

B3D Webinars: Unifying Principle

BID Community Think Tank

2014/05/27

1

Webinar Panel

Ashok Goel	Co-director of CBID at Georgia Tech
Catalina Freixas	Assistant Professor, Washington University of St. Louis
Janice McDougall	Partner at Goodman, McDougall & Associates Ltd.
Ray Lucchesi	Principal at Regenesys
Shoshanah Jacobs	Assistant Professor, University of Guelph
Taryn Mead	Marie Curie Early Career Researcher, Business School, University of Exeter

2

Webinar Audience

Philip Ling	Co-Founder, Powersmiths Corp.
-------------	-------------------------------

3

Theodosius Dobzhansky

“Seen in the light of evolution, biology is, perhaps, intellectually the most satisfying and inspiring science. Without that light it becomes a pile of sundry facts - some of them interesting or curious but making no meaningful picture as a whole.”

4

Criteria: Insightful

- Makes sense of current set of observations

"It is interesting to contemplate a tangled bank, clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately constructed forms, so different from each other, and dependent upon each other in so complex a manner, have all been produced by laws acting around us."

5

... Creates Opportunities

- Drives further exploration, research and practice

"When the views entertained in this volume ... are generally admitted, we can dimly foresee that there will be considerable revolution in natural history."

6

... Accessible

Wikipedia lists over 800 domestic pigeon breeds



Rock Pigeon, Allan Hack



French Tumbler, Jim Gifford

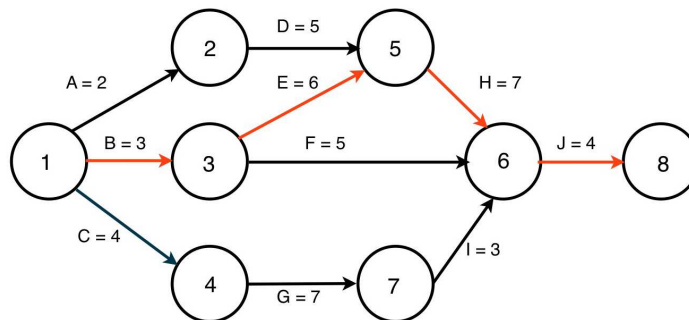
7

... Defensible

- Testable and tested
- *The Origin of Species* pre-dates Mendel's publication

8

... Asks Fundamental Questions



9

[pmstrategies](http://pmstrategies.com)

... What It Isn't

- A 'grand theory of everything'

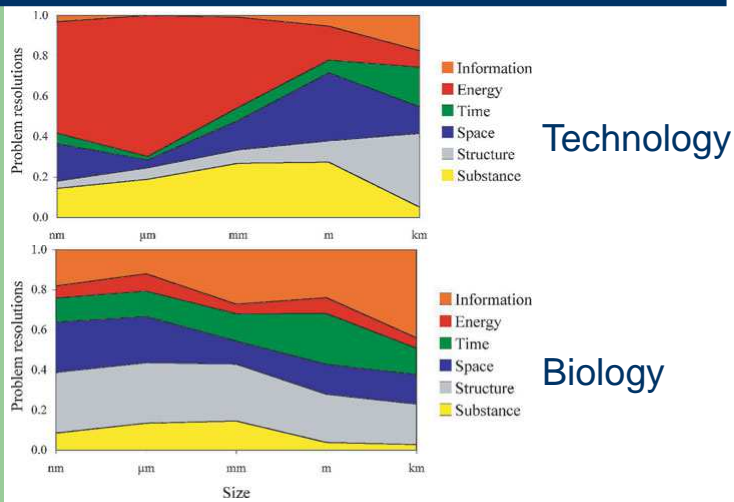
10

Nature's Storehouse of Innovation

- 3.8 billion years of solutions that can be applied to solve human problems and in the process increase the 'fit' of the human species

11

Energy/Materials vs. Info/Structure



12

'Making' vs. 'Being'

We are
outside the
system



We ARE
the system

13

Let the Discussion Begin!

- Generate ideas that could be developed into unifying principles
- Brainstorming approach:
 - Postpone judgment
 - Build on others' ideas (accept the baton, run with it, pass it on)
- Use the Unified Chat to post ideas

14

References

- Dobzhansky, T. (1973). Nothing in Biology Makes Sense except in the Light of Evolution. *The American Biology Teacher*, 35(3), 125–129. doi:10.2307/4444260. Retrieved from <http://people.delphiforums.com/lordorman/light.htm>
- Darwin, Charles. *The Origin of Species*. London: Penguin Books, 1985.

15

References ...

- Vincent, J. F., Bogatyreva, O. A., Bogatyrev, N. R., Bowyer, A., & Pahl, A.-K. (2006). Biomimetics: its practice and theory. *Journal of the Royal Society Interface*, 3(9), 471–482. Retrieved from <http://rsif.royalsocietypublishing.org/content/3/9/471.full.pdf>
- Vincent, J. (2011, March 20). A theoretical basis for biomimetics. Retrieved from http://function.mime.oregonstate.edu/static/BID-workshop/Workshop_1_Presentations_files/Vincent.pdf

16

References ...

- Vincent, J. (2008). A Comparison of Biological and Technological Systems. *BioInspired! Newsletter*, 6(4), 7–8. Retrieved from <http://bioinspired.sinet.ca/files/bioinspired/newsletters/bioinspired-v6.4c.pdf>

17

B3D Webinars: Unifying Principle

BID Community Think
Tank

2014/05/27

18