Economic Implications of Data Science: Past, Present and Future

Patrick Harrington, Ph.D.
Co-Founder & Chief Data Scientist
compgenome.com

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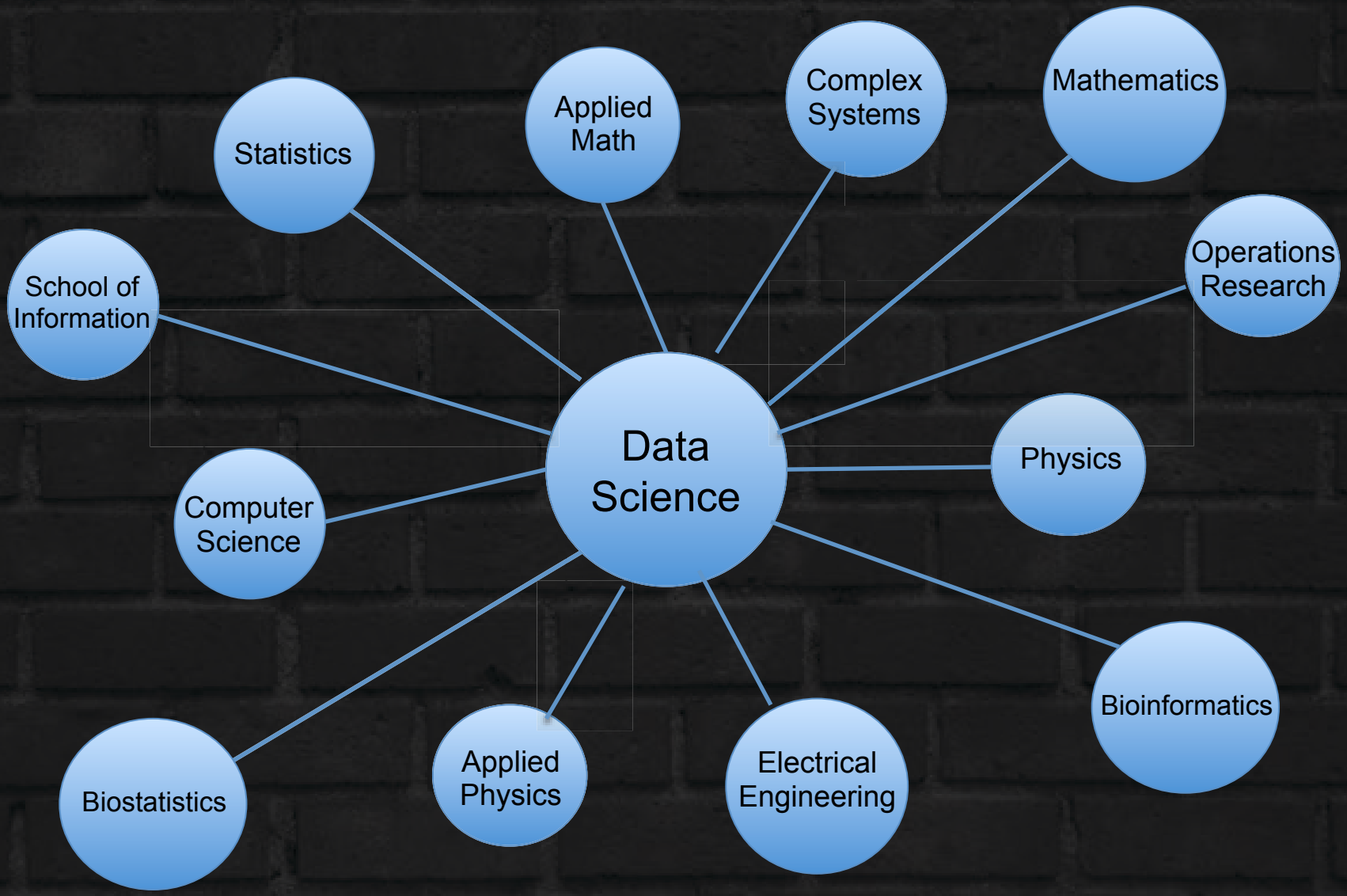
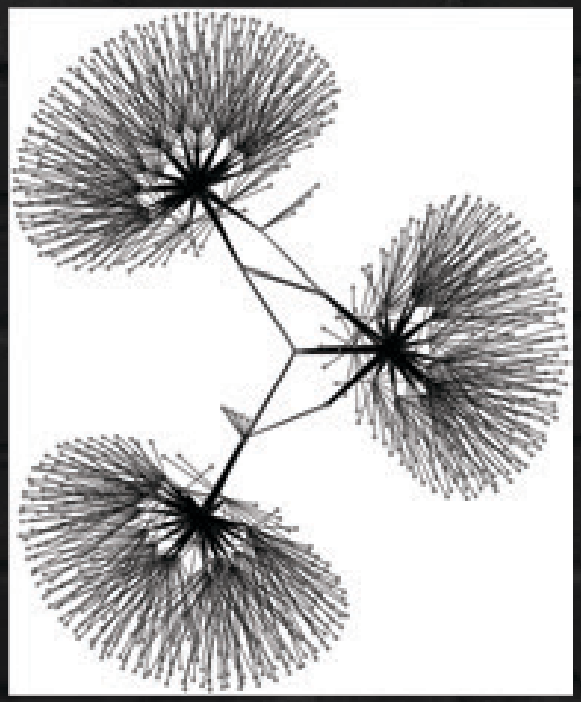
Data Science Related Programs at University of Michigan



“Every two days now we create as much information as we did from the dawn of civilization up until 2003” – Eric Schmidt, Google

Paradigm of Modern Big Data and Data Science



Complex System, e.g.,
Ad Targeting of Individuals

Measurement –

- The ability to listen in, often in real time, at any point in any complex system at the most granular level

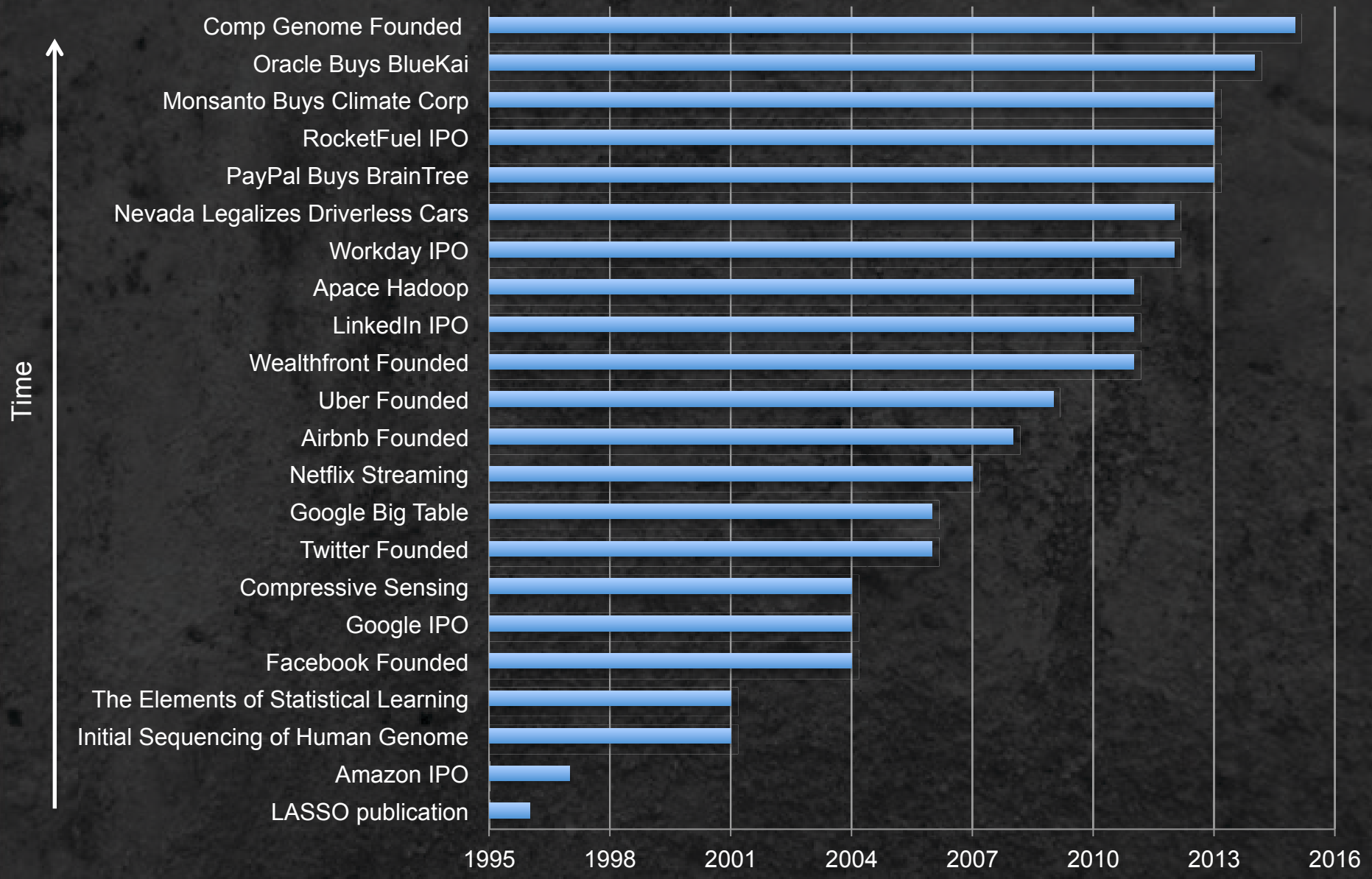
Computation/Storage–

- Distributed computation over a potential real time massive data signal
- Highly available, fault tolerant storage for applications to be built on top

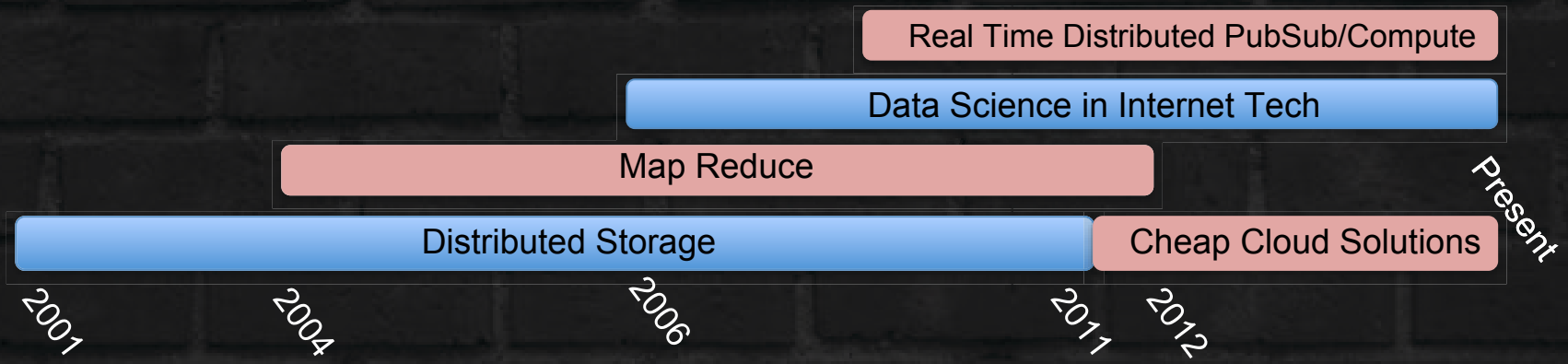
Control/Optimization–

- Optimality: The ability to optimize global objective functions via optimizing/ controlling sum of the parts at most granular level

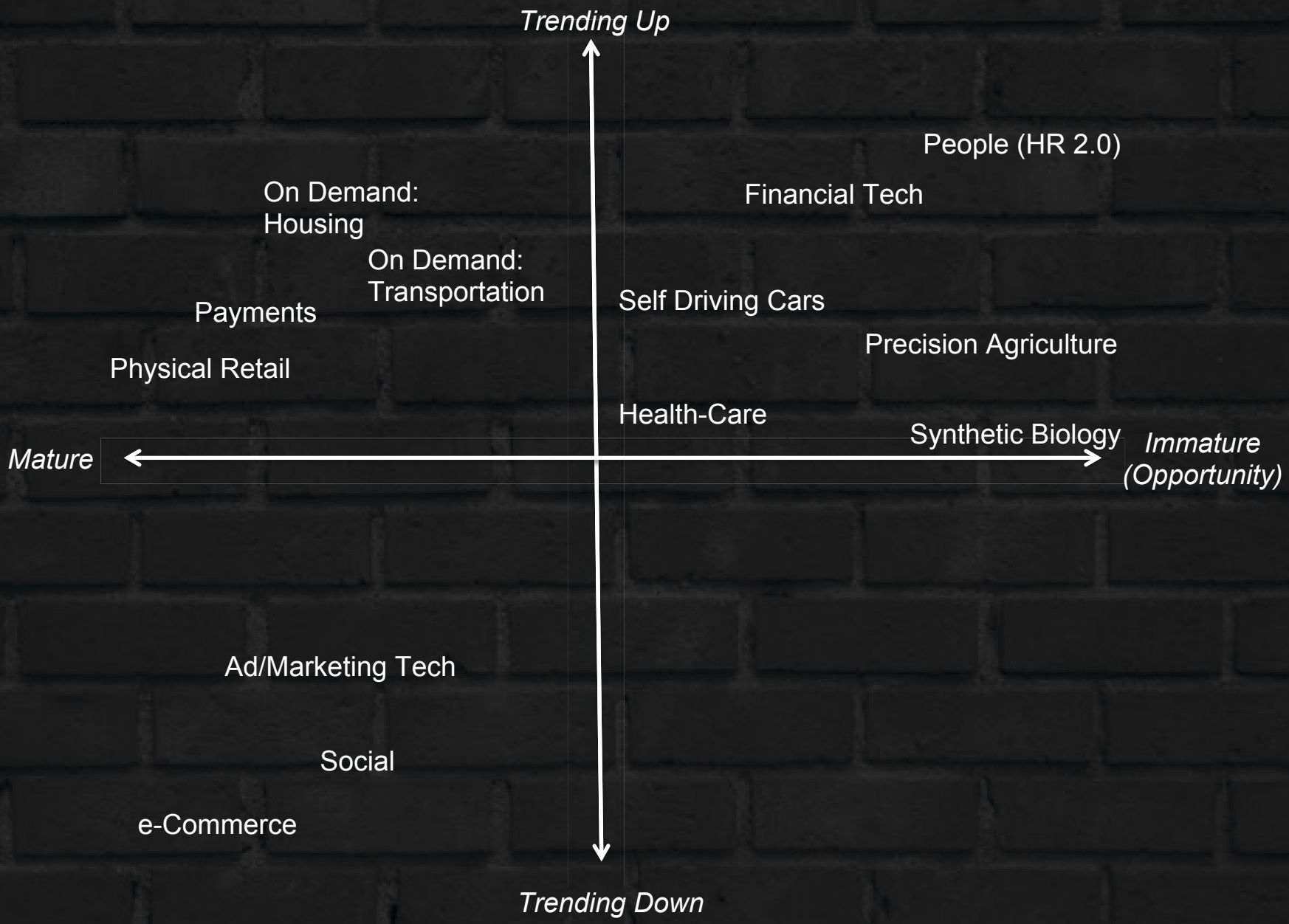
Timeline of Important Milestones in Evolution of Modern Data Science



Thematic Evolution of Big Data and the Positioning of Modern Data Science to be Front and Center in Every Business

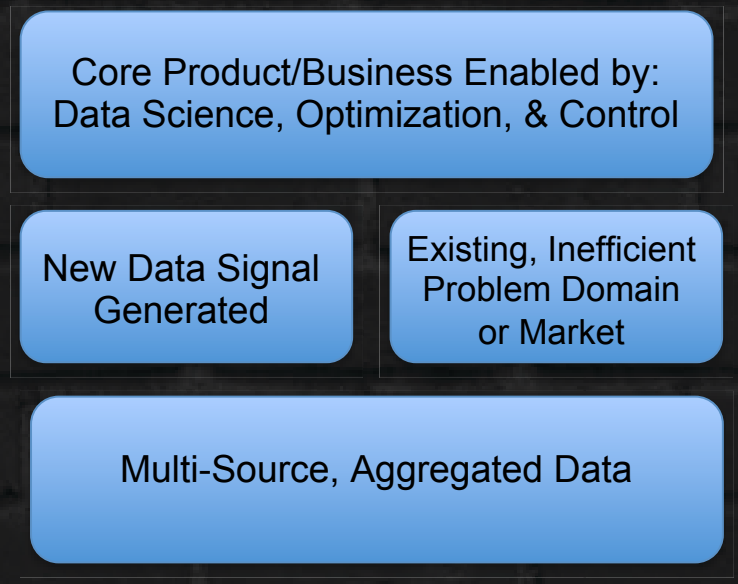


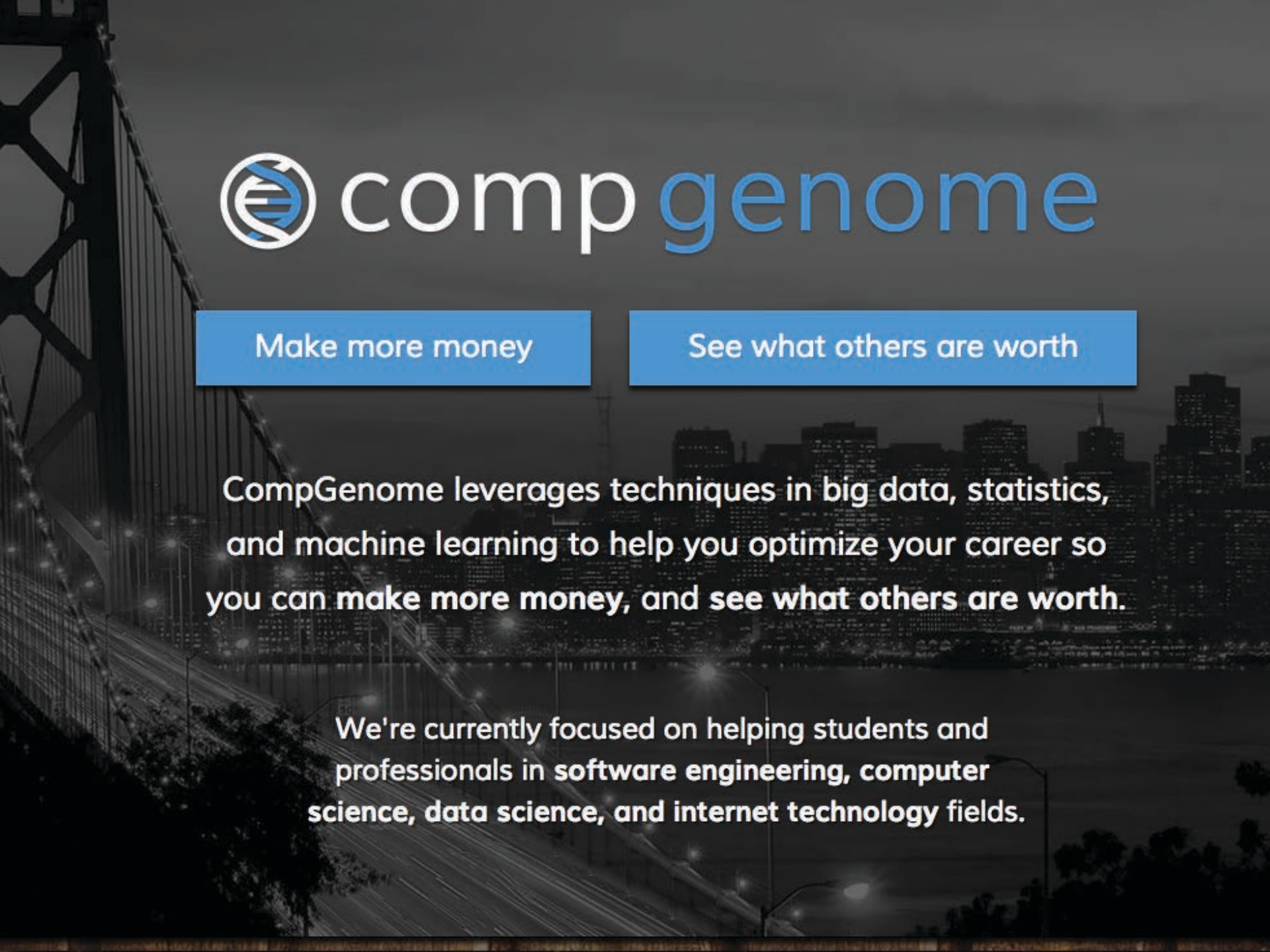
2015 Sector Market Dynamics: Vector Space Representation



"The best minds of my generation are thinking about how to make people click ads.” – Jeff Hammerbacher

Building Blocks of Promising New Business Ventures in Big Data/Data Science

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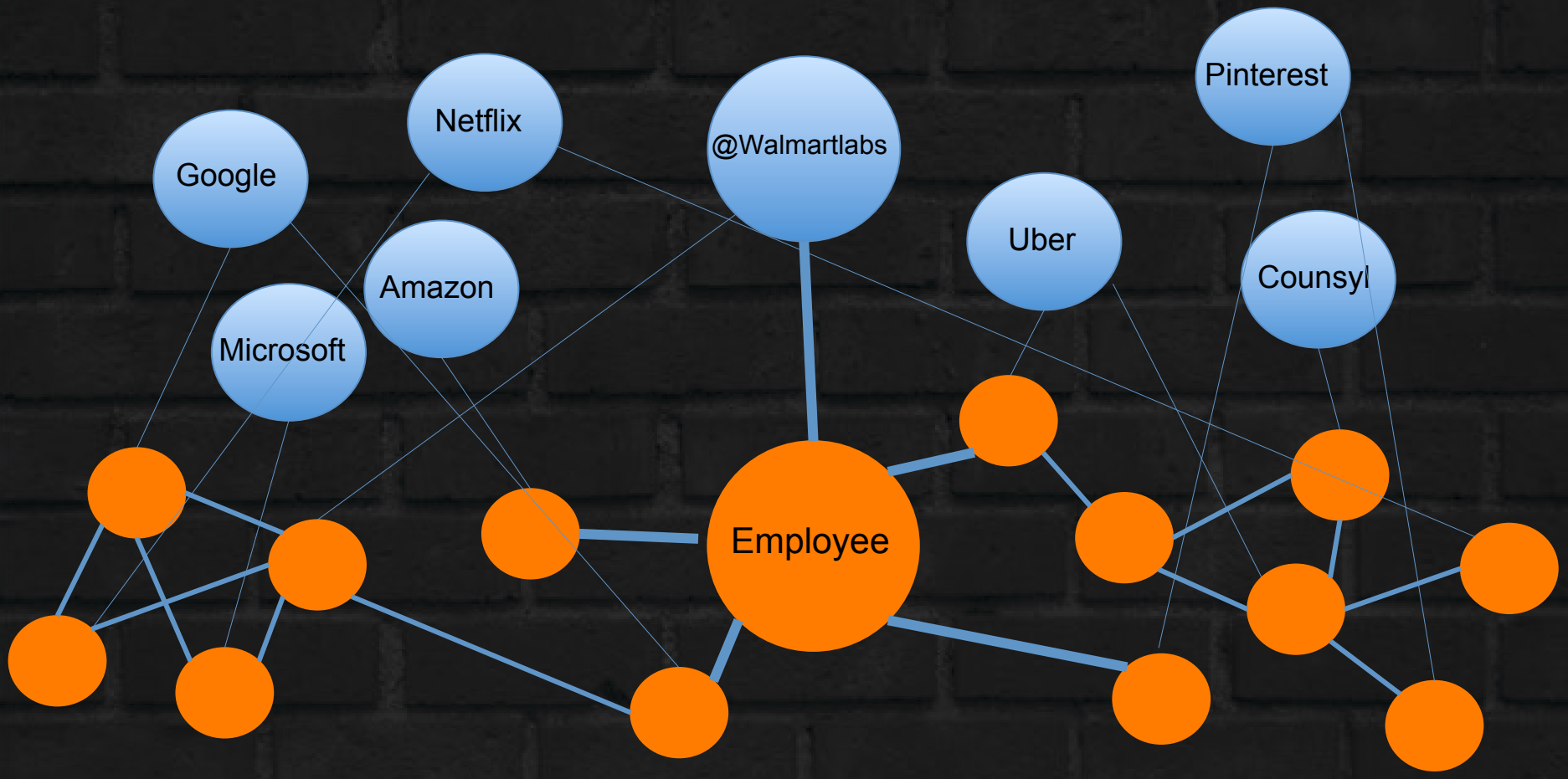
Make more money
See what others are worth
CompGenome leverages techniques in big data, statistics, and machine learning to help you optimize your career so you can make more money, and see what others are worth.
We're currently focused on helping students and professionals in software engineering, computer science, data science, and internet technology fields.

“The unobservable market force that helps the demand and supply of goods in a free market to reach equilibrium automatically is the *invisible hand*.”

Network Representation of Labor Market



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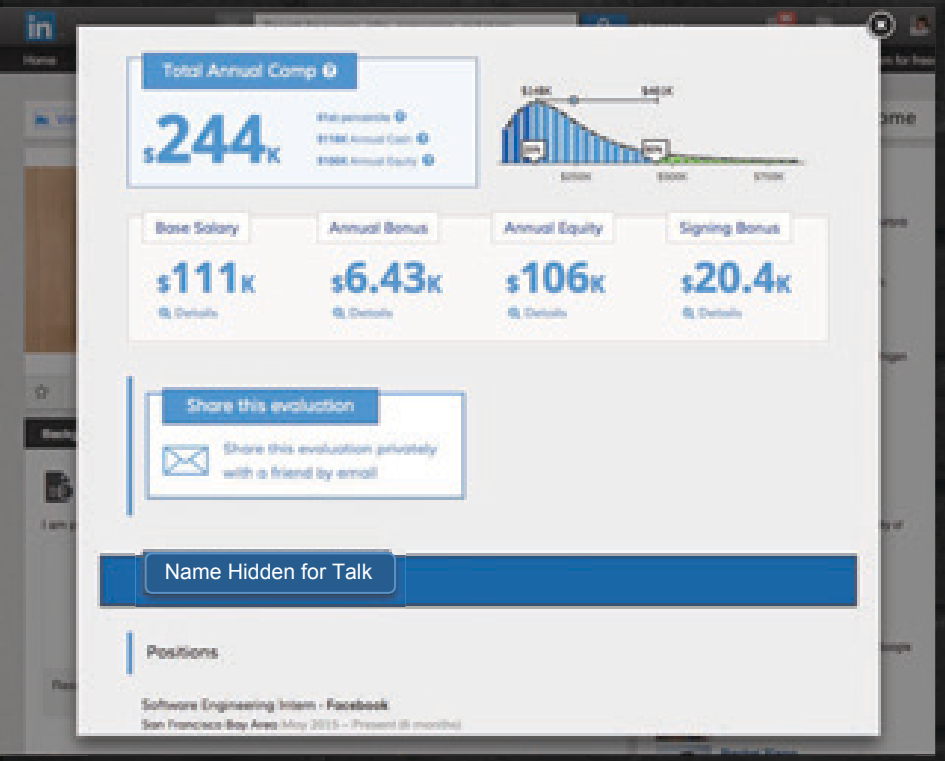
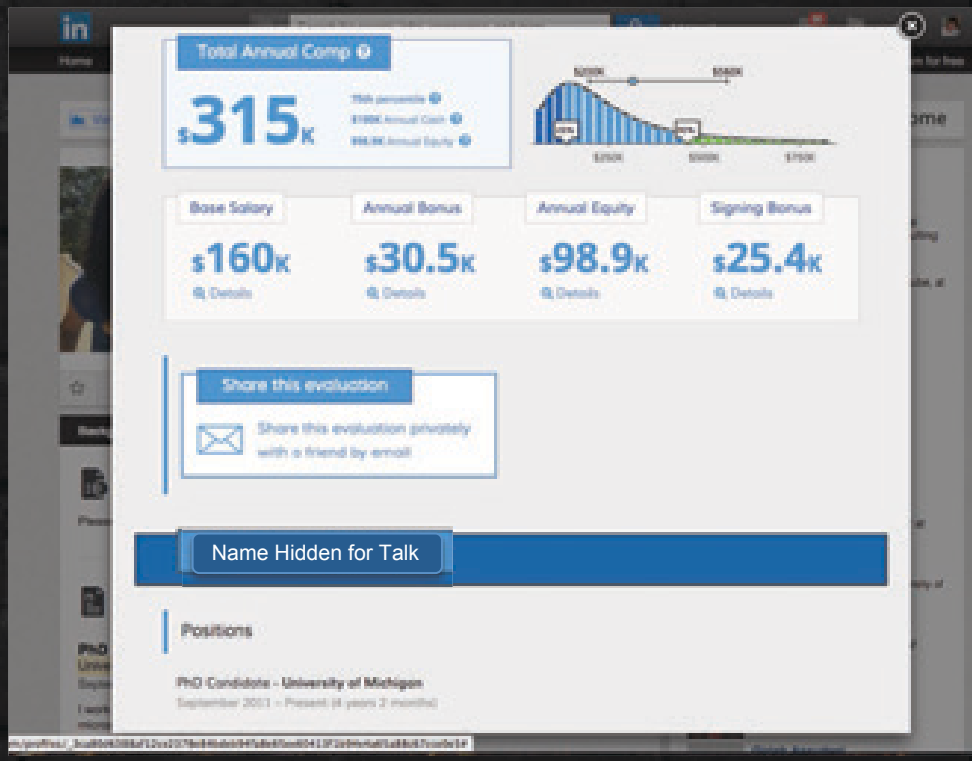
University of Michigan BS in CS Student



University of Michigan PhD in Statistics Student



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Measurement –

- Understand at individual level people's compensation
- Extract featured tied to individual and other market participants, e.g., companies, universities, etc.

Computation –

- Unsupervised: Who you are most like and should be comparing self to "market"
- Supervised: Explain variation in compensation between economic sectors to high-dimensional user signal

Control/Optimization–

- **Reverse engineer the "invisible hand" of this currently inefficient market**
- Enable every labor market participant to understand their position on a financial efficient frontier and how to increase that location towards high compensation

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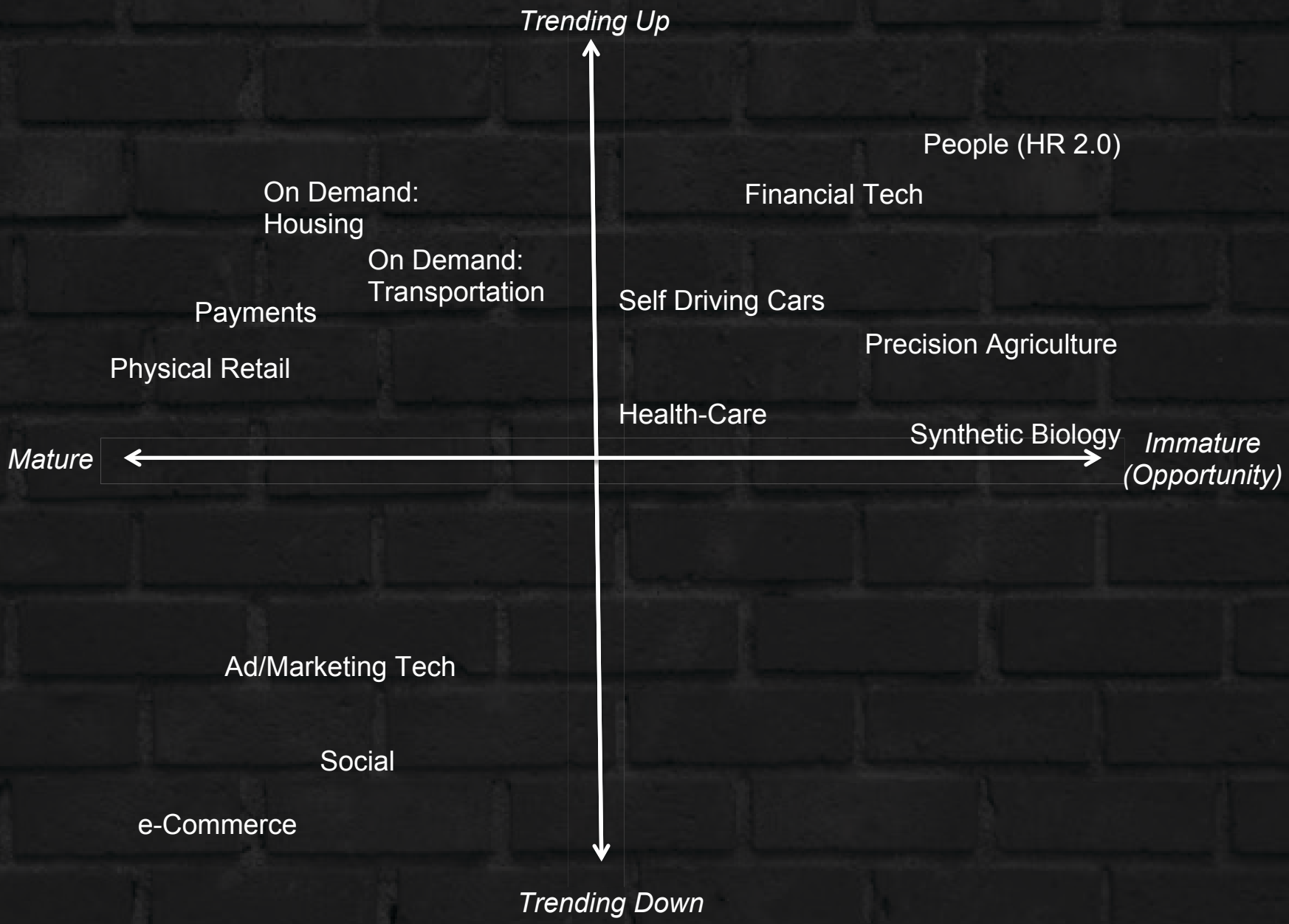

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Thank You.