INTERNET SEARCH ACTIVITY AND FIRMS' INTANGIBLE CAPITAL ACQUISITION

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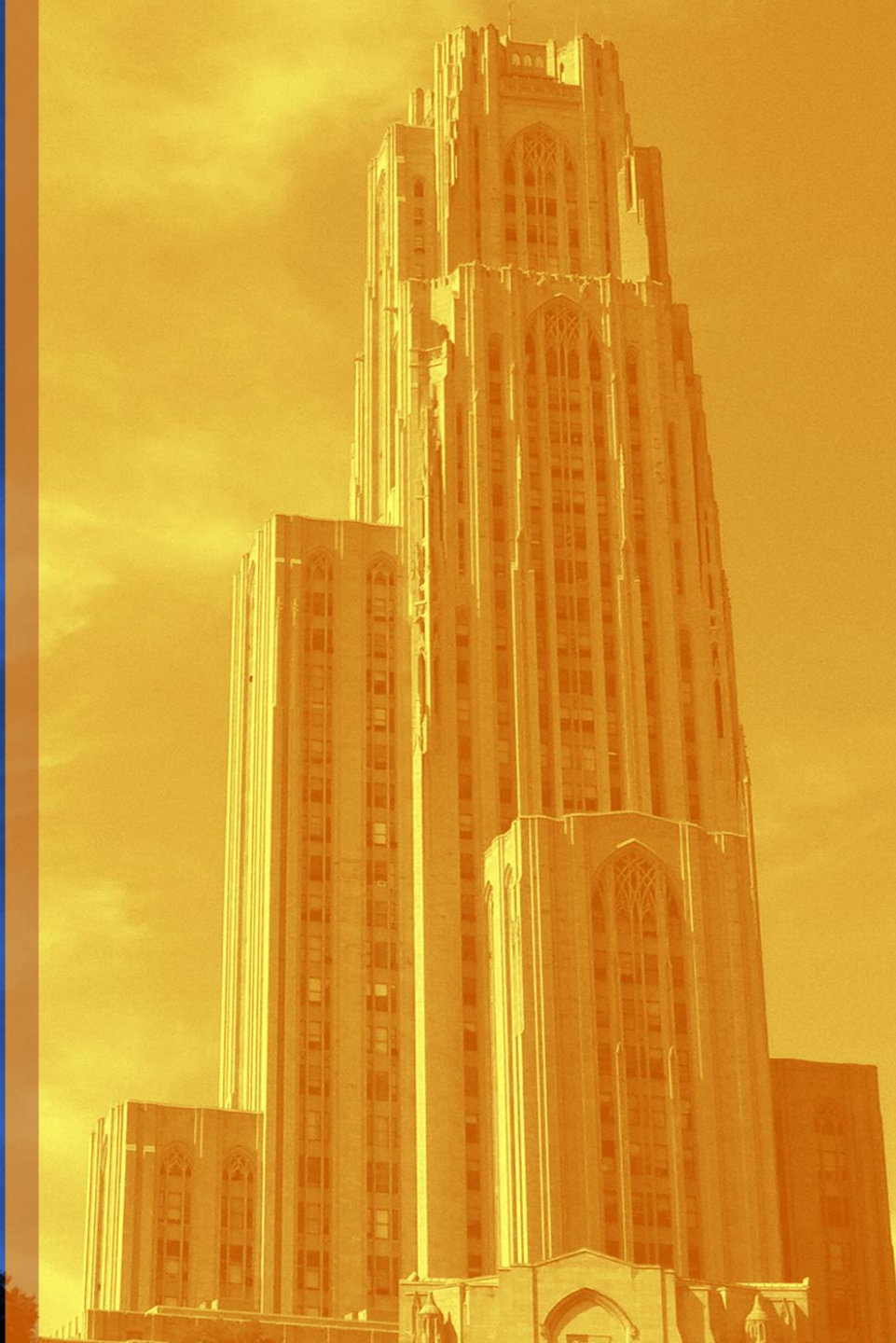
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Importance of Intangible Capital

- Intangible capital has been *growing in importance* in recent decades
  - Intangible capital now makes up *majority* of US public firms' total capital stock (>80% of S&P 500 firms' total capital stock), likely represents bulk of investment

- Yet, intangible capital accumulation is notoriously *difficult to measure*
  - Financial reporting rules require *expensing* internally-generated intangible capital, rather than *capitalizing* as an asset on the balance sheet
  - Firms have strategic incentives to *not disclose* their intangible capital acquisition

- We propose *real-time measures* of corporate intangible capital acquisition intensity using *internet search/reading activity*
  - Our novel approach outperforms existing measures relying on firms' disclosures
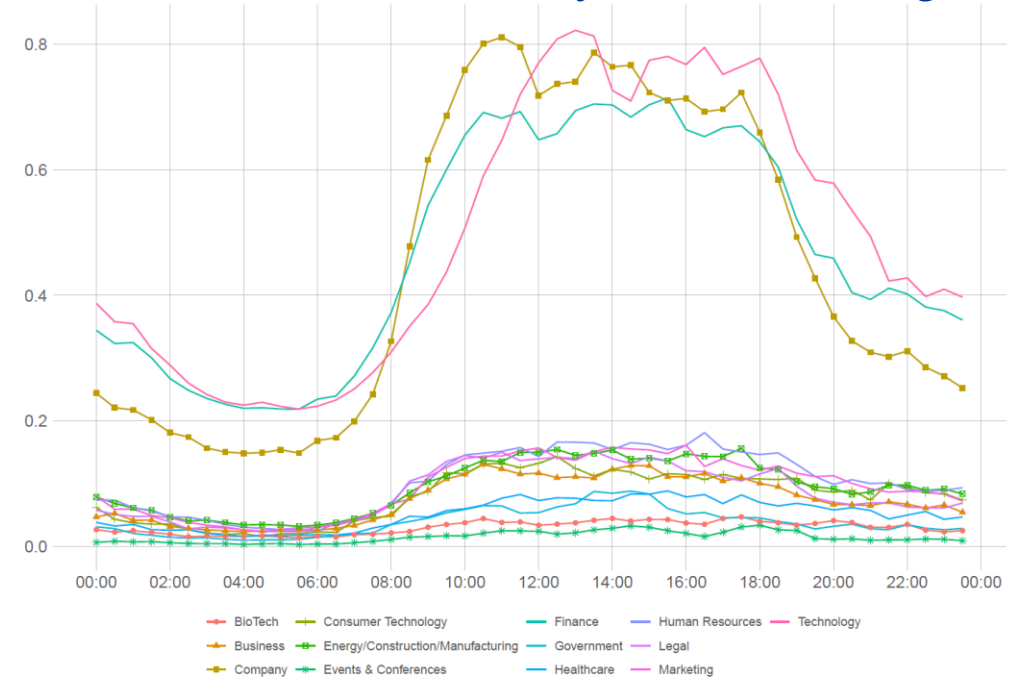
Big Data on Firms' Internet Activity

- *"Intent Data"* provides insights on firms' internet consumption activity

Data Collection Process
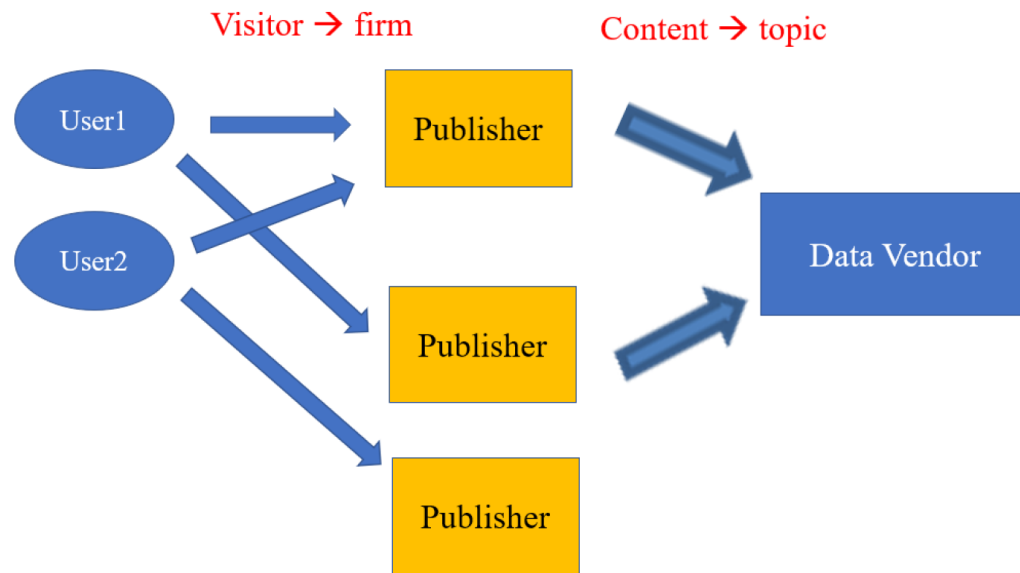
Financial Firm's Intra-day Internet Reading

- Benefits: *Real-time* availability, not subject to firms' *strategic disclosure motives*

Internet Activity and Intangible Capital Accumulation

- Firms' *topic-relevant* internet reading robustly predicts intangible capital accumulation and profits, but investors *fail to value* it fully

	Related Software Adoption	Related Patent Filing	B2B Materials Spending	B2B Bus. Svcs. Spending	B2B Industrial Spending	Profits	Std. Unexpected Earnings
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Reading	0.382***	0.022**	0.012***	0.020***	0.011***	−0.097**	−0.023**
	(0.015)	(0.009)	(0.004)	(0.006)	(0.003)	(0.049)	(0.010)
Controls	✕	✕	✓	✓	✓	✓	✓
Fixed Effects	Firm×Software, Firm×Time, Software×Time	Firm×Topic, Firm×Time, Topic×Time	Firm, Time	Firm, Time	Firm, Time	Firm, Time	Firm, Time
Obs.	12,507,727	4,286,572	100,393	100,393	100,393	38,824	28,601
R^2	0.745	0.485	0.887	0.694	0.900	0.727	0.432

Internet Activity and *Q*-Theory of Investment

- We build *augmented version* of Tobin's *Q* accounting for *unobserved, unreported* intangible capital accumulation by *imputation* of internet reading
  - Outperforms extant measures relying on physical capital and reported intangibles

	Investment (CapEx, R&D & SG&A)				Investment Gap
	(1)	(2)	(3)	(4)	(5)
Q (Reading)	0.097***				−3.210***
	(0.021)				(0.498)
Q (Total)		0.056***			
		(0.008)	0.088***		
Q (Patent)			(0.019)		
				0.055***	−1.014**
Q (Regular)				(0.013)	(0.441)