Southeast Asia Research Intelligence Forum 2024

Discovering Your Institution in the Research Landscape

National Defence University of Malaysia SciVal-Driven Mission for Excellence

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Presentation Brief

Background

- UPNM
- SciVal in Malaysia

Mapping UPNM

Lessons

Q&A

Originally Akademi Tentera Malaysia (ATMA), or the Malaysian Armed Forces Academy, established on 1 June 1995.

In 2006, ATMA was upgraded to university status creating the current NDUM with first intake for the 2007/2008 session.

Context and Challenge

As one of the youngest universities in Malaysia, National Defence University Malaysia (NDUM) need to continuously benchmark its **research productivity** and its **positioning** within the global landscape of military-affiliated institutions.

Context and Challenge

An initial exploration using SciVal, offering a foundational understanding of NDUM's research landscape and potential pathways for future development.

Map its Research Position Globally: Identify NDUM's current research performance and standing relative to global actors in the same niche.

Strategise for Future Growth: Utilise the insights from SciVal to assist in strategic directions and necessary actions for enhancing NDUM's research impact and global presence.

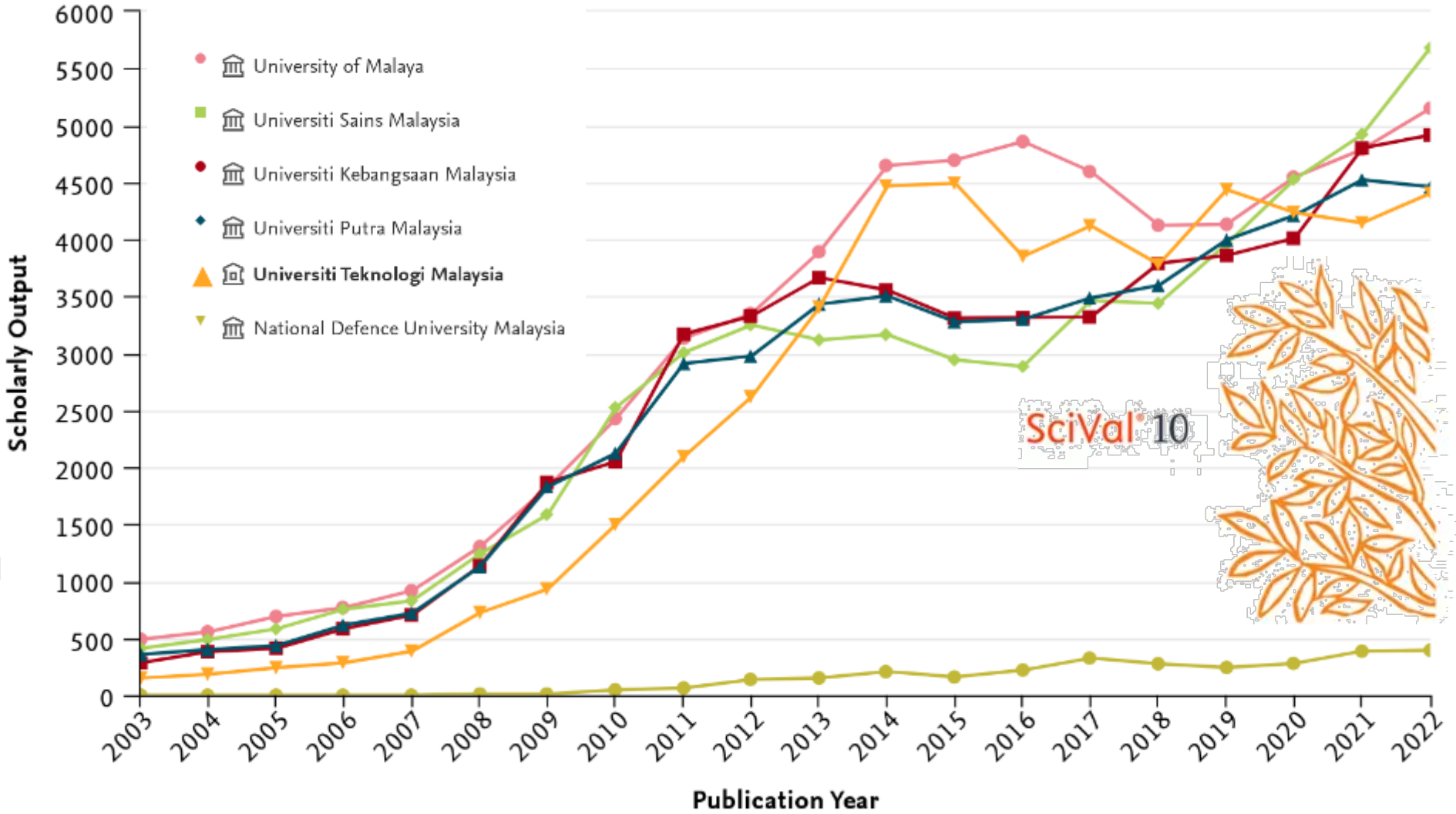
SciVal Deployment in Malaysia

SciVal has been used in universities and Ministry of Higher Education Malaysia

Visualize an organization's research performance, benchmark it against peers

Develop a deep understanding of an institution's position

Explore existing collaborations and identify potential partners locally and worldwide in fields of strategic importance.



Using military as a seed keyword

Human Endeavor

connotes human endeavors related to defense, security, strategy, and technology, making it more relevant to the objectives of National Defence University Malaysia (NDUM).

Relevance

The publications resulting from this keyword are likely to be directly relevant to the themes and goals of NDUM

Specificity

provides a more precise scope, ensuring that the research area is tightly aligned with NDUM's mission and strategic interests.

SciVal Defined research area

79,278

Scholarly Output

37.3% All Open Access

View list of publications

185,464

Authors

0.76

Field-Weighted Citation Impact

Yearly breakdown

8,463

International Collaboration

495,930

Citation Count

6.3

Citations per Publication

Keyphrases Identified

Global leaders

	Institution	Scholarly Output	Views Count	Field-Weighted Citation Impact
1.	USA Uniformed Services University of the Health Sciences	1,687	25,971	0.99
2.	USA Department of Veterans Affairs	1,605	32,572	1.31
3.	USA United States Army	1,199	19,183	0.87
4.	USA Walter Reed Army Institute of Research	985	14,734	0.93
5.	RUS Russian Academy of Sciences	960	12,164	0.50
6.	PAK National University of Medical Sciences	895	3,494	0.07
7.	USA VA Medical Center	840	17,101	1.25
8.	USA Harvard University	722	16,181	1.62
9.	CHN Chinese Academy of Sciences	648	13,434	1.17
10.	USA United States Air Force Academy	515	7,141	0.82
11.	GBR King's College London	498	8,946	1.06
12.	USA Boston University	480	9,660	1.52
13.	FRA CNRS	471	8,921	0.81
14.	CHN National University of Defense Technology	466	6,582	0.68
15.	USA Naval Medical Center San Diego	460	7,134	0.82

Leaders in Asia Pacific

	Institution	Scholarly Output	Views Count	Field-Weighted Citation Impact
1.	PAK National University of Medical Sciences	895	3,494	0.07
2.	CHN Chinese Academy of Sciences	648	13,434	1.17
3.	CHN National University of Defense Technology	466	6,582	0.68
4.	CHN Naval Medical University	376	4,183	0.27
5.	CHN Beijing Institute of Technology	368	7,694	1.25
6.	IND Anna University	333	5,994	1.06
7.	CHN University of Chinese Academy of Sciences	324	6,370	1.27
8.	CHN Beihang University	286	5,482	1.05
9.	CHN Northwestern Polytechnical University Xian	280	5,617	1.76
10.	AUS University of New South Wales	259	5,508	1.12
11.	CHN Air Force Engineering University Xian	243	3,203	0.60
12.	CHN Air Force Medical University	239	2,636	0.24
13.	CHN Nanjing University of Aeronautics and Astronautics	213	4,467	1.16
14.	CHN Harbin Institute of Technology	209	3,704	0.97

NUDM Position

	Institution	Scholarly Output	Views Count	Field-Weighted Citation Impact
61.	KOR Yonsei University	83	1,498	0.59
62.	CHN Sichuan University	79	2,121	1.16
63.	IND SRM Institute of Science and Technology	79	1,675	0.97
64.	CHN Sun Yat-Sen University	77	1,687	0.77
65.	TWN National Defense Medical Center Taiwan	75	1,412	1.03
66.	PAK National University of Sciences and Technology Pakistan	73	1,425	0.90
67.	IND University of Pune	73	1,216	1.03
68.	CHN Shandong University	72	1,444	1.24
69.	CHN Nanjing University	71	2,054	0.95
70.	MYS National Defence University Malaysia	70	2,424	0.73
71.	AUS Griffith University Queensland	69	1,531	1.00
72.	CHN China Electronics Technology Group Corporation	68	872	0.64
73.	MYS Universiti Kebangsaan Malaysia	67	2,215	0.78
74.	CHN Zhengzhou University	67	1,700	2.66
75.	AUS Royal Melbourne Institute of Technology University	65	2,699	1.32

Top Publishing Military Affiliated Institutions with ‘military’ keyword

National University of Medical Sciences Pakistan

National University of Defense Technology, Changsa

Naval Medical University, Shanghai

Top Military Affiliated Institutions

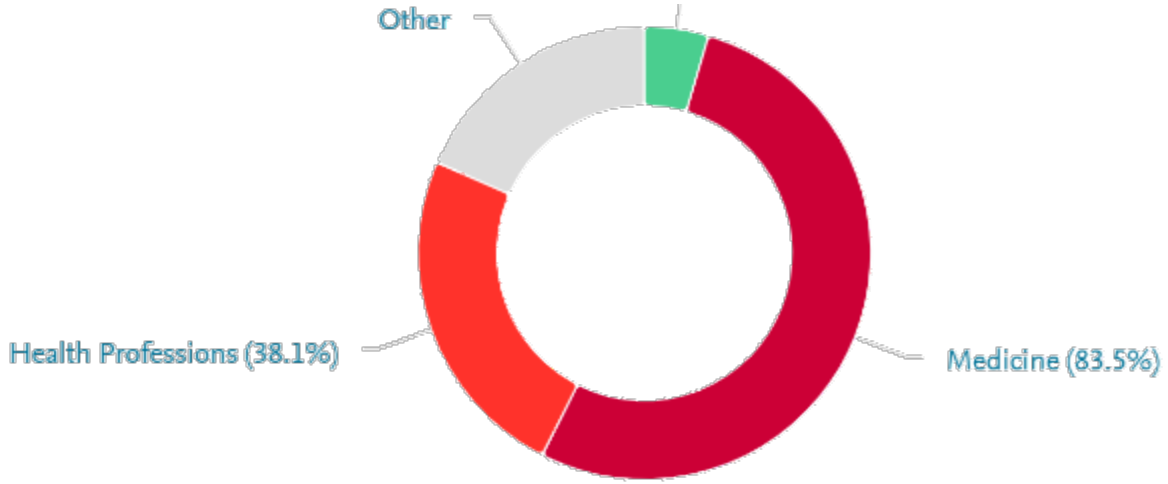
National University of Medical Sciences Pakistan

Established 2015

Pakistan Army Medical Corps.

Network of 45 Military Hospitals, 10 Single Specialty Institutes, 9 Medical Colleges, 4 Dental Colleges, 6 Nursing Colleges and 3 Allied Health Sciences Institutes

4,546 ▲	5,108 ▲	0.56
Scholarly Output ⓘ	Authors	Field-Weighted Citation Impact ⓘ
51.8% All Open Access	Download full list of authors	Yearly breakdown
View list of publications		
28,701	6.3	36
Citation Count ⓘ	Citations per Publication ⓘ	*h5*-index ⓘ

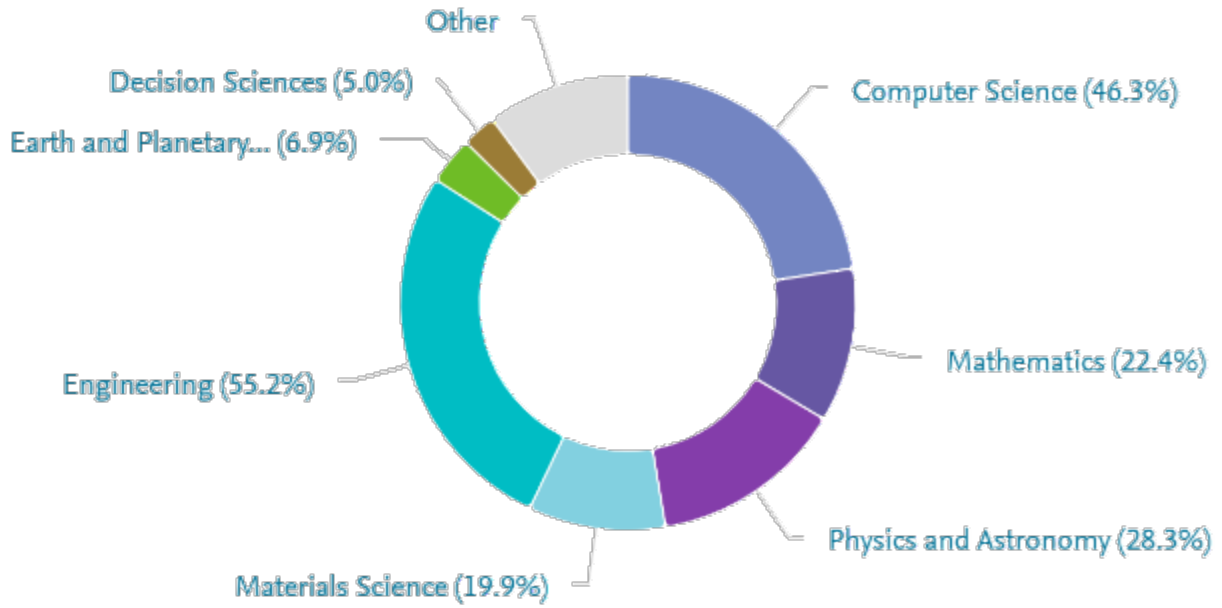


Top Military Affiliated Institutions

National University of Defense Technology, Changsa

Established1953
1,800 faculty members
13,161 students
#208 QS Asian University Ranking

42,884 ▲	19,033 ▲	0.84
Scholarly Output ⓘ	Authors	Field-Weighted Citation Impact ⓘ
24.9% All Open Access	Download full list of authors	Yearly breakdown
View list of publications		
491,602	11.5	100
Citation Count ⓘ	Citations per Publication ⓘ	*h5*-index ⓘ

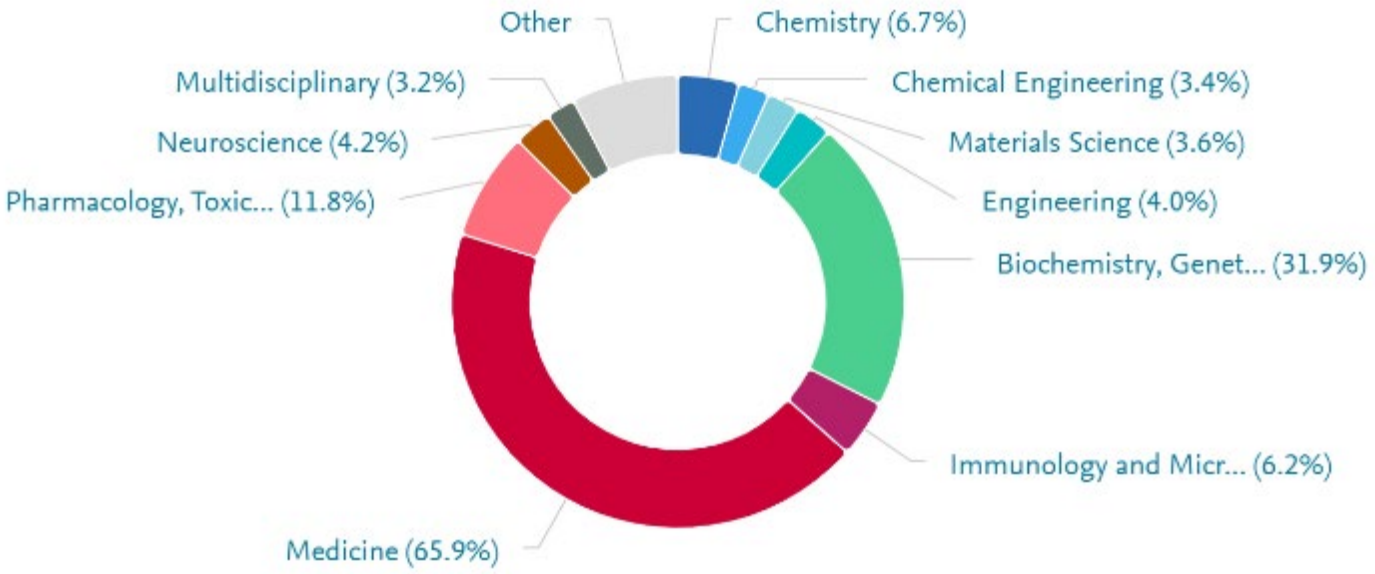


Top Military Affiliated Institutions

Naval Medical University, Shanghai

Established 1949

22,098 ▲	16,486 ▲	1.07
Scholarly Output ⓘ	Authors	Field-Weighted Citation Impact ⓘ
46.0% All Open Access	Download full list of authors	Yearly breakdown
View list of publications		
469,394	21.2	109
Citation Count ⓘ	Citations per Publication ⓘ	*h5*-index ⓘ

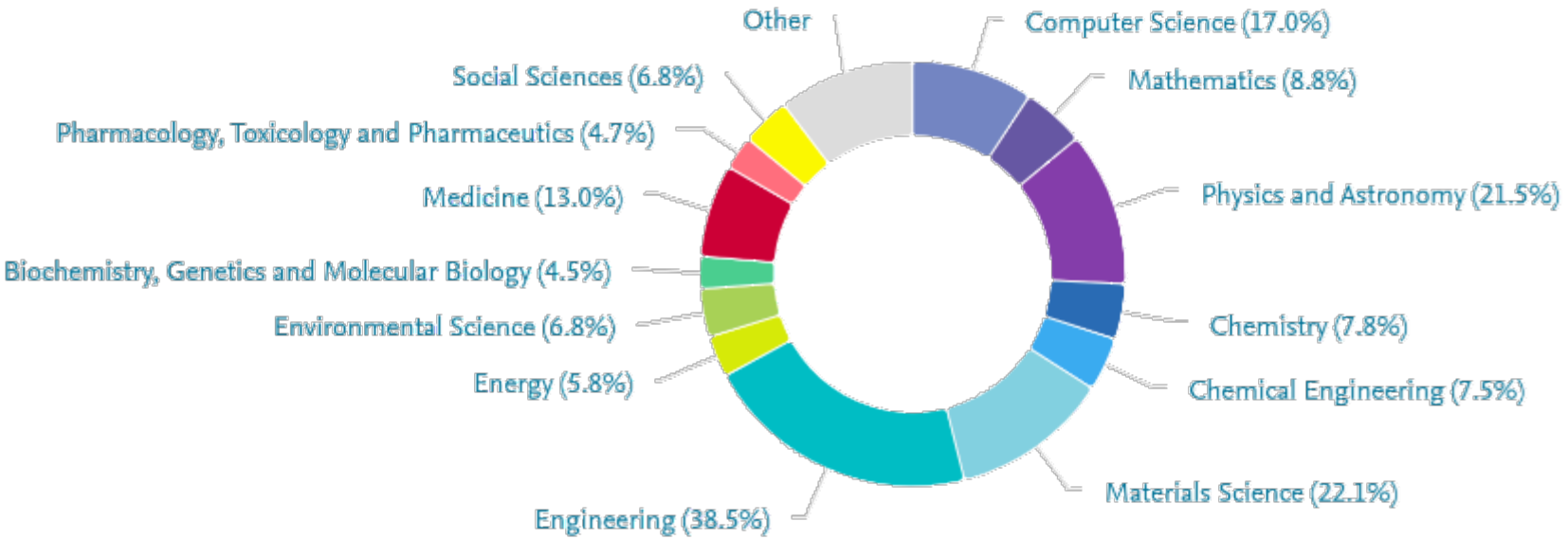


NDU Malaysia

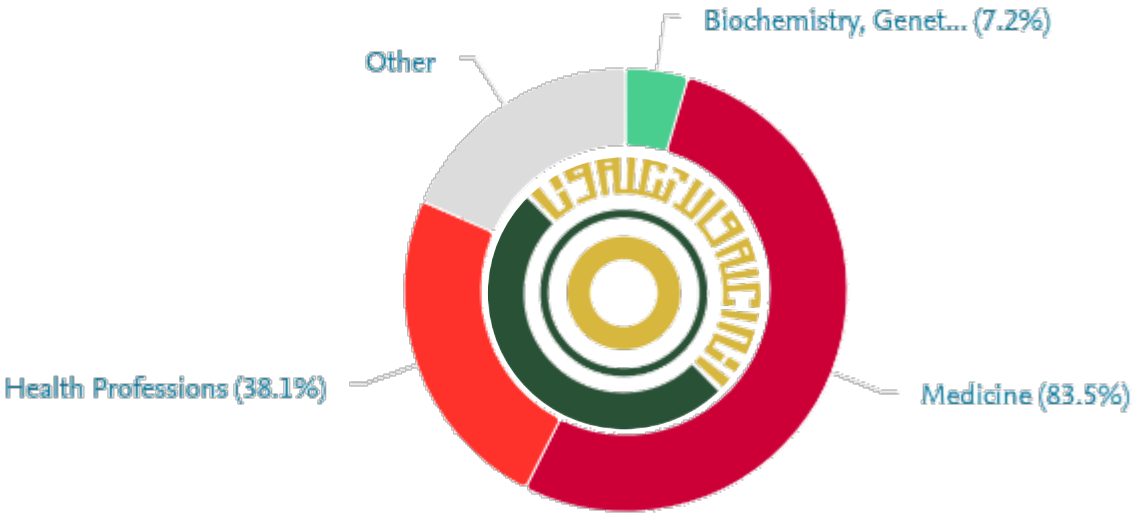
National Defense University of Malaysia

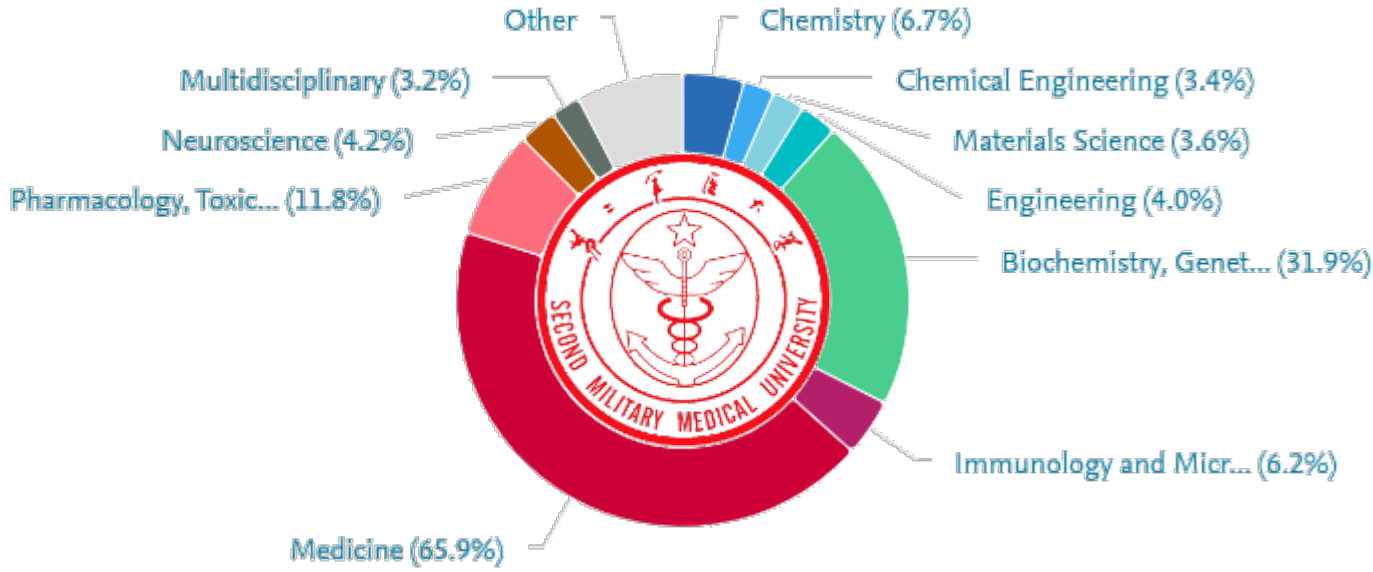
Established 2007
380+ faculty members
5000+ students

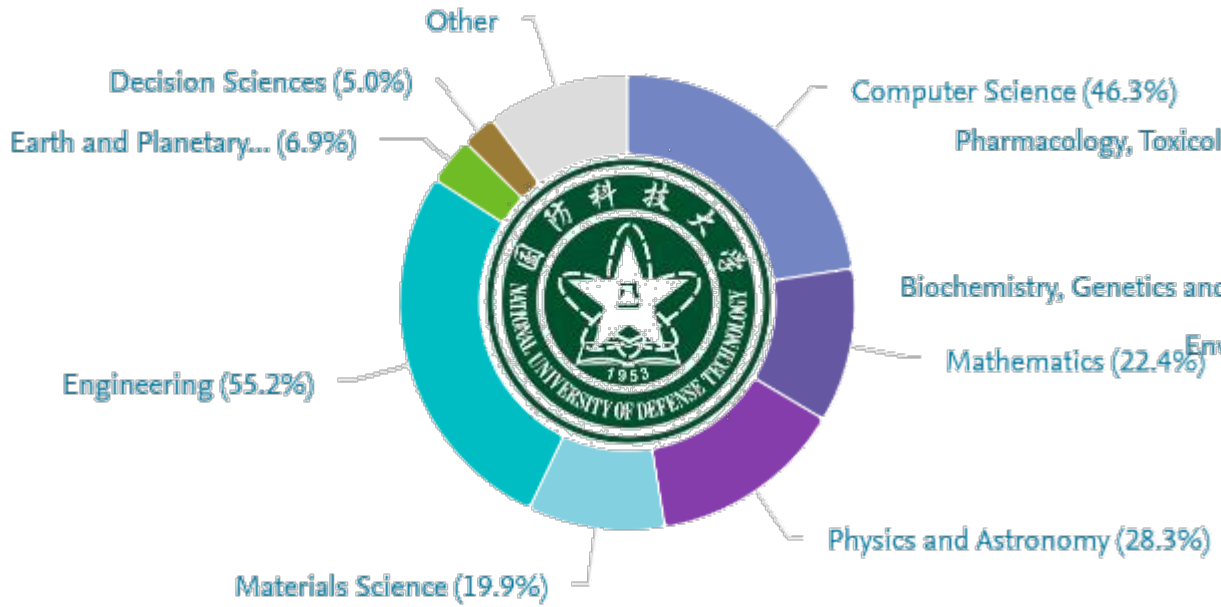
2,653 ▲	935 ▲	0.91
Scholarly Output ⓘ	Authors	Field-Weighted Citation Impact ⓘ
46.4% All Open Access	Download full list of authors	Yearly breakdown
View list of publications		
30,120	11.4	40
Citation Count ⓘ	Citations per Publication ⓘ	h5-index ⓘ

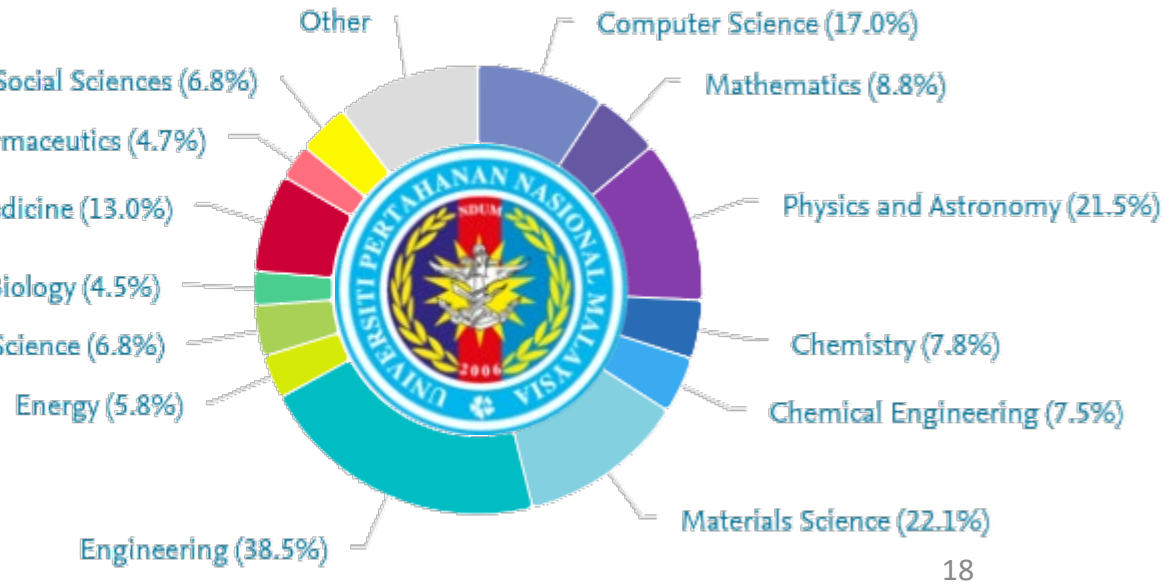


Specialisation









Comparison of scholarly Output

Southeast Asia Research Intelligence Forum 2024

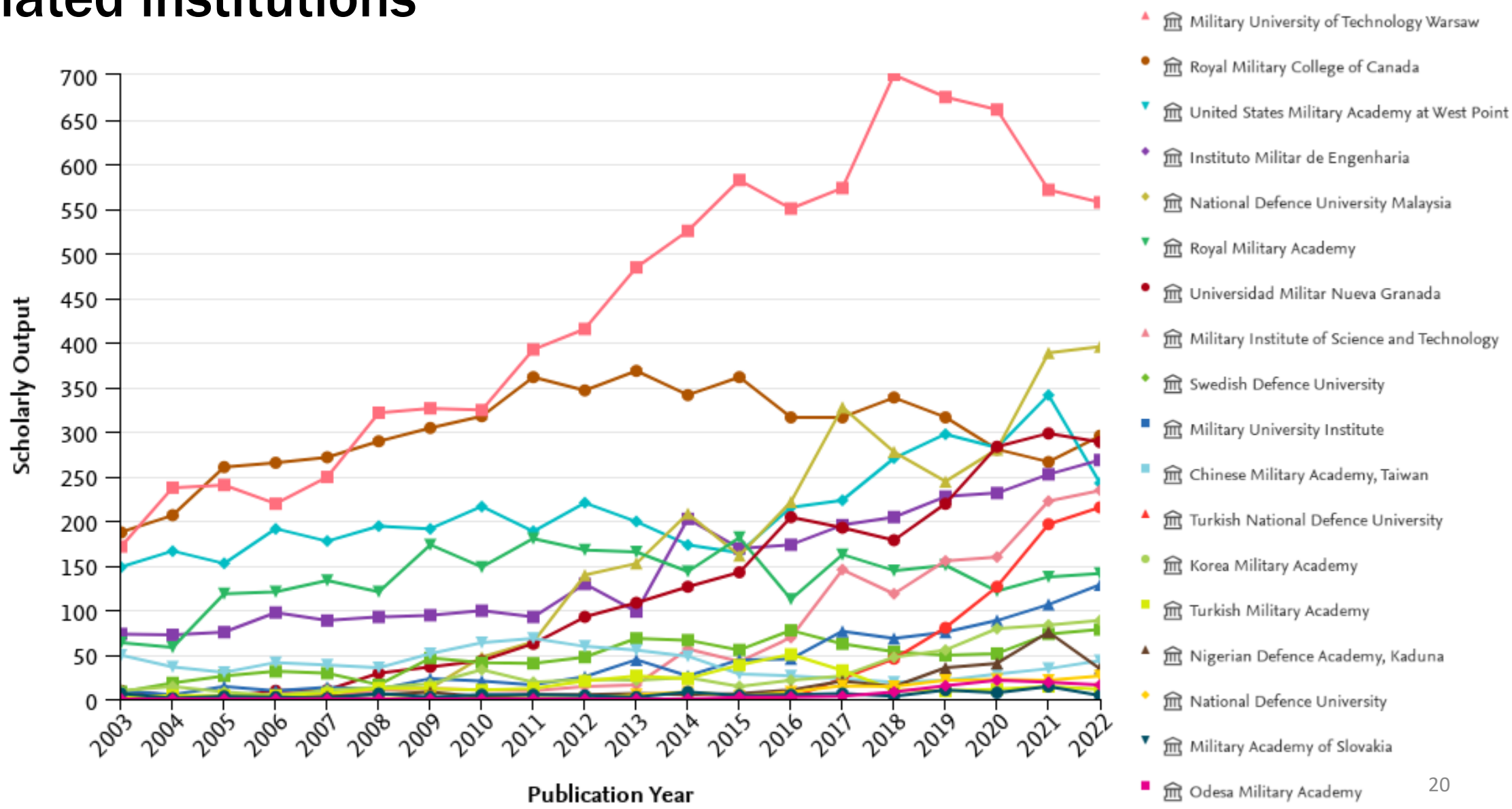
Total Publications

4,546
42,884
22,098
2,653
11,652

		Institution	Scholarly Output		Views Count	Field-Weighted Citation Impact
1.	PAK	National University of Medical Sciences	895	19.6%	3,494	0.07
2.	CHN	Chinese Academy of Sciences	648		13,434	1.17
3.	CHN	National University of Defense Technology	466	1.0%	6,582	0.68
4.	CHN	Naval Medical University	376	1.7%	4,183	0.27
5.	CHN	Beijing Institute of Technology	368		7,694	1.25
70.	MYS	National Defence University Malaysia	70	2.3%	2,424	0.73
1.	USA	Uniformed Services University of the Health Sciences	1,687	14.5%	25,971	0.99

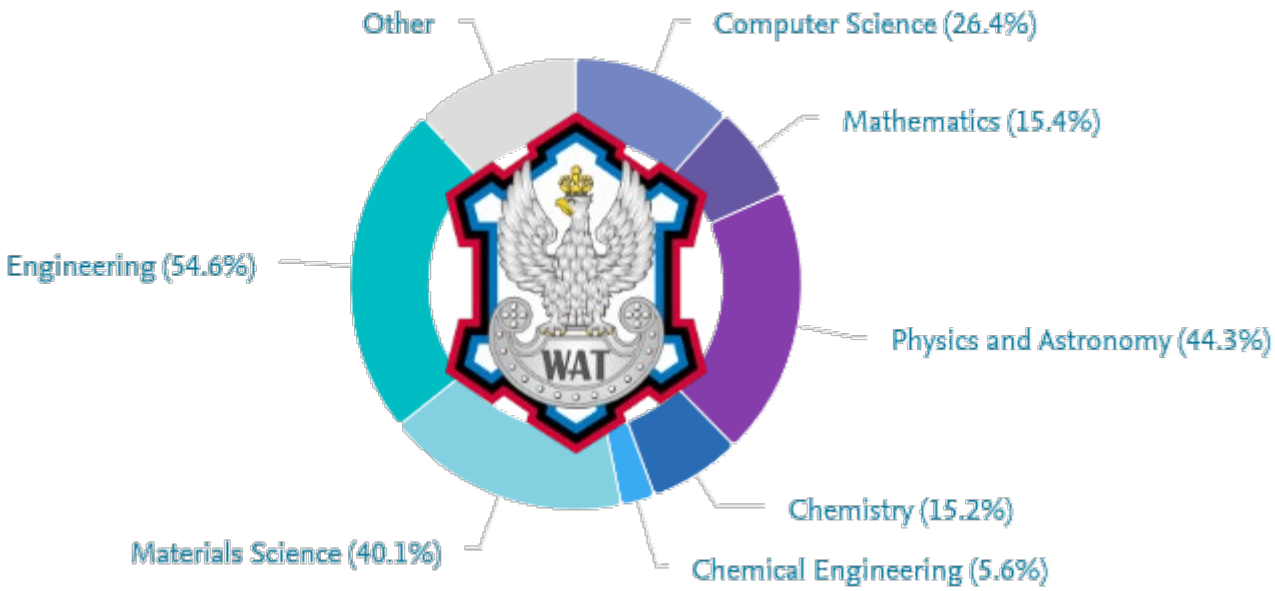
Percentage with 'military' in text

Growth comparison to other military affiliated institutions



Comparison

Southeast Asia Research Intelligence Forum 2024

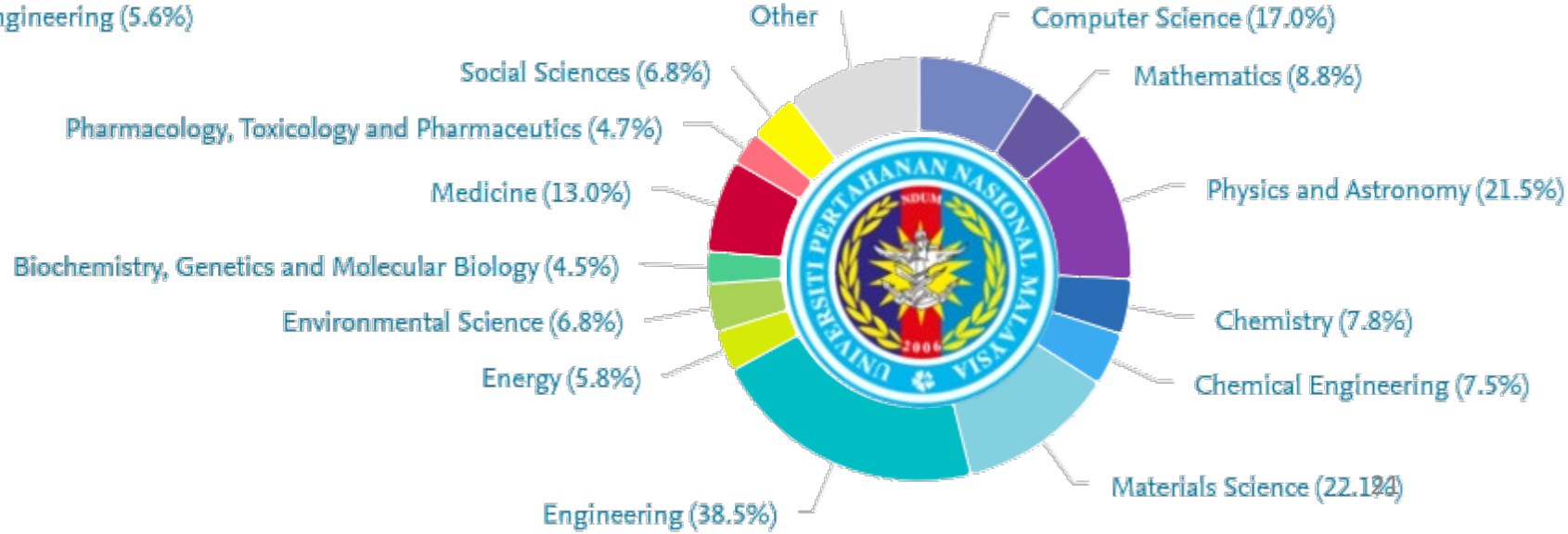


Military University of Technology Warsaw

20,000+ students with
2000+ Faculty members

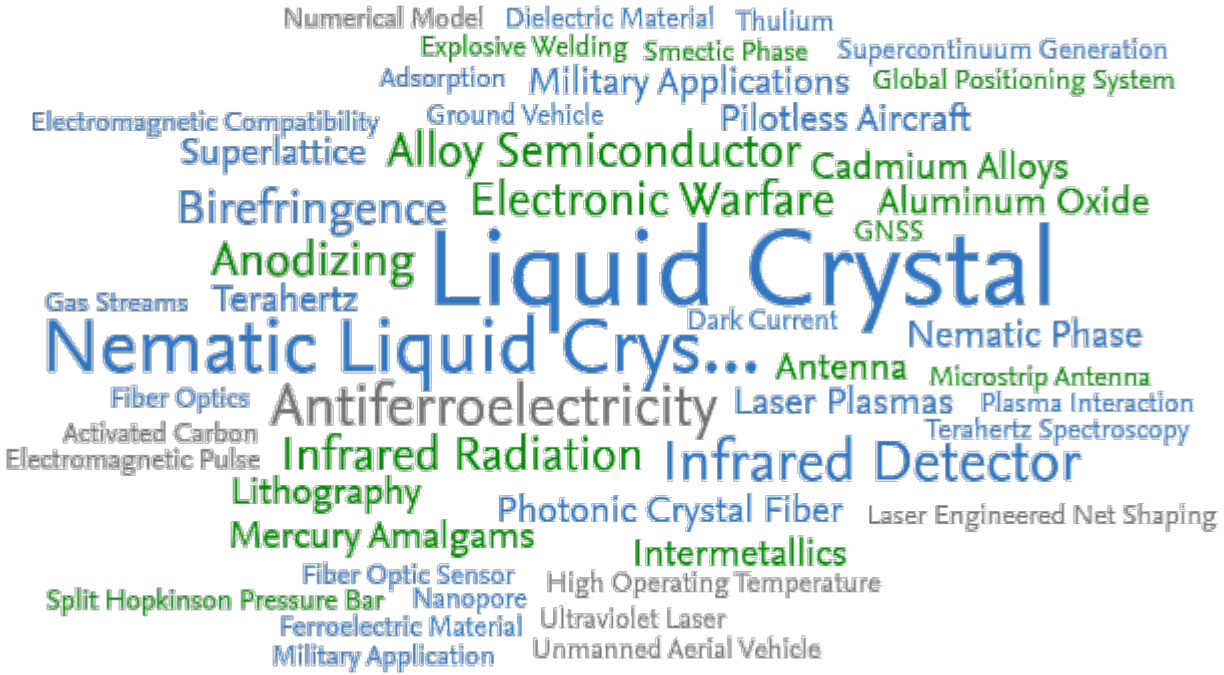
5,000+ students with
380+ Faculty members

National Defence University of Malaysia

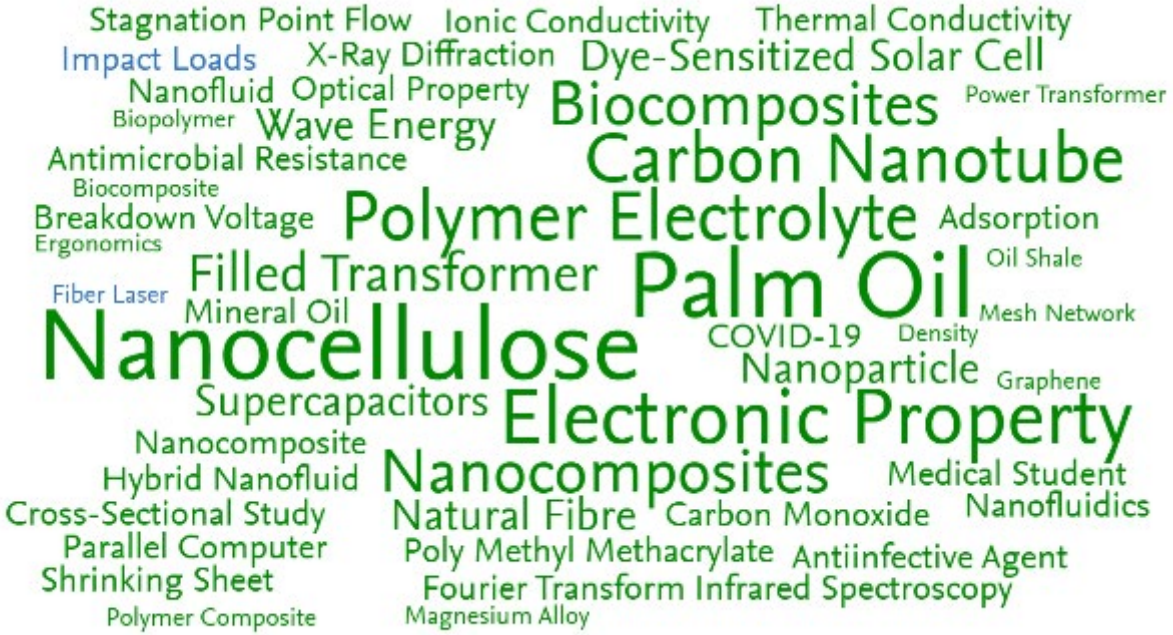


Comparison

Military University of Technology Warsaw



National Defence University Malaysia



Back-of-the-envelope lessons

Establishing the benchmark

Dual purpose research

The use of the keyword "military" in literature may **not effectively capture** all publications related to military applications.

Many education institutions and organisations involved in military research and development may not explicitly use the term "military" in their publications.

This reflects the **dual nature of research**, where advancements and discoveries can have both civilian and military applications.

Specialisation

Military-affiliated institutions often exhibit a **high degree of specialisation** in specific fields such as medical sciences, engineering, and technology.

This specialisation is driven by the **unique needs and requirements** of the military, which demand advanced knowledge and expertise in these areas.

Larger military-affiliated institutions may **operate as consortia**, comprising multiple constituent institutions, each with its own distinct focus.

Governance

Military-affiliated higher education institutions that showed **high productivity** have indications that they are governed by the ministry responsible for defence

The strong control may allocate a larger **portion of the military expenditures** to institutions rather than funding provided by the ministry responsible for education, potentially offering more research support.

Back-of-the-envelope lessons

NDUM Position in the Research Landscape

Productivity

The fact that NDUM is **not lagging behind** similarly sized institutions in terms of publication output is a significant achievement.

It demonstrates that NDUM is able to **compete effectively with its peers**, despite its relatively smaller size.

This is a testament to the quality of NDUM's faculty and the strength of its research programs.

Specialisation

At present, the research scope of NDUM encompasses a wide spectrum of disciplines, spanning from medical sciences to engineering.

However, comparable institutions of similar size tend to **adopt a more specialized approach**, which is reflected in their notable research outcomes.

In light of this, NDUM might find it advantageous to reassess its **strategic direction** for the future.

Networking

Identifying and strengthening collaborations with top-performing military-affiliated institutions globally can enhance research quality and output.

For example, the military affiliated Uniformed Services University of the Health Sciences (USU) of the U.S. federal government has **3,300 collaborating institutions** versus NDUM with 780 collaborating institutions

Future Internal Management Processes

Enhanced by SciVal

Realigning Research Groups:

Collaborative Synergies: Identify overlapping and complementary research areas among existing groups to foster interdisciplinary collaborations.
Strategic Focus Areas: Align research groups with emerging global trends and high-impact areas identified through SciVal.

Funding Allocation:

Targeted Investments: Allocate funding to research areas with high potential for impact and growth as identified by SciVal analysis.
Grant Application Support: Use SciVal data to support grant applications by highlighting research strengths and strategic alignment with funding priorities.

Talent Management and Recruitment:

Identify Key Talent: Use SciVal metrics to identify high-performing researchers within NDUM and recognize potential leaders.
Recruitment Strategy: Attract top talent by showcasing NDUM's research strengths and strategic focus areas identified through SciVal.

Performance Benchmarking and Evaluation:

Departmental Benchmarking: Compare the performance of different departments or faculties within NDUM against each other and global standards.
Individual Performance Reviews: Use SciVal metrics to inform performance reviews and career development plans for faculty members.

Future Internal Management Processes

Enhanced by SciVal

Strategic Partnerships and Collaborations:

Identify Collaboration Opportunities: Pinpoint potential domestic and international partners that align with NDUM's strategic research areas.

Collaboration Impact Analysis: Assess the impact of existing collaborations and refine partnership strategies based on SciVal insights.

Curriculum and Program Development:

Emerging Fields Integration: Incorporate emerging and high-impact research areas into the curriculum to keep academic programs aligned with global trends.

Interdisciplinary Programs: Develop interdisciplinary programs that reflect the strengths and strategic directions identified through SciVal.

Research Output and Impact Optimization:

Publication Strategy: Develop a strategic publication plan focusing on high-impact journals and collaborative publications.

Research Dissemination: Enhance the visibility and dissemination of NDUM's research through targeted communication strategies based on SciVal data.

Policy and Strategic Planning:

Evidence-Based Policy Making: Develop policies and strategies based on comprehensive data analysis and insights from SciVal.

Long-Term Strategic Planning: Use SciVal foresight tools to inform long-term strategic plans and future research directions.

Thank you!

Disclaimer, Acknowledgments, References and Further information

1. **Data Sources**:
   - The data presented in this study have been generated from SCOPUS and SciVal by Elsevier.
   - Supporting information, such as details on universities, their enrolment figures, and the number of faculty members, has been derived from publicly available sources, including but not limited to Wikipedia and the QS Universities database.
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