

JENIS-JENIS PENYELIDIKAN

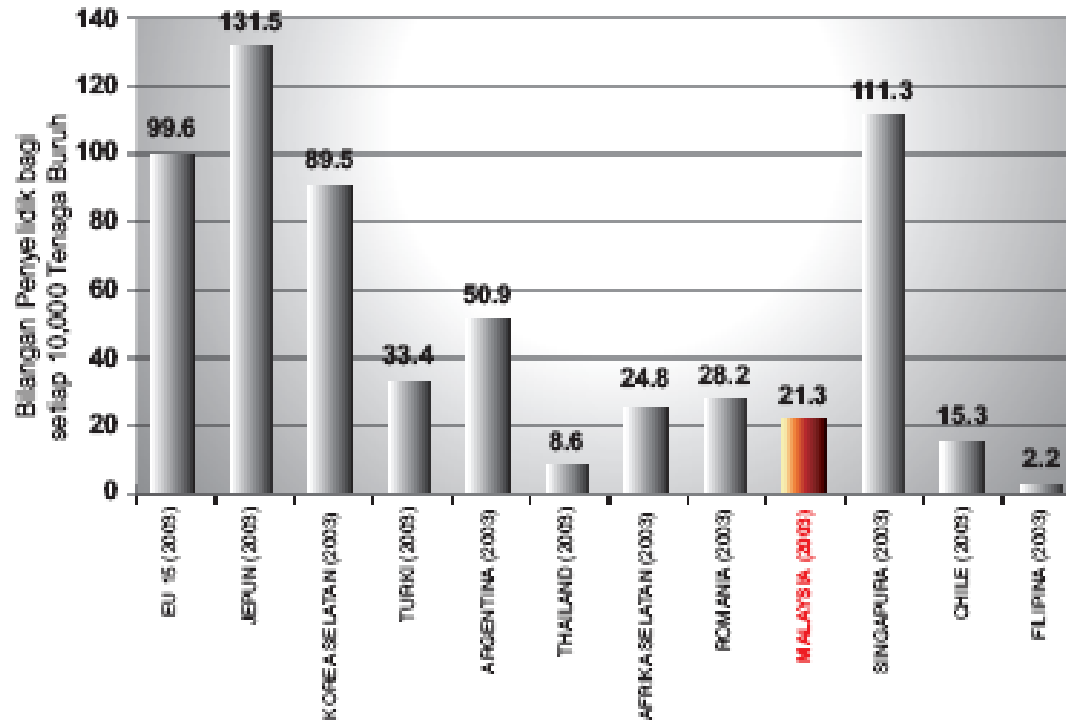
KURSUS ASAS PENYELIDIKAN & PENERBITAN
UNIVERSITI KEBANGSAAN MALAYSIA

5 April 2011

Muhammad Fauzi Mohd Zain, FKAB, UKM

Pelan Strategi PTN 2006-2020...

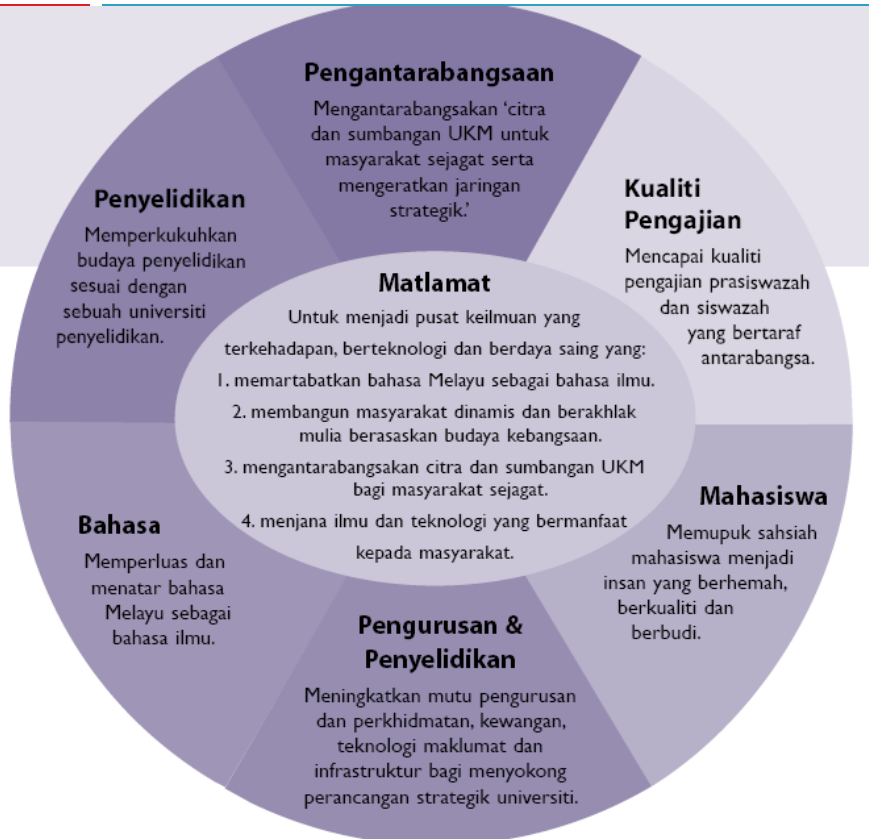
Perbandingan Antarabangsa bagi Bilangan Penyelidik bagi Setiap 10,000 Tenaga Kerja



Pelan Strategi UKM...



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Penyelidikan

Memperkukuhkan budaya penyelidikan sesuai dengan sebuah universiti penyelidikan.

Objektif

1. Mengenal pasti dan memantapkan bidang tujahan penyelidikan.
2. Memantapkan pengurusan penyelidikan.
3. Meningkatkan prasarana penyelidikan.
4. Menyebarkan hasil penyelidikan kepada masyarakat.
5. Mengkomersialkan produk penyelidikan.

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KRITERIA	PENANDA ARAS UTAMA YANG DIGUNAKAN
Research University	<ul style="list-style-type: none">➤ Governance➤ Directions➤ Culture➤ Infrastructure➤ Critical Mass of Researchers➤ Leadership➤ Environment➤ Dissemination➤ Finance

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CRITERIA	STANDARD INDICATORS BEING USED
Research	<ul style="list-style-type: none">➤ Amount of research grants received➤ No. of research products / recognitions conferred by national and international bodies➤ No. of papers refereed and cited in refereed journals➤ No. of articles, books and publications per staff➤ No. of patents attained➤ No. of products commercialized➤ No. of postdoctoral

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Ranking Bodies	Criteria		
	Criteria	Indicator	Weight
Times Higher Education Survey	Research Quality	Peer Review : Composite score drawn from peer review (which is divided into 5 subject areas)	40%
		Citations per Faculty : Score based on research performance factored against the size of the research body	20%
		International Students : Score based on proportion of international students	5%

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Ranking Bodies	Criteria		
	Criteria	Indicator	Weight
Shanghai Jiao Tong World University Ranking	Research Output	Articles published in Nature and Science	20%
		Articles in Science Citation Index-expanded, Social Science Citation Index, and Arts & Humanities Citation Index	20%
	Size of Institution	Academic performance with respect to the size of an institution	10%

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Ranking Bodies	Criteria		
	Criteria	Indicator	Weight
OIC Ranking	Research (50)	Research Quality	15
		Research Performance	15
		Research Volume	8
		Rate of growth for research quality	5
		Rate of growth for research performance	5
		Patents	2

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Ranking Bodies	Criteria	Indicator	Weight
Research University	Quantity and Quality of Researchers	Critical Mass	60% of academic staff involved as Principal Investigator
		Percentage of Academic Staff with PhD or Equivalent	60%
		Research Experience	With balanced distribution of staff with >20 yrs experience, 10-20 yrs and <10 yrs experience
		Number of recognitions/awards/ stewardship conferred by national and international learned and professional bodies	100
	Quantity and Quality of Research	Publications	2 papers in national/international refereed and cited journals per staff/yr or cumulative impact factor for the institution of not less than 5000
		Research grants for S&T academic staff: a) Public b) Private (including contract research) c) International	At RM50,000/staff/yr of which at least 20% is from international sources and 20% from private sector
		Research Expenditure	Should not be less than 60% of grants attained/yr
		Post-graduate appointments	10/yr
		Research staff appointments	10/yr
		Research staff appointments	10/yr

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Ranking Bodies	Criteria	Indicator	Weight
World Class Research University	Quantity and Quality of Researchers	Critical Mass	85% of academic staff involved as Principal Investigator
		Percentage of Academic Staff with PhD or Equivalent	95%
		Research Experience	With 60% distribution of staff with >20 yrs experience, 20% with 10-20 yrs and 20% with <10 yrs experience
		Number of recognitions/awards/ stewardship conferred by national and international learned and professional bodies	500
	Quantity and Quality of Research	Publications	5 papers in national/international refereed and cited journals per staff/yr or cumulative impact factor for the institution of not less than 5000
		Research grants for S&T academic staff: a) Public b) Private (including contract research) c) International	At RM1,000,000/staff/yr of which at least 40% is from international sources and 40% from private sector
		Research Expenditure	Should not be less than 70% of grants attained/yr
		Post-docs appointed	1 post-doc per academic staff

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Annex 3 Key Characteristics of World Class Universities

A world class university:

- has an international reputation for its research
- has an international reputation for its teaching
- has a number of research stars and world leaders in their fields
- is recognised not only by other world class universities, e.g., US Ivy League, but also outside the world of higher education
- has a number of world class departments (i.e., not necessarily all)
- identifies and builds on its research strengths and has a distinctive reputation and focus, i.e. its 'lead' subjects
- generates innovative ideas and produces basic and applied research in abundance
- produces path breaking research output recognised by peers and prizes, e.g., Nobel Prize Winners
- attracts the most able students and produces the best graduates
- can attract and retain the best staff
- can recruit staff and students from an international market
- attracts a high proportion of postgraduate students, both taught and research
- attracts a high proportion of students from overseas

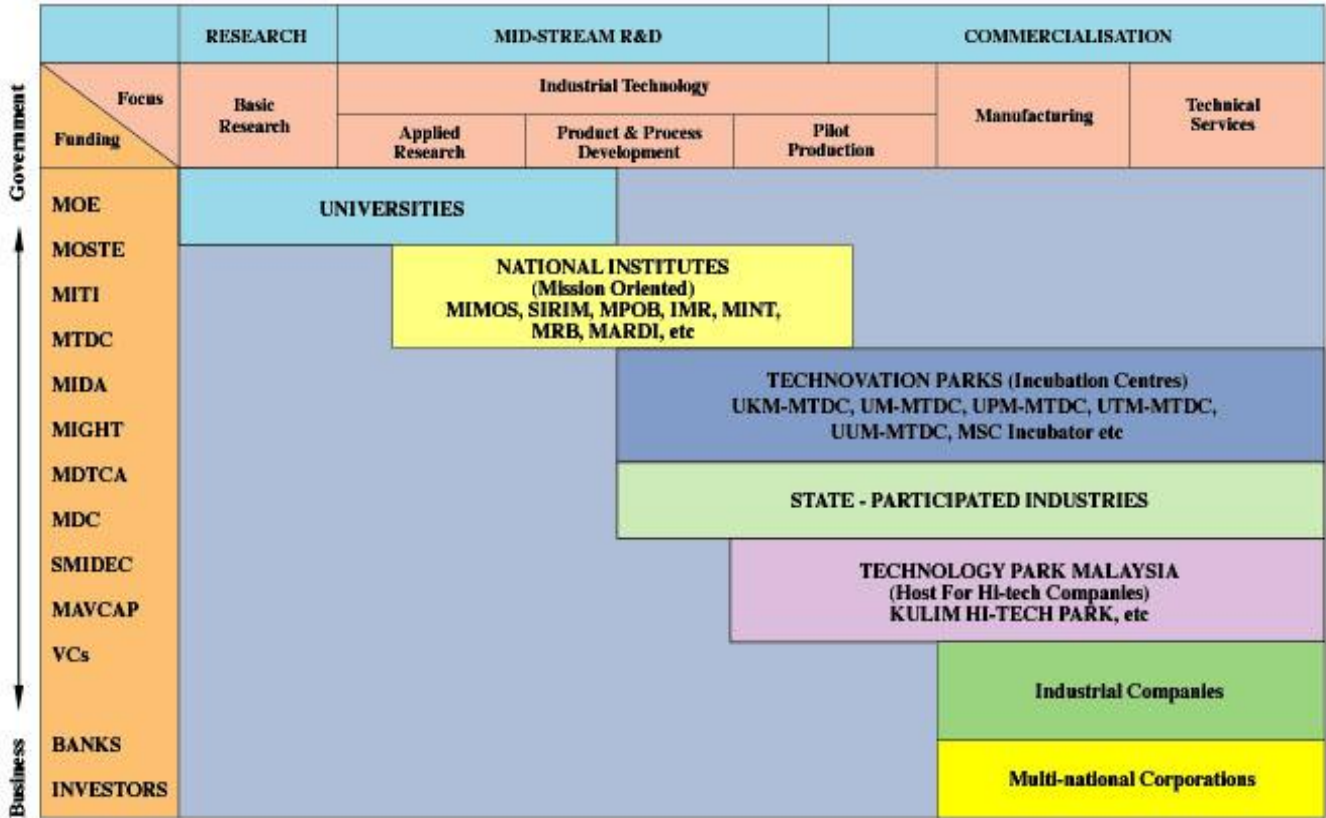
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- attracts a high proportion of students from overseas
- operates within a global market and is international in many activities, e.g., research links, student and staff exchanges, throughput of visitors of international standing
- has a very sound financial base
- receives large endowment capital and income
- has diversified sources of income, e.g., government, private companies sector, research income, overseas student fees
- provides a high quality and supportive research and educational environment for both its staff and students, e.g., high quality buildings and facilities/high quality campus
- has a first class management team with strategic vision and implementation plans
- produces graduates who end up in positions of influence and/or power, i.e., movers and shakers, e.g., Prime Ministers and Presidents
- often has a long history of superior achievement, e.g., Oxford and Cambridge in the UK and Harvard in the
- USA
- makes a big contribution to society and our times
- continually benchmarks with top universities and departments worldwide
- has the confidence to set its own agenda

Source: Alden and Lin (2004)

NATIONAL INNOVATION SYSTEM



(Mohd Zarar,2008)

MALAYSIA GLOBAL COMPETITIVENESS

ROLE OF RESEARCH UNIVERSITY & DRIVING TOWARDS WRU
STATUS



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Publications
Global Performance
& visibility

Intellectual
Property
Patents etc

Human Capital RSE

29.1 per 10,000
workforce 2010

50 per 10,000
workforce in 2020

(Rahmah, 2011)

Global Competitiveness

Patents granted per 100,000 residents Year 2007

Korea
190.93

Japan
113.14

Taiwan
79.82

USA
26.42

China
24.1

Netherlands
10.95

Singapore
10.66

United Kingdom
3.44

Malaysia
0.66

Require Innovative Human Capital

Apa itu Penyelidikan



1. Satu perjalanan, satu sikap, satu pengalaman, **satu kaedah berfikir secara kritikal** untuk mendapatkan fakta-fakta utama (*A voyage of discovery*).
2. Satu seni penyiasatan saintifik
Percarian **sistematik dan saintifik** untuk menghubungkan informasi kepada tajuk tertentu
Proses menyampaikan penyelesaian yang boleh dipercayai kepada masalah melalui **perancangan dan pengumpulan sistematik, analisa dan interpretasi data**

Apa itu Penyelidikan



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3. Usaha yang sistematis untuk mendapat **ilmu baru**,
Satu pergerakan dari tahu kepada tidak tahu
Pencarian **ilmu/fakta baru** melalui objektif, sistematis
dan kaedah saintifik untuk penyelesaian masalah
Soalan implicit + jawapan explicit + data untuk
menjawab soalan
4. Satu aktiviti yang disebabkan kecenderungan untuk
tahu/menyelidik untuk mendapat jawapan/keperluan
ilmu

Apa itu Bukan Penyelidikan



1. **Penyelidikan bukan sahaja pengumpulan data** – seseorang yang mengumpul informasi ke atas satu-satu perkara tertentu bukan penyelidikan
2. **Penyelidikan bukan menyusun semula fakta** – seseorang yang menulis laporan ke atas perkara yang diketahui bukan penyelidikan
3. **Penyelidikan bukan menjalankan perniagaan** – satu produk yang diperbaharui setelah sekian lama dibuat penambahbaikan bukan penyelidikan.

Klasifikasi Penyelidikan

1. Abstract & Basic Research

Teori dan risiko tinggi dengan tinggi potensi untuk dikembangkan. Tiada pulangan segera tapi mungkin ada impak kejuruteraan dan ekonomi yang besar

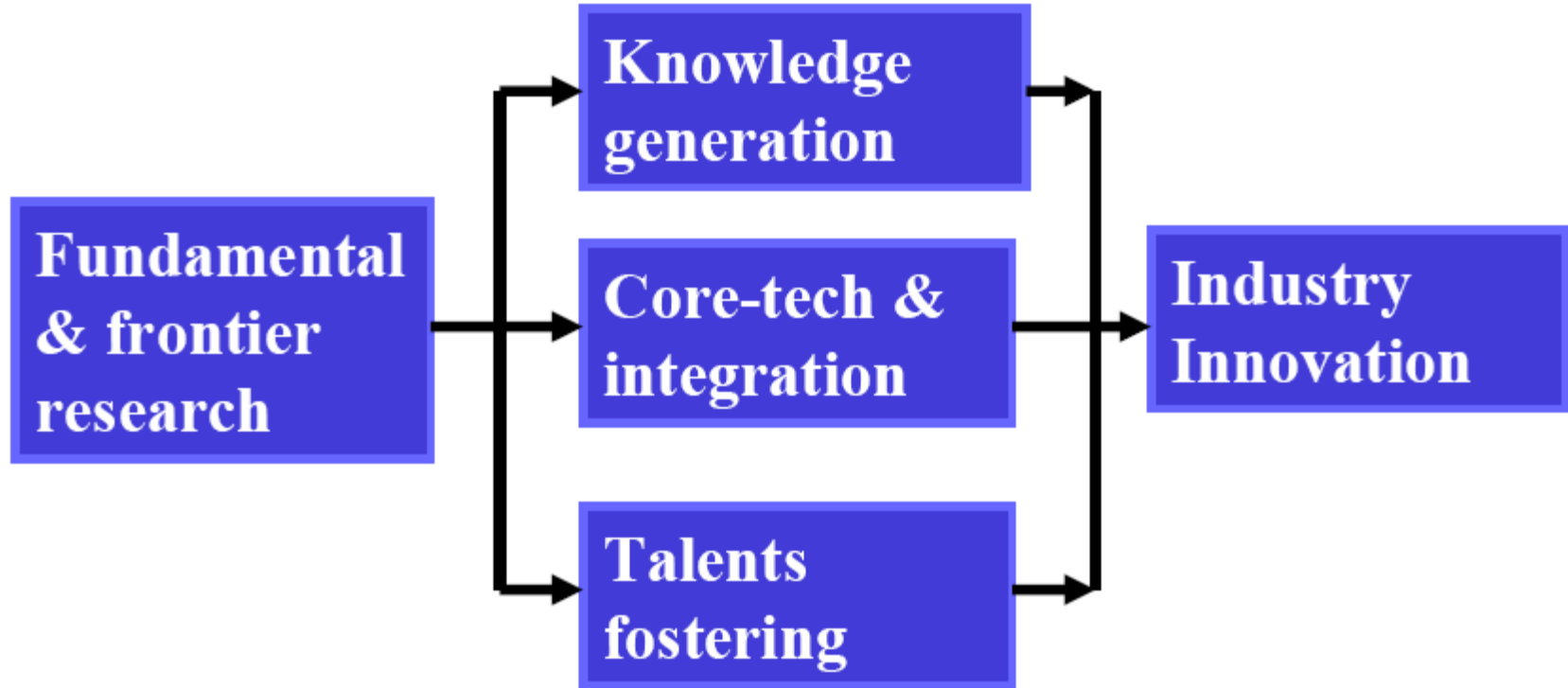
2. Applied Research

Kaitan terus dengan masalah industri sedia ada; pemindahan teknologi, dimotivasi oleh industri dan masyarakat

3. Development

Penambahbaikan ke atas sistem sedia ada

Klasifikasi Penelitian



Kategori Penyelidikan

Model Lemah

1. Self inventing research

Masalah tiada tapi penyelesaian ada maka tidak perlu

2. Reinvention

Pengulangan kerja sedia ada

3. Disconnected from local needs

Penyelidikan yang tiada kaitan dengan persekitaran tempatan

Kategori Penyelidikan

Model Gagah

1. **Mission research**

Penyelidikan pemusatan dan teknologi masa depan untuk kepentingan negara

2. **Industry motivated**

Penyelidikan yang menyelesaikan masalah sedia ada

3. **Technologically transferable**

Perlu ada pelanggan untuk hasil

Mengapa Menyelidik...



1. Untuk mendapatkan **ijazah**
2. Untuk mendapatkan **pengiktirafan**
3. Untuk menghadapi **cabaran**
4. Untuk menyelesaikan **masalah**
5. Untuk mendapatkan **keseronokan intelektual**
6. Untuk berkhidmat kepada **masyarakat**

dengan meningkatkan taraf hidup bagi kategori S&T dan dengan menunjukkan jalan yang betul kepada masyarakat bagi kategori Sosial & Sains Kemasyarakatan

Adakah sebab berikut...



" In 1978, I entered Tohoku University, into the Department of Electrical Engineering, Faculty of Technology. "

" I suppose the reason I chose electrical engineering was because I had always been interested in electricity, **involving myself in such projects** as building radios from the time I was a child. "

" In such an environment, I was able to study things that could be of immediate usefulness to the world. That learning experience undoubtedly served me well when I eventually entered the work force. "

Adakah sebab berikut...



1. 1983 – Grad - engineering
 2. 1983 – Shimidzu Corp
 3. 1985 – patent – soft laser desorption (SLD)
-
1. **Tiada ijazah sarjana atau Ph.D**
 2. Banyak menulis dalam jurnal antarabangsa
-
1. Kurang dikenali di Jepun tapi terkenal di luar negara
 2. **2002 – Nobel Prize in Chemistry – 43 tahun (2nd termuda di Jepun)**

Tentunya bukan ini...



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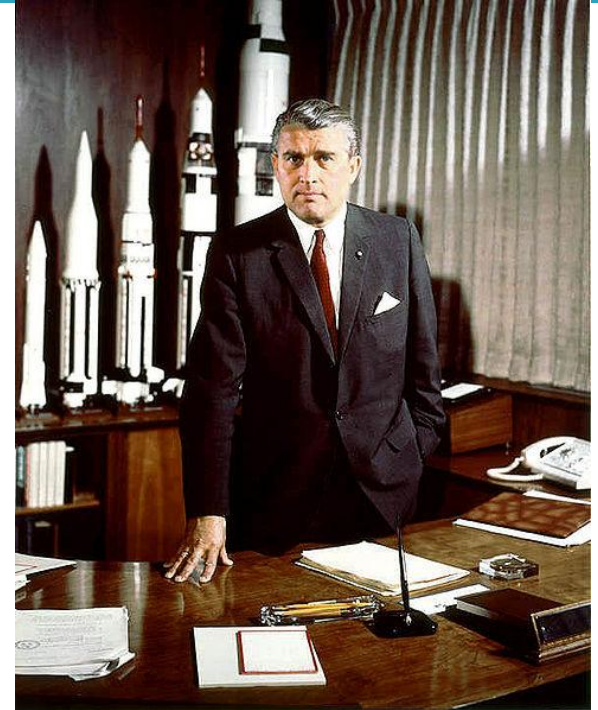
Dan bukan kerana ini...

Famous Quote

- Research is what I'm doing when I don't know what I'm doing

Biodata

- March 23, 1912 – June 16, 1977
- German Rocket Physicist & Astronautics Engineer
- Director – NASA's Marshall Space Flight Center
- Chief Architect – Saturn V & Apollo
- Father of US Space Program



Wernher Von Braun

MEMPERKASA PENYELIDIKAN KE ARAH PENGKOMERSILAN



2 – 3 Tahun

2 – 6 Tahun

Permulaan

Lanjutan

Jangka panjang

Pra – Pengkomersilan

Output

- **FRGS**
(Fundamental Research Grant Scheme)

- **ERGS**
(Experimental Research Grant Scheme)

- **LRGS**
(Long Term Research Grant Scheme)

- **PRGS**
(Pre-Commercialization Research Grant Scheme)

Return On Investment (ROI)

- **MOSTI**
(Science fund)

- **MOSTI**
(Techno fund)
- **MOF / Cradle**
(CIP Catalyst)
- **MTDC**
(TAF, CRDF)

- **54 Produk** dikomersilkan
- **RM 44.3 Juta**

Jenis Penyelidikan & Geran



□ **FRGS - Kementerian Pengajian Tinggi (MOHE/KPT)**

- No upper limit on grants
- Fundamental research
- Max. 3 years
- Research clusters:
 - Basic & Applied Sciences
 - Technology & Engineering
 - Medical Sciences
 - Arts (Fundamental & Professional)
 - Social Science & Humanities

Jenis Penyelidikan & Geran



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Science Fund – Kementerian Sains, Teknologi dan Inovasi (MOSTI)

- Strategic basic research
- Applied research
- Research clusters
 - Biotechnology Cluster, ICT Cluster, Industrial Cluster (Advanced Materials, Advanced Manufacturing, Nanotechnology, Alternative Energy, Waste to Wealth), Sea to Space Cluster

Jenis Penyelidikan & Geran



Techno Fund – Kementerian Sains, Teknologi dan Inovasi (MOSTI)

- A competitive funding to develop and commercialize new, cutting edge and breakthrough technologies in Agriculture, Biotechnology, ICT, and Industry Clusters that create new businesses and economic wealth

- Pre Commercialisation and IP Acquisition

Jenis Penyelidikan & Geran



Inno Fund – Kementerian Sains, Teknologi dan Inovasi (MOSTI)

- **Individual, Micro and Small Enterprises**

Development of new or improvement of existing products, process or services with elements of innovation

- **Community Groups**

Conversion of knowledge/idea into products/ process / services that improve the quality of life of communities

Jenis Penyelidikan & Geran



Geran Lain – Dalam dan Luar Negara

- **Industry Research and Development Grant Scheme (IGS)**
 - Aims to enhance R&D in the private sector and promote closer co-operation between the private sector and the public institutions and agencies through collaborative linkages.
 - Encourages Malaysian companies to be more innovative in using and adopting existing technologies in creating new technologies, products and processes which will benefit the national economy.
- **Multimedia Super Corridor Research and Development Grant Scheme (MGS)**
 - The MGS helps innovative local companies (including those of joint-venture type) in developing relevant multimedia technologies and applications that will contribute to the overall development of MSC.

Jenis Penyelidikan & Geran



Geran Lain – Dalam dan Luar Negara

- **Demonstrator Applications Grant Scheme (DAGS)**
 - Encourages Malaysians to adapt and customize existing IT and multimedia technologies in applications compatible with local culture and to promote the development of local software and content industries for enhanced competitiveness in the global market.
- **Human Resource Development Scheme (HRDS)**
 - Primarily for human resource development especially in the areas of R&D and higher education.
 - Was set up to create a pool of skilled and trained S&T manpower among the professionals as well as support staff of government departments, public research institutions and universities.

Jenis Penyelidikan & Geran



Geran Lain – Dalam dan Luar Negara

- **Commercialisation of Research & Development Fund (CRDF)**
 - Providing matching grants for commercialisation of research outputs.
 - To enhance the competitive edge of industries
 - Managed by MTDC
- **Industrial Technical Assistance Fund (ITAF)**
 - Providing financial assistance to Small and Medium-Scale Industries (SMI) in the form of matching grants for consultancy studies, product development and design, quality and productivity improvement and market development.
 - Managed by SMIDEC

Penyelidikan Taraf Dunia



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Ciri-Ciri Penyelidikan Bertaraf Dunia:

1. Penerbitan dalam **jurnal** yang terkemuka dalam bidangnya.
2. Penyelidik dan penyelidikan menjadi **sumber rujukan** yang disegani di dalam dan luar negara berdasarkan keperibadian dan wahana penyelidikan yang beretika.
3. Menggerakkan satu **rumpunan pemikiran** yang berterusan dan berkeupayaan menonjolkan suatu bidang ilmu atau mazhab pemikiran. Rumpunan pemikiran itu boleh dikesan melalui jaringan penyelidik, pelajar siswazah dan pelajar asing yang dibentuk oleh penyelidik dan dana penyelidikan yang diperolehinya.
4. Karya dijadikan **rujukan utama** di dalam dan luar negara.

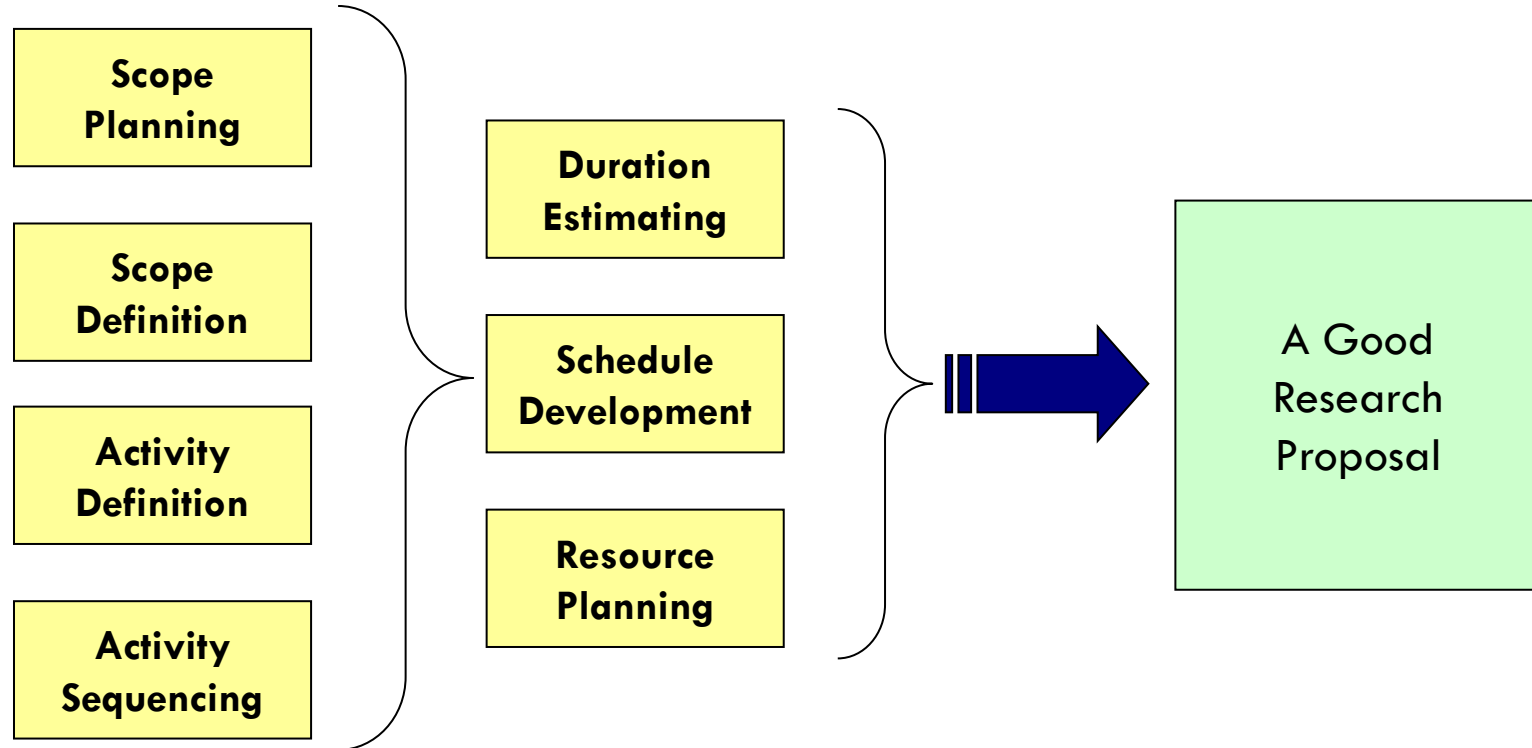
Penyelidikan Taraf Dunia



Ciri-Ciri Penyelidikan Bertaraf Dunia:

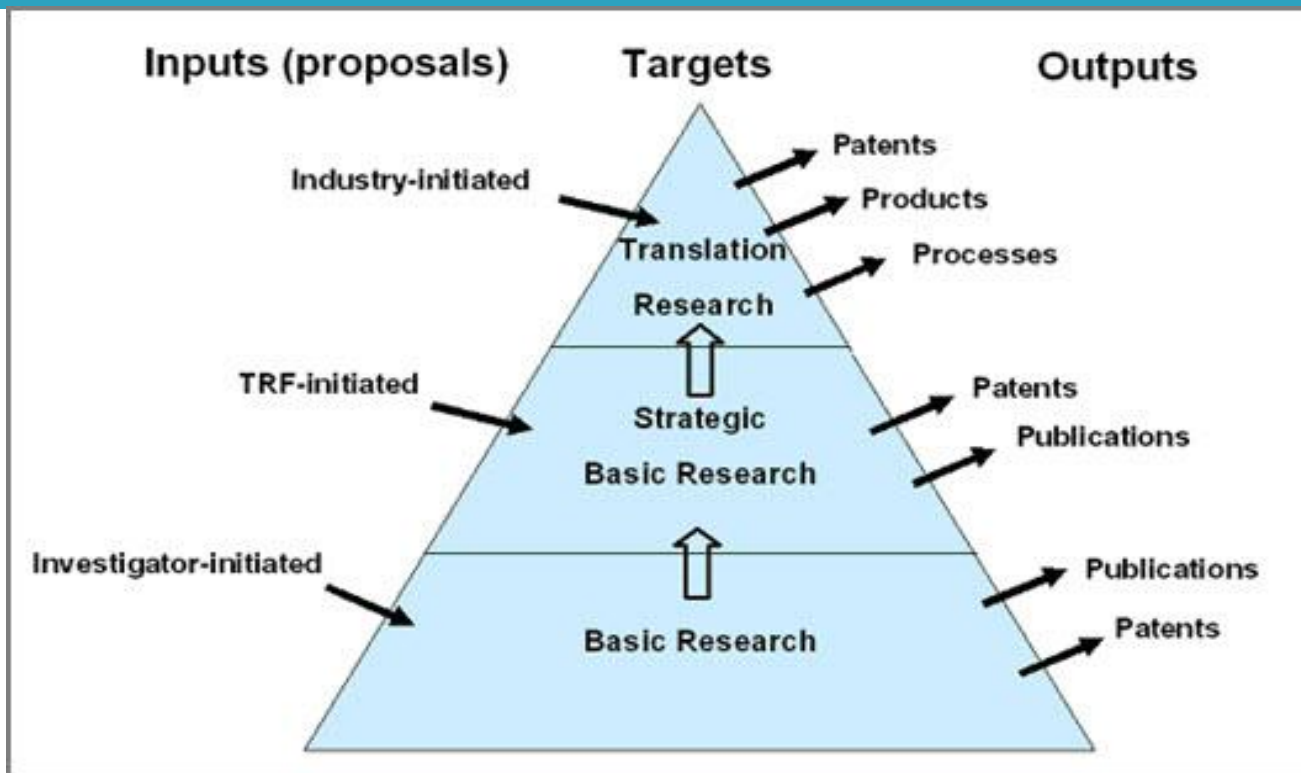
5. **Kesarjanaan** penyelidik **diakui** di peringkat kebangsaan / antarabangsa melalui, di antara lain perlantikan sebagai penilai akademik, pemeriksa luar, pengulas buku dan pakar rujuk.
6. Kemampuan penyelidik **menjana dana tinggi** dan penajaan diperolehi daripada sumber luar universiti, dalam dan luar negara.
7. **Kemudahan prasarana** yang disediakan diiktiraf dan sesuai dengan piawai antarabangsa.
8. **Hasil penyelidikan dimanfaatkan** dalam perekaan produk dan perkhidmatan baru di dalam dan luar negara.

Cadangan Penyelidikan...





Strategi Penyelidikan...





Strategi Penyelidikan...



Penyelidikan yang baik...



1. **SISTEMATIK** – Hindarkan penggunaan meramal dan gerakhati, tetapi perlu kepada pemikiran kreatif
2. **KAWALAN** – setakat yang boleh, kenalpasti dan kawal perubahan
3. **MUNASABAH** – alasan yang munasabah mesti berpandukan peraturan dan proses induksi dan deduksi
4. **EMPIRIKAL** – Sediakan asas untuk kesahan luaran kepada keputusan (pengesahan)

Penyelidikan yang baik...



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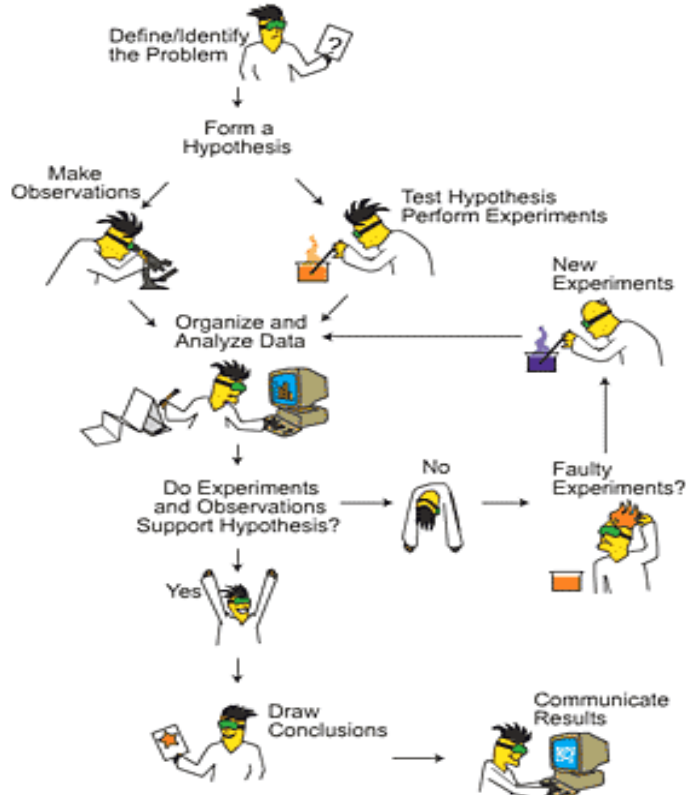
5. **KEBOLEHULANGAN** – ditentukan dengan pengulangan kajian
6. **PENAMBAHAN-BAIKAN** – Sediakan meknisma dan buka kepada penelitian oleh rakan-rakan profesional

Etika Penyelidikan...



1. Penjanaan keputusan/data penyelidikan. Keputusan hendaklah apa yang diperolehi daripada penyelidikan. **Manipulasi/doctoring** adalah mengelirukan dan tidak beretika.
2. **Merujuk** kerja-kerja oleh penyelidik lain dalam tulisan anda. Memplagiat atau tidak memberikan penghargaan kepada penyelidik lain.
3. Memberikan **penghargaan** kepada mereka yang telah memberikan apa-apa bantuan.

Salah Laku Penyelidikan...



"Salah laku penyelidikan (Research misconduct) didefinisi sebagai fabrikasi, pemalsuan atau plagiat dalam mencadangkan, melakukan atau dalam menyorot penyelidikan atau dalam melaporkan keputusan penyelidikan"

Basic Questions

Eight Basic Questions Reviewers Ask&

- How high are the **intellectual quality** and merit of the study?
- What is its potential **impact**?
- How **novel** is the proposal? If not novel, to what extent does potential impact overcome this lack? Is the research likely to produce **new data and concepts** or confirm existing hypotheses?
- Is the **hypothesis valid** and have you presented evidence supporting it?
- Are the **aims logical**?
- Are the procedures appropriate, adequate, and feasible for the research?
- Are the **investigators qualified**? Have they shown competence, credentials, and experience?
- Are the **facilities adequate** and the environment conducive to the research?

Common Problems



Problems and Concerns Commonly Cited by Reviewers

The most common reasons cited by reviewers for an application's lack of success:

1. Lack of significance to the scientific issue being addressed.
2. Lack of original or new ideas.
3. Proposal of an unrealistically large amount of work (i.e., an over ambitious research plan).
4. Scientific rationale not valid.
5. Project too diffuse or superficial or lacks focus.
6. Proposed project a fishing expedition lacking solid scientific basis (i.e., no basic scientific question being addressed).

Common Problems



Problems and Concerns Commonly Cited by Reviewers

The most common reasons cited by reviewers for an application's lack of success:

7. Studies based on a shaky hypothesis or on shaky data, or alternative hypotheses not considered.
8. Proposed experiments simply descriptive and do not test a specific hypothesis.
9. The proposal is technology driven rather than hypothesis driven (i.e., a method in search of a problem).
10. Rationale for experiments not provided (why important, or how relevant to the hypothesis).
11. Direction or sense of priority not clearly defined, i.e., the experiments do not follow from one another, and lack a clear starting or finishing point.

Common Problems



Problems and Concerns Commonly Cited by Reviewers

The most common reasons cited by reviewers for an application's lack of success:

12. Lack of alternative methodological approaches in case the primary approach does not work out.
13. Insufficient methodological detail to convince reviewers the investigator knows what he or she is doing (no recognition of potential problems and pitfalls).
14. Most experiments depend on success of an initial proposed experiment (so all remaining experiments may be worthless if the first is not successful).
15. The proposed model system is not appropriate to address the proposed questions (i.e., proposing to study T-cell gene expression in a B-cell line).
16. The proposed experiments do not include all relevant controls.
17. Proposal innovative but lacking enough preliminary data.

Common Problems



Problems and Concerns Commonly Cited by Reviewers

The most common reasons cited by reviewers for an application's lack of success:

18. Preliminary data do not support the feasibility of the project or the hypothesis.
19. Investigator does not have experience (i.e., publications or appropriate preliminary data) with the proposed techniques or has not recruited a collaborator who does.
20. The proposal lacks critical literature references causing reviewers to think that the applicant either does not know the literature or has purposely neglected critical published material.
21. Not clear which data were obtained by the investigator and which others have reported.

**SENARAI SEMAK SETIAP PERMOHONAN SKIM GERAN
PENYELIDIKAN FUNDAMENTAL (FRGS) PERLU
MEMENUHI KRITERIA SEPERTI BERIKUT:-**

	YA	TIDAK
1. Penyelidikan Asas yang dipohon merupakan projek yang dapat menghasilkan sesuatu idea/konsep/ teori/ dasar baharu.		
2. Hasil penyelidikan yang berpotensi untuk membawa kearah penyelidikan lanjutan, teknologi atau proses Baharu. Atau;		
3. Penyelidikan yang akan dapat menambahbaik sesuatu metodologi, teori dan konsep sedia ada; Atau;		
4. Penyelidikan yang dapat menghasilkan fakta, maklumat dan pengetahuan baharu.		

Ulasan Panel KPT...

CONTOH-CONTOH ULASAN /KOMEN PERMOHONAN FRGS

1. Tiada saintifik merit
2. Lemah dalam penulisan kertas cadangan terutama dalam metodologi
3. Kebanyakan permohonan FRGS yang diterima dari IPTA tiada sebarang ulasan atau komen walaupun disokong oleh pihak universiti;
4. Perlu diadakan bengkel atau pembentangan di peringkat IPTA untuk memperbaiki mutu cadangan projek;
5. Komunikasi di antara Kementerian dengan pihak IPTA tidak jelas di mana terdapat beberapa kekeliruan yang melibatkan siling peruntukan, keperluan biodata penyelidik, tempoh penyelidikan dan pembelian peralatan;

Ulasan Panel KPT...



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6. IPTA perlu memberi bimbingan kepada penyelidik dalam mengemukakan cadangan projek kerana kebanyakan cadangan projek yang dikemukakan kurang dari segi merit saintifik;
7. Perlu ada penyelarasan di peringkat IPTA bagi mengelakkan cadangan projek yang mempunyai skop penyelidikan yang sama daripada berulang. Oleh itu, pengurusan penyelidikan di IPTA perlu membuat penyelarasan sebelum dikemukakan ke Kementerian;
8. Kurang kerjasama di antara penyelidik dari IPTA yang berbeza;
9. Definasi penyelidikan fundamental yang diberikan kurang jelas;

Ulasan Panel KPT...



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10. Cadangan agar siling peruntukan dan had tahun penyelidikan dinyatakan di dalam Garis Panduan agar penyelidik dapat menyediakan bajet yang berpatutan dengan tempoh penyelidikan;
11. CV ringkas perlu diwajibkan kepada setiap pemohon bagi memudahkan Jawatankuasa Penilaian menilai kredibiliti dan kemampuan pemohon;
12. Kepakaran dan peranan setiap penyelidik bersama perlu ada penjelasan untuk mengelak isu “penumpang” dan terlalu banyak penyelidik bersama;
13. Tanda tangan semua penyelidik bersama untuk memastikan tanggungjawab dan iltizam.

Ulasan Panel KPT...

14. Peranan Pusat Pengurusan Penyelidikan perlu diperkemaskan bagi memastikan kesilapan teknikal semasa memohon dapat dielakkan;
15. Keanggotaan di dalam setiap projek penyelidikan perlu seimbang dan berpatutan dengan penyelidikan yang akan dijalankan;
16. Klausula 3.1 dalam Garis Panduan FRGS untuk Bidang Sains Perubatan harus diubah seperti berikut: Penyelidikan fundamental dalam bidang Sains Perubatan termasuk kajian Klinikal perlu menjawab soalan "mengapa" dan "bagaimana".
17. Satu skim geran baru yang dinamakan "Penyelidikan Penerokaan" (Exploratory Research Grant Scheme - ERGS) perlu diwujudkan.

Ulasan Panel KPT...



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18. Mewujudkan satu skim geran baru yang dinamakan "Long-term Research Grant Scheme – LRGS. Skim geran ini memberi tumpuan utama niche IPTA serta projek-projek strategik negara .
19. Penyelidikan yang melibatkan pemantauan atau "survey" tidak akan dipertimbangkan.
20. Permohonan di peringkat pembangunan produk "*product development stage*" tidak akan dipertimbangkan.

Ulasan Panel KPT...



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21. Borang permohonan yang tidak diisi dengan betul / tepat di mana terdapat kekeliruan dari segi objektif, metodologi dan output.
22. Borang permohonan tidak disahkan atau tidak dicop oleh IPTA atau mereka yang mempunyai kuasa untuk menyaringnya.

Good Practice...



Activities	Ethical questions
Writing Research Proposal	<ol style="list-style-type: none">1. Is it an original topic?2. Do you need research partner?3. What type of research is it?
Submission of Research Proposal	<ol style="list-style-type: none">1. Do you send it thru' the right channel?2. Does it conform to the rules and regulations?
Conducting Research and Data Collection	<ol style="list-style-type: none">1. Do you keep a good record of your research activities?2. Do you validate and verify your data?
Writing Report and Publications	<ol style="list-style-type: none">1. Do you write the report yourself?2. Have you acknowledged contributions from others?
Registration of Intellectual Properties	<ol style="list-style-type: none">1. Do you protect your IP?2. Do you reveal everything?
Closing Research Project	<ol style="list-style-type: none">1. Have you submitted your final report?2. Do you report all your findings?

Kuizzzzzzzzzz...



Item	X (orang)	Y (orang)
Perubatan	38	0
Fizik	36	0
Kimia	23	0
Ekonomi	22	1
Literatur	12	0
Keamanan Dunia	9	2

Pemenang Nobel Prize



Item	Yahudi	Muslim
Perubatan	38	0
Fizik	36	0
Kimia	23	0
Ekonomi	22	1
Literatur	12	0
Keamanan Dunia	9	2

Penyelidikan & Penerbitan...

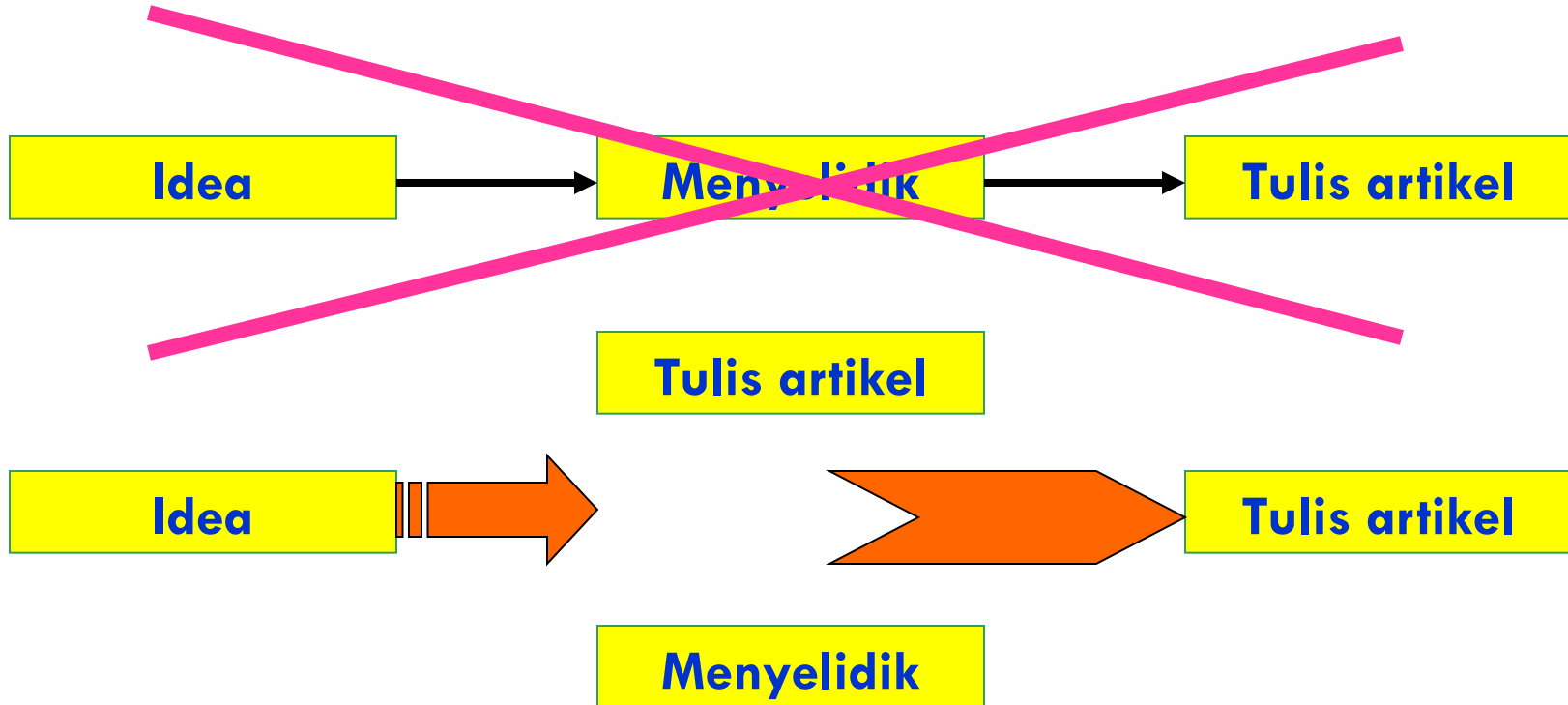


1. “Research is complete only when the results are shared with the scientific community” (first sentence of Chapter 1, *Publication Manual of the American Psychological Association*)
2. “Scientific journals are the repository of the accumulated knowledge in a field”. Sekiranya tidak dikeluarkan, tiada yang tahu.
3. Report dalaman, tesis, buku yang ditulis dan diterbitkan sendiri, etc. yang tidak diwasit (peer reviewed), serta penerbitan yang terhad mempunyai **impak yang kecil**.

Penyelidikan & Penerbitan...



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Penyelidikan & Penerbitan...



	October	November	December	January	February	March	April	May	June	July	August	September	
YEAR 1	Focus on the topic and form Hypotheses									Plan data collection			
	Literature Review			Pilot		Experiment 1		PAPER 1					
YEAR 2	Main phase of data collection									Review argument			
	Experiment 2			Experiment 3			Experiment 4		PAPER 2				
YEAR 3	Make refinements									Present the argument			Thesis
	Experiment 5			Experiment 6			Writing up				PAPER 3		

Terbit di mana...

1. Prosiding persidangan (yang diwasit). Tidak semua ada *citation index*.
2. Persidangan tajuk khas (baik untuk networking)
3. Jurnal-jurnal (tinggi penilaian)
4. Bagaimana memilih jurnal yang sesuai dengan kerja sendiri?
 1. **Journal ranking** (*impact factor**) - UKM
 2. Jurnal dalam kumpulan-kumpulan tertentu/teras

Struktur Artikel...

- 1. Tajuk (1000 pembaca)**
- 2. Abstrak (4 ayat, 100 pembaca)**
- 3. Pendahuluan (1 muka surat, 100 pembaca)**
- 4. Masalah (1 muka surat, 10 pembaca)**
- 5. Idea penulis (2 muka surat, 10 pembaca)**
- 6. Perincian (5 muka surat, 3 pembaca)**
- 7. Kerja yang berkaitan (1 ~ 2 muka surat, 10 pembaca)**
- 8. Kesimpulan & kerja lanjutan (0.5 muka surat)**

20 Langkah Menulis Artikel...

1. **Tentukan penulis/penulis bersama**
2. **Mula menulis walau penyelidikan masih berjalan**
3. **Tentukan masa untuk diterbitkan**
4. **Draf tajuk dan abstrak**
5. **Penilaian semula senarai penulis**
6. **Tentukan format asas (kertas penuh, ringkas atau segera)**
7. **Pilih jurnal (bahasa, fokus, indeks, reputasi, dll...)**
8. **Kumpulkan maklumat/bahan untuk artikel (rajah, jadual...)**
9. **Bina rajah, jadual atau legend sebelum menulis**
10. **Garis kasar kertas kerja**

20 Langkah Menulis Artikel...

11. Tulis draf pertama
12. Semak semula manuskrip (logik, grammer, ejaan dll..)
13. Periksa rujukan
14. Tulis tajuk dan abstrak terakhir
15. Baca semula arahan jurnal untuk penulis
16. Sediakan ilustrasi akhir
17. Dapatkan maklumbalas manuskrip dan semak semula
18. Hantar manuskrip kepada penerbit
19. Beri tumpuan kepada komen-komen pewasit
20. Pemeriksaan kepada artikel yang telah diterima



Salah Laku Penulisan...



Plagiat....

Salah laku penulisan didefinisi sebagai fabrikasi, pemalsuan atau plagiat dalam mencadangkan, atau dalam menyorot dan melaporkan keputusan penyelidikan”

Pengiktirafan....

“Gagal memberi pengiktirafan kepada kerja-kerja orang lain boleh membunuh penulisan sendiri....”

Sekiranya pewasit tahu kerja yang dilaporkan bukanlah kerja asli...2 perkara yang terlintas difikirannya....

1. memang tak tahu itu idea lama (*jahat*)
2. tahu tapi mengaku idea sendiri (*terlalu jahat*)

Salah Laku Penulisan...

ADDRESSING REVIEWER COMMENTS

BAD REVIEWS ON YOUR PAPER? FOLLOW THESE GUIDELINES AND YOU MAY YET GET IT PAST THE EDITOR:

Reviewer comment:

"The method/device/paradigm the authors propose is clearly wrong."

How NOT to respond:

✗ "Yes, we know. We thought we could still get a paper out of it. Sorry."

Correct response:

✓ "The reviewer raises an interesting concern. However, as the focus of this work is exploratory and not performance-based, validation was not found to be of critical importance to the contribution of the paper."

Reviewer comment:

"The authors fail to reference the work of Smith et al., who solved the same problem 20 years ago."

How NOT to respond:

✗ "Huh. We didn't think anybody had read that. Actually, their solution is better than ours."

Correct response:

✓ "The reviewer raises an interesting concern. However, our work is based on completely different first principles (we use different variable names), and has a much more attractive graphical user interface."

Reviewer comment:

"This paper is poorly written and scientifically unsound. I do not recommend it for publication."

How NOT to respond:

✗ "You #&@*% reviewer! I know who you are! I'm gonna get you when it's my turn to review!"

Correct response:

✓ "The reviewer raises an interesting concern. However, we feel the reviewer did not fully comprehend the scope of the work, and misjudged the results based on incorrect assumptions."



Thank You

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UKM