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Real Estate Predictions 2021

Knowing what others don't: gaining a competitive edge in real estate with AI-driven geospatial analytics

Micro-analysis on address level

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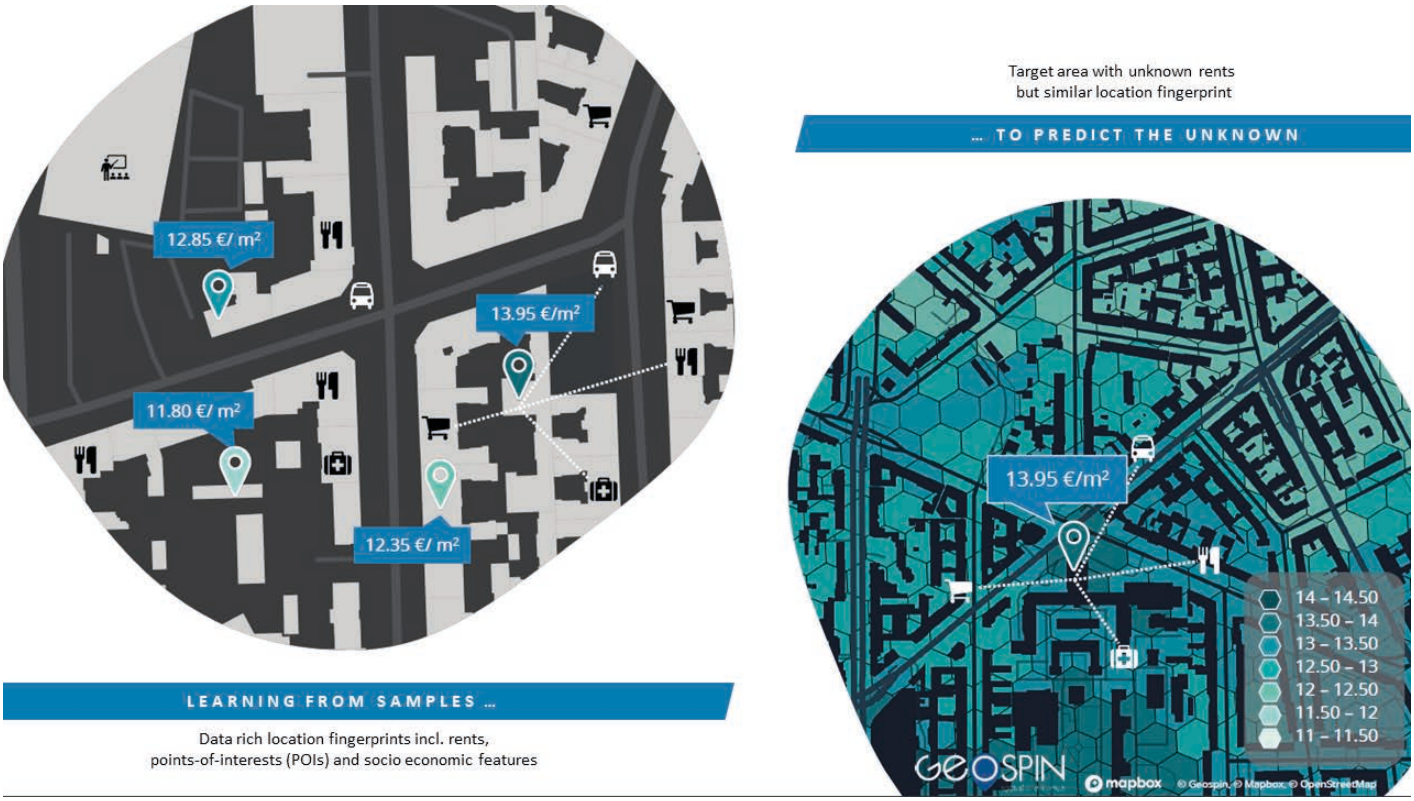
Data analysis can significantly improve decision-making in real estate. From valuation, sale/purchase of properties and contracting to negotiations, risk analysis and planning. In 2021, all eyes will be on AI-driven geospatial analytics. Why? Because it is a quick, lean and affordable way to provide address-specific rental predictions and explainable transparency.

Micro-analysis on address level

The availability and interpretation of the right information is crucial in any sector, including real estate. After all, data analysis can significantly improve decision-making, from valuation, sale/purchase of properties and contracting to negotiations, risk analysis and planning. Obviously, there is an abundance of data about the world's biggest cities. This makes macro-analysis for these places straightforward and relatively easy for skilled data scientists. However, the smaller the place, the harder it gets to create a good understanding of locations – even on the aggregated view provided by zip code areas. For single addresses (micro level) this is even more difficult. The same is true for data-rich hotspots, if the required skills are lacking. For instance, the rental value of two properties that are only a couple of meters apart, can already differ significantly due to the presence of e.g. railway lines, noisy streets or polluted waters.

Major challenges

However, when it comes to data management in the real estate sector, there are still a number of major challenges. Often the required data are simply not available, not granular enough, or outdated. If they are available, they might not yet be harmonized across geographic areas. So even before the start of a simple analysis, a lot of effort is required. This also pertains to other manual data corrections, such as missing values or incorrect master data. While for master data the case is clear-cut (a value is either correct or not), other data issues might require expert judgement. In other words, there is a risk of ending up with expensive but worthless or even misleading analysis results, due to, for instance, personal bias by the expert "correcting" the data issues. The alternative is buying data on social demographics, rents, purchase prices and geographic points-of-interest (POIs), but good data always comes at a (potentially steep) price. However, once all of these barriers have been cleared, the insights, which can be derived, will usually pay off well.



The AI learns geospatial patterns from data rich samples, allowing it to identify locations with a similar fingerprint and making predictions for those data poor 'digital twins'.

Reaping the benefits

Real estate companies that are able to gain a lead in mastering their own and acquired data by means of advanced data analytics, will reap the greatest benefits. Enhancing your own datasets with additional geographic features will justify the application of powerful analytics techniques such as deep learning. This in turn will lead to much better insights into previously not well-understood market developments, sub-markets, locations and interdependencies.

Digitalization: digital location twins can bridge the knowledge gap

A combination of various approaches to "digital twins" can be of great value in real estate. Whereas the sensor-based approach (i.e. Internet of Things, or IoT) offers insight into the inner workings of a building, the concept of the learned "digital twin" focuses on the environment of a building. Here, the goal is to use information from data-rich areas to gain an understanding of relevant drivers and forces behind interesting market developments. This knowledge can then be applied to somewhat similar but data-poor areas. Based on the right data and on a machine learning algorithm, the computer will build a model. Afterwards, when provided with some basic information such as an address, the construction year and the condition of an object, the model will render valuable answers. Precise predictions of current and future rental values or recommendations for the highest yielding refurbishment options are just some of the potential use cases. To ensure efficient and effective processes, these prediction models will be integrated via API (often in the form of 'AI as a Service') into the workflows of real estate management software, feed planning or risk models. They will enrich reports and provide meaningful visualizations to human decision makers.

Explainable AI is trustworthy AI

Of course, replacing any blind spots with predictions from a black box AI is never a good idea. With so much at stake, investors will always ask why they should have faith in a machine prediction, especially if it is purchased externally as a service. Once again, technology comes to the rescue with a conceptual approach called "Explainable AI". In short, Explainable AI means that AI is applied in such a way that the results of the solution are easy to understand, as opposed to the predictions from a black box, as mentioned above, where the results cannot even be explained by its designers. Explainability is not just a regulatory obligation but can also provide trust and valuable business insights to businesses and end users. For instance, it will provide clarity on why one property is worth 15% more than a similar one nearby.

2021: the year of maturity

The year 2021 will initiate an era in which enhanced AI-driven location analytics for real estate will reach maturity and become suitable for the masses. It will become mature enough to be adopted by enough users in order to make a real impact in the market. This will unleash its full potential for the first time. For those who have invested early, time- and cost-intensive data gathering, and cleansing efforts will eventually become a thing of the past.

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