The Urban Lab of Europe!

JOURNAL

PROJECT

IGNITION - Innovative financinG aNd delIvery of naTural clImate sOlutioNs in Greater Manchester

Greater Manchester, United Kingdom

TOPIC

Climate adaptation

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First tangible results and a continuous learning loop - IGNITION Journal n3

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With roughly half a year left to its end, the project's results are taking shape, such as the fully functioning Living Lab with its multiple interconnected nature-based solutions, sustainable drainage systems at highways, the many practical guidance and tools but also the journey to develop the innovative funding streams. In this 3rd Journal, UIA expert Birgit Georgi, summarises the challenges, solutions and lessons learned in achieving these visible results.

The nice pieces developed and accessible to everybody have eased many of the implementation challenges such as communication with target beneficiaries, enforced leadership and a participative approach. Important lessons have been learned for an effective procurement of innovative solutions and monitoring of green infrastructure and project results. The increased number of concrete results has also been supportive for the collaboration of the partners and integration of tasks. A challenge for the final period will be to mainstream and upscale the solutions developed, to maintain and extend the legacy of IGNITION.

Executive summary

Greater Manchester faces frequent extreme weather events like downpours, heatwaves and droughts, which all are projected to increase in frequency and intensity due to climate change. The consequences so far have included rivers bursting their banks, rain creating standing water after only a relatively modest downpour, and heat waves. 50,000 properties are at risk of flooding. A large number of impermeable surfaces in the urban areas of Greater Manchester has exacerbated the problems. More greenspace and nature-based solutions (NBS) could partly mitigate these impacts. Therefore, Greater Manchester decided to aim for a 10% uplift in urban greenspace to adapt to the projected climate change impacts of flooding and overheating, thereby increasing the city-region's climate resilience by 2038.

One of the major challenges identified was a lack of municipal funding. That is where the IGNITION project has stepped in to develop innovative business models and funding schemes, increase public and private investors'

confidence on the effectiveness and multiple benefits of nature-based solutions, and develop innovative governance, delivery and procurement mechanisms and processes to enable nature-based solutions to be delivered at scale. The mechanisms as well as the experience gained is of significant relevance for other cities in the UK and Europe, to enable municipal budgets and grant funding to be supplemented.

After 2.5 years of the project, it is clear that the project's principal goals will be achieved. IGNITION is in its final phase and has already delivered many tools and outputs - most visibly the Living Lab at the University of Salford with its complex nature-based installation - and will deliver most of the remaining outputs by the end of the year. However, it has been a winding road and several adjustments had to be made on the way, including the green infrastructure target and related indicators of Greater Manchester, the business models and funding streams, and revised approaches to stakeholder engagement. It has been a learning journey, where the project team could test different innovative approaches, partially failed, and then used the learnings to develop even better products.

In addition to challenges directly related to the topic, the project also faced generic implementation challenges associated with innovative projects, such as ensuring strong leadership and collaboration, effective participation, procurement of innovative services, and monitoring of the results. Overall, the project managed these challenges well and found effective solutions to tackle most of the challenges despite the COVID-19 situation impacting substantially on project implementation. Towards the end of the project, questions of communication, mainstreaming and upscaling have come into focus, and some solutions and efforts still need to be found to achieve the best possible results. This requires a more active approach to mainstreaming and upscaling, going beyond simply disseminating the project's outputs and instead collaborating with stakeholders to develop clear calls to action to ensure IGNITION's legacy.

Partnership:

- Greater Manchester Combined Authority
- Manchester City Council - municipality
- Salford City Council - municipality
- Environment Agency - environmental agency
- Business in the Community - business community representative
- United Utilities – regional water company
- UK Green Building Council - business community representative
- City of Trees - NGO
- Groundwork - NGO
- Royal Horticultural Society - NGO
- The University of Manchester - higher education and research institute
- The University of Salford - higher education and research institute

1. State of implementation

Over the last year, the project has made substantial progress and, given that it has been prolonged by six months due to earlier delays posed by the COVID 19 situation, it is on track again. The most visible result is the Living Lab at the University of Salford, which was completed and launched in June 2021. It delivers continuous data and learning on the performance of the different nature-based solutions and their interplay. The Lab has attracted numerous visitors both online and in person, and triggered spin-off activities such as influencing the planning of green roofs installations at other locations. Other small examples are greenspaces, like sustainable urban drainage systems (SuDS) at streets in Salford, the Park in West Gorton Manchester, and the evidence-base for the benefits of nature-based solutions which is available online along with multiple user guides.

Green roof at the Living Lab. Image: Birgit Georgi

Together with various stakeholder awareness and engagement activities, these have prepared the ground to develop the core products of the project – business models and innovative funding schemes for nature-based solutions. This has not been as forward as it looked at the start. The flexible design of IGNITION as well as engagement with sub-contractors has enabled the project to learn nevertheless from failures and develop modified business models and funding streams. This task will soon be finished. In addition, support for stakeholders who are planning and delivering nature-based solutions has been developed, such as several guidance documents, the green roof calculator tool and soon the greenspace explorer. In the project's final months, the focus of activities will be on finding effective ways for distributing and mainstreaming the results to ensure a high uptake.

Guides published

- Nature-based solutions to the climate emergency – Business Guide
- The Power of Nature for Employee Well-being
- Greening your workspace
- Investing in a greener Greater Manchester – Local Authority Guide
- Blended Public-Private investments for developing urban green infrastructure

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2. Implementation challenges - overview

While performing its innovative tasks and presenting first results, IGNITION faced seven implementation challenges, which were felt at different intensities. Table 1 provides an overview; the following chapters describe more detail on the challenges.

Challenge	Observation

1. Leadership

Challenge level

The current level of leadership and commitment at the political level is high. The project fits perfectly into the current policy. It matches with the GMCA mayor's manifesto which has a strong focus on climate action and nature. Over time, IGNITION has started to serve as a pilot project for action and its outputs re-enforce ongoing support from leaders.

2. Public procurement

Challenge level

The project found an effective way to procure innovative services. Both the two-step approach to procure the Living Lab, as well as testing out the options to use the EA's framework contract for delivering funding stream 1 have been a learning journey but worked out well. An important lesson learned was to co-create with the contractor, rather than following a top-down approach.

3. Internal organisational arrangements

Challenge level

IGNITION is well embedded in ongoing local initiatives on climate action as well as on the natural environment, for example by inputting into the regional Natural Capital Group. However, this action is mostly high level. There is space for improvement on collabration on concrete areas and projects such as SuDS along highways. One of the challenges is to raise awareness of the benefits which nature-based solutions can bring and find viable business models to convince other partners and departments to invest in them.

4. Participative approach for co-implementation

Challenge level

Co-creation would be the way forward to get stakeholders actively engaged, however, that has been hampered by COVID restrictions and the need to organise most participation online. The project managed this well, but right now, shifting back to more physical events shows the value and effectiveness of that form of interaction. Unfortunately, the co-located team of IGNITION and the high benefits mentioned earlier needed to stop due to COVID. Challenges are to ensure a long-term approach to participation, instead of one-off activities and find good business cases to engage private stakeholders in particular.

5. Monitoring and evaluation

Challenge level

Monitoring is well developed. There has been a learning curve, which required the indicators and targets to be adjusted to be feasible and more meaningful. A challenge still remains in seperating the impacts of IGNITION from the impacts of other nature-based projects, but there is no doubt that IGNITION has contributed towards important outcomes.

6. Communication with target beneficiaries and users

Challenge level

As with other challenges, the pandemic has hampered communication with the target beneficiaries. However digital communication has offered opportunities to reach them in different, creative ways. Reaching out to potential investors to convince them to invest in nature-based solutions is still a challenge, which needs to be solved with, i.e., additional business models and increased use of the evidence base.

7. Upscaling Challenge level	While IGNITION has started to think about upscaling from the beginning, e.g., with developing a Climate Adaptation Service Company (CASCo), current activities need an approach that is more systematic, with stronger, long-term commitments. A task is to move beyond a passive dissemination approach and engage stakeholders actively to move towards long-term action plans.

3. Implementation challenges

3.1 Leadership

IGNITION is well embedded in different initiatives and activities of Greater Manchester Combined Authority (GMCA). It contributes to the Natural Capital Group, which is made up of key regional organisations and provides leadership on the topic of natural environment by coordinating across different related tasks and deliveries. IGNITION also feeds into Greater Manchester's 5 Year Environment Plan and maintains links with national initiatives such as the UK's 25-year environment plan. IGNITION is building the technical capacity to deliver nature-based solutions, with the Climate Adaptation Service Company (CASCo) envisaged as a sub-part of the Greater Manchester Environment Fund, a charity which pools and manages funding above and beyond municipal budgets.

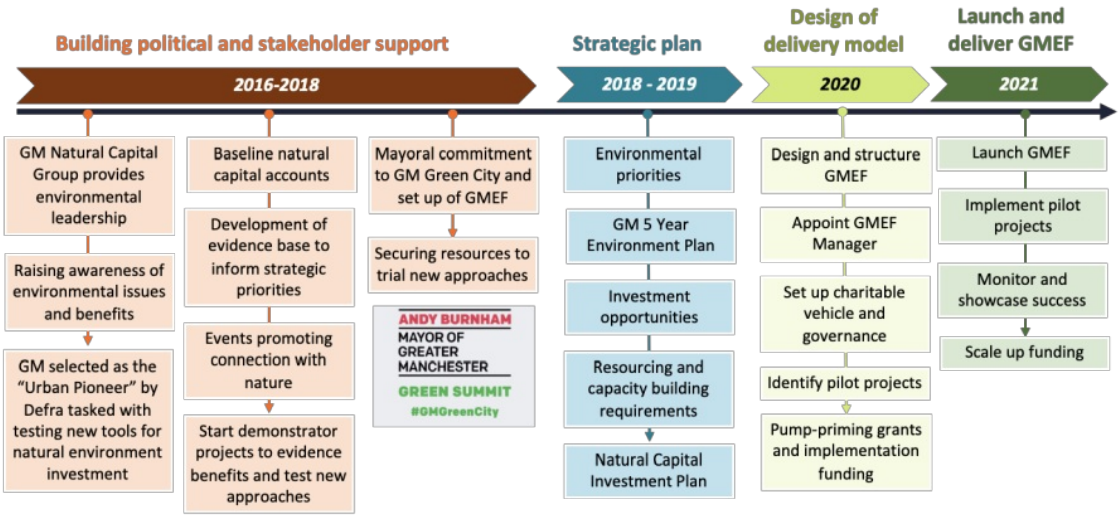


Figure: Greater Manchester's natural environment journey

Looking back, it seems that the approach to leadership has worked well. The GMCA Mayor has been re-elected in 2021, providing a renewed impetus to deliver on his agenda. Climate change was already a key aspect of his manifesto, which is now much more detailed on the natural environment too. He has also intentions to appoint a local champion for the natural environment to push this topic further and to declare a biodiversity emergency. This all fits well with IGNITION, which has been crucial to put nature-based solutions on the agenda and can support fulfilling the manifesto, reinforcing his success and power. Furthermore, the COVID-19 pandemic has had for once a positive impact as it has turned people's attention to green areas and parks in the city. Their high value for mental health has become pronounced. This helped to maintain and increase the support of political leaders for the project's objectives.

The question is how to keep the political support and strong leadership in the long term. The top-layer of the authority is a key driver of innovation, however the mayor, for example, is reliant on internal advice from senior officers when deciding upon targets, initiatives, etc. to ensure that proposals are deliverable. Therefore, if a senior officer is committed to and open to innovation and risk taking, this can influence the mayor's approach; however, this is threatened by most of the staff resource on IGNITION ending at the end of April 2022.
Although the leadership at project level has been challenged substantially by the COVID-19 restrictions and it has been difficult to engage all partners at the same high-level, the results of the final phase have shown, that the project leaders managed it well. Also, with more and more results coming up, notably the Living Lab and the evidence base, synergies and options for integration became visible and encouraged partners to engage and collaborate. The visible, tangible results have helped the project leaders to highlight the overall objectives of the

project and to explain how the different elements of the project can support one another.

Leadership is also needed to engage all municipalities in Greater Manchester. Only two out of the ten municipalities are part of the project, and indeed, the two city partners of IGNITION - Manchester and Salford - are in some measures ahead of the other municipalities concerning the push for nature-based solutions. The task is to show up as leaders to encourage the other municipalities to follow their example. One initiative is the parks network set up by Salford, which allows municipalities to exchange experience and support one another.

3.2 Public procurement

Green walls at the Living Lab at the University of Salford. Image: Birgit Georgi

IGNITION's main procurement activity has been theLiving lab at the campus of the University of Salford. The combination of different nature-based solutions to work together and thus increase their efficiency has included many uncertainties for their technical implementation. To reduce the risk of failure and major delays, the IGNITION team had procured the Lab in two steps, where the rain garden only was procured first, to learn from the procurement experience before procuring the other elements of the Living Lab (see Journal 2 and article Experience and learned lessons from procuring innovative solutions – IGNITION's Living Lab). Looking back, the two-step approach has worked well. The conclusions drawn from the first procurement and application of the learning to the second procurement has been an effective way to procure complex and innovative projects on nature-based solutions.

An interesting observation can be made on the procurement of the Funding Stream 1 technical tasks, which were to develop a first business model / financing model for nature-based solutions. This procurement used established technical procurement frameworks of the Environment Agency, which is the responsible project partner for this task. While this procedure has posed several challenges, due to the framework not being created for such innovative tasks and the pre-selected consultancy for the region lacking experience in some areas (see Journal 2), the team has managed to overcome these, and the contract runs smoothly. The key to making it work has been a blurring of the lines between the supplier and client, which has made the process much more collaborative. The contractor felt a part of the overall project, which meant it communicated on time when it encountered problems and sought joint solutions. An example of this is when the original idea for the funding stream 1 model did not turn out to be viable and the solution had to be adjusted. The contractor could have refused to adjust the approach but instead embraced this need for innovation and learning. A driver of this contractor commitment to the project is their own interest in the solutions being developed, as gaining a greater understanding of the solutions and building a stronger relationship with the Environment Agency will strengthen their performance on future projects in this area of growth.

Recently, relatively smaller tasks have been procured by GMCA, like the mapping of potential roofs and other areas that could be greened. The technical method used is innovative, as the contractor uses new tools and approaches of aerial photography to identify the roofs. IGNITION has been among their first commercial clients. Here again, a collaborative approach between client and contractor to figure out the best way of mapping has proven helpful to get the best results.

Lessons learnt from the procurement processes so far:

- Conventional procedures do not work effectively within an innovation project.
- Instead of prescribing solutions, outline solution(s) and describe the desired qualities and functions.
- There will always be some change in innovative projects. A collaborative relationship between buyer and contractor instead of a traditional top-down approach helps to find and implement the best solutions.
- Starting small and in a step-by-step approach facilitates learning, by allowing low-risk failures to be made and easily corrected; it helps to tackle uncertainties of innovative solutions.
- Much more time is needed for preparing the tender and for the procurement process of innovative solutions as many new aspects compared to typical conventional solutions are included.
- Time is also needed for gaining additional knowledge and dealing with uncertainties, as well as convincing affected stakeholders that are hesitant to go along with innovative solutions.

With the first procured tasks implemented or coming to an end, monitoring how these contributed to deliver the expected results needs to be done. In the case of the Living Lab, numerous sensors deliver data on the performance of the different nature-based solutions on time and over time. This will not only be helpful to monitor the impact of the procurement, but also deliver input to IGNITION's evidence base on the benefits of nature-based solutions, which can increase the knowledge and confidence of potential investors and inform new business models.

Community park West Gorton in Manchester city combining SuDS and social benefits. Image: Birgit Georgi

IGNITION can still put a stronger focus on the question of how urban authorities can ensure further local benefits, such as social inclusion or local employment in commissioning and procurement processes. While social value is a compulsory assessment criterion in all GMCA procurements, with suppliers evaluated on their employment and environment commitments, in practice it is however unclear who owns responsibility for monitoring a supplier's commitments to ensure they are delivered to a high standard. Currently, such values are rather considered by partners themselves, e.g., implementing projects like the eco-streets (upcoming article) or the Sustainable urban drainage systems at schoolyards and other places (Funding Stream 1 model).

3.3 Internal organisational arrangements

In general, IGNITION and the work on co-financing different funding stream models has started to show its benefits across different stakeholders and sectors and has, thus, started to break down silos between and inside organisations. The Greater Manchester Combined Authority has started to initiate similar innovation projects beyond IGNITION, such as piloting the development of a Local Nature Recovery Strategy which will be a blueprint for other regions.

Team discussions. Image: Birgit Georgi

COVID-19 has however cast serious challenges on collaboration. An innovative element of IGNITION has been the co-located team with different project partners working several days of the week together at one space. This was even extended by hot desk options for further partners to join in occasionally (see web article How IGNITION found an innovative approach to collaborate with its diverse team). With the restrictions under the pandemic and ongoing preference for home working, that form of collaboration disappeared and there are doubts that it will be regained in the lifetime of IGNITION. While on one side the COVID situation has meant that digital collaboration has become easier with partners stationed further away and made the decision-making process easier and faster (see Journal 2), on the other side, it made it harder to collaborate proactively and with a holistic view.

The commitment from the start of the pandemic to find new forms of collaboration has decreased. While there have still been regular online meetings, these are largely technical with a narrow focus on the task. With the informal communication aspects often dropped by organisers to improve efficiency, the enthusiasm in meetings has reduced. Communication usually focusses on a specific topic only, which hinders obtaining a more holistic view on the task by not benefitting from integration of the perspectives and opportunities by the different partners. While it can be concluded that the technical collaboration still runs smoothly, the loss of informal and spontaneous exchange partially hampers / slows down the development of new ideas and efficiency overall.

This experience is contrary to the assumptions made one year ago where the options to gain more digital skills and an increase in available digital tools was assumed to ease the collaboration between partners (Journal 2). The current withdrawal of restrictions made physical meetings possible again and the team and other stakeholders are embracing the human touch to gain more information and inspiration. It is uncertain how the situation over the next few months will be impacted by uncertainties regarding the pandemic.
Inside the partnership of IGNITION there are three local authorities – GMCA, Manchester City Council and Salford City Council. Collaboration across departments is running well to a certain level. Strategic-level coordination happens in the Natural Capital Group and the project fits well with the region's 5 Year Environmental Plan and the broader natural environment journey of Greater Manchester, as described under the leadership challenge. Currently the group follows a mission-based approach on the natural environment by coordinating different natural environment-related tasks and deliverables related to five missions (see figure below).

Tasks	Description of Deliverable / Task	Lead	Delivery Method	Stage
1	Deliver the GM the Tree and Woodland Strategy	CoT	Task and Finish	Policy/Strategy
2	Complete the Natural Course Project	EA	Steering Group	Delivery
3	Support LAs in implementing Biodiversity Net Gain (GMSF)	NE	Task and Finish	Delivery
3	Develop a Local Nature Recovery Strategy for GM	GMCA	Steering Group	Policy/Strategy
4	Develop business models for investment in natural capital and climate adaptation, through IGNITION	GMCA	Steering Group	Delivery
4	Establish GM Environment Fund, and develop models for carbon trading and habitat banking	GMCA/ LWT (with EF)	Contracts	Policy/Strategy
5	Develop a natural environment social prescribing model	GMHSCP	Task and Finish	Research/Development

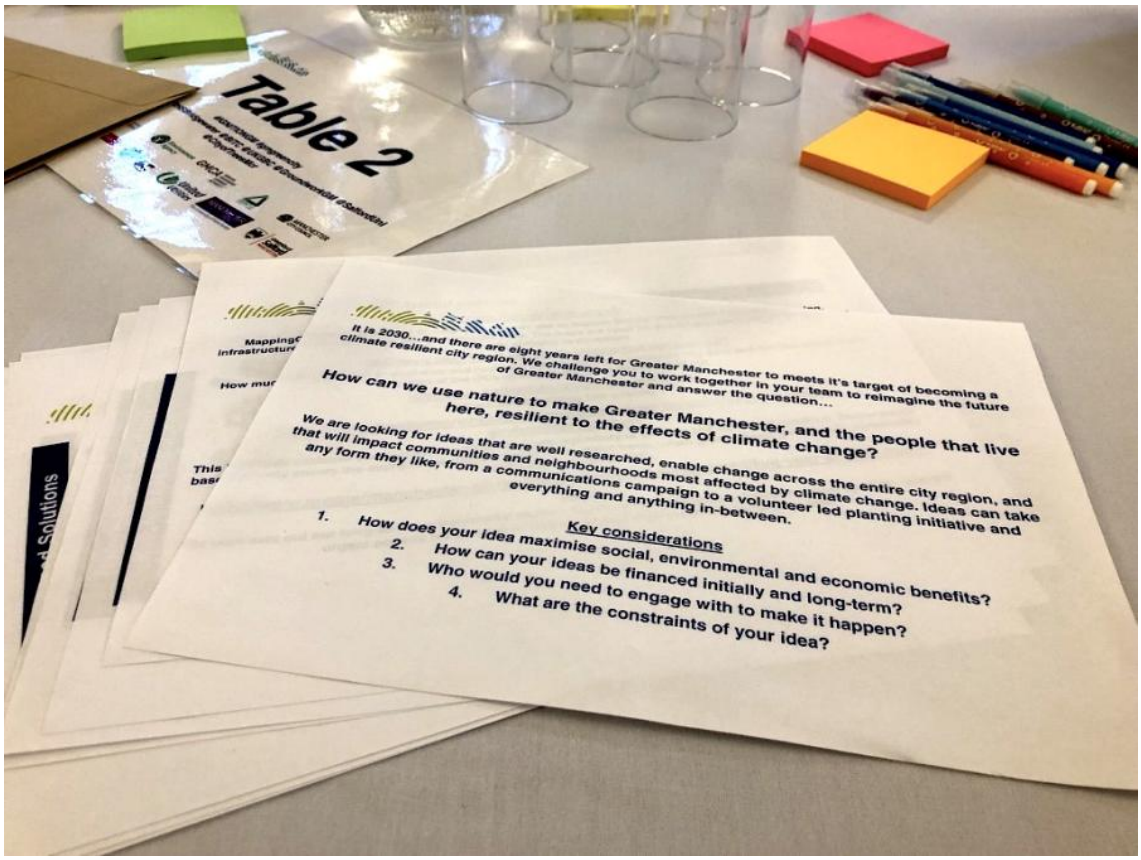
Mission-based approach of Natural Capital Group (CoT = City of Trees, EA = Environment Agency, NE = Natural England, LWT = Lancashire Wildlife Trust, GMHSCP = Greater Manchester Health and Social Care Partnership)

However, there is still space for improvement, for example taking advantage of synergies beyond the narrow focus of the natural environment, and the mainstreaming and upscaling of IGNITION results. Within GMCA, one could assume that the spatial and land use department would fit best for integration (IGNITION is settled in the environment department). The ties are being developed, but collaboration could be increased. The challenge for IGNITION is that it works in a different way to implement nature-based solutions by retrofitting existing houses and areas, while the land use department focusses on planning new developments. An effective coordination mechanism could be to include hooks in key strategies and policy documents that can provide a justification for different departments to collaborate on shared goals. In GMCA there is a widely shared, short and snappy climate change mitigation goal - moving towards net zero carbon by 2038. Such a goal is still missing for climate change adaptation, which makes it hard to explain what IGNITION is aiming to deliver. There is a need to make the goal of green infrastructure in Greater Manchester clearer and easier to communicate. Right now, the goal is too fuzzy for stakeholders not directly involved. The project has developed proposals to redefine the original target of a 10% uplift of green infrastructure in Greater Manchester.

IGNITION's Local authority guide has delivered interesting insights regarding multiple options for internal collaborations. Widening the perspective and checking other departments' knowledge and capacities that can be linked to the development and implementation of nature-based solutions offers new and much broader opportunities for their realisation and upscaling. An option is, for example, a stronger collaboration with the health service or the highways team. While the first one was not yet addressed by IGNITION due to an understandable focus on COVID-19 related tasks, first talks have been organised with the highway teams in Manchester and Salford. There are still barriers to overcome, including a low awareness of NBS options and benefits. It is a difficult task to convince the highway teams to move from grey to more green infrastructure, as that seems to bring few benefits for the highways team from its specific perspective. Talking about these from a theoretical perspective has been less successful but performing a joint project - exploring the feasibility to install SuDS along streets - seems to have substantially increased their engagement. Still, there are enormous challenges for a smooth collaboration as planning procedures in the transport sector are very complex, longer term and less flexible, which makes it hard to integrate nature-based solutions at the right time.

3.4 Participative approach for co-implementation

COVID-19 has affected the participatory approach as physical meeting of partners and stakeholders have not been possible, but the team has found ways around this with virtual meetings and tools. A series of web-based meetings has taken place. These were proven to be effective ways of maintaining engagement with groups already engaged but is harder with new groups. Subsequently, the project has returned to a hybrid or even physical approach, like the Climate Hackathons with students in November 2021, making the most of both digital and face-to-face opportunities. Overall, organising good levels of participation is a challenge.



Tasks of the climate Hackathon. Image: Birgit Georgi

A lesson learned over the course of the last two years has been that due to substantial knowledge gaps among citizens on nature-based solutions and their benefits, intensive communication is necessary. Furthermore, for citizen engagement, sustained contact is important as it can take a long time (years in many cases) to develop strong and trusting relationships. Participatory programming that facilitates conversation/dialogue between partners and stakeholders can help to demonstrate the value of citizen involvement. The partners, RHS, City of Trees and Groundwork maintain several citizen engagement and educational programmes to sustain interest in the project through youth and school programmes incorporating co-design principles, and community scale nature-based solutions development.

Effective mechanisms for co-implementations have been shown in collaboration with environmental and social charities specialising in community engagement, like *We Love Manchester* on the eco-streets project. This helped in bridging the gap between local authorities and citizens, particularly when communicating new or different ideas to citizens, collecting, and using local knowledge from citizens including seldom heard voices.

Collaboration and co-creation with different stakeholders can also create conflicts between different ideas, for example, a derelict plot which originally was proposed to being redesigned with nature under the eco-streets competition was eventually refused by the owner. Participatory methods that encourage groups to view issues from other perspectives can then be a useful tool in practically solving such conflicts. For example, a participatory design challenge that encourages a young person to design a park for an older audience can help people put themselves in other people's shoes. In this regard, RHS has just organised a citizen hackathon to challenge teams of Greater Manchester citizens and students to develop ideas by using nature-based solutions to solve a defined problem. The aim is to provide an opportunity for Greater Manchester citizens to contribute to and share their vision for the future of their city to a panel of stakeholders, including local authority representatives, academics and researchers, and environmentalists.

Apart from citizen engagement, the project works with potential public and private investors of nature-based solutions. The collaboration is challenged by the lack of knowledge among investors on the benefits of nature-based solutions, and/or that these benefits are not easy to capture for one investor only, as the benefits are distributed across different stakeholders. For example, convincing the highway teams to establish SuDS instead of conventional drainage is challenging as the benefits for them are not clearly visible, as they need to be viewed in a broader context. The practical collaboration with United Utilities was central to important learnings around establishing the first funding stream model. Once United Utilities realised that IGNITION follows a co-creation approach and could adapt the model according to their needs, collaboration improved substantially. This joint

work led to the finding that only broader co-investment approaches with various concerned stakeholders and beneficiaries was the way forward to new business and financing models (see web article The long and winding road to financing nature-based solutions). The project team is currently working on developing concrete business models for this approach. These will hopefully increase the confidence and willingness of further potential investors to establish nature-based solutions.

3.5 Monitoring and evaluation

Monitoring is a well-developed aspect in the IGNITION project. However, over the course of the project, adjustments have been necessary, particularly regarding the indicator concerning achieving a 10% increase in the coverage of green infrastructure (GI). Without major changes in Greater Manchester's urban land cover characteristics (resulting in 33.88km² of new urban green infrastructure), this could prove to be an undeliverable target due to a lack of available space in Greater Manchester's urban area to convert to green space. Furthermore, the indicator would not capture the uplift of green infrastructure functionality and/or green infrastructure on a 3-dimensional level, such as new tree canopy cover above hard surfaces.

Also trees over hard surfaces will now be counted in the mapping of green infrastructure. Image: Birgit Georgi

Based on these insights from IGNITION's green infrastructure baseline, the project has provided a springboard for setting a new green infrastructure target and highlighted that the original target needed to evolve. The University of Manchester has analysed green infrastructure targets across different cities in the world, developed a typology, and proposed a new formulation. The learning loop from understanding the implications of adopting different kinds of GI target in terms of future monitoring and evaluation requirements, has led to the targets being redefined. The project's headline results indicator will now monitor the size of locations assessed for NBS installation, as part of the process to develop an investable pipeline of projects to uplift GM's urban green infrastructure functionality. This better reflects IGNITION's activities, achievements, and project priorities and works in conjunction with a range of amended KPIs monitoring the number of tools and outputs developed, number of business models established, project impact, and investor confidence. At a strategic-level, discussions are ongoing to establish a GI target for the city-region, although as this target will continue to be used post-project and is the responsibility of city-region stakeholders, the Natural Capital Group has been assigned responsibility for agreeing and monitoring the revised GI target based on IGNITION's learnings.

IGNITION's analysis of green infrastructure targets of different cities has shown that it remains a challenge to

directly link project achievements to the benefits of green infrastructure and the overarching target of increasing climate resilience, as mapping of the area of green infrastructure alone does not show its services. Assessing an uplift in resilience and not just a green area - even if measuring a change of green infrastructure from lawn to trees - goes beyond the capacity of IGNITION and can only be done in a wider monitoring and assessment approach. Such an approach could be built on a greenspace factor concept combined with experience and data gathered in real-life examples, such as the recently established GrowGreen green infrastructure park in West Gorton, Manchester as part of the HORIZON 2020 project, or, later, with the IGNITION project's Living Lab at the University of Salford. Nevertheless, there is confidence that the GI projects initiated by the IGNITION project will increase the resilience of the region because of the inherent benefits of greenspace.

In addition to the amount and type of green infrastructure established, its spatial distribution across Greater Manchester will matter. In general, one could expect that an uplift of green infrastructure in an area where there is little greenery, will be more effective for climate resilience than in areas where there is already a high amount of greenery. Cross referencing that spatial distribution with socio-economic data, flood risk and other maps could support the assessment of vulnerability to climate change and the impact of GI improvements on this. Therefore, IGNITION is developing the Greater Manchester Green Infrastructure (GM GI) Explorer as a tool for local decision-makers to identify where new or improved nature-based solutions are needed or where funding could be spent. The tool will be easy to use without GIS skills and can supplement or replace existing tools currently used by local authorities. Over the coming months, the project will explore specific use options and will co-develop several use cases with target users. An internal project could be to explore the usability of the tool to identify which roofs are a priority to be greened, by using the green roof opportunity mapping produced elsewhere in the project.

Another challenge for monitoring the impacts of IGNITION is to measure the impact of green infrastructure projects initiated by IGNITION and its business models / funding streams, versus green infrastructure projects implemented through other initiatives. Doing it systematically, this would require a technical database. This idea could be taken up by the planned Climate Adaptation Services Company (CASCo) and developed in the further course of the project. The KPIs have been adjusted in this light, to better reflect the outcomes which IGNITION partners have control and an influence over.

3.6 Communication with target beneficiaries and users

The centrepiece of IGNITION's communication activities, the Living Lab at the University of Salford was inaugurated in June 2021. It provides finally a tangible example in Greater Manchester that delivers concrete evidence on the performance of different nature-based solutions. Its existence has tremendously eased the communication with stakeholders in general and potential investors. Initial communication actions were digital due to COVID-19, such as the creation of the 20-minute Living Lab virtual tour which ensures that it is accessible to all, and that the knowledge will live on beyond the project. Such a high-quality piece of content may not have been produced were it not for the pandemic, but this has been a very positive outcome and now is an asset for all partners and stakeholders. A much deeper contact can however be made on site. Real tours with different types of stakeholders - students, representatives of local and national authorities, private stakeholders - have picked up over recent months. Demand is so high that careful management is required to ensure that tours can be resourced in an efficient manner.

Tour at the Living Lab. Image: Birgit Georgi

Communication activities and citizen engagement activities in general have substantially benefited from the existence of the Living Lab as a physical and appealing showcase. Continuous monitoring delivers further evidence and data, and strongly supports the communication with potential investors in establishing nature-based solutions on their buildings and spaces. The evolution of the evidence base on the benefits of nature-based solutions - which was completed last year - has also resulted in two excellent reports targeted at two different audiences (for businesses and local authorities). These reports have sparked interesting discussions among the representatives of these target groups. The Living Lab has also been used across the project in citizen engagement and funding stream research, such as the green roof cost benefit analysis tool. Its progression has gained a lot of value from the research outside of its initial purpose and has been an invaluable resource for communication, particularly early in the project when there was little to communicate about as research was just beginning.

The shifting nature of the funding streams during their development has been a challenge for communication and has made it difficult to engage stakeholders on. However, as the research begins to finish by the end of 2021, there will soon be some concrete findings to report and push out to the relevant audiences to progress further.

Despite this success, the COVID-19 pandemic has had a substantial impact on communication activities. Last year, there was little space to communicate about climate adaptation. As businesses were facing collapse, it was pushed further into being an optional extra as higher priorities were dealt with. Now in the recovery process, there is more space, and it is seen as less insensitive, to focus on climate change. This has been helped by the imminent COP26 in Glasgow that all organisations have been aware of and keen to engage in as it was on home soil.

Going virtual has been a way to communication with different stakeholders, though it has posed important challenges. For example, difficulties with reaching certain target groups less comfortable with online media, digital fatigue, and a less tangible experience. Whilst able to reach more people, this has partially led to only limited discussion, particularly in breakout groups, for the stakeholder meetings. A move to hybrid events is seen attractive in combining the advantages of digital and in place meetings, but it means essentially running two events at the same time, which is resource intensive and technically higher demanding.

Concerning citizens, COVID-19 has had a positive in terms of raising citizen awareness of the value of nature-based solutions as they provided relief during lockdowns (see web article How support for greenspace has increased during Covid-19 pandemic). This need and awareness have been used for further citizens engagement activities, like the eco-streets (upcoming web article). This activity should provide a positive signal under the heavy restrictions of the COVID-19 crisis. Communities could get active and improve areas within their neighbourhood, like small back streets and neglected spaces. This was supported by a financial contribution and technical advice. 45 applications have been provided and 4 projects selected to be funded and implemented.

3.7 Upscaling

Moving towards project end, IGNITION is in the critical phase to consolidate its activities for upscaling. A

Moving towards project end, IGNITION is in the critical phase to consolidate its activities for upscaling. A systematic approach listing all achievements, results, and options for their further maintenance, dissemination, and upscaling still needs to be developed. This approach will reduce the risk that certain valuable smaller results and tools out of the specific focus of IGNITION are not maintained post-project. Although there has been already a strong interest and commitment of the different partners to further contribute to this and using the results in their own activities where appropriate, this alone seems insufficient to ensure mainstreaming and upscaling in the long-term – staff may change over time and knowledge gets lost or priorities may change. Only GMCA itself has a budget for knowledge sharing for up to one year after the project ends. The vast majority of IGNITION partners' staff will stop working on the project at the end of April 2022. If project outputs are to be utilised and scaled up, partners need to commit to embedding the project's outputs and learnings into their regular activities and to seek to minimise loss of knowledge from individuals moving onto new roles or organisations.

At the University of Salford, which drives the Living Lab, there may be another unique opportunity beyond IGNITION. A new officer is responsible for linking research with business and this can be a perfect pipeline for distributing and promoting the Living Lab results. Making stronger business cases for replicating parts of the Living Lab may help in this regard. First requests for green roofs came, e.g., from the Environment Agency, from the National Trust for Salford Museum and Swinton shopping centre. Another problem to solve is the long-term maintenance of the Lab. The current contract runs out after 2 years.

The innovative funding streams are the main outputs which IGNITION will focus on upscaling. However, research on potential funding streams is still ongoing and includes uncertainties. To enable upscaling, a feasibility report is being developed on the experience with different business models and possible next steps. CASCo (Climate Adaptation Service Company) is a specific structure to be developed in IGNITION to drive the business models forward, support their application for large-scale nature-based solutions, and is key to delivering a project pipeline. However, it is currently still difficult to develop this vehicle without knowing its exact content, as its form should follow its content and required function.
A somewhat unexpected experience has been that it currently does not seem to be possible to identify a business model for large-scale implementation of nature-based solutions, as was initially intended. Instead, the combination of multiple small-scale actions seems the way forward, which require different communication and upscaling activities. There needs to be a comprehensive strategy and a toolbox on how to promote and support the multiple solutions and business models. This would allow stakeholders to act as soon as opportunities come up. Elements of that toolbox are developed with the evidence base, the Living Lab, the green roofs benefits calculator, the GM Green Infrastructure explorer, the Local authorities report and the Business report, among others to come. The task ahead will be to actively interlink these products and link them to use cases, to create a comprehensive toolbox and guidance. At the same time, further awareness building is required to actively increase demand for NBS.

The previously mentioned Local authority report is a valuable tool to enable mainstreaming. Its results have been discussed between Local authorities in a workshop, with GMCA, MCC, and SCC responsible for promoting the report's findings post-project. RHS and Groundwork's (both project partners) physical nature-based solutions community projects are exploring how nature-based solutions technology developed for the Living Lab can be integrated into community-scale projects in a cost-effective way, with the aim of improving the functionality of important community scale greening projects. Also, the Parks network established by Salford City Council is a vehicle for upscaling with other municipalities. First examples are the small projects like new street design in some parts of Manchester and the eco-streets project. They will help to create further awareness, tangible experience of nature-based solutions, and co-financing approaches to boost demand even more.

Green wall at Deansgate Metro Station and construction of the New Bailey office with a planned green facade.
Images: Birgit Georgi

Key for upscaling are potential public and private investors, where the project still faces hesitation. Apart from the Living Lab, concrete examples of early investors picking up nature-based solutions, like the green roof at Swinton shopping centre or creating a network of examples beyond IGNITION - like the green wall at Deansgate Metrolink Station or the New Bailey office - can serve as inspiration for other investors to act and should be explored for further replication. Beyond investors, beneficiaries also need to be considered in upscaling activities by being made aware of the benefits and demanding these from investors, building and landowners.

Finally, it will be key for IGNITION to leave a legacy and maximise its impacts, by moving from just disseminating outputs and waiting for potential users picking them up, to an active approach of directly engaging potential users in different formats with use cases, training, 1-1 support etc.

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4. Conclusions

As with many other projects, IGNITION has been challenged in many areas of the project by the contact restrictions due to the COVID-19 pandemic, which brought a delay of 6 months. Fortunately, the project had started before the pandemic and the team and many structures to facilitate collaboration had already been established. Thus, the team could manage the crisis by finding new ways to work, which even included positive results such as citizens' high levels of support for greenspace or the virtual tour of the Living Lab.
All implementation challenges are well under control and unique ways have been found to manage them. Particular attention is however needed for a more systematic approach to mainstreaming and upscaling of results, thereby targeting and actively involving concerned stakeholders.

See also: IGNITION website

Climate adaptation

See on UIA website