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POSITION STATEMENT

My interest in the intersection between design and GIS stems from: 1) an understanding of the basic function of all organizations, 2) the definition, scope and purpose of design, 3) what we mean by “geo-scape”, as opposed to “landscape”, and 4) the potential role GIS might play as a “geo-design” tool.

1. *The Basic Function of All Organizations*

All organizations, be they large or small, public or private, do three things: they get and manage information (*data*), they analyze, evaluate, or otherwise assess that information for some purpose (*analysis*), and then, based on that analysis, they create or re-create some form of good and/or service (*design*). This design activity produces the substance (the goods and/or services) that give the organization its reason for being and forms the basis for its economic vitality.



GIS technology has served, and continues to serve, the first two of these three activities quite well. GIS has not, however, served the creation-based (design) needs of organizations.

2. *The Definition, Scope and Purpose of Design*

While design, defined as the creation or recreation of goods and/or services, provides a contextual understanding of the role design plays in organizations, it does not provide us with a clear functional definition of design. That is, it does not tell what design really is, or how to do it.

The following definition of design is ‘designed’ to give us a better functional understanding of design and how we might go about the business of geo-spatial design, that is, the business of creating or recreating goods and/or services in geographic space.



An entity can be anything, an object in space, an event in time, a concept (like the theory of relativity), or a relationship. Most entities are complex entities, that is, they are composed of one more of these four entity types. This is surely the case when one thinks of geo-spatial entities,

such as a forest management plan, a disaster response plan, or the design of an urban center. They are not only complex with respect to containing different types of entities (objects, events, concepts and relationships) they also geo-spatially complex. That is, they reside in a complex geo-spatially dependent environment.

An interesting thing to note is that this definition does not contain or express value. That is, it does not contain any statement as to what constitutes good design. The notion of goodness does not come from the definition of design but rather from its corollary, its purpose ... which, I believe, is always the same.



Simply put, if an entity facilitates life it is good, if it inhibits life it is bad, and if it does neither it is neutral. I think one can easily see how this statement of purpose, this ethic (if you will), can be applied to the creation of entities in geo-space ... what one might call our *geo-scape* (as opposed to *landscape*).

3. Our Geo-Scape: The Planet's Life Zone

Landscape, as defined by most landscape architects, typically refers to what I call “the green in between”, that is, the open space (parks, promenades, gardens, etc.) in between our buildings and civil infrastructure. The definition is also most often limited to what occurs on the surface of the earth ... the “land”.

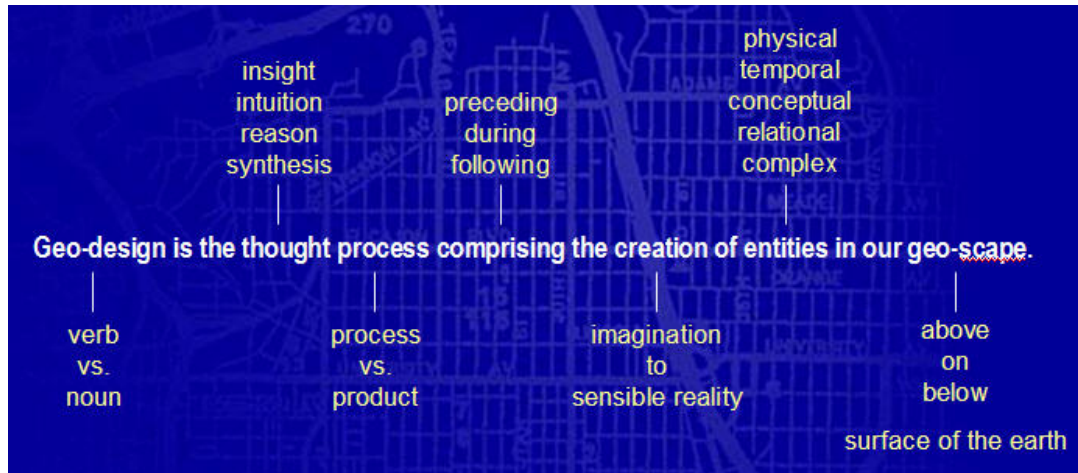
Geo-scape goes beyond “the green in between” to include everything on, above, and below the surface of the earth that supports life. It is not “land” dependent, but rather refers to all aspects of the planet's life support system: including the physical, biological, social, cultural, economic, and spiritual aspects.



4. Geo-Design: GIS in Design

Technically, we could say that *geo-design* is the thought process comprising the creation of entities in geographic space, that is, the creation of entities that are geo-referenced to the surface of the earth. This, however, would have a tendency to limit our thoughts to what we can show on a map and would thus quickly become just another techno-term for cartography.

Thinking more holistically...



This is a bold concept, as it gives us the conceptual power to create (design) complex entities (of all types) in 3D geographic space (our geo-scape) to enhance (facilitate) the quality of life on the planet.

Up until recently, the core of ESRI's software, with the possible exception of ArcSketch™ (a set of 2D geo-sketching tools), has provided little or no support for doing geo-design. This is about to change.

ESRI is in the process of extending the capabilities of its software to fully support the geo-design process. These extended capabilities will be designed to meet the geo-design needs of all sectors of its user community, including those working in 3D space. These capabilities will include the functional tools for doing geo-design (creating, editing, visualizing, etc.) as well as those tools required for managing the application framework (semantic structure, digital workspace, user workflows, etc.) in which that process takes place.

This is a major challenge and will be a lengthy undertaking. The results, however, will be a suite of tools and supporting frameworks that support the geo-design process ... the process of creating goods and services in our geo-scape.