



**“Accelerate intelligence with your domain virtual specialist”**

## **COMPANY PROFILE**

*Nervesis Sdn Bhd (534937-P)*

Nervesis website: <http://www.nervesis.com>

ZYGY platform: <http://www.ZYGY.com>



## THE COMPANY

**Nervesis** is a company that develops **ZYGY**, an Artificial Intelligence (AI) technology that automates growth of knowledge tree learned by capturing and linking needed information from trail of documents, web and social media. The company was founded in Kuala Lumpur, Malaysia by Azhar K. Mustapha, in 2001. The company currently active with several clients in Malaysia from telecommunication industry, oil and gas industry, government agencies and universities.

ZYGY addresses a pain point of human spends considerable hours capturing and linking needed information from trail of documents, web and social media to report progress.

ZYGY comes with the family of three products: Zygy Knowledge, Zygy Insight and Zygy Gatekeeper. Each of Zygy's product is meant to simplify your tasks and to accelerate intelligence executing any tasks.

**Zygy Knowledge** is your domain virtual specialist, as it captures and links needed information from trail of documents, web and social media to match progress.

**Zygy Insight** is your comparative advantage for 'breaking insights' for your sector, the next step in breaking news.

**Zygy Gatekeeper** is Single Sign on (SSO) and Identity Management System for users across any applications and network. Zygy Gatekeeper is the backbone for access privilege in Zygy Knowledge and Zygy Insight.

## VISION

Our vision is to have ZYGY reinvent better businesses and better lifestyle with human more intelligence by doing less.

## MISSION STATEMENT

Our mission is to assists human to expedite learning, spotting opportunities and potential issues, and evaluating circumstances from different contexts through processing and understanding texts from documents, websites, social media and messengers.


## AWARDS

ZYGY is recognized as the **Top 10 Cognitive Solution Providers 2019** by **APAC CIO Outlook** in the **US**. Nervesis was also awarded as

## Nervesis: Accelerating Intelligence

**Pain Points:** Human spend considerable hours capturing and linking needed information from trail of documents, web and social media to report progress

**What do we do?**



**ZYGY** is an AI technology that automates growth of knowledge tree learned by capturing and linking needed information from documents

**Zygy Knowledge** is your domain virtual specialist, as it captures and links needed information from variety of documents, web and social media to match progress

**Zygy Insight** is your comparative advantage for 'breaking insights' for your sector, the next step in breaking news.

Private & Confidential | 2022 4

## Zygy Knowledge



**Zygy Knowledge** is your domain virtual specialist, as it captures and links needed information from trail of documents, web and social media to match progress.

Zygy Knowledge covers three major areas:

1. Knowledge discovery from documents compilation
2. Knowledge, Skills and Capabilities Tree linked from Documents
3. Information Capture, Match Progress, or Compliance.

### **Knowledge Discovery from Documents Compilation**

Knowledge discovery from documents compilation refers to the process of extracting valuable information, insights, and patterns from a collection of documents. It involves using various techniques, such as natural language processing (NLP), machine learning, and data mining, to analyze textual content and identify meaningful relationships and trends. This process helps organizations and individuals make sense of large volumes of unstructured data, such as text documents, reports, articles, and more. By extracting and organizing relevant information, knowledge discovery enhances decision-making, research, and understanding within a given domain.

### **Knowledge, Skill, and Capabilities Tree linked from Documents**

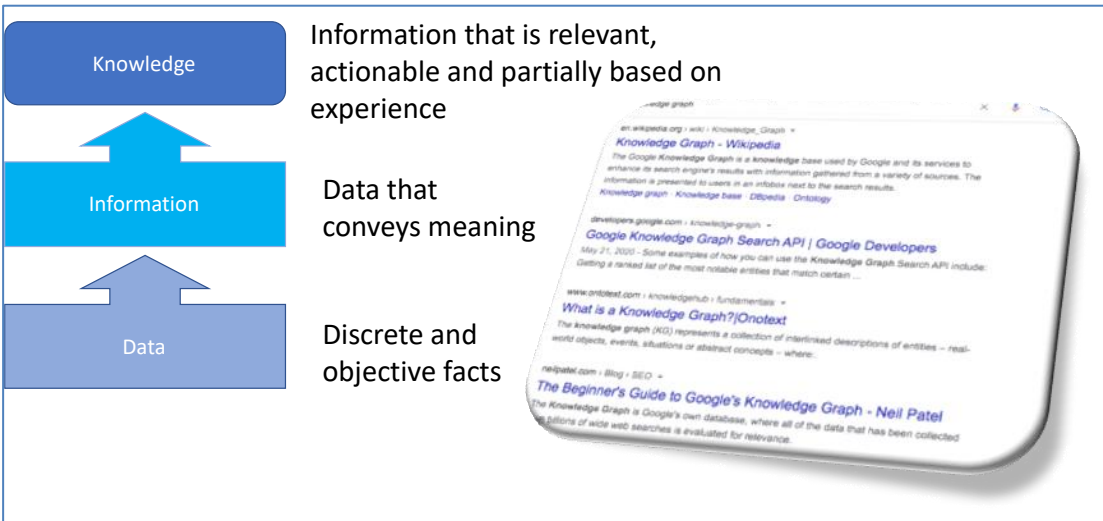
A Knowledge, Skill, and Capabilities (KSC) tree linked from documents is a hierarchical representation that maps out the knowledge, skills, and capabilities required for a particular field, profession, or domain. This tree structure categorizes and organizes different areas of expertise, competencies, and proficiencies, often in a visual manner. Linking this tree to documents involves associating specific documents with relevant nodes or branches on the tree. This linkage can provide users with a clear understanding of how different documents contribute to the development and mastery of specific knowledge, skills, and capabilities.

### **Information Capture, Match Progress, or Compliance**

Information capture, match progress, or compliance refers to a process of systematically collecting, recording, and tracking data or information to ensure alignment with certain criteria, standards, or goals. This process involves capturing relevant data points, monitoring progress, and verifying compliance with established guidelines or requirements. It can be applied in various contexts, such as regulatory compliance in industries, project management, quality control, and more. Information capture involves gathering data from diverse sources, while match progress ensures that ongoing efforts are consistent with predefined benchmarks. Compliance ensures that actions and outcomes adhere to predetermined rules, regulations, or expectations.

These concepts are relevant in fields such as data analysis, knowledge management, information technology, project management, and quality assurance, among others. They contribute to efficient decision-making, effective resource allocation, and improved understanding within complex and information-rich environments.

## Data, Information and Knowledge



Data is basically discrete and objective facts, while information is data that conveys meaning. When one googles, the person is displayed with information, but not knowledge yet. When the person selects which information is relevant to him or her, and the information is actionable because partially it was based on the person's experience, then the person is said to acquire knowledge.

This standard definition of knowledge becomes the tenet of the Knowledge that we want to transfer from into Zygy Knowledge: Knowledge that is actionable partially comes from experience in an organization.

## Areas of Implementation

The areas of Zygy Knowledge implementation is shown in the diagram next:

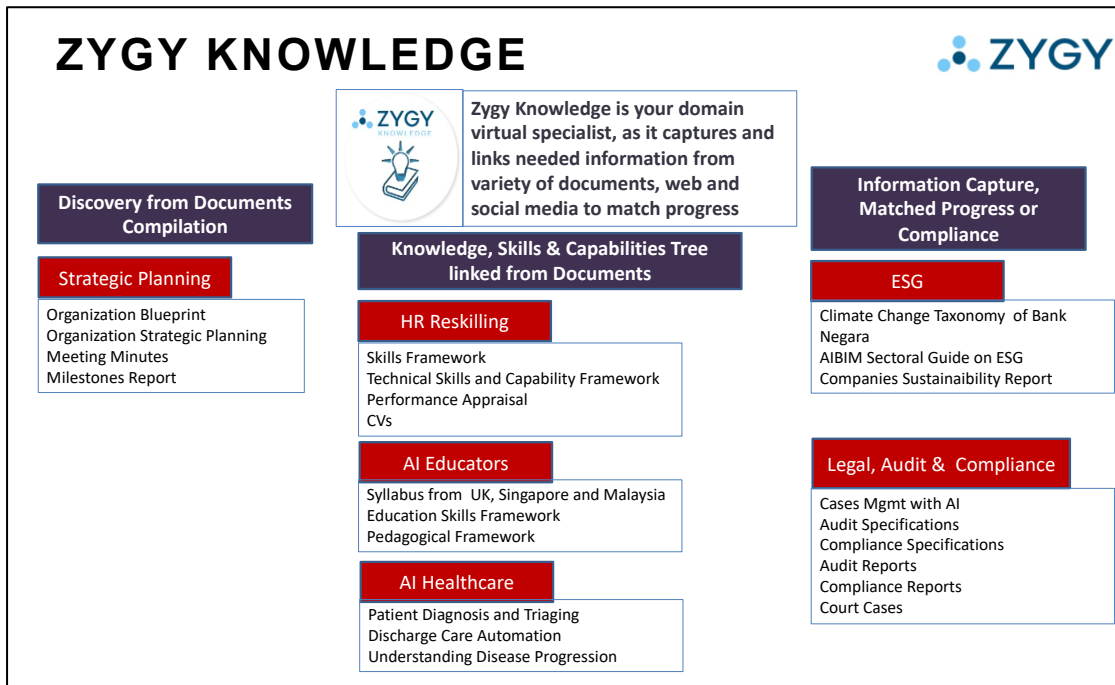
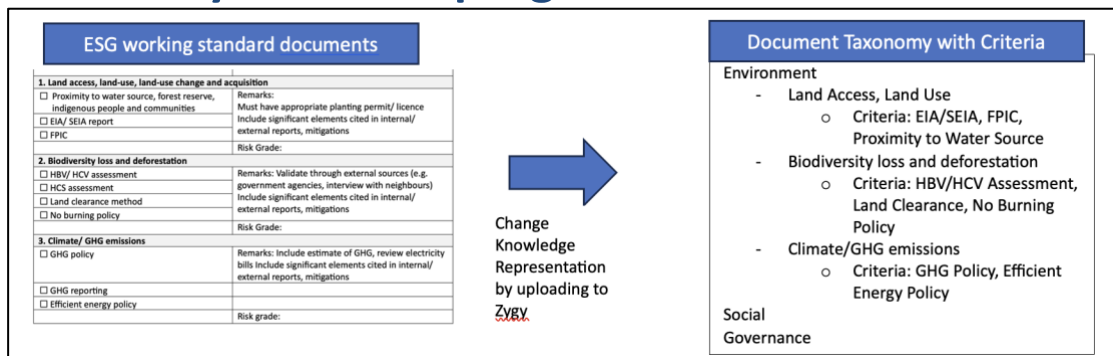
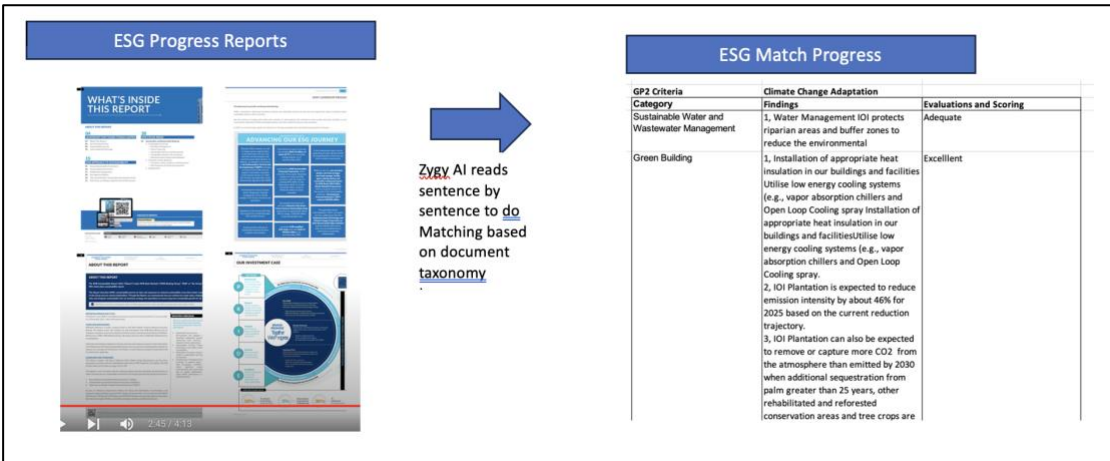


Figure 1: Areas of Implementation

## How Zygy Knowledge capture information to build taxonomy to match progress



In the above figure, Zygy Knowledge first captures information from ESG Working Standard document to build taxonomy and criteria that will be used to match progress. ESG stands for Environment, Social and Governance.



With the knowledge embedded in the taxonomy and criteria, Zygy Knowledge will be able to assess a company sustainability report to come out with ESG rating.

The same method is used for HR Reskilling. In HR Reskilling, Zygy Knowledge will extract taxonomy and criteria from a skill framework as below.

<b>Critical Work Functions and Key Tasks</b>	<b>Build and maintain data pipeline</b>	Consolidate and create data storage solutions for storage and retrieval of information		
		Develop prototypes and Proof-of-Concepts for data solutions		
		Monitor data system performance		
		Support the handling and logging of errors		
		Develop backup data archiving systems to ensure system continuity		
		Implement and monitor data security and privacy measures on existing data solutions		
	<b>Optimise solution performance</b>	Assist in the integration of data systems with existing infrastructure		
		Develop tools to improve data flows between internal and/or external systems and the data warehouse		
		Automate the data collection and analysis processes, data releasing and reporting tools		
		Test data system configurations to increase efficiency		
<b>Skills and Competencies</b>	<b>Technical Skills and Competencies</b>		<b>Generic Skills and Competencies</b>	
	Business Needs Analysis	Level 2	Leadership	Intermediate
	Change Management	Level 3	Developing People	Intermediate
	Computational Modelling	Level 3	Communication	Intermediate
	Configuration Tracking	Level 1, Level 2	Transdisciplinary Thinking	Intermediate

With the knowledge built in taxonomy and criteria, Zygy Knowledge is able to point out a personnel need for upskilling or reskilling based on a CV or a company's appraisal.

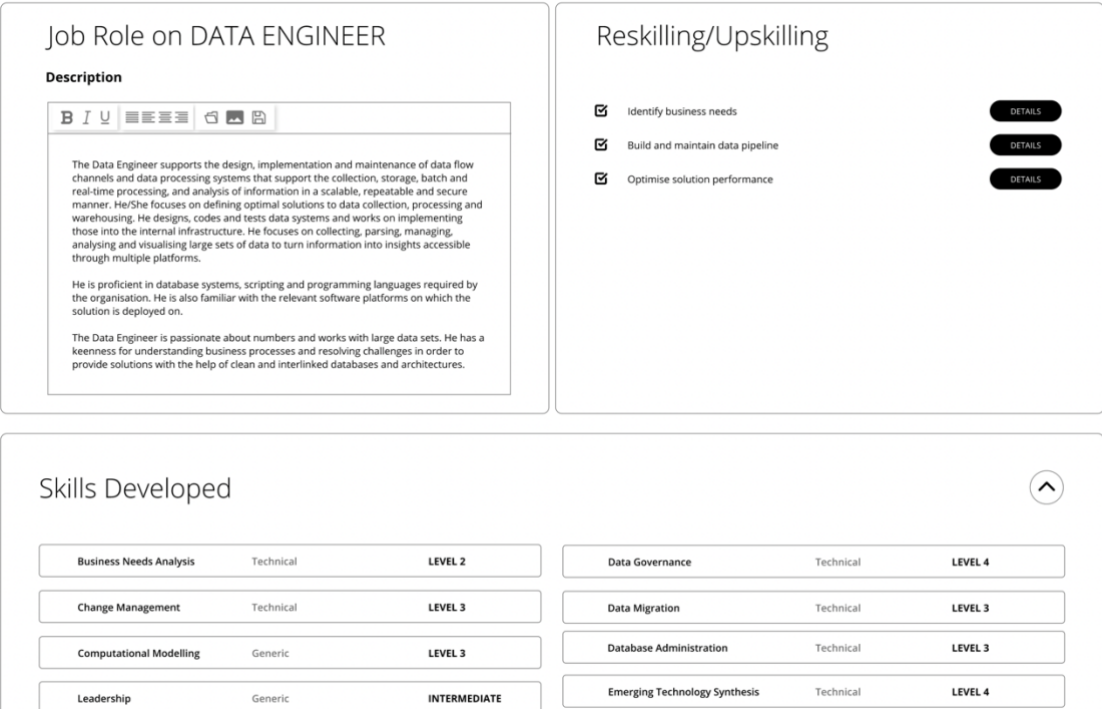


Figure 2: HR Reskilling Dashboard



## Zygy Insight



Zygy Insight is your comparative advantage for 'breaking insights' for your sector, the next step in breaking news. The sources of information come from public news, public articles in web and public post in social media.

The sector can be semiconductor, oil and gas, education and more. Features for Zygy Insight includes

1. Contributing factors to changes in share price
2. Comparison of top alerts in your sector which are:
  - a. Business alerts
  - b. Regulatory alerts
  - c. Strategic Alerts
  - d. Market Perception Alerts
  - e. Legal Alerts
3. Timeline of alert types
4. Sentiment Candlestick
5. Top trends
6. Top Influencers
7. Relation Network of shapers of a company from a person, an organization or an issue
8. Trend of a company over time.

Sample from Zygy Insight is shown next:

# ZYGYS INSIGHT: BREAKING INSIGHTS IN YOUR SECTOR

**Contributing factors to changes in share price or sentiment candlestick**

**Sentiment Candlestick**

**Comparison of alerts in your sector**

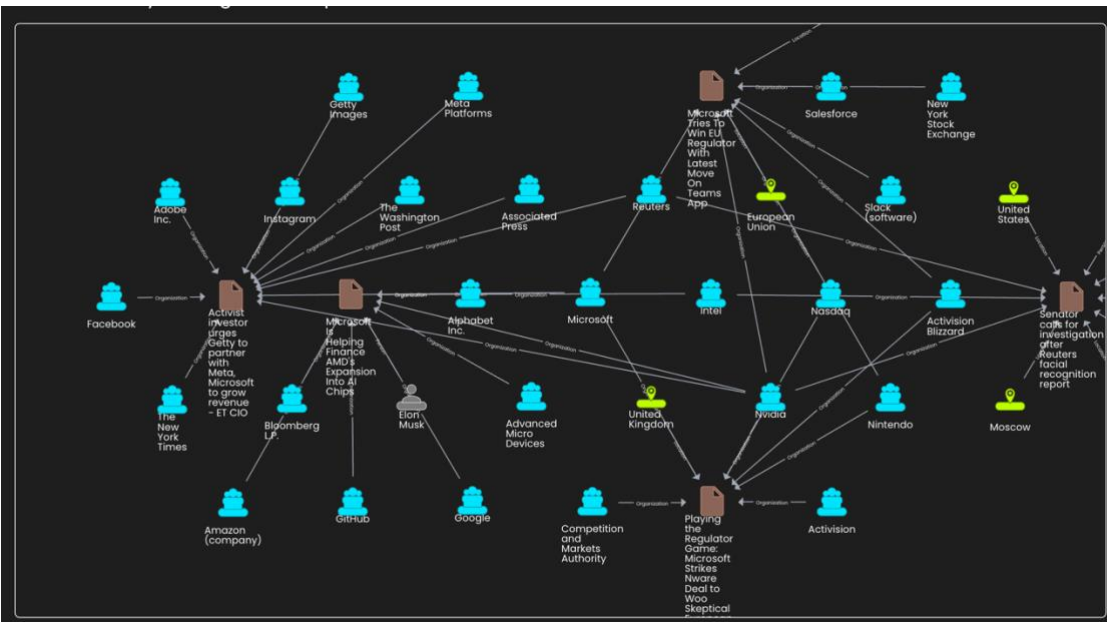
Company	Alert Source	Sentiment	Alert Text
Nvidia	Bloomberg Business	Positive	Chipset's Block Trade Demand for Chips and More: Advanced Tech
Advanced Micro Devices Inc	Bloomberg Business	Neutral	Intel Risks Being Left Behind as Nvidia Ups AI Lead
Intel Corp	Bloomberg Business	Neutral	Deepfake Detection is One Corner of AI Tech That Isn't Booming

**Timeline of alert types**

Strategic Alerts

- 17 April 2023: Senator calls for investigation after Reuters...
- 19 April 2023: Activist investor urges Getty to partner with the...
- 21 April 2023: Microsoft Tries To Win EU Regulator With Latest...
- 23 April 2023: Playing the Regulator Game: Microsoft Strikes Niche Deal to Woo Skeptical...

A sample of a relation network of shapers in a company that links people, organization and issues.



## Value for the Business?

The values of Zygy Insight deliver:

- a. Perform Credibility or Risk Assessment on Prospects such as Potential Suppliers.
- b. Identify Alignment of Brand, Product, Influencers, Prospects or Suspects whether they are support, opposing or indifferent.
- c. Identify Top Issues raised by Influencers, Prospects or Suspects
- d. Identify Relation Network for Influencers, Prospects or Suspects
- e. Identify Known and Unknown Influencers
- f. Study the events / Chronology of Activities from Prospects, Influencers or Suspects
- g. Reputation Management for a brand, a product or an organization.

## ZYGY Gatekeeper



Zygy Gatekeeper, a Single Sign On and Identity Management Platform powered by Zygy technology.

Zygy Gatekeeper addresses regulatory requirements using the strength of its workflow engine and reporting engine. Workflows can be produced to follow any type of process regarding identity management, access management, provisioning management, policy management and risk management in operational environment, and be changed any time if deemed necessary. The workflow engine caters for any combinations of tasks, roles and forms to support any processes.

Every task status whether it has started or finished can be triggered as logs that will be available later for reporting purposes. A user can use reporting engine that takes the logs, parameters from Zygy Gatekeeper and inputs from external databases and systems to form reports for regulatory and auditing purposes.

Zygy Gatekeeper has extensive Roles, Groups, Privilege and Policy Management modules to reinforce governance. With these modules, access review for users and systems can be done automatically and periodically. Employee responsibility and role can be assigned and revoke according to company procedure. Dormant accounts and deprovisioning of accounts from target systems can be performed automatically.

Report can be customized accordingly to follow governance procedure. From the user dashboard, users can be configured to perform several privilege tasks such as requesting an access to a new application, approving access to a person and more.

Zygy Gatekeeper is able to handle multiple scenario of SSO integration with targeted systems. In our experience, the most secured away is to put a Zygy plugin in a target system to allow for full policy and access enforcement from central. However, in many cases, we need to perform SSO to the target system without touching the target system at all because support on the target system may void if we touch the target system. For that case, we may take the Zygy Proxy approach or Zygy Browser plugin approach to handle the situation.

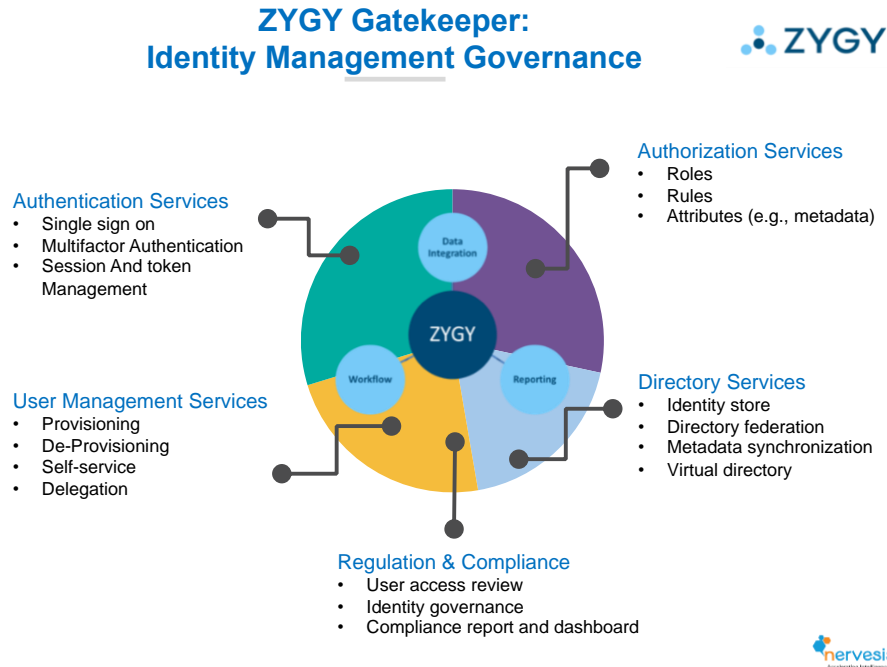
Zygy Gatekeeper is an Identity Management and a Single Sign on System that enables an organization to manage identities across many types of internal and cloud applications with proper risk control measures.

With SSO, a user is also able to login to various web applications, windows accounts and

mainframes with a same username and password. To be more secured, a user can additionally login with fingerprint, voice, face, One Time Password (OTP) or 2D Barcode (QR Code).

For enterprises where identities or IDs (usernames, passwords and related attributes) are in different places, Zygy Gatekeeper helps enterprises to manage IDs from a single place. To do that, it allows admin to outline communication flows between various identity places during login, user registration, user changes and user archiving. In addition, Zygy helps admin to perform central enforcement of password policies and access rules.

Zygy can operate with branches in different locations. Users use existing IDs when adopting Zygy. Ministry of Finance, Telekom Malaysia, University Malaya and Universiti Teknologi Malaysia have adopted Zygy. The largest users in one site are 40,000 users.

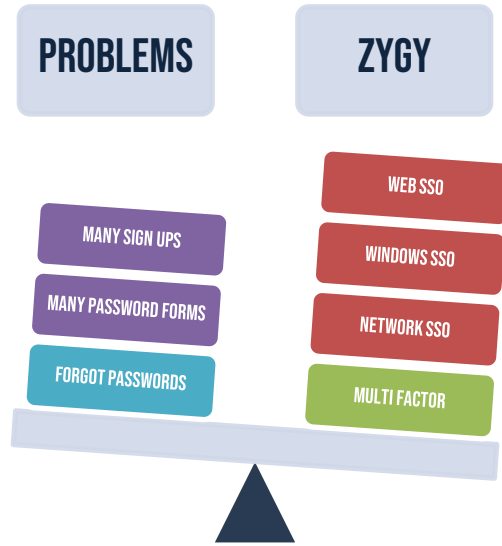


ZYGY Gatekeeper will integrate with internal corporate systems such as integration with HR System, Staff Portal etc. ZYGY Ecosystem is embedded with Single Sign On (SSO) and Identity Management capability

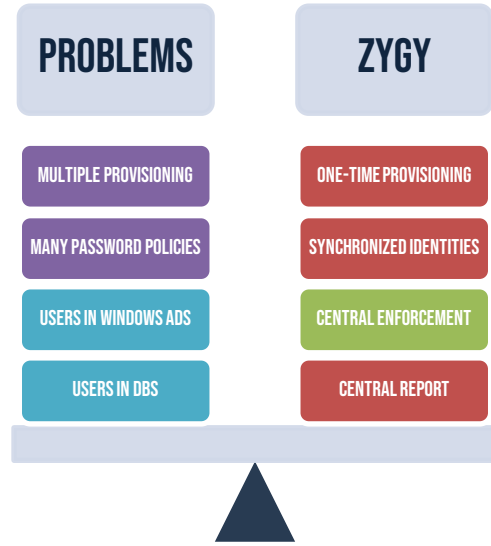
The advantages of ZYGY Gatekeeper:

- Ability to do integration with applications that support SSO Standard such as SAML, CAS, OAuth and OpenID.
- Ability to do integration with applications that DOES NOT support SSO Standard which normally comes from legacy systems.
- Advance and cost-effective integration capabilities through simple account login without API (Application Programming Interface) requirements

**SSO GOAL: ONE LOGIN FOR USER**



**IDENTITY MANAGEMENT GOAL: MANAGE IDENTITIES FROM ONE PLACE**



## Overall System Architecture

Overall system architecture is shown next:

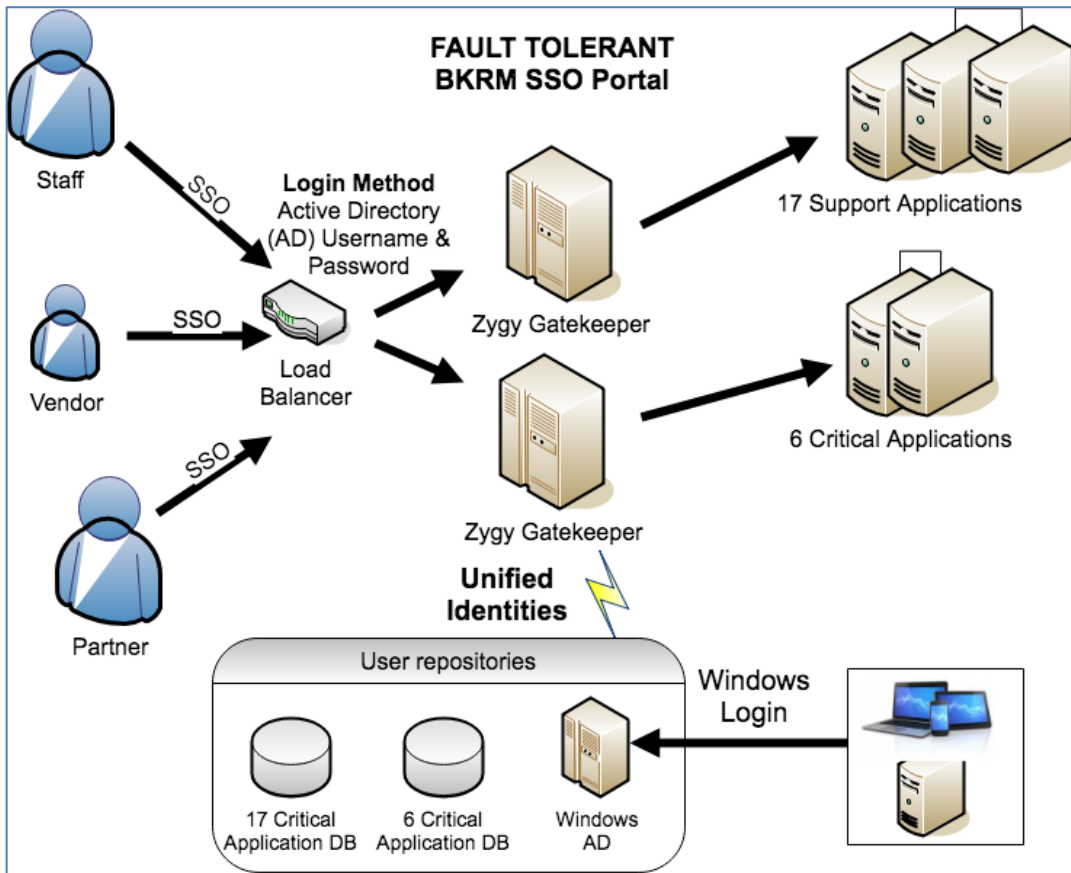


Figure 3: Overall System Architecture

SSO system runs in a fault tolerant and high availability mode by having two Zygy Gatekeeper instances receiving request loads from Load Balancer.

From above diagram, staff, company’s representatives and citizens will be able to access SSO Portal. After login, the users will be redirected to the main landing page of SSO Portal.

In the main landing page, users will be able to access authorized applications. To be more secured, a user can additionally login with fingerprint, voice, face, One Time Password (OTP) or 2D Barcode (QR Code).

**SSO Portal Main Landing Page**

The top part of an SSO Portal main landing page will look like next.

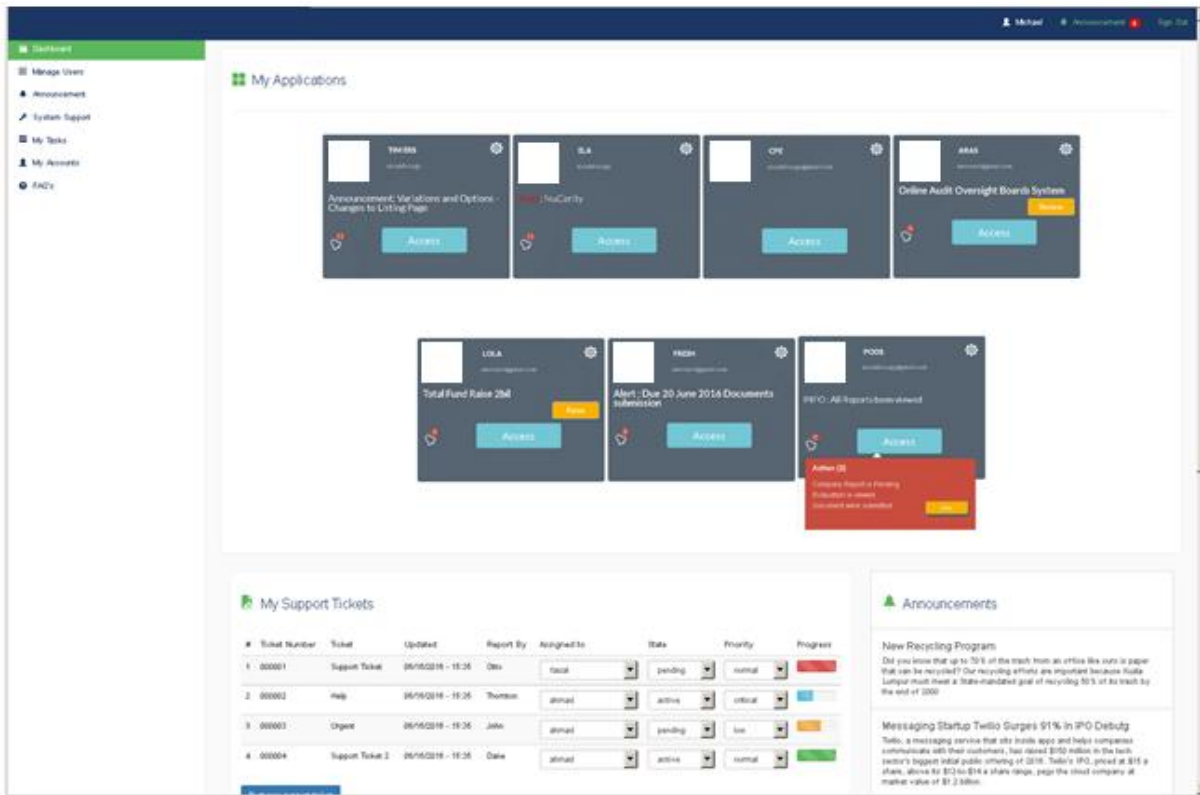


Figure 4: Top Part of BCRM SSO Portal Main Landing Page

### SSO Portal Site Administrator Page

The SSO Portal Site have include configurable administrative dashboards and widgets that highlight compliance and provisioning activities/status within the enterprise. The following figures have shown all the related Administrator pages.



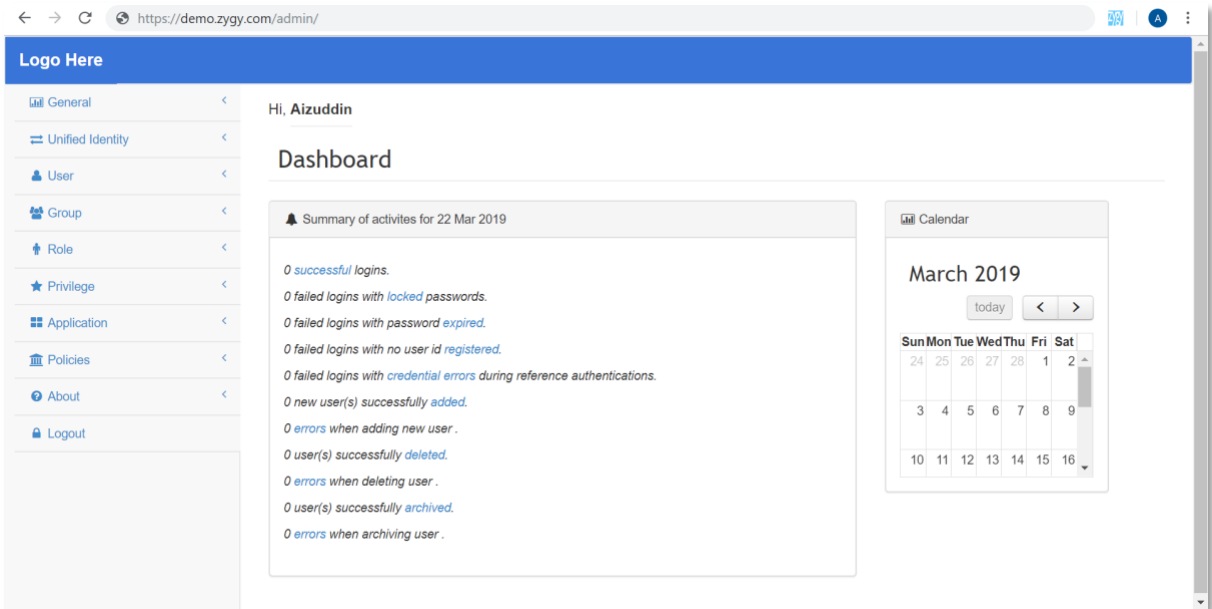


Figure 5: BCRM SSO Portal Site Administrator Page

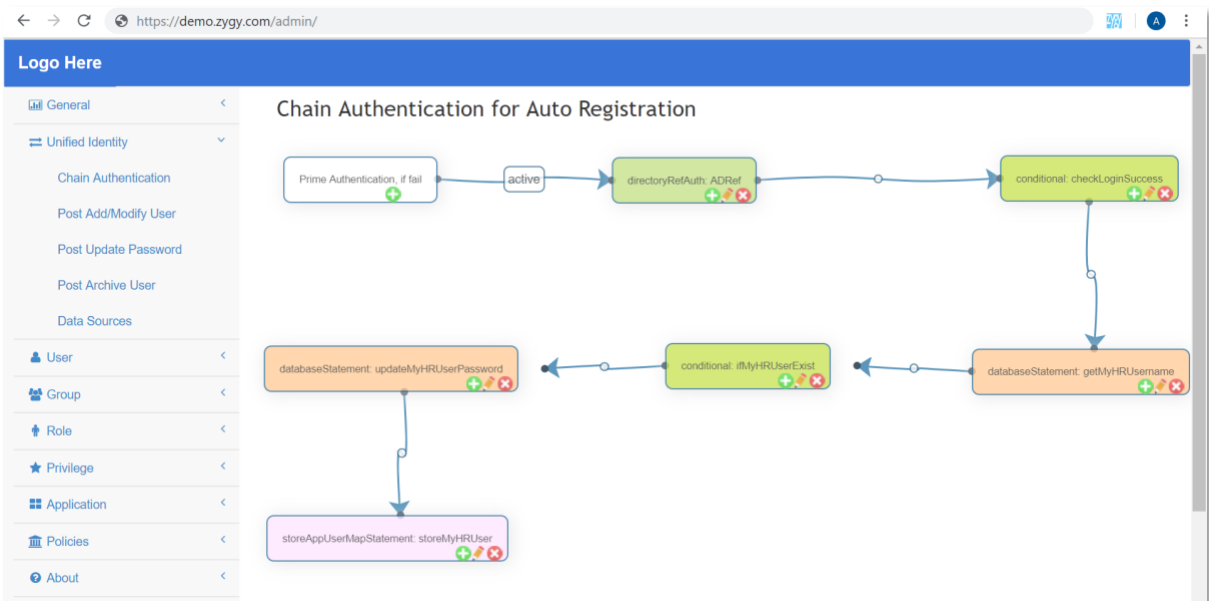


Figure 6: Chain Authentication for Auto Registration

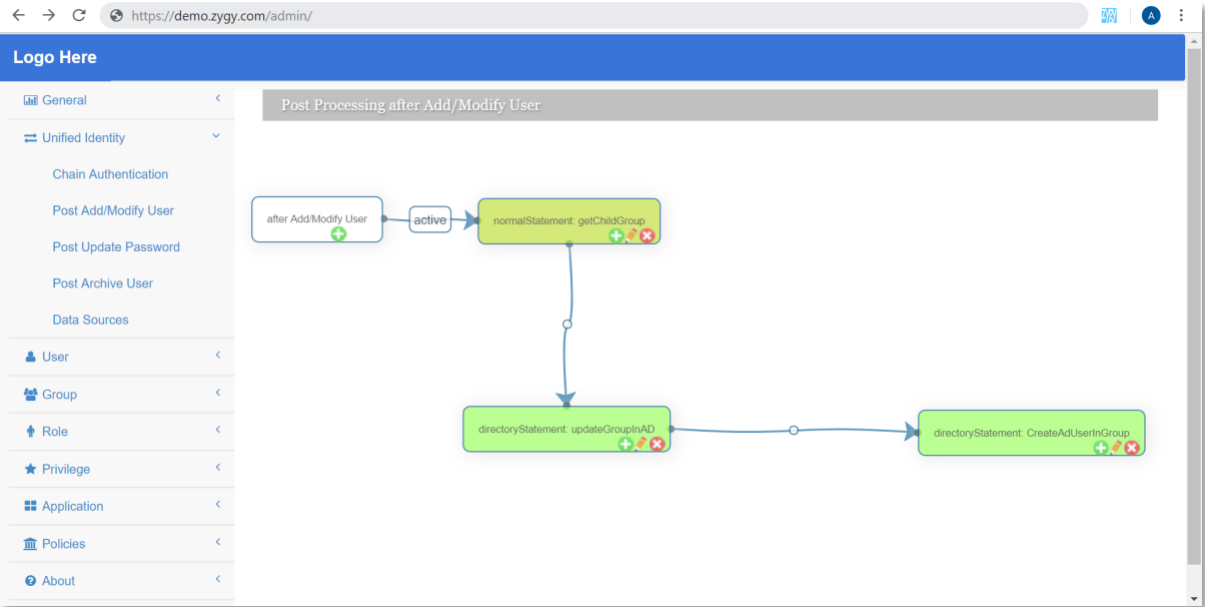


Figure 7: Post Processing after Add/Modify User

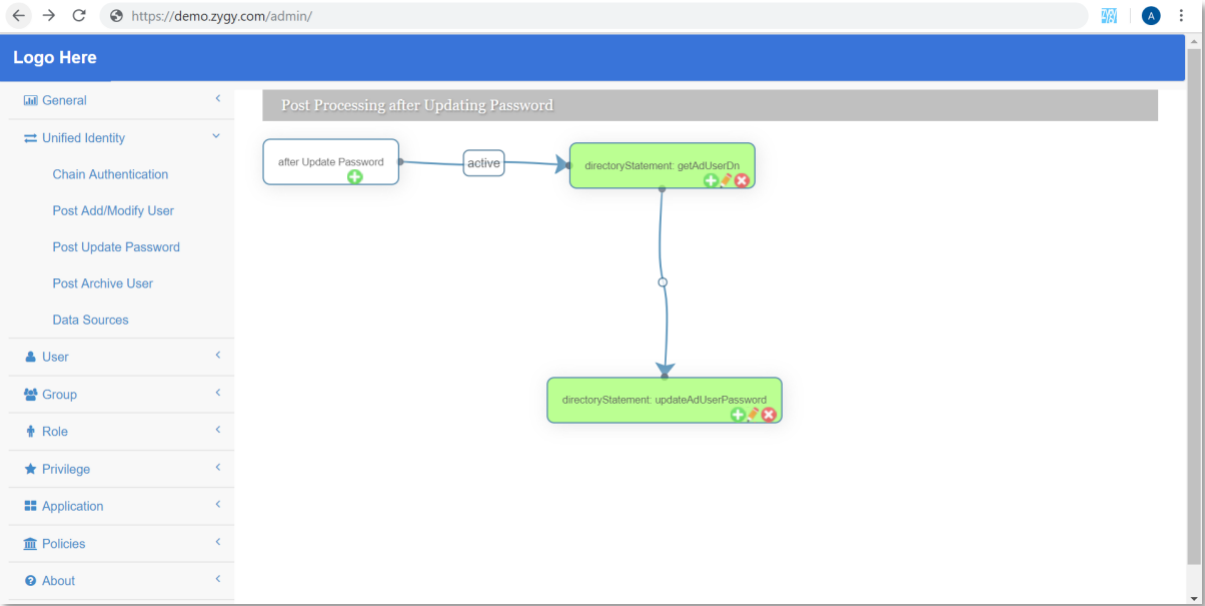


Figure 8: Post Processing after Updating Password

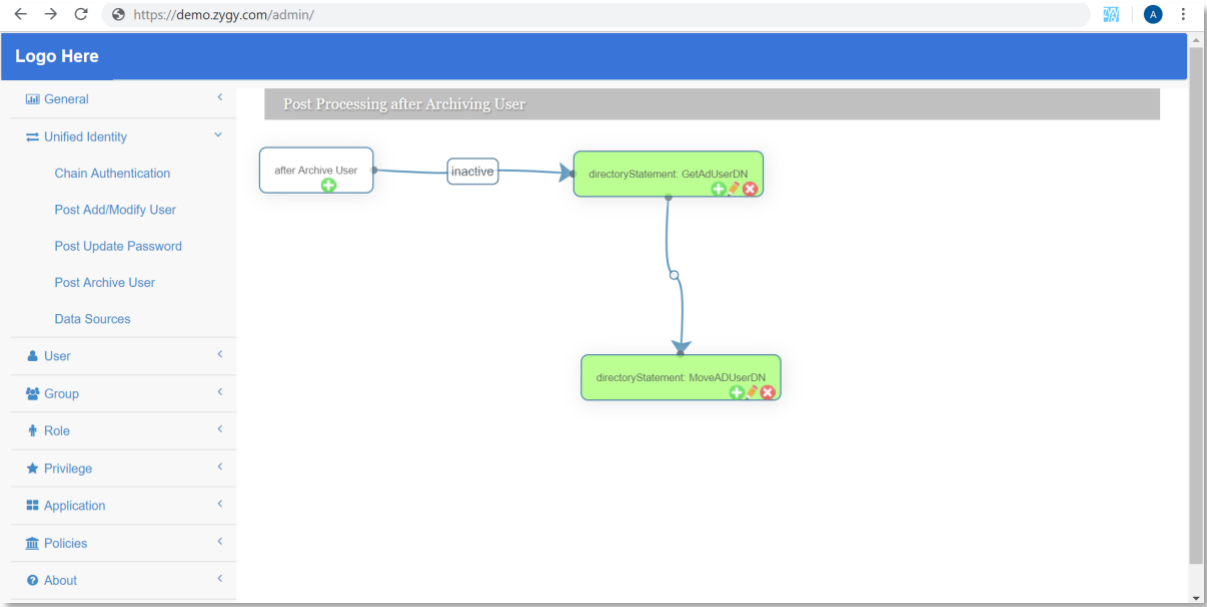


Figure 9: Post Processing after Archiving User

The screenshot shows a web browser window with the URL <https://demo.zygy.com/admin/>. The page has a blue header with 'Logo Here' and a left sidebar with navigation options: General, Unified Identity, User, Group, Role, Privilege, Application, Policies, and About. The main content area is titled 'User' and contains a form titled 'Add User'. The form has the following fields: \* User ID: , \* Name: , \* NRIC: , \* Email: , \* Alternative Email: , Sector: , Division: , Section: , Unit: , Extension: , Mobile Phone Number: , Block: , Level: , Email Alias: , Position: , Service Scheme: , and Grade: .

Figure 10: Add New User

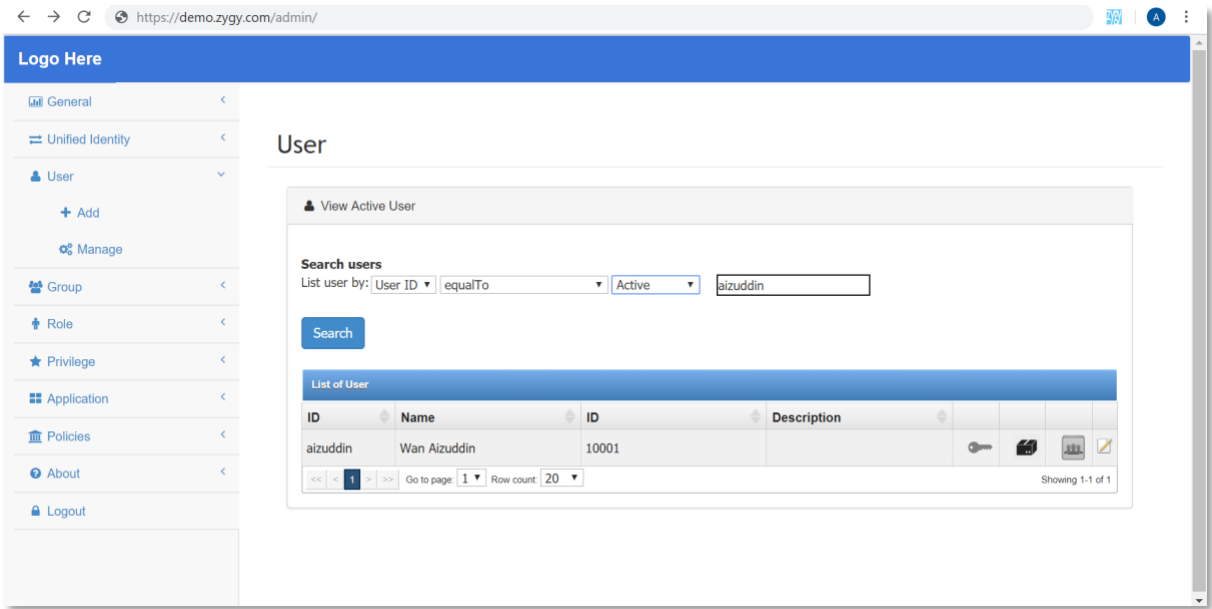


Figure 11: View and Manage User

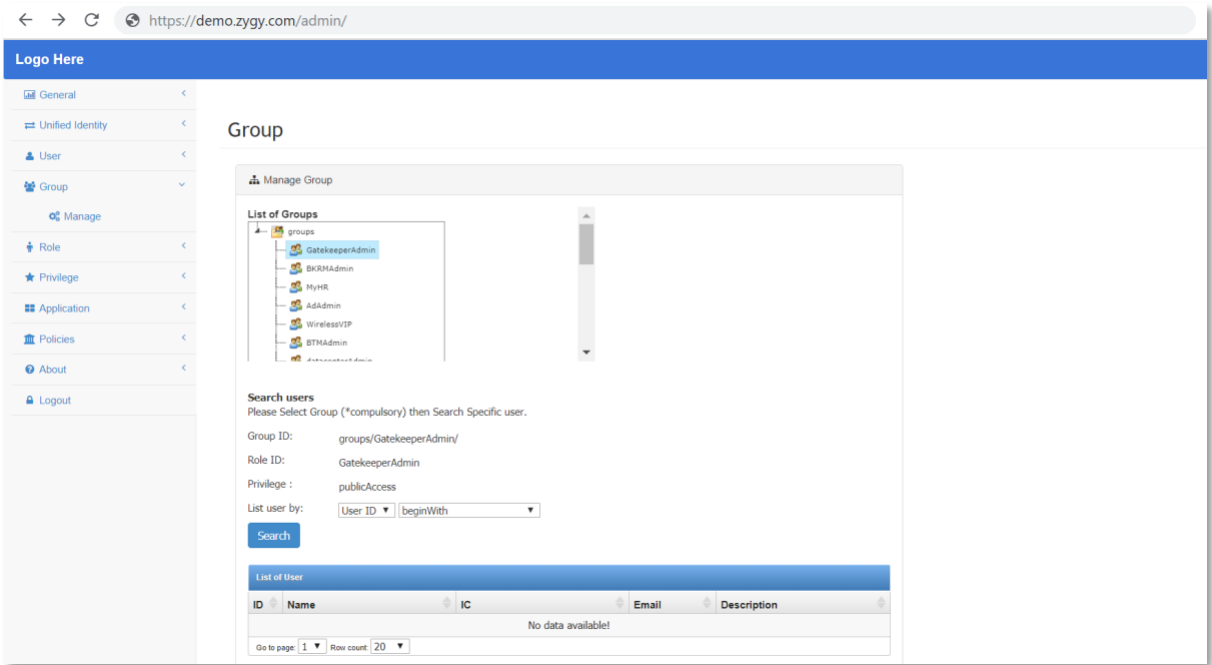


Figure 12: View and Manage Group

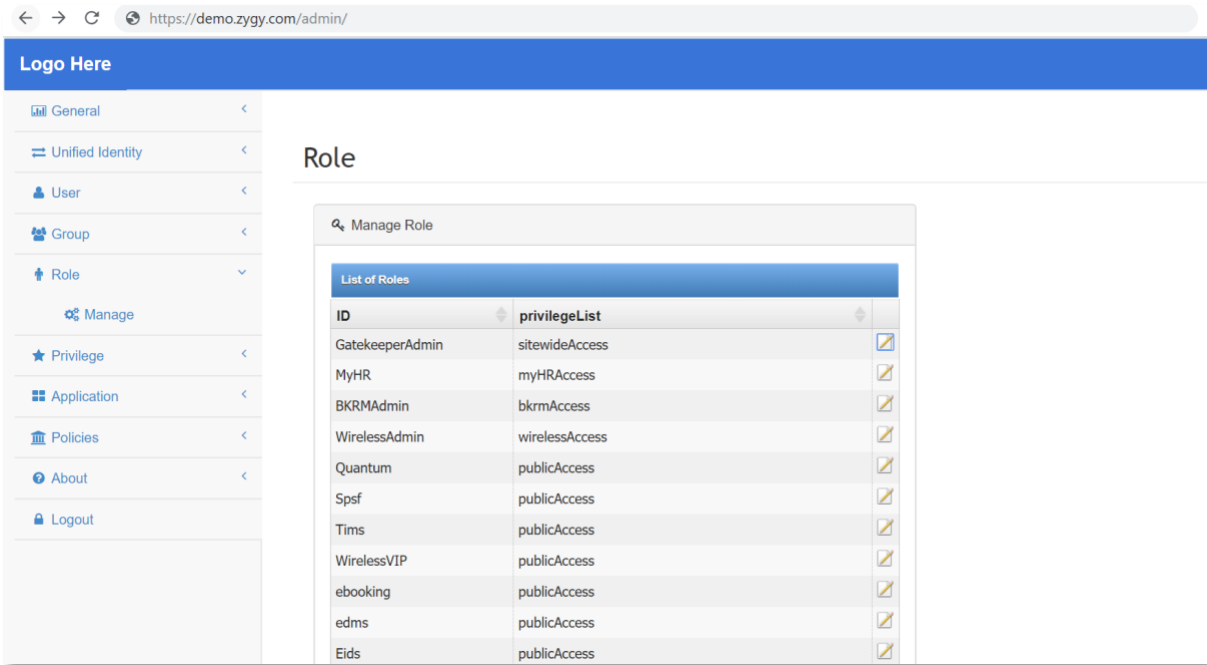


Figure 13: View and Manage Role

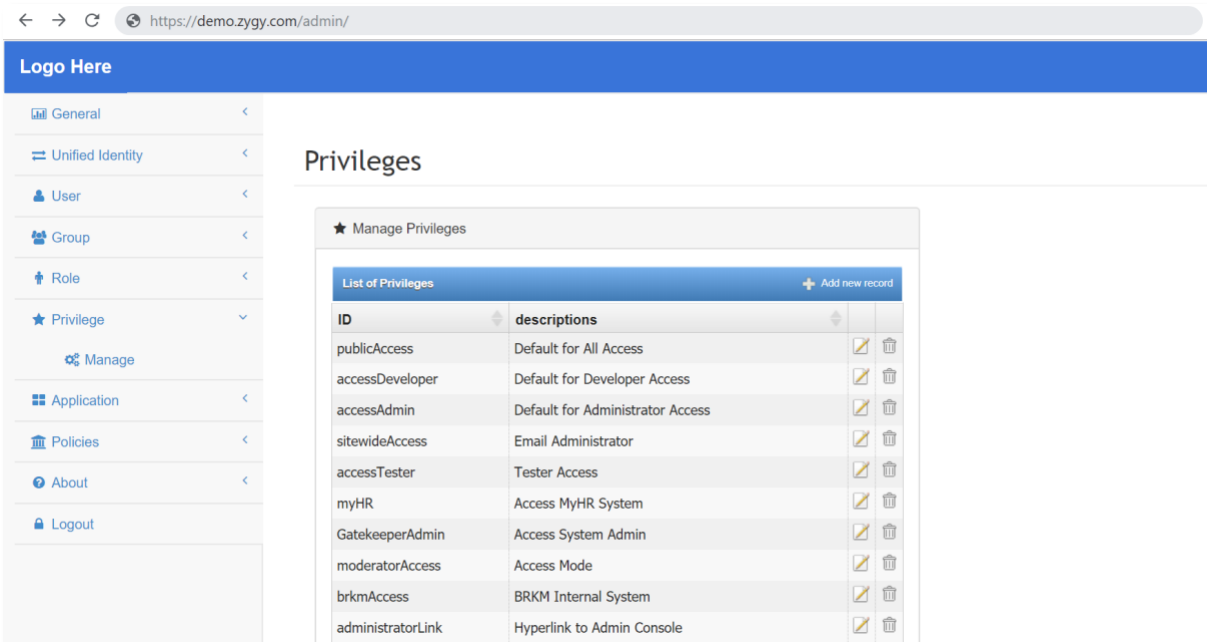


Figure 14: View and Manage Privilege

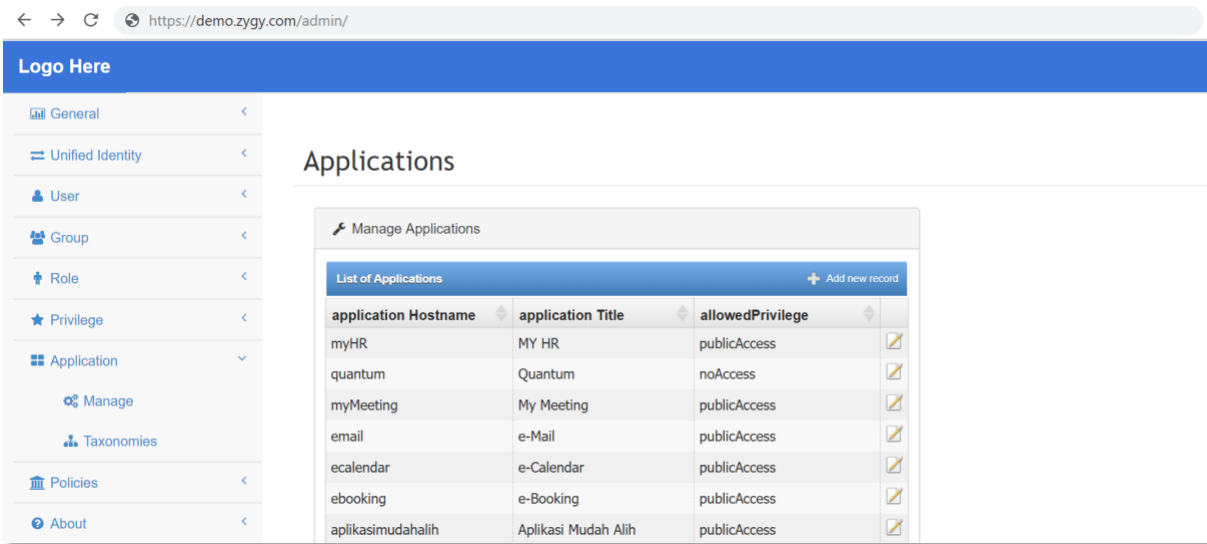


Figure 15: View and Manage Application

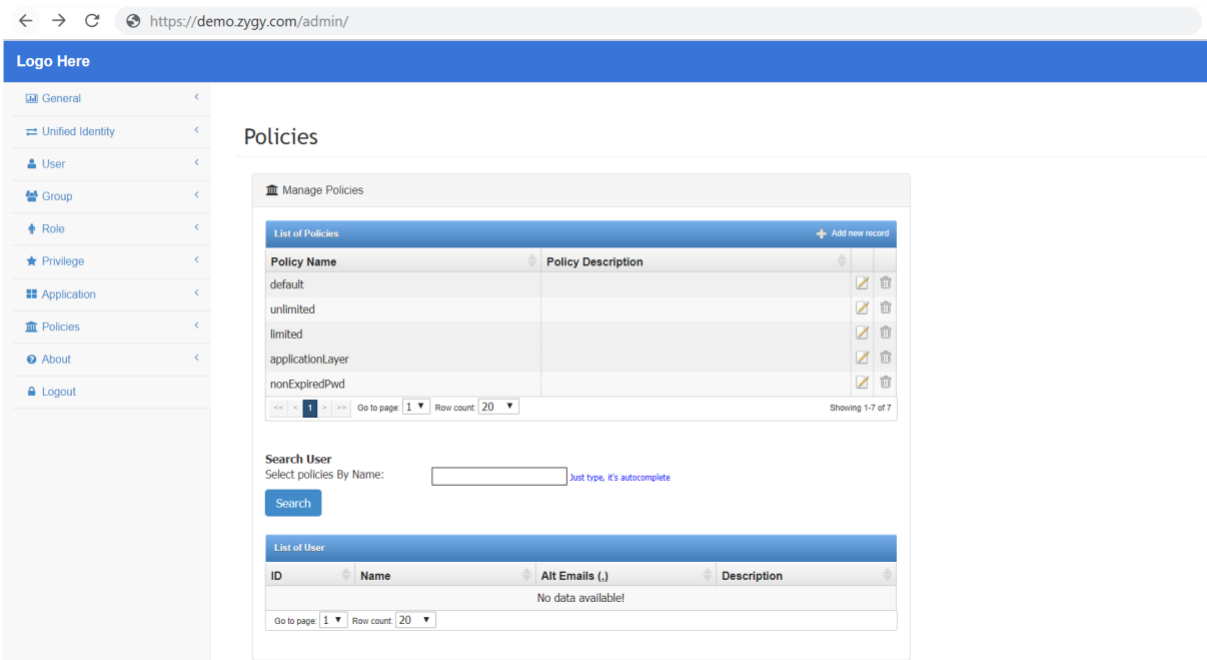


Figure 16: View and Manage Policy

### Workflow Engine

The Workflow Engine is based on four main entities: roles, tasks, forms and logics. It allows for complex workflows that the components are serial, parallel or trigger-based or event-based. It also

can trigger from another workflow.

A sample of the workflow UI is shown below:

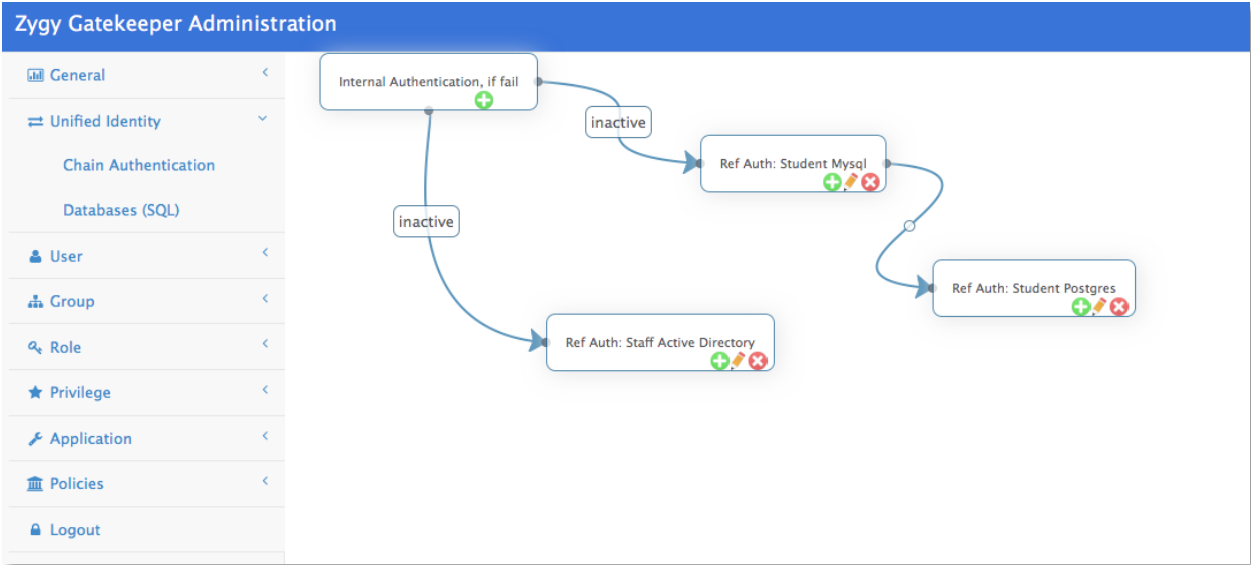


Figure 17: Sample of the Workflow UI

## CLIENTS

### **Malaysia Industrial-Government Group for High Technology (MIGHT)**

Implementing Zygy Knowledge in MIGHT for building knowledge base on blueprint and masterplan

### **Sapura Energy**

Implementing Zygy Insight to monitor company reputation and shareholders sentiments.

### **Astro Awani**

Nervesis works with Astro Awani to provide the political report for PRU14.

### **Malaysia Fintech Awards 2017 (Malaysia)**

Judge the award from the system (technology).

### **TELEKOM MALAYSIA**

- ZYGY Smart Active Profiling for Telekom Main site ([www.tm.com.my](http://www.tm.com.my))
- My1Content Development  
(<http://my1content.my>)
- ZYGY Streaming

### **Malaysian Timber Industrial Board (MTIB)**

Supply, Delivery, Installation, Implementation, Testing and Commissioning of SSO and Identity Management

### **UNIVERSITI TEKNOLOGI MALAYSIA**



Supply, Delivery, Installation, Implementation, Testing and Commissioning of LDAP Server

### **JABATAN AGAMA ISLAM WILAYAH PERSEKUTUAN**

E-Pusara System Development

### **IDENTITY MANAGEMENT FOR MINISTRY OF FINANCE (MOF), MALAYSIA**

ZYGY is the Identity Management System for MOF, Malaysia that also provides Single Sign On (SSO) for several MOF systems including email system, tax management system and various internal systems.

### **OPENLDAP IN UTM: FAULT-TOLERANT, REAL-TIME REPLICATION & HIGH AVAILABILITY**

Nervesis deploys OpenLDAP in UTM (University Technology of Malaysia) with fault-tolerant, real-time replication and high availability features. The OpenLDAP is the central Directory for almost all application in UTM. The OpenLDAP houses about 35,000 UTM users' information.

### **CENTRAL AUTHENTICATION MANAGEMENT SYSTEM (CAMS) FORUM**

CAMS is an Identity & Access Management solution meant to consolidate all applications in University Malaya. 35,000 users authenticate and authorize through CAMS. CAMS strengthens overall security, minimize overall applications administrations and reduce administrations regarding staff and students which include registrations, completions and profiles. CAMS won "Anugerah Inovasi Perkhidmatan Awam 2006"

### **REPORTING & DASHBOARDS FOR INTEGRATED ACCOUNT MANAGEMENT SYSTEM (IAMS)**

IAMS consolidates budgeting and procurement processes in all UM faculties. Vanilla is used to

produce various reports and dashboard charts & graphs for management and working level of more than 100 departments.

### **CONTENT COLLABORATION MANAGEMENT (CCM) FOR WHOLE UM WEBSITE**

CCM is used to manage content for the whole UM website across different departments. Nervesis redesigns content processes for about 700 content users of CCM. Nervesis also redesigns server and network architecture to achieve high performance and high availability for the main UM website.

### **INTEGRATED ACCOUNT MANAGEMENT SYSTEM (IAMS), UNIVERSITY OF MALAYA**

Integrated Account Management System (IAMS) is a Joint Venture Development project between Nervesis Sdn Bhd and University Malaya. IAMS consolidates budgeting and procurement processes in all UM faculties. Nervesis involves heavily in business processes design, system architecting and enterprise coding architecture framework.

## MANAGEMENT

### CHIEF EXECUTIVE OFFICER – AZHAR KASSIM B MUSTAPHA

#### Education

Bachelor of Science in Computer Science and Electronics

Massachusetts Institute of Technology, Boston, USA

Master of Engineering in Computer Science and Electronics

Massachusetts Institute of Technology, Boston, USA



#### Overview

Azhar Kassim Mustapha is the Chief Executive Officer of Nervesis, Malaysia (<http://www.nervesis.com>). Azhar has outstanding tracks of designing, developing and implementing advanced technologies. Azhar builds ZYGY, Nervesis' Artificial Intelligence (AI), to grow four products: ZYGY (<http://www.ZYGY.com>) on Identity Management and Single Sign On, and Midas Non-Existent Domain (NXD) Advertising (<http://midas.nervesis.com>). He lands a smart partnership with a major Telco, Telekom Malaysia. He passes Google Challenge Level 5 as a Hiring candidate. He was a speaker for World Islamic Economic Forum on Artificial Intelligence.

Azhar is a grad of the highly renowned Massachusetts Institute of Technology (MIT) in Boston, USA. He receives his Bachelor of Science and Master in Engineering in Electrical Engineering & Computer Science. Azhar has a total of three Patents to his name - one in the US with COMSAT Laboratories (now part of Lockheed Martin) and two in Malaysia – in the areas of underwater and space communication and compression, speech recognition and hardware interpreter/translator. The patent in US is at <http://www.google.com/patents/US6233552>. Although more than 15 years, people still refer to the work. NATO used the work for its submarine communication during the time when Azhar was with Comsat Lab. Azhar also is an expert in Natural Language Processing, a branch of AI to grasp human language.

In addition to his role as the CEO of Nervesis, Azhar was also a Research Specialist at Multimedia University of Malaysia (MMU), where he led a team conducting research and development (R&D) work funded by the Matsushita Corporation of Japan. Azhar has written and published numerous scientific papers at the International level.

## AWARDS

**2019:** ZYGY is recognized as the Top 10 Cognitive Solution Providers 2019 by APAC CIO Outlook in the US.

**2014:** 1- Innocert Award

Nervesis received an 1 innocert award which Innovation Certification for Enterprise Rating and Transformation (1-InnoCERT) is a certification programme used to recognise and certify innovative enterprises & SMEs and to encourage entrepreneurs to venture into high technology and innovation-driven industries by SME Corporation Malaysia. Our company achieved AA Rating Grade.

**2006:** NERVESIS RECEIVES AN INNOVATION AWARD TOGETHER WITH UNIVERSITY MALAYA

Nervesis received an innovation award together with University Malaya for its Central Authentication Management System (CAMS) deployed successfully in the university. The award is called Anugerah Inovasi Penyelidikan Bersama Antara Sektor Awam Dengan Sektor Swasta Tahun 2006 (AIPB 2006). CAMS is based on Nervesis' product, ZYGY. ZYGY is an Enterprise Identity Management System (EIMS). The award includes an exhibition of CAMS held in Dewan Besar, Wisma Darul Iman, Kuala Terengganu.

## COMPANY DETAILS

Nervesis Sdn Bhd (534937-P)

Lot 2-4-9J, Wisma Rampai, Jalan 34/26 53300 Kuala Lumpur

Phone: +603-41442909

Website: <http://www.nervesis.com>

Email: [enquiry@zygy.com](mailto:enquiry@zygy.com)

MOF REGISTRATION NO: 357-02002327 (with Bumiputera status)