Adama City Administration

A Proposal for Establishment of Technology Enterprise under Adama Investment Group (AIG-Tech Enterprise)

April 2, 2025

Adama, Ethiopia

Executive Summary

This proposal outlines the establishment of a new department within Adama Investment Group (AIG), namely the "AIG-Tech" Enterprise. The aim of the AIG-Tech Enterprise is to drive forward the Group's technological advancements, particularly focusing on smart city technologies, cybersecurity, and related services. The department will encompass various functions, including procurement, consulting, installation, training, and other vital activities necessary for the successful deployment and maintenance of cutting-edge tech solutions.

Incorporating AIG-Tech will strategically position AIG at the forefront of technological innovation, not only meeting the increasing demand for smart city infrastructure but also offering services that ensure the security and sustainability of digital ecosystems. The department will play a central role in transforming cities into smarter, more efficient environments by integrating IoT, AI, data analytics, and automation into urban management systems. With a comprehensive approach that combines the latest technology and cybersecurity measures, AIG-Tech will provide end-to-end solutions that address both current and future challenges in urban development.

Furthermore, the department will serve as a hub for technological expertise, offering consulting services tailored to the specific needs of local governments, businesses, and other organizations. AIG-Tech will also facilitate training programs to build local capacity and ensure the successful adoption and utilization of these technologies. By providing a full spectrum of services, AIG-Tech will help the region stay competitive in the global digital economy while fostering innovation and sustainable development. This move will solidify AIG's reputation as a leader in tech-driven urban solutions and secure infrastructure, ensuring long-term growth and resilience for both the group and the communities it serves.

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1 Introduction

1.1 Background

Adama City has embarked on an exemplary initiative, named Smart Adama Initiative, to improve the efficiency of its operations and transform the lives of its residents. In today's fast-evolving technological landscape, organizations face the dual challenge of keeping up with the rapid pace of innovation while navigating complex vendor relationships, often marked by delays and inconsistent service delivery. This challenges the city administration and threatens the sustainability of the initiatives.

On the other hand, Adama Investment Group (AIG), is the development wing of the City Administration established to engage in business activities that are critical to the development of the City. AIG is recognized for its strategic vision and commitment to economic growth. It has shown a significant developmental stride through the three enterprises that are currently operational. AIG will benefit from establishing an information technology wing that will be engaged in the automation of services and development of digital solutions to streamline its business operations. Recognizing the challenges the City Administration is facing and its plan to digitize internal processes, AIG has identified the establishment of a tech enterprise – AIG-Tech as a strategy that benefits the group in improving its revenue while ensuring the sustainability of the City Administration's smart city initiatives.

This document outlines the establishment of the AIG-Tech Enterprise that will be involved in business activities involving smart city technologies, advanced cybersecurity solutions, and IT infrastructure systems. In addition, the enterprise will serve as the think tank of the city administration and offer essential services, such as consulting, training, and system integration to the city and beyond. Furthermore, the enterprise will support the City Administration in its Smart Adama initiative. Through this, AIG aims to build a competent digital enterprise that is respected in the tech ecosystem of the country and accelerates the digital transformation while bringing about sustainability for the City Administration's digital ambitions and provide effective solutions to overcome the technological and vendor-related challenges currently facing the region.

2 Mission and Vision

Mission

The mission of the enterprise is to deliver state-of-the-art ICT solutions through innovative approaches with professional perfection. The enterprise will also ensure the sustainability of the Smart Adama Initiative.

Vision

The enterprise aspires to be renowned IT Company in the Horn of Africa that delivers high-quality innovative IT services to national and international clients by 2035.

3 Problem Statements

Adama City is witnessing an exciting phase of growth, with rapid urbanization and a high demand for advanced technological infrastructure to support both public services and private sector development. As the city continues to expand, there is increasing pressure on local businesses and government entities to adopt and integrate smart technologies that will enhance the quality of life for its citizens and attract more investment. However, the city currently faces significant challenges in its reliance on external vendors for critical technological services. This overdependence on external providers results in high costs, limited flexibility, and lack of control over the technology infrastructure. Furthermore, the city is often at the mercy of vendors who dictate terms and set prices, which could lead to vendor lock-in, preventing Adama from exploring alternative or more cost-effective solutions that are better suited for its growing needs.

In response to these challenges, there is a clear demand for Adama to develop its own homegrown technology enterprise to supply the city's infrastructure with innovative solutions and even extend these offerings to surrounding cities. A dedicated enterprise, managed by a AIG-Tech department, would enable Adama to take control of its technological future, reducing its reliance on external vendors and minimizing the high costs associated with outsourced solutions. By developing and maintaining in-house technology systems, Adama could significantly reduce operational expenses, increase control over implementation timelines, and ensure that the city's tech ecosystem evolves in a way that is tailored to local needs. Such an enterprise would also drive job creation, innovation, and entrepreneurship within the city, offering a competitive edge that could attract new businesses and investors to the region.

Additionally, as the demand for seamless integration of smart technologies across Adama City and its surrounding areas increases, the lack of a centralized IT management structure is becoming a significant roadblock. The disparate systems implemented by various vendors often lead to integration challenges, with different technologies not working in harmony. This fragmentation results in inefficiencies, delays, and missed opportunities for more cohesive urban planning and business operations. AIG-Tech department dedicated to overseeing technology development, integration, and vendor management would streamline the process, ensuring that all systems are interoperable and scalable to meet the growing demands of both the public and private sectors. By addressing these integration issues and fostering a sustainable tech ecosystem, Adama City can enhance its ability to develop and deploy future-ready solutions, positioning itself as a regional hub for innovation and smart city advancements.

4 Strategic Objectives

The AIG-Tech Department within AIG aims to drive technological innovation and digital transformation across various sectors by focusing on the implementation of smart city technologies, advanced security solutions, and the development of sustainable IT infrastructure. The strategic objectives of the AIG-Tech Department are as follows:

1. **Lead the Advancement of Smart City Solutions**

The AIG-Tech Department will be at the forefront of developing and implementing smart city solutions to enhance urban efficiency, sustainability, and quality of life. By leveraging cutting-edge technologies like IoT, AI, and data analytics, AIG-Tech will help cities optimize infrastructure management, improve public services, and reduce resource consumption. The primary objective is to create connected, resilient, and sustainable cities that address key challenges such as energy management, traffic congestion, waste management, and public safety.

2. **Enhance Cybersecurity Resilience Across Urban and Business Ecosystems**

   With the rise of digital transformation, cybersecurity has become critical to ensuring the protection and resilience of smart city infrastructure and business systems. A core objective of the AIG-Tech Department is to offer state-of-the-art cybersecurity services to safeguard against cyber threats, data breaches, and cyberattacks. The department will work to design, deploy, and maintain comprehensive cybersecurity frameworks that protect both public sector institutions and private businesses, securing critical data and digital assets.

3. **Drive Digital Transformation and Innovation Across Multiple Sectors**

   The AIG-Tech Department will support businesses and municipalities in their digital transformation journey by offering consulting, technology implementation, and tailored solutions. By advising clients on how to leverage emerging technologies such as cloud computing, artificial intelligence (AI), and big data analytics, AIG-Tech will help organizations optimize operations, improve decision-making, and increase overall productivity. The department will ensure that businesses are equipped to adapt to the evolving digital landscape, promoting long-term growth and efficiency.

4. **Foster Collaboration and Partnerships for Technological Advancements**

   To further its mission of delivering innovative solutions, the AIG-Tech Department will actively seek collaborations and partnerships with technology providers, research institutions, and industry leaders. By fostering strong relationships with key stakeholders, the department will ensure access to the latest technologies, trends, and research. Strategic partnerships will also be vital for scaling smart city projects and providing high-quality services that address the region's evolving technological needs.

5. **Develop a Highly Skilled Workforce for Digital Innovation**

   AIG-Tech will prioritize talent development and knowledge transfer through comprehensive training and capacity-building initiatives. By developing a skilled workforce in both smart city technologies and cybersecurity, the department will ensure that the region has the necessary expertise to implement and maintain advanced digital systems. This will involve offering specialized training programs, certifications, and hands-on workshops aimed at empowering employees, business leaders, and local government officials with the skills to effectively manage and operate new technologies.

6. **Contribute to Sustainable Urban Development and Environmental Conservation**

   A key objective of the AIG-Tech Department is to support the development of environmentally sustainable cities. By incorporating green technologies into smart city infrastructure, the department will aim to reduce energy consumption, minimize waste, and improve overall environmental impact. The depart-

ment's solutions will focus on renewable energy integration, energy-efficient systems, and technologies that optimize resource usage, contributing to long-term environmental conservation and a greener future.

7. **Ensure the Growth of a Profitable and Sustainable Business Model**

   While focusing on technological innovation, the AIG-Tech Department will also aim to create a profitable and sustainable business model that drives revenue generation through consulting services, system integration, technology procurement, and ongoing support contracts. By offering a comprehensive suite of services across multiple sectors, AIG-Tech will contribute to AIG's financial growth and long-term success. The department will continuously explore new business opportunities and revenue streams to expand its reach and impact.

8. **Promote Regional Technological Leadership and Competitiveness**

   The AIG-Tech Department will help position AIG as a regional leader in smart city development and cybersecurity. By delivering advanced technological solutions and thought leadership, the department will not only benefit its clients but will also contribute to the broader regional development agenda. The department's work will enable the region to compete globally by leveraging its technological expertise to attract foreign investments and strengthen its digital economy.

5 Scope of AIG-Tech Enterprise

The tech industry is a highly dynamic area, and it is challenging to finalize the business area at the establishment stage. However, we can set some initial business areas that can be updated depending on the strength of the enterprise, market demand, and capacity. The major business areas that the enterprise will be engaged in are listed below.

1. **Smart City Solutions**

   General Description: The enterprise will be responsible for the planning, procurement, installation, and maintenance of smart city solutions that use advanced technologies to enhance the quality of life in urban environments. These technologies will be implemented to address common urban challenges such as traffic congestion, waste management, energy consumption, and public safety. Key areas include, but are not limited to:

   - **Intelligent Transportation Systems (ITS)**: The implementation of smart traffic lights, intelligent parking systems, and real-time traffic monitoring to reduce congestion, optimize traffic flow, and improve road safety.
   - **Energy Management Solutions**: Smart grids and energy-efficient buildings to optimize energy consumption, integrate renewable energy sources, and reduce the carbon footprint of urban areas.
   - **Waste Management Systems**: Automated waste collection systems, recycling solutions, and smart waste bins that enable efficient waste disposal and resource management.
   - **Public Safety and Surveillance**: Deployment of smart surveillance systems, AI-driven public safety networks, and emergency management systems to improve security and emergency response

times in urban environments.

- **Smart Health Solutions:** Integration of telemedicine services, smart healthcare monitoring systems, and e-health platforms to improve access to healthcare and services in urban areas.

2. **Cybersecurity Services**

   General Description: Cybersecurity will be a foundational component of the enterprise's operations, given the increasing threats posed by cyberattacks targeting digital ecosystems. AIG-Tech will focus on providing cybersecurity solutions aimed at securing critical infrastructure and services. Core services in cybersecurity include, but are not limited to:

   - **Cybersecurity Audits and Assessments**: Performing detailed cybersecurity assessments and audits for both public and private sector clients to identify vulnerabilities and risks in their digital systems and infrastructure.
   - **Network Security Solutions:** Implementation of next-generation firewalls, intrusion detection/prevention systems (IDS/IPS), and secure VPN solutions to safeguard communication networks and prevent unauthorized access.
   - **Data Protection and Privacy**: Ensuring compliance with local and international data privacy regulations (e.g., GDPR) by implementing data encryption, secure data storage, and access control measures.
   - **Incident Response and Recovery**: Developing and executing response plans to mitigate the impact of cyberattacks, as well as ensuring that systems and data are recoverable after a breach.
   - **Threat Intelligence and Monitoring**: Continuous monitoring of networks and systems to detect potential threats, along with proactive threat intelligence to identify and mitigate emerging security risks before they cause harm.

3. **Consulting and Strategic Advisory Services**

   The AIG-Tech Department will offer specialized consulting services to organizations seeking to integrate smart city technologies, optimize their digital infrastructure, and secure their IT ecosystems. Key services include:

   - **Smart City Planning and Design**: Providing end-to-end consulting for cities and municipalities on the planning and design of smart city technologies, including the selection of appropriate technologies, systems integration, and feasibility assessments.
   - **Digital Transformation Consulting**: Advising businesses on how to leverage digital technologies such as cloud computing, IoT, big data, and AI to optimize operations, enhance customer experiences, and drive business innovation.
   - **Cybersecurity Strategy Development**: Offering strategic guidance on how organizations can build resilient cybersecurity programs, establish secure IT architectures, and protect critical infrastructure from evolving cyber threats.

- **Regulatory Compliance Consulting**: Helping organizations understand and comply with cybersecurity laws, data privacy regulations, and industry standards related to smart city technologies and IT security.

4. **Procurement and Implementation of Technology Solutions**

   A key function of the AIG-Tech Department will be managing the procurement of the latest smart city technologies and ensuring their effective integration into the clients' existing systems. Services under this scope include:

   - **Technology Sourcing and Procurement**: Identifying, sourcing, and procuring the latest cutting-edge smart city and cybersecurity technologies from trusted vendors. This includes IoT devices, AI tools, smart grid technology, and data analytics platforms.
   - **System Integration:** Integrating smart city technologies into clients' existing infrastructure, ensuring that all components of the system work harmoniously together for seamless functionality and performance.
   - **Project Management**: Overseeing the deployment and installation of technology solutions, ensuring that projects are completed on time, within budget, and to the specified requirements.
   - **Customization and Tailoring**: Developing customized solutions based on the unique needs of each client, ensuring that technologies are scalable, efficient, and adaptable to future developments.

5. **Training and Capacity Building**

   To ensure the long-term success and sustainability of smart city projects, AIG-Tech will offer training programs designed to build local capacity in both the public and private sectors. These training programs will cover various topics related to the operation and management of smart city technologies and cybersecurity measures. Key areas include:

   - **Technical Training for IT Professionals:** Offering specialized technical training for system administrators, cybersecurity professionals, and other IT experts on the operation, configuration, and troubleshooting of smart city technologies and cybersecurity tools.

     End-User Training: Educating non-technical users in municipalities, organizations, and businesses on how to effectively use new technologies, including smart transportation systems, energy management tools, and security platforms.

     Cybersecurity Awareness Programs: Providing training on best practices for cybersecurity, focusing on topics such as data protection, threat prevention, secure communication, and incident response.

     Capacity Building for Local Governments: Ensuring that local government officials are equipped with the knowledge and tools to manage and govern the deployment of smart city technologies and digital services effectively.

6. **Ongoing Maintenance and Support** After the installation and implementation of smart city technologies, AIG-Tech will offer comprehensive support and maintenance services to ensure that all systems

continue to operate optimally and securely. These services include:

- **24/7 Monitoring and Support**: Providing round-the-clock monitoring services to detect and resolve issues before they impact the functionality of critical systems. This includes ensuring the health of IoT devices, traffic management systems, and energy grids.
- **Regular System Updates**: Ensuring that all technology platforms are updated regularly to maintain security standards, add new features, and fix any identified vulnerabilities.
- **Troubleshooting and Repairs**: Providing technical support to troubleshoot issues, repair faulty systems, and perform hardware replacements or upgrades as needed.
- **Software Maintenance and Patching**: Installing patches and updates to maintain the security and performance of software systems, including cybersecurity tools and smart city platforms.

6 Structure and Organization

The structure of the AIG-Tech department at AIG is designed to ensure efficient management and specialization across key technological areas. At the top of the department is the Director, who oversees all operations and reports directly to the CEO, ensuring alignment with AIG's overall strategic objectives. Under the Director, the department is divided into four distinct sections: Innovation and Solution Development, IT infrastructure, Converged Security, and Managed Services. Each section is led by a dedicated team that focuses on its specific domain, ensuring expert handling of the diverse technological needs of the organization. This structure facilitates streamlined decision-making, enhances communication across teams, and allows for targeted innovation and continuous improvement in each area of expertise, ultimately supporting AIG's broader goals of security, efficiency, and profitability.

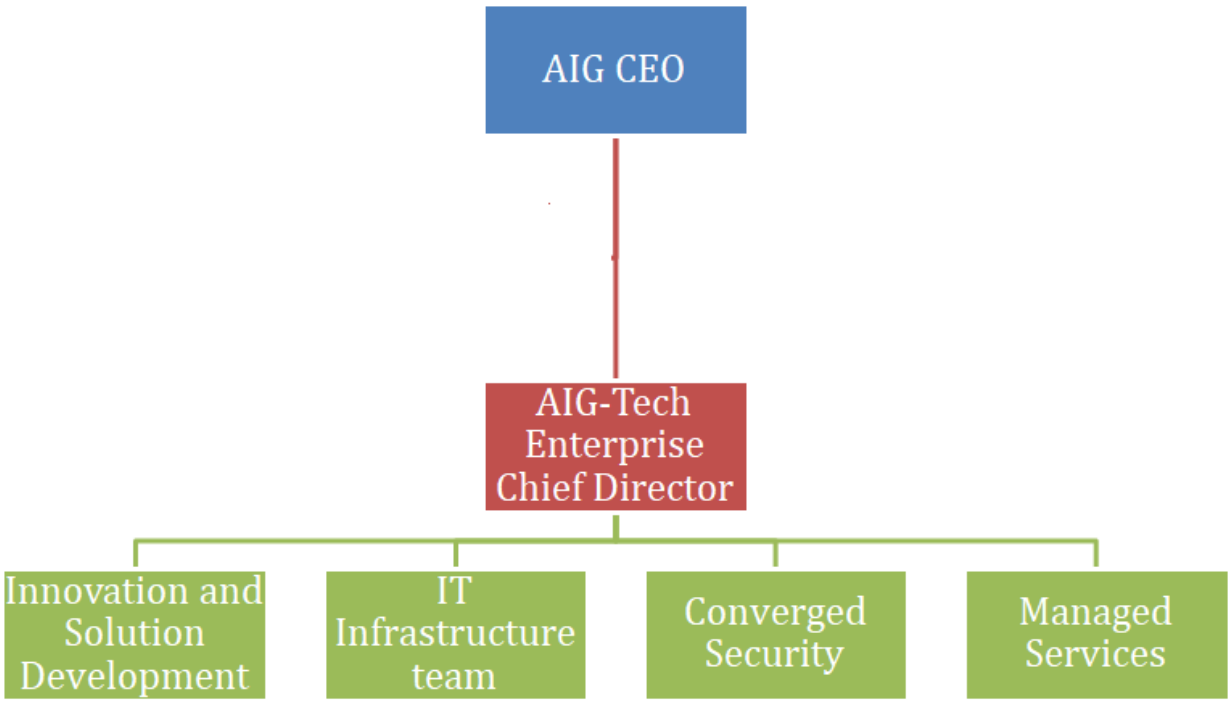

Figure 1: Proposed Initial Organogram of the Enterprise.

6.1 AIG-Tech Enterprise Chief Director

The Enterprise chief director is the administrative head of the enterprise. He/she runs the enterprise by closely working with the group CEO and the staff of the enterprise. Some responsibilities of the Enterprise CEO are:

- Properly Staff and furnish the enterprise
- Prepare all required legal documents (eg. guidelines, formats and policy documents) for endorsement by the board.
- Establish a workflow for the enterprise employees to follow
- Oversee overall operation of the enterprise
- Formulates policies and planning recommendations to the Group CEO
- Decide or guides courses of action by the staff
- Implements plans of the enterprise
- Represents the enterprise at different organizations
- Provide periodic reports to the Group CEO

5.2. Steering Committee The steering committee will be composed of professionals and leaders from different sectors to ensure seamless integration between the City Administration's sectoral offices and the enterprise. The steering committee shall be chaired by the Group CEO and the Adama Science and Technology Office (ASTO) head will serve as Secretary. The steering committee shall be established within a year. The remaining members will be identified upon its establishment.

6.2 Innovation and Development Team

The innovation and development division is one of the core divisions of the enterprise. It is the powerhouse of the enterprise. All innovative ideas will be generated from this division. The development wing of the division will bring the ideas into reality. Products and services will be developed by this division will be taken to market by the sales and marketing team (that will be shared with other enterprises). Core responsibilities of the team include:

- Propose implementable project ideas.
- Develop detailed user requirement documents to be implemented.
- Develop system/solution design documents.
- Develop systems/solutions as per developed design and requirement documents.
- Provide consultancy services to clients.
- Perform system configuration services.
- Provide training services

The division will have teams that will be responsible for varied aspects of innovation and development. The teams are:

- **Innovation Team**: this team is responsible for bringing in new profitable ideas and projects to be implemented. This team will also serve as the think-tank of the City Administration by providing best practices and consultancy services to the administration.
- **Solution Development Team**: this team is responsible for the development of innovative solutions that include various hardware and software components. The products and services that will be developed here will be sold by the sales/marketing team and projects will be implemented by the Project Management Office. The sales and marketing team will be shared with other enterprises.
- **Internal and external Training and Support**
  - Promoting a culture of innovation within the organization by providing training and creating awareness.
  - Communicating innovation progress and achievements to leadership, employees, and stakeholders.
- **Strategic Planning and Roadmap Development**
  - Developing a strategic innovation roadmap that aligns with the company's long-term vision and business goals.
  - Defining the scope, timeline, and resource requirements for various innovation initiatives.

6.3 IT Infrastructure Team

An IT Infrastructure Team is responsible for managing and maintaining the foundational systems, hardware, software, networks, and services that enable an organization's IT operations. The goal of the team is to ensure that the technology environment is stable, secure, scalable, and efficient, supporting the business's day-to-day activities and future growth. Its key components are the following:

Configuration and Change Management

- Role: Ensures that changes to the infrastructure are made in a controlled and systematic manner to avoid disruptions.
- Responsibilities:
  - Managing configuration items (hardware, software, network devices)
  - Creating and maintaining configuration management databases (CMDB)
  - Coordinating changes to the IT infrastructure to prevent conflicts and minimize downtime
  - Implementing change management protocols to ensure controlled updates and upgrades
  - Documenting all changes and configurations for auditing and compliance

Network Installation and Device Maintenance

- **Role**: Responsible for maintaining the organization's network, including LAN (Local Area Network), WAN (Wide Area Network), internet connectivity, and internal communications.
- **Responsibilities**:
  - Configuring and managing routers, switches, firewalls, and load balancers
  - Ensuring network performance, availability, and scalability
  - Monitoring network traffic and troubleshooting issues
  - Implementing network security measures (e.g., VPN, firewalls, intrusion detection systems)
  - Ensuring disaster recovery and network redundancy
  - Network installation, hardware maintenance and monitoring

6.4 Converged Security Team

Converged Security refers to the integration of physical security and cybersecurity into a unified approach, where both domains work together to protect an organization from a wide range of threats. In the past, these two areas were often managed separately, with physical security focusing on protecting physical assets (e.g., buildings, equipment, personnel) and cybersecurity focusing on digital assets (e.g., networks, data, applications). With the increasing complexity of threats and the rise of connected systems, converged security aims to break down these silos to improve efficiency, reduce risk, and ensure comprehensive protection. Key Components of Converged Security:

1. Unified Security Systems

    - Physical and cybersecurity systems (e.g., surveillance cameras, access control systems, firewalls, intrusion detection systems) are integrated into a single, cohesive platform.
    - Centralized management allows security teams to monitor, respond, and analyze incidents across both domains from a single interface.
    - Collaboration Between Physical and Cybersecurity Teams
    - Both physical security professionals (guards, surveillance, building access control) and IT security professionals (network security, endpoint protection, incident response) work together to design and implement security protocols.
    - Cross-training helps staff understand the interdependencies between physical and cyber threats, improving response times and overall security posture.

2. Integrated Threat Intelligence

    - Threat intelligence from both domains (physical and cyber) is shared and analyzed in real-time to detect, prevent, and respond to complex threats.
    - For example, if a physical break-in occurs, it could signal a potential cyber attack, like data theft or unauthorized access to sensitive information. This integrated view allows for more proactive threat mitigation.

3. Risk Management

    - Converged security helps organizations identify and mitigate risks in a comprehensive manner by considering both physical and cyber threats.
    - For example, ensuring that access to physical assets (like servers or data centers) is controlled through biometric or card-based systems, while also securing network access through strong authentication methods.

4. Data Protection and Privacy

    - Both physical and cybersecurity measures are crucial to protecting sensitive data and ensuring privacy.
    - Physical security can prevent unauthorized access to areas where data is stored or processed, while cybersecurity protects data in transit and in storage.

5. Incident Response and Recovery

    - A unified approach ensures that response plans consider both physical and cyber attack vectors, improving the speed and effectiveness of incident response.
    - For example, if an attack on a network is detected and linked to a physical security breach (e.g., an insider accessing a restricted area), an integrated response plan can be quickly enacted, covering both the digital and physical aspects of the attack.

6. Surveillance and Monitoring Systems

- Converged security enables the integration of physical surveillance systems (e.g., CCTV, motion detectors) with cybersecurity monitoring tools (e.g., SIEM – Security Information and Event Management systems).
- This integration allows security teams to correlate data from various sources (e.g., access logs, camera footage, network traffic) for a more comprehensive security view.

7. Access Control
   - Converged security integrates physical access controls (like ID badges or biometric authentication for physical locations) with digital access controls (like username/password, multi-factor authentication for network and cloud resources).
   - This ensures that only authorized personnel can access both physical locations and critical digital systems, providing a seamless and secure experience.
8. Compliance and Governance
   - Converged security helps organizations meet various compliance requirements that span both physical and cyber domains, such as those related to data protection (GDPR, HIPAA), financial regulations, or industry-specific security standards.
   - By managing both aspects in a unified way, it's easier to demonstrate compliance through integrated audits and reporting.
9. Automation and Orchestration
   - Automated workflows and orchestration tools help to streamline security operations across both physical and cyber domains, reducing the time required to respond to threats and ensuring coordinated efforts between teams.
   - For instance, if a breach is detected in the cyber realm, it might trigger physical access restrictions (e.g., locking down physical spaces or disabling entry cards).

Benefits of Converged Security:

- Improved Efficiency: Centralized management and a unified security approach lead to better resource allocation, faster response times, and reduced redundancies in monitoring and reporting.
- Reduced Risks: By addressing physical and cyber threats simultaneously, converged security helps to prevent attacks that could exploit vulnerabilities in one area and extend to the other.
- Holistic Protection: Converging physical and cybersecurity systems provides comprehensive protection for both digital and physical assets, making it harder for adversaries to bypass security measures.
- Cost Savings: Instead of maintaining separate security teams and systems for physical and cyber threats, organizations can consolidate resources, reducing overhead costs and simplifying security operations.
- Faster Incident Response: With integrated systems and shared intelligence, security teams can respond faster to threats, regardless of whether they are physical or digital in nature.

- Better Compliance: A unified approach helps to ensure compliance with regulations that span both physical and digital domains, reducing the risk of legal or financial penalties.

6.5 Managed Services Team

A Managed Services Team is typically structured to provide ongoing support, maintenance, and management of an organization's IT infrastructure, systems, and business processes. The goal is to ensure that these systems run smoothly, securely, and efficiently while allowing the organization to focus on its core competencies. This team is responsible for all managed services provided by the enterprise to external clients. The managed services range from Smart City Applications, to call centers, and managed cybersecurity services.

The main components of a Managed Services are

1. Infrastructure Management
    - Primary Function: Ensures the health, performance, and scalability of an organization's IT infrastructure, including servers, networks, data centers, and cloud environments.
    - Key Responsibilities:
        - Server management and monitoring (physical or virtual)
        - Network monitoring, optimization, and troubleshooting
        - Backup and disaster recovery (DR) solutions
        - Managing cloud environments (e.g., AWS, Azure, Google Cloud)
        - Performance tuning and resource allocation
2. Cloud Services Management
    - Primary Function: Manages cloud-based solutions and services, including hosting, storage, software-as-a-service (SaaS), and platform-as-a-service (PaaS) offerings.
    - Key Responsibilities:
        - Cloud environment monitoring and management
        - Cloud migration and optimization
        - Cost management and resource provisioning
        - Integration of on-premise infrastructure with cloud solutions
        - Scaling cloud services based on usage and demand
3. Network Management
    - Primary Function: Ensures the continuous operation, security, and performance of an organization's network, including local area networks (LAN), wide area networks (WAN), and internet connectivity.
    - Key Responsibilities:
        - Network monitoring, fault detection, and troubleshooting

- Managing network traffic and optimizing bandwidth usage
- VPN, remote access, and site-to-site connectivity
- Managing routers, switches, firewalls, and other network devices
- Implementing network redundancy and failover strategies

4. Vendor Management
   - Primary Function: Manages relationships with third-party vendors providing IT products, services, and support.
   - Key Responsibilities:
     - Negotiating contracts and service agreements
     - Monitoring vendor performance and compliance with SLAs
     - Coordinating vendor-related incidents and escalations
     - Managing procurement of IT hardware and software
5. Service Level Management
   - Primary Function: Ensures that services are delivered according to agreed-upon service levels and customer expectations.
   - Key Responsibilities:
     - Defining and managing SLAs for various services
     - Ensuring compliance with SLAs through regular monitoring
     - Analyzing service performance and implementing improvements
     - KPI (Key Performance Indicator) tracking to ensure service quality

7 Resource Requirements

To stabilize AIG-Tech in AIG, there are several key resource requirements that would need to be addressed. These can be grouped into categories related to infrastructure, human resources, financial investment, and strategic partnerships. The following are the primary resource areas that should be considered:

7.1 Human Resource

Human Resource Requirement (Indicative. Not Exhaustive) The following positions need to be filled to operate at full scale. However, recruitment shall take place progressively based on the level of engagement and business needs. The high-level responsibilities, qualifications, and experience is given in Annex 1.

Table 1: Rough Estimation of Financial Requirement for Establishment of AIG-Tech

Sno.	**Description**	**Team (Division)**	Number	Remark
1	Innovation Expert • Technology Innovation Expert • Process Innovation Expert • Digital Transformation Innovation Expert	Innovation and Development	3	
2	Data Scientist • Machine Learning / Artificial Intelligence (ML/AI) Specialist • Statistical Analysis Specialist	Innovation and Development	4	2 for each
3	Database Administrator	Innovation and Development	2	Senior and junior
4	Software Developer • Front-end Developers • Back-end Developer • Full Stack Developer	Innovation and Development	5	1 for front-end, 2 for back-end and 2 for full-stack
5	DevOps Engineer • Infrastructure as Code (IaC) Expert • Release and Deployment Management Exper	Innovation and Development	2	
6	Business Analyst	Managed Services	1	
7	Scrum Master	Innovation and Development	1	
8	Solution Architect • Enterprise Solution Architect • Integration Solution Architect	Managed Services	4	2 for each and all ath the same level
9	Converged Security Engineers • Physical Security Engineer • Cyber Security Engineer	Converged Security	7	Physical 4, Cyber security 3, total 7

10	Cloud Architect • Cloud Application Architect • Cloud Infrastructure Architect	IT Infrastructure	4	2 for each
11	Communication Engineer • Wireless Communication Engineer • 5G/Next-Generation Mobile Networks Engineer • Optical Communications Engineer • Communication Systems Engineer	IT Infrastructure	4	1 for each
12	Support Technion	Managed Services	5	All at equal level
13	Network Engineer	IT and Infrastructure	4	All at equal level
14	Principal Network and Communication Engineer	IT Infrastructure	1	

Table 2: Qualification list for Team leaders and Chief Director

Sno.	**Position**	**Responsibility**	Min. Qualification	Experience	Salary
1	Innovation Expert	• Identifying and Exploring Opportunities. • Leading Innovation Projects • Leading Innovation Projects • Collaboration Across Teams • Idea Generation and Concept Development • Innovation Strategy Development	MSc. Degree in Computer Science, Computer Engineering, Communication Engineering, Information Science, Electrical Engineering and Related.	7 years and above	25000-35000 birr

2	Data Scientist	• Data Collection and Acquisition • Data Cleaning and Preprocessing • Exploratory Data Analysis (EDA) • Model Building and Development • Model Evaluation and Optimization • Big Data and Advanced Analytics • Automation and Process Improvement • Data Governance and Ethics	BSc degree and above in Computer Science, computer Engineering, Information science and related	6 years and above	40000-45000 birr
3	Database Administrator	• Data Management and Organization • Database Administration • Data Integration and Migration • Monitoring and Reporting • Data Troubleshooting and Support	BSc. degree and above in computer science, Computer engineering, Artificial intelligence and related	6 years and above for BSc and 4years and above for MSc.	45000-50000 birr
4	Software Developer	Developing front-end, back-end and full system (full-stack)	BSc. degree in Computer science, computer engineering, software engineering, electrical and computer engineering and related.	4 years and above	40000-50000

5	DevOps Engineer	• Infrastructure Automation and Management • Logging and Alerting • Configuration Management • Performance Tuning and Optimization • Incident Management and Troubleshooting • Automation of Routine Tasks	BSc. degree and above in computer science, Computer engineering,Electrical Engineering, Artificial intelligence and related	6 years and above for BSc and 4years and above for MSc.	35000-45000 birr
6	Business Analyst	• Requirements Gathering and Documentation • Business Process Analysis and Improvement • Data Analysis and Reporting • Stakeholder Management and Communication • Solution Design and Evaluation • Change Management and Implementation Support	BSc. degree and above in computer science, Computer engineering,Electrical Engineering, Artificial intelligence and related	7 years and above	30000-45000 birr

7	Scrum Master	• Facilitating Scrum Events • Coaching the Team • Removing Impediments • Protecting the Team's Focus • Ensuring Transparency and Metrics • Developing a Strong Scrum Team Culture • Continuous Learning and Personal Development	BSc. degree and above in computer science, Computer engineering,Electrical Engineering, Artificial intelligence and related	6 years and above	30000-45000 birr
8	Solution Architect	• Solution Design and Architecture • Solution Validation and Quality Assurance • Performance Optimization and Scalability • Cost Management and Budgeting • Continuous Improvement and Innovation	BSC degree and above in computer science, engineering, IT and related	6 years and above	30000-45000 birr

9	Cybersecurity Engineer	• Security Architecture and Design • Risk Assessment and Vulnerability Management • Incident Response and Management • Security Monitoring and Threat Intelligence • Security Tools and Solutions Management • Security Policy and Compliance • Data Protection and Encryption	BSc degree and above in Compuet science, Electrical engineering, Information technology, information security and related	6 years and above	35000-50000 birr
10	Cloud Architect	• Cloud Infrastructure Design and Architecture • Cloud Migration and Integration • Cloud Cost Management and Optimization • Cloud Infrastructure Management • Collaboration and Team Leadership • Testing and Troubleshooting	BSc degree and above in Compuet science, Electrical engineering, Information technology, information security and related	7 years and above	40000-50000

11	Communication Engineer	• Design and Implementation of Communication Systems • Maintenance and Troubleshooting • Network Optimization • Research and Development • Communication Network Security • End-User Support and Training • Cloud Communication Systems	BSC degree and above in Communication engineering and related	7 years and above in installation, maintenance and management of communication devices	35000-60000 birr
12	Support Technion	• Technical Support and Troubleshooting • System Installation and Configuration • Network Support • System Maintenance and Monitoring • User Training and Guidance	Bsc degree in computer science, Electrical engineering, Information technology and related	4 years and above	20,000-30,000 birr

13	Network Engineer	• Network Design and Architecture • Network Installation and Configuration • Network Monitoring and Optimization • Network Security and Data Protection • Network Troubleshooting and Support	Bsc degree in computer science,Electrical engineering, Information technology and related	4 years and above	30,000-55000 birr
14	Principal Network and Communication Engineer	• Strategic Planning and Vision • Leadership and Team Management • Network Infrastructure and Design • Performance Monitoring and Optimization • Stakeholder Communication and Reporting • Vendor and Partner Relationships	MSc and above in Electrical communication, Computer Engineering, Computer Science and related fields	12 years and above in computer engineering related works, leadership experiences	55000-75000 birr

Table 3: Qualification List for Team leaders and Chief Director

Sno.	**Position**	**Responsibility**	Min. Qualification	Experience	Salary
1	AIG-Tech Chief Director	• Strategic Planning and Vision • Leadership and Team Management • Network Infrastructure and Design • Performance Monitoring and Optimization • Stakeholder Communication and Reporting • Vendor and Partner Relationships	MSc. Degree in, Computer Engineering, Communication Engineering,Computer Science,, Information Science, Electrical Engineering and Related.	15 years and above	55000-75000 birr

2	Innovation and Solution Development Team Leader	• Leadership and Team Management • Leading a team of innovators and developers: Oversee a diverse team responsible for creating and implementing new solutions. • Fostering a creative and collaborative environment: Encourage out-of-the-box thinking, collaboration, and knowledge sharing to drive innovation. • Talent development: Provide guidance and mentorship to team members, helping them grow professionally and achieve their potential. • Performance management: Set clear performance expectations, conduct regular reviews, and offer feedback to team members.	MSc and above in Electrical communication, Computer Engineering, Computer Science, Information Technology and related fields	8 years	35000-50000

3	IT Infrastructure Team Leader	• Managing Network Design and Architecture • Network Installation and Configuration • Network Monitoring and Optimization • supervising Network Security and Data Protection • Network Troubleshooting and Support	BSC degree and above in Computer Engineering, communication engineering, Information technology and above	8 years and above	35000-55000
4	Converged Security Team leader	• Risk Management and Threat Assessment • Security Operations Oversight • Security Policy and Compliance Management • Security Incident and Crisis Management • Security Awareness and Training	BSc. and above in computer science, Communication engineering, IT, Cyber security and related	7 years and above	35000-50000

5	Managed Service Team Leader	• Managing IT Support and Troubleshooting team • Managing Cloud Management and Optimization experts • System Integration and Configuration • IT Governance and Compliance • Service Level Agreement (SLA) Management • Vendor Management and Procurement • Technology Strategy and Roadmap	BSc. and above in Computer engineering, electrical engineering, communication engineering, IT and related	8 years and above	40000-55000

Staffing Strategy

As a startup company, it is not recommended to begin with the entire crew of professionals based on the establishment plan. The enterprise shall employ the division heads and a limited number of professionals from each sector. In addition, the majority of the workforce to be hired in the future shall also be project-based to avoid redundant workforce.

7.2 Financial Resource

3. Financial Investment

- **Initial Capital Investment:** Funding for technology infrastructure, software development, and initial operational costs. This could be sourced from internal funds, external investors, or venture capital.
- **Ongoing Operational Costs:** Including salaries, utilities, software licensing, and maintenance of hardware and network systems.
- **Research and Development Budget:** Money set aside to explore new technology, enhance current offerings, and stay ahead of industry trends.
- **Contingency Funds:** For unexpected costs like cybersecurity breaches, technology failures, or market shifts.

4. Customer Support and Training

- **Customer Support Team:** To ensure that clients or users have the help they need with the technology, including troubleshooting, onboarding, and technical assistance.
- **Training Programs:** For both customers and employees to ensure everyone is familiar with the technology and can use it effectively.

5. Market Research and Competitive Analysis

- **Market Analysts:** To conduct research and provide insights into trends, emerging technologies, and market gaps.
- **Competitor Analysis:** Monitoring competitors and ensuring that AIG-Tech stays innovative and competitive.

7.3 Office machines and accessaries

- Computers
- Tables
- Printers
- Cars
- Others

8 Partnerships and Collaborations

Establishing a AIG-Tech Department for AIG involves not just integrating cybersecurity into the company's technology structure, but also aligning with the broader technological ecosystem. Building this department requires fostering partnerships and collaborations that can provide expertise, resources, and cutting-edge technology. Here are some recommendations for partnerships and collaborations to support the launch and growth of the AIG-Tech Department:

1. Collaboration with Universities and Research Institutions

Collaborating with universities and academic institutions will ensure that the department stays up to date with the latest research and innovations in cybersecurity and related technologies. It also helps AIG in talent development, research, and creating a pipeline for skilled professionals.

2. Engagement with Global Cybersecurity and Technology Providers

Global technology companies provide access to state-of-the-art cybersecurity solutions and infrastructure that would be otherwise hard to procure independently. They can also offer a wealth of industry knowledge and help scale AIG's AIG-Tech department.

3. Collaboration with Government Agencies and Regulatory Bodies

In many regions, cybersecurity is regulated, and businesses need to be aware of national and regional policies that shape how they protect their data and systems. Partnering with government bodies ensures compliance with regulations and helps contribute to national cybersecurity strategies.

4. Collaborations with Technology Startups and Innovators

Startups often offer innovative solutions that are not available from larger, more established companies. Collaborating with local and international tech startups can give AIG a competitive edge in adopting cutting-edge technologies at an early stage.

5. Partnerships with Global Consulting and Auditing Firms

Global consulting firms with cybersecurity expertise can help design, implement, and audit AIG's AIG-Tech department's strategy and infrastructure. Their insights can guide the department's strategy, ensuring it is aligned with best practices and international standards.

6. Cybersecurity Talent Development Programs

For AIG-Tech enterprise to be successful, it needs a skilled team. Building partnerships for talent development, upskilling, and certification programs will help create a pool of cybersecurity professionals to drive the department's success.

9 Financial Plan

Table 4: Rough Estimation of Financial Requirement for Establishment of AIG-Tech

Sno.	Description	Total Cost
1	Technology and Infrastructure	1000,000.00
2	Office Setup and Facilities	2000,000.00
3	Advertisement and Recruitment Process	500,000.00

Total=3,500,000.00

10 Potential Risks

Establishing a AIG-Tech department under AIG presents several potential risks that need to be proactively managed to ensure the success and sustainability of the initiative. A comprehensive Risk Management strategy is crucial to identify, assess, and mitigate these risks. Below are some key risks and corresponding strategies for managing them:

1. Vendor and Supplier Risks: Given that the AIG-Tech department will initially depend on external vendors for certain technology components, such as software licenses, hardware, and cloud services, the risk of vendor lock-in or supplier dependency could arise. Over-reliance on a single vendor could lead to increased costs, limited flexibility, and difficulty in switching providers.

Mitigation Strategies

- **Vendor Diversification:** Establish multiple vendor relationships to reduce dependency on any one supplier. This approach ensures that the AIG-Tech department has alternatives for critical technologies and services.
- **Contract Clauses for Flexibility:** Negotiate contracts with vendors that include exit clauses, service level agreements (SLAs), and flexibility to switch providers or scale solutions up/down without incurring significant penalties.
- **Internal Capabilities:** Focus on building in-house technical expertise and capacity, reducing the need for external suppliers over time.

2. Cybersecurity Risks: As the AIG-Tech department will be handling sensitive data related to public services, business operations, and city management, cybersecurity threats such as data breaches, hacking, and ransomware attacks pose significant risks. The city's growing technological infrastructure will be a target for cybercriminals, which could disrupt operations, compromise data, and damage the reputation of AIG.

Mitigation Strategies:

- **Strong Cybersecurity Framework:** Implement a comprehensive cybersecurity policy that includes encryption, firewalls, intrusion detection systems, and regular security audits.
- **Regular Staff Training:** Conduct frequent training for employees and stakeholders to raise awareness about security threats, phishing attacks, and safe data handling practices.

- **Incident Response Plan**: Develop a robust incident response plan to quickly address any security breach, with clear communication protocols and steps for restoring services.

3. Technology Integration Risks: The integration of new technologies—such as IoT devices, smart city platforms, and data analytics systems—into existing infrastructure in Adama could face compatibility issues, leading to delays and additional costs. Different technology platforms may not communicate effectively, hindering system performance and operational efficiency.

Mitigation Strategies:

- **Unified IT Architecture:** Develop a clear, standardized IT architecture for all technology solutions and systems to ensure compatibility and ease of integration across various departments and services.
- **Vendor Support and Testing:** Work closely with vendors to ensure that the new technologies undergo thorough testing before full-scale implementation, with a focus on interoperability.
- **Centralized Management:** Create a centralized team responsible for overseeing the integration and continuous monitoring of technology systems to prevent conflicts and ensure smooth operations.

4. Skill Shortage and Talent Retention: The establishment of a AIG-Tech department in Adama will require skilled professionals in areas like cybersecurity, software development, data analytics, and cloud computing. Talent shortages in the local market may hinder the department's ability to attract qualified individuals, leading to delays in implementation and the need for external recruitment.

Mitigation Strategies:

- **Capacity Building and Training:** Invest in training programs to upskill the local workforce, collaborating with universities and tech academies to ensure a pipeline of skilled talent for the future.
- **Attractive Employee Benefits:** Offer competitive salaries, professional development opportunities, and career growth prospects to retain key talent and reduce turnover rates.
- **Partnerships with Tech Hubs:** Establish partnerships with technology hubs or educational institutions to create a steady stream of qualified candidates and foster a culture of innovation.

5. Financial and Budget Risks: The establishment and scaling of a AIG-Tech department require substantial financial investment, including costs for infrastructure, software, training, and recruitment. There is a financial risk if the projected budget exceeds expectations or if the department does not deliver the expected returns in the form of cost savings, efficiencies, or improved business outcomes.

Mitigation Strategies:

- **Phased Implementation:** Implement the AIG-Tech department in phases, starting with core technologies and expanding as the budget and capabilities grow.
- **Clear Financial Planning:** Establish clear financial projections and budget forecasts, accounting for potential costs and uncertainties, and track progress to ensure financial discipline.
- **Return on Investment (ROI) Measurement:** Continuously assess the ROI of technology initiatives, including cost savings, operational efficiency, and new business opportunities, to justify ongoing investment in the department.

6. Regulatory and Compliance Risks:

As AIG expands its technological footprint, the AIG-Tech department will need to comply with local and international regulations related to data privacy, digital services, and cybersecurity. Non-compliance could result in legal consequences and reputational damage.

Mitigation Strategies:

- **Legal and Regulatory Advisory:** Engage legal and compliance experts to ensure adherence to all relevant regulations, such as data protection laws, cybersecurity frameworks, and local government regulations.
- **Compliance Audits:** Regularly perform internal and external audits to assess the department's compliance with regulatory standards and identify any gaps.
- **Data Privacy Policies:** Develop and enforce robust data privacy policies that ensure user and customer data is protected, transparent, and handled in compliance with industry standards.

7. Change Management and Stakeholder Resistance: As with any large organizational change, there may be resistance to new technologies and processes from internal stakeholders or the broader public. This resistance could slow adoption and hinder the full impact of the AIG-Tech department.

Mitigation Strategies:

- **Clear Communication and Education:** Maintain open communication channels with all stakeholders, educating them on the benefits and strategic importance of the AIG-Tech department for the city's growth.
- **Inclusive Planning:** Involve key stakeholders early in the planning and implementation phases to build buy-in and reduce resistance.
- **Support Systems:** Provide ongoing support, training, and feedback mechanisms to help employees and stakeholders adapt to new systems and technologies. By identifying these potential risks and implementing proactive mitigation strategies, the establishment of a AIG-Tech department under AIG can be managed effectively, ensuring that the project achieves its goals while minimizing disruptions and maintaining sustainability.

11 Impact Assessment

The establishment of a AIG-Tech department under AIG would have a profound and far-reaching impact on multiple facets of the organization, the local economy, and the wider region, particularly in terms of technological development, business efficiency, and urban advancement.

1. Economic Impact and Job Creation: By creating a dedicated AIG-Tech department, AIG would foster a new wave of technological innovation within the region. This initiative would not only provide internal value by improving operational efficiencies, reducing vendor dependency, and ensuring cost-effective technology solutions, but also stimulate the local economy by creating high-skilled job opportunities in IT, cybersecurity, software development, and data science. The department's activities would promote tech entrepreneurship, with local

startups and businesses gaining access to a wealth of resources and expertise in cutting-edge technologies such as AI, machine learning, cloud computing, and smart city solutions. Over time, this would help establish Adama as a leading tech hub in the region, attracting investment, expertise, and talent to the city.

2. Technological Advancement and Smart City Development: On the broader scale, the establishment of the AIG-Tech department would be pivotal in advancing Adama's ambitions of becoming a smart city. The department would enable better integration of urban technologies, improve public service delivery, and enhance infrastructure management by implementing IoT solutions, real-time data analytics, and digital government services. With a focused department overseeing all technology initiatives, Adama can address issues such as traffic management, energy efficiency, and waste management more effectively, leveraging emerging technologies to improve quality of life for citizens. Furthermore, the creation of a robust IT infrastructure would allow Adama to attract new businesses and investors, creating a more sustainable, connected, and technologically advanced urban environment, while ensuring better resilience against cyber threats.

3. Operational Efficiency and Vendor Dependency Reduction: Internally, the AIG-Tech department would streamline AIG's operations by centralizing IT services and reducing reliance on external vendors, thereby decreasing long-term operational costs. The ability to control and manage its own technological infrastructure means the group can rapidly adapt to market changes, scale its systems, and innovate without waiting for third-party solutions. This autonomy would enhance decision-making, increase flexibility in adopting new technologies, and allow Adama to avoid vendor lock-in, ultimately leading to more cost-effective and dynamic business operations. Additionally, through strategic technology implementation, the AIG-Tech department would enable greater automation, improving business processes, reducing human error, and accelerating the pace of innovation.

4. Social Impact and Capacity Building: The establishment of this department would also have a significant social impact, particularly in terms of capacity building and skill development within the local workforce. By focusing on the recruitment, training, and development of local tech talent, the AIG-Tech department would contribute to closing the skill gap in the technology sector, providing education and professional development opportunities to the community. This would empower local youth, reduce unemployment, and cultivate a more sustainable workforce capable of driving future innovation. Furthermore, by creating tech-driven solutions for public services, the department would enhance citizen engagement and accessibility, allowing Adama's residents to benefit from more efficient, responsive, and inclusive government services.

12 Conclusion

The establishment of the AIG-Tech department at AIG is a forward-thinking decision that strengthens the company's technological framework while simultaneously driving financial performance. By incorporating IT procurement, consulting, networking, cybersecurity, and research and development, the department offers a comprehensive solution to AIG's evolving technological needs. This strategic move not only enhances operational efficiency and security but also creates new opportunities for cost savings and profit generation. By improving the management of resources, optimizing IT investments, and identifying innovative solutions, the department can reduce costs, increase productivity, and ultimately contribute to AIG's bottom line, positioning the company for long-term financial success.

Furthermore, the AIG-Tech department plays a crucial role in ensuring AIG remains competitive in an increasingly digital landscape. Through its focus on research and development, the department is poised to uncover new technologies that could unlock additional revenue streams or further streamline business operations. By enhancing the company's capabilities in cybersecurity and IT consulting, it helps safeguard AIG's assets, reduce risks, and build customer trust, all of which are essential for sustained profitability. The department's efforts will not only elevate AIG's technological capabilities but also create a direct financial impact, improving both the company's cost-efficiency and its ability to capitalize on emerging business opportunities.

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