Excerpt from D2.3
On the Establishment of URBiNAT's Community of Practice (CoP)

with focus on aspects and strategy of non-EU partners and observers[1]

Version 26 September, 2020

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[1] The present report represents an excerpt of URBiNAT's D2.3, concluded in July 2020, with focus on strategy in regard to the engagement of non-EU partners and observers, and also with partial coverage of some other related aspects, including the importance of on-line communication, or digital enablers, in relation to the CoP. For the complete reasoning, readers are referred to the full report. The present excerpt does not include references to background literature, for instance, which again are found in the main report.

1. The URBiNAT CoP Achieving Global Relevance

The URBiNAT project aims to build improved operational understanding how to engage citizens in co-creation of NBS and Healthy corridors, placing special focus on deprived areas and overcoming city fragmentation. For this purpose, URBiNAT advances and implements new elements and methods in urban planning across three front-runner cities, while also engaging four follower-cities, two non-EU observers, along with an international consortium of researchers, urban planners and policy makers.

A key element of URBiNAT is the establishment of an effective Community of Practice (CoP). A CoP represents a framework for collaboration that serves to promote constructive sharing of experience and joint learning. The URBiNAT CoP places strong emphasis of inclusion and wide applicability, with strong ambitions to incorporate a broad range of experiences, as well as to achieve high ability to adapt and relevance to a wide spectrum of diverse conditions, way beyond a uni-cultural or merely European scene.

CoPs generally exist in physical settings, but members do not have to be co-located. With the advance of Information and Communications Technology (ICT) and particularly social media, CoPs increasingly utilise digital means, rendering physical distance less of a hindrance for communication. A term now sometimes applied is that of "virtual communities of practice" (VCoPs), when collaboration takes place predominantly online. With the onset of COVID-19 in 2020, many CoPs have been induced to shift towards greater reliance on digital communication, by many viewed as a necessity for operations to continue at all.

The URBiNAT CoP has similarly switched in this direction. At the same time, serious consideration has been paid to both pros and cons of digital communication, leading to a serious effort to nail down hybrid formats of exchange and to develop strategies for containing risks and countering downsides. This is of high importance in the context of networks marked by high diversity, such as URBiNAT's CoP given its pronounced inclusion and global reach. Working out effective solutions to the associated issues is of high importance beyond Europe, notably because the challenges of city fragmentation, exclusion and alienation, notably among disadvantages groups and in deprived areas, connect closely with the increasingly serious challenges of exploding income differences, an enduring digital divide, the rise of populism and political opportunism at the expense of facts-based information and constructive engagement by citizens in taking active part in resolving critical outstanding societal and environmental issues.

The ability of cities, city districts and citizens to come up with constructive answers to these crippling developments are now of highest importance in the global context.

2. On CoP in URBiNAT

A fundamental aspect of the URBiNAT organisation has to do with its internal division of labour between frontrunner cities, followers and observers. The frontrunners have their specific rich experience of working with NBS since the past and the project allows them to further these agendas with pioneering work with participatory processes, enabling co-creation and also synthesis into health corridors. The follower cities also have their experience and the project set-up provides them with the opportunity to advance their planning for future work, enriched by the URBiNAT experience. The observers take part in

learning and, while not bestowed with a budget for implementation, they are in the position to develop new initiatives benefiting from the joint learning processes. A basic prerequisite of the URBiNAT CoP is to support effective exchanges and learning between all the partners within this context, taking into account the varying roles, features and complementary role of the frontrunner, follower and observer cities. Strong attention is further paid to culture, mindset and behavioural change aspects, which are generically important but manifesting themselves differently in a specific context.

While breeding a favourable mindset is far from trivial, changes are possible, in part because of blurred boundary lines between perception and reality, opening for the accumulation of experience and learning to make a difference. A complicating factor though, is that mindset partly reflects more stable underlying cognitive systems, mental maps and thought patterns, that are shared between individuals with a common background, what we typically associate with culture and associated value systems. Yet, even in this regard, change is possible. The subject of how to induce favourable mindset and attitudes thus deserves to be high on the agenda of establishing a functioning and inclusive CoP. The same applies when it comes to framing conditions conducive to innovation, i.e., solutions that are genuinely new to a particular set-up, and as such much dependent on attitudes promoting openness and acceptance.

While these aspects are of high importance within the EU, it is even more crucial in non-EU settings. This is partly because a greater variation in cultural, institutional, political and economic conditions can be anticipated, but also because there is generally less experience and familiarity among non-EU institutions of exchanging experience and working towards achieving commonly identified objectives through dialogue within this kind of project. Having said that, this opens for greater opportunity of learning for all parties in the project, and for achieving significant results.

Encoding, storing, and retrieving information matters in any knowledge-based network. Yet, knowledge exchange is just not about transferring codified information back and forth but the sharing of tacit knowledge, what is rooted in experience and difficult to put in words, is crucial. For an individual to acquire know-how, *ability* is a must, referring to competence in doing, skills and proficiency already acquired. It is generally the case that acquirers of knowledge are helped by having a diversity of prior knowledge. Even when skills and proficiencies are conducive to sharing knowledge, there is the question of the sender's ability to be relevant. Additionally, both parties may struggle to gauge what makes sense to transfer and to acquire.

In brief, the CoP defines four interrelated circles of interactions. The breadth of the challenge is signified by URBiNAT's core purpose, to work out the avenues not just for citizen engagement in a general sense, but genuinely purposeful participation and co-creation on the ground. This in turn is rooted in the realisation that such engagement is essential for devising and implementing solutions to outstanding critical social and environmental issues which are both relevant and accepted by those that are the most concerned.

The URBiNAT CoP clearly goes way beyond a single institution or any particular group specificity. It differs from the learning processes of industrial districts, or clusters, as it is far more heterogeneous. In some sense, it may be viewed as closer to an extended innovation system, or a "Quadruple Helix", where citizens and diverse stakeholders attain strong attention. It has to manage exchanges between organisations and actors with highly diverse competencies and objectives, and so ensure the relevance of sharing and learning in multiple ways. Its progress and achievements will hinge on its ability to induce positive synergy in their joint development of new practices and to generate a widely applicable understanding of the way participatory processes can help underpin urban regeneration through the implementation of NBS and Healthy corridors.

Digital enablers, referring not just to modern information and communications technology but the elaborated synergies achieved in effective combinations of digital tools, methods, and contents tailored to achieved specific purposes, as laid out in T3.3. of URBiNAT, have an important advantage when it comes to the engagement of individuals or groups previously left out, who are difficult to reach or have been fairly weakly represented using traditional means , and who therefore tend to be "isolated" and "alienated" in conventional smart city projects. Digital enablers may strengthen the quality and contribution of participation by such groups particularly when linking to improved service provision or educational opportunities. While various means are at hand for targeting specific groups, of high political or economic importance, the focus of URBiNAT is on deprived areas, and disadvantaged groups, through their participation in shaping and implementing NBS. Teenage girls, single household men, unemployed, persons with weak health, and "unusual suspects" (i.e., individuals who rarely participate in community activities) are among the target audiences awarded special attention.

Having said that, digital enablers are applied in a range of way, to realize effective collaboration in co-creation at various levels. Conversely, the potential drawbacks are examined with countermeasures put in place. For instance, many cities find themselves in a situation where some local communities have already adopted Facebook, Google, Instagram, or other similar platforms, for information exchange or the provision of digital platforms or services, drawing on their ease-of-use and advantages in terms of reach and familiarity. Such providers are inherently problematic when it comes to data management and privacy issues, and city authorities consequently carry a responsibility to promote rectifying measures. In the absence of outright damage, however, it is important to refrain from interfering with local choices. Of importance in the present context is that cities, along with stakeholders and citizens, work towards building awareness of pros and cons associated with the options at hand, supporting an informed and competent customer base within the context of a regulatory and institutional environment that is conducive to participation and diversity of services on terms that are ethically sound, respectful of privacy and secure, while also efficient and relevant in the local context.

Other kinds of risks are associated with when, and how, digital enablers are put to use. Although technology has been demonstrated to help underpin resilience in vulnerable communities, they are not generally applicable and, as noted, may in some cases aggravate an existing digital divide. Part of the issue with digital enablers is related to their inherent functionality, i.e. the way in which they transmit information without reliance on personal contact. Conversely, however, some users may be alienated by reliance on impersonal communication, rather than real-world interface with human beings.

While online communication brings great advantages in terms of speed and reach, personal relationships and trust are harder to build that way. Maintaining already established relations is markedly more manageable. Online communication is typically more effective and sustainable the greater the number of individuals who already know each other from past physical meetings, and, preferably, have concrete experience of working together. The choice and combination of digital enablers applied and how they match infrastructure on the ground and the skills of users must be taken into consideration as well.

Online communication risks diminishing further in the absence of comfort to express one's own opinion, i.e., a sense that acceptance for diverging views is lacking. On the other hand, trust is supported by a sense of commonality or group belonging. It can be fed by commonalities such as shared professional platforms, reputation, integrity and ability. For disadvantaged areas, other sources of commonality may weigh in more easily, based on dialect or other expressions of social code, shared loyalty as well as common interests and experiences. Establishing a sense of shared identities and aspects of benevolence in that kind of environment may require other initiatives, besides on-line communication. Face-to-face interaction is likely to be strongly preferable on certain occasions, although it is possible

to underpin commonality on-line as well, using, e.g., games, visualisation or side-events depending on context. All in all, experience shows that structured but shared leadership, promotion of team work along with tailored content and processes are important for online communication to support trust.

Where possible, other means of communication, including physical meetings, may be used as a complement to online communication. Attention should more generally be paid to the relationship between digital enablers and non-digital means of achieving participation, such as "knocking-on-citizens' -doors", meeting with people in squares and other public places, or identifying and mobilizing various kinds of "champions", by way of an individual (physical human being), with organisations or networks, which can be engaged to motivate participation in support of NBS and how they are put to use. Digital enablers must not be viewed as a panacea for engagement, capable of readily replacing personal contact. As we will see, many cities continue to rely mostly on the latter. Not least in deprived areas, citizens may not be ready for, and may not appreciate, having to click on an App in order to be able to express an opinion.

Against this backdrop, each of the URBiNAT cities have made efforts to broadening the reach of digital enablers. Examples include Brussels, which has offered training and facilitation in support of using digital tools in community centres free of charge. In Porto, where digital enablers are continuously developed by the group Porto Digital, the update is higher among the younger and also among the more affluent in each age group, creating risks for others to be left out. The same pattern is visible in Sofia. In this regard, co-creation activities are prepared in URBiNAT in ways that make it possible for a broader spectrum of citizens to become engaged in the process of ideation, development and the implementation of NBS. In Høje Taastrup, more traditional ways of communication, such as face-to-face interaction and putting up paper posters with information, are combined with online communication, with the former regarded as essential to building trust. This way, the advantages of applying digital enablers - such as speed of information exchange and ability to target messages to particular audiences - can be combined with capturing the benefits that follow from the personal dimension.

Summing up this particular aspect, it is important to consider opportunities to: i) Make use of digital enablers when that opens for benefits that cannot be attained through use of other tools; ii) effectively combine digital and in-person methodologies (EMPATIA, 2017), and; iii) pursue initiatives that can help lay the basis for their useful future implementation, especially to propel an enhanced capacity to support the participation of disadvantaged groups.

3. CoP with URBiNAT Cities at the Core

Multiple elements influence the operation of CoPs, including its objectives, diversity, structure, governance, and so forth. Its impact can be understood and measured only in relation to the fundamental issues and activities it relates to. Its purpose is building joint capacity and collaboration for the long term, but it must also not be rigid, and so it may transform itself and take different shapes as it evolves over time.

In the case of URBiNAT, which deals with a complex and multifaceted set of issues, and includes highly diverse members, the CoP is far from uniform but takes on varying features in different areas. While viewing the URBiNAT CoP as a single mechanism for sharing and learning, its organisation has been devised with a view to four main levels, or "circles of interaction". The chapter introduces these aspects and elaborates on the associated activities undertaken to establish the CoP to date.

3.1 Structure and Levels of URBiNAT's CoP

URBiNAT's geographically diverse and multifaceted consortium, consisting of 28 member organisations taking part in official capacity, is shown in Figure 1. Its CoP is a jointly developed framework aimed to support the realization of URBiNAT's core objectives. Initially the CoP was conceived of as mainly enabling a transversal learning process among all URBiNAT cities, partners and observers. Gradually it has evolved based on a natural proliferation of key participatory processes, leading us to categorise it around four main circles of interaction (see further below). The CoP is further underpinned by specific activities, including Task Forces and webinars.

In a nutshell, URBiNAT centres on participatory processes and inclusion around the development of disadvantaged city districts, in support of value-enhancing processes weaved around the planning, implementation and usage of NBS and Healthy corridors. The CoP is essentially about instigating constructive information exchange and learning around this subject. Varying issues and challenges arise depending on the context. Viable solutions are inclusive in nature and capable of enabling co-creation, spanning a range of stages, including co-diagnostic, co-design, co-implementation and co-monitoring. On this basis, the objective is to gain new and shared understanding to realize value in public space, through social interactions and collaboration, along with innovation and the development of sustainable business.

An overview of URBiNAT's CoP is provided by Table 1, which presents the main elements in terms of: i) rationale (why a CoP?!); ii) key steps in building the CoP; iii) activities that contribute; iv) tools and methods, and; v) target groups.

From the outset, the CoP has been prepared and built with consideration to key actors and target groups, as well as in which context and for what purpose they take part. Gradually, distinct circles of interaction have manifested themselves, arising as natural building blocks of the CoP. These are briefly introduced in the following, along with the main actor categories and a stylized illustration of the interlinkages these circles represent.
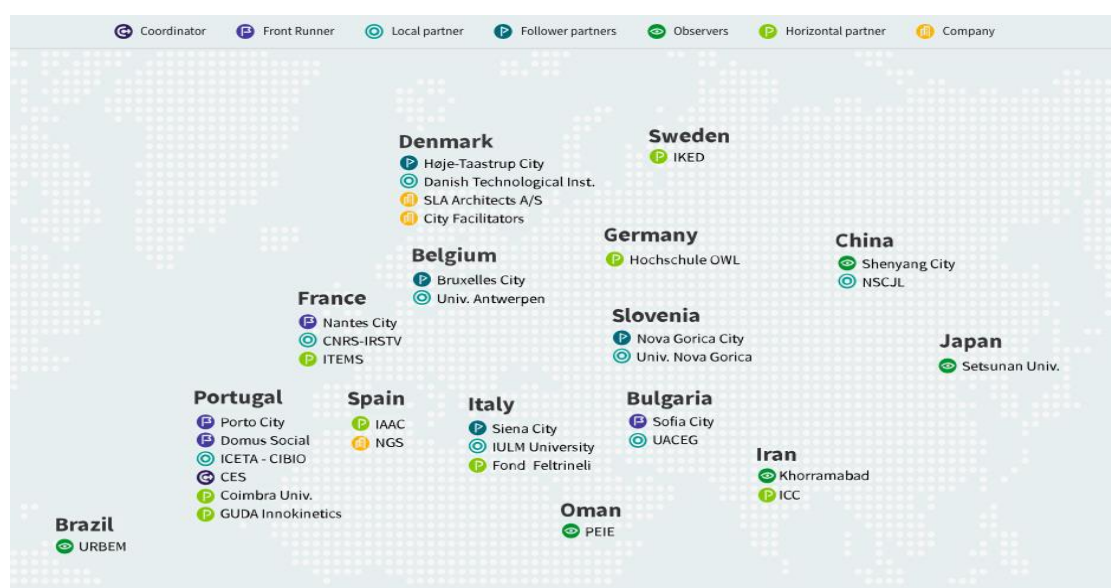

Figure 1: URBiNAT forms a diverse CoP

Why Community of Practice?	Key steps in building the CoP	Activities that contribute	Tools and methods	Actors and target groups
Create a framework and organic process for sustainable collaboration with sharing and learning, with URBiNAT cities and feeding international contexts for cross-pollination.	Structuring levels. Mapping networks and identifying joint interest, creating an open, common platform for data and practices, sharing and fostering its use.	Participatory processes, co-creation processes, coaching and mentoring, co-design/urban planning, co-monitoring, broadening the CoP.	Basecamp; URBiNAT website; Webinars, Zoom meetings; Workshops; Seminars; Physical meetings and events; "Ambassadors" and "change agents"; Digital enablers.	Actor categories, internal (consortium) vs. external. Local task forces, communities of interest, relevant stakeholders, vs. the wider world.

Table 1: Overview of elements in URBiNAT CoP

3.2 Main Circles of Interaction

The partners and other main actors engaged in URBiNAT represent a diverse set of organisations. Their participation was devised from the start with a view to their varying competencies and suitability for different contributions. A key set of entities is obviously that of the URBiNAT cities, marked as red (frontrunner), brown (follower) and yellow (observer) rounds in Figure 1. In the wider category of EU-projects that URBiNAT represents, lead cities are allocated greater resources and engage more actively in implementation, based on their experience and competencies already in place since before project-start. For this reason, the interactivity and learning processes entangling those cities were predestined to be the most intensive, especially in early stages of the project. URBiNAT, however, has made a point of arranging for interactivity both ways entailing follower (and observer) cities as well, aiming to achieve a more broad-based mutual learning process between all those taking part.

Residing in the middle of each round node/URBiNAT city district, are local project/URBiNAT partners. Meanwhile, certain city districts, notably deprived areas, along with systems of more or less broken interlinkages, have been identified and selected for targeting, applying to all the cities, irrespective of their status in the project. Urban planners, companies, residents and varying change agents have been consulted in the process and invited to take active part. Then, outside the cities, horizontally engaged URBiNAT partners contribute based on specific skills and responsibilities. These various actors are all directly involved in URBiNAT activities, although only some of them are formally engaged. On that basis, they continuously exchange information with each other in connection with ongoing activities. Additionally, external actors are viewed as part of the URBiNAT CoP, although some of them act in the fringes. Examples include interested representatives of the wider public, the media, civil society networks, academia, companies and, last but not least, the Commission.

3.2.1 Four main circles
On this basis, and extending from Andersson and Bjorner (2018), we identify four main circles of interaction/participatory processes, as depicted by the stylized illustrations in Figure 2, which has been arranged in three steps. Figure 2a depicts level/circle 1, 2b adds levels/circles 2-3, and 2c adds level/circle 4. To be clear, the figure illustrates the actors that take part of the URBiNAT CoP, along with 4 circles/levels of interaction:
- *Level/Circle* 1: Consists of the consortium, the project team, with partners and observers, engaging in both physical and virtual aspects;

- *Level/Circle* 2: Inside URBiNAT cities, those actors that are directly engaged or implicated, including stakeholders in cities, municipality officials, urban planners, technical experts, community leaders, citizens, local business;
- *Level/Circle* 3: Between the cities, cross-pollination, initially with emphasis on links between the forerunner cities, then increasingly between them and the follower and observer cities, and;
- *Level/Circle* 4: The wider world, sister projects, academic society, other cities, international organisations, and so forth.

It should be stressed that the four levels depicted in Figure 2 are far from independent but, rather, closely connected. In the following, we nevertheless present these levels and key aspects one-by-one, after which we come back to their interlinkages. Here and there through the report we will take note of the way in which various factors and developments affect the activities and functionality of the different levels, and also how they relate to each other.

3.2.2 Consortium circle

The first main level, or circle of interaction, is the URBiNAT consortium. The 28 organisations that take part joined the consortium based on varying functions and competences. Nine of them are cities, three frontrunners, four followers and two (non-EU) observers, in the terminology of the project. Other partners serve as scientific partners connected with a certain city, yet others as competence centres contributing horizontally with responsibilities. Each assumes specific roles, assigned from the outset and laid down in the working plan, although adjustments naturally have taken place since, also with new assignments appearing continuously and then allocated among them. Examples of roles that imply leadership functions, include, e.g., coordinator, work package leader, task leader, those responsible for sub-areas, and so on.
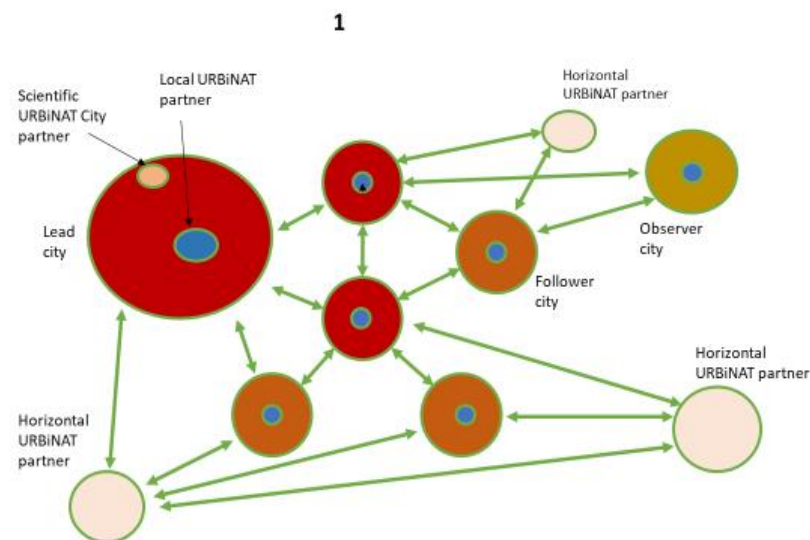

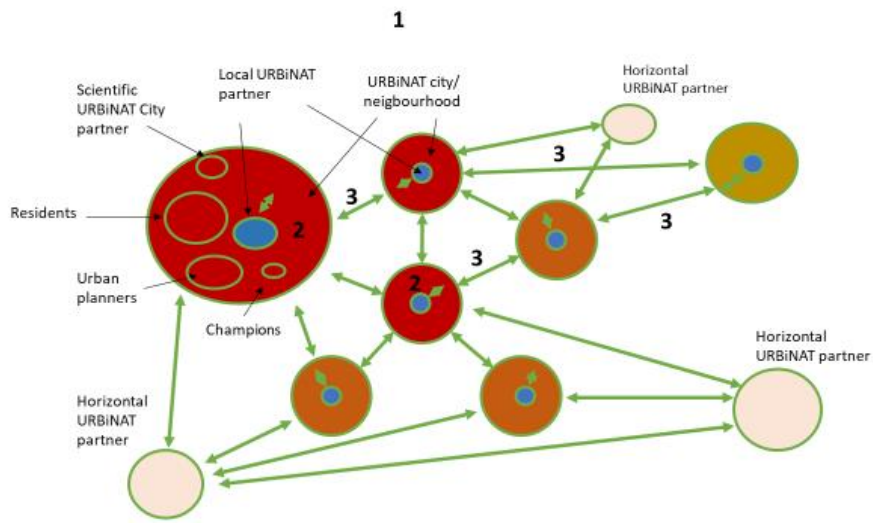**Figure 2a:** Main actors and CoP levels (Circle 1)

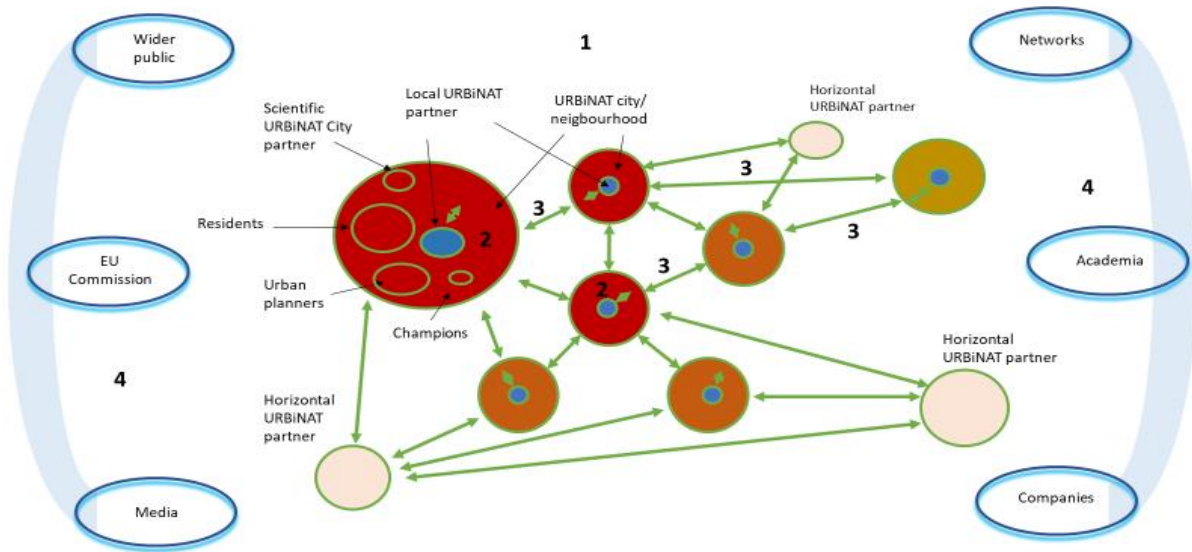**Figure 2b:** Main actors and CoP level (Circles 2-3)

Figure 2c: Main actors and CoP level (Circle 4)

These actors represent the mainstay of the first circle of interaction/level of the CoP. In this context, they not only take on individual roles, but form the collective of consortium *members*. As such, they are invited to project meetings and feature on the receiver list of all general internal circulation. As fully embraced by this level of the CoP, they are free to raise issues, pose questions, vote on the General Assembly (except observers), and so forth.

Apart from those featuring as members of URBiNAT, others are formally part of the consortium too, including individual experts that have been invited and accepted to serve on special committees, such as the advisory committee, the scientific committee, and the ethics committee.

The formal organisation of the first CoP level is reflected in URBiNAT's work plan. See Table 2 for an overview of work packages and activities hitherto carried out, as well as their link to the CoP. Although the first circle is defined by the consortium in formal capacity, however, informal social linking, trust-building and exchanges of tacit as well as codified knowledge-exchange is ongoing too. Having said that, the CoP activities framing the consortium level importantly need to balance formality and informality, on terms that keep the partners focused on achieving the project objectives.

Work package	Activities and knowledge development	Stakeholders involved	Link to CoP
WP2	Local diagnostics, Networking, Local urban plans, Coaching and sharing, Linking Living labs and CoP	CIBIO - UNG, IULM, CES, IKED	Circle 1, 2, 3 and 4
WP3	Research on participatory culture, Design of community-driven processes, Participatory workshops, Digital communication; Participation among partners on participatory culture, citizen engagement and digital enablers; Active participation in Open Living Lab Days 2019 and Digital Living Lab Days 2020	DTI, CES, IKED, GUDA	Circle 2 and 3
WP4	Review of NBS Catalogue, NBS co-design, Healthy corridor urban co-planning	CES, IAAC, DTI	Circle 2 and 3
WP5	Data management, monitoring and evaluation; Action-research and systematization of EU-wide reference framework for NBS, Responsible for URBiNAT Observatory	IULM, CES, OWL, UA	Circle 1, 2, 3 and 4
WP6	Dissemination and communication plan, Website and newsletter, Networking and participation in events and conferences, Dissemination of publications and NBS catalogue, Development of materials and tools.	ITEMS, CES	Circle 1, 4
WP7	Selection of best-practice NBS projects, Interviews with local stakeholders	CF, IKED	Circle 2, 3 and 4

Table 2: Overview of URBiNAT work packages with links to the CoP

3.2.3 Inside cities and neighbourhoods circle

URBiNAT city neighbourhoods represent living ecosystems. Various associations and other institutions have been formed for the purpose of representing citizens or other key actor categories, as depicted in Figure 3. Depending on the institutional framework within which they operate, but also under influence of their internal organisation and governance, such bodies may erect hierarchical structures, portending a planned and corporatist society where the chokehold of vested interests plays a strong part Andersson et al., 2009) In other cases, they may retain a grassroot mentality, and rather evolve into functional CoPs.

In preparing the URBiNAT CoP, each city identified such internal stakeholder groups of high relevance for the project. Having said that, in URBiNAT, high importance is placed on establishing a direct connection with citizens. Rather than viewed as faceless, or "average", citizens are approached as subjects, with varying attributes. Highly relevant categories include residents in local neighbourhoods, youth, mothers and fathers (parents), the unemployed, those with or without formal education, and so forth. Meanwhile, some individuals may act as problem solvers, as entrepreneurs or innovators, some may resist change. Then we have the institutions, local schools, kindergartens and universities; cultural and sports associations, housing associations, associations of disabled people; family planning units; companies, tech parks and local NGOs, botanical gardens, etc.
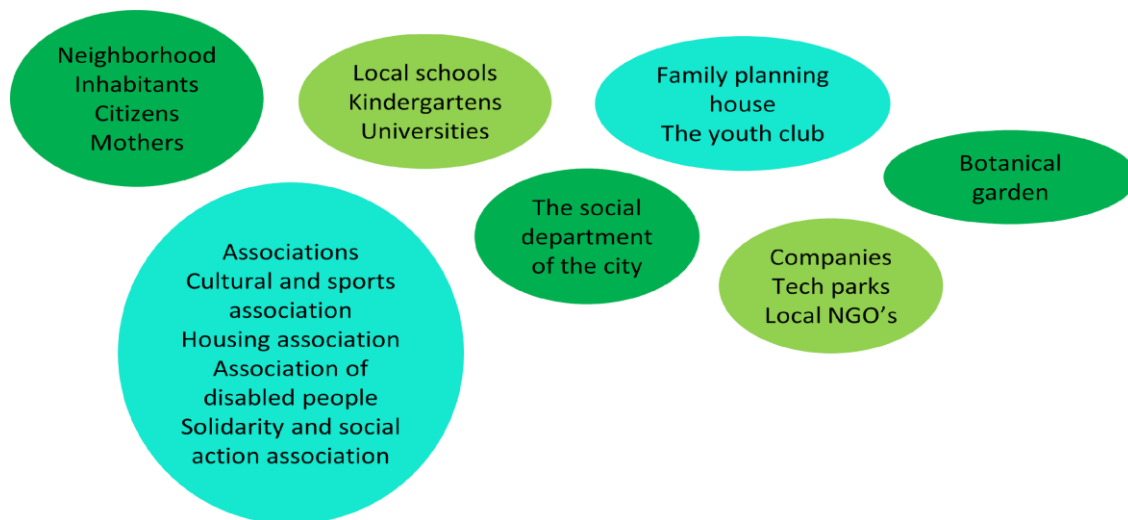
Figure 3: Example of internal stakeholder groups in URBiNAT cities

Multiple kinds of collaboration and participatory processes are already in place within each city. These structures and networks are important building blocks for the URBiNAT CoP. On the other hand, the existing set-up is bound to embody barriers and distortions. Many will view themselves as the legitimate representatives of others, and they will not readily accept to give that up or embrace just any kind of change. Capacity building is likely to entail not just new skills development but also mindset change, the scope of which in turn needs to be framed with a view to cultural features and processes, as elaborated in the previous chapter.

The frontrunner cities have initiated and followed a similar process. Each of them had undertaken local activities already before project-start, to a varying extent, engaging with the municipality decision making level, urban planners and architects, local business owners, stakeholders in schools as well as the citizens living in the targeted neighbourhoods. That experience was built upon when URBiNAT entered the picture, opening for a process of co-creation through a step-by-step process, experimental but coordinated between them. A series of meetings and workshops organised in each city have served to build awareness while also collecting feedback and enabling mapping of participatory culture in the prioritised neighbourhoods. This includes gaining an understanding of which actors play the role of facilitators, champions and other agents of change. It has further been examined how to advance with co-creation of NBS in a way that can pave the way for underpinning the Healthy corridor concept, applying to the study area while also allowing other neighbourhoods to be informed and draw inspiration from the experience of implementing selected NBS. These steps have been carried out in a gradual manner, allowing for cross-fertilisation and results that are comparable among the frontrunner

cities, in support of systematic learning on how to achieve buy-in among relevant stakeholders in each of them.

The follower and observer cities have taken part in sharing the lessons of the above. In some cases, they have undertaken their own initiatives to advance a similar process. In Bruxelles, the Neder-Over-Heembeek associative platform, which brings together 37 associations active on the ground in the selected neighbourhood, was engaged for this purpose. Additionally, use was made of "Bruxelles Participation", a digital platform created in support of exchange and cooperation, dedicated to spur the participation of citizens. In Høje Taastrup another online platform, Innosite, was developed facilitating and promoting feedback by residents on the development of a park and urban space in the district. In Khorramabad, an ambitious and highly interactive workshop, in turn including a series of activities involving different stakeholder categories, was arranged.

The outcomes and contributions of these and other activities will be further tracked and evaluated over time, feeding an enhanced understanding of productive ways of building the in-city, in-neighbourhood level/circle of the CoP.

Living labs have further been prepared with the aim of achieving an area that allows citizens and other stakeholders to collaborate on experimental activity related to NBS and Healthy corridors, involving information sharing, knowledge creation and creative thinking. Living labs are populated by people as participatory stakeholders (WP3), who develop Healthy corridors with various NBS (WP4) that are measured and evaluated with the help of the Observatory (WP5), leading to the dissemination of results (WP6) and marketing (WP7).

While the building blocks of the Living labs were partly in existence before URBiNAT started, and have been further strengthened with URBiNAT, the full-fledged set of linter-inked such facilities is still in formation. With the arrival of the pandemic, a partial rethink has taken hold, with consideration of how to place more of the activity on-line, without losing engagement and momentum. Parallel "Task forces" have been set-up by the municipalities, however, advancing some of the agenda feeding the 2nd circle of the CoP in the process. An important aspect of these task forces relates to the Healthy corridors, as representatives of various relevant departments of the municipality are on board, constituting important stakeholders. The purpose is to achieve common, ongoing understanding of the goals, priorities for the project and especially to coordinate the process of citizen engagement, from the initial stage of co-diagnostic via co-design to co-implementation and co-monitoring. For the Healthy corridor, several sub-projects may be warranted, with each benefitting from an agile but effective task force to ensure that relevant stakeholders are engaged. The varying knowledge, skills and political influence requirements are brought to bear on who to recruit and involve in each task force. In Nantes, the participatory activities are looked after by a centralised strategy team, or task force, that liaison with several territorial/district task forces working with stakeholders at the local level.

Developments beyond the control of the project, but part of the reality in any city, can arise due to the upheavals to politics and governance. In Sofia, following the changes brought about by municipal elections, continuity to the project activities has nevertheless been secured mainly by the local scientific partner. In Nantes, another election and subsequent change of leadership proved less disruptive, as key municipal officials remained in their posts. At any rate, such changes inevitably impact on the 2nd – inside-cities circle of the CoP, and also on its interlinkages with the other levels of the CoP, although the nature of the impact may lead in varying directions.

3.2.4 Between-cities circle

Main objectives here are to establish communication and ideas sharing protocol, as well as identify transversal principles and methods used during the process of co-creation, co-development, co-implementation and co-assessment related to NBS and Healthy corridors. Other objectives include comparable analysis of the impact of the NBS on deprived districts and pulling together insights from all the cities for drawing conclusions on methodologies for replication and up-scaling of participatory approaches to support NBS and Healthy corridors in implementation and in urban plans.

Each of the consortium meetings organised by Porto (June 2018), Sofia (January 2019) and Nantes (July 2019), combined bringing together the international consortium with visits to the deprived areas, where highly engaging activities were arranged with residents. Stakeholders were brought on board as well. The agenda included workshop meetings led by partners engaged in the CoP and citizen engagement activities, which put the citizens at the centre of the process to define critical issues and how to devise participatory processes. These sessions were important for building bridges between the consortium (CoP level 1) and the in-city circles of interaction (level 2) as well as lay the basis for developing inter-city exchange and collaboration (level 3).

An important aspect of the between-cities circle interaction is the organisation of data and adoption of joint indicators, to allow for measurable comparability. Accordingly, consultative meetings were undertaken to achieve consistency in the local diagnostics, by agreeing on joint methodology, data collection and indicators. At the end of the day, what data was made available deviated in important respects and there were also differences in the local issues prioritised as well as the means of measurement, that led the partners to present their data separately. Meanwhile, IULM, the consortium partner coordinating this task, worked out a joint umbrella and introduction.

For comparability to be possible, activities undertaken in each city need to be sufficiently similar. The planning of the Living labs, for instance, has followed the Vortex conceptual model providing guidance for certain joint principles to be applied in each case. The objective is to shape a series of inter-connected platforms, or ecosystems, enabling all URBiNAT WPs to make comparisons and draw lessons. Based on the intention of the CoP to draw on the Living labs of each URBiNAT city, the best way of framing the link between the two has been carefully examined and discussed, with ample inputs from citizens as well as from expert networks.

The Living labs of the frontrunner cities are poised to take active part in parallel co-creation processes around NBS and Healthy corridors, involving co-diagnostic, co-design, co-implementation and co-monitoring. In the follower cities, the maturing of Living labs is intended to follow a similar process, replicating core co-creation activities while adapting NBS and their formation into Healthy corridors to their specific context. While the frontrunner cities are moving one step ahead, the CoP is thus framed for all URBiNAT cities to share and learn from each other through a coordinated co-creation and learning process. This set-up may be viewed as a compromise where each Living lab is stimulated to experiment for the purpose of achieving the best results for the local situation, while monitoring, measurement and analysis are shared.

The preliminary results of mapping the local participatory culture available for both front-runner and follower cities, as presented in Deliverable 3.2 (D3.2), offer a basis for sharing and learning from differences, specificities and commonalities. The resulting proposed strategy for a municipal roadmap is also aimed at promoting exchanges around the introduction of elements to improve the quality of participation as a means and as an end, adjusted to local needs, cultures and the ambitions of each city.

Despite such efforts, persistent differences have gradually come in the open, particularly between the forerunner cities, in respect to both issues and preferences in work with data and methodology. In effect, this means that the Inter-cities coordination work has been more time-consuming and taken longer than initially planned. Renewed efforts have had to be made, for instance, to identify common challenges ripe for fruitful coordinated addressing by NBS, with each city at times stressing its uniqueness.

While deprived neighbourhoods display certain similarities, the lead cities of URBiNAT are nevertheless quite diverse in terms of culture, language and governance. It is thus important to work out mechanisms in support of genuine exchange. It is hard to point to a single optimal way, or routine, for enabling sharing and learning between cities, especially involving deprived areas.

The initial step to set off active sharing between the cities consisted of grouping them in clusters. In an experimental process, the creation of clusters was based on finding similarities and establishing closer links between those cities that could be expected to have the most in common with their peers. The results of this clustering were weak, however. An insight grew that pre-defined interlinkages are counter-productive and unnecessary. This approach was thus abandoned and replaced by a process whereby the cities have flexibility to link with each other for intensive exchange and learning on a case-by-case basis.

Apart from the on-site visits and events, organised back-to-back with consortium meetings (allowing all partners to develop a deeper understanding of local conditions), webinars/online meetings have been structured for joint reflection on strategies for citizen engagement, the importance of physical space for participatory activities, and the relevance of sharing project preconditions to allow a transparent and successful process. Their reach, however, has generally been limited to the URBiNAT partners, involving only a few selected city officials. The involvement of a larger number of officials, representing more diverse departments, as well as of citizens from the neighbourhoods themselves, has basically been limited to the physical "inside-the-cities" meetings, arranged on the ground.

The reason that the on-line meetings have failed to encapsulate a broader representation in each city, has less to do with a lack of enabling digital infrastructure, including the availability of tools on the ground, and more with practical, organisational and psychological matters. Maintaining broad-based interest in primarily on-line communication, among those that may not feel obliged to take part continuously, is very challenging. The tentative lessons point to the need of working out very concrete agendas and deliverables for each party concerned, as a prerequisite for succeeding in ensuring effective digital communication in this context.

Against this backdrop, work is undertaken under T3.3. to examine the properties and opportunities brought by digital enablers, going beyond technical aspects to analyse the matching of purposes, methods, content and tools, in support of co-creation of NBS and Healthy corridors. This work will be further built on as part of T3.4 which entails the realization of co-creation using digital enablers to leverage and link so-called Community of Interests (CoIs) in URBiNAT cities.

A prominent role of the CoI is to identify and mobilise what may be referred to as a "glue", a linking or bridging mechanism between sub-groups in the URBiNAT CoP. By advancing the concept of CoI, URBiNAT seeks to operationalise the potential value of shared interests coupled with dialogue (as in public space), to leverage change mechanisms (art of leadership to be deployed here – cf., Kotter's steps for implementing change, using mechanisms such as emotional marketing).

Applied in the between-cities context, CoIs may draw on similar challenges facing communities in each city, serving as a platform for proposing and advancing solutions. Such challenges in the neighbourhoods often have to do with security and logistical issues, others with socio-economic challenges. They may also draw on shared sources of strength, susceptible to leverage, for instance, gardening or growing their own food, pursuing sports activities, music, dance, arts, etc. The task is to identify parallel tracks where potential strong motivations are at hand, for one reason or the other, and explore how to link them while retaining or further strengthening bottom-up lead, along with multi-stakeholder exchange and learning. [2]

In this way, CoIs can serve as a base for exchange and learning not only between citizens, but also management and other key actors, in different cities, in support of a common cause. By nurturing CoIs, it is similarly possible to reshape the identity of a particular neighbourhood. Deprived areas typically struggle with negative associations, such as high crime rates, unemployment, poverty, etc. By starting unifying actions for reinforcing a latent positive identity, with citizens taking the lead, a new narrative can be created with positive impetus on the wellbeing of citizens.

All in all, the development of the between-cities circle of interaction has demonstrated the challenges met by conventional approaches to coordination, representation and alignment of statistical measurement, indicator work and agreement on priorities for analysis. A strengthening of this level of the CoP requires that the already initiated shift in coordination mechanisms and governance is allowed to run its course. This implies moving away from reliance on formal and merely theoretical exchanges but, rather, connect and leverage processes of genuine engagement in each city. The signs are that a coordinated effort to identify groups, citizens and stakeholders, genuinely motivated by either addressing joint challenges or enhancing perceived strengths, can serve to build trust, demonstrate relevance, and place between-cities collaboration on course for co-creation in establishing NBS and Healthy corridors.

3.2.5 The wider circle

The wider circle of stakeholders and interested parties that make up the URBiNAT CoP includes the growing number of national and international networks with a focus on urban transformation using NBS, along with relevant services of the European Commission, the media, academia, the private sector and the public at large. URBiNAT has developed a diversified strategy to underpin fruitful communication and relations, shred learning and mutual trust with these different target audiences.

The starting point for the resulting *Communication and Dissemination Plan* (D6.1) was a recognition that the project's theoretical and methodological frameworks and associated approach to Nature-Based Solutions and "Healthy corridors" would likely resonate with multiple audiences featuring a broad range of motivations to find out more and/or get involved.

From young mothers hoping for a more secure and prosperous environment for their children to grow up in, to community organisers working with employment seekers, the elderly, newly arrived refugees or children of immigrants who arrived decades ago but still struggle to bridge between divergent cultures, neighbourhood associations with an interest in improving the quality of the built or natural environment, local farmers, local entrepreneurs, urban planners, city planners and, eventually, regional, national and international policy makers at the EU level, it was evident from the start that URBiNAT CoP in the widest sense is made up of citizens and professionals from an eclectic array of backgrounds. In many sections of society there is tremendous buy-in to the goal of sustainable urban

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[2] Each city has thus undertaken work to prepare and potentially mobilise the most effective such new communities. Here, naturally, there is a strong interface with the 2nd interactive circle, i.e. the cross-city interaction.

transformation, and enthusiasm for innovative modes of participation and co-creation that are championed by projects like URBiNAT. The challenge at this relatively early stage in the creation of a fully-fledged CoP is how to harness the creative, intellectual and entrepreneurial energy and turn it into a groundswell movement.

The URBiNAT project was launched with a bold vision to prototype, test and eventually to reveal the long-term transformational power of NBS notably when pursued through co-creation and placed within the context of Healthy corridors. Given the interconnections between micro and macro levels, which combine to shape the way cities and city parts evolve, it is vital that the aims, methods, principles and opportunities are communicated in ways that can be understood and inspire a broad range of stakeholders. Without buy-in from the wider circle of actors the project would end up having limited meaning; its chances of having a durable, positive and replicable impact would be modest at best.

But communicating effectively to a wider circle of stakeholders has its challenges. It requires a good understanding of the diversity of stakeholders, and their different needs and hopes in connection with the project. It also assumes a certain empathy and being able to communicate in a language - technical, scientific or layman; printed, spoken or filmed - that is appropriate in each target audience or situation. It may also, depending on the situation, benefit from communicating in different national languages or dialects by means of interpreters, local champions or community leaders.

For this reason, with respect to the wider circle of the URBiNAT CoP, the project's Communication and Dissemination plan (URBiNAT, 2018) focuses extensively on the format of communication materials (flyers, posters, illustrated brochures, academic papers, articles) and the situations or venues (outdoor meetings, neighbourhood walkthroughs, co-creation workshops, academic conferences etc.) that are seen as propitious for the transmission of information and engaging in dialogue.

As a multilingual, multidisciplinary and international consortium of partners, spread across Europe and around the world, URBiNAT is uniquely well disposed to conduct outreach and engagement activities with the multiple audiences in the wider-circle COP. Horizontal partners with expertise in promoting co-creation by citizens, co-design workshops and the running of Living labs have successfully engaged with city administrations and neighbourhood associations, and involved scores of citizens in the early stages of co-selection and design of NBS and plans for the Healthy corridor. At the same time other partners including researchers and urban planners have been working in coordination with local scientific partners in the cities covered, providing guidance regarding the collection and analysis of data as part of the co-diagnostic phase of the project. Yet other partners, with expertise in digital enablers, economic development, entrepreneurship and policymaking, have been working with local counterparts to develop context-specific narratives.

URBiNAT cities and partners are interconnected with various "external" stakeholders and interested parties. A first identification and mapping of the networks that the URBiNAT cities belong to was conducted in the early phase of URBiNAT. Some of those identified are: Euro Cities, Plante et Cité (centre for landscape and urban horticulture), UN-Habitat, European Federation of Public Cooperative and Social Housing, International, International society of City and Regional Planners, ICLEI: Local Governments for Sustainability, Green Digital Charter, and Covenant of Mayors for Climate & Energy. Central issues to raise here is whether these networks can be used by other cities; and how networks from the non-EU members can be engaged and utilized.

URBiNAT's CoP has further profited from the opportunity to contribute to the initiative supported by UNESCO entitled OE4BW, Open Education for a Better World, led by the UNESCO Centre (former UNESCO Chair) for Knowledge Transfer in Information Technology (https://ct3.ijs.si/), at the Jozef

Stefan Institute in Ljubljana, Slovenia. The OE4BW is an initiative launched 3 years ago that aims to develop a community of experts in knowledge transferring through information technology, namely producing and preparing open courses on topics that directly address the Millennium Development Goals of UN. URBiNAT proposed, being accepted, to establish an open education platform entitled "NBS and urban regeneration – Creating Healthy corridors in deprived neighbourhoods" which is targeting the main contents of the project, as well as different MDG, mostly n.11 the "Sustainable Cities and Communities".

As an H2020 project, initiated in 2018 at the same time as three other projects with a similar focus on NBS and urban renewal, URBiNAT benefits from extended de-facto CoP, composed of the partners and stakeholders of these and also other related EU-funded projects. From the outset the URBiNAT has sought to engage with the representatives of its sister projects during conferences (e.g. the NBS Paris Forum, the launch of the ProGlReg project) and online meetings. The representatives of these projects are URBiNAT's natural peers and valued partners when it comes to validating the concepts, theoretical and methodological frameworks that form the basis of these projects. What is an NBS? What is a Healthy corridor? What are the metrics for measuring their performances? These are questions that are as yet without precise answers as they relate to an emerging field. They are the reason why this section of the CoP is critical. Coordination with sister H2020 projects is partially facilitated with the mechanism of EU task forces set up by the European Commission.

Related to the "Sister Projects" in Horizon 2020, special networks were further established to address joint subject areas. These include a framework proposed for clustering actions for NBS in response to social challenges (University of Coruna, 2018). In particular, specific "Task Forces" (TF) have been set up, on the initiative of the European Commission, to increase the scope for such benefits. The following exchanges and associated work undertaken in this context over the past year is of high relevance to URBiNAT's CoP:

A first Task Force, (TF1), on "Data Management and EU NBS Knowledge Repository", aims to establish an open access knowledge base in support of innovation around NBS and sustainable and resilient societies.[3] An **"**EU NBS Knowledge Repository" provides evidence on NBS along with guidelines, tools and methodologies for co-creation, implementation and monitoring. Part of the objective is to facilitate sharing, search and reuse of NBS independently of the project where they have been implemented. The expected outcomes include:
- The EU knowledge repository for NBS, hosted by OPPLA (https://oppla.eu/);
- A data management plan to ensure interoperable data, open access and comparability.

A second, (TF2), on "NBS Impact Evaluation Framework", draws on the high diversity of competences and experiences among the sister projects. Noting the large amount of knowledge generated by each, it aims to facilitate linking and combining their expertise in response to upcoming needs. It coordinates joint processing of indicators, partly coming from experts' review, while others are the result of co-creation processes with cities. Further, it opens for additional development work to allow for NBS impact assessment to reach beyond the catchment area, linking to a broader network of cities.

Task Force (TF3) promotes active exchange of knowledge and experience between sister projects in Horizon 2020 on "Governance, Business Models and Financial Mechanisms of NBS.[4] It includes a review

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[3] Task force 1 includes nominated members of every relevant Horizon 2020 NBS project, DG RTD, EASME. 17 projects from various H2020 calls on NBS are currently members of task force 1 and new projects resulting from relevant calls may join.
[4] Projects and partners in TF3 include: ThinkNature, PHUSICOS, NAIAD, UNaLaB, GrowGreen, Connecting Nature, NATURVATION, Urban Green Up, Nature4Cities, ProGIreg, CleverCities, ReGREEN, OPERANDUM, RECONECT, Clearing House, WeValueNature, EDICITNET, EKLIPSE, and URBiNAT.

of the current state-of-play in public procurement practices of NBS in European cities, including recommendations for reforms and critical elements of business cases for NBS. Possibly the most active of the task forces, the TF3 operation resembles a CoP in its own right, warranting some particular attention in this context.

Since September 2019, TF3 has been structured around a rotating responsibility among the sister projects for the preparation, chairing and minute taking of monthly on-line meetings. Through this process, a set of activities is agreed upon to further the cause of the task force, with working groups established and additional responsibilities assigned among the members along the way. Some of the topics addressed thus far include:

- Critical elements of NBS business cases;
- Economic opportunities of green jobs;
- Best-practice financial mechanisms for the implementation of NBS;
- Best-practice business models of green start-ups;
- Ongoing business and innovation activities for scaling-up opportunities.

Recent considerations have focused heavily on the influence of COVID-19 on implemented NBS and how to assess and take into account its further impact. The TF3 meetings are also being used to advertise upcoming events and meetings relevant for the areas under consideration, including those arranged with the partner as well as external ones. In this way, TF3 operates as a quite focused but broad-based network, and CoP, of its own, that serves to effectively complement and leverage that of URBiNAT's own CoP, and also those of the sister projects.

As a result of the clustering and networking catalysed by these and other task force activities, individual URBiNAT partners established a close connection also with individual partners in sister projects, resulting in fruitful exchanges and a stronger linking between URBiNAT's CoP and those of other individual sister projects, centring on those with natural joint interests and/or facing similar concerns. Areas include, for example, specific aspects of indicator development, e.g., in regard to economic and well-being aspects. Other links were established in connections with events, conferences or other special initiatives.

The knowledge resulting from the CoP wider network interactions will benefit each city in a dynamic loop of feedback, constitute highly relevant references for the EU-wide Framework agenda for NBS, and its extension in Healthy corridors, and continue beyond the project's lifetime as impacts will be replicated and disseminated through observatory actions.

Ambitious Initiatives have been pursued with the non-EU partners and observers in URBiNAT. For instance, on Earth Day on April 22, 2020, URBiNAT co-organised a webinar focusing on the impacts of human inactivity, both for individuals and for the surrounding environment. The nature and implications of the natural recovery and what it means for people, were analysed and discussed. As a result, an online idea bank is under construction, to collect core ideas for future projects that take into consideration COVID-19 related changes in the world. The ideas put forward to date, what individuals and communities can do, include the creation and usage of new digital enablers for virtual planting and moving green activities online. This event, which had a global orientation, went beyond the wider circle of URBiNAT's CoP to include a number of other organisations in the Middle East, Asia, and Africa. This represents merely one example of activities outside the EU. The strategy in this respect is addressed in the ensuing section.

4. Beyond Europe

Non-EU organisations feature strongly in the URBiNAT project, opening for substantive contributions from around the world, as well as for impetus of the project results on a much greater scale than if the project had been limited to the EU. This is as non-EU organisations have vast historical and practical experience to draw upon, while also faced with massive challenges of the kind addressed by URBiNAT.

The CoP is of high importance for fulfilling the potential of such contributions. The administrative task of managing the organisation meets with special issues, however. For this reason, the central project coordination of URBiNAT, under the CES, is aided by IKED as a sub-coordinator, engaging in close interaction with the non-EU actors and the associated strategy development related to the CoP.

In this chapter, we go on to review the rationale for inclusion of each non-EU actor country and the features and roles of the participating organisations (partners and observers). We then examine the development of strategic partnerships, taking into account the contours of two main categories, i.e. universities and research centres vs. organisations with national reach. In this, we consider their respective contributions in amplifying URBiNAT's CoP, along with associated practices and impact.

4.1 Non-EU Countries

The non-EU countries directly involved in URBiNAT are Brazil, Japan, China, Iran and Oman. All possess a rich traditional heritage of developing and applying NBS in city and community development. Table 3 outlines some relevant features pertaining to these countries. The upper part indicates potential strengths, while untapped opportunities and challenges are listed further down. All in all, this flags the presence of complex patterns of partly contradictory conditions within - as well as across - the different countries involved.

While the historic legacy may be less present compared to the other four non-EU countries included, **Brazil** presents distinct issues as well as approaches to NBS, public space and participation, drawing on its exceptional forest resources coupled with culture. Early initiatives to bring about citizen engagement include Arbor Day (Dia da Arvore), celebrated on September 21st and devoted to planting trees, which goes back to 1902. Deeper cultural imprints on politics and in the relationship with urban space have developed weakly, however. At the same time, Brazil possesses a wealth of traditional approaches to well-being as represented by its universe of culturally diverse communities, including forest peoples such as the indigenous "ribeirinhos" and "quilombola". These add to the dimension of citizenship a basis for "well-being\bem-viver" which emanates from balance with nature alongside deep relations of solidarity, reciprocity and harmony. Over time, however, the ecosystems and traditional cultures of Brazil have become subjected to relentless pressures. In recent years, public investment and spending on environmental policy have collapsed, while protection policies have been eroded under the label of "changing the rules and simplifying the norms".

Participatory processes have been applied in work with socially deprived Urban areas at least since the 1970s. However, widening inequalities, a growing informal economy and deteriorating amenities and public space, encapsulate a spiral of worsening fragmentation and deepening social issues. For Brazil, attention to NBS in city development now represents a precious opportunity to usher in a renewed concern for quality and life and overcoming social and cultural fragmentation.

	Brazil	Japan	China	Iran	Oman
Rich heritage	X	X	X	X	X
Tradition of NBS	X	X	X	X	X
Man-nature relationship	X	X			
Engagement with public parks		X			
Traditional garden culture		X			
Strong local engagement	X	X			X
Vibrant social innovation	X	X			
Untapped potential for NBS	X		X	X	X
Rapid urbanisation and industrialisation	X		X	X	
Loss of traditional knowledge				X	
Income disparities	X		X	X	
Downgraded urban environment	X		X	X	

Table 3: Illustration of stylized cross-country differences, non-EU countries in URBiNAT

To an even greater extent than Brazil, **Japan** is marked by a unique, almost mystical, man-nature relationship, which has accounted for a strong presence of NBS in urban development stretching back more than a thousand years. Japanese gardens are exceptional in terms of cultural connection and natural elements carry symbolic functions that are strongly embedded with local culture. Further, NBS carry very significant public functions. For instance, while Japanese citizens generally have tiny gardens of their own, they display an exceptional engagement with public parks, placing this as the number one leisure time activity for Japanese citizens on average. Authorities have further inspired public awareness and consumer preferences in support of sustainable and locally produced food supplies. However, the

severe space constraints of the modern Japanese city bring high land value and puts public space under strong pressure, making it critical to assume solutions to add new value and usage of NBS.

The garden culture of **China** is even older, stretching at least two thousand years back to the Shang Dynasty. Its landscape architecture belongs to the oldest continuous models in the world, with important functionality as a source of wisdom, ethical commitment, recreation and social bonding embedded from the start. Chinese gardens thus represent transformed, humanised natural landscapes with deep symbolism. Always reflective of the Taoist totality of yin and yang, centrist structures strictly subordinated to human order are generally surrounded by natural, untamed vegetation. This tradition has been part of traditional city development, but their status and societal role has diminished during the last half-century. As China has gone through a relentless urbanisation and industrialisation process, its sprawling mega-cities have become heavily congested, polluted and socially fragmented, while the cultural and environmental heritage has degraded. From around the turn of the millennium, however, China shifted its stance towards developing a knowledge-based society drawing on science and technology for value-creation. Urban planners are encouraged to apply "smart city" tools to resolve outstanding issues. Thus far, however, the emphasis has been predominantly on technology, and less on participatory processes and citizen engagement. A renewed serious consideration of NBS stands to bring a shift in mindset towards putting the needs of citizens and the overall linkages and harmony of cities back in focus.

With even older traditions, **Iran** may have the oldest and most sophisticated traditional garden culture found anywhere, stretching back more than four millennia. The Persian Garden, based on the right angle and geometrical proportions, combined innovative engineering and water-management solutions with human fulfilment, giving root to the term Paradise ("Pardis" in Persian). This notion has impacted on NBS as well as the design of public space and private residences, across much of Eurasia. While some precious traditional Iranian NBS have remained intact to this day, the urbanisation and industrialisation process of the 20th century led to intensive pollution, uncontrolled land development and an erosion of traditional amenities along with the quality of life for ordinary people in Iranian cities. Although many citizens remain aware of the value brought by NBS, their weight in city planning has been waning. Only in recent years has an awakening started to take hold, with renewed consideration to the importance of NBS in tackling societal and environmental issues in Iranian cities. Still, access to knowledge about the building blocks of NBS and how they relate is weakly present, and largely inaccessible to those responsible to city planning.

Oman, finally, has less experience of city development than the other non-EU countries taking part in the project. On the other hand, NBS have developed strongly across villages and the countryside since millennia, encapsulated in the *falaj*, a special Omani variant of *qanat* (canal) system for water management still operational in Yemen, and with remnants across much of North Africa, the Middle East and South Asia. The falaj represented not only sustainable irrigation solutions but applied sophisticated methods for how to divide the rights and usage of water in an equitable and efficient manner during cycles of varying availability. While key to the organisation and survival of local communities, these NBS cultivated the capability of people and institutions to compromise and achieve consensus, which has benefitted Oman to this day. In recent years though, local knowledge of this fabric has dwindled fast, contributing to depletion of water resources, desertification, erosion and also a sense of alienation A revival of NBS is seen as countering ethnic and tribal divisions and as a vehicle for revived community building and securing fulfilling local neighbourhoods.

4.2 Non-EU Organisations

In the following we present the main organisations that form part of URBiNAT's CoP in the five non-EU countries that are formally part of the project. They are presented country-by-country.

4.2.1 Brazil

The main partner of URBiNAT in Brazil is URBEM, the Institute of Urbanism and Studies for the Metropolis. URBEM is a research centre focused on urban studies which aim "to conceive and implement large-scale urban development projects in the city of São Paulo and other global cities". It will enrol cities as observers of the URBiNAT processes and results, in order to further the development of urban plans according to the Healthy corridor concept and methodology. URBEM will look for funding in the municipalities budget or in the private Brazilian foundations to back this agenda.

On July 10-11, 2018, the European Commission's Directorate-General for Research and Innovation (DG RTD) invited URBiNAT and other H2020 projects to the 2nd International Seminar for NBS, held in Brasília and organised by the Centre for Strategic Studies and Management (CGEE), the Brazilian Ministry of Science, Technology, Innovation and Communication (MCTIC), ICLEI - Local Governments for Sustainability, Sustainable City Innovation Observatory (SCIO) and the Connecting Nature project. The event brought together Brazilian and European cities, researchers, NGOs, businesses and practitioners to share experiences, learn from one another and have a lively conversation about how the planning, co-implementation and maintenance of NBS can make a difference in achieving sustainable urban development.

Following the 2nd International Seminar for Nature-Based Solutions, Campinas (São Paulo state), Belo Horizonte (Minas Gerais state) and Fortaleza (Rio Grande do Norte state) entered discussions with URBiNAT on possible Observership. Coordinating with URBEM, the Brazil partner, avenues were examined as well to attain private sector support for their engagement in countering social and environmental issues. Collaboration was established as well with the Sustainable City Innovation Observatory (SCIO) for the purpose of reviewing the NBS form for matching NBS cases with the needs of Brazilian territory. Separately, a newly developed academic institution - PUC/PR, Catholic Pontifical University of Paraná – examined possibilities to join as an observer as well, with the objective to enable increased local engagement in neighbourhood development. Also, resulting from the local articulation efforts of URBiNAT, in May 2019, a workshop on participation and co-creation was coordinated by the regional government in Curitiba, resulting in a lasting sharing environment.

In the spring of 2020, a new observer arrangement in URBiNAT was formalised as a partnership with the Commission for Ecology, Environment and Animal Protection, Paraná Assembly of Deputies (ALEP). Two tracks of activities form the backbone: i) in the short-term, the arrangement of local events to disseminate URBiNAT's concepts and methodological approach, and; ii) in a long-term, providing support to municipalities by way of inputs to workshops and seminars. Thus far, the technical team of ALEP has taken part in URBiNAT webinars on "urban plan" and "citizens engagement and digital enablers", with the objective of operationalising URBiNAT's concepts and methodologies in Paraná.

In September 2019, a workshop was conducted in Natal, hosted by the university and Partido Verde (Green Party). Stakeholders and citizens from the "Praia do Meio/Rocas" neighbourhood took part, focusing on a concrete project, i.e., the demolition of degraded housing areas to be replaced by seafront towers along with amenities to form the backbone of a new touristic area. The seminar advanced participatory local diagnostic and a joint vision for urban regeneration, in contrast with the

city plans for verticalization. Natal has proceeded to develop the program in parallel with plans to attain Observer City status within URBiNAT.

Additionally, in Brazil, URBiNAT has become a member of Connecting Nature's Academy on Nature-Based Solutions, promoted by ICLEI. In a programme initiated in 2018 and lasting to 2021, the Academy is exploring the role of NBS in addressing water and climate-related issues. Contacts have been established as well with the so-called Observatory of sustainable cities.[5]

4.2.2 China

China's participation is coordinated by the National Smart City Joint Lab (NSCJL), founded by the Chinese Society for Urban Studies (CSUS) in order to create a strongly networked body focused on supporting a development-oriented smart cities agenda across China. NSCJL, in effect, serves as the leading think-tank and de facto promoter of revamping traditional urban planning procedures across China with the help of science, research and innovation with a focus on smart city development and NBS. On this basis, it underpins the development of participatory tools to engage citizens in identifying and addressing those issues that are central to the local context, in support of social well-being. Challenges acted on by the NSCJL include uncontrolled urbanisation, inefficient transportation, congestion and pollution, management of water resources, shifting to sustainable energy and food supplies, and addressing social fragmentation and exclusion in search of social harmony.

It is of high importance for NSCJL to work out ways of supporting and furthering efforts by Chinese cities to enhance their overall standard and the quality of their environment for citizens, by seizing on opportunities for green development linked to a completer and more competitive smart ecosystem. NSCJL base their work on cutting-edge research and the development of international standards (e.g. ISO). NSCJL further gathers international innovation resources, attracts world-class experts and scholars, and cultivates domestic talent. In this, NSCJL strives for realizing three-dimensional support for scientific research, talent development and discipline development. At the same time, NSCJL promotes transformation and applicability of research in universities and industrial institutes through the integration of "industry-university-research" and the establishment of "smart" Living lab". NSCJL cooperates closely with numerous cities in China, such as Shenyang, Nanhai (Foshan) and Hefei, which this way is connected with and takes inspiration from URBiNAT's notions of NBS and promoting Healthy corridors.

Since 2012, China has selected more than 300 cities or towns to serve as national pilot smart cities, located in more than 30 provinces around China. This extraordinary network, which includes mega-cities such as Shenzhen, Shanghai, Guangzhou and Nanjing, but also somewhat smaller cities, often with a unique historical and cultural heritage, such as Hefei, Guiling, Hangzhou, Jinan, and Chengdu. In principle, the 300-strong Chinese smart-city network coordinated by the NSCJL, illustrated in Figure 4, provides a potential exceptional extension of the URBiNAT CoP, which already promotes a range of smart city and Nature-Based Solution projects. Some aim to create more inclusive public space using green areas and corridors. Others strive for more congenial, accessible and user-friendly mobility and public transport, as well as smart infrastructure, smart tourism, and smart communities.

Of high importance in the agenda of NSCJL's is the promotion of innovations which can help engineer solutions tailored to local conditions. When acquainted with a particular new set of instruments, the

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[5] https://www.cgee.org.br/projetos/-/asset_publisher/W0hI4ElAHtL5/content/observatorio-de-inovacoes-para-cidades-sustentaveis

NSCJL consults with its network and then selects the cities that are the most motivated and relevant for experimenting with and examining the solution at hand. With their focus generally directed towards technical issues and smart city aspects, the NSCJL teams up with city authorities, enterprises, universities, academic research centres, NGOs and other correlative organisations to establish a long-term cooperation mechanism.

For URBiNAT, following consultations with its city-network, NSCJL chose Shenyang to act as prime sounding board, the "lead" follower/observer city, examining and testing ideas and insight flowing out of URBiNAT, through inclusion in its city plans. The capital and largest city of the northeast Liaoning Province, Shenyang's exceptional historical heritage includes the Mukden Palace (Shenyang Imperial Palace), a blend of Manchurian and Tibetan architectural styles. Mausoleums of Qing dynasty emperors can be found at Zhaoling Tomb amid the pine forests and lakes of Beijing Park, and at Fuling Tomb in the city's east. While, over the past decade, the wider region and Shenyang as a whole experienced a shift towards more high-value-added industries and higher income, large neighbourhoods remain underdeveloped, marked by poverty and an unattractive environment. Different parts of the city are insufficiently connected, resulting in congestion, long travel times and social fragmentation, as is typical for many of China's cities.
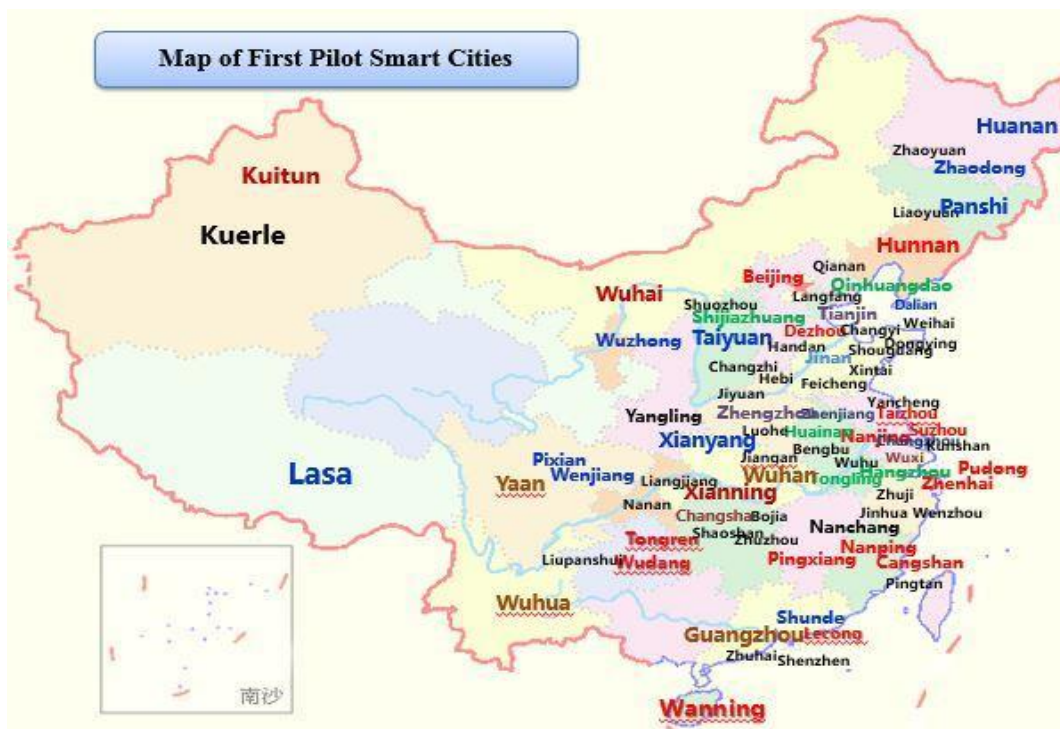

Figure 4: The Chinese national network of smart cities

As a partial response, Shenyang municipal finance recently established a special poverty alleviation fund of CNY 25 million (approx. EUR 3 million), to ensure the timely, high-quality and efficient implementation of the poverty alleviation project. In preparing for URBiNAT, the city of Shenyang has opted to examine and learn from how to work with citizen engagement around NBS, including development plans in support of poor areas. Here, the focus on how to generate increased usage and value from the "two-bank-waterfront city" agenda, by expanding and leveraging the use of its existing green space system (the city's relevant planning map is depicted in Figure 5). Further, input from

URBiNAT to realize a connected mutually strengthening greenbelt system linking the main parts of the parts.

At the end of June 2018, Shenyang received a plaque saying: "Shenyang – Observer City of URBiNAT H2020 Project". At this time, in talks with Shenyang representative Mrs. Ying Li, first steps were identified, namely, to join URBiNAT meetings in order to coach and share experiences, concepts and methodologies related to urban regeneration, NBS, urban projects, participatory process, etc.; and to identify in Shenyang an urban area to develop URBiNAT, where we underline the relevance of integrating social housing neighbourhoods. Shenyang proposed the urban area of Hunnan New District.

During the course of URBiNAT, however, the regional government in Shenyang has gone through changes, leading to delays in the enactment of activities. As the project funding has held up too, the Chinese participation has lost some momentum. The National Smart City Joint Lab (NSCJL) nevertheless remains committed and is seeking ways to resolve the issues. NSCJL is continuing the dialogue with Shenyang in order to consolidate its role as observer in URBiNAT, while also initiating dialogues with other cities. The Nanhai district (in Foshan, Guangdong), is under consideration as another observer. Furthermore, NSCJL has invited various URBiNAT partners to take part in events promoting the project in China. Ample presentation material has been produced for such purposes, including PPTs and printed leaflets. This way a large number of experts and senior city officials in China have become aware of the project and the topic. There is great potential to build on these connections through virtual communication.

Other cities and districts in China of high relevance include Luyang in Hefei, Anhui, Hengqin in Zhuhai, Guangdong, Fuzhou in Fujian, Chengdu in Sichuan, Hechuan in Chongqing, Xuhui in Shanghai, and Jiaxing in Zhejiang. In Hefei (Anhui) authorities, the Big Data Department of Hefei Government, and the University of Hefei have shown interest in being part of URBiNAT and integrating the urban area of Luyang District (an area where the municipality want to do urban regeneration) into the project.

Figure 5: Planning Map for Shenyang

There is also an interest in involving Chinese companies in the project. Furthermore, Macau University has shown interest in becoming an Observer, to promote Healthy corridors in Macau City. Various possibilities for intervention are on the table, with an opening for guiding the choices made and the mode of implementation through URBiNAT. These cities and districts offer interesting and relevant experiences that can be of value for URBiNAT cities; and are also interested in learning about the experiences and knowledge developed in URBiNAT cities.

4.2.3 Iran

The project partner in Iran is the Iran Chamber of Commerce, Industries, Mines and Agriculture (ICCIMA), which spans all industrial activity in the country including manufacturing, services, mines and agriculture. It is a non-profit institution devised for bottom-up engagement. All Iran's 31 provinces are represented in ICCIMA as the national body, each having its own local chamber with broad local stakeholder representation. It promotes collaboration to spur competence development and building more attractive and successful conditions for economic and social progress on the ground. More inspiring, amenable and bonding conditions are seen as key to innovation and value-generation.

Having established an internal commission for "Water, Environment and Green Economy" in 2015, ICCIMA aims to promote usage of NBS as a means to increase quality of life as well as promoting innovation and commercialisation. Through URBiNAT, ICCIMA plans to gain new experience of how to address specific local needs and opportunities, for the purpose of achieving greater liveability, higher productivity and social cohesion.

In order to support the diffusion of results, ICCIMA has invited the Department of Urban Planning and Architecture at the Ministry of Roads and Urban Development (MRUD), as a coordinating national institutional partner. MRUD is the policy-making authority responsible for housing and urban planning/development, as well as the overall transport sector of Iran. MRUD is the main policy-making body within urban planning and management of urban space and is responsible for administrative plans in land, housing, urban planning, government buildings and urban development. It supervises the provision of Master and Detailed Plans for cities across the country, in close collaboration with city councils and municipalities. In recent years, MRUD has started to pay attention to cultural and social conditions. Its agenda now includes active promotion of Iranian, traditional and national architecture.

The Chamber, in consultation with MRUD, selected Khorramabad to be at the forefront of information exchange and pioneering new solutions introduced through URBiNAT. Its physical structure is strongly influenced by the natural elements including mountains and rivers. The tall citadel Falak-ol-Aflak (*The Heaven of Heavens*) forms the historical core. The administrative-commercial centres are located on the northern part and residential districts formed along the Khorram and Kargan Rivers (with more than 100 historical bridges). Kiu Lake is situated in Kiu Park and green areas surround this recreational district. Uncontrolled urbanisation has led to severe problems, however, with deprived and undeveloped areas stretching from the centre to the south of the city. Lack of accessibility, mobility (traffic nodes), and concentration of resources to the northern part has led to friction and lack of trust among citizens in the south, where many residents suffer from a sense of discrimination. As a result, the structure of the city as it stands is inherently polarized. These difficulties have contributed to worsening an already bad economic situation, which has brought deep poverty for the population, coupled with a sense of despair and helplessness.

Before URBiNAT was introduced, there was no plan for how to amend either the land use pattern or the lack of confidence among citizens. Meanwhile, minimal attention was paid to the natural and historical heritage sites. Some NGOs had tried to call attention to these issues but lacked the clout to exert any palpable influence.

Through URBiNAT, the situation has changed markedly. Starting with the preparatory meetings, and followed up by a series of workshops engaging all key stakeholders, a firm plan has been developed, to work with citizens on the establishment of several interrelated NBS within a wider framework of Healthy corridors, leveraging Khorramabad's historical assets, legacy and existing city fabric, through inclusive practises.

From the outset, the city of Khorramabad received the proposition to take part in URBiNAT with interest and pride. Given the nature of the project, it soon became evident that effective implementation required the local organisation to be given priority relative to the national set-up of ICCIMA. Already in the fall of 2018, an adjustment was prepared, whereby the Lorestan regional Chamber of Commerce (LCC) was granted the lead. This was felt to be particularly important in order to strengthen local buy-in and enable a genuine boost to community-driven processes. One year later, in the fall 2019, the formal project coordination shifted to LCC and the bulk of the Iranian project team was located on the ground, in Khorramabad.

At the core of the project stands the Poshtbazar neighbourhood, a historical centre. Although currently dormant, early consultations between the Iranian team and local representatives raised the prospect of its potential revitalization, as a means to leverage self-confidence and create a source of innovation and development. The introduction of NBS was proposed as a new mechanism for bringing citizens together around this agenda. Part of the plan is to create a functioning inner circle where people can move around by foot. Of key importance is the establishment of a route leading car traffic outside the city centre, as illustrated in Figure 6. On the inside will be a system of walkways coupled with effective public space. Eventually, the plan is to form an interlinked circle of new attractive 'development centres', capable of connecting with all main neighbourhoods. Illustrated in Figure 7, the planning and implementation of these centres is set to propel genuinely experimental activities, stimulating citizen engagement and co-creation. Such work has since been initiated, entailing citizens along and relevant stakeholders in inclusive practice. Apart from enabling bottom-up lead, the purpose is to restore trust between residents in different parts of the city, especially deprived areas, and also between people and city officials, and the other way around.

The Khorramabad workshops (Box 1), organised with strong engagement by a broad range of URBiNAT partners represented an instrumental building block in the continued co-creation process. The application of a creative format allowed for different groups to take stock of the issues confronting the urban environment, as well as reflect what could be achieved by coming together around the implementation of NBS and a Healthy corridor. They greatly contributed to broad-based understanding of the project and what it aims for, paving the way for co-diagnostic and the commitment of all main actors to the ensuing agenda in Khorramabad.[6]

Under the URBiNAT umbrella, the continued activities need to maintain a well-connected team, with the workshop architects and instructors remaining on board and active. It is imperative in this to keep linking the different URBiNAT CoP circles of interaction: i) The consortium itself provides legitimacy for cross-border collaboration and the engagement of international experts; ii) The in-city linkages realize unique scope by way of representation by all relevant local actors; iii) The between-city exchange and comparisons signal a powerful message that city authorities and residents in Khorramabad are not alone in their task, and; iv) the wider context, in Iran itself and internationally, critically underpins the message that the lessons learned are of generic interest and value, as well as locally relevant. Next, these interactions need to play out through the ensuing steps of co-creation in the implementation of the proposed Healthy corridors.

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[6] https://urbinat.eu/articles/urbinat-workshop-held-in-khorram-abad-iran/

Figure 6: Plan for restructured car traffic coupled with path-ways within the historical core

Figure 7: Plan for revitalization through interconnected city centres

Khorramabad workshops (October, 2019)

Following the URBiNAT project initial steps in Khorramabad, Iran chamber of commerce, alongside with Lorestan Chamber of Commerce, alongside with Lorestan chamber of commerce and the local municipality hosted a four-day workshop from October 21 to October 24 by collecting different disciplines together through participation of EU URBiNAT members in addition to interdisciplinary experts from Iran.

After an official opening ceremony on Oct. 21 with the presence of all stakeholders of the city including the mayor, local authorities and citizens, the workshop continued with some training sessions about Local Diagnostic, Co-creation process and NBS catalogues in Lorestan Chamber of Commerce. Then participants visited the old neighbourhood of the city which has been selected as the pilot neighbourhood for the project.

Visiting one primary school for girls and another secondary school for boys were other activities of the workshop. European and Iranian participants took part in an interview-game with pupils about Nature-Based Solutions such as imagination games, photo voice, as well as co-drawing to extract the indicators of an ideal city and neighbourhood from local pupils. Students received gifts at the end such as T-shirts, notebooks and colourful pens with URBiNAT logos to share the story of their practiced games with their friends and families as the URBiNAT ambassadors.

Workshop participants then continued to map the neighbourhood and its challenges through a collaborative process, by visiting different districts of the old Khorramabad neighbourhood and interviewing with the different groups of local citizens in the Poshtbazar neighbourhood, including minorities. Interviewers asked people about something they like, dislike or prefer to change in their living area. This collected data were complemented by photos taken by each participant from the visited place to share and discuss with others. Also, local city guides assisted the visiting groups for making a deep diagnosis of the natural aspects of the neighbourhood.

After collecting feedback from local residents, in addition to the students, the participatory process continued by making use of post-it notes fastened on a map, to further examine and prioritize the essential needs expressed by local people. Then participants initialised Co-Selection and Co-Creation of Healthy Corridors in the neighbourhood for one more day, making use of the URBiNAT NBS catalogue. This resulted in tentative design by workshop participants of 2 proposals for a Healthy Corridor in the Old Khorramabad neighbourhood.

Box 1: Khorramabad workshops

To support communication, the Iranian team put up a website in Farsi as www.urbinat.ir, to produce project contents in Persian language for the local citizens who are rarely able to read and speak in English. All project information and news are published on this locally tailored website, to account for a continued close connection with all interested parties, not only in Khorramabad but throughout Iran. Moreover, an URBiNAT booklet was translated into Persian language, expanded for increased relevance in Iran, and distribute large numbers to interested people and related authorities of the city and elsewhere.

Due to the high penetration rate of Instagram among Iranian youth, andlocal citizens of the pilot neighbourhood in Khorramabad, an Instagram page has been launched as urbinat.ir to share the information, news, pictures and videos of the project implementations steps in Khorramabad, and to connect with other related projects and institutes, nationally and internationally.

Several measures have been under consideration in support of collaboration and the participatory process in Khorramabad. For selecting the best means, first, it was essential to identify key target

groups. That analysis was carried out in a transparent and inclusive manner which, in itself, represented a highly unusual approach in this environment. This brought a common realisation that political clout and existing privilege are not the relevant criteria, rather the opposite. Here are some of the means used for engaging specific target groups:

1. Urban facilitating offices or centres;
2. Local NGOs which are active in different fields like supporting addicted people, children, women, protecting environment, etc.;
3. NGOs that play a significant, or potentially important, role in enhancing participations in the neighbourhood;
4. Schools and kindergartens;
5. Well-known local individuals and influencers such as athletes, actors, and religious leaders, who are willing to step forward and champion the agenda at hand.

As for holding participatory events in the neighbourhood, the project team picked up on the notion of facilitators, introduced by the project. The establishment of an inclusive work space, an open office, located in the target neighbourhood, was further identified as a necessary element. This office has since been prepared and started to pursue the participatory essence of the regeneration process, activating 6 facilitators along with residents. The facilitator team includes an urban planner, an economist, a sociologist, a social worker, an office manager and a legal expert. A new opportunity has thus opened up for residents to work with each other and with the facilitators on a continuous basis, as well as in pre-arranged brainstorming meetings or specific exercises.

Since its inception 6 months ago, a number of events and conventions have been held in this place, with broad representation by local people, authorities and officials. This has further advanced a spirit of mutual trust among citizens and enhanced their engagement.

4.2.4 Japan

Setsunan University in Osaka participates in URBiNAT as an observer. Covering both the humanities and science. Setsunan University applies a cross-disciplinary approach with high ambitions to profess a holistic perspective. Classes are small and students commonly undertake parts of their training at partner universities overseas.

The focal area for Japan's engagement is the Yodo river system, which flows from the Biwa Lake to Osaka bay. Biwa is Japan's biggest lake and the Yodo river waterside embraces the richest biodiversity in Japan. The wider region used to serve as an important distribution route and is also a cradle of rich culture. Today, especially the areas northeast of Osaka, where Setsunan University is located, are marked by post-industrial issues and an ageing society.

Connected with URBiNAT, Setsunan University has stepped up their engagement in the development of this area, engaging with the local authorities, the urban planners and other stakeholders. In that undertaking they have brought together research expertise across science, the humanities and economics. Since the start of the project, they have solidified joint work examining the potential contribution of NBS solutions, with consideration to ways of engaging citizens in promoting and helping to devise a combination of biological and cultural diversity in this geographical area.

This work has gained further inspiration through the considerations how NBS can help create new communication routes and thereby help bridge the gap that presently runs across the watershed, experimenting with ways of having that re-contextualized within the framework of a "post-industrial city". Through sharing of information and experience with the activities under way in other URBiNAT

cities, a process has been put in place for developing analysis and proposals on how to shape Healthy corridors resulting in value-generation for local communities. The project will further collaborate with and diffuse findings of the project across a network of cities located in the wider Osaka region.

A joint conference planned for May 2020, aimed to advance ecological engineering around the historical geography of the Yodo River, has had to be postponed to November. In the meantime, architects and academics have continued work on the Yodo River for the purpose of gaining new insight on the appearance and traits of the historical cultural assets, especially on the eastern shore of the river. It is envisaged that this work will contribute to an improved understanding of the region and lay the basis for new ideas on how to work with people to appreciate and realise the value of culture. Through the collaboration with URBiNAT, complementary efforts have been made to identify facilitators in this respect. A practical example could be a small playground strategically located next to a deprived area, which could potentially serve as a catalyst for families/parents to meet and be inspired to engage in creative dialogue on the subject. An alternative is a canoeing club which brings people together to use a related waterway.

Other relevant initiatives taken in the meantime includes the organisation of a tourism network along the Yodo River by the Osaka prefecture government. Consultations were undertaken with NPO, the local government and the university. The continued progression of the project work is considering ways of influencing the tourism network while linking with civic movements to inspire co-creation around the historical and cultural assets.

4.2.5 The Sultanate of Oman

The Omani engagement in the project is undertaken through PEIE (Public Establishment for Industrial Estates), subsequently renamed Madayn[7], an autonomous organisation established by Royal Decree in 1993. Responsible for developing and managing all industrial parks across the Sultanate, as of 2018 Madayn operated a total area of more than 100 million sq.m., 2'000 tenant firms, and 57'000 employees in its tenant companies. Sustainable development and quality of life for all are the guiding principles in building such business communities. On this basis, Madayn has adopted concrete action plans to reduce the carbon footprint of its estate, enhance renewable energy use, enhance green areas and provide rainwater harvesting services for all its industrial parks. It also aims to protect natural habitats within its estates. New master plans have been considered to protect mountains and other natural habitats.

Despite these ambitions, Madayn is faced with difficulties to implement its objectives, in part due to lack of competencies, a tendency of reliance on top-down decisions coupled with the absence of corresponding engagement by its tenant companies as well as by individual employees and other stakeholders. PEIE has decided to join URBiNAT as an observer, for the purpose of taking in experience and lessons of other project partners, but also with an explicit interest in initiating an experiment where new NBS are channelled into the master plan of a new industrial park presently in preparation. The identified, and tentatively chosen, location is next to Sur, the 4th largest city in the country and a key traditional centre for maritime industry in Oman.

Spanning 30 million square meters and a coastline of 8 kilometres, the area to be developed incorporates precious natural landscapes. Through dialogue with URBiNAT, Madayn has opted to experimentally test water-saving plantation technology, which was initiated in May 2020 by a pilot comprising 50 native trees, planted along an attractive, seasonal riverbed without any use of conventional irrigation. Extending from there, preparations are ongoing for establishing botanical gardens in a green corridor comprising 40 hectares. The project is set to inspire a new approach to the

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[7] https://madayn.om/

framing of master plans in other industrial sites in Oman as well, with consideration to NBS and smart sensors to support their usage and further development backed by the active engagement of residents and tenants. The objective includes achieving improved health and wellness alongside a more productive working environment. A favourable linking in the form of shaded walkways and bicycle lanes, between the industrial parts of the park and residential areas, is part of the picture, as well as a sense of increased community belonging and shared identity.

Building on Oman's neutral standing in the Middle East, URBiNAT co-organised the international conference "The Future of Water and Humanity" along with workshops for youth in November 2019. The focus was on water as a key NBS whose management is critically dependent on human organisation and technology. An innovative youth workshop, targeted school children, was held in the Learning Centre at the National Museum of Oman, providing an engaging environment for inspiration and exploration of linkages between ancient practices and future challenges (see further below).

4.3 Consideration of Strategy for CoP in Non-EU

As a basis for framing the non-EU strategy, we underline the importance of balancing considerations to effective resource use and capturing synergies with an approach that embraces flexibility and an active learning mode. Coordination with non-EU organisations risk becoming time-consuming and administratively burdensome, since typically there will be greater cultural and institutional diversity than what is present in the EU, and probably additional hurdles and also practical constraints in communication and logistics. URBiNAT for these reasons arranges with one partner, IKED, in this case supporting the overall project coordination of CES by staying particularly close to the non-EU, observing their issues, actions and development, and engaging particularly deeply in shaping a strategy that is suitable for advancing URBiNAT's collaboration with these countries and organisations. In this, IKED engages closely with the various work package leaders, when their realms come into focus. It is also helping to engage other partners with suitable competencies and agendas, for special engagement on occasions when such needs arise.

Having considered, in the sections above, the rationale for inclusion of each non-EU country in URBiNAT, and examining the nature and features of each specific organisation (partners and observers) involved, in the following we consider the formation of strategic partnerships based on the varying features of two main categories, i.e., universities and research centres vs. organisations with national reach. These two categories should not be interpreted as an absolute dichotomy. We rather outline our guide to what we view as most promising by way of serving as inspiration for working with those that belong primarily by one category of the other. Attention is paid to their varying activities and roles in contributing to the CoP.

4.3.1 Non-EU universities/research Institutes

For the non-EU universities in the observer category, which are located in Brazil and Japan respectively, the lack of designated budget implies that other mechanisms than their regular participation in project meetings and other work package activities need to be applied to build a strong connection, along with orderly mechanisms for communication and shared learning. The following instruments, which are in line with the established ways of working for these organisations, have been advanced through experimental steps to frame strategic cooperation with them around URBiNAT's core processes:

- Tools/mechanisms:
  - Use of URBiNAT's contents/materials with students in academic courses: in the framework of institutional protocols, research outreach and dissemination activities,
  - Members of the URBiNAT project as external evaluators of the resulting academic products (reports, prototypes, projects, etc.),
  - Development of community-based initiatives, where links to universities are natural, including citizens' co-creation principles,
  - Engaging real communities as case studies,
  - NBS implementation in local communities,
  - Seminars about URBINAT concepts, co-production, relationship between university and community.
- Means for articulation with academic disciplines:
  - Scientific and technical knowledge to answer societal challenges,
  - Learning by practice,
  - Production of reports, projects, videos, prototypes, local and practical action in community,
  - Production and co-creation of results to be prepared for other outlets and published as other kinds of reports or "output".
- Utilising varied approaches and practices:
  - Social innovation,
  - To extend the active participation of undergraduate students,
  - Interdisciplinary approach,
  - Strengthening relationship – University and social organisations (SE).
- Formal partnership:
  - Responsibilities of each party to be clearly defined and reciprocated with a view how to strengthen an academic strategic partnership,
  - Format of formalisation/celebration.

While all the above carry good potential in their own right, various kinds of limitations make it important to prioritize as well as apply realism in expectations of what it takes to achieve progress in the different areas. The experience thus far demonstrates, however, that strong results can be achieved, using limited resources, although the avenues for success differ.

In the case of Brazil, the local university and other engaged local bodies form part of a vast and complex institutional landscape. The interface brought about between URBiNAT and the local institutions opens for a wealth of contacts with highly engaged and capable local organisations as well as individuals. At the same time, these co-exist with a state of utter institutional confusion and outright mismanagement, in the face of serious outstanding challenges doing tremendous damage to both natural assets and local communities. Here, there is no shortage of local readiness to engage in intensive collaboration and concrete application of URBiNAT activities. The impediments are practical, economic and organisational. It is of high importance for URBiNAT to nail down and pursue the tracks that have the chance to support real results.

In Japan, URBiNAT's local interface is much more focused. It is also well organised and access to financial resources is not a major issue, although constraints still appear by way of organisational readiness and time. In this case, it is important for URBiNAT to keep following, engaging and promoting innovative and fruitful application of its methods and tools in the specific case at hand, and then consider the potential of diffusion from there.

In both cases, a key factor for success appears to be the ability to coordinate well with non-EU URBiNAT members to select and focus on activities that are well organised and display a readiness to be leveraged by the additions of URBiNAT's key contributions, typically in regard to the approach to participation and the evolution of NBS into vibrant and value-enhancing Healthy corridors.

4.3.2 Strategy for organisations with nation-wide reach

In contrast to the situation with universities, which take part in URBiNAT as observers, two of the organisations (NSCJL and ICC) with national reach are proper partners, with a budget and a well-structured plan for how to engage in the different work packages and also specific tasks. The third, (PEIE, or Madayn) is yet engaged as an observer without an ear-marked budget.

Both NSCJL and ICC entered the project with high ambitions. Both have an individual city taking part as a follower, while also relating to a wider network of national cities which, in many cases, meet with enormous needs and challenges. NSCJL counts approx. 300 "smart cities" under its umbrella and has, in addition to Shenyang city, advanced relations with Nanhai as well as Hefei and Zhuhai, three other cities in China with strong interest in implementing NBS through citizen participation. Challenges facing the Chinese cities include heavy traffic, recycling, pollution, water scarcity, underground pipeline corridors, etc.

In the case of Iran, the ICC has a national network of 33 regional chambers, linking to all major urban areas in the country. The organisation has an earlier experience of collaborating with a national urban facilitation project, set up by the Iranian Ministry of the Interior throughout the country, whose organisation included Khorramabad. On this basis, it has been possible to benefit from cooperation with the local urban facilitation office of Khorramabad, when introducing URBiNAT. More importantly, the existing nation-wide network of such facilitation offices In Iranian cities provides an instrument for diffusion and coordination, which can be used to spread new ideas and initiate dialogue, at regional and local level. Through URBiNAT, enriched perspectives and new approaches to sharing and exchanging experience on urban regeneration activities have entered this communication. In this way, the objectives and concepts professed by URBiNAT have already become known in many other cities, besides Khorramabad, feeding a wider interest in experimenting with new initiatives to instigate inclusive participatory processes. While this agenda naturally is driven by the Iranian partner along with Champions in Iran, the continued engagement by the URBiNAT consortium and team will matter greatly for the continued diffusion and dissemination activities.

ICC and LCC have also made use of special occasions, where the nature of URBiNAT's approach to cross-border collaboration, has been fitting. For Kishinvex Oct. 22, 2018, an annual international exhibition, the ICC arranged for all Iran's regional chambers to be invited to two URBiNAT panels, as well as display their own presentation material, for dialogue and diffusion of new ideas among all members. In addition, also on Kish Island, back-to-back with Kishinvex, URBiNAT took part in the Middle East – Europe Forum on "Collaboration in Translational Research for a Sustainable Future", with ICC and also the MRUD active and collaborating in organising sessions highlighting URBiNAT.

Both NSCJL and ICC have attempted to achieve success in the engagement of the particular cities they selected for immediate engagement in URBiNAT, partly to provide proof that active participation in URBiNAT brings concrete action and benefits. In addition, both wish to use the results developed in URBiNAT across a much broader network of cities and districts, in principle all over China and Iran. In China, inclusiveness, equality and liveability are seen as challenges. The notion, brought by URBiNAT to achieve constructive results in these areas based on citizen participation, is met with high interest. In Iran, nation-wide challenges include intensified population concentration in provincial centres, unequal distribution of resources and amenities, imbalanced regional development, deprived areas, increased

immigration rate to the big cities, and unsustainable use of natural resources, including water. Here, a central ambition is to improve public-private dialogue and facilitate better ways of communication and instil more fruitful collaboration and synergy between diverse development efforts.

The situation at hand should also be viewed against the backdrop of outstanding institutional challenges in each of these countries, creating a need for new openings for engaging in genuine approaches to revitalising local communities. Again, URBiNAT's approach of linking and leveraging historical assets through citizen engagement in shaping NBS and Healthy corridors is proving a viable way forward, to be further examined and documented through the CoP.

In Oman, where Madayn similarly has national reach, active participation in the URBiNAT CoP was less important for its engagement. With no budget allocated from URBiNAT, the Omani partner thus far connected weakly with the rest of the network. Having said that, Madayn demonstrated a very serious intention from the start to embrace a new strategy for regeneration of its industrial districts, using NBS and Healthy corridors based on inspiration by URBiNAT. Tangible progress has been achieved accordingly.

Particularly for China and Iran, both of which are sizeable countries which take part in URBiNAT with dedicated observer cities while also connecting effectively with broader city networks, progressing digital infrastructure, tools and applications are of high priority in public service, economic development and for security purposes. Especially in China, this includes major efforts to make use of digital enablers in urban planning and development. The orientation of this work is not primarily citizen centric, however, but the focus is rather paced more on environmental and technological development. Limited attention has thus been paid to the application of digital enablers in support of participatory processes and citizen engagement, and even less so in deprived areas.

Of the specific non-EU observer cities, Shenyang is resemblant of other Chinese cities in this respect. Here as well as on the part of the Chinese project partner, NSCJL, and also in other Chinese cities that are now linked and exposed to the URBiNAT experience, URBiNAT's approach now attracts high attention and is expected to result in follow-up and experimental learning with potential for wider diffusion. Given the highly advanced stage of digital infrastructure in many Chinese cities, from a technical and physical viewpoint, there is strong readiness to take this forward with multiple applications. In Khorramabad, as in most other Iranian cities with the exception of the capital, Tehran, and the major regional centres, digital infrastructure poses greater challenges. Although Khorramabd has limited experience of digital enablers of direct relevance to the URBiNAT project, various other digital applications are around and can be built upon, as surveyed in T3.3. The strong commitment by multiple stakeholders to realise URBiNAT's agenda, as is also the case in the national organisations involved, underlines the opportunities at hand.

As for a few more observations of the national context for digital enablers in urban development, in most of China, apart from the very young and old, digital services now represent an inherent part of people's everyday life. This applies to apps, websites, social media, Virtual Reality, digital technology frameworks, assessment models for agile communities, and more. Home-grown solutions flourish and are strongly connected with local culture, while most international digital platforms have no presence. The mechanisms for diffusing and disseminating information are very strong which means that spontaneously developed new ideas and messaging could evolve with tremendous speed, potentially engaging many millions of people in considering a new subject, when resonating with wider interests. Public authorities follow such traffic closely and may intervene with censorship or influencing directions. While interactive communication and smart solutions are thus commonplace, digital

enablers are much used for instigating participatory processes aimed to identify outstanding issues and co-create innovative solutions.

In Iran, digital tools and applications are equally diffused in big cities. For instance, *MyTehran* is a well-developed website and application, offering citizens in Theran access to various urban services, enabling reporting of outstanding structural problems and facilitating participation in surveys, etc. This and other related digital tools and enablers are not that much developed in smaller cities, such as Khorramabad. Similarly, digital infrastructure is not fully developed In deprived city areas and connectivity may be poor. Substantive investment has gone into the development of new networks, however, securing broadband capacity more widely. On the other hand, network access along with digital tools is relatively expensive and, therefore, many citizens have to limit their use. Further, digital literacy is generally weak among the elderly outside the big cities. Furthermore, there are large numbers of tech savvy individuals, especially in the younger cohorts. Technology and engineering are held in high regard and large parts of the Iranian population take great interest in making use of the latest digital enablers available, again generally home-grown due to presence of US sanctions against Iran. Snapp (Online platform for Taxi Services), the Iranian correspondence of Uber, developed by students at Sharif University of Technology, is hugely popular. Many other digital enablers have been similarly adopted by engaging in reverse engineering practices. Therefore, most of the young, urban Iranian citizens are daily users of existing apps and ready to apply new ones.

On this basis, the following building blocks have been identified to date for collaboration with this category of non-EU actors:
- Tools/mechanisms:
  o Use of URBiNAT's contents/materials across different regions and a spectrum of cities for diverse dissemination activities,
  o Development of community-based initiatives, whenever possible, including citizens (co-production and co-creation principles),
  o NBS implementation in special locations with the engagement of local communities,
  o The arrangement of diverse meetings/workshops about URBINAT concepts, co-production, relationships in the community,
  o Effectively tapping into digital networks while practicing care not to trapped in irrelevant or counter-productive communication.
- Means for articulation of knowledge:
  o Practical and technical knowledge to answer societal challenges,
  o Production of reports, projects, videos, prototypes,
  o Production and co-creation of results to be prepared.
- Utilising varied approaches and practices:
  o Social innovation,
  o Making use of digital enablers to engage citizens and stakeholders for broadened interactive interfaces,
  o Potentially create digital platforms which can catalyse co-creation,
  o Extend the active participation of citizens,
  o Involvement of various government departments and societal actors,
  o Strengthening relationship between actors in the city.
- Formal partnership:
  o Responsibilities of each party to a strategic partnership, clearly defined and reciprocal,
  o Format of formalisation/celebration.

Work with the major non-EU organisations that have national reach has proven potentially very impactful. The experience thus far demonstrates their high responsiveness and commitment to the

URBiNAT CoP, including their active role in the consortium but, even more, their own-initiative at city and community level and also in diffusing its key concepts and work methods within their spheres of influences. Practical constraints mean that, at least so far, exchanges at the between-city level have been less developed. The limitation in resources that the non-EU partners experience does appear as a factor as well, notably in Oman, but the scope of activity nevertheless remains respectable. Once familiar with the URBiNAT concept, there are strong indications they are ready to integrate key aspects of URBiNAT's approach in their mainstream activities. Modest investment by the EU through the URBiNAT budget thus carries the potential to generate much enhanced impact through synergy with the resources and networks of the non-EU organisations involved.

When it comes to the advancement of concrete activities on the ground, the same message applies in the case of Iran, where the local branch of the ICC, the LCC (now managing the URBiNAT coordination), through its initiatives not only in Khorramabad, but also in terms of its national networking and impetus, has contributed strongly to the URBiNAT CoP. For NSCJL, a combination of political events, COVID-19 and set-backs on organisational matters has delayed concrete activities on the ground. However, NSCJL's networking has demonstrated great potential when it comes to diffusion and uptake of URBiNAT concepts and models by Chinese cities. Oman has similarly taken modest steps in terms of implementation, yet, concrete, novel work has begun with NBS within a framework that opens for fast diffusion and the introduction of new approaches to local engagement around Healthy corridors.

Additional learning and synergies in implementation can be achieved with non-EU partners in wider network activities. Members of Iran's URBiNAT team have, for instance, taken active part in regional and international events for furthering dissemination. An example is "The Future of Water and Humanity" in Muscat, Oman on November 12-13, 2019, at which the outcomes of the Khorramabad workshop were discussed along with other contributions from URBiNAT as well as other projects, from the region and the EU.

On that occasion, youth workshops on "valuing water" were pioneered at the National Museum of the Sultanate of Oman. Facilitated by the URBiNAT network, that particular method for engagement has since been disseminated to several other countries, with follow-up workshops arranged thus far in Iran, Germany and Italy, as summed up in Table 4. These sessions, undertaken in a similar format, have drawn on water as a resource of universal importance, with the ability to serve as a unifying source of interest and concern, in this case among children, irrespective of culture and nation states. The exercise has further illustrated the potential for innovative forms of co-creation in schools around NBS involving teachers and children. Discussions for further developing and applying this model internationally are ongoing with the World Youth Parliament for Water as well as local organisations in Africa, Asia and the Middle East.

Another example, arranged in coordination with the non-EU actors in URBiNAT, is an Online work kick-started in connection with the 50th Anniversary of Earth Day, April 22nd, 2020. On the occasion, observations were made of the environmental improvements that have followed with the pandemic crisis. While recognizing the enormous duress people are subjected to, all around the world, the deliberations considered what initiatives can be taken by individuals to explore beneficial adjustments to lifestyle and other behaviours in preparation of post COVID-19 lockdowns. Arranged with Oman as the base, this platform reached widely in Asia, Africa and the Middle East, and will remain connected to URBiNAT through concrete follow-up activities.[8]

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[8] https://urbinat.eu/articles/online-forum-urbinat-holds-webinar-as-part-of-50th-edition-of-earth-day/

Country/city	Date	Years old	Moderator	No. of children
Oman/Muscat	13/11/19	7-8	Prof. Abdullah Al Gafri	25
Iran/Kerman	24/12/19	3-6	Dr. Azimeh + Imam	16
	15/1/20	7-11	Dr. Azimeh + Imam	26
Germany/ Hamburg	10/01/20	10-11	MBA Ohler	25
	10/01/20	15-16	MBA Ohler	15
Italy/Bologna	15/01/20	4	Prof. Ferili	21
	15/01/20	5	Prof. Ferili	19

Table 4: "Valuing water" workshops

While this and many other activities have been advanced with strong reliance on digital enablers, URBiNAT remains cautious in maintaining high awareness and alertness with regard to both pros and cons in this respect.

The framework and approach to non-EU collaboration thus far is illustrated by Table 5. Relevance requires taking account of the specifics pertaining to different groups (upper left), with adaptation pursued to main categories (lower left), applying main categories of tools (upper right) through various means (lower right).

Relevance - Specifics	Mechanisms/tools
· High universal relevance · Critical importance of tailoring · Pulling in experience - dissemination	· Relating to issues/projects · Engaging communities and stakeholders · Training local and regional authorities · Connecting to events
Adaptation	**Means/utilising models/approaches**
· Partners with/without resources · Institutions as actors – academics · Nationwide - regional/local	· Scientific articles, academic reports · Exchanges/learning by practice · Innovation

Table 5: Overview arena for non-EU engagement in CoP

5. Concluding Remarks

At the core of URBiNAT's mission is the effort to address the fundamental issues driving urban fragmentation and polarisation. Doing so, URBiNAT advances novel approaches in support of participatory processes, co-creation and the establishment of Healthy corridors, shaping bonding public space on terms that serve to link disparate communities and city parts. Strong focus is placed on disadvantaged group and deprived areas, reaching beyond the usual suspects and working with appropriate methods and content, including a blend of digital enablers and traditional tools, to achieve inclusive processes. Coordinated data collection and local diagnostics lay the basis for structured experimentation and evaluation, lending support for effective exchange of experience and mutual learning between the cities and actors involved.

Not only have the non-EU partners/observers proven receptive to the ideas and methods propelled through URBiNAT's Community of Practice (CoP), but they have also actively contributed to the development and deepening of the agenda, resulting in widened applicability for diverse audiences and high benefits for the CoP as a whole. As for the circles/layers of the CoP, thus far the non-EU participation played out particularly strongly in the in-cities circle, i.e., the 2nd level of the CoP, and also in regard to the wider circle, i.e., the 4th level. On the other hand, only a few contributed fully to level 1, the consortium activity itself, and none of them engaged strongly thus far in the inter-city exchange, level 3. This may change as URBiNAT continues to evolve, especially if different cities opt to shape stronger links on a bilateral basis.

How to navigate cultural factors will be continuously examined and evaluated in URBiNAT. While a challenge in many respects, cultural diversity also serves as a strength, and as an opportunity. The issues addressed and the approach adopted are of high significance across the world, and the active engagement of non-EU organisations broadens the basis for learning and achieving relevance. Several lessons how to capture the opportunities while managing the risks already stand out. There is a need of preparedness to modify specific methods and activities, including means of facilitation, mentorship and also the use of on-line tools, so as to fit contexts that are more dependent on physical meetings and personal trust, or unfamiliar with bottom-up processes and cultivating horizontal relations and sharing of responsibilities. Finally, special consideration is required in order to ensure that respect of local culture and tradition can be reconciled with respect for fundamental values and human rights.

It is imperative that URBiNAT's organisation exercises flexibility in the way it links up with the diverse non-EU actors involved, accommodating differences in maturity, size, reach, resources and wider framework conditions. Part of the task is to keep examining and learning which activities are most suitable for engaging with beyond the EU, as well as which tools and mechanisms to apply in different kinds of contexts. Receptiveness to learning and serious consideration of different kinds of lessons, flowing from the structured engagement of the non-EU partners and observers, benefits URBiNAT's own development as well as its credibility to the wider world. There is high value in enhancing the potential for diffusion and impact in non-EU countries and regions where the issues addressed are strongly present and a tailored approach to co-creation in the establishment of healthy corridors stand to make a major difference.