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SUE Success Stories: VivaCity2020

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EXECUTIVE SUMMARY

This study focuses on a tool developed as part of the VivaCity2020 project, a consortium within the Sustainable Urban Environment programme. VivaCity2020 received £2.75M from the EPSRC (the Engineering and Physical Sciences Research Council) in 2003 for a five-year programme of research to develop an in-depth understanding of human behaviour in urban environments and to create new practical resources to support urban design professionals with sustainable decision-making.

Through innovative and interdisciplinary research a toolkit of resources was developed that can be used by planners and developers to navigate urban sustainability issues. The toolkit encourages decision-makers to think about sustainability in a user-centred, holistic way, identifying overlaps and trade-offs as the drivers of decision-making. The success story presented here is that of a 3D visualisation tool developed at Salford University by Professor Terrence Fernando and his team. It was initially used in work with the Black Country Consortium (BCC) urban regeneration project and resulted in an application for £50M of lottery funding which, although unsuccessful, paved the way for the tool being used in the *Life Chances* pilot in Salford to aid the Local Authority and key service providers in enabling holistic visualisation of localised service provision needs.

The use of advocacy, translation and networking have been key to further application of the tool in real-world situations, and the relationship with Salford City Council and other public service providers has developed into an on-going collaboration; in fact Salford University and the Salford Strategic Partnership have made joint submissions for funding in order to continue development of the application.

Terrence Fernando has launched a spin-out company to market the tool which itself enables knowledge exchange; various and disparate data is visualised spatially, enabling the different partners to view each others data and identify connections between data in a new, holistic way.

1 INTRODUCTION

VivaCity2020 was a university-led research consortium, comprised of Lancaster University the University of Salford, University College London, London Metropolitan University, and the University of Sheffield, along with over 100 partner organisations. VivaCity2020 received £2.75M from the EPSRC (the Engineering and Physical Sciences Research Council) in 2003 for a five-year programme of research to develop an in-depth understanding of human behaviour in urban environments and to create new practical resources to support urban design professionals with sustainable decision-making. The aim of the VivaCity2020 programme was to understand the trade-offs made every day by city dwellers and city developers and their need for accurate and relevant information which is often quite difficult to access, if it exists at all (VivaCity2020, 2011).

Through innovative and interdisciplinary research, the VivaCity2020 project developed a toolkit of resources that can be used by planners and developers to navigate urban sustainability issues.

'*The toolkit addresses sustainability issues by encouraging decision-makers to think about sustainability in a user-centred, holistic way, identifying overlaps and trade-offs as the drivers of decision-making'* (VivaCity2020, 2011).

The tools and resources developed address issues of crime, economic vitality, social exclusion, the environment and the quality of urban life. The 3D visualisation tool developed at Salford University by Professor Terrence Fernando and his team is an example of one of these tools developed to aid this decision-making process.

2 SUCCESS STORY – URBAN REGENERATION 3D VISUALISATION TOOL

The visualization tool creates a virtual environment using different technologies such as aerial photographs and master maps to create a spatial view of a city, Figure 1. The social challenges in particular areas can then be highlighted or overlaid and the impacts of future developments visualised. It differs from Geographic Information System (GIS) tools that often used for 2D and 3D mapping of data and which require proficiency in using the tool and an understanding of the imagery involved. In comparison, the Vivacity2020 3D visualisation tool is accessible; it was taken into a community centre and allowed people to use their local knowledge and stimulated debate about the development of the area. This initial engagement with the Black Country Consortium (BCC, 2011) enabled Fernando to test out how this virtual technology could be used to support their urban regeneration programme.

As part of the regeneration and planning process of a waterfront and town centre area, the tool was used to show local people how development over the next 10 years would impact on their lives and bring wealth, skills and job opportunities to the area. As part of next phase architects' models were imported into the visualisation to enrich the story and communicate their ambitions and plans to the BCC stakeholders. This representation was also taken to Cannes to the annual property developers' conference, MIPIM 2005, to raise awareness and encourage investment.

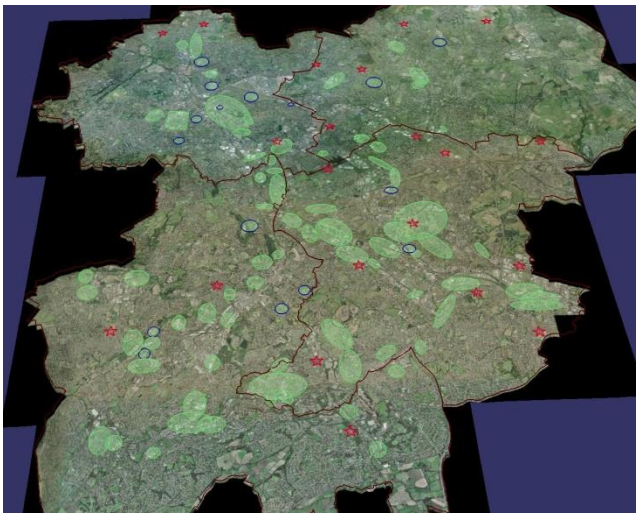

Figure 1: Bird's Eye View of the Virtual Black Country.

The collaboration also led to an application for lottery funds based around a £50M canal regeneration and tourist centre project. Although ultimately this project was not funded and the BCC moved on to other projects, the bid succeeded in making it through to the final stage against stiff competition. During his engagement with the BCC Fernando encountered a champion within the consortium, Ian Everall, who '*speaks a different language, the language of the people who are doing the social transformation'* (Fernando, 2010). The resulting translational role undertaken by Everall was an important component in the success of this application of the tool. Fernando provided the technical dimension and they became a 'double act' (Fernando, 2010).

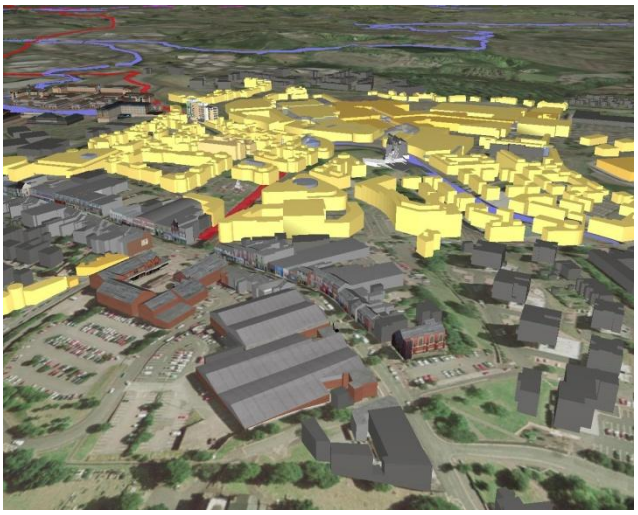

Figure 2: Visualisation of Multiple Agendas for the Black Country Consortium.

The work undertaken with the BCC enabled a demonstration to Salford City Council of what the technology could achieve, Figure 2. This connection was made through a somewhat convoluted route. Neil Watts is responsible for coordinating *Research Intelligence* (RI) across Salford City Council and its partner organisations. He was developing an 'observatory' across this partnership to act as a central depository for key intelligence that employees could access as they wished. The Vice Chancellor of Salford University, Martin Hall, was keen to strengthen the relationship between the university and the city, and put Watts in touch with Chris Guthrie, Project Manager for Community

Engagement at Salford University, to see how Salford University could contribute to the development of the 'observatory'.

After some initial work with the Council, Guthrie introduced Watts to the *Think Lab* and put him in touch with Fernando. The *Think Lab* is a University-owned innovation space, which enabled Fernando's team to showcase their state of the art technology (Think Lab, 2011). This space was employed in the initial engagement with the BCC (and Ian Everall).

Following the demonstration of the visualisation tool to Salford City Council there was strong further engagement with the Council because of their real need. The key driver was the desire of the city council to promote service delivery targeted by specific localities, rather than following the traditional approach of providing the same service uniformly across the city.

CASE STUDY - Greater Manchester Life Chances pilot

The Greater Manchester *Life Chances* pilot (2010) is designed to tackle the economic, social and financial challenges presented by the many areas of high deprivation in the City Region. A major emphasis of this work is to establish new models of partnership delivery and improve outcomes whilst delivering efficiencies in the most challenging areas. There are three pilot areas within Salford, Little Hulton, Winton and a joint cross boundary pilot with Manchester in the Higher Broughton/Cheetham Hill area. The pilot has led to the development of a 'Place Board' at Local Authority level, led by the Local Authority Chief Executive, Barbara Spicer; this convenes senior members of all key public services and organisations at Local Authority level in a group that can take ownership of the pilots, including the Chief Superintendent of the police, Chief Executive of the NHS, etc.

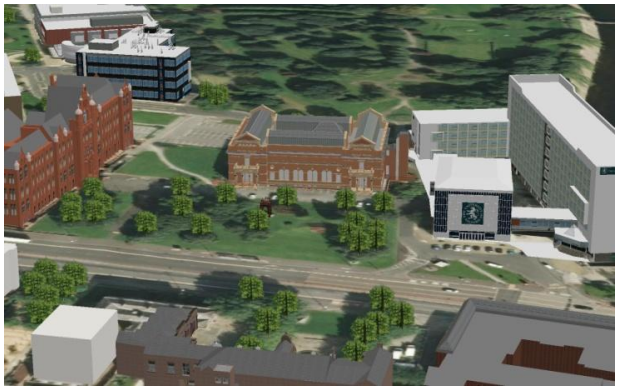

Figure 3a: Bird's Eye View of Virtual Salford Model; Figure 3b: Street view of Virtual Salford Model

The technology was demonstrated to this high level Place Board and was greeted with real enthusiasm, Figure 3a. Fernando put together a 3D model with overlaid data from the Little Hulton site as part of a visually effective presentation to the Place Board. This led to further development of the tool, focussing in at an even lower level, street level, Figure 3b; then the tool can map police service use, ambulance call outs, how much is being spent within a particular street on services, etc. Connections could be identified between the available data when it is mapped in this way and hence attempts may be made to solve the problems causing these demands on services, Figures 4 and 5.

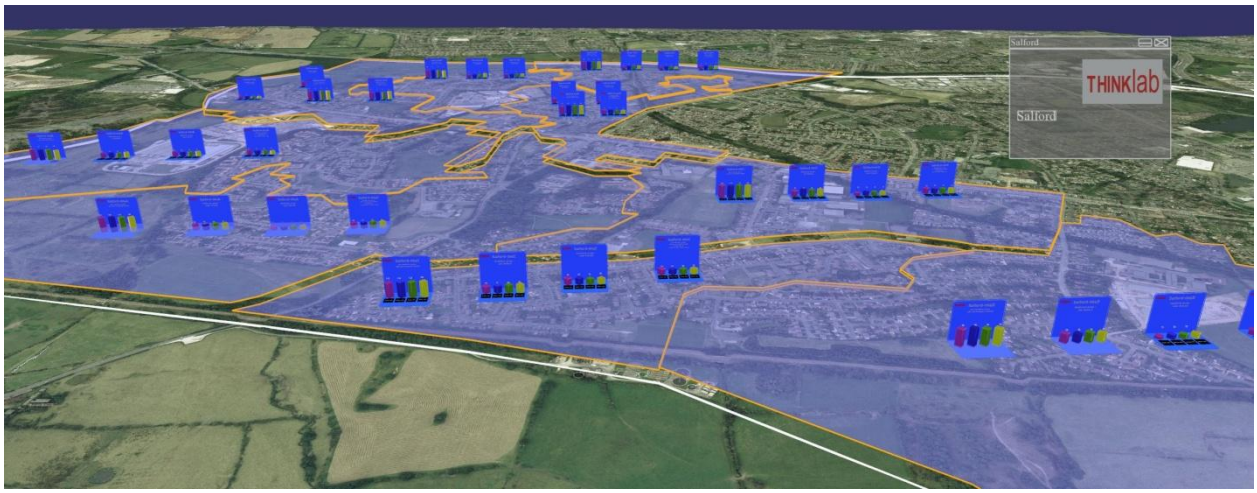

Figure 4: Visualisation of Performance Indicators in Salford

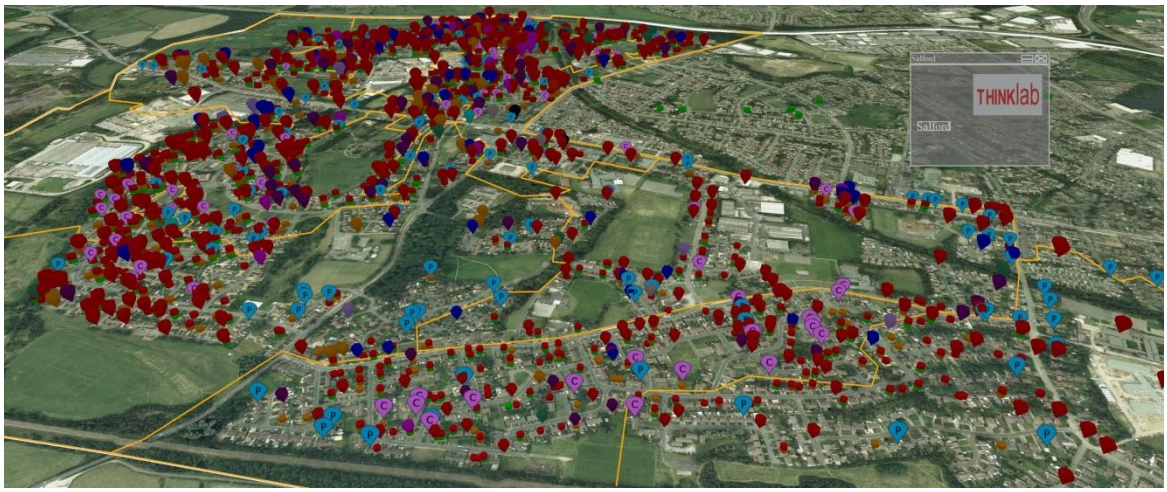

Figure 5: Visualisation of Social Data

There has been strong pull-through by the end-users, the tool is changing because of their requirements and they are co-creating the next level of the tool. The relationship has developed further and Salford University and the Salford Strategic Partnership have made joint submissions for funding in order to continue their collaboration.

3 DISSEMINATION PROCESS

3.1 Pathways – Personal connections and alignment of interests

Networking and finding connections were the key factors in the development and use of the 3D visualisation tool developed by Vivacity2020. This includes the champion and 'translator' from the BCC, Ian Everall, who although he has since left the BCC, continues to engage with Fernando and advocate use of the tool.

The pathway to the Place Board and the Life Chances pilot involved the desire of Salford City Council to manage its knowledge effectively and use existing evidence by creating Neil Watts' role in Research Intelligence; the advocacy of the Vice Principal, Martin Hall, who wanted to see the University engage with its own locality; the role of Chris Guthrie interfacing between the University and the Community, through to Terrence Fernando. Fernando's willingness to modify the visualisation tool and add new types of data for the

application of the end-user was also important, this flexibility allowed the Partnership to see the potential of the tool.

Also of key importance in this pathway to engagement was the physical space available at the University to demonstrate state-of-the-art technologies and allow potential users to interact with the tools. The *Think Lab* was instrumental in effecting the initial engagement in both the collaboration with the BCC and with the Life Chances pilot.

3.2 Drivers

One of the key drivers to initiating involvement with the Life Chances pilot was the focus within the LAs, and connected partner organisations, on tailoring service delivery according to locality. The tool allowed the partnership to pull together their various data and identify key issues within these areas and then, as partner organisations, work together to handle these issues. The need to do this arises from the search for better ways to deliver more joined up services to local people, particularly in view of both budget reductions and public sector reform.

3.3 Barriers

The experience of Neil Watts, of Salford City Council, was that it was very difficult to reach the most appropriate person at academic institutes. His perception was that academics were very focussed on their own faculties and schools. However, once contact had been made with Fernando this changed, he was very keen to get them on board. Watts would recommend Universities to open up more and make themselves and their research more accessible. However, conversely, it may also be the case that the City Council needs to be more outward looking and utilise the potential of the University. He had had no previous awareness of the research undertaken at the University but is now very aware of the massive resource of expertise available there and the opportunities for LAs to utilise this within their projects (Watts, 2010). Thus both the limited accessibility of research and researchers, and the insularity of the academic and local government sectors proved to be initial barriers.

Finally, Everall also cited a disconnect between academic and end user practices and believes that academics need to be more aware of the needs of the end-user and how to best engage with them. One barrier is the time limit to get buy-in from the practitioner, '*if they cannot see the point of the research within 15 min. then the opportunity has been lost*' (Everall, 2010). There is a need for academics to be aware of the risk the practitioner would take in engaging with unproven research; it is a challenge to '*pinpoint what's in it for them'* and clearly demonstrate the advantage to the practitioner (Everall, 2010). To achieve this win-win situation the academic needs to find an application for their research that fits the practitioner's needs. Awareness is needed that in these partnerships and relationships the people involved have different priorities (Everall, 2010).

4 IMPACT

The Local Authority Partnership had lots of data available in disparate sources such as tables, reports etc. with no effective way of linking these up. The power of the tool lies in its ability to make connections between this data and present it in a visual, street-by-street way. This is the key benefit of the technology: the Partnership has the data, Fernando has the tool and joining the two together has enabled better presentation of

this data to decision-makers, enabling them to use it for planning service delivery and future policy and strategy.

There has been strong pull-through by the end-users and the tool is changing because of their requirements: they are co-creating the next level of the tool. This demand-pull model of knowledge exchange describes the situation where end-users shape research ideas through their own demands and involvement (Landry, et al., 2001, Weiss, 1979).

In addition there is now higher visibility, both within the City Council and the other public service providers of the partnership, of what the University can offer. The key was to make contacts and build relationships and Martin Hall (Vice-Chancellor of Salford University) has been keen to develop this further; once communication has been instigated these networks enable information exchange and the potential for further collaboration (Watts, 2010). The relationship has developed to the point where Salford University and the Salford Strategic Partnership have made joint submissions for funding to enable their collaboration to continue.

A further outcome of the SUE funding and the development of the tool is that Fernando is setting up a spin-out company based around the 3D visualisation tool. Initially this will provide use of the tool as a service and the ultimate goal is to reach the point where it may be sold as a stand-alone product.

5 CONCLUSIONS

The willingness of Fernando to engage with end-users and adapt the tool to suit their application is one key to success. For researchers, this willingness to adapt outputs to practitioner needs can be crucial to achieving impact, although it may mean spending more time considering how to transfer the knowledge to practical applications (Beckmann, 2011). This study also demonstrates that it may take time to reach the decision-makers and that these connections may not follow a direct path.

The on-going involvement of Everall as an advocate and translator was also a vital part of achieving impact. Interaction with practitioners is strengthened by identifying a credible advocate who is interested in accessing research knowledge and who has the legitimacy to take it into the heart of decision-making circles (Beckmann, 2011). Everall had an understanding of the practitioners' viewpoint such as the need to recognise the risk they take in engaging with research and the need to find an application that fits their needs (Everall, 2010). It is important to understand why a practitioner may be interested in working with a researcher and what they hope to gain from it (Beckmann, 2011). In this sense Watts also became an advocate.

From the practitioners' side, the initial engagement by Watts with the University and his persistence in finding the right contacts was vital. Similarly the enthusiasm of the Place Board members and their pull-through of the research to meet their needs was essential. Once areas of shared interest are revealed, opportunities for further collaboration open up (Beckmann, 2011). The overall impact of this work goes beyond the development of the tool itself. New networks have been built between Salford University and public service providers which, if maintained, will enable fruitful collaborations and the application of research in the future.

It was also valuable for the end-users to be able to interact with these new and innovative tools at the stage of initial engagement. The physical space available at the University, the *Think Lab*, allows researchers to demonstrate state-of-the-art

technologies to potential users. This was instrumental in effecting the initial engagement in both the collaboration with the BCC and with the Life Chances pilot.

A spin-out company to market this tool is an excellent outcome for the VivaCity2020 project and subsequent applications of the tool. It is appropriate that the tool itself, by its very nature, enables knowledge exchange; various and disparate data is visualised spatially, enabling the different partners to view each others data in a new, holistic way.

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