CITY DATA SLAM

ABOUT CARBON ARTS

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CITY DATA SLAM

FOREWORD

SENSING SYDNEY ADDRESS

Cr Jenny Green

We now collect huge amounts of data — about energy and water usage, about waste and about the various programs we have like green roofs and car sharing. It's vital information, and we duly publish it on our website and in regular reports. But frankly, it's hard to get people interested or excited by it. So this is where artists come in.

For the City Data Slam we asked twelve artists to bring the figures to life in ways that illuminate and celebrate our collective efforts to deal with environmental challenges. The City Data Slam at ISEA 2013 has been one giant jam session, with the brief to turn boring data into beautiful art.

It's about finding ways to engage people, to make them care, to show how all those tiny, almost invisible actions can actually amount to significant changes in our world. Artists can play a key role here, opening our minds to new possibilities, as recognised in our recently released Creative City discussion paper.

The City of Sydney was delighted to have joined with ISEA 2013, with Carbon Arts and Object Gallery to launch Sensing Sydney, a project to communicate sustainability through the arts, open data and public space.

I'd like to thank all of the participants in the City Data Slam and indeed, in this international symposium of electronic arts. Artists really do make a difference.

Jenny Green is an Independent Team Councillor with the City of Sydney.
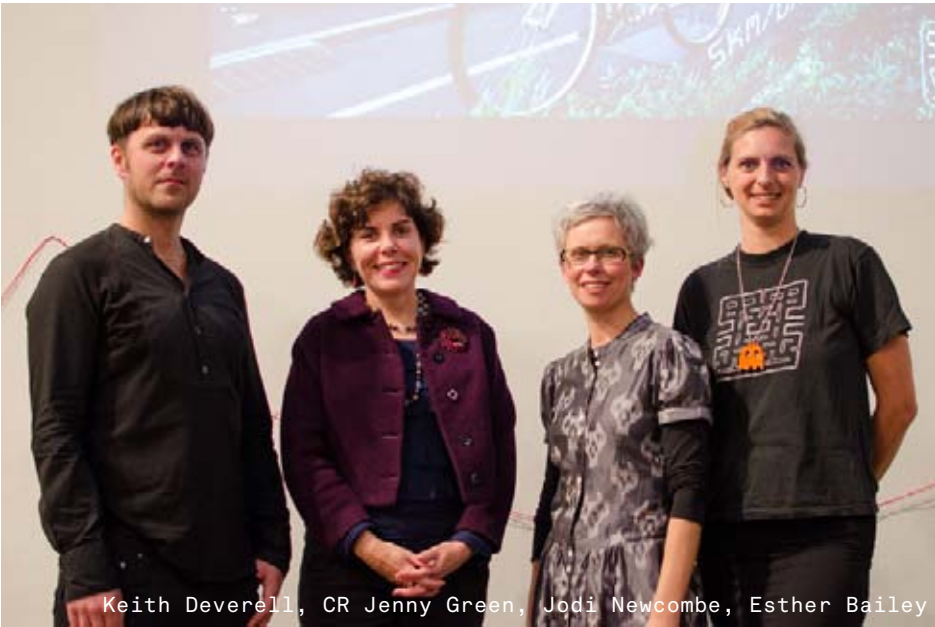
Keith Deverell, CR Jenny Green, Jodi Newcombe, Esther Bailey

ARTISTS REALLY DO MAKE A DIFFERENCE.

Cr Jenny Green

INTRODUCTION

Jodi Newcombe

Hack days or 'hackathons' are events that bring together people from diverse backgrounds to create something new for a short space of time. They are essentially creative events designed to create new projects that aim to solve common or shared problems. This is the model of the City Data Slam. What set this event apart from your average hackathon was its focus on tackling the challenge of communicating sustainability via the arts.

City Data Slam is a key component of the City of Sydney and Carbon Arts' project 'Sensing Sydney: communicating sustainability through the arts, open data and public space'. The Sensing Sydney project explored different pathways for creative use of data and technology to engage the public in an active dialogue on environmental issues and citizen-engaged action, and culminated in a public art commission produced as part of Art & About Sydney in September - October 2013.

Data representation, an emerging new medium for artistic expression, has the potential to fundamentally challenge the way we view, and interact with, the world around us. Data providers such as the City of Sydney, The Climate Institute, the Museum of Contemporary Art and Buildings Alive came together to provide data for invited Australian and international digital artists to use as creative material. The Data Slam coincided with ISEA2013 (the International Symposium of Electronic Art), as well as the announcement of the winner of a new public art commission for Sensing Sydney.

UK-based artist and entrepreneur Usman Haque, creator of the Xively open data platform and advisor to the Sensing Sydney project was invited to be the Data Slam facilitator. For Haque, it's not just about making the data public, it's about engaging the public in making the data, as this leads to a greater sense of engagement and responsibility for what's being measured. The wealth of strategies deployed by artists during the Slam – from citizen science to speculative design and exploratory data visualisation - brings fresh perspective to engage stakeholders in the journey towards sustainable urban living in Sydney and globally.

This publication presents the results of the City Data Slam drawing on materials gathered and developed during the three-day event, including interviews, articles and recordings prepared by Jason McDermott, Thomas Bristow

WHAT SET THIS EVENT APART FROM YOUR AVERAGE HACKATHON WAS ITS FOCUS ON TACKLING SUSTAINABILITY VIA THE ARTS.

Jodi Newcombe

and Zacha Rosen. A post-event evaluation survey sent to all event participants feeds into an evaluation of the project, and recommendations for next steps, in particular a call for the City Data Slam to become a regular event in the City's calendar.

This is one of two publications reporting back on the experience of the Sensing Sydney project. The second publication focuses on the winning Sensing Sydney public art commission, Building Run, by artist Keith Deverell. Together these publications seek to assist the City of Sydney in understanding the outcomes of the project, and guide in the development of similar initiatives of this nature.

Jodi Newcombe is the Director of Carbon Arts.

INVITED COMMENTARY

RETHINKING ARTS AND 'OPEN DATA' AS SOCIAL DIMENSIONS TO ENVIRONMENTAL INTELLIGENCE

Thomas Bristow

City councils are getting smart to the idea that our relationship to the world is partly determined by how we construct the world in our imaginations. Progressive cities of the 21st century are alive to the cultural advantages that can spring from creative channeling of public funds into community engagement.

The challenge that the City Data Slam in Sydney presented to artists was to make flat and uninspiring data – drawn from a variety of council databases - meaningful. The council was looking for new ways to enthuse, amuse and inspire the public to keep them on a long journey. Eight projects were established at the data slam by different artist teams and facilitators.

While these projects demonstrate the capacity for collectivised artistic practice, they also clarify a number of issues that governments and councils could keep in mind when considering the question of system feedback. Ordinary infrastructure can become green infrastructure if it is designed for environmental intelligence reporting.

Moreover, better community engagement can arise from consideration of the following 'data slam' findings: (i) vital data is often hidden, illegible, or insensible; data is often lost in labyrinthine websites; data needs to be released and expressed in the public domain; (ii) to make data more tangible and environmentally literate, the question of 'place' and 'community' can be understood as triggers to incentivise sustainable behaviour.

How we identify scales of positive cooperation by creatively interpreting data sources is key to understanding how we identify with communities, how we share space and share destiny. This is the touchstone for moving from data to intelligence, to move from numbers to narratives. It is also central to the move from local to global scales of perception as a means to engage communities and create contexts for environmental behaviour change, placemaking, and connections with governments and politics. The Carbon Arts 'data slam' offered guided narratives with freedom to explore the consolidated and freshly aggregated data sets. Such ethical treatment of publically owned and yet inaccessible information could be read as one aspect of 'open data'.

Thomas Bristow & Jason McDermott

Two philosophical points became apparent during conversations held at the slam: (i) data is not an end in itself, it is an artefact that performs a mediating role between stakeholders; (ii) data can be represented in two forms: explanatory and exploratory. The first creates a narrative to behaviours behind the resultant findings as understood within the parameters of the project. The second encourages the extensive use of data, for it to be passed on to other interpreters and to remain alive and of use with distinct modes of inquiry.

At the Vivid Festival of Light, Music and Ideas, Jonathon Harris suggested that 'beautiful' data is not measurement but illumination. To illuminate is to be sensitive to context, to history; Harris: 'data is the memory of our evolving human super-organism.' While proactive councils are working to improve their monitoring systems, modes of measurement, and forms of benchmarking, progressive councils are thinking more expansively on ways in which they can incorporate the micro and the macro.

They are critically reflecting on the related processes of data collection and aesthetic representation of data. The next step is to identify limited emotional responses to absolute data, and to articulate the empowering capacity of open data sets charged by seasonal patterns.

HOW WE IDENTIFY SCALES OF POSITIVE COOPERATION BY CREATIVELY INTERPRETING DATA SOURCES IS KEY TO UNDERSTANDING HOW WE IDENTIFY WITH COMMUNITIES.

Thomas Bristow

Andrea Polli

Javier Candeira

The Carbon Arts data slam – a dynamic, innovative and engaging interpretation of static data – understood that there are many complexities to the idea that knowledge is created once the extraction of information from data becomes evident to the imagination and the senses.

Thomas Bristow is a writer and lecturer at the University of New England, NSW. His research brings together literature, philosophy and geography. Tom is published in The Australian Journal of Ecocriticism and Cultural Ecology, Green Letters: Studies in Ecocriticism, ISLE and Symbiosis, and is a member of the editorial board of PAN (Philosophy, Activism, Nature); he is President of ASLEC-ANZ. He was writer in residence for the Carbon Arts Sensing Sydney project, 15-16 June.

PROCESS+ PARTICIPATION

AGENDA

CITY DATA SLAM: 14-16 JUNE 2013
OBJECT GALLERY, SURRY HILLS

The City Data Slam took place over three days at Object Gallery in Sydney's Surry Hills. The event kicked off with a roundtable introducing data providers to data visualisation artists, and exploring the data sets on offer. At the end of the first two days, a reporting back session was held for participants to share their project developments and trouble-shoot across teams. On the final day, the public was invited in to see the results.

FRIDAY 14TH JUNE

9.00am-11.00am:	Introduction from Usman Haque
	Roundtable and Team Formation
	Data providers, domain experts and invited artists share their expectations and draft concepts for the Data Slam
	Teams are formed
11.00am - 4.30pm:	Data Slamming
4.30pm - 5.30pm:	Teams present progress, group critique and problem-solving

SATURDAY 15TH JUNE

9.00am - 4.30pm:	Data Slamming
4.30pm - 5.30pm:	Teams present progress, group critique and problem-solving.

SUNDAY 16TH JUNE

9.00am - 2.00pm:	Data Slamming
2.00pm-3.00pm:	Teams prepare for presentation
	Sensing Sydney Launch Event
3.00pm-5.00pm:	Guests arrive Welcome by Carbon Arts Presentations by Data Slam teams Announcement of Public Art Commission winner

THE WICKED PROBLEM

Usman Haque

To get the teams started Usman asked the data artists to work within a conceptual framework centred on dilemmas, rather than focusing on a particular problem like the choice between reusable and deposable coffee cups. Usman asked artists to discover the broader dilemmas underlying the problems.

- There is no definitive formulation of a wicked problem
- Wicked problems have no stopping rule.
- Solutions to wicked problems not true-or-false, but better/worse.
- No immediate & no ultimate test of a solution to a wicked problem.
- Every solution ~~operation"; be~~ ~~trial and erro~~

  - time is running out
  - the central authority needed to address it is weak or non-existent
  - those who cause the problem also seek to create a solution
  - and hyperbolic discounting occurs that pushes responses irrationally into the future

- Wicked problem exhaustively d is there a wel that may be in
- Every wicked p
- Every wicked problem can be considered to be a symptom of another problem.
- The existence of a discrepancy representing a wicked problem can be explained in numerous ways. The choice of explanation determines the nature of the problem's resolution.
- The planner has no right to be wrong (planners are liable for

Dilemmas in a General Theory of Planning, Rittel & Weber 1973

In the keynote that Julian Assange gave at this ISEA2013 Conference, he asked the uncomfortable question to artists: What are we actually doing as artists, are we doing anything that is important, that's serious? Later on, he spoke about trying live through your principles and through your principles expose your work. And that's what we're trying to achieve at the Data Slam. To do meaningful work that has the potential to truly affect the ways people live, work and love in cities.

The idea of the data hackathon is a quite common around the world these days, so we wanted to do something a little different. Because often what happens is you get a bunch of people in a room and you give them a data set and they're supposed to find some insight that the experts haven't been able to see yet. The problem with that is this kind of format is that you put so much emphasis on simply presenting and beautifying the data and so little emphasis on what were the problems that were posed when the data was captured. How was it captured? Why was it captured? What was not captured, what was excluded? You end up with a 24 hour solution that is nice and cute but not fundamental to anything lasting. In fact I don't know of any hackathon that

has contributed anything meaningful to how a city actually works. So we very intentionally wanted to do something different here. Which was to think more carefully about the complexity of the urban context. How we can act upon it in order to do something concrete about it?

- Step 1: Dilemmas?
- Step 2: Stakeholders?
- Step 3: Incentives?
- Step 4: Evidence?
- Step 5: Tools.

So I want to introduce this idea of wicked problems. This is a notion that comes from planning. It's this idea of problems that are so complex that you don't even know what the boundaries are. You don't know what is part of the problem and what is not. There's a more refined notion of a wicked problem that is a super wicked problem. This kind of problem comes about from the fact that, for example, the people that are trying to solve it are also causing it. It's not a cynical attempt to dismiss problems as too hard, but it's rather a way of acknowledging that we shouldn't be looking for simple one-dimensional solutions. I'll give you an example (from Evgeny Morozov's book 'To Save Everything Click Here'). When crime data is made public, what happens is that the crime data then negatively affects the property value of houses in the neighborhood. So people stop reporting crime. So the data is not what you think it is.

You need to understand the ramifications of making data open. You don't magically solve problems by making data open and inviting people to code around it. So at the outset of this Data Slam I propose a framework to tackle the issues that are confronting us. It starts off with the idea of not asking what is the problem, but...

What is the dilemma? What makes this problem really difficult to solve? Having identified the dilemma, the next step is to identify...

Who are the stakeholders involved? In other words, those who are somehow impacted by the dilemma or input to the dilemma. And then we need to ask...

What are the incentives that each stakeholder has to reverse what they're doing or to contribute to the solution of the dilemma? In most cases stakeholders will have radically different incentives to participate in solving the dilemma. The next question becomes...

What is the evidence that anything has actually been achieved? Evidence that the incentives provided have contributed to solving the dilemma. The final question is...

What are the tools that you can create that enable people to amass evidence to demonstrate that convinces them that the incentives are useful? It's not about the artists saying "here is the solution and necessarily we're all going to buy into it". Let's figure out how to involve people in convincing themselves that what they're doing is worth doing.

LET'S FIGURE OUT HOW TO INVOLVE PEOPLE IN CONVINCING THEMSELVES THAT WHAT THEY'RE DOING IS WORTH DOING.

Usman Haque

Usman Haque

Usman Haque is director of Umbrellium, a design studio which creates and commercialises participatory products and services that empower people to transform their cities. He is also the founder of Pachube (now known as xively. com), a real-time data infrastructure and community for the Internet of Things and former CEO of Connected Environments. Trained as an architect, he has created many prize-winning, responsive environments, interactive installations, digital interface devices and dozens of mass-participation initiatives.

ROUNDTABLE

INTRODUCING THE DATA AND DATA PROVIDERS

CITY OF SYDNEY
Esther Bailey

At the City of Sydney, we collect considerable data to measure how we're tracking against our 2030 sustainability goals. The findings are detailed in regular publicly available progress reports, but we like the idea of making data open source – that is, free, easy to get at and available to do with as you please. We think open data is a great platform for transparency, accountability and efficiency and it can stimulate a whole new level of innovation and active dialogue on environmental issues.

There are two main sources of data available for Sensing Sydney – our own historical and real time City of Sydney data, as well as information from some key organisations that were keen to get in on the act. This data was provided to participants at the City Data Slam and was offered to those applying for the Sensing Sydney public art commission to use in the development of their proposals for Art & About.

City of Sydney data

The City's sustainability data puts the spotlight on our own operations and what's happening within households and businesses in the city. Included in the mix are stats on household electricity use, our solar PV output, daily use of the City's car fleet and their resulting emissions, and even the City's paper usage. There is information on bike riders using the cycleway network, car share uptake, recycling stats, numbers of street trees and the demographics of our city dwellers.

Data was collated in large part from the City's Quarterly and Annual Environment reports with some additional partner sources. Further detail is provided below.

The City of Sydney compiled a spreadsheet offering diverse data sets from City of Sydney (CoS) and partner sources, relating variously to:

1. Overview of energy and emissions data relating to the whole of Sydney's local government area
2. City of Sydney council projects and environmental data describes initiatives designed to tackle Council operations impacts and to empower its communities
3. Performance of commercial office buildings across the City
4. Actions and data feeds from citizens and residents

The data was intended to prompt, inspire and provide context. Participants were also encouraged to bring their own data to the table to compliment this data set if they choose.

Futher detail

Local Government Area Data: includes a small snapshot of information for the whole of Sydney and its suburbs in the realms of waste, energy and emissions. The provided data from Kinesis.org includes a summary of energy and emission by suburb at 2006 and at 2030 based on business as usual and projected.

Council Emissions: contains a summary of the emissions related to Council operations and the offsets purchased to balance these. Also available online are State Government air quality data with regularly updated air quality readings.

Energy: contains the City of Sydney's own energy consumption data, LED street lighting installation data and the output data from the City of Sydney photovoltaic array.

Emissions: data directly related to the City's operations.

Transport Indicators: includes; emissions created by the council fleet, cycleways installed, vehicle growth, car share information and method of travel to work.

Housing Indicators: includes housing statistics -households by type, tenure and dwelling type. Data has been collected from the 2006 and 2011 Census data.

Landscape Indicators: includes; green roofs and walls, number of parks and number of trees planted in the City.

Social Sustainability includes: workshops and participants of Green Villages programs and the Green Living Centre. **Office**

Building Energy Consumption Data: 343 George Street includes the monthly peak, off-peak and shoulder energy consumption of a sample building from the CoS Building portfolio, 343 George Street between Feb 2012 - Jan 2013.

Also included is a snapshot of the daily energy consumption with 15 minute intervals. This building was selected for the simplicity of its metering system.

AT THE CITY OF SYDNEY WE THINK OPEN DATA IS A GREAT PLATFORM FOR TRANSPARENCY, ACCOUNTABILITY, EFFICIENCY AND INNOVATION.
        Esther Bailey

THE CLIMATE INSTITUTE
Garrett Stringer

Data Sets

Climate of the Nation – Market Research on Australian attitudes

- Full 2012 data set from Ipsos
- VoxPop videos on TCI 's Vimeo channel

About the report

Climate of the Nation 2012 aims to benchmark Australian attitudes to climate change, related policies and solutions in mid-2012. It is part of a continuing series of annual reports on the subject.

The report is based on research carried out in late May, a time of highly politicised debate that preceded the start of the carbon laws. This debate has been intensified by issues of honesty in politics and household expense fears. It has been compounded by a global economic slowdown, incorrect perception of international climate inaction and the ending of the Millennium Drought.

In short, this research finds that Australians are sick of the politics and scared about rising costs of living. They are uncertain about the science, unconvinced by carbon pricing solutions, but remain 'up for grabs' on both.

How these concerns mix with underlying values, views of prosperity and trust in messengers will determine the climate of the nation in coming months and years.

OFFICE OF ENVIRONMENT AND HERITAGE NSW DEPARTMENT OF PREMIER AND CABINET
Stephen Proctor

Datasets

Energy Efficiency for Small Business Program – Sydney Cafés and Restaurants

- Energy use and related electricity cost data for cafés and restaurants in the City of Sydney, broken down by use and equipment type (e.g. lighting, refrigeration, heating, hot water, motors, etc)
- Data on the assessments undertaken for a sample of businesses to identify cost effective energy efficiency investments.

In addition to this there is also information across the technologies that the participating businesses implemented.

About the program

Since January 2009 the Energy Efficiency for Small Business Program has helped over 17,600 SME's save a combined $12.8 million a year on energy bills. The Program provided participating businesses with a customised energy assessment (sample data provided) identifying where electricity is being used, a tailored action plan with electricity and cost saving recommendations and up to 4hrs of support to implement the recommendations.

Businesses implementing energy saving recommendations with greater than a 2 year payback period had access to $5,000 in matched funding to cover half the cost of implementing measures that improve energy efficiency. The program has led to the accumulation of a significant amount of rich energy data across all sectors for businesses consuming up to $50,000 in electricity use per annum.

BUILDINGS ALIVE
Craig Roussac

Data sets

- Building energy consumption data for a set of commercial office buildings in the Sydney CBD, provided in 15 minute intervals.
- Benchmarking of consumption data relative to the buildings' past performance and current weather conditions is also available.

About the company

Buildings Alive provides technical information and analysis to help optimise the performance of buildings. Participating businesses receive automated daily email messages conveying clear, timely and actionable energy performance information to building owners, operators and technicians. Complementing this automated message are sophisticated benchmarking tools and facilitated collaborative learning and knowledge sharing environments. Buildings Alive works with many of Australia's leading property owners, operators and technical specialists and currently provides services to almost 60 large CBD office buildings and shopping centres.

PARTICIPANTS

ARTISTS

TEGA BRAIN

Tega Brain's work explores the relationship between humans and the environment through the creation of experimental installations, situations and objects. From a background in environmental engineering, her practice is inherently interdisciplinary as it explores and rethinks issues of science and environmental engineering. She is interested in the creative and experimental use of technologies and works across a wide range of time based media, sculpture and installation. Tega was recently awarded a Creative Australia Fellowship from the Australia Council for the Arts, which recognise artists who have already made a significant contribution to Australian culture and to those that are taking an original approach to artistic practice.

JAVIER CANDEIRA

A Spaniard turned Melbournian, Javier builds objects to give interesting behaviour to public artworks and theatrical props, writes software to help people and companies automate their daily work, and teaches first year students at Monash University how to do all of the above. He also runs barrapunto.com, the Spanish language website on open source technology and civil rights in the digital realm.

KEITH DEVERELL

Keith Deverell is a Melbourne based video artist who also has a professional background in installation design and data visualisation. Keith's video installations have been installed in both the Melbourne Laneways Commission, 2009, and the Melbourne International Arts Festival, 2010. Keith's work has been acquired by the Singapore Art Museum (SAM) and exhibited in the Centre Pompidou. As a designer and programmer Keith was employed as a Associate Researcher at the Australian Centre for Interaction Design (ACID). Outside of his video work, Keith designs installations for exhibitions, such as for the NGV in Melbourne and Venice Biennial of Architecture.

ZINA KAYE

Zina is a practicing artist and co-founder of Holly −Sydney's first digital media agency, where she provides bespoke technical production for games, mobile platforms and other art-based gizmos. In 1999 Zina won grants from the MEDIA programme of the European Union and the Australia Council for the Arts for Observatine, a remote-controlled surveillance aircraft. In the same year she also had a major work at the Australian Centre for the Moving Image. Zina finds inspiration in "big engineering" such as space stations and her work often reflects on the systems that make these things go. She especially takes pleasure in constructing scapes and realities from data, observation and playful interface.


JON MCCORMACK

Jon McCormack is an electronic media artist and academic based in Melbourne, Australia. He is interested in the creative possibilities of computers and computation, in particular how computers can enhance our creativity. Jon's interests and research are relatively broad: philosophy, evolution, nature, visualisation, interaction design, software, sound, art and the moving image. Jon works at the Faculty of Information Technology, Monash University, where he is currently an ARC Australian Research Fellow and directs a small group of researchers at the Centre for Electronic Media Art.

GREG MORE

Greg More is also the founder of OOM Creative a design consultancy specialising in data visualization & digital design. He is also a Senior Lecturer at RMIT University, operating within RMIT's Spatial Information Architecture Laboratory (SIAL). His design work has been exhibited at Museum of Modern Art New York, selected for OneDotZero and Resfest International film festivals, and featured in a range of international architecture and design biennale and publications. In recent years. More has been researching, developing and teaching videogame technology for design and artistic purposes.
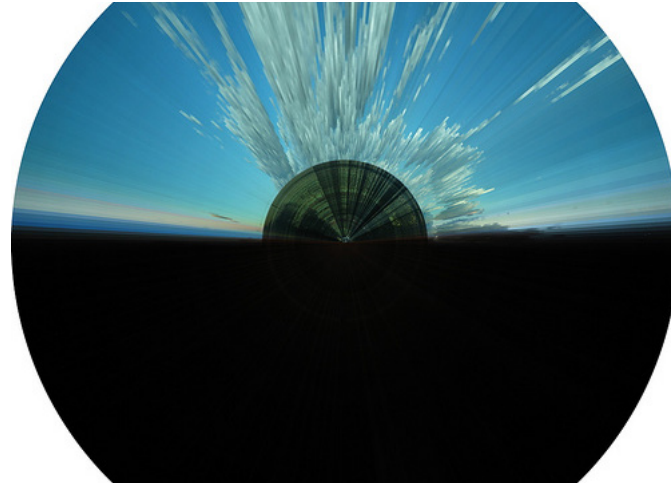
MR SNOW

Mr. Snow has built hundreds of art works, online projects and sculptures. His practice has spanned nearly 20 years and he has worked with robotics, data manipulation, visualisation, solar power and photography. His work has been shown in Australia and internationally was a long-time collaborator with RIX-C in Latvia. His work has been shown in Australia at Artspace, Dessert Equinox at Broken Hill and Quadrant at The Gunnery, Sydney Olympic Park. In addition to his work at Holly, Snow has strong involvement with a number of technically orientated communities, and has made works for GovHack and Apps4NSW.

MITCHELL WHITELAW

Mitchell Whitelaw is an academic, writer and practitioner with interests in new media art and culture, especially generative systems and data-aesthetics. His work has appeared in journals including Leonardo, Digital Creativity, Fibreculture, and Senses and Society. In 2004 his work on a-life art was published in the book Metacreation: Art and Artificial Life (MIT Press, 2004). His current work spans generative art and design, digital materiality, and data visualisation. He is currently an Associate Professor in the Faculty of Arts and Design at the University of Canberra, where he leads the Master of Digital Design.

GAVIN SADE

Dr Gavin Sade is a designer in the field of interactive computational media, with a background in music and sonology. He is currently the Head of Interactive and Visual Design in the Creative Industries Faculty at the Queensland University of Technology. Gavin holds a Bachelor of Music (Sonology) from the Queensland Conservatorium of Music, and a PhD in interactive media arts and sustainability. He has been creating interactive media systems and electronic art since 1990, and has exhibited numerous internationally at venues from Taipei and Singapore to Istanbul and Belfast. In 2003 he formed Kuuki, a creative media collective, and has since lead the production of a number of high profile electronic and large-scale public artworks. In 2011 Gavin won the QUT outstanding thesis award for his PhD. Gavin's research interests lie at the intersection of art, design and sustain-ability, with a focus on transdisciplinarity and creative practice-led research methods.

ANDREA POLLI

Andrea Polli is an artist working at the intersection of art, science and technology whose practice includes media installation, public interventions, curating and directing art and community projects and writing. She is Associate Professor Art & Ecology and Mesa Del Sol Endowed Chair of Digital Media at the University of Mexico, and Director of the University's Social Media Workgroup. Polli has been creating media and technology artworks related to environmental science issues since 1999, when she first began collaborating with atmospheric scientists on sound and data sonification projects. Among other organizations, she has worked with the NASA/Goddard Institute Climate Research Group in New York City, the National Center for Atmospheric Research and AirNow. She holds a doctorate in practice-led research from the University of Plymouth in the UK.

SMW WORKGROUP

Russell Bauer, Eric Geusz and Kellen Zelle (joining Andrea Polli) from the University of New Mexico's Social Media Workgroup SMW is an interdisciplinary university laboratory located at and supported by the Center for Advanced Research Computing investigating ethical design and media. SMW is an environment in which faculty, undergraduate and graduate students and outside experts work in interdisciplinary collaborative teams to design and develop a wide variety of media tools, assets and events including the large-scale projection work, Particle Falls visualizing real-time air quality in San Jose California, and E-Oculus, a permanent public work at the University of Utah.

DATA SLAMMING

Usman Haque & Javier Candeira

Russel Bauer & Eric Genz

Gavin Sade & Mitchell Whitelaw
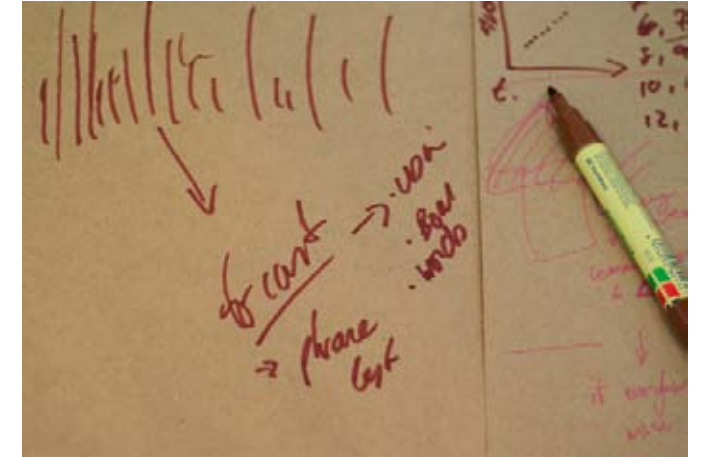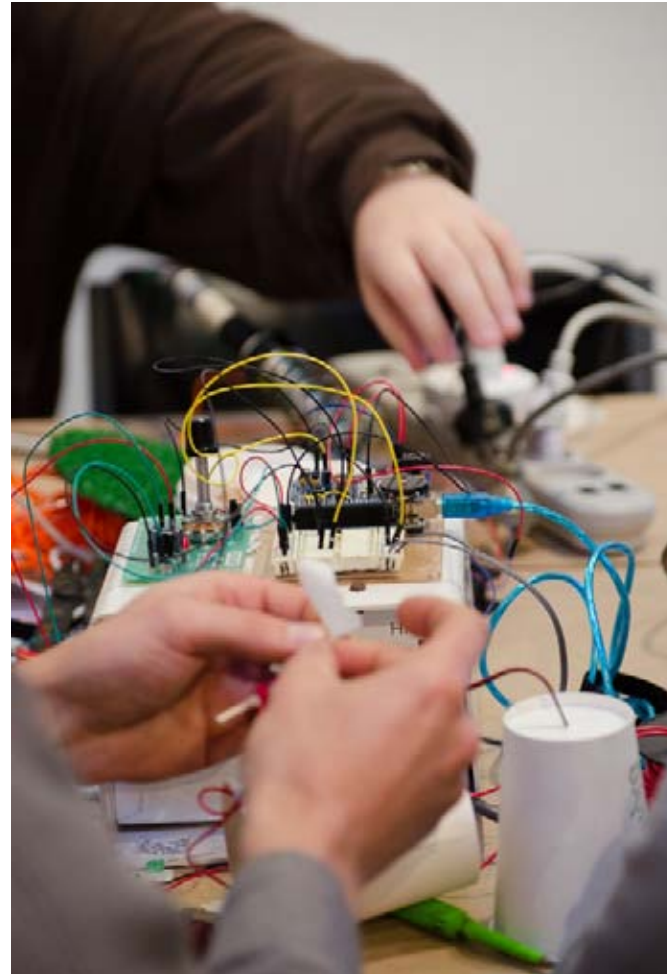
CITY DATA SLAM WAS A UNIQUE OPPORTUNITY TO SPEND SOME DEDICATED TIME ON THIS ISSUE OF DATA AND VISUALISATION IN THE COMPANY OF A VERY TALENTED GROUP OF INDIVIDUALS.

Tega Brain

Greg More & Jon McCormack

Andrea Polli
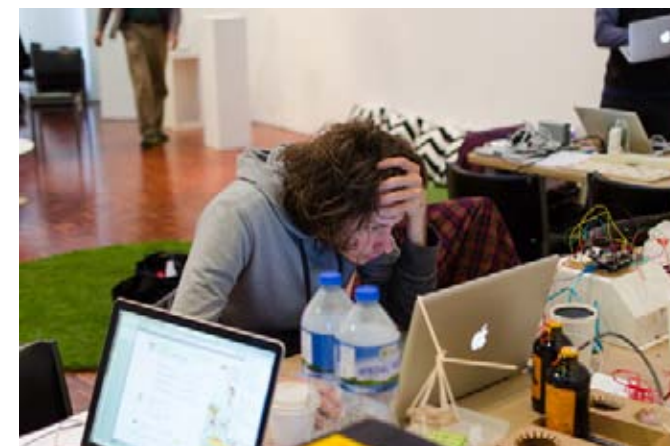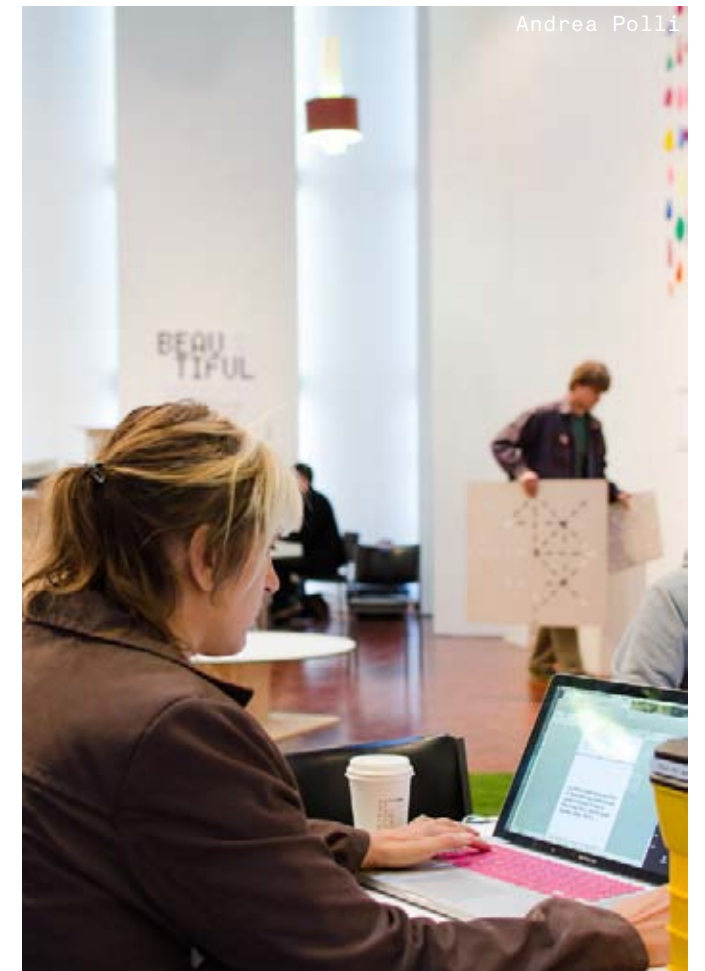
PRESENTATION

BRINGING THE SLAM TO THE PUBLIC

The Data Slam was listed in ISEA2013's program of events for attendees to participate in, as part of a team with the invited artists, or simply to watch the final day of presentations. In addition invitations were sent to Object Gallery's network and Carbon Arts' network of contacts. A handful of ISEA2013 delegates joined the teams on the first day and contributed to the idea development.

On the Sunday, the Object Gallery was packed with visitors, keen to see what the teams had come up with. Following the formal proceedings, guests were invited to stay for complimentary drinks marking this final day of the ISEA2013 festival.

Mitchell Whitelaw

Andrea Polli

Zena Kaye+Mr Snow

Greg More

Keith Deverell

Zacha Rosen

PRESENTATION FORMAT WAS GREAT AT THE END. ENTERTAINING AND ACCESSIBLE TO EVERYONE.

Greg More

Javier Candeira

Jenny Turpin

Garret Stringer

DATA SLAM
RESULTS

A DAY IN THE LIFE

WE WANTED TO CREATE SOME STRUCTURE, NOT TOO MUCH, BUT SOME CONSTRAINTS TO DRIVE CREATIVITY, SO CHALLENGED EACH PROJECT TO CONNECT TO AT LEAST ONE OTHER PROJECT.

Usman Haque

The City Data Slam projects ended up connecting to each other conceptually as 'a day in the life' of a data-smart, environmentally-engaged citizen, with one project presentation flowing into the next, as the day progresses.

We start with waking up and stepping into digitally enhanced clothing, hopping on the bike and entering into a smart cycling network, grabbing that low-carbon coffee and arriving into an office building where energy efficiency has become a competition played out through a video art installation. And so on... Let us take you on this journey.

07:00:00	**Waking Up** Activist Apparel Tega Brain & Gavin Sade
08:30:00	**On Ya Bike** Cycling 365 Mitchell Whitelaw
08:45:00	**Navigating Traffic** The Lycra Index Tega Brain & Gavin Sade
09:00:00	**Arrive At Work** Building Run Keith Deverell
10:00:00	**Caffeine** Coffee Wattsup Greg More & Jon Mccormack
12:30:00	**Lunch** Sucking Up Data Andrea Polli & Team
18:00:00	**Home** Water Recycling Zina Kaye & Mr Snow
20:00:00	**Tinkering** How to Publish Your Household's C02 Footprint for Geeky Fun and Societal Benefit Javier Candeira

ACTIVIST APPAREL

Tega Brain & Gavin Sade

A day in the life...

07:00:00

RISE AND SHINE!
TIME TO GET DRESSED… WHAT TO WEAR FOR MAXIMUM ENVIRONMENTAL HARMONY?

Data: Various speculative uses of data from predicted sea level rise, to heat island effect and building building energy footprints.

Dilemma: How do we bring humour and play to encourage engagement with serious data?

Activist Apparel launches a standout Autumn/Winter '13 collection at the City Data Slam. Presenting a range of speculative garments, the collection engages with future urban data streams, presenting them on a variety of different wearable platforms. This exciting new range proposes ways that information can be geolocated and displayed in public space by concerned citizens. The collection considers ways to develop a more nuanced and collective understanding of predicted changes to our urban environments.

Activist Hosiery shows the height of predicted sea level change in year 2100 at your location in the city assuming a business as usual approach to carbon emissions. Wearable LEDs light up along the leg to show predicted changes to our shorelines. Based on the same assumptions the Activst Brooch conveys this information by gripping the wearer tightly every time they cross the edge of this future shoreline. The Activist Umbrella changes colour to indicate the energy footprint of the buildings in its vicinity. It enables the curious wearer to assess the energy footprints of different buildings and streets in their locality. Finally, the Activist Socks give future urban heat island predictions based on the colour of embedded wearable LEDs.

This season data is the new black. In stores soon.

Activist Apparel

Wade.

Logging your location data and future sea level predications for the year 2100, this unique range of hosiery shows future water depths on a stylish ambient display.

Activist Apparel®

Drip.

Using your location data, this range of umbrella reveals the energy usage of the buildings around you. Stay dry and explore local electricity consumption data as you move across the city.

Activist Apparel

Grip.

Connecting you with your personal electricity data, this range of haptic jewellery grips tightly as you cross into an area likely to be below sea level if we all continue to consume this amount of electricity into the future.

Activist Apparel®

Stroll.

Update your smalls with socks that glow in the hottest parts of town. Explore your local urban heat island via the temperature display built into those socks.

Activist Apparel®
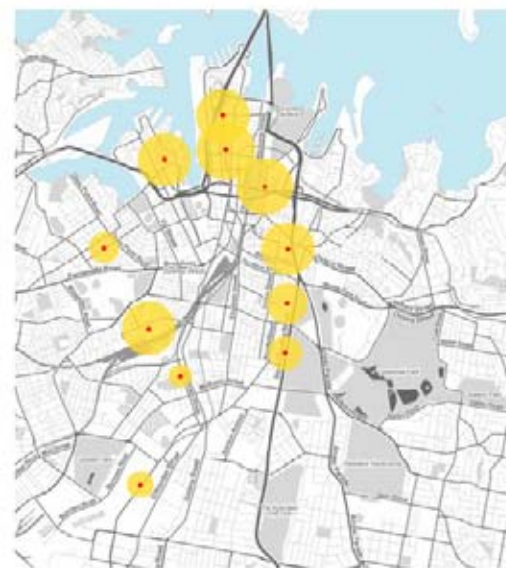
CYCLING 365

Mitchell Whitelaw

A day in the life...

08:30:00

ON YA BIKE!
CHECK THE CYCLING FORECAST BEFORE HITTING THE ROAD.

Data : Cycling speed data collected across the city of sydney cycle ways.
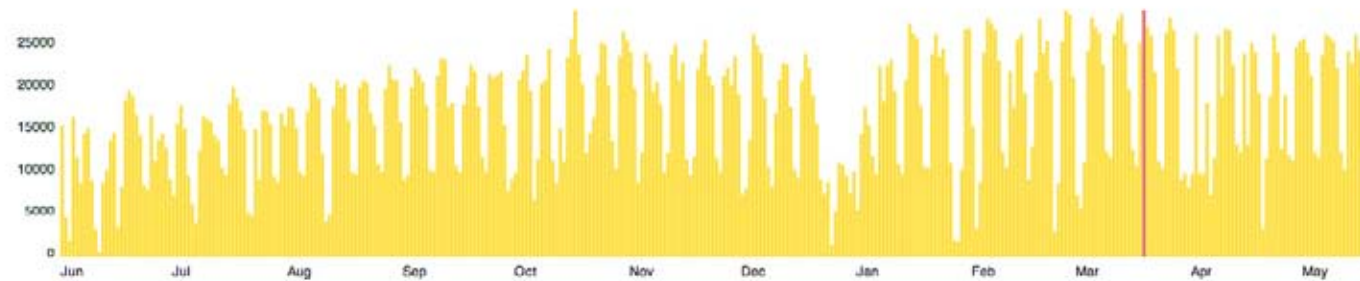
Dilemma: The social and cultural tension around cycling and cycle infrastructure.


All Stations

Tue Mar 19 2013

29451 riders

THIS IS NOT AN ARTWORK, IT'S
A FUNCTIONAL TOOL – A WAY OF
EXPOSING THE DATA SO PEOPLE CAN
EXPLORE IT. IT'S THE QUESTION OF
WHAT YOU DO WITH THIS TOOL THAT I
FIND INTERESTING.

Mitchell Whitelaw

Cycling 365 is a very simple visualisation tool for the public that shows cycling data across the whole network of Sydney's cycleways, through different lenses – geographic, time-based and so on. In investigating the data set, of the fine grain data is exposed in a rich way that reveals the patterns of data. One immediately notices the weekends when it's quieter, the weekday commuter peaks in the morning and afternoon, and the seasonal changes - such as no cycle traffic on Christmas day. It's also possible to drill down to different stations.
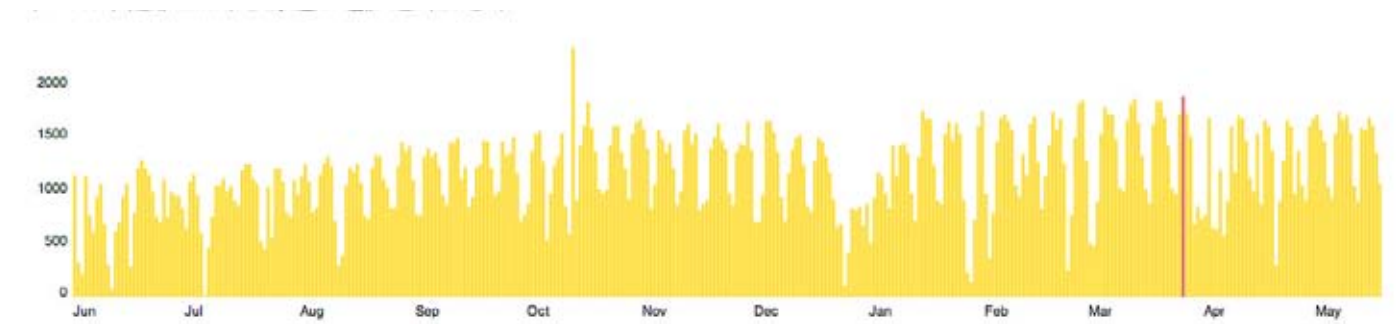
BASED ON MY OWN PRACTICE I DO HAVE SOME FAITH THAT DATA IS A USEFUL
ARTIFACT TO WORK WITH. IT'S A USEFUL MEDIATOR, A PLACE WHERE YOU CAN
GET TOGETHER AND TALK ABOUT THINGS. IT'S SOMETHING THAT EVERYONE CAN
POINT TO AND SPEAK TO.

Mitchell Whitelaw

One also discovers interesting anomalies, such as a huge spike in one location in October 2012. Further research reveals that there was a cycling festival on this day. It's not an error – it's real data. Whitelaw is particularly interested in these stories and how it's possible to reveal other data through this data. Overall, the tool tells the story of steady and continued growth in cycling. It speaks of pervasive use of cycle ways and of a groundswell.

In speaking with the City of Sydney cycleways staff, Whitelaw discovered the strongly adversarial nature of the debate around cycling in Sydney. This became the dilemma with this Data Slam project. While one might expect a comfortable, rational view that "of course everyone should cycle and the cycleways are fantastic", this actually ignores the existence of an incredible rage associated with cycling that is prevalent in a certain subset of the population.

One can't solve this dilemma by throwing data at it. The dilemma becomes, how do you represent the culture wars, the discourse, the hostility the defensiveness, how do you untie this? Why has the growth in cycling attracted such negativity when it clearly works for so many people? Whitelaw sees the tool he created as a way to start opening up that conversation.

Bourke St Surry Hills

Tue Mar 26 2013

1901 riders
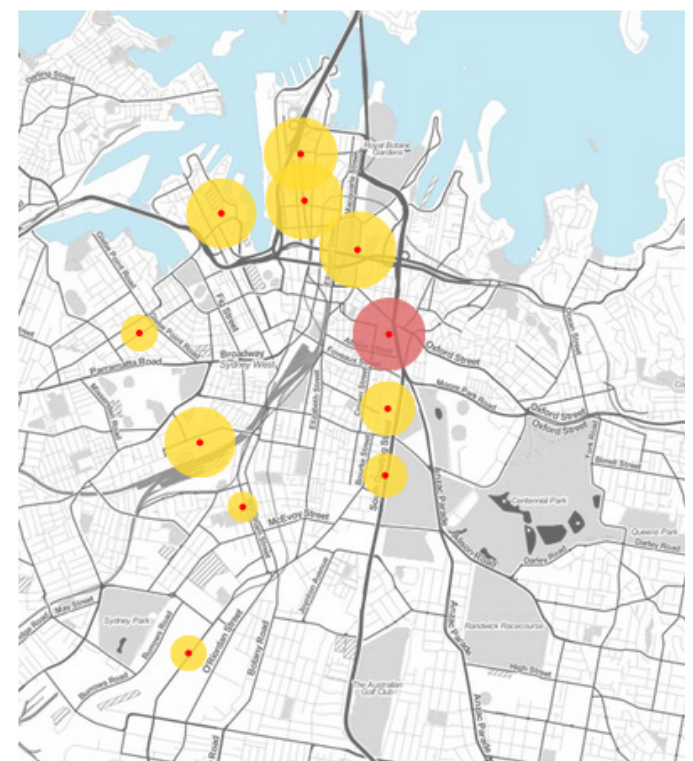
THE LYCRA INDEX
CYCLING SPEED MYTHS IN URBAN SYDNEY
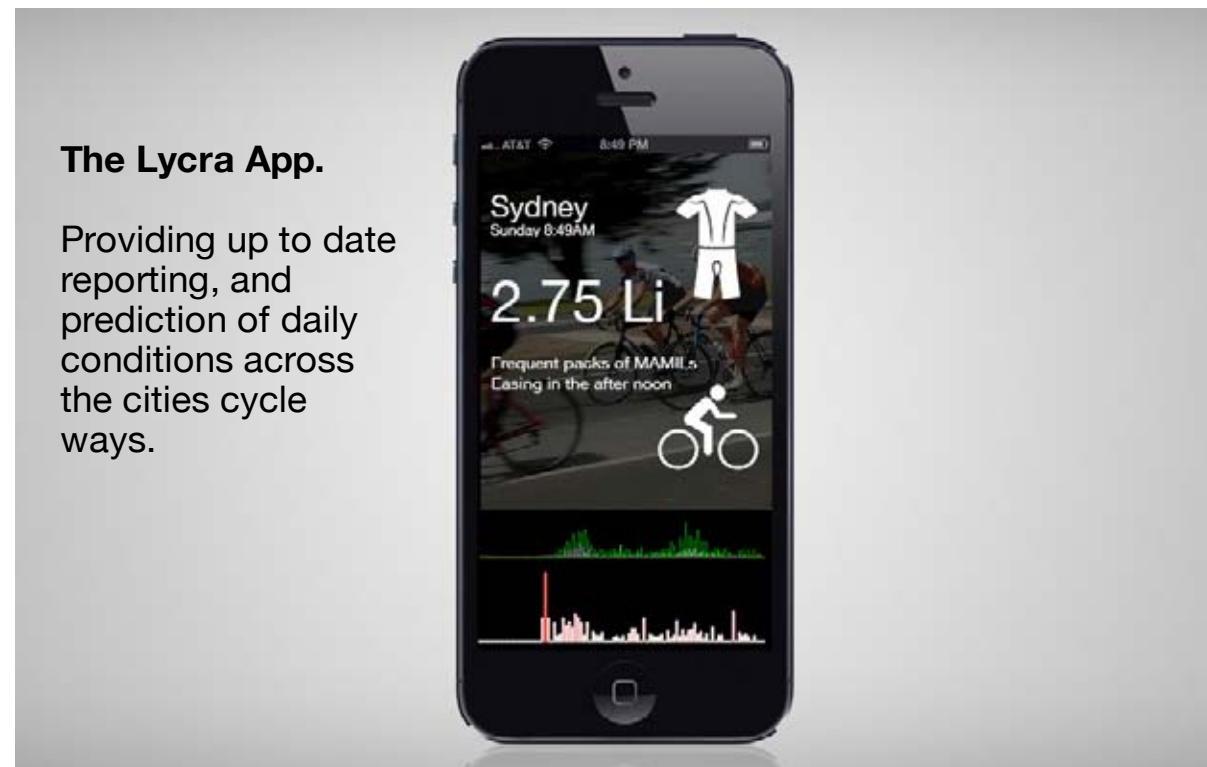Tega Brain & Gavin Sade

A day in the life...

08:45:00 NAVIGATING TRAFFIC: LYCRA INDEX LOW! DIFFUSE ROAD RAGE FOR A SAFER RIDE.

Data: Cycling speed data collected across the City of Sydney cycle ways.

Dilemma: How can we diffuse the controversy around Sydney's burgeoning cycle culture?

The Lycra App.

Providing up to date reporting, and prediction of daily conditions across the cities cycle ways.

BY DEMONSTRATING THAT TYPICAL CONDITIONS ON SYDNEY'S CYCLEWAYS ARE LOW SPEED, THE LYCRA INDEX REVEALS THAT ANXIETIES ASSOCIATED WITH CYCLING SPEED DO NOT REFLECT ACTUAL CONDITIONS ON THE CITY'S NEW CYCLEWAYS.

Tega Brain

Finally this project proposes that the Lycra Index predictions be publically displayed along Sydney cycleways in a public feedback experiment and to dispel misinformation about the risks of cycling in Sydney. By demonstrating that typical conditions on Sydney's cycleways are low speed, The Lycra Index reveals that anxieties associated with cycling speed do not reflect actual conditions on city's new cycleways.

The Lycra Index is a project that explores anxieties associated with cycling speeds in Sydney. It responds to the considerable media attention given to anti-cycling lobbyists in the wake of the construction of the Sydney's controversial cycle way network. The Lycra Index is calculated from speed data collected by the City of Sydney, data that they choose not to publicly release. This data is analysed to predict the ratio of lycra-clad, fast moving cyclists to slower moving casual cyclists in an attempt to forecast cycling conditions throughout the week.

The index is expressed using the familiar forecasting language of meteorological predictions. It also correlates the speed clocked by the sensor network to cycling sterotypes such as MAMILS (Middle-Aged-Men-In-Lycra) who tend to travel at the highest speeds. The Lycra Index was found to be highest during the morning peak hour with very low incidents of high cycling speeds being found during the weekend.
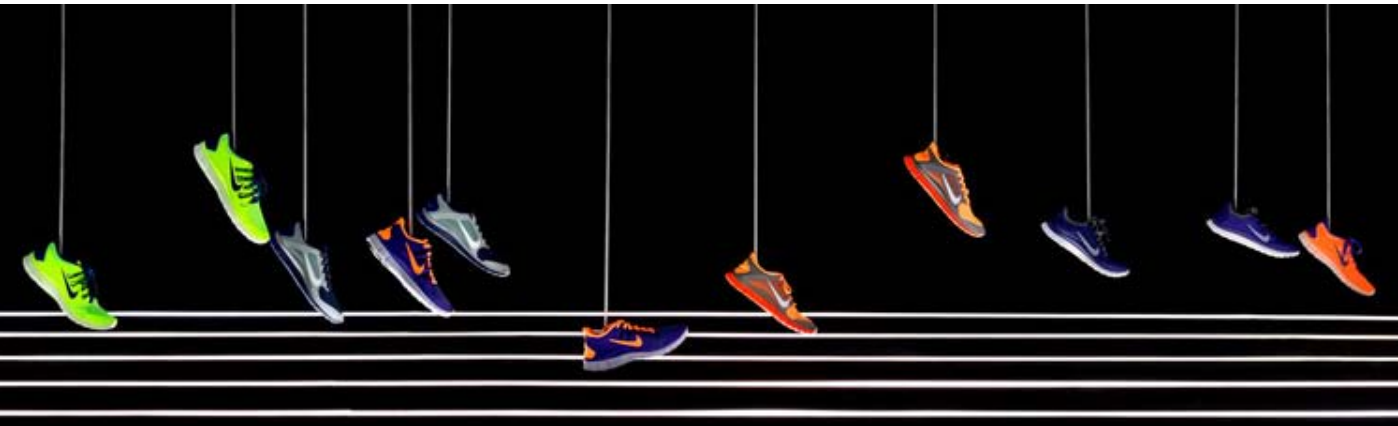
BUILDING RUN

Keith Deverell

A day in the life...

09:00:00

ARRIVE AT THE OFFICE. RACE FOR A LOW NUMBER.
THE BUILDING'S BEEN RUNNING HOURS BEFORE YOU ARRIVE AT WORK.

Data: Buildings alive data on city office buildings' real-time energy consumption.

Dilemma: How do we engage office workers in a greater appreciation of the energy efficiency of their buildings and spur them on to contribute their own efforts at saving energy?

In developing his proposal for Building Run, Deverell was interested in employing a visual language or social language as a way of approaching environmental issues. He chose the language of sport because there is a strong sport culture in Sydney, as well as a corporate culture of sport and fitness. This was particularly relevant as Building Run uses corporate buildings' energy consumption data and is placed within a corporate foyer. The key concept is about matching the real-time building energy consumption and mapping it as a race throughout the day. Building Run also explores the notion of humanising the buildings, and thinking about the human occupancy of buildings and how that affects the energy efficiency performance.

So, it's 9am in the morning, the racers are stretching and warming up, it's a kind of non-event. And then the race builds up to lunch time where people are flowing in and out of the buildings, and the runners are in full flow. At this point we see where all the buildings are positioned in the race. Throughout the day we see the different levels of exertion of the runners on the screens mapped to the energy consumption of the buildings – going from power walking, to running to exhaustion.


THROUGHOUT THE DAY WE SEE THE DIFFERENT LEVELS OF EXERTION OF THE RUNNERS ON THE SCREENS MAPPED TO THE ENERGY CONSUMPTION OF THE BUILDINGS – GOING FROM POWER WALKING, TO RUNNING TO EXHAUSTION.

Keith Deverell

The data allows us to predict the performance of each building relative to previous performance, so in the end each building is racing against itself. Using this idea of the line in the world record, each runner is trying to beat their personal best. The fact that the sports world loves statistics is very fitting to this project.

Now, it's the end of the day, and for those runners that don't achieve their personal best, they are a bit despondent. But it's ok because they get another chance. This relates well to the cyclical nature of building and corporate performance. Or, alternatively, they might have achieved a new personal best and so they wave to the crowd, receive flowers and are pretty happy. All these emotions are played out on the big screen, bringing the local office worker audience into a unique conversation about their contribution towards making their building greener.

34

35
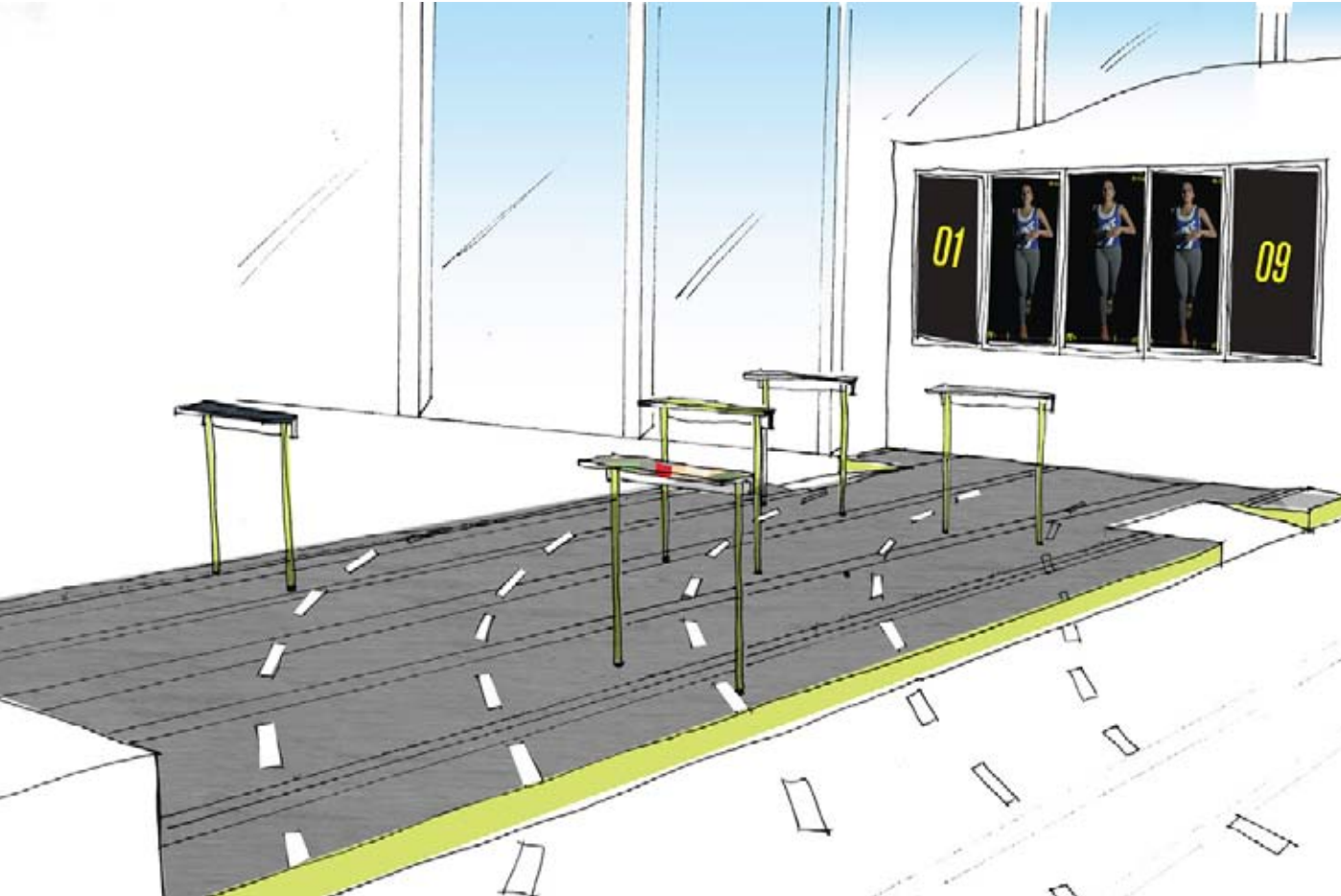
COFFEE WATTSUP

REDUCING SYDNEY'S CAFÉ ENERGY CONSUMPTION

Greg More & Jon McCormack

A day in the life...

10:00:00

GET SOME DATA WITH YOUR COFFEE!
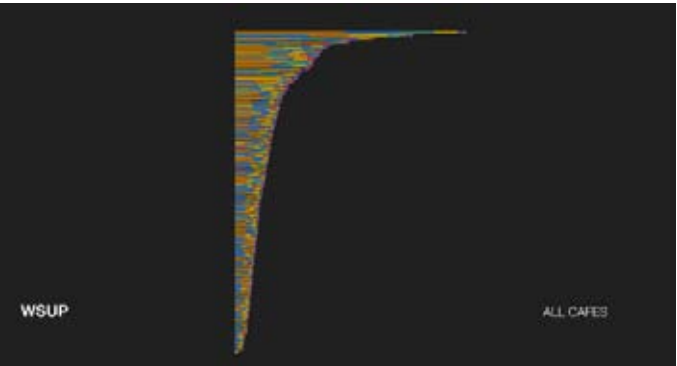FUELLING UP WITH MORE THAN CAFFEINE BEFORE THE START OF THE WORKING DAY.

Data: Raw data on energy consumption for every participating café in sydney from the nsw department of environment and heritage.

Dilemma: How do we take capture the conversational potential of café culture and inject conversation to drive more energy efficient choices?

WSUP
STREET INTERFACES

The question then becomes, how do you address this visualisation challenge at the urban scale? Can we create a network where cafés compare themselves with similar cafés? What if we colour stamp cafés on their exterior walls or on the coffee cups themselves? The aim is to bring it back to a cultural issue. To have the ability to look at the energy consumption in tangible ways enables people to start a conversation, leads to greater awareness and encourages cafés to continually improve performance and contribute to the ongoing dialogue.

WSUP
ALL CAFES

Kitchen
Refrigeration
Lighting
Boiler
Compressor
HVAC
Hotwater
Motor
Office
Shop
Other

WSUP
CAFE ENERGY DNA / KEY

THE DNA OF EACH CAFÉ SHOWS THE DIFFERENCE BETWEEN CAFÉS IN TERMS OF THE RELATIVE BURDEN OF EACH SOURCE OF ENERGY CONSUMPTION. IN THIS WAY IT'S POSSIBLE TO PRIORITISE EFFORTS FOCUSING ON ADDRESSING THE BIGGEST CONSUMERS FIRST.
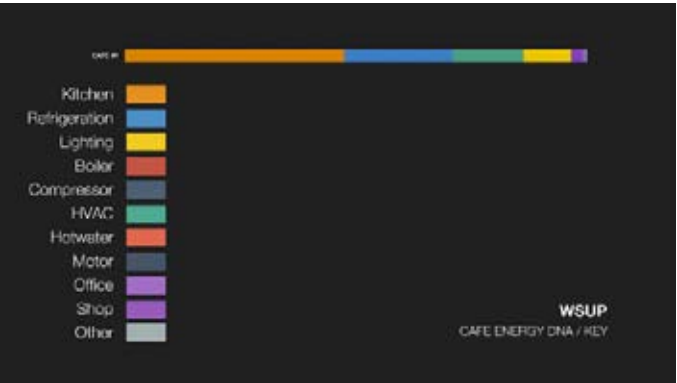
Greg More

The goal of this project was to look at energy consumption data in a way that would enable owners of cafés – and their visitors - to visualise where their energy consumption is going, in order for both to make more informed choices. McCormack and More were interested in allowing one café owner to compare their energy performance with other cafés in their area. They sketched ways to bring that data to people who buy coffee too, in order to encourage them to participate in driving a lower carbon footprint for the café industry.

The team investigated the data first by colouring coding similar appliances and energy uses, e.g. lighting and heating, in order to visualise where energy is going in each café. The DNA of each café shows the difference between cafés in terms of the relative burden of each source of energy consumption. In this way it's possible to prioritise efforts focusing on addressing the biggest consumers first. For example, it became quite obvious that it makes more sense to undertake a few changes in the highest energy consuming cafés than to focus on working with the bottom 100 cafés, in terms of reducing the total energy consumption in the city. It's also really easy quickly spot the outliers.

CAFE #23
Annual $13,000
Reduction   -$2,000
Ranking   +1

WSUP
URBAN NETWORK / INTERFACE
COMPARE CAFES THAT ARE SIMILAR

GNOME

MEDIA ART AND TECHNOLOGY TOOLKIT

Andrea Polli & SMW Team

A day in the life...

12:30:00
LUNCH. SUCKING UP INFO FROM AROUND TOWN
A MIDDAY BREAK TO EXPLORE THE POTENTIAL OF YOUR SURROUNDINGS.

Data:

1) Citizen generated local environmental data, including solar radiation potential, gathered through mobile devices.

2) Voice recordings collected at cafés on people's views about how to reach the sustainability vision for the city.

Dilemma: How do people engage with understanding the energy potentials in their immediate surroundings?

Geo-locative Networked Outdoor Monitoring Environment

The GNOME project explores ambient & social ways gather and express environmental information.

SMW Team Data Slamming

The core questions of the Social Media Workgroup are: What are the social and cultural effects of defining the natural and man-made environment as "information" space? What kinds of mobile, locative media and ubiquitous computing platforms can help users engage with their local environment and how can this practice connect and extend to communities globally?

The City Data Slam offered members of the SMW the opportunity to develop an experiment in real time, local environmental data gathering and response as an initial prototype for an ongoing project called GNOME: the Geo-locative Networked Outdoor Monitoring Environment. At the Data Slam the group was interested in the need for examining microclimates of buildings and communities and experimented with a number of sensors including light, temperature and motion in order to create a kind of 'slow' or ambient visualization that might be used for a feasibility study of a microclimate.

However, through interacting with other Data Slam participants, SMW found their interest and activity more focused on the social aspects of the environment, specifically the data gathering efforts centred around the local participating coffee shops. Therefore, the final prototype used the ubiquitous paper coffee cup as a playful interface device for recording and playing back public ideas about the 2030 Sustainable Sydney vision. Riffing on the lo-fi children's toy paper coffee cup telephone, the project allowed a kind of public 'shout out' or opinion gathering asking: "What will it take to reach the city's 'Sustainable Sydney 2030' vision?" Users lifted one coffee cup and spoke into it to record their thoughts, and across the room (presumably across the city), users could pick up another coffee cup to listen to the ideas of others.

WATER RECYCLING
PUBLIC ART FOR PUBLIC GOOD
Zina Kaye & Mr Snow

A day in the life…

18:00:00

HOME. KEEPING UP WITH THE JONESES
RETURNING TO YOUR APARTMENT, ART IS THE REWARD FOR YOUR GOOD
ENVIRONMENTAL BEHAVIOUR.

Data: Total dissolvable solids (TDS) data – used to measure the quality of recycled water.

Dilemma : There is no incentive for residents to ensure that green infrastructure installed in apartment buildings, such as recycled water systems, actually work.

In this project, Kaye and Snow are looking at 'retrofitting generative relationships'. Examining the case of urban developments where a particular piece of green equipment or infrastructure, such as a water recycling facility, has been installed and how data art and data visualisation can be used to monitor, communicate and incentivise its sustainable operation over its lifetime.

The dilemma is that developers install green infrastructure to get green accreditation. However, the system requires compliance from the residents. For water recycling systems it requires them not put certain products like milk, oil and medicines down the sink. But people are not motivated to comply, and no one wants to report upon the failure of the system as it will reflect badly on them and the rating of the building. Compliance with the system requirements is particularly challenging because it only takes one person to wreck the system – one person to put the wrong things down the drain.

The team proposed a data collection structure that requires that each building block is measured separately, in order to drive a competition between them. Next is a system to communicate how the water recycling system is performing, allowing people to pledge to adopt the right behaviours (whilst waiting for the lift). There is an artwork which offers a beautiful installation in the foyer to track progress.

And if everyone is doing well in all the buildings, perhaps there is a fountain that comes on in the courtyard (because the water is of good enough quality to become airborne). The key to the whole system is information feedback and reward–broadcasting how many people have pledged, asking for more pledges, and rewarding good behaviour. This starts the broader education process.

Ideally, the data would be reported by floor or by apartment to personalise the feedback further. If Council were actually to legislate for monitoring data, then it would change the incentives quite drastically. Technical solutions like dual flush systems, so some things can be flushed out without affecting the recycled water supply, would also make the challenge more achievable. Other longer term solutions could include the creation of a water bank or encouraging the building to operate like a water utility, selling the recycled water and offering a monetary incentive for communal management of the resource.

HOW TO PUBLISH YOUR HOUSEHOLD'S CO2 FOOTPRINT FOR GEEKY FUN AND SOCIETAL BENEFIT
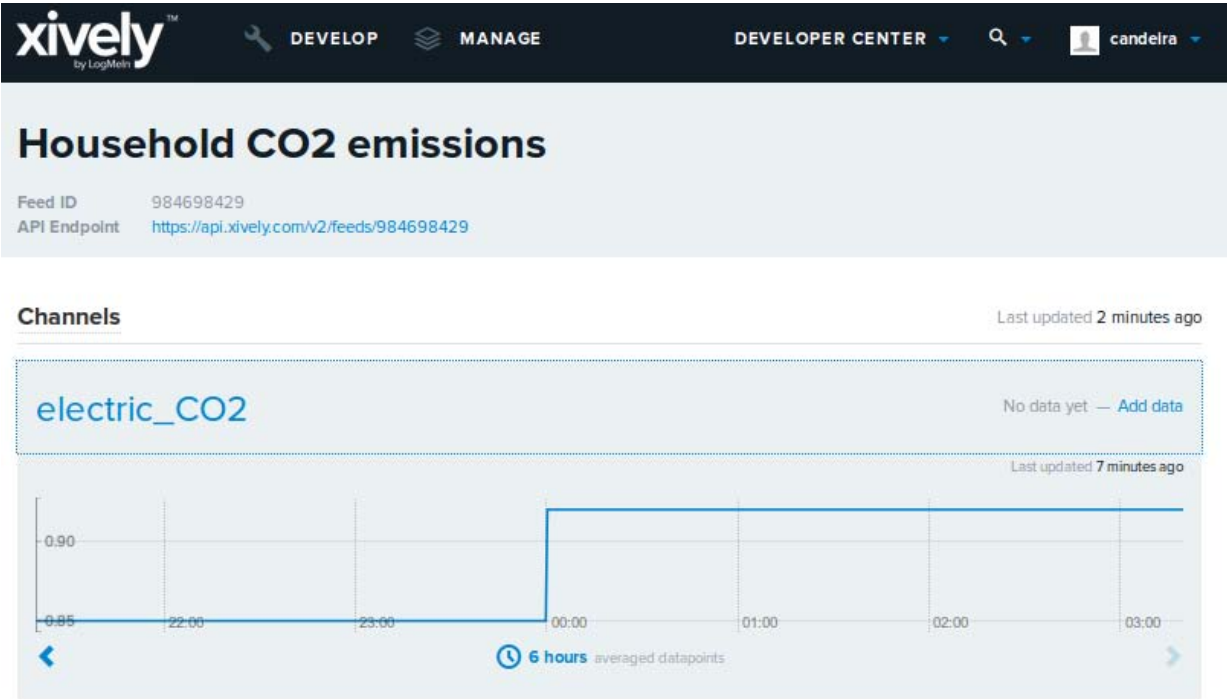
Javier Candeira

A day in the life…

20:00:00

TINKERING: MORE PLUMBING. LESS HACK.
A WARM EVENING AT HOME WARDING OFF A WARMING PLANET

Data: Energy consumption data of households

Dilemma:
1) How do we make energy policy personal?

2) How do we avoid a world where data production and visualisation is managed by an elite few produce the data and present it to everyone else?

In the times of the printing press we gave rise to mass literacy, but only a few people could print, thanks to printer's privilege accorded by the King. Then we had the encyclopedia giving access to knowledge to the many, but only a few could participate in contributing to the encyclopedia. In our modern times, we have the invention of the internet and browser, and now you have the tools to either personally publish via a blog, or publish your own media, and contribute to the development of global knowledge via Wikipedia.

ONE OF THE PROBLEMS OF GETTING PEOPLE TO PARTICIPATE IN A DATA CULTURE ARE THE COGNITIVE BARRIERS OF ATTENTION AND OF TIME. ALSO THE TOOLS CAN BE COMPLICATED TO USE. SO THIS WIDGET DOES ALL THE DATA SCRAPING FROM THE ENERGY COMPANY'S WEBSITE FOR YOU.

Javier Candeira
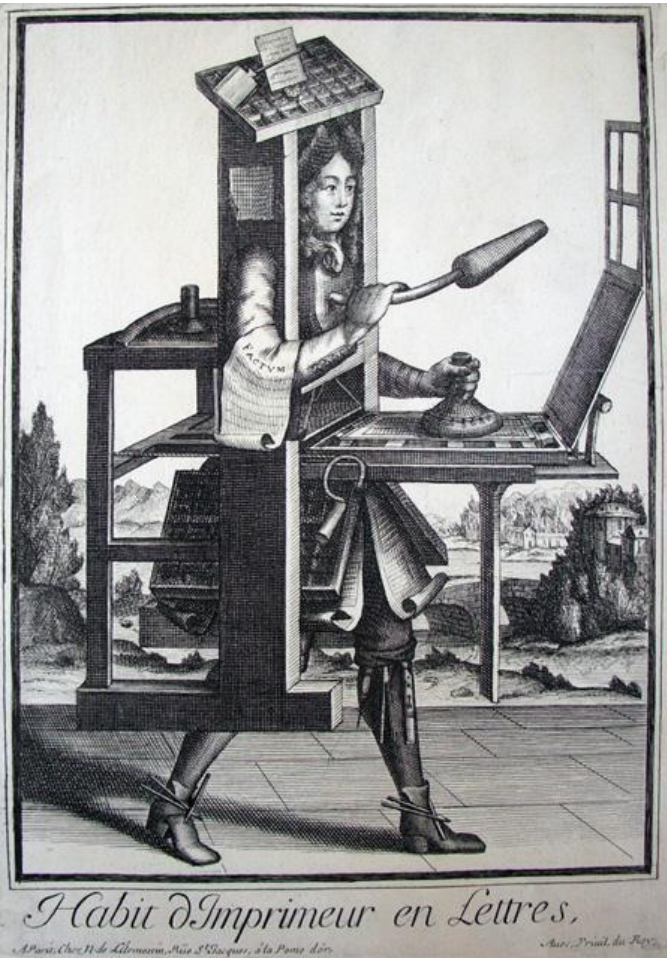
But what's really interesting about this data is when its seen as a cohort, not when its seen on its own by the user themselves. People want to be able to compare their data to data from people (or families) that are similar to their own - such as having the same size and age of family members, same size of house, and so on. Utilities don't have level of personal data, only individuals can provide it.

The solution developed here is to give people a widget they can install on their PC, using the same username and password as they have to access their utility bills online. The widget displays emissions relative to a similar cohort, presented as an average, and based on what the community of widget users inputs. And then the widget is in a position to make suggestions of how you can do better, based on what people in your situation can and have done. The widget downloads the data and uploads it for you, and provides the data that is then available for the larger scale visualisations.

This gives rise to the second dilemma: we might be emulating the old model of the King's privilege where only a few have access to the data and visualise it for everyone else (a broadcast model). The solution is to make everyone a data publisher. So cities, banks and utilities have the data, but as citizens we take data responsibility and publish it ourselves.

Xively together with a device called the current cost monitor allows people to broadcast their realtime energy usage to the world. From this you get your own personal cloud of data. With many people doing the same there are societal patterns you can plot and education tools you can develop. But the model has a few flaws. First, it's costly (to produce and purchase these devices) and it's wasteful. The current cost meter is a device that gathers data that we already have – the utilities already have our personal energy data. Privacy concerns are what prevents our access to it in any other form than a quarterly bill.

REFLECTION

IN A FEW WORDS

HOW WOULD YOU CHARACTERISE YOUR EXPERIENCE OF
THE DATA SLAM?

INTENSE, TIRING, FUN, STIMULATING
                    MITCH WHITELAW

                        FAST, FRENETIC, FUN, ENLIGHTENING
                                        JON MCCORMACK

FUN, PROVOCATIVE, SATISFYING
            ZINA KAYE

            WONDERFUL OPPORTUNITY TO 'GET OUR HANDS DIRTY'
                                ANDREA POLLI

    ENJOYABLE AND ENRICHING
            JAVIER CANDEIRA

GREAT TO BE PART OF A GROUP OF PEOPLE INTERESTED IN CREATIVE
APPLICATIONS OF DATA WITHIN OUR CITY.
                                GREG MORE

CITY DATA **SLAM**

EVALUATING THE CITY DATA SLAM

PARTICIPANTS' PERSPECTIVES

The Data Slam results are all kernels of ideas and prototypes to be developed further, in this way the Slam demands follow-up and further development. As a pilot study of what can be achieved by putting some serious creative expertise to the interpretation and communication of data around Sydney's sustainability, the Slam provided many useful insights.

A short survey was sent out to the 12 artists who participated in the Data Slam in order to gain insight to their experience and to learn about what worked and what could be done better. The results from this survey are summarised here.

WHAT WORKED ABOUT THE DATA SLAM?

1. Participants were impressed with the calibre and talent of their fellow artists and collaborators and the ideas that were developed.

2. The length of the Data Slam - three days - was considered a good amount of time within which to develop projects.

3. The location, environment and resources provided – such as tools, equipment, and so on - were considered adequate.

4. Daily reporting back sessions were seen as useful, and viewed by some as the best part of the Slam.

5. The final day of presentations was considered a big success, with a good audience and a fun and accessible set of presentations.

6. A good selection of invited expert participants, with a great display of talent in the room.

7. Overwhelmingly, participants supported the idea to run the Data Slam either annually or every two years to build on the success of this pilot initiative.

TEN TIPS FOR THE NEXT DATA SLAM

1. A more detailed brief on the data and its sources would be useful, as well as the technical aspects of the data platform, Xively.

2. The addition of an online forum to allow people to get to know each other and the data in advance of the event.

3. More involvement of the data providers as advisors to teams or team members. Perhaps data providers could return once or twice during the three days to answer questions or help problem-solve.

4. More real-time data would allow for more interesting and engaging projects.

5. Continued opportunities for taking a select number of project concepts forward for further development.

6. More participants to provide the grunt work for the teams, such as students or specific experts. This would allow more to get achieved in the timeframe.

7. Related to the above, a greater role for facilitators in addition to the teams.

8. Greater clarity regarding ownership of the ideas and artefacts created will be necessary for the future.

9. A nice variation would be to focus on one specific issue or 'wicked problem' and get all the participants to try and address it in different ways.

10. More explicit recognition of the different approaches of artists and designers towards addressing this type of subject. Usman Haque's framing of the event was very much about design and problem solving, and less about art.

THE DATA SLAM PROVIDED A FORUM FOR EXCHANGE OF IDEAS AND TECHNIQUES AS WELL AS FOR COLLABORATIVE PROTOTYPING OF DATA PRODUCTS.

JAVIER CADEIRA

THE DATA IS GETTING MORE MATURE AND OUR UNDERSTANDING OF THE DESIGN PROBLEM IS ALSO MATURING, SO IT WOULD BE GREAT TO COME BACK TOGETHER AGAIN AND REFLECT AND REDESIGN OR START AGAIN.

ZINE KAYE

NOTES

NOTES