced and show its potential. We believe a new aesthetic, here we call it "Tyrolean colours", is possible for these local materials that goes beyond present craft traditions and tourist gifts.

Valuing local resources will be a necessity in the future as the cost of transporting from around the world will rapidly increase over the next 30 years.

More importantly this offers local, small farmers a means to find uses for their local wool (presently 60 tonnes of raw wool is annually discarded as waste). Perhaps, in the near future a mobile dye laboratory can tour the farms. Current agricultural equipment needs modifying to harvest the dandelions – the orchards being the obvious place to test this. Most importantly, there needs to be a logistical system to collect, distribute and retail these products that requires coordination across the province including development of a new brand and coordination with retail outlets.

What can we do with local dyes and wool in South Tyrol?



1 Dandelion in meadows, Bergs, Wipac, South Tyrol, Italy 2017



10 Dandelion dyed wool yarn



11 Dyeing the dye bath



12 Dyeing wool with natural dyes



13 Dried madder roots



14 Dyeing wool with natural dyes

examples of potential products that could be made on the farm - products from our "distributed farm factory"...



15 Examples of potential products from the farm - products from our "distributed farm factory" (left to right: grey felt hat, blue felt hat, white felt hat, blue felt hat, blue felt hat, white felt hat)

What Could A Farm Be? is a practice-based design research project to explore the potentiality of resources on the farm for new products, services, experiences and discoveries. It is a pilot project with a recently formed group of farmers, designers, artists and others in South Tyrol who collaborate and exchange viewpoints, knowledge and know-how through participatory workshops and the network, muu-baa, www.muu-baa.org.

Please contact Prof. Alastair Fuad-Luke, Alastair.Luke@unibz.it, for further information

Milk-Manure economy

**die Milch-Gülle-Wirtschaft
l'economia del latte e del letame**



On 01 June 2019, muu-baa ran a participatory workshop entitled "The Manure Economy" where the research team were joined by people from Biogas Wipptal, BRING, a researcher from Südtiroler Bauernbund, a bio-farmer and independent designers to map together the actors and stakeholders who were part of the milk production system in South Tyrol. Applying the sustainability transition model developed in the Netherlands by Geels, Schot, Loorbach and others, called the Multi-Level Perspective (MLP), we created a visual map of the manure system. This is a secondary product of the milk production industry.

Immediately it was obvious to the participants that the Manure Economy was under-developed with fewer actors and organisations, little integration. There were no obvious actors in the macro level of the MLP, the socio-technical landscape was undeveloped and uncoordinated.

Were we looking at unexploited market potential?

At the workshop in the afternoon, participants developed two concept services - one for farmers to quickly test the quality of their manure and offer it for sale on a "manure stock market"; the other for a travelling "Shit Museum" that could tour around South Tyrol to host workshop discussing the challenges and potential of using Tyrolean manure as a valuable production resource. Elsewhere in Italy, Europe and globally, manure is starting to emerge as a raw material with diverse secondary uses, from energy production to manufactured artefacts.

What can we do with the cow manure in South Tyrol?



16 Workshop on manure economy



17 Multi-Level Perspective (MLP) model



18 Workshop on manure economy



19 Workshop on manure economy

examples of potential products that could be made on the farm - products from our "distributed farm factory"...



20 Examples of potential products from the farm - products from our "distributed farm factory" (left to right: brown manure product, brown manure product, brown manure product, brown manure product, brown manure product, brown manure product)

What Could A Farm Be? is a practice-based design research project to explore the potentiality of resources on the farm for new products, services, experiences and discoveries. It is a pilot project with a recently formed group of farmers, designers, artists and others in South Tyrol who collaborate and exchange viewpoints, knowledge and know-how through participatory workshops and the network, muu-baa, www.muu-baa.org.

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Prototyping new products for using 60 tonnes of wool waste annually



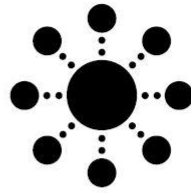
Experiments for using high volumes of the coarse wool fibre from the local Tyrolean sheep (Bergschaf). Alastair Fuad-Luke, 2019.

A concept for a «Distributed Farm Factory»

PRODUCT SERVICE SYSTEM

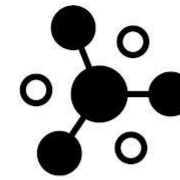
Graphical illustration of the PSS showing the products and the system of collection, distribution, retailing

COLLECTION



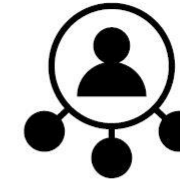
The Sennerei of South Tyrol have an amazing logistical system for collecting milk from thousands of farms each day. The main Sennerei - Käseerei Sexten; Sennerei Drei Zinnen (Toblach); Milchhof Bruneck; Brimi Brixen; Milchhof Sterzing; Mila (Bozen); Milchhof Meran; Algunder Sennerei - cover a vast territory. We believe this logistical collection system has potential to collect other raw materials or finished products from the farms. Imagine that a farmer has produced a textile dye product from the plants on his/her land; or she/he produces high quality products made from excess cow manure; or specialist gourmet food products... These products originate in what we are calling the "Distributed Farm Factory" where diverse production occurs throughout the territory using local resources.

DISTRIBUTION



Each Sennerei collects products from the "Distributed Farm Factory" bringing them back to a central depot, sorting them and storing them in appropriate conditions

RETAILING



At the main factory of each Sennerei, a retail shop sells the products directly. Alternatively, products are distributed from the Sennerei's depot to other retail outlets such as Pur Südtirol® or through the Roterhahn network.



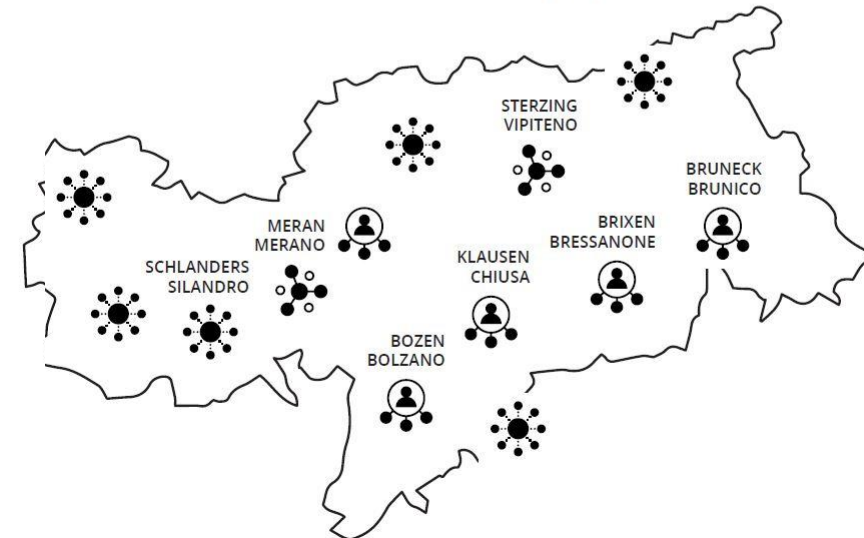
FARMS



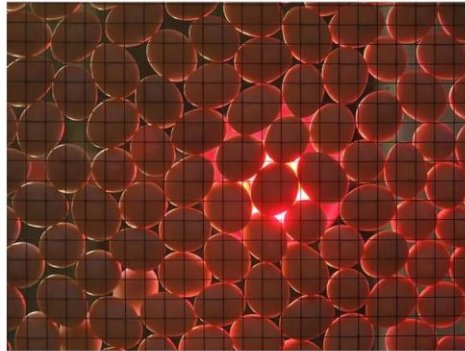
SENNEREI DEPOT



RETAIL OUTLETS



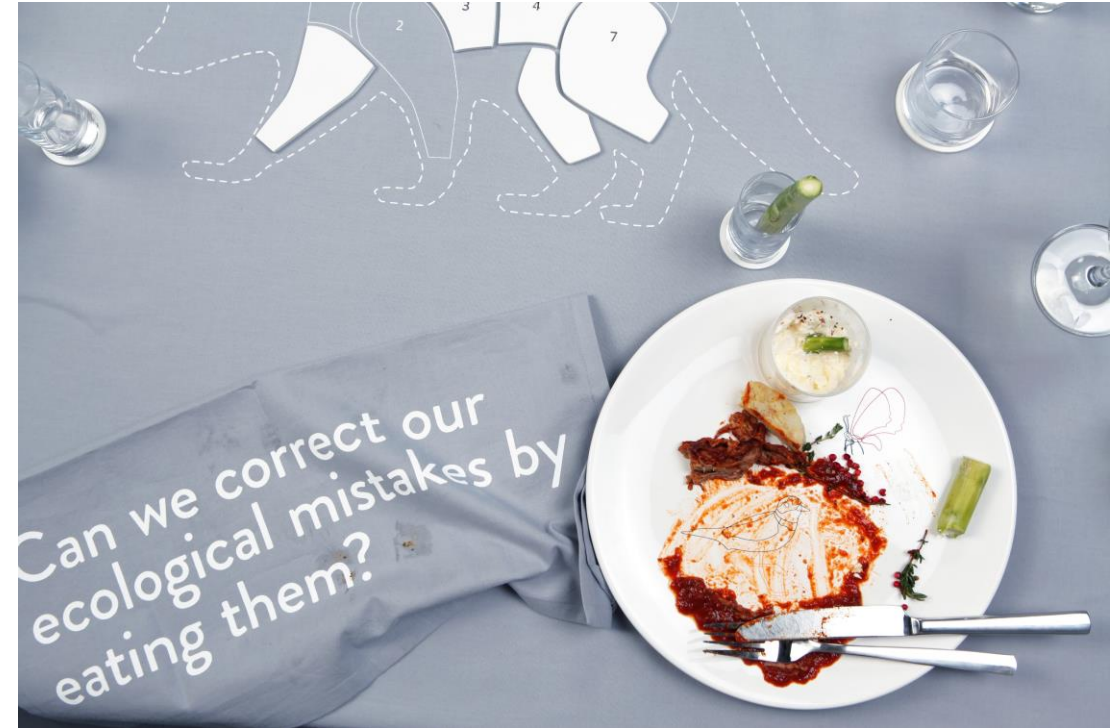
Design- and art-based practices towards viable agri-cultures



Belgian artist Koen Vanmelchelen,
Cosmopolitan Chicken Project
2009-present

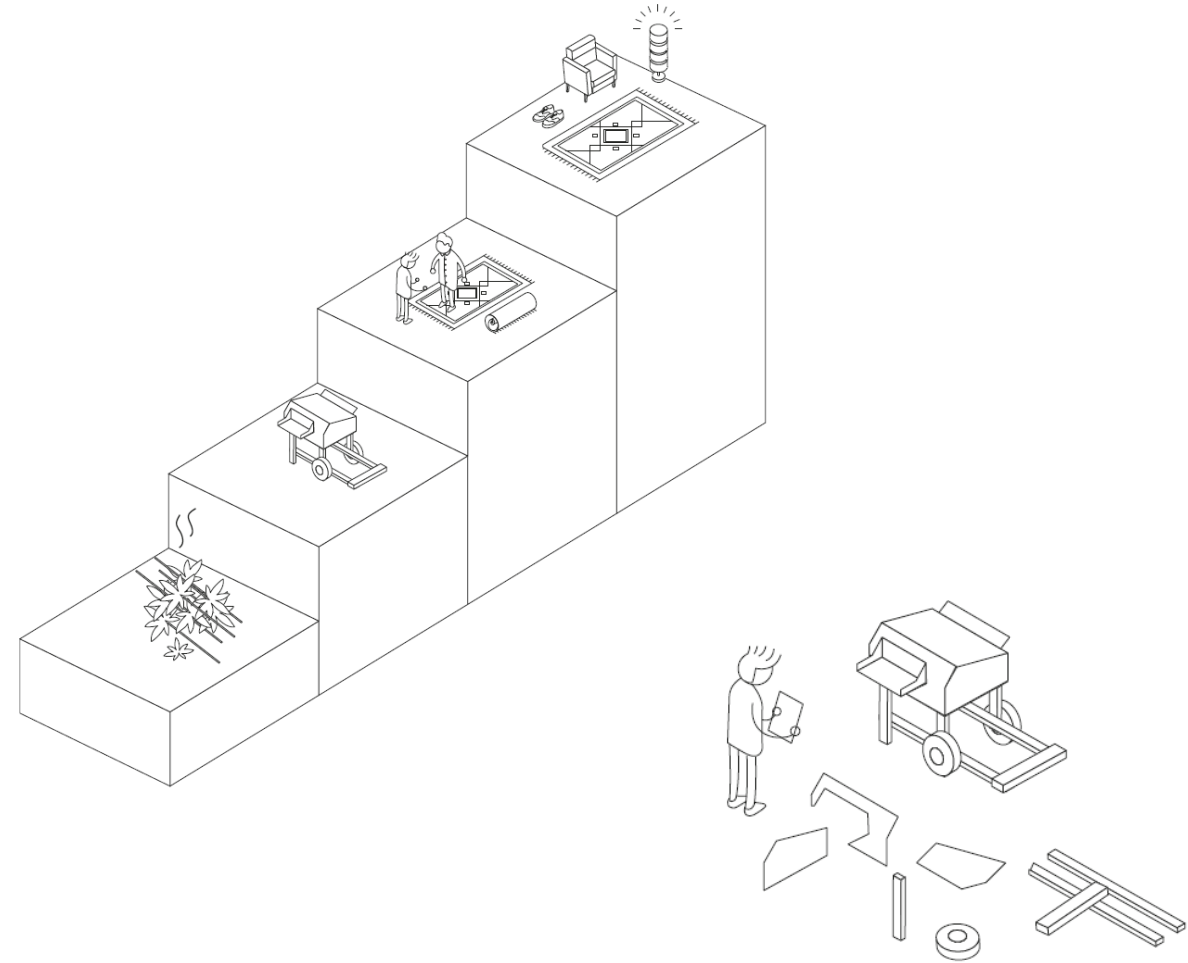


Dutch designer & researcher
Cynthia Hathaway, the Wool
Alliance for Social Agency



Austrian cross disciplinary industrial designer Alexandra
Fruhstorfer. Menu from the New Wild, 2019

Campo Libero, Andrea Sebastianelli, 2017



DIY



RIY



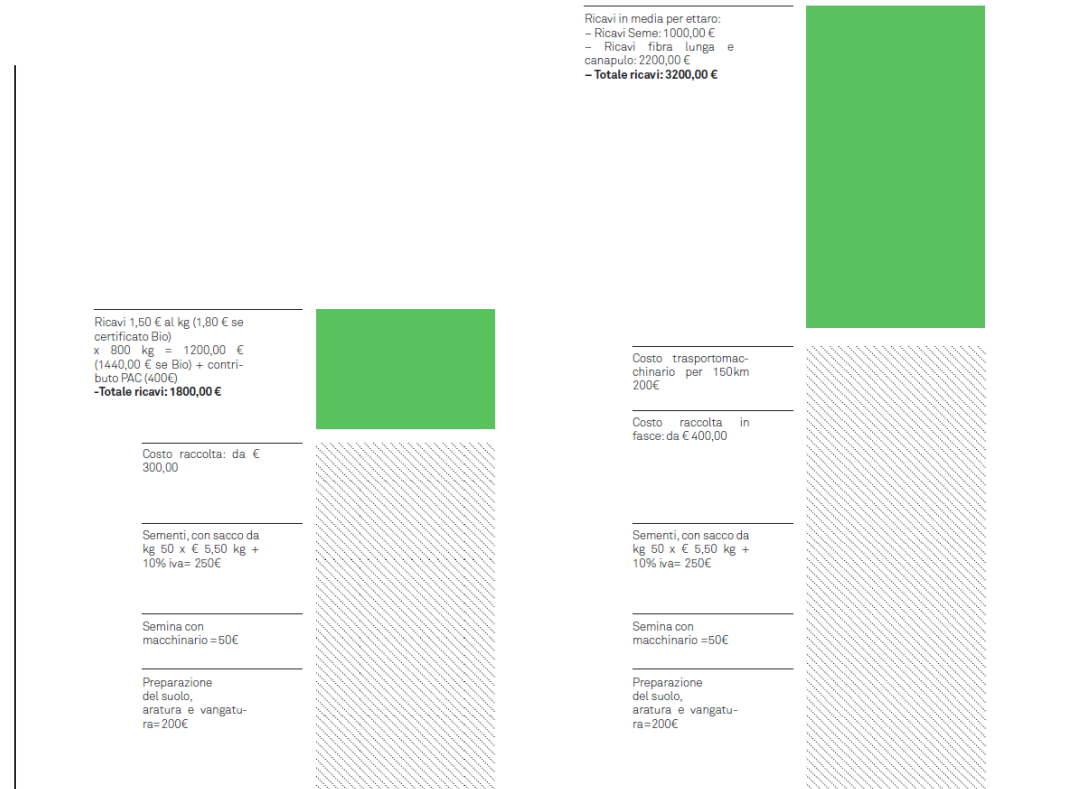
BIY



UIY

This project for the Master in Eco-social design. Supervisors: Alastair Fuad-Luke, Secil Uğur Yavuz

Campo Libero, Andrea Sebastianelli, 2017




Approfondimento

La coltivazione della canapa ha una produzione di seme che varia tra i 6 - 8 q.li per ettaro.

Un ettaro di canapa, dipendentemente dalla varietà, produce all'incirca tra le 2 - 3 tonnellate di fibra.

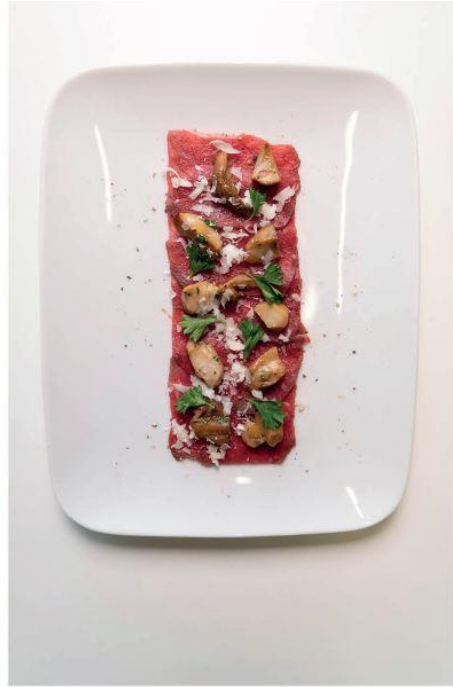
In un area di 10mila metri quadri coltivati a canapa si possono raccogliere tra le 5 - 6 tonnellate di canapulo.

Legenda

Costi 

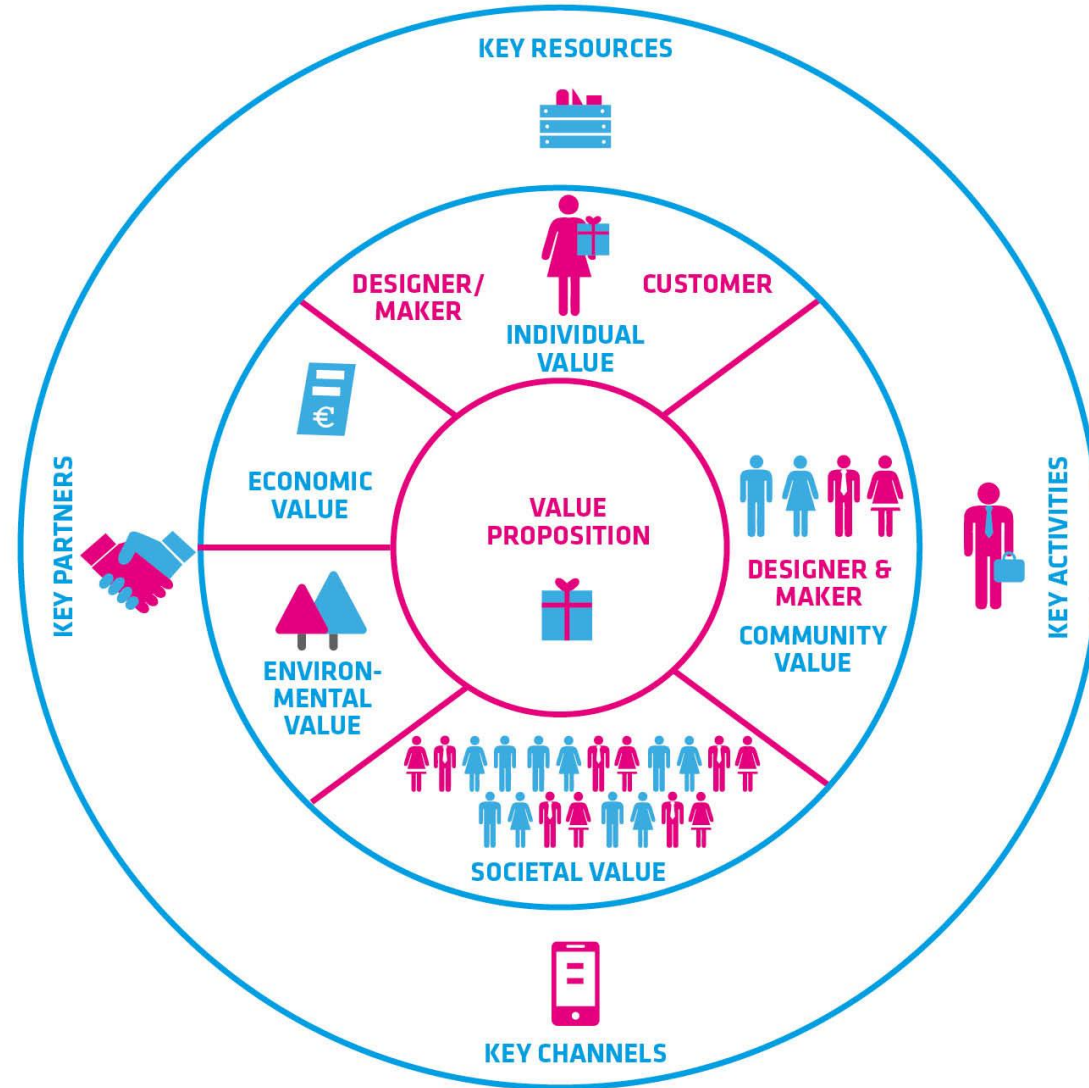
Guadagni 

Re-animate, Mirjam Schenk, 2019



Thesis project for the Master in Eco-social design. Supervisors: Kris Krois, Gesa Busch.

How can design add multiple value? - the Value Proposition diagram



Original version of the Value Proposition diagram by Kathleen Pekkola, Anja-Lisa Hirscher & Alastair Fuad-Luke, 2013. *Open Source Creation. Making Open Design A Business Reality. A Mini-Handbook.* Printed for the Masters Introduction module, Aalto ARTS, September 2013. This version by Hirscher & Fuad-Luke, 19 January 2017.

THANK YOU. MERCI BIEN. DANK UWEL.

Alastair Fuad-Luke

Full Professor of Design Research & Vice-dean of Research

Faculty of Design & Art

Free University of Bozen-Bolzano, Italy

Alastair.Luke@unibz.it

Research clusters

<https://www.unibz.it/en/faculties/design-art/research/>

Master in Eco-social design

<https://www.unibz.it/en/faculties/design-art/master-eco-social-design/>