The Importance of Reliable Statistical Data in Facilitating a Well-Functioning Real Estate Market

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Key words: Statistical data, values, knowledge, understanding, wisdom.

SUMMARY

It is said that:

An ounce of information is worth a pound of data.
An ounce of knowledge is worth a pound of information.
An ounce of understanding is worth a pound of knowledge.

The writer of that observation, Russell Ackoff, was wise enough NOT to continue on to say "an ounce of wisdom is worth a pound of knowledge", and explained why. It is because wisdom involves values and qualities that are not reducible to monetary values or merely machinist thinking. Wisdom in a field requires deep understanding of it, and requires integrated perceptions able to detect patterns that the less wise cannot. It also requires an ability to understand what information is useful and what data are needed to acquire it, and what actions should be employed to skilfully apply that information towards the better functioning of a real estate market.

Therefore:

You need data to acquire information
You need information to acquire knowledge
You need knowledge to attain understanding
You need understanding to attain wisdom
You need wisdom in action to achieve well-functioning real estate markets.

Each step along that ladder is more significant and less fundamental than the step before it. Just as to compete in the Olympic Games it is fundamental to have a body, but having a body does not mean you will win a medal, so having data is fundamental to wisdom in action, but having data does not mean you will attain wisdom in action. But it does mean that without data, your chances of acting wisely are about the same as me winning an Olympic Gold Medal.

This paper addresses how to step up that ladder. It begins with addressing which data are the best candidates in which contexts, and traces how that data may be optimally organised for relevant knowledge to be able to emerge from it, thereby allowing the better understanding of the challenge being addressed, and ultimately being able to act as wisely as is practicable in the circumstances.

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1. INTRODUCTION

40 yottabytes is a lotta bytes.[1] It's about 5.2 gigabytes of data for the estimated number of people to be on Earth by 2020 (Wang and Ranjan 2015), and it's also how much data we will have available to us by then.

And that's just digital data: lots and lots of little bits. But what about all that's between those bits, including how they interact with one another? And what about analogue data, including all those people on Earth in 2020, and all that will be going on between them, the rest of the living world and the environment, and all of those with the digital world, including those lotsa bytes?

We know from chaos theory in general and the butterfly effect in particular, any of the above may influence any other part of the above, including the reliability of statistical data in facilitating a well-functioning real estate market. Therefore, we must now begin from there, and I call this the "Field".

So, what to do? As E.O. Wilson put it:

> We are drowning in information, while starving for wisdom. The world henceforth will be run by synthesizers, people able to put together the right information at the right time, think critically about it, and make important choices wisely (Wilson 1999, p. 294).

This paper traces how one can navigate that journey, but it begins with data, because:

"An ounce of information is worth a pound of data.

An ounce of knowledge is worth a pound of information.

An ounce of understanding is worth a pound of knowledge"

(Ackoff 1989, p. 170).

The paper also asserts that one simply cannot navigate that journey into the Field by merely using the Gorgonic gaze of critical thinking. While necessary, it is insufficient. When deciding what information is "right", and what time is right, and what data or information or knowledge or understanding or wisdom is worth the most, we also navigate the journey by valuations. And what we are here valuing towards is a well-functioning real estate market. And from my perspective as a professional valuer, a well-functioning real estate market is one

[1] "A Yotta is the largest decimal unit prefix in the metric system, denoting a factor of 10^{24} or 1,000,000,000,000,000,000,000,000: https://en.wikipedia.org/wiki/Yotta-

which consistently results in agreements that comply with the IVSC definition of market value:

> Market value is the amount for which an asset or liability would exchange on the valuation date between a willing buyer and a willing seller in an arms-length transaction after proper marketing wherein the parties had each acted knowledgably, prudently and without compulsion (IVSC 2016).

So, let's start on that journey. It is similar to the four level DIKW process, Data, Information, Knowledge and Wisdom (Schumaker 2014),[2] but this one has six levels - Data, Information, Knowledge, Understanding,[3] Wisdom, and finally Wisdom in Action towards Well-Functioning Real Estate Markets – and:

You need data to acquire information

You need information to acquire knowledge

You need knowledge to attain understanding

You need understanding to attain wisdom

You need wisdom in action to achieve well-functioning real estate markets.

We will encounter several geniuses along the way, but none will get us all the way. The final steps are ours.

2. FROM DATA TO INFORMATION

Miriam-Webster's online dictionary[4] defines "statistics" *as "a branch of mathematics dealing with the collection, analysis, interpretation, and presentation of masses of numerical data"* and "data" as *"facts or information used usually to calculate, analyze, or plan something"*. However, in DIKW it is meant as *"observable differences in physical states"* (Boisot and Canals 2004). The tile of the article providing that definition asks, "have we got it right?" The answer from this perspective is "no", because in looking at the Field to find its market-relevant relationships we cannot confine ourselves to physical states. We must *abstract*, as in mathematics, for it to be statistical data, and we must be able to *value* the data and discern what is most likely to be relevant. So here, data means "observable differences" in the Field.

Ackoff's valuations of ounces and pounds are metaphors for those of one of the major geniuses to accompany us on parts of our journey, Michael Polanyi, who noted that each

[2] Schumaker notes that the meanings of these words are "still matters of debate" (ibid, p.5). Consequently, I provide definitions of those words as meant in this paper.
[3] A level inserted in the book *Panarchy* (Gunderson and Holling 2002, p. 123).
[4] http://www.merriam-webster.com/dictionary

lower level "imposes restrictions on the one above it", and each higher level organises the particulars of the lower level and is more meaningful (Polanyi 1966).[5]

Polanyi claimed that we enfold such values tacitly,[6] and they are built in to us via our evolutionary history. We use our values to build our models, including those to identify reliable statistical data, and "the model we use determines what we find" (McGilchrist 2009, p. 97). So it is from this combination of our inherited sentience and valuation competence in addressing our environmental challenges that we cherry pick from the field we find ourselves within. But, like DIKW, there is an order to this: it's called "the primacy of affect" ibid, p. 184). While:

> values are not themselves feelings … they reach us through the realm of feeling, much as colours reach us through the realm of sight" (ibid, pp. 158-159).

Furthermore, "values come first, facts and policies follow in the service of values. They matter, but they always support values" (Lakoff 2016).

So information is "meaningful, useful data" (Bierly, Kessler et al 2000) – an observable difference that is valued as making a difference in the relevant context. So to us *information is data that we value*, and all such valuations that are beyond extrinsic, utilitarian values are now understood to reside in the brain's right hemisphere, which directs where we look to turn data into information (McGilchrist 2009, p. 187). Both McGilchrist and Polanyi stress the tacit nature of those valuations, Polanyi saying "an explicit integration cannot replace its tacit counterpart" (1966, p. 20), and McGilchrist claiming that:

> The right hemisphere needs *not* to know what the left hemisphere knows, for that would destroy its ability to understand the whole; at the same time, the left hemisphere cannot know what the right hemisphere knows" (McGilchrist 2009, p. 208).

He further points out that our hemispheres provide us with "two individually coherent, but incompatible, approaches to the world" (ibid, p. 94), the left hemisphere delivering us our ability to think critically and abstractly, set ourselves apart and analyse our environments in "a view from nowhere" (Nagel 1986), and the right hemisphere to begin bringing our world into being (McGilchrist 2009, p. 194), to think holistically, and to value and integrate ourselves with our environments in a view from somewhere.

But we aren't there yet.

3. FROM INFORMATION TO KNOWLEDGE

Schumaker (2014) defines knowledge as follows:

[5] Here, "meaningful" means "having real importance or value", and being valuable in "having desirable or esteemed characteristics or qualities" and being "of great use or service". Definitions are from Miriam-Webster again: http://www.merriam-webster.com/dictionary

[6] "expressed or understood without being directly stated": from Miriam-Webster again

> Knowledge is the aggregation of related Information (Barlas, Ginart et al. 2005), that forms a set of expectations or rules (Boisot and Canals 2004) which provides a clearer understanding of Information (Bierly, Kessler et al. 2000).

In science, the beginnings of converting information into knowledge is called an *ansatz*, which is an educated guess made to be verified or falsified later by its results.[7] As all statistical data has been produced by the processes outlined above, it is important for it to be tested in the relevant real estate market as a reliable ansatz in the context. For example, statistical data could be completely reliable in saying that the average family somewhere has 1.6 children, but one may be hard pressed to find a child that is only 0.6 of one in a particular family. In other words, applying knowledge without understanding can lead to absurd results, quite unfit for the purpose of facilitating a well-functioning real estate market.

4. FROM KNOWLEDGE TO UNDERSTANDING

Here, understanding means *"the power of comprehending; especially the capacity to apprehend general relations of particulars; the power to make experience intelligible by applying concepts and categories"*.[8] More than that, it means being capable of:

> treating knowledge as a whole. Without that wider outlook, the whole idea of knowledge as it has always been understood evaporates (Midgley 1991, p. 8).

So one can know something without understanding it. As the wise old Chinese saying puts it, "when the wrong man uses the right means, the right means work the wrong way". One can know lots of reliable statistical data which in the right hands could facilitate the well-functioning of a real estate market, but if you do not understand it, it may be as dangerous in your hands as an airborne plane would be in mine. But market values are made by people, not machines, so we have a distinct advantage: "Dead matter, matter that is both lifeless and deathless" [such as reliable statistical data]:

> takes on meaning by originating living things... The field of new potential meanings was so rich that this enterprise, once started, swept on toward an infinite range of higher meanings, unceasingly pouring them into existence, for the better part of a billion years. ... Rising stages of evolution produce more meaningful organisms, capable of even more complex acts of understanding" (Polanyi 1966, p. 91).

[7] I use the term "ansatz" rather than the more general term "heuristic" – rule of thumb – because here we are looking to develop reliable statistical data, and "no single English term could possibly convey the multifariously refracted shades of meaning that the German word suggests" It includes the terms "expanding", "growing", "not mechanistic but temporal", a way to "open up the whole", including "an excursion into personal intuition" regarding knowledge being "neither illusory nor absolute, it is approximate, exposed to the risk of uncertainty" (Holdheim 1985, pp. 627-628).

[8] Again, the one of Miriam-Webster's definitions of a term most relevant to this paper: http://www.merriam-webster.com/dictionary.

And these complex acts of understanding are completely reliant upon the combination of the left hemisphere's critical thinking with the right hemisphere's capacities, especially that of understanding metaphor:

> Only the right hemisphere has the capacity to understand metaphor. … Metaphoric thinking is fundamental to our understanding of the world, because it is the only way in which understanding can reach outside the system of signs to life itself. It is what links language to life (McGilchrist 2009, p. 115) … [while] the left hemisphere has no capacity for metaphor … the right hemisphere has a great affinity for it, and poetry's "indirect, connotative" language in contrast to the left hemisphere's explicit, direct language, is the portal to metaphor, and metaphor "*underlies all forms of understanding whatsoever*" (McGilchrist 2009, p. 71; italics in original).

That is, metaphor gives "meaning to the words we hear rather than the other way around" (Hoggan and Litwin 2016, p. 49). There is no understanding, let alone wisdom, without metaphor.

That is why, once again as E.O. Wilson put it, "the ideal scientist thinks like a poet and only later works like a bookkeeper" (Wilson 2013, p. 74). The same goes for the ideal persons to facilitate the better functioning of real estate markets by means of applying reliable statistical data.

With sufficient understanding as gained by such people by experience in combining metaphor with critical thinking, they, and only they, can become experts as stated by the National Research Council of the U.S.A. (p. 32):

1. *Experts notice features and meaningful patterns of information that are not noticed by novices.*
2. *Experts have acquired a great deal of content knowledge that is organized in ways that reflect a deep understanding of their subject matter.*
3. *Experts' knowledge cannot be reduced to sets of isolated facts or propositions but, instead, reflects contexts of applicability: that is, the knowledge is "conditionalized" on a set of circumstances.*
4. *Experts are able to flexibly retrieve important aspects of their knowledge with little attentional effort.*
5. *Though experts know their disciplines thoroughly, this does not guarantee that they are able to teach others.*[9]
6. *Experts have varying levels of flexibility in their approach to new situations.*

These aspects of expertise are not ones I could acquire if suddenly required to fly a plane. However, by dint of being here at all, unless damaged in some manner we all possess qualities

[9] Polanyi (1966, p. 4): "we can know more than we can tell".

that are of great relevance in understanding markets. If our ancestors had not, they would have been killed off long ago, and we would never have existed.

5. FROM UNDERSTANDING TO WISDOM

Here, we wave a fond farewell to Schumaker, for he claims that "wisdom can be viewed as a grasp of the overall situation … that uses knowledge and knowledge alone … to achieve goals" (Schumaker 2014, pp. 5-6), quite ignoring how such goals arise, and how worthy they may be. That may suffice in Schumaker's field of computer and information sciences, I can't say, but I can say that it will not suffice when looking at markets; for that, to be wise, one has to value values and goals: weigh those that are relevant in the market concerned in terms of the IVSC definition of market value.

So here, I adopt Geoff Mulgan's definition of wisdom as meaning "*The ability to make sense of complexity, context specificity, and to integrate moral perspectives, balancing part and bigger systems"* (Mulgan 2014 at 29min 57secs).[10]

It is persons possessing enough of this quality who are optimal not only in employing reliable statistical data in facilitating a well-functioning real estate market, but also in organising the particulars of the lower level of statistical data.

In deciding what makes a market well-functioning, they must address the question, "what is a market for?" They do so by employing:

> embodied skills, a proper humane context for the understanding of what we learn, an emphasis on the implicit as much as the explicit, on quiet, sustained attention rather than constant stimulation that fragments attention, a belief in the broader picture, and in the values of more than just pleasure and utility (McGilchrist in Rowson 2013, p. 48).

In this workshop, therefore, we must ask ourselves, "what wisdom in action is required to identify and engage with the statistical data fit to identify and action the necessary reforms towards framing a sustainable real estate markets policy?[11]

[10] In so doing, I fully recognise that any definition of wisdom is inevitably insufficient, as it enfolds the more than we can tell of Polanyi, and much else besides, including the inevitability of complete knowledge and understanding and optimal means of addressing that inevitability in the relevant context. For a discussion of aspects of wisdom as understood in Western, Ancient Greek, Chinese and Indian civilisations, see Kidd (2007) at http://www.thomehfang.com/suncrates5/twinstars.htm. Midgley (1991, p. 242) states that many modern Western philosophers have become "too prissy to use such words" as "wisdom" today, which means they are irrelevant in this context

[11] As I have addressed in previous presentations at various conferences (McDermott and Noseda 2014 and 2015, McDermott 2016a and 2016b), we already have the software required to discover and turn the relevant market valuation data into information, which the competent can then use as knowledge towards gaining the understanding and wisdom required for practicable real estate market policies.

6. FROM WISDOM IN ACTION TOWARDS SUSTAINABLE REAL ESTATE MARKETS

When my professional institute, now called the Australian Property Institute, was incorporated in 1926, it adopted the motto "broad vision and balanced judgement". In those days they used Latin: "Prospiciens, Recte, Judicans". However, on the above framing they clearly missed a word: *deep* (Latin "Profundus").

I consider that this addition is profoundly important if we are to answer the above question of ourselves: we need *broad and deep vision and balanced judgement* if we are to frame a sustainable real estate markets policy, and given our location I submit that our motto should be in ancient Greek. Moreover:

> Depth, as opposed to distance from a surface, never implies detachment. Depth brings us into a relationship, whatever the distance involved, with the other, and allows us to 'feel across' the intervening space. It situates us in the same world as the other (McGilchrist 2009, p. 183).

That means a necessary engagement with the intended beneficiaries of the policies concerned. They can assist in deciding, interpreting and engaging the relevant statistical data and much else besides.

In this task, we develop wisdom through embodied action as well as abstraction: we get real, towards benefitting real persons and their environments instead of only the symbol economy.[12] And if we are wise we do not only act alone: we act in transdisciplinary communities of inquiry and action; what Michael Polanyi termed "*a society of explorers*":

> In a society of explorers, man is *in thought*. Man the explorer is placed in the midst of potential discoveries, which offer him the possibility of numberless problems … The structure of authority exercised over a society of explorers is different from that to which a dogmatic society submits. Take once more the example of science. I have spoken to the principle of mutual control through which each scientist independently plays his part in maintaining scientific traditions over an immense domain of inquiry of which he knows virtually nothing. A society of explorers is controlled throughout by such mutually imposed authority (Polanyi 1966, pp. 83-84).

Things have changes since Polanyi's day; the poets in many areas of science are being suffocated by the bookkeepers, making depth a luxury we are assured by the bean counters that we cannot afford. The prevailing attitude was well expressed by Stanisław Jerzy Lec: "we know we are on the wrong track, but we are compensating for this shortcoming by accelerating" (Sedlacek 2011, p. 233).

That simply will not do, but it is an inevitability unless we are wise enough to get on the right track. And that track is already demonstrated to us in Silicon Valley, by very different organisational frames from the merely mechanist hierarchies we are most accustomed to. They are called *heterarchies*, systems of organisation replete with overlap, multiplicity, mixed

[12] Beeferman and Wain (2016) have recently provided a useful discussion document relevant to such policy debates.

ascendancy, and/or divergent-but-coexistent patterns of relation.[13] Stark (2000) refers to heterarchies as "a new mode of organization", enfolding "lateral accountability and organizational heterogeneity", responses to the increasing complexities of strategy horizons or fitness landscapes (ibid, p. 6). They are "complex adaptive systems … of competing and comparing value systems" (ibid, p.8).

It is from transdisciplinary heterarchies that we can achieve *consilience of evidence* - evidence from independent (including interdisciplinary) sources converging to strong conclusions (Wilson, op. cit). Moreover, Grint (2009, p. 4) defines heterarchies as enfolding emergence, a core focus of Polanyi's, and which in this context includes Polanyi's explorers capable of ever more complex acts of understanding.

7. CONCLUSION

It is heterarchies, rather than hierarchies, that are the sorts of organisations that Polanyi's societies of explorers need to flourish, and it is such societies of explorers that we must become on this journey to the world of well-functioning real estate markets, which are only those found whenever and wherever they help the local populations become the best they can be by means of market value transactions. And to decide that, along with all the other factors required to develop sustainable real estate market policies. we need lotsa wisdom - yottas of wisdom - and lotsa reliable statistical data to help provide their reliable foundations.

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[13] http://psychology.wikia.com/wiki/Heterarchy

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BIOGRAPHICAL NOTES

Mike is the managing director of Global Property Advisory, a new company working towards developing the knowledge provided from real estate market data by its parent company, Global Property Analytics, towards achieving wisdom in action in the relevant real estate market. Global Property Analytics' technology can gather all available real estate market data from the relevant market and automatically convert it into useful information for knowledge-building.

Mike has almost 40 years' real estate valuation and valuation-related experience in the public and private sectors, both nationally and internationally. Internationally, Mike has consulted on land policy, legislation and administration matters in general, and on facilitating fit-for-purpose land valuations in opaque markets in particular, for the last 25 years. The challenges in that field of valuation range from the most demanding valuation context of all, compensation for compulsory acquisitions, to other land valuation contexts such as valuations for rating and taxing purposes. Mike's master's degree was on addressing complex social issues, and his doctoral thesis was on addressing wicked valuation problems in the developing world.

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