4. What is a Digital Twin in Urban Planning?

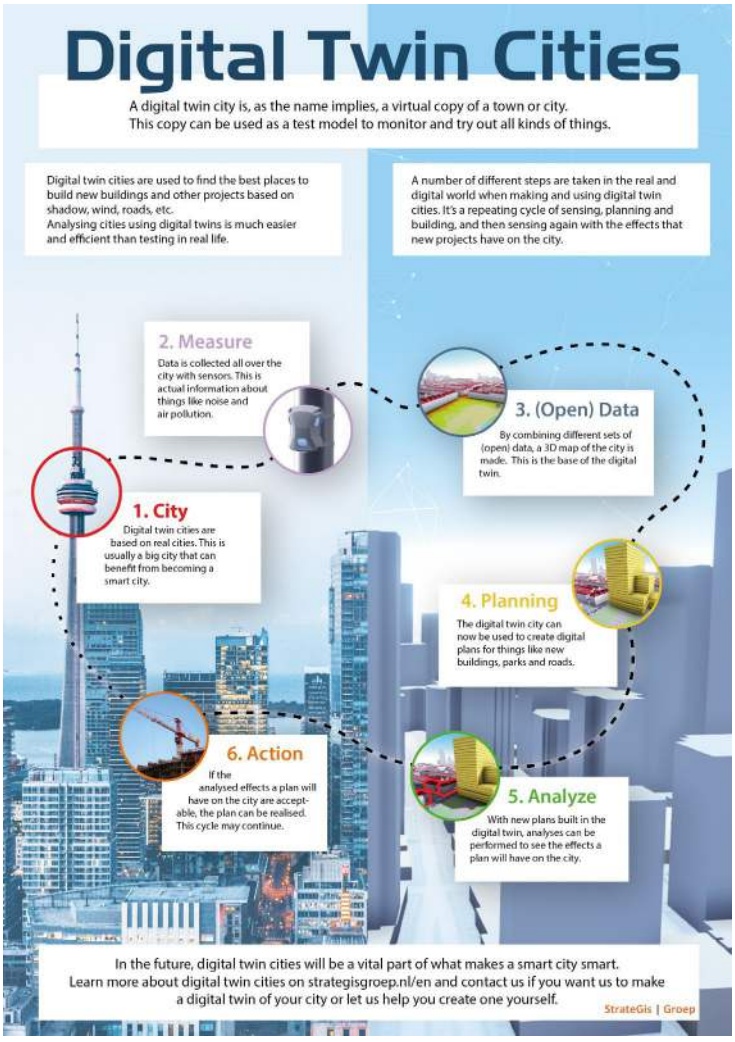
Integrated Applications

One of the most sophisticated examples of analysis and predictive modelling in a planning context is the Digital Twin. The idea is to replicate the function of a system such that its performance data can be measured and evaluated across a variety of desired factors and imported into a virtual model of that system which can then be manipulated to test the outcome of hypothetical changes as they might occur in the real system if implemented.

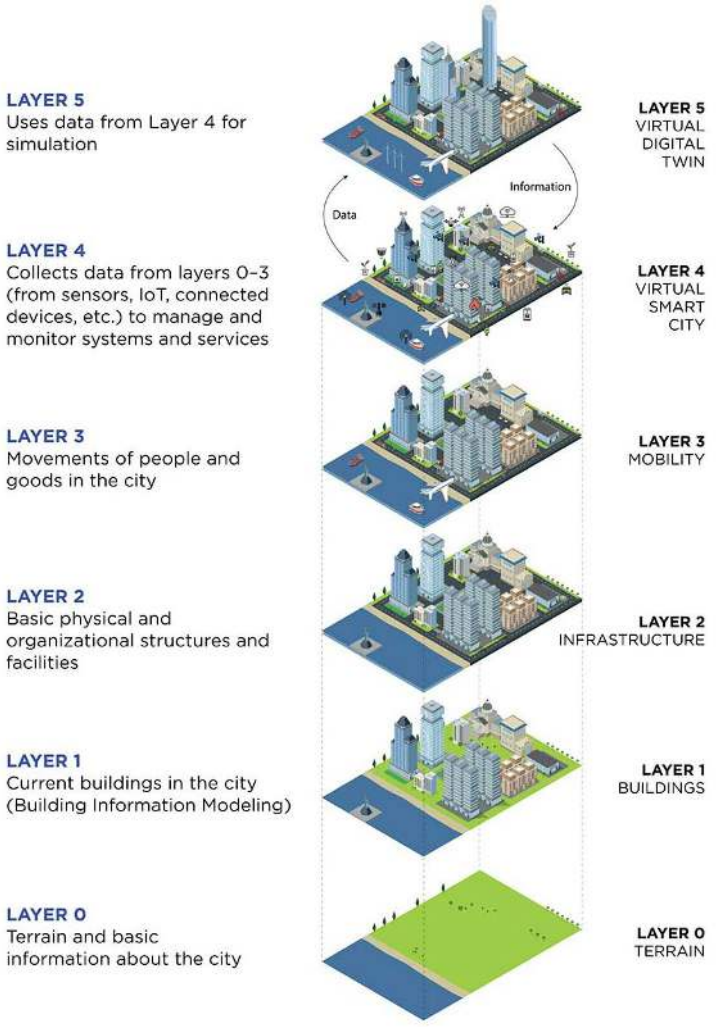
A simple example of a limited variable 'digital twin' would be a transportation model where existing travel characteristics are input to a functioning model that replicates those performance characteristics. This can be done with conventional traffic data studies, or in real time with active sensors connected to the AI model. The model can then be manipulated with changes to transportation variables to test changes and outcomes within the model as it might happen in real life.

The idea of a Digital Twin in a broader AI sense is to track many variables across the wider complexities of the City. This allows for simulations of progressively more insightful outcomes across the interactions of diverse community systems. And it can even relate how physical and social factors interact to hopefully allow us to create more successful and equitable outcomes.

Such a model forms the basis for the term 'Smart City" within the planning, infrastructure and energy community. It's not really the City that is "smart", it is the AI data processing and scenario simulations that allows humans (or automation) to consider and implement different outcomes in a more accurate way, making highly targeted adaptations in much less time.



Infographic: StratGis Groep



Infographic: American Planning Association