

OceanLink Building Block: Leveraging Semantics and Linked Data for Geoscience Data Sharing and Discovery



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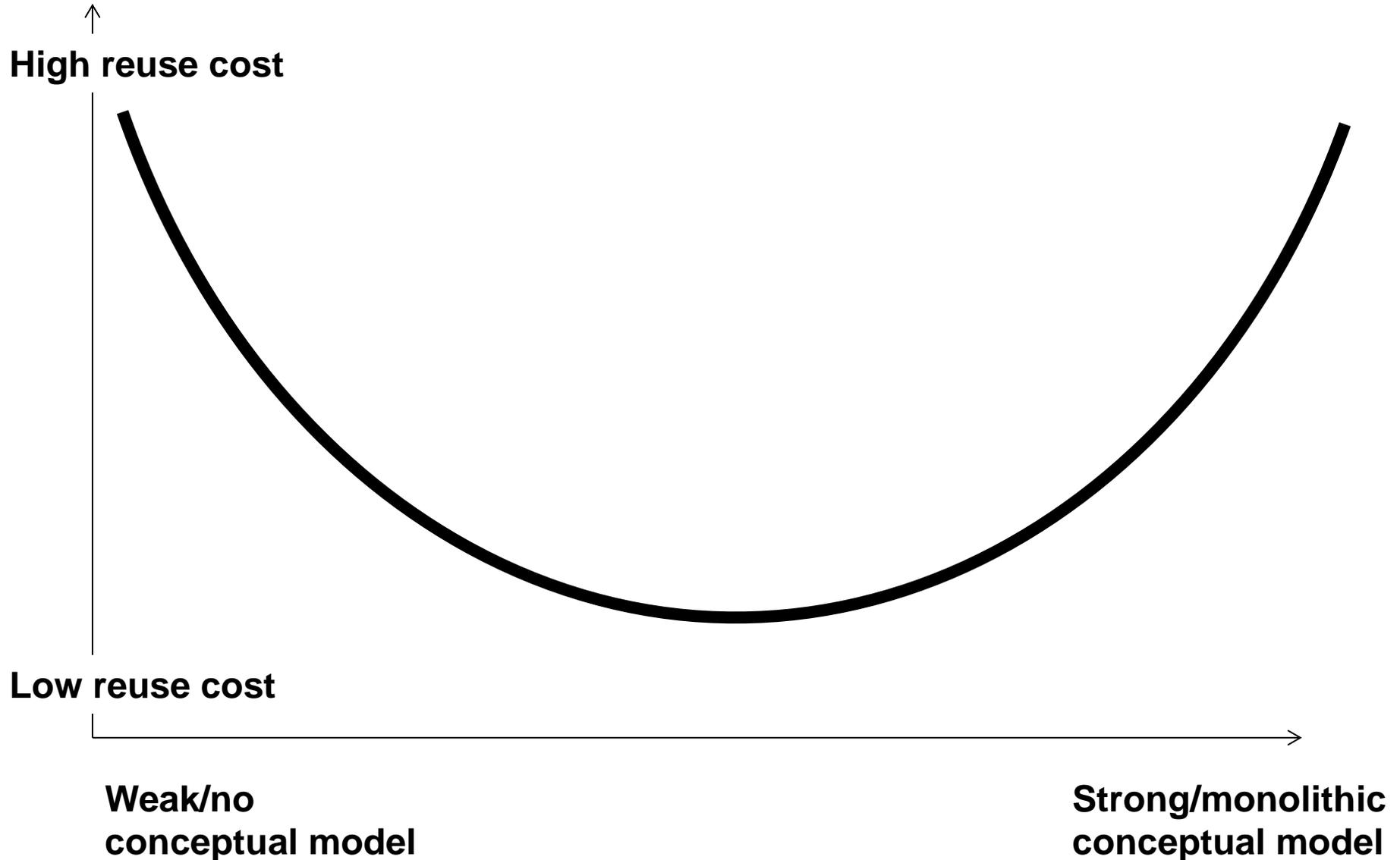
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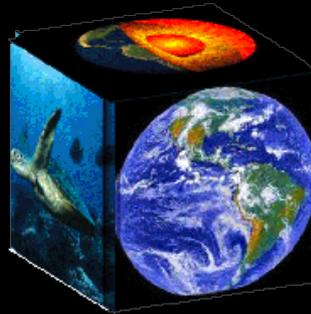
**The presented work is part of the NSF *OceanLink* project:
EarthCube Building Blocks, Leveraging Semantics and Linked Data
for Geoscience Data Sharing and Discovery**

Cost of data reuse



EarthCube requires

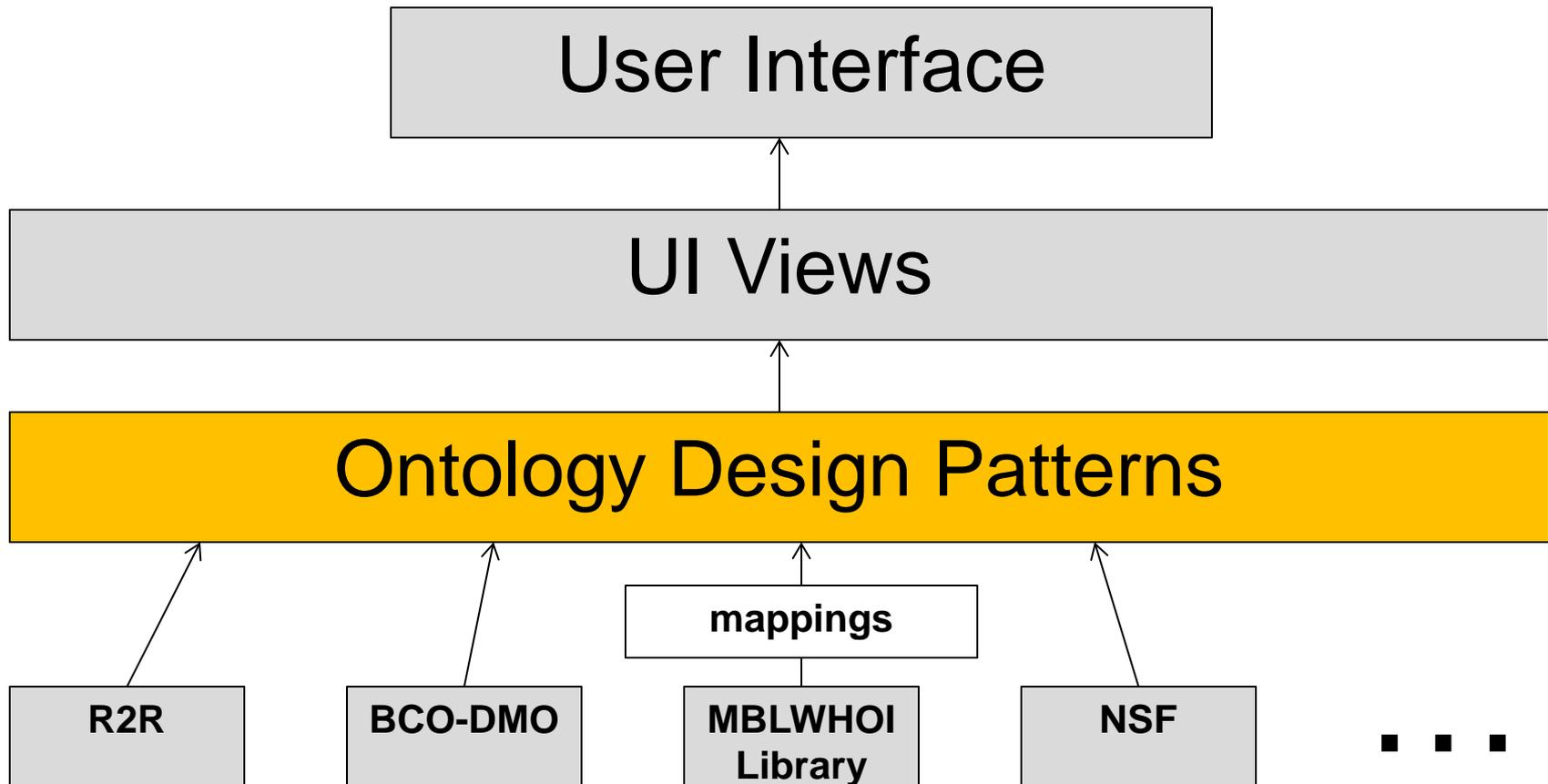
- information integration
- interoperability
- conceptual modeling
- intelligent search
- data-model intercomparison
- data publishing support



Semantic Web studies

- information integration
- interoperability
- conceptual modeling
- intelligent search
- data-model intercomparison
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Thanks!

www.oceanlink.org

- BCO-DMO: Biological & Chemical Oceanography Data Management Office, <http://www.bco-dmo.org/>
- R2R: Rolling Deck to Repository, <http://www.rvdata.us>
- OceanLink website and publications are forthcoming at <http://www.oceanlink.org/>
- Yingjie Hu, Krzysztof Janowicz, David Carral, Simon Scheider, Werner Kuhn, Gary Berg-Cross, Pascal Hitzler, Mike Dean, Dave Kolas, A Geo-Ontology Design Pattern for Semantic Trajectories. In: Thora Tenbrink, John G. Stell, Antony Galton, Zena Wood (Eds.): Spatial Information Theory - 11th International Conference, COSIT 2013, Scarborough, UK, September 2-6, 2013. Proceedings. Lecture Notes in Computer Science Vol. 8116, Springer, 2013, pp. 438-456.
- <http://ontologydesignpatterns.org>

- Pascal Hitzler, Frank van Harmelen, A reasonable Semantic Web. *Semantic Web 1 (1-2)*, 39-44, 2010.
- Prateek Jain, Pascal Hitzler, Peter Z. Yeh, Kunal Verma, Amit P. Sheth, Linked Data is Merely More Data. In: Dan Brickley, Vinay K. Chaudhri, Harry Halpin, Deborah McGuinness: *Linked Data Meets Artificial Intelligence*. Technical Report SS-10-07, AAAI Press, Menlo Park, California, 2010, pp. 82-86. ISBN 978-1-57735-461-1. Proceedings of LinkedAI at the AAAI Spring Symposium, March 2010.
- Pascal Hitzler, Markus Krötzsch, Sebastian Rudolph, *Foundations of Semantic Web Technologies*. Chapman and Hall/CRC Press, 2009.
- Krzysztof Janowicz, Pascal Hitzler, The Digital Earth as Knowledge Engine. *Semantic Web 3 (3)*, 213-221, 2012.

- **Pascal Hitzler, Krzysztof Janowicz, Linked Data, Big Data, and the 4th Paradigm. Semantic Web 4 (3), 2013, 233-235.**
- **Gary Berg-Cross, Isabel Cruz, Mike Dean, Tim Finin, Mark Gahegan, Pascal Hitzler, Hook Hua, Krzysztof Janowicz, Naicong Li, Philip Murphy, Bryce Nordgren, Leo Obrst, Mark Schildhauer, Amit Sheth, Krishna Sinha, Anne Thessen, Nancy Wiegand, Ilya Zaslavsky, Semantics and Ontologies for EarthCube. In: K. Janowicz, C. Kessler, T. Kauppinen, D. Kolas, S. Scheider (eds.), Workshop on GIScience in the Big Data Age, In conjunction with the seventh International Conference on Geographic Information Science 2012 (GIScience 2012), Columbus, Ohio, USA. September 18th, 2012. Proceedings.**
- **Krzysztof Janowicz, Pascal Hitzler, Thoughts on the Complex Relation Between Linked Data, Semantic Annotations, and Ontologies. In: Paul N. Bennett, Evgeniy Gabrilovich, Jaap Kamps, Jussi Karlgren (eds.), Proceedings of the 6th International Workshop on Exploiting Semantic Annotation in Information Retrieval, ESAIR 2013, ACM, San Francisco, 2013, pp. 41-44.**