FTP

The Ultimate Vantage Point

Journey to Autonomy

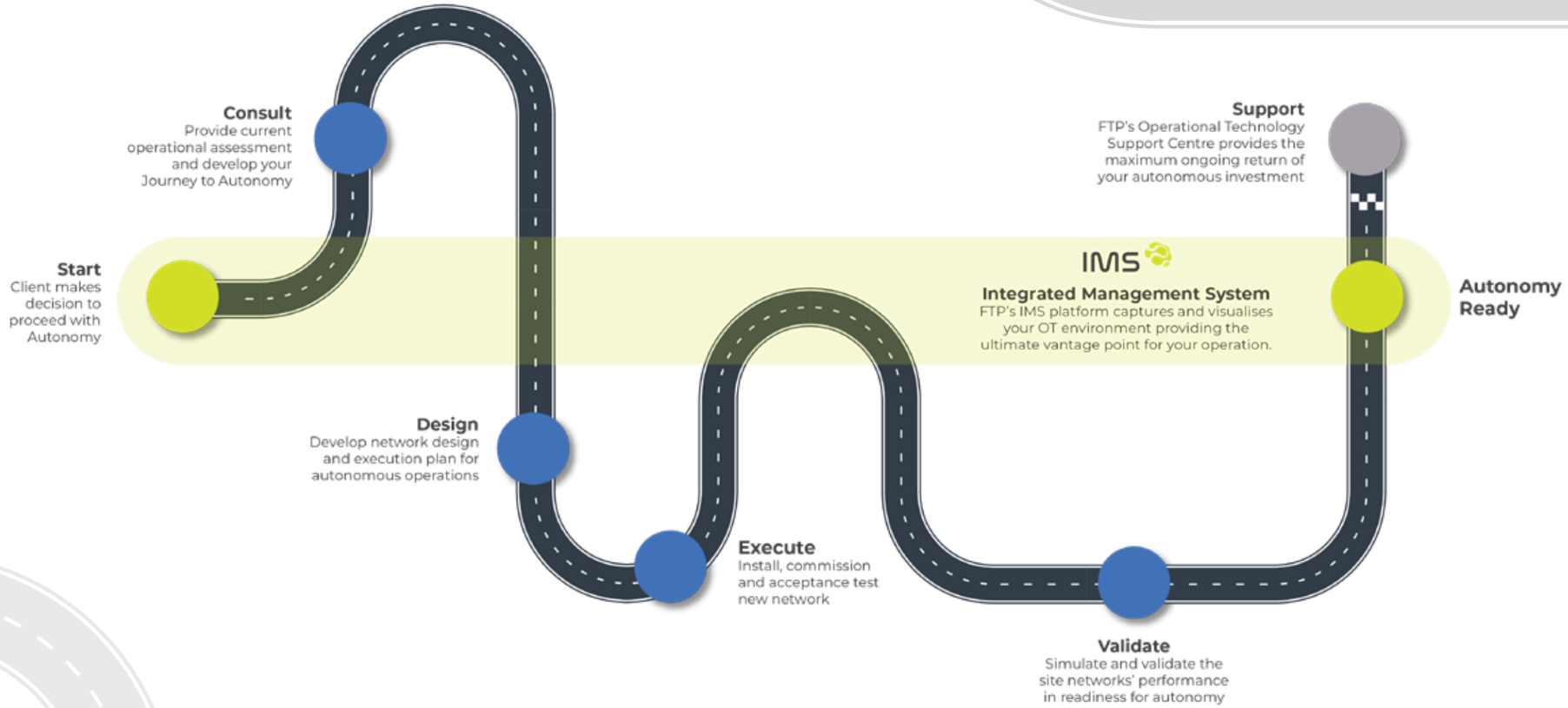
FTP has the knowledge and experience to maximise your Autonomous Operational Investment

Journey to Autonomy Road map

FTP are the leaders in transitioning a mine site to full Autonomous Operations and ensuring customers get maximum return on their investment.

Our intimate knowledge of Autonomy, combined with our Integrated Management System (IMS), enables our experts to audit, design and uplift your OT Network and Processes to achieve maximum productivity and confidence in Autonomous Operations from day one.

The Journey to Autonomy takes us on the ride with our clients, allowing FTP to impart our vast knowledge to ensure a smooth technology transition, and all things are considered, when the decision to implement Autonomous Operations is made.



Journey to Autonomy

Consult

FTP provides a current operational assessment and develops your Journey to Autonomy.

As part of the Consult phase FTP will deliver the identification and selection of the following:

- Technology Selection
- Operational Model Review
- Network and Infrastructure Report
- High-Level Estimate
- High-Level Implementation Schedule

The first phase on the Journey is where FTP leverages its' extensive industry experience to assist our clients in developing their tailored Journey to Autonomy Pathway. Conventional mining operations framework, and business processes need to be transitioned to support High-Availability Autonomous Operations, and FTP's consult phase assists to identify the changes required in the operating model.

From network design and technology selection, through to auditing of existing systems, teams and processes, we have the expertise to ensure our clients are enabled to make informed and effective decisions when implementing Autonomous Operations.

As businesses are often structured significantly different, a one-size-fits-all approach is impractical when implementing such important operational changes, and therefore this is the most critical step in the Journey, to understand client specific needs and structures, in order to identify the best approach and achieve maximum return on investment.

Technology Selection

FTP has extensive partnerships and relationships with all major Autonomy OEMs and supporting Technology vendors, and is uniquely positioned to provide vendor agnostic advice and insight when selecting the most suitable technologies to enable Autonomous Operations.

FTP will assist to identify all existing mining technology applications, incorporate the additional requirements for Autonomy, and present recommended technology solutions that are compatible with the OEM road-map, while ensuring that the enterprise architecture that is required is incorporated in the foundational infrastructure.

Operational Model Review

With extensive experience gained through involvement in the majority of global Autonomous Implementations, our experts will review your operational structure, and provide unbiased recommendations on improvements to your Operational Support teams.

Understanding the interfaces and integration required across mining operations, maintenance, reliability, technology systems support, vendors, the Autonomy OEM, and the OEM dealer is critical in understanding how the business must transition from manned operations to Autonomy. FTP will facilitate workshops with the relevant stakeholders to identify the business processes needing development, and the swim lanes showing the interfaces among support personnel to ensure appropriate accountabilities are defined for effective startup.

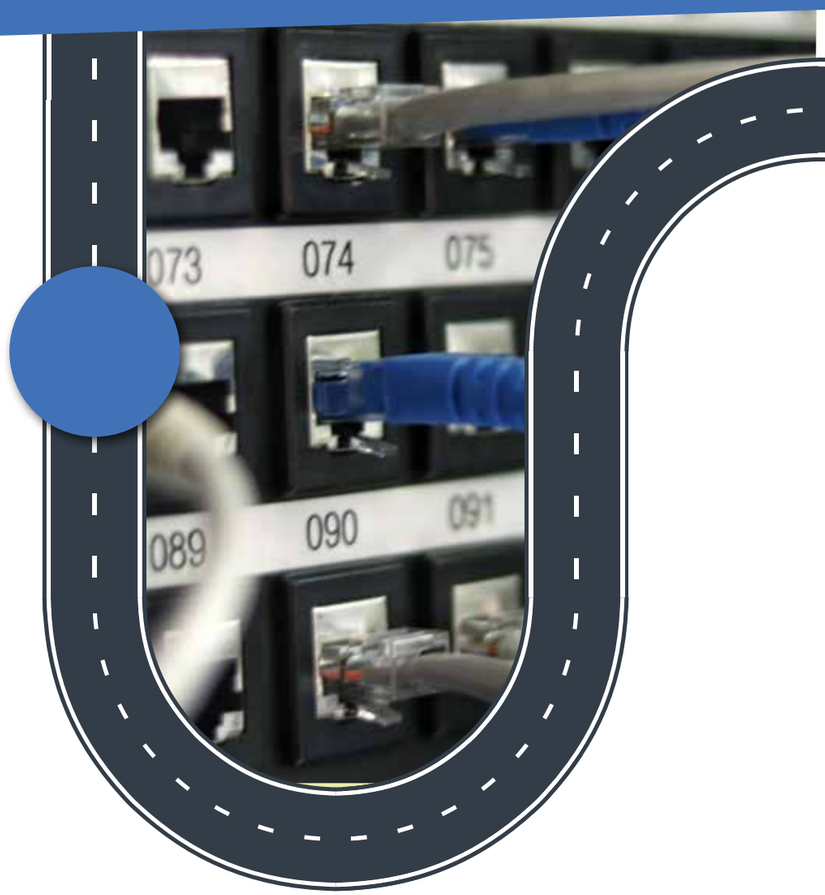
Network and Infrastructure Report

Where an Operational Technology Network exists, FTP will review existing wireless and wired networks, to understand the architecture, performance, and management of the current network environment. A resulting Autonomy readiness assessment report, high-level budgetary estimate, and high-level implementation schedule will be produced, identifying the gap analysis between the existing and future autonomous ready OT network environment.

At the completion of the Consult phase, our clients will have all the necessary information to enable the design, execution, delivery and support of a High Availability Operational Technology Network, in support of Autonomous Operations.

Journey to Autonomy

Design



Design

Develop network design and execution plan for Autonomous Operations

During the Design Phase FTP will deliver the following:

- **Project Management**
- **High-Level Design**
- **Low-Level Design**
- **Execution Test Plans**

The second stage on the Journey to Autonomy is the Design Phase.

FTP's Professional Services group will draw upon the Network Readiness Assessment, and their extensive knowledge gained through previous designs of high availability networks and supporting infrastructure. Our team will work with clients to coordinate and produce detailed network design documentation and execution test plans, and will provide the knowledge and experience to ensure all details are considered during this phase.

Project Management

A dedicated Project Manager (PM) will plan, manage, and coordinate the Design Phase. The PM will assist the Client with the Execution Phase scope. A project schedule will be developed along with a weekly status report provided to the client showing progress to date, planned works, issues and trends.

High-Level Design

The High-Level Design is an overview of the system requirements, components, proposed network changes, design decisions, and a provisional Bill of Materials for the network and associated infrastructure. This design leverages the findings of the Network Readiness Assessment, to ensure no duplication in discovery occurs. During this time, FTP's experienced Engineers will begin to develop a network transition plan, to ensure limited downtime network outages, as the new network is introduced.

Low-Level Design

The Low-Level (or detailed) design document captures all the system components that comprise of the new or updated network. This design contains the information and details regarding the physical and logical representation, configuration, and interconnection of the new network. This phase will develop the Issued-for-construction (IFC) design, which contains all of the detailed technical information required to proceed to execution of the project.

Execution Test Plans

To assist the client with the successful implementation of the Network, detailed validation test plans will be created for the execution phase, to ensure the delivery and execution meets the required standard. The test plans typically comprise of a Factory Acceptance Test (FAT), a System Integration Test (SIT) and a Site Acceptance Test (SAT).

The objective of the Factory Acceptance and Site Integration tests is to ensure all equipment is tested and configured prior to installation on site. The Site Acceptance Testing will ensure all equipment is tested in its installed state on the client's production network.

Journey to Autonomy

Execute

Execute

Install, commission and acceptance test new network.

During the Execution Phase FTP will deliver the following:

- **Project Management**
- **Pre-Installation Testing**
- **Installation**
- **Commissioning**

The third phase on the Journey to Autonomy is Execution.

Leveraging FTP's Professional Services group, we will manage and execute the implementation of all network and associated infrastructure within the client's new network.

Project Management

A dedicated Project Manager will manage and oversee the implementation of all network and associated infrastructure within the client's new network. The Project Manager will be the primary point of contact during the Execution Phase and will provide the required project governance and transparency, ensuring all stakeholders are informed throughout the entirety of Execution.

Pre-Installation Testing

Pre-Installation testing includes Factory Acceptance Testing (FAT) and Systems Integration Testing (SIT). The Factory Acceptance Testing will include device functional verification and validation of specific equipment planned for implementation. Systems Integration Testing provides verification and validation of the integration and interconnectivity of all the network components prior to the installation and commissioning on-site. All testing is carried out in accordance with the plans produced the Design Phase. A resulting report will be produced with any recommended actions for client approval and sign-off.

Installation

FTP's professional services group will manage the installation of the solution, including the creation of Site Acceptance Documentation for Quality Assurance of all aspects of the build. Dependent on the Client preference, FTP can manage a preferred installation vendor, or directly engage installation crews. We are extremely flexible and tailor our installation methodology to suit our client needs.

Commissioning

Upon completion of Hardware installation and configuration, the Network will be commissioned in accordance with the Site Acceptance Test (SAT). The SAT will verify and validate all network functionality and parameters in line with the clients and OEM's requirements. Upon completion of the SAT the network is ready to proceed to the Validation Phase.

A resulting readiness report will be submitted to the client for approval to proceed to the next phase, which highlights any recommended or outstanding actions, and provides verification and supporting documentation, that the installation of the network is in line with the Low Level (Detailed) Design.

Journey to Autonomy

Validate

Simulate and Validate the site's network performance in readiness for Autonomy.

The Validation phase consists of the following:

- **Pre-Simulation Audit**
- **Simulation**
- **Validation**

Validate

As part of the Journey to Autonomy package, FTP conducts a Network Validation against OEM requirements to simulate Autonomous Network Traffic, and provides a resulting detailed Autonomous Readiness report, which presents the findings and validates the suitability of the network to support Autonomous Operations.

Our experienced Operational Technology Support Centre (OTSC) Network Engineers utilise their extensive experience to stress-test the network by simulating data flows from assets in the field to the autonomous system server, to verify Operational Areas prior to go-live.

Network Validation is achieved by installing FTP's application simulation device in an asset (typically a light vehicle) which acts as the on-board vendor router, whilst our Integrated Management System (IMS) acts as the autonomous system server, simulating the autonomous traffic flows. FTP coordinates and performs testing serials in the identified Autonomous Operations areas, where data is gathered, collated, and reported on.

Pre-Simulation Audit

This activity is undertaken prior to the Simulation and Validation steps to ensure that all critical recommendations from the initial Autonomous Readiness Consult Service have been successfully implemented on the client network.

The audit step validates that the client network is positioned to undertake the Simulation and Validation steps.

Simulation

Test scenarios have been designed and developed by FTP in line with vendor's guidelines for reliable wireless and LTE network performance in support of Autonomous Haulage applications.

FTP co-ordinates with site to install the AH Simulation hardware in an asset and perform drive-test (serials) in the Autonomous Operational area, simulating the autonomous system traffic data flows. Simulation test data is captured in the IMS in preparation for the Validation step.

Validation

Upon completion of the simulation drive-tests, the resultant data captured during the serials is analysed by our expert Engineers and evaluated against the OEM's autonomous system compliance metrics and wireless network performance metrics.

An Autonomous Readiness Report is compiled and issued to the client, validating whether the network meets the requirements to support the autonomous system. Included in the report is a detailed representation of the compliance metrics, their corresponding simulation results, the wireless network performance analysis and any resulting recommended actions, improvements, or enhancements.

Journey to Autonomy

Support

FTP's Operational Technology Support Centre (OTSC) provides the maximum ongoing return of your autonomous investment

FTP's Support service and reporting provides a central source of truth driving accountability, resulting in maximum asset availability

- OTSC delivers Support via a dedicated team of Expert Engineers with vast experience in supporting Critical Operations.
- Proactive Network Management to ensure maximum asset availability – allowing clients to achieve the highest value from their technology investment.
- Unparalleled industry experience in delivering proactive and reactive Root-Cause Analysis and reporting, ensuring the lowest MTTR for all issues impacting asset availability.

Support

Support

As part of FTP's Journey to Autonomy, FTP will provide an ongoing remote support service once the client's Autonomy project reaches the "Run" or Business as Usual (BAU) phase. FTP's Support is aimed at ensuring optimal Autonomous System performance is achieved and maximum asset availability is maintained as the Autonomous environment evolves to support the mining operation. FTP's Support delivers transparent reporting and proactive monitoring, driving accountability to all on and offsite stakeholders.

FTP's Support is delivered out of state-of-the-art secure facilities offering clients peace of mind that their network is being monitored and maintained by an industry-leading support team, without the challenge of establishing their own centralised Network Operations Centre. There are two strategic locations offering global coverage of up to 24x7 via a follow-the-sun model. These centres of excellence are referred to as the Operational Technology Support Centre, or the OTSC.

Operational Technology Support Centre (OTSC)

The OTSC team is comprised of very experienced engineers and analysts with diverse industrial backgrounds and operational experience. Ranging from wireless and LTE networking and design, mobile and radio communications systems, satellite systems, power systems and data centre design and installations, and data science and analytics. One thing that each OTSC member has in common is that they're an expert in use of FTP's Integrated Management System (IMS) and its application to the autonomous mining environment.

OTSC engineers collate all data sources, and by leveraging IMS' vast toolset and applying Subject Matter Expert (SME) knowledge, they're able to quickly analyse and diagnose all issues impacting the operation's asset availability. To proactively address emerging issues, regardless of where in the Autonomous Solution it may occur, the team can either deliver easily digestible actions, improvements, and optimisations to on-site resources, provide incident management processes and governance to ensure efficient resolution, or can rectify the issue remotely in near real-time.

The OTSC delivers remote services required to support and maintain all factors contributing to maximised asset availability and optimised autonomous operation delivering the greatest value from the investment in autonomous technology. FTP can achieve this through leveraging our combined industry knowledge and unrivalled Autonomous Operations experience to pre-empt most fault scenarios and proactively fix issues before they cause an outage. This enables the OTSC to utilise our resources to effectively manage multiple sites and provide the highest level of support to our clients at a competitive price.

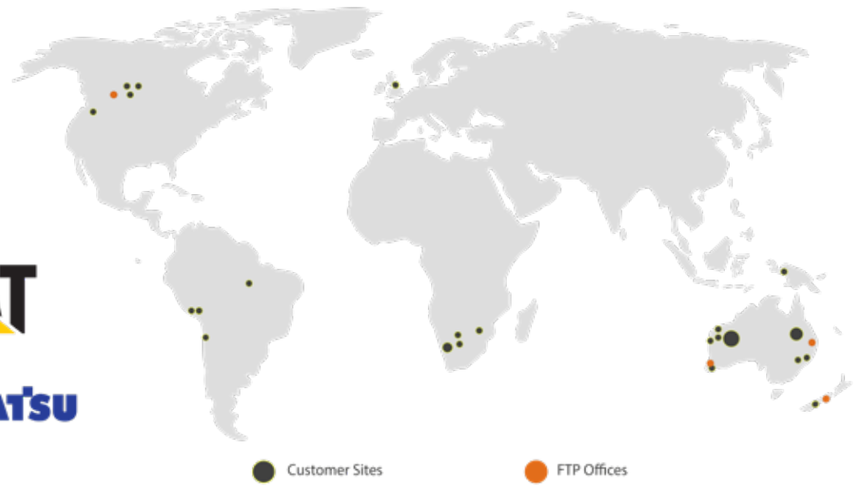
Our Company

FTP is a global technology company based in Australia

As industries increase productivity, they simultaneously increase in complexity. Employees and managers are forced to keep track of more and more variables in order to remain competitive. At FTP, we keep track of those variables for you.

Using our proprietary technology, we take complex streams of data a modern company is faced with, and present it through an easily understandable interface. This includes, but is not limited to, asset tracking, personnel tracking, network performance monitoring and RF planning. We also provide a round-the-clock support service to help our customers through any technical difficulties they may have.

We work with a wide range of different industries, including mining, marine and agriculture. We provide our customers with real-time 24-hour data, as well as historical data. We can even analyse the information we collect and offer our advice on what can be improved. Our goal is to use the power of data to give you the ultimate vantage point on your business, so that you can make more informed and strategic decisions.



CAT

KOMATSU

RAJANT KMP Kinetic Mesh Partner

NOKIA

CISCO Partner

Our History

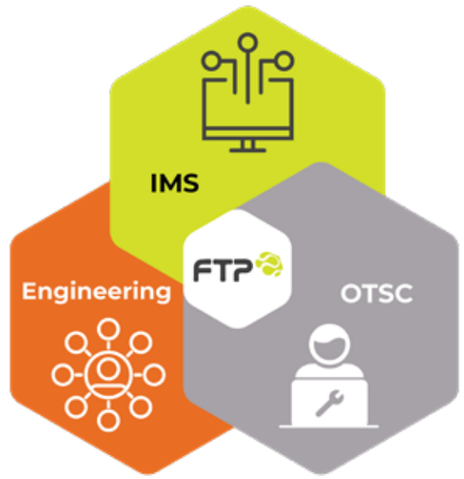
FTP was founded in 2012 and was originally known as Forces Transitioning Personnel. Originally, the company's purpose was to help former military personnel transition to jobs in the mining industry. Very quickly, we became an important source of skilled labour for large and prestigious mining companies. Today the company is simply known as FTP.

Noticing a gap in the market, the mining industry has and continues to rely on data collection in order to remain efficient, yet many companies used cumbersome programs to represent and analyse that data and often don't fully utilise them. Through the knowledge and experiences of the founders, this gap was better realised. At that point, key personnel were brought into the business and significant investment was made to create IMS (Integrated Management System) to bridge this gap. IMS is positioned to provide companies with better operational intelligence over their operations and gives them the tools to maximise their productivity and better inform business intelligence decisions.

IMS is a vendor agnostic digital platform. It collates data from a variety of third-party systems and presents them in an easy-to-understand, single window interface. Shortly after its development, OTSC (Operational Technology Support Centre) was created; a team of experienced engineers and support workers who are trained in our software. They are tasked with making sure that you get the most out of our platform.

In the years since we first developed IMS, FTP has expanded into several more industries. We aim to use our ground-breaking technology in as wide of a context as possible, so that businesses everywhere can stop working blind.

FTP delivers unique value through three pillars of excellence



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