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Analytics for Academic Leadership

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Moneyball (2011)

- Use of a sophisticated empirical analysis of baseball to assemble a competitive team in spite of limited budget for players.



Need for a strong data analytics support at all levels

- Rectors, Vice Rectors, Advisors to them
- Deans, Associate Deans
- Research Center Managers
- Administrative Unit Heads
- Researchers, Teaching Staff



Data Analytics for Academic Leaders

- How well have you incorporated analytics in your decision making?
- Is your institution using data to
 - detect problems and identify root causes?
 - discover improvement opportunities and prioritize them?
 - set goals for future?



IT, Analytics and Institutional Research Offices

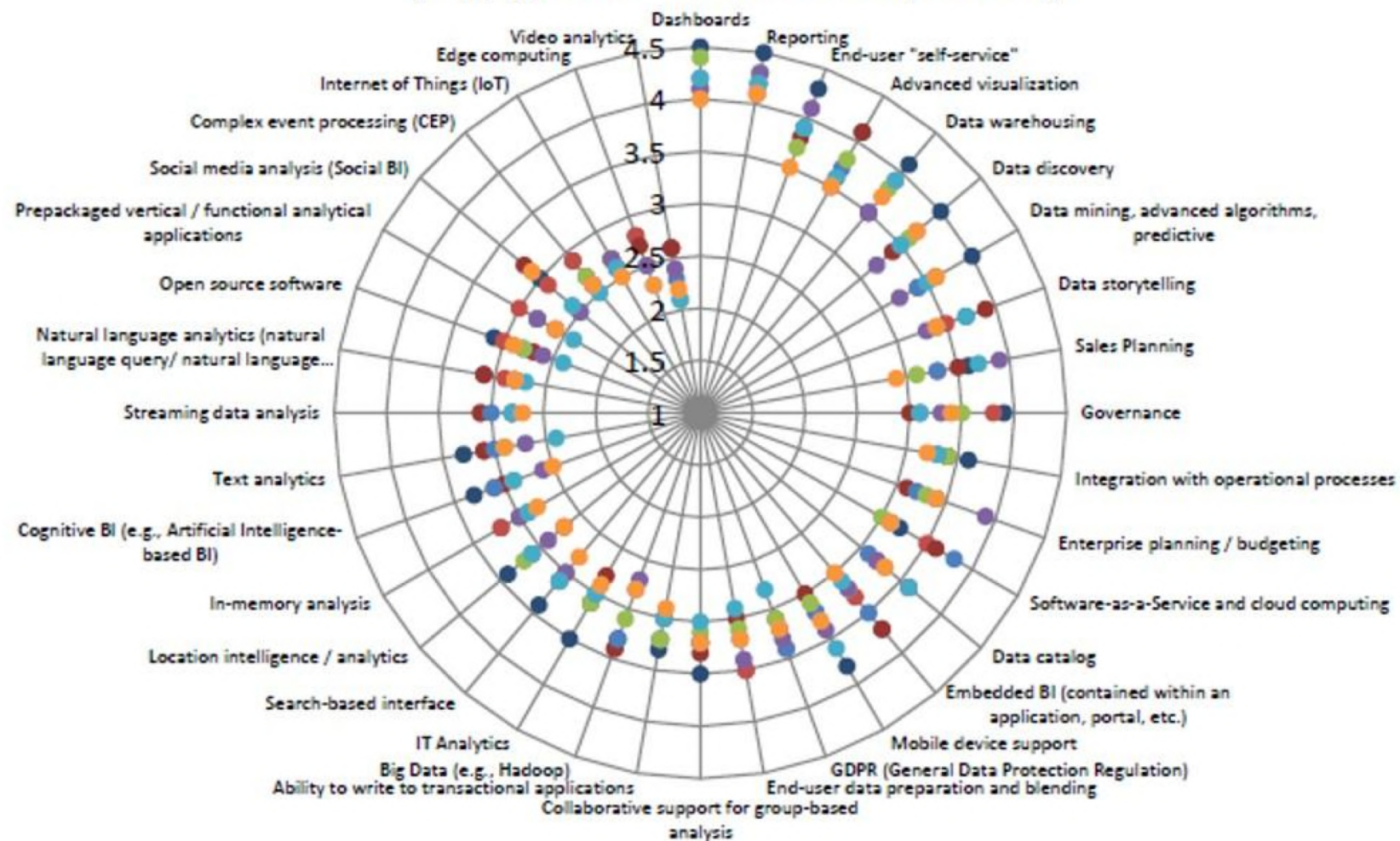
- Collect and organize both structured and unstructured data from systems across the institution and from benchmark institutions
 - Automated and manual data collection
- Track changes over time
 - Trend analysis
- Allow easy access to data for answering queries and analysis
- Create dashboards/scorecards and reports to support decision making and planning at all levels



Technologies and Initiatives Strategic to Business Intelligence Objectives by Industry

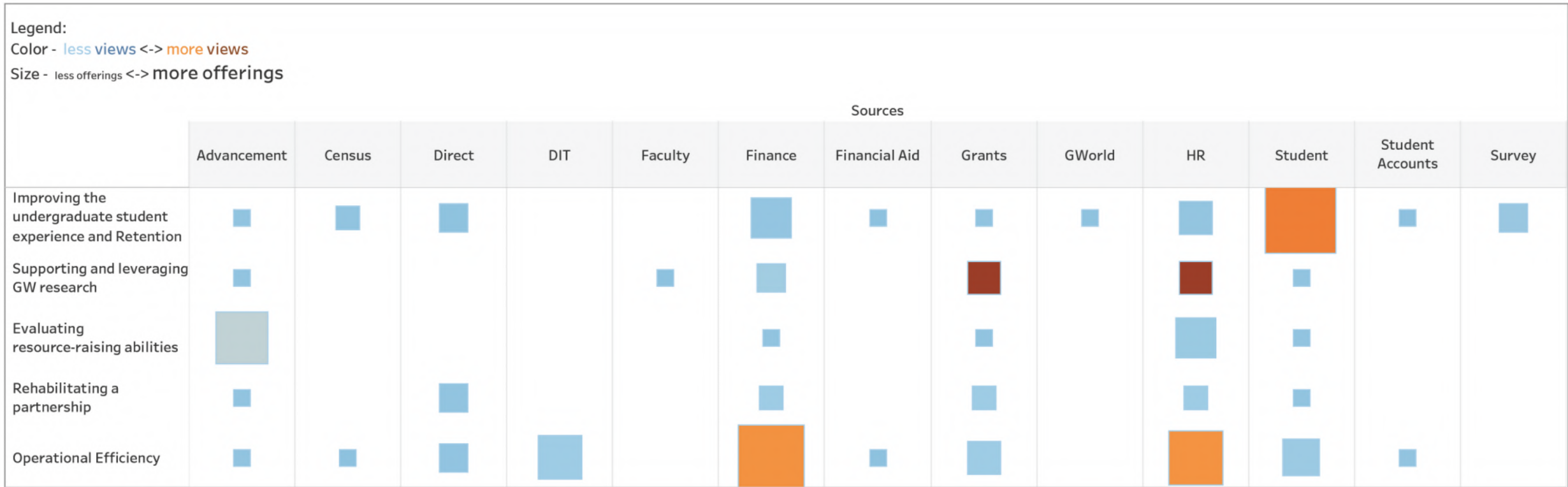
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- Dashboards
- Reporting
- Data warehousing
- Advanced visualization
- Predictive data mining
- Enterprise planning/budgeting
- Social media analysis



- Insurance
- Healthcare
- Financial Services
- Manufacturing
- Business Services
- Retail and Wholesale
- Technology
- Education (Higher Ed)

Interactive Dashboards in George Washington University

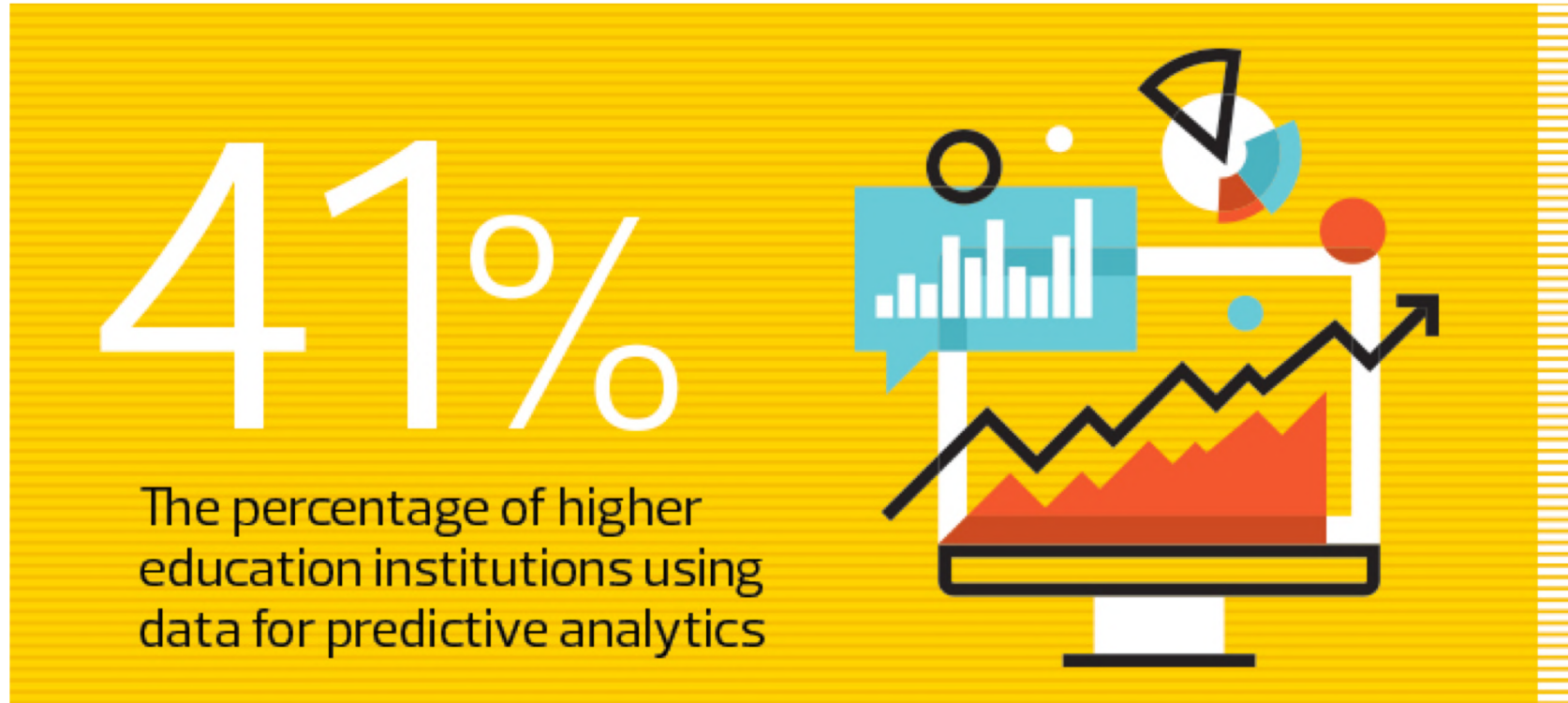


Dashboard Examples

- Executive Level Award Dashboard for high-level grant management
- Financial Director's Dashboard for university finances management
- Enrollment Management Dashboard for incoming students
- Advancement Decision Center Dashboard to help with the university's fundraising goals



Current Data Analytics Penetration in Higher Education



Source: KPMG Institutes, "2015–2016 Higher Education Industry Outlook Survey," November 2015

Analytics For Strategic Planning and Quality Assurance

- Deployment of university strategic plan and goals
- Reporting of implementation activities and results
- Dashboards of goal/area performance indicators
- Evaluation of deviations from the targets
- Reporting of planned actions to achieve goals




[illegible]

Performance Measure: Uses and Abuses

- Facilitates building and monitoring effective strategies
- Can also be abused by using them for punishment or reward
- Need to be well defined for the purpose



Example: Snowball Metrics for Research Universities



Snowball Metrics Recipe Book

Standardised research metrics – by the sector, for the sector

Snowball Metrics Steering Group

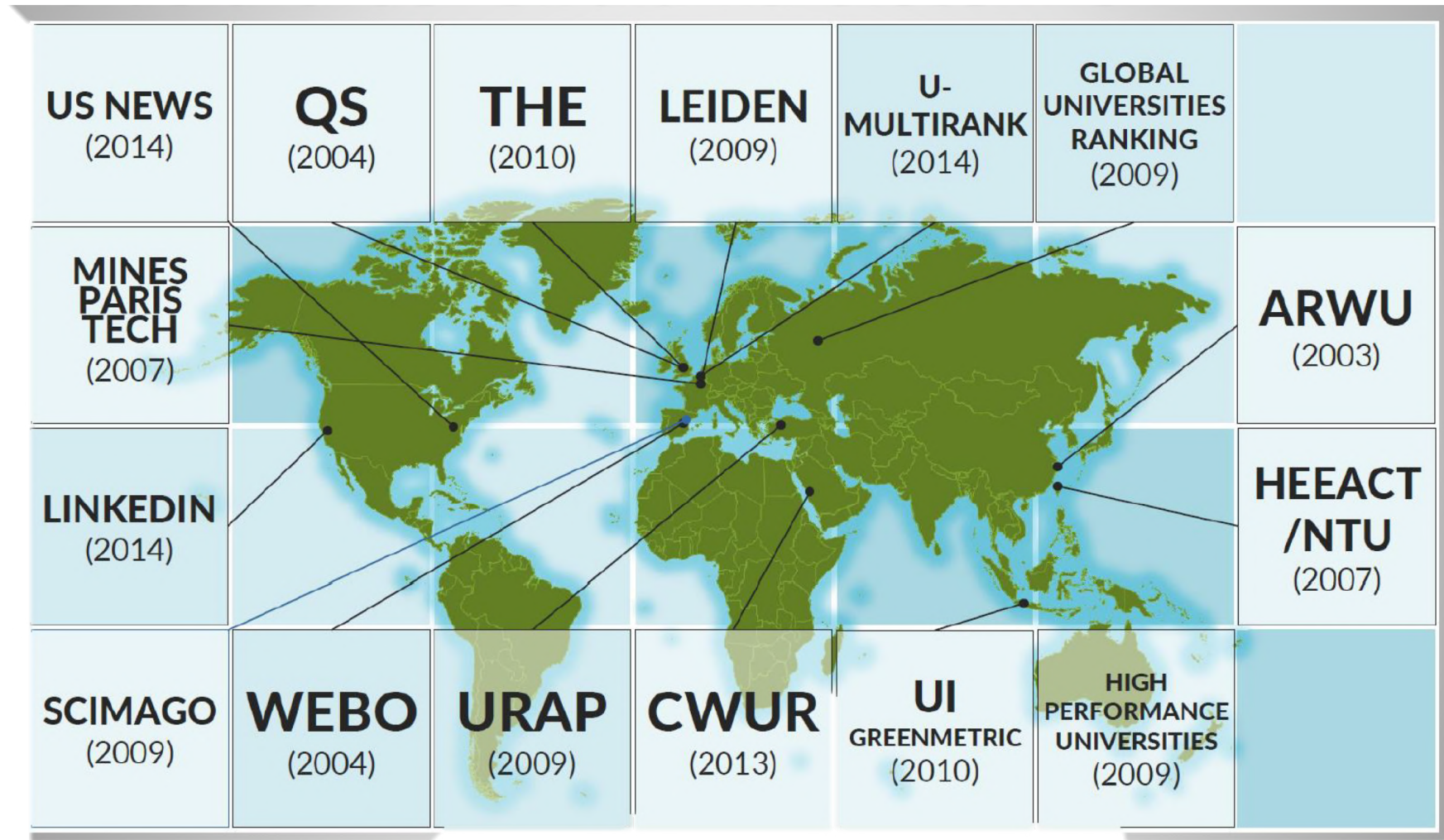
- University College London
- University of Oxford
- University of Cambridge
- Imperial College London
- University of Bristol
- University of Leeds
- Queen's University Belfast
- University of St Andrews
- Elsevier

(Ordered within country according to Scholarly Output ❄️, 2016.
Data source: Scopus. Data cut: 3 March 2017)

<https://www.snowballmetrics.com/>

	Research Inputs	Research Processes	Research Outputs and Outcomes
Research	Research applications Research awards <ul style="list-style-type: none"> Price / overhead recovery Philanthropy 	Research income <ul style="list-style-type: none"> Space utilisation Staff recruitment Start / end date slippage 	Publications & citations Collaboration (co-authorship) Esteem measures <ul style="list-style-type: none"> Socio-economic impact
Enterprise Activities/ Economic Development	Industrial income <ul style="list-style-type: none"> Industry engagement 	<ul style="list-style-type: none"> Industry research income 	Patenting Licensing income Spin-out generation / income <ul style="list-style-type: none"> KTPs numbers Consultancy income
Post-Graduate Education	PGR volumes <ul style="list-style-type: none"> PGT volumes International PGT volumes UG to PG conversion rates 	Post-Graduate experience <ul style="list-style-type: none"> Facilities 	Completion rates <ul style="list-style-type: none"> Alumni / destination of leavers Skills development (impact)
Denominators <ul style="list-style-type: none"> "Slice and dice" Normalize for size 	(Number of) People <ul style="list-style-type: none"> Researcher, authors Principal / co-investigators Academic staff by category Research assistants PGR Students UG / PGT Students Post-doctoral staff Support staff 	Organizations <ul style="list-style-type: none"> Institution Faculty / department Cost Centre Groups / clusters Funders by type Centres / institutes 	Themes / Schemes <ul style="list-style-type: none"> Standard grants Strategic initiatives (Calls) Grand Challenges Subject areas Keywords

Metrics Used by Ranking Systems



Source: A. Kalınlı (2018)




Publication Data Sources and Analytics Software Platforms

- Traditional sources
 - Web of Science, Scopus, Google Scholar
- Sources that also provide analysis results
 - InCites, Mendeley, SciVal
- Other sources
 - AVEIS etc.



InCites


InCites
Calibrate Your Strategic Research Vision




Dashboard


Analytics


Profiles


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People


Organizations


Regions


Research Areas


Journals, Books,
Conference
Proceedings


Funding Agencies



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Leading Research Topics in Your Institution











Browse Topics

Export 

Researchers at Middle East Technical University (METU) have contributed to 4,521 topics between 2012 to >2017

 Table  Wheel

Search this Institution's Topics 

Topic	At this Institution			Worldwide
	Scholarly Output 	Publication Share	Field-Weighted Citation Impact	Prominence percentile 
jets; production; parton shower ... T.1026	193	9.80% 	2.58	99.812 
supersymmetry; collisions; simplified models ... T.23456	79	17.32% 	3.28	97.340 
quarks; production; top-quark mass ... T.1868	76	7.02% 	2.38	98.173 
Electrochromism; Electrochromic devices; cm2 C-1 ... T.3396	59	5.43% 	1.35	99.391 

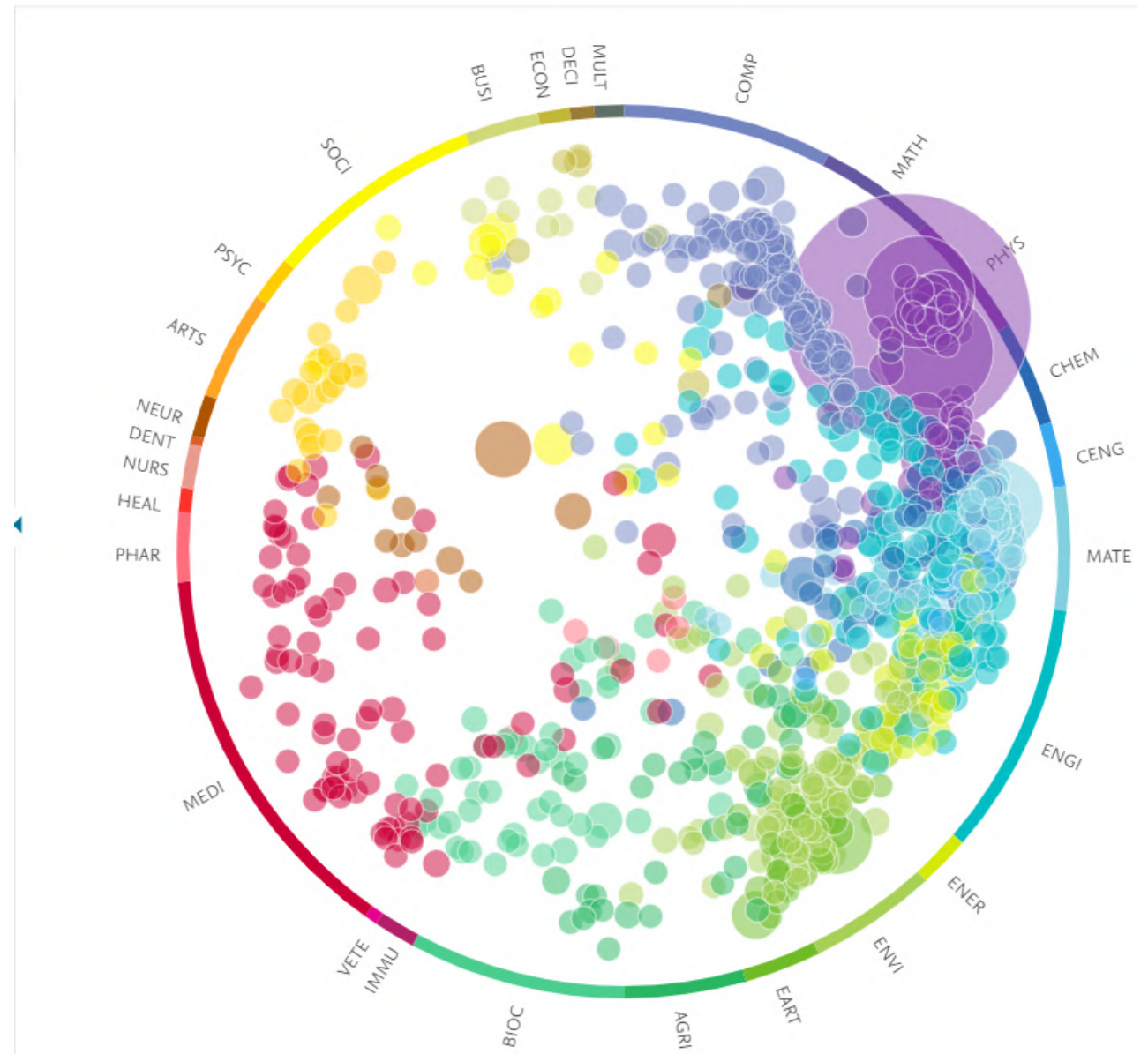


Prominent Research Topics

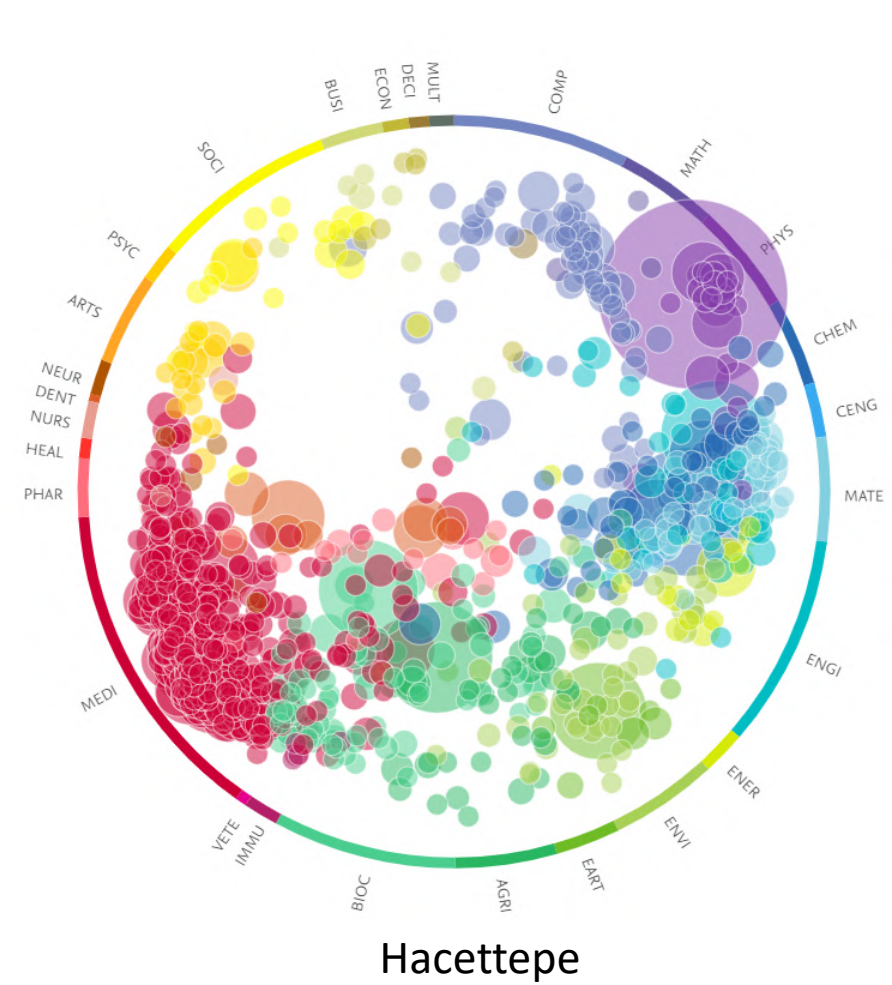
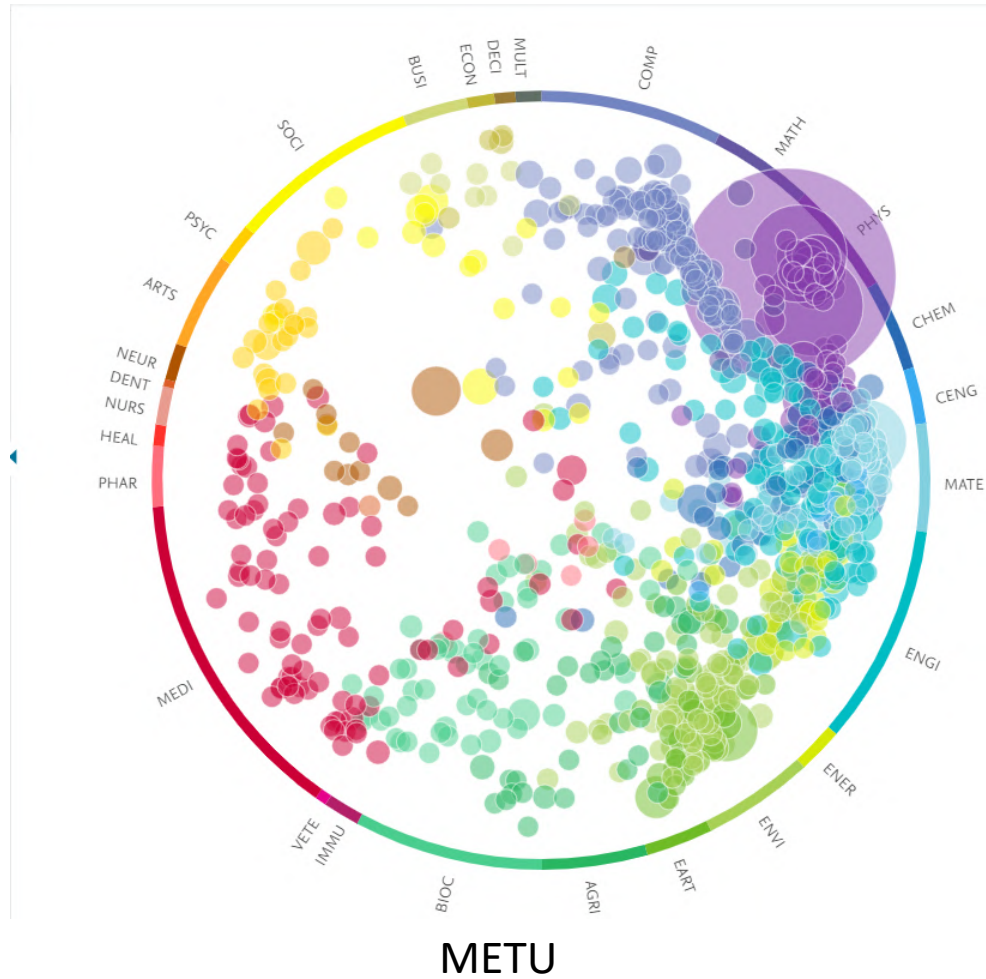
- Topics can be important but not prominent
- Topics can be large or small, new or old, growing or declining
- Topics are dynamic and can evolve
- New topics can be born
- Many topics are inherently multidisciplinary
- Old topics may be dormant, but still exist
- Researchers have mobility and can contribute to multiple topics

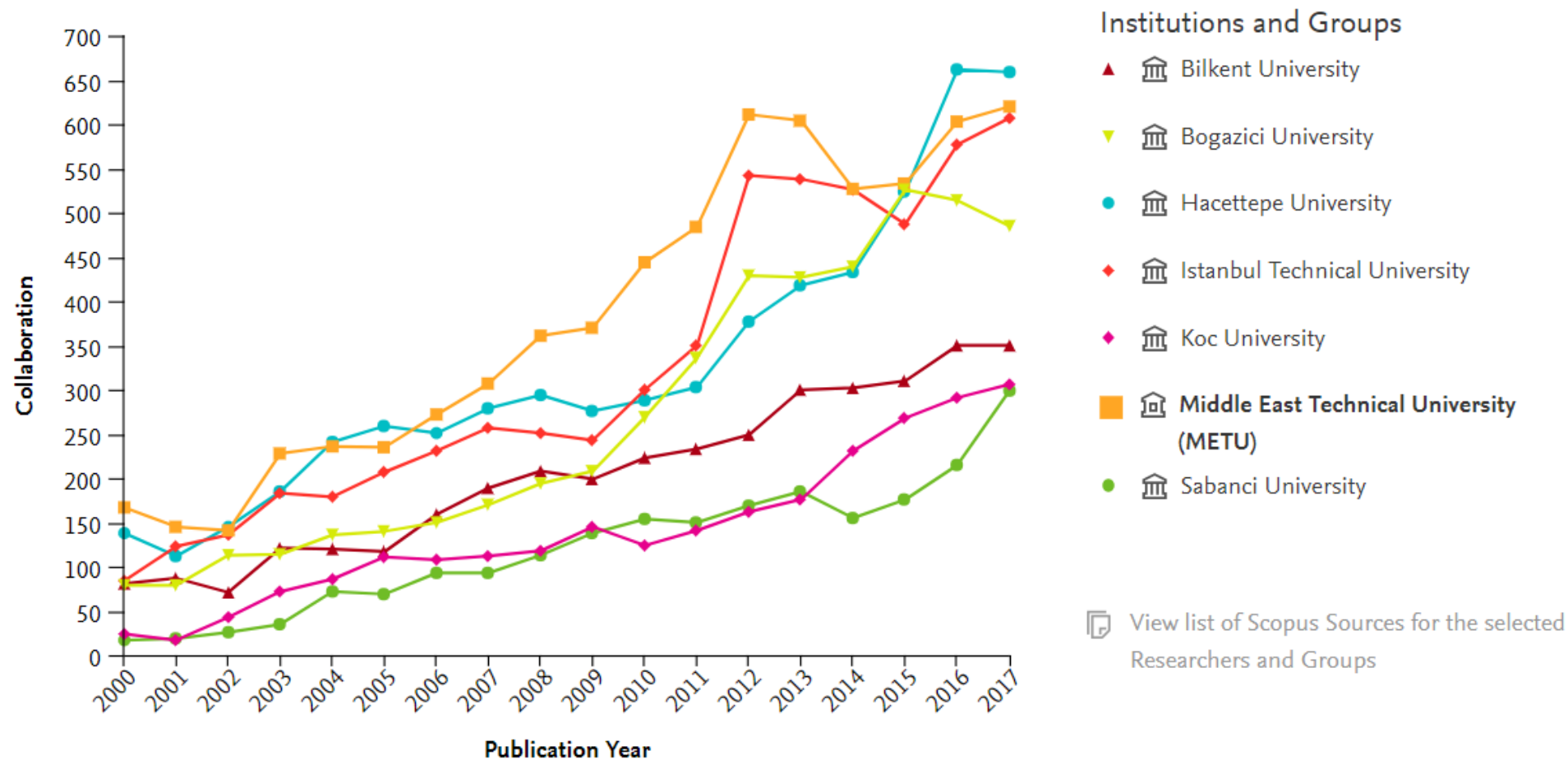


Top 5% Topics in Your Institution



Comparing Your Institution to Another One





Metrics details

y-axis: **Collaboration** (International)
Types of publications included: all. Field-weighted: no

x-axis: **Publication Year**



Conclusion

- Academic leaders can strengthen their planning and decision making abilities by making effective use of data analytics
- Higher education institutions should provide strong analytics support for the academic leaders

