

# IPACS-Tacmin

Asset management in  
conformance with strategic  
mine engineering principles



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# Linking mine engineering with real-time asset management.

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# History



## From mine engineering consultancy to a diversified asset management company

1985 – 1990: Management and turning to account of numerous civil infrastructure construction projects.

1990 – 1996: Management and turning to account open-pit contract mining projects in platinum, gold, copper, cobalt, manganese, iron ore, coal, vanadium, PGM's and chrome.

1996 – 2000: Remote outsourced mine engineering consultant for several open-pit mines across Africa.

2000 – 2005: Operational improvement on numerous multi-commodity open-pit mines.

2005 – 2010: Numerous 3-5 year, EPCM and PMC assignments on several projects internationally.

2010 – 2017: Tacmin modified its business processes with Cloud and IoT capability solutions to allow real-time global access.

2017 – 2020: Diversified asset management company - Our mission is to maximise return on investment through optimisation of the financial and operational performance of our client's assets.

2019: Introduced to another by the South Australian Government, in the presence of Hon. David Ridgway Minister for Trade and Investment, IPACS-Tacmin signed a memorandum of understanding.

2020: IPACS Australia and Tacmin Madini Australia form a partnership.



# History



## From mine engineering consultancy to a diversified asset management company

### IPACS Australia

Are leaders in data collection, monitoring and reporting of real-time asset performance in industries including mining and resources, defence, energy, infrastructure and manufacturing. For more than two decades they have provided secure, reliable and low-cost collection and transmission of remote sensor data – across any enterprise and from anywhere in the world.

### Tacmin Madini Australia

Is a boutique project management consultancy that offers expertise and resources in delivering digital transformation and asset management services to the mining, minerals, construction, energy and power market sectors. We provide extensive experience in project, engineering and asset management with turnkey project implementation from conception through final close-out of projects, and beyond.

### IPACS-Tacmin

Our consulting resources are a unique mix of engineering, software, construction, operational improvement, project and asset management specialists, with numerous years of implementation experience. Our suite of technologies – which include IT infrastructure management, asset data management, analytics and dashboards – provide real-time feedback on the performance of critical assets, wherever they are located. We analyse data and provide reports in clear, easily understood formats, enabling organisations to make informed and timely decisions.





# The challenge

*"It is of no practical value to model something that is different to how equipment and maintenance is modeled. Thus, the critical step is to ensure that LCCM of assets represents what will actually occur."*

# Our objective

*"Following an appointment, our main objective is to bring our customer's asset operating costs in line with the Life Cycle Cost Model of the machine."*

# Our process

- 1) We extend the Clients mine engineering and link LCCM of the assets involved to mine production schedules.*
- 2) We collect sensor based data from our Clients assets at our Collaborative Remote Operations Centre.*
- 3) We carry out decision and trade-off analysis and provide our customers with results and recommendations to mining industry standard reporting formats.*

# 1) We link mine plans & production schedules to LCCM's

IPACS-Tacmin has launched its Connected Mining Asset System (CMAS), a cloud-based application designed to optimise mine plan and budget conformance by way of connecting mine engineering, mobile mining assets and costs - (bridging the gap between mine engineering and asset management)

Given the intensity of mining equipment and associated cost in open-pit mines, engineers and asset managers can no longer afford to design, plan and schedule the movement of large volumes of waste and ore, without an integrated system that connects every mining block to mobile assets and their associated costs required to execute the same.

Starting with nothing other than the customers' mine engineering and assets employed list, in a relatively short space of time, the CMAS can generate vast databases of estimated owning and operating costs in conformance with LCCA (Life Cycle Costs of Assets) that are linked to each and every mining block that needs to be mined / extracted.

This unique functionality about the reconciliation and analysis of assets required to mine blocks, areas or pushbacks that provides for optimisation at asset level and planning of just the right number of mining blocks is at the heart of IPACS-Tacmin's Connected Mining Asset System.

In addition to the controls of mining and asset operating costs as well as tracking conformance to budget forecasts, the CMAS provides for the breaking down of equipment owning as well as operating costs to complex and simple levels.



# 1) We link mine plans & production schedules to LCCM's

This on its own provides for considerable analysis and determination of resource utilisations inclusive of equipment maintenance and associated costs.

Given the abovesaid capability of the CMAS to connect mining resources (manpower, equipment, maintenance components, materials, etc.) to strategic mine engineering provide for engineers and asset managers to be more connected than ever before.

Like no other system on the market, equipment and maintenance component resource utilisation and operating cost databases can now directly be imported into CMAS and connected to mine plans and schedules for optimisation and implementation control.

Due to its Cloud and IoT capability, CMAS can be applied to any mining operation to allow real-time global access irrespective of the logistics of the mining operations.





## 2) We collect sensor based data from our Clients assets at our Collaborative ROC in Adelaide



## 2) We collect sensor based data from our Clients' assets from our Collaborative ROC in Adelaide

In 2014, we led a South Australian Government-funded project to investigate the feasibility of establishing a collaborative, open platform Remote Operations Centre that would contribute to productivity improvement, cost reduction and improved workplace safety for the minerals and energy sectors – in South Australia and beyond. In March 2015, IPACS launched the Remote Asset Management Centre at Technology Park Adelaide. Here we monitor real time asset performance of mobile and fixed mining equipment, smelters, SCADA systems and infrastructure construction projects.



Through a partnership established in 2020 between IPACS and Tacmin, we have integrated the expertise of the respective companies, and developed a sought after entity in which we combined our capability in project, contractor and asset management, monitoring and reporting of real-time asset performance and critical assets that enabled us to develop products and solutions which connect projects and assets to the Internet of Things (IoT).

We have a well-defined change management framework that enables organisations to move logically and step by step, from their existing maintenance methods, to those based on the new technologies we offer from the Remote Asset Management Centre.

### **3) We carry out decision and trade-off analysis on collected data and provide advice.**

IPACS-Tacmin are leaders in the collection, monitoring and reporting of real-time asset performance across several industries.

We provide secure, reliable and low-cost collection and transmission of remote sensor data – across any enterprise and from anywhere in the world. Our suite of technologies – which include IT infrastructure management, asset data management, analytics and dashboards – provide real-time feedback on the performance of critical assets, wherever they are located. We analyse data, carry out trade-off analysis and provide reports in standard mining industry reporting format.

With a recordable track record, our technologies have assisted several companies with the reduction of asset maintenance costs, increase asset reliability, increased efficiency in asset maintenance schedules, accurately find faults and increase productivity. Based upon this track record and established reputation, through regular analytical reporting, we assist our Clients to improve asset performance in compliance with LCCM's.





IPACS-Tacmin Centre of Excellence Adelaide

# Our platforms



## Connected Mining Asset System (CMAS)

Connected Mining Asset System (CMAS), a cloud-based application designed to optimise mine plan and budget conformance by way of connecting mine engineering, mobile mining assets and costs - (bridging the gap between mine engineering and asset management)



## Asset Optimisation Technology

An integrated Mine and Engineering Asset Management platform that reduce mining and asset maintenance cost, improve asset performance, productivities and safety in mining applications. From maintenance condition monitoring and predictive analytics, to mine engineering conformance control with large-scale secure, reliable data management including software for the presentation of real-time asset performance to decision-makers.



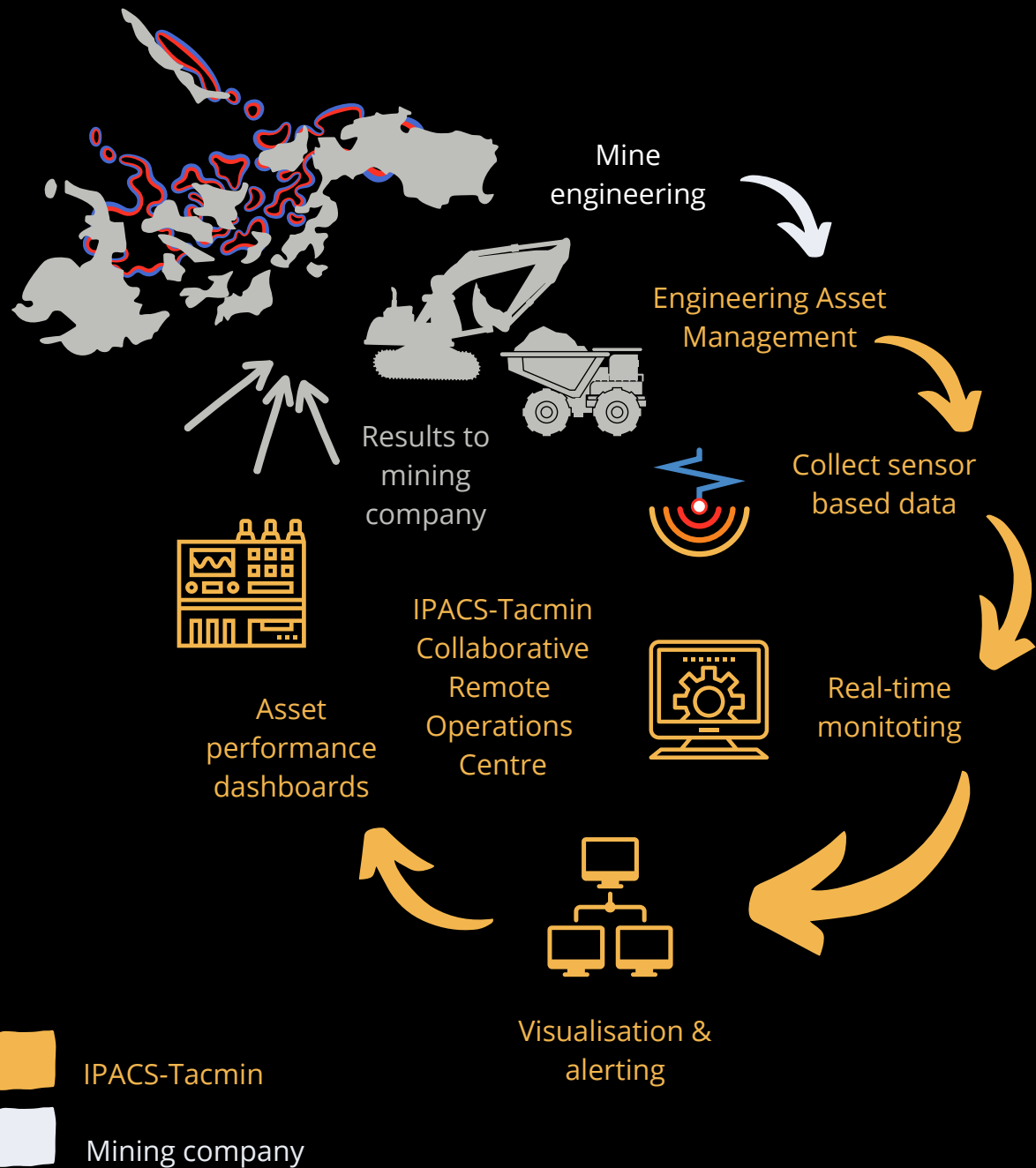
## IPACS-Tacmin Remote Asset Management Centre.

Data must be collected where it's generated and in the modern enterprise it often comes from a wide geographical area. IPACS are leaders in the collection and transmission of data using a wide range of sensors and data communication technologies, including innovative wireless sensor design. IPACS uses wireless, satellite or wired data transmission technologies to securely transmit data from sensors. We provide computer networking, virtualisation, IT infrastructure management and embedded sensing.



# Conformance controls

Asset management in conformance with strategic mine engineering principles



# Our service offering

## Operational intelligence

Operational intelligence focuses on continuously recurring business processes and events, finding areas for improvement in each iteration and providing the most complete picture for a fast and reliable decision.

## Condition monitoring

By combining live streams of your assets, plant, and even entire enterprise, we intelligently create a digital twin of your operations which empowers real-time predictions of asset health and condition status, early warnings of potential failures, and highlight increased areas of risk.

## Critical asset monitoring

From environmental changes to material fatigue and seismic activities like earthquakes, mines as well as dams, bridges, and tunnels, have a need for linear, structural health, and geotechnical monitoring to ensure safe environments.

## Wireless sensor networks

We supply and configure wireless networks to monitor physical or environmental conditions, such as temperature, sound, vibration, pressure, motion or pollutants and cooperatively pass the data through a network to a main location where the data can be observed and analysed.

## Project & quality controls

Decades of experience in civil infrastructure and mining project management combined with the collection, monitoring and reporting of real-time asset performance and critical assets enabled to us to develop solutions to track assets and perform quality controls remotely.

## Dynamic cost engineering

A good cost estimate is just the start. Controlling your cost is just as important to deliver a project within time and budget. IPACS-Tacmin has more than thirty years of experience in controlling cost during project execution. Therefore, we know how to deal with all the aspects that could impact the success of a project.

## Asset & contractor management

Our expertise includes management and turning to account of civil infrastructure construction projects such as single and dual carriageways, roads & township infrastructure, earth dams, bridges, construction and rehabilitation of roads and railroads, international airport as well as construction of storage, tailings, return water, stormwater diversion and emergency dams to consultancy, construction, management and engineering design of multi-commodity open-pit mines.





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# Partnership programs

**"Our partnership programs ensure that mining engineers and asset managers are more connected than ever before"**

Our purpose is to enable you to concentrate on your core business. We build our client relationships upon the foundation of trust, confidence and integrity by performing on what we say we are going to do and being committed to building our relationship with you and your organisation. With quality engineering, construction and competitive pricing we work with purpose, when there's a goal, we reach it and when there's a problem, we solve it. We work safely and take care in all we do; we strive to do what's right, what's fair and honest.

Due to the nature of our clients' needs, IPACS-Tacmin has structured its business to incorporate the highest level of technical and industry-based knowledge, coupled with the ability to communicate effectively. From feasibility studies and environmental compliance to design, construction management, operations and maintenance, IPACS-Tacmin brings together the talent and expertise necessary to deliver by your requirements.

Two decades of operational improvement experience has taught us what to look for and what to focus on! Combine the experience we have gained during operational improvement assignments, with a tried-and-tested business model and we are able to achieve the desired results time-and-again. Through many years of working with owner teams of different mines, we know what to look for to achieve utmost efficiencies and have structured our services to address the same.



# Value add

One of the most salient features of IPACS-Tacmin partnerships are that our products and technology has been applied to harsh military grade operating conditions with significant success for several decades. Our solutions are designed to target the most critical elements which give cause to less efficient mining practices, namely; operational readiness, asset performance, equipment maintenance, mine plan and budget conformance and management control.

Following an appointment and within a relatively short period of time our customers benefit from:

- Increased production at reduced mining costs.
- Mining assets performing to designed capacity.
- Improved awareness and safer operating conditions.
- Mining block sequence adherence and conformance.
- Assets operating in conformance with strategic mine engineering.
- Increased awareness of asset condition & performance.
- Effective decision-making and accurate prediction capability.
- Mine plan, production schedule and budget forecast conformance.
- Effective and optimised asset replacement policy.
- Optimised, reduced and effective capital expenditure.
- Increased asset life.



# Contact us

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