

AI and the Geoprofession

Disrupt, Adapt or Thrive?

Victor R. Donald, P.E.
Sr. Innovation Consultant

Terracon
Explore with us

58th Annual Geotechnical Engineering Conference
November 12, 2026


Machine Learning
Artificial Intelligence

Survey

Four stages: of AI Technology Progression

1. **Enterprise copilots**
   - General tools for drafting, searching and administrative work.
   - Rapidly becoming commodities and offer little differentiation.
2. **High-value workflow automation**
   - Firms redesign selected complex processes using people and AI agents.
   - Leading incumbents are here today: obtaining substantial benefits while developing organizational capability.
3. **Agent-orchestrated operations**
   - Multiple agents execute a known, codified process; professionals supervise exceptions and approve outputs.
   - Will invert traditional staffing structures and compress decision cycles.
4. **AI as an integrating platform**
   - AI converges with robotics, sensors, autonomous equipment, digital payments and physical-world systems.
   - This creates entirely new value propositions and business models.

World AI

A major evolution in machine learning designed to simulate and understand the physics, time, and rules of the real world

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Examples for the Geotechnical Engineer

- Intelligent equipment, construction materials,
- Autonomous field data capture,
- Connected design/construction/monitoring operations,
- AI interpreting continuously updated site information.

“Boots on the ground!”

“Boots off the ground!”

Implications for the Geoprofession

Automation track

- AI-assisted report preparation
- Data extraction and checking
- Calculation automation
- Administrative and coordination efficiency
- Dramatic reduction in human hours required
- Agent-supported project workflows

"Do not mistake becoming more efficient at today's work for defining tomorrow's geoprofessional firm."



Transformation track

- Maintained 3D GeoModels rather than one-time reports
- Integrated subsurface, environmental & construction data
- Intelligent compaction as a quality-management system
- Outcome-based or recurring pricing
- New technology partnerships and delivery structures
- Services addressing client decisions that were previously too costly or difficult to support

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Automation = Less Chargeable Hours

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Automation = Less Chargeable Hours



Value-based pricing now has industry benchmarks

October 2026

The ACEC Research Institute released *Beyond the Hour* and presented it at its October 25–28 Fall Conference. Based on 488 survey responses and 19 executive interviews:

- Only **15%** of respondents have fully adopted value-based pricing.
- **41%** use it selectively.
- Private clients generally permit more flexibility than public procurement.
- A fixed fee is not necessarily value-based; the fee must reflect the client's economic outcome, not merely estimated production cost.

ACEC's central finding is that firms must **demonstrate value before pricing it**. Its "Value Ladder" is intended to help firms make that transition.

Automation = Less Chargeable Hours



The Reality—As I See It (and I invite debate – this is important!)

- AI will steadily weaken the relationship between hours consumed and value delivered.
- This will happen more quickly than we might expect.
- Much of our traditional work is purchased as an imperfect commodity. *Therefore* …
- Fee compression on traditional deliverables is inevitable—
  - Unless we move beyond automation and succeed in the Transformation Track.

AI forces a leadership and work redesign effort, more than a technology rollout.

- **Empower people to build what comes next.**
  - Engage employees directly about how work and careers may change.
  - The strongest path to job security is helping create the new ways of working.
- **Question today's assumptions.**
  - Start with a blank page: designing a workflow today with current tools and data, how would it work?
  - Identify bottlenecks early as productivity grows.
- **Set ambitious goals.**
  - Imagine work becoming *dramatically* better, not just slightly faster.
  - Treat bold ideas as a starting point for exploration, not targets people will be punished for missing.
- **Rethink value and advantage.**
  - Shift from pricing hours, reports toward pricing outcomes.
  - Competitive advantage will come from combining data, algorithms, and continuous learning.
  - Not from workforce scale

AI forces a leadership and work redesign effort, more than a technology rollout. (2)

- **Prepare talent for changing work.**
  - Tasks may be automated while jobs and roles evolve.
  - Reconsider recruiting, job definitions, onboarding, and
  - Reevaluate how people are rewarded, with more emphasis on client outcomes.
- **Address anxiety with candor.**
  - Be transparent about which tasks will change,
  - Invite employees to shape the transition, and
  - Discuss both risks and potential new roles,
  - Look beyond alarming headlines and consider the broader evidence and emerging opportunities.
- **Build practical AI capability.**
  - Teach people to apply AI to redesign their actual workflows,
  - Set clear goals and accountability,
  - Support experimentation and provide appropriate oversight.

The Incredibly Shrinking Barrier to Entry



Our Competition in the Future Will Look Different

"The barrier to coding is gone."



The Big Question …

What new value could your organization deliver if AI changed how the work gets done?

The Pressing Question …

Are you preparing for that? … Today??

Four Essential Elements for AI



1

DATA

Trustworthy, standardized, reusable

2

PROCESS

Mapped, simplified, measurable

3

KNOWLEDGE

Discoverable standards and experience

4

GOVERNANCE

Ownership, controls, accountability

AI is NOT the outcome. The Value from AI is the outcome.
Disciplined data, process, knowledge, and governance are the prerequisites.

Like Making Hay

Adsense Misjob Consultant



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Imagine an AI-enabled 3D, Engineering-Embedded GeoModel that allows a client to explore questions such as:

- What assumptions are driving our foundation costs?
- Where is entropy greatest, and where does it matter most?
- What type of enhanced exploration program will materially improve our decisions?
- How might the expected cost of construction change under different subsurface scenarios?

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OUR CALLING

"We are stewards of a noble profession."



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