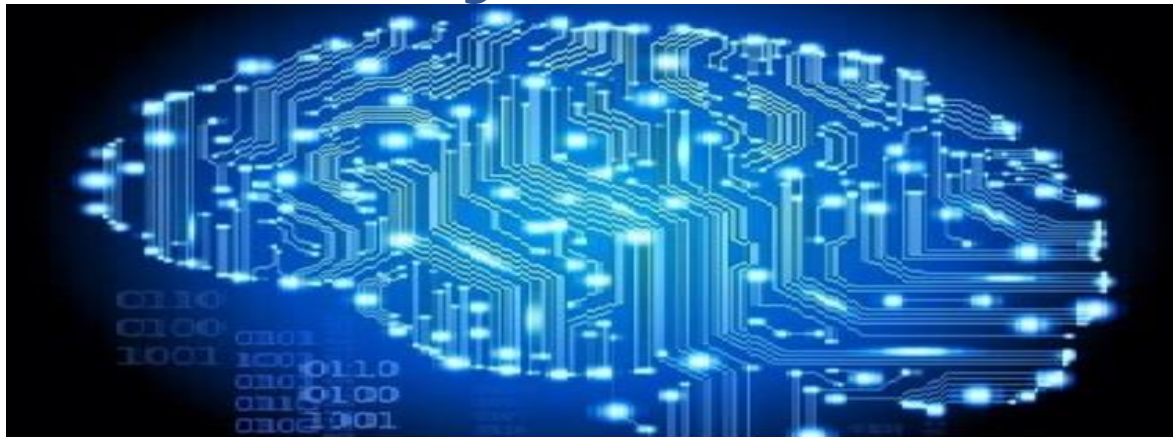


Ai is here for the Property Industry, but why has it taken so long!



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The integration of AI techniques with business operation has gradually become part of core strategy to maintain competitive advantage in an increasing number of industries, such as finance, security, automobile, logistics and consumer. However, the pace of applying advanced data analytics skills such as artificial intelligence and machine learning is still slower in the real estate sector than the adoption in other industries. Property owners, Facility managers, consultants or contractors either hesitate and wait passively for education or lack clarity on the roadmap of how to work with AI. Besides attitude issues such as the natural contentment with status quo, there is still a number of technical ones to ponder.

The lack of digitalization of properties is one of the fundamental obstacles for applying AI techniques to its management and operation. As widely acknowledged across industries, thorough digitalization, or substantial data sources, is the prerequisite to any AI technique. Compared to data sources in other industries such as internet retail, data generated from properties that are digitalized with building automation systems is almost negligible. Lets' take an example of a giant property company who owns 500 large commercial properties. Data from its digitalized electrical and mechanical systems may accumulate to circa 30 Terabytes a year, while a mid-size internet retailer with 100 million users may have 300 Terabytes of data storage per year.

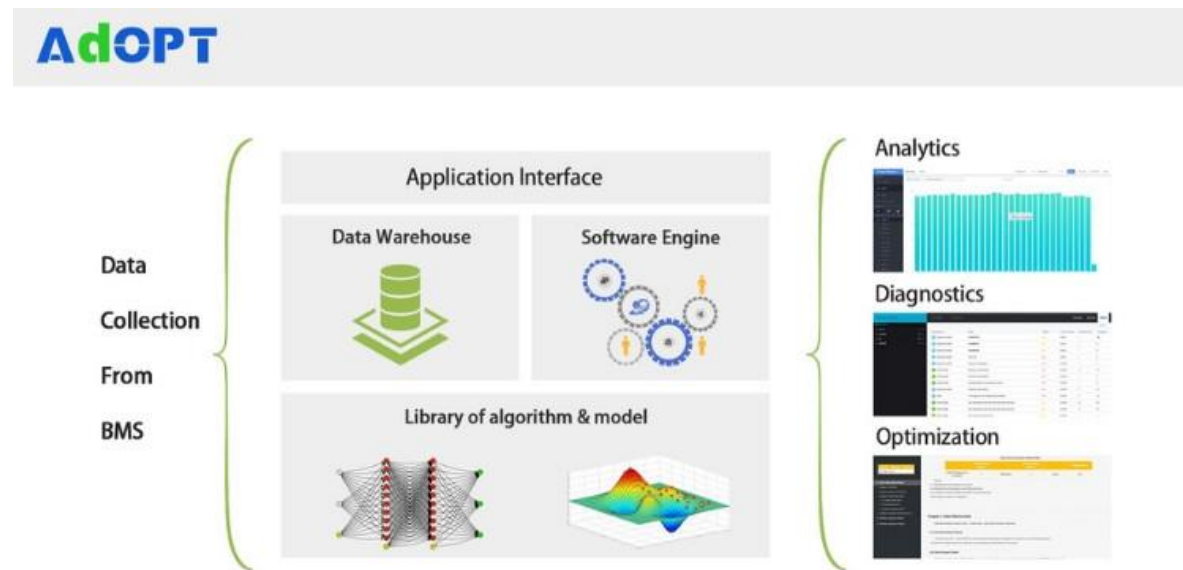
Another challenge is that the application of AI into property management is far more sophisticated than what we thought and how it is developed in

other applications, therefore a more straight forward replication of already existing frameworks in other industries is not applicable. Many think the recent development of AI techniques in applications such as computational vision, may symbolize its breakthrough to compare to human life and although it mimics a human's neuro network, techniques like deep learning are mostly based on data statistics with mega-size data feeds. Converse to image or voice recognition, applications in property management mostly examine the algorithm's ability to make decisions out of a variety of fragmented pieces of information. That requires AI algorithms to *learn knowledge* in a way like humans do rather than reach conclusions based on statistics. Such a capability is a lot more difficult for a software to acquire compared to data statistics, especially when digitalization is deficient and the data source inadequate.

Despite the challenge, over time, such platforms have been built and are now coming to market. The benefit of applying Artificial Intelligence to the management and operation of property has proven to be financially attractive, with savings created across the whole vertical, from contractor level right up to senior management. Property owners or managers usually need to hire a panel of experts to conduct commissioning or energy auditing to optimize operations and save costs. A big problem arises though, as once all of this money and time is spent to optimize the facility, you need to then hire more people to maintain it otherwise it begins to decline out of its optimized state until you need to hire your panel of experts again. How many times have you heard of the 5 star building that became a 3 star building and then cost a fortune to get back up to 5 stars. Or even worse, you lose a large tenant as part of that decline.

In the past several years our partners at R&B Technology have devoted their research to enabling their algorithms to make decisions in property management. One of the cutting-edge products they've built into AdOPT, the AI-driven software platform for property management, is automatic diagnostics on the whole building energy performance with data feeds from building automation and sub-meter systems. It perfectly answers the customers' question of what causes increases in monthly energy bills by analyzing how independent variables such as weather, people movement and operation sequence quantitatively impact the energy use of each subsystem such as HVAC, lights, restaurants, and so on. Well configured once, the AI engine is able to perform such decision-making for a massive scale of buildings in an instant and continuously. This process is in stark

contrast to energy auditing via manual labour in which an astronomical number of man-hours is required and the outcome variable.



To embrace AI and unleash its power to drive efficiency and performance will be one of the inevitable routes for property companies to maintain a competitive advantage and returns in the long term for its shareholders. The first step is for management to design and develop a procedure and method for comprehensive digitalization, data feed gateway, analytics engine and knowledge base. Second, it is fundamental to clearly define a series of scenarios, which may be independent of each other, presented on the management chain with which specific AI techniques are developed to integrate. Any attempt at developing universal algorithms to solve all problems doesn't make any technical or economic sense. Third, it is crucial to integrate machine learning or AI techniques with comprehensive domain knowledge of property management expertise and even rules of thumb. At the end of the day, it's all about producing consistent and accurate outcomes which drive efficiency across the management of assets; reducing costs, improving sustainability and increasing the value of the asset.