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**📝 MEMORANDUM OF UNDERSTANDING (MoU)**

Between  
**Siphiwe Sithole**, PhD Candidate, University of Johannesburg (UJ)  
and  
**[Developer’s Full Name]**, Independent (freelancer) Blockchain Developer/Research Assistant  
With endorsement by the University of Johannesburg Supervisory Team.

1. **PURPOSE OF THIS AGREEMENT**

This Memorandum of Understanding (MoU) outlines the intent and purpose of a collaborative engagement between **Mr. Siphiwe Sithole**, a PhD candidate in the Faculty of Engineering and the Built Environment at the University of Johannesburg, and **[Developer’s Full Name]**, an independent developer currently serving as a Research Assistant at the same institution. The aim of this agreement is to define and formalise the terms under which a blockchain-based smart contract prototype will be developed, which will form an integral part of Mr. Sithole’s doctoral research focused on combating procurement irregularities and improving transparency within the energy sector through the application of blockchain technology.

The prototype will specifically serve as a practical, coded system that supports the research objective of demonstrating how smart contracts can be designed and implemented to flag irregularities, thereby reducing risks of corruption and inefficiencies in public and private sector procurement systems. The University of Johannesburg (UJ), through its academic supervision and institutional backing, supports the integration of innovative technological solutions in postgraduate research and recognises the value that this collaborative development will bring to the broader academic and professional discourse.

This agreement ensures that all efforts made under this development are clearly linked to the academic goals and ethical standards of the University, and that the resulting prototype is not only technically functional but academically credible. Additionally, this MoU acknowledges the need for proper attribution, transparency in collaboration, and the fair use of institutional resources and intellectual capital.

This purpose statement sets the foundation for mutual understanding and cooperation, ensuring that all parties involved are aligned in their contributions, expectations, and responsibilities toward the successful delivery and application of the prototype within the research project.

1. **PROJECT DESCRIPTION**

The proposed project involves the design, development, and delivery of a blockchain-based smart contract prototype that will serve as a core technical component of Mr. Siphiwe Sithole’s PhD research at the University of Johannesburg. The title of the thesis, *“Developing a Blockchain-Based Procurement and Quality Management Framework for the South African Energy Industry,”* reflects a critical inquiry into how emerging technologies such as blockchain can be leveraged to address persistent challenges in public procurement, specifically those related to transparency, accountability, and irregularities in tendering processes.

This project will focus on the development of a prototype smart contract that simulates a public procurement workflow in the energy sector. The smart contract will be programmed to autonomously monitor procurement activities, flag inconsistencies, and enforce compliance rules. It will embed pre-set conditions aligned with procurement regulations and will execute automated responses (e.g., flagging, notifications, or disqualification of bids) when deviations are detected. The ultimate objective is to illustrate how smart contract logic can serve as a digital control mechanism to prevent and expose corrupt activities such as bid rigging, inflated pricing, or vendor manipulation.

The developer, [Developer’s Full Name], will utilise a suitable blockchain framework (e.g., Ethereum or Hyperledger) and apply secure coding principles to ensure the prototype functions correctly within a simulated environment. This includes designing user interaction features, transaction logging mechanisms, and reporting dashboards to support traceability. While the prototype will not be deployed in a live production environment, it will be functional enough to demonstrate practical application and academic validity.

This deliverable will support Mr. Sithole’s thesis by providing empirical evidence and a working model that illustrates the feasibility of blockchain solutions in addressing governance challenges. The prototype will also be presented during academic reviews and may form part of future academic publications, with appropriate credit to the developer’s contribution.

1. **SCOPE OF WORK**

The scope of this agreement covers the full design, development, testing, and delivery of a blockchain-based smart contract prototype tailored specifically for Mr. Siphiwe Sithole’s PhD research on blockchain applications in public procurement within the energy sector. The developer, [Developer’s Full Name], agrees to undertake the end-to-end development of the smart contract solution as outlined in the research objectives.

The smart contract will be designed to simulate real-world procurement workflows, incorporating elements such as vendor registration, bid submission, contract awarding, compliance checks, and automated flagging of irregularities. The developer will be responsible for ensuring that the contract logic reflects procurement governance standards relevant to the energy sector and can operate within a blockchain test environment. The prototype must be designed to demonstrate key capabilities such as immutability, transparency, traceability, and enforcement of conditional rules.

Deliverables under this agreement will include:

* The full source code of the smart contract with inline comments for clarity.
* A technical documentation pack outlining the system architecture, functionalities, installation requirements, and user instructions.
* A demonstration session to walk the research team (Mr. Sithole and supervisors) through the contract’s operation, features, and interactions within the blockchain environment.

The developer agrees to deliver the final working prototype by the agreed upon deadline, which will be communicated in writing and signed off by both parties.

In addition, the developer commits to providing technical support for a period of 30 calendar days post-delivery. During this period, the developer will assist in resolving bugs, deployment issues, and general troubleshooting to ensure that the smart contract meets the academic and research standards required for PhD-level work. This support will include minor updates, error correction, and functional adjustments as necessary for academic presentations or thesis integration.

The scope of work does not include long-term maintenance or integration with any production-level systems, and the prototype will be developed for research and demonstrative purposes only.

1. **INTELLECTUAL PROPERTY (IP)**

All intellectual property (IP) arising from the development of the blockchain-based smart contract prototype including, but not limited to, the source code, algorithms, system logic, documentation, designs, and any related materials shall be the sole property of Mr. Siphiwe Sithole and the University of Johannesburg. This includes any adaptations, modifications, enhancements, or derivative works created as part of or resulting from this project.

The developer, **[Developer’s Full Name]**, acknowledges and agrees that their contribution to this project is on a once-off, contractual basis for academic research purposes. The developer hereby fully and irrevocably relinquishes all rights, claims, and interests in the aforementioned intellectual property. This includes any present or future commercial, academic, authorship, or licensing rights in relation to the prototype or its underlying code and architecture.

The developer also agrees not to reuse, replicate, publish, distribute, license, or adapt any portion of the smart contract or its concept for other projects, clients, or institutions without the prior written consent of both Mr. Siphiwe Sithole and the University of Johannesburg.

The ownership transfer covers all forms of intellectual property protection including copyright, software rights, and trade secrets where applicable. Should any legal documentation or additional forms be required to formalise this transfer at a later stage, the developer agrees to cooperate fully in executing those formalities without delay or dispute.

The developer will, however, be duly acknowledged in the final PhD thesis submission as a contributing developer under the methodology or acknowledgements section, depending on institutional guidelines. This recognition shall not, however, imply any transfer or sharing of intellectual property rights, nor will it entitle the developer to royalties, licensing fees, co-authorship, or joint ownership status.

All rights shall remain fully and permanently vested with the researcher (Mr. Siphiwe Sithole) and the University of Johannesburg, which retains the right to use, modify, publish, or commercialise the prototype at their sole discretion, without requiring further input or permission from the developer.

1. **COMPENSATION**

The total agreed-upon compensation for the services rendered by the developer, **[Developer’s Full Name]**, in designing, coding, and delivering the blockchain-based smart contract prototype is **R3,500.00 (Three Thousand Five Hundred Rand)**. This amount is a once-off, fixed fee covering the complete scope of work outlined in this agreement, including all deliverables, documentation, testing, and the 30-day technical support period following delivery.

This payment represents full and final compensation for the developer’s time, technical expertise, and contribution to the PhD research project titled *“*Developing a Blockchain-Based Procurement and Quality Management Framework for the South African Energy Industry.*”* undertaken by Mr. Siphiwe Sithole at the University of Johannesburg.

The compensation will be processed through the University of Johannesburg’s funding system and paid via the supervisor’s cost center, following internal financial procedures. Payment will only be authorised and released upon the successful delivery of the agreed-upon prototype and related documentation, and upon written approval from the supervisory committee confirming that the deliverables meet the academic and technical expectations of the research project.

The developer agrees that no additional charges, recurring fees, or future payments shall be requested or expected beyond this amount for the agreed scope. Any additional work, requests for enhancements, or extended support beyond the initial 30-day technical support period must be negotiated separately in writing and approved by both Mr. Siphiwe Sithole and the University, subject to available funding.

By signing this agreement, the developer also acknowledges that this compensation includes the full transfer of intellectual property rights and relinquishment of any future commercial claims related to the prototype. The University and the researcher shall not be liable for any further financial obligations beyond the R3,500.00 once the agreed deliverables are accepted and payment has been processed.

1. **CONFIDENTIALITY**

Both parties, namely, **Mr. Siphiwe Sithole (the researcher)** and **[Developer’s Full Name] (the developer)** hereby agree to uphold strict confidentiality concerning all information, data, source code, designs, research materials, and related intellectual and technical content shared or generated in the course of this project.

All material provided to the developer during the development of the smart contract prototype including, but not limited to, research data, project briefs, technical specifications, academic materials, and any proprietary datasets shall be treated as confidential and shall not be disclosed, duplicated, published, or otherwise disseminated to any third party without prior written consent from Mr. Siphiwe Sithole and the University of Johannesburg.

The developer further agrees that the smart contract source code, algorithms, logic structures, user interfaces, system architecture, and any supporting documentation created or developed as part of this agreement shall be handled with utmost discretion. Under no circumstances shall the developer reuse, replicate, modify for other purposes, distribute, publish, or share any portion of the code or related components with any individual, company, research group, or academic institution not party to this agreement.

This confidentiality obligation extends indefinitely beyond the completion of the project, delivery of the prototype, and payment of the agreed compensation. Any breach of this clause shall be treated as a serious violation and may result in academic, legal, or institutional action, including but not limited to the withholding of compensation, institutional reporting, or legal recourse through the University of Johannesburg’s legal office.

In the interest of preserving academic integrity, data security, and the originality of Mr. Sithole’s doctoral research, both parties affirm their understanding that all research-related communications, documents, and deliverables are to remain strictly confidential and used solely for the purpose of completing the agreed academic research objectives.

By signing this agreement, both parties commit to these confidentiality terms and acknowledge the critical importance of protecting the academic and intellectual assets involved in this research collaboration.

1. **DURATION**

This Memorandum of Understanding (MoU) shall remain in full force and effect from the date of its execution by all parties and shall continue to be effective until the completion of the project as outlined in this agreement, including any mutually agreed-upon extensions or phases of the project.

The duration may be extended if all parties deem it necessary to accommodate additional work, changes in project scope, or unforeseen delays. Such extensions must be formalised through written consent and duly signed by all parties involved.

This MoU may be terminated earlier by mutual agreement of the parties, provided that a written notice of termination is submitted by any party at least 30 days in advance and acknowledged by the others. In the event of early termination, the parties shall ensure that all obligations and responsibilities up to the termination date are fulfilled to the extent reasonably possible.

Any amendments, revisions, or modifications to this MoU, including those affecting its duration, shall be made in writing and signed by authorised representatives of all participating parties.

1. **DISPUTE RESOLUTION**

In the event of any disagreement, conflict, or dispute arising out of or in connection with this Memorandum of Understanding (MoU), including but not limited to matters relating to interpretation, implementation, performance, or breach of any provision, the parties commit to resolving the issue in a cooperative and constructive manner.

* 1. **Amicable Resolution**

The parties shall first make every reasonable effort to resolve any such dispute amicably and in good faith through direct discussions and negotiations. These discussions shall be conducted with the aim of reaching a mutually acceptable solution without resorting to external mechanisms or litigation. Each party agrees to engage in open dialogue, to act in a spirit of mutual respect and collaboration, and to provide any necessary information that may help clarify or settle the matter.

* 1. **Referral to Internal University Structures**

If the dispute cannot be resolved through informal discussions within a reasonable period (typically not exceeding thirty [30] calendar days from the date the dispute is formally raised), the matter shall be escalated to the University of Johannesburg’s relevant internal authority. Specifically, the dispute will be referred to as well:

* The **Research Office**, in instances where the matter concerns research outputs, project deliverables, academic collaborations, or intellectual property; or
* The **Legal Unit,** in cases involving legal interpretation, contractual obligations, or potential breaches of this MoU.
  1. **Review and Recommendation**

Upon receiving the matter, the designated office or unit shall conduct a fair review of the dispute, including soliciting written statements or evidence from the parties involved if necessary. The office shall then issue a recommendation or directive aimed at resolving the issue efficiently and equitably. All parties agree to give due consideration to the findings and recommendations provided by the reviewing office.

* 1. **Further Action**

Should the dispute remain unresolved after intervention by the University of Johannesburg’s Research Office or Legal Unit, the parties may mutually agree to submit the matter to **mediation** or **arbitration**, facilitated by an independent third party. The terms and conditions of such alternative dispute resolution processes shall be agreed upon in writing before commencement.

* 1. **Jurisdiction**

In the unlikely event that legal proceedings become necessary, the parties agree that the dispute shall be governed by the laws of the Republic of South Africa, and that the courts of competent jurisdiction within South Africa shall have exclusive jurisdiction over the matter.

This dispute resolution clause is designed to preserve the integrity of the collaboration and to minimise disruption to the project. All parties commit to engaging in good faith efforts to resolve any conflicts in the most constructive and least adversarial manner possible.

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| 1. **SIGNATORIES** |
| This Memorandum of Understanding is entered into and agreed upon by the undersigned parties. By signing below, each party affirms that they have read, understood, and agreed to the terms and conditions set forth in this MoU. |
| 1. Signed by: **Mr. Siphiwe Sithole** PhD Candidate University of Johannesburg Signature:  Date: 22 / 07/ 2025 |
| 1. **[Developer’s Full Name]** Independent Software Developer Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 1. **Approved and Endorsed by Supervisory Team:** **Prof. [Supervisor’s Full Name]** PhD Supervisor University of Johannesburg Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 1. **Doctor. [Supervisor’s Full Name]** PhD Supervisor University of Johannesburg Signature: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |