

# Conference report: RE-PURPOSE. RE-CHARGE. RE-THINK.



# **9<sup>th</sup> Informed Cities Forum**

#### 26-28 October 2021 | online

Co-produced by OpenHeritage and GreenCharge Organised by ICLEI Europe









# **Conference report**

The 9th Informed Cities Forum took place online on 26-28 October 2021 and connected urban dreamers, thinkers and doers from two worlds: from the worlds of cultural heritage and electric mobility. The goal was to bridge the gap between these two seemingly unrelated topics, collectively search for links and connections between them, provoke discussions that normally wouldn't take place and break the silos.

So what do cultural heritage and electric mobility have in common? Think urban communities have to become of heritage sites adopting e-mobility solutions, like electric minitrams, electric vans, and e-bike or e-scooter sharing schemes, to make places of future cities look like? culture more accessible with possibly minimal environmental impact. Think of At the 9th Informed Cities Forum there EV charging stations popping up in our cities and becoming a new element of sometimes there were no answers at the urban landscapes. Eventually, think all. The goal was to find a common of the role mobility plays in culture and how the electrification of our vehicles

will shape this role in the future. Will more open to collaborating, sharing, and trusting one another? Will "re-purpose, re-charge, and re-think" define how our

were no right and wrong answers, and language, collectively explore both topics and bring them together, or at least closer to one another.

#### Virtual venue

The 9th edition of the Informed Cities Forum was not only special because it brought together the topics of cultural heritage and e-mobility, but also because it took place entirely online. Participants selected sessions. The moderators and speakers were connecting live with the participants from the studio in Freiburg, Germany.

### **Session moderators**

### **OpenHeritage**





Hanna Szemzö

Andrea Tönkő

### GreenCharge





Geir Horn

173 participants 56 cities 35 countries 10 sessions 45 speakers 90 750 minutes of live broadcasting

23569 saved kg/Co2



saved amount kg/Co2 converted to trees



Stephania Xydia



Cristina Garzillo



Jasmin Miah



**Reggie Tricker** 



### **Opening:** Heritage and e-mobility at the crossroads

Addressing the elephant in the room... why have a conference on e-mobility and heritage?



Hanna Szemzö, Managing Director at Metropolitan Research Institute in Budapest, Coordinator of OpenHeritage

### "Free your mind"



"Everything is in some way connected. We should find connections."

Jacqueline Floch, Senior Scientist at SINTEF, Coordinator of GreenCharge





"Be curious"

"We need to not only think but 'do' outside of silos. ... We don't live in boxes. For example, as deputy mayor it simply meant working together across departments."

Joke Quintens, Founder of Wetopia -



"[With the Informed Cities Fora] we bring people together who usually dont talk to each other. ... People who have very different perspectives."

Stefan Kuhn. Deputy Regional Director at ICLEI Europe

### "Come up with new ideas"

"[We] encourage you to open up your minds ... it is definitely not crazy to bring these two topics together." Jasmin Miah, Head of the Berlin ICLEI Office

### What did our participants think of bringing these two topics together and how they connect?







### New European Bauhaus: Adaptive reuse of cultural heritage

The New European Bauhaus (NEB) is an initiative by the European Commission connecting the European Green Deal to our living spaces in order to make them more sustainable, inclusive and beautiful. This session explored the role of adaptive reuse of cultural heritage in the perspective of the NEB movement. The overarching principles of the NEB were presented by the European Commission, insights from circular adaptive reuse models were shared by the Horizon 2020 CLIC project and concrete local interventions were addressed by the cities of Venice and Vitoria-Gasteiz. The role of civil society and co-creative processes was highlighted through the example of La Fabrika de Toda La Vida, winner of the New European Bauhaus award in the category 'Regenerated urban and rural spaces'.



"We need to reconnect our built environment with nature through a life-centred perspective. But we also need a human-centred paradigm to reconnect human beings with each other and with future generations. Interpreting adaptive reuse in this double perspective means to reconnect cultural heritage in space and in time" Cristina Garzillo, Senior Coordinator, ICLEI Europe

"The NEB is developed around a vibrant community of 313 partners (as oftoday) to rethink how we want to live better after the pandemic, based on a participatory, transdisciplinary approach. The NEB transformation path is about reconnecting to nature, regaining a sense of belonging, prioritising the places and people that need it the most, while acknowledging the need for long term, life cycle thinking in the industrial ecosystem"

Borislava Woodford, Policy Analyst at the European Commission, New European Bauhaus Initiative







"Just like the NEB, the CLIC project aimed to make the European Green deal a cultural, humancentred, tangible and positive experience. It applied the concept of the circular economy to cultural heritage, aiming to create 'less waste and more value', as defined by the EC's Circular Economy Action Plan. Through Heritage Innovation Partnerships in four pilot areas, we developed Local Action Plans tailored to the specific needs of local communities" Jermina Stanojev, Representative of the CLIC project, Postdoctoral Researcher at Uppsala University

"We are working on a retrofitting plan for the historic centre of Vitoria-Gasteiz based on 24 actions over the next 12 months. Adopting an integral urban regeneration strategy, we prioritise pedestrianisation and traffic calming, the increase of greenness and biodiversity, while creating a new sense of belonging for residents"

Beatriz Garcia-Moncó Piñeiro, Local Agenda 2030 Coordinator at Vitoria-Gasteiz City Council



"Venice is a city founded on the impossible. Today, a city on water, but without drinkable water, a contradiction. We strive to create an alternative to touristic monoculture, learn from the past to build a new future, maintaining the amphibian nature of the lagoon" Jacopo Galli, Postdoc Researcher at luav University of Venice

"We don't share the notion of bottom up, but try to build a..thicker bottom. Instead of trying to adapt bottom-up initiatives to more complex ways of organising, we should bring those institutions closer to new ways of organising ourselves and new ways of cooperation" Helena Ortiz, Activator at La Fabrika de Toda La Vida





## What data do we need to support a future mobility vision?

#### This session posed the question, "How do the voices of transport planners get listened to?"

It brought together city representatives, data scientists, and the energy sector to discuss how data makes a difference alongside targets in policy and the direction of regulation. Reggie Tricker, Innovation Manager for GreenCharge at ICLEI, moderated the session. The idea was to link the work of GreenCharge on indicators in energy and transport to a broader context. This showed that much work is ongoing, transition and change is happening now and live, and there are many strands to bring together to guide how data is used, by whom and why.

The first to speak was Ollie Guinan from Google, who recognised the parallels between GreenCharge and the work Google is doing on both transport and CO2 emissions data and solar energy potential in its Environmental Insights Explorer.

"Google created several data sets to help cities understand and reduce their carbon footprint. We created a web-based tool to let users explore and understand those data sets that tool is called the environmental insights explorer...using the same data that people are familiar with from google maps and the google maps transit layers and traffic layers and so on ... we do the work to anonymize this data and model it into city scale measurements of actual [transport] activity"

For further information on the Environmental Insights Explorer, visit: https://insights. sustainability.google/

The second speaker was Beniamino Di Martino from the GreenCharge partner Università degli studi della Campania Luigi Vanvitelli, who presented some of the unique aspects of working with mobility data.

"We had to learn mobility behavior and the profile from people and also energy behavior from people we also monitor the consumption and production - so the prosumption - of the energy, specifically renewable energy, from a neighbourhood in order to optimize the recharge of electrical vehicles...much of this data is privacy sensitive so ... we applied the "edge computing" near where the data are produced such that all our analytics are performed in the household, so they don't leave the house of the person "

This was followed by a reflection from a practitioner, Michael Glotz-Richter from GreenCharge partner City of Bremen.

"data is is of course of course crucial but to say it also clearly it's not replacing decision making and that's sometimes mixed up...we have to see how to interpret the data and take the right conclusions...what we need to understand much more is the motivation we are looking at at hardware and software but we have to understand also mindware.. there is the need that we not only look at the movements but really more at the motivation behind it and that's a different kind of data...we cannot continue the way that we developed in the last 60 years and this requires a turnaround... we have to see how data can serve that purpose"

All areas of data were voted similarly, the importance of energy data was recognised in transport planning, but social data was marginally rated the highest on average so the ethos of understanding "mindware" and population characteristics was supported by the audience.

Claire Vandewalle from Union of the French Electricity Industry (Union Française de l'Electricité (UFE)) gave us a broad EU energy perspective, emphasising the physical connections that electricity will now very rapidly play in our mobility sector.

The vote during the session emphasised the role that all types of data play, including social data alongside that for transport and the environment. For the audience, at least, less emphasis was seen to be needed on economic impacts.





"the synergies that exist between the energy system and mobility that are stronger than ever...a very important message that I want to send is the necessity to discuss with all involved actors - public authorities, local authorities - should discuss with mobility actors and energy utilities...we have obviously renewable energies and with new flexibilities., with this new smart charging and the use of data to better manage the energy consumption and to be able to do load shifting meaning that you will be able to charge off peak hours ...and stock for instance renewable energies in the batteries of the electric vehicles "

## **Repurposing mobility: The** cases of Barcelona, Bremen, **Freiburg and Oslo**

Four cities came together to discuss what they have in common? Of interest was that even emobility practitioners at the sharp end of delivery took a cautious approach to the role of electric cars in urban mobility. Jacqueline Floch, GreenCharge coordinator, moderated the session.

"all cities are all very different: we have different cultures. different customs, different habits, different infrastructures and this is reflected how we move...electrifying vehicles is not a goal ... but we are focusing on how to use and how to incorporate the electricity and each city will incorporate it in a different wav"

10

Angel Lopez Rodriguez talked about how mobility was not just a transport facet of the city, but it defined the culture of a place in

> "we try to promote car sharing so what we want to have is not as many e-cars as possible but to have as few cars as necessary and a high share of electric cars within the fleet"

Michael Glotz Richter and Beate Lange brought reflections from the City of Bremen.

"the on the ground challenge is we don't have enough room ... we have to sort out our parking in public ... this is a very conflict heavy process because not all people like this ... the number of cars is so large that we can't install charging infrastructure so this is a challenge"

"the future is here right now there's no longer vision where we see in the future and see beautiful day when we drive electric use electrical Zvehicles to as transportation so it's here and now...but buildings built before the 1990s have this low local grid capacity, no one ever thought about creating the space for electric vehicles or upgrading or creating this electric infrastructure for the future"

Whilst a Nordic perspective was provided by the City of Oslo by Patrycjusz Bubilek

"we are working on convincing people that city without cars could be a little bit more attractive than it is now and the cars that cannot be replaced they should be electric but ... people think they kind of buy themselves out of climate pollution topics buying an electric car ... we want to be a little faster with maybe promoting a behavioral change than that much of a technical change. We have the idea of keeping the sidewalks and the pathways for the pedestrians, for the children, for people with wheelchairs"

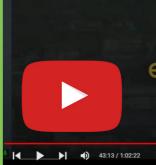
As host city to the Forum, the City of Freiburg reaffirmed the need to retain priority on non-car modes of transport and use electric mobility technology in the best way possible, first and foremost for non-car modes.

"We have issues among others with the backward compatibility with the ancients systems in order to take advantage of the existing deployed infrastructure to the extent possible likewise interoperability in the systems is one of the key aspects to keep seamless services ... and last but not least standardization is crucial to achieve the interoperability and future backwards compatibility once the technology evolves"

Finally, the European Commission (CINEA) rounded off the session in an informative way.



A video of the Barcelona ebike sharing pilot was also presented



#### WHAT DO YOU THINK IS THE MOST **ATTRACTIVE MODE OF ELECTRIC TRANSPORT FOR CITIES?**

bike 👸 bus electric bicycle train scooters

\* -

## **Knowledge Cafe:** What did Heritage Communities learn from the pandemic?

The innovation part of the OpenHeritage project are six Cooperative Heritage Labs where the project works together with a wide range of stakeholders, including local communities, local businesses, educational institutions, and municipalities. This work was heavily influenced by the measures introduced during the Covid pandemic, like lockdowns, physical distancing, mobility restrictions, just to mention a few. During the Knowledge Cafe the Labs sat together at the virtual table and shared stories and lessons learnt from their heritage communities in Sunderland High Street West (UK), Rome Collaboratory (IT), Hof Prädikow (DE), Praga Lab (PL) and Pomáz-Nagykovácsi-puszta (HU).

"Even though you are enthusiastic, you cannot handle such big projects when you are a small entrepreneur and you feel that you're alone. Alone meaning [that] you don't know the tools, you don't know where to search for additional funds, and also you don't feel enough support from legal departments."

Dominika Brodowicz, Praga Lab (PL)

"The good news is that the operation of our Labs continued despite these difficulties. Moreover, they progressed significantly. For me personally, this is just another proof that people always respond to constraints with creativity, always."

Andrea Tönko, OpenHeritage Coordinator

"The way people approach and discover the city has changed. We have a lot of national tourism but also local tourism. So people living in the city are trying to understand more about their neighbourhoods and their districts."

Alessandro Piperno and Christian Iaione, Rome Collaboratory (IT)

"It is so nice to see that the people from the project group and the village are working together. (...) They hope to establish not only a cafe, they also want to establish a shop. And again, they are working hand in hand together."

Christian Darr, Hof Prädikow (DE)

"I think it's a permanently changed situation. I think we're not surviving but rather adapting, and this is still in progress."

Dóra Mérai, Pomáz-Nagykovácsi-puszta (HU)

"But then at the same time actually it was also interesting to see that it gave us some new opportunities, right? That we all of a sudden had access to some new types of funding that were kind of like the Covid response funding that we were able to benefit from."

Loes Veldpaus, Sunderland High Street West (UK)



### **European Year of Rail: Repurposing obsolete transportation infrastructure**

On the occasion of the European Year of Rail, this session explored places and cases where cultural heritage meets transportation infrastructure. How have shifting mobility cultures shaped urban heritage? What does it take to revive an abandoned station, depot or rail line? Participants were invited on a virtual journey across Europe to discover different rail heritage sites transformed into creative hubs, cultural venues and ecological exemplars. Success stories and failures presented highlighted different governance structures and business models, engaging public authorities, private investors and local communities.

"This transformation is due to changes in technology and the shift to high speed, electric trains that render old tracks and surrounding spaces obsolete; the need for more through and less terminal stations, as well as changing urban development needs, functions and environmental impacts in the central, high-value urban districts where stations are located".

András Ekés, Managing Director at Mobilissimus



"The need to increase rail transportation in Europe is very obvious. As rail becomes more and more important, the infrastructure itself is undergoing a profound transformation."

Hanna Szemzö, OpenHeritage Coordinator

"We had to invest in both the hardware (physical infrastructure) and the software (community) to create a space where social conflicts can be tackled (...) I think we can create a stage to offer a political voice and give instruments to disadvantaged communities to influence their local politics. We can empower those affected by gentrification and give them a platform"

Matthias Einhoff, Director at ZK/U Centre for Arts and Urbanistics in Berlin "The mission LEM Station is making change, creating opportunities. This is a private investment that aims at breaking even in a couple of years, creating overall a self-sustainable innovative hub to develop creativity and capacity of entrepreneurship in Lviv"

Gregory Zarkhin, Project Manager at LEM Station in Lviv

#### "Citizens initiatives face serious challenges which is why at ge.CO project we created a series of tools to help initiatives generating the commons"

Yilmaz Vurucu, ge.CO project, presenting La REcyclerie in Paris





"To Treno sto Rouf is a unique railway carriage theatre, offering immersive performance, educational and dining experiences. Through our programming we have contributed to a sort of resurgence of the neighborhood in terms of culture, converting Rouf into an avant-garde area"

Evanthia Kairi, Museologist, presenting To Treno sto Rouf in Athens

## The future of mobility: Which electric vehicle fairy tale will you fall in love with? - Informed Cities "The Bachelor" Edition

In recognition that as the growth in e mobility increases, the controversy around it seems to too, ICLEI moderated a debate on various claims and counterclaims that have become pervasive in the public domain and which set some of the context in which EV technologies must fit.

Starting with 10 phrases, the following priority order was given in ascending order (from "bad dream" to "fairytale") through an audience vote, in a qualifying-style process.



#### The two favourite quotes facing each other in the finale were:

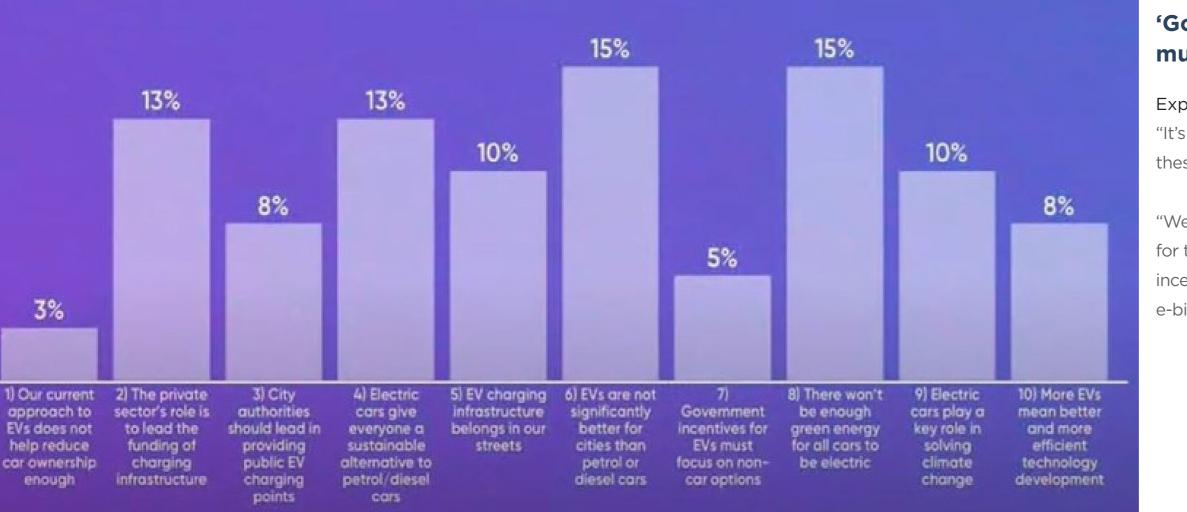
### **'Our current approach to EVs does not help reduce car ownership enough'**

Expert opinions:

"I think sharing systems will come most likely once we see autonomous driving"

"You have to have good [transport] options not to own your own cars"

### **Round 1: Eliminate your 2 LEAST FAVORITE quotes**



#### Winner

#### **'Government incentives for EVs must focus on non-car options'**

#### Expert opinions:

"It's a really important thing to incentivize these things as much as possible"

"We have to build other means of possibilities for transportation as well in parallel and give incentives for both public transport and e-bikes and sharing of electric cars"



# Rethinking energy sources for mobility

A unio ecosy

A unique graphic was used to help portray the wider energy management ecosystem being instilled by GreenCharge. This was communicated by a Norwegian trio from SINTEF, the University of Oslo, and ZET Technology.

"...we have to be confident that the electricity will become greener but to help also the electricity mix become greener we are reliant on local electricity generation as well so we need to push electricity electric mobility along with local renewable energy generation"

(Karen Byskov Lindberg, Senior Research Scientist at SINTEF) The component parts of an e mobility system powered by green energy were assembled in a way that would be understandable and not intimidating to transport planners, building managers or home owners not familiar with the subject area, which also demonstrating some of the scientific rigour behind the process.

2

"...I also think we have an issue on the regulatory side both with respect to establishing the kind of neighborhoods where energy can flow sort of freely among neighbours but also in order to to plan and and create the right incentives for people to install solar panels on in a large scale because it is a private investment which is required among many different households...most of us are living in cities where we are living in these kind of housing communities or apartment buildings"

(Geir Horn, Head of European ICT projects at the University of Oslo) A discussion was held on how we upscale energy generation from not just one household, but shared between households and across a wider "smart energy management neighbourhood". This would require a higher level of both technical and social cooperation. "...with the use of energy from the grid and the solar on the on the roof of buildings with different algorithms we try to optimize the use of the available energy basically and limiting the cost and limiting the need of investing in expensive infrastructure...traditional car producers and energy producers and so on are conservative companies and they have to start sharing the data and open the protocols to to enable automatic optimization of everything and all these smart solutions, and in future artificial intelligence needs the data to work properly and we can solve those challenges"

(Paal Christian Myhre, General Manager at ZET Technology AS) Technology was seen as a way of solving some of these issues, such as the app developed by GreenCharge, but needed more openness from traditional players in the energy and automotive sectors to enable our shared systems to be truly "smart".





### Accessibility of Cultural Heritage

How can we ensure access to culture beyond physical, technological and social barriers? This session examined new approaches to meaningful accessibility and inclusion, exploring initiatives, technologies and policies for overcoming mobility and access limitations to cultural heritage, with particular focus to marginalised groups and young people. In this contect, Creative Urban Strategist Lia Ghilardi was invited as a "keynote listener" to critically reflect on accessibility solutions presented by Acesso Cultura (Portugal), Liminal Access (Greece) and Acta Vista (France).



"The shift to electric mobility raises concerns of social and cultural nature: We see historical centres being disrupted by sometimes unregulated tourists on electric scooters. charging cables blocking pavements and entrances to buildings, branded EV charging stations popping up around our cities, becoming "eyesores" to local communities. How does eMobility shape urban culture and how can culture shifts accelerate transitions to sustainable mobility?" Stephania Xydia, Governance & Social Innovation Officer, ICLEI Europe



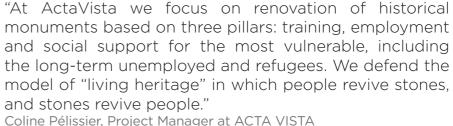
"We need a holistic approach to accessibility, different city departments need to realise that breaking down access barriers is good for everybody, regardless of disability. While reflecting on accessibility we are opening new avenues for cities to really become more equitable and more creative in the way they build their future"

"We need to take into account the real cost of accessing culture for some communities: the extra financial costs involved but also the extra stress; the extra planning that someone needs to do to attend a cultural event or a venue; the physical and psychological cost of mobility." Christos Papamichael, Founder-Director at Liminal



"Claiming to provide "access for all" is arrogant and utopian (...)What is more important is to start introducing the word EQUITY in our work, understanding that not everyone has the same starting point. It's not a matter of generosity (...) we need to take into account "specific" (not special) NEEDS, derived from specific RIGHTS to culture and the public space." Maria Vlachou, Executive Director at Acesso Cultura

informed cities Accessibility EA K







## **Closing: Our future cities:** What will they look like?

Re-purpose. Re-charge. Re-think. - What do these three terms actually mean for our cities? How will heritage and e-mobility shape our cities in the future and how have the discussions in the last three days contributed to the debate? The closing panel discussion drew conclusions, attempted to provide an outlook of what's to come and bring everyone back to together to think about the following questions: What will our cities look like in the future, and what do we want them to look like?

"Even the progressive cities are not going far enough fast enough when it comes to this 'rethink'. The conversation has to be more urgent."

Brent Toderian, City Planner and Founder of **TODERIAN UrbanWORKS** 

"We politicians have to live with two realities. The first reality is the actual reality, the challenges our society faces. ... The second reality is the political reality. To continue to work within politics we need to abide by the rules of the political reality. That is why I like the concept of 're-think'."

Nils Larsen, Group Leader of the Green Party in Umea

"If you can create policies that are inclusive ... you will design policies that make everyone see the win in it ... and that will be key going forward."

Fedra Vanhuyse, Head of Division - Societies, Climate and Policy Support at Stockholm.

"[There is an] importance of space and place. ... The appropriate place allowed local communities ... to act and to think and to 're-think' during the pandemic."

Hanna Szemzö, Managing Director at Metropolitan Research Institute in Budapest, OpenHeritage Coordinator

WE NEED TO REPOSITION THE IDEA OF CHANGE IN EXISTING COMMUNITIES

"We are speaking a lot about recharging cars but we should think about recharging people. Recharging people with knowledge so they can change behaviours."

Jacqueline Floch, Senior Scientist at SINTEF, GreenCharge Coordinator

CITIES MUST GIVE THE PUBLIC SPACE BACK TO THE





### I want more

#### For more impressions from the forum:

Watch all sessions by going to the ICF playlist here

Visit the website here

Keep up with us on Twitter: <u>@InformedCities</u>

Keep up with us on Facebook: @InformedCities



The next Informed Cities Forum will take place in 2022. See you then - hopefully back in person!

Find out more about the final **OpenHeritage** project outcomes here

Find out more about **final GreenCharge project** outcomes here



# Communication Highlights

#### Top Tweet earned 851 impressions

What is the role of adaptive heritage reuse in the #NewEuropeanBauhaus? How did COVID pandemic affect local heritage communities? What has cultural heritage to do with the #EUYearofRail? Join the 9th @InformedCities\_ and find out!

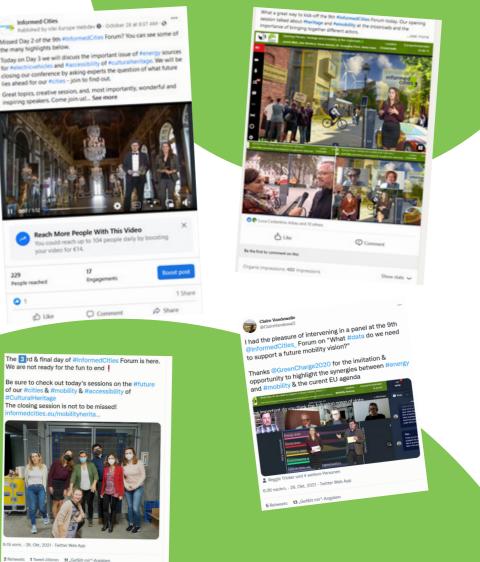
Sign up here 2 informedcities.eu/mobilityherita. pic.twitter.com/modEBvs6q



+15 912







> 9,000 OpenHeritage Tweet Impressions October > 22,000 GreenCharge Tweet Impressions October +1785% GreenCharge/InformedCities LinkedIn Impressions

Articles were also promoted through media outlets such as ICLEI Europe news and the European Heritage Tribune as well as through various newsletters

- +872.4% InformedCities Tweet Impressions
- +7200% GreenCharge/InformedCities LinkedIn Reactions



**Terms of use**: This publication has been produced as part of the OpenHeritage and Green Charge projects and is licensed under a Creative Common Attribution 4.0. International (CC BY-ND 4.0).

Date: November 2021

**Authors**: Adriana Duarte, Valeria Eirin, Olga Krajewska, Jasmin Miah, Reggie Tricker, Stephania Xydia (ICLEI Europe)

**Pictures**: Rebekka Dold (Rebekka Dold Grafik Design & Visuelle Kommunikation); Alex Giurca; Valeria Eirin; Olga Krajewska (ICLEI Europe)

Layout: Annika Burger (ICLEI Europe)

**About the projects**: **OpenHeritage** identifies and tests the best practices of adaptive heritage re-use in Europe. Drawing on the observations and results, the project will develop inclusive governance and management models for marginalized, non-touristic heritage sites and tests them in selected Cooperative Heritage Labs over Europe. It works with communities, local businesses, local and municipal administration, tries out new forms of engagement and uses crowdfunding and crowd sourcing mechanisms to create active heritage communities.

**GreenCharge** takes us a few important steps closer to achieving one of the dreams of modern cities: a zero emission transport system based on electric vehicles running on green energy, with traffic jams and parking problems becoming things of the past. GreenCharge is developing a smart charging system that lets people book charging in advance, so that they can easily access the power they need. Green Charge is developing software for automatic energy management in local areas to balance demand with available supplies. GreenCharge is testing all of these innovations in practical trials in Barcelona, Bremen and Oslo.

**About the publication:** The 9th Informed Cities Forum took place on 26-28 October 2021 in Freiburg (Germany) and gathered around 200 urban thinkers and practitioners, including representatives of local governments, researchers, social entrepreneurs and urban

activists. This report shows the highlights of each session.

The 9th Informed Cities Forum was organised by ICLEI Europe and co-produced by Open-Heritage and GreenCharge. The conference was supported by the CIVITAS Initiative.



The OpenHeritage project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 776766. This GreenCharge project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 769016. The sole responsibility for the content of this publication lies with the authors. It does not necessarily represent the opinion of the European Union. Neither EASME or INEA, nor the European Commission is responsible for any use that may be made of the information contained therein.