PROPOSAL FORM

Pakistan Innovation Fund (PIF)
Government of the Pakistan
Planning Commission

**Ministry of Planning, Development and Special
Initiatives**

Instruction:
In order to consider proposal for financial support under the PIF, you must complete this proposal Form and send it to PIF Secretariat, Ministry of Planning, Development and Special Initiatives, Government of the Pakistan. All documents including main project proposal and supporting documents should be annexed to this Form.

<u>You must:</u>

- Answer **all** questions

- Complete the Proposal Form in English

- Use font size ARIAL 11

- Complete the checklist and declaration page at the end of this form, and ensure you include the requested supporting documents

Due to the high level of interest in the PIF, if you do not meet all of these basic requirements, we will be unable to consider your proposal grant of financial support.

<u>Process:</u>

- We will send you an e-mail confirming that we have received your application within 3 working days.

- Within 6 working days you will be given a **<u>Reference Number</u>** which you must use in all correspondence.

PROJECT PROPOSAL FORM

PAKISTAN INNOVATION FUND (PIF)
GOVERNMENT OF THE PAKISTAN
Planning Commission
Ministry of Planning, Development and Special Initiatives

Reference no. (For official use only)

SECTION 1: INFORMATION ABOUT YOUR PROJECT		
1.1	**Project title** (please keep your title brief)	Applying Federated Learning with Smart Contracts in Health Care System
	Main objective of the project (maximum 50 words)	This project addresses the lack of medical data sharing hindering AI integration in healthcare. Medical data confidentiality prevents sharing, impeding ML model training and progress. To overcome this, the project proposes model sharing and federated learning. Super user requests hospital participation, granting access to global models via blockchain-stored IPFS hashes. Technologies used include Solidity, React.js, and IPFS Piñata. This solution enables secure AI integration while safeguarding patient privacy.
1.2	**Area in which the project will work**	Need to be discussed with supervisor
1.3	**City/town within the District**	Karachi
1.4	**When will this project start and end?**	Start date: 22-05-2023 / End date: 2024
1.5	**What is the total cost of the project?**	Rs. (Pl. attached detailed cost of the each component of the project)
1.6	**How much are you applying for from the PIF?**	Rs. (Pl. provide the detail of component which will require PIF funding)
1.7	**If you are not asking for 100% funding, where and how much are rest of the funds for this project coming from?**	

SECTION 2: INFORMATION ABOUT YOUR ORGANISATION / OFFICE AT WHICH YOU LIKE TO IMPLEMENT THE PROJECT		
2.1	**Organization / Office Name**	
2.2	**Name of the contact person in your organization, for this project who will grantee the project implementation**	
2.3	**Postal Address**	
2.4	**E-mail address** (this is the e-mail address we will use for all correspondence)	

2.5	**Telephone number** (including city code)			
2.6	**How would you describe your organization?** (You may tick more than one box)	Public Sector Semi-Autonomous Autonomous Academic Institution District Government TMA Other Private Sector NGO		2
2.7	**What are main functions/ activities of your organization?** (Maximum 50 words)			

2.8	**What is your organisation's average annual budget allocation and utilization over the last 3 years? (Rs. In million)**	Year	Allocation	Utilization
		2019-20		
		2020-21		
		2021-2022		

SECTION 3: PROJECT DETAILS

3.1	**Project overview: Give us a summary of your project, what you intend to achieve through innovative method and how. (Maximum 100 words)**

Our system implements a null model approach, where eligible hospitals participate via Smart Contracts. These hospitals download and train the null model on their own systems, ensuring patient data security. The trained models are then sent back to our main server for aggregation, generating a super model. The super model is shared with participating hospitals, aiding doctors in diagnosing patients based on their condition. This approach maintains data confidentiality and enables effective decision-making in healthcare.

3.2	**Why is this project needed? What problem is it expected to solve at your organization?**

This project is needed to address the problem of limited medical data sharing in healthcare, which hinders the integration of artificial intelligence (AI) technology. The organization aims to overcome the hurdle of data-sharing due to privacy concerns and confidentiality of patient records. By implementing a model-sharing and federated learning approach, the project enables the training of machine learning models while maintaining data security. The goal is to provide a secure and viable solution for integrating AI in healthcare, allowing doctors to make more informed decisions based on patient data while upholding privacy standards

3.3	**Whose idea was this project? Tell us about any partners that have been involved in the design of the project.**

	Our supervisor Dr. Farrukh Shahid purposed the idea. Students were involved in enhancing the idea & designing the project	
3.4	**Who will benefit from this project? Whose lives will change?**	
	Doctors, Hospitals, Patients, People living in remote areas	
3.5	**What will the benefits of the project and changes be?**	
	The project aims to address the lack of medical data sharing in healthcare and brings several benefits and changes:	

The project aims to address the lack of medical data sharing in healthcare and brings several benefits and changes:

1. Enhanced AI integration: By overcoming the hurdle of limited data sharing, the project enables the integration of AI technology in healthcare. This opens up new possibilities for using AI algorithms and models to improve diagnostics, treatment plans, and overall patient care.

2. Improved model training: Through model sharing and federated learning, hospitals can collaborate and train ML models using their own data. This expands the available dataset, leading to more accurate and robust models that can provide valuable insights and predictions.

3. Accelerated progress in healthcare AI: By enabling data sharing and model training, the project promotes collaboration and knowledge sharing among hospitals. This fosters faster advancements in AI applications specific to healthcare, leading to improved outcomes, more efficient workflows, and better healthcare decision-making.

4. Maintaining patient privacy: The proposed approach ensures the confidentiality and privacy of medical data. By storing model files as IPFS hashes on the blockchain via smart contracts, hospitals can securely access and utilize global model files without compromising patient privacy. This safeguards sensitive information while still enabling progress in AI research and implementation.

5. Viable and secure solution: The project's use of technologies like Solidity, React.js, and IPFS Piñata provides a practical and secure framework for implementing AI integration in healthcare. It offers a feasible solution that addresses the privacy concerns associated with medical data sharing and paves the way for wider adoption of AI technologies within the healthcare industry.

Overall, the project's benefits include improved AI integration, enhanced model training, accelerated progress in healthcare AI, privacy preservation, and the establishment of a secure and viable framework for AI implementation in healthcare settings.

3.6	**How will these changes be achieved and what would be impact on service delivery functions of your organization? What are the project activities?**	
3.7	**Who will be carrying out the project activities and what is their previous experience? [You should include in your supporting documents a CV of the lead person implementing the project.]**	

3.8	What experience does your organization have of projects of this type and what lessons from experience will you use in this project?

SECTION 4 : BUILDING SUPPORT FOR INNOVATION	
4.1	**How do you intend to raise awareness of development results across the country** 3

	through lessons learned/ experiences from the project? (This is a critical selection criterion for funding from the PIF. Please read the guidelines carefully and provide a clear response here.**)**
	To raise awareness of the development results and share lessons learned/experiences from the project across the country, the following strategies can be employed: 1. Organizing workshops and seminars: Attending workshops and seminars allows the project team to present their results and insights to stakeholders in the healthcare industry, including professionals, administrators, and policymakers. These events provide an interactive platform for knowledge sharing, discussions, and networking. 2. Collaborating with industry associations and organizations: Engaging with industry associations and organizations in the healthcare sector can help disseminate the project's outcomes. Partnering with these entities can lead to joint events, knowledge-sharing sessions, and collaborations that reach a broader audience and ensure the project's findings are incorporated into relevant industry practices. 3. Developing case studies and success stories: Creating case studies and success stories that highlight the positive impacts of the project can be an effective way to engage a wider audience. These stories can be shared through various channels, including websites, newsletters, social media platforms, and industry-specific publications. 4. Engaging in policy advocacy: The project team can actively engage in policy advocacy by sharing their project results and experiences with policymakers at local, regional, and national levels. This can help influence policy discussions and decisions related to data sharing, AI integration, and patient privacy in healthcare. 5. Establishing online platforms and communities: Creating dedicated online platforms, such as project websites, blogs, or forums, can serve as a central hub for sharing project updates, resources, and lessons learned. Encouraging discussions and fostering a community around the project can promote knowledge dissemination and facilitate ongoing learning and collaboration. By employing these strategies, the project team can effectively raise awareness of their development results, share lessons learned, and contribute to the broader conversation on AI integration and healthcare data sharing across the country.
4.2	**How you will recognize PIF's contribution to your work?**
	Recognizing funding by the PIF as a contribution to the project's work can be done through several means: Acknowledgment in project documentation: Including a section in project reports, research papers, or presentations specifically acknowledging the PIF funding received is a common practice. This acknowledgment can highlight the PIF agency or program that provided the funding and express gratitude for their support. Public recognition in project communications: Utilize various communication channels, such as project websites, social media platforms, newsletters, and press releases, to publicly recognize and acknowledge the PIF's contribution. This can be done by mentioning the PIF funding, sharing updates on the project's progress and impact, and expressing appreciation for the support received.

Co-branding opportunities: If permissible and in line with the PIF's policies, consider co-branding opportunities. This can involve displaying the PIF agency's logo alongside the project's logo in project materials, events, or publications, indicating the collaborative nature of the work.

Public events and showcases: Organize events or showcase to highlight the project's outcomes and invite PIF officials or representatives to attend as honoured guests. During these events, publicly recognize the PIF's funding contribution, and provide a platform for them to speak about their support and the project's significance.

Media coverage: Leverage media outlets, both traditional and digital, to share the project's achievements and acknowledge the PIF funding. Seek opportunities for interviews, press releases, or articles that highlight the PIF's role in supporting the project and its impact on society.

Formal letters of appreciation: Prepare formal letters of appreciation addressed to the relevant PIF agency or department, expressing gratitude for their financial support and outlining the project's accomplishments resulting from their contribution. These letters can be sent directly to the appropriate contacts within the PIF organization.

It's important to adhere to any guidelines or regulations set forth by the PIF agency regarding acknowledgment and recognition of their funding contributions.

SECTION 5 : MONITORING AND REPORTING

5.1 How will you monitor your project to ensure that it achieves its objective?

To monitor the project and ensure it achieves its objectives, the following monitoring mechanisms can be implemented:

1. Establish clear project goals and milestones: Clearly define the project's objectives and break them down into specific milestones. This allows for better tracking and assessment of progress towards each objective.

2. Develop key performance indicators (KPIs): Identify measurable KPIs that align with the project's objectives. These could include metrics related to data sharing, AI model performance, adoption by hospitals, or impact on patient care. Regularly track and analyze these indicators to gauge the project's success.

3. Regular project meetings and progress reports: Conduct regular project meetings involving all relevant stakeholders to discuss progress, challenges, and upcoming tasks. Prepare and share progress reports that document achievements, milestones reached, and any deviations from the project plan. This helps keep everyone informed and enables prompt action if adjustments are needed.

4. Monitor resource allocation and budget: Keep track of resource allocation, including personnel, funding, and equipment, to ensure they are utilized effectively and efficiently. Monitor the project's budget, expenditures, and financial progress to ensure alignment with the project plan and any funding requirements.

5. Quality assurance and review processes: Implement quality assurance measures to review project outputs, including developed models, documentation, and deliverables. Conduct periodic reviews or audits to assess the quality, accuracy, and compliance of the project outputs against predefined standards or benchmarks.

	6. Stakeholder feedback and engagement: Seek regular feedback from stakeholders, including hospitals, project team members, and end-users. Conduct surveys, interviews, or focus groups to gather insights, suggestions, and concerns. Engage stakeholders in discussions and decision-making processes to ensure their needs are met and project objectives are aligned with their expectations. 7. Risk assessment and mitigation: Continuously identify and assess project risks that may hinder the achievement of objectives. Develop a risk management plan and proactively address potential challenges or obstacles. Monitor the effectiveness of risk mitigation strategies and adapt as necessary. 8. Continuous learning and improvement: Foster a culture of continuous learning and improvement within the project team. Encourage knowledge sharing, lessons learned sessions, and regular reflections to identify areas of improvement and implement corrective actions when necessary. By implementing these monitoring mechanisms, the project team can closely track progress, identify any deviations or risks, and take timely actions to ensure the project stays on track and achieves its objectives.
5.2	**How will you define and measure success of the project?**
	Defining and measuring the success of a project can be done by considering the following steps: 1. Clearly define project objectives: Begin by establishing clear and specific project objectives. These objectives should be aligned with the overall goals of the project and provide a clear direction for the team. 2. Identify key performance indicators (KPIs): Determine the KPIs that will be used to measure the project's progress and success. These KPIs should directly align with the project objectives and be measurable. For example, if the objective is to increase patient satisfaction, the KPI could be the percentage of patients reporting high satisfaction in surveys. 3. Set targets and benchmarks: Set specific targets or benchmarks for each KPI. These targets should be realistic and achievable within the project's timeframe. They provide a quantifiable goal for the team to strive towards and allow for objective evaluation of success. 4. Establish data collection mechanisms: Implement data collection mechanisms to gather relevant information and metrics related to the identified KPIs. This can involve surveys, data analysis, interviews, or other methods of data collection. Ensure that data collection processes are standardized and consistent to enable accurate measurement. 5. Monitor and track progress: Continuously monitor and track progress towards the established targets and benchmarks. Regularly collect data and update progress reports to assess how well

the project is performing. This allows for timely identification of any deviations or areas requiring improvement.

6. Analyze and evaluate results: Analyze the collected data and evaluate the results against the established targets and benchmarks. Assess whether the project is meeting its objectives and determine the level of success achieved. This analysis can involve statistical analysis, comparison against industry standards, or qualitative assessments.

7. Seek stakeholder feedback: Gather feedback from relevant stakeholders, including project team members, end-users, and clients. Their input can provide valuable insights into the project's success and areas for improvement. Feedback can be collected through surveys, interviews, focus groups, or feedback forms.

8. Periodic reviews and adjustments: Conduct periodic reviews to assess the project's overall progress and success. Use the insights gained from the evaluation and stakeholder feedback to make necessary adjustments to project strategies, timelines, or objectives.

9. Lessons learned and continuous improvement: Continuously learn from the project's outcomes and experiences. Identify lessons learned and best practices that can be applied to future projects. Foster a culture of continuous improvement within the team and incorporate feedback into future project planning and execution.

By following these steps, the project team can define the success criteria, measure progress through relevant KPIs, evaluate results, and make informed decisions to ensure the project's overall success.

5.3	**What is your strategy for the sustainability and scalability of the project?**

To ensure sustainability and scalability of the project, the following strategies can be implemented:

1. Robust project planning: Develop a comprehensive project plan that considers long-term sustainability and scalability from the outset. This includes setting realistic goals, defining a clear roadmap, and identifying potential challenges and risks.

2. Engage stakeholders and build partnerships: Foster collaborations and partnerships with key stakeholders, such as healthcare organizations, government agencies, academic institutions, and industry experts. Engaging these stakeholders from the early stages of the project increases support, promotes knowledge sharing, and enhances the potential for sustainability and scalability.

3. Secure funding and resources: Develop a funding strategy to secure the necessary financial resources for the project's sustainability. This can involve seeking grants, sponsorships, or partnerships with funding agencies or private sector organizations. Additionally, ensure the project has access to the required technical infrastructure, equipment, and human resources to support scalability.

4. Develop a business model: Explore potential revenue streams and develop a sustainable business model for the project. This can involve offering value-added services, licensing technology, or partnering with commercial entities. A well-defined business model ensures the project's financial viability and long-term sustainability.

5. Continuous evaluation and improvement: Regularly evaluate the project's performance and impact to identify areas for improvement and optimization. Collect feedback from stakeholders and end-users to understand their needs and expectations. Incorporate lessons learned into project iterations and make necessary adjustments to enhance sustainability and scalability.

6. Documentation and knowledge sharing: Document project processes, methodologies, and outcomes to capture valuable knowledge and insights. Create a repository or knowledge base that can be accessed by the project team and future stakeholders. This promotes continuity, facilitates knowledge transfer, and enables replication or expansion of the project in other contexts.

7. Compliance with regulations and standards: Ensure the project adheres to relevant regulations, data protection laws, ethical guidelines, and industry standards. Compliance builds trust, mitigates risks, and enhances the project's reputation, which is crucial for sustainability and scalability.

8. Training and capacity building: Invest in training and capacity building activities to empower project team members, stakeholders, and end-users. Provide them with the necessary skills and knowledge to sustain and scale the project effectively. This includes technical training, capacity building workshops, and user support.

9. Scalable technology infrastructure: Design and implement a scalable technology infrastructure that can accommodate increased data volume, user demands, and future expansion. Consider cloud-based solutions, modular architectures, and scalable databases to handle growing requirements.

10. Community engagement and dissemination: Engage with the wider community and disseminate project results, best practices, and lessons learned. Participate in conferences, workshops, and industry events to share experiences and create awareness. Engaging the community helps build a supportive network and fosters the project's sustainability and scalability.

By adopting these strategies, the project can establish a solid foundation for sustainability and scalability, ensuring its long-term impact and potential for growth.

Signature

Print Name

Position

Date

Checklist:

Activity	Check
Are you an eligible member of public or private sector entity?	
Does your project fall within the priority areas under PIF?	

Have you attached the detailed project proposal?	
Are your budget estimates within the prescribed limit of Rs. 20 Million?	
Are you contributing at least 10% of the total funds needed for the project?	
Have you indicated budget estimates for your project?	
Have you given last three years' annual budget and utilization of your organization?	
Have you added CV of the lead person who is going to implement the project?	
Have you checked that your budget is correct, adds up and matches with the estimates provided in your project proposal?	
Have you answered all questions on the Proposal Form?	
Have you signed the Proposal Form?	
Have you signed the declaration below?	

Declaration:

I apply on behalf of the organization named above for a grant as proposed in this application in respect of expenditure to be incurred over the funding period on the activities above.

I certify that, to the best of my knowledge and belief, the statements made in this application are true and the information provided is correct.

This form should be signed by an individual authorized by the head of applicant organization to submit applications and sign agreements on their behalf.

Signature

Print Name

Position

Date

a. Format of the proposal
1. Personnel Bio Data of the individual/team submitting innovation Project proposals
2. Title of the proposal along with area / sector of beneficiary of innovation project, proper justification
3. Time/ Schedule of Activity of Project
4. Detailed parameter of the project proposal
5. Cost of Project along with detail /co-financing if any

6. Material required for project

b. Criteria for Selection of Proposals

1. Proposal as per above format: 15 marks
2. Quality of proposal: 15 marks
3. Impact on productivity enhancement in the relevant sector: 15 marks
4. Implementation Framework   :   15 marks
5. Monitoring framework   15 marks
6. Experience, qualification of project staff   15 marks 7. Organization financial share to execute the project   10 marks

   (0 marks for less than 10% of the cost, 3 marks between 10-20%, 5 marks between 20-30 %, 7 marks between 30-40% and 10 mark above 40%)

Instruction

1. The innovative ideas/ project should include the following areas:
   a. Governance
   b. Health
   c. Education
   d. Agriculture
   e. Tech Startups
   f. Women Entrepreneurship
2. All proposals must be submitted in a hard form along with proposal form available on the Planning Commission website
3. An individual or frim or institution can only submit up to two proposals
4. The core purpose of innovation proposal should be clearly defined. Answer to the following questions should be given properly in the proposal:
   a. Background and rational of the proposal should be described in proper manner
   b. What are the goals of the project/idea and why would you want to adopt it?
   c. Problem statement should be described. What problem are you trying to solve, what change are you trying to effect?
   d. What advancement are you trying to achieve through the proposed project/idea?
   e. What would be the strategic, operational, and/or moral imperatives for engaging in the project, and for doing so now rather than waiting?
   f. How the proposal serves the institution's mission, vision, values and strategic plan?
   g. What would be the direct/tangible and indirect/intangible benefits of the project/idea across numerous key areas?
   h. What would be the impact of the project/ idea on stakeholders?
   i. What would be the impacts on institutional effectiveness, efficiency, cost savings, revenue generation, accreditation, reputation and brand?
   j. How will the outcomes affect stakeholder's relationships?
   k. A detailed timeline for the project (planning/execution) and budget estimates should be provided
   l. Team experience to execute the proposal should be given.
   m. It should be clearly indicated whether the project's activities are sustainable under the proposed and likely future conditions and levels of funding. Also of interest will be whether the implementation of the project provides the opportunity to explore creative, instructive, relevant, adaptable, interoperable, or new models for other situations and problems.
   n. Project proposal should include measureable KPIs to determine success and accountable
   o. Proposal may also include risks associated with the innovation project including those that are foreseeable and preventable, unpredictable and uncontrollable, internal and external. Such risks have the potential to impact strategic, operational, financial, compliance, reputational, systemic and localized activities, organizational effectiveness, morale, and governance aspects of the institution.
5. Project proposal should also include an executive summary of the project proposal not more than 500 words
6. The project proposal should not be more than 10 pages
7. CV of the project team/ individual should also be attached

The hard copy of the project proposal should be reached by 25th May, 2023 to the office of the