Teaching Analytics, But Does It Match the Data?
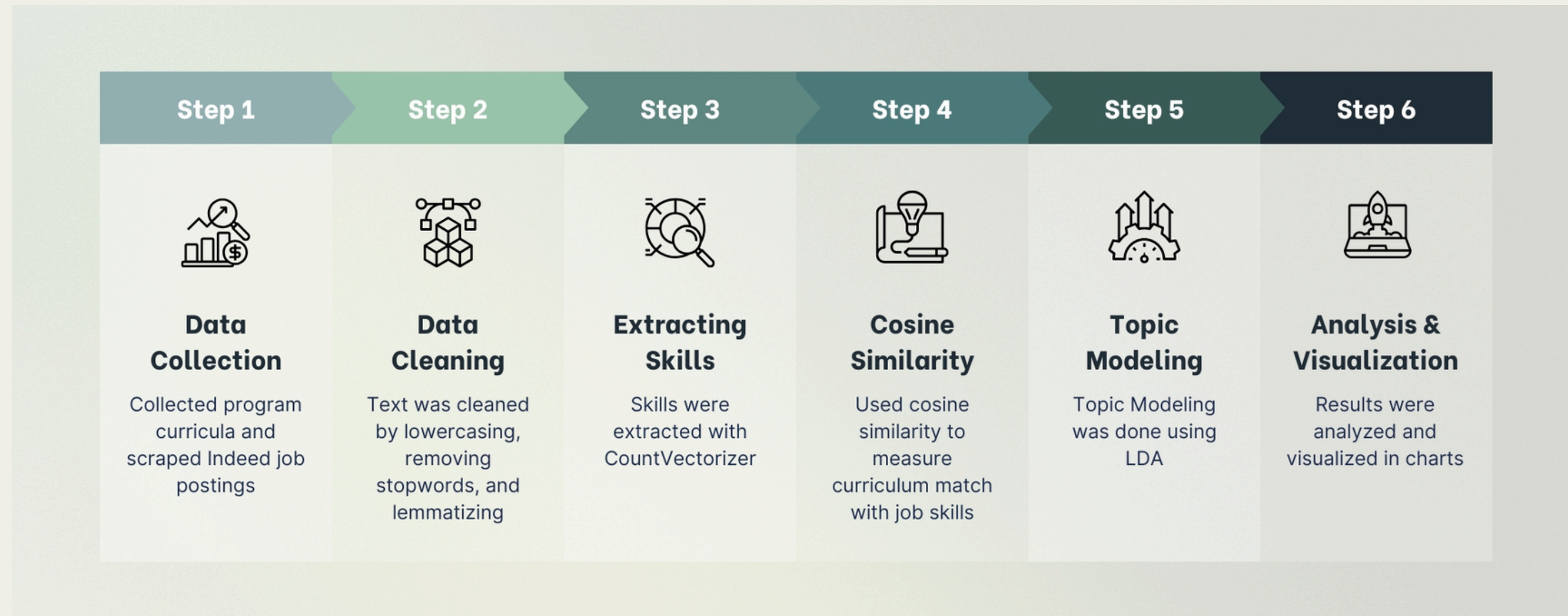
ANALYTICS FOR UNSTRUCTURED DATA

Abby Peck, Emily Caraher, Nandini Anand Kumar,

Riju Hariharan, Sarvesh Miskin, Varsha Ramesh

Are top MSBA programs teaching the skills employers want right now?

EVALUATION FRAMEWORK

Step 1	Step 2	Step 3	Step 4	Step 5	Step 6
Data Collection	**Data Cleaning**	**Extracting Skills**	**Cosine Similarity**	**Topic Modeling**	**Analysis & Visualization**
Collected program curricula and scraped Indeed job postings	Text was cleaned by lowercasing, removing stopwords, and lemmatizing	Skills were extracted with CountVectorizer	Used cosine similarity to measure curriculum match with job skills	Topic Modeling was done using LDA	Results were analyzed and visualized in charts

DATA & SCOPE DETAILS

Top 5 US MSBA programs:

- Carnegie Mellon University
- Massachusetts Institute of Technology
- New York University
- Columbia University
- University of Texas at Austin

Ranked 5-10 US MSBA programs:

- University of Southern California
- University of Washington
- Purdue University
- Georgetown University
- University of Minnesota

Top Non-US MSBA programs:

- London Business School (UK)
- Imperial Business School (UK)
- Warwick Business School (UK)
- NUS Business School (Singapore)
- Melbourne Business School (Australia)

Job listings sample:

- Source: Indeed (US)
- Roles: Business Analyst, Data Analyst, Data Scientist
- Time: current listings as of October 2025

SKILL DETECTION

Data Analyst

- SQL
- Python
- Excel
- Power BI
- Tableau

Business Analyst

- SQL
- Excel
- Dashboards
- Power BI
- Tableau

Data Scientist

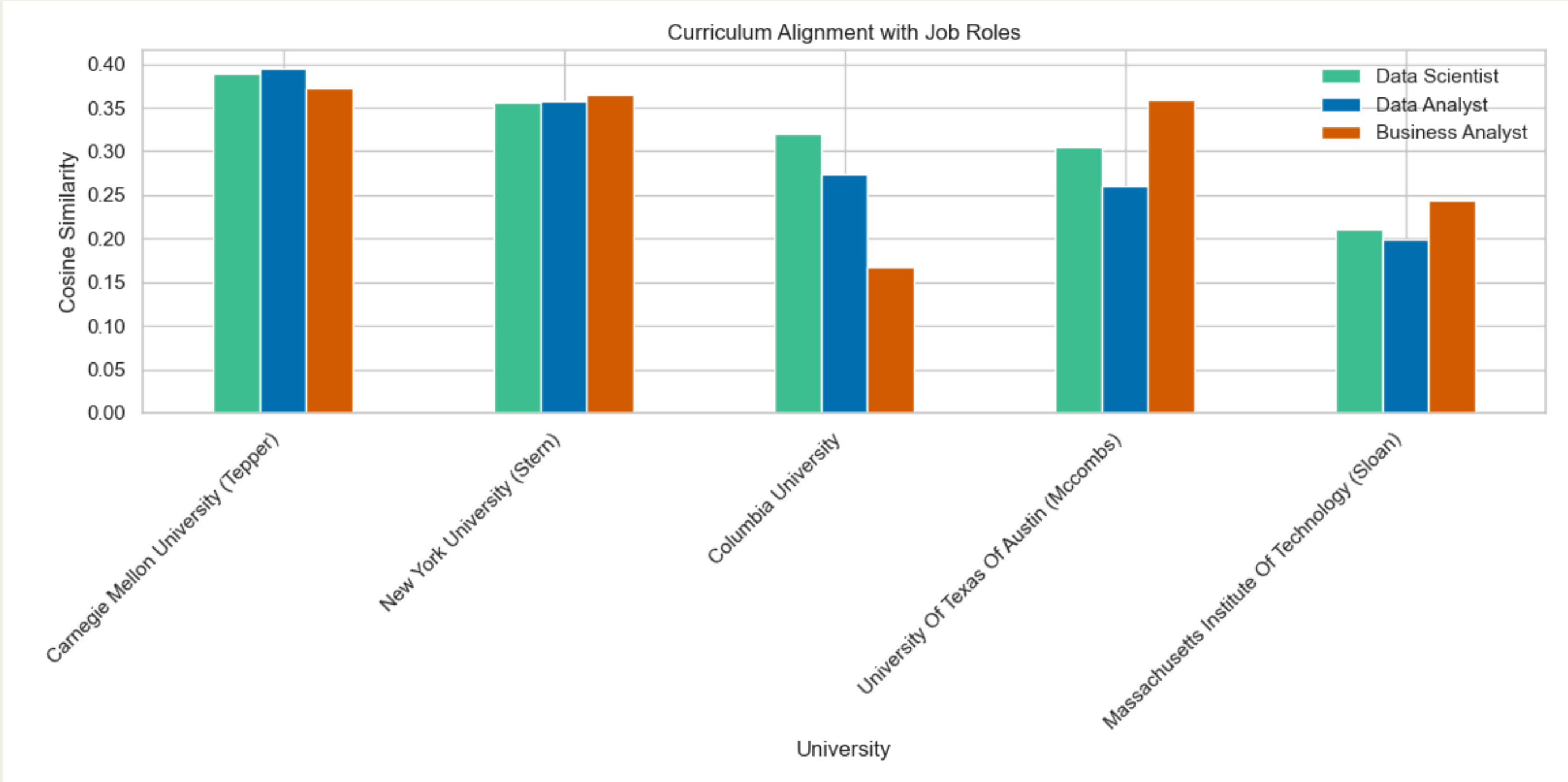- Machine Learning
- Python
- SQL
- R
- Optimization

Skills from Curriculum

- Python
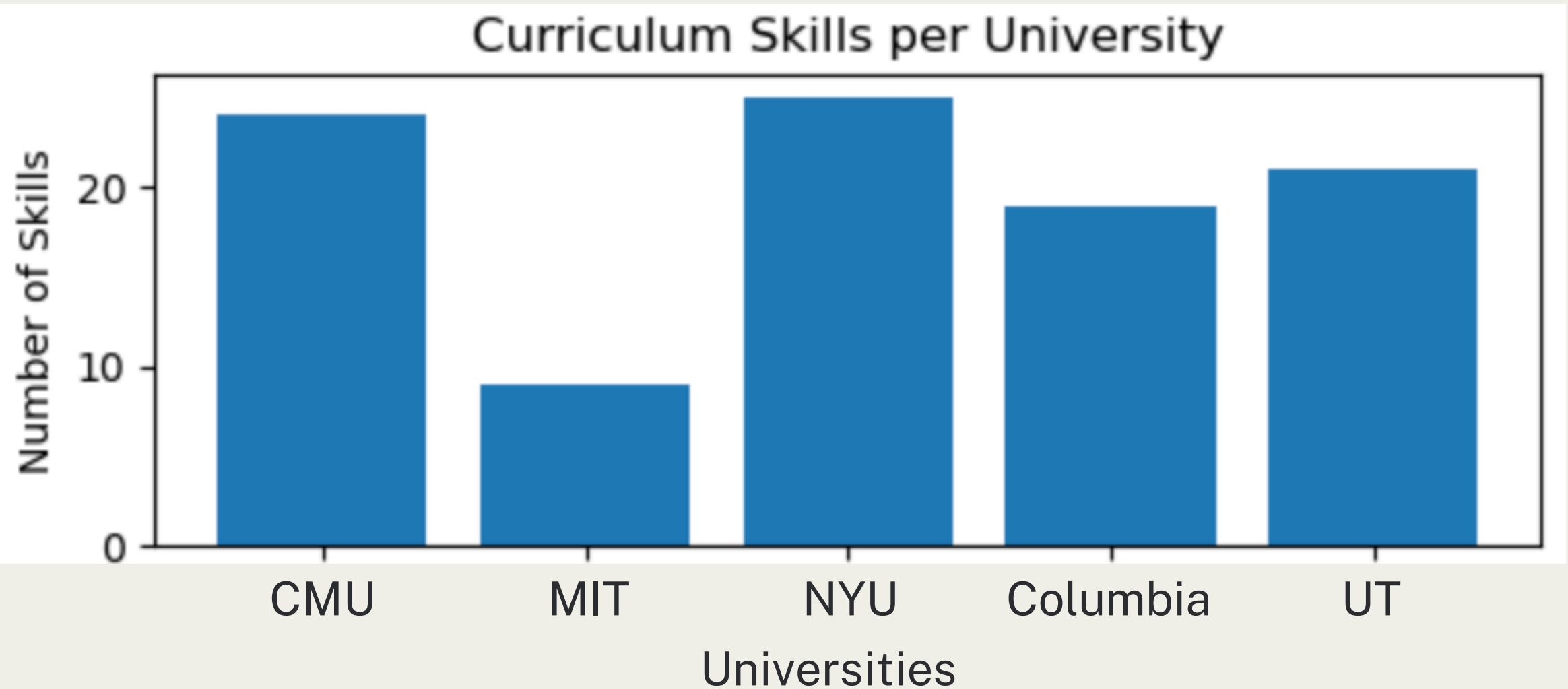- Business analytics (covers SQL, statistics, visualization, basic machine learning concepts and decision making)

- Machine learning
- Regression
- Optimization
- R
- Statistics

- SQL
- Causal inference
- Data visualization

Curriculum Alignment with Job Roles

WHY IS MIT NOT AT STRONGLY ALIGNED?

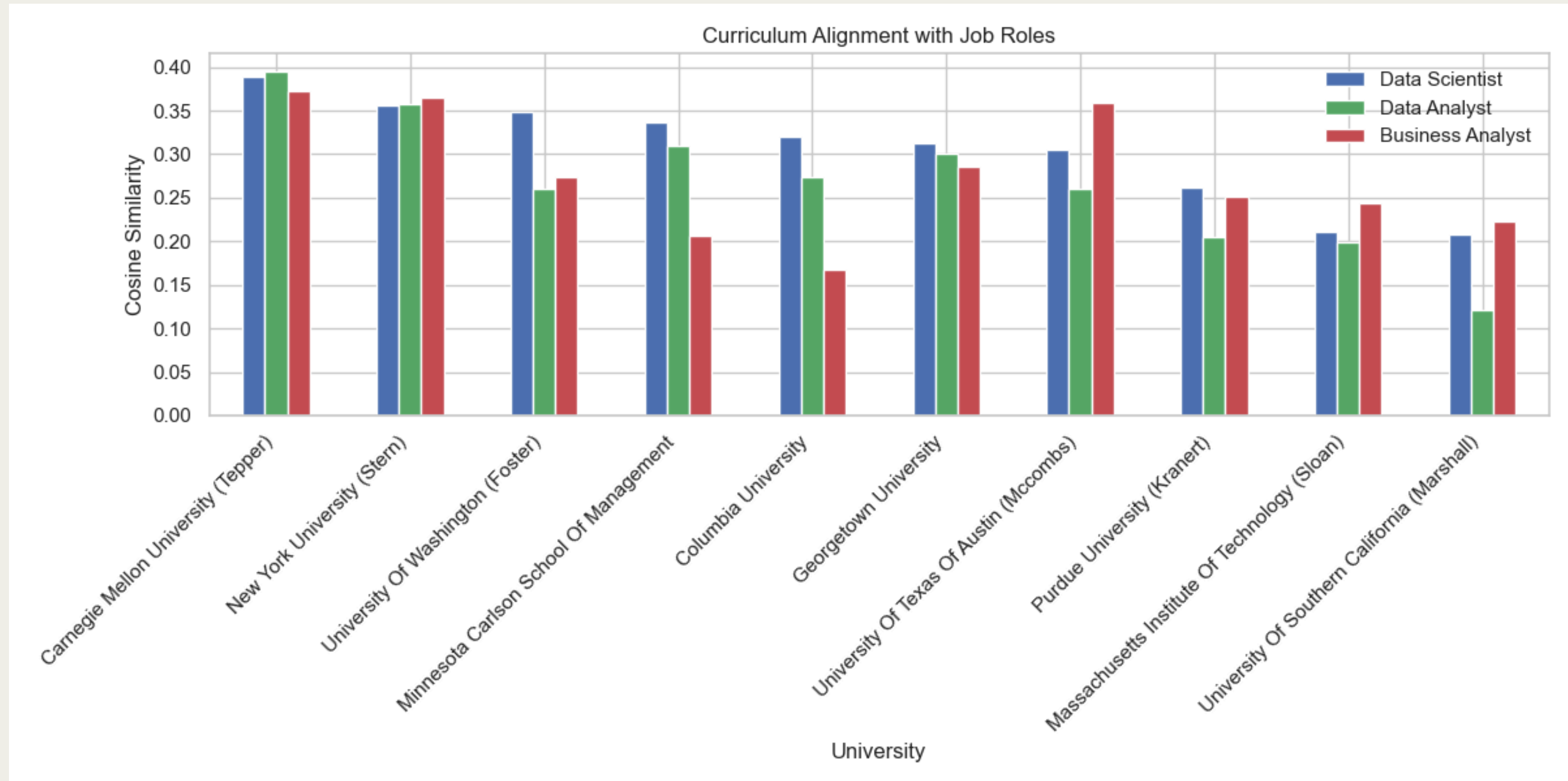Curriculum Skills per University

Missing Information
MIT has fewer skills listed in their curriculum and on their website.
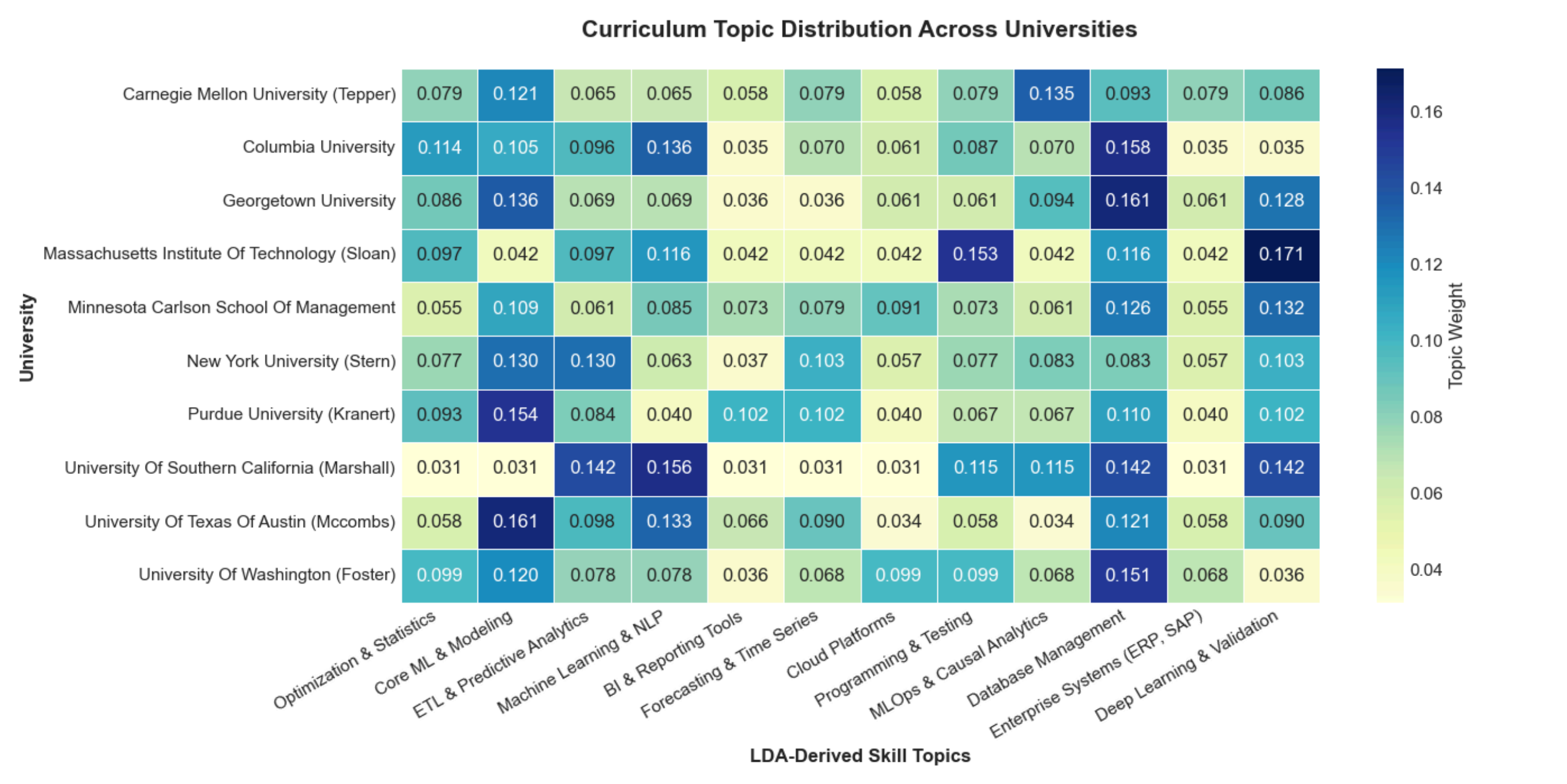
Significance
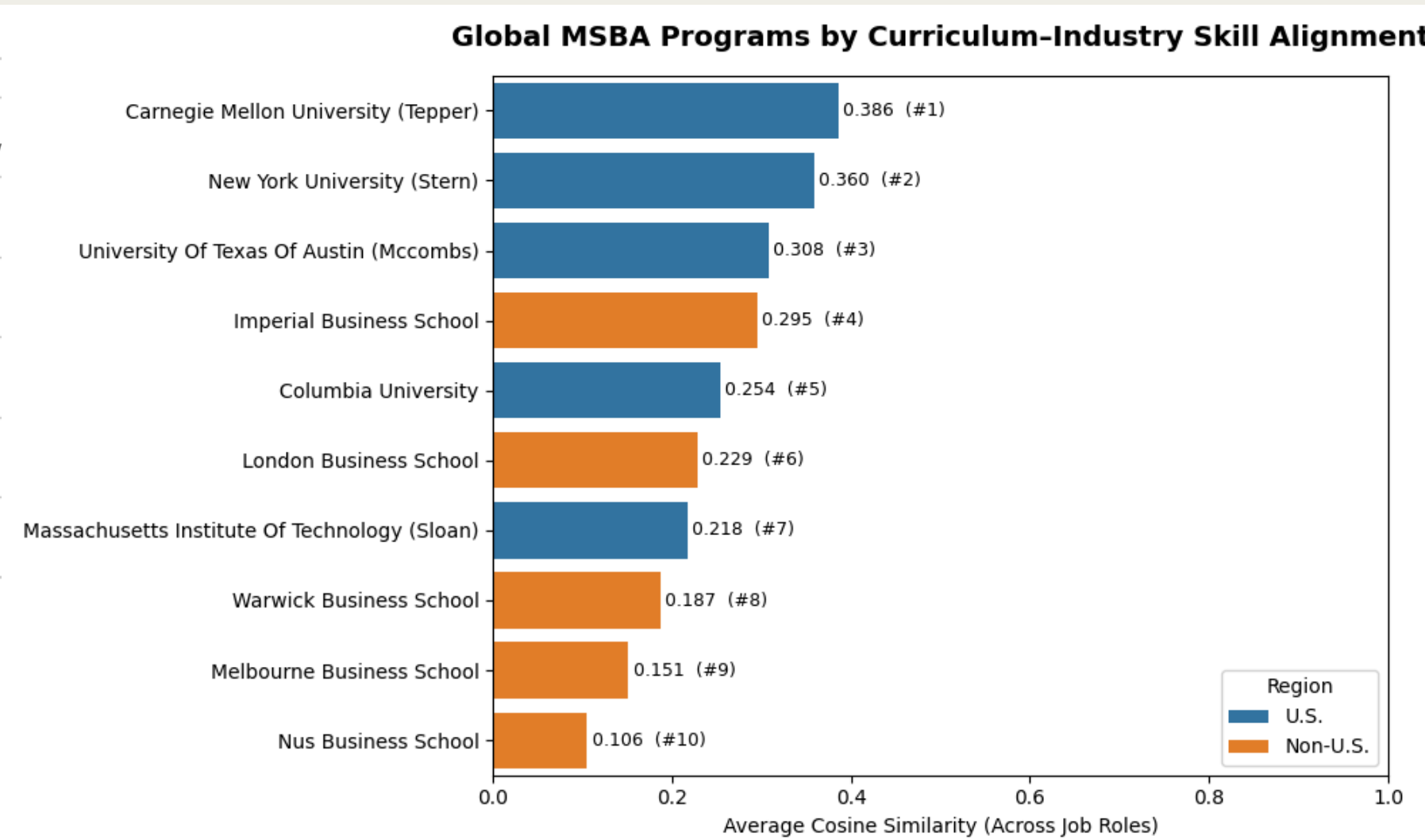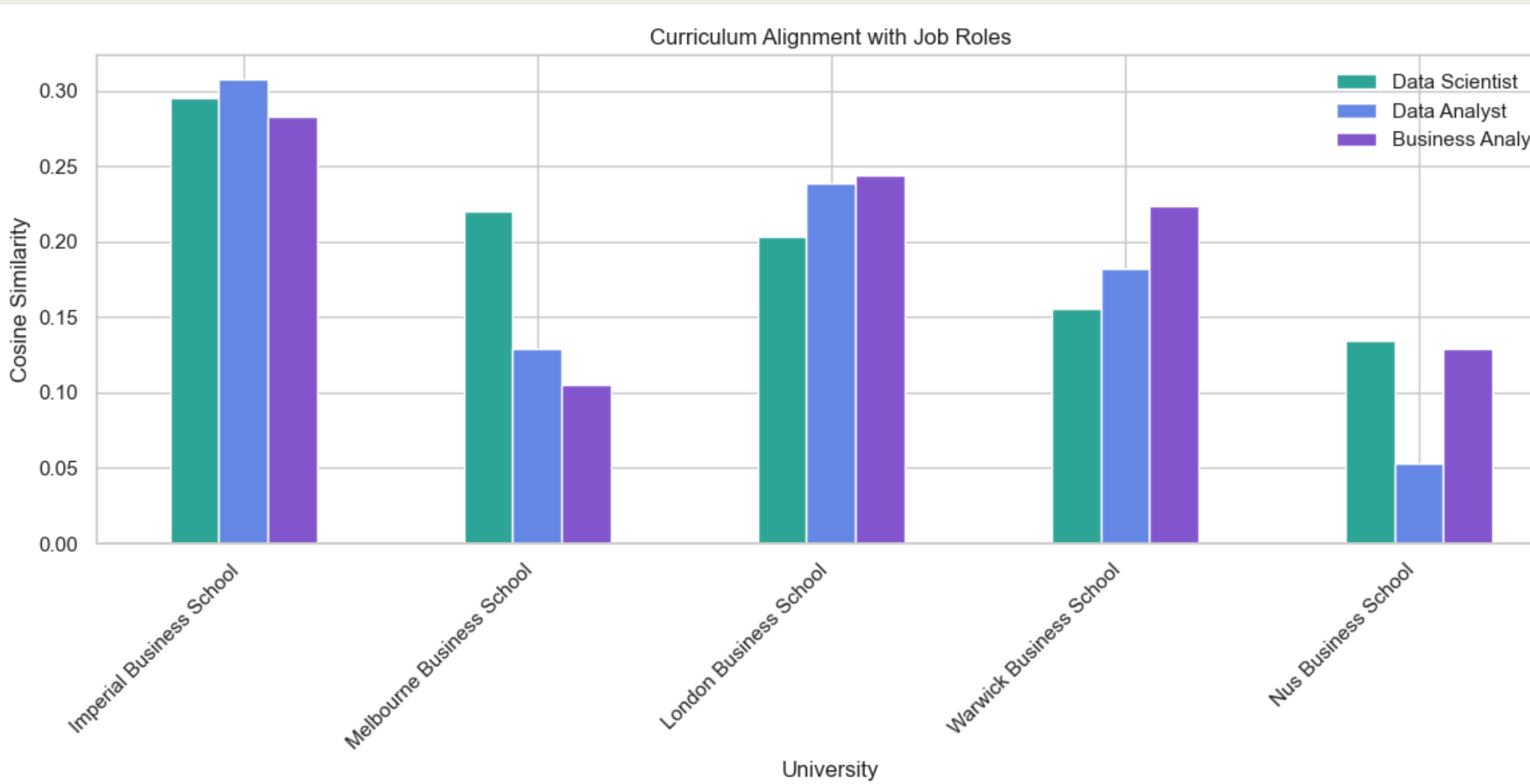Future students are not receiving the same amount of information from MIT as other schools
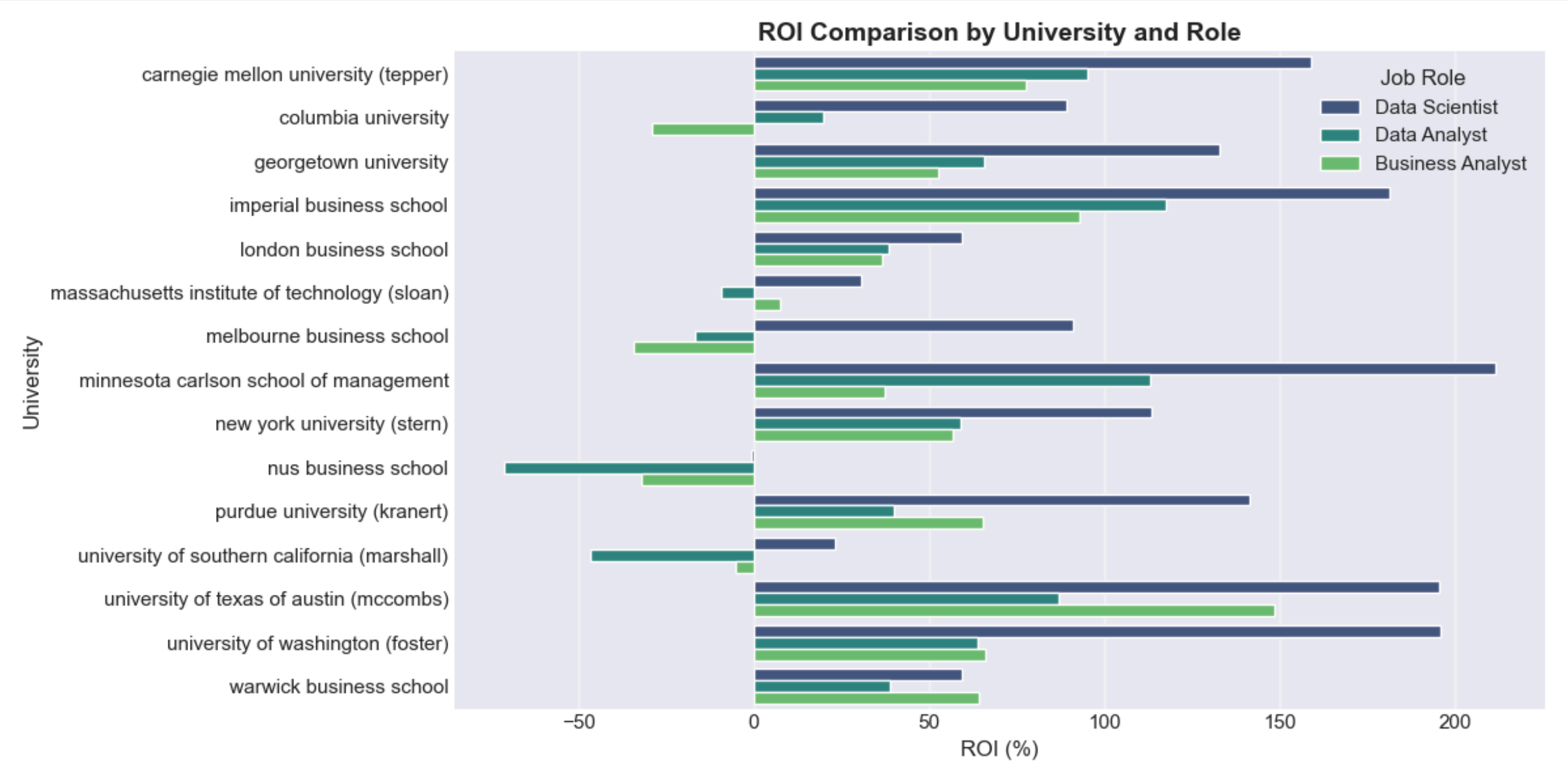
MARKET DEMAND VS CURRICULUM SUPPLY

Curriculum Alignment with Job Roles

CURRICULUM TOPIC MIX BY UNIVERSITY

Curriculum Topic Distribution Across Universities

University	Optimization & Statistics	Core ML & Modeling	ETL & Predictive Analytics	Machine Learning & NLP	BI & Reporting Tools	Forecasting & Time Series	Cloud Platforms	Programming & Testing	MLOps & Causal Analytics	Database Management	Enterprise Systems (ERP, SAP)	Deep Learning & Validation
Carnegie Mellon University (Tepper)	0.079	0.121	0.065	0.065	0.058	0.079	0.058	0.079	0.135	0.093	0.079	0.086
Columbia University	0.114	0.105	0.096	0.136	0.035	0.070	0.061	0.087	0.070	0.158	0.035	0.035
Georgetown University	0.086	0.136	0.069	0.069	0.036	0.036	0.061	0.061	0.094	0.161	0.061	0.128
Massachusetts Institute Of Technology (Sloan)	0.097	0.042	0.097	0.116	0.042	0.042	0.042	0.153	0.042	0.116	0.042	0.171
Minnesota Carlson School Of Management	0.055	0.109	0.061	0.085	0.073	0.079	0.091	0.073	0.061	0.126	0.055	0.132
New York University (Stern)	0.077	0.130	0.130	0.063	0.037	0.103	0.057	0.077	0.083	0.083	0.057	0.103
Purdue University (Kranert)	0.093	0.154	0.084	0.040	0.102	0.102	0.040	0.067	0.067	0.110	0.040	0.102
University Of Southern California (Marshall)	0.031	0.031	0.142	0.156	0.031	0.031	0.031	0.115	0.115	0.142	0.031	0.142
University Of Texas Of Austin (Mccombs)	0.058	0.161	0.098	0.133	0.066	0.090	0.034	0.058	0.034	0.121	0.058	0.090
University Of Washington (Foster)	0.099	0.120	0.078	0.078	0.036	0.068	0.099	0.099	0.068	0.151	0.068	0.036

University

LDA-Derived Skill Topics

Topic Weight

MARKET DEMAND VS CURRICULUM SUPPLY - NON US

ROI ANALYSIS OF GLOBAL MSBA PROGRAMS

ROI Comparison by University and Role

CONCLUSION/TAKEAWAYS

- Do the top 5 MSBA programs align best with current job responsibilities?

- Is there truly a disconnect between certain job responsibilities and skills taught or are they just not properly advertised on university websites?
    - MIT SQL example

- How do top non-US schools prepare students compared to top US schools for US job descriptions?

Thank you!