



Mapping the Full Picture

**Applying co-design approaches
to geospatial solutions**

A ThinkPlace – Mercury Project Solutions Whitepaper

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Familiar patterns in the spatial world

If you are in the business of using spatial data, wanting to access, or putting spatial data online, you will recognise one or more of the following scenarios:



Your online mapping apps seem to have hardly changed over the last 10 years



Cluttered interfaces make you wonder if you need a degree to use them



Users complain the data are wrong, because they don't fit properly on the (10 year old) Google Maps image



You spend 30 seconds staring at the startup screen, wondering what you are supposed to do next



You ask about the website analytics, and all you get is blank stares or evasive answers



The designers have created this beautiful app, but all the maps are wrong or outdated



Project team members desperately try to exclude that one person (Designer, GIS Expert, Sponsor, take your pick), because "they just make things complicated".



You've created an all-singing, all-dancing, mapping app, but somewhere along the way what the client was wanting to achieve got lost in a sea of geogeek enthusiasm

The traditional approach to publishing maps on the Internet "by GIS experts, for GIS experts" is an outdated, ineffective and unusable method for unlocking the potential of spatial data. Especially in an era where web mapping is ubiquitous, communities are expecting simple, rapid and effective access to spatially-enabled data across platforms.

Some real-world examples

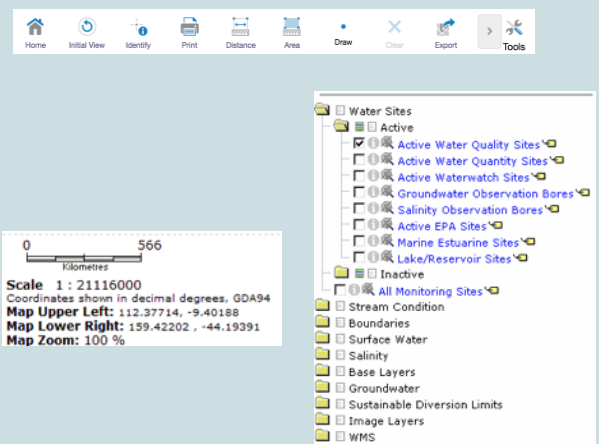
In this world where spatial information underpins data analytics, visualisation and information accessibility, one problem - understanding requirements - often remains at the heart of those who try to harness the power of maps to tell their stories. Two examples below illustrate what can happen if you fail to consider the user's experiences.

Mapping tools that are overly complicated

Webmaps need to be designed for ease of use- to cater for the majority of users whose mapping experience is limited to finding a cafe on Google Maps.

These generalist users cannot be expected to be GIS savvy. They won't wade through complex interfaces or wait more than 5 seconds for a map to appear.

Providing multiple drop-downs, layers, scale options and toolboxes overwhelms and confuses, leading to disengagement from generalist users.



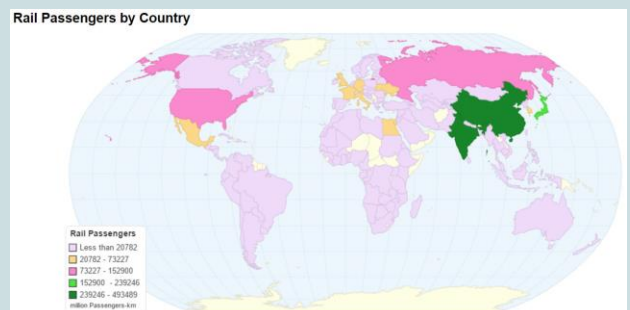
Too many tools, too many layers, and superfluous coordinates/projection details tend to confuse rather than inform.

Misrepresentation leads to Misinterpretation

On the other hand, ubiquitous mapping tools (Google Maps, CartoDB, MapBox, Leaflet, to name a few), are being used to create really good looking webmaps and information portals.

But often the data are outdated or don't fit, different projections or scales are used, or the maps tell the wrong cartographic story.

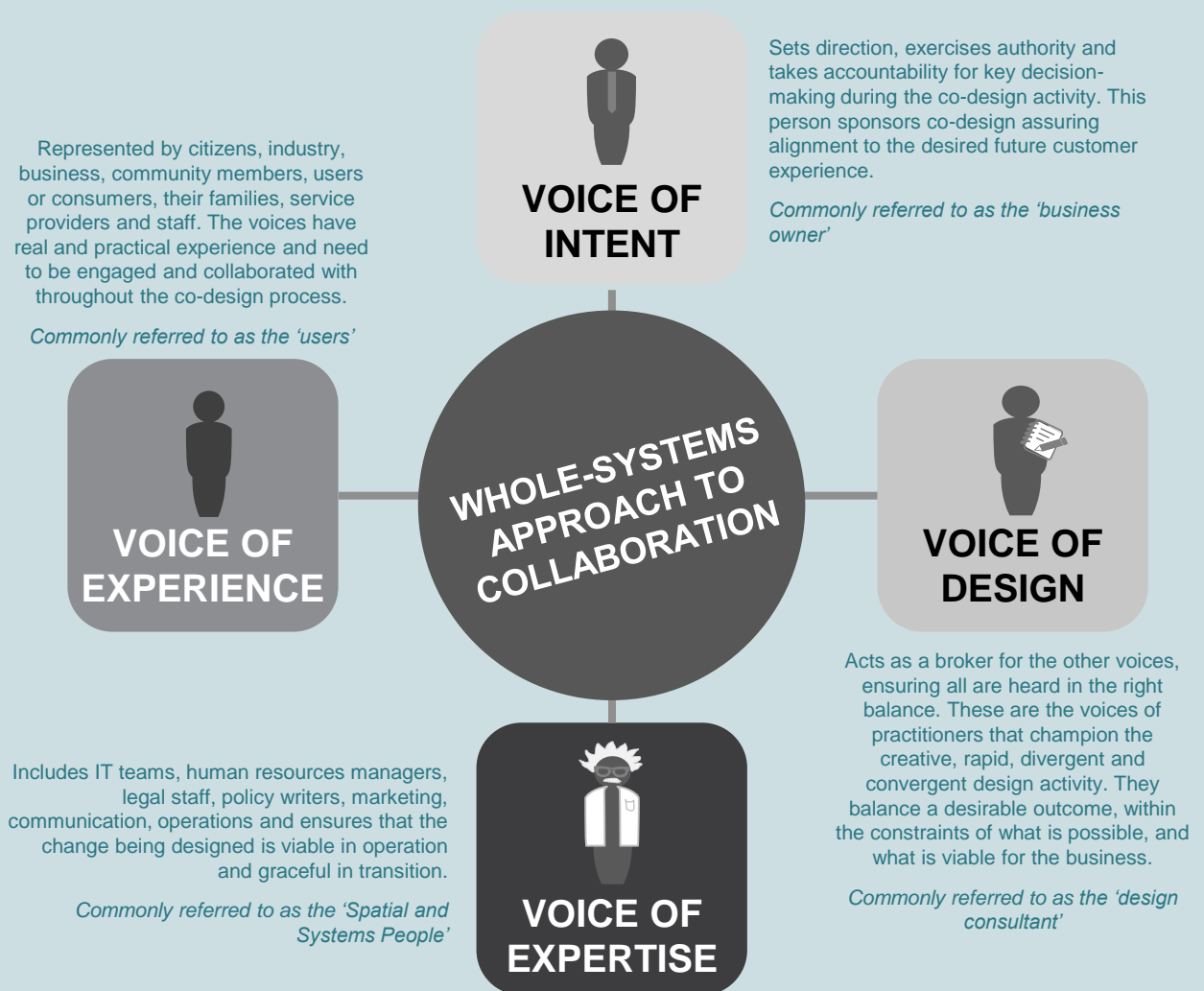
Spatial data misrepresentations result in misinformed users.



Mismatched colours, legend and non-normalised data mean this is effectively just a population map, rather than telling a story about how prevalent rail travel is in respective countries

The need for collaboration and co-design

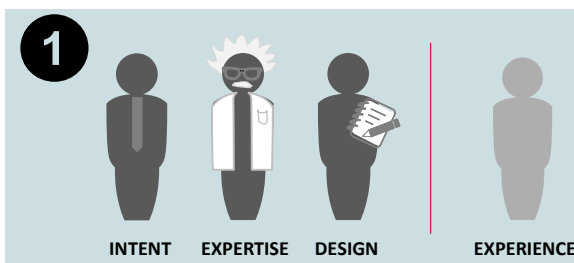
The best way to address the issues illustrated in these examples, is the application of collaborative co-design methods, and human-centred design approaches. Within the ThinkPlace method, a Core Design Team (CDT) - a multi disciplinary group- drives the design process. It brings together the four voices of design – intent, design, experience and expertise – and the essential diversity of viewpoints, skills and experience.



Ignore a voice at your peril!

Composition and balance of the Core Design Team is a critical ingredient to getting it right. The input from all four voices informs the development of requirements, iteration of prototypes and selection of final designs.

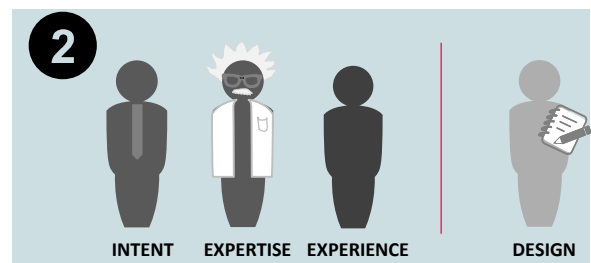
In too many spatial projects, at least one of the voices is ignored or underrepresented. The project outcomes are thus biased towards the preferences of the remaining voices to the detriment of others. The scenarios below illustrate what typically happens in such cases.



Model: 'Build it and they will come'

Excluded: Experience

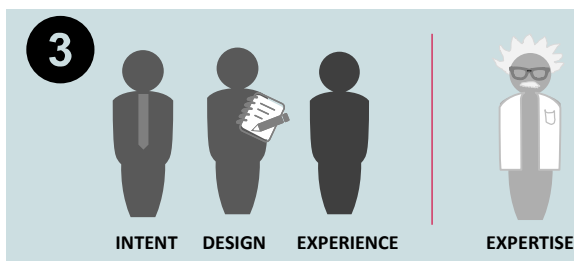
Outcome: The system will be pretty and the data will be correct. But without understanding the user requirements, the system is unlikely to deliver to its intended audience. It will either not be used or fail to achieve its intended outcomes.



Model: 'One size fits all'

Excluded: Design

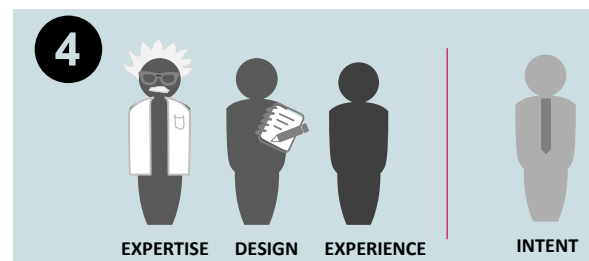
Outcome: The system will deliver on all technical and user requirements. However, by delivering everything ever suggested by the project team and users, it will be overly complicated, tricky to use, and difficult to navigate.



Model: 'Beautiful misinformation'

Excluded: Expertise

Outcome: The system will cater to end-users and align to strategic directions. However, the underlying data may be incorrect, outdated or incorrectly configured. While the system will look great, it fails to deliver on analysis and decision support.



Model: 'Solution looking for a problem'

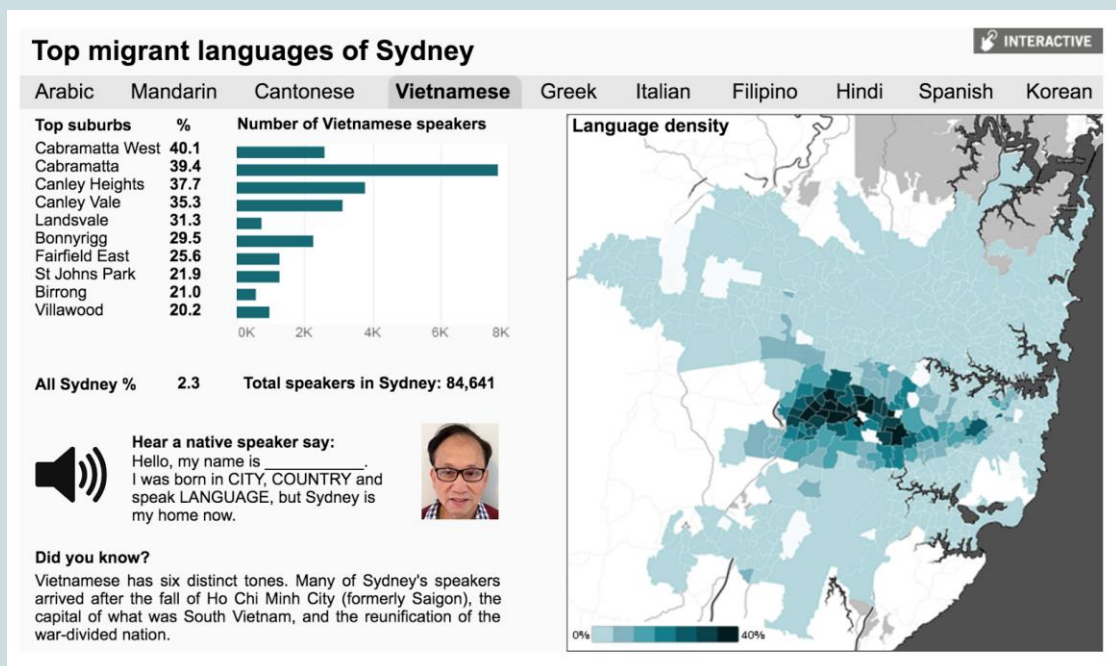
Excluded: Intent

Outcome: The system will be usable, correct and deliver on technical requirements. But the lack of alignment with the organisation's strategic directions will result in an absence of an owner, and (ongoing) support and funding.

Getting it right

When the four voices do balance out, great outcomes can be achieved. The business owner's intent is delivered. The users' needs are satisfied. They see a well-designed, easy to use, and understandable application that tells a compelling story. What's more, the mapping content is correct, it is up to date, and properly styled and displayed.

The good news is that such 'best-practice' examples can be found. One area that is increasingly embracing mapping technology is data journalism. The example below compellingly tells the story of the diversity of languages being spoken in Sydney, what the dominant languages are in the different suburbs, and where specific language groups are clustered.



Source: Sydney's melting pot of language, <http://www.smh.com.au/data-point/sydney-languages>

Looking at this example, the map is an integral part of the overall story. There are no controls or buttons other than the ones necessary for the narrative: selecting the language to display (there isn't even a zoom-button, as the patterns to display are city-wide). There are tabs along the top for choosing the languages, negating the need for a traditional layer-list. Yet, the data is accurately displayed, using the appropriate (carto-) graphic shading method.

The benefits of bringing all four voices to the mapping table

Successful system development occurs when designers, experts, business owners and users come together to define the problems which need to be solved, identify opportunities for change and design improved outcomes. Prototyping of solutions with multiple iterations leads to development geospatial systems which have greater buy-in and uptake rates from stakeholders.

Taking the co-design approach to spatial solution design and development will deliver you the benefits of:

1

Impact

Including the voice of experience results in design of systems which are functional and incorporate a range of requirements suited for a wide variety of users- from experts through to generalists.

2

Correct information

Including the voice of expertise means the system will harness appropriate information and data which is fit for purpose.

3

Usable solutions

Including the voice of design results in design of systems which meet UX standards and appeal to a range of users- from in-house experts to business owners and end-users.

4

Delivery on intent

Including the voice of intent means that the system aligns to organisational strategic directions and supports business requirements.

How we can help

Creating new and better futures is a team effort that includes those who drive change and those who will experience change. ThinkPlace engage with the complexity and the messiness of real human experiences — how people live, work and play; how people experience products, services, regulations; how they navigate systems they interact with. This gives us an understanding of the depth of human experience. We use this understanding to generate innovation that meets multiple needs because it is grounded in real human behaviour and broad system understanding. We know how to balance the voices, and how to engage with users to elicit their voice.

Mercury Project Solutions is a collective of Independent Spatial Information Consultants. Founded in January 2010 Mercury combines a wealth of knowledge through its three directors Chris Gentle, Jörg Hiltenkamp and Maurits van der Vlugt. Services we provide include Strategic Consulting, Spatial and Information Architectures, Implementation Planning, and Project and Program Management.

Between ThinkPlace and Mercury Project Solutions, we bring the full range of expertise, design knowledge and experience to our geospatial client engagements. Together, we

- / **Elicit** the Voices of Experience and Intent
- / **Facilitate**, and contribute to, the Voices of Design and Expertise

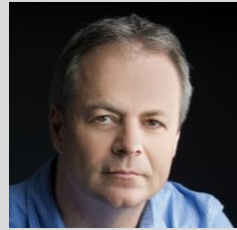


Dr Laura Kostanski

ThinkPlace
Melbourne Studio Co-Lead &
Senior Executive Designer

Laura has extensive experience in the geospatial and data management domains. She thrives in complex large-scale environments, while also having an eye for detail, ensuring nuanced interpretations can be communicated with stakeholders.

Laura has developed national geospatial systems globally, ensuring governments and their citizens can locate their critical infrastructure, deliver services and plan for long-term sustainability. She has also worked with government and private sector agencies to develop robust, joined-up strategies, policies and architectures in a range of domains.



Maurits van der Vlugt

Mercury Project Solutions

Maurits is recognised as one of Australia's leading authorities in Location Information Management. He has a long career in consulting government and the private sector on delivering strategic location-intelligence solutions.

He has delivered numerous conference and business presentations, and published many journal and magazine articles. He taught "Customising GIS for the Web" at the University of Redlands (USA) and held "Ignite" talks in Australia and the USA. He has won multiple awards for his presentations and project delivery.

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