Spatial Metro
Strategies to Improve City Centres for Pedestrians

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Abstract
Context
The Spatial Metro project brings together a transnational group of partners enabling them to co-operate in order to improve city centres for pedestrians - Discovering the City on Foot. The project is receiving European Regional Development Funding through the INTERREG III/B Community Initiative. A group of ten organizations participate in Spatial Metro: The lead city of Norwich (UK) and the cities of Rouen (F), Koblenz (D), Bristol (UK), Biel/Bienne (CH); Academics at: University of East Anglia (UK), Delft University of Technology (NL), University of Koblenz (D)and the Swiss Pedestrian Association. The main role of the Chair of Urban Design at TU Delft is to evaluate visitor experience and to observe use of space before and after Spatial Metro interventions.

Aim and Methodology
The cities invest in different ways to improve quality for pedestrians. Central issue in Norwich is the design of so called stations, the main locations in the pedestrian network. Two squares will be redeveloped. In Bristol a new type of information system has been developed and delivered. In Rouen central issue of design is a light plan to guide people at night and improve safety and orientation of pedestrians. In Koblenz a part of the pedestrian network will be redeveloped based on a design competition, but also a BlueTooth based information network will be developed. In Biel/Bienne ideas of the so called ‘Shared Space’ principle have been brought into practice. Finally, all cities will develop a new type of metro-style map for pedestrians and introduce environmentally friendly transport methods.

Results
The exchange of knowledge of investments in different fields to improve city centres for pedestrians makes the project very interesting. From the point of view of urbanism the value of this approach is the combination of those fields of knowledge in relation to the available pedestrian network.

Main conclusion
Main focus of the paper will be the explanation and exploration of the different types of investments done by the cities.

After finishing his PhD he became Assistant Professor for the Chair of Urban Design and founded SC.Design: Office for Design and Consultancy, Architecture – Urban Design. Today, he is lecturer in the MSc and BSc for the Departments of Urbanism and Architecture and researcher in the field of Urban Design in European Union funded projects ‘Spatial Metro’ and ‘Connected Cities’.
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Improving City Centers for Pedestrians
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“Cities can be chaotic and confusing places at the best of times - even for local people! Visitors are neither helped nor encouraged by unattractive surroundings when they reach main arrival points such as airports, bus and railway stations, and car parks. Once in the city they can be further frustrated by a lack of helpful signs and by unwelcoming public spaces. Spatial Metro aims to make city visits more enjoyable for pedestrians by making them easier to navigate, easier to walk around, and easier to understand and appreciate.” (SpatialMetro, 2007)

Why pedestrians?
Pedestrian movement can be seen as the most important mode of transportation in the city. With walking no interchange or vehicle is needed. Walking connects activities within a certain range very easily. Walking is a mode where there is most interaction with the surroundings and with other pedestrians. Walking is healthy, produces no pollution or emission. But walking is a mode of transportation where physical aspects as well as quality of routes count, e.g. distances, barriers, traffic and social safety, routing, weather etc. These satisfiers and dissatisfiers are crucial for the choice of transportation.

Main role of Urban Design
The main role of the Chair of Urban Design at TU Delft is to evaluate visitor experience and to observe use of space before and after Spatial Metro interventions. Herefore TU Delft has developed and carried out two specific methods: street interviews and a method for tracking pedestrians. The street interviews are meant to
get more insight in the background, expectations and experience of pedestrians. The second method, GPS tracking, offers a tool to observe and evaluate real pedestrian behavior in the whole Central Business District (CBD). The importance of both methods is that they can be used to analyze information in advance or after investments, but also to measure the impact of investments and response of the public.

Way of working
During the Spatial Metro project which runs from March 2005 until 2008 a series of meetings has been organized. All meetings consist of one or more international workshops related to a specific theme for that location. The workshop is initiated by the stage of development: pioneering, in progress or finished.

What/where do the cities invest in?
The themes of workshops and investment are: information gateways, (pedestrian) routes, stations (key public spaces), conventional signage, wireless information technology, virtual-reality modeling, environmentally friendly transport alternatives, metro-style maps, and public response. In this paper and during the breakout session the actual investments of the cities will be shown.

Information gateways at arrival points – such as airports and bus stations - where relevant information about the city, and how to get around it, is easily available.
First impressions count when you arrive in a city – and few things put visitors off more quickly than unwelcoming, grubby-looking airports, railways stations and car parks where basic information is hard to find and then impossible to understand. Bristol is leading work to make physical improvements to key arrival points, and to develop a systematic approach to the provision of information to pedestrians. This refers to both the structure and content of information, and to the design of signage. Information gateways should enable visitors to find out all they need to know in one convenient, easy-to-find location. They should provide fast access to clear information. Visitors should be able to find out where they need to get to, and how to get there, without having to scurry around from pillar to post.
In Bristol, new information gateways have already been designed and installed at the airport and bus station. They will also be put in place at Temples Meads railway station, and at a local park-and-ride facility.
Norwich is using information from the Bristol model to design an information gateway at Norwich International airport. Rouen and Koblenz are also looking to apply the Bristol model to their cities.

Improvements to routes which form pedestrian links between attractions
A crucial aspect of the project is the creation of distinctive pedestrian links to connect the various attractions highlighted on the new thematic routes. After all, metro-style maps highlighting key attractions have limited value if the routes between them are dark, dreary, run-down, or clogged with traffic.
The cities of Rouen and Koblenz have been leading our work to establish attractive pedestrian routes which will help visitors find their way around a city and enjoy what it has to offer. We are talking about features such as improved lighting, better pavements, clearer signs, and establishing public spaces for events.
Rouen, for example, has made it a priority to protect pedestrian streets from vehicles by installing retractable bollards. The improvement of links between the museum and the city centre has begun with studies to identify the needs of pedestrians and cyclists. Another partner, Delft University of Technology, carried out a survey of pedestrians in Rouen. And a street show about the French writer Pierre Corneille helped to promote a pedestrian route in the city centre.
In Koblenz, the suitability of the city centre for pedestrians has been reassessed with input from transnational partners. Partners from Delft TU and the Swiss Pedestrian Association were on the assessment panel for the Löhrstrasse design competition. Their expertise in analyzing the use of urban space proved invaluable.

There is now a coherent plan for connecting the main routes and providing *missing links in the retail pedestrian network of the city*. Improvements to pedestrian links at the south end of the Oberste Löhrstrasse are nearly complete, and the first lighting projects have been finished.

In Norwich, work to develop links along pedestrian routes has focused on the popular Norwich Lanes area, where a wealth of attractions includes specialty shops, restaurants, a museum, a theatre, cinema, galleries and performance venues. The next step will be to design clear and attractive “entries” to the Lanes area. An ice sculpture trail guiding pedestrians around the retail route has been held, and lighting improvements forming part of the thematic “heritage” route have taken place.

**Improving key landmarks along thematic routes so that they serve as stations – public spaces which pedestrians can enjoy, relax in, and use to discover more about the city.**

Spatial Metro is essentially about creating thematic city centre pedestrian routes connected by a series of prominent public spaces. These public spaces are referred to as ‘stations’ – though not to be confused with bus and railway stations!

An international workshop in Norwich identified stations as inspiring public places where people can find information, gain their bearings, get refreshments, visit the lavatory, sit down, rest, relax, and watch events.

A station tends to be a significant junction within the navigation of a city, and it should ideally be a unique place, with historic connections and distinctive features.

Norwich is leading this aspect of the project, and identified the relatively disregarded St Andrew’s Plain area as a potentially important station within the city. Following a successful public consultation work has now begun to enhance St Andrew’s Plain – to transform it from an area that people simply pass through into a recognised public meeting space where they can gather, relax, and enjoy being outdoors. Work to tap the full potential of St Andrew’s Plain started in January 2007 and should be complete by May. It includes pedestrianization, tree planting, the installation of new seating, and more attractive lighting.

St Andrew’s Plain was identified as a particularly important station because so many routes and attractions converge there.

So while it may not be a “station” in the conventional sense, its role is still not so very dissimilar to that of an interchange station on the London Underground! Hence the enthusiasm for metro-style maps!

**Improving signs and other conventional means of providing information to pedestrians in city centres**

New Information Gateways provide information when you enter the city. But then a large variety of signage information is offered or no information is offered at all. The key is to develop a visitor information system as a whole, including gateways and route markers.

Bristol has developed a new coherent system for their city information: an information system masterplan. Depending on the location in the network a specific type is placed giving specifically selected information.

The system consists of direction markers and a specially designed map. The map is unique per location, depending on direction (view) and surroundings. Central point is the location. From here a ‘3D’ view shows exactly what you see within the direction of the view: axonometric drawings of landmark buildings are added on the 2D map.
There is no need for orientation on the map (where am I, which direction am I looking). Circles on the map represent the walking time.

Virtual reality models of buildings and routes – providing information to visitors, and helping them to plan visits and to get around.

Visitors will be able to explore and learn more about places of interest thanks to exciting new virtual models of buildings and routes created by computer scientists at the University of East Anglia, in Norwich. Virtual reality models have been designed to illustrate the three thematic routes - heritage, culture and shopping – which have been created in Norwich.

Each virtual model is being developed so that the user can choose the section of the route they wish to view, and find useful information. These virtual routes will be available on a screen at Norwich’s tourist information centre and via the internet. It may also be possible to view the animations on stand-alone machines.

The team from the UEA’s Urban Modelling Group has also created virtual models of Koblenz as it looked in the 19th century, and of the newly refurbished Gros Horloge clock tower in Rouen. These will both be used on thematic routes in the two cities – in fact the Gros Horloge model is already being enjoyed by visitors to a new museum and visitor attraction at the clock tower.

Using mobile phone and internet technology to make sure information is readily available to everyone.

Visitors to Koblenz will be among the first to benefit from free information sent automatically to their mobile phones when they visit prominent local attractions.

The University of Koblenz has developed the technology for a Bluetooth-activated process which is triggered when visitors’ mobiles are detected by special “access” boxes installed along routes and at places of special interest in the German city.

Around 20 access boxes were due to be installed in the most historic part of Koblenz last November following encouraging results in tests. Information can be transferred
in the form of text or picture files, and can be changed and updated regularly by the local tourist office.

**Testing and introducing environmentally friendly transport methods - such as rickshaw-style velotaxis and electric scooters - within pedestrian zones.**

Velotaxis, pedal cycles and electric scooters all featured in a Norwich-led transport trial exploring new and sustainable ways of getting people around city centres. More than 400 people were surveyed in Norwich as to their opinions and suggestions for environmentally and people-friendly forms of transport in the city centre.

The trial, in September 2006, marked the launch of the British Association of Science’s internationally recognised Festival of Science. It was organised by Norwich City Council and by environmental scientists working for the Community Carbon Reduction Programme (CRed) at the University of East Anglia. CRed is now developing an evaluation toolkit to help assess low carbon transport technologies. Meanwhile, in Rouen, a study has been launched into increasing bicycle use in the city centre.

Producing Metro-style maps of thematic routes for pedestrians

Special metro-style maps are being designed to help pedestrians see at a glance what a city has to offer, and to help them find their way around. They are referred to as “metro-style” maps because they look exactly like the kind of maps many of us are used to seeing on the London Underground, the Paris Metro, or the German U-Bahn. The only difference is that the users will be traveling on foot, and the stations or stops will pinpoint a city’s main attractions – including shops, museums, cathedrals, castles and monuments. And instead of having “District”, “Circle” or “Piccadilly” lines, the connections between these stops will be shown as thematic lines – such as heritage or shopping routes for pedestrians to follow.

The development of metro-style maps is being pioneered in Norwich, where a transnational workshop investigated the ways in which visitors discover the city’s attractions. Norwich has now developed a metro map featuring three thematic routes which cover heritage, culture and shopping. The concept is now being tested and evaluated, and subject to positive feedback it will be adjusted and published. The lessons learned and methods used will then be shared with other partner cities. Other partners have produced leaflets for pedestrians using thematic cultural routes. These cover the Pierre Corneille route, in Rouen, and the Vine route, in Koblenz.

Measuring the public response to the new maps, information, signs and media. Analysis of pedestrians’ opinions and needs can influence the detail of projects, and similar research can subsequently be used to measure the impact of new maps, signs, information zones and other media in the partner cities.
Delft University of Technology has analyzed the urban environment of the partner cities. It has also conducted street surveys of pedestrians in Norwich and Rouen which have proved useful in devising plans for improving the pedestrian environment. Delft uses three methods to analyze the use of space by pedestrians in city centers. Street surveys are mainly used to collect background information about visitors to the city centre; video techniques can offer insights into the use of a specific space. And Global Positioning Systems (GPS) devices can now be used to evaluate the use of space in cities. This satellite technology gives insights into patterns of movement and intensities of use of public space.

By combining the results with urban analysis it is possible to relate urban characteristics – such as traffic, activities and street profiles – to patterns of movement. The results of this tracking can also prove invaluable when further urban planning decisions are being considered.

Conclusion / advice

Pedestrian movement is depending on satisfiers and dissatisfiers. Ten good solutions or improvements are undone by one mistake. The ideas of Spatial Metro only make sense when all aspects of pedestrian movement are considered. Of course this can be done in a layered approach – one level at a time. But, city beatification only makes sense when the basic conditions are there. It would be a waste of money to invest in stations when there are no lines or there is no need to be there. Without stations the network is useless.

Routes have to be consistent and coherent, designed for pedestrians. Missing links in the network need to be filled in. Station need to become central points in the network, crucial points in the urban fabric.

Finally, it is not the signage system that powers the pedestrian. Signage only repairs mistakes on other levels of way finding. The Urban Fabric should speak for itself and offer the right opportunities to contribute to a livable and legible city. A city in which there are clear and logical routes, stations as (recognizable) landmarks, all leading to easy orientation and way finding.

Without the right urban form and a clear morphology assistance is needed. Then the way finding comes into place. Especially for people who are new to the city or people who would like to discover more in the(ir) city.

Still we have to keep in mind that only a percentage of the people is able to read maps, and keeps the topography in mind. Metro-style maps offer another level of imaging of the city, but a level of understanding the structure of the city is necessary as well. This kind of map is no more then another simplification which doesn’t match the reality and experience of the city. So, is there a change this kind of map initiates a better understanding of the city? What will be your choice of way finding in a city you are discovering or designing?
For a general description of the project and partners and for more detailed information of the themes and workshops, please visit the Spatial Metro website: [http://www.spatialmetro.org/](http://www.spatialmetro.org/)

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