

TANZANIA COMMISSION FOR SCIENCE AND TECHNOLOGY



**INVITATION FOR FULL RESEARCH PROPOSAL ON EMERGING TECHNOLOGIES
FOR SUSTAINABLE DEVELOPMENT**

GUIDELINES FOR APPLICANTS

Proposals should be submitted through COSTECH Research Management Portal

Deadline for submission of application will be Sunday, 6th June 2023 at 23:59 (EAT).

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1. INTRODUCTION

The Tanzania Commission for Science and Technology (COSTECH) is a principal advisory organ of Government on all matters relating to scientific research and technology development. Among other functions, Commission is responsible for mobilisation of funds from the Government and other sources to support the advancement of scientific research and technological development in the country. As part of implementing its mandates, Commission has received support from the Norwegian Agency for Development Cooperation (Norad) and International Development Center for Research, Canada (IDRC) aimed at strengthening management of research grants by fostering linkage between the Research Institutions and Industries in conducting mutual strategic research projects that are in line with national research priorities and other national development goals.

2. OBJECTIVE

The call intends to enhance inclusive research in emerging technologies that address STI societal demands, while ensure strong linkage between research institutions and industries for production of demand driven research results for sustainable socio-economic development and that takes into consideration of gender inclusivity.

Emerging technologies is a new and rapidly growing technologies where Tanzania is aiming to invest and earn the benefits of the fourth industrial revolution (4IR) while coping with fast-pacing world. It offers unique potential to impact different sectors of production include education, health, agriculture, fisheries, environment, economy and a like. The impact among others include: improving healthcare and human capital; promoting high-quality education; enhancing modernizing agriculture and agro-industries; increasing financial investment and competitive market opportunities; developing expertize; and creating new employment.

Despite of its important, Tanzania like other African countries is still at the elementary stage in the adoption of emerging technologies. In addressing this, the Government considered the emerging technologies as one of the strategic areas for investment in research and development as per the National Five-Year Development Plan 2021/22 – 2025/26 and National Research Priorities 2021/22 -2025/26.

The demand driven research in this area is highly encouraged in order for the country to benefit with 4IR, and hence contributes to attainment of national goals. Therefore, COSTECH invites all eligible and competent researchers from Higher Learning Institutions and R&Ds of both public and private to collaborate with experts from industries to apply for this call.

3. THEME

The main theme for this call is *Application of emerging technologies for sustainable development*. Specifically, the proposed project should focus to address the identified research areas as stipulated in the table below:

Thematic Area	Context
Agriculture and Food Security	This thematic area focuses on the application of emerging technologies to improve agricultural productivity and enhance food security in Tanzania. Potential research focus may include the use of Internet of Things (IoT) for precision agriculture, Artificial Intelligence (AI) - powered crop monitoring, and Blockchain-enabled supply chain transparency.
Education and Human Capital	This thematic area focuses on leveraging emerging technologies to improve access to education and develop human capital in Tanzania. Potential research focus may include the use of AI-powered education tools, virtual reality for skill development, and IoT- enabled remote learning.
Manufacturing and Productivity	This thematic area focuses on the use of emerging technologies to enhance manufacturing productivity and competitiveness in Tanzania. Potential research focus may include the use of AI for predictive maintenance, IoT for supply chain optimization and robotics for automation.

Health and Wellbeing	This thematic area focuses on leveraging emerging technologies to improve healthcare outcomes and wellbeing in Tanzania. Potential research focus may include the use of AI-powered diagnostics, IoT for remote healthcare delivery, and blockchain for medical data management.
Regulatory, Ethics, and Policy Framework	This thematic area focuses on the development of regulatory frameworks, ethical guidelines, and policy frameworks for emerging technologies in Tanzania. Potential research should focus may include the development of ethical guidelines for AI, regulatory frameworks for Blockchain, and policy frameworks for IoT

4. ELIGIBILITY CRITERIA

All applicants for this call should adhered to the following set of criteria:

- i. Must be researchers who are citizens of the United Republic of Tanzania.
- ii. 30% of the support has been set aside for women researchers, therefore female applicants are highly encouraged to apply as PIs.
- iii. The Principal Investigator (PI) must be an active researcher with minimum of Doctorate degree, working as employee in higher learning Institutions/University or Research and Development Institutions (R&D institutions) legally registered in Tanzania mainland and/ or Zanzibar.
- iv. Co-Principal Investigators (Co-PIs) for all applications must be researchers /experts from Government authority or private sector (industries/startups) in order to facilitate uptake of research results. Upon the successful of the project proposal, PI must submit to COSTECH the Memorandum of Understanding (MoU) of the established partnership/collaboration with industry/startups companies.
- v. The PI must demonstrate a strong and realistic practical linkage between intended research idea to business and or the market or indicate how Tanzanian communities are likely to benefit as consumers out of the applied area.
- vi. The research team must compose with both male and female researchers at approximate equal representation at all level of project implementation.
- vii. The PI is eligible to submit one application only.

5. APPLICATION REQUIREMENTS

Project proposals shall meet the following criteria:

- i. Must be written in English following the format provided on the Research and Innovation Management System available at www.costech.or.tz.
- ii. Must be in line with the call theme
- iii. Must demonstrate great impact on the achievement of the objectives of the call
- iv. Must indicate future market opportunities with a competitive advantage.
- v. Must consider gender equality and inclusivity as part of project design, implementation and reporting.
- vi. Must include the capacity building components (e.g. Master degree)
- vii. Must consider engagement of private sector or Government authority as part of project implementing team with clear activities for both partners
- viii. Must compose researchers from different disciplines (team multi-disciplinarity)
- ix. Must articulate clearly Intellectual Property Rights (IPR) plans and how will it be handled.
- x. Must include evidence of collaboration with other relevant authority, HLIs and or R&DIs of both Tanzania Mainland and Island.
- xi. Must demonstrate how the proposed intervention can be applied in real world
- xii. Must include an official endorsement letter(s) from the host and collaborating institutions.
- xiii. Must articulate clear on how the research ethical issues will be addressed, if possible, to provide an ethical clearance certificate from relevant bodies or authorities as need required.

6. SUBMISSION PROCEDURES

Full proposals must be submitted through COSTECH Online Research Submission Portal available at crweb.costech.or.tz. The proposal shall include:

- a) **Name(s) and addresses of PI, Co-PI and collaborating team:** Full name and address of the applicant(s) must be given.
- b) **Title of the Project;** the title should be scientifically valid and sufficiently descriptive to reflect the nature of the proposed work.
- c) **Summary of the Project;** a summary of the proposed project taking into account the importance of the project, the objectives, research type and design,

methodology, expected outputs, result dissemination, the total budget required and duration and co-funding if any.

- d) Objectives of the project;** a clear statement of the general problem(s) and gap or issue(s) at hand should to be addressed. Specific objectives and targets must be clearly stated.
- e) Justification or rationale:** This section should clearly show the importance of the project and how the results of the research will reach the end users and would contribute towards bringing about potential socio- economic development. The possible policy implications and intervention strategies should be documented as well as to indicate which target is addressing in the Third National Five Years Development Plan 2021/22 - 2025/26
- f) Background and Literature Review;** the applicant must show the interrelationship of prior research and development in the field and a gap to be bridged by the intended study. It should reflect a thorough survey of the existing state of knowledge and how the intended work is going to contribute to the advancement of knowledge about the problem to be solved or addressed.
- g) Methodology (Project description, research design);** the researcher should clearly and thoroughly spell out the research and development plan for the project. The plan should identify and describe the different phases of the project. It should also indicate the proposed methods, analytical techniques and their appropriateness, as necessary. This section should also describe the facilities and equipment to be used. It should also describe the study type, research design, technology development and innovation, place, intended population to benefit from the innovation, sampling frame and methods-*where applicable and as necessary*. The section should also clearly indicate a novel technology that will be developed or improved during the course of this research.
- h) Management Plan;** the applicant should provide a description of the project management and supervision plan and the role of the Principal Investigator (PI) and the research team.
- i) Work schedule and division of tasks;** the details and rationale for manpower needs, work schedules, tasks to be accomplished and responsible persons for each task of the project should be given here.

- j) Anticipated Output and Utilization Plan;** anticipated contribution to the specific problem(s) or issue(s) that are planned to be addressed by the research project should be clearly described. These outputs must tally with the objectives spelt out for meeting this call's theme. In this section, steps planned to be taken to utilize the anticipated research results (or the developed technology) should be clearly described.
- k) Research Ethical Consideration:** Applications should clearly state how they are planning to address ethical issues. Where possible, applications should be supported with ethical clearance from the appropriate bodies responsible for issuing such clearances:
- l) Capacity Building:** Projects must describe how they will build human and institutional capacity as well as required physical infrastructure capacities for R&D and S&T developments in the country.
- m) Dissemination of Research Results:** Applicants should indicate where and in which form the results of the work may be disseminated. This must include plans for dissemination to specific end users including policy/decision makers and communities where data and research materials were collected.
- n) Sustainability plan:** The applicants should describe clear the sustainability plan to ensure the project continue to perform and deliver its intended purpose to target group upon the completion of the granting period.
- o) Budget:** The applicant is responsible for the development of a detailed budget and budget justification as per attached budget template. The grants are meant to cover direct costs for special equipment, expendable items and travel which cannot be provided by the host institutions. Whenever possible, the applicant's budget should include unit costs and quantity of units. Applicants will be required to provide their own insurance cover as well as insurance of the research equipment acquired through the Fund. Where the applicant has applied for or obtained funds from some other sources, they should specify the name of the organization, the date of application/obtaining, the amount and its planned use.
- p) Curriculum Vitae:** The CVs (maximum of 4 pages per team member) must be submitted with the proposal (as per attached CV template).
- q) Supporting Documents:** Applicants shall submit support letters from their employers'/ attachment institutions and collaborating partners/ institutions where

applicable. Each team member mentioned in the applications will also be required to submit a commitment letter.

7. EVALUATION CRITERIA

The proposals shall be assessed based on the following set of criteria:

- i. Relevance to the call;
- ii. Strength/ merit of the Principal Investigator and the research team members.
- iii. Scientific quality of the proposal.
- iv. Potential impact to the ICT sector and Tanzanian society;
- v. Feasibility of the proposed project.
- vi. Evidence of Capacity building.
- vii. Gender equity and inclusivity
- viii. Team multi-disciplinarity
- ix. Linkage with private sectors/ Government authority
- x. Sustainability plan

8. BUDGET

The proposal will be implemented for maximum of 18 months with budget limit of TZS 150,000,000/= per proposal to be supported. All the requested budget items need to be clearly justifiable. **Note:** The budget will not cover research salaries and institutional overheads, as well as the costs for traveling and per-diems should not exceed 20% of the total budget.

9. ATTACHMENTS

- i. Budget Template (enclosed to this call)
- ii. Detailed Project Work Plan (enclosed to this call)
- iii. Curriculum Vitae of PI and the team (enclosed to this call)
- iv. Endorsement letters from the head of Institution or Ministry
- v. Supporting and collaboration letters

10. IMPORTANT TIMELINES

SN	ACTIVITY	DATES
1.	Stakeholders' engagement	Done
2.	Call opening and advertisement	17 /5/2023
3.	Call closing	6/6/2023
4.	Screening of proposals	7 - 13/6/2023
5.	Review of proposals	14 - 23/6/2023
6.	Reviewers' harmonization panel meeting	28 - 30/6/2023
7.	Approval of fundable proposals	3 – 15/7/2023
8.	Feedback to the applicants	17- 31/7/2023
9.	Due diligence	20 - 30 /7/2023
10.	Inception Meeting	1 - 5/8/2023
11.	Contracts signing and submission of inception report	9 -20 /8/2023
12.	1 st Funds disbursement	23 – 30/8/2023
13.	Monitoring of progress	Throughout

11. CONTACT INFORMATION

For any clarification regarding to this call, please contact: **Email:** info@costech.or.tz/
Mob: +255 686 140505 or 0767 147947