integral INSIGHT FOR AN EVOLVING WORLD

Everyday AI for Environmental Remediation

Futureproofing for Long-Term Success

Ellen Hartley

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Northwest Remediation Conference

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Ellen Hartley

- Official Technical Librarian for Integral
- Unofficial AI Whisperer for Integral
- Twenty years as an academic librarian
- Passionate about helping my colleagues unlock AI's potential, so we can all work smarter and drive innovation together

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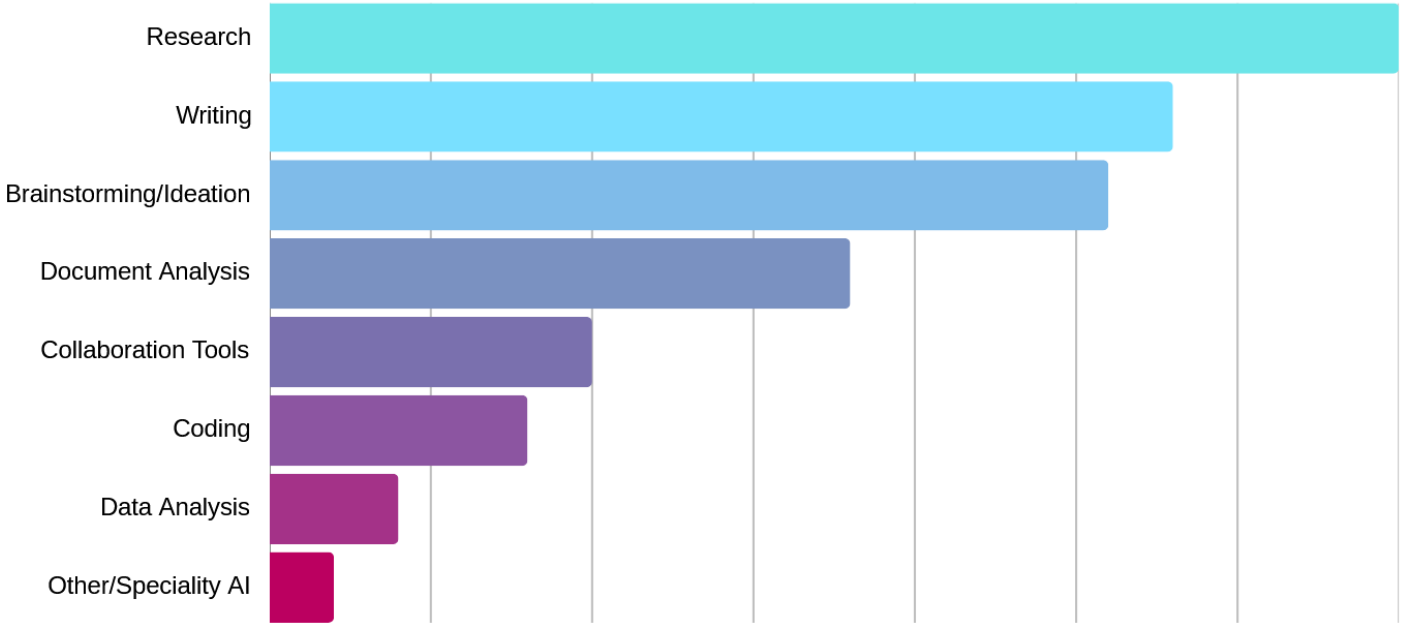
Everyday AI in Our Industry



Generic illustration of AI tool usage trends within my company, highlighting the diversity of AI applications

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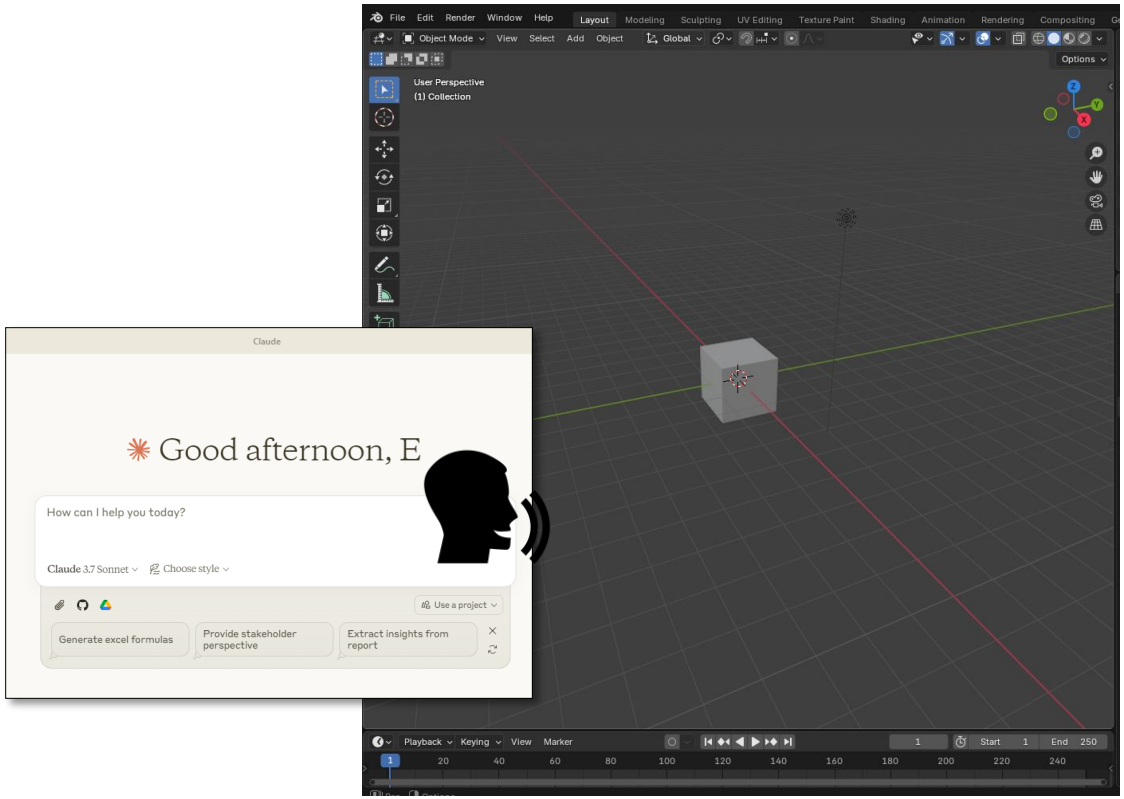
“Specialty” Everyday AI in Our Industry

MidJourney

Claude + Blender



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Futureproofing for Long-Term Success

Understand Core Principals

Having a solid understanding of AI fundamentals gives you the flexibility to adapt as technologies and approaches continue to evolve.

Embrace Responsible Use

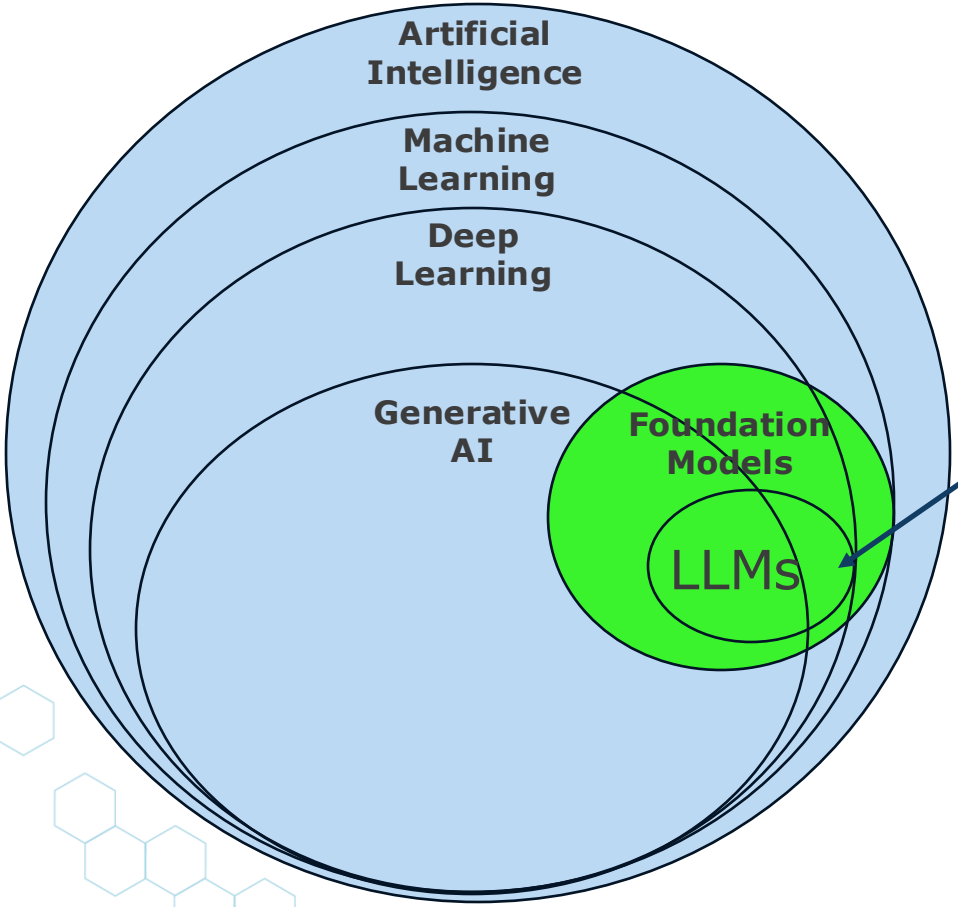
Prioritize ethical use, safeguard data privacy, ensure transparency, and integrate robust human oversight to foster trust, reliability, and accountability in AI-driven workflows.

Adopt Lifelong Learning & Experimentation

View AI advancements as opportunities to enhance skills and capabilities rather than threats.

WE ARE THE LAB RATS

Core Principals & Key Players



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LLMs: Impressive, but Imperfect

Generic Responses

Responses typically fail to delve beyond obvious or commonplace information

Positive Bias

AI is the ultimate cheerleader, favoring positive feedback

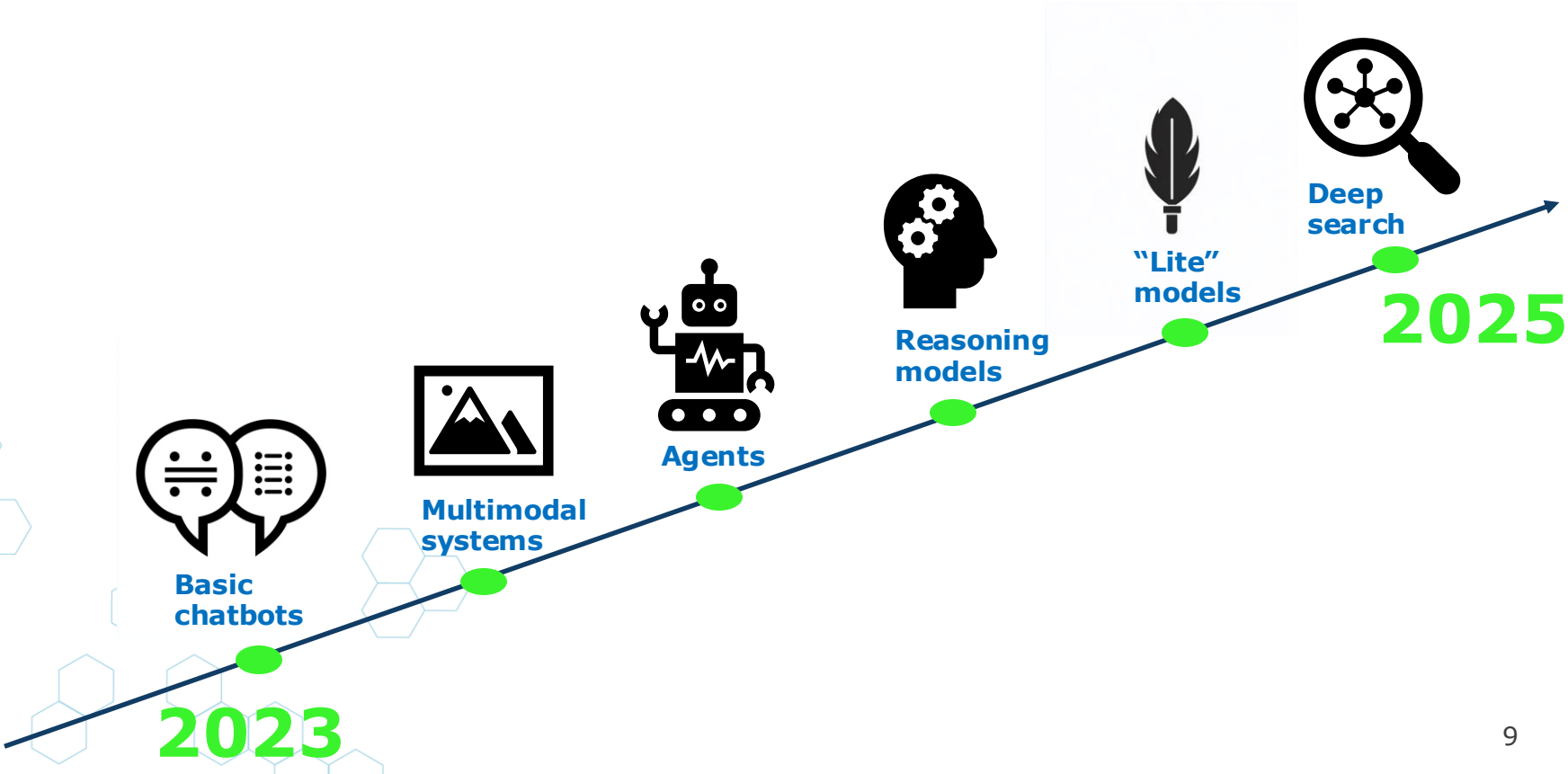
Outdated Training Data

Training data often lag behind current events

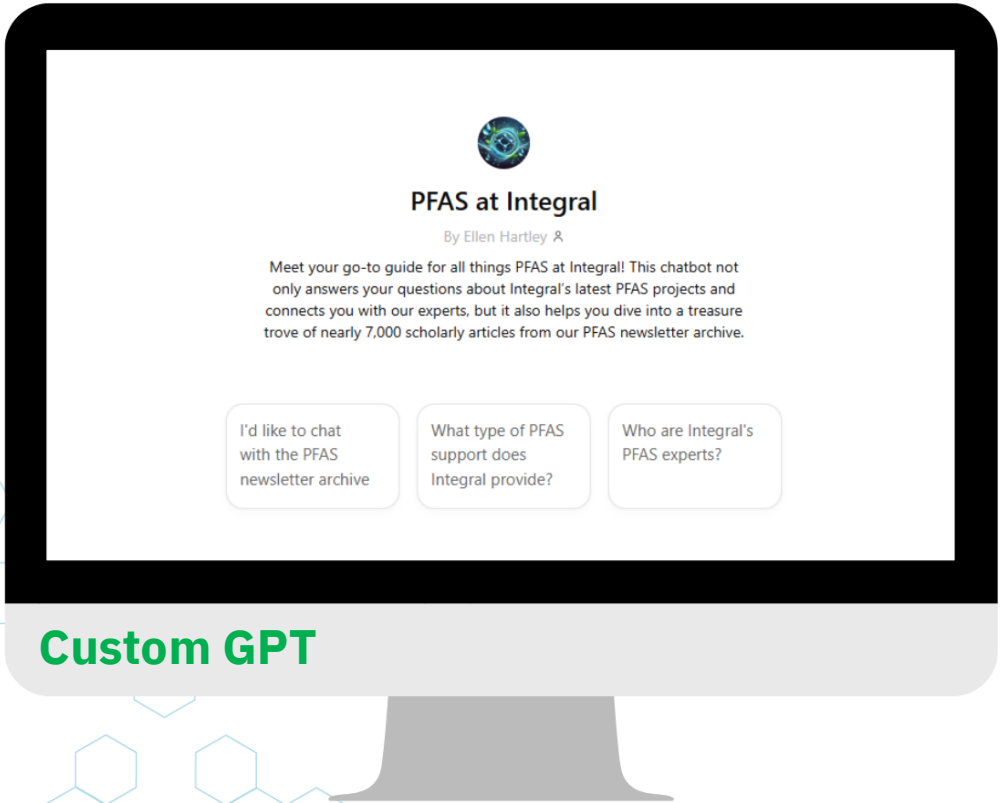
Lack of Reasoning

AI struggles with sound reasoning

Milestones in AI Technology Advancement

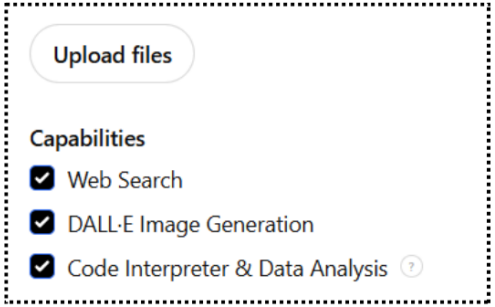


Custom Chatbot



✓ **Tailored Interaction Guidelines**

✓ **Add Knowledge**



✓ **Add Actions**

Three Key Risks

Data Exposure

AI systems process user inputs, which may include sensitive company information that could be stored, reused, or exposed.

Bias

AI models are trained on human-generated data, which can embed biases into their responses that are sometimes hard to detect.

Hallucinations

AI may generate incorrect or misleading answers with confidence when operating beyond its knowledge or capabilities.

Balancing Innovation with Impact

Responsible Use

1. Prompts
2. Data safeguards
3. Documentation
4. Ethical decision making
5. Mindfulness
6. Clear human oversight

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Check Your Output

Prompt Ideas

- **Alternative perspectives:**
  - What viewpoints are missing?
  - Are there unexamined assumptions?
- **Diversity and inclusion:**
  - Does the content favor or exclude certain groups?
  - Are examples and language inclusive?
- **Language and tone:**
  - Is the language emotionally charged or neutral?
  - Are certain topics or groups described differently?
- **Data and sources:**
  - Are claims supported by diverse, reputable sources?
- **Contextual factors:**
  - How might the AI's training data influence its output?
- **Variation test:**
  - How does the output change if you modify key terms (e.g., gender, ethnicity)?
- Summarize any potential biases found and their possible impacts.

Check For Hallucinations

Prompt Template

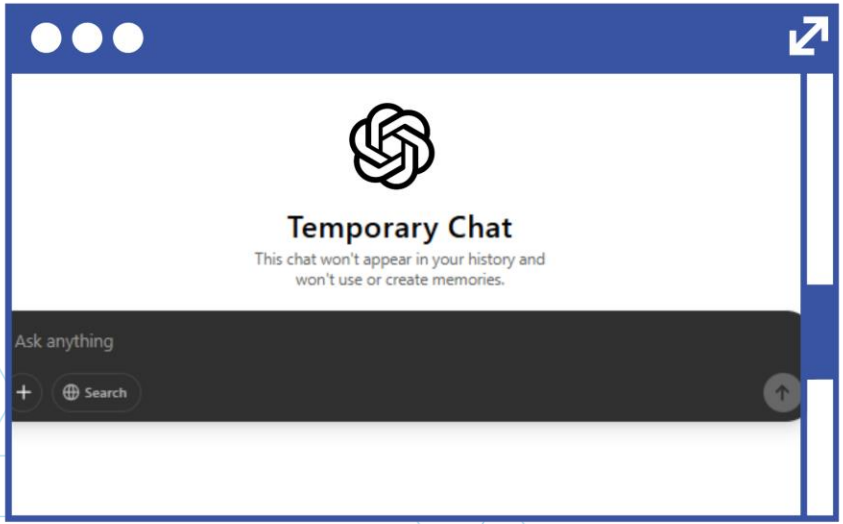
Analyze the following AI-generated text for potential hallucinations or inaccuracies:

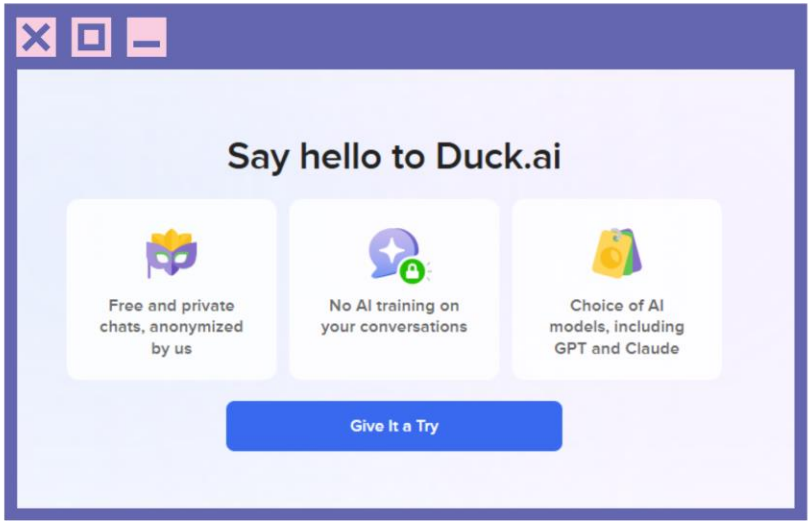
[Paste AI output here]

1. Identify any claims or statements that seem questionable or lack proper context.
2. Point out any inconsistencies within the text.
3. Highlight any information that appears to be factually incorrect based on common knowledge.
4. Note any areas where the AI might be speculating without clearly indicating so.
5. Suggest specific points that would benefit from further verification or fact-checking.

For each point you identify, please explain your reasoning and, if possible, provide a confidence level for your assessment (low, medium, or high).

Go Incognito





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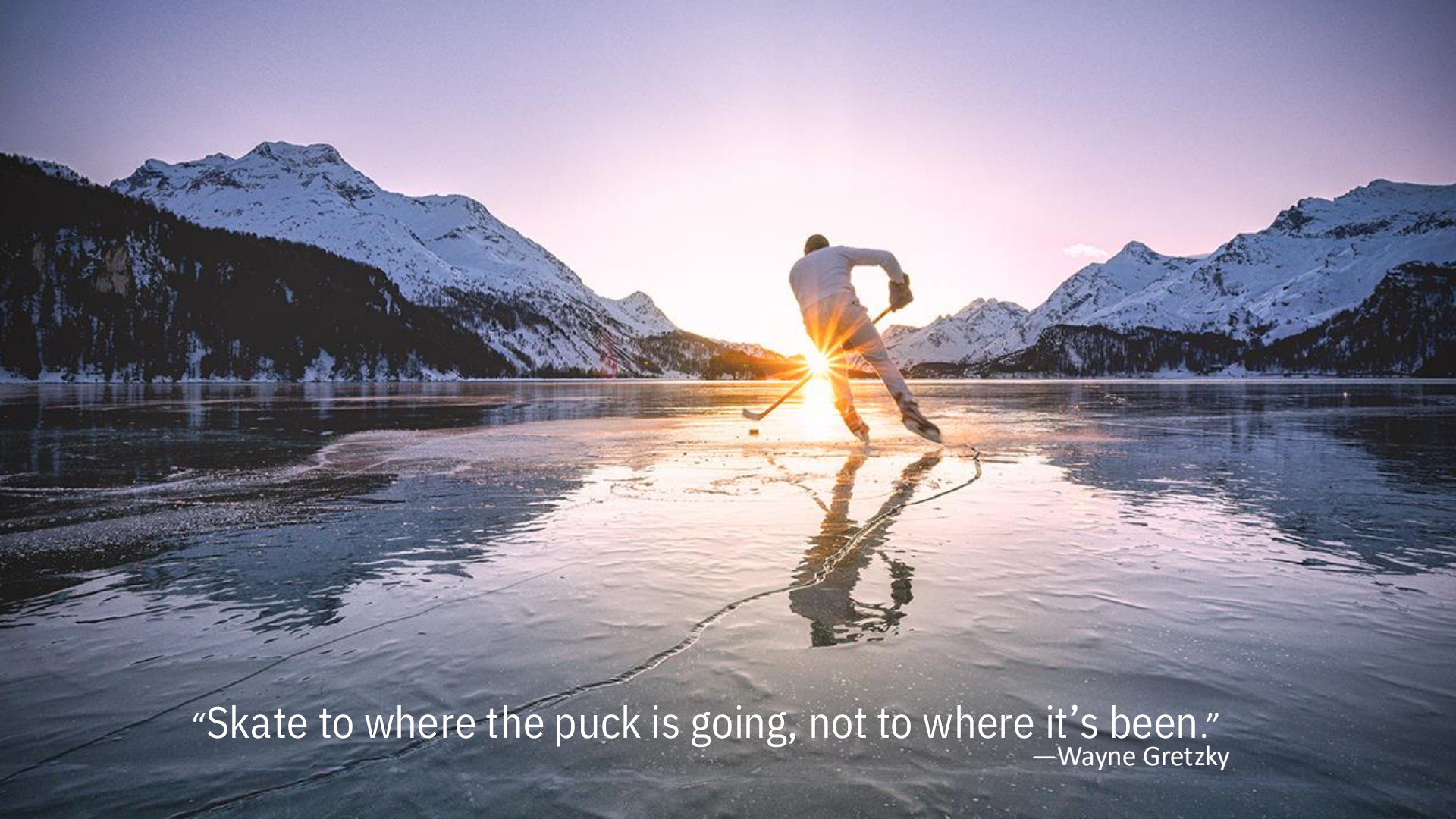
“Skate to where the puck is going, not to where it’s been.”
—Wayne Gretzky

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