ASSA Recognition Award

CATEGORY	:	Information Technology Recognition Award
ORGANISATION	:	National Social Assistance Fund (NSAF), Cambodia
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NAME OF PROJECT	:	Enhancing Pension Administration System: A Digital Solution for Civil Servants and Veterans Pension Fund
OBJECTIVE AND NATURE OF PROJECT	:	The Pension Fund System (PFS) is a comprehensive digital platform designed to enhance the management and delivery of pension benefits in Cambodia. The core objective of this project is to modernize and digitize the pension systems for civil servants and veterans, ensuring transparency, accuracy, efficiency, and security in the entire pension fund administration process. By automating manual processes and integrating multiple services, such as biometric identification, secure authentication, and real-time reporting, the PFS aims to provide beneficiaries with seamless, transparent, and timely access to their pensions. The project, led by the National Social Assistance Fund (NSAF) in collaboration with GIZ Cambodia and Web Essentials, is part of Cambodia's broader social protection reforms. It utilizes a microservices architecture to provide a scalable platform that integrates with existing national databases, such as the national ID system, to ensure accurate identification and verification of pensioners. The system is developed with strong data security measures, following national and international data protection standards. Key decisions for the new Pension fund system: 1. Make all efforts to replace manual inputs of paper-based material with a digital interface and avoid any form or combination of double-entry 2. Avoid double calculation to verify amounts to be paid using the most up-to-date tables and calculations that reflect the legal instructions and documentation 3. Avoid 'double-checking' using an XLS spreadsheet by introducing user role, access, and approval workflow.

		The platform was developed using microservices approach by utilizing Keycloak for secure authentication, Laravel for backend development, and Docker for container management. Its flexible infrastructure allows integration with banking systems and government databases, ensuring a unified and user-friendly pension administration experience. The PFS also incorporates standard compliance features for information security, cybersecurity, and data privacy, aligning with international standards such as the **ISO/IEC 27002:2022**, **OWASP Top 10 API Security Risks – 2023,** and **Web Content Accessibility Guidelines (WCAG) 2.2**.
WHY IT SHOULD BE RECOGNISED	:	The pension system project deserves recognition for its innovative approach to enhancing social protection services in Cambodia. The project aims to streamline administrative processes, resulting in faster, more reliable payments. The use of advanced technologies, including a microservices architecture, provides flexibility and scalability, ensuring the system can adapt to future needs and expand to serve a larger population.
		Key features such as automated workflows, real-time data processing, and robust data security measures like encryption and two-factor authentication demonstrate a strong commitment to efficiency and user trust. These innovations not only reduce the risk of errors and fraud but also significantly decrease processing times, contributing to greater satisfaction among beneficiaries.
		Moreover, the project aligns with Cambodia's broader objectives of digital transformation and good governance, promoting transparency and accountability in public service delivery. Recognizing this project would underscore its contribution to social protection and inspire further advancements in the field, encouraging other initiatives to adopt similar technologies to improve the lives of vulnerable populations.
		The **Pension Fund System (PFS)** is an exemplary project that embodies innovation, practicality, and forward-thinking in the realm of social security management. It addresses key challenges faced by social pension systems in Cambodia setting a precedent for how information technology can transform public sector operations. There are several compelling reasons why the PFS deserves recognition under the **ASSA Information Technology Recognition Award**:
		1. Pioneering Digital Transformation in Pension Management The PFS project stands at the forefront of digital transformation in pension fund management in Cambodia, a country where public administrative systems often rely on paper-based processes. The development and deployment of the PFS mark a significant shift from traditional pension management practices to a digital, automated system that optimizes both beneficiary services and administrative workflows. Through the coherent design of processes across ministries and digital integration, the PFS demonstrates how a government institution can embrace cutting-edge technology to modernize legacy systems, delivering

improved efficiency, reliability, and user satisfaction.

By digitizing the entire pension process—from beneficiary registration to pension calculation and disbursement—the system eliminates redundant manual tasks, drastically reduces human error, and accelerates service delivery times. This transformation paves the way for other government agencies to follow suit, creating a ripple effect of digital modernization across Cambodia's public sector.

2. Enhancing Efficiency, Transparency, and Accountability

One of the most remarkable aspects of the PFS is how it enhances transparency and accountability through its multi-level approval process and audit logging functionalities. Pension management is a highly sensitive area where accuracy and security are of paramount importance. The PFS ensures that every step of the approval process is logged, making it fully traceable and auditable. This promotes greater transparency in decision-making and minimizes opportunities for errors or fraud. Additionally, the automation of pension calculations ensures that all beneficiaries receive their correct entitlements based on predefined formulas, reducing discrepancies and enhancing trust in the system. This focus on transparency, accuracy, and accountability is crucial in maintaining the integrity of public institutions and enhancing citizen trust.

3. Addressing Inclusivity and Accessibility

The PFS is designed with inclusivity at its core. Cambodia's diverse population includes beneficiaries who may have limited technological literacy, access to resources, or even physical impairments. The system incorporates features like fingerprint biometric identification, making it easier for individuals who may struggle with more traditional verification methods to access pension services. Moreover, the platform adheres to the **Web Content Accessibility Guidelines (WCAG) 2.2**, ensuring that it is accessible to individuals with disabilities, thus promoting equal access for all users.

4. Promoting Data Security and Compliance

In the digital age, data security is an indispensable component of any public-facing system. The PFS adheres to stringent security protocols, aligning with international standards such as the **OWASP Top 10 API Security Risks – 2023**. By integrating secure authentication processes, such as **Keycloak** for strong user verification and biometric fingerprint scanning, the system ensures the correct enrollment of eligible individuals.

Moreover, the PFS complies with data privacy principles such as data minimization, data retention policies, and security safeguards, ensuring that all beneficiary information is processed lawfully and securely. In an era where data breaches can have far-reaching consequences, the PFS sets a gold standard for how public institutions can manage, store, and protect sensitive information.

5. Scalability and Sustainability

The PFS was designed with a forward-looking approach,

		ensuring that it is scalable and adaptable to evolving needs. Its modular design allows for the seamless integration of additional features, such as further integration with banks and government ministries, as well as expansion to include new beneficiary groups or services. This flexibility ensures that the system can evolve alongside changing policies, regulations, and technological advancements, making it a sustainable solution for the long term. Sustainability is also evident in the capacity-building efforts embedded in the project. Multiple training sessions were conducted to upskill the NSAF IT team, ensuring that they have the knowledge and tools to manage, troubleshoot, and upgrade the system independently. This focus on training and capacity building ensures that the PFS can continue to function effectively without over-reliance on external consultants or developers. **6. Innovative Use of Technology for Data Migration** One of the most challenging aspects of implementing a new digital system is the migration of existing data from legacy systems. The PFS successfully migrated data from over 200,000 beneficiaries, including 126,185 veterans and 80,480 civil servants. This large-scale data migration was carried out with meticulous attention to detail, ensuring that the integrity of the data was maintained throughout the process. The PFS not only managed to preserve the accuracy of the existing data but also improved its accessibility and usability by integrating it into a modern digital framework. The successful migration of such a vast amount of data without compromising accuracy demonstrates the technical competence and innovation embedded in the PFS project.
SUMMARY OF THE PROJECT	:	The Pension Fund System is a cutting-edge solution that modernizes pension fund management for civil servants and veterans in Cambodia. Developed with security, scalability, and efficiency at its core, the system includes a wide range of features such as beneficiary registration, automated pension calculation, fingerprint scanning for verification, multi-level approval workflows, and robust reporting tools. Its development process included migrating over 200,000 beneficiaries' data and establishing both production and sandbox environments for ongoing improvements. Key achievements include reducing errors in pension calculations, enhancing transparency in decision-making, and ensuring data privacy and security in compliance with global standards. The PFS also promotes capacity building among IT staff through regular training on technology stacks and code structures, ensuring that the system is sustainable and adaptable to future needs.