



MODERN

CRAIOVA • BRESCIA • COIMBRA • VITORIA GASTEIZ



CIVITAS



Innovative cities

Before and after CIVITAS



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“To increase the overall quality of life in the cities, through the reduction of pollution generated by transport, the implementation of energy-saving measures, the respect for the environment and the promotion of a less car-dependant life-style”. MODERN mission.

“Give extra value to time, environment and mobility of people” - Craiova

“Identify new mobility models for sustainable action plans” - Brescia

“Be a pleasant city to live in” - Coimbra

“Towards a liveable and vibrant city through a new mobility culture” - Vitoria-Gasteiz



We are MODERN team

Late in 2007 the European Commission published a Green Paper called “Towards a new culture for urban mobility”, identifying a number of core elements of sustainable urban mobility, namely the need to make towns and cities and their transport systems more fluid, greener, smarter, more accessible, and safer.

It has been a long way since, and cities have worked hardly to introduce ambitious transport measures and policies towards sustainable urban mobility. Today in 2012 the MODERN project is proud to affirm that it has strenuously worked over a four year timespan to win the challenges set forth in the Green Paper; and each city has laid solid foundations and has started to place the bricks of the new culture of urban mobility.

Being part of the CIVITAS family has been, and it will always be, a privilege. As a programme of “cities for cities” I am glad to be able to appreciate the benefit coming from **the transferability of best practices and the creation of partnerships** for the value of the local communities. I am glad to say that Craiova actively participated to contribute to this wealth; and as coordinating city it has successfully driven the MODERN consortium to full achievement. By **sharing challenges and solutions**, by using the levers through which one can build a sustainable transport system, **by combining knowledge working together** to produce larger effects, these four years have been intense but fruitful.

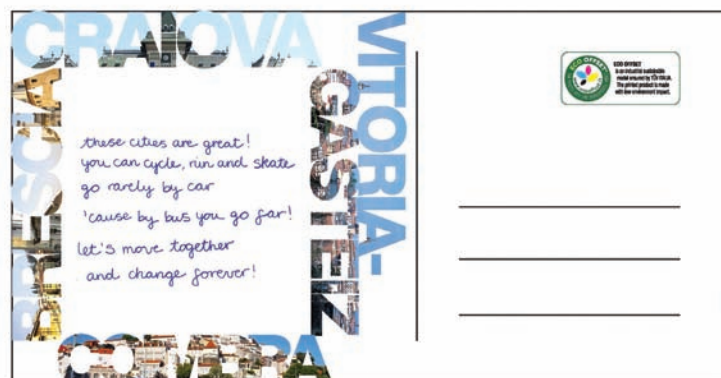
I would like to acknowledge all partners and people, including our EC project officer, who have contributed to the success of the MODERN project and partook by focusing on the attainment of results. A recognition goes also to the Institutions that albeit the backdrop of the global economic circumstances ensured support within all the cities. A thank you goes to the whole management team for all the technical, dissemination and evaluation efforts made in these years bonded by a common objective: being MODERN.

Gabriel Vladut,
Coordinator MODERN PROJECT

MODERN Jingle

“ these four cities are great!
You can cycle run and
skate
go rarely by car
'cause by bus you go far
let's move together
and change forever! ”

THE CHILDREN OF
CRAIOVA, BRESCIA, COIMBRA and VITORIA-GASTEIZ





Introduction



MODERN is an adjective that relates to the present, it emphasises individual experimentation. MODERN is an acronym that means “**MO**bility, **DE**velopment and **EN**ergy use **RE**duction”. The combination of these elements have driven innovation within our cities, engagement between the partners, learning amongst the projects.

Today all stakeholders of the urban mobility domain need to acknowledge that the increased mobility of people and the geo-sociological development of urban areas have driven society toward a car-dependant lifestyle. The cultural paradigm whereby “with cars you wear your status on the road” can’t be ignored.

With these elements clearly in perspective, the political and technical representatives of the cities of **Craiova, Brescia, Coimbra and Vitoria-Gasteiz** have been working for four years within the CIVITAS Plus Initiative to drive a change. Also guided by the European motto “united in diversity” the numerous partners have learnt to value and integrate the differences in order to **persistently act on people’s mobility and transport behaviours**. It is no simple task. It needs strong political commitment and vision, it requires long time effort and it wants a participatory approach.

The MODERN project has been indeed an occasion to conjugate strategic planning to operational demonstrative measures. It has improved each city’s project management skills, enhanced the ability to cater relationships and leveraged technical knowledge to a higher degree.

A striking combination of **culture, competencies and capabilities allowed for a set of salient achievements**.

The MODERN project contributed as a cohesive whole to European Commission’s fundamental aim to introduce ambitious transport measures and policies towards sustainable urban mobility.

The people of MODERN contributed as individuals to achieve the project’s fundamental aim recognising that “*individual commitment to a group effort - is what makes a team work, a company work, a society work, a civilization work*” *Vince Lombardi*.

Welcome to

CRAIOVA

Country



Craiova is aware that its cultural heritage pushes citizens to seek for personalised modes of transport. The city learnt to read this peculiarity and these preferences for mobility. It is thus determined to promote individual but sustainable mobility like cycling investing in infrastructure and sharing experiences and ideas.

Craiova, the capital of the Oltenia Region, it is situated in the South West of Romania. It has **312,643 inhabitants** and it is one of the oldest cities in the country. It was first mentioned in a map of the Roman Empire, dated around 225 DC, requested at that time by the Roman emperor Caracalla. Today, Craiova is a renowned historical, educational, cultural and commercial centre.

The European opening has allowed for even greater opportunities boosting direct bilateral relations with other cities and paving the way for new collaborations. These include the development of strategic areas of common interest with partner cities facilitating growing investments and trade. Craiova has signed twin protocols with 5 cities (Kuopio-Finland, Skopje-Macedonia, Nanterre- France, Vratza- Bulgaria and Shiyang-China) and partnership protocols with other 2 cities (Uppsala- Sweden and Lyon-France) and is still seeking new projects to be involved in.

Currently the Municipality of Craiova is extensively involved on mobility and transport related projects as essential part of the Integrated Urban Development Plan of the city.

By joining CIVITAS MODERN, Craiova has reaffirmed its commitment to the development of a clean and integrated urban transport system giving extra value to time, environment and the mobility of people.



Scan the Qrcode with your smartphone app to visit the MODERN website. You will be able to consult Craiova's updated contents and other resources.





Ambitions

The Municipality of Craiova is determined to provide its citizenship important opportunities both today and tomorrow. It therefore agrees that it must **plan for the future of its city with its people as the focus**.

To achieve this a set of ambitious goals have been identified and set:

- To find technical and political solutions in order to make the transportation system less aggressive and more responsive to people’s needs, to the environmental ecosystem and to the planet’s health in general
- To achieve a balance between economic development and urban transport development as one of the major drivers of the strategic growth of the city
- To develop a strategy which encourages car-independent lifestyles and provides a public transport system which is efficient, safe and comfortable
- To engage in an active and open dialogue with stakeholders in order to identify and develop innovative, reliable and energy efficient solutions in the public transport services and in the urban mobility area
- To provide a MODERN, secure and welcoming city to all citizens and visitors.

Craiova is determined to pursue its ambitions with purpose and scope.

Craiova is committed to play its role in the global warming quest by directly and indirectly **contributing to the reduction of the greenhouse gas emissions**.

Challenges encountered

The Municipality of Craiova and its team worked over the four years by involving partners and engaging stakeholders notwithstanding the discontinuities at different levels: political and managerial. Since 2008 it remained motivated in the face of obstacles, persistent until it accomplished its goals and prompt to leverage on the achievements.

As **leading coordinating city of the MODERN** project, **Craiova** fulfilled the implementation of its measures whilst driving the consortium as a whole through the broad and, at times, unpredictable challenges it encountered.





TECHNICAL CHALLENGES

- Selecting the most adequate ways of dealing with the existing features of the urban infrastructure (streets network, available land...) for implementing the measures;
- Managing the discontinuities and changes in the measures implementation due to the impact of the urban infrastructure works undertaken beyond the scope of the CIVITAS project.



ADMINISTRATIVE / MANAGERIAL CHALLENGES

- Managing high levels of inertia in the decision-making process;
- Lacking of previous experience regarding the implementation of European projects under FP7 rules.



POLITICAL CHALLENGES

- Facing the weaknesses of National policy and of the legislative framework, clearly directed towards the segment of transport and urban mobility.



FINANCIAL CHALLENGES

- Handling the crisis. The outbreak in Autumn 2008 (when the MODERN project started) of the global economic crisis pressed the Municipality to pass into conservation status a lot of projects that could not be sustained under a tight budget, as was the acquisition of 200 new clean buses.



BEHAVIORAL CHALLENGES

- Striking a balance between the urgency of discouraging a car-dependent lifestyle whilst satisfying the increasing displacements of people and the increased mobility demands;
- Encouraging acceptability to change, in a citizenship that is culturally conservative in its principles and in its daily habits – the electronic ticketing system is the utmost example.

Innovative solutions

The city focused on two main innovative solutions during the project lifetime:

1. Energy saving and tram upgrading

Craiova's electric tram system and infrastructure dates back to the 1980s. The electric transport fleet is composed by 37 tramways of which 9 were withdrawn from service due to their high energy consumption.

These 9 trams were the protagonists of innovation: **the electronic driving system named chopper**.

The new driving system is assisted by an on-board computer and a Windows application, which stores and processes data from the entire driving system. In addition, ID cards devices for each driver were designed and developed in order to have **a better and more realistic control of data** that is based on the individuals' driving style.

The benchmarking indicators for the evaluation of the measure are:

1. Operating revenues and costs
2. Vehicle fuel efficiency
3. Quality of service
4. Awareness level



The main expected results are:

- up to 40% energy saved on trams endowed with choppers
- lower exploitation costs
- increased comfort for passengers

2. Development of an integrated public transport system

Integration at transport level is particularly relevant in today's cities where near instantaneous response is required to satisfy societal and economic needs.

Craiova thus worked to design an architecture for **processing real-time information** provided by three subsystems - **e-ticketing, video surveillance and traffic management**.

The new system makes the public transport more reliable, devoted to travellers' needs and able to provide enhanced services to them.

The main indicators that assess the measure are:

1. Operating revenues and costs
2. Quality of public transport service
3. Number of frauds related to the passengers' number
4. Acceptance and awareness level

The results are achieving:

- increased overall public transport capacity
- greater use of Public Transport services
- a more efficient management of the demand and revenues generated

Scaling up

Craiova has always worked to increase the capacity of key local actors to contribute to the city's development. Improve the efficiency and cost-effectiveness of the transportation of persons and goods and enhancing the attractiveness and quality of the urban environment are entrenched in the strategic planning to be followed in upscaling the investments made within the MODERN project. Appreciating the results achieved, the Municipality is working to facilitate a **transition from the demonstrative level to a wide scale deployment** that would bring efficiency to the public transport system. Financial availability, investment priorities and political decision-making are the key factors that impact on the ability of upscaling Craiova's measures.

The **40% reduction of energy consumption per tram** - for each of the nine energy intensive trams - equipped in the small scale application trials undertaken within the MODERN project is technically achieved. This makes of the chopper system an important candidate for progression. Notwithstanding the proven efficiency of the chopper system, for the up-scaling phase a set of complex problems need to be faced. Namely, when considering a large scale application public bodies need to acknowledge that modernising trams is an investment priority that proves to be as efficient from the energy saving perspective as purchasing new trams. Of course the investment is smaller but the financial capacity needs to be harnessed in the relevant budget areas.



Future vision

Building on existing practices and regulatory frameworks is a relevant characteristic of sustainable mobility planning. Pursuing an integrated approach focusing on the achievement of measurable results contribute to the definition of a coherent vision for the city. Leading the MODERN project between 2008 and 2012 proved to be a valuable opportunity for Craiova. It allowed the implementation of a set of measures that have undoubtedly driven the city toward a more sustainable development. The considerable financial and human resources invested, the greater technical and managerial know-how acquired, the refined managerial and administrative skills attained, coupled to the persistence and commitment of the team members will be leveraged in the future. The Municipality of Craiova and its partners are thus determined to build on the efforts made, by bringing the city up to speed broadening the overall impact.

At the local level, the measures related to mobility management and the quality of transport have already been introduced within the Integrated Urban Development Plan of Craiova (PIDU). This sees a package of actions that aim to **develop the city in multiple directions**, where urban mobility with its public transport system and the infrastructures are just individual aspects of a **more integrated vision of the city**.

Several projects that carry on the MODERN initiatives on complementary or adjacent areas are already on the Municipality agenda. These include aspects which were introduced within seven of the MODERN measures: the rehabilitation of the historical center of the town – also through the central area access restriction introduced during the MODERN project; the reconstruction of the tram lines; the extension of the video surveillance traffic system, and the interconnection of the RAT dispatcher.



Political point of view



Antonie Solomon Mayor of Craiova - 2004/2012

"I said from the very beginning that I do not know how to do politics! The only politics I do is the politics of people that live in this town! I made a promise that this town will be brought back to life, will be developed and will be one of the top three cities in Romania and I want to keep my promise! I like open places, Michael the Brave Market, I like mine and your town, I like to walk two-three hours daily through neighbourhoods, to feel the city, to find out the problems, and help people."

Political point of view



Teodor Nicursor Sas Craiova Municipality Councilor

"CIVITAS MODERN has been a great opportunity for the Municipality of Craiova and its citizens. We had the chance of sharing experiences, ideas and best practices with other municipalities around Europe. We also learnt to read our peculiarities and preferences for mobility. In Craiova, young people are not interested in public transport services as long as they can afford their own cars but our cultural heritage pushes citizens to seek for personalised modes of transport. For this reason we opted to encourage individual but sustainable mobility as bicycles. We promote this mode and invest in infrastructure."



Craiova in numbers

1,5 million € EC grant

2,2 million € cost of the Project

6,5 million € investments driven by the Project

3 partners - Local Council of the Municipality (LCM), Public Transport Company (RAT Craiova) and Automation Design Institute (IPA)

22 people in Civitas Team for over 52.000 m/h worked

11 measures implemented

10 buses with biodiesel B20

9 trams upgraded with electronic choppers

35-40% reduction of the energy consumption by trams

1 Traffic Management Center

30 automated machines for PT tickets

27 trams, 80 buses and 20 panels were introduced as part of the new info system for PT

3 integrated broadcasted communication campaigns

3 on- site visits, +25 participants per visit

1 study tour with European guests

1 kick-off meeting with political participation

100 City postcards for kids



Welcome to

BRESCIA

Country



Brescia is living the opportunity of becoming a Central European city, particularly advanced in finding effective answers to today's urban mobility issues. The solutions introduced drive the mobility system toward a greater sustainability and favour the adoption of a new type of culture and lifestyle.

Brescia is the second largest city in Italy's northern region called Lombardy. The city is the administrative capital of the Province of Brescia, the largest in Italy, which counts about 1,200,000 people. The historical city, known as Brixia, has been an important regional centre since pre-Roman times and a large number of ancient monuments are preserved within its borders. As of today, the Municipality of Brescia counts around **195.000 inhabitants** and the city is at the centre of the third-largest Italian industrial area, traditionally investing on mechanical and automotive engineering and machine tools.

Due to its industrial traits, Brescia attracts manufacturing and trade business relations and traffic from the neighbouring producing districts and it counts as one of Europe's areas with the highest number of vehicles per inhabitants. Curbing this tendency is a priority for Brescia, which is strengthening its efforts in defining a **strategic plan of interrelated measures designed to satisfy the mobility needs of people and businesses** by providing innovative and sustainable mobility solutions.

By joining CIVITAS MODERN, Brescia harnessed an important occasion for innovation and internationalisation. Learning to work in a network with other European cities allowed for greater coordination and exploitation of its efforts, that brought with it significant achievement and concrete improvements in the mobility and transport domain.



Scan the Qrcode with your smartphone app to visit the MODERN website. You will be able to consult Brescia's updated contents and other resources.





Ambitions

The Municipality of Brescia is aiming to drive high-standard mobility and transport solutions in the city in order to allow it to thrive in the current economic circumstances looking at the future. As part of this commitment it has defined clear ambitions that are expressed in a well-defined set of strategic goals, as well as smaller fundamental improvements:

- To strike a balance between economic, demographic and urban development, urban transport, and services of public interest
- To promote a mobility system that is responsive to the people's needs, respectful of the environment and supportive to business dynamics
- To increase the overall efficiency of the urban public transport system, particularly focusing on attracting private car users, as well as identifying and develop innovative, reliable and energy efficient solutions
- To engage in an open dialogue with stakeholders in order to enhance behavioural change through participatory consensus-building processes that favour a robust citizenship involvement.

Brescia is determined to pursue its ambitions in the mobility and transport domain by **strongly integrating its efforts to the fight against pollution** in the urban area. Indeed, the research for innovative energy solutions from renewable sources, are a strategic goal that needs to be met in order to effectively contribute to the sustainability of the urban environment.

Challenges encountered

The Municipality of Brescia worked with great motivation since the planning phase of the MODERN project and built a cohesive team of dedicated professionals. The effort channelled toward the achievement of common objectives and the respect of fixed deadlines, allowed diminishing several obstacles during the project deployment and progressively implementing the measures foreseen. It is beneficial to analyse the different challenges faced during the project lifetime in order to flag them and work to eschewing them in current and future experiences.





TECHNICAL CHALLENGES

- Managing the discontinuity of technological infrastructure existing before CIVITAS and the one remaining beyond the project
- Handling the complexities deriving from the transition to new technologies, starting from the design and research phase



ADMINISTRATIVE / MANAGERIAL CHALLENGES

- Working the way through an often tortuous decision making process at the bureaucratic level involving a broad spectrum of responsibilities
- Overcoming the initial inexperience on what participating to European projects entails in terms of project management, reporting, accounting, language skills and timely delivery



POLITICAL CHALLENGES

- Providing a robust whilst flexible decision-making system capable of interacting at different policy making levels (national, regional and provincial level) so as to support the policy-oriented decisions and relevant activities



FINANCIAL CHALLENGES

- Handling the economic and financial needs during this critical period. Indeed, the successfulness of certain measures was jeopardized by the financial crunch; whilst the economic downturn weakened the operators, the partners involved and the citizens' purchasing power



BEHAVIORAL CHALLENGES

- Managing the demands and resistances coming from the partners involved that were not familiar with the characteristics of a European project. This prompted the organisation of numerous meetings for each initiative and measure in order to stimulate collaboration and simplify the communication flow
- Plan and roll-out a dense communication programme so as to favour citizens' acceptability to the changes enforced to their daily habits; as well as encourage stakeholder engagement to make the people feel "protagonists of the change, being part of the show"

Innovative solutions

The Municipality of Brescia focused on two main innovative solutions during the project lifetime:

1. The development and upgrading of the e-ticketing system

Brescia is undoubtedly leading innovation thanks to the **oMnibus card**, a single electronic, contactless card that can be used to encourage intermodality as it integrates the various transport systems. The system allows for integrated pricing and the centralised decision-making process, due to the low number of operators involved in the innovation, reduces the time for transition to the new system and facilitates management. The oMnibus card is based on myFare technology and it is the tangible result of Brescia's vision to improve citizen's mobility and facilitate the accessibility of the urban area and its services, by means of a solution that allows a seamless use of public and private modes.





The main results attained include:

- The development of a new hardware platform for ticketing machines
- The distribution of over 1250 cards as of April 2012
- The full integration with other urban mobility services (bikesharing, car-sharing, parking).

2. The launching of Brescia Mobile Channel

Brescia has worked to promote the adoption of public means of transport by leveraging on the appeal and the functionalities of a mobile application, targeted in particular to the younger citizenship. It thus launched Brescia Mobile Channel (BMC) to enhance infomobility providing real-time access to information on the broad range of urban mobility services: PT schedules and routes, parking availability, bus detours, bike sharing service and more.

This innovative solution can be further implemented with **Near Field Communication (NFC)** technology so as to allow paying for the different mobility services enhancing the integrated e-ticketing solution introduced by means of the oMnibus card.

Scaling up

It is numerous years that Brescia has been working on the efficiency, sustainability and the overall quality of the mobility of people and goods in the city. Due to its industrial traits and the architectural characteristics of the city one of the most strategic measures is linked to the distribution of goods in the city, namely the City Logistics.

The **City Logistics** project started within CIVITAS MODERN that implemented the pedestrianisation of a significant area of the city centre. The next steps include the start-up of the Logistics Platform of Brescia Mercati. The system can count on 3 electric trucks, all equipped with a management software and a GPS, so as to monitor real-time the forwarding. By means of a dedicated website the process flow of the goods can be tracked at all times, from pick-up to delivery.

The first phase of the project is foreseen for non-perishable goods and the next phase, starting January 2013, sees the whole system at operating speed and will thus be opened to all kinds of goods.

City Logistics is the result of robust technical choices and it is a strategic project for merchants and shopkeepers who have been impacted by the different mobility policies introduced within the city. The future outline of the project is strongly linked to the listening activities constantly undertaken with the relevant stakeholders in order to include their perspectives and business needs in the development and deployment of the project.



Brescia among the best towns for sustainable mobility of 2010

Brescia has been scoring successful results in the sustainable mobility domain since 2010. Euromobility, the Italian Association of Mobility Managers, active in undertaking dedicated research on best practices, reported on this achievement. In its research, Euromobility collected data in 50 Italian towns with more than 100.000 inhabitants, and the analysis included indicators on the trend of cars fuelled with CNG and LPG and the rate of innovation in urban transport introduced during the year 2010 to enhance urban transport services. The report aimed at estimating the real implications in the sustainable mobility, awarded, the best score to Venice, followed by Parma, Turin and Brescia.

Among the best scored services, it is worth mentioning the bike sharing (BiciMia) as the service most appreciated by Brescia's citizens.

Future vision

Brescia's main purpose is **to be a people friendly city**: the Municipality is committed to providing citizens and guests with a cleaner and more efficient mobility system as fundamental elements for a higher quality of urban life.

CIVITAS MODERN has provided an opportunity for Brescia to develop and implement smart and innovative solutions, following innovative approaches and practicing rigorous management. The responsibility to monitor the projects before, during and after the measure implementation, in order to evaluate the real impact on the City has been a challenge but the way ahead for the future. This effort has allowed to assess different methodological options and the ones adopted will for sure influence Brescia's way of operating in the years to come. The ability to involve local stakeholders and citizens, by creating a new way of preventively including their opinions and expectations in the decision-making, has positively improved the relationships between the different stakeholders and has produced beneficial effects for the city of tomorrow. Thanks to CIVITAS MODERN Brescia has developed a new vision and **a new approach to face future mobility challenges**.

Several projects have already improved the overall mobility of the city and others have paved the way toward innovative solutions. The integrated planning approach through the adoption of the oMnibus Card to facilitate the tickets integration, the introduction of a broad range of information solutions (such as the Mobile Channel and Bresciainfo.com), the implementation of the Freight Distribution plan, the launching of the car-sharing service and the consolidation of the mobility management initiatives are concretely contributing to build the future of Brescia, as a sustainable, innovative and vibrant urban environment.

Political point of view



Fabio Rolfi Deputy Mayor and Councillor for Mobility

"CIVITAS MODERN has represented and is representing for Brescia the opportunity of becoming a Central European city, particularly advanced in finding effective answers to today's urban mobility issues. The solutions introduced drive the mobility system toward a greater sustainability and favour the adoption of a new type of culture. The promotion of collective modes of transport, the awareness raising concerning one's own impact on the urban environment, and the innovative services introduced are all elements that are advancing the behavioural change of our citizenship both in terms of lifestyle and daily habits.

Of course participating to CIVITAS MODERN has strongly spurred local operators, professionals and civil servants to work as a network and to internationalise our vision, so as to reach concrete improvements. A significant example of a bold decision that was undoubtedly stimulated by Brescia's participation to the MODERN project, is the pedestrianisation of the historical centre.

The oncoming opening of the metro in Brescia will be a topical moment for the city and it will have strong implications on all the urban mobility system. It will entail a significant extension of railway and bus connections that will in turn strongly influence the mobility habits of our citizens. A key role is thus entrusted to communication and stakeholder engagement. Informative campaigns will be launched, an open-dialogue will be encouraged and multimedia communication tools will be developed. Brescia is changing, and this effort must be positively perceived and understood by the people of Brescia who must live it as an epic moment."



Brescia in numbers

2,4 million € EC grant

3,6 million € cost of the Project

14,6 million € investments driven by the Project

4 partners: Comune di Brescia, Brescia Trasporti, Brescia Mobilità, Università degli Studi di Brescia (Dipartimento DICATA)

22 people in Civitas Team for over 60.000 m/h worked

14 measures implemented

100 kw Photovoltaic Plant producing about 94 Mwh /yr

>100.000 people involved in several communication campaigns (Bus, European mobility week, etc.)
38 new CNG buses for Public

38 new CNG buses

> 1.250 oNibus card distributed

> 2.000 downloads of the Brescia Mobile Channel app

-2% vans and trucks in the city center

1 car sharing service, available 24/7

50 Km of bicycle lanes/tracks renewed

82 cycle parking spaces installed

13 bike itineraries with more than 170 signs and 120 rack

12 companies / schools involved in Mobility management

40,2 ads and 30 TV and radio interviews



Welcome to

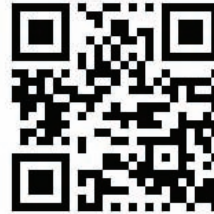
COIMBRA

Country



Coimbra is committed to improving the city's mobility by applying a smarter and more sustainable urban mobility policy. Joining CIVITAS it sought a platform where it could discover, develop, and showcase creative and innovative solutions for its urban mobility challenges.

Former capital of Portugal, Coimbra has always been associated with tradition. Founded over two thousand years ago by the Romans, Coimbra is home to Portugal's oldest University. Established in 1290, the University dominated the city's development for centuries, namely influencing the local culture and lifestyle. The activities associated with the University, such as educational and health services, multiplied throughout the years and consolidated the image of Coimbra as the University City of Portugal.



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In the more recent decades, Coimbra has seen an exponential growth of its population, registering **over 140 thousand inhabitants** in the latest census. Besides a large population base, Coimbra accommodates several important regional services that give it a metropolitan quality due to its **polarising effect on neighbouring municipalities**. Accordingly, the city generates a high influx everyday that affects its citizens' mobility.

By joining CIVITAS MODERN, Coimbra initiated a virtuous approach to solve the city's complex mobility issues and comply with the general mobility strategy incorporated in Coimbra's Strategic Plan, Master Plan, and Urban Design Plan. This was enabled by the decision-makers' commitment to develop a liveable city, making it an enjoyable and healthy place where to live and study.





Ambitions

The Municipality of Coimbra has set for itself and its future generations an extensive range of demanding ambitions. Besides launching and implementing a series of concrete measures, the CIVITAS Initiative also presented itself as an exceptional opportunity to establish and procure the achievement of a set of strategic goals:

- To increase the quality and efficiency of the urban public transport system, namely by providing more efficient mobility products and services
- To multiply the number of PT users and reduce the use of private cars by providing more mobility solutions, such as improved PT access and information
- To limit PT energy waste and improve its overall safety, limiting Coimbra's PT carbon footprint
- To promote a sustainable mobility culture among citizens, stakeholders and transports operators, raising public awareness for sustainable urban mobility.

Coimbra is determined to pursue its ambitions by consolidating its urban public transportation system standing as a superior service provider. This means introducing new services and products, especially **based on new communication and information technologies, which can enhance the quality of the transport provided to its clients**. Accordingly, this improvement can contribute to attract more passengers to the public transportation system and help modify the current model split which is highly car centred (**66% car, 26% PT, 8% other**). Coimbra is committed to express leadership in the European domain of urban sustainable mobility promoting the pursuit of ambitious goals locally, nationally and at international level.

Challenges encountered

The Municipality of Coimbra and the various partners and stakeholders involved worked thoroughly to implement the measures planned and accomplish the objectives it has set for itself over the four years of the MODERN project. As foreseeable in long-lasting projects, Coimbra was not exempt from changes and discontinuities to the programme, but it handled with dedicated engagement and acumen the different challenges that cross-cut all the measures.





TECHNICAL CHALLENGES

- Highly complex technical specifications for tender processes of high-tech solutions - e.g., ticketing system, driving simulator
- Lack of tradition and technical tools for developing mobility solutions centred around mobility management strategies



ADMINISTRATIVE / MANAGERIAL CHALLENGES

- Meandering through bureaucracy and avoiding excessive time-consuming procedures, such as tendering processes
- Quickening the approval of loan contracts by national institutions that hampered the process of implementation of several measures – e.g., ticketing system, driving simulator



FINANCIAL CHALLENGES

- Facing the difficulties that all large investments demand. Financial assistance from National agencies and organizations was difficult to secure. The financial crisis that flogged Portugal in recent years undoubtedly aggravated the scarcity of resources
- Relying exclusively on public funding



BEHAVIORAL CHALLENGES

- Acceptance and involvement. The cultural constraints Coimbra had to face in certain segments of the population indeed proved to be a significant challenge. Old habits and tradition fettered the swift and simple implementation of many measures - e.g., travel plans, ticketing system
- Plan and develop for a clear and robust communication activity that simplified understanding and encouraged adoption of new behaviour. The general benefits for citizens were for sure at the heart of each and every step
- Indifference and enmity of several local stakeholders in participating and committing to innovative mobility solutions

Innovative solutions

The City focused on two main innovative solutions during the project lifetime:

1. Introducing Coimbra conVIDA

All Coimbra's bus fares, mobility products and services are integrated in a single e-ticketing system, based on Calypso technology, which allows also for integration with other PT operators serving the surrounding municipalities.

The e-ticketing system is accessed through a single e-card: **Coimbra conVIDA**. The e-card can be reloaded at ATM machines and, eventually, an on-line pass payment system will be developed. The system also foresees the development of NFC supported technology (use of the mobile phone like an e-card). Overall, this innovative solution allows for greater technical reliability, interoperability, and it encourages intermodality.

The results of the e-ticketing system aim at:

- Increasing the number of public transport passengers by **1%** per year
- Increasing the use of the multimodal bus-railway pass by **100%**
- Increasing the use of the Park & Ride system by **3%**
- Augmenting the commercial speed of the SMTUC public transport by **0.3 km/h**





2. Adopting a high-tech Public Transport driving simulator

Being safe on Public Transport is of utmost importance today. Hence Coimbra has invested in **Safety Oriented Driving** by establishing the first modern training centre in Portugal equipped with a state of the art PT driving simulator. A salient innovation of the measure includes the simulation of trolleybuses, which is unprecedented at the national level and rare even at the international scale.

The scope of the investment brings interesting returns to Coimbra which aims at:

- Reducing the rate of accidents involving municipal PT service drivers by **5%**
- Diminishing the fuel expenditures of the SMTUC bus fleet by **3%**.

Scaling up

Coimbra has a long tradition in clean public transports and looks to augment the share of clean and renewable energies used in its public transportation system. In this context, Coimbra carried out a technical, environmental, economic and financial feasibility study for the **construction of a small-hydro power plant** at an existing local river dam. Initially, the study's main objective was to assess the possibility of supplying the electricity for Coimbra's trolleybus and electric minibus fleet.

The study, developed by the University of Coimbra, centred on two types of technologies and demonstrates that the energy produced in several of the solutions covers more than the actual needs of the local transportation services of trolleybuses and small-electric buses. In fact, some of the scenarios engendered foresee **potential for generating revenues for the city by selling the surplus energy to national energy corporations**. The study was well received by Coimbra's public officials and citizens who aspire to proceed with the effective implementation of the small-hydro power plant.

The Municipality of Coimbra and the Public Urban Transport Services of Coimbra are endeavouring to create the necessary conditions to take the project to the executive level. Besides negotiations with official National entities, Coimbra is seeking public and private funding to start-up the enterprise. The operationalisation of the small-hydro will also allow for the city's public transportation electric-powered network to be augmented, increasing the magnitude of Coimbra's clean and renewable energy transportation, namely increasing the number of trolleybus lines and services.

Experiencing renewable energies

Coimbra's study of the feasibility of implementing a small-hydro power plant at an existing local river dam has been a great success locally and nationally. Based on the research, two hydro power technologies with remarkable resemblances to the Coimbra Dam Bridge project were identified-i.e., the Chievo project with StrafloMatrix technology (horizontal axis straflor type) and the Millau project which uses VLH-MJ2 technology (inclined axial turbine). Taking the space constraints of the Coimbra Dam Bridge into account, three possible locations were considered for installation of the turbines.

The study analysed seven configurations of these technologies, resulting in seven different layouts. After the initial analysis, two layouts stand out as the best solutions. The first has a cost of 1,7 million Euros and an annual production of 2,6 Gwh. The second layout has an estimated cost of 2,9 million Euros and a capacity to produce 3,9 Gwh of electricity a year. Both solutions contribute to significant reductions in the annual CO₂ produced - 973 and 1.425 tons respectively. Accordingly, the research demonstrates that the energy produced in any one of the solutions is in excess of the 750.000 kWh needed by the city's trolleybuses and mini-electric buses and has a good return rate.

Future vision

Coimbra's main purpose is to be a welcoming city for its citizens and visitors. It is appreciated for its numerous attributes that contribute to enhancing its liveability: a rich cultural heritage, high social capital, a dynamic community, and a plethora of services that can guarantee a quality life-style. Our future will see the Municipality committed to providing citizens and guests with **cleaner and better mobility** as fundamental factors of greater quality of urban life.

CIVITAS has provided an opportunity for Coimbra to develop and implement smart and innovative solutions to some of its major mobility challenges. It has had an indisputable effect on the way local stakeholders and citizens appreciate the demands of contemporary urban dynamics. Above all, it has been essential to **fashioning a fresh mindset for dealing with these issues**. New and bold solutions have been discussed and are now looked upon with concurrence and anticipation. New behaviour is being espoused with greater confidence and the city's mobility has improved thanks to that, and it will do so even more in the years to come because the Municipality is embracing this Vision.

CIVITAS has sowed a vision of what the future of sustainable mobility can look like in Coimbra. Several projects have already improved the city's overall mobility. Others have opened up avenues for future development and implementation. The adoption of travel plans as a planning and management tool, the multiplication of information and innovative communication solutions, the opening of a new Infomobility Centre, the implementation of a car-sharing service, and the advancement of the mini-hydro project are just some of the examples which will carry on the CIVITAS initiative in Coimbra into the future.



Political point of view



João Paulo Barbosa de Melo Mayor of Coimbra

"Coimbra's role as a metropolitan centre has a great impact on the city's mobility. Many of the region's most important public services are located in Coimbra, such as hospitals, universities, schools, and regional administrations. These services generate high volumes of traffic and congestion in the city and its hinterland. Mindful of this situation, the Municipality of Coimbra committed itself to improving the city's mobility by applying a smarter and more sustainable urban mobility policy."

Coimbra's involvement in the CIVITAS MODERN project reflects this outlook. By joining CIVITAS, Coimbra sought a platform where it could discover, develop, and showcase creative and innovative solutions for its urban mobility challenges. Accordingly, through CIVITAS Coimbra has opened its Infomobility Centre, launched a new e-ticketing system, acquired a high-tech PT driving simulator, developed and implemented the first site-based travel plans in Portugal, tested cleaner fuels in its PT fleet, studied the feasibility of new mobility services, employed new infomobility tools for traffic data management, and explored the possibility of locally generating renewable energy for the trolleybus lines.

I know CIVITAS has undeniably contributed to improving the quality of the mobility of Coimbra's citizens by supporting intelligent, innovative and sustainable solutions. I am also confident Coimbra's CIVITAS experience can inspire other medium-size cities to face their mobility challenges."



Coimbra in numbers

1,1 million € EC grant

1,4 million € cost of the Project

2,2 million € investments driven by the Project

6 partners involved in the consortium: Municipality of Coimbra, SMTUC (Urban Public Transport), University of Coimbra, Prodeso, Critical Software, Perform Energia

16 people in Civitas Team for over 69.000 m/h worked

8 measures implemented

1 Driver Training Centre

1 high tech driving simulator with an investment of 1 million

1 Infomobility Centre with more than 20.000 customers / month

3 mobility management plans for 3 hospitals in the town

1.000 accesses per day in new route planning system

8 TV and radio interviews

>25 printed press interviews

96.000 leaflets

150.000 people reached

3.000 brochures

15 events organized

2 video-clips



Welcome to

VITORIA-GASTEIZ

Country



Vitoria-Gasteiz is working hard to build a city for the 21st century. It wants it to be recognised as a human scaled city, more comfortable and committed to the environment and to sustainable, social and cooperative development.

Vitoria-Gasteiz is the capital of the autonomous community of the Basque country in northern Spain. It has a population of **240.000 inhabitants** and an area of roughly 280 km². It is now known across Europe as the **2012 Green Capital** and the **host city of the CIVITAS Forum 2012**. Vitoria-Gasteiz is aiming at becoming the reference city from the point of view of sustainability in Europe.

King Sancho VI of Navarre founded “Nueva Victoria” in 1181 as a walled defensive outpost that acquired its name “Gasteiz” from a hamlet that used to stand on the hill around which the city was built. Around the medieval old town it was developed a neoclassical enlargement, but the great development of the city began in the decade of the 50’s with the arrival of industry to the city.

Today Vitoria-Gasteiz is a medium size, compact and high density city, not integrated into a metropolitan area and a city where most of the journeys have origin and destination in the city itself and where around 50% of all journeys are made by walking.

By joining CIVITAS MODERN, Vitoria-Gasteiz appreciated the **opportunity of being granted financial and conceptual support** to push definitively the Sustainable Mobility and Public Space Plan, SMPSP. This latter effort, in conjunction with the city’s renowned ability to favour balanced growth, careful urban planning and pursue its traditional concern for environmental and social aspects proved to be a successful endeavour.



Scan the Qrcode with your smartphone app to visit the MODERN website. You will be able to consult Vitoria-Gasteiz’s updated contents and other resources.





Ambitions

In Vitoria-Gasteiz walking makes most of journeys, but most non-pedestrian journeys are made by car. Motorized traffic is the second largest source of greenhouse gas emissions and an issue that arguably has the most adverse impact on urban living.

The accelerated growth of the city during recent years altered the scale and structure of the city and the overall urban mobility trends were increasingly becoming less sustainable. Consequently the Municipality of Vitoria-Gasteiz defined a set of ambitions to reverse the undesired trend:

- To work on a Sustainable Mobility and Public Space Plan (SMPSP) aiming to reduce the impact from transport and increase the accessibility of public spaces
- To encourage citizens' engagement by involving them in a participatory scheme where to agree on a desired future vision for the mobility of the city and to sign a Pact for Sustainable Mobility in Vitoria-Gasteiz
- To promote a sustainable mobility culture among citizens, stakeholders and transport operators
- To design mobility management strategies to modify the affirming modal split also by improving efficiency and functionality of public transport system and public bicycle system.

Vitoria-Gasteiz is determined to double its efforts to turn public spaces into pleasant environments for people where to meet again while concurrently sensitizing and engaging the citizenship on the subject matters in order to facilitate an enduring cultural and behavioural change for the generations to come.

Challenges encountered

The Municipality of Vitoria-Gasteiz worked intensively during the project lifetime involving a team of competent professionals for the different aspects of MODERN. Namely, the project management, the measure implementation, the evaluation and dissemination efforts. Counting on a robust determination of the leading figures the city performed impressively notwithstanding the different difficulties that were progressively encountered. The most prominent challenges faced were taken as a learning experience and relevant adjusting will undoubtedly be made in the future.





TECHNICAL CHALLENGES

- Developing a consensus scheme for mobility and public space taking into account the perspectives and sensitivities of the various municipal departments
- Managing the implementation of the new framework for urban freight logistics for goods' distribution



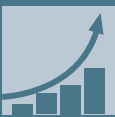
ADMINISTRATIVE / MANAGERIAL CHALLENGES

- Weaving interdepartmental coordination due to the integrated approach of the project
- Lacking of previous experience regarding the implementation of European projects under FP7 rules
- Adapting the accounting services of the city council in order to manage the reporting of the project



POLITICAL CHALLENGES

- Ensuring consensus and the unanimous support of political parties in a period of political discontinuity. Indeed, during the project lifetime three different teams of government in the City Council led by indicating different priorities
- The constructive participation of stakeholders has been a Key Performance Indicator for the successful implementation of the MODERN project measures developed under the SMPSP umbrella



FINANCIAL CHALLENGES

- Adapting the schedule, development and implementation of measures to the unexpected economic circumstances. These changes had two-fold consequences: positive ones such as the Plan E funds of the Spanish government, but also problematic ones such as the forced truncation of some measures proposed (hybrid buses, public bicycle...)



BEHAVIORAL CHALLENGES

- Creating a favourable climate and citizens' endorsement to the introduction of unpopular measures. The main ones include: the extension of the restricted parking area, the rising cost of parking, the changes in the public transport network and the prohibition of motorized passing traffic in several streets

Innovative solutions

The city decided to look at mobility from the perspective of the recovery of public space for other uses rather than traffic and to achieve a more liveable city in which services and facilities are closer.

1. Developing the superblock model

In order to recover the public space for citizens and take away motor vehicle traffic from streets, superblocks were defined by the overlap on the urban fabric of the principal streets that articulate motor traffic in the city. In this model, private cars and public transport run along the streets that border these superblocks. Through the blocks **a functional network for different mobility modes such as walking, public transport and cycling** is created. The first superblock is introduced in the central area of the city.

In the demonstrative superblock, in Sancho el Sabio St, the main street of the superblock has changed from two-way traffic with a total of three lanes to only one way with one travel lane of service, and now it is not allowed to turn left from the track core, significantly reducing traffic.





The motorized passing traffic flow the inner superblock has reduced and there have been a transfer of vehicles users to other more sustainable modes. Cars in this superblock have been changed by pedestrian and bicycles.

Modal split before and after this intervention:

Before intervention	2009		
Average modal split (motorized vehicle / pedestrian/bicycle)	86%	11%	3%

After intervention	2010		
Average modal split (motorized vehicle / pedestrian/bicycle)	23%	66%	11%

The acceptance level (0-10) of this measure is 7,43.

2. Reorganizing the PT network

In October 2009, the urban bus network was radically reorganized passing from a radiocentric network of 17 bus lines to a network of 9 bus lines and two tram lines with an integrated design that takes as reference an orthogonal grid and the concept of “superblocks”.

The new system allows to connect any two points in the city by public transport with a single transfer and a competitive travel time. 97% of the population has a bus stop within 300 meters from his home.

The lines of the new network are more direct and rely on main roads in road traffic. This fact together with the implementation of 113 platforms at bus stops, the establishment of 55 extra bus stops, the creation of 4,8 km of bus trails and queue-jumping lanes, the introduction of 17 traffic light crossings with priority based on GPS and other 6 traffic light crossings with priority based on low technology has made the bus commercial speed rise by 14,5% up to 12,74 km/ h and fuel consumption is reduced by 6%.



Enjoying sustainable mobility solutions

Vitoria-Gasteiz has reduced the proportion of car use, while the journeys by public transport, cycling and walking have grown. The data obtained from the mobility survey conducted in 2011 confirmed that measures developed within the MODERN project supporting the SMPSP were successful.

Although the total number of journeys has increased significantly the private car has achieved a noticeable decrease in the modal split. It has gone from 36,2% recorded in 2006, to 28,3% in 2011. The number of pedestrian trips has increased by 40%. There has been a 50% increase in the daily number of trips (bus and tram). The percentage of cycling has doubled compared to the five previous years, from 3,4% to 6,9% of all trips.

Scaling up

The vision for the city in the future brings with it the will to enhance the superblock model and the public participation activities. These two highlights will be developed and transferred as best practice experience to other European realities.

As of today, the city has planned for 6 superblocks. The measure has been implemented in the elected area as it brought some particular characteristics:

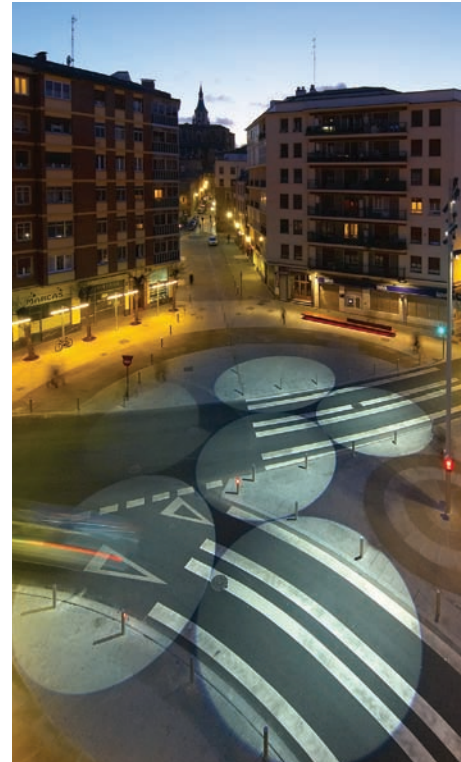
- Mixture of urban uses (commercial, residential, etc)
- Location in the heart of the city
- High population density.

The post-implementation analysis of the measure indicates that the impact in the mobility of the area is deep, especially in terms of passing traffic reduction within the superblock. Nevertheless, in order to extend the measure to the rest of the city a revision concerning the pavement renovation works needs to be made due to the high cost entailed. In fact, in the pilot superblock pavement renovation was undertaken in every street but it is foreseeable that this approach can only apply for emblematic superblocks.

As of today, the Municipality is adapting the plans to develop all the superblocks of the city centre to the new economic crisis context. This means applying the superblock scheme philosophy avoiding excessive expenditures on public works and big changes in the structure of streets.

The second highlight concerns the SMPSP that will be implemented over the next 10 or 15 years. For its implementation and future development citizens' and political consensus has been and will be essential.

In this sense, Vitoria-Gasteiz will proceed in favouring a participation process with the aim of achieving an agreement on the mobility model for the city, maintaining a focus on the Citizens' Pact for Sustainable Mobility, signed by both citizens and political parties.



Political point of view



Javier Maroto Mayor of Vitoria-Gasteiz

"In Vitoria-Gasteiz we are working hard to build our city for the 21st century. We want a human scaled city, more comfortable and committed to the environment and to sustainable, social and cooperative development.

Now in times of crisis, more than ever, we must make efficient use of resources in order to be competitive and offer better services to citizens.

In the field of mobility, we are committed to a plan for state-of-the-art solutions that aim to provide citizens the best mobility options according to the reasons motivating each movement and to recover the public space that once had been conquered by the car to give it to the citizens.

We have rearranged the public transport network to make it more functional, competitive and attractive to citizens, now we are working to consolidate a network of bike lanes, and to create a network of urban pedestrian trails. On one hand we aim to offer alternatives of mobility to citizens and, on the other hand, we are working to take away excess of cars from our street in order to recover a public space of quality and make Vitoria-Gasteiz a vibrant and liveable city for his inhabitants."



Future vision

Vitoria-Gasteiz has been awarded as European Green Capital 2012. This has been a recognition to the environmental policies and actions developed in our city. It has also been an impetus to continue in this way. The GREEN commitment, shared by the city and its citizens, must be transformed into a key competitive element and the main differentiating aspect of the city.

According to mobility, Vitoria-Gasteiz is committed with a Sustainable Mobility and Public Space Plan which aims to modify the mobility habits of the public in order to foster more sustainable transport means, increase the quality of the urban space and improve the accessibility of every member of the public to basic services.

The **Mobility Plan must be part of the "green revolution"**.

Communication, transversal technical impulse, citizens' participation and political consensus have been key drivers and they will be key elements to get success in the transition to a more sustainable mobility.

CIVITAS MODERN, which has had a decisive influence on the early stages of the Sustainable Mobility Plan of the city, has laid the foundation for a new model of mobility in the city (public transport networks, footpaths and cycle paths) and has demonstrated the viability of the organization of the city in superblocks.



Vitoria-Gasteiz in numbers

- 2,3** million € EC grant
- 3,1** million € cost of the Project
- 5,5** million € investments driven by the Project
- 5** partners: CEA, AVG, TUVISA, RACVN, EVE
- 7** people in Civitas Team for over 46.000 m/h worked
- 9** measures implemented
- 6** superblocks developed
- 110** km of bicycle lanes built
- 113** bus stop platforms, 55 bus stops more, 4,8 km of bus trails and queue-jumping lanes
- 6%** reduction of buses fuel consumptions
- 1** innovative e-car sharing scheme
- 15%** of saving fuel thanks to training courses for PT drivers
- 1.000** drivers trained on energy-efficient driving
- 1.500** maps for cyclists and 230.000 maps of new PT network
- 5.000** guides on public transport modes
- 660** bus shelters, street modules and street-lamps banners advertising
- 15** full-page ads in newspapers
- > 1.000** radio spots
- > 700.00** banner-ads on internet
- 125.000** brochure



Conclusions

Significant collaboration amongst the cities was developed during the project lifetime, allowing meaningful experiences to be leveraged to a higher degree. Guided by the motto “united in diversity” each city learnt to value and integrate its own structural and cultural particularities in order to persistently act on people’s mobility and transport behaviours.

Since the planning phase of the MODERN project the partners involved acknowledge that mobility needs new governance covenants, that unrestricted freedom to use and move and consume might lead to harsh limitations in the foreseeable future and heavy consequences for future generations. The tendential growth of mobility, characterised by new forms of metropolitan areas and sociological trends at global and urban level, emphasise the need to define strategies and measures to govern the increasingly complex mobility system. Consistently, the four cities involved: **Craiova, Brescia, Coimbra** and **Vitoria-Gasteiz** identified a set of **42 measures** that needed to be developed. In certain cases, due to the

unforeseeable economic downturn, the measures were re-engineered and adapted in order to produce the **best possible results in terms of efficiency and effectiveness** while responding to the CIVITAS timeframe and the obligations subscribed. It is widespread understanding that the massive use of individual transportation is not just the product of some fancy whim of mass imagination, but a collective behaviour deeply rooted on the social and physical morphology of today’s cities. Mobility is hence an extraordinary experimental setting for social analysis and social policies because it is a system in which individual decision-making interplays strictly with collective decisions and contextual setting.



MODERN in numbers

4 cities

42 measures, affecting 871.000 inhabitants

13,4 million € Total cost of the project

8,5 million € European Commission's grant

28,9 million € Investments driven by the project with a practical financial ratio of approximately 1 to 4

21 partners

>280 professionals involved

288.072 hours worked

10 Consortium Meetings for over

160 hours of group work

100 vehicles equipped with new technologies

2 car-sharing services

2 bike-sharing services

Furthermore, cities can also have a variable degree of car dependency, as measured for instance by energy consumption and car ownership. MODERN is an interesting case because it has put together a city like **Brescia** – a metropolitan area characterised by an urban sprawl and **one of Europe's areas with the highest number of vehicles per inhabitants**; together with **Vitoria-Gasteiz** that is a compact and high density city, not integrated into a metropolitan area and a city where most of the journeys have origin and destination in the city itself and **where around 50% of all journeys are made by walking**.

Although similar in size and representing important regional capitals that attract a lot of daily traffic from the surrounding areas, **the four MODERN cities have a different condition of mobility, but a very comparable level of commitments**. An interesting perspective is to see the MODERN cities as significantly **representative of the various European cities and regions**, including the New Members States thanks to Craiova as project coordinator. Indeed, these regions find themselves at different stages of mobility planning, with differentiations in terms of Public Transport infrastructure and services, located in diverse geographical settings, and coming from distinct historical, cultural and industrial backgrounds. Although clear from the outset that the policies intended to reduce traffic and energy consumption would take into consideration the differences of the specific urban context, as well as the citizens' behaviours and lifestyles at the city level,

significant collaboration amongst the cities was employed during the project lifetime, allowing meaningful experiences to be leveraged to a higher degree.

The commitment of Craiova, Brescia, Coimbra and Vitoria-Gasteiz to implement a **bold set of integrated measures** to reduce the car dependency and the dependency on fossil fuels, optimizing the use of energy and limiting emissions has been fulfilled.

MODERN has worked for providing a cleaner and better urban transport based on **stakeholder engagement** and a **performance-led approach**. It has thus identified the most salient innovations so as to delineate the character of the MODERN effort:

- **URBAN PLANNING**

“a strategic state-of-the-art approach”

In Vitoria-Gasteiz the concept of **“superblock”** in the consolidated city has been proved by implementing a new Public Transport network and promoting soft modes thanks to the new modal space allocation

- **E-TICKETING**

“stimulating intermodality through technology and service”

In Craiova, Coimbra and Brescia diverse solutions were adopted for the **integrated ticketing systems**, from single contactless mobility cards for accessing all the mobility

services available, to e-ticketing systems installed on buses and trams for connecting the vehicles to a central dispatch system for data collection and processing. Within each city the solutions are very promising and produced relevant results so as to become in the future real best practices in Europe.

- **INNOVATIVE ENERGY SOURCES**

“testing valid alternatives to curb the use of fossil fuels”

In Coimbra the study of the **small-hydro power plant** gave bright perspective to generate relevant revenues in favor of Public Transport as the energy produced in any one of the solutions identified, is in excess of the 750.000 kWh needed by the city’s trolleybuses and mini-electric buses. The 100 kw **photovoltaic plant** in Brescia effectively produced about 94 Mwh/yr with a reduction of 47 t of CO₂.

- **CITIES’ COLLABORATION**

“favouring transferability and partnerships”

In every city the MODERN teams recognized the importance of collaboration and knowledge sharing and thus fostered coherent ways of operating. The mutual support given in the definition of the **tendering processes for the e-ticketing** measures in Craiova, Brescia and Coimbra is emblematic of the cooperative attitude cultivated amongst the partners and the people of MODERN.

MODERN project conjugated state-of-the-art strategic planning to operational demonstrative measures introducing a broad range of **innovative solutions**, encouraging **transferability and knowledge sharing** amongst cities, pursuing **robust evaluation** activities while **disseminating to leverage** its efforts. Notwithstanding all the thoroughness pursued during the project lifetime, the single partners as well as the consortium as a whole, had to face certain challenges that were in most cases successfully tackled.

Looking at technology and infrastructure

the efforts made by all the partners allowed to reach important results and overcome the difficulties deriving from the need of integrating different interventions and measures in a **unitary and coherent framework**. Another key element refers to the willingness to enhance the capacity of adapting existing solutions to one’s own specific reality – thus taking the true value out of sharing experiences and know-how.

Favouring the adoption and implementation of a common CIVITAS methodology for assessing the

impacts of the measures on the cities mobility, was undoubtedly a challenging effort to face and resulted in being quite demanding to the cities’ teams.

With reference to infrastructure the most important achievement is represented by the Superblock implementation in Vitoria-Gasteiz that proved to be a **trail-blazing initiative** with deep consequences on the traffic flow within the designated areas. The extensive construction of bicycle lanes in Brescia and Vitoria-Gasteiz deserve mentioning as well as the development of new Mobility centers including the one in Coimbra.

Looking at policy and politics it can be affirmed that the MODERN project has been characterized by a broad sharing of general objectives. These solid understandings **ensured a fair continuity to the project deployment** notwithstanding the fact that almost all the cities had elections during the project lifetime thus changing both the political and the administrative representatives. However, the steadiness of the project activities allowed all the cities to take unpopular decisions such as the introduction of traffic restriction areas.

Overall, the **political support and involvement was significant** in the MODERN project - Mayors and Deputy-Mayors actively participated to the events organized by MODERN and all political partners strongly endorsed Vitoria-Gasteiz’s candidacy for becoming the European Green Capital 2012 and the hosting city of the CIVITAS Forum.

Looking at finance and management

it is manifest that the economic downturn hit unexpectedly forcing all cities to face investment shortage and feeble economic resources of all parties during the last two years of the project. This setback highlighted even more the need of **increasing the compatibility of the time of the political debate with the time of the contractual engagements**. This entails ensuring an adequate level of communication and integration between technicians and politicians concerning the strategic choices of the project so as to improve the overall cooperation between policy and technology.

The four MODERN cities representing a geographic diversity covering the entire continent from the Atlantic coast of Portugal through the Basque region and northern Italy to the Balkans proved to be pretty diverse. But the consortium was guided by the European motto *“united in diversity”* and thus the numerous partners learnt to value and integrate the differences in order to persistently act on people’s mobility and transport behaviours.



MODERN

CRAIOVA • BRESCIA • COIMBRA • VITORIA GASTEIZ

8 thematic areas

The CIVITAS initiative has identified 8 basic building blocks of an integrated strategy for sustainable mobility. The MODERN cities have all been achieving positive impacts to the previous status thus recording interesting results.

1

Clean fuels and vehicles theme:

a provisional simulated decrease of 57.2% of CO₂, 83.6 of CO, 60.3% of NO_x and 67.1% of PM achieved by the city of Craiova through a transition towards clean fleet.

2

Collective passengers transport theme:

an increase of 18% in average PT vehicle speed and a consequent decrease of 14% in average journey time thanks to the new PT network in Vitoria-Gasteiz.

3

Demand management strategies theme:

thanks to a new the traffic light regulation Vitoria-Gasteiz has obtained an increase of both passing time in intersections (km/s) and travel speed of 6% and 8% respectively; additionally, there has been a decrease in both number of stops in intersections (stops/km) and stop time of 17% and 3% respectively.

4

Mobility management theme:

thanks to the communication and educational campaigns the city of Brescia has achieved during the last three school years a mean increase of kids using school buses at the primary school equal to 2.3%.

5

Safety and security theme:

a provisional increase of 6% of perception of security in buses in the Craiova thanks to the PT security program measure.

6

Car-independent life-style theme:

a provisional decrease in pedestrian accidents of 14% has been achieved by Vitoria-Gasteiz thanks to the implementation of a new pedestrian and bicycle lanes network within the super-block model.

7

Urban freight logistics theme:

a provisional decrease of 1% and 1.85% respectively concerning the delivery vans and trucks circulating in the historic city center of Brescia.

8

Transport telematics theme:

the city of Craiova has achieved a provisional decrease of 2% of specific energy consumption of trams through the implementation of a new PT priority system.

Partners

CRAIOVA



Local Council
of Craiova Municipality



Regia Autonoma
de Transporti Craiova



Institutu de Projectari
Automatizari SA Craiova

BRESCIA



Comune di Brescia



Brescia Mobilità



Brescia Trasporti



University of Brescia

COIMBRA



Câmara Municipal
de Coimbra



Serviços Municipalizados
de Transportes Urbanos
de Coimbra



Faculdade de Ciências
e Tecnologia da Universidade
de Coimbra



Critical Software SA



Prodeso Ensino
Profissional LDA



Perform Energia LDA

VITORIA-GASTEIZ



Ayuntamiento
de Vitoria-Gasteiz



Transportes Urbanos
de Vitoria



Centro de Estudios
Ambientales



Ente Vasco
de la Energía



Real Automovil Club
Vasco-Navarro

Technical, evaluation, dissemination management





The MODERN (MObility, Development and Energy use Reduction) project was coordinated by the Municipality of Craiova (Romania) and included the Municipality of Brescia (Italy), the Municipality of Coimbra (Portugal) and the Municipality of Vitoria-Gasteiz (Spain).

The kick-off meeting of the project was organised in Romania at the coordinating city's premises and the final conference coincided with the CIVITAS Forum 2012 and was organised in Vitoria-Gasteiz.

Project Coordination - **Gabriel Vladut, Municipality of Craiova**

Technical Management - **Marco Mastretta, CORE**

Project Dissemination Management - **Karin Fischer, Methodos spa**

Project Evaluation Management - **Maurizio Tomassini, ISIS**

Craiova Site Coordinator - **Dorel Popa**

Brescia Site Coordinator - **Giandomenico Gangi**

Coimbra Site Coordinator - **Luis Santos**

Vitoria-Gasteiz Site Coordinator - **Jose Ignacio Arriba**