THE FUTURE OF AI-POWERED CONSUMER UNDERSTANDING

Michael Gross, Ph.D.

AI is Changing Our World
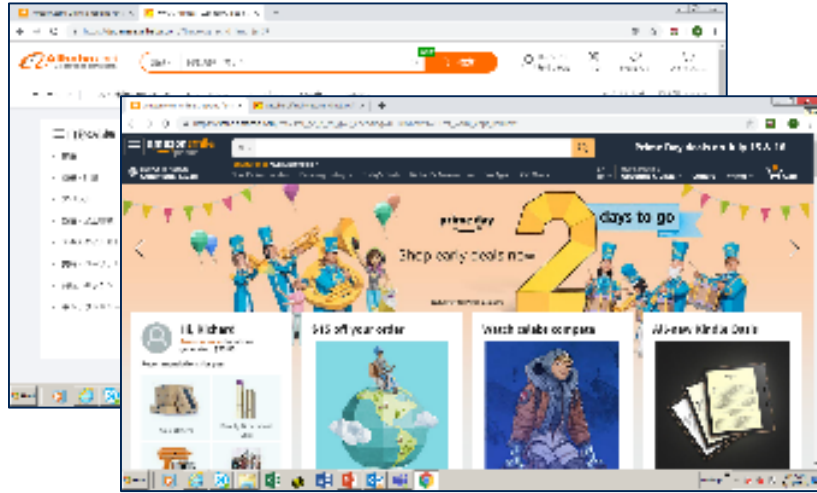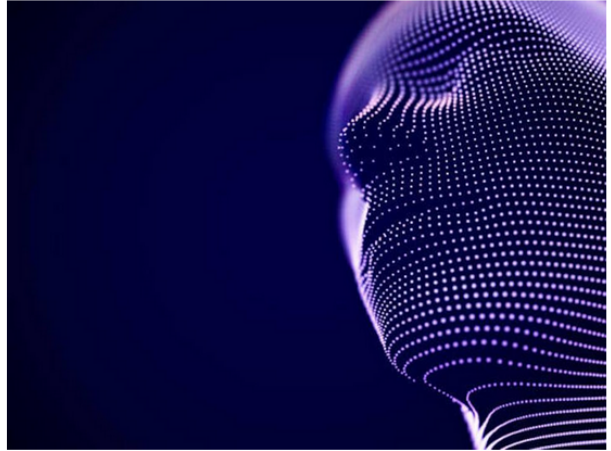
But We Need to be Cautious with Some of the Data

"40% of European firms that are classified as an "AI startup" don't exploit the field of study in any material way for their business"

Forbes

Nearly Half Of All 'AI Startups' Are Cashing In On Hype

Parmy Olson Forbes Staff
Innovation
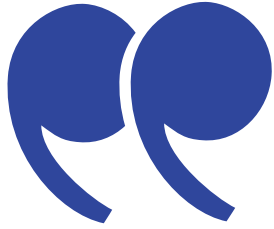*AI, robotics and the digital transformation of European business.*

Some 40% of firms across Europe classified as being "AI startups" showed no evidence that they used AI, according to new research from venture firm MMC. GETTY IMAGES/ISTOCKPHOTO
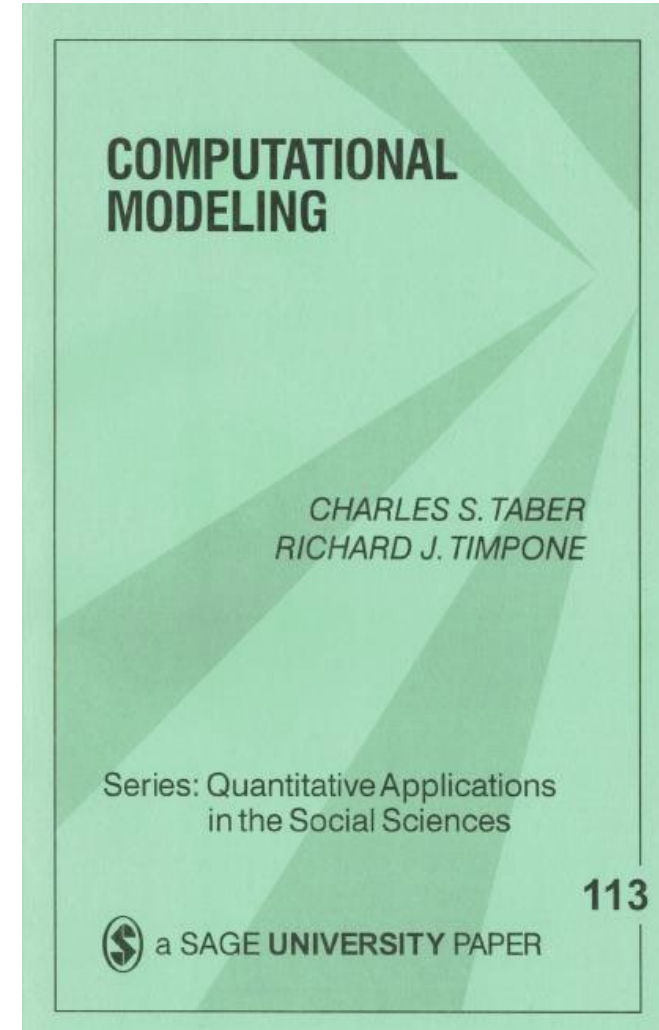
It can seem that hardly a day goes by that a new technology startup hasn't raised investor cash on the hope that it uses artificial intelligence, or AI, as a key part of its business. Now however, a new

Source: Parmy Olson. March 4, 2019. https://www.forbes.com/sites/parmyolson/2019/03/04/nearly-half-of-all-ai-startups-are-cashing-in-on-hype/#5635ecf1d022

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Evolution and Diversity of AI also Leads to Confusion

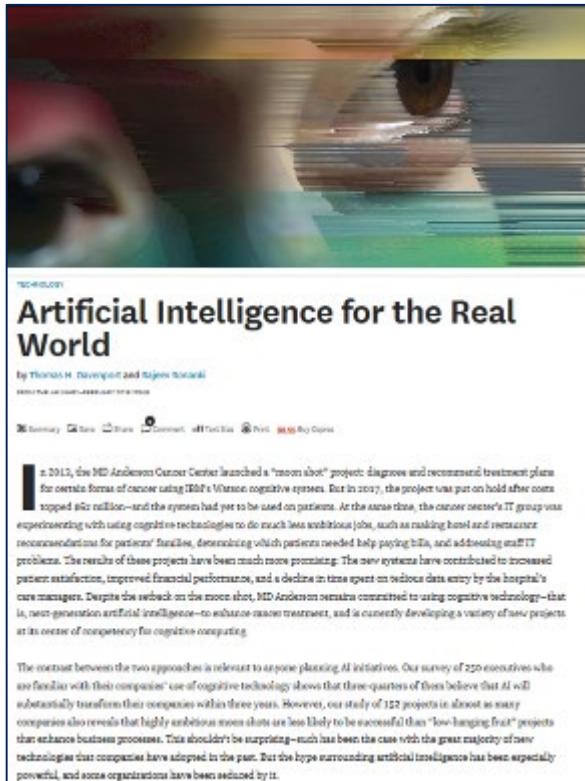"Artificial Intelligence (AI) is very hard to define coherently and as a consequence is poorly understood. Part of the difficulty lies in the diversity of AI methods, but the most fundamental reason is the diversity of AI goals."

COMPUTATIONAL MODELING

CHARLES S. TABER
RICHARD J. TIMPONE

Series: Quantitative Applications in the Social Sciences

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Framework of AI Applications

Consider the benefits of using AI vs. the methods

AI in Process Automation

Automating specific processes and tasks to make things more efficient, faster, & less prone to error

AI for Engagement

Systems that allow technology to engage directly and effectively with respondents and clients

AI for Insight

Extracting Insights from new types of data or new insights that would not be possible otherwise

AI Will Identify New Insights to Achieve Goals

Leveraging **New Types of Data** and **Integrating Multiple Sources**

- Unstructured Data: Text, image, video, more

- Consumer Generated and Behavioral Data

- Deeper Mining of Tracking Data

- Tie together expert and consumer views

- Link data streams for holistic insights

Leveraging **New AI Analytic Techniques** for **New Insights** with **Traditional Data**

- Better Products

- Better Messaging with Improved Salience

- More Accurate Targeting

- Dynamic & Learning Models

Improved and New Insights for Business Growth

Typical Model of Consumer Decision Making

Need Recognition

Information Search

Evaluation of Alternatives

Purchase Decisions

Post Purchase Behavior

Not All Decision Making is the Same

There are many cases where an 'expert middleman' impacts the process – and not always in straightforward ways

Expert Input has to 'Carry Weight'

Example domains

Healthcare	Retail	Financial Services	Insurance
Consultation with a physician regarding prescription medications	Interaction with sales staff regarding specific purchases (e.g., mobile phone, appliances)	Discussion with financial planners regarding investment and retirement planning options	Consideration of various insurance options (e.g., Life, Auto, Bundling)

Why do These Models matter?

Computational Modeling and Insight Integration:

1
Understand how the Complex Interaction of Individuals and Business Context Combine to Create Your Market

2
Test Counterfactual Worlds to Build More Effective Strategy

3
Integrate Analytic Insights Using a Diversity of Techniques Including AI, ABM and more

Using structured and unstructured data
**Explore and predict future outcomes- what if...**

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Microsimulation Platforms

Microsimulations and Agent Based Models are a flexible and powerful simulation based research methodology.

Computational models increase realism and allow integration of data sources by creating simulated individuals ('agents') who make decisions and interact with each other.
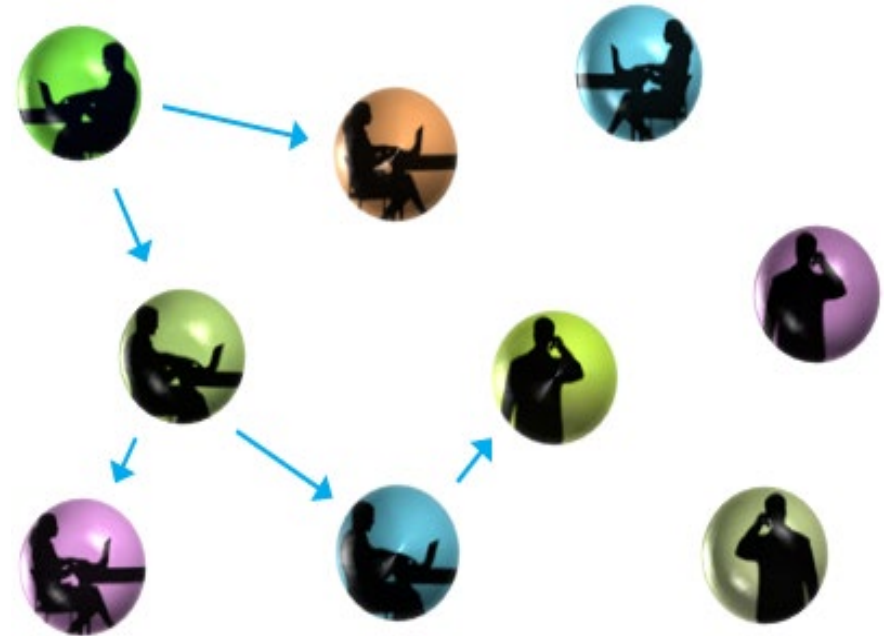
Multi Agent Interaction Model (MAIA)
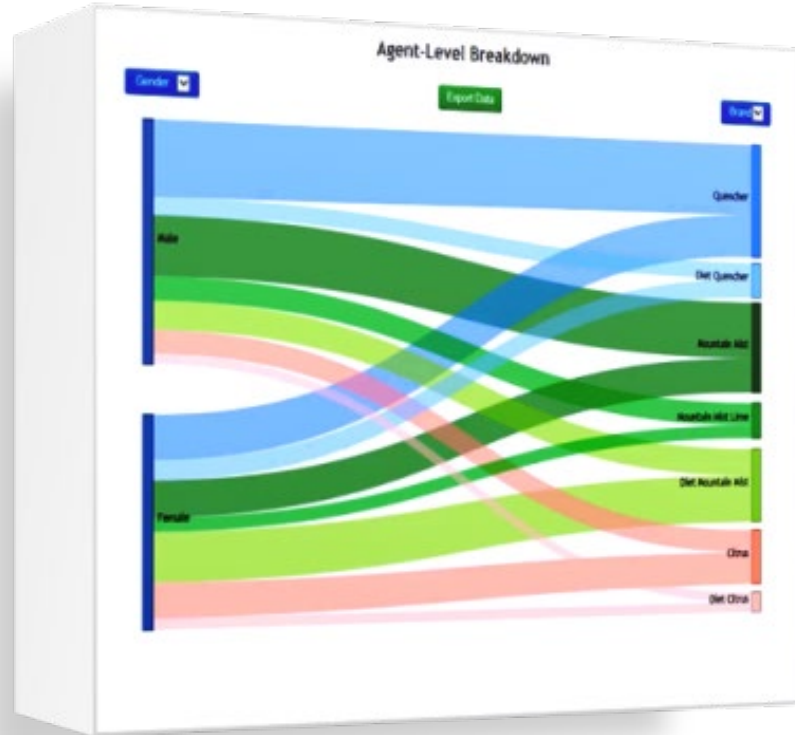
Innovative Multi-Domain Approach Built on ISC Computational Modeling

Explicitly Integrates Separate Surveys of Consumers and Experts

Extends individual results with influence across groups from information in the separate surveys

Microsimulation Case Study: Healthcare

Leverages an ABM framework to integrate patients and doctors as separate pools of agents with individualized decision rules.
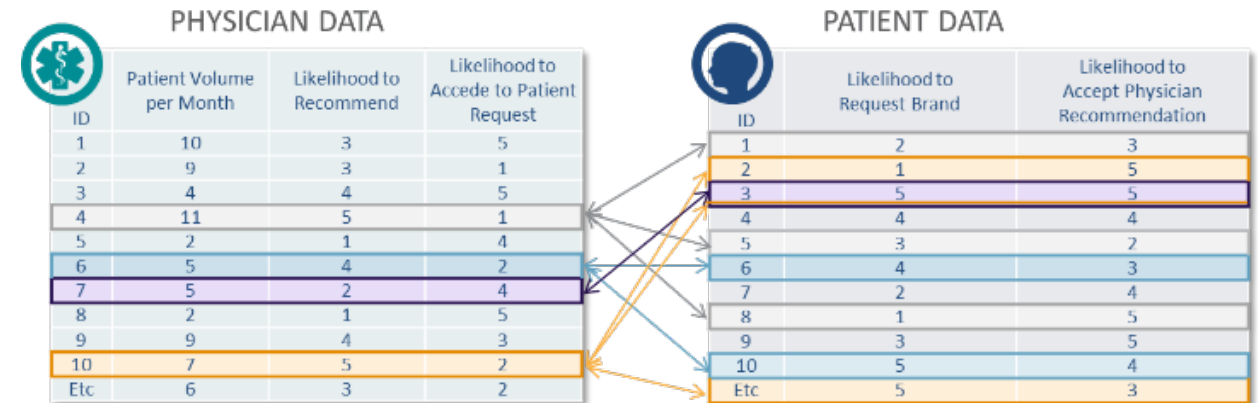
Integrating data from separate physician and patient surveys, we simulate a healthcare 'marketplace' to understand interest and likelihood to prescribe different concepts.
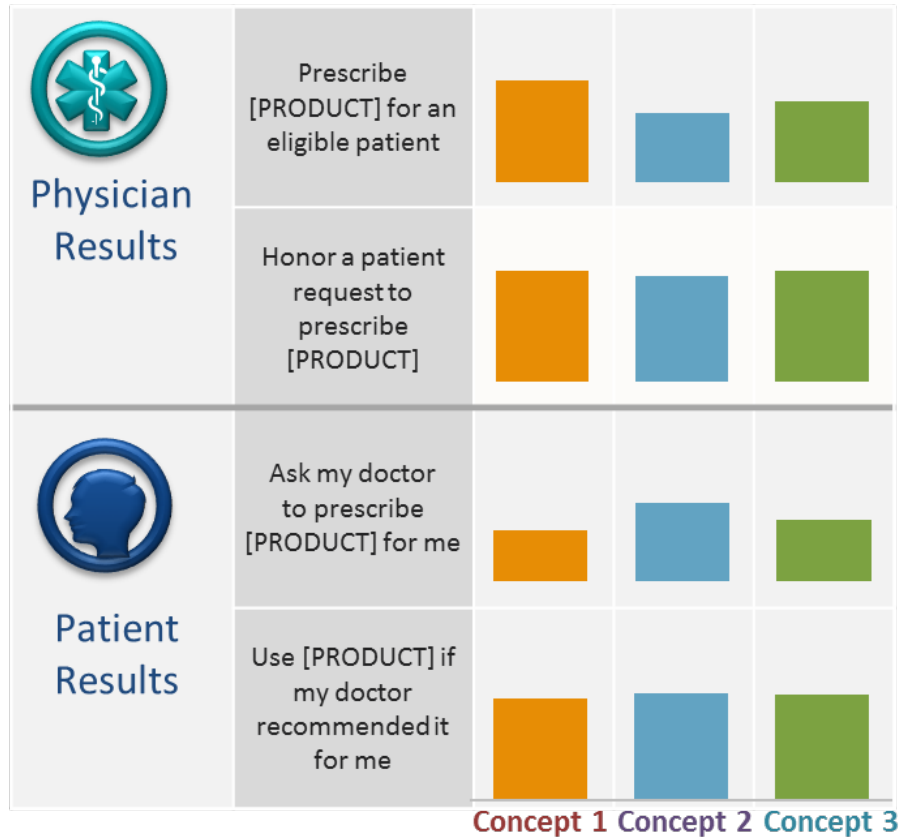
Multi-Agent Interactive Analysis
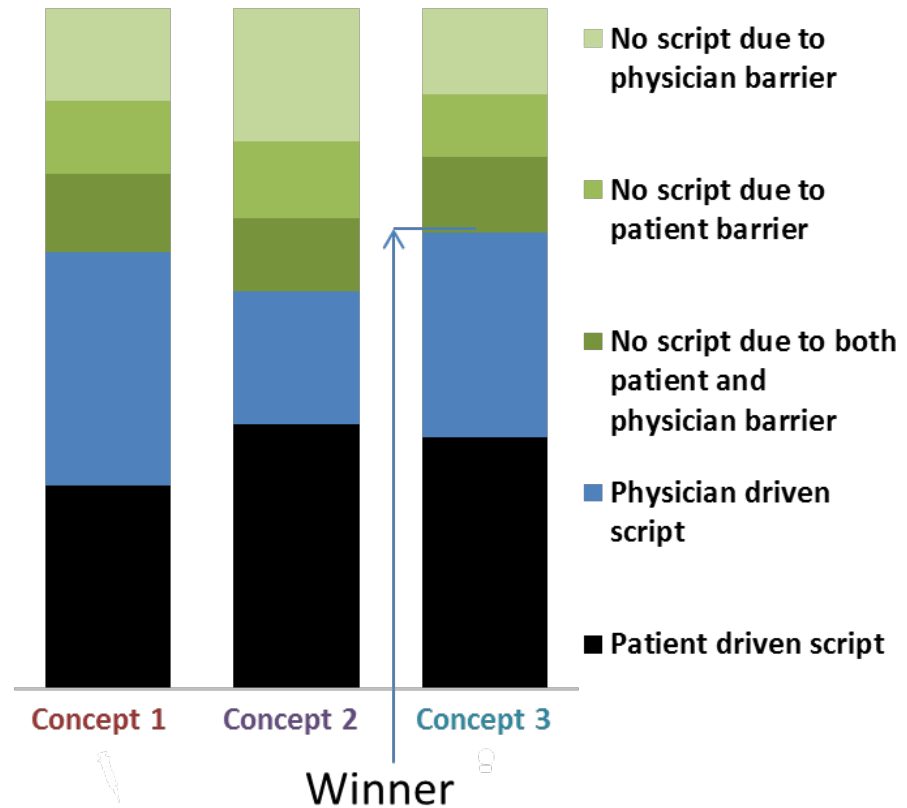
An Example ABM/ Micro-Simulation Platform

Physician Pool

"I won't prescribe unless a patient specifically requests it"

+

"I wouldn't ask for this, but I'll try it if my doctor recommends it"

=

PRESCRIPTION NOT WRITTEN

Patient Pool

Results of Blinded MAIA Analysis

Incorporating Dynamic Context in Predictive Models

Following Up on Specific Questions

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THANK YOU.