CATEGORY	INFORMATION TECHNOLOGY RECOGNITION AWARD
ORGANIZATION	PHILIPPINE HEALTH INSURANCE CORPORATION (PHILHEALTH)
NAME OF PROJECT	MACHINE LEARNING IDENTIFICATION, DETECTION, AND ANALYSIS SYSTEM (MIDAS)
CONTACT PERSON	ENGR. JOVITA ARAGONA CHIEF INFORMATION OFFICER (CIO)
OBJECTIVE AND NATURE OF PROJECT	1. Develop an application or set of tools that apply business rules and machine learning techniques that can be used for fraud detection in healthcare 2. Describe a design for applying business rules as a generic approach for Healthcare Institution (HCI) or Healthcare Professional (HCP) fraud detection within healthcare
WHY IT SHOULD BE RECOGNIZED	Healthcare insurance fraud, abuse, and wastage are a cause for major concern worldwide. Different entities suggest estimates ranging from 3% to 10% of claims paid. Detecting fraud in the healthcare industry is very difficult, due to the idiosyncrasies of the medical domain as well as the inconspicuous nature of the fraud. In this domain, fraud detection is done mainly by using three types of strategies: **audits, market signals,** and **electronic fraud detection**. As suggested by literatures, electronic fraud detection could make a huge difference in healthcare fraud as it could secure the claim input process, check on irregularities, and analyse claims data sets for indicators of potential fraud. However, development of electronic fraud detection in healthcare is lagging behind other industries. Proprietary solutions and commercial off the shelf products have gained traction across governments and private insurers, but the proprietary nature and cost of these products are prohibitive especially for

	developing countries with low GDP. This MIDAS project utilizes industry proven open source technologies, and in this manner, contributes to the healthcare domain by providing insights and guidelines in the development of effective fraud detection methods and technologies with minimal cost to healthcare insurers like PhilHealth. Furthermore, MIDAS has brought significant change like discipline at various levels to monitor possible fraud and act on it. It has given Management better insight on the insurance financial status of the Corporation and better prediction strategy to improve the model and enables Management to improve its data collection as well as processing and updating of parameters to strengthen fraud detection.
SUMMARY OF THE PROJECT	The project is an application of data analytics, machine learning techniques, and artificial intelligence to aid medical and fraud auditors, explore data and search for patterns. And ultimately, use predictors to detect fraud and abuse. This was divided into four subprojects. First was the implementation of a data warehouse and reporting system. Followed by the implementation of an application for search and discovery of unknown or suspicious patterns. Designed to leverage unsupervised machine learning methods, network graph theory, and rich data visualization, to help analysts understand the data and identify unknown patterns. Third is the design and implementation of an application for metric or business rules generation for known patterns of fraud. Fourth is the design and implementation of a scoring system for claims, where business rules derived from machine learning methods and artificial intelligence will be used to score each claim. Claims with scores beyond the set threshold will be referred to medical review and fraud audit.