Fundamentals of Grant Writing in the Artificial Intelligence Era – Some Reflections

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Agenda

1. Essential Elements of Grant Writing.
2. Aspects of AI
3. Emerging AI Tools For Grant Writing
4. Ethical Issues Around AI Applications

Suggestions for takeaway…

- Faculty staff should be more actively involved in grantsmanship as part of their teaching, research and community services in the age of sustainable development.

- There are multiple sources of scientific and applied research grants; successful proposal writing complies with the stated guidelines of grant funders/donors.

- Numerous AI tools, links, and product descriptions are emerging to facilitate grantsmanship. While AI is a potential game-changer in academia, as in other realms of endeavour, AI applications must be used responsibly to avoid/minimise regulatory/ legal/ reputational risks.

- AI tools should not replace human intellect.

Mazoon College – a Research Mandate

College Vision

Mazoon College aims to be a leading higher educational institution that concentrates on

academic excellence, high quality research and community services.

College Mission

The College strives to address the educational needs of its community through offering diverse

programs and services; assisting its students in meeting their educational needs and preparing

graduates to be capable of making significant contributions to their fields of endeavor and

society.

Effective Grant Writing

Proposal Writing

Grant

S/No	Project	Sponsorship	Role	Status
1	Capital Budgeting Practices in Oman's Manufacturing Sector	Ministry of Higher Education, Research, and Innovation (MOHERI)/ The Research Council of Oman (TRC) / OMR 19,790 (USD 51,454)	Principal Investigator	From December 2019 to June 2022: **Completed**
2	Closing the Omani Graduate Employability Skill Gaps: A Systematic Empirical Study	Ministry of Higher Education, Research, and Innovation (MOHERI)/ The Research Council of Oman (TRC) / OMR 4,900 (USD 12,740)	Co-Principal Investigator	From October 2019 to January 2022: **Completed**
3	Oman's Global Competitiveness and Emerging Sustainability Dynamics_A Big Data Technology Application	Ministry of Higher Education, Research, and Innovation (MOHERI)/ The Research Council of Oman (TRC) / OMR 8,680 (USD 22,360)	Principal Investigator	January 2023-December 2024 (Ongoing).
4	Innovation and Competitiveness of Oman's Oil and Gas Sector – A Test of Resource Dependence Theory	Ministry of Higher Education, Research, and Innovation (MOHERI)/ The Research Council of Oman (TRC) / OMR 2,900 (USD 7,500)	Faculty Mentor/ Supervisor	January 2023-December 2024 (ongoing)
5	Exploring opportunities and challenges of the application of artificial intelligence in higher education in Oman: A multiple perception model (TRC projects)	Ministry of Higher Education, Research, and Innovation (MOHERI)/ The Research Council of Oman (TRC) / OMR 2900 (USD 7,500)	Faculty Mentor/ Supervisor	January 2024-December 2025 (Ongoing).

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- **Guidelines*****
- Budget/resources
- Technicalities – e.g., precision
- Collaboration/Partnership
- Visibility – Reputation – Implementation
- Funder benefits/ROI

MOHERI Call 2024 HAS BEEN ANNOUNCED

APPLY NOW!

وزارة الـتـعــلـيـم العـــالـي
و البحـث العلـمي والابتكــار
Ministry of Higher Education
Research & Innovation

Moving Forward
with Confidence

رؤية عُمـان 2040

The Ministry of Higher Education, Research and Innovation is delighted to announce the 2024 Call for Proposals of the Block Funding Program based on the conditions and criteria below:

Category	Budget /OMR (max. per project)	Duration (max. per project)	Eligibility Criteria
Research Grant (RG)	20,000	2 years	Principal Investigator must be a PhD holder or equivalent (senior specialist or higher for clinicians)
Graduate Research Grant (GRG) (for Omanis only)	3,000	2 years	• Bachelor degree holder with one year experience • Master degree holder • Resident affiliated with OMSB
Undergraduate Research Grant (URG)	1,500	1 year	• Undergraduate student studying in an affiliated institution • GPA not less than 2.30/4.00 • Student must have completed the foundation courses.

How to Apply

All proposals must be submitted through the Research Information Management System (RIMS).

Evaluation Criteria

Research proposal is evaluated based on :
• Research excellence
• Expected impact
• Compatibility with the institutional research vision and priorities

Funding Decision

Funding Decision is based on:
• Allocated budget for the program
• Key performance indicators of the institution

Application Deadline:
30th May 2024

To Apply
http://rims.trc.gov.om
For Enquiries
BFP@moheri.gov.om

Conditions

• The applicants (PI, Co-PI) must be affiliated with the same institution by the time of submission and approval .
• The applicants (PI, Co-PI) must not have any ongoing or uncompleted funded project from MOHERI.
• The research proposal must not be an ongoing project or have already been completed.
• The applicant neither has graduated nor is about to graduate.
• The institutional focal points and evaluation committee members are not eligible to apply.
• There must not be any kind of conflict of interest.
• The research proposal should be related to the Sultanate of Oman.

@RI_moheri   www.orp.trc.gov.om

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MOHERI Call 2024 HAS BEEN ANNOUNCED

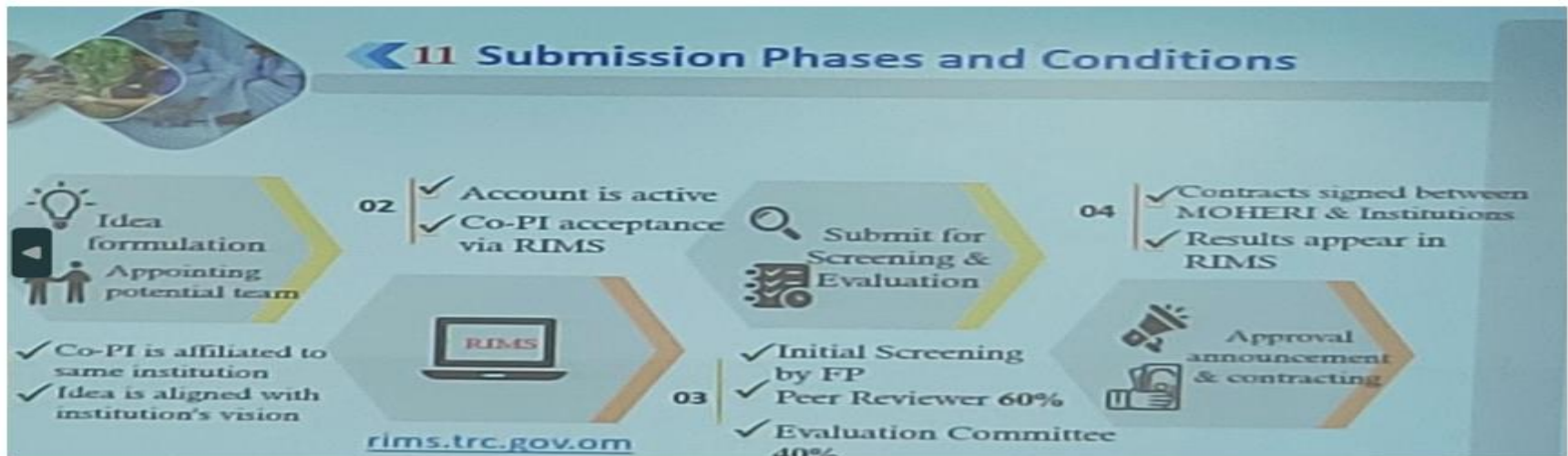**◀05 Research Funding Categories**

First: Research Grant for PhD holders PhD

Target	Duration	Fund	Important Conditions
• PhD holders • Senior specialist or higher for clinicians	2 Years Max	20,000 OMR Max	✓ PI must not have any ongoing or uncompleted projects ✓ Clear Conflict of Interests ✓ Co-PI is from same institution ✓ Adhere to funding limits ✓ PI must be affiliated with institution by the time of submission and approval

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« 06 Funding Details & Caps (For PhD category Only)

11,000 OMR	7,000 OMR	2,000 OMR	500 OMR
Materials & Supply	Equipment	Travel	Dissemination
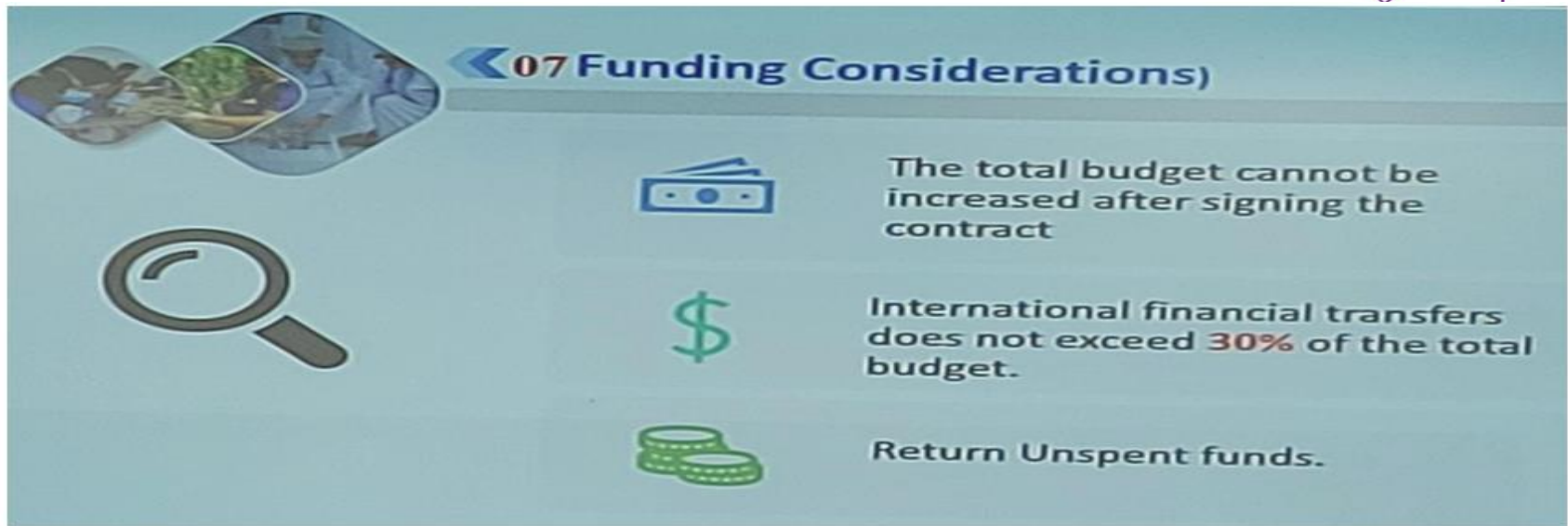
TRC – Vision & Objectives

❑<u>Vision</u>

- Oman to become a regional hub for innovation, and a leader in producing new ideas, products and services

- Oman to have the largest research capacity in the region

- **<u>Omani research to excel in selected fields of national importance</u>**

- Oman to have a *research culture* that responds swiftly to local social and economic needs

- Oman to have a **world-class infrastructure** for evidence-based policy making

❑<u>Objectives</u>

- Building ***<u>Research Capacity</u>*** Mechanisms

- Achieving ***<u>Research Excellence</u>***

- Building Knowledge Transfer and Value Capture

- Provide an Enabling Environment for ***<u>Research and Innovation</u>***

مجلس البحث العلمي
The Research Council

The "Research" element in your grant writing…

- *"Research"* - a ***scientific and systematic search*** for relevant information on a specific topic

- The purpose of research is to discover answers to questions through the application of ***scientific procedures***.

- The main aim of research is to find out the truth which is hidden, and ***which has not been discovered as yet***. (ISAR, 2021)

- *IMPORTANT NOTE: You are writing, not to satisfy yourself, but **to satisfy the scientific research and innovation needs of the funding agency**.*

Key evaluation criteria…

Excellence

- Measurable
- Attainable
- Time-based
- **Internal Evaluation**

Relevance

- Specific
- Relevant
- **Institution Defined Criteria**

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Measuring the Proposal's Quality…

Excellence

- *A [score 5] – All OK, no changes needed*
- B [**score 4**] – needs *minor* changes
- C [**score 3**] – needs *major* changes
- D [**score 2**] – needs *serious* changes – requires another evaluation
- E [**score 1**] – *unsatisfactory* – decline approval

Relevance

- *A [score 5] – Excellent*
- B [**score 4**] – Good
- C [**score 3**] – Fair
- D [**score 2**] – Poor
- E [**score 1**] – Very poor
- F [**score 0**] - Incomplete

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Excellence Criteria…

- Novelty & Originality
- Comprehensive Literature Review
- Clarity & Feasibility
- Research Problem, Significance, Methodology, Data Collection
- Team Capacity – Qualifications, Experience & Track Record

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Is your proposal relevant?

Oman 2040 Vision Themes

- People & Society

- Economy & Development

- Governance & Institutional Performance

Priority Sectors

- 1. Transport & Logistics
- 2. Energy & Mining
- 3. Agriculture & Fisheries
- 4. Manufacturing
- 5. Tourism /Hospitality
- 6. Labour & Finance

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Oman's National Priorities…

1. Education, Learning, Scientific Research & National Talents.

2. Health.

3. Citizenship, Identity, National Heritage & Culture.

4. Welfare & Social Protection.

5. Economic Leadership and Management.

6. Economic Diversification and Fiscal Sustainability

7. Labour Market & Employment.

8. The Private Sector, Investment & International Cooperation.

9. Sustainable Development in Governorates & Cities.

10. National Resources & Environmental Sustainability.

11. Legislative, Judicial & Audit System.

12. Partnership & Integration of Roles.

13. Governance of the Administration Apparatus, Resources & projects.

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Grant Applications – 2 aspects…

Proposal

- Introduction and Statement of the problem/project
- Literature and Analysis of Related Works
- ***Objectives***
- ***Research Methodology***
- Academic, Scientific, and/or Innovation Significance
- Benefits to Oman
- References

Budget

- Provide a list of the major categories in the project for which financial support is needed.
- *Clear justification for each category*

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Examples on budget proposal…

Item	URG (OMR)	GRG (OMR)	*Justification*
Materials and supplies	200	350	Justification of each category can be linked explicitly to the specified objectives and milestones of your project proposal
Equipment	350	1000	
Data collection / analysis	500	950	
Local travel needed for the project work	240	350	
Administrative costs	200	300	
TOTAL	*1,490*	*2,950*	

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Contents of Grant Proposal (TRC example)…

(Al-Shukaili & Al-Maniri, 2017)

- Title /Topic

- Executive Summary

- ***Introduction and statement of the problem or project – research questions, objectives or hypotheses***

- Literature review and analysis of related work – with references

- Description of the benefits to Oman

- Outline of proposed activities and research methodology

- Value of the research - Academic, scientific, and/or innovative significance

- Expected social, cultural, educational and welfare benefits

- Cost analysis – realistic research budget

- **Project Team - collaborations must be credible**

- **Ethical considerations**

- **Work plan – project implementation schedule**

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Contents of TRC Grant Proposal…/2

❑ ***Introduction and Statement of The Problem/ Project:***

- Describe the proposed research and the main problem to be addressed.

❑ ***Literature Review and Analysis of Related Work:***

- Outline the background leading up to the present status of the issue

- Critically evaluate existing knowledge, and specifically identify the gaps that the project is trying to fill.

- State what you intend to achieve with your proposed research. Link the specific aims of this particular research project to broader, long-term objectives.

❑ ***Objectives:***

- Describe the aim of the research project.

❑ ***Research Methodology:***

- Describe the research design

- Conceptual framework

- Procedures – e.g., how data/information will be collected, analysed, and interpreted.

- Data analyses system to be used to accomplish the specific aims of the project

❑ ***Academic, Scientific and /or Innovation Significance:***

- State the importance of the research to your field of study and/ or society.

- Describe your overall career/ academic goals and explain how the research grant will enable you to reach these goals.

- Identify the skills, theories, conceptual approaches, etc. to be learned or enhanced in this project.

❑ ***Benefits to Oman***

- Example: Vision 2040 relevance/Covid-19/Graduate Employability

❑ ***REFERENCES:***

- State the sources of information/ data presented in the proposal.

- Also, make sure that the information is referred to **accurately, essential and consistent** with the references' list.

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Literature resources/databases…

- ❑ Science Direct
- ❑ IEEE
- ❑ ACM
- ❑ CiteSeerX
- ❑ JSTOR
- ❑ Emerald Insight
- ❑ EbscoHost
- ❑ Semantic Scholar
- ❑ Turnitin.com

- • Worldwidescience
- • PubMed
- • PubChem
- • Cochrane Library
- • CINHAL
- ❑ ResearchGate & Google Scholar
- ❑ Web of Science
- • **Oman Virtual Science Library – Masader.om**
- • Grammarly.com
- • Using paraphrasing tools?

Literature Review - Key points to remember…

- It is not a descriptive list - not a book-by-book and article-by-article summary

- It is not a survey of everything that's ever been written about your topic

- A guiding concept, such as a critical issue, question, or objective should define it A critique: it should tell stakeholders about the established/agreed knowledge/ideas in your topic area and outline their strengths and weaknesses

- **Guide to writing literature reviews:**

  https://www.rlf.org.uk/resources/what-is-a-literature-review/

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Probable methodology…

➤ Research design – overall research strategy /logical plan to address your research questions

➤ Population

➤ Sample

➤ Data collection methods and instruments

➤ Data analysis procedures

➤ Work plan

What is the nature/type of your Proposal?

- *Descriptive research* - surveys and fact-finding enquiries of different kinds.

- *Applied research* - aims at finding a solution for an immediate problem facing a society or an industrial/business organisation

- *Fundamental research* - mainly concerned with generalisations and with the formulation of a theory

☐ *Quantitative research* is based on the measurement of quantity or *amount* Vs. *Qualitative research* - concerned with qualitative phenomenon, i.e., phenomena relating to or involving quality or *kind*.

Aspects of proposal-writing

Section	Details
Title/topic page	-Titles are labels, not sentences. Keep them simple , brief, explicit, and (perhaps) catchy! -Avoid jargons and acronyms -Word counts
Executive summary – see next slide for hints	-Purpose, scope, process/methodology/findings, conclusions/implications
Body/content	-Content page -Number and list all sections/subsections/headings/sub-headings with traceable page numbers
Introduction	-Background information, purpose and significance of the report, state how your report is organised.

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Again…Literature Review & Proposed Methodology

Section	Details
Literature review	-Review of the body of knowledge /concepts /theories / empirical studies related to your topic and purpose. -Make sure to align with the overall objectives of your report/research -The gap in knowledge to be filled
Methodology	-Document the study process/strategy, data sources, sampling system and data analysis approach and justification.

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12 common mistakes…

1. Lack of novelty/originality.

2. Weak hypotheses/research questions.

3. Unrealistic /too many research objectives.

4. Unjustified research purpose – lack of clear socio-economic or scientific significance.

5. Incoherent / rambling (circular reasoning) narrative – lack of focus.

6. Inadequate literature review.

7. Technical (statistical) inadequacies in the Research Methodology/research design/data analysis.

8. Poorly written proposal – "that majors on minors and minors on majors" and lacks proof-reading.

9. Unjustified/inflated budget.

10. Not following the TRC's guidelines.

11. Host organisation not well prepared to accommodate the project.

12. The project team – lacks experience, no collaboration, etc.

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Examples of Other Grants Sources – Explore Online!

- **UNAOC Intercultural Innovation Hub Call for Grassroots Organizations Worldwide - Apply by 25th March 2024**

- **Solar Decathlon Africa Design Challenge for African Innovators - Apply by 29th February 2024**

- **Fully Funded SDG LAB/Rethinking Economics Beyond GDP Essay Competition - Apply by 6th March 2024**

- **Fully Funded Astrazeneca's Lead2030 Challenge for SDG 3 - Apply by 19th March 2024**

- **ICC-ITC-WTO MSME Group Small Business Champions Competition - Apply by 26th April 2024**

- **Fully Funded BBC World News Komla Dumor Award for African Journalists - Apply by 15th March 2024**

- **Fully Funded UN-OHRLLS Call for Young Storytellers From Landlocked Developing Countries - Apply by 8th March 2024**

Source: https://www.advance-africa.com/Grants-for-NGOs-in-Oman.html   [28 February 2024]

- **Think about aspects where AI tools support grantsmanship**

  ✓ Ideas generation

  ✓ Literature review

  ✓ Data analysis

  ✓ Manuscript drafting

Aspects of Artificial Intelligence (AI)

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What is AI?

- AI is "… the science and engineering of making intelligent machines, especially intelligent computer programs. It is related to the similar task of using computers to understand human intelligence, but AI does not have to confine itself to biologically observable methods." – John McCarthy
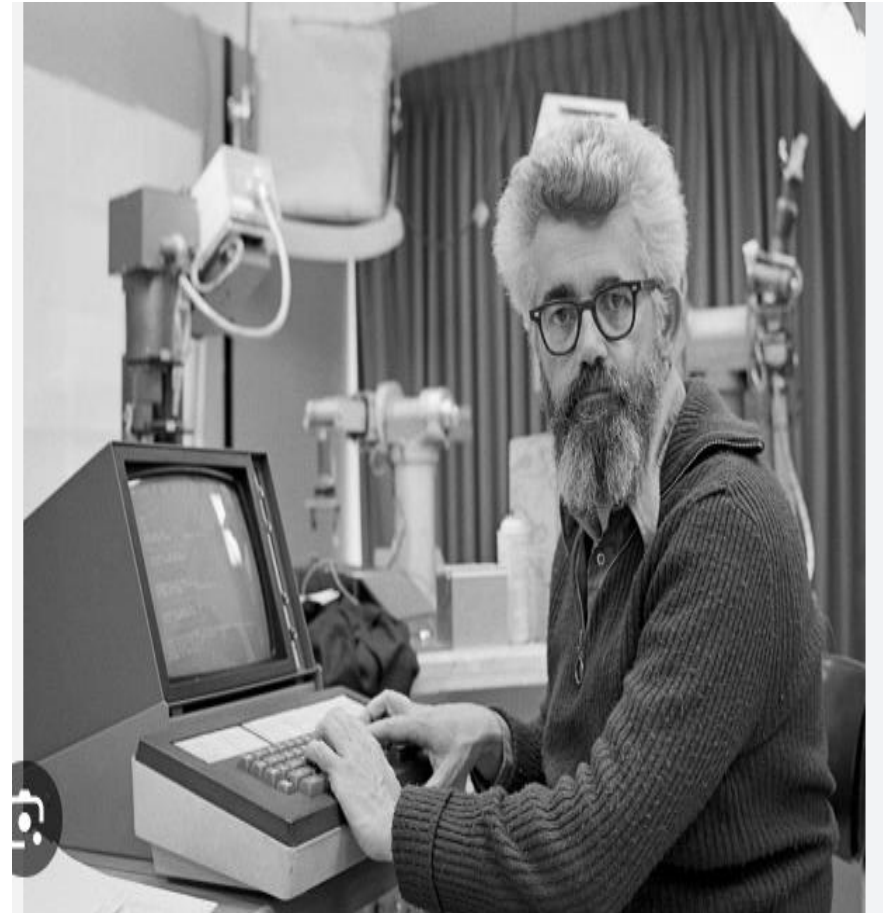
More about AI

- AI is a technology that enables computers and digital devices to learn, read, write, talk, see, create, play, analyse, make recommendations, and do other things humans do.

- Enabling machines to simulate human intelligence and perform tasks that usually require human intervention.

- Developing algorithms and computer programs to analyse data, recognise patterns, and make predictions.

- - technology that can generate text, images, and audio in seconds.

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Types of AI

❑ ***Narrow AI or Artificial Narrow Intelligence (ANI*)** is AI trained and focused on performing <u>specific tasks</u> —e.g., OpenAI's ChatGPT, Apple's Siri, Amazon's Alexa, IBM Watsonx™, Meta's Llama, Microsoft's Copilot, Google's Gemini, and self-driving vehicles.

❑ ***Deep learning and machine learning (DL/ML)*** are AI's sub-fields, and deep learning (comprising of neural networks) is an ML's sub-field

➢ Deep learning automates… while machine learning depends on human intervention to be trained.

❑ **Generative AI** - deep-learning models that take raw data and "learn" to generate statistically probable outputs when prompted.

Types of AI…/2

- ***Strong AI*** **-** <u>Artificial General Intelligence (AGI)/ Artificial Super Intelligence (ASI)/ general AI / Superintelligence</u> - a theoretical form of AI where a machine would have <u>an intelligence equal to humans</u>;

- It would be self-aware, able to solve problems, learn, plan for the future, and <u>surpass the intelligence and ability of the human brain</u>.

- Strong AI is still entirely theoretical - arguably, no practical examples today (except in Science fiction!)

75 Years of AI…

Year	Milestone
1950	Alan Turing publishes [Computing Machinery and Intelligence](#) - "Can machines think?" "systems that act like humans."
1956	John McCarthy coins the term "artificial intelligence" at the first-ever AI conference at Dartmouth College.
1967	Frank Rosenblatt builds the Mark 1 Perceptron, the first computer based on a neural network that "learned" though trial and error. Just
1980s	Neural networks which use a backpropagation algorithm to train itself become widely used in AI applications.

75 Years of AI…/2

Year	Milestone.
1995	The first AI textbook – by Stuart Russell and Peter Norvig, published [Artificial Intelligence: A Modern Approach.](#) (See further details in the resources slide at the end of this presentation)
1997	IBM's Deep Blue beats then world chess champion Garry Kasparov, in a chess match (and rematch).
2004	John McCarthy writes a paper, [What Is Artificial Intelligence?](#)
2011	IBM Watson beats champions Ken Jennings and Brad Rutter at *Jeopardy!*
2015	Baidu's Minwa supercomputer uses a "convolutional neural network" to identify and categorise images with a higher accuracy rate than the average human. OpenAI founded.

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75 Years of AI…/3

Year	Milestone.
2016	AI-powered DeepMind's AlphaGo program, beats Lee Sodol, the world champion Go player, in a five-game match.
2019	OpenAI transitioned from nonprofit to "capped" for-profit at 100 x investment.
2023	A rise in large language models (LLMs), such as ChatGPT [https://openai.com/blog/introducing-gpts]

Foundation models and generative AI

- The release of *ChatGPT* in 2022 marked a true AI inflexion point - the cross-sector abilities of OpenAI's product.

- **The fear** – of using autonomous systems, e.g., self-driving cars.

- **AI impact on jobs** – the fear and prospects of job loss – AI will shift the demand for jobs to other areas.

- *We should be looking at how AI will help people transition smoothly to AI-powered new areas of market demand.*

Grant writing for AI solutions

- Re-inventing <u>critical processes</u> & operations.
- Improving customer services/ experiences
- Improving real-time decision-making and <u>business value</u>.
- Cybersecurity
- *Top in-demand AI skills*

Grant writing for AI solutions …/2

- Speech recognition – using automatic speech recognition (ASR) and NLP tools.

- Computer vision – for healthcare and logistics/transportation sectors using convolutional networks

- Recommendation engines – using behavioural data

- Supply chain – beyond the predictive analytics to hierarchical real-time adjustments.

- Automated stock trading – without human intervention!

- How AI enhances enterprise value

- Weather forecasting…

- Researching the prospects of superintelligence.

Grant writing for AI solutions …/3

- AI tools – generating "original ideas" and better specifying and visualising them – promoting "divergent thinking" (Eapen et al., 2023)

- Can we use AI to combat natural disasters? – Evidence from *(1)* the University of Copenhagen – forecasting the probability of giant waves, and *(2)* the University of Austin in Texas – predicting earthquakes with an accuracy of 70% one week in advance (*Times of Oman*, 2024).

- OMANTEL-SQU Applied Research Fund – fostering research in ICT & AI in line with the *National Programme for Digital Economy* – 30 scientific papers over 5 years.

- Oman Ministry of Transport, Communications, & Information Technology – partnering with the University of Technology and Applied Sciences (UTAS) – introduced the "AI Makers' Initiative" (*Oman Daily Observer*, 22 December 2023, p.1).

AI – Some Implications for Grant Writing

- Comply with your institute's AI protocols
- Research design – biased data sets – data storage: frictionless hybrid-cloud environment.
- Lack of due diligence can lead to regulatory/legal/reputational exposures with costly penalties.

Emerging AI Tools for Grant writing

Emerging AI tools
in grant writing, research & publications

S/Number	Aids	Brand	Helpful links
1	ML system based on deep learning neural networks	TensorFlow	https://www.tensorflow.org/install
2	Web-based interactive data science	Project Jupyter	https://jupyter.org/install
3	Systematic reviews	Rayyan	https://rayyan.ai/users/sign_up
4	Systematic review	Covidence	https://app.covidence.org/signup/trial/new
5	Systematic review	Laser AI	https://www.laser.ai/
6	Literature search and review	Connected Papers	https://www.connectedpapers.com/
7	Citation-based literature mapping tool	ResearchRabbit	https://www.researchrabbit.ai/
8	Assisting writing; editing grammar, style, and spelling checker	Language Tool	https://languagetool.org/register
9	Assisting writing; editing grammar, style, and spelling checker	Grammarly	https://app.grammarly.com

Emerging AI tools
in grant writing, research & publications…/2

10	Rephrasing tool	Wordtune	https://www.wordtune.com/business/home
11	Text editor	Scite	https://scite.ai/
12	Plagiarism checking	iThenticate	https://www.ithenticate.com/solutions/academic
13	Plagiarism checking	Plagiarism Checker X	https://plagiarismcheckerx.com/plagiarism-checker-for-publishers
14	Generating titles	Semrush	https://www.semrush.com/goodcontent/title-generator/
15	Generating titles	Portent idea generator	https://www.portent.com/tools/title-maker/

Emerging AI tools
in grant writing, research & publications…/3

16	Natural language processing in Python	SpaCy	https://spacy.io/usage/spacy-101
17	Finetuning research grant proposal	Taskade	https://www.taskade.com/agents/research/ai-research-grant-proposal-assistant-gpt-agent
18	Finding funding opportunities for research and innovation	Invenics	https://www.invenics.com/fundsdb/
19	Versatile ML programming languages	Python	https://www.python.org/
20	Exploring keywords and content ideas	Ahrefs	https://ahrefs.com/
21	AI-powered software development platform for project development, collaboration, etc.	GitHub	https://github.com/
22	Literature review	Litmaps	https://www.litmaps.com/

Ethical Artificial Intelligence (EAI)

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Why AI Ethics is Important

- Emergence of big data and utilisation to drive automation and data-driven decision-making across organizations.

- As of now, there is no universal, overarching legislation that regulates AI practices (Note GDPR, 2026/679 for EU members).

- For effective AI systems governance.

- Need to establish an ecosystem of ethical standards and guardrails for the interest of all the stakeholders.

- Imperative for instilling confidence and mitigating the risk of using AI applications

Why AI Ethics is Important

"AI is far more dangerous than nukes… we have for the first time the situation where we have something that is going to be far smarter than the smartest human."

- *Elon Musk (2024)*

"Where some like Mr. Musk see an existential threat in AGI, others see AGI as a source of profit and power."

(see https://edition.cnn.com/2024/03/01/tech/elon-musk-lawsuit-openai-sam-altman)

"Potentially scary AI is on the horizon."

-*Sam Altman (2023)*

Why AI Ethics is Important.../3

❖"Mark Zuckerberg discusses AI risks with Japan PM during Asia tour"

https://economictimes.indiatimes.com/tech/technology/mark-zuckerberg-discusses-ai-risks-with-japan-pm-during-asia-tour/articleshow/108077085.cms?from=mdr [28.2.2024]

AI Ethics – The IBM Way

- ❑ **The purpose of AI is to augment human intelligence.**

- ➢ AI is not meant to replace human intelligence but to support it – technology training implications

- ❑ **Data and insights belong to their creator.**

- ➢ Customers own their data – data privacy; zero surveillance support

- ❑ **AI systems must be transparent and explainable.**

- ➢ Full disclosures about what data was used in AI training and, *"most importantly, what went into their algorithms' recommendations."*

Responsible AI principles - IBM's 5-Point Model

- **Explainability:** is the underlying data AI using transparent enough to various stakeholders?

- **Fairness:** *Justice* - Is it fair, inclusive or biased?

- **Robustness:** Is it risk-proof enough, e.g., under-aged; environmental sustainability; trust – misuse avoidance?

- **Transparency:** *Beneficence.* Are its full functionality and limitations disclosed to the user – e.g., watermarking standard tagging AI-generated images?

- **Privacy:** *Respect for persons.* Are users' privacy and personal data rights and usage explicitly protected – e.g., risks/threats of blackmail and violence from the chatbot, use of deep fakes in electoral democracies?

AI "Ethics By Design"
- White (2023)'s 9-Point Framework

"On life" rights

Digital flatforms regulation

Law
What it is forbidden to do

Ethics
What should be done

IP protection of AI model

Tooling for interpretable AI

Ethics by design

AI tools for regulation making

Fighting digital bias

Technology
What can be done

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Some ethical considerations in using AI Applications for grant writing

1. Use AI tools to improve/aid proposal quality– they should not be substituted for your (human) expertise – pay attention to the originality of thoughts, framing of RQs, intellectual (not artificial!) contribution, etc.

2. Using AI must align with ethical standards - Check the funder's policies on using AI tools, e.g., European data protection board (EDPD); internal board of reviewers to oversee the processes and other details of product creation.

3. Find a good balance between AI & HI (human intelligence) - Review your AI outputs for bias and accuracy – ensure your scholarly work's full integrity/transparency.

Closing thoughts

- Faculty staff should be more actively involved in grantsmanship as part of their teaching, research and community services in the age of sustainability.

- There are multiple sources of scientific and applied research grants; successful proposal writing complies with the stated guidelines of grant funders/donors.

- Numerous AI tools, links, and product descriptions are emerging to facilitate grantsmanship. While AI is a potential game-changer in academia, as in other realms of endeavour, AI applications must be used responsibly to avoid/minimise regulatory/ legal/ reputational risks.

- AI tools should not replace human intellect.

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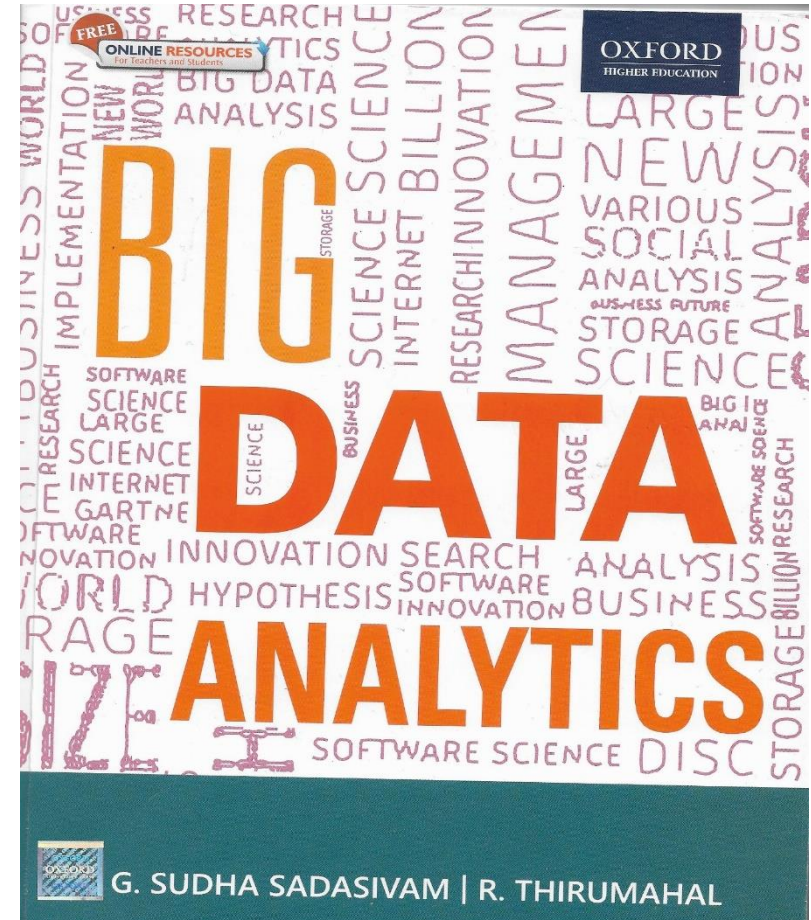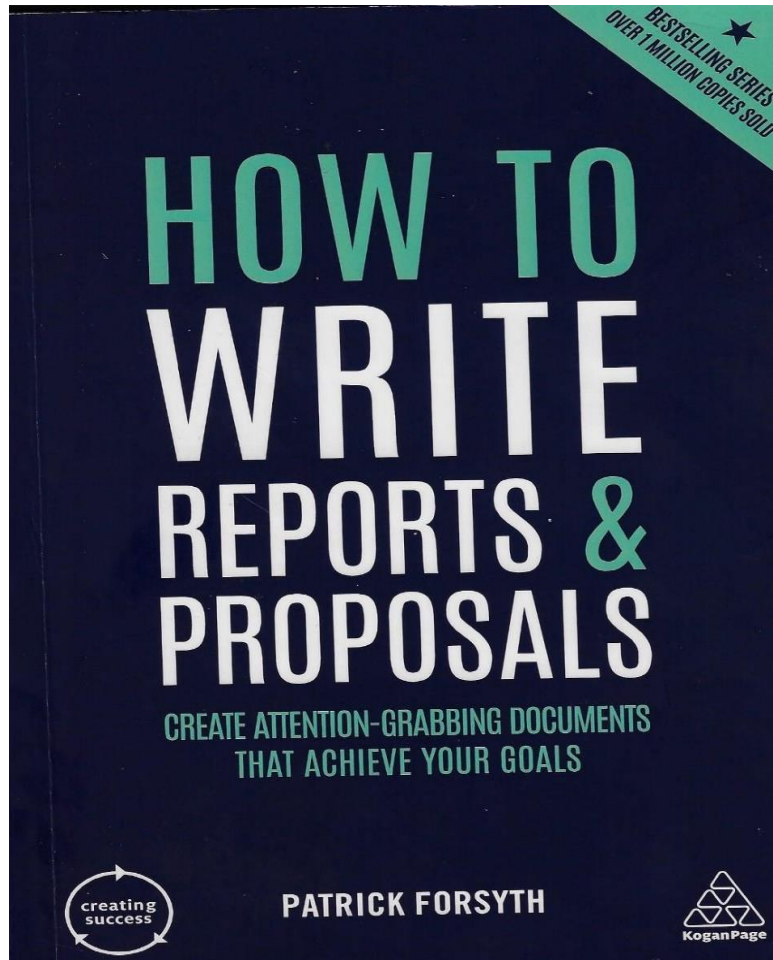- White, A. (2023). "Making AI Safe for Humanity", Oman Daily Observer, 22 December 2023, p. 6.

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Resources

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