

The Electronic Neighbourhood

A New Urban Space

Steen Holmgren, Bjarne Rüdiger, Kresten Storgaard and Bruno Tournay
Academy of Fine Arts, School of Architecture, Danish Building and Urban Research.
<http://www.karch.dk>

During the event Cultural Market Days on 23 and 24 August 2003 at Noerrebro Park in Copenhagen, visitors could also enter the marketplace from their home via the Internet, as a digital 3D model had been constructed that showed the marketplace with all its information booths and activities. This virtual marketplace functioned as an extension of the urban space, allowing you to take part in the flow of information, activities and experiences that were offered in the marketplace. And this just by a click on the Internet address: <http://www.e-kvarter.dk>.

Furthermore at certain times of the day you could chat with people from some of the many working groups of the urban regeneration project in Noerrebro.

The digital 3D model is similar to the marketplace, but it creates its own universe in the green surroundings of Noerrebro Park. And now, when the Cultural Market Days are finished and the booths and people have gone, the Electronic Marketplace still remains on the Internet, with a potential for developing a new public space for information, dialogue and cooperation between the actors of the urban regeneration project.

This paper presents the results of a 3-year research project, The Electronic Neighbourhood (2000-2004). Researchers have developed and tested a digital model of the urban area and other digital tools for supporting the dialogue and cooperation between professionals and citizens in an urban regeneration project in Copenhagen.

The Danish Agency for Enterprise and Housing, the Ministry for Refugees, Immigration and Integration and Copenhagen Municipality have financed the research, which is planned to be published 2004. The results can also be followed on the Internet www.e-kvarter.dk.

Keywords: *3D modelling; virtual environments; design process; human-computer interaction; collaborative design; urban planning.*

Background

In the Urban Regeneration Project which is being carried out from year 2000 to 2007, the secretariat of the urban regeneration project and a number of active residents involved in various working groups, have to work out suggestions, plans and decisions for the regeneration projects of the area. They use information technology in a very targeted way.

The research project - the Electronic Neighbourhood - followed the regeneration project, developed new ways of using ICT and documented the process in order to enable other local authorities and actors to learn from the experience gained on the project.

Especially the research project contributed to the development of ICT-based tools for facilitation of urban development processes, primarily the digital 3D model of the area used for strengthening the collaborative dialogue between the stakeholders of the area.

The research project is based on the experience gained from the use of information technology in various planning contexts, for example the design and use of digitised 3D city models. As regards the involvement of residents and special groups, the project is based on a project entitled Urban architecture in urban renewal - in dialogue between professionals and residents, which was a spin-off project of the earlier Holmbladsgade urban regeneration project in Copenhagen. The methodology applied is dialogue-based research, i.e. research that monitors and evaluates activities on an ongoing basis while at the same time contributing to corrective measures and providing proposals for solutions.

This paper presents three types of activities from the project: photo safaris, a collaborative project for an urban space, and the virtual marketplace. Finally some conclusions based on user interviews are presented.

Three activities

The three different activities also focus on three different stages of the process: mediation, dialogue and collaboration.

The photo safari is mediating residents' values and views of the urban area as part of the dialogue with professionals in the regeneration project.

The urban space project involves the residents and develops collaborative project proposals.

The virtual marketplace is an urban space on the Internet, where visitors can observe, communicate and meet or take part in chat sessions about the regeneration project.

1. The photo safari

Photo Safaris are methods for stakeholders/local residents to express their perception of their environment – and at the same time a tool for raising their awareness of environmental values. The method requires participants to take photos of good and bad buildings, objects or places and other aspects of their environment. The photos are provided with explanations and comments about the reasons for selecting these.

The photo safari for children is quite open and unstructured. The participating children are simply asked to focus on the best and worst in their environment. This method allows everyone involved to voice their own biases about their community. By taking photographs residents record such features to express preferences about their community.

In this project opinions about places, buildings etc in the area are collected and disseminated by the research project. Written opinions are linked to pictures that can be activated on a GIS based map. The results are available on the Internet.

A special accessibility safari for wheelchair users was also organised, and the results can likewise be seen on the Internet.

Photo safari for children about best and worst places

Pupils in the fifth or sixth grades at the two local schools, Havremarken and Hillerødgade Schools, participated in the photo safari. Fine, funny and ugly experiences had to be captured in photos. The point of the photo safari was to look at the neighbourhood with new eyes and to explore already known features. The results were exhibited and rewarded at an event on Hillerødgade School where the children, exhibited their work to their parents and to other inhabitants of the neighbourhood. The exhibited as well as the award-winning

photos can still be seen at the homepage www.e-kvarter.dk.

Photo safari about accessibility

The photo safari about accessibility was a structured “walk-through safari”, that followed the daily routes of a resident in his wheel chair. The resident could be considered as an “user-expert “ of the urban environment. Because he lives in the area and is a wheelchair user he knows the good and the bad places in terms of accessibility. He also comes up with proposals for improving the environment. His experiences from getting around in

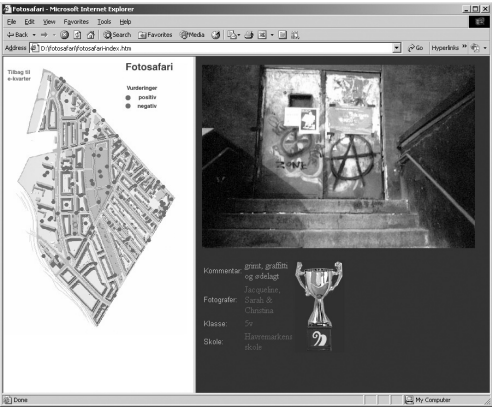
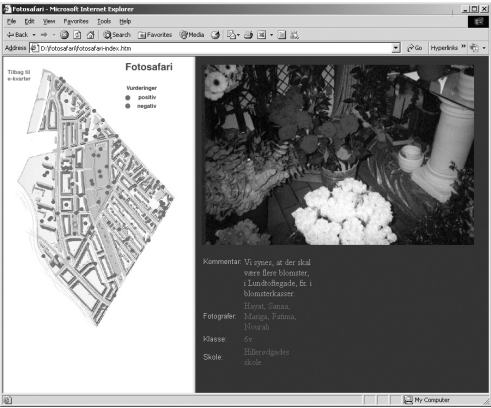


Figure 1 and 2
On a map of the area people can click on a number of pictures to see the children's choice and their comments on best and worst places.



Figure 3
Figure 4
There is no paving by this unofficial entrance to the Park. Suggestion: Unofficial routes are the users' logic choices, because it is always the shortest way to their destination. Therefore these routes should be mapped and made accessible to everybody.

the neighbourhood do not just benefit wheelchair users but also parents with perambulators, youngsters with broken legs, elderly people with shopping trolleys, etc. All age groups may temporarily or permanently get the same problems. The map is used to identify places along the route, where digital photos are taken and where comments and proposals are mentioned

Conclusions

Photo safari – a tool for dialogue

A photo safari is a very simple way of improving the dialogue between the different actors of an urban regeneration area. Not least in order to involve segments that are not usually heard in urban regeneration projects, like children.

The method is useful whether it is applied to a group like children with no special interests in the urban area or to a single person with special interests and proposals, like in the case of a disabled person. The combination of picture, a short text, the identification on a map and not least the accessibility to all via the Internet makes it a very effective tool.

To our surprise, results from the safaris were used outside the urban regeneration project area, in the dialogue between decision-makers and handicap organisations. The teachers in the two schools also used the results of the safari as a very effective

tool in classroom discussions.

2. Collaboration

In the collaboration between the urban regeneration project and the Electronic Neighbourhood, the idea was to demonstrate the use of the digital 3D model as a tool for the debate and assessment among the residents.

To get experience of the process, urban settings of different scales were selected for the three projects: an alley, a street and a park.

A new professional role: the architect as „interface“?

The focus in regeneration projects is changed from the end results to the collaborative process of creating, exchanging and debating ideas and suggestions. Through meetings and other activities the aim is to support the creating of collaborative networks among the stakeholders.

In this process it is an important job for the architect or planner on the one hand to understand the proposals and ideas and on the other to help to illustrate or „translate“ them for presentation and discussion at meetings.

To incorporate the Internet as a media for the debate, you need to “translate” the proposals to a digital format and

Figure 5
The digital 3D model of the electronic Neighbourhood with an overview of the projects formed by the residents in the area.

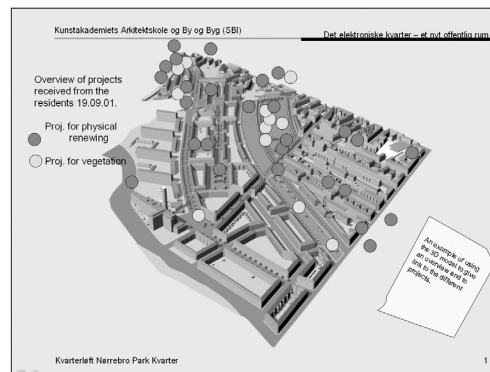
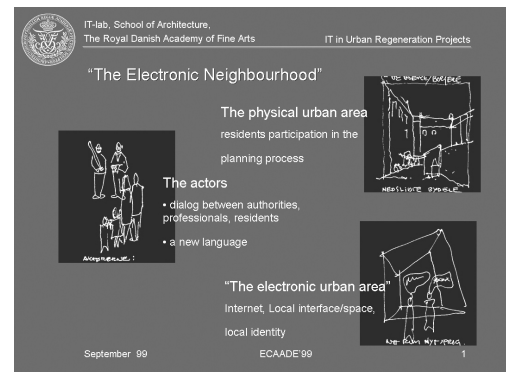


Figure 6
Actors in the urban regeneration projects.



put them into a digital 3D- model of the neighbourhood.

For the architect and planner it means developing new methods and new qualifications, concerning e.g.:

- how to locate tacit knowledge,
- experiments with interfaces and methods for visualization and communication of ideas,
- translation of ideas using photos, drawings and stories,
- testing the impact of the level of details and abstraction to improve the use of the digital 3D model.

Facilitator, the “Viggo”-interface

To communicate you need a common language

Software developed by specialists is used for the city model and the various proposals presented. Consequently we endeavour to develop new methods to describe and visualise the proposals so as to ensure that expert knowledge is not a precondition for understanding the proposals. The project is currently involved in three embellishment initiatives. The researchers have participated in debate meetings in local project groups where they carried out interactive digital translation of the issues debated and entered various sketches and outlined proposals from project group participants into computers in order to make the suggestions available on the Internet. This translation function is called the VIGGO interface. Eventually this function will be taken over by instructors or super-users trained to carry out this function.

Example of collaboration; The Alley at the Youth House

One of the more surprising applications of the urban regeneration project was a project to renew the alley between the Youth House and the Aldi supermarket. The proposal came from the residents of the Youth House – a group of young

people who had occupied the house.

This activist-group had been living isolated from other people in the neighbourhood. It therefore came as a surprise for many when they saw a proposal coming from a group everybody thought they knew to have no interests in the rest of the community.

The project „Restoration of the alley between the Youth House and Aldi“ attracts a lot of attention because the alley is placed next to the Youth House. Furthermore it is a place where many take a short cut to find a place to park etc. The project contains a detailed proposal for renewing of the alley with a pergola, green plants, light etc.

The proposal has its offset in the mesh and graffiti you find in the alley, which strengthen the impression of risks and unsafety. The solution provides



Figure 7
“Facilitator using “smart board” interface.



Figure 8
Example of embellishment project, the alley between the youth house and the Aldi shoppingcenter.

unexpected solutions for cleaning, but does not stop at that, but goes on with ideas for lightning to comfort visitors at night and a pergola with green plants. Everything is an element in a plan to create „a green gate“.

In the original description of the project you find very detailed documentation for materials, cost and instructions to carry out the work. It was obviously a good idea to translate the sketches- in collaboration with the authors - to a digital 3D model. The model should show the visual impact of the project in a way that it could be presented and discussed via the Internet.

The aim of the digital version was to give an expression looking like a sketch- matching the original

drawings. A principle that was also used to make the materials for presentation on the Internet for the Cultural Market Days. Here you find different ways to present projects, animations, still-pictures before and after and pictures of the project, photoshopped as collages to be compared with photos from the actual situation.

Conclusions

The dialogue during the digital „translation“ of the sketches to be included in the 3D model, became a kind of icebreaker in the contact between the young activists and the other residents in the neighbourhood. By accepting the proposal as equal to the other proposals in the urban regeneration project, and by publishing it on the Cultural

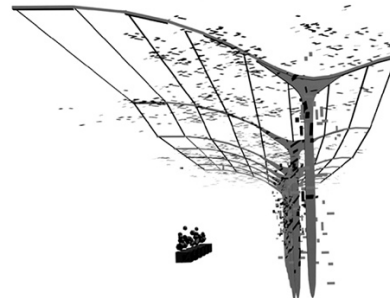
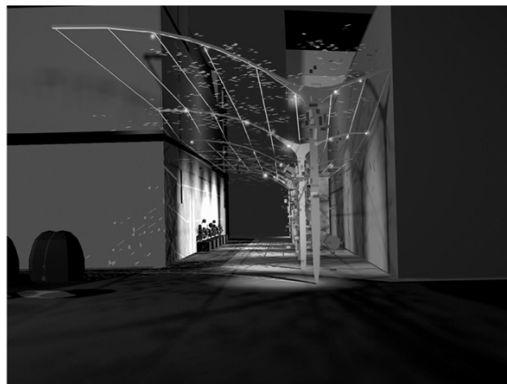
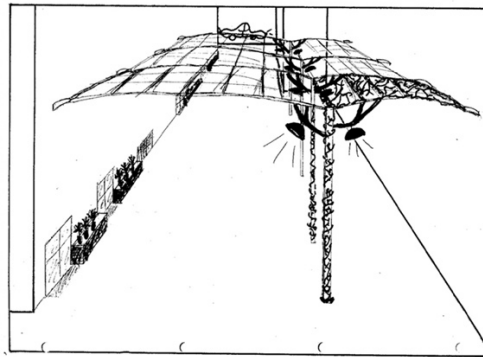


Figure 9
Shows the sketches from *The Youth House* proposal by Jonas Olsen (upper left) and how it looked after being translated to the digital 3D model of the neighbourhood.

Market Days and on the Internet, the group in the Youth House was included in the neighbourhood network. Of course, it can only be seen as the first step to establish a dialogue and certainly does not mean that all problems in the relationships are solved.

3. The Virtual Cultural Marketplace

Background

Building and testing a virtual marketplace, as a new meeting place in the electronic neighbourhood, was the last activity that was to be done under the research project. The first idea was to build a virtual space of Noerrebro

Park and to show the first two or three winners of a planned competition for the park. This was intended to be carried out in a 3D model where the residents could walk around, meet each other and discuss the projects. But unfortunately the competition was delayed and the research programme had to be changed.

We decided then to build a 3D model of the park, as it is today and make a model of the Cultural Market Days in the 3D model. In this way the model of the park would function like a new virtual meeting place on the Internet where the different local working groups and NGOs could present their work and the visitors could walk around and meet the NGOs and discuss (chat) with them. The

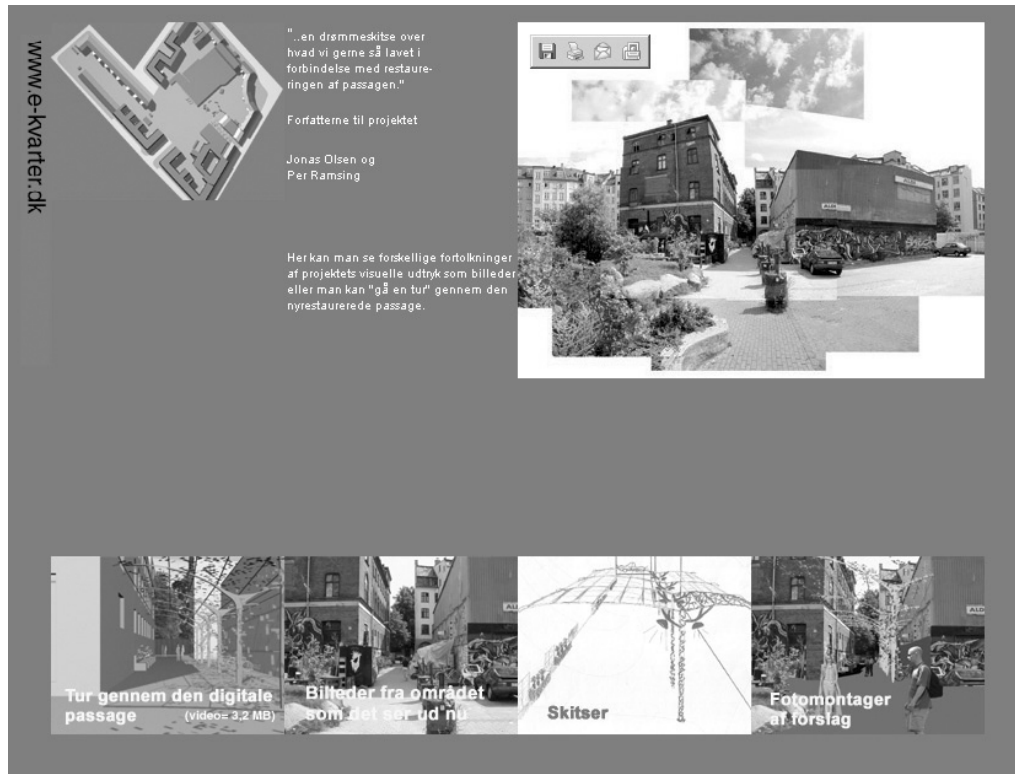
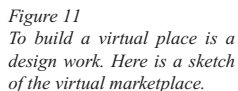


Figure 10
The proposal was presented on the cultural fair days 2002 and afterwards on the Internet. Here you could follow how the proposal would give the alley a new green look to be enjoyed on the shopping-tour.

The NGOs that agreed with the idea of a virtual marketplace, got a booth and stand for their posters. A special stand can activate the home page of the NGO or the working groups. Furthermore two of the working groups had a „teleport“ from where the visitors are „tele-transported“ to a new 3D virtual world.

When you visit the virtual marketplace, you always start in the same corner of the marketplace. From there it is possible to see nearly all the booths. An avatar and a name automatically represent you, but you can choose a new one and have your own. On the place you can see the other visitors through their avatar and you can chat with them. You can go around as a „flâneur“ or you can go with others and discuss - in a text box - what you see.



At the booth of the group working on a new project for the park (the Park Group) you can move to a new virtual world with the same surroundings as the park. But you are no longer in the marketplace. You are now in an exhibition showing the history of the park and some models of the park. It is only a model of the park as it looks like now but it could also have been a model of the winning project of the competition. It is also a demonstration that shows how you can play with the scale. You are in a virtual park and can see a model of the same park. In that way you can walk around and see the details and at the same time have an overview of the model.

IT solution

The system is build with Atmosphere (from Adobe). At that time Atmosphere was released as a beta version and could be used at no charge. The project was only an experience and had limits. There was no money or time to build the all system from scratch.

Atmosphere is not only a tool to assemble and model virtual world but offers for free a server that manages and traces the chat function and avatars. It is possible to model in Atmosphere but the tools are quite primitive. That is why all the „physical“ elements like the park, the booth etc. have been modelled in Autocad/3Dstudio. From 3Dstudio it is possible to export the data to a special format that Atmosphere can read. But when you use this technique, you cannot use the lightning to bitmaps facility neither collision inside Atmosphere.

The test and some conclusion

The virtual marketplace was presented at the real marketplace in August 2003. A container with 12 computers was established in the middle of the real marketplace in the park. A wireless connection to the Internet was established. The visitors could be in the middle of the real park and walk around in the virtual park and chat with representative from the NGO and workings groups.

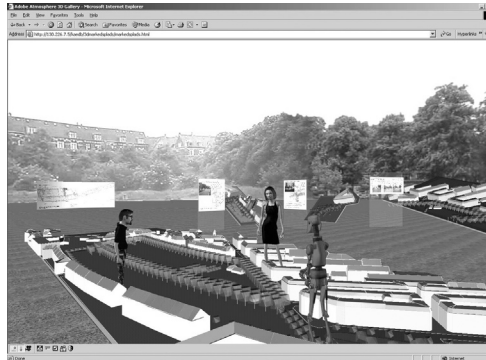


Figure 12

At the virtual exhibition one can see and walk around in a model of the park, as it looks today. In the background are big “glass plates” showing historic photos and the original plan of the park.

After the end of the event some of the users were interviewed concerning their experience and their opinion.

For the ordinary user the experience of visiting the virtual park and commenting on the event was a strong and interesting experience. Some argued that it is easier to walk around in a 3D model than to navigate on a home page, and that 3D models should be used more often.

For professional users the experience was not that extraordinary. A frequent comment was that ordinary 2D drawings have the same amount of information.

For the research team the perspective was clear. The interactive 3D tool was seen as a strong and effective means of strengthening the collaborative public participation. For most of the users the possibility of going around in a project with e.g. the architect and discuss the project can be a very informative and motivating way of participating in the process. But at the same time chat is not enough. It is too volatile and it should be extended with a kind of discussion forum that can be linked to places in the virtual model.

The real marketplace is now closed. But the virtual marketplace is still open. There you can get information about activities in the neighbourhood. The virtual marketplace is now a new urban place in the neighbourhood.

The Internet site is ready to host new activities

and can be the place where the results of the competition for the renewal of the park can be presented, visited and discussed. But actually the tools you need to build and edit 3D multi-users worlds are too complicated.

General conclusions

ICT must be integrated in an urban regeneration project from the beginning and throughout the process.

Even if ICT has a great potential for improving the collaboration between citizens and the professional organization, the effect depends on its integration in the other activities in the area.

Also the ICT activities must be part of the urban regeneration project organisation.

The ICT activities must be linked to events in the urban area. Only few visit a site by chance. You must have an interest in visiting the site. A bridge can be other activities going on in the area.

The ICT activities should be discussed and reflected in other media in the area.

ICT activities should be events in the area by themselves.

A real integration presupposes a change in the way of thinking actions and process. An urban regeneration process is not only a physical and social improvement through a renewal of dwellings, street, places, park etc. Also the establishment of the physical infrastructure, as well as establishing the readiness and use of the ICT should be part of a renewal process, to bring the local area up. It is



Figure 13

In the e-container at the real marketplace the visitors could also visit the virtual marketplace on 12 computers. On the big screen in the background, one could follow the visitors moving around and their dialogue in the chat box.

necessary to think of all activities as having two sides: a physical/social side and an ICT side. And we must think how both sides improve and support each other.

Today sustainable urban regeneration projects involve residents. The ICT side of the process must also involve the residents. The planners and architects are facing two challenges: On one hand they have to design with both atoms and bits. And on the other hand they have to think of how they themselves would design together with the residents. Even the design process is a collaborative process itself - mixing the expertise of the 3D designer with the expertise of the users.

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