

# Biomimicry and Economics:

## The Da Vinci Index

## Fermanian Business & Economic Institute at PLNU

*business & economics in action*

> August 24, 2011

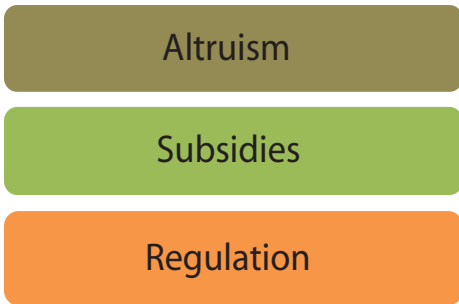
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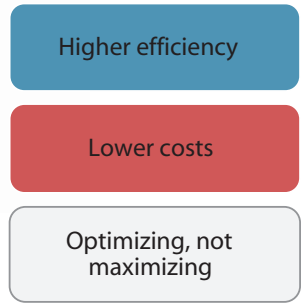
## OVERVIEW

- > What It Is: A measure of activity in Biomimicry or Bio-inspired research and commercial applications. It joins other frequently used indices, including the Index of Leading Economic Indicators, Case Shiller Home Price Index, Consumer Price Index, and Index of Consumer Sentiment.
- > Purpose: To promote awareness among business leaders, government policymakers, investors, and the media and to measure activity in one of the most promising and potentially revolutionary scientific fields of the 21st century.
- > Components: The Da Vinci Index is comprised of four sub-components
  - > Number of Scholarly Articles (Source: Thomson Reuters Web of Knowledge Database.)
  - > Number of Patents (Source: United States Patent & Trademark Office.)
  - > Number of Grants (Source: National Science Foundation and National Institutes of Health.)
  - > Dollar Value of Grants (Source: National Science Foundation and National Institutes of Health.)
- > Results: Biomimicry has experienced explosive growth during the past decade. The composite Da Vinci Index posted a seven-fold rise between 2000 and 2010, climbing from 100 to 713. This represents a 22% compound annual rate of growth. The Index has increased a further 5.4% in the first half of 2011 to 752.
- > The number of U.S. patents has experienced a particularly rapid climb, jumping 14-fold between 2000 and 2010. Only 3 patents were issued in 2000, while 41 were issued last year.
- > The number of scholarly articles rose from 285 in 2000 to 1507 in 2010, representing more than a five-fold increase.
- > The number of U.S. grants increased from 71 in 2000 to 224 in 2010 for a three-fold rise. The dollar value of these grants advanced from \$24 million in 2000 to \$93 million in 2010, representing nearly a four-fold rise.
- > The Da Vinci Index and its sub-components document and underscore the dramatic rise in the field of Biomimicry as it embarks on a course that could transform large parts of the U.S. and global economies.
- > Biomimicry holds the potential to create a new economic model by melding environmental and business interests. The old model achieved environmental objectives through altruism, subsidies, and regulation. The new "E2 Model" achieves results helping both the environment and the economy by using solutions inspired by nature to raise efficiency, lower costs, and optimize rather than maximize.

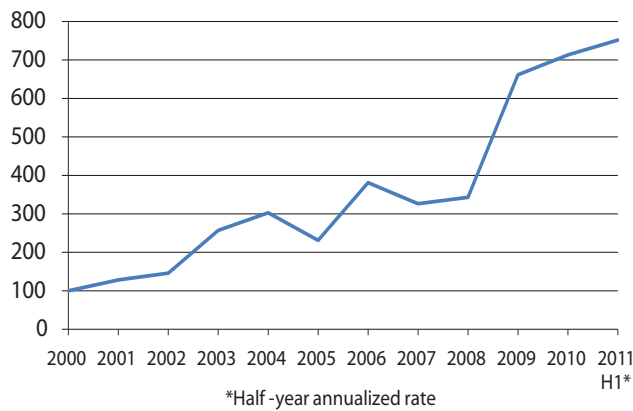
## THE OLD MODEL



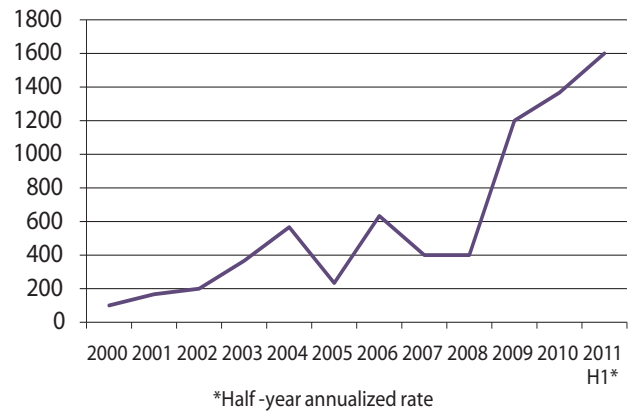
The E2 Model



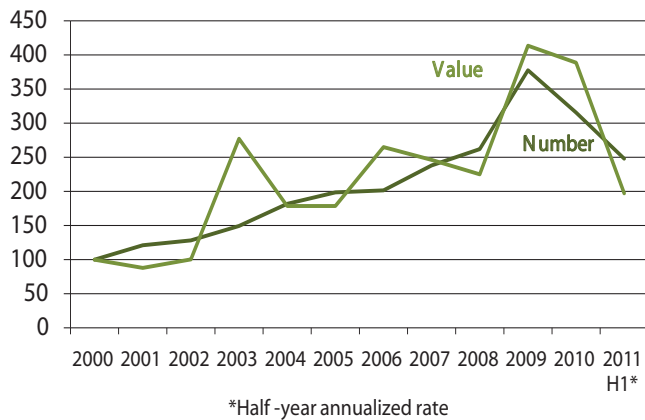
### Composite Da Vinci Index Expands 7.5-Fold Index, 2000=100



### U.S. Patent Counts Soar Index, 2000=100



### U.S. Grants Momentum Moderates in 2011 Index, 2000=100



### Scholarly Articles Climb Six-Fold Index, 2000=100

