

Group work summary **MOBILITIES** 2021 - 2022

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# Editorial

U rban mobility specialists tend to present the ways cities transform based on 4 successive mobility ages: that of craftsmanship, of congestion, of car adaptation, and lastly of multi-modal integration (implying multi transportation modes). This "Mobility" booklet invites us all to think about what will come next, because something will come next, a desirable future for 2050, which we should start preparing for already now.

The most developed cities have to embrace this perspective, and cities which still have to deal with congestion and adaptation can hereby find means to skip some steps and avoid some of the mistakes that were made elsewhere. In this regard, decentralized cooperation between cities of the North and cities of the South is a particularly promising instrument to share concrete experiences and find collectively the paths to draw towards a desirable future. The idea isn't to replicate predefined models, since those don't exist anyway, but to invent local solutions that take into considerations some of the experiences implemented in other places. Let's hope for this kind of cooperation to develop in the field urban mobility, since urban mobility is a key sector but one that's not addressed enough, unlike for instance with the new "1% urban transportation" in France

The fifth age of mobility doesn't have a name yet, but its main lines are already emerging: decarbonization, digital solutions, reasoned urban and suburban density, diversity and proximity, active transportation modes, structuration of heavy transportation networks, fewer dependance to individual cars, demand diversification, etc. The public policies and choices needed to get there aren't always easy to find or implement. This is why we must make people willing to get there, inspire them, and show them that this is all very much possible. This booklet intends to lead us into that direction, and it is up to us to follow it!

Jean-Jacques Helluin, General Director, Codatu



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# CHALLENGES

Urban development and mobility are intimately related. Ever since they were created, cars have shaped cities and resulted in unsustainable cities and ways of life. Transforming our cities for a better urban future implies to transform mobility, by taking into account the many challenges we face, technological, economic, social, urban, or governance-related.

We must first insist on the social challenges and on the need to align as much as possible the people's diverse needs and wishes with the evolution of ways of life, while paying particular attention to economic and spatial equality regardless of people's age, gender or handicap. Safety and security are crucial topics in this regard. Developing diverse transportation means (especially with active transportation) will represent a great opportunity to encourage and to better manage transportation through new ways of sharing the street or through designs of multi-modal transportation hubs, as well as through an improved coordination of public and private transportation means whether they are formal or informal. Urban planning projects, mobility management and the planning of mobility-related areas should make a lot of room to include people's needs and become real dialogue spaces for all people involved in projects. This implies concrete implementations and to promote trainings and pedagogy for all actors involved.

To best combine reasoned uses of land and resources with a reduction of greenhouse emissions cannot happen only with technical solutions. The process calls for a deep transformation of our ways of life and of the ways our urban environments function.

Should then hypermobility, which nowadays defines urban ways of life, remain a positive value, or should we give the priority instead to a slower pace and to proximity to promote greater urban density? This question has to be discussed collectively and it especially calls for us to strengthen the bounds between spatial planning (housing and economic activities) and planning of the mobility of people and goods.

Emerging technological solutions - especially car electrification, informatization, digitalization- shouldn't be seen as ends but as means that we should study, to assess their capacity to bring about true solutions and not to only to shift issues. For instance, will we need to electrify car fleets quicker by replacing existing vehicles (implying to do a life cycle analysis), if this happens in parallel of individual cars getting heavier (SUVification – sport utility vehicle), of rare resources being dangerously drained, and of carbonized electricity consumption increasing? Targeting a reasoned use of land and resources and recycling is probably a better path.

Digital tools are changing the ways individuals consume products and goods (ownership vs. usage) and open up opportunities to better know and manage people and goods movements (urban logistics). Better information access and the emergence of the concept of "mobility as a service" emerging (Maas) will allow for better service, better usage and greater complementarity between the various existing transportation means (what we call multi-modality or inter-modality). Live tracking of fluxes of people and goods could improve urban planning and help with managing mobilities and transport infrastructure. However, the growing informatization and digitalization of urban planning raise questions about usage and protection of people's data and about the monitoring of fluxes.

Lastly, if we want governance to better include inhabitants and users, national public authorities will have an essential role to play (general market regulations, protection of people and of the environment), like local authorities (organization of local services, urban planning and urban management). The main idea will to be support and develop public transport (social and spatial access, security, frequency), by providing fair, stable and sufficient funding.

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# 2050 Scenario

The methodology used by the workgroup on "Mobility" to draw a 2050 desirable scenario is a series of profiles that would represent daily life mobility in 2050 (for work, hobbies, consumption). This series of portraits was made by the participants based on their experience and expertise. Among the 13 contributions that were received, 7 countries and regions are under-represented (Senegal, France, Morocco, Cambodia, Vietnam, Europe, Brazil), meaning countries from the North as well as countries from the South, with different age groups and generations, and diverse territorial contexts (urban, rural, suburban). The text below brings together all scenarios in order to try and build a shared collective vision.

In 2050, urban growth is happening at a fast pace. Most cities have expanded, and city centers have densified. Despite their extension, urban areas, previously qualified as "dense", blend with natural areas and with biodiversity because the countryside and nature areas have grown more into cities, in a reversed logic to what was happening before. The morphology of city centers now mostly looks like what we used to call "suburban" in 2020; they are "urban-rural". Secondary cities have grown a lot, especially in Africa, which made for a better structuration of national territories.

"The strict "zero artificialization" policy that was led in the years 2020 resulted in the development of green areas, nature areas and of places to grow fruits and vegetables."

Sylvain Petitet, Cerema

"The couple lives in the town of Aspremont, where just above 2500 inhabitants lived in 2021 and where the population has grown to reach 6 500 in 2050, following the growth dynamic of secondary cities".

Stéphane Pouffary, Energy 2050

"We observe a population decrease in the central city, to the benefit of neighboring cities."

Dominique Breuil, Codatu

"Faced with the growing awareness of how great consequences are, major regulatory, political and urban planning evolutions took place during the years 2040 mainly. They've significantly shaped how mobility now looks like. Green corridors were created in the urban landscape. These are big city dirt paths with vegetation, meant for bikes and for pedestrians. They connect great economic centers and they've significantly improved "enjoyable" mobility."

Simon Senegas, École de l'aménagement durable des territoires (ENTPE)

Growing mobility needs have however also led to the development of more diversified mobility networks. The energetic transition of transportation is being made possible thanks to solar or wind-powered energy, and thanks to growing progresses with hydrogen energy. This energetic transition works hand in hand with individual cars being less and less used in urban centers, and with less areas dedicated to them on the street, making for people switching from individual cars to more active transportation means or to public transport. Intra-urban network holders have electrified most public transports (double level busses, motorcy-cle-taxis, taxis, trains, bikes, even drones). They've also made it mandatory for personal and work vehicles to run on electricity.

"He uses his electric bike to go around on former roads which have now been turned into green paths, or to go to third places."

Arnaud Gorin, Ministry of Ecological Transition

"Interdiction to sell new thermal cars and mandatory electrification of transportation means, to align with the goal set at national and European levels to stop using fossil energies; regulatory limitations on the weight of vehicles for sales, intended to stop SUV-ification."

Léo Larivière, Nomadeis

Intra-urban commutes can now be done with more diverse transportation means, granting users more choice and making individuals more able to arbitrate their transport decision based on costs, on their preferences or on personal constraints (old age, handicap for instance). Remote work is more and more chosen for with jobs that allow it, which helps reducing individual mobilities. In this context, in 2050, third places have developed since they are spaces to work, practice hobbies, shop, and since they foster social cohesion and encourage remote work.

"The development of an express tram-train (TTE) based on the idea of "an interconnected station within a 5km radius", made it possible to serve the metropolitan area as a whole. The development of bike paths everywhere on department network also encourages people to use bikes more widely. Remote work has developed a lot in 2020. Not using transportation strongly limits the impact of transportation on the environment."

Sylvain Petitet, Cerema

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"She has a job that makes it possible for her to work remote 2 to 4 days a week." Arnaud Gorin, Ministry of Ecologic Transition

"Public transport has developed and has been structured. Everyone can access it, including those with low income. It connects city centers with suburban areas, and it connects urban and country areas."

Lucie Allex-Billaud, Gret Sénégal

"Awa uses the express regional train (TER) every morning. She leaves home around 7:45am. Depending on the days, she or her husband take the kids to the neighbor lady, who brings them to school. Awa is lucky, because the Pikine stop is only a 10mn walk from her house (in the lcotaf 1 neighborhood). Pedestrian pathways with vegetation were created and make her way to the express regional train station easy and enjoyable."

Lucie Allex-Billaud, Gret Sénégal

"The city is crossed by electric shuttles that run exclusively on-demand for standard commutes. The ITS network (smart transportation system) is very developed and enable people to access transportation within 5 minutes in the city center." Dominique Breuil, Codatu

Thanks to digital tools and platforms and to physical terminals multiplying, shared vehicles have become one of the main transportation means in 2050. Public and private actors cooperate a lot to develop shared transportation for employees within organizations.

"He goes to the nearest multi-model exchange point where he can find a self-powered collective taxi, which he calls from a virtual terminal that's connected to his smartphone in his arrival exchange point. (...). He moves around with in intercommunal collective shared car. These are electric vehicles. Charging them isn't an issue anymore because there are now many easy to use fast charging point." Sylvain Petitet, Cerema

"The growth and structuration of a network of traditional eco-motorcycle taxis ensures that the offer remains adapted to the demand, and inhabitants enjoy them. This transportation mean allows for a quick and easy access to areas that are hard to reach (street conditions, topography, etc.). They also make night travels safer."

Adeline Fauré, PFVT

Two main trends characterize travels for daily consumption in 2050: e-commerce and the generalization of deliveries on the one hand, and the generalization of local, small scale shopping on the other. Secondary cities play an important role as territorial and local logistic hubs that facilitate local supplying, systemize the "last kilometer", and shorten supply chains.

"In Dakar, people only buy consumption products on the Internet, except for fresh products which they buy in neighboring stores."

Dominique Breuil, Codatu

"Now retired, Maria is involved with some activities in her neighborhood. She walks outside on sunny days to get to the community center located about 15mn away. To go back up, she usually uses an eco-motorcycle taxi that drops her in front of her house in less than 5 minutes or she orders an electric bike with which it takes 10 minutes for her to bike up her road."

#### Adeline Fauré, PFVT

Hobby travels have undergone the same proximity paradigm shift as consumption travels. They are recentered around local spaces that are generally hybrid and enable different public and private practices to cross. People usually do bigger travels to more faraway places with electric trains or shared rides, given that plane travels is used much less.

"People walk and bike more now, in a context where the heart of the city has 25km/ hour speed limit and where two-wheelers are forbidden on sidewalks – which were made much broader. Walking and biking benefit health and they free up space capacity for city center public transport."

Sylvain Petitet, Cerema

"This reality led to giving new directions to local tourism, in terms of what destinations are now reachable by train."

#### Simon Senegas, ENTPE

"For daily hobbies, people mainly use their own electric bikes to go around, and from time to time, they walk or use public transport (...). They go around by train, mostly by night. The train market grew a lot throughout the years 2030, with fairly flexible abandonment systems. Once we reach our destination, we go around mainly using small rental electric vehicles (or mechanical, based on how the distance)."

### Léo Larivière, Nomadéis

"A lot of urban development for hobbies was done following national policies implemented to limit mobility, which triggered a lot of enthusiasm. On my end, I rather like going away by bike with friends for a few days. Bike paths are now national, and there are a lot of recharge points along the way thanks to massive investment done by the private sector."

#### Simon Senegas, ENTPE

"The Ker Salam is a hybrid place, as we call them, a shared place crossing the public and public domains, a place that's open to all and where economic activities (fair trade, repair workshops) blend with social activities (housing, solidary work for disadvantaged people) or with cultural activities (dance, theater, singing classes, concerts, etc.)."

Lucie Allex-Billaud, Gret Sénégal

More generally, roads and infrastructure were renovated and made more secure and safe. The fact that traffic decreased helps keep road infrastructure in good working state. Public transport is safe, also for women. In 2050, mobility is claimed as a right, relying on an equality principle that states that the most vulnerable populations get mobility support when public transport isn't free (or not yet), although it is now free in most cities around the world.

"Urban morphology adjusted to societal constraints, which deeply transformed citizens' mobility needs. All cities are now designed to facilitate and foster multi-modal mobility, for which the preferred energies are muscle energy and renewable energies."

Tristan Laurent Morel, ADP Developing cities

"More than 50% of sidewalks were adapted, as well as 25% of public spaces. People in wheelchairs can move around more easily."

Stéphane Pouffary, Energy 2050

"In Rio de Janeiro, the renovation of roads and of public and pedestrian areas was made easier thanks to the creation a live app that citizens can use to signal and locate any potential issue which local authorities can then address using the same app, calling for the nearest entrepreneurs and craftsmen to fix the problem." Adeline Fauré, PFVT

"City center traffic is now quieter and all vehicles circulating in the city now run on electricity. Access to the city is forbidden to any other motorized vehicle except for those who need to access logistic centers in the suburb."

Dominique Breuil, Codatu

Because of climate change, transport infrastructures are thought about right from their conception in terms of their environmental impact and resilience to the climate and to natural catastrophes. This way, in 2050, the development of new mobilities is widely conditioned by societal and environmental impacts, and users can arbitrate their mobility choices based on these impacts.

"Morocco is overall 90% electro-mobile mainly thanks to the creation of solar plants in the years 2020-2030, and thanks to the development of hydrogen motorization for heavy vehicles. Surplus and packaging are carried each day and night to the end of the medina with automatized chariots. The workings of such

chariots are supervised by a special service created by the city's business owners (in connection with the wilaya)."

Dominique Breuil, Codatu

"At state level, the systematic inclusion of environmental factors to public policies and to their monitoring led to detoxifying the carbon economy."

Tristan Laurent Morel, ADP Developing cities

"Reclaiming and maintaining small parts was made easier and more efficient by 3D printing, and it expanded the life cycle of vehicles and infrastructure – limiting mobility-induced waste."

Sylvain Petitet, Cerema



# PATHWAYS

For the desirable future envisioned by diverse populations in diverse contexts to come true by 2050, we still have to go a long way and we only have little time ahead. The coming years will be decisive in achieving the right pathway collectively. 2030 is an important step not to be missed. So, when it comes to public policy and implementation thereof, 2030 starts today!

Whether it has to do with work, daily consumption or hobbies, mobility is an important part of the life of urban inhabitants wherever they reside - city of the South of city of the North, city centers, neighboring suburbs, faraway suburb of mid- or big size cities. These various kinds of mobilities are conditioned by many factors, classified into 6 categories: urban, technologic, economic, social, environmental, and governance. The recommendations that emerged sometimes cross several of these categories. Some of them may require time before they translate into tangible effects, others can have more immediate effects; all of them, however, need to be implemented rapidly.

# Urban mobility, an essential good to be managed collectively

Urban mobility needs to be recognized as an essential good, just like water, energy, education or health access. This means to everyone should be able to access mobility and that it should be forbidden for some people to appropriate mobility exclusively.

Orchestrating mobility at the scale of agglomerations should be everyone's deed. It should be centered around urban users' various needs and should involve all parties: kids and elderlies, men, women and non-binary people, people in good health or with a handicap, elected representative and officers, businesses and community organizations, employers and employees, etc.

Systems to plan and manage mobility should thus be seen as an opportunity to create democratic debates. For informed conversations to happen and for decisions to be accepted, we have to make people aware, inform them and train them about the stakes behind sustainable mobility.

Local authorities have a role to play to set up and implement the kind of mobility policies that truly answer people's needs. We should also support and foster people to share experiences, good practices, try outs and innovating actions

# Focus

# The city observatory for free transportation

In France, free public transportation wasn't much studied until now by scientists and debates on the matter still have the tendency to be limited to ideologic representations. Because of this situation and because of the need to prevent this tendency from still happening, the city observatory for free transportation was created under the ioint impulse of the urban planning agency of Flandre-Dunkirk, of the urban community of Dunkirk and of the researcher association called VIGS. https://tinyurl.com/2p8kk4v6

# The sustainable urban mobility plans (PLUD) and the national urban mobility policies (PNMU) in France

The originality and accuracy of these tools come from combining them, because this combination facilitates debates at national and local scales. They also include a calculation methodology of greenhouse emissions, which connects projections on greenhouse emissions with measures and incentives set up to decrease these emissions. This way, it becomes possible to track and verify the effects of projected measures on greenhouse emissions. and to reach the overall financial and technical goals of an action plan. https://tinyurl.com/aes5yecf

# Urban incubator in Dakar. by the Gret association and the French Development Agency

The urban incubator project in Dakar (PUD) is part of a strategy that wants to redefine mobility in Dakar and make it easier for users and for inhabitants (including vulnerable populations) to appropriate future public transport equipment through co-codesigning and co-building public spaces, and through fostering participation, information, facilitation and awareness. https://tinvurl.com/24mvnsz8

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taken at city scale. In this field, France adopted in 2020 the "1% mobility" principle, meaning dedicating 1% of authorities' budget to organize and regulate mobilities to operations of decentralized cooperation. We suggest generalizing this "1% principle" to all of the richest countries, to help less advanced countries strengthen their competence and to foster actions that will serve more sustainable mobility systems.

# The shapes of cities, network and mobility services

Urban shapes and mobility systems are inherently related. Since the second half of the last century, the growth of urbanization that happened in correlation with car traffic and infrastructure led to urban spread and to mobility practices that couldn't be kept under control and became unsustainable. Today, the "15-minute city" is an attractive perspective but it isn't unrealistic enough for millions of suburb inhabitants that aren't well connected to public transport, or not connected at all, and have to put up with long, tiring and costly commuting to reach the amenities of city center, especially work.

In countries where this practice is more efficient, the best is to better connect spatial planning with mobility systems planning. The idea would be to promote the "45-minute metropolis", by:

• making urbanization possible only in places located less than 15 minutes away from public heavy transport stations (multi-level buses, regional trains, metro, tramways), and enable access to the city center in less than 30 minutes;

· densifying already urbanized areas;

• strongly developing public transports and bike path networks in urban peripheries, starting from the first ring, in both a radial perspective (from the center to the peripheries) and a suburb-to-suburb perspective;

• developing each transport station like a real multi-modal exchange point, providing services that answer inhabitants' needs (with the least number of parking lots and with an emphasis put on shared ride stations);

• organizing the drawdown of car transportation, of public transportation (public and private) and of soft transportation means (walking or biking) toward those multi-modal transport connection point

Furthermore, although areas occupied by urban mobility infrastructures is very significant in cities today, their use deserves to be (re)thought about and better shared, based on the different uses that we can make of them: parking vehicles, development of traditional and commercial activities, vegetation, transport of people or goods with various types of vehicles (walk, bike, personal cars, public transport, emergency vehicles, etc.). The use of public areas like those, being so

# Focus

Mobilise Your City Mobilise Your City was initiated by Codatu. Adema agency, Cerema, GIZ, the French Development Agency, and by other French and international partners. This collaboration brings together several investors and a roof organization for all EU technical assistance programs. Mobilise Your City is set up in 31 countries around the world. This partnership's operational goal is to grow investment on carbonfree urban mobility in emerging and developing economies.

https://www.mobiliseyourcity.net/fr

# 100% free transportation network in Dunkirk, France Since 2018, people can

move around for free with public transport in the towns that belong to the agglomeration community of Dunkirk. This measure led to a significant increase of public transport use, and it decreased the use of personal vehicles, which itself led to less road traffic and less greenhouse emissions. https://www.dkbus.com/

# Cooperation between France and Egypt to develop multi-modal connection points

To develop multi-modal transport connection point in Cairo. Cerema was asked to organize a participatory workshop to rethink two multi-modal metro stations in Cairo, in order to improve how different transportation means were organized and connected there. During the mission. Cerema talked about the stakes behind transport multimodality in mobility policies, and about the leverage tools that exist to implement multimodality. https://tinvurl.com/4krfarvm

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important to urban life, should be the core of renewed brainstorms that would involve all parties: elected representatives, technicians, inhabitants, users. The chosen solutions should want to:

• Embrace differentiated usages of this infrastructure based on the times of the day, on the days of the week, or on the season;

• Give the priority to easy, adaptive and reversible development projects, with a conception that anticipates possible changing functions through time;

• Grant particular importance to the comfort and security that all users and inhabitants should be able to enjoy, and to urban infrastructure resilience;

Create opportunities to think or rethink the place of nature in the city

Lastly, active transportation means like biking or walking are often under-assessed and under-estimated even though they are an essential movement mean for bipeds, especially when no other mean is financially possible. These kinds of mobilities are often limited by urban designs, but they deserve a specific brainstorm as well as more adapted development projects. This is why we suggest developing urban development processes that relate to these active mobilities: directive scheme for bike paths, pedestrian plans, plans to enable accessibility to streetways and to public space.

# Technology to serve carbon-free mobility

We expect from technologic progress and from digital technologies that they contribute to developing more carbon-free mobility, through new vehicles and new mobility services. We cannot however expect too much or everything from technical progress, all the more so knowing that progress can trigger more issues than solutions.

This is why, although developing individual and collective electric vehicles should be a continued and continuous effort because they help decrease greenhouse emissions, we should also concern ourselves with the fact that this process requires a lot of energy and resources to transform the vehicle fleet, and it increases the electricity demand and raises questions about how to produce the needed electricity for it. Developing electric vehicles should happen in connection with developing energy policies that promote clean, carbon-free, safe and frugal electricity.

Besides, and overall, in terms of technology and innovation, our recommendation goes toward choosing for a strategy that would draw from the 3R rules: reduce, reuse, recycle.

### Reduce

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Reducing means, first, limiting the use of technology to what only really serves citizens. It also means limiting energy consumption and consumption of natural resources to make and maintain material and service systems. Lastly, it means

### Focus

# CarLina, on-demand and automatized

### transportation system

To tackle the issue of individual vehicles saturating public roadways and streets. the concept of automatized on-demand transport (TAD) is appearing as a potential solution, even though still perfectible. The CarLina system is thought based on a fully shared architecture that solves the main hard points. The many mobile components of the system (cars) are constantly connected through AIDA, a very advanced technology for controlled information sharing. As a simple vet solid and smart system, CarLina, if it becomes used more broadly, could decrease greenhouse emission in the French urban mobility sector by a 5 factor, and thereby achieve the "no emission goal" by 2050. https://www.aida-sea.fr/

### **Retrofit** Retrofit has to do

with changing a fuel vehicle's thermal motor and replace it with a battery-powered electric motorization system or combustible-based (hydrogen). This process is quite common in about 40 countries around the world (including the US, the UK, Italy, Germany, the Netherlands, etc.), involving more than 200 actors. In France, a framework was created to regulate this activity in 2020, which led to the creation and structuration of a new branch in the sustainable mobility and circular economy sectors. Most actors of the branch belong to the association called "Industry actors of electric retrofit" (AIRE in French) https://tinyurl.com/2p94k2yh

QE: quantitative easing, a non-conventional tool of monetary policy

OE is used to fight deflation and recession risks. For a central bank, OE has to do with a massive. generalized and long-lasting intervention on financial markets, by buying financial assets (especially public debt titles) from commercial banks and other actors. QE only takes into account the "collateral" dimension of a financial asset (meaning the financial solidity of the company that a bank buys them from). OE could be aimed at companies with virtuous impact in terms of greenhouse emission reduction, according to the mark given by the brown taxonomy. https://tinyurl.com/yhy4tk4u

limiting the overly frequent renewed buying of material objects, and to prefer extending their life and usage cycles instead, especially by imposing and extending guarantees on vehicles or materials.

### Reuse

This means, first of all, embracing the effort needed to make the fleet of existing individual and collective vehicles carbon-free, using other means than just replacing all vehicles with new vehicles. The idea is to promote branches that transform existing vehicles' motorization systems (retrofitting), in particular those that target electric retrofitting, and to make it mandatory for new materials and vehicles to be easily repairable and convertible (retrofittable). This principle should be applied to vehicle parts and materials parts: monitored reclaim of components or of second hand small parts to build new vehicles or repair existing ones.

Reusing also means sharing. We should encourage shared ownership of cars within collectives of various sizes: families, neighborhood, companies, or within a dedicated territorial service.

### Recycle

We should also, overall, foster the development of the circular economy within great activity sectors, and in a cross-sector perspective. When it comes to vehicles, this could translate into making it mandatory for vehicle builder to use more recycled materials and to think about future material reclaim and small parts reclaim already from the stage of conception.

# The economy and its leverage tools

The economy is an essential aspect of our societies, in that it provides powerful leverage tools to serve sustainable development. But is also comes with its set of limits and of potential barriers, which can be just as powerful. In a contemporary context defined by national economies being internationally co-dependent and by high competitiveness, adopting common rules seems to be necessary and unavoidable to tackle the challenges we all face to transform our cities and to control climate change.

In 2020, the EU set a regulation called "Taxonomy", to direct funding and national and European policies toward activities that support sustainable development. Even though institutional tools and political leeway aren't equal at the European scale, this green European taxonomy and the implementation principles lying behind deserve to be translated at a broader, international scale, and to be completed with a "brown" taxonomy that would identify the activities and projects (especially infrastructure-related) that clearly work against sustainable development to condemn and hamper funding for them, as much as possible. Furthermore, we should foster mobility means that produce less carbon, and the use of polluting vehicles should be penalized, while keeping in mind the social consequences of such potential measures. For instance, we could take serious consideration of the option of a yearly individual mobility carbon credits for plane travels.

Some economic sectors like the plane industry, like thermal vehicles repair or reclaim, or like tourism, will be affected by the necessary mobility evolutions – whether these evolutions are chosen or not. This is why we should support starting today already the hereabove sectors and encourage their companies and employees to aim for reconversion, targeting activities that are more in line with sustainable development.

We also suggest insisting on the necessity to promote proximity and short supply chains in all fields relating to economic functions and to people's life.



# Conclusion

From 1950 to 2022, people and goods mobility went through major evolutions, especially during a long cycle defined by a strong mobility growth (individual mobility mostly) due to a massive use of carbon energies. However, this trend started in the most developed countries spread then to the entire planet, and it is now known as a trigger of strong negative externalities that we cannot solve and which we know as being a threaten to the planet. Today, neither markets nor states seem able to slow down this process and to rebalance the situation at the necessary scale. The transition of our human societies toward more carbonfree energies and toward carbonfree and desirable mobilities by 2050 remains hypothetical. But it seems that a sustainable city should be one that encourages and supports sociability, more than it should support mobility; it also seems that it should organized a reasoned urban intensity, by ensuring diversity and providing sufficient space while keeping the possibility open to shift or transform space uses in the future.

Sustainable mobility doesn't have a perfect form, just like democracy or urban shapes. This is why for the world to remain sustainable and livable in 2050, we need to recognize and acknowledge the need for more sustainability, by committing right now to the proper efforts. On the path to get there, and which can only be navigated step by step, technologic and social innovation play a major role.

• Citizen, civil society and businesses are seeking and providing new desirable mobility services and they offer solutions to adjust mobility practices to current needs.

• Local authorities and regional governments, when listening to demand and watching societal trends, anticipate on the future of their territories. They get involved with more responsible urban and regional policies that are more inclusive and cohesive, and that base themselves on the mobility needs of people and businesses. Choices of public investments are frequently and transparently reviewed, assessed based on their sustainability value.

• National governments commit to setting up proactive public policies that embrace innovation and draw inspiration from successful examples in other countries. National political leaders lead the way for an active transition toward carbon-free mobility to be achieved by 2050, promoting a cohesive model of fully resilient societies.

• International and cooperation organizations find their place in a

multilateral world where diversity is a strength. These organizations sometimes facilitate global debates to share experiences and opinions.

Thanks to successful historical efforts that the world inhabitants started doing right from 2022, let us hope that

in 2050, populations from all around the world will be able to prepare for long term mobility transformation and won't have to think only about daily survival, rather about the future of people who will live in 2080!



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Started in 2011, the French partnership for cities and territories (PFVT – Partenariat Français pour la Ville et les Territoires) is a platform meant for the exchange and valorization of the French urban actor's expertise at the international level. It is a multi-actor partnership headed by Hubert JulienLaferrière, Member of Parliament, supported by the Ministry of Europe and of foreign affairs, the Ministry of territorial cohesion, the Ministry of the ecologic and fair transition, and the Ministry of culture. It brings together close to 200 organizations representing the diversity of the French expertise, contributing to the construction of a shared French vision based on a capitalization of exchanges and of innovative and sustainable experiences https://www.pfvt.fr/

