



University Research & Innovation Performance in the Kingdom of Saudi Arabia

- University Analysis for Taif University -

V.1





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R&D Output

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R&D Impact

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Glossary





Objectives



- Provide an **overview on the state of KSA public university research and innovation** based on international bibliometric data
- Increase understanding on **how global R&D actors perceive KSA research and innovation**
- Increase local understanding of **individual university comparative strengths**
- Develop **preliminary insight** into each university in terms of **R&D output, impact, disciplinary focus, gender, and patenting**

Please use this presentation as an informational tool, and not a unit-by-unit statistical analysis. The data presented was taken at a single point of time and does not reflect natural increases in bibliometric rates over time.





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1 Chapter one: R&D Output Overview



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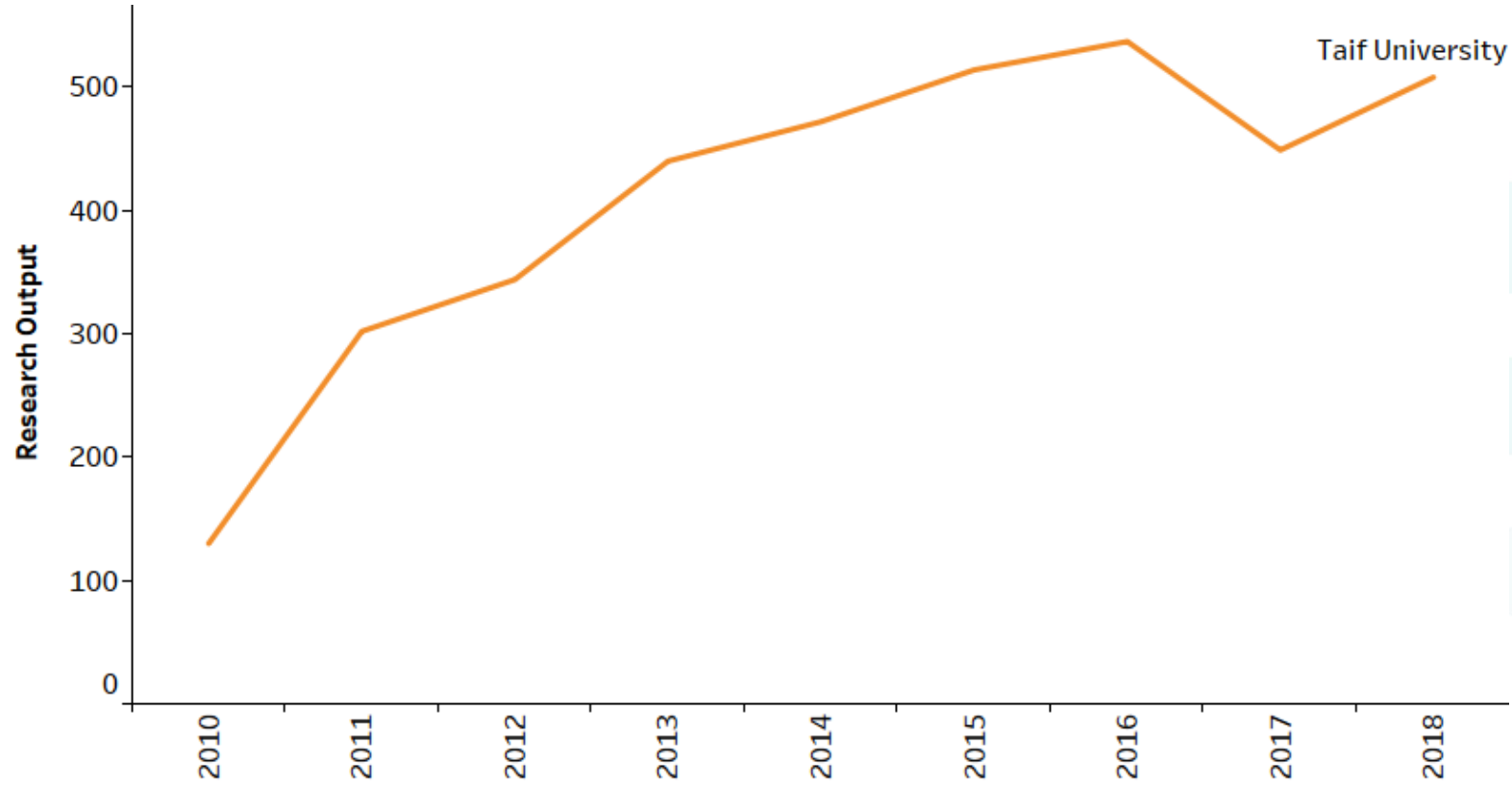


Data Source for Section 1: Scopus Database

Discipline Classification for this Section: All Science Journal Classification [refer to Glossary for full classification]

Note: All analyses in this Section are based on 2014-2018 publication data unless otherwise stated within the analysis itself





Notes for the user

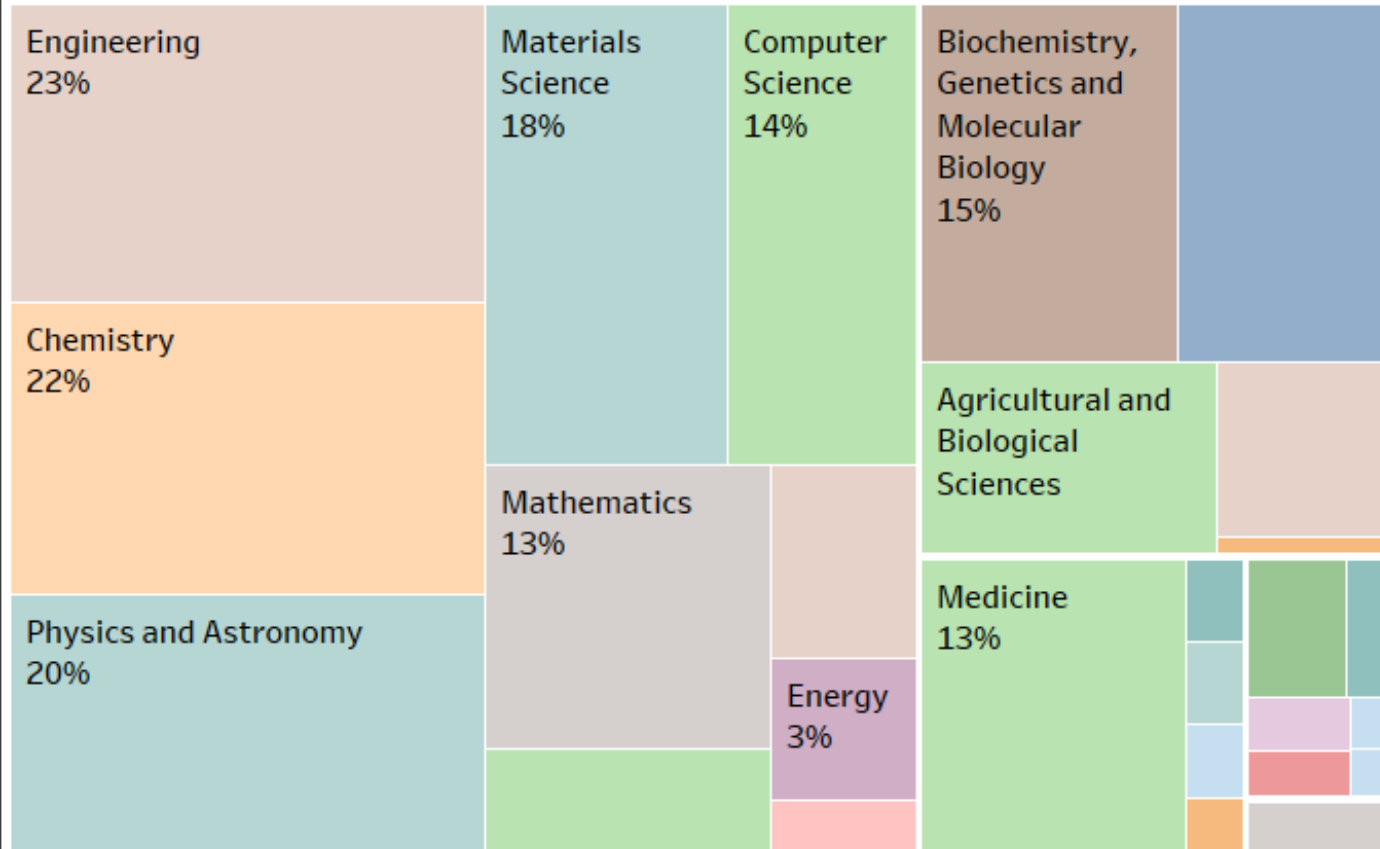
- This graph shows the university's publishing activity from 2010 to 2018

Research Output: consists of articles, reviews, and conference proceedings recorded in Scopus' bibliometric database





Research Output by Subject



In order of largest discipline to smallest by color

- Engineering
- Chemistry
- Physics and Astronomy
- Materials Science
- Biochemistry, Genetics and Molecular Biology
- Computer Science
- Mathematics
- Medicine
- Pharmacology, Toxicology and Pharmaceutics
- Agricultural and Biological Sciences
- Immunology and Microbiology
- Environmental Science
- Chemical Engineering
- Energy
- Social Sciences
- Multidisciplinary
- Earth and Planetary Sciences
- Arts and Humanities
- Decision Sciences
- Business, Management and Accounting
- Nursing
- Veterinary
- Dentistry
- Health Professions
- Neuroscience
- Psychology
- Economics, Econometrics and Finance

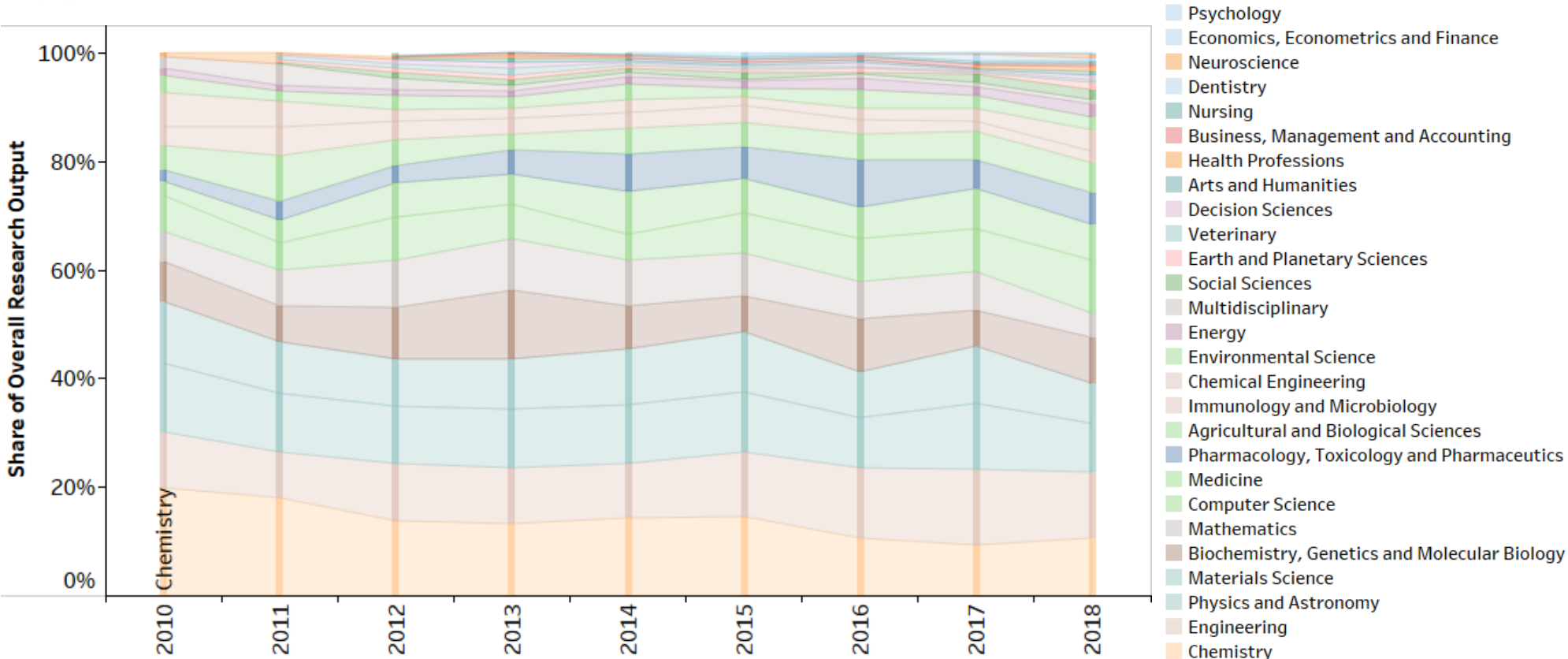
Notes for the user

- This graph visualizes the 27 ASJC disciplines the university is publishing in, with the size of the box corresponding to the proportion of publications
- It is helpful to determine the university's disciplinary focus areas and where it may be allocating the most resources





Trend of Research Output by Subject



Notes for the user

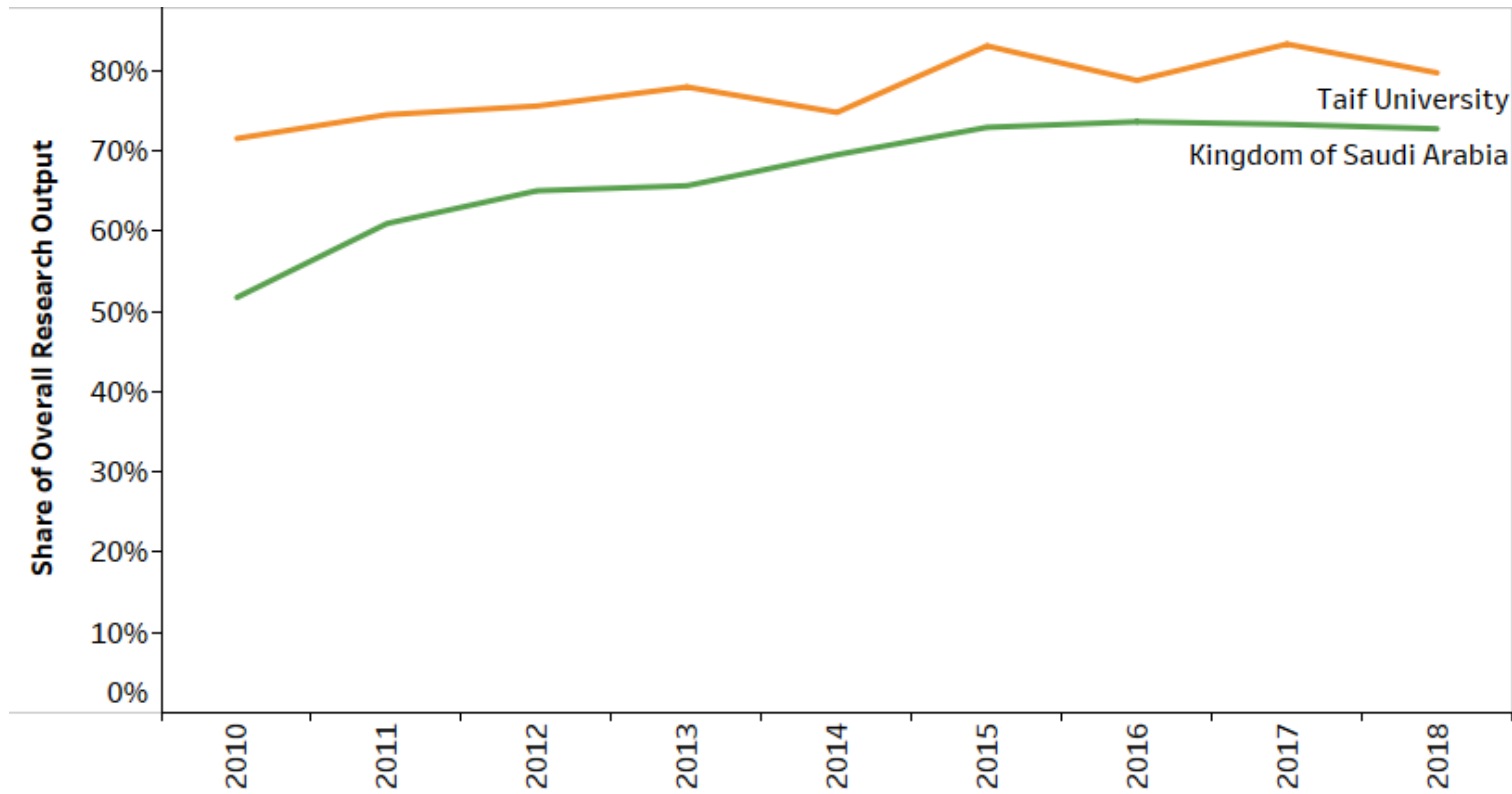
- This graph shows the yearly publishing trend by discipline
- It is helpful to determine the university's publishing activities in terms of disciplinary focus from 2010 to 2018

The bottom-most discipline name corresponds to the bottom-most color in the graph; the second-lowest name corresponds to the second-lowest color in the graph, etc.





Proportion of International Co-Authorship



Notes for the user

- This graph shows the percentage of publications produced by a university that are co-authored with an international collaborator (compared to Saudi-only affiliated publications)
- For example, in 2010, the green national trend line indicates that roughly 50% of publications produced by Saudi institutions had an international co-author; this increased to slightly above 70% by 2018





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2 Chapter two: R&D Impact Overview



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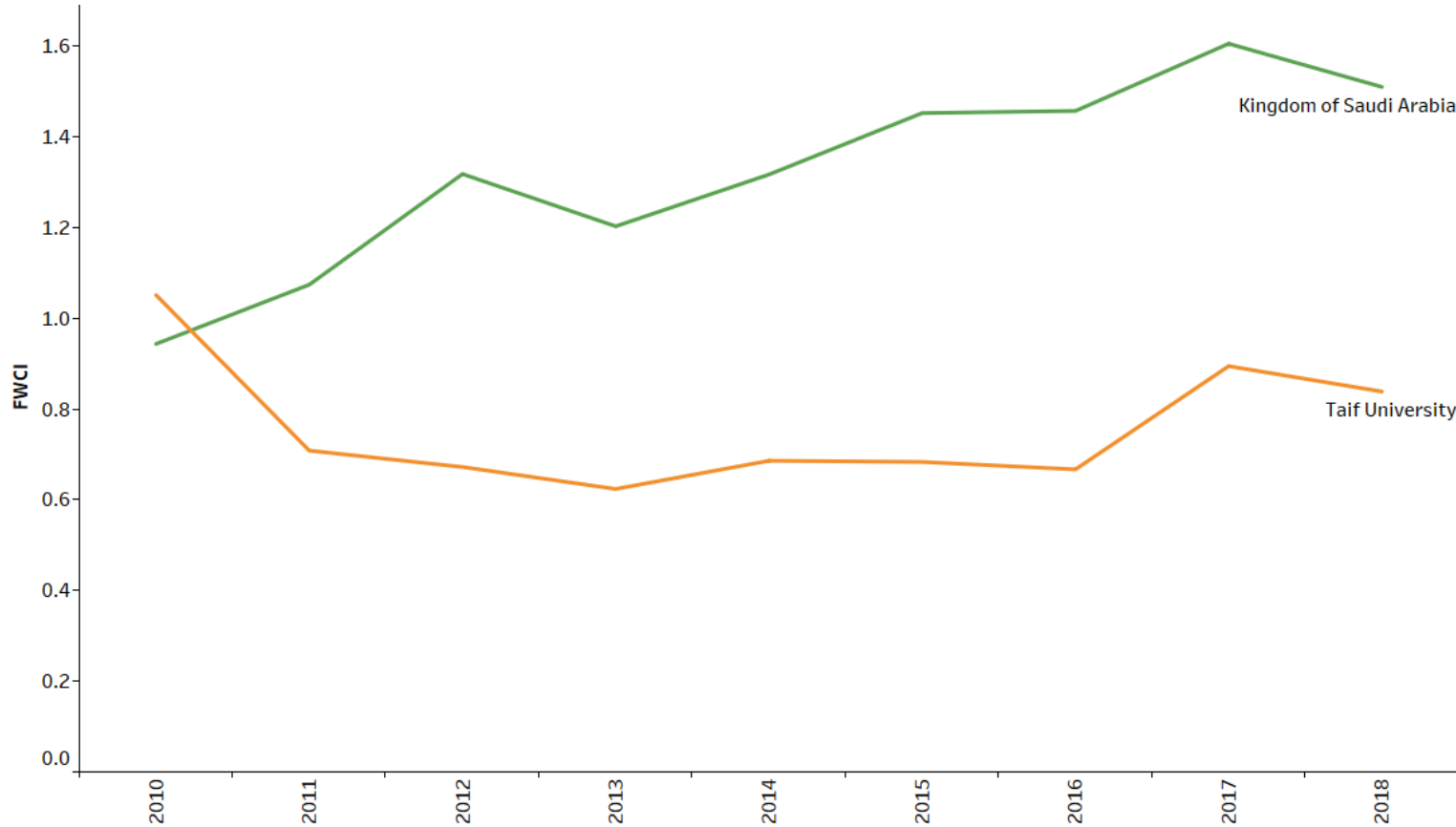


Data Source for Section 2: Scopus Database

Discipline Classification for this Section: All Science Journal Classification [refer to Glossary for full classification]

Note: All analyses in this Section are based on 2014-2018 publication data unless otherwise stated within the analysis itself





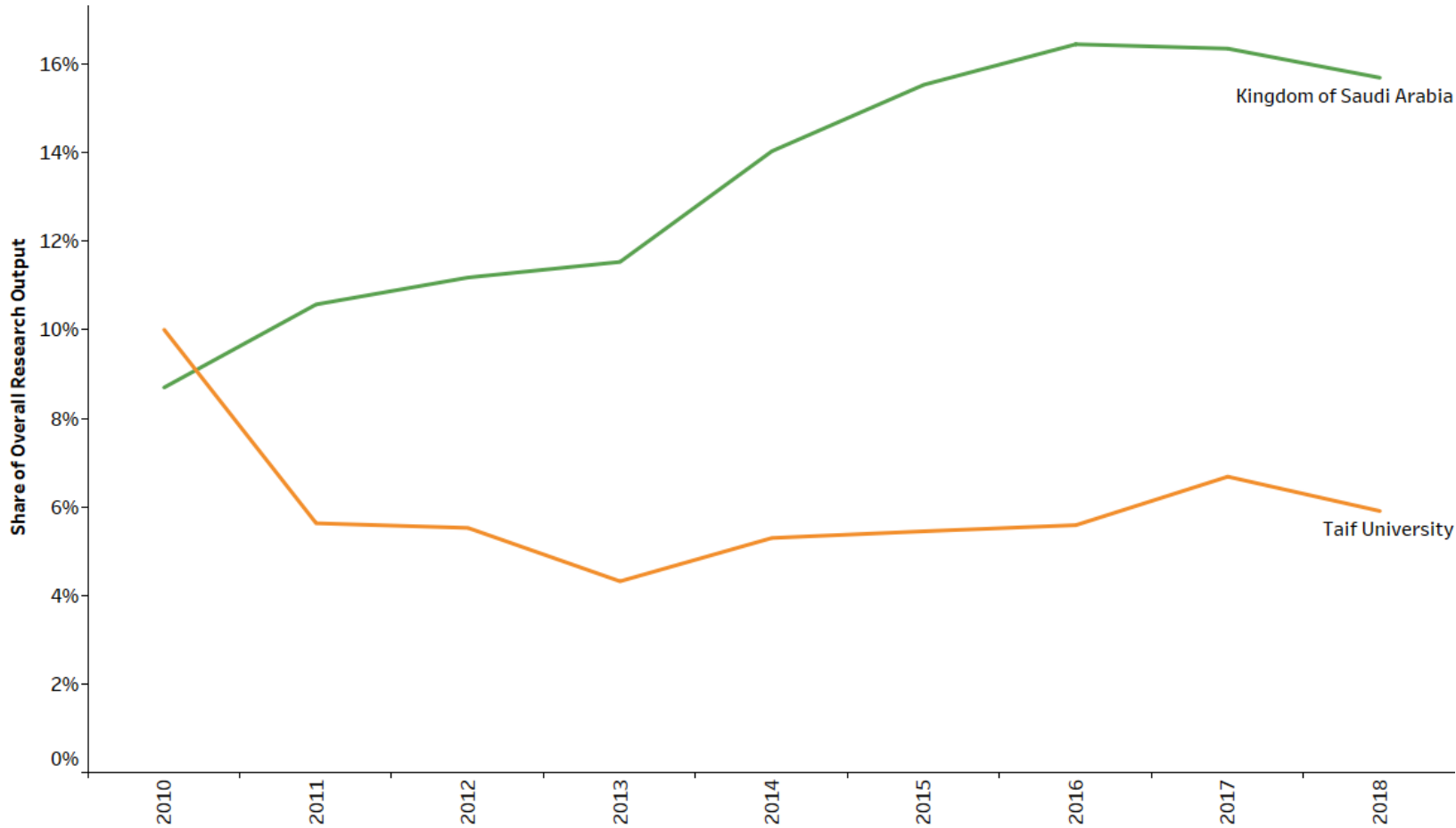
Notes for the user

- This graph displays the university's citation impact over time compared to Saudi-affiliated citations as a whole based on document type, publication year, and subject
- It is helpful in observing whether the university has gained greater (or lesser) recognition of its publications through an increased (or decreased) FWCI
- It is also helpful in observing whether the university's impact is above, on par, or below the national FWCI average





Publications in Top 10% of Global Citations



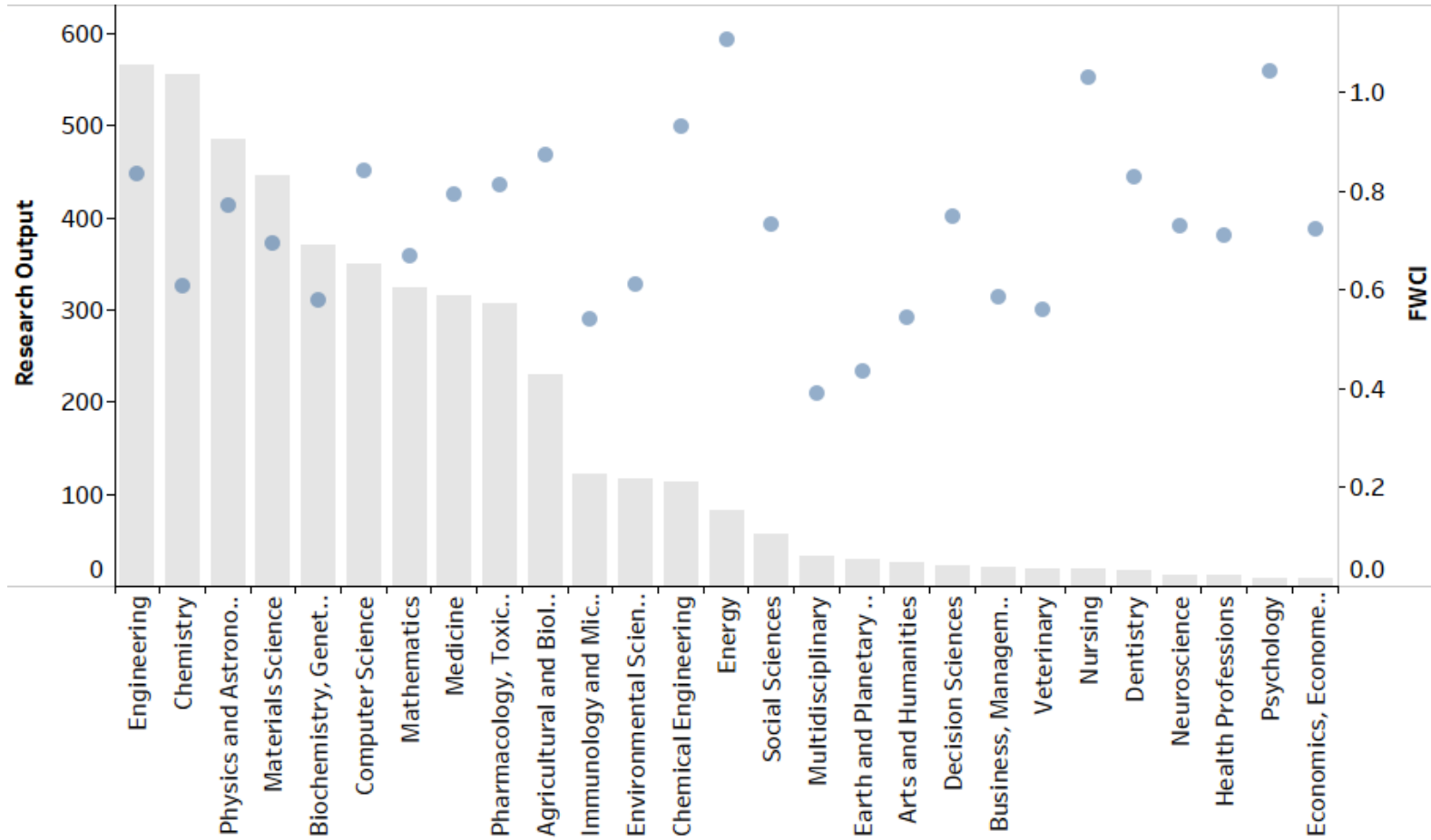
Notes for the user

- This graph displays the percentage of publications the university produced that belonged to the top 10% of cited global publications
- For example, in 2010, the green national trend line indicates that less than 10% of Saudi-affiliated publications were in the top 10% of global citations; this increased to nearly 15% by 2018
- The graph is helpful in comparing the university's top citations to the national level, and how top citations may have changed over time





Research Output and Citation Impact by Subject



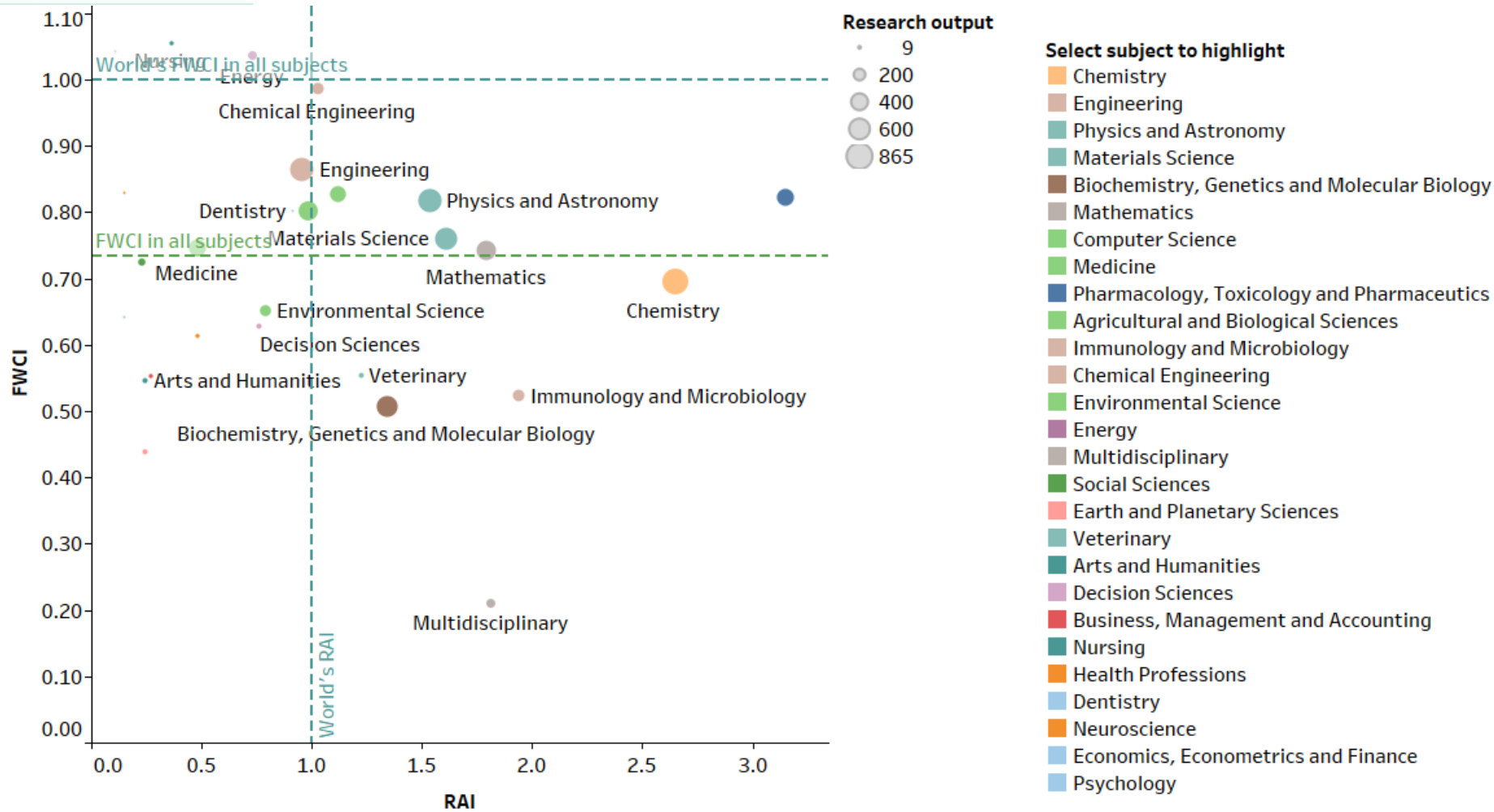
Notes for the user

- This graph displays the university's number of publications per discipline, in reference to its FWCI for that same discipline
- It is helpful in identifying whether the university is producing higher-quality research (FWCI > 1.0) in relation to its publication output
- Higher volumes of publications coupled with a high FWCI may indicate discipline strengths the university is focusing resources on, and lower volumes of publications coupled with a high FWCI may indicate disciplines the university may wish to focus on in the future





Research Output, FWCI, and Relative Activity Index (RAI) by Subject



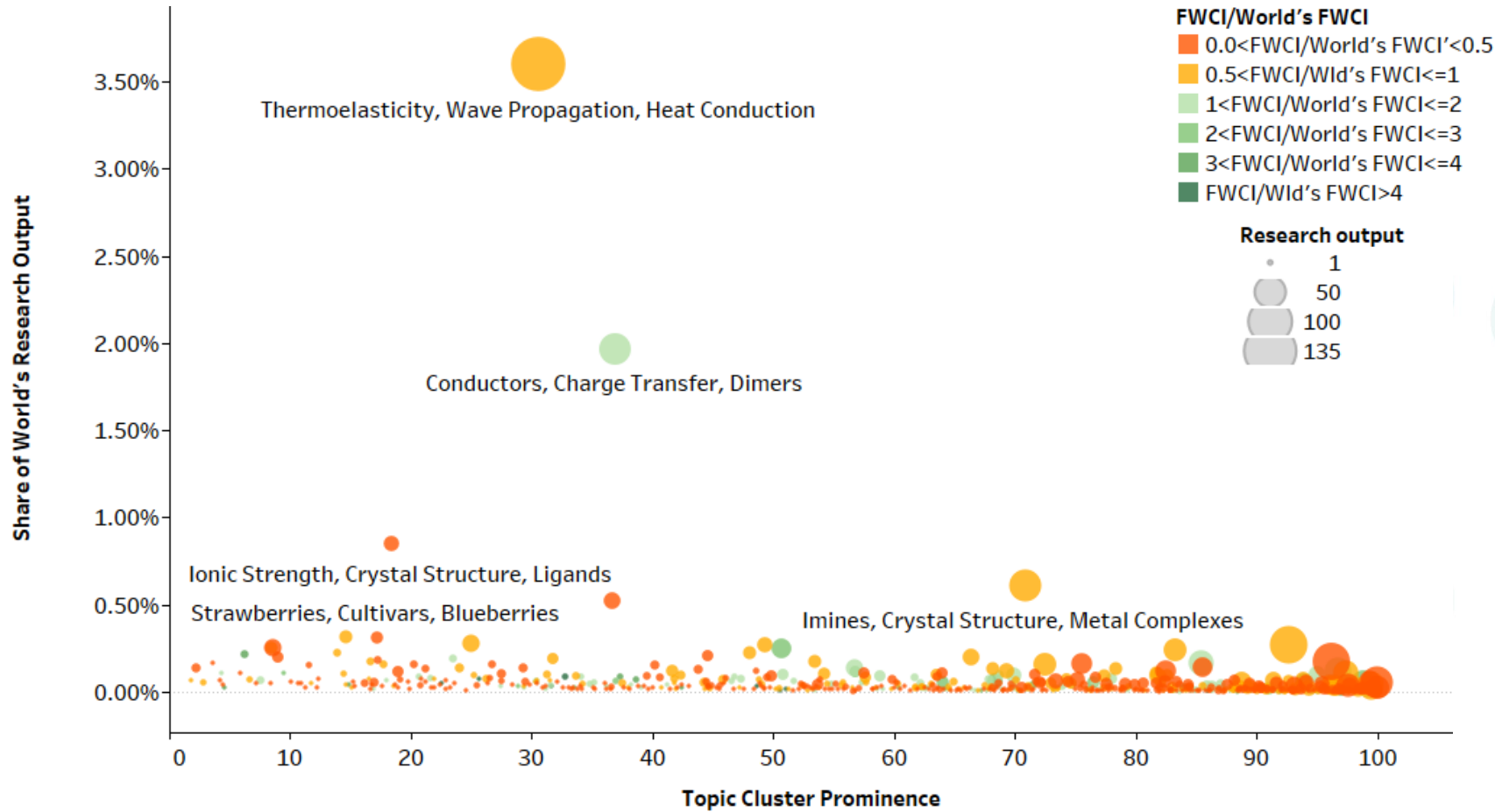
Notes for the user

- This graph visualizes the 27 ASJC disciplines the university is publishing in by FWCI, publication volume, and relative activity in the field (i.e., global momentum)
- The graph indicates where a university is positioned in research impact nationally and globally
- The green dotted FWCI line refers to Saudi Arabia's national FWCI (compared to the global FWCI blue dotted line)





Research Output and Impact by Topic Cluster



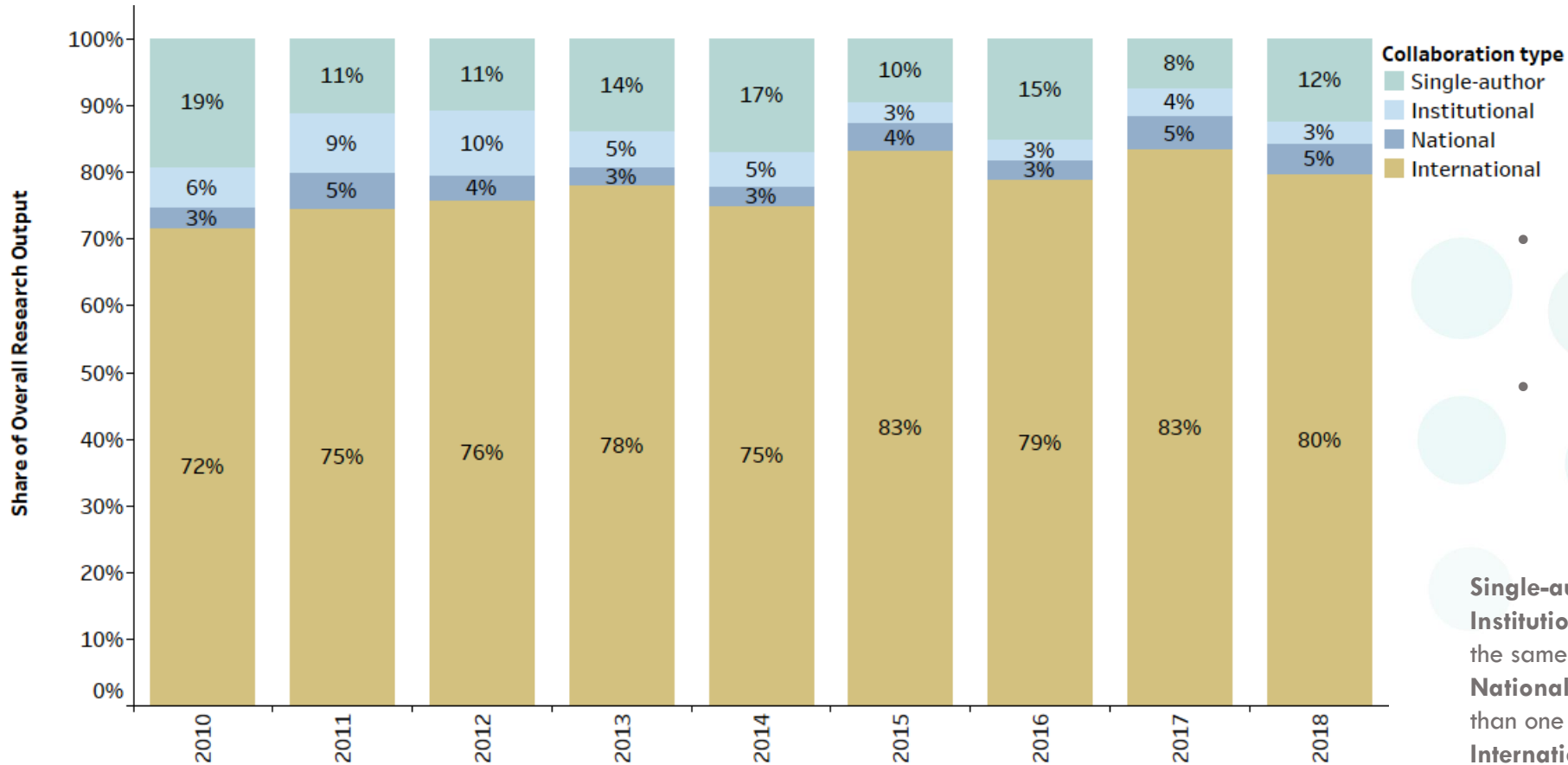
Notes for the user

- This graph displays specific topic areas the university is publishing in that are linked to broader global topics of interest (i.e., Topic Clusters)
- It is helpful in identifying the relative amount of publications the university is producing, compared to the relative momentum of the discipline globally (i.e., Prominence)





Composition of Research Output by Collaboration Type



Notes for the user

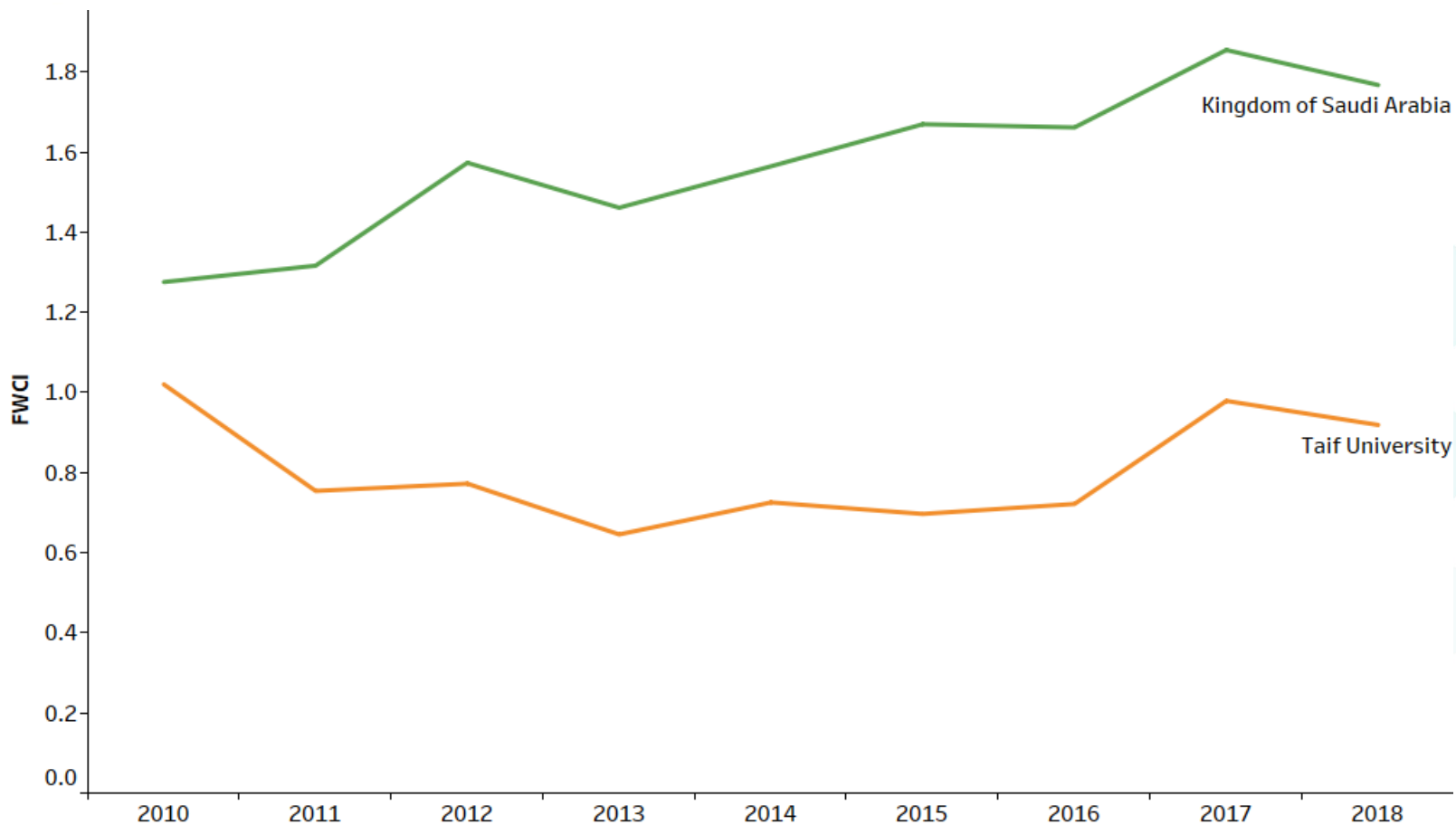
- This graph shows the yearly publishing trend of the university based on collaboration type
- It is helpful in understanding any changes to research collaboration strategies in terms of co-authorship

Single-author: a publication with one author in the university
Institutional: a publication with more than one author within the same university
National: a publication with more than one author from more than one Saudi affiliation
International: a publication with minimum one Saudi-affiliation and minimum one international affiliation





FWCI of International Co-Authorship Publications



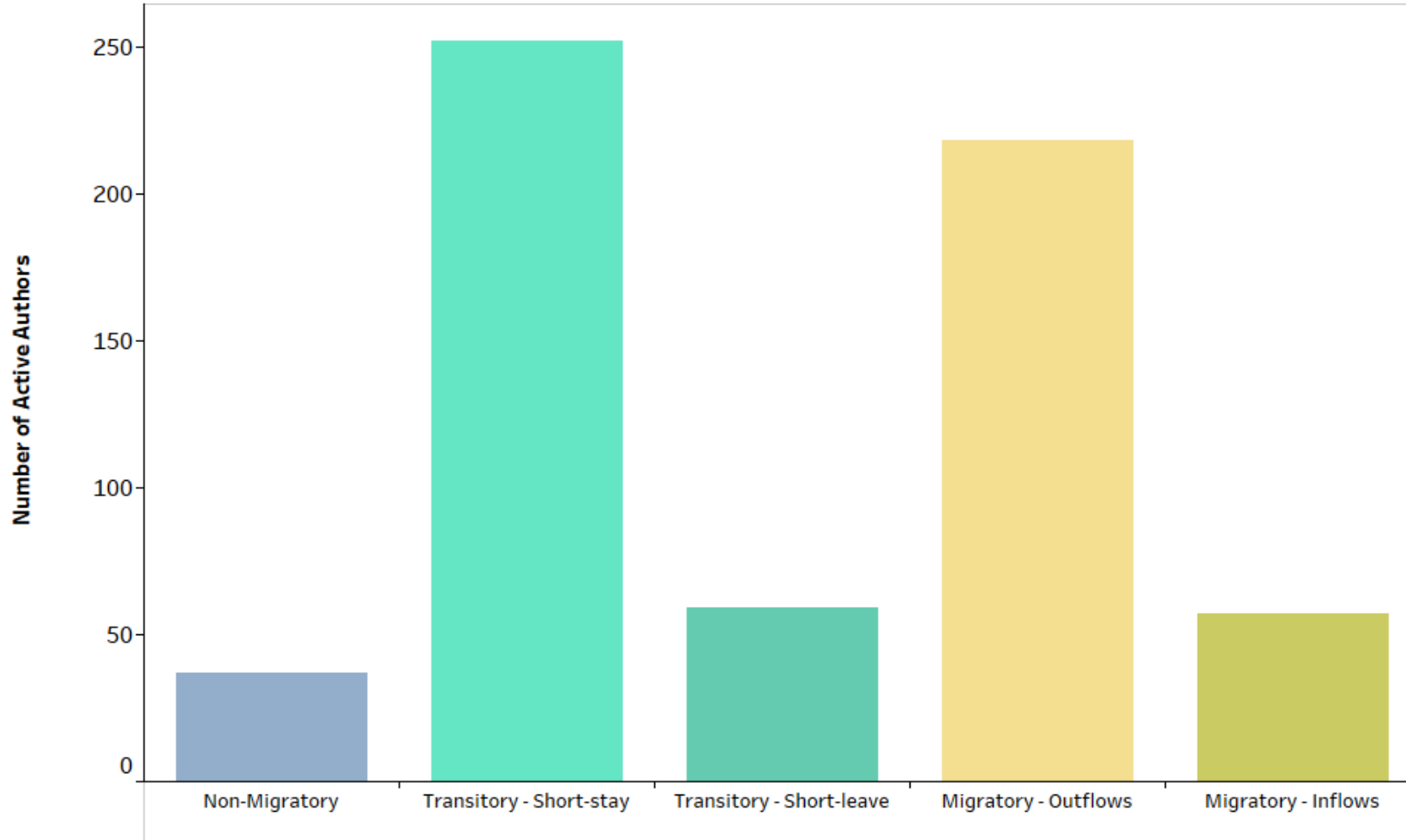
Notes for the user

- This graph shows the FWCI of publications produced by a university that are co-authored with an international collaborator, compared to the national average
- For example, in 2010, the national green trend line indicates a national FWCI of around 1.3 for internationally co-authored publications; this increased to 1.6 by 2018





Researcher Mobility: Number of Authors



Migration category modified

- Non-Migratory
- Transitory - Short-stay
- Transitory - Short-leave
- Migratory - Outflows
- Migratory - Inflows

Notes for the user

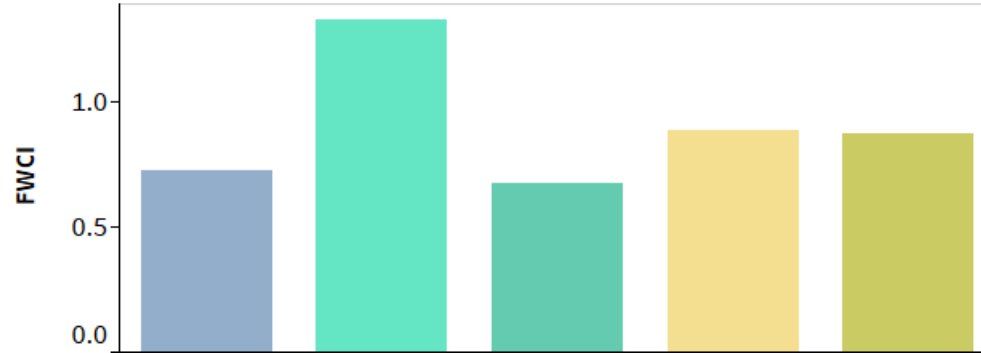
- The map shows the university's author breakdown based on different migration habits
- It is helpful in understanding the long-term research capacity the university possesses
- It also indicates the university's level of reliance on external researchers to produce publications





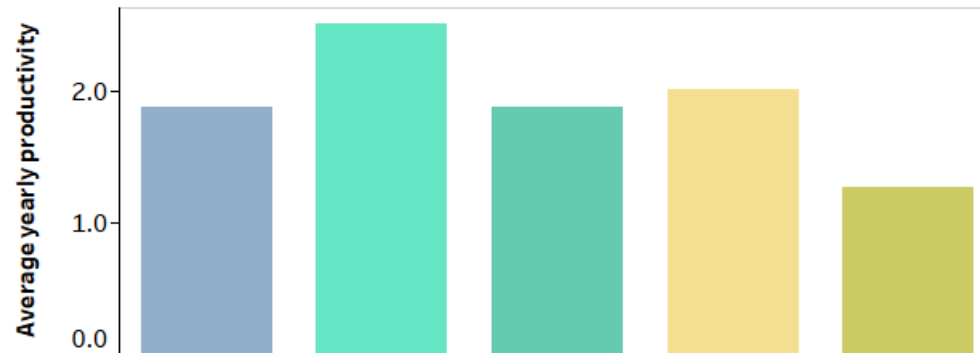
Impact and Productivity by Migration Category

Impact by migration category



- Migration category modified
- Non-Migratory
 - Transitory - Short-stay
 - Transitory - Short-leave
 - Migratory - Outflows
 - Migratory - Inflows

Productivity by migration category



Notes for the user

- This graph shows the university's FWCI based on the different migration habits of its authors (top); and the average publications per year based on the same migration habits (bottom)
- It is helpful in understanding each author group's capabilities and quality of research





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3 Chapter three: National level comparison



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Data Source for Section 3: Scopus Database

Discipline Classification for this Section: All Science Journal Classification [refer to Glossary for full classification]

Note: All analyses in this Section are based on 2014-2018 publication data unless otherwise stated within the analysis itself

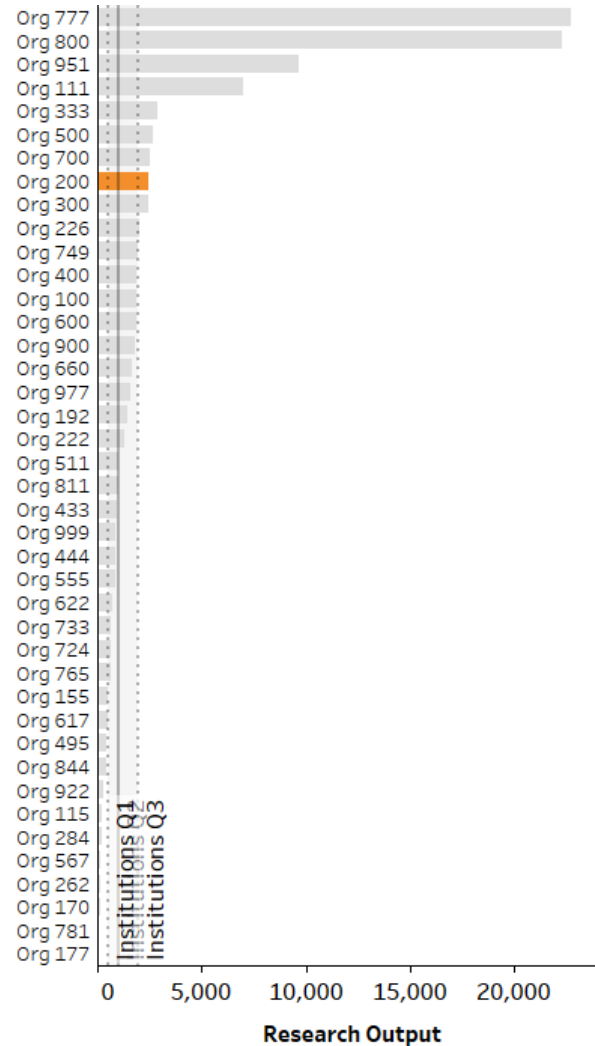




Org 200 – Taif University

For purposes of anonymity, please note that the 41 Saudi organizations under analysis in this Section have been assigned a randomized, three-digit number

Rank of Institutions by Research Output



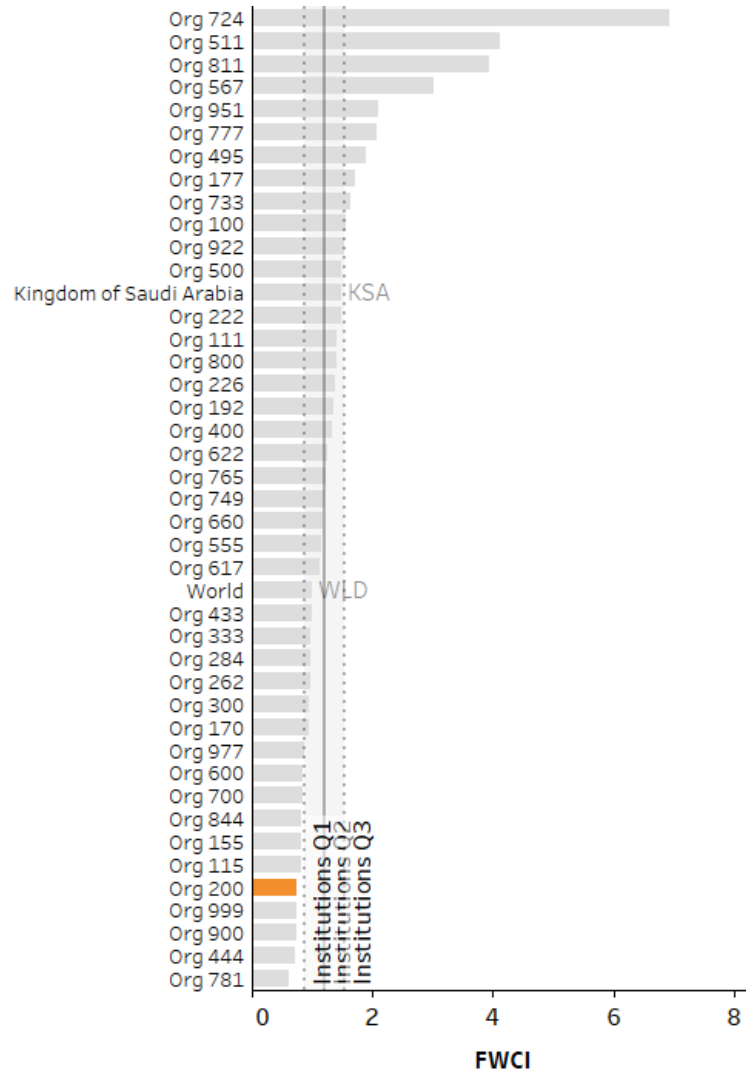
Notes for the user

- This illustration highlights the university's relative contribution towards total national R&D output among 41 Saudi organizations
- Please note that quartiles Q1, Q2, and Q3 separate the 41 institutions into 4 groups based on their total publications (does not reflect quality)





Rank of Institutions by Citation Impact



Notes for the user

- This illustration highlights the university's relative research impact and quality of research (i.e., FWCI) among 41 Saudi organizations
- Please note that quartiles Q1, Q2, and Q3 separate the 41 institutions into 4 groups based on their average FWCI





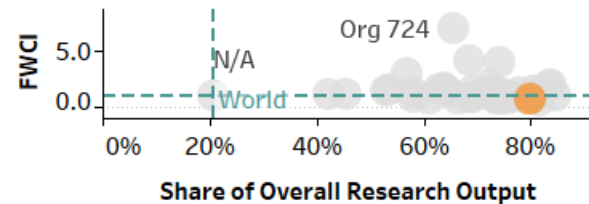
Publications Share and Overall Impact

Notes for the user

International publications share and overall impact

Org 200 and 40 additional KSA institutions.
Classification: All subjects. Subject: All subjects.
Period: 2014-2018.

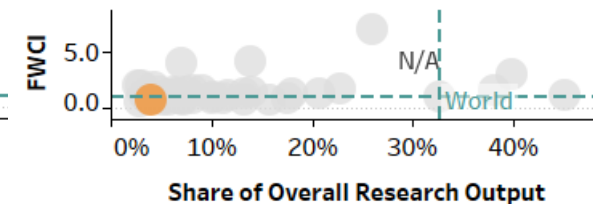
Please select a subject on the top-right hand side of the dashboard to view this graph



National publications share and overall impact

Org 200 and 40 additional KSA institutions.
Classification: All subjects. Subject: All subjects.
Period: 2014-2018.

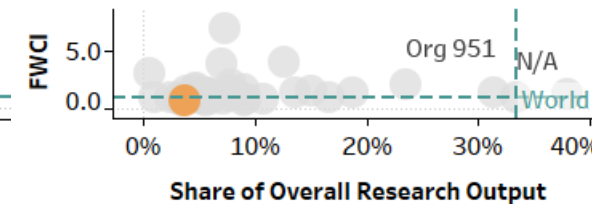
Please select a subject on the top-right hand side of the dashboard to view this graph



Institutional publications share and overall impact

Org 200 and 40 additional KSA institutions.
Classification: All subjects. Subject: All subjects.
Period: 2014-2018.

Please select a subject on the top-right hand side of the dashboard to view this graph



- This visual highlights the positioning of the university in terms of research output and impact among the 41 Saudi organizations

It is helpful in demonstrating the quality and quantity of research produced in comparing the university's international-collaborative R&D, nationally-collaborative R&D, and university-specific R&D output

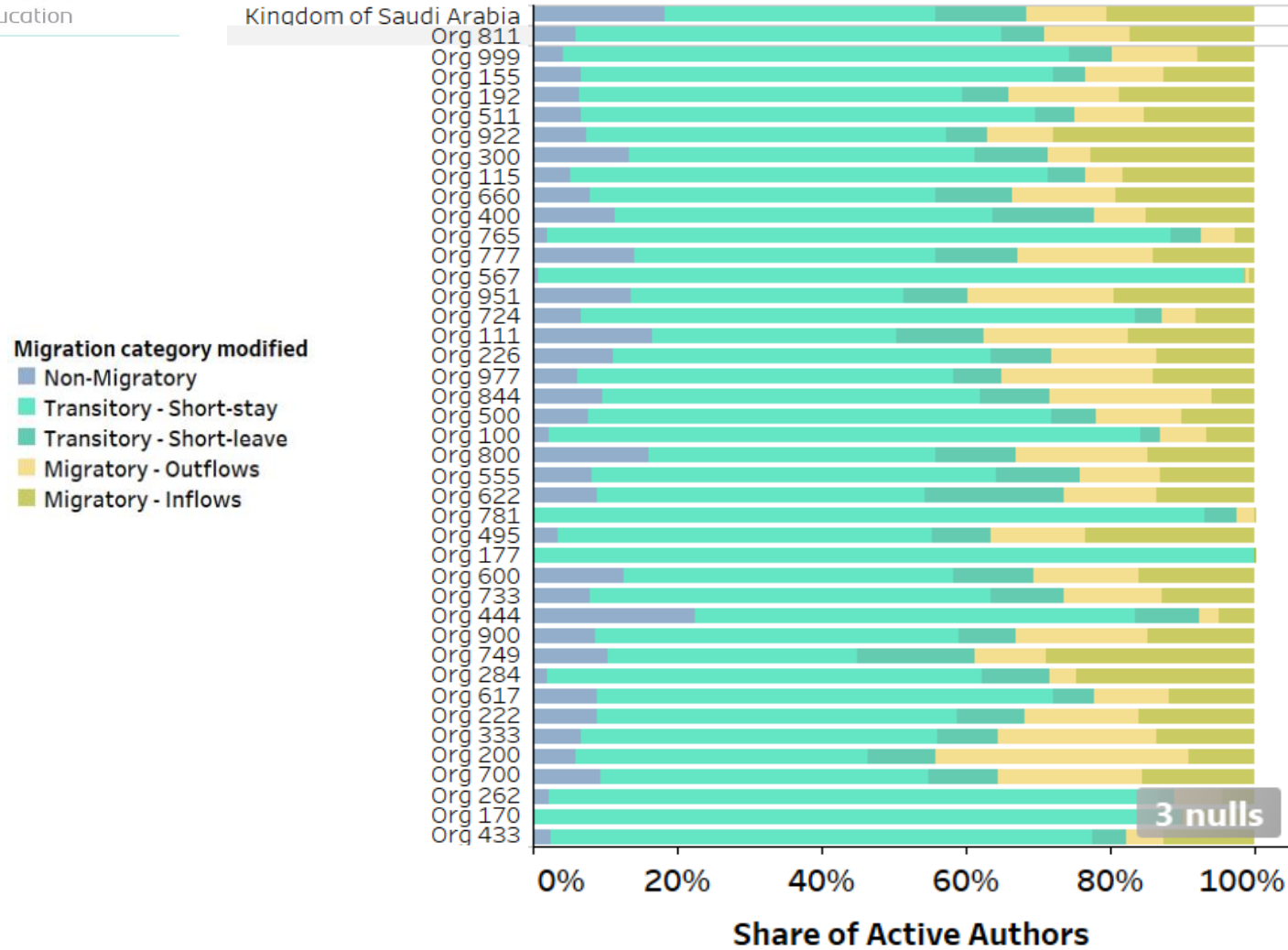
It is also helpful in indicating the level of research exchange with international, versus national institutions

- It also indicates the level of reliance on external researcher support





Migratory Flow Composition by Institution



Notes for the user

- This graph shows the distribution of the university's author migration habits relative to the other 40 Saudi organizations
- It is helpful in understanding the comparative long-term research capacity the organizations possess
- It also indicates the level of reliance on external researchers to produce publications

Note: this analysis consists of 2014 to 2018 publication data





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4 Chapter four: Gender analysis



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Data Source for Section 4: Scopus Database

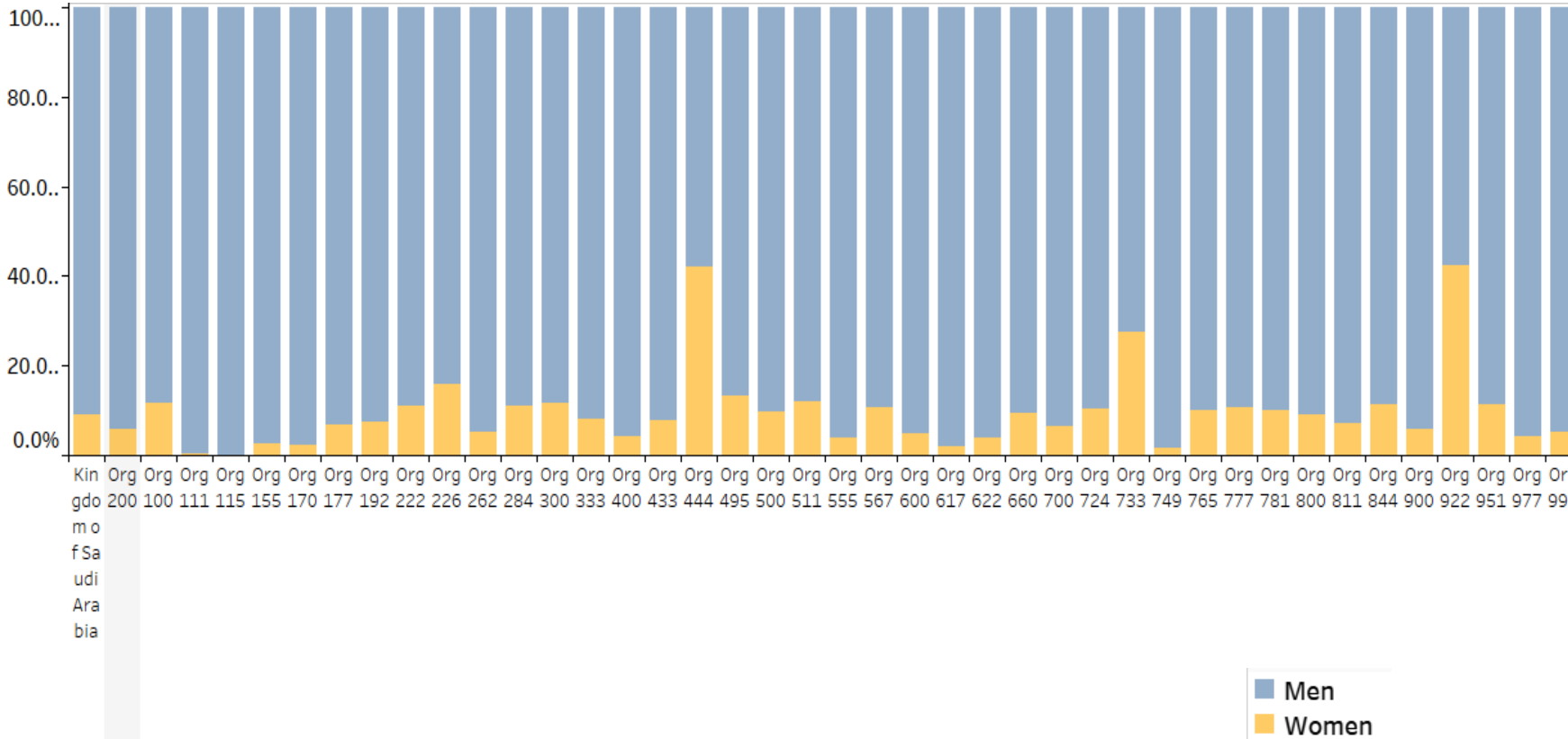
Discipline Classification for this Section: All Science Journal Classification [refer to Glossary for full classification]

Note: All analyses in this Section are based on 2014-2018 publication data unless otherwise stated within the analysis itself





Gender Composition of Authors by Institution



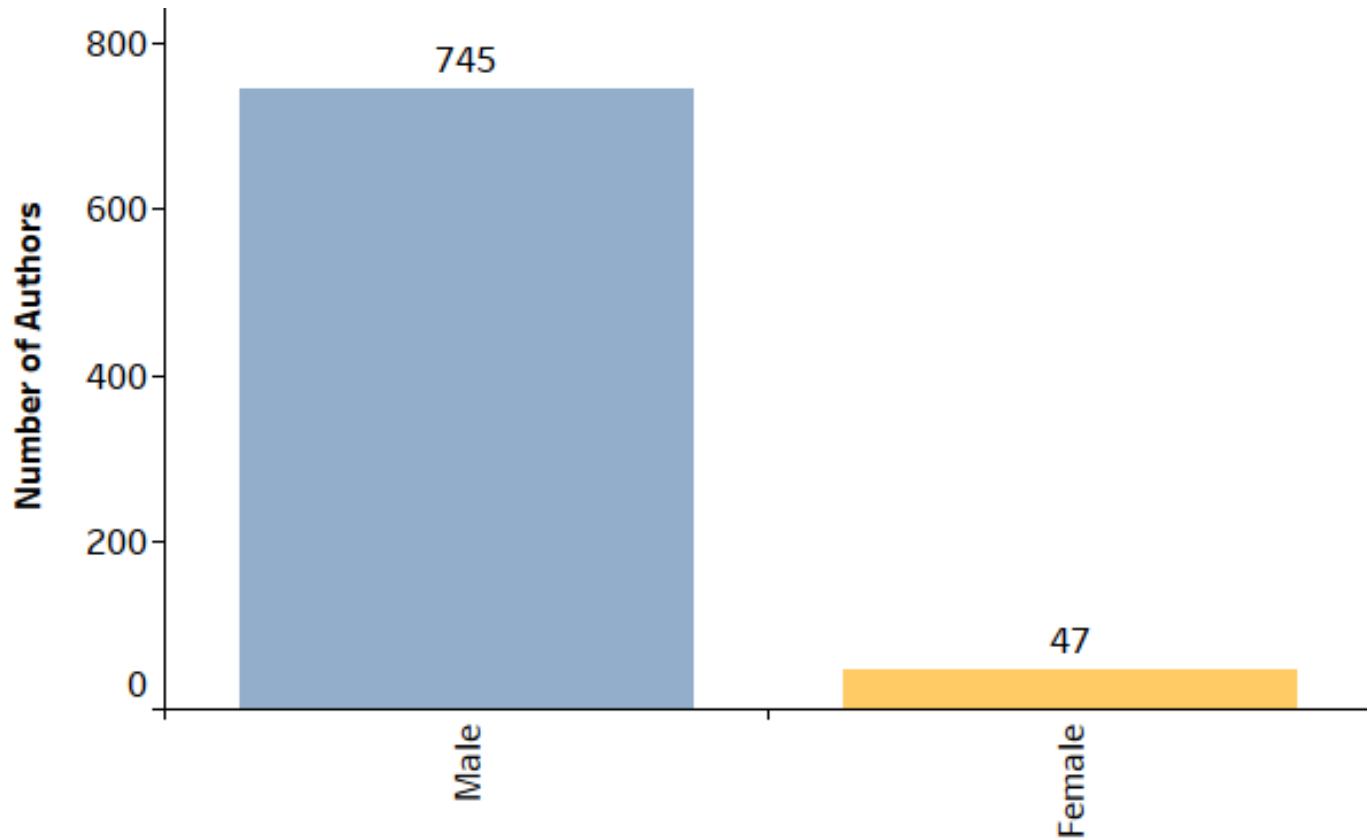
Notes for the user

- This graph shows the distribution of the university's authors by gender, relative to the other Saudi organizations
- It is helpful in understanding generally who is carrying out research within the organization
- It may also indicate the level of inclusiveness and/or efforts made by the institutions to attract female researchers





Number of Authors by Gender



Notes for the user

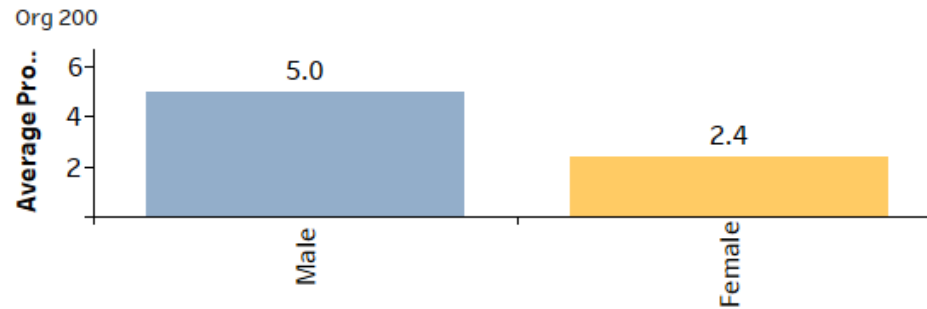
- The graph shows the university's author breakdown based on gender from the years 2014 to 2018
- It is helpful in understanding generally who is carrying out research within the institution



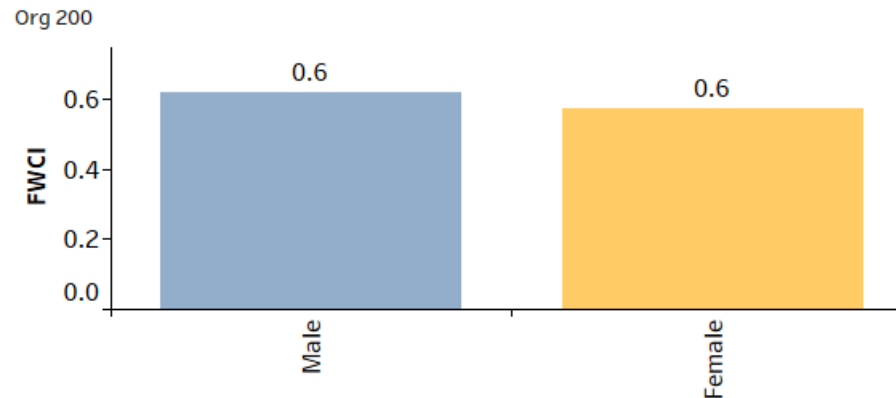


Research Impact and Productivity by Gender

Productivity by gender



Impact by gender



Notes for the user

- The graph shows the university's FWCI based on gender (top); and the average publications produced per year based also based on gender (bottom)
- It is helpful in understanding each author group's capabilities and quality of research

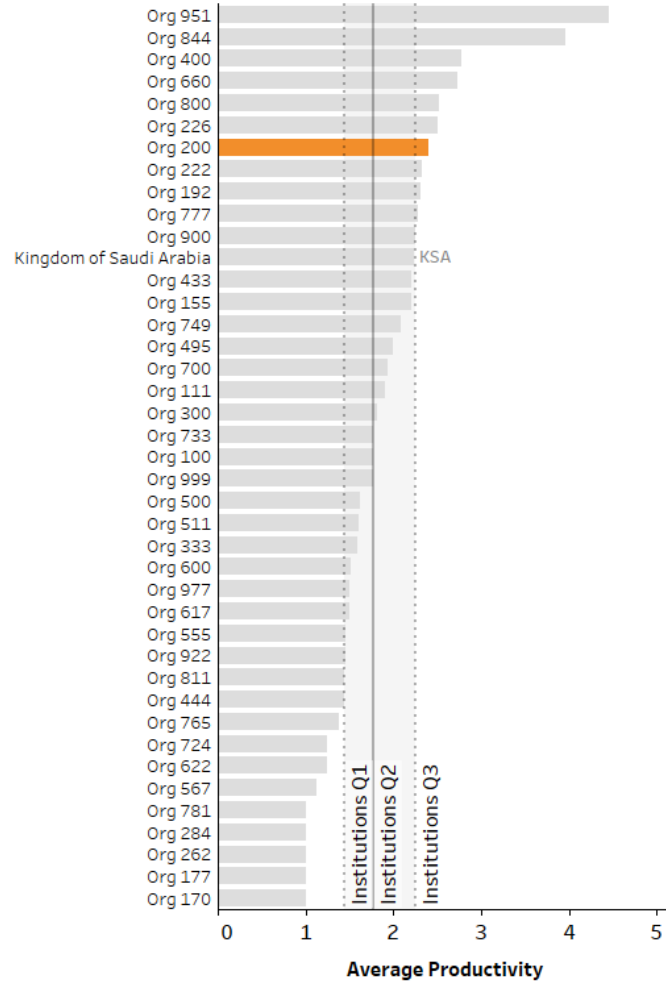




Rank of Institutions by Author Productivity By Gender

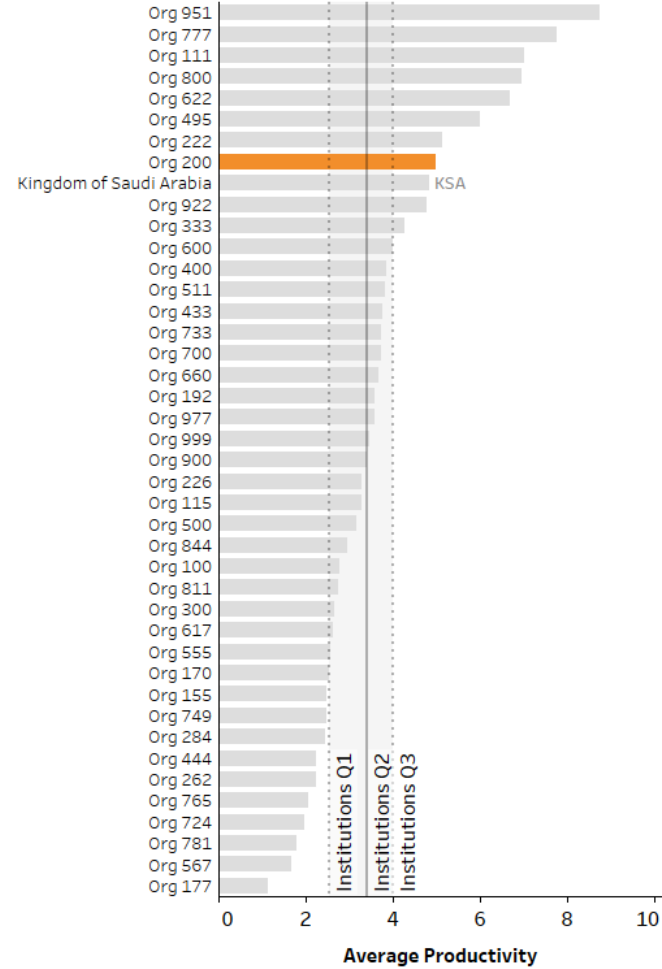
Institution rank by female authors productivity

Org 200, the Kingdom of Saudi Arabia and 40 additional KSA institutions
Distribution summary statistics Q1,Q2,Q3 for 41 institutions.



Institution rank by male authors productivity

Org 200, the Kingdom of Saudi Arabia and 40 additional KSA institutions
Distribution summary statistics Q1,Q2,Q3 for 41 institutions.



Notes for the user

- This illustration highlights the university's relative productivity in terms of average publications produced per year by gender

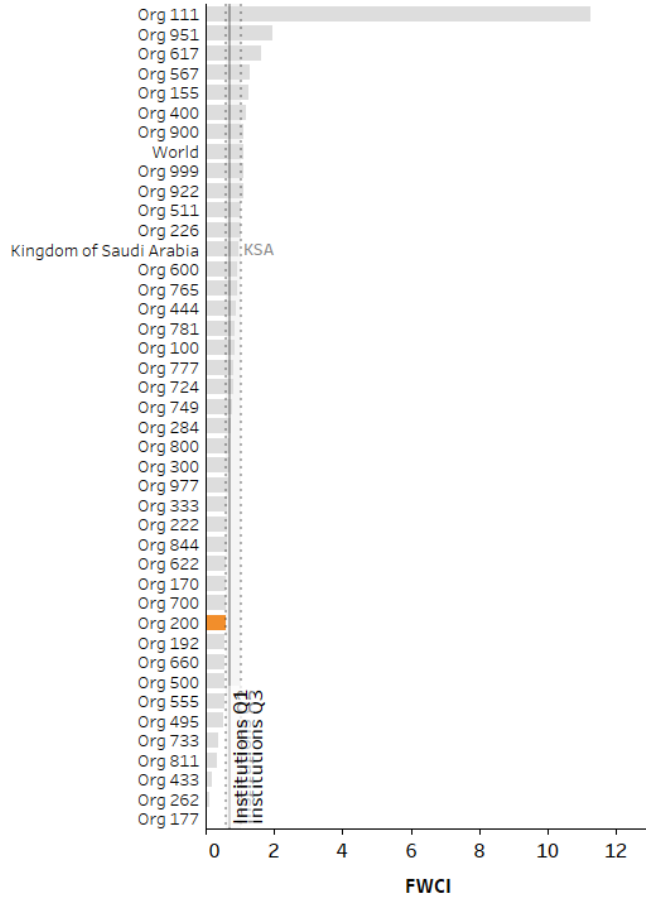




Rank of Institutions by Author Citation Impact By Gender

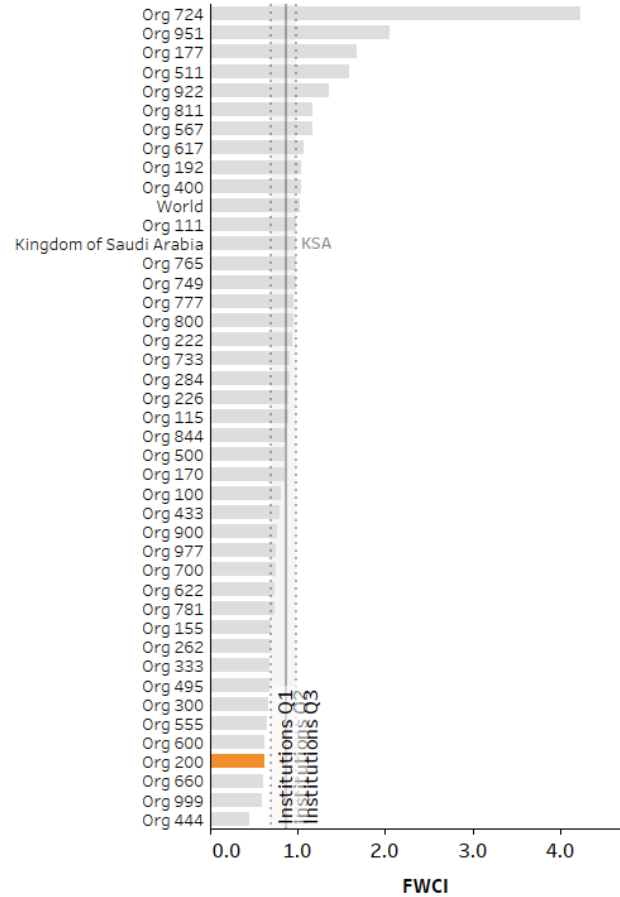
Institution rank by female authors citation impact

Org 200, the Kingdom of Saudi Arabia and 40 additional KSA institutions
Distribution summary statistics Q1, Q2, Q3 for 41 institutions.



Institution rank by male authors citation impact

Org 200, the Kingdom of Saudi Arabia and 40 additional KSA institutions
Distribution summary statistics Q1, Q2, Q3 for 41 institutions.



Notes for the user

- This illustration highlights the university's relative research impact in terms of FWCI by gender among the 41 Saudi organizations





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5 Chapter five: Patents analysis



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Data Source for Section 5: Patsnap

Technology Classification for this Section: International Patent Classification (IPC) – World Intellectual Property Organization [refer to Glossary for full classification]

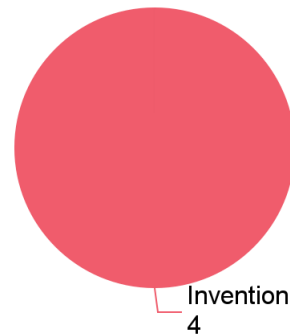
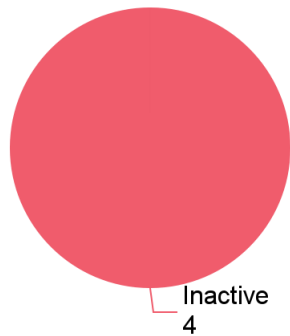
Note: All data collected and analyses based on patent data from the year 2000 onwards and covers 90 countries [inclusive of KSA]





Innovation Profile: IP Portfolio Overview

4 Total Patents | 0 Active Patents



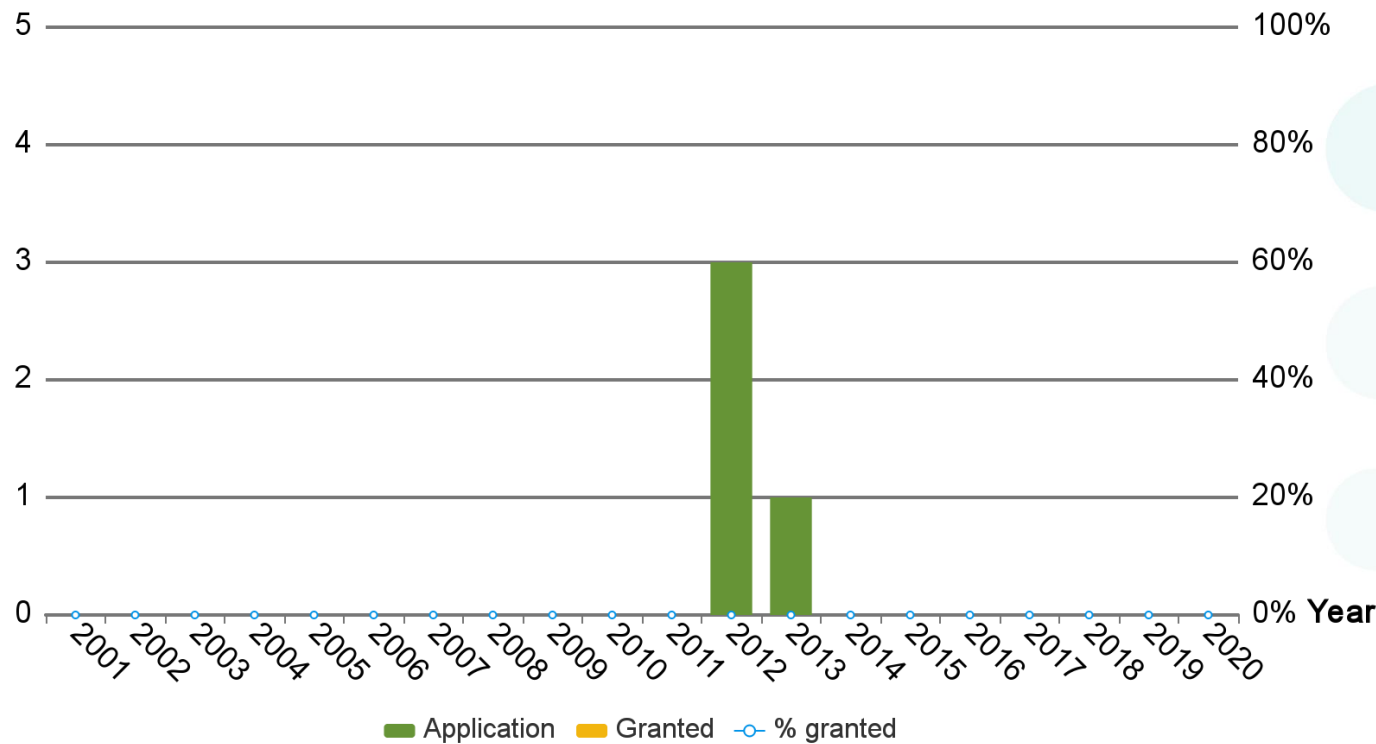
Notes for the user

- The pie charts show the percentage breakdown of the legal status and patent type of the university's entire portfolio





Patent Counts



Notes for the user

- This graph shows the annual patenting trend of the university. The trend of patent applications is displayed in green and the trend of the granted patents resulting from the patent applications are in yellow
- The graph helps to illustrate the university's patenting pace and strategy
- The number of granted applications resulting from patent applications of the same year indicates the effectiveness of filing and how successful the filing efforts are

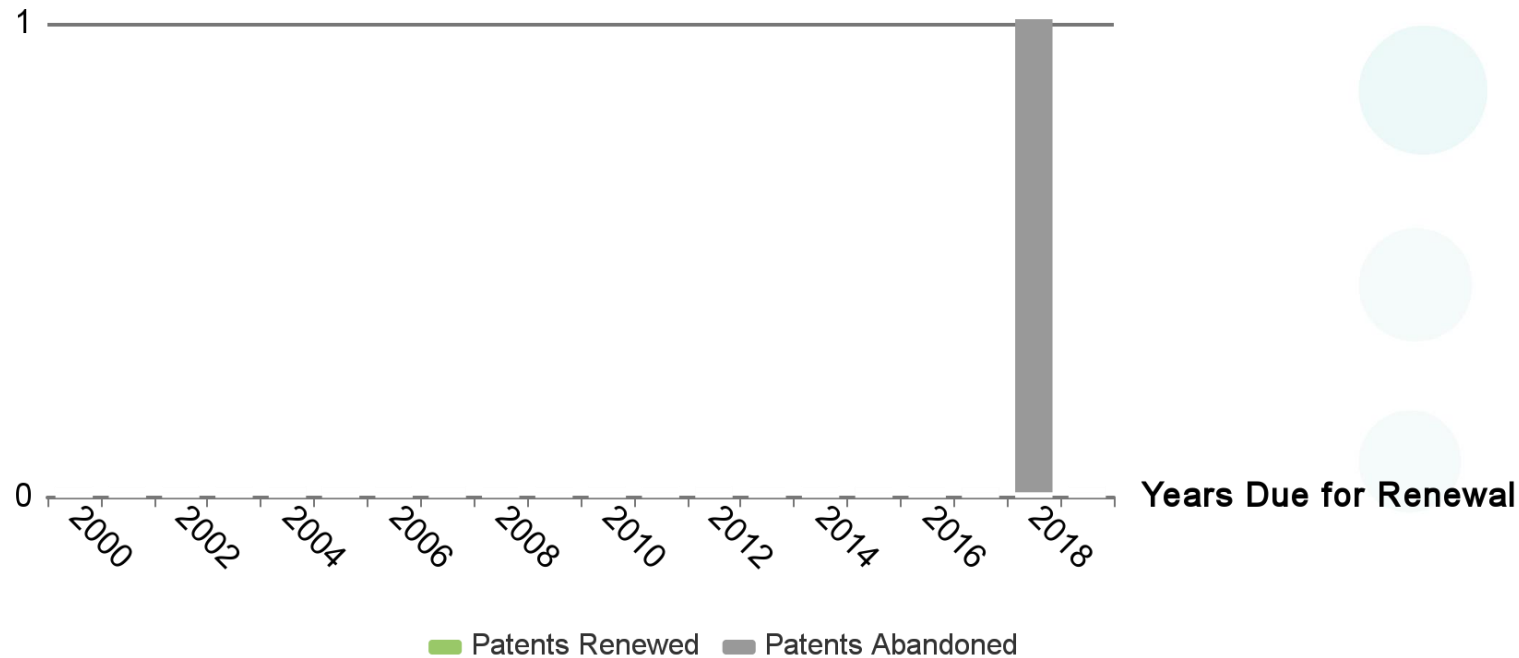
Example: if a 2012 patent application is granted in 2014, the granted patents will appear above the 2012 patent applications in yellow.





Renewal and Abandonment Rate

No. of Patents



Notes for the user

- This graph shows the number of patents either renewed or abandoned
- This is helpful in providing insight on changes in the university's technological direction
- It also highlights the university's failed and successful patents over time and recognize whether it is worth researching in similar technologies

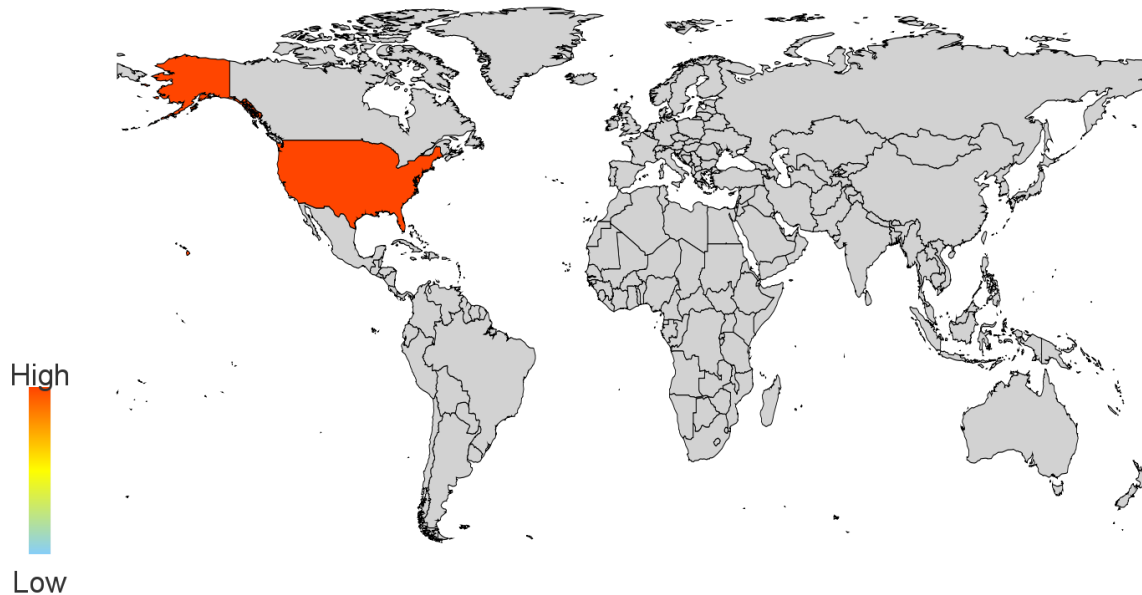
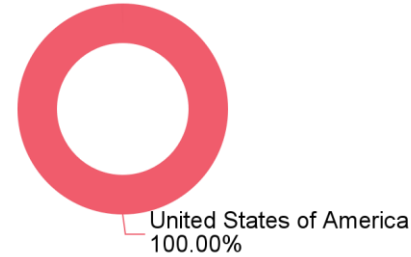
Abandoned patents imply technology the university is not utilizing or seeing a Return on Investment from and therefore have stopped investing

Renewed patents represent inventions that either holds potential or represent a ROI





Patent Geographic Coverage



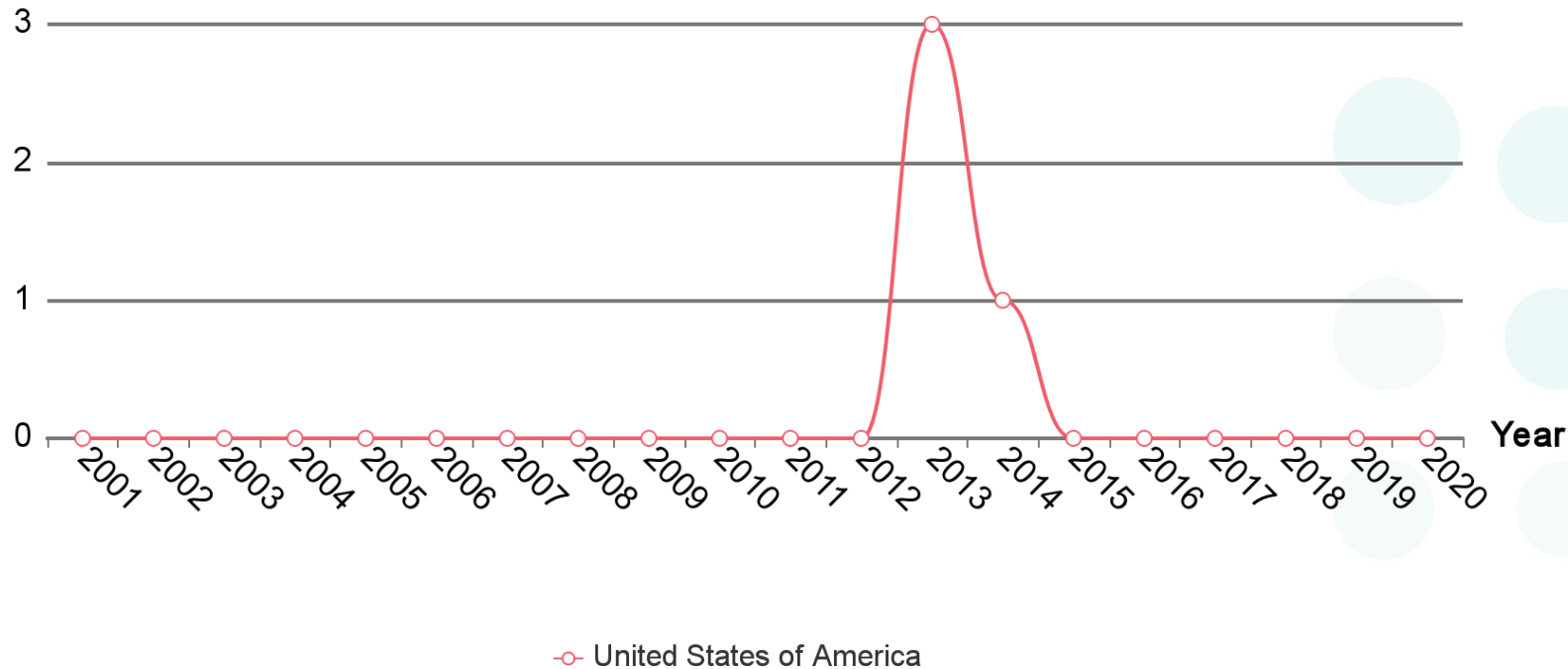
Notes for the user

- The map shows the geographic breakdown of patent profile coverage across different jurisdictions
- It is helpful in understanding the territorial markets that the university is focusing on and looking to commercialize in





No. of Patents



Notes for the user

- This graph shows the yearly patenting trend of published patents within this university's top jurisdictions
- It is helpful in understanding any changes to patenting strategies in terms of geographical coverage





Key Technologies

Notes for the user

G08G1 Traffic control systems for road vehicles (arrangement of road signs or traffic signals E01F 9/00) [2006.01]

G06N3 Computer systems based on biological models [2006.01]

G06K9 Methods or arrangements for reading or recognising printed or written characters or for recognising patterns, e.g. fingerprints (methods or arrangements for graph-reading or for converting the pattern of mechanical parameters, e.g. force or presence, into electrical signals G06K 11/00; speech recognition G10L 15/00) [2006.01]

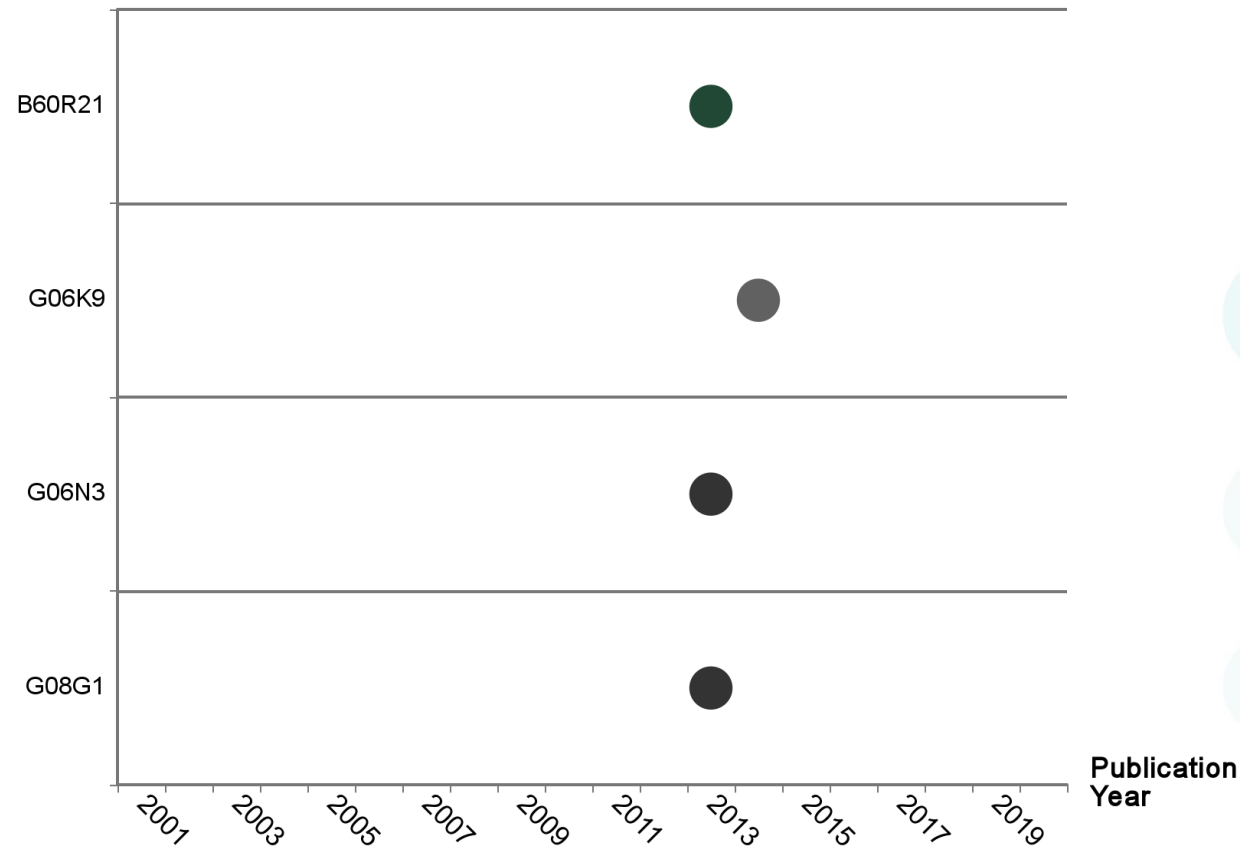
B60R21 Arrangements or fittings on vehicles for protecting or preventing injuries to occupants or pedestrians in case of accidents or other traffic risks (safety belts or body harnesses in vehicles B60R 22/00; seats constructed to protect the occupant from the effect of abnormal g-forces, e.g. crash or safety seats, B60N 2/42; energy-absorbing arrangements for hand wheels for steering vehicles B62D 1/11; energy-absorbing arrangements for vehicle steering columns B62D 1/19) [2006.01]

- This graph visualizes the top 10 International Patent Classification (IPC) technology areas the university is operating in, with the size of the box corresponding to the number of patents
- It is helpful to determine the university's core competencies and what technology areas they are allocating the most resources towards
- The different colors denote difference IPC classes and demonstrate diversity across technologies





Annual Technology Filing Strategy



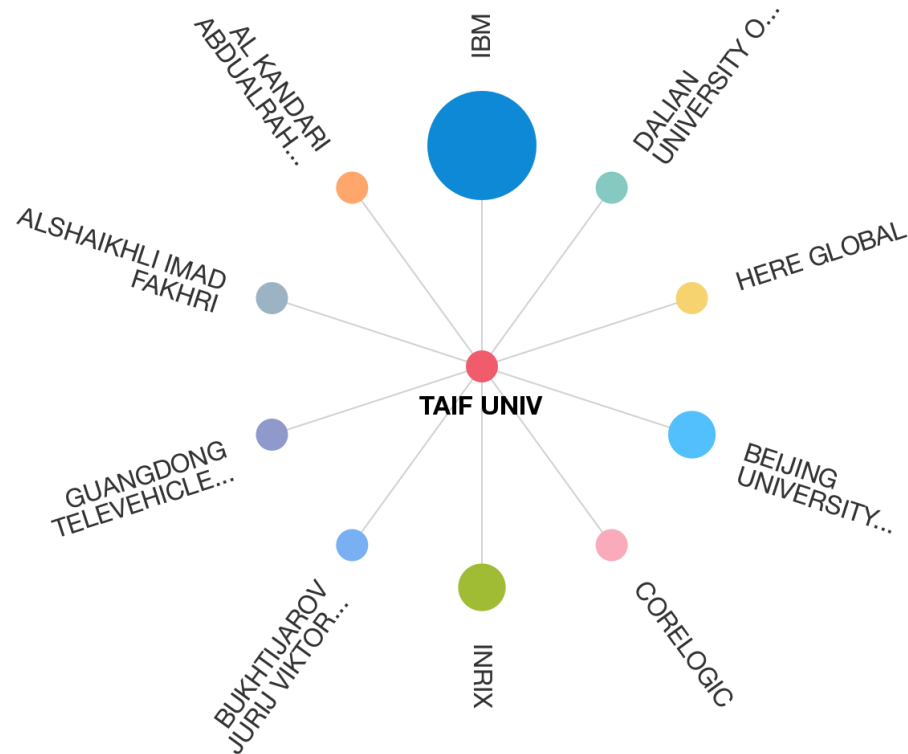
Notes for the user

- This graph shows the yearly patenting trend of published patents by technology area
- It is helpful to determine the university's patent strategy in terms of technology focus over the past 20 years





Top Citing Organizations



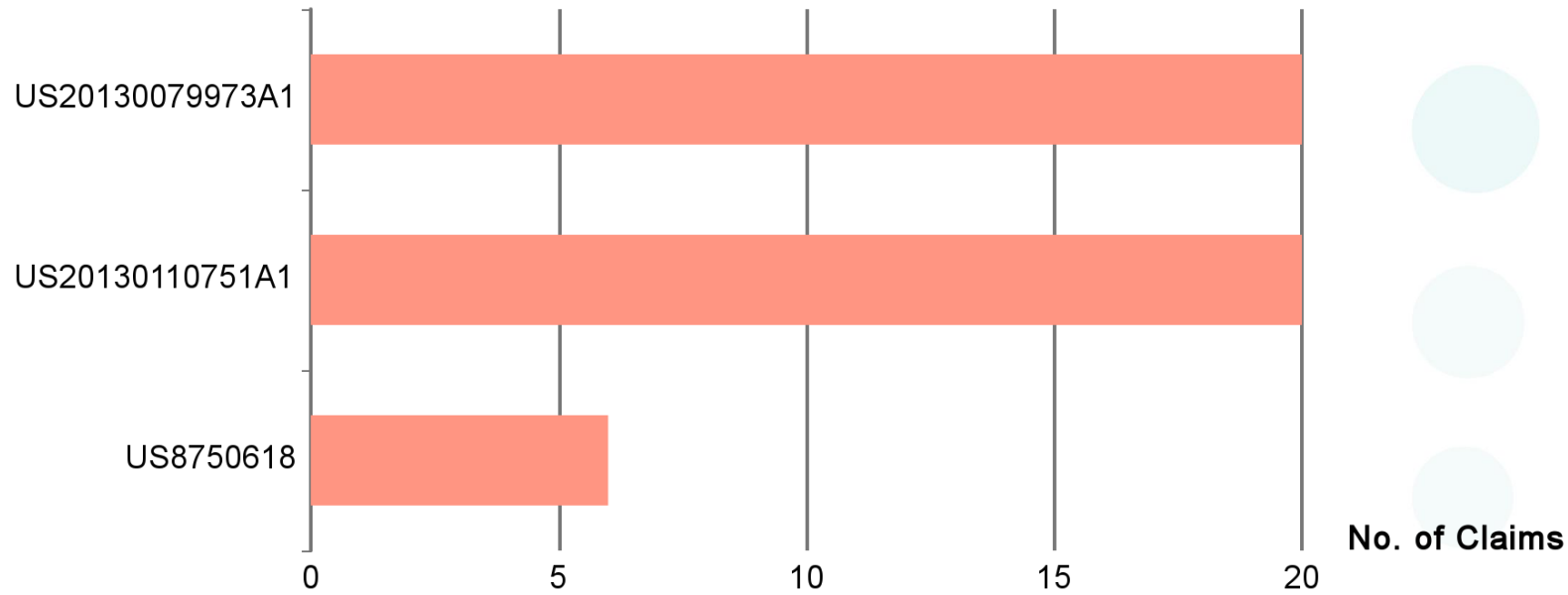
Notes for the user

- This graph shows the top 10 organizations citing the top 10 most cited patents of the university
- It is helpful to understand what organizations are operating closest to the university and how these organizations utilized the technology





Most Claim-Heavy Patents



Notes for the user

- This graph shows the top 10 patents with the highest number of claims
- It is helpful in identifying which patents have the greatest technical coverage (i.e., a larger number of claims protects a greater number of different technologies)
- It may indicate an innovative and completely new technology at the time of application





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6

Chapter six: Insights from KSA R&D Strategy Submissions



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الجمهورية العربية السعودية
MINISTRY OF EDUCATION

Data Source for this Section: All bibliometric data – Scopus for the years 2014-2018; Number of PhDs, Number of Masters, Discipline Rankings – KSA University R&D Strategy submission

Discipline Classification for this Section: OECD Frascati Manual Field of Science & Technology Classification [refer to Glossary for full classification]





This section aims to:

- Provide a high-level overview of the **KSA University R&D Strategy Submissions undertaken by the Deputyship of Research & Innovation**
- Share insight into how each university **perceives and ranks its disciplinary strengths** based on the submission results
- Share a **comparative approach** in aggregating universities with common perceived disciplinary strengths
- Help universities identify their disciplinary capabilities across Saudi Arabia
- Help universities identify where there may be **overconcentration or gaps in existing R&D**

Notes for the user

Please use this section as an informational tool given the range of topics that can fall into a single discipline.

The data presented was taken at a single point of time and does not reflect natural increases in bibliometric rates over time (e.g., citations)





Example: How to Interpret the Table

What does this mean?
"Nanotechnology" is 1 of the 42 Frascati Manual disciplines (OECD)

Nanotechnology

What does this mean?
An FWCI less than 1.0 means that a university is being cited less than the global average; and thus, research impact may not be as profound

No.	University Name	University Perceived Strength		R&D Capacity		R&D Output & Impact	
		Rank in Strategy	No. MSc. Students*	No. PhDs Enrolled*	No. Scopus Publications	Avg. Citations per Publication	FWCI
1	University X [censored]	3	94	65	391	11.3	0.87
2	University X [censored]	7	0	40	81	15	0.81
3	University X [censored]	5	9	0	568	16.8	1.34
4	University X [censored]	1	12	0	36	6.1	0.78

What does this mean?
4 Saudi universities mentioned in their R&D Strategy that **they have a strength in 'Nanotechnology'**

What does this mean?
The 4th university to list 'Nanotechnology' as a Discipline Strength in the R&D Strategy **ranked 'Nanotechnology' as its #1 Strength**

What does this mean?
The 3rd university to list 'Nanotechnology' as a Discipline Strength in the R&D Strategy **ranked 'Nanotechnology' as its #5 Strength**



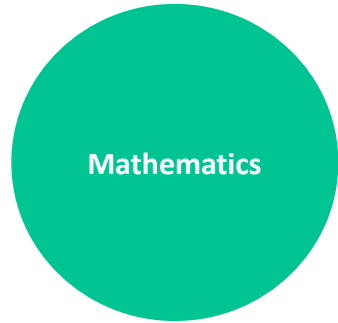


Natural Sciences





Universities to select 'Mathematics' as a Disciplinary Strength



No.	University Name	University Perceived Strength	R&D Output & Impact		
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		7	1434	7.4	1.42
2		7	3782	12	2.15
3		1	71	4.9	1.45
4		2	196	5	1.5
5		8	30	3.8	1.17
6		6	36	4	0.58
7		13	31	5.5	1.41
8		4	131	4.9	1.31
9		11	118	6.2	1.25
10		2	327	4.7	1.15
11		7	266	2.8	0.72
12		7	264	3	0.67

*Asterisk denotes self-reported data from Strategy





Natural Sciences: Computer & Information Sciences

Universities to select 'Computer & Information Sciences' as a Disciplinary Strength

No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		2	161	3.3	0.87
2		8	3216	8.4	1.47
3		8	3140	16.4	2.36
4		1	81	3.1	0.83
5		2	72	2.7	0.6
6		2	235	5.8	1.16
7		2	512	5.5	1.07
8		4	371	4.6	0.79
9		2	325	4.5	1.01
10		5	325	4.5	0.82
11		7	199	4.5	0.76
12		5	131	4.4	0.95
13		1	98	4.1	0.97
14		10	217	3.3	0.71
15		12	86	2.4	0.99

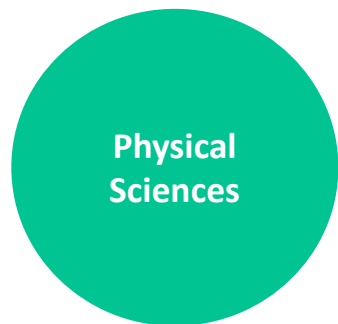


*Asterisk denotes self-reported data from Strategy





Universities to select 'Physical Sciences' as a Disciplinary Strength



No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		9	2736	9.9	1.24
2		2	3734	20.6	2.44
3		3	197	12.5	1.41
4		7	54	4.2	0.77
5		9	32	4.4	0.88
6		1	352	16.1	2.56
7		3	458	10.9	1.51
8		1	530	9	1.39
9		8	134	9.3	1.3
10		4	147	8.3	1.28
11		3	384	9.1	1.26
12		8	138	8.7	1.11
13		11	90	6.8	1
14	Taif University	3	394	8.1	0.98
15		5	295	5.8	0.71

*Asterisk denotes self-reported data from Strategy





Universities to select 'Chemical Sciences' as a Disciplinary Strength

No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		10	5330	12.7	1.24
2		1	5579	27.9	2.47
3		4	277	20.4	1.73
4		1	640	8.3	0.76
5		7	30	6.7	0.65
6		8	44	6.7	1.03
7		5	337	10.9	1.43
8		6	737	9.5	1.27
9		1	697	9.9	1.18
10		1	247	8.3	1.07
11		6	308	9.8	1.03
12		4	174	9	0.97
13		2	262	6.7	0.9
14		4	343	7.4	0.89
15	Taif University	2	645	7.2	0.74
16		8	248	6.2	0.73
17		9	118	6.7	0.71
18		3	90	5.2	0.64



*Asterisk denotes self-reported data from Strategy





Natural Sciences: Earth & Related Environmental Sciences



No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		11	2516	13.7	1.42
2		20	2649	23.6	2.23
3		14	98	7.7	0.78
4		5	91	7.5	0.82
5		9	116	5.3	0.74
6		5	52	2.8	0.34

*Asterisk denotes self-reported data from Strategy





No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		12	5264	12	1.3
2		9	3775	21	1.94
3		4	434	7.3	0.75
4		6	18	7.9	0.77
5		5	61	6.2	0.69
6		3	277	8	1.04
7		15	97	11.3	0.95
8		5	163	7.1	0.92
9		5	131	6.6	0.91
10		5	443	6.4	0.79
11		4	566	7.1	0.77
12		8	344	5.9	0.76
13		7	316	5.6	0.73
14		2	338	6.8	0.72
15		10	111	4.8	0.63
16		12	193	4.5	0.57
17		4	111	4.7	0.53

*Asterisk denotes self-reported data from Strategy





Natural Sciences: Other Natural Sciences



No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		21	2119	29.6	2.73
2		1	13	5.5	1.32
3		13	2119	13.2	1.48
4		14	53	8.4	1.27
5		11	125	10.2	1.1

*Asterisk denotes self-reported data from Strategy





Engineering & Technology





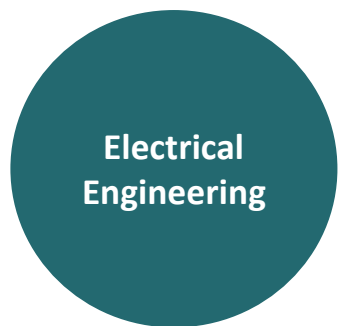
No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		25	279	9.1	1.13
2		2	3	3.3	0.92
3		5	7	13.4	1.42
4		7	27	8.6	1.12
5		10	46	6.9	0.93
6		9	24	3.5	0.84
7		4	4	2.3	0.57

*Asterisk denotes self-reported data from Strategy





Engineering & Technology: Electrical Engineering



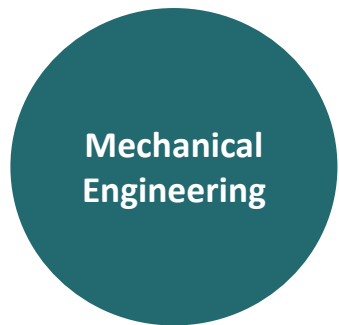
No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		3	25	7.8	1.19
2		1	1297	10.3	1.5
3		22	1418	19.1	2.47
4		11	42	4.1	1.21
5		3	13	9.2	0.87
6		2	156	18.7	2.1
7		8	167	12.7	1.91
8		5	34	9.6	1.59
9		8	115	9.8	1.56
10		2	135	8.8	1.4
11		5	46	8.1	1.09
12		7	159	7.4	1.07
13		2	32	4.4	0.96
14		5	46	4.7	0.93
15		5	105	6.1	0.89
16		7	62	4.8	0.78
17		4	60	3.9	0.72
18		6	58	3.4	0.65

*Asterisk denotes self-reported data from Strategy





Engineering & Technology: Mechanical Engineering



No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		26	957	15.4	1.76
2		4	8	11.3	1.73
3		23	1428	27.1	3.2
4		5	75	13.9	2.34
5		6	22	17.8	2.31
6		8	144	10.3	1.76
7		2	61	11.6	1.75
8		3	78	14.8	1.52
9		3	80	6.7	1.35
10		2	18	8.6	1.25
11		4	107	7	1.14
12		8	116	8	0.95
13		18	80	8.5	0.93

*Asterisk denotes self-reported data from Strategy





Engineering & Technology: Chemical Engineering



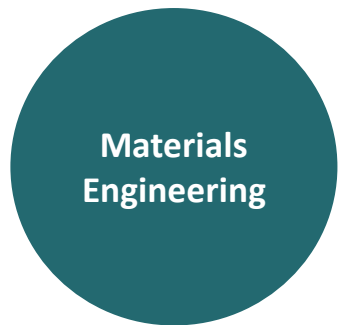
No.	University Name	University Perceived Strength		R&D Output & Impact		
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI	
1		42	1659	17.4	1.61	
2		6	99	24.5	1.9	
3		24	2070	32.1	2.82	
4		15	104	12.7	1.34	
5		3	70	10.9	1.3	
6		17	85	7.3	0.77	
7		1	56	6.1	0.76	

*Asterisk denotes self-reported data from Strategy





Engineering & Technology: Materials Engineering



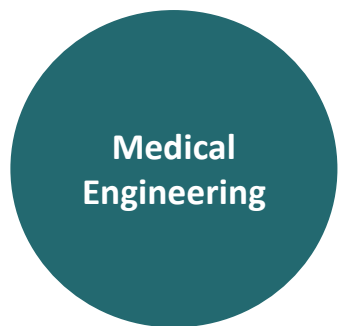
No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		27	2983	12	1.36
2		3	3390	27.2	2.87
3		1	126	11.9	1.57
4		6	304	11.1	1.52
5		3	154	9.8	1.43
6		4	472	9.4	1.37
7		14	148	10.4	1.2
8		3	162	7.3	0.98
9		6	301	8.6	0.91
10		3	140	6.2	0.74

*Asterisk denotes self-reported data from Strategy





Engineering & Technology: Medical Engineering



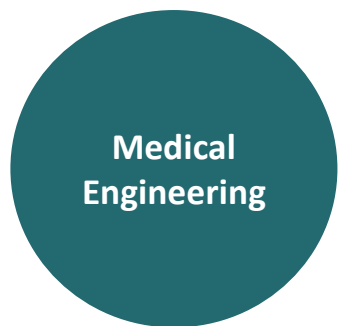
No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		28	336	10.6	1.64

*Asterisk denotes self-reported data from Strategy





Engineering & Technology: Medical Engineering



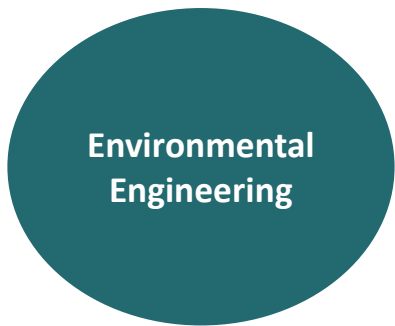
No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		28	336	10.6	1.64

*Asterisk denotes self-reported data from Strategy





Engineering & Technology: Environmental Engineering



No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		29	620	17.7	1.56
2		4	811	29	2.46
3		9	50	14.7	1.08
4		4	22	10.6	0.85
5		7	8	11.8	0.72

*Asterisk denotes self-reported data from Strategy





Engineering & Technology: Environmental Biotechnology

No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		30	357	10.2	0.93

Environmental Biotechnology

Engineering & Technology: Industrial Biotechnology

No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		2	141	16.1	1.49

Industrial Biotechnology

*Asterisk denotes self-reported data from Strategy





No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		3	391	11.3	0.87
2		7	81	15	0.81
3		5	568	16.8	1.34
4		1	36	6.1	0.78

*Asterisk denotes self-reported data from Strategy





Engineering & Technology: Other engineering & Technologies

No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		1	44	5.5	1.21
2		8	89	7.4	1.08
3		31	1890	10.5	1.75
4		6	2178	20.7	2.79
5		9	169	6.3	1.42
6		6	179	7.4	1.34
7		8	48	3.1	1.26
8		9	146	4.1	0.86

Other Engineering and Technologies

*Asterisk denotes self-reported data from Strategy





وزارة التعليم
Ministry of Education

Medical & Health Sciences



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Medical and Health Sciences: Basic Medicine



No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		9	83	6	0.66
2		32	4837	12.7	1.92
3		4	623	16.4	2.41
4		1	255	63.8	13.24
5		12	112	17.3	6.14
6		1	402	9	2.63
7		12	3237	16	1.96
8		12	362	6.8	0.89
9		3	473	6.6	0.84
10		1	405	5.7	0.83
11		3	365	5.6	0.79
12		6	270	4.8	0.78
13	Taif University	1	564	6.1	0.74
14		2	99	3.9	0.58
15		1	111	3.8	0.5

*Asterisk denotes self-reported data from Strategy





Medical and Health Sciences: Clinical Medicine



No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		3	1186	8.7	1.17
2		33	4486	9.2	1.18
3		4	42	5.1	0.94
4		25	2816	11.4	1.27
5		10	139	12.3	1.65
6		9	148	7.6	1.16
7		2	54	7.1	0.96
8		13	238	7	0.93
9		3	869	6	0.86
10		7	187	4.5	0.81
11		3	347	7.2	0.8
12		10	401	3	0.52

*Asterisk denotes self-reported data from Strategy





Medical and Health Sciences: Health Sciences



No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		1	348	6.6	1.21
2		4	931	7.8	1.12
3		1	72	2.3	0.6
4		2	1	0	0
5		3	51	6.5	2.4
6		26	667	9.4	1.3
7		1	17	7.8	1.21
8		3	21	13	1.2
9		9	112	7.3	0.95
10		10	52	4.8	0.92
11		6	71	4.7	0.78

*Asterisk denotes self-reported data from Strategy





Medical and Health Sciences: Medical Biotechnology



No.	University Name	University Perceived Strength		R&D Output & Impact		
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI	
1		5	208	7.4	0.86	
2		2	67	4.1	2.05	
3		10	168	17.9	1.69	
4		1	17	8.1	0.8	
5		4	8	2.6	0.69	

*Asterisk denotes self-reported data from Strategy





Medical and Health Sciences: Other Medical Science



No.	University Name	University Perceived Strength		R&D Output & Impact		
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI	
1		3	10	2.3	0.91	
2		10	22	3.9	0.69	
3		6	1168	19.5	4.24	
4		13	712	15.9	3.09	

*Asterisk denotes self-reported data from Strategy





Social Sciences





Psychology & Cognitive Sciences

Psychology &
Cognitive
Sciences

No.	University Name	University Perceived Strength		R&D Output & Impact		
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI	
1		19	279	12.9	1.81	
2		13	7	4.4	1.34	
3		4	21	7.3	0.8	

Law

Law

No.	University Name	University Perceived Strength		R&D Output & Impact		
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI	
1		23	140	11.5	1.62	
2		10	2	1.5	0.42	

*Asterisk denotes self-reported data from Strategy

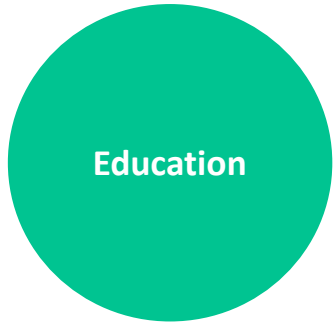




No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		20	383	13.3	2.13
2		14	16	11.4	1.72
3		13	111	6.7	1.41
4		15	466	12.4	1.85
5		6	30	9.5	1.44
6		6	157	5.2	1.07
7		6	29	4	0.99
8		2	48	5.7	0.84

*Asterisk denotes self-reported data from Strategy





No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		21	242	7.7	1.48
2		2	11	1.5	0.62
3		15	10	3.2	0.64
4		9	2	2	0.75
5		16	39	3.9	1.23
6		3	22	3.2	1.23
7		16	151	4.4	1.09
8		5	14	1.4	0.46

*Asterisk denotes self-reported data from Strategy





Sociology

No.	University Name	University Perceived Strength		R&D Output & Impact		
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI	
1		22	94	9	1.76	

Political Science

No.	University Name	University Perceived Strength		R&D Output & Impact		
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI	
1		24	152	12.3	1.64	

*Asterisk denotes self-reported data from Strategy





Social & Economic Geography

Social & Economic Geography

No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		34	61	6.1	1.15

Media & Communication

Media & Communication

No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		35	30	3.6	1.32
2		17	23	4.1	2.8

*Asterisk denotes self-reported data from Strategy





No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		10	5	0.4	0.27
2		7	25	1.9	0.37
3		36	247	5.9	1.38
4		18	345	10.8	1.62
5		4	22	6.9	1.11

*Asterisk denotes self-reported data from Strategy





Humanities & the Arts





Humanities & the Arts: Philosophy, Ethics, and Religion



No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		1	4	0.3	0.14
2		39	21	2.1	2.15
3		3	1	0	0

*Asterisk denotes self-reported data from Strategy





History and Archaeology

History and Archaeology

No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		37	36	6	1.88

Arts

Arts

No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		19	6	3.8	1.91
2		40	4	3.3	1.98

*Asterisk denotes self-reported data from Strategy





Humanities & the Arts: Languages & Literatures



No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		38	67	5.8	1.24
2		2	13	10.8	2.27
3		2	1	17	6.1

*Asterisk denotes self-reported data from Strategy





Humanities & the Arts: Other Humanities



No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		5	2	0.5	0.52
2		41	105	9.1	1.57
3		11	86	12.7	2.37
4		11	4	0	0

*Asterisk denotes self-reported data from Strategy





Agricultural and Veterinary Sciences





Agricultural & Veterinary Sciences: Agriculture, Forestry, and Fisheries

Agriculture,
Forestry, &
Fisheries

No.	University Name	University Perceived Strength		R&D Output & Impact		
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI	
1		14	1350	8.3	1.19	
2		14	821	12.7	1.44	
3		11	7	1.1	0.33	
5		2	62	7.5	0.91	
4		1	134	4.9	0.93	
6		13	55	3.8	0.58	

FWCI > 1.0 FWCI < 1.0



*Asterisk denotes self-reported data from Strategy



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رؤية 2030
الجمهورية العربية السعودية
Ministry of Education



Agricultural & Veterinary Sciences: Animal & Dairy Science



No.	University Name	University Perceived Strength		R&D Output & Impact	
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI
1		15	783	6.3	0.94
2		11	105	3.6	0.7
3		10	136	3.6	0.47

*Asterisk denotes self-reported data from Strategy





Agricultural & Veterinary Sciences: Veterinary Science



No.	University Name	University Perceived Strength		R&D Output & Impact		
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI	
1		16	226	7.6	1.62	
2		1	1	0	0	
3		11	107	3.6	0.79	
4		12	52	3.7	0.78	
5		12	4	1.5	0.15	

*Asterisk denotes self-reported data from Strategy





Agricultural Biotechnology

Agricultural Biotechnology

No.	University Name	University Perceived Strength		R&D Output & Impact		
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI	
1		17	20	4.5	0.68	
2		7	3	14.3	1.53	

Other Agricultural Sciences

Other Agricultural Sciences

No.	University Name	University Perceived Strength		R&D Output & Impact		
		Rank in Strategy	No. Scopus Publications	Avg. Citations per Publication	FWCI	
1		18	62	7.9	1.29	

*Asterisk denotes self-reported data from Strategy





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7 Appendix



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المصطلحات باللغة الإنجليزية

المصطلحات باللغة العربية

Research Output

Indicates the number of publications produced by an entity. In the case of this report, it consists of articles, reviews, and conference proceedings recorded Scopus' bibliometric database; however, publications can also include book chapters, books, letters, editorials, erratum, and short surveys.

مخرجات البحث

يشير إلى عدد المنشورات التي تنتجها المنشأة. هذا التقرير يتضمن مقالات، ومراجعات، ومنشورات في مؤتمرات مسجلة في قاعدة بيانات Scopus البيبليومترية. وقد يتضمن أيضاً كتب، وفصول محددة من كتب، ورسائل، ومحركات، واستطلاعات قصيرة.

Field-Weighted Citation Impact

It is calculated by comparing the number of citations actually received by a publication with the number of citations expected for a publication of the same document type, publication year, and subject. A Field-Weighted Citation Impact of more than 1.00 indicates that the entity's publications have been cited more than would be expected based on the global average for similar publications. Please note that FWCI can also be standardized at a national level of 1.00 based on citation of that country in specific

مقياس تأثير الاقتباس الموزون في التخصص

يتم حسابه من خلال مقارنة عدد الاقتباسات التي تلقاها المنشور مع معدل الاقتباسات التي تم توقعها لنفس المنشور من حيث النوع، سنة النشر، والموضوع. عندما يكون تأثير الاقتباس الموزون أكثر من 1.00 فهو دليل على أن المنشور قد تم الاقتباس منه أكثر من المتوقع استناداً إلى المتوسط العالمي للمنشورات المماثلة. وهذا ينطبق أيضاً على متوسط النشر الوطني

Research Productivity

The average number of articles produced by an entity or author per year.

إنتاجية البحث

متوسط عدد المقالات التي تنتجها المنشأة أو ينتجها المؤلف كل عام.

Top 10% Citation Percentile

It is the share of publications an entity produces belonging to the top 10% of cited global publications.

أفضل 10% من النسبة المئوية المنشورة للاقتباسات

المنشورات التي تنتجها المنشأة والتي تنتمي إلى أفضل 10% من المجلات العالمية.

Relative Activity Index

The share of an entity's publications in a subject relative to the global share of publications in the same subject. A value of 1.0 indicates that an entity's research activity in a field corresponds exactly with the global activity in that field; higher than 1.0 implies a greater emphasis while lower than 1.0 suggests a lesser focus.

مؤشر النشاط النسبي

يشير إلى نسبة منشورات المنشأة في تخصص معين بالمنشورات العالمية المتخصصة في نفس الموضوع. تشير القيمة 1.0 إلى أن النشاط البحثي للمنظومة في مجال ما يتوافق تماماً مع مستوى النشاط العالمي في نفس المجال؛ أي أن أعلى من 1.0 يدل على التركيز العالي، بينما أقل من 1.0 يشير إلى تركيز أقل من المعدل.





المصطلحات باللغة الإنجليزية

المصطلحات باللغة العربية

Non-Migratory Author

The author did not publish with an affiliation outside of Saudi Arabia.

المؤلف الغير متنقل

لم ينشر المؤلف لأي منشأة خارج المملكة العربية السعودية.

Transitory Short-Stay Author

The author publishes internationally, but published with a Saudi affiliation for a period less than 2 years.

المؤلف ذو الإقامة المؤقتة القصيرة

نشر المؤلف دوليًا، لكنه أيضا نشر لمنشأة في المملكة العربية السعودية لمدة تقل عن سنتين.

Transitory Short-Leave Author

The author publishes with a Saudi affiliation, but published internationally for a period less than 2 years.

المؤلف ذو الإجازة الانتقالية القصيرة

نشر المؤلف منتسبا لمنظومة في المملكة العربية السعودية، ولكنه أيضا نشر دوليًا لمدة تقل عن سنتين.

Migratory Author Outflows

The author moved from a Saudi affiliation to an international affiliation for 2+ years.

خروج المؤلف المتنقل

انتقل المؤلف من منشأة في المملكة العربية السعودية، إلى منشأة دولية لمدة سنتين أو أكثر.

Migratory Author Inflows

The author moved from an international affiliation to a Saudi affiliation for 2+ years.

انضمام المؤلف المتنقل

انتقل المؤلف بعد انتمائه لمنشأة دولية، إلى منشأة في المملكة العربية السعودية لمدة سنتين أو أكثر.

Simple Family Patent

A simple patent family is a collection of patent documents that are considered to cover a single invention. The technical content covered by the applications is considered to be identical. Members of a simple patent family will all have exactly the same priorities.

براءة اختراع (المجموعة البسيطة)

عبارة عن مجموعة من وثائق البراءات المرتبطة باختراع واحد. ويوضع في عين الاعتبار أن المحتوى التقني الذي تغطيه التطبيقات موحداً. ويكون لجميع أفراد المجموعة البسيطة نفس الأولويات.

Extended Family Patent

An extended patent family is a collection of patent documents covering a technology. The technical content covered by the applications is similar, but not necessarily the same. Members of an extended patent family will have at least one priority in common with at least one other member - either directly or indirectly.

براءة اختراع (المجموعة الممتدة)

عبارة عن مجموعة من وثائق براءات الاختراع التي تغطي تقنية معينة. ويوضع في عين الاعتبار أن المحتوى التقني الذي تغطيه التطبيقات متشابه، ولكن ليس بالضرورة أن يكون نفسه. وسيكون لجميع أفراد المجموعة الممتدة أولوية واحدة على الأقل مشتركة مع عضو آخر إما بشكل مباشر أو غير مباشر.

Patent Family

A patent family refers to a patent that has been filed in several jurisdictions, in order to protect a single invention in multiple countries. The original document filed is known as the priority document, and it is then extended to other patent offices. This then becomes the patent family.

مجموعة براءة الاختراع

يشير إلى براءة اختراع تم رفعها في عدة أنظمة قضائية، بهدف حماية اختراع واحد في بلدان متعددة. يُعرف المستند الأصلي المرفوع باسم "وثيقة الأولوية"، والذي قد يصل إلى مكاتب البراءات الأخرى ليصبح بعد ذلك ما يعرف بمجموعة براءة الاختراع (Patent Family).





المصطلحات باللغة الإنجليزية

المصطلحات باللغة العربية

Active Patent

The patent has been granted and its owner can now enforce or monetize it according to its strategy.

براءة اختراع نشطة

تم منح براءة الاختراع ويمكن لمالكها فرضها أو تحويلها لقيمة نقدية بناءً على استراتيجية براءة الاختراع.

Inactive Patent

The patent cannot be enforced or monetized anymore.

براءة اختراع غير نشطة

براءة اختراع لا يمكن لمالكها فرضها أو تحويلها لقيمة نقدية.

Patent Abandonment

A patent may be abandoned if fees are not paid, or during the application process for failure to reply to a request or notice from the patent office, within a set time period or if the issue fee has not been paid.

إسقاط براءة الاختراع

قد يتم إسقاط براءة الاختراع إذا لم يتم دفع رسوم الإصدار أو أية رسوم إضافية في غضون فترة زمنية محددة، أو لعدم الرد على طلب أو إشعار من مكتب براءات الاختراع خلال عملية تقديم الطلب.

Patent Application

This stage sees the applicant submitting the patent application, which contains the claims in their first form: by defining the boundaries of the invention, they aim at giving it the widest scope possible without infringing others' IP rights.

تقديم طلب براءة الاختراع

في هذه المرحلة يتم تقديم طلب براءة الاختراع والذي يغطي الاستحقاقات في شكلها الأولي لتحديد حدود الاختراع بهدف منحه أوسع نطاق ممكن دون انتهاك حقوق الملكية الفكرية للآخرين.

Patent Granted

This stage provides the inventor exclusive rights to the patented process, design, or invention for a designated period in exchange for a comprehensive disclosure of the invention.

منح براءة الاختراع

توفر مرحلة منح براءة الاختراع للمخترع حقوق حصرية للتصميم أو للاختراع لفترة زمنية محددة، مقابل الإفصاح عن التصميم أو الاختراع بشكل شامل.

Design Patent

This is a US right that covers the configuration or shape of an article, or "ornamental features." Solid lines in the drawings are the claimed features of the shape. Broken lines in the drawings show what the rest of the object might look like. Similar to, but not to be confused with, design rights.

العلامة المسجلة

تغطي طريقة التكوين أو الشكل. الخطوط المتصلة في الرسومات هي جزء من التصميم المحمي في البراءة. وتوضح الخطوط المتقطعة في الرسومات بقية التصميم.

Utility

Used in select jurisdictions such as Australia, China, France, Germany, Italy, Japan and South Korea (among others), the idea of a utility model patent is to cover an incremental improvement to a product, process or machine in those cases where such an improvement does not warrant a full patent.

الفائدة

تُستخدم في أنظمة قضائية تابعة لدول محددة مثل: أستراليا، والصين، وفرنسا، وألمانيا، وإيطاليا، واليابان، وكوريا الجنوبية، وغيرها. تهدف فكرتها إلى تغطية التطور التدريجي لمنتج أو الآلة في الحالات التي لا يتطلب فيها مثل هذا التطوير الحصول على براءة اختراع كاملة.





المصطلحات باللغة الإنجليزية

المصطلحات باللغة العربية

Invention

An invention is a unique or novel device, method, composition or process. The invention process is a process within an overall engineering and product development process. It may be an improvement upon a machine or product or a new process for creating an object or a result. For a concept to be classified as an invention, it must be completely new with no evidence that it has even been described before.

الاختراع
الاختراع هو ابتكار جديد لجهاز، أو أسلوب، أو تكوين، أو إجراءات أو أساليب. خطوات سير عملية الاختراع هي جزء من الهندسة الشاملة وعملية تطوير المنتج. قد يكون تحسيناً على جهاز أو منتج معين، أو نهج جديد للحصول على هدف معين. لتصنيف فكرة على أنها اختراع، يجب أن تكون جديدة تماماً مع الدليل على أنه لم يتم وصفها من قبل.

Patent Maintenance Fee

Maintenance fees are required to keep in force all utility and reissue utility patents based on specified application dates. Maintenance fees are not required for a design or plant patent, or for statutory invention registrations

رسوم صيانة براءة الاختراع
رسوم الصيانة المطلوبة للحفاظ على جميع فوائد براءة الاختراع وإعادة إصدارها بناءً على تواريخ رفع الطلب المحددة مسبقاً. رسوم الصيانة غير مطلوبة لبراءة اختراع التصميم، أو لتسجيل الاختراعات القانونية.

Patent Jurisdiction

The different geographies to which a patent is valid and has protection. The three core territories for patent filings include: (1) the European Patent Office [patent coverage in European Union and extension countries]; (2) United States Patent and Trademark Office [patent coverage in the United States]; (3) Japan Patent Office [coverage in Japan]; owners can also file under the Patent Cooperation Treaty, a multijurisdictional treaty established by the World Intellectual Property Organization.

الصلاحيّة القضائية لبراءة الاختراع
هي المناطق الجغرافية المختلفة التي تكون البراءة فعالة فيها ولها حماية. الأقاليم الثلاثة الأساسية لتسجيل براءات الاختراع هي: (1) المكتب الأوروبي لبراءات الاختراع [يغطي البراءات في دول الاتحاد الأوروبي والبلدان الواقعة في القارة الأوروبية]؛ (2) مكتب الولايات المتحدة لبراءات الاختراع والعلامات التجارية [يغطي البراءات في الولايات المتحدة]؛ (3) مكتب اليابان لبراءات الاختراع [يغطي البراءات في اليابان]. أيضاً بإمكان المالكين التسجيل في معاهدة تعاون براءات الاختراع ((Patent Cooperation Treaty)، المتعددة الاختصاصات والتي أنشأتها المنظمة العالمية للملكية الفكرية.

Patent Technologies

- International Patent Classification (IPC): The technology classification scheme established by the World Intellectual Property Organization for patent offices worldwide to use. There are approximately 70,000 difference IPC codes for different technical areas.
- The Cooperative Patent Classification (CPC): is an extension of the IPC and is jointly managed by the EPO and US Patent and Trademark Office.

تقنيات براءة الاختراع
أ. التصنيف الدولي للبراءات: البرنامج التصنيفي للتقنية الذي وضعته المنظمة العالمية للملكية الفكرية ليستخدم من قبل مكاتب براءات الاختراع حول العالم. ويحتوي على ما يقرب 70,000 رمز مختلف من رموز التصنيف الدولي للبراءات للمواضيع التقنية المختلفة.
ب. التصنيف التعاوني للبراءات: امتداد للتصنيف الدولي للبراءات ويديره المكتب الأوروبي لبراءات الاختراع، ومكتب الولايات المتحدة لبراءات الاختراع والعلامات التجارية.

Patent Claims

Defines the boundary of the patent by defining exactly what is claimed by the invention and therefore what is sought to be protected. A claim is usually expressed as a statement of technical facts expressed in legal terms, defining the scope of the invention sought to be protected

مطالبات براءة الاختراع
يحدد حدود براءة الاختراع من خلال تحديد ما يطالب به الاختراع بالضبط، وبالتالي يتم تحديد ما هو مطلوب حمايته. عادةً ما يتم رفع المطالبة كبيان للحقائق التقنية التي يتم التعبير عنها بعبارات قانونية بهدف تحديد نطاق الاختراع المطلوب حمايته.





Discipline Classification for Section 1 to 4: All Science Journal Classification

1. Life Sciences

- 1.1 Agricultural and Biological Sciences
- 1.2 Biochemistry, Genetics and Molecular Biology
- 1.3 Immunology and Microbiology
- 1.4 Neuroscience
- 1.5 Pharmacology, Toxicology and Pharmaceutics

2. Physical Sciences

- 2.1 Chemical Engineering
- 2.2. Chemistry
- 2.3 Computer Science
- 2.4 Earth and Planetary Sciences
- 2.5 Energy
- 2.6 Engineering
- 2.7 Environmental Sciences
- 2.8 Materials Science
- 2.9 Mathematics
- 2.10 Physics and Astronomy

3. Social Sciences

- 3.1 Arts and Humanities
- 3.2 Business, Management, and Accounting
- 3.3 Decision Sciences
- 3.4 Economics, Econometrics and Finance
- 3.5 Psychology
- 3.6 Social Sciences

4. Health Sciences

- 5.1 Medicine
- 5.2 Nursing
- 5.3 Veterinary Sciences
- 5.4 Dentistry
- 5.5 Health Professions

Example: Broad Classification: *Life Sciences*

Field: *Agricultural and Biological Sciences*

Note: "General (multidisciplinary)" is the 27th ASJC Classification





Patent Technology Classification for Section 5: International Patent Classification (IPC) - WIPO

The International Patent Classification is used to classify patents and utility models according to different technology areas

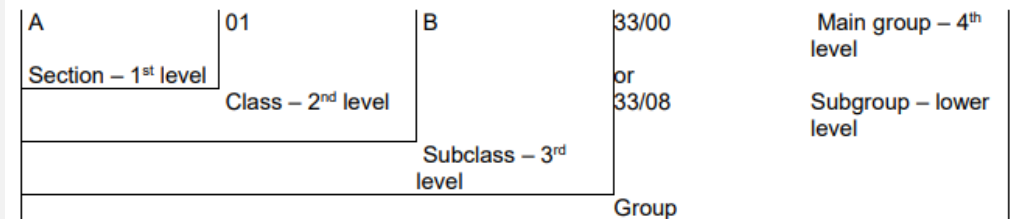
The existing scope consists of 70,000+ IPC codes based on the below patent hierarchy

Patents are broken into Sections, Classes, Subclasses, and Groups

COMPLETE CLASSIFICATION SYMBOL

23. A complete classification symbol comprises the combined symbols representing the section, class, subclass and main group or subgroup.

Example:



Patent "Section" Classification

- A Human Necessities
- B Performing Operations; Transporting
- C Chemistry; Metallurgy
- D Textiles; Paper
- E Fixed Constructions
- F Mechanical Engineering; Lighting; Heating; Weapons; Blasting
- G Physics
- H Electricity

Patent "Subsection" Classification

Example: A Human Necessities

- Agriculture
- Foodstuffs; Tobacco
- Personal or Domestic Articles
- Health; Life Savings; Amusement
- Etc.

Patent "Class" Classification

Example: H Electricity

- H01 Basic Electric Elements

Patent "Subclass" Classification

Example: H Electricity

- H01S Devies using the process of light amplification by stimulated emission of radiation [laser] to amplify or generate light; Etc.





Discipline Classification for Section 6: OECD Frascati Manual: Field of Science and Technology Classification

1. Natural Sciences

- 1.1 Mathematics
- 1.2 Computer and information sciences
- 1.3 Physical sciences
- 1.4 Chemical sciences
- 1.5 Earth and related environmental sciences
- 1.6 Biological sciences
- 1.7 Other natural sciences

2. Engineering and technology

- 2.1 Civil engineering
- 2.2. Electrical engineering, electronic engineering, information engineering
- 2.3 Mechanical engineering
- 2.4 Chemical engineering
- 2.5 Materials engineering
- 2.6 Medical engineering
- 2.7 Environmental engineering
- 2.8 Environmental biotechnology
- 2.9 Industrial biotechnology
- 2.10 Nano-technology
- 2.11 Other engineering and technologies

3. Medical and health sciences

- 3.1 Basic medicine
- 3.2 Clinical medicine
- 3.3 Health sciences
- 3.4 Medical biotechnology
- 3.5 Other medical science

5. Social sciences

- 5.1 Psychology and cognitive sciences
- 5.2 Economics and business
- 5.3 Education
- 5.4 Sociology
- 5.5 Law
- 5.6 Political science
- 5.7 Social and economic geography
- 5.8 Media and communications
- 5.9 Other social sciences

4. Agricultural and veterinary sciences

- 4.1 Agriculture, forestry, and fisheries
- 4.2 Animal and dairy science
- 4.3 Veterinary science
- 4.4 Agricultural biotechnology
- 4.5 Other agricultural sciences

6. Humanities and the arts

- 6.1 History and archaeology
- 6.2 Languages and literature
- 6.3 Philosophy, ethics, and religion
- 6.4 Arts (arts, history of arts, performing arts, music)
- 6.5 Other humanities

Example: Broad Classification: *Natural Sciences*

Second-Level Classification: *Mathematics; Computer & Info. Sciences, etc.*





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Thank you



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