



The use of data analytics and modelling to assess reinstatement cost

Key highlights

- A modelling-based approach to arrive at reinstatement costs for insurance offers insurers, brokers and policyholders an opportunity to review large portfolios consistently, cheaply and quickly.
- Modelling can be particularly useful in identifying outliers and unique locations across large numbers of locations that could need more detailed analysis.
- However, the use of online tools or desktop models to estimate reinstatement costs for individual locations is increasingly common. What are the pitfalls of this approach?
- While increased computing power and access to large volumes of location data is adding increased sophistication to analytical tools, the accuracy or applicability of any output from these models relies on the appropriate underlying assumptions made.
- In our experience, the assumptions in many models are rarely fully consistent with the insurance policy terms, the specifics of an individual location or the circumstances of the policyholder.
- If you being presented with the reinstatement cost for a location based on modelling or data analysis, it is vital to drill down into the detail and read the small print!

Development of modelling

A significant barrier to regular asset valuations has been the perception by policyholders and insurers of the cost and disruption to operations of having valuers visiting facilities. This perception was only amplified during the recent pandemic.

Innovative asset valuers have long recognised the opportunity to use data analysis and modelling to improve approaches to valuation and offer alternative solutions to clients.

Historically the wider use of modelling in cost assessments has been hampered due to limitations on technology, restricted data quality, constraints on data available and concerns about data security.

Recent technology advancements, and data consolidation, is allowing better and faster access to “big data”. This, combined with more sophisticated algorithm techniques, has provided an opportunity to rethink the way in which current reinstatement costs can be assessed.

A number of firms are promoting online tools or modelling solutions that profess to offer policyholders, brokers and insurers a means of determining reinstatement costs quickly and at very low cost.

Most of these solutions have been built around getting the user to input an asset’s key characteristics, e.g. floor area, and then making adjustments to base values based on set criteria and dropdown lists. In essence these models have tried to digitise the traditional process that a valuer would take during a detailed survey.

There is a concern however that the use of data to model values is being confused with the accuracy and validation of traditional valuation techniques.

Before you use an online tool or consultant to assist with determining your values at risk, here are some questions to consider:

⚡ How accurate are these models?

As the famous phrase goes “Rubbish in Rubbish out”, and this is very relevant to valuation models.

It is common for online models to be based on unit rates compiled by the Building Cost Information Service (BCIS), CoreLogic, Spons, Rawlinsons, and other third party sources. The rates per square metre are then applied to floor areas. This reliance on accurate, and consistently measured, gross internal floor areas is not always understood and these areas may not always be available, particularly for older properties.

For fields where the user needs to choose options based on dropdown boxes and lists, the challenge is often consistency in terms of understanding the options and their applicability in the context of the unique location.

Ultimately, assuming that the user is able to collate the correct information and select the right options from the given choices, these models are by their nature producing an “on the balance of probabilities” answer.

In a recent analysis of costs for similar industrial properties in a UK city, the range of actual costs was between 82% and 165% of the average. As can be seen in the next sections, if the correct details are not included in these models, they will not produce the answer the user thinks they are getting.



What is included or excluded?

Many of these online models exclude or ignore:

- architects, engineering and other professional fees
- non-standard building services
- heritage properties, e.g. listed building status
- interior fitout works, e.g. internal partitioning
- unique site access issues
- the presence of asbestos or other hazardous material removal
- the appropriate treatment of VAT
- piled or unusual foundations
- demolition and debris removal
- higher costs of shoring up adjoining properties if an urban location
- cost escalation during the policy term or during reconstruction.

In omitting these essential elements, or not reflecting the specific policy terms, these models may be giving false assurance to brokers and policyholders that the outputs are suitable as the declared values, potentially leaving them severely exposed.

Does the output match to the subject assets and, more importantly, the insurance policy terms? If not, then you may need to adjust the figures produced by these models to ensure that you are arriving at the correct declared values.



How does modelling compare to other valuation methods?

Considering a specific location, how do these computer models compare to other valuation methods?

Ref.	Approach	Computer/ Online Models	Indexation of Fixed Asset Register	"Desktop" Analysis	Site Inspection
1	Physical sample measurement of floor areas to validate assumptions	No	No	No	Yes
2	Confirm possible presence of hazardous materials or other factors that could increase demolition and debris removal costs	No	No	Not Always	Yes
3	Inclusion of third party assets where policyholder may have an insurable interest	No	No	Yes	Yes
4	Detailed Site Inspection (not just a 'walk through')	No	No	No	Yes
5	Ensures compilation of asset details that could support policyholder in the event of a loss	No	No	No	Yes
6	Can assist Finance Department with asset reconciliation	No	No	No	Yes



Ref.	Approach	Computer/ Online Models	Indexation of Fixed Asset Register	"Desktop" Analysis	Site Inspection
7	Appropriate allocation between buildings and plant to coincide with policy wordings	No	No	Yes	Yes
8	Reflection of factors outside of site boundary, such as access constraints, adjoining assets, etc.	No	No	Not Always	Yes
9	Indexation of costs for two further years to maintain accurate declared values	No	No	Not Always	Yes
10	Appropriate Treatment of VAT	No	No	Yes	Yes
11	Values based on research on costs for the specific subject assets	No	No	Yes	Yes
12	Values allocated between buildings/areas to assist with risk and loss analysis	No	No	Yes	Yes
13	Consideration of heritage or unique elements	No	No	Yes	Yes



Ref.	Approach	Computer/ Online Models	Indexation of Fixed Asset Register	"Desktop" Analysis	Site Inspection
14	Report that is personalised to client and subject locations	No	No	Yes	Yes
15	Reviewing information provided for consistency, accuracy and highlighting anomalies	No	Not Always	Yes	Yes
16	Experienced, qualified valuers involved in inspections, valuation and report preparation	No	Not Always	Not Always	Yes
17	Discussion of key findings and explanation of methodology with policyholder, broker and other parties	No	Not Always	Not Always	Yes
18	Backed by Valuation Standards and high level of professional accountability including PI Insurance	No	Not Always	Not Always	Yes
19	Reflects differing inflation between different asset types	No	Not Always	Not Always	Yes
20	Able to include assessment of plant, machinery and contents	No	Yes	Yes	Yes

Conclusions

Insurers want to know that their exposure (and premiums) are built on researched and supportable values at risk. At the same time, asset owners want to have the certainty that they are properly managing risk and are fully covered in the event of a loss.

While there is a role for modelling in identifying outliers and highlighting potential insurance gaps, this doesn't always equate to the correct expertise to arrive at appropriate declared values for a specific location or facility.

If the assumptions in models do not match to what is expected by the various stakeholders or what is stated within the insurance policy, the insured can end up exposed to underinsurance, or they could pay excess premiums.

This issue is of particular concern when these models rely on the application or adjustment to third party data sources, which in themselves incorporate a number of key assumptions.

Rather than just digitise a traditional process, some firms, including Charterfields, use big data and analytics to better identify historic cost anomalies, cost trends, breakdown of values and factors that materially change replacement costs for facilities.

When choosing how to arrive at declared values, best practice is to review any models for their ability to apply the correct data and approach to the specific assets under consideration.