Tackling Problems in Construction with Geospatial Analytics

The construction industry has always lagged behind in innovation compared to other industries, but geospatial data analytics is now set to transform construction, architectural design and civil engineering. Geospatial data analytics is location-based information generated by billions of devices around the world. The additional insights provided to engineers and architects can help the construction industry to cut costs and improve efficiency.

Core Problems with the Construction Industry

To understand the gains made from data analytics, it's important to explain the problems the construction industry faces. According to a report, construction projects take 20% longer to complete and go over budget by 80%. Thus, we see an industry that's prone to wasting resources and going significantly over budget.

One reason for the high costs of construction is the discrepancy between early estimates and reality. Early estimates form the backbone of construction projects, but failing to account for one variable throw off the entire estimate. When this happens, the project's scope must be readjusted at the last minute, which is an additional cost to contractors. One reason why preliminary estimates go wrong is that they miss out on a single variable.

Certain variables are difficult to account for but, when encountered can throw off an entire plan. Therefore, the construction industry faces high costs due to differences between estimates and reality.

The high cost and waste of resources are compounded by a lack of innovation in the construction industry. For example, the automobile industry invests about 3.4% of resources into R'n'D, the aerospace industry invests about 4.5%, but the construction industry spends less than 1%. Thus the industry will lag behind on the technological front and miss out on innovations and improvements.

Here are a few ways geospatial analytics brings several positive changes that reduce costs and improve efficiency.

Accessing Real-time Information via Geospatial Data Analytics

Conventional equipment reveals static information, which does not change until someone manually enters the new variables. Reliance on static information prompts many of the mistakes seen in estimates, as its impossible to record all changes manually. However, with geospatial data analytics, architects and engineers can access real-time information.

When architects and engineers are using real-time planning, it becomes easier to draw up accurate estimates because they are incorporating the latest information into their estimates, and not out-of-date data. Thus, the construction industry uses resources more efficiently due to accurate estimates. Hence, geospatial analytics brings efficiency in construction with real-time information.

3D Modelling in Building Information Models

3D modelling in building information models (BIM) brings several benefits to the construction industry. With 3D modelling, architects can streamline the entire planning process. Architects will have an easier time identifying the shortcomings of a design when using a 3D model. Thus, the amount of work needed to adjust and finalise the design is reduced. Furthermore, architects can improve energy efficiency and building usability with a 3D model.

If geospatial analytics is incorporated into 3D modelling, architects and engineers will have more information on their hands. Thus, they can anticipate potential problems and plan around these obstacles, and reduce inefficiency and errors in design.

Incorporate Cloud Services

Companies in the construction industry face extensive capital expenses because they have to install machinery to provide services. However, with the advent of geospatial analytics, its possible to sidestep the high capital investment and instead, opt for a cloud-based service. For example, if a company is providing propane, they would normally have to install a machine to monitor their client's use of

propane.

However, with geospatial analytics, companies will know where their clients are, and data analytics can be used to assess their propane use. Thus, the company can monitor their client's propane from afar, and deliver more, when propane levels reach a certain threshold. Companies can skip out on expensive capital costs by looking for cloud services.

The construction industry does not invest significantly in technological innovation. The end result is an industry that consumes more resources than it has to. However, geospatial analytics can change all that.

Geospatial data brings several innovations to the construction industry that cut costs and improve efficiency. As discussed, these innovations include incorporating cloud services, 3D modelling in BIM, and real-time geospatial information.

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