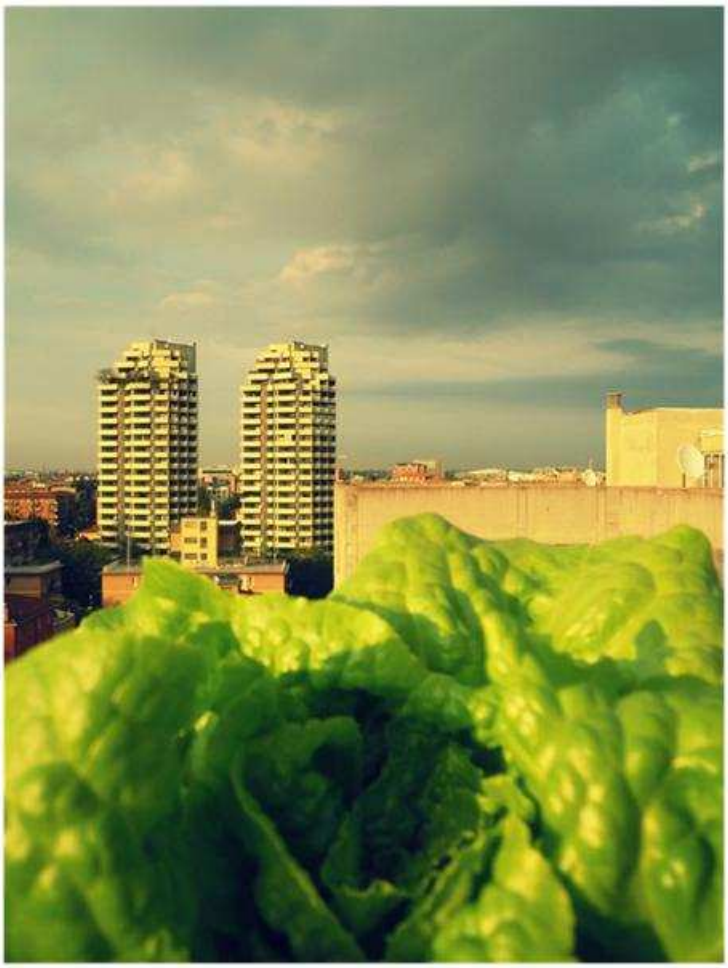
URBAN GREEN TRAIN

URBAN GReen Education for ENTteRprising Agricultural INnovation

NEW URBAN AGRICULTURE INITIATIVES TOWARD A MINDSET CHANGE



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INTRODUCTION

The URBAN GREEN TRAIN project aims to encourage pioneering business oriented initiatives on Urban Agriculture based on knowledge exchange, mutual cooperation and innovation among Small and Medium Enterprises (SMEs), policy makers and Higher Education Institutions (HEIs) as to meet the global demand for urban green innovation (environmental technologies, eco-friendly products and services, sustainable design and healthy food). The project's general objective is thus to strengthen the knowledge triangle between Education, Research and Business in the field of urban agriculture and more specifically:

- To raise awareness of potential employers and entrepreneurs for enabling the environment for green economy;
- To innovate curricula and learning methods in Higher Education, expanding existing forms of University-Society-Business Cooperation and crossing sectoral, disciplinary and national boundaries;
- To build capacity of youth to create their own business;
- To respond to the EU labour market need of highly qualified and entrepreneurial graduates in this field;
- To increase awareness on the role of new green enterprises in creating more sustainable cities from the side of local governments, consumers and other actors.

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Project partners in the URBAN GREEN TRAIN project are:

- The **Department of Agricultural Sciences (DipSA) of the University of Bologna (IT)**, provides state wide leadership in research, teaching and extension in horticulture, crop production, sustainable agricultural systems and environment and applied plant ecology. DipSA has a world leading experience in the area of urban farming in Europe and in developing countries.
- Funded in 2006, **HORTICITY (IT)** aims at putting together different and qualified expertises in order to provide products and services for preservation and valorisation of the horticultural production, adopting a multidisciplinary approach and orienting efforts to the improvement of food security.
- **Mammut Film (IT)** is a production company that has been working in the film making business for more than ten years. It produces documentaries, video and organizes events and dissemination campaigns.
- **STePS (IT)** pioneers approaches to formal and non-formal learning to enable personal growth as well as inclusive and sustainable change in organisations and territories.
- **Agreenium (FRA)**, a consortium of research and higher education bodies, has the aim of facilitating access to research and higher education facilities in France. Its purpose is to

promote the role of agronomic and veterinary research to meet the challenges of food security and sustainable development.

- Located in the Pays de la Loire, **VEGEPOLYS (FRA)** has been recognised in France as the international plant cluster. The cluster brings together companies involved directly and indirectly in plant growing with trade associations, unions, and development bodies as well as local chambers of trade and commerce.
- **The RUAF Foundation (NL)** is an international network and leading centre of expertise in the field of (intra- and peri-) Urban Agriculture and City Region Food Systems. RUAF seeks to contribute to the development of sustainable cities by facilitating awareness raising, knowledge generation and dissemination, capacity development, policy design and action planning for resilient and equitable urban food systems.
- **South-Westphalia University of Applied Sciences (Fachhochschule Südwestfalen, SWUAS) (DE)** educates more than 12,000 students. More than 50 bachelor and master courses mainly in engineering sciences, electrical and information technologies, economics and agronomy are offered under SWUAS umbrella in five cities within the region. The Department of Agriculture is situated in Soest.
- **hei-tro GmbH (DE)** is a German enterprise founded 1984 in Dortmund and for decades working on commercial real-estate project development. Since 2013 the company is focused on producing and improving new aquaponics systems and products. The company also offers services in project management and monitoring of aquaponics-systems. Another future aim of their business is to develop commercial prototype-systems for science needs and researches.
- **Grow The Planet (IT)** is a social network dedicated to anyone who loves good healthy food, anyone who has a vegetable garden or simply wants to learn, in a simply fun way, how to grow some of their own food.

More information on the partners or the contact information is available on the project website: http://www.urbangreentrain.eu.

This output is developed at the end of Phase 1 in order to pave the way for the development of the URBAN GREEN TRAIN modules and resources in Phase 2. Project partners have undertaken a survey aimed at identifying new entrepreneurial models, training opportunities and challenges, as to update the state of art of both urban agriculture (UA) entrepreneurship and entrepreneurship education at national level and to carry out a comparative analysis of the results obtained in order to have a picture of what is going on in Europe on these fields. More specifically project partners have updated the state of art in:

- UA entrepreneurship: including innovative business models, good practices of Higher Education Institutions (HEIs)/SME/CITY cooperation, key areas and innovation trends. As a result of this work an inventory of different business opportunities arising from urban agriculture (also including non-food production/activities providing ecosystem/social services), or available in urban food systems is developed and online at: http://www.urbangreentrain.eu/en/?id=UA_Enterprises
- UA entrepreneurship education: including identification of existing training opportunities, educational resources and teaching methodologies as well as detection and analysis of the

training needs of the project target groups. As a result of this work an inventory of existing training opportunities is developed and online at http://www.urbangreentrain.eu/en/?id=UA_Educational_offer .

In this synthesis report for Phase 1, results from these activities are analysed, compared and matched as to link the different types of UA business models and implied opportunities with the related needs for training and knowledge support. The results are presented both from a national and comparative perspective within a set of methodology guidelines useful for developing a new cross-sectoral curriculum on UA. The focus is on identifying innovative and successful business practices, training and knowledge support needs, existing modules / resources to be further expanded and developed for the URBAN GREEN TRAIN objectives and those missing to be developed ex novo.

RUAF was responsible for the comparative analysis and matching of business and training opportunities, in cooperation with all participant organisations and especially the activity leaders, who have worked together in order to define a common set of guidelines paving the way for the development of the Phase 2 (modules and resources).

This document also addresses non-partner HEIs and adult training providers, public authorities and other stakeholders at national and EU level to support the planning of further cross-sectoral UA education activities and University-Society-Business cooperation.

SUMMARY OF RESULTS

Activity 1: State of art of UA entrepreneurship

On the basis of a set of 27 case studies of UA enterprises (see Annex 1 for links to case studies) in the 4 study countries (DE, FR, IT and NL) a number of relevant lessons and conclusions for the next steps of the project can be formulated. These are related both to the nature of agriculture and food business opportunities that are emerging in the urban context, the specific knowledge and training requirements for these, and to resources for training modules to be developed in Phase 2.

1) While the distinguished business models have been useful for the identification and selection of case studies, this classification in 6 business models is not always very sharp. Especially relevant is that 10 out of 27 SMEs (37%) are characterised as combinations of business models, and of these, 3 SMEs even combine key elements from 3 different business models. The combination of different, complementary business strategies appears to be a key characteristic of business models that are emerging in UA.

2) Current business models as distinguished in the literature on UA perhaps are still too much building on traditional "rural" business models and do not yet sufficiently take into account the specific nature of urban contexts. Especially striking is that in many cases income generated from traditional agricultural (production) activities is only of secondary importance and rather services and value added activities emerge as key component for the business strategy. Agricultural and food production activities are important, but often as secondary, complementary activity and to create place, identity and ambiance for other (often service-oriented) income-generating activities.

3) The analysis of case studies indicates a diverse need for training and knowledge support between different business initiatives, models, and the type of actors involved in initiatives. There is for example a relevant difference in training needs between: 1. Entrepreneurs (often requiring more managerial skills), 2. Family farm type of activities, 3. People who are involved in productive activities on UA enterprises, 4. Social economy and community-based initiatives. The diverse types of knowledge and training support needs are also reflected in what are relevant knowledge fields to be elaborated for Phase 2.

4) The set of case studies additionally suggests a relevant difference in business dynamics according to the starting point of the UA business initiative. In several of the German and also some of the French cases we see businesses that start as conventional (family) farms in peri-urban areas and start to diversify and interrelate their enterprise with urban markets and thereby can build on existing skills and resources. On the other hand, there are UA businesses that start from the city (Uit Je Eigen Stad, Maarschalkerweerd, Les Jardins de L'Avenir, Etabeta), and rather correspond to the typical logic of "start-ups" that need to start from scratch. Again, other businesses start with the initiative from external investors that are looking for ways to valorise their capital in UA markets. It is likely that these different starting points not only differ in relevant actors involved, but also have consequences for

existing networks and resources that businesses can draw upon as well as needs in terms of training and skills.

5) We have collected some outstanding cases of different business models that can be used in the elaboration of modules. Especially: Ferme Urbaine Lyonaisse (cost efficiency), Le Vivant et le Ville (diversification), Le Jardin de l'Avenir (differentiation), Köningshausen (differentiation) and Food for Good (shared economy), Uit Je Eigen Stad (diversification), Hei-tro (experimental), Eta Beta (differentiation) and Arvaia (experience) represent excellent cases to include as illustrative examples in training modules.

Activity 2: State of art of UA entrepreneurial education

In a survey designed by partner Agreenium, 95 educational resources were proposed that were internally available with the institutions of URBAN GREEN TRAIN partners, only 30 of these were more directly linked to urban agriculture and/or entrepreneurship.

These 30 key resources represent a strong basis, and were complemented by resources from other organisations through an extended survey. The whole survey shows the lack of resources targeting professionals but also policymakers.

Among these resources, the themes "Food and non-food production" had a significantly higher number of resources, whereas "Resilience, social inclusion and sustainability" and "Societal needs, market analysis and value chain development" scored the lowest. This demonstrates a potential strong basis and need for URBAN GREEN TRAIN resource development in the latter fields.

The majority of resources are proposed for students (24 out of 30), quite well covering the range from Bachelor 1 to Master 2, but some of these resources are also offered for professionals (9). Only 4, however, are specifically offered for professionals.

A large majority of educational resources are offered classically on-site. Only a few (6) resources related to urban agriculture are offered as distance learning, which shows the needs and possibilities for further development. Most of the resources are based on a mix of lectures and practical training (with various respective percentages), and 14 were essentially based on practical learning.

Most of the resources were formatted for a length of 30-60 hours (2-3 weeks, 66 resources), while others corresponded to a length of 15-30 hrs (1 week, 13) or 80-200 hrs (over a semester, 12). Three were declared flexible.

Most of the educational resources were offered without specific authorisation needed or fees, in some cases linked to a non-commercial use condition. The fees or costs are not necessarily linked to the resources but with the related tutoring or diploma. Specific attention needs to be paid to these conditions before using potential resources in URBAN GREEN TRAIN.

The contents of these resources still need to be studied precisely. They will be a significant basis when designing the URBAN GREEN TRAIN course modules in Phase 2. The results of this survey are made available in a database on the URBAN GREEN TRAIN website.

Activity 3: Training Needs Analysis

Within the Training Needs Analysis, 122 interviews were carried out in the four partner countries France, Germany, Italy and the Netherlands in 2015.

19 (68%) of the in total 28 interviewed HEIs already offer some kind of UA education within their curricula. Regarding the present integration it has to be considered, that most of the interviewed departments and faculties indicate that UA is only a minor subject or one element of a broader topic, while pure UA modules are relatively rare.

All four target groups in all four project partner countries are in the majority interested in UA entrepreneurial education. On average four of five interviewees (80%) state to be interested in this topic with only little differences between target groups. Larger differences occur between the partner countries with France (65%) and the Netherlands (67%) on the lower side and Italy (93%) and Germany (87%) on the higher side of interest. Regarding the interviewees' interest in UA entrepreneurial education a Dutch SME characterises "*UA small scale and versatile, but current education is large-scale and specialised*". A few interviewees offer even active teaching services and make appropriate "*communication tools*" a prerequisite for the success of UA entrepreneurial education. Furthermore, one agricultural school from the Netherlands (vocational/technical school) is interested in the resources to be developed. A Dutch HEI underlined, that they "*are fully qualified for this topic*". In general, the view on UA entrepreneurial education is heterogeneous among the interviewees, but is mainly seen positively.

Most interviewees name "life-long learning" (58%) as an appropriate kind of education in UA entrepreneurship. Still more than half of the respondents see "apprenticeship, technical/vocational school" (51%) as the most adequate level, while all other levels and kinds of education receive proportions of in total less than 50%. Exchange visits reach the third highest proportion with 42%, while especially the **academic education levels reach comparable low proportions** between 17% (PhD) and 37% (university master). In general, rather **non-formal and non-academic** as well as "out-of-school" (life-long learning) levels and kinds of education **are seen as more suitable for UA entrepreneurial education than formal academic education** in universities and universities of applied sciences.

Communication (70%), creativity (64%) and capacity for teamwork (58%) are named as the most important personal capabilities or "soft skills".

Specific skills in plant production (70%) and "communication, networking, PR" (68%) are emphasised most. Plant production reaches proportions of more than 50% for all four countries and all four target groups. About half of the interviewees name "project management / planning" (51%), "market research / marketing / trading" (50%) and urbanism (48%) followed by "business planning / administration & finances" (42%). Legal framework (30%) and machinery / engineering (22%) are the least named topics. The respondents strongly emphasise the multi-, inter- and trans-disciplinarity of UA and recommend integrated education systems, although specialised knowledge and education has to be offered as well.

The specific training needs, which are named most, are:

- Ecology & Resource Management (61%)
- Cultivation (57%)

- Laws & Regulations (52%)
- Local and regional policy (52%)
- Urban green (47%)
- Urbanisation & urban society (47%)
- Plant nutrition, manure management (44%)
- PR & Advertisement (43%)
- Urban demands (43%)
- Urban planning and policy (41%)

This list shows that the two leading training needs – "ecology and resource management" (61%) and "cultivation" (57%) belong to the topic plant production (70%), which reaches the highest proportion of enquired education topics. On the other hand, the succeeding specific trainings needs "laws and regulation" as well as "local and regional policy" with each 52% mentioning rate belong to the education topic "legal framework", which is only named by 30% of the interviewees to be an important topic.

General remarks

Altogether, it can be concluded that the different activities for Phase 1 of the URBAN GREEN TRAIN project succeeded in giving a good overview of the relevant state of art and provide an adequate basis for developing relevant training modules and educational resources in Phase 2. The state of the art review of UA entrepreneurship gives a rich image of the diversity of business initiatives for new urban agriculture with potentials to generate employment and green economy. The documented case studies provide materials to be incorporated as illustrative examples in training modules. On the other hand, the comparative analysis of cases underlines the importance to attune training offer to different business realities, not only in terms of underlying economic business models, but also in terms of starting point, types of actors and relevant networks, and the existence/absence of pre-existing resources and skills that entrepreneurs may draw upon. In view of this, the training offer should be flexible, both in form and content, in order to adequately address specific training needs.

The state of art review of entrepreneurial education and the training needs analysis, in their turn, provide us with an adequate overview of available educational resources and give a good insight in gaps to which the URBAN GREEN TRAIN training offer may respond in Phase 2 of the project. Especially important is that fewer resources are available for specific themes - such as "Resilience, social inclusion and sustainability" and "Societal needs, market analysis and value chain development" – as well as for specific learning forms such as distance learning. Moreover, blended forms of lectures with practical learning and distance learning appear to be under-represented.

The training needs analysis additionally gives adequate insight in specific subject areas and skills for which training modules and resources are especially wanted. The training needs analysis furthermore confirms the interest in practice-oriented forms of education, such as life-long learning and blended forms of non-formal and formal education. A last important conclusion and starting point for module and resource development in Phase 2 is the need for integrated and multi/-interdisciplinary training support for new urban agriculture initiatives toward a mindset change.

RESULTS STATE OF ART OF UA ENTREPRENEURSHIP

Introduction

The aim of Activity O1-A1 was to obtain an overview of the state-of-the-art of UA entrepreneurship in Europe, and especially the four study countries (Netherlands, France, Germany and Italy), and to get a better idea of the innovative business models, key areas of activities and innovative trends, as well as good practices of HEI/SME/CITY cooperation that are emerging as part of these. As a result of this work an inventory of different business opportunities arising from urban agriculture (also including non-food production and activities providing ecosystem and social services) will become available as well as an indication of their potential contribution to and integration in urban food systems.

These insights in the state-of-the-art of UA entrepreneurship in a number of ways feed into the development of the URBAN GREEN TRAIN modules and resources.

1) The analysis may give insight in the nature and variety of business opportunities and potentials for green entrepreneurship that are arising in urban agriculture and are to be supported by entrepreneurship education.

2) The analysis may give insight to what extent arising entrepreneurship opportunities converge in a limited number of well-defined and delimited types of business models or that business opportunities are rather diverse and specific.

3) The analysis will provide speaking examples and case studies of business initiatives in urban agriculture that can be used in the development of training modules and resources in IO2.

4) The analysis may give insight in the type of knowledge and skills that are relevant for different types of business models that are emerging in urban agriculture.

5) The analysis may give insight in possible forms of knowledge support, training and cooperation between HEI and SMEs and good practice examples of these.

Methodology

In order or to obtain an overview of the state-of-the-art of UA entrepreneurship in Europe for each of the four study countries 6-7 case studies of UA business cases have been developed. Cases were selected in such a way that they cover the representative diversity of UA entrepreneurial activity. It was decided to apply a specific focus on urban horticulture in the case study selection, in the sense that selected businesses all have a horticultural component – even when this can be a secondary activity. If other non-horticulture cases are selected, the arguments for this need to be specified. Within urban horticulture both food and non-food oriented businesses (e.g. gardening) were taken into account.

The selection of business cases was made in such a way to build upon and create synergies with the catalogue of business models and success factors that is being developed in the framework of the EU COST Action "Urban Agriculture Europe". In particular the WG3 on Entrepreneurial models in UA which is chaired by prof. Wolf Lorleberg, SWUAS (http://www.urbanagricultureeurope.la.rwth-aachen.de/online-atlas.html), also partner of URBAN GREEN TRAIN. From the COST database for some URBAN GREEN TRAIN countries cases are available, especially for Germany, the Netherlands and Italy. Where relevant these cases were selected, although it was indicated that out of the 6-7 developed case studies at least 2 should be new (i.e. not yet included in the COST database).

In order to ensure sufficient representativity, the selection of business cases for each country was realised in such a way that the relevant diversity of UA entrepreneurial activity was adequately covered, according to 2 criteria: 1. Relevant dimensions for diversity of UA, 2. Typology of business models.

Relevant dimensions for diversity of UA entrepreneurial activity

On the basis of previous studies into diversity of business models and entrepreneurial activity in (urban) agriculture, the following dimensions were considered to be relevant to take into account to ensure sufficient representativity. The relative importance of these factors is not necesarrily the same in all study countries:

- Market orientation (home consumption / direct marketing / anonymous markets)
- Quality of produce (generic / specific / labelled quality)
- Single / multiple products & services
- Degree of dedication (hobby / professional, part-time / full-time)
- Enterprise / community-based (individual / family based / community-based)
- Location (inner city / peri-urban)
- Technology level / production method (low-tech / high-tech)
- Traditional / Innovative (established methods / new, innovative methods)
- Public / Private
- Horticulture basis (specialised horticulture / horticulture as secondary activity)
- Place bound (placemaking)
- Building bound (rooftop or industrial site)
- Open field
- Financing modes
- Resources / (re-)use of inputs/outputs
- Transport modes

Typology of business models

Another criterion applied to ensure that the relevant diversity of business cases is covered, was the distribution according to business models. While the identification and analysis of business models is one of the aims of O1-A1, on the basis of previous research an indicative typology of business models in UA could by applied for case study selection. The typology of business models that was

applied for this is developed in the COST Action on Urban Agriculture in Europe (see Pölling et al, 2015 and Van der Schans, Lorleberg, et al. 2015)[1]. These models are not intended as final and in later stages of the project can be fine-tuned and validated. Also, other emerging business models might be added to the typology.

Generally speaking 6 main different business models are distinguished:

1) Cost efficiency (low cost, bulk production)
2) Product differentiation (niche markets)
3) Enterprise diversification (multifunctional agriculture)
4) Shared economy (social inclusion, participation)
5) Experimental (new production methods, innovation)
6) Experience (selling a story rather than a product)

In the following for each of the indicate business models an elaborated description is given:

Cost efficiency: the main focus of the enterprise is on **producing primary products of generic quality against competitive prices**. These can be realised through different stategies, including cost minimalisation (few external inputs), increase of productivity, and scale enlargement or a combination of these. Products are commonly sold on generic markets without premium price.

Product differentiation: the main focus of the enterprise is **producing a product with a distinctive quality in order to differentiate itself for generic "bulk" markets and be able to realise a premium price for products**. Product quality differentiation can be realised in very different ways, including: production of different varieties (traditional varieties, vegetables for ethnic communities), high value crops, specific production methods (organic, environment friendly), tasty products, or by creating proximate relations of trust and confidence with consumers. Differentiation can also be realised by transforming the product on the farm or by taking control of distribution and direct selling. Both activities result in specific quality and higher value added retained on the farm.

Enterprise diversification: a diversification strategy aims **besides food also on offering other product and services, such as for example care, tourism & recreation, catering, education, ecosystem services or waste management**. These other functions are an integrated part of the revenues that are generated on the farm, and the UA activity can be considered as a multifunctional enterprise. The provisioning of different functions on the farm can also contribute to the identity and distinctive nature of the enterprise by means of place-making. It entails both diversification from agriculture into other services but also other sectors into agriculture (such as real estate or social institutes that go into UA).

Shared economy: the enterprise has a **clear social function and the relation with wider social and community networks** is of key importance for the functioning of the farm. Social inclusion of minorities and community participation contribute to the farm by means of labour mobilisation (volunteers), creation of proximate markets, and in some cases also in mobilising financial

[1] Bernd Pölling, Wolf Lorleberg, Francesco Orsini, Francesca Magrefi, Femke Hoekstra, Henk Renting and Mattia Accorsi (2015) "Business models in urban agriculture - answering cost pressures in the food sector and addressing societal needs". Paper presented at AGURB2015: Agriculture In An Urbanizing Society - International Conference on Reconnecting Agriculture And Food Chains to Societal Needs, Rome, 14-17 September 2015; Jan Willem van der Schans, Wolf Lorleberg et al. (2015, forthcoming) "Urban Agriculture - it is a business! - Business models in Urban Agriculture", In: Frank Lohrberg et al. (eds.) Urban Agriculture Europe, JOVIS Verlag, Berlin

resources e.g. by means of crowd funding. Home consumption of community members in some cases can play an important role in the initiative.

Experimental: these category of businesses distinguish themselves by a **strong orientation on innovative production methods and technologies**, such as aquaponics, vertical farming, cultivation in buildings, rooftop-farming etc. These are often technologies and production methods that are not yet totally developed so experimentation is a part of the business strategy. On the other hand, the experimental nature of the technologies applied on farm may also be a distinctive feature of the enterprise that can be used in the marketing of products, educational activities, and or complementary training activities.

Experience: the enterprise is focused on providing authentic and "memorable" experiences by **rather selling a story (experience) than a product**. Place-making and training or leisure activities (for example gastronomic experiences) are important elements that are combined with food production. People involved, apart from urban farmers and growers, are designers, actors, musicians, movie-makers to create a memorable authentic experience around a place or a story.

To ensure comparability of results between countries common interview guidelines and an outline for the case study description were provided to national teams.

Selected case studies

On the basis of the outlined criteria a total of 27 case studies were selected, of which 7 in France, 7 in Germany, 7 in Italy and 6 in the Netherlands. The selected case studies adequately reflect the different relevant dimensions of diversity that we distinguished (market orientation, quality of produce, single / multiple products, degree of dedication, etc.). On the total of 27 cases, 7 cases from the COST Action Urban Agriculture in Europe were included (especially for Germany and The Netherlands); therefore 20 new cases were included.

While the case studies together cover the general diversity of business models and opportunities, each national case study selection has a specific focus – partly reflecting the specific national situation and partly as a result of existing networks and contacts of the involved research and training institutes in URBAN GREEN TRAIN. The Germans partner is more engaged in classical agricultural production and teaching, and has also selected more traditional UA business models i.e. multifunctional rural farms. The Italian team selected several cases on green roofs and walls, reflecting UNIBO's involvement and networks with these initiatives. The French case study selection includes various cases that are still mostly in a conceptual and start-up phase, a.o. due to work of Vegepolys as 'business incubator'. Lastly, the Dutch case-study selection reflects RUAFs involvement with young, professional UA entrepreneurs in cities in the Netherlands.

With respect to the typology of indicative business models, table 1 below summarises the distribution of selected case studies according to the distinguished indicative models. For each case, the main business model is indicated, and where relevant a secondary business model is mentioned.

Table 1 Selected case studies according to indicative business models

Cost efficiency **(3)**	AgriBologna (IT) FUL - Ferme Urbaine Lyonnaise (FR) (*2nd experimental*) Hof Mertin (DE)
Differentiation **(12)**	Werkhof (DE) Königshausen (DE) Les Jardin de l'Avenir (FR) Amaeva (FR) Frais d'ici (FR) Ortiurbani (IT) Etabeta (IT) *(2nd shared economy, experimental)* Biodivercity (IT) (*2nd experimental*) Horticity (IT) (*2nd shared economy, experimental*) Green Habitat (IT) (*2nd experimental*) Rotterzwam (NL) (*2nd experimental*) Stadswijngaard Den Haag (NL) (*2nd shared economy*)
Diversification **(7)**	Oberschuirshof (DE) Le Vivant et le Ville (FR) (*2nd shared economy*) TOPAGER (FR) (*2nd experimental*) Poliflor (IT) Moestuin Maarschalkerwaard (NL) Uit Je Eigen Stad (NL) (*2nd experimental, 2nd experience*) Gut Königsmühle (DE)
Shared economy **(4)** *(5 2nd)*	Blome (DE) AMAPs in general (FR) Food for Good (NL) Zoete Land (NL)
Experimental **(1)** *(8 2nd)*	Hei-tro Aquaponics Development (DE)
Experience **(1)** *(1 2nd)*	Arvaia (IT)

As can be appreciated from the table, all business models are represented but with considerable differences in weight and representation (for a summarised description of all cases see table 2). The business model with the strongest representation is **product differentiation** with 12 out of 27 cases (44%). The second most represented business model is **enterprise diversification** with 6 cases (22%) followed by shared economy with **shared economy** indicated in 5 cases as main business model (19%). The least represented are **cost efficiency** with 3 cases (11%) and **experimental** and **experience both** with only 1 case (4%) as main business model.

These figures give some first indication of the economic logic of emerging business cases in UA, and indicate that businesses generally find it hard to build a viable enterprise on the basis of **cost-efficient food production** for competitive bulk markets alone. Production conditions in urban

settings with relatively high land prices and land competition often tend to contribute to higher cost prices and options for scale enlargement are also generally limited. High-tech indoor vegetable production, for example with vertical farming techniques, emerges as a promising technical approach for the future but is still not sufficiently developed in technology and markets and initiatives are often still in an initial pre-market stage (e.g. FUL - Ferme Urbaine Lyonnaise).

This implies that viable businesses in UA generally need to complement income from primary production with other sources, either by generating value added or generating premium prices through product quality differentiation or by diversifying the enterprise with other income generating activities. The selected set of cases includes a range of interesting examples of both business strategies, in the case of **product differentiation** for example covering cases such as niche products (mushrooms in the case of Rotterzwam and wine in the case of Stadswijngaard Den Haag), direct marketing of local food (Frais D'Ici, Le Jardin de l'Avenir), organic production (Werkhof, Etabeta), production for migrant communities (Königshausen), or specific concepts/products for urban greening (Green Habitat, Biodivercity, Amaeva). Examples for **enterprise diversification** include combining food production with restaurant facilities (Uit Je Eigen Stad), care farming (Moestuin Maarschalkerwaard) or social integration and housing of disabled people and disadvantaged children (Gut Königsmühle), urban ecosystem services (Poliflor, Le Vivant et le Ville, TOPAGER) or "rent-a-field" concepts to hire out land to private clients (Obershuirshof).

While product differentiation and enterprise differentiation appear as more established business models in UA, the other business models **shared economy** and **experimental** are characterised by a very strong dynamics and rather should be characterised as emerging business models. This is a.o. expressed by the fact that amongst these business models we find the highest share of cases that are still in an initial stage of business development (concept or start-up), and also by the fact that these models are more often initiated and explored in combination with other business models. This is especially the case for **experimental** UA farms, which are only mentioned 1 time as main business model, however, when also references as secondary business model are mentioned the number and share of cases rose considerably to 9 out of 27 cases (33%).

In comparison to experimental UA farms, **shared economy** appears to be a more developed business model that especially corresponds to UA farms with a clear and explicit social inclusion objective and / or contribution to alternative economic organisation forms. A good example is Food for Good, which combines social integration of ethnic minorities with food production for home consumption and marketing. AMAPs in general and Zoete Land, specifically, represent another category of UA farms is this category which rather explicitly aim at constructing other forms of civil engagement and alternative, social economies. This is also so for cases that mention shared economy as secondary business model, including Stadwijngaard Den Haag, Etabeta and Le Vivant et le Ville, which also have a focus on developing other forms of (social and solidarity) economy and more inclusive forms of business organisation.

In the following table 2, a number of key variables are summarised for all cases, including: **lifecycle** stage of the initiative (ranging from new and start-up to established and mature, and indicating the year of establishment when known), a characterisation of **products and services** provided by the SME, a characterisation of **production techniques** (organic, conventional, soil-

less, etc.) and **location** (rooftop, vertical structures, indoor, outdoor, etc.) and an indication of the **size** of the initiative (surface, employees, turnover).

Table 2. Summary of key variables for all cases

Case		Lifecycle stage	Products & services	Production techniques / location	Size
Italy					
IT1	AgriBologna	Mature, 1989	Tomatoes, pesticide-free, bio-digestion, energy production	Greenhouse hydroponic, vegetables	10.000 m2, midsized (but part of large cooperative)
IT2	Poliflor	Mature, 2001	Ornamental walls & rooftop gardens, ecosystem services	Rooftop, soil-less, ornamental	13-15 employees
IT3	Etabeta	Mature, 1992	Vegetable boxes, distribution, artisan workshop, social inclusion of disabled	Biodynamic / organic production, logistics centre	17 employees, 4.650 m2 (midsized, but agri-food not main income source)
IT4	Green Habitat	Unknown	Garden design, indoor/outdoor green wall design	Green walls, soil-less, ornamental	Unknown
IT5	Biodivercity	Start-up, 2011	Urban biodiversity, information supply, ecosystem services, water management, social inclusion	Rooftop, vertical green structure	No explicit income / employment generation aim
IT6	Horticity	Mature, 2006	Fruits, vegetables, social inclusion, water management	Rooftops, terraces, vertical gardens, soil-less	6 associates, also working at universities
IT7	Arvaia	Start-up, 2013	Vegetables, arable crops, orchards (tbd)	Urban area, public park, organic, biodynamic	Farmer cooperative, 50ha, 4 working members, 260 associate members
France					
FR1	Amaeva	Mature, 2010	Greening of walls and roofs, advice and training	Rooftops, walls, ornamental	4 employees, 500.000 euro turnover,
FR2	AMAPs in general	Mature, 2001	Organic and healthy vegetable production, social economy	Agroecological production, proximity	1.600 AMAPs in France, 200.000 consumers

FR3	FUL – Ferme Urbaine Lyonnaise	Concept (pre-start)	High-tech leafy vegetable production, energy production	Indoor, soil-less, vertical farming, LED lighting	Not yet operating
FR4	Frais d'ici	Start-up, 2014	Local food shop network, social economy	Marketing concept, proximity	First shop October 2014 (550m2), part of large cooperative group
FR5	Le Vivant et le Ville	Start-up, 2014	Vegetable production, greening of buildings, water management	Brownfield, production in containers	First demonstrator farm, 3,5 ha, estimated turnover 250-350k euro, consortium of 25 companies
FR6	Les jardin de l'Avenir	Mature, 1994	Vegetable production and direct marketing	Organic open field & plastic greenhouse, proximity	4 full and 1 ,5 seasonal employees on farm, 4 full and 2 part-time employees in marketing; 14 ha & 8.500 m2 greenhouse ; 330k turnover
FR7	TOPAGER	Start-up, 2013	Rooftop food production, composting, design and advice	Rooftop, composting	3-5 employees, 1 demonstration site
Germany					
DE1	Oberschuirs-hof	Mature, family farm	Arable farming, horticulture, herbs, flowers, pigs, poultry, direct marketing, "rent-a-field"	Outdoor production, peri-urban regional quality, animal welfare, "pick-your-own"	75 ha, 120 "rent-a-field" parcels
DE2	Hof Mertin	Mature, family farm	Strawberries, apples, fattening of bulls, direct marketing,	Outdoor production, peri-urban, regional quality, "pick-your-own"	120 ha, of which 40 ha strawberries and 3 ha apples
DE3	Werkhof	Mature, 1983	Vegetable boxes, direct marketing (delivery service, farm shop), social farming (vocational preparation young people)	Organic / biodynamic, open field/ greenhouses, peri-urban	5,5 ha, 1.000 vegetable boxes / week
DE4	Gut Königs-mühle	Growing, 2006	Organic horticulture, services: housing/	Organic, plastic greenhouses and outdoors, sheep, bee	11 ha, 14 employees, 15 volunteers. Housing for 14 disabled people, work

			living for disabled people, after school education for disadvantaged kids, Kindergarten.	keeping, peri-urban	for 20 disabled, kindergarten for 15 kids
DE5	Königs-hausen	Mature, 1969	Vegetable production, livestock , direct marketing, "pick-your-own"	Outdoor, peri-urban, special crops for Muslim community, Muslims sacrifice feast	112ha, 15 sheep, 150 bulls
DE6	Blome	Mature, family farm	Pig production, crop production, grassland; "rent-a field" concept	Conventional crop and pig production, peri-urban, proximity	60ha
DE7	Hei-tro Aquaponic Developmen t	Company established in 1984 developing new business field in Aquaponic System Developme nt for science, community and private use	Aquaponics, horticulture + aquaculture, community building	Inner city, resource efficient interlocking of fish (aquaculture) plus hydroponics vegetable production	3 employees Hei-tro participated in an aquaponic project of NGO 'die Urbanisten e.V.' in 2013. The company was sponsoring the new community system build in 2015 on 20 m2. Also developed the first home-system prototype 2015 which is running since then.
The Netherlands					
NL1	Uit je Eigen Stad	Growing, 2012	Vegetables, chicken/eggs, mushrooms, catfish and tilapia, restaurant, resource recycling	Conventional and organic, outdoor and indoor farming, aquaponics	20.000m2, of which 7000m2 open air, 1200m2 polytunnel, 400m2 glass greenhouse, 500m2 for laying hens
NL2	Rotterzwam	Start-up, 2013	Mushrooms, resource recycling, training, home production kits	Inner city, indoor	1500m2, 20kg per week, scaling up to 50-105 kg per week; 2 entrepreneurs, 4 paid employees, 6 volunteers.
NL3	Stadswijn-gaard Den Haag	Start-up, 2012	Organic grapes, wine production, tasting, teaching, "rent-a-field"	Organic, inner city	100m2, only minor and seasonal employment creation

NL4	Moestuin Maarschal-kerweerd	Mature, 2003	Fruit & vegetables, restaurant, direct marketing, social inclusion (care farming), education	Organic, peri-urban, proximity	3ha, 5,5 employees, 25 volunteers, 70 clients with psychic and addiction problems
NL5	Food for good	Growing, 2012	Vegetable & fruit production, food bank, social integration	Inner city, home consumption and sales, low tech	7000m2, 3 part-time employees, 35 volunteers
NL6	Zoete land	Start-up, 2013	Vegetables, herbs, flower, small fruit,	Organic, community supported agriculture	1 part-time employee, 50 volunteers, 3.200 m2, 75m2 greenhouse

The table gives a good indication of the variety of SMEs covered and also give some ideas on the nature and diversity of business opportunities that are emerging in Urban Agriculture. Some of the most striking aspects in this respect are:

- There are important differences between the starting date and lifecycle stage of SMEs, both in terms of countries and represented business models. With respect to business models, the models that are **more advanced in their lifecycle stage** and development appear to correspond to the business models **product differentiation** (for example AMAP, Le Jardin de l'Avenir, Eta beta, Werkhof or Königshausen) and **enterprise diversification** (Moestuin Maarschalkerwaard, Uit Je Eigen Stad, Oberschuirshof or Poliflor).

- By contrast, initiatives which are still **new or in the start-up stage** are strongly represented by the business models **shared economy, experimental**, and **experience** indicating that the techniques and governance and economic models required for these business strategies still need further development. Examples are business initiatives that are starting with production techniques like aquaponics, but also for the integration of resource recycling and recovery as key component of business strategies still very few examples of established enterprises appear to be available. Somewhat surprisingly this also seems to be the case for the few examples of the business model **cost efficiency**. Also here techniques required for high-tech production models, for example based on vertical farming and indoor vegetable production, still are not sufficiently developed and their economic cost effectiveness is not yet clear. The few farms (e.g. Hof Mertin) that can compete with low-costs rather correspond to traditional family farming in a peri-urban context.

- As for the nature of **production techniques and location**, the set of case studies in the four study countries provides a diverse collection of examples UA business initiatives. These on the one hand include more classic, land-based UA initiatives, both in peri-urban and inner-city locations, that often choose for organic production methods and food quality definitions based on regionality and proximity between producers and consumers. On the other hand, there is a well-represented set of case studies (especially in Italy and France) that focus on rooftop farming and green walls, often for ornamental vegetation and the provisioning of ecosystem services. Finally, there are also a number of cases represented that experiment

with indoor vegetable production such as vertical farming and aquaponics, though sometimes in combination with other products and services.

- The set of case studies additionally suggests that there is a relevant difference in business dynamics according to the **starting point of the UA business initiative**. In several of the German and also some of the French cases we see businesses that start as conventional (family) farms in peri-urban areas and start to diversify and interrelate their enterprise with urban markets. On the other hand there are UA businesses that start from the city (Uit Je Eigen Stad, Maarschalkerweerd, Les Jardin de L'Avenir, Etabeta), and rather correspond to the typical logic of "start-ups" that need to start from scratch. Again, other businesses start with the initiative from external investors that are looking for ways to valorise their capital in UA markets. It is likely that these different starting points not only differ in relevant actors involved, but also have consequences for existing networks and resources that businesses can draw upon as well as needs in terms of training and skills.

Lessons from case studies

On the basis of the described set of case studies a number of relevant lessons and conclusions for the next steps of the project can be formulated. These are related both to the nature of business opportunities that are emerging in UA, the specific knowledge and training requirements for these, and resources for training modules to be developed in task IO2.

1) While the distinguished business models have been useful for the identification and selection of case studies, this classification in 6 business models is not always very sharp. Especially relevant is that 10 out of 27 (37%) are characterised as combinations of business models, and additionally 3 SMEs combine key elements from 3 different business models. The combination of different, complementary business strategies appears to be a key characteristic of business models that are emerging in UA.

2) Current business models as distinguished in the literature on UA perhaps are still too much building on traditional "rural" business models and do not yet sufficiently take into account the specific urban context. Especially striking is that in many cases income generated from traditional agricultural (production) activities is only of secondary importance and rather services and value added activities emerge as key component for the business strategy. Agricultural and food production activities are important, but as secondary activity and to create place, identity and ambiance for other (often service-oriented) income-generating activities other elements of business models are of key importance.

The analysis of case studies indicates that there are different needs for support in training and knowledge between different business initiatives, models, and the type of actors involved in initiatives. There is for example a relevant difference in training needs between 1. Entrepreneurs (often more managerial skills), 2. Family farm type of activities, 3. People who are involved in productive activities on UA enterprises, 4. Social economy and community-based initiatives. The differences in types of knowledge and training support are also reflected in what are relevant knowledge fields to be elaborated for IO2.

RESULTS STATE OF ART OF UA ENTREPRENEURIAL EDUCATION

Preparation of the activity

As the leader of the activity, AGREE has proposed the conceptual and operative framework for this activity: tasks, methods and tools (online survey, database…), deliverables and work plan. A typology of existing education resources was proposed, on which the survey questionnaire has been built (Table 3).

Table 3. Basis for a typology of education resources

	Item	Criteria
Theme	Thematic orientation Topic orientation Discipline orientation	UA / entrepreneurship / mixt Agriculture / Horticulture / Landscape Food / non food Techniques / economics / sociology…
Resource type	Curriculum level Resource nature	Complete course / module Document / Ppt / movie / virtual course
Target	Student education level Life long learning Prerequisites	Bachelor / master / PhD / Professional / amateurs No / Yes (type, level)
Accessibility	Language Support Access cost	English / Dutch / German / French / Sp On line / on site Free / registration fees
Training methodologies	Nature of resource Teaching method	Lecture / practical / mixt Inductive / deductive (case study)

The framework was validated by partners during the kick-off meeting in December 2014. It was decided to proceed in 2 steps: among partners' survey first (based on a simple Excel table), and depending on the results, an online survey covering other organisations and countries for complementary resources or experiences.

Survey within partners' organisations

Objectives: To realise an inventory of existing training opportunities and resources in relation with urban agriculture and entrepreneurship among partner organisations

Methods: A survey questionnaire was built with the following items: partner, resource title, thematic orientation (description, link with urban agriculture, link with URBAN GREEN TRAIN themes, involved disciplines), target audience (education level, audience type, prerequisites), resource type (length in hours, unit type, related resources, implementation, training methodology), accessibility (language, onsite/distance, authorisation needed, access cost), other information (website…).

The questionnaire was sent to the whole URBAN GREEN TRAIN participant list on January 13th. Responses from UNIBO, SWUAS, RUAF and AGREE were received up to March 5th. The results were compiled in one table and put on the URBAN GREEN TRAIN website on March 13th. A preliminary quantitative analysis was done by AGREE.

General analysis of results: A total of 94 resources were proposed by UNIBO (9), SWUAS (55), RUAF (14) and AGREE (16).

In the project proposal, the partners defined a number of preliminary key areas along which the Modules will be developed. These key areas will be re-defined and re-designed (if needed) on the basis of the results of phase 1. Each area has been assigned to a partner organization responsible for its further definition in the light of the results of phase 1 as well as for the development of related modules and resources, as follows:

- **Food and non-food production of UA**: Introduction presenting a wider approach on UA within the framework of sustainable city region food and non-food production ; Principles and innovative technologies, including high tech urban cultivation systems, hydroponics and aquaponics, agroforestry, etc. Responsible partner (RP): P5 (AGREE).
- **Ecology, environment, resource management**: including role of UA on urban biodiversity, city ecological footprint, waste management, CO2 capture, microclimate regulation, etc. RP: P1 (UniBO).
- **Resilience, social inclusion and sustainability**, including socioecological corridors, and all services providing socio-cultural, health and economic benefits. RP: P7 (RUAF).
- **Entrepreneurship, innovative business models and modes of financing**, including fund-raising and communication strategies, guidance to local, national, communitarian and international support tools, start-up and overall project-cycle management, sustainability, local collaboration, resolution of day-to-day challenges, risk and contingency planning, etc. RP: P8 (SWUAS)
- **Societal needs, market analysis and value chain development**: including how to respond to societal needs, organizational and partnership models, etc. RP: P7 (RUAF).

As declared by the proposers, the different classes of link with urban agriculture were quite evenly covered (Table 4). However, the themes “Food and non-food production” had a significantly higher number of resources , whereas “Resilience, social inclusion and sustainability” and “Societal needs, market analysis and value chain development” the lowest (Table 4). Interestingly, quite a high number of resources were linked with entrepreneurship.

Table 4. Thematic orientation of proposed resources by URBAN GREEN TRAIN partners

Link with urban agri.		Link with UGT themes		
criteria	n	Theme	n	Cited disciplines
> 80%	25	Food and non-food production of UA	38	agronomy (35), ecology (12), economics (5), management (6), pest management (1), floriculture (1), physiology (1), sociology (1), landscaping (2), urban planning (1)
>50%	23	Ecology, environment, resource management	17	ecology (16), agronomy (10), management, (5) physiology (1)
<50%	16	Resilience, social inclusion and sustainability	7	sociology (5), communication (3), agronomy (3), management (2), geography (1)
No direct link but potential interest for UGT	30	Entrepreneurship, innovative business models and modes of financing	22	economics (21), management (12), communication (3), entrepreneurship (2)
		Societal needs, market analysis and value chain development	7	economics (6), management (2), business planning (1), market anaklysis (1)
		No proposed theme	3	
total	94	total	94	

The target audience was mostly students, with the education level quite well covered from Bachelor 1 to Master 2 (Table 5).

Table 5. Target audience of proposed resources by URBAN GREEN TRAIN partners

Education level		Audience type	
criteria	n	criteria	n
Bachelor 1	12	General public	2
Bachelor 2	14	Entrepreneurs	2
Bachelor 3	19	Professionnals	10
Master 1	21	Trainers	1
Master 2	16	Students	82
no indication	12	NGO staff	1
		Policy makers	1
		Support agencies	1
		Mix: students+professionnals	8
		Mix: students+public	1

Most of the resources were formatted for a length of 30-60 hours (2-3 weeks, 66 resources), while others corresponded to a length of 15-30 hrs (1 week, 13) or 80-200 hrs (over a semester, 12). Three were declared flexible.

Only 4 resources were declared as virtual course or distance learning course (out of which 3 as both on-site and distance learning), which opens significant perspectives for distance learning

development in the frame of URBAN GREEN TRAIN. Most of resources were based on a mix of lectures and practical (with various respective percentage), and 14 were essentially based on practical learning.

The resources were offered in various languages: Single language: English (12), French (16), German (55), and Italian (5). Several languages: Italian/English (2), Italian/Spanish (1), English/French/Spanish/Portuguese (2).

Most of resources were offered without specific authorisation needed or fees, in some cases linked to a non-commercial use condition. The fees or costs are not necessarily linked to the resources but with the related tutoring or diploma. A specific attention needs to be paid to these conditions before using potential resources in URBAN GREEN TRAIN.

Specific links with Urban Agriculture and Entrepreneurship

The proposed resources were diversely linked to urban agriculture and entrepreneurship which is the focus of the project. **Based on the title and the description**, the proposed resources were qualified in regards with the link with urban agriculture and entrepreneurship, in order to define key resources (direct link) and support resources (general resources that can be potentially mobilised). This qualification was validated by mail and also during the 2nd meeting in July 2015.

The resources were qualified as :

- **Key resources** (link with urban context and/or entrepreneurship) with the following categories: Urban agriculture UA / Urban landscape & green spaces / Urban agriculture + entrepreneurship / Entrepreneurship

- **Support resources** (no direct link but potential useful resources) with the following categories: General horticulture, General socioeconomics, Other general

Among the final 95 resources, 30 were in direct link with urban context and/or entrepreneurship and 65 were qualified as support resources (Table 6). Interestingly the 30 “key resources” were quite evenly distributed between URBAN GREEN TRAIN themes, except for theme “Societal needs, market analysis and value chain development” (only 3 compared to 6-7 for the others). This demonstrates a potential strong basis for URBAN GREEN TRAIN resource development.

Table 6. Distribution of proposed resources among URBAN GREEN TRAIN themes depending on the link with urban agriculture and entrepreneurship

		UGT themes						
		Food and non-food production of UA	Ecology, environment, resource management	Resilience, social inclusion and sustainability	Entrepreneurship, innovative business models and modes of financing	Societal needs, market analysis and value chain development	No theme	total
Key resources (link with urban context or entrepreneurship)	Urban agriculture	5	2	6	1	1	2	17
	Urban landscape & green spaces	1	4	1				6
	Urban agriculture + entrepreneurship				1	1		2
	Entrepreneurship				4	1		5
	subtotal	*6*	*6*	*7*	*6*	*3*	*2*	*30*
Support resources (no direct link but potential useful resources)	General horticulture	5	2					7
	General socioeconomics	3		1	15	4	1	24
	Other general	24	9		1			34
	subtotal							*65*
	Total							95

Then, we focused on the "key resources" only (Table 7).

Table 7. Distribution of "key" resources depending on education criteria

(For some criteria, a given resource can be cited can correspond to several modalities, leading to a total higher than 30)

	Education level						
	B1	B2	B3	M1	M2	No indication	*total*
Urban agriculture	0	0	4	3	5	5	*17*
Urban landscape & green spaces	0	0	0	1	5	0	*6*
Urban agriculture + entrepreneurship	0	0	0	0	0	2	*2*
Entrepreneurship	0	0	0	2	0	3	*5*
subtotal	*0*	*0*	*4*	*6*	*10*	*10*	*30*

	Length				
	15-30hrs	30-60hrs	>80hrs	No indication	total
Urban agriculture	2	11	2	2	17
Urban landscape & green spaces	2	0	4	0	6
Urban agriculture + entrepreneurship	0	1	0	1	2
Entrepreneurship	4	1	0	0	5
subtotal	*8*	*13*	*6*	*3*	*30*

	Target audience			
	students	professionals	public	total
Urban agriculture	16	7	2	25
Urban landscape & green spaces	5	0	1	6
Urban agriculture + entrepreneurship	1	2	0	3
Entrepreneurship	2	3	0	5
subtotal	*24*	*12*	*3*	*39*

	Language					
	english	french	italian	spanish	portuguese	total
Urban agriculture	9	8	3	2	1	23
Urban landscape & green spaces	0	4	2	0	0	6
Urban agriculture + entrepreneurship	2	1	0	1	1	5
Entrepreneurship	2	2	0	0	1	5
subtotal	*13*	*15*	*5*	*3*	*3*	*39*

	Onsite/distance			
	on site	distance learning	no indication	total
Urban agriculture	12	6	0	18
Urban landscape & green spaces	6	0	0	6
Urban agriculture + entrepreneurship	4	0	1	5
Entrepreneurship	2	0	0	2
subtotal	*24*	*6*	*1*	*31*

The key resources directly linked to urban agriculture and/or entrepreneurship are exclusively proposed at the master level, and mainly at master 2 level. However, the indication is missing for 10 resources.

Most of the resources are modules (<60hours) but in some cases correspond to specialisations (80-175hrs) related to urban agriculture or urban landscapes and green spaces. The majority of resources are proposed for students (24/30) but some of these are also offered for professionals (9). Only 4 are specifically offered for professionals.

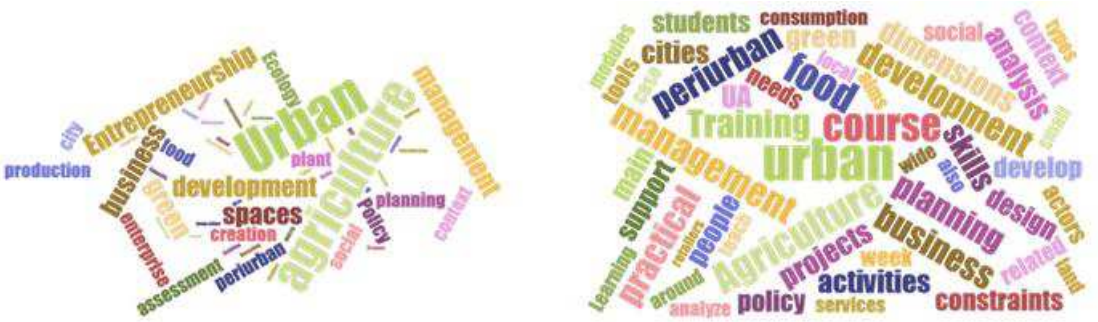
Interestingly, there is a wide range of language available, due mainly to partners' countries of origin and national teaching language. A few resources are offered both in 2 or 3 languages.

However, the large majority of resources are offered classically on site. Only 6 resources related to urban agriculture are offered as distance learning, which shows the needs and possibilities for development.

Qualitative analysis

A content analysis of the "key resources" was realised based on the verbatim present in the tiles or descriptions provided by the partners. The software 'wordle' was used to obtain a graphical representation of specific word importance.

The analysis considering all key resources shows the relevance of title keywords with URBAN GREEN TRAIN focus (Fig. 1). The analysis based on the description of content (Fig. 1) highlights the training orientation (course, skills, students, practical), various skills (management, development, planning, project), both the urban and periurban dimensions. The content description does not show entrepreneurship but related skills or disciplines (management, business). The food aspect of urban agriculture is significant, but not the non-food aspect whereas the partners have decided to consider both in URBAN GREEN TRAIN.



A **B**

Fig. 1. Importance of keywords of all key resources based on resources title (A) and description (B)

The analysis of key resources depending on the proposed link with URBAN GREEN TRAIN themes shows an overall good correspondence with the given theme (Fig. 2). The analysis highlights the various dimensions of the theme “Resilience, social inclusion and sustainability”. The keyword “research” appears only for the theme “Entrepreneurship, innovative business models and modes of financing”. The theme “Food and non-food production of UA” appears to be mainly related to the periurban space and the constraints and opportunities for production activities in relationship with this specific context.

 Ecology, environment, resource management	 Entrepreneurship, innovative business models and modes of financing
 Food and non-food production of UA	 Resilience, social inclusion and sustainability

Societal needs, market analysis and value chain development

Fig. 2. Importance of keywords from content description of key resources depending on the URBAN GREEN TRAIN theme

Survey on other organisations

Objectives: To realise an inventory of existing training opportunities and resources in relation with urban agriculture and entrepreneurship among non-partner organisations in order to identify initiatives, competencies and possible gaps in partners' offer.

Methods: The method was proposed to partners on May 22nd and validated on June 10th. Three complementary approaches were used:

- each partner was asked to provide information on resources from other organisations of their respective countries
- a worldwide web search based on keywords (urban agriculture, agricultural entrepreneurship)
- an online survey was addressed at the food for cities community

Survey results: 53 resources from other organisations in Netherlands were identified by RUAF, 5 from Germany by SWUAS and 4 from France by AGREE

Through a web search, AGREE has identified 41 resources and 4 Massive open online courses (MOOCs) related to urban agriculture and urban spaces.

The online questionnaire sent to Food for cities community was not successful so far in acquiring other data, but will be used towards other targets.

If the courses identified in this extended survey do not correspond to gap in URBAN GREEN TRAIN partners offer, they might represent interesting resources for specific needs and examples of teaching approaches.

Conclusion

Even if 95 resources were proposed by URBAN GREEN TRAIN partners, only 30 were more directly linked to urban agriculture and/or entrepreneurship. Other support resources are classically offered in all universities, and can be mobilised depending on URBAN GREEN TRAIN needs.

These 30 key resources represent a strong basis, and were completed by resources from other organisations through an extended survey. The whole survey shows the lack of resources targeting professionals but also policymakers. Most resources are on-site. This confirms the needs that URBAN GREEN TRAIN plans to address.

The contents of these resources still need to be studied precisely. They will be a significant basis when designing the URBAN GREEN TRAIN course modules. The results of this survey will be made available in a database on URBAN GREEN TRAIN website.

RESULTS TRAINING NEEDS ANALYSIS

Aim

In general, URBAN GREEN TRAIN aims at encouraging pioneering business oriented initiatives on Urban Agriculture based on knowledge exchange, mutual cooperation and innovation among SMEs, policy makers and Higher Education Institutions (HEIs) as to meet the global demand for urban green innovation. Therefore, it is aiming to strengthen the knowledge triangle between education, research and business in the field of urban agriculture (UA). URBAN GREEN TRAIN wants to provide two levels of education by developing an international, cross-sectoral and multi-targeted training accessibility; these two are:

- Lifelong learning opportunities to adult learners through a flexible path that can be entered at different life stages and
- Providing competences needed to create new business-oriented initiatives in UA of professionals, students and academics suitable to be integrated into formal university systems.

The Training Needs Analysis (IO1-A3) strongly involves relevant people and institutions within the four major target groups of the project: SMEs, HEIs, NGOs, and Public Authorities.

The knowledge and opinions of these target groups are important to define the needs (disciplines, topics) for UA entrepreneurial education. A deep involvement of the project's beneficiaries and target group representatives offers suitable conditions for a thorough and target-oriented definition of their needs.

Requirements

Within the Training Needs Analysis a minimum requirement (indicator) is defined for the number of interviews to be conducted (see Project Management Framework). The analysis addresses the four target groups – SMEs, HEIs, NGOs and public authorities – of the project to receive information from different sources with different framework conditions. The indicator names a minimum of 120 persons to be interviewed with a standardised questionnaire. As four countries – France, Germany, Italy and the Netherlands – are participating, this leads to a national threshold of 30 interviews per project partner country. Additionally, a minimum of five interviews per national target group was defined to ensure homogeneity and comparability among project partner countries.

Process and timeline

The procedure and further steps to realise the Training Needs Analysis were discussed during the project's first meeting in Bologna in December 2014. Afterwards, namely in January 2015, the project partner responsible for this activity IO1-A3 SWUAS (South-Westphalia University of Applied Sciences, Fachhochschule Südwestfalen) developed four draft questionnaires addressing the four target groups. February 4th, SWUAS circled around these drafts within the project

consortium for recommendations and improvements, which were able to be sent until February 14th. About two weeks later on March 2nd SWUAS uploaded the final questionnaires for the four target groups in English language including the key guidelines to be followed by project partners (see questionnaire HEIs and guidelines in the appendix). After translations into national languages, the first interview period lasted until end of May 2015. The last interviews were received on June 18th. The second project meeting in Angers in July 2015 was used to present the preliminary results of the Training Needs Analysis. As the requirements were not fulfilled until Angers meeting, the project consortium agreed on a second shorter interview period to fulfil the requirements of 120 interviews in total (see Results). Additional interviews were integrated into the analysis by end of July 2015. Afterwards the Training Needs Analysis was conducted in August and September 2015 to be finalised 30th of September 2015.

Here the timeline in key points:

- December 2014: Training Needs Analysis discussion during Bologna meeting
- Feb. 4th, 2015: Draft questionnaires sent around by SWUAS to project partners
- Feb. 14th, 2015: Deadline for draft feedbacks
- March 2nd, 2015: Upload of final questionnaires and guidelines in English
- March-May 2015: Translation and data collection (interviews)
- June 18th, 2015: Receiving the latest data
- July 2015: Presentation of preliminary results at Angers meeting
- July 2015: Second round of data collection
- Aug./Sept. 2015: Training Needs Analysis
- Sept. 30th, 2015: Report finalised

Results

Fulfilment of minimum requirements

URBAN GREEN TRAIN project partners conducted in total 122 interviews between March and July 2015, which means that the minimum requirement indicated in the Project Management Framework is achieved (Fig. 3). The results differ somewhat between the partner countries and addressed target groups. Germany (39) and Italy (30) reach the national threshold of 30 interviews per country, while France (26) and the Netherlands (27) are slightly below this threshold. Most of the interviews were carried out with SMEs (42), while the number is lowest for public authorities (PA) (20).

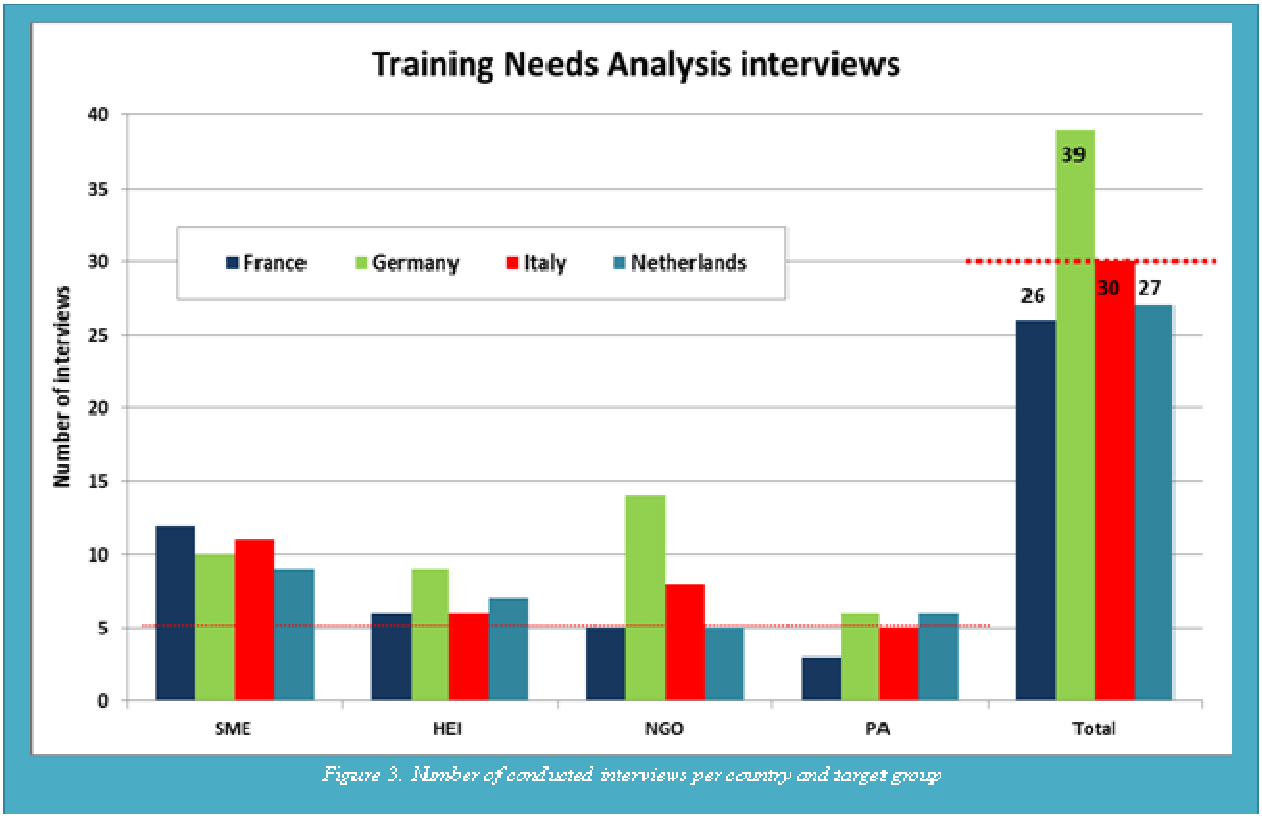


Figure 3. Number of conducted interviews per country and target group

Present integration in formal curricula (HEI)

As a matter of course the question regarding the already established integration of urban agriculture into HEIs' formal curricula was only addressed to these interview partners from Higher Education Institutions. 28 HEIs are considered in this survey covering a homogeneous distribution between six and nine conducted interviews per project partner country (Fig. 3). Already about two thirds of the interviewed HEIs integrate urban agriculture into their curricula to some extent (Fig. 4).

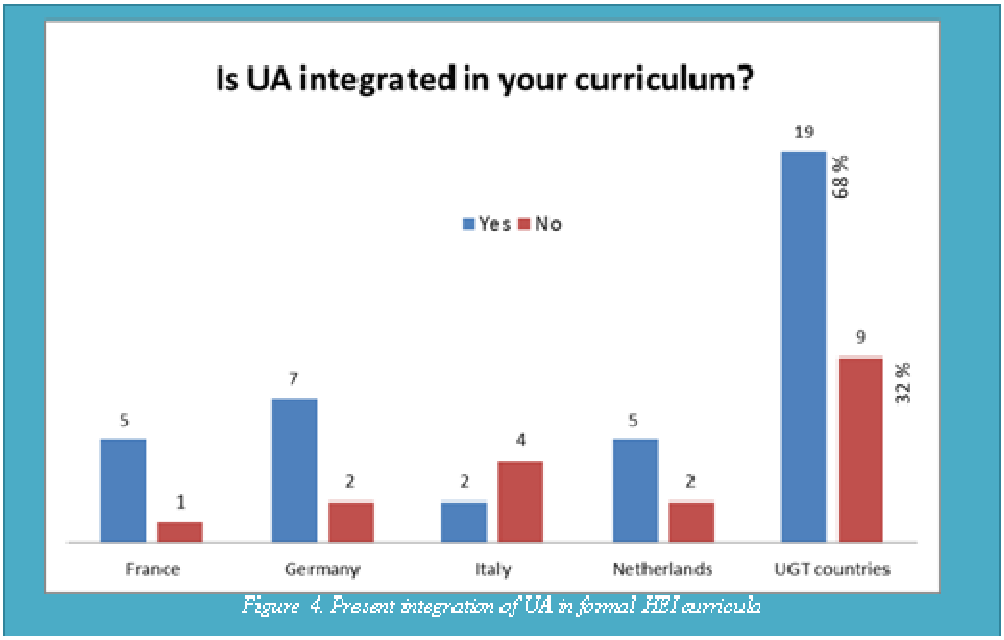


Figure 4. Present integration of UA in formal HEI curricula

Regarding the present integration it has to be considered, that most of the interviewed departments and faculties highlight, that UA is mainly a minor subject or one element of a broader topic, while pure UA modules are comparable rare. Two example modules, in which UA lectures are integrated in other modules, are “Growing Green Cities” from the Netherlands and horticultural modules in Italy including specific sessions on UA. The conducted survey reveals one UA module – namely “Urban Agriculture” – of 13 ECTS from the Netherlands. Furthermore, different HEI representatives state, that they are willing to or think of enlarging the relevance of UA in their curricula. A Dutch HEI also added the integration of urban agriculture in (pre-) vocational schools in the Netherlands.

The second question addressing HEIs (n = FR: 5, GE:7, IT:2, NL: 5) focuses more precisely on the themes offered in the UA modules and lectures (Fig. 5). Most pronounced is the theme “urbanism”, which is named 13 times, followed by “plant production” and “communication, networking, PR” mentioned eight times each. Rather rarely considered in UA lectures are “legal framework” (3) and “business planning, administration & finances” (4). Especially in the Netherlands, but less pronounced also in Germany, all topics in the field of UA are covered to some extent by the interviewed HEIs.

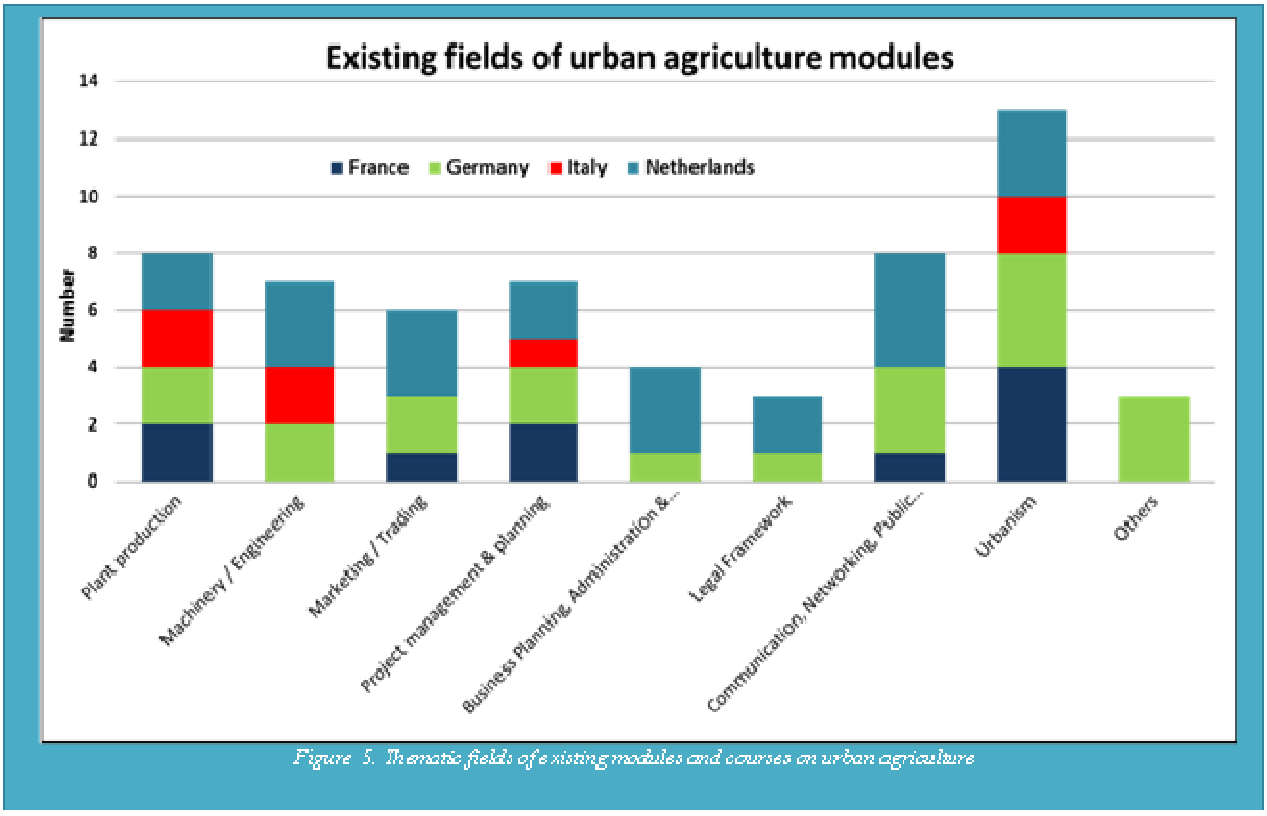


Figure 5. Thematic fields of existing modules and courses on urban agriculture

Interest in UA entrepreneurial education

All four target groups in all four project partner countries are predominantly interested in UA entrepreneurial education (Table 8). On average four of five interviewees (80 %) name to be interested with only little differences between target groups, which range between 75 and 82 %.

Larger differences occur between the partner countries with France (65 %) and the Netherlands (67 %) on the lower and Italy (93 %) and Germany (87 %) on the higher side of interest.

Table 8. Interest in UA entrepreneurial education

	Target groups										
	SME		***HEI***		***NGO***		***Public Authority***		***Total***		
Country	*Yes*	*No*	*Yes*	*No*	*Yes*	*No*	*Yes*	*No*	***Yes***	***No***	***Yes [%]***
France	9	3	5	1	1	4	2	1	**17**	**9**	**65**
Germany	10	0	7	2	13	1	4	2	**34**	**5**	**87**
Italy	10	1	6	0	7	1	5	0	**28**	**2**	**93**
Netherlands	5	4	5	2	4	1	4	2	**18**	**9**	**67**
Sum	**34**	**8**	**23**	**5**	**25**	**7**	**15**	**5**	**97**	**25**	
Sum [%]	**81**	**19**	**82**	**18**	**78**	**22**	**75**	**25**	**80**	**20**	

This question on the interviewees' interest in UA entrepreneurial education raised some important comments and remarks. A SME from the Netherlands states "*UA small scale and versatile, but current education is large-scale and specialised*". Additional remarks incorporate advices to have "*short courses*" and to consider "*UA on brownfields/abandoned sites*". A few interviewees offer even active teaching services and make appropriate "*communication tools*" a prerequisite for the success of UA entrepreneurial education. Furthermore, one agricultural school from the Netherlands (vocational/technical school) is interested in the resources to be developed. A Dutch HEI underlined, that they "*are fully qualified for this topic*". An Italian SME mentions, that they "*focus on commodity markets"* and do not see urban agriculture to be an issue for them. The statement "*in planning perspective no differences between rural and urban*" is given from a German public authority. The selected comments and remarks show, that the view on UA entrepreneurial education is heterogeneous, but is mainly seen positive.

Levels and kinds of education

Most interviewees name "life-long learning" (58 %) as an appropriate kind of education in UA entrepreneurship (Table 9 & 10). Still more than half of the respondents see "apprenticeship, technical/vocational school" (51 %) as the fitting level, while all other levels and kinds of education receive proportions of in total less than 50 %. Exchange visits reach the third highest proportion with 42 %, while especially the academic education levels result in comparable low proportions between 17 % (PhD) and 37 % (university master). In general, rather non-formal and non-academic as well as "out-of-school" (life-long learning) levels and kinds of education are seen as more suitable for UA entrepreneurial education than formal academic education in universities and universities of applied sciences. The rather low proportions for academic levels have to be taken into account especially as the provision of competences needed to create new business-oriented

initiatives in UA of professionals, students and academics is one of the major URBAN GREEN TRAIN aims.

Table 9. Level and kind of education – countries

Level and kind of education											
Country	***total***	*University Bachelor*	*University Master*	*University PhD*	*University of Applied Sciences Bachelor*	*University of Applied Sciences Master*	*Apprenticeship, Technical / Vocational School*	*"Life-long learning"*	*Computer Supported Training*	*Exchange Visits*	*Others*
France [n]	26	10	10	4	4	1	14	10	2	9	0
[%]		38	38	15	15	4	54	38	8	35	0
Germany [n]	39	13	14	7	17	16	22	21	12	17	5
[%]		33	36	18	44	41	56	54	31	44	13
Italy [n]	30	10	15	7	7	6	12	21	5	10	1
[%]		33	50	23	23	20	40	70	17	33	3
Netherlands [n]	27	4	6	3	5	3	14	19	9	15	2
[%]		15	22	11	19	11	52	70	33	56	7
Sum [n]	**122**	**37**	**45**	**21**	**33**	**26**	**62**	**71**	**28**	**51**	**13**
[%]		**30**	**37**	**17**	**27**	**21**	**51**	**58**	**23**	**42**	**11**

"Life-long learning" is highlighted in all partner countries by more than 50 % of the respondents except France, where only 10 of 26 interviewees name the out-of-school education a suitable form of education. French respondents focus mainly on the formal "apprenticeship, technical/vocational school" (54 %), while all other kinds and levels are named by less than 40 % of the respondents. German respondents prefer the technical/vocational school level for apprentices (56 %) and the non-formal "life-long learning" education (54 %). All other levels and kinds of education reach between 30 and 45 %, except the PhD level of academics (18 %). The majority of Italian and Dutch interviewees name "life-long learning" (70 %) as the suitable format for UA entrepreneurial education. Half of the Italian respondents also see the master level at universities as appropriate, while the Dutch respondents hardly name the academic level (11 – 22 %). Exchange visits (56 %) and "apprenticeships, technical/vocational schools" (52 %) are named rather often in the Netherlands.

Table 10. Level and kind of education – target groups

	Level and kind of education										
Target group	***total***	*University Bachelor*	*University Master*	*University PhD*	*University of Applied Sciences Bachelor*	*University of Applied Sciences Master*	*Apprenticeship, Technical / Vocational School*	*"Life-long learning"*	*Computer Supported Training*	*Exchange Visits*	*Others*
SME [n]	42	11	9	7	9	9	22	26	14	19	5
[%]		26	21	17	21	21	52	62	33	45	12
HEI [n]	28	11	17	5	5	3	10	11	4	7	1
[%]		39	61	18	18	11	36	39	14	25	4
NGO [n]	32	8	10	6	10	6	18	24	6	17	5
[%]		25	31	19	31	19	56	75	19	53	16
PA [n]	20	7	9	3	9	8	12	10	4	8	2
[%]		35	45	15	45	40	60	50	20	40	10
Sum [n]	**122**	**37**	**45**	**21**	**33**	**26**	**62**	**71**	**28**	**51**	**13**
[%]		**30**	**37**	**17**	**27**	**21**	**51**	**58**	**23**	**42**	**11**

NGOs (75 %), SMEs (62 %) and PAs (50 %) name "life-long learning" quite often, while only 39 % of the HEIs appoint this non-formal education as the suitable ones for UA entrepreneurship. The academic levels are primarily named by HEIs, e. g. 61 % university master, and public authorities, while SMEs and NGOs answer differently. "Apprenticeship, technical/vocational school" is named rather often (> 50 %), but only by 36 % of the HEI interviewees. Computer-supported training ranges from 14 % (HEI) to 33 % (SME), while exchange visits reach a higher level between 25 % (HEI) and 53 % (NGO).

"Soft skills" – personal capabilities

The personal capabilities communication (70 %), creativity (64 %) and capacity for teamwork (58 %) are named most often (Fig. 6). German and Dutch interviewees mention communication to a proportion of more than 75 %, but only slightly more than half of the Italian respondents. Creativity is especially highlighted by the Dutch, while only half of the German interviewees name this a necessary soft skill to run an UA enterprise. Capacity for teamwork is not so much named by the Germans (ca. 40 %), but to more than 60 % by the interviewees of the other three countries. The personal capabilities named to be important to run an UA enterprise are quite homogeneous between the four target groups.

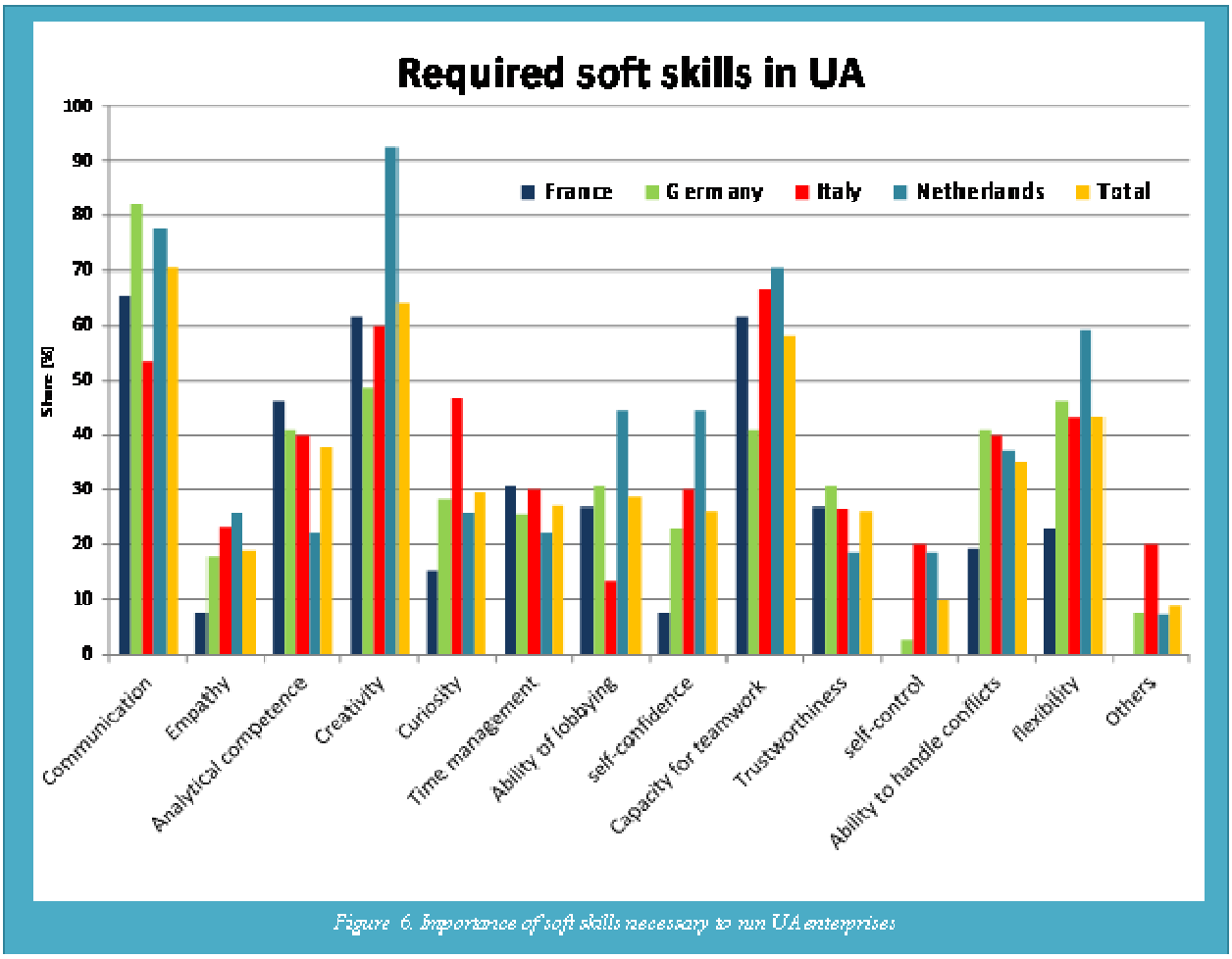


Figure 6. Importance of soft skills necessary to run UA enterprises

"Hard skills" – education topics

Skills in plant production (70 %) and "communication, networking, PR" (68 %) are emphasised most (Fig. 7 & Table 11). Plant production reaches proportions of more than 50 % for all four countries and all four target groups. More than 70 % of the French, Italian and Dutch interviewees name plant production an important topic to be taught for UA enterprises, while the German proportion reaches only 54 %. More than two thirds of the Dutch, French and German, but only 53 % of the Italian respondents mention the second most called topic "communication, networking, PR". About half of the interviewees name "project management / planning" (51 %), "market research / marketing / trading" (50 %) and urbanism (48 %) followed by "business planning / administration & finances" (42 %). Legal framework (30 %) and machinery / engineering (22 %) are the least named topics. While the French, Italian and Dutch respondents mention the topic legal framework rarely (< 20 %), nearly 60 % of the German respondents highlight this topic.

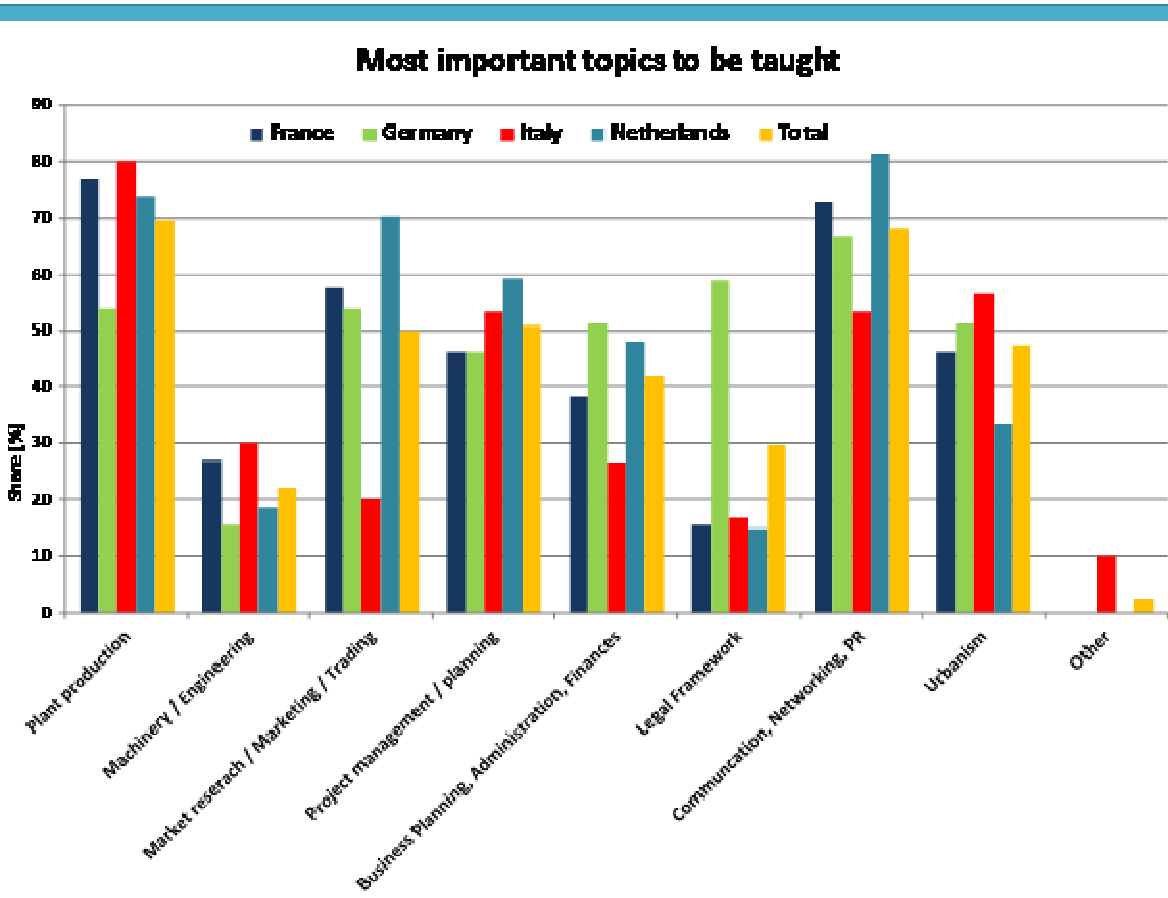


Figure 7. Topics to be taught for UA enterprises

Table 11. Topics to be taught for UA enterprises

Target group	***total***	***Topics***								
		Plant production	*Machinery/Engineering*	*Market research / Marketing / Trading*	*Project management / planning*	*Business Planning, Administration & Finances*	*Legal Framework*	*Communication, Networking, PR*	*Urbanism*	*Others*
SME [n]	42	26	9	21	18	20	9	24	18	3
[%]		62	21	50	43	48	21	57	43	7
HEI [n]	28	22	8	19	14	9	8	21	12	0
[%]		79	29	68	50	32	29	75	43	0
NGO [n]	32	25	7	14	21	14	14	22	17	0
[%]		78	22	44	66	44	44	69	53	0
PA [n]	20	12	3	7	9	8	5	16	11	0
[%]		60	15	35	45	40	25	80	55	0
Sum [n]	**122**	**85**	**27**	**61**	**62**	**51**	**36**	**83**	**58**	**3**
[%]		**70**	**22**	**50**	**51**	**42**	**30**	**68**	**48**	**2**

SMEs designate plant production (62 %) mostly, followed by “communication, networking, PR” (57 %) and “market research / marketing / trading” (50 %). HEIs also pronounce these three topics, but with even higher proportions between 79 and 68 %. “Project management / planning” is named by two thirds of the NGOs following again plant production (78 %) and “communication, networking, PR” (69 %). The communication and networking topic is named by 80 % of the public authorities followed by plant production (60 %) and urbanism with 55 %.

The respondents strongly emphasise the multi-, inter- and trans-disciplinarity of urban agriculture and recommend integrated education systems, although specialised knowledge and education has to be offered as well. Furthermore some interviewees point out that the education has to be adjusted to students’ knowledge and demands basic pre-knowledge.

Specific training needs

The specific training needs for all enquired topics (s. Fig. 7) are summarised in the following figures (Fig. 8-14). The order follows the topic’s ranking starting with plant production (70 %) over “communication, networking, PR” (68 %) to “machinery / engineering” with 22 % rate of mentions.

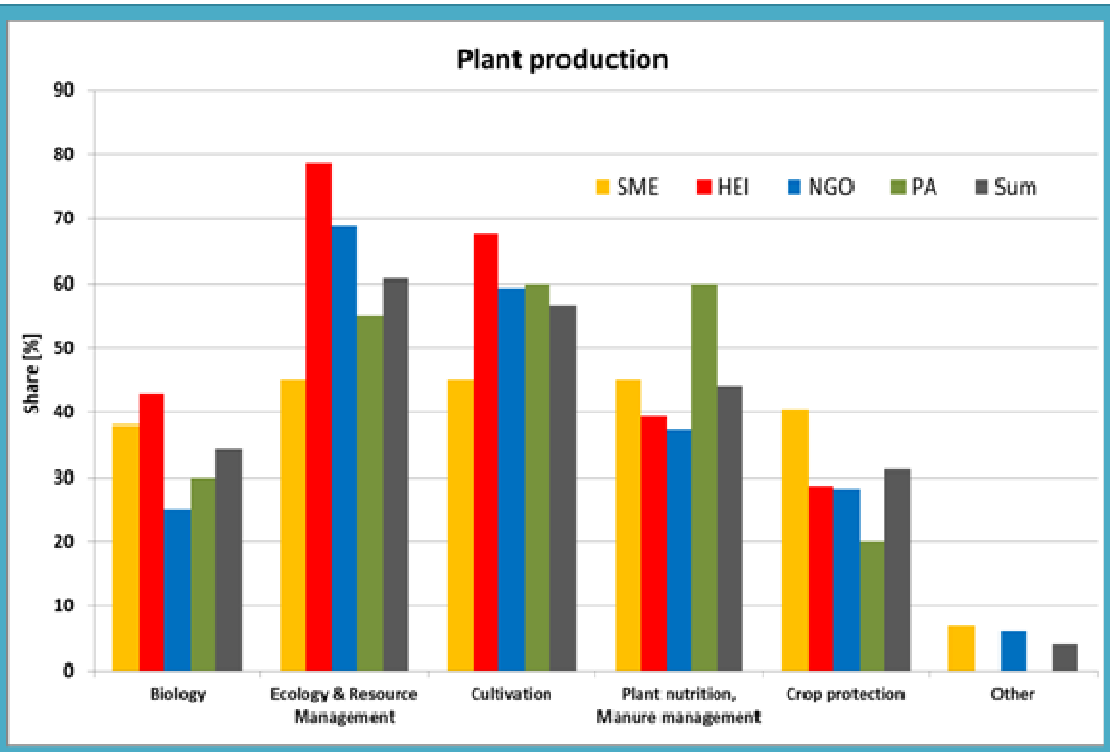


Figure 8. Specific training needs – plant production

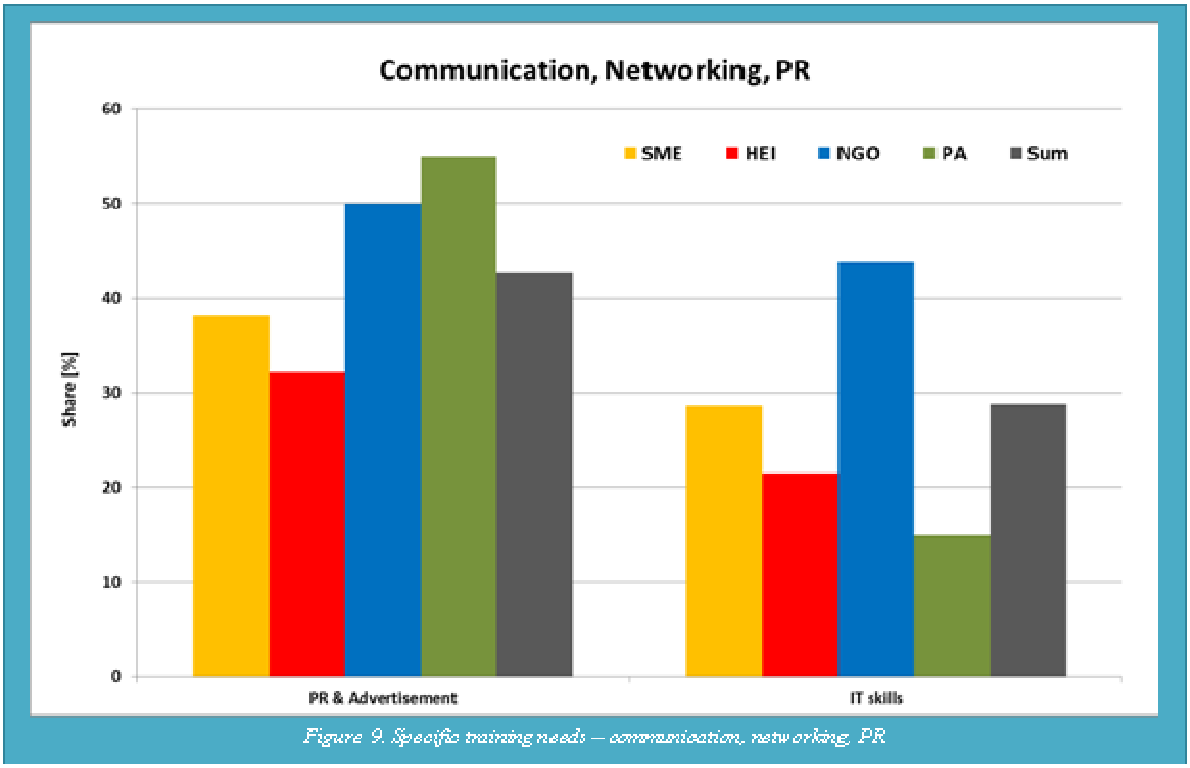


Figure 9. Specific training needs – communication, networking, PR

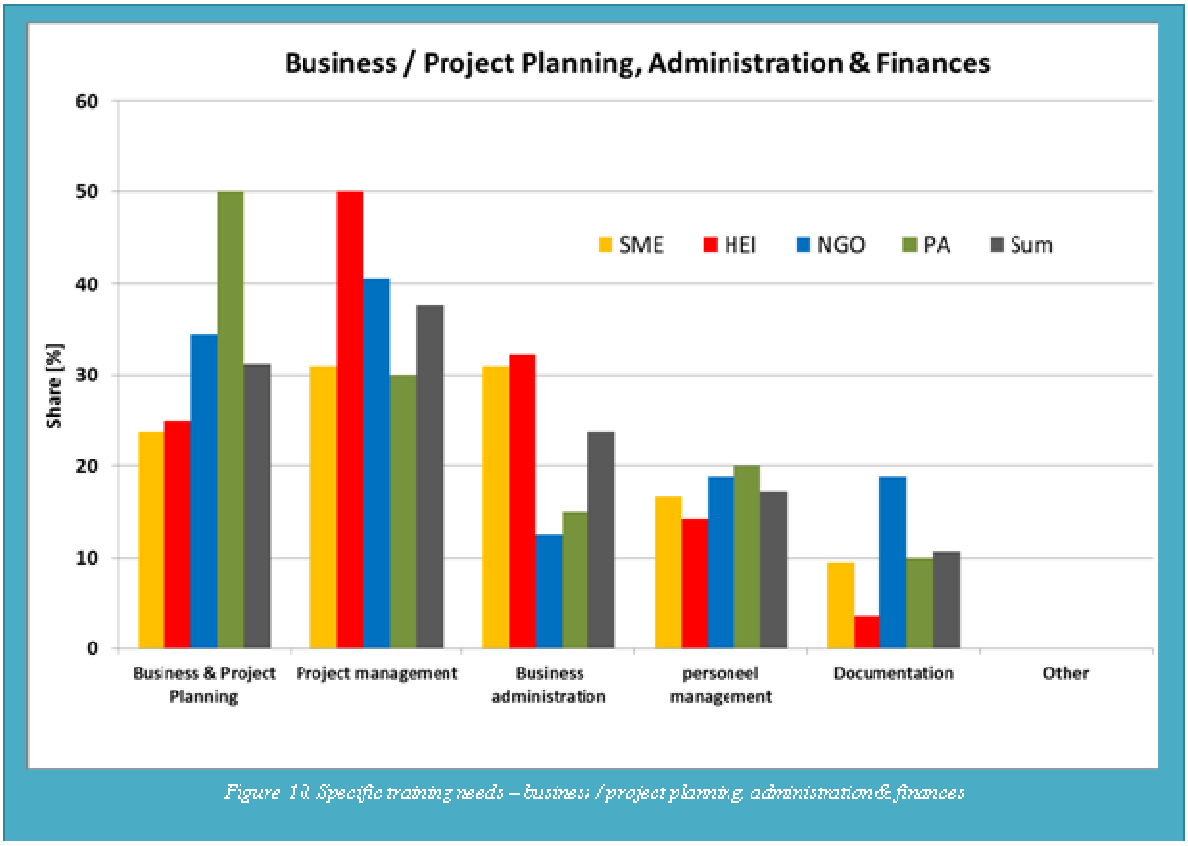


Figure 10 Specific training needs – business / project planning, administration & finances

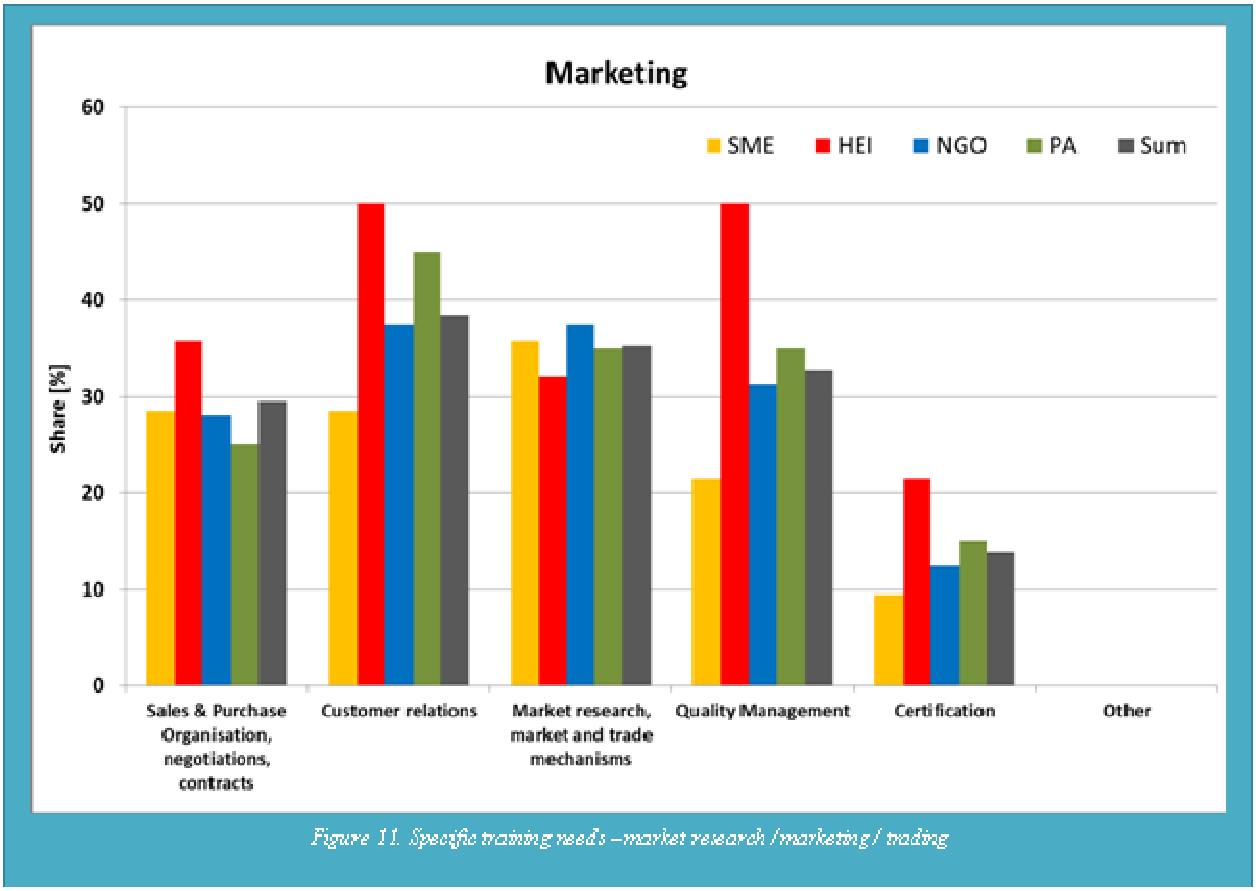


Figure 11. Specific training needs –market research /marketing / trading

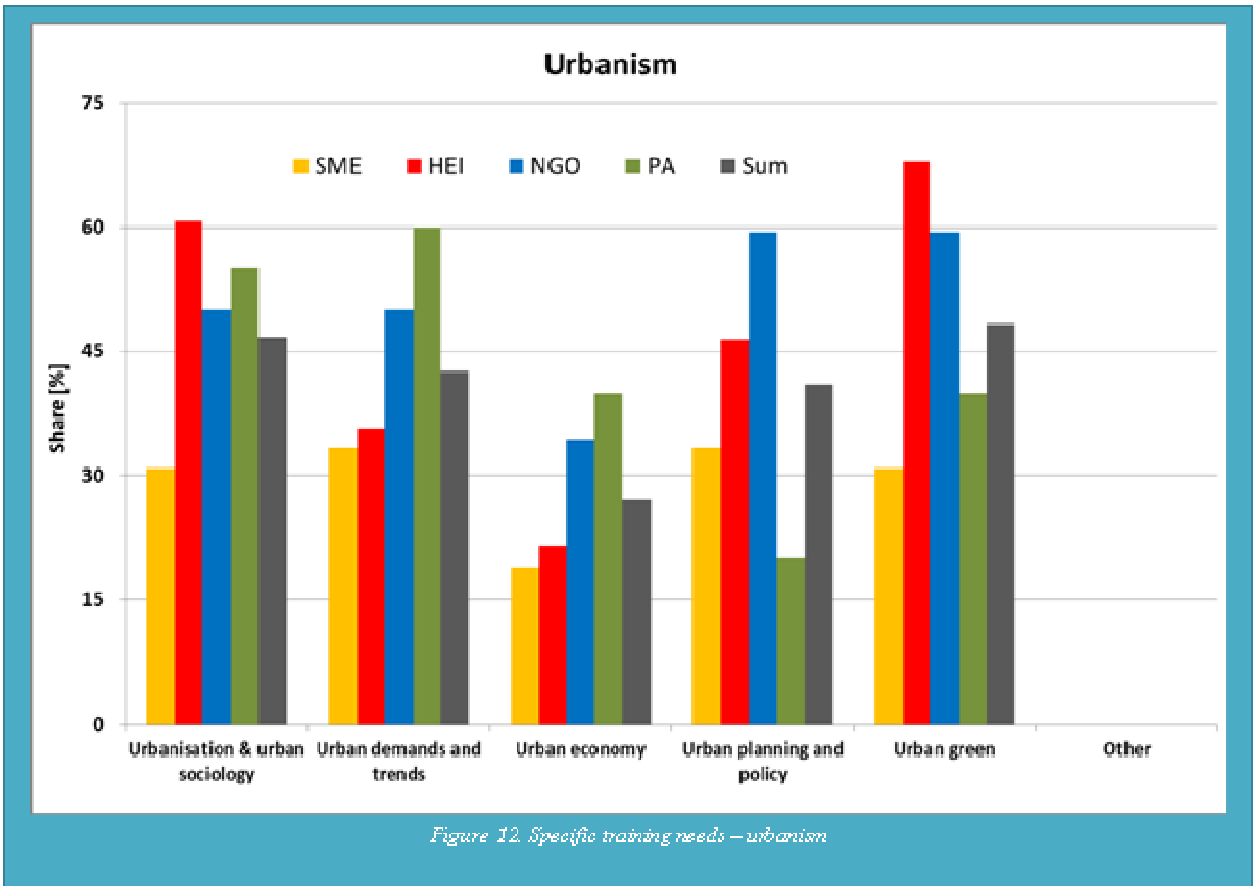


Figure 12. Specific training needs – urbanism

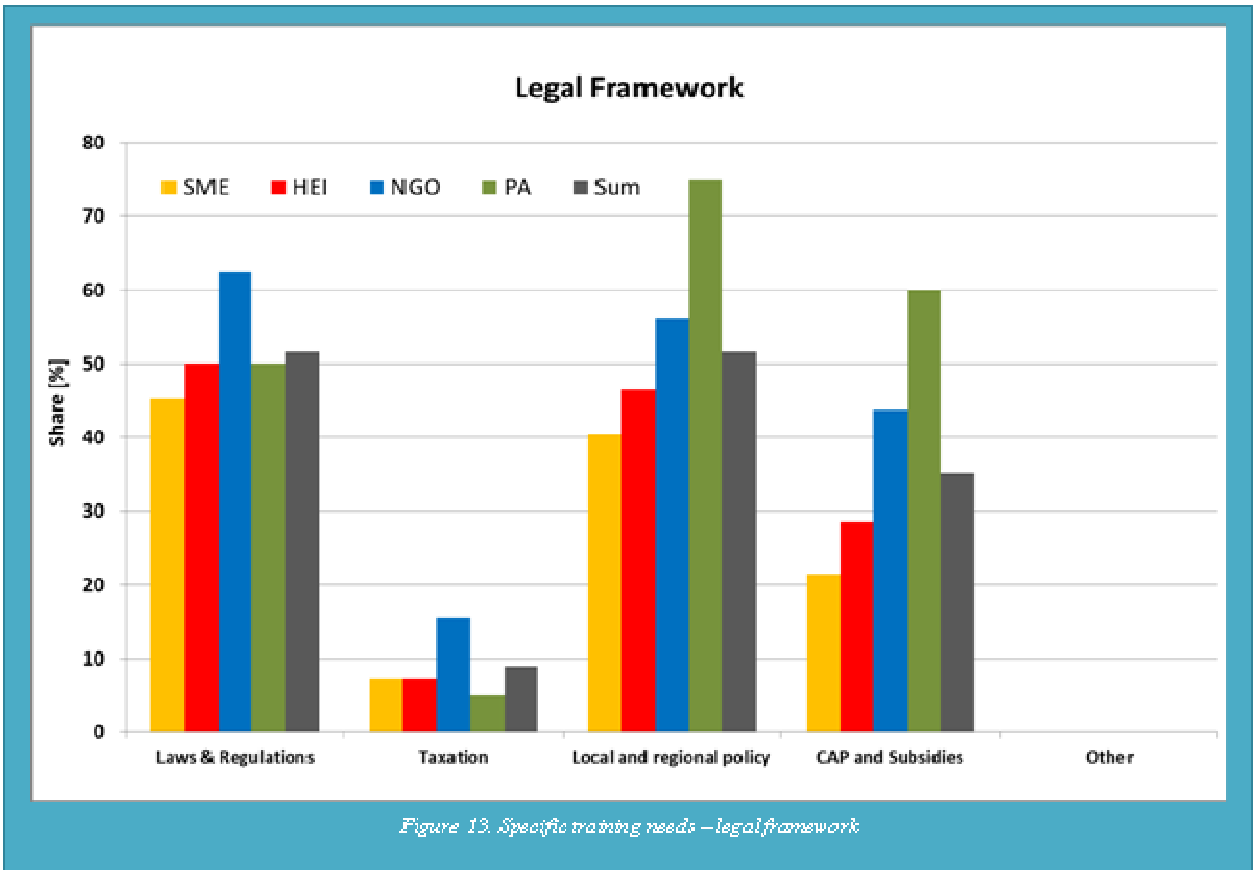


Figure 13. Specific training needs – legal framework

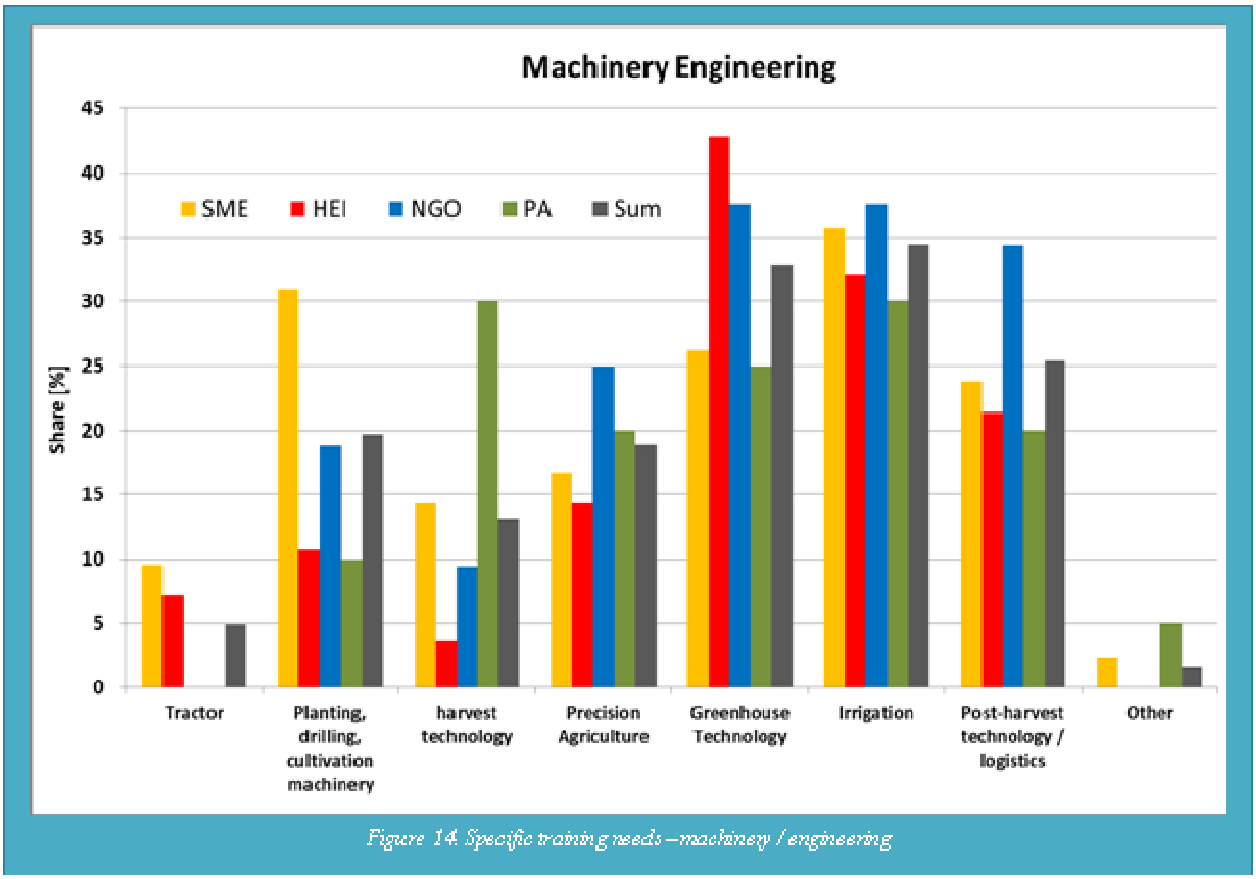


Figure 14. Specific training needs – machinery / engineering

The specific training needs, which are named most, are:

- Ecology & Resource Management (61 %)
- Cultivation (57 %)
- Laws & Regulations (52 %)
- Local and regional policy (52 %)
- Urban green (47 %)
- Urbanisation & urban society (47 %)
- Plant nutrition, manure management (44 %)
- PR & Advertisement (43 %)
- Urban demands (43 %)
- Urban planning and policy (41 %)

This list shows that the two leading training needs – “ecology and resource management” (61 %) as well as “cultivation” (57 %) belong to the mostly named education topic plant production (70 %) (See above). On the other hand the following specific trainings needs “laws and regulation” as well as “local and regional policy” with each 52 % mentioning rate belong to the education topic “legal framework”, which is only named by 30 % of the interviewees to be an important topic (Fig. 15 & see above).

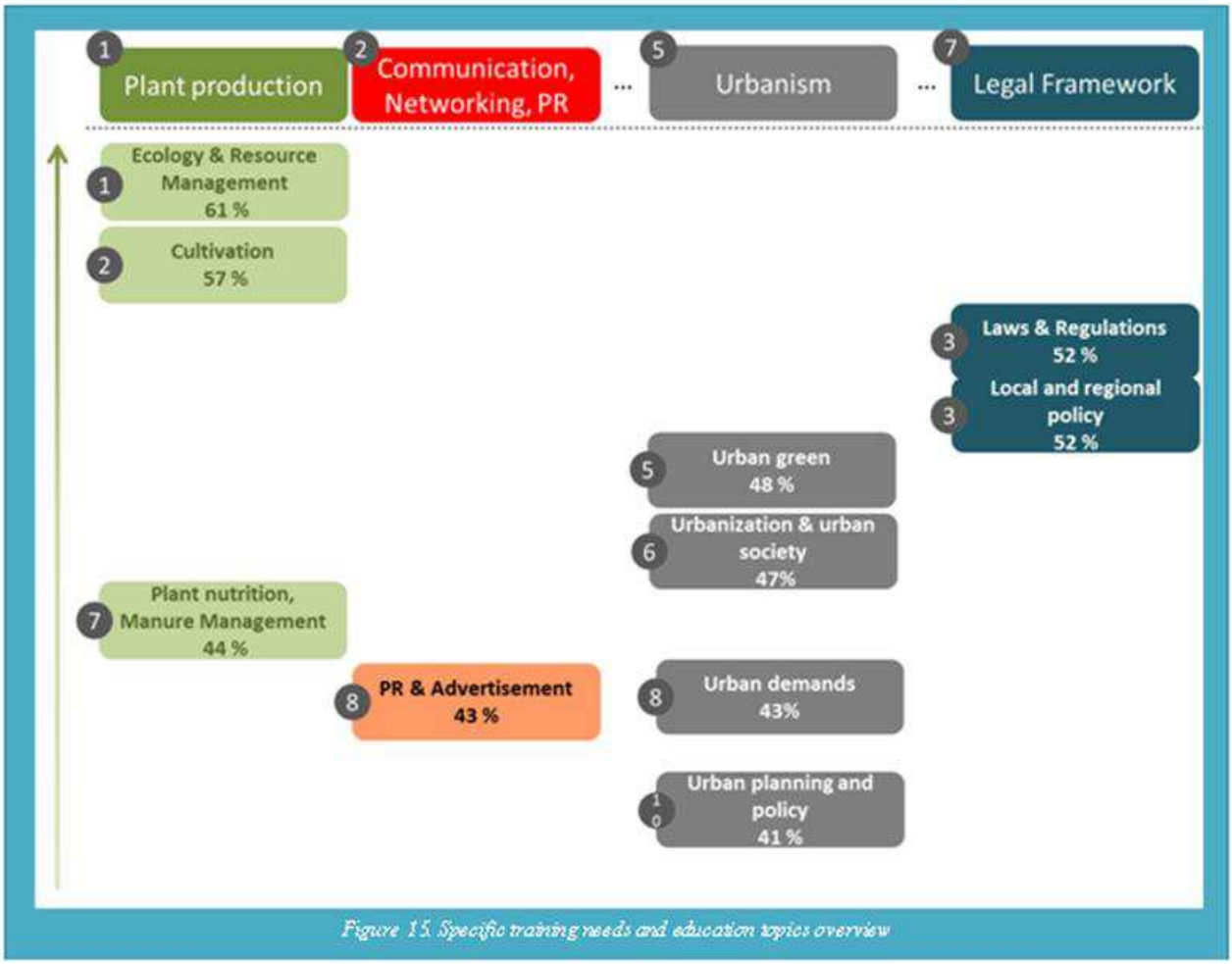


Figure 15: Specific training needs and education topics overview

ANNEX 1

Case studies can be found on the URBAN GREEN TRAIN website in the Inventory of UA Enterprises: http://www.urbangreentrain.eu/en/?id=UA_Enterprises.

Italian case study collection by: prof. Giorgio Prosdocimi Gianquinto, Mattia Accorsi, Francesco Orsini (University of Bologna); Giovanni Bazzocchi, Solange Ramazzotti (Horticity); Francesca Magrefi (STePS), Michele Mellara and Alessandro Rossi (MammutFilm) (2015).

- Green Habitat: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1727
- Arvaia: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1732
- Horticity: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1733
- AgriBologna: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1734
- Poliflor: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1736
- Eta Beta: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1737
- Biodivercity: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1735

French case study collection by: Morgane Yvergniaux (Vegepolys), Emmanuel Geoffriau, Remi Kahane (Agreenium) (2015).

- AMAEVA: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1753
- AMAP: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1782
- Ferme Urbaine Lyonaise: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1754
- Frais d'Ici: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1783
- Le Vivant et la Ville: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1756
- Le Jardin de l'Avenir: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1755
- Topager: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1757

German case study collection by: Bernd Pölling, Wolf Lorleberg (SWUAS), Rolf Morgenstern (hei-tro) (2015)

- Königshausen: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1743
- Oberschuirshof: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1744
- Werkhof: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1745
- Gut Königsmühle: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1750
- Hei-tro: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1751
- Hof Mertin: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1752
- Blome: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1749

Dutch case study collection by: Femke Hoekstra and Henk Renting (RUAF Foundation) (2015).

- De Moestuin Maarschalkerweerd: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1738
- Het Zoete Land: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1739
- De Haagse Stadswijngaard: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1740
- Rotterzwam: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1741
- Uit Je Eigen Stad: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1742
- Food for Good: http://www.urbangreentrain.eu/en/?id=UA_Enterprises&category=415&product=1784