

Why Does Surveying Exist?

By N.W.J. Hazelton Reprinted with permission from the ACSM Bulletin No. 238 [April 2009]

It is always sensible to be aware of the reasons for an organization or institution's existence. In "normal times" focusing on the organization's core principles is one of the requirements for a successful transition from good to great (part of the Hedgehog Concept: Collins, 2001). In economically strained times, a focus on the raisons d'être can be critical to survival. So it seems an opportune time to ask: Why does Surveying Exist? What is its purpose?

Let's focus on "Surveying" being the broader profession or discipline, covering a wide range of individuals, organizations, and activities. We can leave the question of why specific professional organizations exist for another time.

We should also think about surveying globally. It is a global profession, so it should be dealing with fundamental social/environmental/physical problems that occur all over the planet. What are these problems, and do they help define the reasons why surveying exists?

Some suggested approaches

One approach that has been suggested is that surveying is the science of spatial measurement, that surveyors are the spatial measurement experts, and because we need measurement data, the role of the surveyor is largely defined by the role of measurement in society.

This argument has problems, because measurement is totally dependent on technology. If you attach "surveying" to "measurement," surveyors become technicians, rather than professionals, and the profession's future is subject to the vagaries of technological development.

In addition, recent advances in technology have removed much of the fine skill and art aspects of measurement, making measurement very much a technical area. GPS, total stations, digital levels, and scanners have made measurement quick, easy, and relatively cheap, as well as widely accessible. Anyone can do measurement today. GIS has done the same thing to cartography, and while anyone can now produce a pretty map, this doesn't mean it's a good map.

Another suggestion is that surveying exists to define property boundaries. If this were the case, we would expect to see property surveyors everywhere that private property exists. In the UK, there is almost no need for boundary surveyors, and they are quite rare, along with boundary surveys. The term "surveyor" in the UK contains much more of the "valuation and appraisal" connotations than "measurement" connotations.

An additional concern in the U.S., expressed by such writers as Lucas (2009), is that many surveyors seem to see themselves

only as gatherers of facts (data collectors, measurers) and consider boundary line definition to be the work of the courts. If this is the case, then surveying has nothing to do with defining property boundaries and everything with measurement, and we are back to the first approach. With today's technology, anyone can do measurement, so there is nothing special about surveyors as measurers.

Surveying as an information discipline

It has been suggested that surveying is a service industry or discipline. I would argue that it is an information industry or discipline, and always has been, for the following reasons.

Services are, by definition, transitory: the service doesn't last much beyond the time of service. You buy a meal or a haircut or pay to get your house cleaned, and not long afterwards you have to do it again. In ancient times, the temple priest would consult with the gods to give you advice for your current situation, but different situations needed different advice. Surveying is not like that.

Surveying produces a very definite product, which lasts beyond the time of the service provided. Since the product is primarily information, it may be intangible, but like all information, it lasts. When a surveyor determines the location of a boundary, the information product is not the monuments in the ground, nor even the plat of the survey, but the relationship between the two. This relationship can survive the destruction of the ground marks, and even that of the original plat. Further, this information can be duplicated and disseminated without subtracting from the original—an important characteristic of information. Information is also very difficult to destroy, although its intangible nature makes it easy to overlook.

A map is a similar information product. It is an abstract representation of the real world; measurement data that have been selected, structured, ordered, and presented to deal with a specific problem or need. While selling the map to the client is a service, the product itself is the information in the map.

As an example, the key task of the ancient Egyptian surveyors was to re-establish field boundaries after the annual Nile flood had obliterated them, and so re-create the original relationships of those boundaries, despite the destruction of their tangible representations. The boundary information, the information product, continued to exist; the service was replacing the boundary markers each year.

Surveying is by far the oldest information profession, discipline, or industry.¹ We now live in an "information society" and operate in an "information economy." The world has finally caught up. But what do we mean by "information society" and "information economy"?



Essentially, an “information society” and “information economy” operate primarily through the use of “tokens.” Rather than deal with real objects, we create “tokens” that are used as representations of whatever it is we want to deal with. In many cases, this is very useful. We don’t trade land, we trade deeds and mortgage documents. We don’t buy and sell what we need using bullion or produce, we exchange pieces of paper or use electronic tokens via plastic cards. On the downside, we often don’t think about individual people but work with social security numbers and statistical aggregates representing the “average person.”

When confronted with an actual individual, we often work with tokens of their individual totality: their psychological, behavioral, political, or consumerist characteristics. Stereotypes are another form of token.

So the information that surveying produces is a token. That token may be the map or the plat or something similar. Since there is usually some spatial measurement involved in developing this information, and spatial measurement is now available to all, there is the risk of surveying becoming irrelevant in an information environment (which will include the information society and information economy).

So, why does surveying exist?

The conclusion one may have reached from the discussion thus far is that surveying isn’t what one thought it was, and that it is under threat from technological advancement. But this is overlooking a critical point in the information environment. Tokens only work while they have a connection to reality.

You can only use your credit card while there is a connection to the reality of a balance less than your credit limit. The connection between money and what it can buy is changed by inflation, the changing reality of the value of money. If a deed does not truly represent the land it purports to, both the token (the deed) and the land are significantly devalued.

Over the last year, we have seen what happens when some very abstract tokens, e.g., mortgage-backed securities, high-level financial derivatives, and even stocks and mutual funds, become disconnected from the reality that they purport to represent. It has been estimated that 40 percent of the world’s wealth has evaporated—as measured by the nominal value of these tokens—, amounting to tens of trillions of dollars.

However, in one sense this “evaporated wealth” was a measure of the difference between the tokens and what they represented—in effect a measure of the quality of the connection between token and reality. The global economy as a whole, and many millions of individuals, are in the process of suffering the consequences of the disconnection between these tokens and their reality.

The reason that surveying, as a profession, exists is to guarantee the connection between tokens based on spatial measurement, and the spatial reality that those tokens represent.

These tokens are not just boundary determinations, but any kind of “map.” With modern technology, anyone can measure the

connection between the reality and the token. But only the surveying profession can guarantee the connection. Part of the guarantee comes from being measurement experts. Part of it comes from a deep understanding of the systems within which the profession operates. And part of it comes from that most important role of a profession (and a professional)—being definitive in its (their) field of expertise.

How well has surveying done?

With the housing market collapsing and various financial crises all around, it’s a good time to ask how well the surveying profession is fulfilling its role. Despite the strong connection between the financial crises and land, no one seems to have suggested that there is a problem between the deeds and mortgages and the land that they represent. Similarly, no one has suggested that there are fundamental problems with mapping in general. Those parts of the system seem to be functioning properly. The problem appears to be poor connections between the most abstract tokens and the deeds and mortgages, together with speculation far beyond any reasonable

connection to the real value of the various objects and tokens being traded.

So surveying as a profession seems to be doing a reasonable job of guaranteeing the connection between reality and the tokens directly connected to that reality. Is there room for improvement in the profession’s performance? Most definitely, but the profession is coming from successful performance of those functions which **define its reason for existence**.

A key issue for the future is: “Will the profession need to adapt what it does to the changing information environment”? Since the rest of the world has finally made it to an information environment, the surveying profession will have to be extremely adaptable in this environment. When the information sector of the economy was small, it was easy to continue along as before. But the profession is now a small fish in a much larger sea, and there are sharks out there.

“It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change.”

Despite many repetitions of this quote, Charles Darwin never actually wrote this, and it isn’t really what he meant. Natural selection works as much by luck, in that a species happens to have the characteristics that enhance its survival when change occurs. As the oldest information profession or discipline, surveying should have what it takes to survive a changing information environment, deep in its collective DNA. But you do have to make your own luck.



References

- Collins, J., 2001. Good to Great: why some companies make the leap ... and others don't. New York: HarperCollins Publishers, Inc.
- Lucas, J.N., 2009. “Ohio court lays down the law on retracement.” P.O.B. Magazine, Vol. 34, No. 5, February, 2009, pp. 42–44.

¹ By contrast, the “oldest profession” is very much a service industry, in every sense of the word.



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