



August 7, 2007

Deep Blue, the Wisdom of Crowds, and the Demise of Experts

Michael Mauboussin
Chief Investment Strategist
Legg Mason Capital Management

Experts are Getting Squeezed



What Defines Expert Performance

Domain description	Rules-based; limited degrees of freedom	Rules-based; high degrees of freedom	Probabilistic; limited degrees of freedom	Probabilistic; high degrees of freedom
Expert performance	Worse than computers	Generally better than computers	Equal to or worse than collectives	Collectives outperform experts
Expert agreement	High (70-90%)	Moderate (50-60%)	Moderate/Low (30-40%)	Low (<20%)
Examples	<ul style="list-style-type: none"> • Credit scoring • Simple medical diagnosis 	<ul style="list-style-type: none"> • Chess • Go 	<ul style="list-style-type: none"> • College admissions • Poker 	<ul style="list-style-type: none"> • Stock market investing • Economic forecasting

Source: Michael J. Mauboussin, "Are You an Expert?" *Mauboussin on Strategy*, October 28, 2005.

When the WOC Works

- ◆ Conditions for the WOC to work
 - ◆ Diversity
 - ◆ Aggregation mechanism
 - ◆ Incentives

- ◆ Carefully consider problem type
 - ◆ Needle in the haystack
 - ◆ State estimation
 - ◆ Prediction

Source: Michael J. Mauboussin, "Explaining the Wisdom of Crowds," *Mauboussin on Strategy*, March 20, 2007.

Needle in the Haystack

- ◆ Which person is not a member of the Monkees?
 - A. Peter Tork
 - B. Davy Jones
 - C. Roger Noll
 - D. Michael Nesmith

Source: Scott E. Page, *The Difference* (Princeton, NJ: Princeton University Press, 2007).

Needle in the Haystack

- ◆ Assume 100 people have knowledge, distributed as follows
 - 7 know all 3 of the Monkees
 - 10 know 2 of the Monkees
 - 15 know 1 of the Monkees
 - 68 have no clue

Source: Scott E. Page, *The Difference* (Princeton, NJ: Princeton University Press, 2007).

Needle in the Haystack

- ◆ Noll will get 34 votes
- ◆ Two variables are key
 - ◆ Percentage who know the answer
 - ◆ Degree of randomness

Source: Page, Scott E., *The Difference* (Princeton, NJ: Princeton University Press, 2007).

Diversity Prediction Theorem

Scott Page's Diversity Prediction Theorem

Collective Error = Individual Error – Prediction Diversity



Source: <http://polisci.lsa.umich.edu/faculty/spage.html>.

Estimating a State

Jelly Beans

Actual: 1,116

Class Average: 1,151

Collective Error: 3.1%



Source: iStockPhoto.



Academy Awards

12 categories

Not a poll, a prediction

2007

Consensus: 11 out of 12 correct

Best student: 9 out of 12 correct

Average student: 5 out of 12 correct

Source: www.turbosquid.com.

Can Doctors Expand Expertise?

- ◆ Use computer algorithms
- ◆ Tap wisdom of crowds

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Today's Top Postings

If You Cannot Beat Them, Join Them?
After running my own solo practice for almost 3 years, I am considering joining one of the hospital systems in town. I will receive a guaranteed salary for 2 years, a quarterly bonus, health insurance (now costing me \$1100 a month), a matching 401K...

Lap Appy
This is a 42 year old white female who presented with classic symptoms of acute appendicitis. H/o htn, smoker, citizen. She had a TAH/BSO in the past. Exam was consistent with acute appendicitis, as was her CT (done before calling me). I personall...

Intra-Tympanic Steroids for Tinnitus / Meniere's Disease?
So, I've been reading up on intratympanic steroid injections for the treatment of sudden sensorineural hearing loss (especially after the fantastic responses on a few patients I've administered to) and came across fascinating data on this use also in...

resident case--what is a resident to do?
58 yo uninsured male presents to ER (my last rotation--I am a FP resident) with wife (who did most of the talking) with cc of 3 weeks on increasing productive cough. Assoc sx include worsening SOB, worse today with any activity, low grade feve...

[see all](#)



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