Business cases for the most marketable and bankable NBS solutions in URBiNAT frontrunner cities

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Published	Submitted January 2023, revised public version August 2024
Project	Healthy corridors as drivers of social housing neighbourhoods for the co-creation of social, environmental, and marketable NBS
Acronym	URBiNAT - Urban inclusive and innovative nature
	This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 776783

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Purpose

The present report draws on and extends the findings of previous reports (URBiNAT, 2021*ab)*, in particular the market assessment analysis and best-practice Nature-based Solutions (NBS) businesses. Selected NBS business cases from the three frontrunner cities have been further evaluated with the objective of identifying which ones offer the greatest potential for scalability and replicability. As part of this work, additional field research has been conducted in Porto and Nantes through semi-structured face-to-face interviews combined with desk research. In order to evaluate the quality of businesses and business models drawing on the value generated by NBS, a diverse set of methodologies has been applied. The evaluation has taken account of factors such as market readiness/coverage, Minimal Viable Product (MVP), financing, societal embeddedness, links to social innovation, social and solidarity economy, and environmental and economic impacts. Focusing on formal organisations drawing on NBS, the report refers to Nature-Based Enterprises (NBEs). The link to NBS has been further examined through coverage of NBEs that address different categories of NBS, as classified in URBiNAT's NBS catalogue.

Executive summary

The study revisits the importance as well as challenges of value generation through the development of nature-based organisations, drawing on the benefits associated with NBS. After reflecting on the factors complicating the realisation of successful NBS organisations, the report applies the concept of Nature-Based Enterprises (NBS), i.e., formal enterprises, spanning both those that are profit-motivated and those that are not-for profit. It reviews the definition of NBEs and takes note of factors, external as well as internal, influencing their realisation of value-creation of NBS. It further presents the evaluation of selected specific NBS in Nantes, Porto, and Sofia, URBiNAT's three frontrunner cities. For each NBE, it reflects on their business models and performances, concluding the scope for scalability and replicability. Structuring the lessons, it additionally reviews patterns of NBE success across the various categories of NBS, as represented in URBiNAT's NBS catalogue. Further reflecting on the role of motivations by entrepreneurs/business owners, we distinguish between the Hybrid, Social Economy, and Traditional models. Taking account of business performances as well as complementary considerations regarding factors that are both external and internal to NBEs, the report ends with conclusions and recommendations. In addition to presenting the most marketable and bankable NBS business cases from Porto, Nantes, and Sofia, this includes observations on factors and conditions to be taken into considering in the next stage work on scalability and replicability regarding URBiNAT's follower cities.

1. Introduction[1]

Over the last years we have seen a steady increase in the demand for nature-based solutions (NBS). While various definitions have been developed, one of the most commonly applied refers to NBS as inspired and supported by nature while providing ample environmental, social, cultural and economic benefits (European Commission, 2016). The degree to which the potential benefits of NBS are realised cannot be taken as given, however. Recognising the multifaceted nature of NBS, the high importance of social aspects, including co-creation of NBS by citizens, has been emphasised in URBiNAT. A special set of activities is under development, however, examining the viability of NBS business development.

The extent to which the potential wide set of benefits from NBS can be "captured" through innovation and the mobilisation of demand in the marketplace, is of high importance for realizing the potential value creation of NBS. The challenge is partly to shape conditions under which various kinds of organisations are able to thrive and propel value streams associated with NBS assets. In this sense, while NBS form a core element of the product or service offered by various such organisations, the viability of the benefits for business and other organisations does not necessarily appear by itself, unless cherished and enabled by economic and societal actors. Adding to that, co-creation and citizen involvement is widely regarded as important for achieving a match with outstanding needs and realising solutions that are relevant to people and organisations around NBS. Effective co-creation cannot appear as an after-thought, but matters through the stages of planning, designing, implementing, and also monitoring and evaluating NBS. In URBiNAT, such activities have been devised across the participating citizens and communities, so as to enable a process of structured experimentation and learning within URBiNAT's Community of Practice (URBiNAT, 2020*c*).

In the strand of work presented in this report, we build on the findings of previous reports (URBiNAT, 2021*ab*), in further evaluating, processing and structuring information that pertain to the particular set of NBS businesses that have been identified in URBiNAT's lead cities, i.e., Nantes, Porto and Sofia. As the focus here is on formal enterprises, in this report we make use of the term Nature-Based Enterprises (NBEs). It may be noted that, according to Kooijman et

[1] The authors gratefully acknowledge the valuable inputs and comments on the report made by Knud-Erik Hilding-Hamann, DTI, Goncalo Moniz, CES, José Miguel Lameiras, University of Porto, Americo Mateus, GUDA, Guido Ferilli and Amir Alamo, IULM, and Marco Acri, the University of Nova Gorica, as well as by representatives of the URBiNAT cities and other project partners. The contributions made by Thomas Andersson, Qammar Abbas, and Matthieu Roest, IKED, are further acknowledged.

al. (2021, p. 2), NBEs "*use nature either directly, or indirectly […] growing, harnessing, harvesting or restoring natural resources in a sustainable way and/or indirectly by contributing to the planning, delivery or stewardship of NBS."* The issues of how to define and characterise them have been granted further attention in McQuaid et al. (2022). Part of the consideration has to do with their activities and sources of value-creation, with NBEs relating to, benefitting from, and contributing to the value-generation around NBS.

Another aspect has to do with the motivations and objectives of such organisations and the entrepreneurs behind them. As will be further reflected on, the present report incorporates evaluation of both so-called profit-maximining business and organisations that are not-for-profit. This consideration has implications for internal organisation, staff management, their considerations of owners vs. other stakeholders, and so forth. Having said that, the report does not cover informal community based, or social and solidarity, organisations. Value-generation through such organisations will be examined in a separate report.

Meanwhile, the properties of NBS, that NBEs relate to take many shapes. In URBiNAT, they have been broadly classified in four categories, i.e., territorial, technological, participatory, and social and solidarity economy (URBiNAT, n.d.). In their various ways, the different kinds of NBS are associated with co-benefits for biodiversity and human well-being which, in effect, are intrinsically interlinked with the forces of supply of demand. Mobilising and leveraging value-creation in this context is intrinsically related to innovation along with entrepreneurship, business development, or other organisations and networks enabling social value-creation. The kinds of enterprises referred to as NBEs play a key role in this context. Examining and gaining new insight on what factors are conducive to the success of NBEs, with regard to their internal motivations and competencies, their relations to varying NBS and also other conditions in surrounding society, stands at the heart of this report. Identifying and measuring the essential factors in this context go beyond single indicators, or ecosystem services (Mouchet et al., 2017), or traditional cost-benefit analysis (Ürge-Vorsatz et al., 2014). In many respects, effective user participation in NBS coupled with the impetus of diverse other sources of demand will be crucial for determining the resulting benefits and long-term value generation. Yet, little effort has been made to date, to arrive at operational guidance what conditions, or measures, are warranted to spur the development of NBEs, and what criteria to apply in this regard (McQuaidet al., 2021).

The present report initially reviews the conditions impacting on the development of NBEs, including external as well as internal factors. Doing so, it introduces novel reflections on the nature of NBEs, while recognising their multifarious nature, and the conditions under which they evolve. The initial sections review the origins of the NBE concept including yet

outstanding issues. From there on, we turn to the key task of reviewing a sub-sample of NBEs from the front-runner cities. That part initially reviews and concludes on the cornerstones of our methodology to select "best practices" among the NBE community, with particular consideration to scalability and replicability. We then list and examine in some detail each of the selected NBEs. We structure the set of companies reviewed, examine the interplay between internal factors, their link to NBS, and wider framework conditions. Finally, we draw conclusions and issue recommendations for the way forward, how to apply the lessons learned in the follower cities of URBiNAT, and elsewhere.

2. NBE – unpacking the concept

Questions have been raised for many years to what degree, and on what basis, the corporate sector responds to environmental considerations including specifically for them to achieve sustainability. Many studies have been pursued with a public policy focus (Pearce, 1989; Jaffe and Palmer, 1997). A sprawling literature in management and business studies has pondered the issue. Others have studied the corporate sector from social, behavioural, or ethical points of departure.

Most early contributions focused on the role of regulation and other policies in providing incentives for environmental protection, and what corporate responses by way of innovation and technical progress could be observed (Dillon and Baram, 1993; Irwin and Hooper, 1992). Some studies nevertheless considered the question whether changes were under way in firms' objectives, notably by way of a shift away from the traditional motion of profit-maximisation for shareholders to taking environmental concerns into consideration or maximising the benefits of stakeholders. However, not only did economic theorists come out against such a notion, but empirical reviews found little evidence in that direction. According to Garrod and Chadwick (1996) "such a paradigm shift is more likely to take place in a legislative rather than a voluntary context". Most of the literature maintains focus on analysis of incentives as a driver, including with a view to determining the desirable level for devising them. A shift has occurred from national policy to local, especially, city level, with a view to their closer links and hence better understanding of their constituent businesses.

Gradually, considerations to sustainability have become recognised as a source of tangible broader impetus on enterprises, however. Entrepreneurship and SMEs have attracted particular interest in this context. On the one hand, SMEs tend to assume a reactive position in the face of environmental requirements, reflecting expectations of increased red-tape and costs. On the other hand, SMEs are less tied in with entrenched technologies and market

positions, compared to larger firms. Additionally, SMEs are more susceptible to connect with external networks and organisations, and hence to innovate and adjust in response to changing conditions, and also in the face of community issues (Burch et al., 2012).

Having said that, recruiting SMEs into participating in external organisations may require measures targeting their outreach (Setzer and Biderman, 2013). Institutional space of experimentation, e.g., urban living labs, transition labs, or co-creation programmes, exemplify specific kinds of initiatives, applied notably in the urban environment. Cluster dynamics or university linkages may additionally help SMEs gain access to external knowledge and financial resources (Porter, 1990; Klewitz et al., 2012). On this basis, suitable mechanisms for external engagement appear to constitute a key element for a SMEs' transition towards sustainability (del Brio, 2003; Hansen et al., 2012; Loorbach et al., 2010).

Gradually, however, attention has been paid also to factors internal to firms. Certain entrepreneurship features have been observed, such as being proactive and leading firms towards a sustainability orientation (Anderson, 1998; Bos-Brouwers, 2010). Hansen and Klewitz (2012) stressed the importance of active involvement by entrepreneurs/company owners in programmes devised to support sustainability. It has remained unclear, however, whether sustainability and profitability are conflicting objectives, or what relations pertain between them at corporate level. Some entrepreneurs, who view their business not just as an income stream but also as a vehicle in support of sustainability, have been found also to generate value in other respects, as from quality consciousness, in terms of health, human capital development in the workplace, supplier-relation, etc., in support of business growth (Rodgers, 2010; Bocken, 2016). The direction of effort, including innovation, is impacted though, as personal values display a relationship with expectations of whether there will be a future market for such products (Anderson, 1998; Williams and Schaefer, 2013). In actively pursuing a transformative role, businesses transform their own operations as well as shift the market they operate in (Loorbach and Wijsman, 2013).

A separate track of work in this field has arisen the attention paid to the potential benefits of Nature-Based Solutions (NBS), and the important role of so-called NBS organisations to innovate, create demand for, and realize the benefits of NBS, including for local communities. The sub-category of formal enterprises assuming this role, both profit-maximising and not-for profit, has been coined in this context as Nature-based Enterprises (NBEs). According to Kooijman et al. (2021), in brief, NBEs are enterprises that "….*use nature either directly, or indirectly as a source of value-creation"*, while also *i*ndependent entities that innovate around, synthesise and process benefits of NBS so that these become visible and translate into value that can be internalised and captured by market actors. Linked to this characterisation it has

commonly been argued that NBEs are operated by owners who prioritise sustainable development relative to growth Connecting Nature (n.d.).

A critical aspect in this context has to do with the presence of significant challenges in how to realise, or internalise, the potential value residing in NBS. Most fundamentally, the public goods nature of NBS and nature more broadly raise formidable barriers for enterprises to capture, or internalise, their potential benefits. Additionally, political, legal and regulatory barriers, lack of relevant competences, and a state of fragmentation pertaining to the relevant institutions, training, services, and so forth, hamper knowledge exchange and learning processes. Realising the success of NBEs tends to hinge on managing complex value chains and mobilising thwarted demand. In this context, innovation is key, as is the ability to navigate and combine multiple strands of value-creation. Co-creation of NBS with stakeholders and citizens along with open innovation processes capable of tapping into wider ecosystems greatly influence what customer relations and value streams can be built.

Finally, it should be underlined that Nature-based organisations are not only limited to traditional limited enterprises but may feature a broader range of bodies, including not-for-profit companies/associations or more informal networks, which draw on local community engagement or a particular nature-based trading income or operate independently. Examples are nature reserves or parks owned and operated nationally (Connecting Nature, n.d.). In this report, the focus is primarily on NBEs, spanning the kinds of NBS organisations that take the shape of formal enterprises. A comparison can be made with Connecting Nature's platform for nature-based enterprises which aims to facilitate connections between market demand and the offerings of various kinds of organisations drawing on NBS in support of a nature-positive economy.[2]

3. Market developments and sources of demand

The success of NBEs, whose value-creation critically relates to capturing some of the benefits generated by nature, hinges on both internal and external factors. The internal factors naturally include competences and organisational capabilities of relevance to the task at hand. As will be returned to, the objectives and motivations of the entrepreneur, or other key owners or resource persons, have been pointed to as of high importance. At the same time,

[2] https://connectingnature.eu/cnep

success will depend on external factors too. Some of these have to do with the kind of NBS that a particular NBE draws upon. Others will be of more generic nature.

NBEs need to be receptive to existing demand while also responding to new, latent, and evolving demands. The combined actions of policymakers, other businesses, consumers, and citizens are at work in framing the way ahead. The actual or prospective customer base for NBEs takes diverse forms, for which the key parameters may vary considerably. As for all business operations, the following customer relations, and their respective general characteristics, matter for NBEs:

- Business-to-consumers (B2C): price, user-friendliness, awareness, trust, visualising gains relating to needs, creating a need on the part of the customer, typically with NBEs much dependent on labelling and customer awareness;
- Business-to-business (B2B): efficiency and effectiveness, reliability, timeliness, managing supply-chains, continuous innovation, where regulations, standards, economic incentives and mechanisms for capturing from goodwill of importance for NBE performances;
- Business-to-government (B2G): ability to handle regulation and formality, managing tender processes, public procurement, and delivering on previously specified results, where an evolution of public procurement practices recognises and places a premium on the offerings of NBEs, and;
- Social demand; relates to people's time, and interests, possibly investing and engaging without requiring monetary returns. Valuation of non-monetary qualities tend to be of high importance for NBS organisations generally, including NBEs.

At the same time, multiple sources of demand may interact, relating to public space, amenities, climate mitigation and adaptation, support for wellness, or other kinds of products, services or functionality generated by NBEs. Yet, the outcome is interwoven with the degree to which the benefits of NBS can be internalised and materialise as marketable, accompanied by innovation and the rise of well-managed, sustainable business operations. A related track will be that of sustaining social innovations and not-for-profit activities in support of wider social goods, in focus of forthcoming T7.6.

Other external factors supporting enhanced scope for NBEs include:

- Degree of awareness about NBS among various stakeholders and the general public;
- The feasibility of practical, cost-effective methodologies and tools for small businesses to measure the effectiveness of NBS;

- State of financial instruments including the ability of financial service providers to gauge and manage risks related to Natural Capital, ESG (Environment-Society-Governance) and SME development;
- The availability of quality standards and codes of conduct of relevance for sustainability;
- Access to technical and business skills, and;
- Public and private services supportive of business innovation ecosystems and market development.

The performance of enterprises almost always critically hinges on their ability to adequately define and address a customer base. Innovation is by its nature closely intertwined with that ability – to understand what is in demand and how that demand can be met, whether actual or latent. Studies of corporate assets and abilities, including those focus on the knowledge of the firm (Kogut and Zander, 1998), and also those of corporate culture, highlight the multi-faceted web of actors, motivations, and organisational aspects that influence firms abilities in this respect. Where incumbent practices dominate, as is often the case in large organisations, enacting transition to meeting with changing needs and market signals may meet with formidable resistance.

Meanwhile, demand is expressed differently for different types of goods or services. Important distinctions need to be kept in mind:

- Private goods or services, which are generally non-rivalrous, excludable, and thus – in principle - priced and traded in markets.
- Public goods or services consumed collectively: transport networks, waste management, health provision, and many others.
- Public goods with large externalities, including the “global commons”, or public space, affect broader categories of citizens and stakeholders. Often, they are associated with cross-border effects, as may apply between neighbourhoods, social classes, sectors, geographical boundaries, etc.
- Social, non-marketable values, which do not take the shape of goods or services exchanges in “markets”, while still generating tangible benefits, often related to social and solidarity at community level.

All the above combine in shaping a complex arena for framing the demand for NBS, and the associated processes of value creation realised through NBS organisations, including NBEs.

Too little attention is generally paid to the dynamics and quality of demand, which is neither a given or static, and how that relates to various forms of value-creation.

Companies or citizens may appear as customers of conventional goods such as food items, amenities, a cleaner environment, or space that is made more attractive by an NBS. Yet unresolved questions remain, in regard to the dynamics of markets including how changes in demand are propelled. This in turn falls back on preferences and actual behaviours of different actors, with implications for consumption, investment, production, the way partnerships are formed, for what purpose, and how competences, knowledge creation, innovation, and social relations evolve.

Informed and engaged customers or individuals, open to new solutions, aware of risks of downsides, and who care about sustainability, are of high importance for innovation and achieving rich output by way of nature-based goods and services. How to arrive at a situation with favourable conditions in this respect, is far from trivial. According to Hughner et al. (2007), demand is plagued by a "value-action gap". Despite generally positive attitudes held by consumers in regard to, for instance, organic food, their actual purchasing behaviours display limited influence thereof. There is, in fact, limited evidence of "green consumption" emanating from interfaces between goal-oriented individuals and influential market actors bringing about social change by taking into account public environmental consequences (Moisander, 2001; Autio et al., 2009). This begs the question how to carve out new paths to realise a transformation towards sustainability. Without such change, we experience a situation where growing public awareness keeps being outpaced by unsustainable consumption growth (Midden et al., 2007).

It has long been known that enhanced environmental knowledge need not result in pro-environmental behaviours (Kollman and Agyeman, 2002; Clark, et al., 2003). In practice, however, environmental knowledge combines with values, attitudes, and emotional engagement in shaping more fundamental 'pro-environmental consciousnesses'. The outcome is determined through a complex interface moulded by personality traits and other internal as well as external factors. Significant impetus in the direction of pro-environmental behaviours has been demonstrated where the nexus of internal and external factors act synergistically (Knussen et al., 2004). This has led to interventions capable of, in effect, introducing emotional aspects, including threat, fear, and temper (Dutta-Bergman, 2005). Combining with insight of the role played by past behaviours or habit, the so-called nudging literature and profession keeps developing and operationalising techniques to instigate behavioural change under varying circumstances.

Rewards represent a key category of methods, which is applicable in support of multiple purposes. The framing is often delicate as rewards must be meaningful from the perspective of those targeted (Thaler, 2015). Studies of behavioural change have demonstrated, however, that achieving lasting impacts requires going beyond the mere objectives of citizens, or merely attempting to change habits within a given framework. Rather, targeted action is required, possibly capable of bringing about a perceived change of context (Marteau et al., 2013; Teyhen et al., 2014). In URBiNAT, motivational interviewing and Learn-for-Life are two specific methods advanced on terms that help propel co-creation of NBS by citizens and other stakeholders (Andersson et al., 2021).

Digital communication offers particular opportunities to diffuse and scale impacts, for instance through expanded peer-to-peer sharing and user-to-community functionality, so as to involve many more participants in a structured exchange tailored to coaching and supporting individual users. Such methods serve to extend from individual rewards to group psychology. Persuasive strategies run via apps gradually placed great weight on positive rewards magnified via social interactions, increasing the scope for scaling and diffusion (Orji et al., 2014).

An observed “privatisation” of environmental morality has been seen to shift behaviours in a growing share of the population, at least in some developed countries, resulting in a greening of food, consumption, and energy habits. A tendency of adopting pro-environmental behaviour in one domain, for instance household energy conservation, may go together with food consumption or increasing CO_2 emissions by driving an SUV. Technological and organisational responses have appeared, however, including smart apps weighing together the influence of all actions thereby opening for citizens/consumers to consciously keep contributing to act unsustainably in one area, when compensating for that in others. At any rate, genuine impacts of citizen demand in support of sustainability clearly hinge on going beyond superficial, piecemeal responses. More fundamental considerations, taking in account what happens after a certain action has been performed, or how the money saved on changed behaviours in one area are used in another, matter crucially.

Potential service and perceived service is far from synonymous. Citizens’ awareness and receptiveness to information will depend not so much on what is available, but more on what it means, and what can be trusted. Regulations along with means for standardisation, certification and other incentives for quality assurance may reduce the problem. Yet, other means may be more effective in strengthening confidence and motivation. Here, proximity and relevance may go together, and even more so when actively underpinned by processes enabling a sense of “ownership”. This is where active participation, particularly outright co-

creation comes into play. At the city level, NBS have arisen as an instrument for reaching out to local communities - going beyond the “usual suspects”, to achieve inclusion. This in turn requires attention and measures to reach typically “disadvantaged” groups - those who tend to be left out. Ensuring that citizens have a “say” influences how NBS are designed and implemented, enhances public acceptance and actual use. Co-creation makes an essential difference for attitudes, whether there is trust, and what demand will follow.

There has been quite some speculation over the years about what determines the extent to which the population of a particular country embraces a ‘sustainable lifestyle’. A complication factor has to do with some confusion about what is included in the concept. While personal consumption naturally represents an important element, choices in regard to the location for living and working, choice of education and career, use of time, social relations, and so forth, play their part. In shaping the outcomes, various studies have concluded on the favourable influences of “higher incomes''. On the other hand, the level of incomes may depend on the actual behaviours referred to, accounting for a virtuous or vicious circle where societies are stuck in one state or another. Some have concluded that, rather than income, green behaviours as well as higher incomes are fundamentally supported by “good governance”. How to shape governance so as to positively engineer the two is critically critical (Hobson, 2003). No universally valid recipe could hardly be found though.

The relationship between community engagement, or co-creation of NBS, with NBEs warrants special consideration. Co-creation is not limited to acts of “jointly creating” but is associated with a broader spectrum of possibilities to interact with residents, companies, organisations, etc. and thus collaborate in creating and designing solutions to outstanding issues, whether in the form of ideas, products, or services. One may similarly differentiate between co-creation of new ideas and the co-production/delivery of public service. New domains of collective activity may take shape as a result (Trischler et al., 2017). Additionally, co-creation potentially impacts content, to free up new value streams, and thus create demand and a fruitful arena for innovation, entrepreneurship, business, and community activities around NBS.

Addressing the increasingly complex linkages between the environmental, economic and social challenges increasingly requires initiatives that are able to mobilise collaborative practices by way of co-creative group and community dynamics. A need arises for more humanity & planet centred approaches and processes. Entities capable of more genuine and purpose-driven innovation, featuring profound participatory models of engagement - People-with-People, gain a new edge. Their success may depend on the ability to inspire and empower citizens to (re)discover our world, including the endless opportunities that flow

from Nature/NBS, and contribute to fulfilling the promise of an emergent Nature Positive Economy. Such innovation may come from different directions and materialise through various kinds of mechanisms and outlets, where NBEs represent one category among others. Another category is that of social and solidarity initiatives which are community-based and do not take the shape of formal enterprises. NBS organisations of that kind are addressed and evaluated in another strand of work, i.e., T7.6.

4. Enacting change and transition

The sustainability challenges are coupled with and aggravated by the strong path-dependencies and lock-ins we observe in the existing sectors (Safarzynska and van den Bergh, 2010). Established technologies are highly intertwined with user practices and lifestyles, complementary technologies, business models, value chains, organisational structures, regulations, institutional structures, and political structures (Rip and Kemp, 1998). As a consequence, established socio-technical systems, similar to large organisations, generally undergo incremental rather than radical changes (Dosi, 1982, Frantzeskaki et al., 2012). The resulting impetus is insufficient for meeting with the prevailing sustainability challenges (Markard et al., 2012).

The issue of how to propel an adequate transition towards sustainability calls for a holistic approach, addressing the interrelated dynamic of production and consumption, financing and investment, cutting across sectors and societal spheres, including large as well as small firms, and fundamentally linked to institutions and policies as well as market forces. The resulting set-up is of crucial importance for the conditions that meet NBEs.

Key determinants of success vary over time and across stages. A new venture will have to capture opportunities 'on the move', identify niches, fill in 'gaps' when it comes to weaknesses while leveraging an edge, overcome and possibly oust incumbents. An established organisation needs to maintain customer and/or user satisfaction and loyalty while blending continuity with incremental improvement. Knowledge that resides in clients, customers, and citizens, must always be utilised in the smartest possible way for innovation. Entrepreneurial talent, business angel activity, venture and growth funding, professional competencies in design, marketing, etc., need to be bred by the business community itself. The active engagement of local communities in social innovations may change and evolve their properties from within in support of enhanced user relevance. But appropriately devised policies can importantly support business growth as well as third sector development by influencing the scope and direction of demand.

The extent to which NBS are matched by a rise of nature-based enterprises, capable of drawing on their values in ways that meet with societal and/or market demand, plays a central role in determining what kind of an asset NBS develops into (Raymond et al., 2017). At the same time, tangible incorporation of "green" considerations in business decisions will partly depend on the presence of positive environmental preferences among relevant stakeholders, including citizens and consumers (Lemos and Agrawal, 2006).

In many instances, established institutional norms and path dependency, reflecting the incumbent domination of mindset and traditional ways of reasoning, limit the uptake of NBS (Seddon, 2020). Similarly, existing regulatory frameworks, such as land-use rights or environmental and building permit schemes, plans, or codes, or sectoral policies, conflict with environmental management needs and hinder NBS uptake (Dale et al., 2019). Grey infrastructural approaches are deeply ingrained in professions, organisations, and decision-making structures, where their influence is compounded with the lack of awareness or understanding of the ecosystem services provided by NBS. To what extent this applies across-the-board, for various kinds of NBS, as well as kinds of NBEs, is basically unknown.

As for firms' internal driving forces, a strengthening of objectives, values and attitudes underpinning ambitions and efforts to build sustainable businesses by drawing on natural capital, is observable in a range of sectors, in many markets. Examples include green buildings, ecosystem restoration, water management and treatment, sustainable agriculture and food production, smart technology, and financial services (Kooijman et al., 2021). At the same time, despite noteworthy variations across different types of NBS, many of the relevant markets are still in the early stages of development, where products and services related to NBS remain to be further defined, recognised and adopted by wider market segments. Barriers to their diffusion and speeded uptake emanate from several directions, including knowledge gaps about their benefits, conflicting demands for public sector financing and public space, mismatch between NBS stakeholder needs and investor requirements, underestimation of long-term financing needs for NBS and underdevelopment of business models to support same, lack of valuation of co-benefits of NBS (McQuaid et al., 2021).

A development picking up pace in recent years, carrying the potential to exert major impetus on corporate behaviours, patterns of resource allocation, investment decisions, and market sentiments, emanates from the intricacies of corporate governance. Distinct implications of alternative corporate governance models, partly associated with different geographical regions and institutional landscapes, for firms' behaviours and performances, were recognised years ago (Maher and Andersson, 2000; Gupta, 2011). A rapidly growing literature has been considering a shift away from the traditional Anglo-Saxon focus on profit-

maximisation in support of shareholder returns to recognising the importance of managing broader stakeholder relations (Greenwood, 2007). How stakeholders are perceived and approached matter crucially for the outcome (Freeman et al., 2007; Harrison and Wicks, 2013). Further, a widely observed move in the positioning of Corporate Social Responsibility (CSR) is away from being largely a side-activity devoted to charity, into a more central role close to core business strategy (Friedman et al., 2020). In this context, changing perceptions that environmental and social impacts matter to firms' performances have translated into changes in internal organisation and decision-making, although the impact on conditions of the ground may be another matter.

In recent years, the change in CSR has been overshadowed by potentially more impactful signs of attention across the financial and corporate sectors, to the need of taking sustainability into account. A number of market-based frameworks have appeared for measuring and evaluating firm's performances in this regard, ranging from carbon footprints and carbon trading to ESG, green bonds, sustainability bonds, and so forth. Consider a few of the most well-known:

- Sustainability Accounting Standards Body (SASB), an ESG guidance framework setting standards for the disclosure of financially relevant sustainability information, was established for the purpose of connecting business and investors on the financial impact of sustainability (specific treatment is elaborated for exploration & production, midstream, and refining & marketing);

- Global Reporting Initiative (GRI) aims to constitute global best practices for reporting publicly on a range of economic, environmental, and social impacts. GRI standards are linked to the UN SDG goals;

- The Taskforce on Climate-related Financial Disclosures (TCFD) issues recommend-dations for the disclosure of data spanning seven cross-industry metrics categories, developed with a view to facilitating information exchange within the industry and with investors.

These frameworks, in their various ways, presently underpin a growing momentum, whereby the ability by firms to demonstrate favourable actions in support of sustainability plays a tangible role in enabling companies to borrow funds at low interest, and also impacts on the value of equity. Examination of socially responsible investment (SRI) has further concluded that mutual funds show tangible demand for responsibility, i.e., that measures of impact are reflected in valuations. In other words, investors are willing to pay for impact in regard to various aspects of sustainability (Bialkowski and Starks, 2016; Barber et al., 2021).

Another side of the coin, however, has to do with the actual impact of ESG compliance, and whether corporate reporting on sustainability actually reflect real performances or merely serve as “green washing”, with the purpose of creating goodwill by merely “looking good”, and taking advantage of lower capital costs or charging higher management fees as a consequence. As for funding streams supporting NBEs specifically, the Connecting Nature project, through the UrbanByNature programme, reviews the state of nature-based financing and entrepreneurship across four hubs, with particular attention to realising NBS. The website and underlying work feature ample real-world experience of the ongoing transformation in funding mechanisms enabling the rise and expansion of various kinds of NBEs. In this case too, however, examples abound of remaining gaps between the potential benefits of NBS and what is actually innovated, funded, and successfully developed by NBEs.

5. Features of NBEs

Empirical work pursued notably by Network Nature has made progress in mapping and examining the nature of NBEs. The findings thus far indicate that NBEs tend to be of limited size, often nascent start-ups, and limited to certain sectors.

Recent research further concluded that NBEs face specific hurdles and challenges of multifaceted nature. Factors at work emanate from political, legal and regulatory conditions. Policies devised to support or enable them tend to be piecemeal and of limited relevance for conditions on the ground. A fragmentation of communication channels and social networking backing NBEs tends to hamper knowledge exchange and learning of relevance for their development.

The value-chains that underpin NBEs tend to be complex and challenging to manage. Simple ‘buyer-supplier’ relations, whether public-private, business-to-business, or business-to-consumer, may capture only a limited part of the benefits generated by NBS. At the core of this dilemma stands the fundamental properties of NBS, and of nature itself more generally, to generate so many potential benefits and diffuse them in so many directions, that they cannot be captured by individual organisations. This relates to the tragedy of the commons, and a resulting under-investment in developing or maintaining these assets.

Similar challenges arise in regard to what is popularly referred to as the “Circular Economy”. In some respects, palpable shifts are observable across a spectrum of demand sources, e.g., releasing a shift both in production patterns away from virgin materials, and in consumption

behaviours towards more reuse (Jackson and Senker, 2011; Merli et al., 2018). For many organisations, however, achieving circularity boils down to narrow choices whether to recycle or reuse specific outputs or raw materials. A company that implements a garbage collection and reuse system may serve as an example. In reality, embracing circularity implies going further, studying and implementing a more integrated and comprehensive circular logic. The potential benefits are inter-related with the engagement of employees as well as customers, clients, and stakeholders, in realising circular solutions and innovations. Internal communication as well as learning within networks that link up with external competencies, matter greatly. In the same vein, open innovation processes that involve wider ecosystems help diffuse information and speed acceptance and demand for new solutions.

Broadly speaking, however, the fact remains that neither supply nor demand forces operate at full gear in mobilising tangible, marketable and bankable benefits from NBS. Further, as NBS are context-specific, co-creation as well as NBE activities cannot be prescribed in a uniform manner but must inevitably evolve in resonance with local needs and preferences. NBEs are commonly viewed as propelled by internal convictions, notably in start-ups and SMEs (Kooijman et al., 2021). In practice, firms' internal motivations and external conditions interact in shaping what is possible. The validity of the distinction between for-profit or not-for-profit organisations in determining the rise of NBEs or what NBEs success, remains unclear, for instance. In a particular context, it may also not be straightforward to differentiate between these categories, or to draw a one-to-one line between the driving force of founders, workers or other key stakeholders. This is not least since institutional and regulatory conditions influence what organisational models are preferable and able to work out under different conditions.

The degree to which NBEs contribute to the development and delivery of value-generation around NBS depend on direct as well as indirect influences. The former may occur by growing, harnessing, harvesting, or restoring natural assets. The latter may arise through activities of visualising, delivering, or exercising stewardship of sustainable NBS (McQuaid et al., 2022). In this context, NBEs and the entrepreneurs who propel them, along with the NBS they relate to, cease to represent individual entities, or to abide by narrowly defined organisational territories; rather, they form part of broader ecosystems. As these evolve, become bigger and more intricate and interconnected, changes are transmitted further, through a greater number of entities, in what is commonly referred to as network externalities. Such ecosystems do not appear and evolve along pre-destined trajectories but may assume unanticipated paths, strongly influenced by what NBEs appear, step forward, and are able to resonate with complementary behavioural responses.

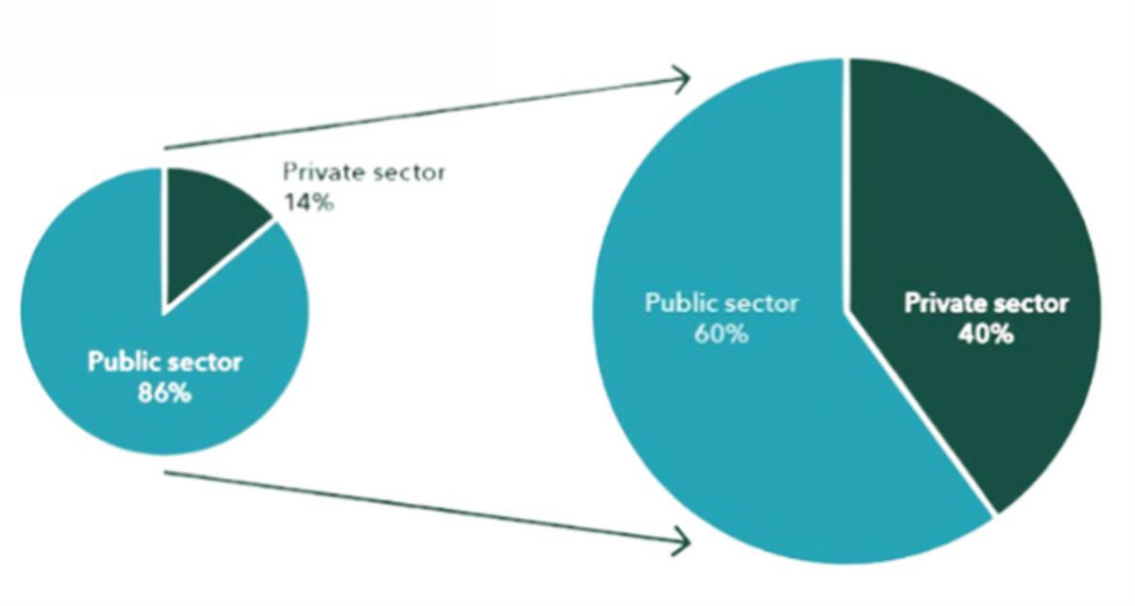
Of high importance is the degree to which entrepreneurs, business owners and enterprises are able to innovate in packaging the benefits of NBS so as to mobilise latent demand and thereby attain first-mover advantages in developing new market niches (Barne, 2018). Success in this respect typically requires aligning shareholder and stakeholder interests, agreeing to prioritise investment and returns for the long-term rather than grab short term profits (Freeman et al., 2020). In many instances, however, such dynamics may require both organisational and institutional safeguards countering manipulation by vested interests, as well as wide-reaching mind-set change and behavioural change among key customer and stakeholder segments (Crilly, 2019; Bundy, 2019). Making this possible, depending on context, is a matter of underpinning sound governance, incorporating principles of humanism, ethics and the virtues of collaboration and trust.

In practice, political and regulatory factors are commonly viewed by NBEs as associated with significant obstacles, although they are also on other occasions identified as important enablers. Policy induced measures tend to be viewed as high on the priority list of NBEs looking for means to raise investment in NBS or build enhanced demand for their services. Economic incentives, by way of taxes and market-based instruments, are generally viewed as more effective in underpinning demand and market growth, compared to regulatory measures (Tarui and Polasky, 2005).

McQuaid et al. (2021b) combine a literature review with new analysis of new data from an enterprise survey (182 respondents, 148 included), and interviews with founders/CEOs of nature-based enterprises (22 respondents), to gain an understanding of perceived external influences on their strategy and actual performances. They categorise the outcome by way of 'PESTEL' (i.e., political, economic, social, technological, environmental, legal).

Much of today's investment in NBS continues to rely on public investment, as indicated in the left part of Figure 1. For enhanced investment in NBS, including on terms that help realise their potential value-generation, the private sector needs to engage. While policymakers commonly declare high ambitions in this respect, progress will require that policies and market mechanisms act in tandem. Conditions for establishing viable PPTs, on terms that enable combining public support for inherently public goods while opening for effective responsibility for private entities to develop marketable and bankable components, are widely seen as key to increased private sector investment in NBS.

Figure 1: Stylised illustration of the need for a shift in funding NBS



Source: McQuaid et al. (2022)

Costly market fragmentation, may on the other hand, be a direct consequence of institutional factors, including artificial separation of sectoral policies hindering synergies in commercialising the benefits of NBS. In the ensuing chapter, we turn to methodology for analysing and evaluating the ability of NBEs to benefit from NBS, after which we turn to identifying and examining the concrete record of best practice across the frontrunner cities.

6. Methodology for selecting best practice NBS business models

The key objective of the present report has to do with the selection of NBEs in the URBiNAT frontrunner cities, based on the viability of their business models linked to marketability, bankability and sustainable business growth. Additionally, the purpose is to present and analyse these cases as examples of "best practice", with a potential for scalability and replicability that is instructive and of wider usefulness, for followers and other cities similarly faced with challenges in propelling the value of NBS as well as lay the basis for higher quality of life.

Particular attention needs to be paid to the fragmentation of cities, how to overcome polarisation, and engage in NBS in ways that frame “healthy corridors”, achieving inclusion and urban regeneration. This further points to the complex issues arising in the interface between NBEs and surrounding society.

Viable business models in the case of NBEs, are not just about internal organisation and profitability in a narrow sense, particularly not for those enterprises that emanate from and succeed when originating or residing in traditionally disadvantaged areas. The ability to achieve wider positive impacts, where business performance and social prosperity and community development go together, is of high importance. This, in turn, points to the importance of analysing and measuring not just firms’ internal organisation and performances, but also their external linkages and external impact. Considering the scalability and replicability of these NBEs thus becomes a matter also of understanding the wider urban and societal context, to what extent that is a prerequisite for the performance and NBEs, and what may be expected if an approach that has proven to be a success in one context would be attempted in another one market by certain distinct dissimilarities.

In the present report, we advance from previous work by shortlisting and examining best practice NBS businesses in the three frontrunner cities (Sofia, Porto and Nantes). The focus here is on characterising the determinants of their performances and building an understanding of the basis for their respective success factors. In subsequent work, for the specific SMEs selected this way, we will turn to examining their respective potential for scalability and replicability in the URBiNAT follower cities (Brussels, Høje-Taastrup, Khorramabad, Nova Gorica, and Siena), as well as more generally.

6.1 Sequence of steps

The main findings from interviews conducted with NBEs across the three frontrunner cities were presented in URBiNAT (2021*a*). Subsequently, in URBiNAT (2021*b*)., the market potential for NBS was laid out. Extending from these findings, the present report draws on additional field research in Nantes and Porto, more in-depth examination of each company and notably analysis of the most marketable and bankable business models, taking account of actual performances, relations to NBS, and other external conditions, and also internal factors.

Table 1: Working document structuring interviews in Nantes, Porto and Sofia

NBS organisations NANTES		https://urbinat.eu/cities/nantes/			
Business/ Organisation	**type**	**Business idea/ concept**	**webpage**	**Priorities / Remarks**	**additional comment**
Arbres & Territoires	For profit	Analysis of trees. Consultants on development of green areas, afforestation management, renewal of plantations	https://arbresetterritoires.fr/	Territorial NBS. Priority 1	
Energie Partagee	non-profit?	Aims to support the reappropriation of energy by citizens, not only financially through their involvement in the capital of these territorial projects, but also through active participation in the in-depth discussions that make up a sustainable and shared energy transition.	https://energie-partagee.org/	Priority 1	
Social Planet	For profit	We are addressing social innovators whether they are positively innovative in the nature of the activity they offer or whether they are in the transformation of their organisations. In both cases they have a positive impact on our social / societal functioning. We offer them methodological and / or digital tools as well as training / support that will promote their projects	http://www.social-planet.org/?fbclid=IwAR0YOngf5N0h5E2rhsBbke77QUOu3pDYGgjo6nS7W7Tq9LjmGerVWgTWhgs	Priority 1	
Les Moutons de l'Ouest	For profit	Eco-grazing is a method of maintaining green spaces with animals. An ancestral practice brought up to date, it is a simple and ecological solution that improves the living environment.	https://lesmoutonsdelouest.fr/	Territorial NBS. Priority 1	It says in Del 7.1 that this company was intereviewed (page 41). We cannot find any interview records. We would like to see if they would be
Le Kiosque Paysan	For profit	A logistics platform to simplify access to local, quality products to professionals in Nantes. The project guarantees a fair price to producers/consumers. Also focus on improving carbon footprint by optimizing logistics as well as reducing waste.	https://kiosquepaysan.fr/	Social and solidarity economy. Priority 1	

Source: IKED

Prior to conducting additional field research in Nantes and Porto, the team - together with the municipalities - generated a comprehensive list of NBEs in each city, serving as the shortlist for in-depth evaluation. In coordination with the cities of Porto and Nantes, a number of specific innovative and apparently successful NBEs were screened in greater detail. Table 1 indicates the structure of the working material applied in the pre-selection phase. Each NBE received a priority index rated between 1 and 3. The NBEs with the rating of priority 1 were all successfully interviewed and analysed in accordance with the applied methodology.

In order to frame the pool of NBEs from which best practices could be selected, the project took account of diversity in several respects. While each selected NBE had to fulfil the basic criteria in terms of connections with NBS, business success, etc., we additionally checked for the possibilities of enabling representation of the following: a) the different types of NBS identified in the NBS Catalogue (territorial, technological, participatory, and social and solidarity economy), b) the diversity of companies (gender, ethnicities etc.), c) the diversity of the type of companies (start-ups, SME, NGO etc.) and d) the diversity of reach and scope (internationally operating, national entities or local). As seen from Table 2, selected NBEs met with the criteria shown in the left-hand column.

Table 2: Selection table used to pre-select NBEs for face-to-face interviews

Selection Criteria	Details
Financial stability	Sources of revenue, revenue streams, cost structure (list of fixed and variable costs) etc.
Sustainability of the business	Profitable years, years of existence etc.
Size of business	Number of employees, number of customers, number of stakeholders and investors etc.
Scope of NBEs	Connection to intervention area
Core values of company: Drawing on the NBS for value generation	Solution must have a high eco-social benefit and eco-social costs must be low.
Realising value for the local community and urban contexts e.g., economic, social, healthy and wellbeing, environmental impact	Does the product/service benefit the local community? Does it build on the skillsets of community members? Does it directly solve a challenge in the intervention areas? Are co-creation processes being used by the NBEs?
Core service/product fitting in the context of theNBS Catalogue and Healthy Corridors	Technological, Territorial, Participatory, Social and Solidarity Economy
Feedback from Cities	Experiences / encounters with chosen NBE
Pre-selection with the help of the Business Model Canvas	Based on collected information from CF and online sources, the BMC will be filled in to find the most promising NBEs
Replicability of the solution	The business model must be relatable to challenges faced on the follower cities to be replicable

Source: IKED

Finally, in examining performances, and their wider relevance in the present context, the team has taken account of the role of specific external factors, that may or may not be unique to a particular urban environment, as well as made observations on internal factors including the motivation and aspirations of entrepreneurs and other key business leaders. In the following we briefly take stock of a few key considerations related to these respective elements.

NBEs have been selected with a view to overall representation in regard to:

- NBS catalogue
- diversity portfolio (gender, ethnicity etc.)
- diversity in the type of companies (start-ups, SMEs, NBOs etc.)
- and diversity in reach/scope (internationally, national, local etc.)

For the shortlisted set of organisations, qualitative face-to-face interviews were conducted with company owners, managers, and other key personnel, who were asked to explain the core business model and prime organisational features. The noted performance measures were applied and related to competitive advantages, identified customer segments, key competencies, etc. The observed features along with interview answers were used to fill in a **Sustainable SWOT Business Model Canvas** (see figure below as well as URBiNAT, 2021*ab*).

The resulting canvases have served as a helpful tool for characterising the organisational structure and prime features of each organisation. Further, this method has helped identify the eco-social benefit and the eco-social costs resulting from the activities of each company. By evaluating the eco-social benefit and weighing it against the eco-social cost, it was possible to create an assessment of the overall objective and solutions the business model is thriving towards. SWOT stands for strengths, weaknesses, opportunities, and threats. The idea behind this form of analysis is to study the internal and external environments of a company, through the identification and analysis of the strengths and weaknesses associated with each organisation, coupled with the opportunities and threats to which it is exposed.

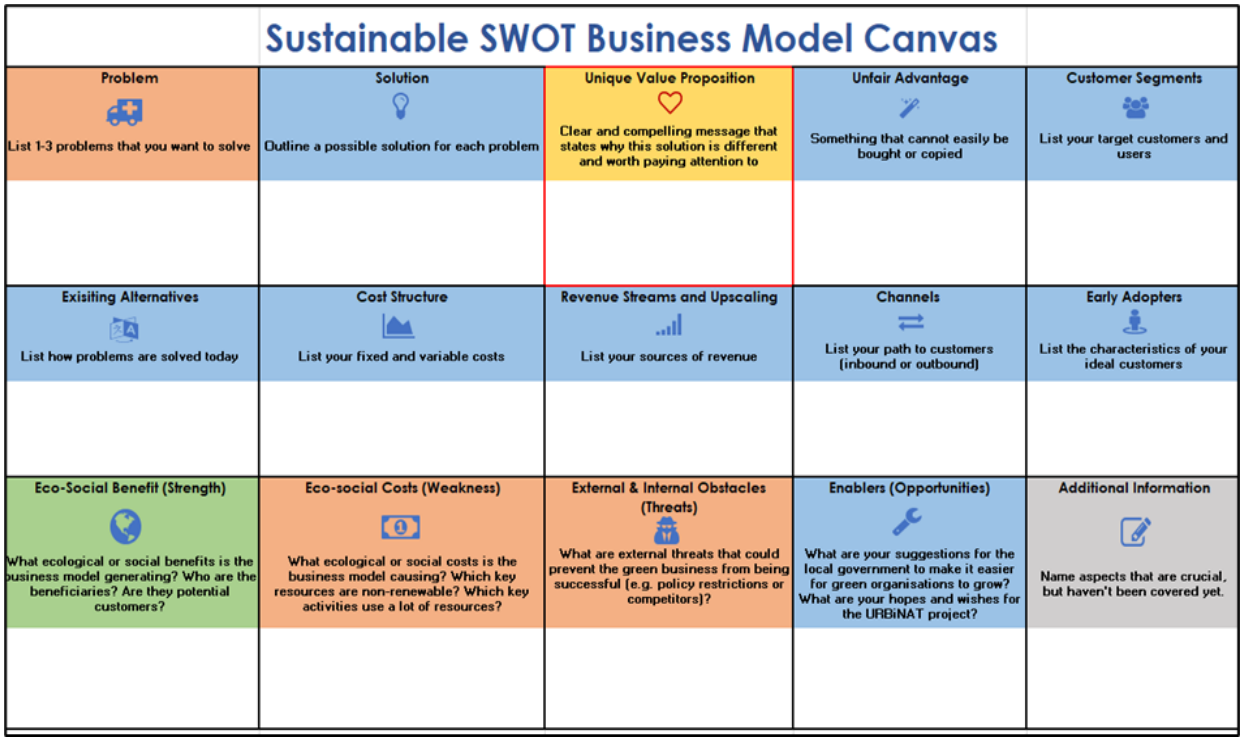
The SWOT method can be divided into two parts: the internal environment where strengths and weaknesses are identified, and the analysis of the external environment, where threats and opportunities are determined. The eco-social benefit and the eco-social cost are crucial especially for the URBiNAT project. Every company or initiative is generating costs when it comes to environmental impact but also social and economically. In this analysis, the cost is seen as a weakness. The NBE, however, can combat and balance the generated negative impact by generating an even higher eco-social benefit (strengths) for society and the environment. All of the selected 12 best-practice NBS business models in this report generated a higher eco-social benefit than eco-social cost. While weaknesses and strengths bear upon factors that are internal to the studied companies, threats and opportunities rather tend to reflect external factors. Obstacles hindering NBEs from growing are reported and policies or other measures recommended to address them, are considered and analysed. The latter take the shape of external opportunities that could help NBEs improve their performances and possibly scale their operations.

In Appendix 2, application of the Sustainable SWOT Business Model Canvas is demonstrated for four of the best practice cases selected and analysed in this report, with one example in each of the four NBS categories making up URBiNAT's NBS Catalogue. The business canvas, and its use to distil and categorise impacts of different categories of NBEs, has been further built upon and highlighted in Milestone 7 of the project (URBiNAT, 2022).

6.2 External and internal factors

In evaluating cases from a particular city, to be recommended for wider scalability and replicability, it is important to bear in mind to what degree success stories may depend on conditions that are entirely, or almost entirely, unique to that local context. Such uniqueness may relate to natural resources found nowhere else.

Figure 2: Sustainable SWOT Business Model Canvas



Source: Project team

In many instances, however, uniqueness in some respects may not preclude drawing useful lessons of high general applicability. Yet, one must be careful not to draw careless comparisons between any kinds of locations, for instance, how to entice customers to be inspired by natural beauty that can be found in an affluent city marked by high education levels located at a seashore, for a land-locked destination with low education levels mired in deep poverty. The same applies to the reverse case. Considering some specifics among the frontrunner cities examined for best practices in the present report, the city of Nantes is marked by high environmental awareness among the general population. Innovative tools have been developed for engaging citizens in measuring and sharing information on air quality around the city. By contrast, Sofia ranks among the most polluted cities in Europe. Levels of school enrolment are at a low and declining since the financial crisis of more than ten years ago. This does not translate into indifference or lacking initiatives on green issues, on the contrary, but priorities and means of achieving citizen engagement and building market demand for NBS services are different.

A special consideration, introduced in previous chapters, has to do with the competencies, motivations and objectives of entrepreneurs and company owners, which also spills over into business models. Entrepreneurial features are partly a matter of individual sentiment. Having said that, patterns and structures evolve, which again may reflect special local conditions.

In reflecting on the sustainability, scalability and replicability of the NBEs under consideration, a noteworthy variation has been apparent. A number of studies have demonstrated the relevance of entrepreneur/corporate owner features and approaches (Walley and Taylor, 2002). In this vein, our case studies feature hardly any business owners or entrepreneurs who would fit squarely into the traditional profit-maximising category, motivated solely by shareholder returns. Neither, however, can we observe successful entrepreneurs who totally ignore the financials of their operations, putting all their energy on the social good. We are inclined to include that successful NBEs by necessity fall somewhere in between. On this basis, we may consider a spectrum of NBE Models which derive from, and combine, features of stylised kinds. On this basis, we have arrived at the proposed landscape illustrated in Figure 3, marked by three prime Model variants:

- The **Hybrid** business model is based on shared value principles, meaning that business owners and employees are mission driven with a shared value system that targets sustainability and circularity. These companies are non-for-profit while applying a cost-revenue model. Hence, they provide goods or services with any surplus reinvested/recirculated to underpin the viability and growth of their operation;

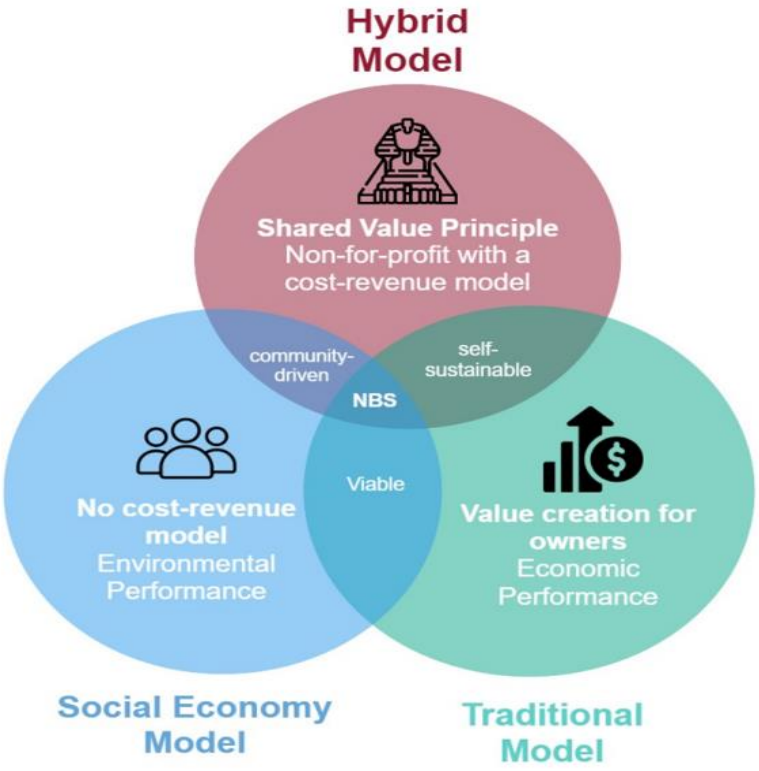
- Within the **Traditional Model**, value is being generated for owners, stakeholders and shareholders and measured by the company's economic performance. At the core of the company stands sustainability;

- Within the **Social Economy Model**, positive environmental impact is the primary performance measure and mission of the organisation. No cost-revenue structure is applied, which means that all costs are being covered through public and/or private support, donations, and volunteer work.

Considering their precursors in the literature, the traditional model is - more or less - in line with the position of Garrod and Chadwick (1996), and the empirical findings of Dillon and Baram (1993) or Irwin and Hooper (1992), noted above. The social model has been observed by, e.g., Laville (2014) and Defourny and Nyssens (2014)[3]. Kooijman et al. (2021) argue that NBE owners are marked by distinct such elements. Examples of work championing the hybrid model include Freeman et al. (2007) and Gupta (2011).

[3] Meanwhile, as previously noted, beyond the category of formal enterprises, NBS organisations that centre on social and solidarity economy mechanisms, can be expected to draw squarely on that model.

Figure 3: Nature-Based Enterprise Models



Source: IKED

Various overlapping or coinciding characteristics may in practice partially align or unite the three models. Regardless of the companies' shareholders, cost-revenue structure, customers, consumers, suppliers, users, or distributors, at the core of all business activities stands the principle of producing, accelerating and/or promoting nature-based solutions.

The Hybrid and the Traditional Model share the fact that both are self-sustainable and not reliant on third party contributions or subsidies. The Traditional and Social Economy Model each have their own track records of viability, despite very different cost-revenue structures and performance measures. The Social Economy and Hybrid Model draws on community-driven approaches that tend to be deeply ingrained in the local context

In practice, the three models referred to above may not be separable, with many individual NBEs carrying features that belong in more than one of them. As discussed earlier in the report, moreover, a changing relationship between consideration to shareowner value and stakeholder (wider societal value) may occur both to changing sentiments on the part of the

owners, and because the economic and societal context is changing so as to, in effect, align the two. Many possibilities are conceivable. After reviewing in some detail, the specific NBE cases selected in the lead cities, we will return below to some concluding observations regarding the issue of NBE business models framework.

7. Review of selected NBEs in frontrunner cities

Following the previous reports of WP7, several NBEs were shortlisted across the three URBiNAT frontrunner cities (URBiNAT 2021a and 2021b). For each, the team reviewed the pool of enterprises below for the purpose of selecting a core set, 3-4 in each city, that could be recommended for further examination in collaboration with follower cities, for investigating and drawing conclusions regarding their scalability and replicability.

Applying the methodology outlined above, the evaluation and eventual selection of the top candidates in this respect, had to consider several factors, achieving solid linkages regarding the following:

- The URBiNAT context, with particular emphasis on the study areas and Healthy Corridor agenda of each city, without necessarily limiting only to SMEs within that space;
- Strong connection to natural capital, and NBS specifically;
- The ability, including through innovation, to generate viable value streams;
- Sustainable business models, resilience, further growth potential;
- Absence of dependency on highly specific local conditions, likely to be entirely unique to the specific case, and;
- Healthy customer base, stakeholder relations.

Further, as discussed above, going beyond the individual cases, the team considered representation of NBEs by way of diversity, i.e., employed ambitions to select a set of NBEs that relate to several NBS, by way of sectoral orientation, entrepreneurship types, financial models, etc. The interest in achieving diversity, which had been applied earlier in the selection process, did not play a decisive role in the final stage, however. It mainly appeared as a check that our eventual selection did not consist of an overly homogeneous set of cases in any city. In no case did this aspect lead to a clear replacement of one NBE by another.

Below, we present and review in some depth those NBEs across each of the three frontrunner cities, which make up our set of top-ranked selected successful companies judged to have potential for scalability and replicability. In presenting the findings, we'll follow the key steps in the NBE interview guide: General information; Target group and ambitions; Business model; Environmental challenges, social and solidarity economy. The interview guidelines were semi-structured, which allowed both interview partners to develop pressing questions along the way. In this process, although the interviewer prepares a list of predetermined questions, semi-structured interviews unfold in a conversational manner offering participants the chance to explore issues they feel are important This interview format allows for a more open discussion between interviewer and interviewee while at the same time guiding the conversation towards addressing the most pertinent topics. Therefore, we mainly used open-ended questions that were adjustable to each different company and representative. The success of each NBE with regard to markets and paying clients is outlined under the heading of the business models. Precise figures about financials, turnover, number of employees, etc., is not reported in this study, as such detail can be sensitive, but also since our key consideration has to do with the mechanisms, conditions and enabling environment under which NBEs can work out, and generate lessons for others, not the performance of the particular NBEs reported on below.

Finally, each case ends with a review of the factors that can have an influence on their respective scalability and replicability potential, notably regarding the URBiNAT follower cities. The review in this respect represents merely the starting point of such analysis, however. In subsequent work, notably D7.4, the specifics of the selected best practices will be matched in greater detail with the conditions prevailing across the follower cities. The same interview guideline has been outlined in URBiNAT (2021*a*).

7.1 NBEs in Nantes

Reviewing the list of companies that had been selected in the previous work, the team considered the relevant parameters in choosing the companies to be presented in this report. In the case of Nantes, several strong contenders were at hand, drawing on several different NBS, while also demonstrating success in generating diverse value streams. Our selection ended up favouring a set of NBEs that display a particularly distinct relationship to NBS, with a strong focus on innovation in generating value. Importantly, each of those selected are judged to display high potential for continued successful operations, indicating sustainable business models. Further, we checked carefully for the absence of dependency on specific

assets which would be difficult to source elsewhere, thus increasing the likelihood of favourable conditions for replicability.

The shortlisted set of companies selected from, was as follows:

- Adal
- Le Kiosque Paysan
- La Cocotte Solidaire
- Compestible
- Phytolab
- Moneko
- Compostri
- Le Solilab
- Les Connexions

The selection was done in close collaboration with Nantes city representatives who proposed organisations which have recently been, or currently find themselves, in the process of implementing NBS in the study area. Additionally, our team took into account NBEs operating outside of the study area while still residing in the city of Nantes and in line with the basic prerequisites of the project. On this basis, in the following, we include the four NBEs that were found to display the highest relevance when applying the applicable criteria.

La Cocotte Solidaire

General information: La Cocotte Solidaire is a combined restaurant/cafe and community kitchen. It is run by two private owners who are also the founders. The overriding mission of the operation is to cook and enjoy healthy food together. The management team invites anyone in the neighbourhood who is interested in cooking vegetarian dishes to participate in preparations of lunch. Six days a week lunch is prepared and then offered to lunch guests by flexible pricing method. The asked price for the lunch is 10 euros per person, however it is up to each guest to decide how much they would like to pay for the meal. This flexible pricing or free price method makes the guests of the restaurant pay anything from 0-15 euro per lunch. The citizens who participate in the cooking vary and it is not the same individuals who are engaged on a daily basis. Some citizens come to help once a week, once a month or several days depending upon time and availability. This high degree of flexibility demands extensive planning and therefore the management is running sign-up sheets both in the premises and on social media platforms. The sign-up sheets apply for all the target groups, i.e., the cookers, the guests and the sourcing assistants.

Target group and ambitions: The target groups represent different groups of citizens which, under certain circumstances, nevertheless unite around a common interest in sustainable food. The citizens who are engaged in La Cocotte Solidaire come from diverse backgrounds, with variation across socio-economic groups as well as with regard to age, gender, profession, and so forth. The most important parameters uniting them are the proximity to the physical space of La Cocotte Solidare combined with strong interest in vegetarian food as well as in sustainable consumption. The different groups of citizens join for varying reasons- For instance, one group engages in La Cocotte Solidaire in order to participate in cooking activities while another join for the purpose of enjoying lunch in a community setting. A third group of citizens participate in the operations by sourcing the food via the collection of surplus vegetables from the local markets.

Given the operational focus on the local market, the prime vehicle for scaling has to do with the opening of another Cocotte Solidare, in another location. The owners have tested various models to increase the size of the restaurant/kitchen, for instance by expanding the number of meals served each day, or arranging some kinds of meals, targeting specific audiences such as families with young children or team activities for external organisations. The founders' core skills centre on cooking and the sourcing of food, however, and thus they have concluded that the current size of operation is optimal taking account of parameters such as the number of cookers, practices and requirement for sourcing of food, and the local demand.

Business model: Hybrid Model - the enterprise has paying customers and is self-financed, but the owners have no profit interest for their own sake and currently all surplus of the operations is channelled towards the potential establishment of a second outlet. At the same time the generated revenue is sufficient to pay salaries for the two founders who presently are the only formal employees at La Cocotte Solidaire. The initial funding was secured with the help of Municipality support, whereby Nantes Metropole subsidised the rent for the restaurant premises for the first two years of its operations. The activities of La Cocottes Solidaire are organised by a formal legal company structure under French law.

Environmental challenges, social and solidarity economy: The operations allow for sustainable production and consumption of food, reduction of food waste, support of locally produced food and citizen participation & co-creation. As the lunches have to be pre-booked, very little food waste is generated from the lunches served. In case of any leftovers, such is given to the cooking team of that specific day, to bring home. A substantial positive environmental impact emanates both from the actual ongoing activities and from the learning and awareness building which is generated as add-on source of benefits.

La Cocotte Solidaire

- **Motto:**

Sustainable and locally produced food

- **Value Proposition:**

Co-creation, community-driven approach to combat food waste and thrive behavioural change

- **Business Model:**

Hybrid Model

Scalability/Replicability: In judging the replicability of and scalability of La Cocotte Solidaire, two key considerations have to do with the degree to which its significant community of interest is of more general viability, and the responsiveness of local communities. Its community of interest emanates from an innovative approach to establish linkages connected with food/food production/ cooking / locally produced food/culture of food, etc.

Developing tailored platforms for social activities, La Cocotte Solidaire has managed to mobilise local citizens to appreciate and perform a series of complementary services. This particular set-up generated a unique product and embedded value proposition. Proximity to its key target groups, and the wide-ranging interest in food, represent an approach that appears applicable in other kinds of context. At the same time, the drive and talent of the founders, two young women with a passion to cook healthy and locally sourced vegetarian meals in a communal setting, while also gifted with the social skills required in the local context, have been key.

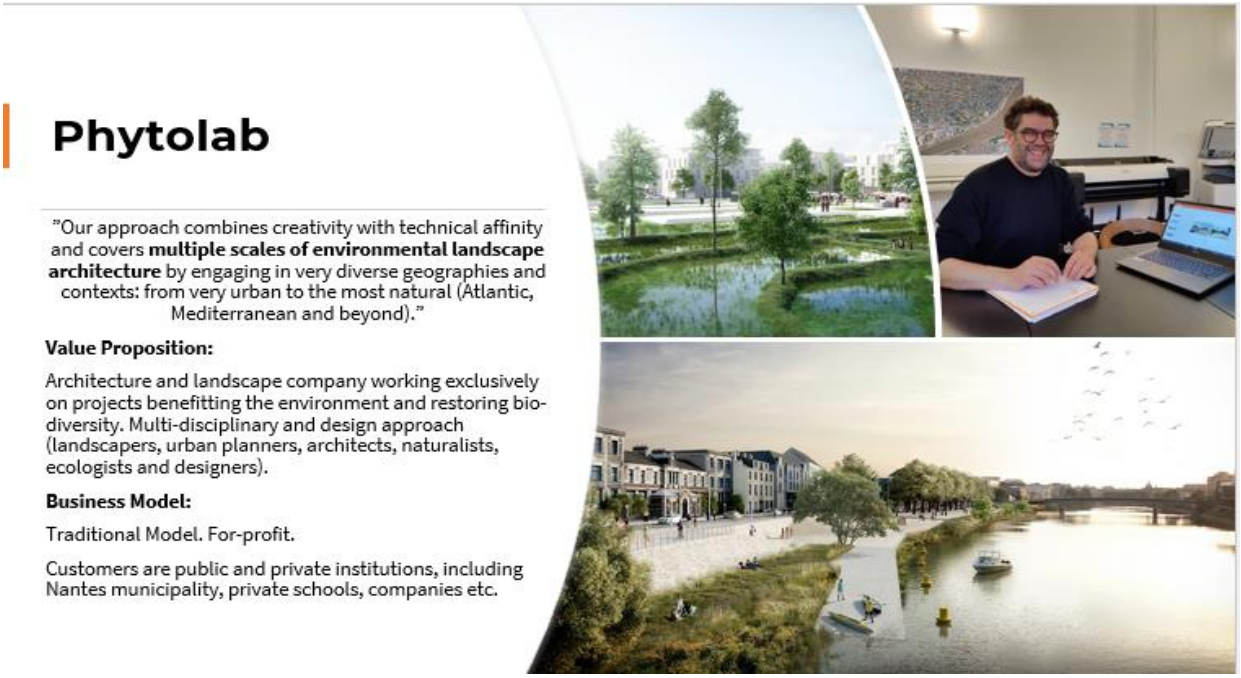
La Cocotte Solidaire is already seeking new physical areas for scaling of its success story within Nantes. As for the URBiNAT follower cities, food has already been identified as a strong common nominator in several of them, including in the study areas (Brussels, Hoje-Taastrup, Siena). For success, a selected area would have to offer a critical mass of local citizens that could be attracted to take part, fulfilling the complementary activities spanning cooking, sourcing, and also enjoying and being willing and able to for lunch in their vicinity.

Phytolab

General information: This company with its headquarters in the centre of Nantes, has since over 20 years worked on implementation of Nature based Solutions. The founder of Phytolab is an arborist who commits to integrate NBS in traditional landscaping. The vision of the company is to connect urban planning and nature in the most sustainable ways. This means a focus on landscaping whereby solely native trees and plants are selected, which in turn are suited for the soil and other local conditions. By adopting these so-called methods of biomimicry; biodiversity is enhanced, maintenance time and costs are reduced, and ecosystems are maintained. Phytolab is also known for its practices of engaging relevant local stakeholders including citizens in the overall project; from planning to implementation and after-care of the landscaping. Among their projects, the first green roof in Nantes covering a parking building stands out as an excellent example of the works of Phytolab. In this project the designers went all the way and collected seeds suitable for the soil on the roof and cultivated a flora of suitable local plants, instead of sourcing seedlings from nurseries. The process of the Phytolab landscaping activities is time consuming as every project targets the highest level of sustainability for nature as well as for and by people.

Target group and ambitions: Phytolab's market reach is mostly limited to France, with some extension to French-speaking regions in other countries, notably Luxemburg and Switzerland. The clients mainly consist of municipalities and regional authorities. Phytolab participates as a partner in several projects co-funded by the European Commission. Some of the clients are private consortia whereby a number of private companies join hands with public authorities in so-called private-public partnerships. The collaboration on these projects is enhanced by adopting multi-stakeholder engagement and co-creation processes also involving citizens. The ambition of Phytolab is to continue to improve its methods by engaging in research and learn more regarding practices for sustainability.

Business model: Phytolab is a private company established under French law and a traditional for-profit model. The operations centre on identifying and developing landscaping services for large projects, capturing and leveraging the value of NBS. While clients, in principle, are charged a market price, the value of the service package is enhanced by a customer-intensive interface, where Phytolab is able to innovative by raising the knowledge and appreciation of clients for the range of benefits offered by NBS in the landscaping context. The organisation has approximately 20 staff employed a full-time payroll, all quite specialised, creative, and enjoying ample space for tailored service development. Several in effect function as corporate partners, owing a share of the company and benefitting from bonus or profit shares when successful.



When projects are very large or demanding Phytolab increases its human resources with additional project related experts on a temporary basis. The aim is however, not to maximise the profits for the shareholders but to continue its path of sustainability in order to secure sound finances for the company and its staff, engaged experts and subcontractors. Further the Phytolab highly emphasises the importance of research, capacity building and continuous training for its staff.

Environmental challenges, social and solidarity economy: The management of Phytolab cherishes sustainability in all its operations from A-Z and puts focus on value generation in regard to environmental aspects. Their future aim is to keep improving the measurement and validation of the environmental and social benefits they generate, partly to keep building external support and partner interests. The company is using NBS as a means of increasing its competitiveness and has NBS and other green solutions as its signum.

Scalability/Replicability: Of high importance in this case is the presence of biodiversity and climate conditions that are suitable for attracting interest among a sufficiently broad range of citizens. Phytolab has been developed as a direct consequence of the innovative approach of landscape architects, the founders, in taking pride while also sharing practices directly related to territorial NBS. Public authorities have responded favourably and represent an important source of revenue for the operation. Employees willing to engage on flexible terms have contributed to a resilient operation. High awareness and responsiveness of the public has been key as well. Scalability is hindered by the unique nature of the NBS responded to.

Replicability is complicated by the difficulty of encountering all the conditions that have allowed for success. Nevertheless, given the development and diffusion of suitable communication and information channels, Phytolab may inspire related activities adapted to the context surrounding other kinds of related NBS.

Solilab

General information: Solilab is an incubator and facility-management association run on a not-for-profit basis by entrepreneurs sharing a common mission of doing good for society and our planet. The companies hosted in the Solilab premises assume a role as members. The association started out in 2014 by a handful dedicated social entrepreneurs. Today, almost a decade later, the number of enterprises has increased to 135. Meanwhile, the attractive setting and unique mission of Solilab have increased its popularity. Currently, enterprises interested in joining Solilab at its current premises are by necessity parked on a waiting-list, with Solilab doing its best to let in the most relevant contenders on a priority basis.

Target group and ambitions: Solilab attracts entrepreneurs with an objective to create value for the society, our planet and its people.

Business model: Social economy model translating support from the municipality into a special offering for incubation conducive to environmental and social value-creation. While the companies/organisations hosted by Solilab pay a fee broadly recognised as/or equivalent to rent and service provision, in reality, fees paid are way below what applies in the commercial rental market. Based on the support of the municipality, Nantes Metropole, Solilab operates a combination of training and network events which, in effect create outlets for environmentally and socially attuned products and services. The resulting output, generated by Solilab and its members, is widely recognised as conducive to job creation, increased supply of eco-friendly products and services, reduced waste, circular economy functionality, and other environmental and social benefits.

Environmental challenges, social and solidarity economy: The biggest challenge for Solilab at this stage is the lack of space as well as the uncertainty regarding the current premises. Solilab would like to start a “twin-Solilab” in another part of the city of Nantes to be able to service the enterprises which are in the waiting list. Further, the Municipality has announced a new urban plan for the area in which Solilab now has its premises and therefore the future location for Solilab is linked to several uncertainties. At the same time the success of Solilab is well-known to Nantes Metropole and the association will most likely be given space for its facilities at the time when relocation will be needed.

Le Solilab

- ❑ Epicentre of Social and Solidarity Economy NBEs
- ❑ Over 100 NBEs under one roof
- ❑ Incubation and acceleration centre
- ❑ Over 50 new jobs created

Business Model:

Social Economy Model

Scalability/Replicability: A very successful incubator and accelerator for social innovation, the critical factor determining the degree of scalability and replicability have to do with a critical mass of social entrepreneurs with a responsive mindset, coupled with the conditions required for making available suitable space. The latter in turn, depends on collaboration between the key stakeholders, public as well as private. An effective organisation for arranging with a range of demand-driven services, the development of community-based networking in premises offering affordable conditions for disadvantaged community members.

Moneko

General information: Moneko is a member of Solidab, where its core operation is hosted. Its core operation centres on the provision of a local currency covering Nantes and the surroundings of the urban area. This local currency started its operation in 2019, building upon experiences from other local currencies in France. In France approximately 80 local currencies exist. The idea is that the currency should operate in territories that are relevant to the goals that they should fulfil. Territories should be of the optimal size to meet the criteria required to pursue their objectives, that is having the potential to meet the needs of the citizens of the area (Blanc and Fare, 2018). Formally, Moneko has been established as a formal company with the two main founders as co-owners. In effect, however, based on the adopted business and governance model, Moneko is run as a non-for-profit operation.

MONEKO:
Local currency in Nantes
(Hybrid Model)

&

COMPESTIBLE:
Community Vegetable Gardens
(Social Economy Model)

Target group and ambitions: Moneko promotes the consumption of locally grounded products and services. The criteria which Moneko uses for providers to be connected to the Moneko currency are based on the pillars of ethics and sustainability. Organisations at which customers can pay with Moneko currency are strongly linked to NBS, including environmental, cultural, and health- based products and services.

As of 2022 the number of providers is approximately 300 and the individual users approximately 2000 persons. The turnover in regard to the transaction volume in 2021 was approximately 600 000 euros. Each Moneko is equivalent to 1 euro. This enables easy use of the currency and the Moneko exists in both digital (mobile application) and physical format (Moneko bills are printed locally). The reason behind keeping this dual system is to adhere to all users; some of the Moneko users are for instance individuals who are not agreeing to use digital payment systems. The market reach of Moneko is defined by its core geographical targeted area, where the limits are largely defined by the presence of other competing local currencies.

Business model: Hybrid business model is prevailing for Moneko. It is important for the founders that the company generates sufficient funds to cover basic costs such as rent to Solilab (where Moneko has its prime office) and salaries to the four staff, of which two are co-founders of the organisation.

Environmental challenges, social and solidarity economy: The biggest challenge for Moneko at this stage is to connect more providers and users to the currency. The team at Moneko focuses its effort on information sharing and awareness building. It is important to make use of the territory which has been assigned to Moneko use.

Scalability/Replicability: Moneko or any similar local currency is viable only within a suitable framed/designated area. Conditions allowing for defining and demarcating such space is thus essential. The number of users as well as the number of outlets that can be engaged is key to establishing critical mass. An important determinant has to do with the prospects to motivate employers and their organisations to provide part of salaries or other monetary compensation in such a local currency. This is hardly doable, or at least takes time, in an environment where previous experience of such practices is lacking. The breakthrough for Moneko came with the decision of a large employer, Veolia, to engage. Where a similar organisation could play this kind of role, chances for success strengthen.

7.2 NBEs in Porto

The full list of companies outlined in URBiNAT (2021*a*) has been examined in the continued work presented in this report. On this basis, for Porto, we have arrived at the following short-list of NBEs:

- Noocity Urban Ecology
- Good Food Hubs
- Cidade+
- Reboot
- Green Roofs Association
- Porto Innovation Hub
- Futuro Project

We found these organisations interesting as they all work with nature-based solutions in various ways, have high potential for replication in other places, and represent different organisational structures, including for-profit and non-for profit, NGOs and municipal organisations. Furthermore, they work in different areas, with food, plants, green infrastructure, trees, festivals and repair.

In the next sections we zoom in on the first four of the seven NBEs, as these are most in line with the selection criteria and the scope of this report. They are Noocity Urban Ecology, Good Food Hubs, Cidade+ and Reboot. Green Roofs Association, Futuro Project and Porto Innovation Hub are however also interesting initiatives and organisations in the context of nature-based solutions.

The “Green Roofs Association” (ANCV - Associação Nacional de Coberturas Verdes) is an NGO that aims to promote green infrastructures in cities, in and on buildings, such as green roofs,

highlighting its importance and contribution to create healthy, sustainable, bio-diverse and resilient urban territories. The association promotes collaboration between companies, municipalities and national and foreign research groups. In the "Futuro project" the focus is on planting 100 000 trees in the Porto Metropolitan area based on volunteer participation, aiming to get more trees and vegetation in the city, in people's gardens and in public space. Several participatory methodologies are applied, and social learning concerning urban ecosystems and their functions/services is at the core of the project. Porto Innovation Hub (PIH) aims to be a platform for the reinforcement of the city's innovation and entrepreneurship ecosystem. The purpose of PIH is to bring together all the innovation agents of the city and the region, and to involve citizens more in the process of continuous evolution and improvement of the city, thus calling for more active civic participation.

Noocity Urban Ecology

General information: Noocity Urban Ecology (Noocity Ecologia Urbana) is a Portuguese start-up company that started in 2014 and focuses on development of intelligent products and services for domestic and small-scale urban farming and agriculture. The NBE sells self-watering vegetable boxes to companies, private households, schools, and institutions, and provides educational services as well as team building exercises.

Target group and ambitions: Noocity's target groups include restaurants and hotels as well as technological and industrial companies as well as transportation firms and unilabs. Noocity has the aspiration to become a global enabler for urban gardeners, empowering them to produce more and better food in an efficient, practical, and ecological manner. Noocity provides high quality equipment, ingredients and maintenance support. They say: "We want to reconnect urban citizens with nature through the beautiful experience of growing their own healthy and tasty vegetables." The purpose is to enable "urban farmers", i.e., urban dwellers who have an interest in growing crops, to plant more and better, anywhere, and in a practical, efficient, and ecological manner. They believe that nature plays a crucial role in the cities of the future and in the daily lives of our communities: "When integrated into our daily habits in an intelligent and sustainable way, we will be able to share all the goodness it has to offer."

Business model: Noocity is a for-profit company that is part of an investment group. It has a traditional business model, devised to demonstrate the availability of innovative solutions linking nature and people, particularly in addressing wastewater issues. Noocity enjoys a healthy MVP with a product that is well proven in different markets. Its organisational model is slim, with nine employees, most of whom operate out of the headquarters in Porto.

Noocity vegetable gardens (https://www.noocity.com/pages/corporate-garden)

Noocity applies a network approach, however, allowing for greater reach. It has an effective presence in France, including three employees. An additional important strength emanates from Noocity's creation of a vibrant urban farmers' network which serves as a well-functioning entry point in fifteen cities, especially in Portugal and France but also in Belgium (Brussels).

Environmental challenges, social and solidarity economy: A central challenge in focus for Noocity is the disconnection between nature and people living in urban areas. Noocity's greatest impact is related to the challenge of water waste. By the help of their water reservoir, Noocity can reduce 80% of the water volume that would be needed to produce the same amount of food in a conventional system. Noocity's vegetable boxes, like other technological NBS, can also contribute to the spatial quality of urban areas. Furthermore, Noocity believes that their vegetable gardens have a large impact from a social point of view within the communities where they are implemented. However, further research is needed to understand this further.

Scalability and replicability: Noocity have already shown that their product and services have great potential for scalability and replicability, as the organisation has already expanded to France and Belgium. Noocity also has an ambition to become a global enabler for urban gardens, indicating that there is a will and a drive to move in this direction.

Good Food Hubs

General information: Good Food Hubs is a project that started in June 2021 and will continue at least until December 2023 (but hopefully longer), with a focus on creating a food network in the pilot-territory Asprela, an affluent, knowledge-intense area in Porto. Good Food Hubs are pop-up spaces and meeting moments with the aim to activate a healthy, sustainable and local production and prevent food waste. Around 20 activities, such as workshops and events, are arranged on a yearly basis. Good Food Hubs try to connect producers and consumers of biological vegetables and good, sustainable food. One of Good Food Hubs' initiatives is the development of a digital platform, aimed to stimulate direct transaction of food and facilitate logistics between producers and consumers.

Target group and ambitions: Target groups include people in the local area, such as students and residents. These groups can be seen as central in providing feedback on the MVP status and signal opportunities for further product development and upscaling to other areas and target groups. A central aim for Good Food Hubs is to establish a healthier food system. The main goal is to promote sustainable production and consumption, encourage local production practices and regenerative, short distribution chains (with less need for transport and consequent associated carbon emission) and stimulate production adjusted to needs, reducing waste. Good Food Hubs want to create an understanding that it is a good thing to have a market every week; that it means that students and others can have access to good food. An ambition of the project is also that it continues and has a life of its own; that partners continue to collaborate and that connections remain after the project ends.

Business model: Good Food Hubs can be categorised as a social economy model, since positive environmental impact is the primary measure and mission of the organisation, and because no cost-revenue structure is applied. Porto Municipality is the facilitator of Good Food Hubs. The project involves individual consumers (including inhabitants, students and academic staff), higher education institutions, producers, associations and companies, as well as specialists to promote knowledge about seasonal foods.

Environmental challenges, social and solidarity economy: The environmental challenges that Good Food Hubs work include tackling an unhealthy food system, unsustainable food production, including dealing with unnecessary waste. Tackling long distribution chains is another challenge addressed, tying into environmental, economic and social sustainability. Good Food Hubs's emphasis on bringing together producers and consumers of food as well as people from different strands of lives is tied to the social and solidarity economy.

Good Food Hubs (https://goodfoodhubs.pt)

Scalability and replicability: Good Food Hubs has a strong emphasis on communicating and sharing content, using its vibrant network and a community of practice. Six research projects by students are also involved in Good Food Hubs, enabling both deeper understanding and dissemination of the project, its challenges and opportunities. Moreover, Good Food Hubs' objectives are in line with the Porto Roadmap for the Circular Economy 2030 and the FOOD initiative promoted by the Ellen MacArthur Foundation in which Porto is a participating city. This provides a relevant platform to share information about the journey, learnings and operations of Good Food Hubs, enabling scaling and replicability. For example, the digital platform developed in Good Food Hubs can be interesting for other cities to use.

Cidade+

General information: Cidade+ (or Cidade Mais) is an annual and free festival with workshops, conferences, open classes, ecological market, and artistic program dedicated to sustainability and social transformation. Cidade+ is a social enterprise (and a not-for-profit-organisation) that started in 2013 and is promoted by *Project Mais* of the civil society organisation *Moving Cause*. The Municipality of Porto is the main partner of Cidade+. Other sources of funding come from sponsors, including state-owned and private companies. The length of the festival has varied over the years, from two to four days, and often also involved "warm-up events" and "pre-festival meetings" three months before the festival, to promote Cidade+-. While the actual festival is arranged in the centre of Porto, the warm-up events are arranged in different parts of the city, including underserved city districts.

Target group and ambitions: The festival is open and accessible to all. The main goal is to influence urban public policies and to change collective behaviours to more sustainable ways of living. An aim is also to be a meeting point for a diversity of actors who think about society in terms of sustainability and social change. Cidade+ was created by a group of people who were working with or were concerned about sustainability issues and felt that there was no platform in Porto that could bring various actors together into a conversation about sustainability. Thus, Cidade+ was founded in order to create such a platform, and also with the aim to transfer knowledge from academia to civil society and municipalities. A central ambition was to create a space where all societal actors could meet: activists, politicians and ministers, as well as people from municipalities, companies and universities. The work of Cidade+ is closely connected with the concept of social innovation in the sense that the festival lay the basis for and encourage new solutions and change with the aim to improve the wellbeing and welfare of individuals and communities.

Business model: The business model of Cidade+ can be categorised as a social economy model since positive environmental impact is their primary measure and mission. Cidade+ has several sources of income, mainly support from the Porto Environment Department and sponsorship by state-owned enterprises. Private companies with contracts with Porto City Council and a focus on sustainability, have also sponsored the festival, at least in the past. The number of people working with Cidade+ varies during the year. During the time of the festival, 16 committed people work with the event. Out of them, 10 people work part-time with the festival for 3-6 months. 4 people work part-time with the event during the entire year. In addition, around 30-40 volunteers are involved per year.

Environmental challenges, social and solidarity economy: In this report we categorise Cidade+ as a participatory NBE due to its focus on providing a meeting point and a platform where a diversity of actors from different parts of society can meet, interact and co-create together on topics that are related to sustainability and social change. The focus of Cidade+ is very much on creating a desire among different people to work together and learn from each other, for example by the help of collaborative methods. However, Cidade+ can also be tied to technological, territorial, and social and solidarity economy NBS, and sustainability challenges of different sorts. Cidade+ showcase sustainability in many areas, for example social and technological innovation when it comes to water and energy and offer a wide spectrum of sustainability themes in the festival's showrooms, showing existing solutions, art, and more. At the very core of Cidade+ is to promote sustainable ways of living.

Cidade+ (Porto News, 2019).

Scalability and replicability: There are already other similar festivals arranged in other parts of Europe and the world. Cidade+ is an interesting case to learn from for example when it comes to collaborative methods and creating a desire among various people to exchange ideas. The warm-up events in different parts of the city are another interesting element of Cidade+ which can be interesting for other cities to replicate, not least in URBiNAT. These events can entice an interest in the festival, but also in its topics of sustainability and social transformation, among people in different parts of the city, also in underserved city districts.

Reboot

General information: Reboot is a computer recycling and sharing programme as well as a 'repair club' that incorporates reparation and donation of computers and computer equipment to families in vulnerable socio-economic situations in Porto, including people living in URBiNAT intervention areas in Porto. The need for computer equipment in underserved city districts was accentuated due to the Covid pandemic and the distance, online schooling that followed, and the digital support needed to access the classes. Reboot started as a project in June 2021 and runs for 36 months, until May 2024. Reboot brings together engineering students, teachers and specialists. Through the Reboot project, people can get their computer equipment repaired and learn to repair equipment. Reboot promotes training of citizens in repair practices and stimulates the repair business.

Target group and ambitions: Reboot's target group is primarily families in vulnerable socio-economic situations. Reboot's main goals include to promote the reuse of computer and electronic equipment, through repair and upcycle. Aims are also to reduce poverty and pressure on non-renewable resources, and to boost shared infrastructure where the circular economy is the motto. Reboot also advocates for training of citizens in repair practices. So far Reboot is a project that has focused on forming a network and creating connections between partners and stakeholders. An aim is that one or more universities take the project on and replicate it. For the repair club, an ambition is to find a specific place for it, for example inside a social institution that has an interest in it and can promote it further to its target audience.

Business model: Reboot's business model can be categorised as a social economy model. It is too early to judge MVP, given that the product/service is in an early stage and currently being tested. Two people work with Reboot, on a part-time basis, namely a project manager who also works for Porto Municipality (25% for 36 months), and a financial manager. Volunteers are involved in the project and are paid a symbolic sum or with cultural vouchers, and tickets to exhibitions or theatres. Reboot was initiated in the Porto Innovation Hub. Identified partners include Porto Digital Association, Higher Institute of Engineering – Polytechnic Institute of Porto, University of Porto – Faculty of Engineering, Lipor – Intermunicipal Waste Management Service of Greater Porto, Porto Ambiente – Municipal Environmental Company, Social Action Services of the Municipality of Porto, other universities, businesses and local organisations as well as student associations.

Environmental challenges, social and solidarity economy: Reboot is described in this report as an NBE that primarily contributes to the social and solidarity economy through its focus on fighting inequalities and reducing poverty. The need for repair and delivery of computer equipment is needed especially in underserved city districts, a need that was accentuated during the Covid pandemic. The measures taken to prevent the spread of Covid-19 meant a rapid transformation of teaching style, from face-to-face to distance learning, largely online. Families in vulnerable socio-economic situations suffered the most from this, a main reason being limited access to computer equipment. Reboot is also tied to other NBS and sustainability challenges, for example by its emphasis on reducing non-renewable sources.

Scalability and replicability: Reboot have its base in Asprela, an affluent and technology intensive area in Porto. As a pilot this makes sense, yet there are further possibilities in coming steps. There are, for example, possibilities for scalability and replicability in underserved city districts in Porto and other URBiNAT cities, as well as in other parts of Europe and the world. Projects like Reboot can educate and empower people in these areas, by offering self-repair

workshops, train a network of informal repairers in the district. As such, it can raise awareness and offer training, capacity building and support that can stimulate the creation of more NBEs focusing on repairing computers and other equipment.

7.3 NBEs in Sofia

The NBES shortlisted in Sofia are listed in Table 3. Ten for-profit and fourteen not-for-profit organisations have been interviewed in semi-structured face-to-face conversations. Eight of those companies were working in the educational sector, six within food, three were based on novel innovations, three had a social focus, two were consultancies and two advocacy organisations. All of them were working with nature-based solutions as their business core and main focus area. In the below figure, all organisations that were analysed are being listed and colour-coded based on their industry and focus areas.

Table 3: NBEs shortlisted in Sofia

For-profit	Not-for profit
Bioprogramme (sell herb products)	Meshtra (preserve cultural heritage of traditional buildings, funded from government and donations)
Bread House Network (birthdays, team-building events)	ATD Fourth World (educate people on poverty issues)
CleanTech Bulgaria (consultancy for green businesses on how to grow their business)	BAOPN (educational plant nurseries)
Detelina (selling nuts and dried fruits)	Bulgarian Association of Bioproducers (advocate for organic goods producers)
Halfbike (sell halfbikes)	Centre for Culture and Education (performing arts school in Sofia)
Harmonica Organic Foods (Sofia produced organic foods)	Foundation Bioselena (farmer's market)
Institute for Zero-Energy Buildings (consultancy)	Food, Not Bombs (solidarity initiatives and educate on food scarcity)
Mr. Green Walls (sellling green walls for inside and outdoor facades)	Green School Village (educational initiative on environmental challenges)
Roo'bar (seeling organic bars)	Hrancoop Famer's Market (organic market)
Shit and Blossoms (Porcelan compost toilets)	Habitat for Humanity (advocate sustainable housing for disadvantages groups)
	"Sofia-green capital" (civic initiative committee to plant trees in Sofia)
	Together Foundation (ZAEDNO) (vegetable gardens)
	Zazamiata (environmental education on, e.g. air pollution)
	Zelenika Foundation (enviornmental education for children)

Food
Educational
Consultancy
Innovations
Social
Advocacy

Source: Based on interviews by the project team

Out of the 24 NBS businesses analysed, applying the methodology that has been outlined, four were selected as the most marketable and bankable nature-based solutions in the frontrunner city of Sofia. The below selection of companies in Sofia was made based on the quality of business models and organisational set-up. Two traditional, one hybrid, and one social economy NBE business model were selected as best-practice examples of impactful and viable initiatives that have made a positive difference in Sofia, both to the environment and the social wellbeing. All four NBEs have a positive eco-social impact on the local environment and society by promoting alternative solutions that are environmentally friendly and combat societal challenges.

Shit and Blossoms

General information: Shit and Blossoms is a for-profit business that manufactures and sells non-plastic compost toilets. The toilets decrease the costs and ecological impact compared with regular chemical sanitation systems. Human waste is being reused and recycled for several purposes, such as fertilisation. The toilet is saving the drinkable water used in sewage systems and is thereby a smart solution to meet the new European regulations for water saving and human waste management in local communities and single dwellings.

Illustration of the compost toilet sold by Shit and Blossoms

Target group and ambitions: Shit and Blossoms has the ambition to be used by single households, families, community buildings, offices, and public buildings. Currently, mostly wealthy families have installed the toilet due to the price of manufacturing and installation. The company is hoping to be able to reduce the price by selling more of the product.

Business model: Shit and Blossoms is a for-profit company with a traditional business model. Most of their customers are office buildings and larger complexes as well as wealthy households. The company manufactures the compost toilet and install it. The compost toilet can also be ordered online and easily self-installed for an affordable price. The reason why mostly wealthy households and business units are customers, is the societal readiness and acceptability of the compost toilet, not its price. The MVP level of the compost toilet is in an advanced stage and well proven under the prevailing market conditions. A modest volume of toilets has been fed to clients and been successfully implemented in households as well as office buildings and public institutions. While the observed market readiness level/coverage is still in an early phase, it appears to be staged in steady fast maturing. At the same time, Shit and Blossoms benefit from a healthy front-runner position, with no other compost toilet on the market in Sofia.

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On this basis, Shit and Blossoms stands out as a highly reliable provider to early adopters of the device. Environmental challenges, social and solidarity economy: Conventional toilets

flush with a lot of (often drinkable) water. This contributes to water scarcity and can have major impacts on the environment and water supply in the future.

Scalability/Replicability:
The scalability potential depends on the local need and demand for the compost toilets. Further local investigations will show how high the demand is. Currently, mostly wealthy households in Sofia are purchasing the toilet, but when more products have been sold, the ambition is to lower prices, so every household can afford the toilet. Particularly targeted customers include large companies, office buildings, and public sector buildings.

The materials used to build the compost toilet can be found almost everywhere in European countries - porcelain and wood. Water saving and waste matter re-usage technologies such as the compost toilet, are challenges that every country is dealing with. Therefore, this product has a high scalability and replicability potential. Specific needs apply in developing countries where sanitation and water scarcity are daily struggles, given that cost competitiveness can be achieved.

Mr Green Walls

General information: Mr. Green Walls is a for-profit company producing and selling vertical gardens to improve the interior microclimate, acoustics, and visual environment. The company has built over 50 vertical gardens with a variety of vegetation and in different shapes and sizes in homes, offices, and public buildings.

Target group and ambitions: The company's ambition is not only to improve air pollution, but to positively impact mental health. Mitigating indoor and outdoor air pollution by implementing air purifying vegetation onto facades and integrated in the interior of all kinds of buildings, will lead to a drop of overall greenhouse gas polluting particles. Employees and people in general will greatly benefit from the effects of breathing in purer air. Mental as well as physical illnesses will decline, such as headaches, asthma, and depression.

Business model: The company's business model is a traditional model because it is based on generating profit by selling vertical gardens. The company manufactures and instals vertical green gardens. The company also takes care of maintenance. The MVP level of the vertical gardens is staged in rapid strengthening. A growing number of its products has been fed to the market, mostly to office buildings. As the next step, private households are being targeted to expand the future customers base Market readiness and the coverage level of products from Mr. Green Walls is relatively high on the consumer side, partly due to strengthened

demand for improved air quality. At the present time, Mr. Green Walls does not have many competitors when it comes to interior greening. The situation is different for external greed facades, where Mr. Green Walls is confronted with several competitors offering various related products. Strict regulations when it comes to the construction of interior as well as exterior vegetable gardens and other greeneries limit the scope for manufacturing and implementing product variants. On this basis, the scope for achieving an expanded market uptake is hindered more from conditions on the policy and supply side, than with regard to consumer preferences and the advance of competing providers.

Environmental challenges, social and solidarity economy: The trend of urbanisation is worsening air quality in cities. Vertical gardens can be a way to improve the air quality, hamper noises, and benefit mental health.

Scalability/Replicability: Air and noise pollution is affecting every major city in Europe and worldwide. Currently, the main customers of Mr. Green Walls are office complexes that wish to improve interior acoustics, create a healthy microclimate for their employees and reduce air polluting particles in the air. Since most cities in Europe are struggling with these challenges, the scalability potential appears promising. When it comes to replicability, required technical know-how and municipal construction regulations may present obstacles. A provider of interior and exterior facades must oblige with special regulations related to, e.g., local architecture and building standards. The design, construction, and maintenance of vertical gardens require specific knowledge and training, elements hampering replicability.

Vertical gardens sold by Mr. Green Walls

Bread House Network

General information: The Bread House Network is a revenue generating not-for-profit organisation supplying homeless people with self-made bread. The bread making itself is offered and sold as an experience for team building activities or celebrations, such as birthdays or other festivities. The bread being made is always benefiting homeless people, but the experience itself can help groups to improve communication, share and exchange viewpoints and strengthen collaboration. Several different techniques are being used by the facilitator to generate a good atmosphere around the 2–3-hour long bread making activity. Bread making is improving the life quality of poor people and can be characterised as a social and solidarity nature-based solution.

Target group and ambitions: The target group are homeless people in Sofia who do not get enough food supplies. The ambition of the Bread House Network is to fight homelessness and food scarcity locally as well as globally by creating social and solidarity networks that are driven by the community, self-sustainable, and beneficial for society.

Business model: The bread house applies a hybrid model. The organisation generates profit by facilitating workshops and team building events for companies and private gatherings, but all profit is reinvested for the benefit of aiding the homeless in Sofia. The network is run by a small team of dedicated employees. Some of them are not full-time employees. The bread house network is highly embedded into the local society of the intervention area in the Nadezhda district, while also reaching the wider outskirts as well as into parts of Sofia's city centre. The network has gained wide recognition, strengthening into other regions and neighbouring countries as well. The concept has been adapted in various shapes, especially in areas where homelessness is a prevalent concern. Positive The social contributions of importance of the bread house network are clearly of high general applicability. The benefits in this respect include: preventing vulnerable citizens from starvation; providing temporary shelter; bringing communities together, and; facilitating a space for open communication between people from all kinds of diverse backgrounds. The bread house concept can be classified as a social innovation due to its innovative approach of combining aid for vulnerable society members with a financially stable business model that is self-sustainable and bankable.

Environmental challenges, social and solidarity economy: Homelessness is going to increase due to high inflation rates for groceries, energy supply, and housing costs. Many countries do not have the governmental structures in place to tackle this crisis, and therefore, social and

solidarity networks such as the Bread House will become crucial in supporting the homeless. The network has already been replicated in several other cities and countries.

Scalability/Replicability: The scalability potential of the Bread House Network depends on local needs and demands. Currently, its member base keeps growing consistently, underpinned by highly committed volunteers and responsive local communities. The scalability of the business model, on the other hand, meets with issues related to investment requirements and the not-for-profit nature of the organisation. The replicability potential, on the other hand, is enhanced by publicly available knowledge on the set-up, bread recipe, and procedure of each bread house event. Moreover, its proven relevance for addressing homelessness accounts for high general attractiveness, with a potential for meeting with strong community - and also public - support across many of Europe's major cities, where successful such social and solidarity initiatives are much needed.

Food, not Bombs

General information: Food, not Bombs is a volunteer-based initiative that educates and advocates people on food scarcity and actively offers solutions to combat poverty. It is a self-organised initiative where volunteers, among others:

- prepare and share vegan food and clothing with disadvantaged people,
- maintain an urban community garden,
- run a communal washing facility,
- provide a winter shelter for the homeless,
- and offer aid groups for specific problems.

Target group and ambitions: The target group are all people in need, e.g., for a nutritious meal, a warm shelter, mental health advice, and social contact. The ambition of Food, not Bombs is to educate society on the urgency of effects of climate change, such as food scarcity and increased levels of poverty, and to put in place hands-on solutions that can mitigate some of these implications.

Business model: Food, not Bombs can be characterized as a social economy model because the environmental performance stands as the sole indicator for success of the community-driven initiative. There is no cost-revenue model in place and all workers are volunteers. The initiative is in the process of becoming well embedded in Sofia. While its advance reflects a broader international trend, as similar initiatives have been put in motion in many other cities

and local areas, Food not Bombs is marked by unique properties devised and finetuned with consideration to the local context. In Sofia, it has specifically helped thousands of individuals obtain education and emergency support, both physically (shelters and food) and mentally (help lines). The concept can be characterised as a social innovation initiative, applying a novel approach to support the most vulnerable members of society and identify and actively tackle (also through advocacy) challenges on a daily basis and in a hands-on manner.

Environmental challenges, social and solidarity economy: Due to the no-cost revenue model initiatives like Food, not Bombs is reliant on, the viability and sustainability of these initiatives is unsure. Therefore, social and solidarity economy mechanisms need to be put in place that allow social economy business models to be valued within the economic system.

Scalability/Replicability: Currently, Food not Bombs experience a rapidly expansion of its network and memberships, including the engagement of local activists that educate and disseminate knowledge on healthy eating and how to build and sustain vegetable gardens. With homelessness a major challenge for all large European cities, Food not Bombs has proven capable of offering a response of high general relevance. This combined with organisational efficiency provides opportunities for scalability and replicability. Adaptation to varying local conditions, e.g., related to customs, culture, and modes of social networking, appears manageable. Replicability may be limited however by challenges to forge voluntary based organisational structure in other locations, capable of supporting educational activities in schools, emergency help on the ground, aid group service for special needs, and maintenance of washing facilities.

Cross-cutting observations

Interview questions examining companies' satisfaction with local policies, municipal procurement strategies and their support in lifting up NBEs resulted in the following outcomes, which were categorised as obstacles by the interviewees:

- Green business owners and founders are generally disappointed with the local and national government in Sofia and Bulgaria;
- There is a clear lack of encouraging initiatives that can thrive green innovation, and;
- There are no innovation hubs or platforms for green businesses to cooperate, co-create or co-design to improve sustainable living or the implementation of NBS.

Even though these obstacles affect local NBEs, our analysis identity the presence of four counteracting enabling factors, or opportunities, gradually taking shape:

1. A shift in citizen's perception towards the importance of protecting the environment.
2. A growing number of sustainable and social organisations are being established.

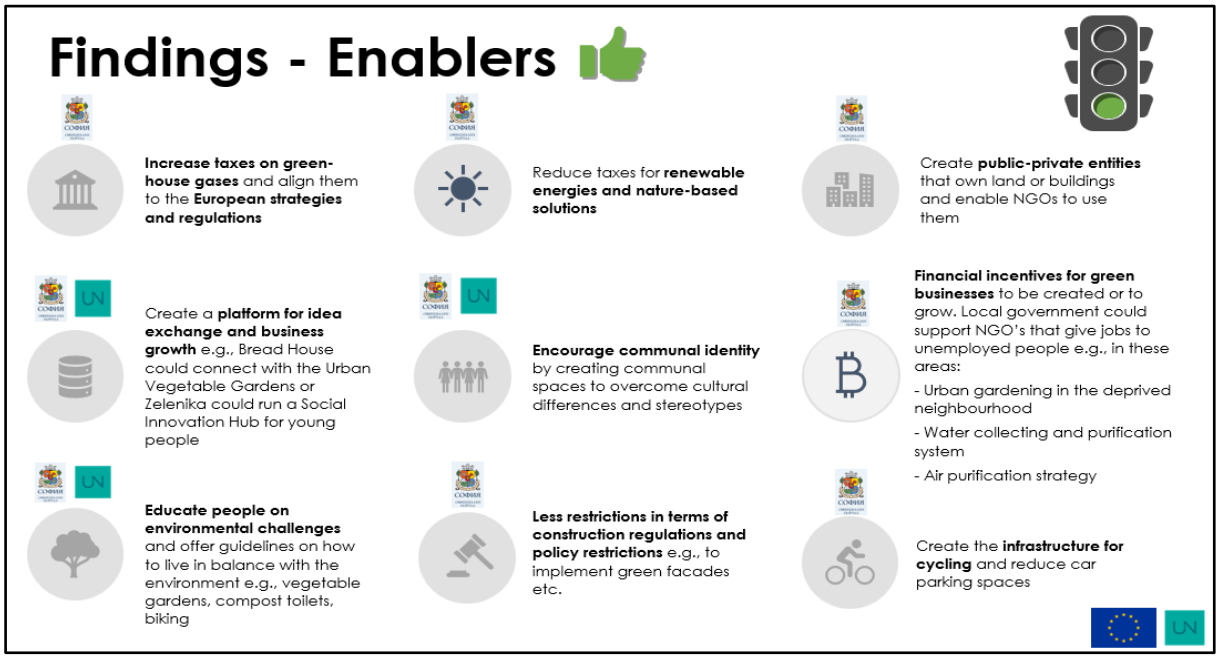
3. EU regulations that encourage the protection of the environment are willingly adapted and there is a high degree of acceptance among the public.
4. And EU funded projects, such as URBiNAT are starting to create real change in Sofia.

In Figure 4, a snapshot is provided of some enabling conditions and initiatives that have been pointed to as important for spurring green and social business growth in Sofia specifically. Some factors are in the hands of the local government, but other actors may importantly contribute to their realisation. This includes the EU, and also Horizon 2020 projects such as URBiNAT, which may be in the position to catalyse and enable experimental processes (in Figure 4, those factors have URBiNAT's logo marked next to them). Close collaboration and active engagement by local communities, citizens and stakeholders may greatly facilitate generating demand for, e.g., ecosystem services made possible by successful NBEs**.**

Policy-related measures identified as important for NBE performances in Sofia, include:

- Increase taxes on greenhouse gases;
- Reduce taxes for renewable energies and nature-based solutions;
- Create platforms for idea exchange and business growth;

Figure 4: Enabling activities for green and social business growth



Source: Based on interviews by the project team

- Encourage communal identity to overcome cultural differences;
- Create financial incentives for green businesses;
- Educate people on environmental issues;
- Reduce restrictions in terms of construction regulations and policy restrictions, and;
- Enable green mobility, including cycling infrastructure.

8. Analysis of case study results

As has been communicated above, we have arrived at a set of NBEs, four NBEs in each frontrunner city, which have been reviewed, evaluated and briefly presented as “best practice”, serving as candidates for follower cities to pick up on for reviewing opportunities for “replication”. Needless to say, the success of each NBE reflects a combination of internal and external factors, about responding to opportunities in a particular context, and thus no “emulation” will be possible, or even desirable. The agenda at hand has to do with learning, inspiration, and collaboration in experimentation in pursuing new initiatives. The eventual selection of city cases to build on for follower cities will be carried out in close collaboration with the follower cities, and the constituents - “living labs”, citizens, stakeholders - that they bring to the table. That activity will be the focus in the subsequent report, D7.4, to be presented in 2023.

To ensure systematic coverage of relevant aspects and facilitate comparability in determining success, however, we processed with some further analysis and comparisons of the cases, and thereby associated results, which have been arrived at thus far. In the following, we set out to take note of observations of relevance to: market readiness/coverage, MVP, business model, financing, pricing/revenue, sustainability, scalability, replicability, societal embeddedness, links to social innovation and solidarity economy, eco-social benefit and eco-social cost generated and environmental and economic impacts.

In the following, the main findings from the analysis of best practice NBE performances across the three frontrunner cities are structured in relation to key themes:

General approach

The nature-based enterprises researched have a number of sustainability and NBS related areas at the core of their operations. Phytolab connects urban planning and nature with a focus on landscaping. Noocity (Urban Ecology) sells self-watering vegetable boxes and provides educational services and team building exercises. Mr. Green Walls produce and sell vertical gardens to improve the interior microclimate, acoustics, and visual environment. Shit

and Blossoms manufactures and sells non-plastic compost toilets. La Cocotte Solidaire is a combined restaurant/cafe and community kitchen. The Bread House Network supplies homeless people with self-made bread. The bread making itself is offered and sold as an experience for team building activities or celebrations. Food not Bombs educate people on food scarcity and offers solutions to combat poverty. Good food hubs focus on creating a food network and promote pop-up meeting spaces to connect producers and consumers of biological vegetables and good, sustainable food. Solilab is an association of entrepreneurs. Reboot is a computer recycling and sharing program, and a 'repair club' that incorporates reparation and donation to families in vulnerable socio-economic situations. Cidade+ is an annual, free festival dedicated to sustainability and social transformation.

Ambitions and target groups

The ambitions addressed by the NBEs are often tied to environmental and social aspects of sustainability and contributing to a better society in different ways. For example, Solilab's objective is to create value for society, the planet and its people. Ambitions for example include to improve air pollution and positively impact mental health (Mr. Green Walls); to fight homelessness and food scarcity, locally and globally (The Bread House Network); to establish a healthier food system (Good food hubs); and to reconnect urban citizens with nature through the experience of growing their own healthy and tasty vegetables (Noocity). The focus is also on influencing urban public policies and change collective behaviours to more sustainable ways of living (Cidade+) and on educating society on the urgency of effects of climate change, such as food scarcity and increased levels of poverty (Food, not Bombs).

Target groups include students in the neighbourhood (Good food hubs), citizens with a common interest in sustainable food (La Cocotte Solidaire), single households, families, community buildings, offices, and public buildings (Shit and Blossoms), companies, private households and schools (Noocity), homeless people (The Bread House Network), and people in need, for example of a nutritious meal, a warm shelter, mental health advice or social contact (Food, not Bombs). In the case of the festival Cidade+ arranged in Porto, Portugal the aim is that it is open and accessible to all.

Business models

Three business models were identified in the Nature based enterprises researched. They include 1) social economy models (Cidade+; Food, not Bombs; Good food hubs; Reboot; Solilab), 2) traditional for-profit models (Mr. Green Walls; Noocity; Phytolab; Shit and Blossoms), and 3) hybrid models (La Cocotte Solidaire; The Bread House). In the hybrid model the enterprise has paying customers and is self-financed but the owners have no profit interest for their own sake and all surplus of the operation goes into maintenance and

improvements of the Nature-based enterprise (La Cocotte Solidaire) or for social purposes, e.g., helping homeless people (The Bread House Network).

Environmental challenges, social and solidarity economy

The challenges related to the environment and the social and solidarity economy that the nature-based enterprises researched are focusing on include environmental aspects more broadly (Phytolab), and more specifically, such as water scarcity (Shit and Blossoms), air quality and noise (Mr. Green Walls). Disconnection between nature and people living in urban areas (Noocity) as well as unsustainable ways of living (Cidade+) are also at the core of some NBEs missions. Challenges addressed by the NBEs also include unhealthy food systems (Good food hubs), food waste, and unsustainable production and consumption of food (La Cocotte Solidaire). Social sustainability aspects such as inequality (Reboot) and homelessness (The Bread House Network) are also important topics addressed.

Best-practice NBE business models according to four key assessment criteria:

1. Sustainability Impact (environmental measures)
2. Wellbeing & Social Impact (health measures)
3. Economic Impact (unemployment rate, scalability rate of NBEs)
4. *Replicability & Scalability Potential (7.4)*

Market and demand for NBEs

We have witnessed a continual growth in the demand for NBS in recent years. Central here is to what extent and how enterprises can meet this demand and capture the potential benefits of NBS. In URBiNAT's frontrunner cities Porto, Nantes and Sofia we see examples of how organisations and companies work with nature-based solutions in various ways and integrate NBS into the core of their operations. In URBiNAT, NBS have been categorised into four types: territorial, technological, participatory, and social and solidarity economy (URBiNAT, n.d.). The examples of nature-based enterprises (NBEs) analysed in this report can be seen as related to these different categories.

Market mechanisms in the different cities

- Do they have specific procurement policies for NBEs?
- What measurements do they have to support NBEs?
- Do they support NBEs?

Innovative environments and hubs can play a key role in encouraging and paving the way for the development and success of Nature-based enterprises. "Porto Innovation Hub" brings

together innovation agents in the city and the region. They also involve citizens and call for more active civic participation.

Replicability of NBEs

In considering the blend of success factors for NBEs in the three frontrunner cities, any conclusions regarding replicability inevitably require judging the role played by specific **cultural, situational, systematic, and time factors**, and whether their influence on a specific best-practice NBE could appear, or be compensated for, elsewhere.

The progress of local currencies in France draws on a long tradition, especially in the Loire region. Over 70 local currencies are currently in operation. This has underpinned a local culture and tradition that may be critical for the ability of NBEs, such as Moneko, to attract enough customers and gain societal acceptance.

Another example, “Food, not Bombs” responds to the high prevalence of homeless citizens in Sofia, as well as the need for education on food consumption patterns, food waste and nutrition aspects. The objective of “Food, not Bomans” effectively combines the awareness creation with delivery of meals to the communities of homeless people.

Overall, in Sofia, a general lack of education of relevance to the environment limits awareness and stifles the availability of competences to address causes of pollution, non-sustainable food production, and local initiatives that could alleviate public health issues. Therefore, many local NBEs are actively working on informing the public on initiatives and measures that can improve overall health and the environment. In other cities, such as in Nantes, there is a general awareness and people are being educated within the public school system on climate change, environment pollution and combating measures. Moreover, the problem of homelessness is less severe. Systematic regulations, such as environmental policies and a social security net are well established in Nantes.

Initial consideration of NBE matches with specific follower cities

While a comprehensive assessment of transferability and replicability of NBE experiences from frontrunner to follower cities goes beyond the scope of the present report but will be covered in the ensuing work below we nevertheless present a few observations of the kind that need to be borne in mind, when considering apparent opportunities in this regard, referring to each of the follower cities specifically:

In Brussels, general conditions are most resemblant of those in Nantes, among the frontrunner cities. The municipality is struggling with homelessness and with the implementation of local nature-based solutions, such as bike lanes. Here, an initiative such as "Food, not Bombs" and the "Bread House Network" where all bread made is benefitting the local homeless, would meet with a high need. Whether entrepreneurial models, funding mechanisms and the institutional context provide a match will require closer consideration.

Høje-Taastrup resides in an institutional and cultural context that differs considerably from all frontrunner cities, possibly with more similarities with Nantes referring to the context of relevance for NBEs. the Danish social welfare system is generally taking care of the homeless, but the community kitchen "La Cocotte Solidaire" from Nantes, the electro recycling initiative "Reboot" and the urban vegetable gardens "Noocity" all appear promising candidates for inspiring and possibly realising complementary solutions, marked by high levels of citizen participation. The relatively favourable economic context and availability of plausible funding mechanisms, coupled with similarities in values and appreciation for nature, create good chances of societal acceptance following appropriate adaptation of the concept.

Khorramabad, the capital of Lorestan in eastern Iran, presents a very different case for urban development, NBS, and city engagement, compared to URBiNAT's lead cities. The greatest similarity relates to Sofia, on historical and cultural grounds. The institutional set-up in Khorramabad places high emphasis on supply-driven rather than citizen-driven solutions, however. The presence of social issues and strong resonance in terms of heritage and cultural richness, suggest that Good Food Hub, with its innovative approach to fostering a network centred on food as a unifying factor, could be applicable. Also, La Cocotte Solidaire in Nantes, offers similar possibilities. Whether funding and social support mechanisms and structures could meet with locally generated underpinnings again require further consideration.

Nova Gorica is a relatively young city formation which had to adapt a sense of pragmatism but also openness to innovation from early on. The city has remained marked by effective governance in support of a development-oriented approach, with a high profile in terms of technology, sustainability and culture. Among its features, Nova Gorica has instituted a strong framework for business incubation. A vibrant start-up community has arisen. A number of young, successful entrepreneurs have developed a strong drive and inspiration that relates to exploring NBS, building on and furthering their services.

In terms of wider framework conditions, Nova Gorica comes the closest to Sofia, out of the frontrunner cities, The green interior facades from "Mr. Green Walls" from Sofia could serve as

a candidate for inspiration and replication. The urban vegetable gardens from “Noocity” in Porto could also be of high interest, as part of a strategy to address pollution.

In Siena, there is a lack of innovation hubs for sustainable businesses to collaborate and exchange knowledge and ideas. Conditions display similarities notably with Nantes and Porto, among the frontrunner cities. In Nantes the “Le Solilab” is a breeding ground for local green entrepreneurs to mature their ideas, get inspired by other green initiatives, improve their business model and find investors. In Porto, the “Porto Innovation Hub”, put in place by the Porto municipality, has a similar focus. In Siena and Sofia those innovation/incubator hubs for green initiatives are missing. The concepts of “Le Solilab” and the “Porto Innovation Hub” could be candidates for learning and replication.

Cross-city mapping

Taking stock of and comparing the NBEs selected across the frontrunner cities, here we structure their relation to the various main categories of NBS applied in URBiNAT. For this purpose, we define subsets of NBEs relating to each of those categories, as is further elaborated in an accompanying URBiNAT Milestone M7.1 (URBiNAT, 2022).

As can be seen from Figure 5, a matrix depicting relations between the categories of NBS represented/playing a key role for NBEs, across each of the frontrunner cities, demonstrates a quite complete picture. The fact that all fields are filled in with a case, might be the result of the diversity approach deployed by the team along the various stages of the selection processes. Beyond that, however, as care was taken in the final round, not to overrule basic sound criteria for NBS connection, business performance, potential for scalability, etc., this outcome illustrates that each of these cities in fact demonstrates the potential for successful NBE performances, linked to all of the main NBS categories.

In reality, NBEs may not relate to a single category of NBS. Their value-creation may draw on several kinds. With the objective of examining what patterns may be prevalent in this respect, Figure 6 maps the approximate position of each selected NBE in a scatter diagram that allows for combinations of NBS types. The result indicates the presence of “clusters”, e.g., one combining “participatory” and “social and solidarity economy” while another combines technology and territory, along with some variation which dimensions weigh most heavily. Appendix 1 presents a more extensive shortlisting, with further information in this respect. Again, however, all three frontrunner cities present NBEs that populate each of the key NBS categories. The leading NBEs from Sofia are somewhat stronger linked to technological NBS, however, with Nantes and Porto leaning more towards social and participation.

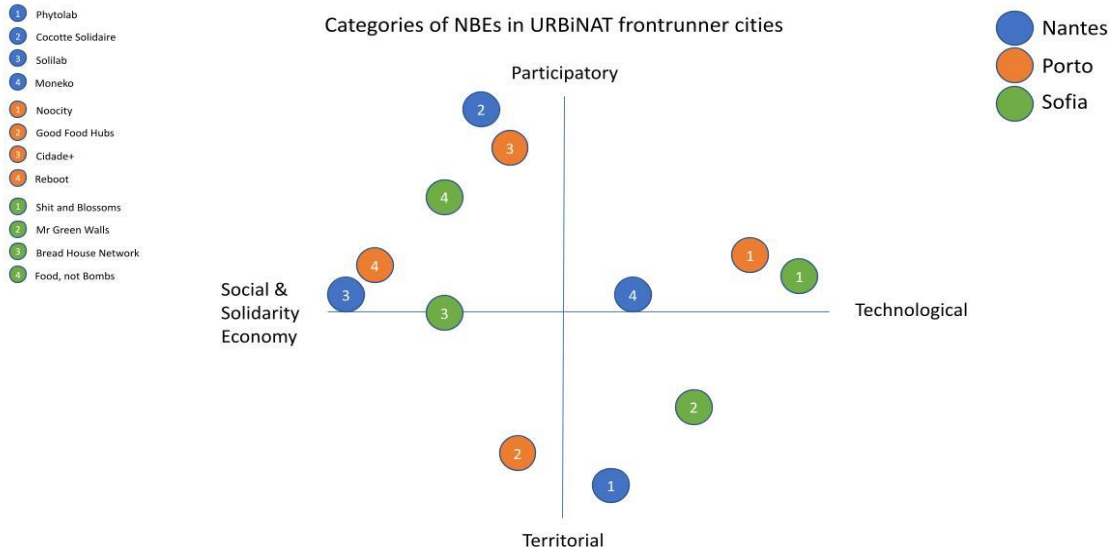
Figure 5: Matrix mapping NBEs against NBS, URBiNAT frontrunner cities

Categories of Nature-Based Enterprise

URBiNAT Frontrunner Cities	Technological NBE	Territorial NBE	Participatory NBE	Social & Solidarity Economy NBE
Nantes	Moneko	Phytolab	Cocotte Solidaire	Solilab
Porto	Noocity Urban Ecology	Good Food Hubs	Cidade+	Reboot
Sofia	Shit and Blossoms	Mr Green Walls	Food, not Bombs	Bread House Network

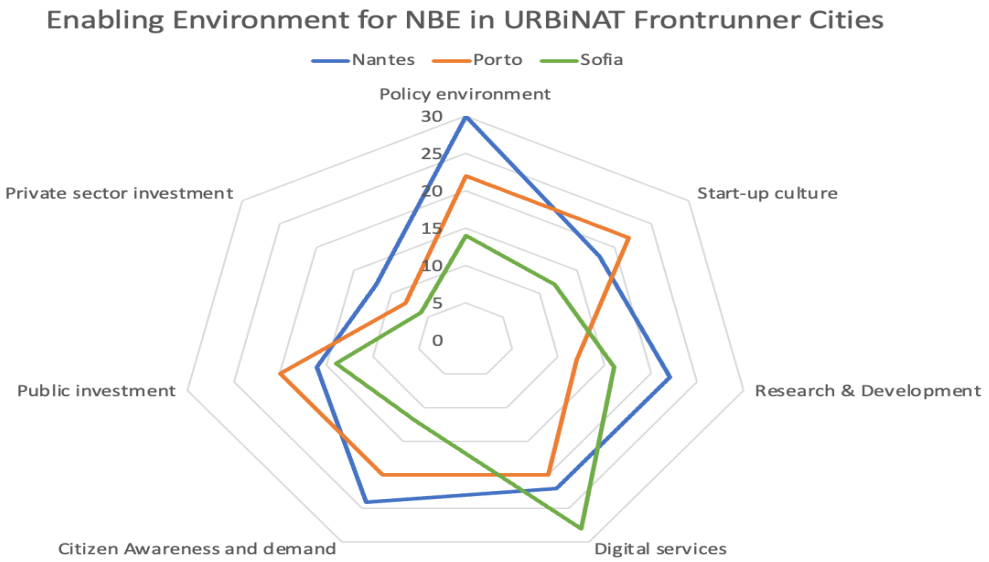
Source: IKED & ITEMS

Figure 6: Scatter diagram, NBEs scattered against NBS



Source: IKED & ITEMS

Figure 7: External factors framing conditions for NBEs



Source: IKED & ITEMS

Figure 7 presents a stylised illustration of selected framework conditions for NBEs, in this case a tentative assessment of their relative standing in each frontrunner city. The further out from the centre, the stronger a particular city scores in a certain aspect. On this basis, Nantes is depicted as offering the most favourable conditions for NBEs overall, although Porto is depicted as doing well on conditions for start-ups and public investment. Sofia is generally in a less favourable situation, except for digital services and partly R&D (including technical skills). Some of these observations may be questionable, or even inaccurate. It should be underlined, the ranking indicated by Figure 6 draws on insight flowing from the conducted project work and does not make claim to be based on undisputable or statistically verified estimations. The figure primarily aims to call attention to the importance for each city to identify key factors influencing conditions for the value creation of NBS, and specifically conditions for NBEs, while also examining their strengths and weaknesses in those respects. This, in turn, is for the purpose of stimulating reflection what strengths can be built upon, as well as what weaknesses could and should be addressed, in order to create more favourable conditions for the overall ecosystem of NBS value generation and NBE development at stake.

In the continued work, examining the degree which follower cities can learn from and adopt the experience of NBEs in the frontrunner cities, carrying out such analysis for each of the relevant followers, will attract high attention.

9. Conclusions and recommendations

9.1 Summary of main findings

The findings of the present report cast new light on the role of NBEs in regard to NBS, and how these may play out in different kinds of context. While high focus has been placed on examining the underpinnings of success, and ability to overcome hurdles, in each specific case, strong attention has been placed on the kinds of conditions that can be judged to underpin sustainable progress, scalability and replicability in a wider geographical context.

The findings demonstrate that NBEs carry great potential for success in relation to various NBS, and in highly diverse forms of contexts. Reviewing four main categories of NBS, we observed that there is high desire for bottom-up initiatives in all follower cities. There are many engaged citizens with innovative ideas that want to improve local liveability and economic prosperity. Those citizens are often met with restrictive regulations from local and/or national governments and reluctant attitudes from politicians and fellow citizens. NBEs are not entirely new, but their scale, innovation level, and necessity due to climate change, has exponentially increased in recent years. Therefore, local and national regulations need to meet this demand and enable local nature-based innovations to thrive and flourish in order to empower the green transition in Europe.

Our findings have shown that hybrid NBE models are becoming increasingly frequent and allow for viability, sustainability, and profitability of a nature-based action. This model has high scalability potential due to its versatility and adaptability of local conditions. The hybrid model allows organisations to be self-sustaining and to become independent of third-party support from municipalities or donors. At the same time, all profits are recycled into the organisation's core business activity (service provider, educator, supplier, manufacturer, advocacy etc.).

In regard to the entrepreneur, or business model, and the associated question of NBE business models, we present a number of intriguing findings. Compared with the era of digital transformation in recent years, where individual data linked to the number of users/digital interactions became a commercial entity, the NBS present themselves as a set of new products that have the potential to attract individuals/teams/communities with entrepreneurial mindsets.

The pressures on companies everywhere to tune in with this evolving arena flows appear to be rapidly spreading within supply-chains and changing underpinnings of investment

decisions and partnership arrangements all over the world. Yet, the scope of the impact by way of actual leverage of NBS is a different matter.

9.2 Key takeaways for stakeholders

Cities/city administration

The findings of this report demonstrate that NBEs can succeed, linked to various categories of NBSs, across disparate kinds of cities. NBEs can be highly innovative, serve as the key to mobilising and realising demand for NBS services, and they can prosper also where conditions for enterprise growth and NBEs specifically are essentially substandard.

With NBEs a rather new concept which is not well conceived in policy circles, there is a strong need for amassing more knowledge and building operational skill in city administrations to foster favourable conditions for NBEs. Cases, in which the city administration has arranged multi-stakeholder engagement via methods of co-creation, have demonstrated successful collaborations supporting organisations and companies with NBS as their major product portfolio (Hofstad et al., 2021)

Entrepreneurs

Viable paths for establishing NBEs are not open merely to one kind of entrepreneur. Diverse competences, engagements, backgrounds, gender, and so on, have been documented to lay the basis for highly innovative and pioneering undertakings. Having said that, our observations suggest that the most successful entrepreneurs are not only profit-oriented, but genuinely care about social and environmental values. At the same time, they also demonstrate talent and ability to manage resources and generate sustainable value streams. They also have the ability to surround themselves with trusted colleagues and teams that can offer capabilities that are complementary to their own.

The corporate sector

NBEs never operate in isolation. Their success depends on fruitful links with other actors. They demonstrate openness and interest in sharing capacity-building and strengthening relationships with each other, and with other kinds of partners, raising the relevance of the NBS agenda through collective effort. Cluster and ecosystem dynamics are of high importance for the corporate sector development to embrace NBEs.

Policy makers

Both internal and external factors are at work and influence observed performances and successes. Framework conditions need to be examined and approached from a holistic viewpoint. The various factors influencing NBEs should be assessed, and measures be taken to amend the situation where damaging weaknesses are identified.

By providing small-scale funding for pilots to increase awareness and engagement of NBEs would incentivise local action. Measures to improve seed funding initiatives. The provision of small and medium-sized grants for communities, NGOs and other local actors would enhance NBS piloting and help disseminate adoption efforts as well as raise the interest of local companies to raise their skills to implement NBS.

Other policy implications concern removal of bureaucratic hurdles, and red tape in various forms. In relation to local demand, policymakers are called upon for shifting from a passive/neutral stance to one of positive encouragement. In some cases, policymakers may move to making it mandatory to include NBEs in public land use planning, and issue recommendations and guidelines in line with social and ethical features to be applied for the private sector more broadly, and to facilitate the development of such quality standards.

Citizens

While awareness of sustainability is of high importance, and a factor to reckon with in the readiness of policymakers to embrace favourable initiatives of various kinds, NBE success hinges strongly on realising more profound models of engagement. Co-creation by citizens is a particular approach which should be operationalised on a much greater scale to add and internalise value of NBS.

Innovators

Mobilising NBS, innovation is critical. Shift the focus on innovation away from technical and also organisational in a general sense. Advance a notion of innovative environments, such as innovation hubs, to establish an expanded scope for exchange of experience, joint learning and underpinning mindsets for pioneering progress. Experience demonstrates the scope for progress exists for NBEs of all kinds, pointing to the high ability of leading NBEs to create the required conditions, including mechanisms to bring about citizen engagement and demand. At the same time, research as well as empirical evidence demonstrates that strong mechanisms for cross-organisational knowledge-exchange and collaboration are vital for building such competencies and brings about the associated initiatives.

NGOs, not-for profit organisations

NBEs are not merely about business growth and profitability but critically need to be plugged into and promote local community development. This creates the scope for win-win with NGOs. New methods and initiatives should be promoted and tested, in search for ways forward to shape favourable local ecosystems able to breed innovative NBEs while at the same time building demand, generating resources and thereby leveraging and realising enhanced business as well as social benefits from NBS.

9.3 Future research and next steps

The present report has demonstrated the strong presence of numerous successful NBEs across the three frontrunner cities of the URBiNAT project, along with the broad spectrum of NBEs and different business models they depend on. This includes the study areas, featuring relative challenging conditions as well as relatively disadvantaged communities. The nature of NBS, the policy environment, the specific character, efforts and talents of the entrepreneurs, the role of stakeholders and citizens, etc., have all played into the picture of shaping success.

In considering the scalability and replicability of this experience, we have taken note of the roles played by both NBE-specific and wider framework conditions. This work has so far merely provided indications of what may be possible though. In the next stage, dialogue and interactions with URBiNAT's follower cities will examine in greater detail where favourable matching opportunities are plausible, as well as what other lessons and inspiration for related initiatives and activities can be drawn by the various actors who stand to influence the way ahead in this domain of yet mostly untapped opportunities.

Finally, in a separate strand of work, in-depth work will be undertaken to examine best practice experience of community-based social and solidarity economy initiatives specifically.

The continued evaluations and analyses in these respective areas will finally be built upon in putting together concluding lessons and policy recommendations in support NBEs and other organisations benefitting from, innovating around, and furthering the benefits of NBS and Healthy corridors.

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Appendix 1

NBEs interviewed in Porto, Nantes, and Sofia, with basic information included

Name of NBE	Type of NBE	Type of NBS	Theme	Interview
Porto				
Noocity Urban Ecology	For-profit SME	Technological	Food, plants	2022-04-05
Good Food Hubs	Project	Territorial	Sustainable food	2022-04-04
Reboot	Project	Social and solidarity economy	Repair club	2022-04-04
Cidade+	Non-for profit	Participatory	Festival	2022-04-05
Green Roofs Association	NGO	Technological	Green infrastructure, green roofs	2022-04-05
Porto Innovation Hub	Municipal organisation	Participatory	Innovation	2022-04-05
Futuro project	Municipal	Participatory/ Territorial	Trees	2022-04-05
Nantes				
Adal	Non-for profit	Participatory	Health	2022-04-06
Le Kiosque Paysan	For profit SME	Technological	Food & logistics	2022-04-06
La Cocotte Solidaire	Hybrid model	Participatory	Food	2022-04-06
Compestible	Non-for profit	Territorial	Farming	2022-04-06

Phytolab	For profit SME	Territorial	Landscaping	2022-04-06
Moneko	Non-for profit	Participatory	Local currency	2022-04-07
Compostri	For profit SME	Territorial	Landscaping	2022-04-07
Le Solilab	Non-for profit	Participatory	Incubator	2022-04-07
Les Connexions	Non-for profit	Participatory & technological	Circular economy	2022-04-07
Sofia*				
Name of NBE	**Type of NBE**	**Type of NBS**	**Theme**	**Interview**
Shit and Blossoms	For-profit SME	Technological	Compost toilet	2019-03-19
Mr. Green Walls	For-profit SME	Territorial	Vertical gardens	2019-03-06
Food, not Bombs	Voluntary based initiative	Participatory	Food education and supply for people in need	2019-06-26
Bread House Network	Non-for profit	Social and Solidarity Economy	Community bread making for homeless people	2019-06-20

*In total, 24 NBEs were interviewed in Sofia, full list not included here

Appendix 2

Application cases of the Sustainable Business Model Canvas, with one example from each NBS category in URBiNAT's NBS Catalogue (some of the canvasses were also mentioned in D7.2).

1) **NBE case addressing Participatory NBS: Food, not Bombs**

Sustainable SWOT Business Canvas		**Company: Food, not Bombs** (https://www.foodnotbombs-sofia.com/)		
Problem *List 1-3 problems that you want to solve*	**Solution** *Outline a possible solution for each problem*	**Unique Value Proposition** *Clear and compelling message that states why this solution is different and worth paying attention to*	**Unfair Advantage** *Something that cannot easily be bought or copied*	**Customer Segments** *List your target customers and users*
Disadvantaged groups lack social justice and inclusion, homeless people need food and shelter, and governments prioiritize national defense spending over helping its own disadvantaged citizens.	We prepare and share vegetarian food and clothing with disadvantaged people, maintain a community garden, solidarity bath, and winter shelter for homeless people, facilitate knowledge sharing for socially responsible alternatives to the status quo, and support other anti-authoritarian and alternative globalization initiatives.	We promote solidarity in the local community	We are a voluntary and self-organized group of people that cares about social justice in our community	Disadvantaged groups, homeless people, people who want to learn more about socially responsible alternatives to the status quo
Existing Alternatives *List how problems are solved today*	**Cost Structure** *List your fixed and variable costs*	**Revenue Streams and Upscaling** *List your sources of revenue*	**Channels** *List your path to customers (inbound or outbound)*	**Early Adopters** *List the characteristics of your ideal customers*
Social welfare programs, homeless shelters, food banks	Administrative costs, costs for purchasing food	Donations, funding from government for NGO work	Word of mouth, fliers, website	Disadvantaged groups, homeless people, people who want to learn more about socially responsible alternatives to the status quo
Eco-Social Benefit (Strength) *What ecological or social benefits is the business model generating? Who are the beneficiaries? Are they potential customers?*	**Eco-social Costs (Weakness)** *What ecological or social costs is the business model causing? Which key resources are non-renewable? Which key activities use a lot of resources?*	**External & Internal Obstacles (Threats)** *What are external threats that could affect the green business to be successful (e.g. policy restrictions or competitors)?*	**Enablers (Opportunities)** *What are your suggestions for the local government to make it easier for green organizations to grow? What are your hopes and wishes for the URBiNAT project?*	**Additional Information** *Name aspects that are crucial, but haven't been covered yet.*
We help others in need. This creates a stronger community in Sofia and in Bulgaria. We also fight against government-supported violence and globalization of the economy, which promotes justice not only locally but also world-wide.		Lack of funding from donations and the government could prevent the organization from reaching more people in the community.	Provide more financial support so the organization can reach more people, as well as physical space for the organization to meet and serve the community	

Source: Project team

2) NBE case addressing Territorial NBS: Mr. Green Walls

Sustainable SWOT Business Canvas		Company: Mr. Green Ltd. (www.mrgreenwalls.com)		
Problem *List 1-3 problems that you want to solve*	**Solution** *Outline a possible solution for each problem*	**Unique Value Proposition** *Clear and compelling message that states why this solution is different and worth paying attention to*	**Unfair Advantage** *Something that cannot easily be bought or copied*	**Customer Segments** *List your target customers and users*
There isn't enough green space in buildings. Construction takes away green space and doesn't replace it.	Install vertical gardens inside or on the exterior of buildings to provide greenery. Eventually normalize this and other green design practices.	Vertical gardens improve interior microclimate, acoustics, and visual environment. They have a positive influence on mental health. For larger urban environments, the benefits include improving the microclimate, reducing the heat island effect, and reducing energy consumption	Mr. Green was the first vertical garden construction practice in Bulgaria	Corporate offices, shopowners (especially restaurants, hotels, bars), private homes, public buildings
Existing Alternatives *List how problems are solved today*	**Cost Structure** *List your fixed and variable costs*	**Revenue Streams and Upscaling** *List your sources of revenue*	**Channels** *List your path to customers (inbound or outbound)*	**Early Adopters** *List the characteristics of your ideal customers*
Placing regular potted plants in interior spaces; rooftop gardens	The price is determined by the individual needs and specific requirements: area of use, availability of lighting & water systems	Consultations and individual units designed, installed, and maintained	"Our works speaks for us. We have many green walls in public spaces."	Companies that emphasize wellbeing; Shops and businesses that promote sustainability and a pleasant interior atmosphere
Eco-Social Benefit (Strength) *In'lat ecological or social benefits is the business model generating? In'lo are the beneficiaries? Are they potential customers?*	**Eco-social Costs (Weakness** *In'lat ecological or social costs is the business model causing? In'lich key resources are non-renewable? In'lich key activities use a lot of resources?*	**External & Internal Obstacles (Threats)** *In'lat are external threats that could affect the green business to be successful (e.g. policy restrictions or competitors)?*	**Enablers (Opportunities)** *In'lat are your suggestions for the local government to make it easier for green organisations to grow? In'lat are your hopes and wishes for the URBiNAT project?*	**Additional Information** *Name aspects that are crucial, but haven't been covered yet.*
Vertical gardens improve interior microclimate, acoustics, and visual environment. They have a positive influence on the mental health. For the larger urban environment, vertical gardens improve the microclimate, reduce the heat island effect, and reduce energy consumption. People who inhabit the spaces with vertical gardens are most directly impacted but everyone in the urban environment also benefits	Maintenance of internal green spaces could require a lot of water consumption	Society is slow to accept this green design practice as normal. Many business aren't yet willing to invest in the benefits of vertical gardens. The local government offers no tax incentives or benefits to promote the growth of companies like Mr. Green	We need more economic incentives, such as tax reducations for the usage of green material. We also need less restrictions in terms of construction regulations and policy restrictions	

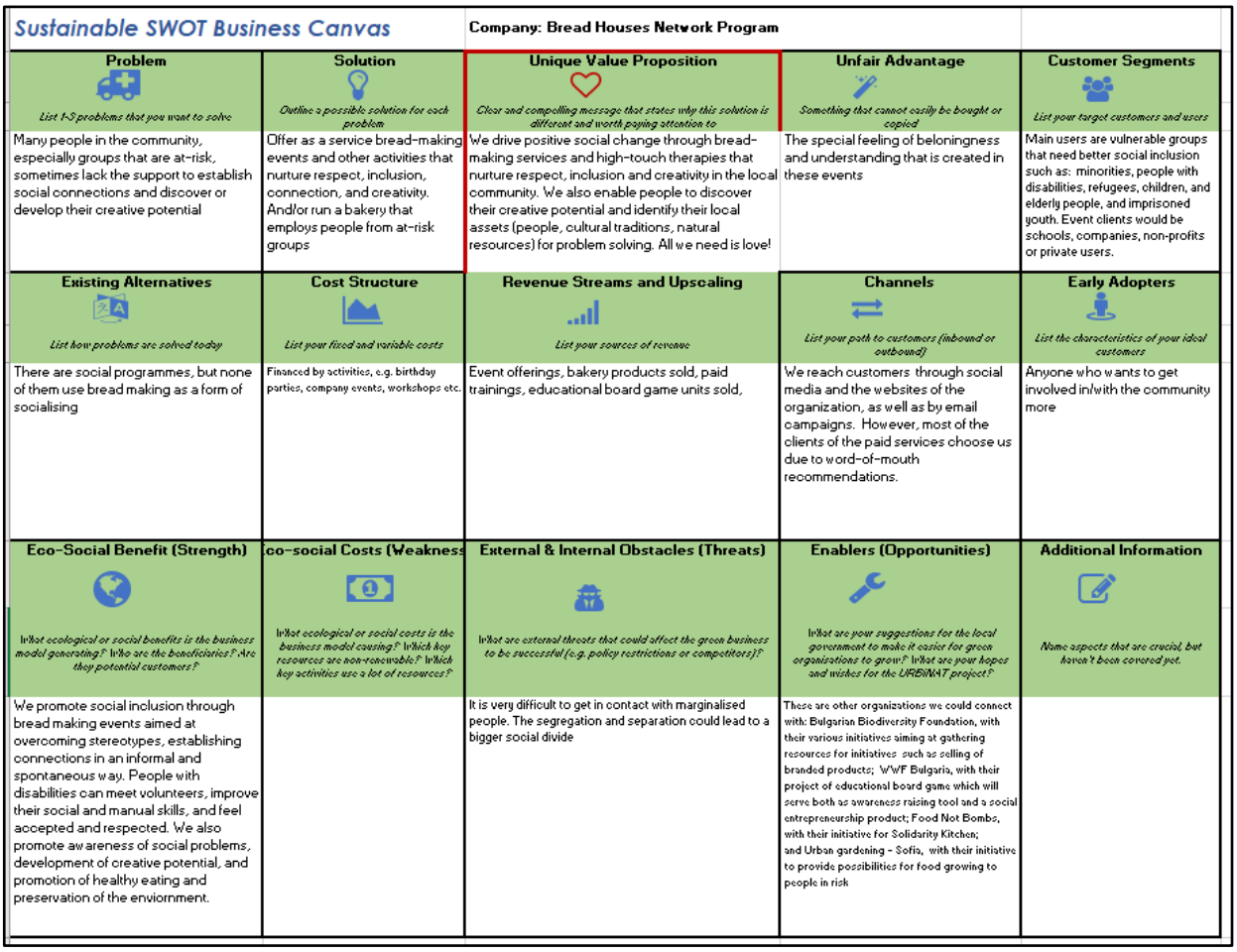
Source: Project team

3) NBE case addressing Technological NBS: Shit and Blossom

Sustainable SWOT Business Canvas	Company: Shit and Blossoms (http://www.urineseparator.com/)			
Problem *List 1-3 problems that you want to solve*	**Solution** *Outline a possible solution for each problem*	**Unique Value Proposition** *Clear and compelling message that states why this solution is different and worth paying attention to*	**Unfair Advantage** *Something that cannot easily be bought or copied*	**Customer Segments** *List your target customers and users*
People over the world are suffering from unclean and polluted water. People suffer under water scarcity. 1 billion people have lack of the sanitation systems. Farmers are lacking good natural fertilisers.	Building a eco-friendly compost toilet to reuse organic waste products 	The only non-plastic solution currently offered on the market.	The porcelain compost toilet can be purchased online, easily self-installed for an affordable price.	Home owners (to use the compost to fertilize their gardens), Cities (e.g. to use it as fertilizers in public parks etc.), public and private dwellings (e.g. in schools, councils, libraries, kindergartens, big organisations etc.), boat owners(e.g. London, Amsterdam), public use (e.g. public spaces, festivals, events, parking, etc.), Hard-ware storages(shared working spaces)
Existing Alternatives *List how problems are solved today*	**Cost Structure** *List your fixed and variable costs*	**Revenue Streams and Upscaling** *List your sources of revenue*	**Channels** *List your path to customers (inbound or outbound)*	**Early Adopters** *List the characteristics of your ideal customers*
The alternative is to use a regular toilet that disposes of waste to the municipal waste collection facility	Fixed costs are rent of a workshop, administration, taxes. Variable costs - raw production materials, electicity, water, salaries.	Consultations and individual units sold provide revenue	Website and social media(facebook and instagram), recommendations from the users	Users in Germany(urban gardeners), US(camer and boat owners, tinyhose movement) and Japan (small spaces owners)
Eco-Social Benefit (Strength *In/What ecological or social benefits is the business model generating? In/Who are the beneficiaries? /Are they potential customers?*	**Eco-Social Costs (Weakness** *In/What ecological or social costs is the business model causing? In/Which key resources are non-renewable? In/Which key activities use a lot of resources?*	**External & Internal Obstacles (Threats)** *In/What are external threats that could affect the green business to be successful (e.g. policy restrictions or competitors)?*	**Enablers (Opportunities)** *In/What are your suggestions for the local government to make it easier for green organisations to grow? In/What are your hopes and wishes for the UREWAT project?*	**Additional Information** *Name aspects that are crucial, but haven't been covered yet.*
Decreasing the costs and ecological impact from regular chemical sanition systems. You reuse/recycle human waste in a way that it can be beneficial for other purposes, such as fertilisation. Saving the drinkable water used in a sewage systems. Answering on the new Europian regulations for water saving and human waste menagment in local comunities and single dwelings. Beneficiaries and potential customers would be sustainably thinking Europian cities and their local comunities and business.	Production requre a lot of electricity and some quantity of water used for raw materials and cleaning, also distribution of the products is made by transportation via road and air.	Counties are lacking in sanitary system regulations, laws, and sewage units for treating (non chemical and eco friendly) human waste managment. Other eco-toilet companies.	1.Lower the taxes on green houses and to apply to the European strategies and regulations. 2.Support with land or building that are demolishing, so NGO's can renovate them and make something better 3.Support green businesses financially. Local government can support NGO's that give jobs to unemployed people. Hiring people in these areas: 1.Urban gardening in the deprived neighbourhood a.4-10 working places or more could be hired to manage the compost systems and collect the organic mass. It can grow to be self-sustainable 2.Water collecting and purification system 3.Air purification strategy	

Source: Project team

4) NBE case addressing Social and Solidarity Economy NBS: Bread House Network



Sustainable SWOT Business Canvas — **Company: Bread Houses Network Program**

Problem	Solution	Unique Value Proposition	Unfair Advantage	Customer Segments
List 1-3 problems that you want to solve	*Outline a possible solution for each problem*	*Clear and compelling message that states why this solution is different and worth paying attention to*	*Something that cannot easily be bought or copied*	*List your target customers and users*
Many people in the community, especially groups that are at-risk, sometimes lack the support to establish social connections and discover or develop their creative potential	Offer as a service bread-making events and other activities that nurture respect, inclusion, connection, and creativity. And/or run a bakery that employs people from at-risk groups	We drive positive social change through bread-making services and high-touch therapies that nurture respect, inclusion and creativity in the local community. We also enable people to discover their creative potential and identify their local assets (people, cultural traditions, natural resources) for problem solving. All we need is love!	The special feeling of beloningness and understanding that is created in these events	Main users are vulnerable groups that need better social inclusion such as: minorities, people with disabilities, refugees, children, and elderly people, and imprisoned youth. Event clients would be schools, companies, non-profits or private users.
Existing Alternatives	**Cost Structure**	**Revenue Streams and Upscaling**	**Channels**	**Early Adopters**
List how problems are solved today	*List your fixed and variable costs*	*List your sources of revenue*	*List your path to customers (inbound or outbound)*	*List the characteristics of your ideal customers*
There are social programmes, but none of them use bread making as a form of socialising	Financed by activities, e.g. birthday parties, company events, workshops etc.	Event offerings, bakery products sold, paid trainings, educational board game units sold,	We reach customers through social media and the websites of the organization, as well as by email campaigns. However, most of the clients of the paid services choose us due to word-of-mouth recommendations.	Anyone who wants to get involved in/with the community more
Eco-Social Benefit (Strength)	**co-social Costs (Weakness**	**External & Internal Obstacles (Threats)**	**Enablers (Opportunities)**	**Additional Information**
What ecological or social benefits is the business model generating? Who are the beneficiaries? Are they potential customers?	*What ecological or social costs is the business model causing? Which key resources are non-renewable? Which key activities use a lot of resources?*	*What are external threats that could affect the green business to be successful (e.g. policy restrictions or competitors)?*	*What are your suggestions for the local government to make it easier for green organizations to grow? What are your hopes and wishes for the URBINAT project?*	*Name aspects that are crucial, but haven't been covered yet.*
We promote social inclusion through bread making events aimed at overcoming stereotypes, establishing connections in an informal and spontaneous way. People with disabilities can meet volunteers, improve their social and manual skills, and feel accepted and respected. We also promote awareness of social problems, development of creative potential, and promotion of healthy eating and preservation of the enviornment.		It is very difficult to get in contact with marginalised people. The segregation and separation could lead to a bigger social divide	These are other organizations we could connect with: Bulgarian Biodiversity Foundation, with their various initiatives aiming at gathering resources for initiatives such as selling of branded products; WWF Bulgaria, with their project of educational board game which will serve both as awareness raising tool and a social entrepreneurship product; Food Not Bombs, with their initiative for Solidarity Kitchen; and Urban gardening - Sofia, with their initiative to provide possibilities for food growing to people in risk	

Source: Project team