IPACS-Tacmin

IPACS
Dedication & Innovation

Remote monitoring & real-time intelligence

Your partner in data collection, condition monitoring, asset management, performance improvement, progress control, audits & reporting

Pioneered from the IPACS-Tacmin Centre of Excellence in Adelaide South Australia

Remote monitoring
& real-time intelligence

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Our mission

It is our mission to transform operations with data insights intelligent enough to enable real-time decision making. From construction sites, to dams, mines and infrastructure to remote monitoring of fixed and mobile assets; with sensor-based data insights to end-to-end software we offer best in class solutions.

IPACS-Tacmin provides customers with solutions to make the right operational decisions based on real-time intelligence to make predictions, improve efficiency, deliver on time and prevent disasters.

What we do

We transform operations by enabling our clients to make the right decisions based on real-time intelligence.

CONSTRUCTION

By connecting construction projects to the Internet of Things (IoT), data can be visualized, allowing construction companies to centrally monitor their assets, analyze risks, and pre-plan their responses. IPACS-Tacmin also provides operational intelligence by transforming traditional dashboard reports into relevant and actionable information.

INFRA-STRUCTURE

As soon as a facility has been built, the actual job of maintaining this critical asset begins. Managing and controlling the operations of major infrastructures takes dozens of teams and constant alignment. Therefore a centralized monitoring and management system is essential to ensure all departments are working in sync.

MINING & ASSETS

From geotechnical insights to structural health monitoring, IPACS-Tacmin products and solutions connect mines to the Internet of Things (IoT), allowing mining operators to implement remote data-collection, real-time monitoring and asset management, reducing time spent on mine readings and decision-making on critical situations. IPACS-Tacmin also provides operational intelligence by transforming traditional dashboard reports into relevant and actionable information.

Who we are

Experience - Tacmin

Management and turning to account of numerous civil infrastructure and open-pit mining construction projects ranging from:

- single and dual carriageways.
- roads & township infrastructure.
- bridges & concrete structures.
- railroads and mass earthwork projects.
- rehabilitation of roads and railroads.
- construction of international airport.
- earth-dams ranging from, storage, tailings, return water, storm-water diversion & emergency dams.
- management and turning to account open-pit mines in platinum, gold, diamonds, copper, cobalt, phosphates, coal, fluorspar, manganese, iron ore, vanadium, PGM's and chrome.
- mine engineering consultancy of multi-commodity open-pit mines.
- operational improvement on numerous multi-commodity open-pit mines.

Experience - Tacmin

- assisted over 30 mines with mine optimisation and reducing costs.
- numerous 3-5 year, EPCM and PMC assignments on several projects internationally.
- first principal estimation, cost engineering and mining cost benchmark models up to US$ 5.0 billion.

Our consulting resources are a unique mix of engineering, software, construction, operational improvement, project and asset management specialists, with numerous years of implementation experience and each possesses technical, industry, and management expertise.

Experience - IPACS

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.

Experience - IPACS

IPACS provides computer networking, virtualisation, IT infrastructure management and embedded sensing and large-scale secure and reliable data management with an understanding of asset frameworks. Our people are skilled in designing and interpreting analytics specific to asset maintenance.

By combining Remote Asset Management solutions with Remote Operations Management we can help enterprises optimise both maintenance and operations. Wireless, satellite or wired data transmission technologies to securely transmit data from sensors. Predictive analytics provides algorithms that transform raw sensor data into easily interpreted information that can be used to determine asset condition and performance. We design and develop graphical user interfaces and dashboards that can be used company-wide – from the 'shop floor' to the boardroom.

In 2014, IPACS 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, construction and energy sectors – in South Australia and beyond.

IPACS-Tacmin

Introduced to another by the South Australian Government in 2019, in the presence of Hon. David Ridgway Minister for Trade and Investment, IPACS-Tacmin signed a memorandum of understanding and in May 2020 established a formal partnership.

IPACS-Tacmin integrates and captures on the core expertise of the respective companies, from operational readiness, cost engineering, benchmarking and simulation through to real-time asset management, construction monitoring and critical asset monitoring.

IPACS-Tacmin delivers end-to-end value chain optimisation solutions to help organisations improve asset performance and deliver their operations on time and within budget, we redefine processes, reduce value leaks, sustain productivity and improve profits.

Our customers share a standard for excellence and a genuine desire to improve efficiency, enabling them to achieve the highest quality of production. It is our honour to help them accomplish this time and time again.

Our expertise

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 decision analysis

During every stage of the project life cycle, project managers face a huge array of choices. Furthermore, elements of decision analysis such as analysis of potential alternatives and assessment of project risk are critical during each stage of the project lifecycle.

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.

Project & 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 and management and engineering design of multi-commodity open-pit mines.

Remote monitoring & real-time intelligence

Capability summary

IPACS operates South Australia's pioneering Remote Operation Centre, which opened in March 2015 to service the state's valuable resources industry. The centre monitors construction projects, infrastructure facilities and real-time asset performance of mining vehicles, boilers, smelters, SCADA systems and mining fixed-plant infrastructure for some of the world's largest miners and contract miners – including Arrium/Lucas, Thiess and OZ Minerals. They analyse data and provide reports in clear, easily understood formats, enabling organisations to make informed and timely decisions.

IPACS-Tacmin integrates and captures on the core expertise of the respective companies, from simulation through to real-time asset management, including but not limited to Tacmin's capability in construction management and mine operational readiness which assisted over 30 mines with mine optimisation, reducing costs and training of Clients personnel to develop sustainable optimal mining practices, totalling to aggregated savings of +$800 million during operations improvement assignments since 1996.

IPACS-Tacmin delivers end-to-end value chain optimisation solutions to help organisations improve the management of infrastructure facilities, construction operations and asset performance, redefine processes, reduce value leaks, sustain productivity and improve profits. Our customers share a standard for excellence and a genuine desire to improve efficiency, enabling them to achieve the highest quality of efficiency. It is our honour to help them accomplish this time and time again.

Services overview

OPERATIONAL READINESS

- Project & operational performance.
- Design, analyse & re-engineer.
- Asset readiness & audits.

PROCURE & COST ENGINEER

- Tender enquiries & commercial agreements.
- Project cost controls.
- Project cost estimations.

CONSTRUCTION & ASSET MANAGEMENT

- Contractor / construction management.
- Real-time asset & construction monitoring
- Maintenance condition monitoring.

Industries - 1

CONSTRUCTION

Delivering construction projects safe, on-time and within budget

From the initial construction phase of a project, and throughout its operational life-cycle, design and specification compliance as well as operational monitoring play a vital role in civil engineering construction projects. The large amount of data gathered through monitoring needs to be processed and visualized in order for the information to be useful for all stakeholders. IPACS-Tacmin products and solutions make this possible. By connecting civil infrastructures to the Internet of Things (IoT), data can be visualized, allowing construction companies to centrally monitor their assets, track progress, analyze risks, and pre-plan their responses. IPACS-Tacmin also provides operational intelligence by transforming traditional dashboard reports into relevant and actionable information. Linking sensors, systems, and people facilitates decision-making and brings construction companies one step closer to improving overall safety and project performance.

Industries - 2

INFRASTRUCTURE

Providing critical intelligence for the maintenance & management of assets

As soon as a dam, bridge, tunnel, mine or airport has been built, the actual job of maintaining this critical asset begins. Replacement costs and life extension measurements are core issues for any operator. The key is to create maintenance protocols which ensure reliable and economic operations to assure public health and safety. Running the operations of such huge infrastructures takes dozens of teams and constant alignment. Therefore a centralized monitoring and management system is also essential to ensure all departments are working in sync. If infrastructures are intelligent, operators can monitor them in real-time, and control multiple parameters to analyze risks, predict structural damage and prevent critical incidents. From Structural Health Monitoring (SHM) to vibration and inclination analyses, IPACS-Tacmin products and solutions connect civil infrastructures to the Internet of Things (IoT) allowing operators to remotely collect structural updates to track events, foresee changes, and prepare action plans. IPACS-Tacmin also provides operational intelligence by transforming traditional dashboard reports into relevant and actionable information. By linking sensors, systems and people, civil infrastructure operators are one step closer to decreasing operational costs and diminishing risks.

Industries - 3

MINING & ASSETS

Ensuring best asset performance, highest availability at lowest operating costs

Over more than two decades Tacmin's involvement has contributed to Clients meeting their ramp-up curves, production targets and budget forecasts, improve safety and reduce implementation costs. Through our partnership with IPACS Australia, leaders in the collection, monitoring and reporting of construction, infrastructure and asset performance, we ensure optimal asset performance, highest availability, on time and on budget completion at lowest operating costs.
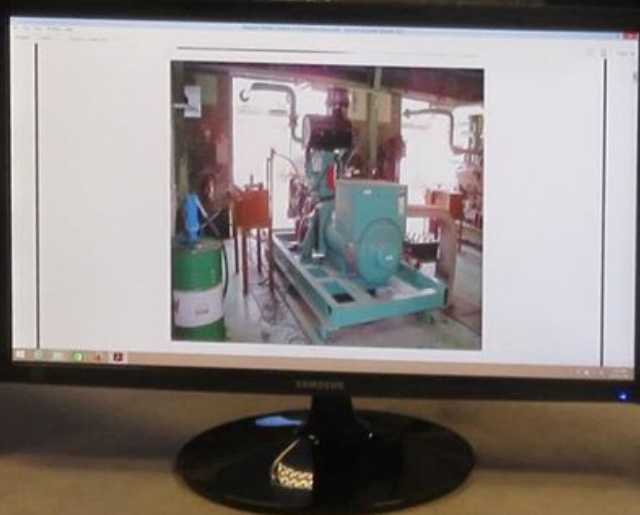
For more than two decades IPACS has provided secure, reliable and low-cost collection and transmission of remote sensor data – across any enterprise and from anywhere in the world. Their suite of technologies – which include IT infrastructure management, asset data management, analytics and dashboards – provide real-time feedback on the performance of critical assets, wherever they are located. The end-result is unmatched capability to maximise return on investment through optimisation of the financial and operational performance of our client's assets.

Remote monitoring & real-time intelligence

Applications - 1

Project life-cycle modelling, decision-making, performance benchmarking.

Attributed to decades of experience gained by our multi-disciplinary expertise in a broad spectrum of mining and civil-infrastructure projects, with the aid of Tacmin's business performance improvement system, has enabled us to develop a well-established decision analysis process integrated into the overall project management process, vital for improving project performance. Aforesaid process has assisted numerous executives and boards from junior and major listed companies to take informed decision on their projects globally.

Since 1996 we have generated 1210 cost benchmark models for international blue chip companies, with project values fetching up to US$ 5.0 billion, during which we simulated the Clients' site conditions, imported geological and engineering data basis of up to 100 Gb for more than 12 different commodities - of which the annual ROM production on some exceeded 60,000,000 tons per annum. During this time we have developed and applied resource data basis with complete Life-cycle costing of more than 300 different equipment models and sizes, with hauling equipment that ranges from 25 to 380 payload tons and matching shovels of up to 45 m3 bucket capacity.

Applications - 2

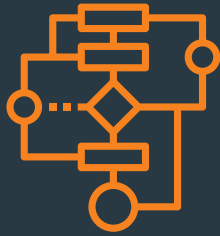Digitally enabled asset reliability, fleet tracking, maintenance control.

Our solutions are designed to target the most critical elements which give cause to less efficient mining and construction practices, namely; operational readiness, asset performance, equipment maintenance, plan, design, budget conformance and management control.

Data must be collected where it's generated, and it often comes from a wide geographical area. We collect and transmit data using a wide range of sensors and data communication technologies, including innovative wireless sensor design. We use wireless, satellite or wired data transmission technologies to securely transmit data from sensors. Our most comprehensive data acquisition system (which is IP67 rated, shock and vibration proof and military-grade) comes fitted with a 4G modem and router that is configured to send data to our Cloud. It also has an onboard historian which stores data through the truck route.

Applications - 3

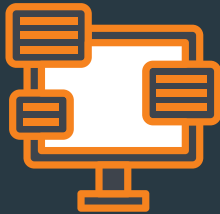## Operational performance improvement with dynamic cost engineering

Estimating, planning & project control solution that links cost engineering with resources that analyse and optimise production conformance, resource performance and project costs – the ultimate construction and mining project control solution.

With considerable value-add to project owners, our solution means our clients meet their ramp-up curves, production targets and budget forecasts, improve safety and reduce implementation costs. The intuitive interface promotes sound project governance with multilevel, real-time management reports, built-in change management capability, and a host of tools for necessities like package execution, benchmarking, auditing, decision analysis, progress control and team interaction. With factual activity-based data, it is the single point of project status that is tracked in real-time and analysed by leading mining, construction and project management industry professionals.

Remote monitoring & real-time intelligence

Applications - 4

Optimal situational awareness, operations monitoring, data collection, user-centric decision-making.

IPACS-Tacmin integrates and captures on the core expertise of the respective companies, from simulation through to optimal situational awareness, operations monitoring, data collection, user-centric decision-making and reporting.

Cloud computing and Internet of Things (IoT) are two key concepts that will drive innovation and development within the mining and construction software industry in the foreseeable future. This innovation will lead to greater digitisation of processes. When you consider the possibility of connecting any machine, equipment, material or any system or project to the Internet to know at any time what's happening, it rapidly becomes clear that the only limit in finding uses for IoT is our imagination. Machinery and equipment monitoring, inventory management and predictive analytics are just some examples of the enormous potential of IoT in the construction and mining sector.

Applications - 5

Collection, monitoring & reporting of real-time asset performance.

IPACS-Tacmin operate South Australia's pioneering Remote Operation Centre, which opened in March 2015 to service the state's valuable resources industry. The centre monitors the real-time asset performance of mining vehicles, boilers, smelters, SCADA systems and mining fixed-plant infrastructure for some of the world's largest miners and contract miners – including Arrium/Lucas, Thiess and OZ Minerals. They analyse data and provide reports in clear, easily understood formats, enabling organisations to make informed and timely decisions.

IPACS are leaders in the collection, monitoring and reporting of real-time asset performance in industries including mining, 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. Their 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.

Applications - 6

Project controls throughout the life cycle of the project from design to delivery with real-time feedback on performance.

Construction projects are subject to tight terms and budgets, and have to comply with a wide variety of safety and environmental regulations. Any deviation or incident can delay or even paralyze the works and also substantially increase the estimated cost of the project.

Real-time monitoring of construction projects and critical assets allow operators to know a project's status and evolution at all times. From metro tunnels in cities and excavations in building construction to tailing dams on mines, any problems can be detected before they become a danger; this helps to minimize the chances of costly changes or emergency operations, allowing operators to stick to designs, plans and budgets. IPACS-Tacmin equips over the technology and solutions to remotely monitor and manage all critical stages of a construction project, from demolition and excavation through to high-risk and highly complex jobs.

Contact us

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