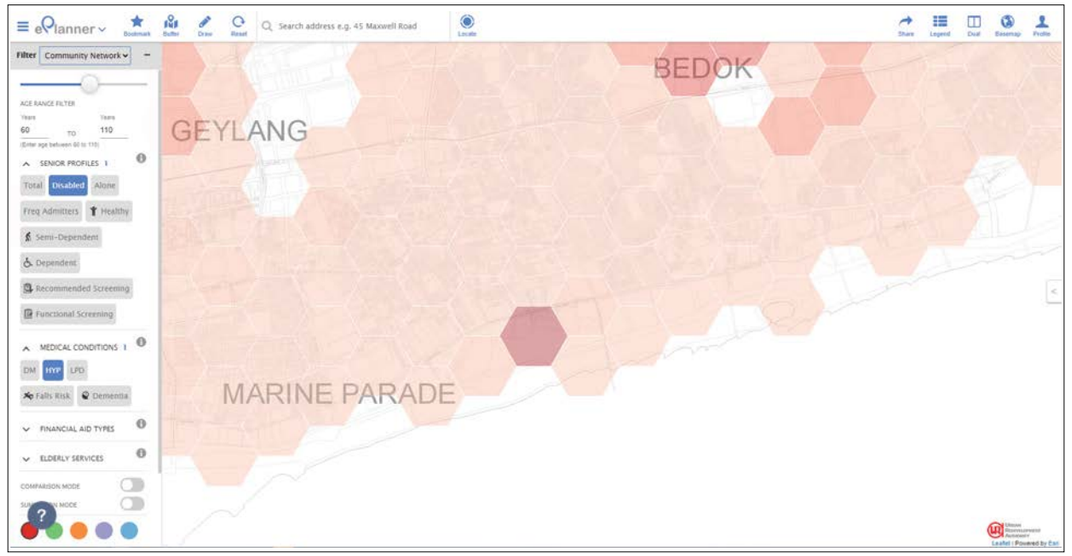
SINGAPORE | DIGITAL CAPACITY BUILDING

The ePlanner: Integrating Data for Inter-agency Collaboration

Singapore's Urban Redevelopment Authority built a one-stop, multi-platform, geospatial analytics tool in-house that makes accessing data a cinch for urban planners across agencies.

Siti Maziah Masramli is a Senior Content Strategist at Tuber, the editorial consultancy for Urban Solutions.



ePlanner, a geospatial analytics tool.
Image: Urban Redevelopment Authority (URA), Singapore

The Challenge

Having quick and easy access to data is the foundation for using data analytics to support effective digital urban planning.

Since the 1990s, Singapore's Urban Redevelopment Authority (URA) has used geographic information systems (GIS) to manage geospatial data. Planning data such as physical maps were digitised onto an Integrated Planning & Land Use System (iPLAN), a GIS desktop application built in 2007.

But the layers of geospatial information took a long time to load and be displayed on iPLAN. This became a major constraint for the wider use of spatial analytics. In 2012, after a review, iPLAN was also due for replacement.

At the 2012 Staff Conference, then URA Chief Executive Officer Ng Lang encouraged URA staff to identify new challenges and think up new ways of doing work to adapt to such challenges.

An idea highlighted was a one-click platform for planners to access the most relevant and up-to-date planning information for any land parcel. These ideas helped shape the vision for the ePlanner, a one-stop geospatial analytics tool.

Workshops to onboard planners to the ePlanner platform.
Image: URA, Singapore

> The advent of Google Maps, and the iPhone and iPad, was also changing people's expectations of and interactions with digital maps in everyday life.

The Solution

The URA developed the ePlanner using in-house capabilities. This follows a strategic decision over the years to build and retain strong teams for data analysis, application development and IT infrastructure, having recognised GIS skills as a core need for digital mapping and land-use planning.

To ensure that the ePlanner would be easy to use, then Chief Information Officer Peter Quek challenged the project team to find a solution that could load data in a matter of seconds, using a "mobile-first" approach.

By this time, web mobile map technologies had advanced significantly. The advent of Google Maps, and the iPhone and iPad, was also changing people's expectations of and interactions with digital maps in everyday life.

The first ePlanner prototype was built entirely from scratch by URA staff, who faced a steep learning curve in their first try at building a new analytics portal using GIS.

The team used a cached map service to quickly display map data as graphics. The key was to make the map data fast and easy to use, with clean summary data and presentation.

The project team also used the Agile software development method. The Minimum Viable Product model allowed the team to shorten ePlanner's initial development period and bring the pilot ePlanner to planners more quickly.

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Planners could then identify the additional data or insights they needed for planning work, interact with and visualise the data in novel ways for planning studies, and work closely with software engineers to rapidly prototype the tools.

The pilot launch for key users and bi-weekly iterations helped the team to further build their know-how for rolling out new technologies that enable data use for URA's planning processes.

The first version of ePlanner was ready in less than a year in March 2013. It integrated data from various sources (e.g., URA's enterprise systems and public data such as Google Maps) and analysed data to support planning studies.

Users could access the tool via web browsers on laptops and mobile devices like iPads, without the need for specialised software to view the maps and data. The ePlanner could also be easily shared with other agencies. Overall, the application made GIS and data analytics more intuitive and user-friendly to laypersons.

The ePlanner platform could showcase new datasets, demonstrate how complex GIS analysis could be simplified, and be used to present quick planning insights intuitively and interactively.

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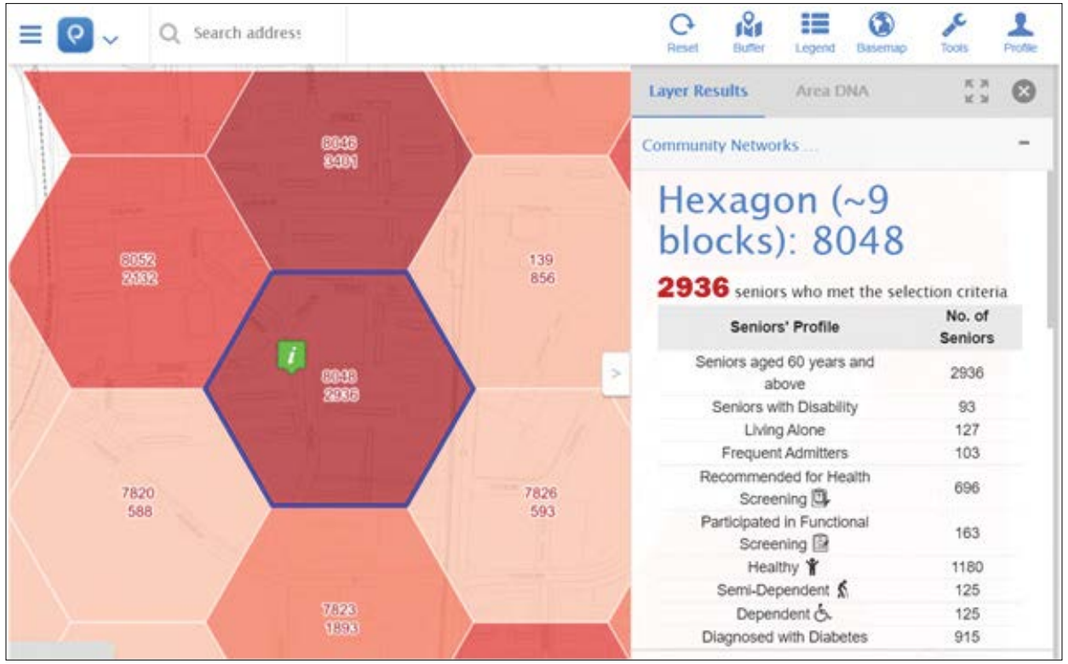

How the ePlanner is used to identify where there are higher concentrations of seniors living alone.
Image: URA, Singapore

By better identifying "hotspots of needs", such as areas where more seniors live alone, the MOH and AIC can be more targeted in their planning with community healthcare providers to create health and social programmes that meet the seniors' needs.

The Outcome

The ePlanner received good feedback from URA's planners, who recognised that any analysis based on URA's data alone would not bring significant new value to URA's planning.

Rather, the ePlanner could be more effective if it incorporated data from other agencies, such as transport network data, demographic data, and public housing and resident data. The tool could then be used to integrate and analyse relevant data to facilitate the planning and operational needs of agencies.

URA's senior leadership was also impressed by the ePlanner's capabilities and potential value to enhance URA's planning and collaboration with other agencies.

Today, the ePlanner is a multi-platform, geospatial urban planning analytics tool that "makes complex GIS and Big Data analytics very intuitive and user-friendly for all planners", says Anthony Chong, a senior systems analyst at the URA.

It consolidates more than 100 maps and datasets from various sources for easy access by some 50 public agencies. For example, the Ministry of Health (MOH) and Agency for Integrated Care (AIC) work with the URA and use the ePlanner to visualise local data on the senior population to better serve Singapore's ageing population.

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Other lessons from this process of creating the ePlanner include the importance of dedicating resources to having comprehensive and up-to-date data, the benefits of empowering staff to contribute ideas, the need to raise awareness of new methods and technologies, and how to convince other agencies to adopt this new way of collaborative working.

The ePlanner is just one of several digital initiatives within the URA's Digitalisation 2.0 Roadmap. With common data sharing and visualisation platforms across agencies, the URA aims to have a more data-informed work process and better planning outcomes with integrated planning across the whole of government.