Is it design?
How geodesign compares with other design theories

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The exhilaration of the design experience
What makes geodesign different from GIS?

- Layers are used for decision support - isn’t this like geodesign?

- Geodesign is different take on decision making. It includes design-thinking which provides a range of choices, critical evaluation of those options and involves community values.

Geodesign is third wave of GIS evolution

#1 is data (& maps that bind, secure and use data)

#2 is analysis and feature processing -- analyze geography for various purposes and reasons.

#3 is design – doing creative work with that analysis

Excerpted from interview with Bill Miller, Esri Director of Geodesign:

http://www.azavea.com/products/geotrellis/features/spatial-operations/composite-models/
Design defined for this presentation

**design**

dɪˈzaɪn

v. designed, designing, designs

v.tr.

1. a. To conceive or fashion in the mind; invent: design a good excuse for not going.
b. To formulate a plan for; devise: designed a marketing strategy for the new product.
2. To plan out in systematic, usually graphic form: design a building; design a car.
3. To create or contrive for a particular purpose or effect: a game designed to appeal to children.
4. To have as a goal or purpose; intend.
5. To create or execute in an artistic or highly skilled manner.

v.intr.

1. To make or execute plans.
2. To have a goal or purpose in mind.
3. To create designs.

n.

1. a. A drawing or sketch.
b. A graphic representation, especially a detailed plan for construction or decoration.
2. The purposeful or inventive arrangement of parts or details: the aerodynamic design of the car.
3. The art or practice of designing or making designs.
4. Something designed, especially a decorative or an artistic work.
5. An ornamental pattern. See Synonyms at *figure*.
6. A basic scheme or pattern that affects and controls function or development: epic poem.
7. A plan; a project. See Synonyms at *plan*.
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Purposeful Process (to solve a problem) – involving creativity and skill
Design defined for this presentation

>> Purposeful Process (to solve a problem) – involving creativity and skill

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<th>Critical thinking</th>
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<td>• a creative process focused on the 'building up' of ideas.</td>
<td>• analysis associated with 'breaking down' of ideas</td>
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Design defined for this presentation

Several popular definitions of geodesign include (emphasis added):

“Geodesign is a vision for using geographic knowledge to actively and thoughtfully design.”
   - Jack Dangermond

“Geodesign changes geography by design.”
   - Carl Steinitz

“Geodesign is design in geographic space.”
   - Bill Miller

“Geodesign is a method which tightly couples the creation of design proposals with impacts simulations informed by geographic contexts and systems thinking and supported by digital technology.”
   - Michael Flaxman
Design Theories -- Carl Steinitz’s “Framework for Geodesign”
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1. How should the context be described?
2. How does the context operate?
3. Is the current context working well?
4. How might the context be altered?
5. What differences might the changes cause?
6. How should the context be changed?
Design Theories examined

Herbert Simon’s

*Seven stages of design thinking*
(from *The sciences of the artificial*, 1969)

Morris Asimov’s

*Horizontal structure of design*
(from *Introduction to Design*, 1962)

Vijay Kumar’s

*Seven Modes of the Design Innovation Process*
(from *101 Design Methods: A Structured Approach for Driving Innovation in Your Organization*, 2012)
Simon outlined the design thinking process through seven stages:

**Define**  
- Decide what issue you are trying to resolve.  
- Agree on who the audience is.  
- Prioritize this project in terms of urgency.  
- Determine what will make project successful.

**Research**  
- Review history of the issue; any existing obstacles.  
- Examples of other attempts to solve the same issue.  
- Note the project supporters, investors, and critics.  
- Talk to end-users; most fruitful ideas for later design.  
- Take into account thought leaders' opinions.

**Ideation**  
- Identify the needs and motivations of your end-users.  
- Generate many ideas to serve these identified needs.  
- Do not judge or debate ideas.  
- During brainstorming, have one conversation at a time.

**Prototype**  
- Combine, expand, and refine ideas.  
- Create multiple drafts.  
- Feedback from a diverse group of people, include end users.  
- Present a selection of ideas to the client.  
- Reserve judgment and maintain neutrality.  
- Create and present actual working prototype(s)

**Choose**  
- Review the objective.  
- Set aside emotion and ownership of ideas.  
- Avoid consensus thinking.  
- The most practical solution isn’t always the best.  
- Select the powerful ideas.

**Implement**  
- Execute.  
- Deliver to client.

**Learn**  
- Gather feedback from the consumer.  
- Determine if the solution met its goals.  
- Discuss what could be improved.  
- Measure success; collect data.  
- Document
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Asimov's horizontal structure of design

Asimov's horizontal structure of design = "operations research model"

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Kumar's Seven Modes of the Design Innovation Process

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Kumar's Seven Modes of the Design Innovation Process
Kumar's Seven Modes of the Design Innovation Process

1. Understand
2. Research
3. Make
4. Analyze
5. Abstract
6. Synthesize
7. Realize

Frame Insights
Sense Intent
Know People
Know Context

Explore Concepts
Frame Solutions
Realize Offerings

Principles
Plans
Tests
Carl Steinitz’s “Framework for Geodesign”

1. How should the context be described?
2. How does the context operate?
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Implementation:
- Stakeholder Input
- Review and Decision
- Feedback
- Change Scale
Online Graduate Certificate in Geodesign offered at Penn State

worldcampus.psu.edu/geodesign

Thank you