Geo-Spatial Design

“Creativity is the synapse between two normally disassociated matrices of thought.”

... Arthur Koestler

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Summary

Context for Design
Definition and Purpose of Design
The Nature of Design: What makes it unique?
Geo-Spatial Design
Every organization does three things …
Context for Design

Expanding our educational system ...

DATA
Information
Truth
Understanding
Values

ANALYSIS
Critical Thinking
Analysis
Assessment
Knowledge

DESIGN
Responsible Creating
Envision
Design
Instantiate

Liberal Arts and Sciences
Design Schools
Planning
Landscape Architecture
Architecture
Engineering
Expanding our geo-spatial technology ...
Context for Design

**DATA**
- Get & Manage Information
- Analyze & Assess Information
- Create or Recreate Goods &/or Services

**ANALYSIS**
- Information
  - Truth
  - Understanding
  - Values
- Critical Thinking
  - Analysis
  - Assessment
  - Knowledge
- Responsible Creating
  - Envision
  - Design
  - Instantiate

**DESIGN**
- Manage Geo-Spatial Information
- Analyze Geo-Spatial Information
- Geo-Spatial Design “Geo-Design”

**Organizations**

**Academia**

**GIS Technology**
The Definition of Design

Design is a plan for arranging elements in a such a way as to best accomplish a particular purpose.

... Charles Eames

Design is the process of originating and developing a plan for a product, structure, system or component with intention.

... Wikipedia

Design is aesthetic composition.

... design student
The Definition of Design

Design is a bridge between the abstraction of research and the tangible requirement of real life.

... Glen Lowery

Design is applied imagination.

... Gavin Heaton

Everyone designs who devises courses of action aimed at changing existing situations into preferred ones.

... Herbert Simon
The Definition of Design

**Design is the thought process comprising the creation of an entity.**

- **verb** vs. **noun**
- **insight** vs. **intuition**
- **process** vs. **product**
- **preceding** during **after**
- **imagination** to **sensible reality**
- **physical** temporal **conceptual** relational **complex**
The purpose of design is to facilitate life.

Who’s life?  
Which species?  
extent (in time and space)

- If a design facilitates life ... it is good
- If it inhibits life ... it is bad
- If it does neither ... It is neutral
What makes design unique?

- **Imagination**
  from imagination to rendition with zero impedance

- **Visualization**
  maps, 3D views, animations, charts, reports

- **Assessment**
  on the fly (as we design) and fully developed reports

- **Rapid Iteration**
The Nature of Design

**Design Thinking**

- **Unstructured**
  - not ungrounded

- **Abductive**
  - vs. inductive and deductive

- **Integrative**
  - lateral / holistic / multidisciplinary

- **Empathetic**
  - users / stakeholders / implementers
The Nature of Design

Collaborative

Time
synchronous / asynchronous

Space
share / distributed

Structure
design management
The Definition of Geo-Spatial Design

**Geo-spatial design is the thought process comprising the creation of entities in geographic space.**

<table>
<thead>
<tr>
<th>verb vs. noun</th>
<th>insight vs. reason</th>
<th>process vs. product</th>
<th>preceding during after</th>
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<tbody>
<tr>
<td>imagination to sensible reality</td>
<td>physical temporal conceptual relational complex</td>
<td>3D geographic space</td>
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What makes geo-spatial design unique?

2D/3D/4D Geo-Reference System
context / content

Attribute Management
context / content / relationships

Topology
2D / 3D

Geo-Spatial Analysis
2D / 3D / 4D
The purpose of geo-spatial design is to facilitate life in our geo-scape.

- If a design facilitates life ... it is good
- If it inhibits life ... it is bad
- If it does neither ... it is neutral
Moving beyond *landscape* to *geo-scape* ...

**Geo-scape is the planet’s life-zone.**

land + water  
below + surface + above  
physical + biological + social + economic
Conceptual Framework

2D/3D/4D Environment
below/on/above the geo-surface

Geo-Spatial Entities
physical, temporal, conceptual
relational, complex

Geo-Spatial Features
layers, surfaces, fields, meshes
events, agents
Geo-Design System

Framework
ontology, workflow, user interface

Creation Tools
context, content, relationships

Analysis Tools
assessment, simulation, comparison

Visualization Tools
drawings, maps, scenes, movies

Reporting Tools
static, interactive
Challenge #1

Develop a comprehensive understanding of geo-design and then work together to translate that understanding into a shared vision.
Challenge #2

Develop an appropriate (design centric) GIS technology and apply that technology to a wide variety of geo-spatial design problems.
Challenge #3

Work together to establish a new profession of geo-design, both in practice and academia.
Thank you

“The best way to predict the future is to create it.”

… Buckminster Fuller

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Regional Geo-Scape

Intrinsic Landscapes of the Puget Sound Coastal Watershed