The modern use of data in a property risk context

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Abstract

The increased use of aggregated data in property risk processing builds on the rapidly evolving economic benefits of automated 'big property' solutions in land and property assessment. This trend shadows the evolution of personal credit files as open banking trends making aggregation of people with property far easier in the 1/10th-second ranges that drive many of today's 'decision in principle' consumer solutions. The organisation of property with known geolocational parameters, unique property identifiers and associated property data attributes has been an accelerating phenomenon over the last decade. Chartered surveyors have not, however, benefitted substantially from these innovations and emerging trends in data organisation and aggregation. Legacy processes in the corporate environment and 'cost of change' in the private client sector have combined to stifle real progress in integrating modern data systems, machine learning (ML) and data capture and retention. Existing and new technologies, data availability, data aggregation, data storage and geospatial referencing should significantly improve reporting and recommendations relating to property condition and risk profiling; however, the nature of legacy systems, the differing requirements of large corporate clients versus private clients and the discontinuities in data are all hampering modernisation of approach. This paper looks at the evolution and convergence of big property data and provides a roadmap for the surveying profession and the sectors instructing clients to benefit from modern data processing and innovation in property risk.

Keywords: data, property risk, supported desktop, automated valuation, data curation, data storage, data vendors, property surveys, triage

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INTRODUCTION

There were approximately 27.8m residential households in the UK in 2020.[1] There are additionally more than 39m unique property reference numbers (UPRN);[2] however, these additional postcodes above the household address number relate to commercial and historic addresses and to buildings of

importance that require geolocating and address matching but do not have any occupation status (eg power substations).

The population of the UK in 2019 was some 66.8m people[3] and these human beings, for most of the time, reside in various demographic connections within the address stock of some 27.8m addresses.

Property intelligence might be considered the sum of knowledge of these associations, both spatially and temporally, and property risk might be considered the sum of appetite and exposure of a financial institution to secure a loan over either occupants and/or addresses, given the level of property intelligence.

There are essentially two key temporal windows in which decisions can be made by a commercial entity originating a risk decision: the 1/10th of a second typically representing the instant gratification of today's modern consumer for a decision in principle; and the days, weeks or months required to ratify the decision through a formal application process.

WORKING IN 100ths OF A SECOND

In the banking and lending sector there has been less of an imperative to adopt end-to-end data delivery workflow, particularly downstream to valuers in the full mortgage application stage, and the efforts of lenders dealing with origination of new loan applications, decisions in principle (DIP) and full mortgage applications (FMA) focusing primarily on consumer credit status.

If property data and valuation information were utilised, it was primarily to avoid physical inspection and survey reporting through automated valuation models (AVMs), an aggregation of physical survey and other sources of purchase completion to provide a 'confidence' in valuation.

The momentum for continuing use and storage of environmental, land and property resources online is clearly relentless and the automation of aggregation of data, data responses and machine learning (ML) providing a correct answer to a question is the key now and for the future of the property professional. Equally the miniaturisation of hardware interfaces, tablets, smartphones and other data-capture hardware devices has taken the office into the field, allowing surveyors to aggregate data with the properties they are assessing in real time.

A key discontinuity in data has therefore been the emergence of land, property and environmental data libraries available from data vendors or as cloud resources from public bodies. These resources are increasingly tightly coupled with address referencing and map visualisation tools to provide a powerful triage capability for those deploying the systems at origination of any query relating to property at the 1/10th-second level but who have not yet actively informed surveyor behaviours.

A key node in the land and property landscape has become the online properties for sale portals, which, by aggregating physical estate agency listings into a property supermarket, quickly came to dominate the technical and cultural human landscape of buying and selling properties. These property supermarkets are a worldwide phenomenon and in the UK are now the key window into property availability and metrics, which for many represent a form of recreational activity, with more than 100m active hits per month between the two largest portals. The data resources and speed of delivery of these systems support a range of lender and surveyor tools that are currently coupled, either tightly or loosely, with professionals seeking to make rational property risk decisions.

THE EVOLUTION OF THE AVM

An AVM comprises some combination of mathematical modelling with large property datasets assessing comparable property evidence to service a confidence score in

1/10th of a second. These AVMs seek to inform those managing requests for supported lending against property assets on property and credit risk in real time and over very short delivery horizons.

The systems are necessarily backward-looking in aggregating property sale data and valuation data with assumed or actual property layout and use to seek to know the likely static point in time of a value of real property against a selection of peers.

The confidence metrics seek to organise decisions into high probabilities and lower probabilities based on a range of attributes such as frequency of transactions and complexity of property design or history.

The systems have in the last decade come to play an increasingly important first triage for many lending institutions and as portfolio assessment tools for credit risk and lending risk exposure purposes.

In origination, however, the value of the AVM has been primarily restricted by the lack of data integration between lenders and their appointed surveyors and a lack of confidence in the benefits of applying the AVM on new cases without a physical valuation inspection by a chartered surveyor.

WORKING BEYOND 1/10th OF A SECOND

Once an automated process has directed a DIP to FMA, the handover to human inspection and delivery timescales commences (see Figure 1).

For surveyors, a description of a traditional mortgage valuation report (MVR) with a service level return of under one week as long and complex case management might at first appear incorrect; however, the 'long and complex' label applies in an environment in which much decisioning has taken place automatically and at speeds between 1/10th of a second and several seconds.

In this context of complex and effective algorithms and machine learnt responses with established business engine rules, anything passing from the left-hand side environment of near-second delivery 'sees' everything to the right-hand side as a friction and an only marginally necessary 'evil'.

There is an inevitable and relentless logic to building ever more data resources and intelligence into front-end decisioning at DIP and it is essential that risk managers within lenders and their surveying partners

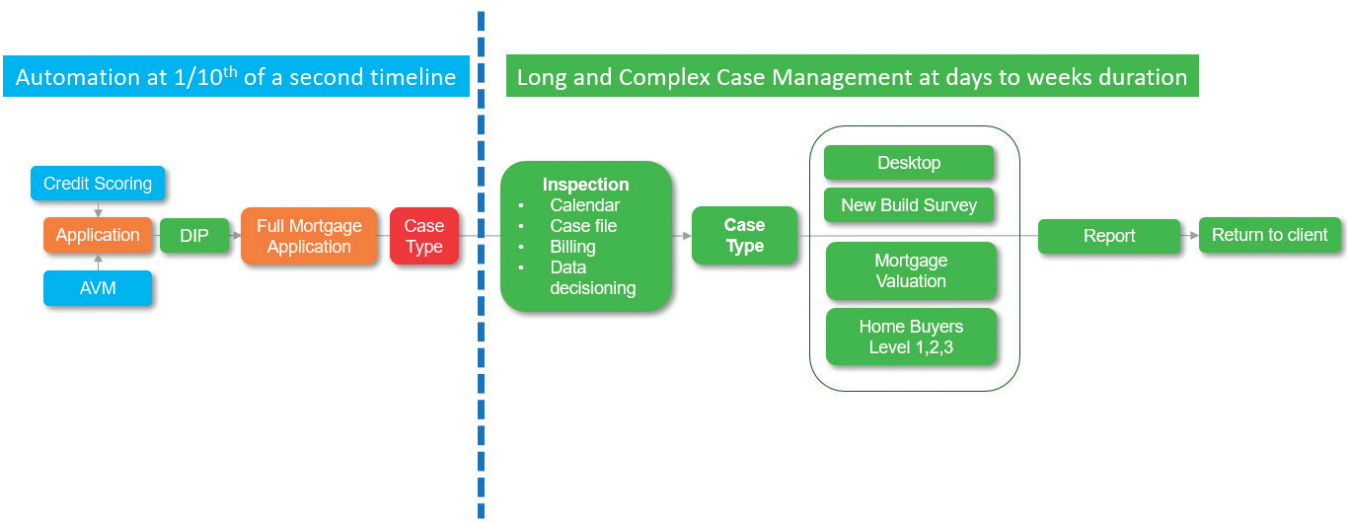

Figure 1: Workflow process moving from 1/10th of a second to days and weeks in processing time

understand the inevitable changes that this process will trigger.

The imperative to move towards some hybrid of 'open property' at origination challenges the very nature of the value that human beings can bring to the process. If surveying managers and technologists fail to rise to this challenge, the future for surveying professionals seeking to add value may well be eroded in whole or in part.

FRONT LOADING DATA INTO FRONT-END CORPORATE PROCESSES

The emerging paradigm is of large corporate clients' front-end loading data capabilities that were previously impossible at scale and using these resources to triage a property application to the right surveyor and the correct reporting process (see Figure 2).

There is no doubt that ever more property datasets will aggregate forward of the traditional property assessment at FMA. Currently, however, there are major data discontinuities in application in any formalised manner key datasets that would assist an improved end-to-end property process:

(1) The DIP is currently 'data light' and has no view of the data resources that might be applied by insource teams or outsourced providers at FMA;
(2) The AVM services provide 'confidence' scores that are by design 'blind' to the building under review and seek peer comparables to generate confidence ignorant of the key other factors in property risk;
(3) The FMA process of most lenders will rely on an immediate discontinuity in what data resources the outsourced survey valuation channel will embed;
(4) The FMA process of most lenders is 'blind' to any data aggregation via conveyance search and can only hope the data vendor specification matches its own rules and policy;
(5) The valuer is not connected to the data driving DIP, or FMA, or their conveyance;

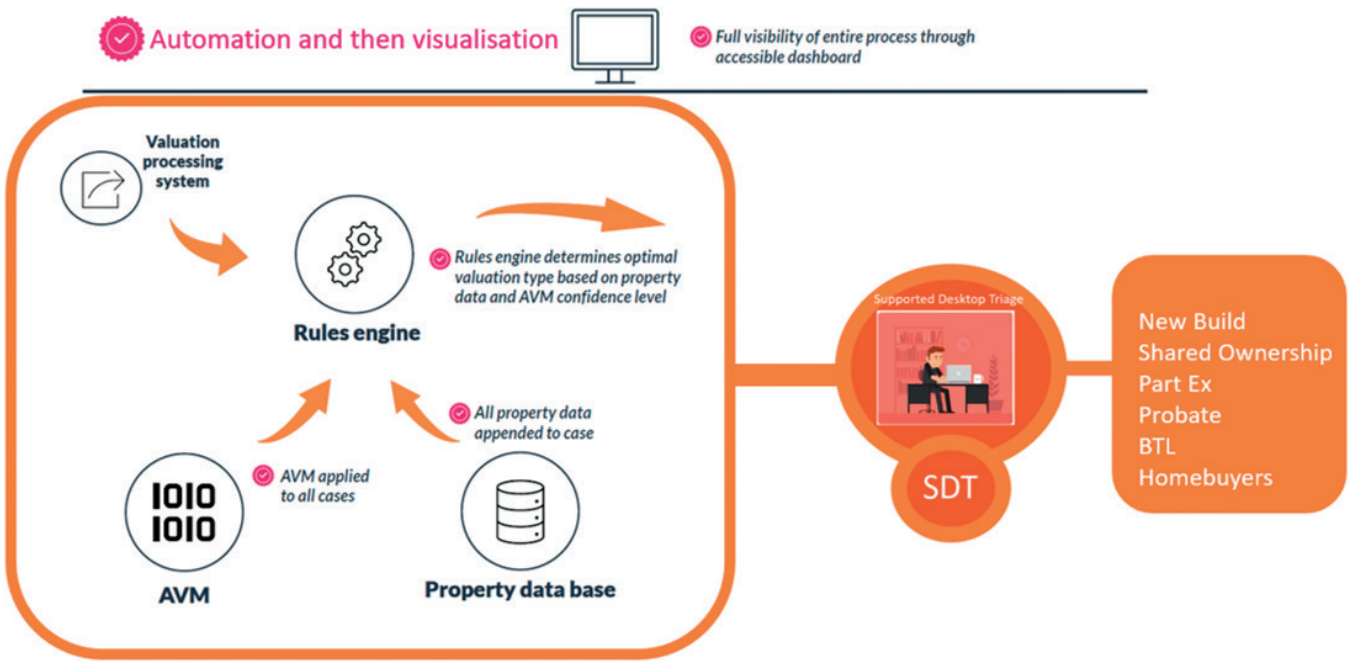

Figure 2: Front loading origination of new application with data resource for supported desktop triage

Case study 1

Nationwide Building Society appointed Airbus Intelligence to deliver key environmental perils directly into the Nationwide application rules engine in 2016.

Airbus aggregate earth observation satellite data with proprietary flood data from JBA Ltd and Cranfield for soils perils information to create a risk and decisioning framework against all 27m residential addresses.

Adding insurability and environmental perils data to its DIP process has allowed Nationwide to triage cases far more effectively through DIP to FMA and onward to its customers' and members' chosen legal property conveyancers. A key benefit is that the investment has already rewarded Nationwide with an established process to tackle its compliance reporting to the PRA with regard to climate change monitoring of impacts.

The process of adding new datasets on property intelligence to the front-end systems is now an established 'way we work' for the Nationwide property risk team (see Figure 3).

(6) The conveyancer is not aware that any data resources were deployed of any character whatsoever.

These six strands of discontinuity are then compounded by workflow software that is for the most part unmodernised and unaware of the workflow rules engines, data resources and application of effort by the channel in question.

It is here in the discontinuities of consistent data delivery that application failure, poor consumer service, extended case durations and multiples of post-valuation queries stifle real progress towards an improved customer experience.

While property chains, survey uncertainty, consumer change of heart or changed circumstances, such as illness, all play a part in deals failing or progressing slowly,[4] there is little doubt that legacy systems, poor management of data vendor procurement, mistimed and misuse of data through the various reporting channels and inexperience in using data resources in rules engines outside of AVMs are all hampering progress.

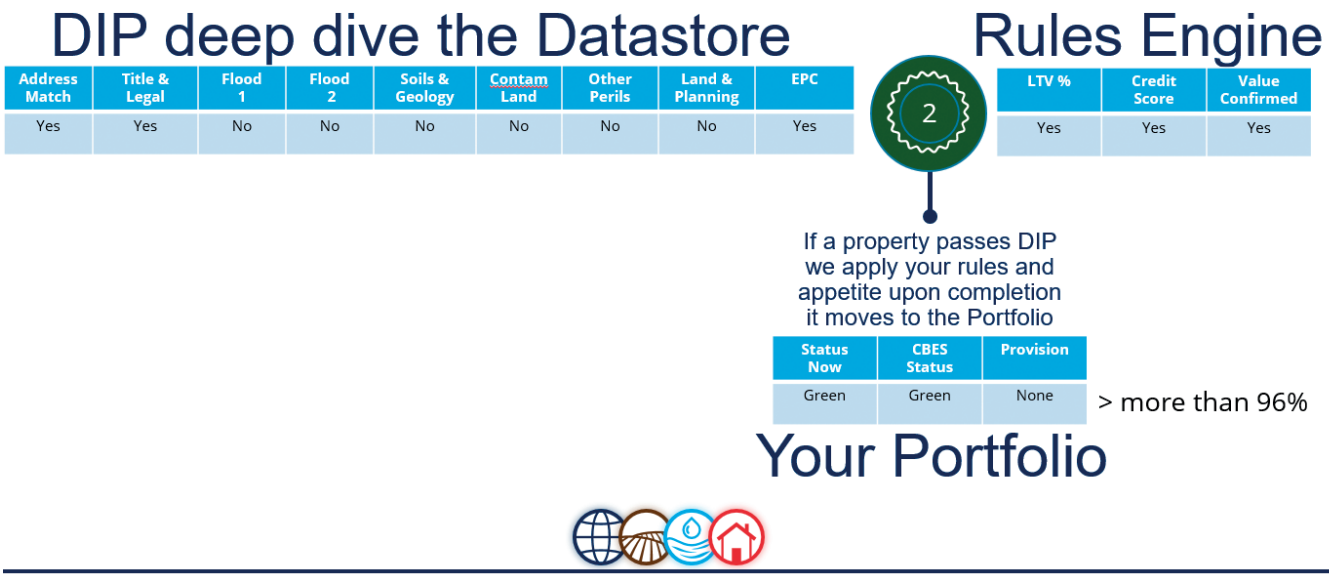

Figure 3: Airbus and Nationwide data model of future DIP decisioning. Discontinuities in data use

THE IMPERATIVE FOR MODERNISATION

The weaknesses currently inherent in large financial institutions origination systems might seem of little consequence to chartered surveyors and systems managers. All the evidence suggests, however, that many lenders driven by new strategic imperatives in customer acquisition, service and retention or the compliance imperative for reporting accurately to the regulators on climate change impacts over multi-decadal timeframes[5] are now beginning to address the discontinuities discussed.

As systems modernise and corporate sponsors of data and system integration emerge, the capabilities of these actors to influence surveying and conveyance supply chains expands.

Inevitably, as corporate surveyors adopt client-driven modern triage and conveyancers accept the single point of truth from common curated data reporting for searches, embedded within the equivalent of open property datastores, all systems will move towards a common process for reporting risk.

Finally, the Royal Institution of Chartered Surveyors' (RICS) professional statement[6] fully anticipates this process:

> 'RICS members need to be familiar with the nature and complexity of the locality in which the subject property is situated. This includes general environmental issues where the information is freely available to the public (usually online). The nature, quality and accuracy of the data varies between suppliers and so RICS members should treat this information with care.
>
> Although the range and nature of these issues will change over time, the list currently includes:
> - flooding (surface, river and sea)
> - radon
> - noise from transportation networks
> - typical geological and soil conditions
> - well-known but unique local and regional ground conditions
> - landfill sites and relevant former industrial activities
> - former mining activities
> - future/proposed infrastructure schemes and proposals
> - planning areas (e.g. conservation areas, areas of outstanding natural beauty and Article 4 direction)
> - listed building status and
> - general information about the site including exposure to wind and rain, risk of frost attack, and unique local features and characteristics that may affect the subject property. This list is not prescriptive or exhaustive because relevant issues will vary based on location.'

THE ROLE OF THE MODERN SURVEYOR AS DATA ANALYST, DATA GENERATOR AND SMART REPORTER

It is inevitable that large financial institutions will continue to accelerate adoption of aggregated data libraries into front-end processing to smooth workflow, remove downstream discontinuities in data decisioning and thereby remove 'friction' in case completion by lowering PVSQs. It is equally inevitable that downstream surveying professionals will adopt the processes in a mirror of the journey that lenders prescribe. Finally, the legal profession will increasingly align with the efforts of lenders and surveyors in common data libraries as 'one point of truth' and the methods will migrate to surveyor and conveyancing private clients.

Surveyors will need to understand the risks and opportunities in modern data aggregation, data use, misuse, triage, workflow and software and hardware that facilitates integration with client process.

In Figure 6, the surveyor is aligned with a supported desktop triage (SDT) and the client's chosen datastore of key property and

Case study 2

Figure 4: Two comparable properties in the same road

In this example, two properties (see Figure 4) of identical age and construction within the same road produce a ready highly urbanised high confidence score from the associated comparable assessment.

The comparable tools and AVM 'see' transaction history, peer comparables and surveyor activity clearly.

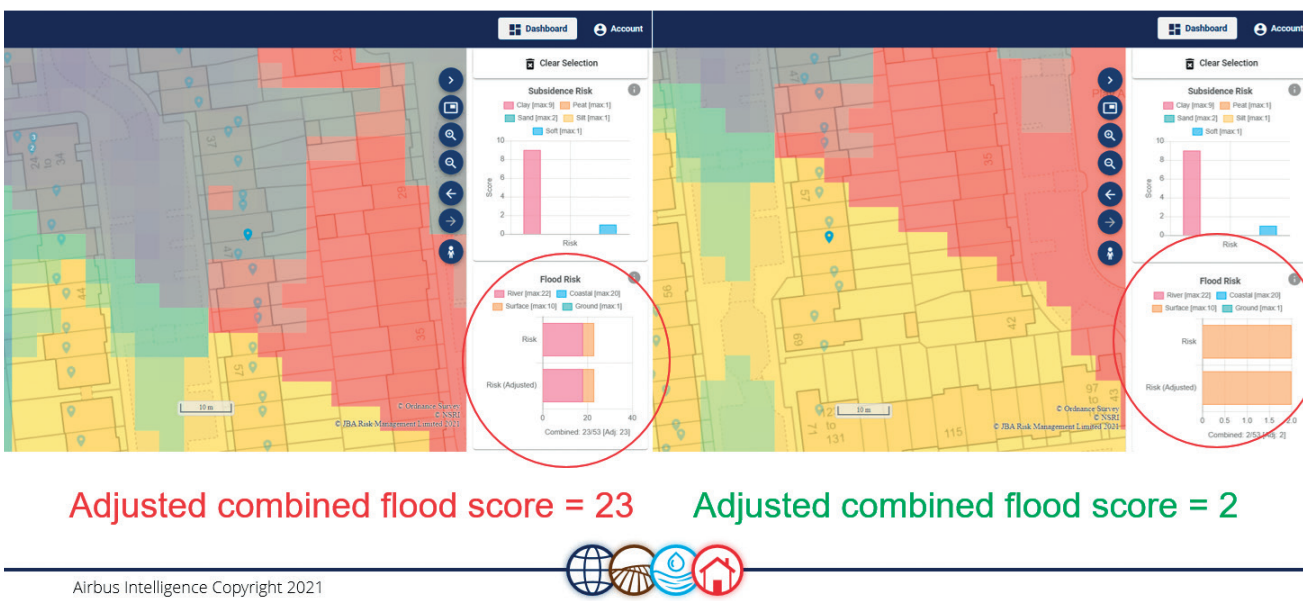

Figure 5: Flood score for No. 45 is 23 and No. 61 is only 2

Applying front-end loading of flood scores and insurability generates a very different view of the property susceptibility to flooding risk (see Figure 5).

1. Our housing markets and the professionals working within them don't 'see' environmental risk;
2. If valuers know what clay risk is, or where is flood prone, they do not reflect the risks in their valuations;
3. Predominantly this is because they really do not know;
4. Because they do not know, then comparable tools and AVMs cannot know either … so it all remains unseen until later;
5. Thus, even homes that reflect the worst of what the future might look like today are valued identically to similar homes with no perils risk and then 'pushed' into a conveyancing track to play 'hide and seek' with the possible perils search companies;
6. Most of this would not matter if homes remain insured and insurable unless downstream post-valuation and survey queries (PVSQs) choke the sale to death.

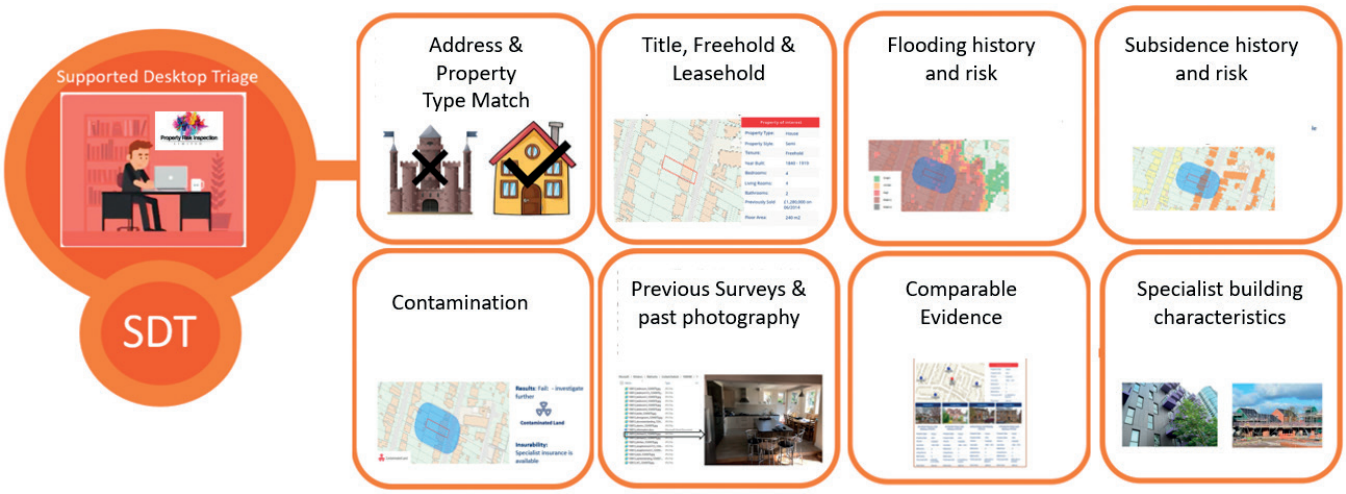

Figure 6: The modern surveyor data triage aligns with the end-to-end client process

environmental datasets that inform the brief for any desktop and physical effort.

THE BENEFITS OF A SUPPORTED DESKTOP TRIAGE AND FIELD SYSTEMS CAPTURING DATA IN A COMMON FORMAT

For the surveyor, the systems emerging significantly reduce exposure to potential claim in negligence by aligning survey data with client prepopulated data triage.

Standardising the front-end processing, the brief, the specification and data requirements will:

- Align your data objectives with those of your clients;
- Demonstrate to your team, your insurers, prospective claimants and the Courts that you knew what you were doing;
- Create the basis for storage, retrieval, reuse and recombination of your data which becomes a valuable data asset downstream;
- Make you more profitable as its more efficient;
- Encourage people to stay with employers with good systems that work well;
- Ensure the client experience will be enhanced;
- Ensure the field teams will be provided with the right brief.

Cases can migrate from desktop triage to physical survey with far greater confidence and the raw data collected realigned and aggregated with the case file triage to ensure a richer experience for all users (see Figure 7).

Surveyors who do not understand that data acquisition, its curation and application is a key risk and threat to their continued trading will find themselves increasingly isolated in delivery of their services. Those adopting the new systems and approaches will reap the rewards of modernisation.

This modernisation cannot simply mean adoption of new IT processes married to a less experienced work force to protect established margins. It cannot be designed to bolster the 'go-faster hamster' so evident in the logic for much technology adoption of the last ten years. It must mean committing to retraining, IT modernisation and — most importantly — to putting the consumer at the heart of every decision made.

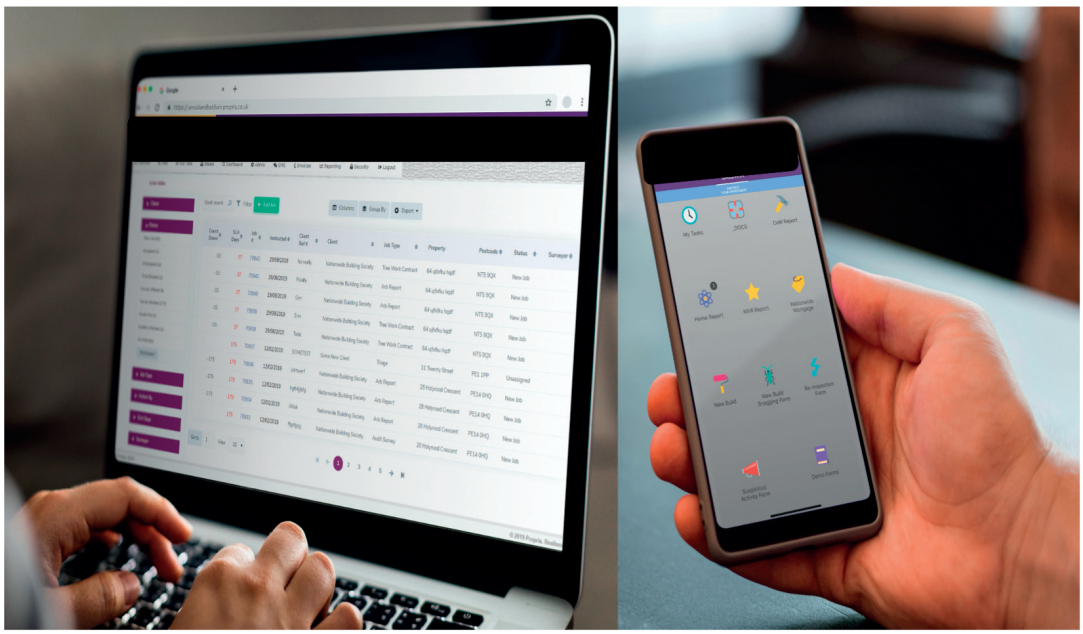

Figure 7: Desktop system triage and field data capture must be tightly coupled in the future

References

(1) Office For National Statistics (March 2021), 'Families and Households in the UK: 2020', Gov.UK, available at https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/families/bulletins/familiesandhouseholds/2020 (accessed 9th September, 2021).

(2) Ordnance Survey, 'AddressBase® Products May 2021 Epock 84', Release Note version 1.0, available at https://www.ordnancesurvey.co.uk/documents/product-support/release-notes/addressbase-release-note-may-21.pdf (accessed 9th September, 2021).

(3) Office For National Statistics (January 2021), 'Overview of the UK Population', Gov. UK, available at https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/articles/overviewoftheukpopulation/january2021 (accessed 9th September, 2021).

(4) Rightmove, 'Property chains and why it all takes so long', Advice guide centre, available at https://www.rightmove.co.uk/advice/buyer/once-offer-accepted/chains/ (accessed 9th September, 2021).

(5) Bank of England, 'Climate change', available at https://www.bankofengland.co.uk/climate-change (accessed 9th September, 2021).

(6) Royal Institution of Chartered Surveyors (RICS) (November 2020), 'Home survey standard', 1st edn, available at https://www.rics.org/globalassets/rics-website/media/qualify/home-survey-standard-nov-2020.pdf (accessed 9th September, 2021).