



دار التقنية الذكية - تساب  
TECH-SAVVY ADVISORY BUREAU LLC

COMPANY PROFILE

2023



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## Tech-Savvy Advisory Bureau (TSAB) LLC

### Company Profile

#### 1. Company Overview

##### 1.1. Introduction:

Tech-Savvy Advisory Bureau (TSAB) is a Saudi technology company providing a wide range of digital transformation services including IT infrastructure, data management, data quality, big data, data analytics, data security, cybersecurity, ERP systems, and 4IR technology solutions such as blockchain, artificial intelligence, Machine Learning, RPA, Robotics, and IIOT.

TSAB offers best-in-class digital transformation solutions to clients through combining technical know-how, technology and research to enhance business efficiency. This is achieved through the proper and effective application of leading- edge information technologies

TSAB has reputed local talent and international collaboration with the major ERP vendors (Oracle, SAP, & Microsoft). TSAB is an authorized solution provider of Oracle NetSuite, the best cloud ERP system in the world, and the exclusive partner of Ai Labs and IIOT Labs, USA, global leaders in artificial intelligence and IIOT solutions. Moreover, it has collaboration with the cyber security center of the University of Texas, San Antonio, and King Fahad University of Petroleum & Minerals (KFUPM), Dhahran, Saudi Arabia. TSAB is a registered and preferred vendor to PIF, NEOM, Saudi Aramco, SABIC, KFUPM, NIDLP, and Misk Foundation.

In addition to our in-house technologies, we extend our services to include implementation of various information & niche industrial technologies offered by major international technology providers. Our technology transfer efforts are genuine as they center on localization of maintenance and assembly of targeted technologies and development of national expertise, which will eventually lead to local development.

##### 1.2. Our Vision

To be a leading technology supplier and services provider in the local and regional markets. We aim at tailoring our solutions and services to the requirements of the development projects and industrial growth in the region based on a profound understanding of the market dynamics and the economic progressive leaps arising from the 2030 vision of our country. Providing efficient solutions and quality products in a cost-effective manner to the Arabian Gulf market is a key goal to our company.

##### 1.3. Our Mission

To provide quality services and advanced solutions to help our clients enhance their business efficiency and reduce cost. This will be achieved through collaboration with capable international partners and local research allies. Adopting the best quality standards and capitalizing on worldwide expertise in our fields of specialty are essential factors to our success. We strive to satisfy all our clients' requirements by strictly following the best business practices in the field. Therefore, we place great emphasis on staff training and career development. We also developed a genuine Saudization program to enhance the retention of the knowledge and expertise gained over the years.



#### 1.4. Organizational Chart

Chairman		Board of Directors		
Managing Director				
CFO				
ERP Solution Director	AI & ML Director	Apps Development Director	Business & Technology Director	Business Support
			BD Director	Admin Manager
			Marketing Manager	Sales Manager
Projects Manager				

## 2. **Core IT Services**

Our core IT services provide exceptional IT solutions to businesses throughout the region. We combine our strong IT support, IT infrastructure, and IT consulting expertise with our strong work ethics to deliver outstanding results for our clients. Our strong technical team and highly qualified management are making us the company of choice for a growing number of clients. We provide core IT services to businesses across a variety of industries for clients who have operations throughout the world. Our core IT services include:

1. General Technical Services
2. Data Quality Services
3. Data Security Services

### 2.1. General Technical Services:

To support the broad change agendas of forward-thinking CIOs, TSAB can pull all of its technology capabilities together into a single integrated solution. We enhanced and expanded our ability to deliver powerful, end-to-end technology solutions required by high-performance businesses and governments. We collaborate with clients to align IT strategy and technology solutions to business strategy to improve the performance and business impact of their IT investments and to boldly transform IT to drive future business growth and innovation.

Our consultancy services include:

- Strategy and Architecture
- Risk Management
- Systems Disaster Recovery and Business Continuity
- Data Backup & Recovery Policies.
- Systems Upgrade.
- Infra-Structure & Applications Maintaining and Re-Engineering.
- Advanced Performance Tuning.
- Commercial Business Services
  - Managed Procurement
  - Telecommunications Expense Management
  - Asset Management Service

TSAB Technology Consulting is uniquely geared to bridge the gap between organizations' existing IT capabilities and their vision for high performance through full digital transformation. We have:



- **A proven track record:** TSAB has capabilities of successfully delivering large-scale IT transformation projects.
- **The right resources:** Drawn from all technology practice areas, our professionals bring deep experience, an understanding of business systems and an innovative approach that mitigates risk and keeps costs manageable.
- **A holistic approach:** Yes, we focus on solving IT problems, but in order to create more complete solutions and positively impact business outcomes, we incorporate strategy, technologies, processes, people, IT operations and governance leading to a complete digital transformation.
- **Deep technical know-how:** We're not generalists. Our professionals bring profound technology technical skills, proven methodologies and insights that collectively help our clients hit their cost and performance goals.
- **Alliances with a cluster of technology leaders:** We work closely with hardware and software vendors such as Microsoft, HP, Cisco, and Oracle. Our alliance relationships let us extend the range of capabilities and solutions we can offer.
- **Global reach:** TSAB can bring global resources and technical knowledge to bear 24 hours a day, 7 days a week, around the region.

## 2.2. Data Quality Services

### 2.2.1. Benefits of Our Data Quality Services:

- Reduce costs and improve throughput and effectiveness of the organization.
- Quickly determine the data quality of a critical data source.
- Find the biggest risks of adding the data source to a data warehouse or migrating to a new application.
- Determine critical business rules.
- Learn how to generate a data profile for important data sets while establishing a shared ownership of the data quality issues with the business side.
- Learn data profiling skills that can apply to other data source
- Professional data quality assessment of an important subject area that will enable prioritization of data quality improvement projects based on the impact to business and cost of implementation.
- Determine readiness to move towards an EQTL model.
- Learn a method for continuous improvement of the organization's data quality.
- Learn the best practices of the established data quality practitioners.
- Open windows into data quality at your organization.
- Have the ability to include data quality and data profiling as an integral part of your data integration process.
- Possess an end-to-end data quality solution.

### 2.2.2. Our Data Quality Services:

- Big Data
- Data Governance
- Data Migration
- Data Quality in Customer relationship management (CRM)
- Data Quality in Data Warehouse
- Data Synchronization
- Extract, transform, load (ETL) data for Analytics
- Master Data Management
- Service-Oriented Architecture

### 2.2.3. Our "BIG DATA" Solution / Enterprise Data Warehouse:



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There is a need for the data to be in “order” and “mapped”. The “order” understands where the data exists in the business process flow. Due to the typical nature of most enterprises data moves along the value stream via interfaces, conversions, enhancements and other system integration points which require a subject matter expertise in the “order” of the specific functions of the end-to-end business process flow.

The functional-technical understanding of where this data resides so it can be “mapped” or traced back to a KPI, or reporting requirement is a separate skill set. We accomplish both! Also, we provide specialized services in the following fields:

- Data Quality Assessment
- Adding Qualification to Data Warehouses.

### 2.3. Data Security Services

With the rapid technological advances, increased market pressures, and growing sophistication in security threats, IT organizations must move from pure compliance to proactive defense and value creation. IT leaders have to perform a delicate balancing act between mitigating risks and driving growth. Incorrect emphasis can render an organization vulnerable, or unable to move with the necessary agility to compete in the competitive global marketplace.

TSAB’s Security Solutions professionals leverage decades of experience, deep industry knowledge and business-process know-how to create pragmatic, flexible approaches that can help protect against threats, minimize risks and adopt new technologies needed to fulfill your digital transformation goals and grow your business. By implementing comprehensive security solutions, organizations can:

- Increase shareholder value by reducing risk, costs, and complexity
- Achieve compliance targets
- Improve productivity and business growth
- Increase customer trust by protecting information and systems from threats and attacks

As one of the leading technology-independent company in the region, TSAB is uniquely qualified to create security strategies that build on existing assets and integrate the right solution for the problem.

#### Experienced, Trusted Advisor

As a trusted advisor who listens, observes and assesses each situation in context, we bring a wealth of experience that spans many types of government agencies and major industry sectors.

#### Industrialized, Yet Catered to Your Needs

We’ve “industrialized” security and have invested heavily in our services to make our tools and processes reusable for any situation. This does not mean, however, that our solutions are identical from one client to another; on the contrary, we tailor solutions to your unique case.

#### Fast, Cost-effective Delivery

Drawing from a complete, proven security toolkit and quickly implementing robust security measures, our global security professionals are available around the clock through onshore, offshore and near-shore models.

#### Powerful Relationships

Although TSAB is vendor-agnostic when it comes to technology recommendations; our relationships with world-class technology providers extend our capabilities, reduce project risk and help streamline the vendor evaluation and procurement process.

Our portfolio of specific security services include:



TSAB Identity and Access Management Services: Processes and tools to centralize and streamline the management of access and entitlements within the extended enterprise, helping clients reduce costs, minimize risks and meet regulatory compliance requirements.

TSAB Information Protection Services: Scalable and adaptable frameworks to help organizations meet privacy requirements and address regulatory and policy compliance issues, enabling organizations to reduce risks and enhance trust with customers, partners and suppliers.

TSAB Application & Infrastructure Security Services: Help organizations protect enterprise applications, including SAP, Oracle, and related custom applications from internal and external threats. By securing applications and infrastructure, organizations can confidently adopt the new technologies needed to implement digital transformation strategies and generate growth.

### **3. Enterprise Solutions**

We do understand in today's dynamic IT domain, the quality of service-delivery and support are key competitive advantages. Therefore, we strive to deliver our services to the highest quality standards and to provide our technical support services in a competent, expeditious, and secure manner. Our service spectrum contains consulting, management, implementation and optimization in the following fields:

#### **3.1. Enterprise Resource Planning (ERP) Solutions**

We deliver end-to-end application services according to your product concept. From project planning, validation, and testing to deployment we help businesses like yours create apps your customers seek. We do technology differently:

- We implement Technology, differently.
- We believe that slow and unreliable technology is crippling for a growing business, and we offer technology & IT blueprint to help you get from where you are to where you want to be.
- This includes implementing a stabilized IT environment and secure processes that remove the stress and burden of IT from your plate.
- We specialize in managed IT and computer network services for businesses across the region.

In its ERP system implementations, TSAB distinguishes itself from competitors by providing the following unique ERP services:

- Mapping of business processes prior to ERP implementations.
- ERP Implementations & advanced customizations (Oracle, SAP, Oracle NetSuite).
- Proven data migration services.
- Advanced services (e.g., system fine-tuning and seamless system integration)
- Implementation of blockchain technology and artificial intelligence.

##### **3.1.1. SAP**

- SAP S/4HANA Implementation
- SAP SuccessFactors
- SAP ECC
- SAP Support Services
- SAP Custom Development

SAP S/4HANA



It is built on the advanced in-memory platform and provides you with unparalleled speed, great user experience and a vast number of features and functionalities to help you make the right data-driven business decisions.

Deployable in the cloud or on premise, SAP S/4HANA can drive instant value across all lines of business – no matter your industry or business size.

It offers innovations for the newest digital global trends including Internet of Things (IoT), Big Data, business networks, and mobile-first to help businesses Run Simple in the digital economy.

Why SAP S/4HANA?

**INNOVATION**

Develop various business specific on the SAP Cloud Platform with seamless integration with your systems.

**DEPLOYMENT**

Both cloud and on-premises deployment options enable you to receive value anywhere.

**SIMPLICITY**

Dashboard with real-time picture of your business help you make intelligent and acute decisions.

**PERFORMANCE**

Manage your business on one of the fastest platforms on the market.

**REDUCED COST OF OWNERSHIP**

Get the best value for money by having the analytical and transactional capabilities of several systems in just one.

**AGILITY**

Get unparalleled personalized and customizable experience through the all-new gorgeous SAP Fiori interface.

**SECURITY**

Take advantage of industry best practices regarding digital security.

3.1.2. Oracle

- TSAB applies Oracle technologies to help our customers run smarter and faster. With Oracle analytics.
- Our customers can transform data into winning analytics insights for making intelligent decisions.
- We're recognized by industry analysts for our comprehensive capabilities as a leading Oracle implementation and managed services systems integrator.
- Our relationship with Oracle spans 10 years and is built on a powerful framework for joint innovation and delivery.
- Our clients get access to our unmatched industry expertise across the full suite of Oracle Cloud solutions, including Oracle NetSuite, Oracle E-Business Suite, JD Edwards, PeopleSoft and Siebel.

Oracle E-Business Suite

- Oracle E-business suite is drives productivity, and meets the demands of the modern mobile user.
- Oracle E-Business Suite continues to deliver new application functionality and expand the capabilities of existing features while helping you gain all the benefits of Oracle Cloud.

Oracle E-Business Suite consists of

- Enterprise Resource Planning (ERP)
- Supply-chain management (SCM) &





- Customer relationship management (CRM). Apart from these three fundamental business applications, Oracle e business suite also offers:
  - HRM (Human Resource Management), Transportation Management, Warehouse Management, Order management, and financial management systems.
  - The suite can be bought all together or in the package as far the requirement of the organization. Each application is licensed separately.

### 3.1.3. Oracle NetSuite

Why do you need Oracle NetSuite ERP in your business?

- If the different parts of your business aren't connected and able to easily share information, you're not running as efficiently as you could, and that means devoting more time and resources to managing the business than necessary.
- A scalable and affordable management system like Oracle NetSuite helps reduce these inefficiencies and drive productivity.
- With improved integration, a centralized implementation framework, and improved system architecture and performance, Oracle NetSuite is simpler to install and upgrade than ever.
- The world's #1 cloud business management software suite.
- Because it's available via the cloud, you don't have to spend the time or money necessary to implement an on-premise solution.
- Eliminate IT Maintenance and Upgrade Costs.
- You can start small with what you need now and scale up as your business grows and needs change.
- You'll also benefit from a significantly lower Total Cost of Ownership (TCO) with subscription-based Software-as-a-Service delivery

Why Oracle NetSuite is a business process management software:

#### Project Management

- Oracle NetSuite gives users an accurate, real-time overview of the entire product lifecycle.
- It keeps employees informed at every stage, and keeping tabs on timings.
- It can help organizations monitor the progress of numerous projects at one time, so businesses know at exactly which stage a project currently is, and what the next steps are.
- NetSuite is a smart software solution can let the users know if a project is likely to miss a deadline or exceed a budget, or send a reminder when a payment is overdue, helping everything stay on track.

#### Human Resources Capital Management

- NetSuite is all about getting the most out of your resources, and, as any successful business owner will tell you, the most important resource available to any organization is its people.
- Through NetSuite ERP's human resources module, businesses can get a consolidated overview of their workforce, and manage core HCM functions such as time management and payroll.
- Managing your employees through Oracle NetSuite means that data will be consistent and up to date.
- It will be a good tracking system for your employees' absences and vacations.
- It can also ensure businesses are compliant with employment laws and regulations by collecting the required information, and giving a clear overview of hiring data.

#### Business Intelligence (BI)



- Business intelligence is a key aspect of Oracle NetSuite ERP.
- BI features in NetSuite ERP solution help track progress, measure performance, and produce in-depth reports.
- It provides the users with a complete picture across every department.
- Thorough business intelligence tools provide digestible, up-to-date information via customizable dashboards, allowing businesses to get deep insights into what's working and what isn't.
- Being equipped with the right data can help empower a company to make more informed, data-driven decisions in the future.

#### Customer Relationship Management

Oracle NetSuite ERP has some Customer Relationship Management features built in, giving additional functionality to businesses who perhaps don't deal with customers on a scale that requires an additional platform.

#### Financial Management

- Having a clear picture of your finances is imperative for any successful business, which is why a sturdy financial management module lies at the heart of Oracle NetSuite ERP solution.
- NetSuite will manage all of your business accounting requirements.
- It can also help manage a wider range of financial tasks, like budgeting, recording transactions, dealing with expenses, overseeing assets and collections, and measuring cash flow.
- NetSuite is good enough to keep financial data safe and compliant.
- Security is a top concern for makers of business software, particularly in light of recent high-profile data breaches.

#### Supply Chain and Operations Management

- Tracking all supply chain communication through one consolidated system means there's no room for error; any and all contact is clearly recorded, and less time is wasted chasing up replies or searching through inboxes.
- Oracle NetSuite ERP software can also help keep things ticking over by automating tasks, such as placing orders when stock levels drop below a predefined point.
- When a business is part of a chain, it's not only that business' performance that can impact profits, but also that of your vendors.
- NetSuite will track and evaluate the efforts of those both higher and lower in the chain, allowing you to monitor KPIs — such as cost, error frequency, and timescales — and create a more efficient network.

### 3.2. Application Integration Solutions

Your business might need application integration services:

- If your business operations are running on disparate systems.
- If your existing system falls short of new business requirements.
- If you want to synchronize your business operations and make the right decisions, but the information you need is scattered across different departments.
- If you want to improve communication and collaboration between late units within your organization and divert money, resource energy and time into more useful tasks.
- If you're trying to capture your target audience on an alternate platform.

Then:

- ✓ TSAB provides seamless ERP integration services and implements advanced, high-performance technologies for your system and data integration.



- ✓ We have skilled experts on multiple technologies, which makes us a one-stop shop for providing B2B application integration services.
- ✓ We have adequate expertise on integrating applications running on various platforms including Windows, LAMP, cloud, mobile, third-party software, and middle tiers.
- ✓ We provide integration solutions with our service layers and implement advanced technologies for ERP integration. Based on this we can provide you with comprehensive BI and dashboards.
- ✓ Our advanced tools can equip you with Business Intelligence (BI) reports that will empower you to make the best decisions and strengthen your business.
- ✓ TSAB's systems integration solutions can also automate your business processes and extend your existing system's capabilities.

### 3.3. Legacy System Migration & Application Modernization Services

- Has your system's performance deteriorated?
- Are you spending higher maintenance costs on it or facing the limitations of old technologies?
- Are you worried about substantial data loss?
- ✓ You can avoid these risks and cut expenses by taking advantage of TSAB's legacy modernization services.

#### Why TSAB?

- The highly skilled and experienced developers' team of TSAB offers applications migration services to migrate your entire system, including features and data.
- We not only offer legacy system migration services for your existing system, but also add value by reviewing and incorporating any changes required in the software to make it more efficient.
- Our professional legacy software migration experts can help you select the right technology for modernizing legacy systems. We take a detailed look at your existing system and code irrespective of the technology you use and prepare a complete feature list before we move forward, in absence of any previous documentation of the system.
- We study your legacy systems architecture, database and user experience, and then provide you with UI/UX and code level enhancements to create a scalable, modernized application with a higher performance.
- Hire a full and experienced legacy software migration team at the cost of a single developer, and let TSAB's application modernization services help you leverage technology to keep your system up to date, secure and running smoothly for enhanced performance and dependability.

### 3.4. Technology Support & Maintenance Services

- Software development is an iterative process. As the technology upgrades, the software that supports it must also undergo support and maintenance services.
- Businesses need to keep pace with fast-changing technology trends.
- Experts who can provide consistent technology support services are crucial to continued success.

Our cost-effective Technology Maintenance Services include:

- Addition of features.
- User interface (UI) enhancements.
- Application enhancements, configuration, and change management.
- Complete testing support.
- Technological upgrades.



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Hire a full Technology Support & Maintenance team at the cost of a single developer and let TSAB help you leverage technology to keep your system up to date and secure.

Why TSAB Technology Support Solutions?

- TSAB believes in building long-term relationships with our clients.
- We offer end-to-end software, web, mobile, and cloud application development and provide complete support and maintenance services to our existing clients by taking the following steps:
  - We design scalable architecture, which helps to sustain low maintenance costs.
  - Our ongoing maintenance includes bug-tracking and fixing, technological upgrades, and basic feature enhancement.
  - We have a rapid response time. We always respond to client inquiries and feedback within 24 hours.

### 3.5. Business Process Automation

What are the signs your company needs business process automation?

- Internal and external communication is time consuming and haphazard.
- You experience bottlenecks and are unable to pinpoint the root cause.
- Business information is scattered across disparate systems.
- Excessive time is spent in gathering key information.
- Your departments use separate processes, making coordination difficult.
- Efficiency and productivity decrease as a result of manual work processes.
- Your people, processes, and systems are not aligned.
- You still rely heavily on paper for tracking system operations.
- Process owners don't take timely ownership of a task and a process comes to a halt.
- Lack of central system and manual processes introduce several issues and are time consuming.

What are the advantages of BPA?

- Mobility and portability.
- Enhanced workflow management.
- Real-time monitoring.
- Streamlined communication.
- Improved team collaboration and operational performance.
- Increased speed and efficiency.
- Reduced cost.

Why TSAB Business Process Management Solutions?

- We are one-stop shop for your BPA requirements.
- Our dedicated team includes consultants and an R&D team with vast experience in business process automation and domain knowledge.
- Dedicated account manager available 24 x 365 to provide support and answer questions.
- On-site deployment for successful training and implementation. We want our customers to be 100% satisfied.
- To ensure cost efficiency, we tailor our BPA solutions to meet your business processes – you pay only for the modules and features you want.
- We align processes, system & resources to ensure increased efficiency.
- Our team will strategize and implement the right BPA solution for seamless working of the system.
- We'll use the latest proven technologies for your BPA solution.



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### 3.6. Technology Consulting Services

Why do you need Technology Consulting Services Delivery?

In the era of a constantly evolving and dynamic business environment, it is vital for your organization to have a trusted consultant by your side, to guide you through your digital transformation journey.

Need to create a new vision or put an already established one into place?

- TSAB is here to help you unleash your full business potential through the power of top-notch technology.
- We will solve your toughest niche problems, regardless of your business size.
- We have been engaged in many business transformations over the years.
- Our technical consultancy is based on hands-on-experience.

Some of your business systems or processes are not performing effectively or you probably need to automate some of them for improved efficiency?

- No problem, our consultants are here to give you expert opinion on how to do it by leveraging the latest technologies.
- We will help you grow your business to build and expand new offerings with innovation and agility.
- After we carefully analyze your environment, grasp your needs and goals, we will prepare an exhaustive roadmap for your tailored transformation journey- all this will be done in a highly secure environment.
- We are an expert company and follow strict security regulations and best practices to deliver the most optimal results.

Our General Approach to Software Consultancy and Technology Advisory Services

- Business Analysis.
- Crafting a Proof-of-Concept.
- Solution Design and Architecture.
- Project Planning and Budget Building.
- Total Cost of Ownership (TCO) planning.
- Building a bespoke software solution.

## 4. **Artificial Intelligence and Machine Learning:**

### 4.1. Minsky: Enterprise Level, Most Powerful, and Easy-to-Use AI Engine:

Our mission is to utilize Artificial Intelligence (AI) to execute tasks naturally associated with human intelligence, like speech recognition, decision-making, visual perception, and translating languages. To implement this we use machine learning, deep learning, NLP and neural networks or any branch of AI wherever required to perform complex tasks such as predictions, recommendations, anomaly detection and much more. Using our proprietary AI platform (**Minsky**) we provide custom end to end innovative solutions to drive business transformations resulting in smart processes and data driven decisions. In addition, we are setting new standards in the field of Robotic Process Automation (**RPA**) to automate time-consuming, labor-intensive process flows across various industry domains. We pioneered the process of incorporating RPA into our AI solutions for tasks such as data gathering and for Report distribution. With our head office offshore engineering centers, we provide 24/7 support for Data Analytics, Development & Post Implementation support.



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#### 4.1.1. The Challenge:

With the current Global requirements to use Artificial Intelligence for various applications and across various verticals it is extremely complicated and time consuming to develop an AI Solutions to make any predictions from a given dataset. This is because of the various possibilities that need to be considered such as programming knowledge, selecting the right Model/Algorithm (s), selecting the correct data variables, selecting the correct historical data, performing the initial tests and finally for optimizing the models in order to achieve a high prediction accuracy.

#### 4.1.2. The Solution:

Our Minsky AI Engine provides an easy 4 step process that allows you to easily test and model your data irrespective of the industry type or data size and go live very quickly. Using of AI Engine, we provide outcome based turnkey solutions, blending industry best practices & ideas to fulfill customers' expectations. We help our clients to achieve organizational objectives & maximize their Return on Investment (ROI).

#### 4.1.3. Minsky for Out of the Box Deployment:

Our AI engine Minsky is named after the great pioneer American Cognitive and computer scientist Marvin Minsky who defined AI as “the science of making machines to do things that would require intelligence done by human beings” Just in 4 easy steps, you can easily model your historical data and produce results with real time data irrespective of the industry type and data size. Typical solutions can go live in less than a week!

#### 4.1.4. What Sets Minsky Apart?

##### Data Gathering:

In order to make any AI/ML/DL predictions, we need to start with the historical data that you generate. In most cases the data might come from several disparate sources. We simply ask you to relay that data to us and our engineers will sanitize this data in an established systematic manner that enables the customer to find a solution to the dilemma that needs to be solved.

##### Training:

Here we take the good values for all the weights and the bias from labeled examples. We then use the supervised/unsupervised learning techniques, where the selected algorithm(s) build a model by examining many examples and attempts to find a model that best fits your data for the required prediction.

##### Model Building:

An artificial neural network model is based on the calculation of linear formulas and activation functions with weights, biases (i.e., their “settings”) being adjusted with each calculation. This Model is built based on your historical data and used for future predictions.

##### Prediction:

This is the output of an algorithm after it has been trained on a representative dataset (historical data) and applied to the new data when forecasting the likelihood of a particular outcome.

#### 4.1.5. Key Benefits of Minsky:



- User-Friendly, cloud-based AI platform
- No coding skills are required for results or predictions.
- Provides you a list of % dependency features that can be used to optimize your business
- Ability to fine-tune or optimize the models by trying different algorithms/prediction attributes
- Easy integration with other third-party solutions such as TABLEAU for data visualization

## 4.2. Where We Can Make an Impact Now?

### 4.2.1. Insurance:

AI Labs provides custom AI solutions for Detecting Organized Insurance & Workers Comp fraud and providing Compliance. We use cutting edge Artificial Intelligence and Machine learning to analyze massive amounts of claim data. Our AI/ML Engine uses a Proprietary Algorithm to differentiate a fraudulent workers' comp claim vs. a genuine claim. This allows the insurance company to save millions per year in fraudulent Claim Payouts.

### 4.2.2. Healthcare:

In the comparatively AI-nascent field of healthcare, diseases are more quickly and accurately diagnosed, drug discovery is sped up and streamlined, virtual nursing assistants monitor patients and big data analysis helps to create a more personalized patient experience. Besides pure Healthcare, our AI engine is capable of screening diseases based on User Inputs for Symptoms and also recommends Physicians and Nutritional Supplements if needed.

### 4.2.3. Supply Chain and Manufacturing:

Adding artificial intelligence to supply chains is delivering tangible benefits for companies putting it in place. Using historical data, our AI Solutions are capable of making intelligent supply and logistic predictions, which can provide end-to-end visibility, actionable analytic insights, reduced manual human work, informed decision making. In addition, our AI Engine can be used for Equipment Predictive Maintenance that uses Machine Learning to learn from historical data and use live data to analyze failure patterns.

### 4.2.4. Energy:

Using historical data combined with Real Time Weather and other Economic data, our AI Engine is capable of Energy Demand Forecasts and Energy Generation from Alternative Energy sources. In addition, AI can be used for Predictive Maintenance of equipment used for Energy Generation, Transmission and Distribution

### 4.2.5. Human Capital Management / Human Resources:

Our AI Platform can be used to improve the retention rate by predicting the employee attrition that allows you to decide on which employees are valuable and their retention is profitable to the company. Finally, the factors that influence the employee's intention to resign from a company is found out and can be used by the HR departments.

### 4.2.6. Customer Retention/ Service:

Our AI Engine can be used to improve Customer Retention by taking pro-active actions as needed based on the customer profiles. In addition, combined with our Chat Bots can be used to place human-like calls to make appointments, provide Customer Service or Technical Assistance.

## 4.3. Our Success Stories:



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Using our Powerful Minsky AI Engine, we completed the following sample projects:

#### 4.3.1. Sales Forecasting:

The objective of this project was to predict the weekly sales for a Retail corporation by store type, store location based on past data and future economic parameters like CPI, fuel price, unemployment. This helped the client to improve cash flow and manage the Supply/ demand for the products sold. The future economic forecast data is collected from external sites and databases using Robotic Process Automation (RPA).

#### 4.3.2. Energy Forecast:

Allocation of power (to meet real time demand) between traditional power and alternate power has become a challenge worldwide. The aim of this project was to predict how much power is available from alternative energy based on geo location, temperature etc. This helped the client to make better decisions on utilization of other sources of energy.

#### 4.3.3. Customer Churn:

Customer churn has created huge concerns in the highly competitive service sectors and especially in the telecom sector. The aim of this project was to build a customer churn model using AI (Artificial Intelligence) to predict whether certain customers would leave in the future. This helped the client to retain customers for the long run which improved revenues and business continuity.

#### 4.3.4. Employee Retention:

Typically, employee attrition is a major challenge for companies worldwide. The objective of this project was to predict employee attrition for a multinational software-based company on parameters like Supervisor, wages, distance from home, tenure with company, travelling, overtime etc. This helped the client to make better decisions to curtail employee attrition rate. Current employee related data is collected from company's internal databases / HR systems using Robotic Process Automation (RPA).

#### 4.3.5. Insurance Fraud:

Globally, workers compensation Insurance fraud has become a major concern for all the insurance companies which is continuously increasing year by year. The aim of this project was to build an AI model in order to rate the claims so that the SIU teams can process the cases according to the risk levels. This could lead to significant savings by eliminating fraudulent claims. This led to improved revenues and business continuity in the long term.

#### 4.3.6. Predictive Maintenance:

The Client was a large Water Utility that needed to predict failure for their water pumps. AI Models were generated for the equipment using historical data parameters for the pumps along with the past equipment downtime instances. Then, real-time equipment data was gathered from the remote equipment using IoT sensors and uploaded to our secure cloud.

#### 4.3.7. RPA for Payroll Processing:

The Client is a large innovative, knowledge-based energy and utility enterprise serving the Power, Water and Environmental sectors and provides IT solutions for Energy/Hydro industry. With offices in multiple countries, the HR Department handles various processes such as talent acquisition payroll processing etc. Each of these processes comprise of several activities that are repetitive and time consuming but critical for employee satisfaction.





#### 4.3.8. RPA for Application Support:

The Client is a large Power Distribution Company based in Europe where we provide 24/7 Maintenance Support from our remote engineering centers. We provide support for several applications such as SAP, MS Azure, Oracle, Primavera, eWay, IBM Integration Bus (IIB), Microsoft Business Intelligence, Websphere, Weblogic, Alfresco, etc. by Class of Service required (platinum, Gold 24X7, Gold 12X5, Silver, Bronze). Incident management is handled by ServiceNow (SNOW).

#### 4.3.9. RPA for Application Support:

The Client is a large Power Distribution Company based in Europe where we provide 24/7 Software Maintenance Support from our remote engineering centers. We provide support for several applications such as SAP, MS Azure, Oracle, Primavera, eWay, IBM Integration Bus (IIB), Microsoft Business Intelligence, Websphere, Weblogic, Alfresco, etc. by Class of Service required (platinum, Gold 24X7, Gold 12X5, Silver, Bronze). Incident management is handled by ServiceNow (SNOW).

#### 4.3.10. RPA for HR Automation:

The Client is a large innovative, knowledge-based energy and utility enterprise serving the Power, Water and Environmental sectors and provides IT solutions for Energy/Hydro industry. With offices in multiple countries, the HR Department handles various activities such as on-boarding, termination, off-boarding etc. Each of these processes comprise of several activities that are repetitive and time consuming but critical for employee satisfaction.

### 4.4. AI/ML Professional Services

We work with strategic and potential customers in a professional services capacity on a variety of applications and AI problems for both Cloud and Mobile platforms.

Our AI consulting services include:

- AI consulting, business analysis and scope development
- Custom Artificial Intelligence applications using our Proprietary Minsky AI Engine as the platform along with the Clients' datasets
- Custom AI project migrations to MS Azure, AWS or Google Cloud platforms.
- Digital twin simulation environments for manufacturing
- AI/ML/DL solutions using our Minsky AI Engine or on the MS Azure, AWS or Google Cloud platforms
- Custom deep neural networks implementations
- Big data predictive analytics/decision-support systems for massive data sets
- Custom AI enabled Robotic Process Automation (RPA) projects
- Staff augmentation for AI, RPA or any Enterprise software development projects on various technologies

Our Engineering team includes deep-learning/data-scientists, computer -vision engineers, cloud experts, simulation and systems engineers, and Enterprise Solution Architects.

## 5. **AI-Based Solutions**

### 5.1. Cybersecurity

#### 5.1.1. Detecting Spam and Phishing Attempts in Emails



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In this case study Ai Deep learning is used to identify not-safe-for-work and other images (such as logos) and NLP to better detect spam email and phishing attempts. Google has used deep learning to block hard-to-detect image-based emails with hidden content and messages from newly created domains.

TYPICAL PARAMETERS: keywords, images, Source Email ID, Source IP address, Source Domain Name, Suspicious Links, Email Subject, Prizes/offers link etc.

PREDICTION VARIABLE: SUSPICIOUS Email (Yes, No).

#### 5.1.2. Detecting Anomalies

In this case study machine learning model can detect risky patterns in email sending frequency that may point to attack. This algorithm is designed to flag unusual behaviors and act towards the attack accordingly Models can also be programmed to watch for insider threats. What's more, machine learning can adjust to changes by ingesting new data and adapting to dynamic environments.

TYPICAL PARAMETERS: keywords, images, Source Email ID, Source IP address, Source Domain Name, Suspicious Links, Email Subject, No. Of Suspicious Email, Frequency of email etc.

PREDICTION VARIABLE: Suspicious Emails (YES/NO).

#### 5.1.3. Preventing DNS Data Exfiltration

Bad actors are determined to find their way around existing cyber defenses such as firewalls and intrusion detection and prevention systems. Those bent on stealing valuable customer or business information are increasingly using the domain name system (DNS), the internet's directory of addresses, which can be "a weak link in cyber security practice. DNS data is generally allowed to pass through firewalls, and attackers hijack it to carry their malware, take control of devices and steal customer records, emails and other sensitive data. In this case study Machine learning can detect and prevent so-called "DNS tunneling" for data exfiltration, with models continuously training on trillions of DNS queries generated and collected daily around the world

TYPICAL PARAMETERS: Source Network Packet, DNS Parameters, keywords, image type, Source IP etc.

PREDICTION VARIABLE: SUSPICIOUS DATA PACKET (YES/NO)

#### 5.1.4. Malware detection

Malware is an umbrella term for an ever-evolving category of code or software that is intentionally designed to harm. In its analysis of massive amounts of data, event types, sources and outcomes, AI/ML is used in cyber security to detect the presence of malware before malicious files are opened. It also identifies types of malware. This is critical because malware continues to evolve alongside other advancements, from bots and botnets to malvertising, ransom ware and beyond. To date, the availability of tens of millions of labeled samples from both malware and benign applications has rendered this one of the most successful applications of deep learning and AI in cyber security.

TYPICAL PARAMETERS: keywords, images, Source Email ID, Source IP address, Source Domain Name, Suspicious File Links, Email Subject, Frequency of email, Event Type, Malware type etc.

PREDICTION VARIABLE: Malware (YES/NO)

#### 5.1.5. Network Threat Analysis

Most companies are currently in the midst of Digital Transformations that produce massive amounts of data that's needs to be secure. This requires a combination of old and upgraded Networks. These vast network topologies are not only complicated but also require extensive network security resources to manage all communications, transactions, connections, applications and policies. In this case study Ai/ML monitors all incoming and outgoing network traffic for suspicious activities and classifies threat types.



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TYPICAL PARAMETERS: Keywords, images, Source Email ID, Email Subject, Type of file, Source IP address, Source Domain Name, Suspicious File Links, Source Network Packet, DNS Parameters Event Type, Network Attack Type (Denial of service, Man in middle Attack etc.) etc.

PREDICTION VARIABLE: Malicious Network Attack (Yes/No)

## 5.2. Blockchain

Blockchain's digital record offers information about the framework behind AI and its data source. This helps provides more confidence in data integrity and AI the recommendations. Storing and distributing AI models using blockchain provides an audit trail. Also, pairing blockchain and AI can enhance data security. AI can quickly and exhaustively read, comprehend, and correlate data bringing more intelligence to blockchain-based business networks. By giving AI access to large volumes of data blockchain helps AI provide better insights and create a reliable and transparent outputs.

Therefore, combining AI, automation, and blockchain generates additional value to business processes increasing efficiency.

Our blockchain services and expertise include:

Smart contracts: Protocols that guarantee the integrity of multi-party agreements and automatically enforce fixed obligations

Blockchain-based market platforms: Peer-to-peer platforms (e.g., lending platforms, blockchain-based market places, etc.) for transparent, fraud-free transactions between the involved parties.

Private Blockchain networks: Secure and scalable permission-based ecosystems with minimized downtime.

Decentralized apps (dApps): Encrypted peer-to-peer apps with no single point of failure and zero downtime.

## 5.3. Industrial Internet of Things (IIoT)

Ai enabled IoT creates intelligent machines that simulate smart behavior and supports in decision making with little or no human interference. While IoT deals data acquisition from remote devices/sensors, Ai-based analytics using Minsky™ makes the devices learn from their data and experience. We provide custom IoT development services that enable businesses to manage their operational efficiency, set up processes, and provide data visibility by integrating IoT apps, IoT sensors, mobile devices, cloud services, and physical objects into a hyper-connected ecosystem built using Minsky™.

Our mission is to build end-to-end industrial IoT solutions using our low-cost “plug N play” products that are secured and can be seamlessly connected to our integrated platform (IIoTSuite) or to any IIoT cloud platform for data analytics/ artificial intelligence.

Our focus is to bring innovative and intelligently engineered end-to-end industrial IoT (IIoT) solutions to meet business challenges of customers in the Agricultural, Industrial, and Manufacturing verticals. Our company brings value-added solutions to customers to reduce cost and increase efficiency through the utilization of qualified consultants who are experts in their respective specializations. We offer a variety of customer engagement models, which include fixed price, risk and reward, profit sharing based on increased operational efficiency, reducing costs and meeting superior quality metrics.

Our fixed-bid project execution methodologies for turnkey solutions combined with the focus on strong client relationships and quality have enabled us to gain outstanding client references. We provide outcome-based turnkey solutions blending industry best practices and ideas to fulfill



customers' expectations. We help our clients achieve organizational objectives and maximize their Return on Investment (ROI).

## 6. ICT Equipment & Software

To support and complement its digital transformation offerings, TSAB has recently become the Information and Communication Technology (ICT) distributor of choice to our clients across the various market segments including healthcare, engineering, education, energy, retail, service, and manufacturing.

We aspire to become an indispensable business partner to both our vendors and customers by contributing to the growth and profitability of both in an efficient manner.

TSAB is an authorized partner/ distributor to leading international ICT equipment and software developers such as DELL, Huawei, VMWare, and 3M Corning. The company distributes a wide range of value-added digital solutions and products covering data center solutions and storage, security, networking, software, cloud, and telecommunication products from the world leading vendors for all business sectors.

TSAB strives to always be at the forefront of the ICT distribution with focus on technology innovation and value-added products.



## 7. Recognition & Registrations

TSAB strives to become a center of excellence for digital transformation & 4IR technologies





## 8. Technology & Research Partners

ORACLE® + NETSUITE

ORACLE®



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