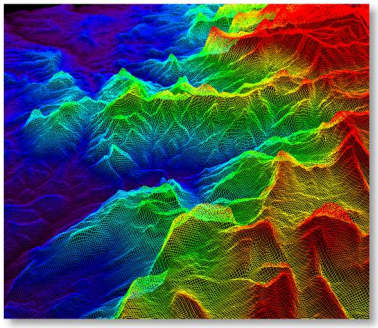


TECHNOLOGY-TO-BUSINESS

OUR APPROACH

Sometimes, you must look to the future to thrive in the present. Businesses that understand this will always be leaders.

Equium's 'technology-to-business' approach helps organisations to meet challenges in a way that's effective, sustainable and scalable.

Our solutions integrate traditional sector approaches with innovative and emerging technologies. They also leverage our team's world-class expertise in Big Data Analytics, Prescriptive Analytics and the Internet of Things (IoT).

Furthermore, every client benefits from Equium's extensive experience in commercial science, technology and engineering.

By using our solutions, companies can make more informed decisions about the future and take a different approach to old problems.

Equium's mine restoration services address a longstanding challenge - how to restore and monitor mine sites in a way that's sustainable, reportable and cost-effective.

By harnessing the power of 21st century eco-technology and out-of-the-box thinking, we're creating new restoration solutions that do all this - and more.

EQUIUM

About Equium

Equium offers primary sector clients a wealth of hands-on environmental geoscience experience and tertiary qualifications as mining and oil & gas geologists. We have delivered solutions to industry leaders and their contractors, and supported the primary and industrial sectors with remediating and restoring their contaminated sites.

Principal: Dr Ray Merton

DipPHI, BSc (Dbl. Majors), MSc (1st Hons), PhD, Postdoc

Ray is a qualified Exploration and Mining geologist and Big Spatial Data scientist who is a global expert in environmental monitoring, sensor technologies and analysis of complex Earth Science datasets. He applies this transdisciplinary expertise to developing innovative technology-to-business solutions for primary sector clients, with an emphasis on introducing new and unconventional science and technology solutions that drive performance.

Prior to establishing Equium, Ray's career focused on innovation leadership roles within international commercial sci-tech organisations that delivered cutting-edge data solutions across the mine environment.

His CV includes senior roles at CSIRO, being an International Category-1 Scientist, Principal Investigator, Mission Applications Scientist, Senior University Lecturer, Centre Director, UNESCO Mentor and Advisor, and a Program Leader in inter-government Initiatives.

Ray's PhD focused on modelling plant stress associated with mineral deposits and toxic soils. He is also an ecologist who focuses on the linkages between the biotic & abiotic worlds. Understanding how mine environments and natural ecosystems change over time is central to integrating this bio-geo-technical approach. Most recently, Ray extended his Big Spatial Analytics skill set by adapting many of the Data Science approaches developed in the fin-tech and commercial sectors. He recognised its ability to unlock significant advantages that could be readily adapted and adopted into the mining sector.

Ray is the author of over 45 global scientific publications. He is an award-winning international speaker, strategic commercial partnership broker and an entrepreneur.

As required, Ray will draw on a multi-disciplinary team of scientists, engineers and technology specialists to assemble a tailored team that matches your needs. His colleagues have backgrounds working within international commercial environmental and engineering companies, as private consultants and as university lecturers. They have worked for NASA, the European Space Agency (ESA) and UNESCO, and on multi-million dollar inter-governmental programs.

EQUIUM

Specialised services for Industry, Mining, Oil & Gas

Equium's Primary Sector solutions harness the power of big data science, business analytics and the Internet of Things (IoT) monitoring to unlock actionable insights. They are powerful tools that will improve your business's efficiency, accuracy and risk mitigation and help to protect its future.


Mine Tailings Restoration


Industrial and Infrastructure Restoration


Oil & Gas Site Restoration


Eco-Technology Monitoring


Multi-Temporal Satellite, UAV and GIS

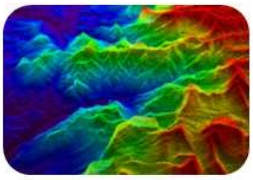

Ecological Risk Assessments


Soil Selection and Full Service Remediation


Seed and Plant Restoration


Ecology and Vegetation Succession Planning


Restoration Compliance Reporting over Time


Restoration Big Spatial Data Analytics


GeoInformatics and Multi-Dimensional Mapping


Sector Biodiversity Banking Offsets


Compliance Monitoring IoT and Dashboards

Equium offers a suite of site restoration solutions that can be tailored for problem areas to conform with specific remediation, ecological and environmental outcomes. Our integrated tools can be applied across the diverse range of geological, soil, water and ecological domains associated with mine environments.

Our goal is to create solutions that not only meet agreed criteria for success, but add considerable CSR and sustainability value to a company's profile.

Specialist areas

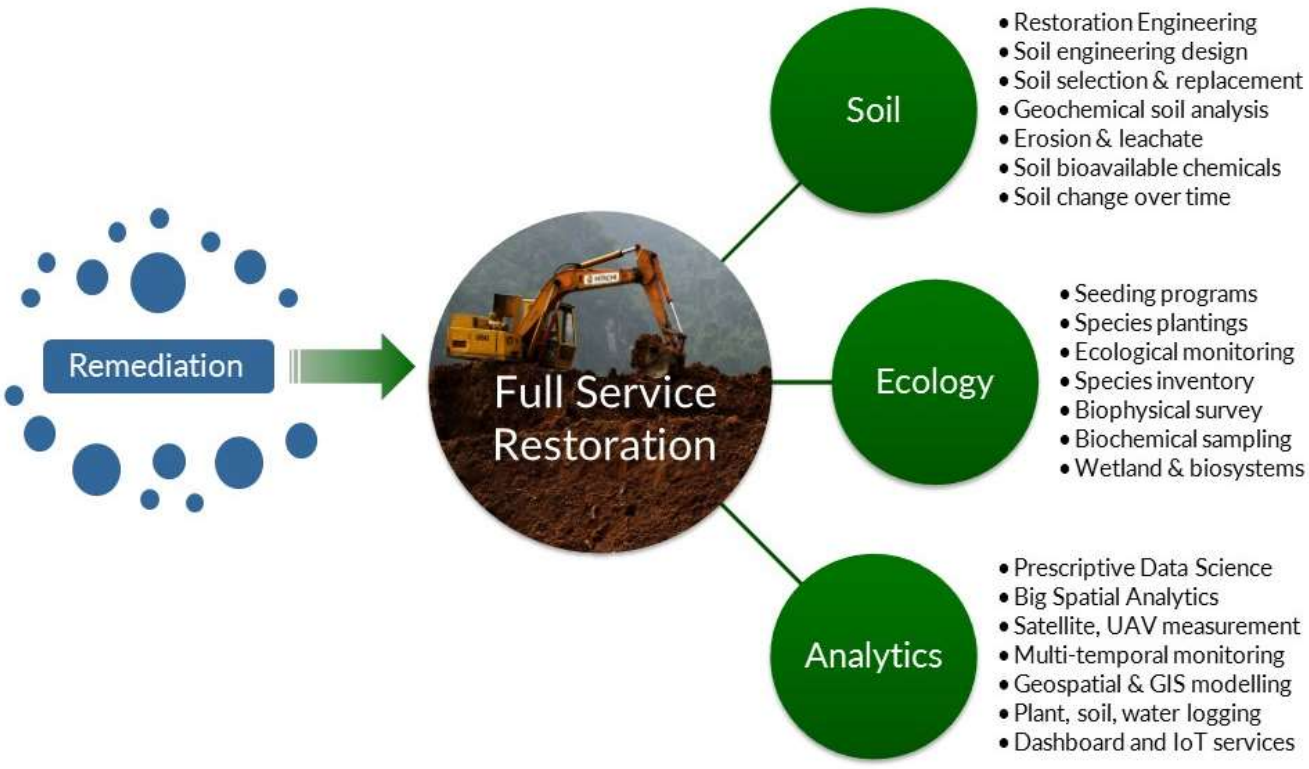
- Provide research and recommendations for replacing, creating and restoring soils and vegetation cover so they best approximate how they were prior to disturbance.
- Create new environments that closely match nearby ecosystems - our services are optimised for tailings and mine environments that have been heavily degraded, damaged or destroyed.
- Support reporting and planning needs by tracking legal restoration compliance over time.

By applying our scientific engineering knowledge, industry expertise and exclusive analytics tools to these challenges, Equium can take any restoration project from initial investigation through to commissioning and long term progress monitoring.

Restoration services based on science & engineering

Equium's suite of restoration solutions supports improved compliance performance and cost efficiency. By integrating Data Analytics at every stage, we provide clients with a deeper understanding of their environmental performance and sustainability measures, supporting more balanced restoration strategies. All our restoration services are available individually or as an integrated solution; combine high level scientific and engineering design capabilities; and are tailored to each site's specific requirements.

Eco-technology Solutions



Equium's innovative Eco-technology solutions makes our restoration services different.
The Eco-technology module encompasses three core capabilities: Soil Solutions, Ecology Solutions and Analytics Solutions. By combining these components with Equium's more traditional restoration-based products, clients can benefit from an end to end solution that applies the latest technologies and thinking to their restoration projects.

Site restoration planning, design and construction

We advise, design, manage and implement each restoration engineering solution in a way that best matches the client's brief. With design, for example, we ensure the most viable soil and plant ecosystems are recreated to balance project budget, specifications and outcomes, delivered on a site by site basis.

Ecology and Biodiversity Surveys

This is a core service within Equium's Ecologically Sustainable Development (ESD) and restoration services suite.

Our team's combined skills as scientists and engineers mean we can offer clients unique insights from survey results as we understand the complex relationships between geological, soil, ecological systems and engineering design. This capability is particularly important for challenging sites that do not respond to basic restoration and engineering methods. Surveys of flora and fauna adjacent to mine sites help us leverage important restoration design approaches that will help return ecological function to sites. This is even more important for clients wishing to restore their land for grazing, agroforestry or carbon offset applications.

Restoration Design

This service involves full engineering design of disturbed environments, including recommendations for soil replacement, restoration engineering and succession of plant cover. Equium's scientific engineering approach is key to creating a more rapid return to a functional ecosystem for regulatory compliance.

Equium believes that the best remediation and restoration design solutions rely on a thorough knowledge of mine environments and their adjacent natural ecosystems over time.

Our approach includes:

- Conducting an Ecological Risk Assessment (ERA) to determine the most suitable restoration type for the site's physical and chemical characteristics
- Analysing pre- and post-remediation land so we can select the best available restoration soil and plant solutions to use on any part of the mine area
- Studying adjacent natural ecosystems to better understand site-specific successional processes and ecosystem recovery dynamics over time.

We often work with difficult sites - for example, where previous remediation or management processes are impacting on-site or off-site ecological values. On these sites, we can re-establish a more suitable remediated substrate with better plant selection to allow environments to support natural recovery.

Restoration Analytics

This scientifically verified method of assessment supports a more quantitative, predictive and efficient approach to the design, planning and forecasting of site rehabilitation.

We have applied it to applications such as mine tailings restoration, minerals exploration, mine environmental modelling, groundwater and leachate monitoring and ecological restoration engineering.

A multi-layered service, Restoration Analytics blends Equium's field monitoring capabilities and access to geospatial technologies with our data analysis expertise in order to assess how well a landscape could perform as a functional ecological system. It is designed for use in the primary detection of rehabilitation failure so the results can be used as the basis for immediate action.

In essence, we collect chemical and biological data and input it into our Prescriptive Analytics and Big Spatial Analytics tools, then use the resulting analysis as the basis for making risk management recommendations and estimating compliance success.

Our extensive analytics toolkit features data collection instruments, remote sensing image analysis tools, biogeochemical assays and Big Spatial Analytics systems. To make sure we are working with the most accurate, up to date data possible, we draw on an integrated network of ground surveys, UAV, airborne and low Earth orbit satellites.

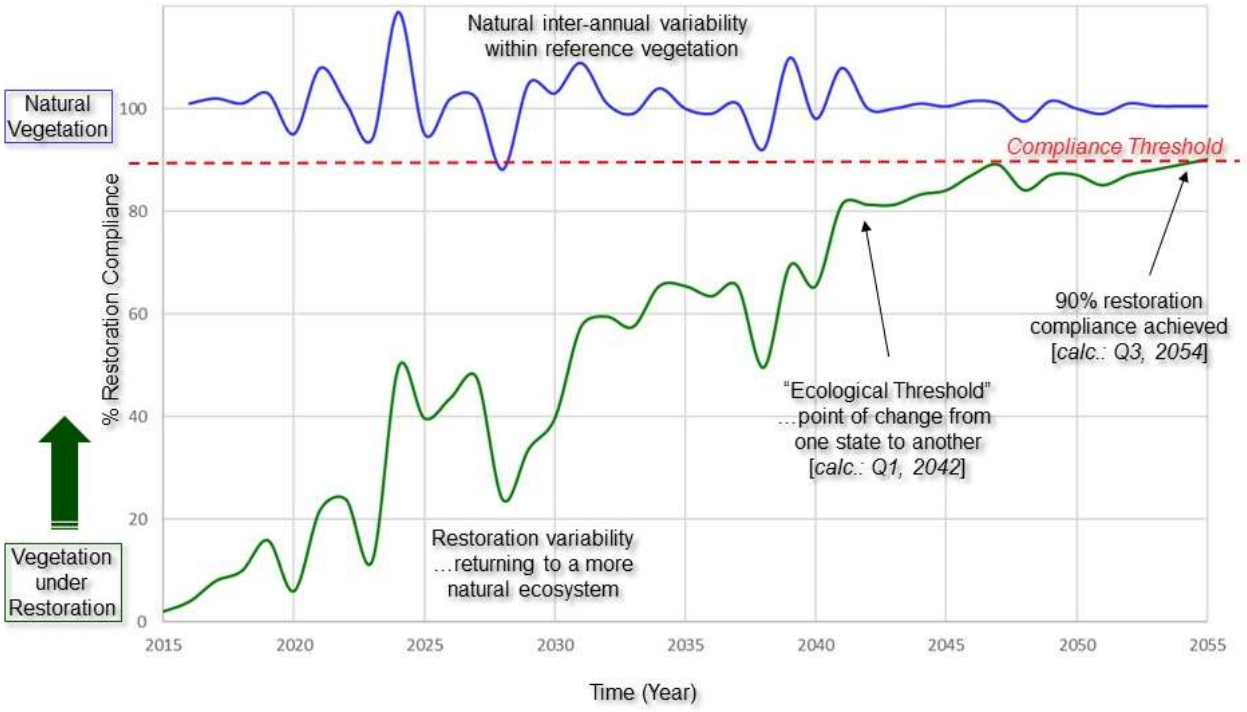
Site Restoration Performance Monitoring

Equium's advanced Eco-technology solutions can assist with restoration performance monitoring and biodiversity offset options, resulting in more robust, streamlined and efficient reporting.

Our approach integrates ground and remote sampling technologies to provide accurate, near real-time quantitative outputs. These enable clients to report long term biodiversity and ecological changes using a standardised representation of the land and water environments under restoration. The environmental assessments can be repeated, providing cost-effective data tracking and shareholder reporting.

Services

- Environmental risk analysis and biodiversity calculations
- Remote mapping of biodiversity and ecological characteristics
- High density ecological ground-based surveys coincident with remote sensing acquisitions
- Ecosystem carbon over time
- Ecotypes and biodiversity modelling over proposed sites
- Ecological variability and change assessments within mine lease boundaries
- Soil water, soil and vegetation change detection
- Multi-temporal vegetation stress and biochemistry
- Monitoring ecological performance
- Monitoring vegetation succession through time
- Carbon offsets for industry compliance
- Carbon offsets for voluntary greenhouse gas emission mitigation
- Reforestation projects restoring forest ecosystems on land that was once forested
- Afforestation projects creating forests ecosystems on land that was previously unforested
- High performance 'blue carbon' vegetated coastal habitat sequestration.



Core Capability: Big Spatial Data Services

Do you make the most of your spatial and non-spatial data? Equium has the tools and expertise to collect, integrate and analyse your data from different perspectives to provide invaluable business insights that support better decision-making.

Equium sources detailed data for Mining, Oil, Gas and Exploration clients using a wide range of Big Spatial Data tools. These include the latest in Geographical Information Systems (GIS) and remote sensing, GPS, mobile data capture and ground surveying technologies.

We use these data sources to capture, store, analyse, display and share geospatial and ecological information from the mine and exploration areas under investigation.

Services

- Construction of spatial databases from existing or new data sources
- Field capture of asset information such as geometric features and geographic location
- Digital mapping of vegetation, soils, geology and other environmental variables
- Integration of spatial and non-spatial project information from ancillary data sources
- Conversion of data to a range of formats to match real-world coordinates and surveyed locations to conform with client databases
- Advanced modelling, analysis and visualisation data from satellite, aerial and UAV imagery.

Specialist expertise

Equium has extensive experience in analysing a wide range of spatial information for the Mining and Exploration sectors. Our clients benefit from a wealth of commercial environmental geoscience experience. They appreciate how we combine extensive commercial experience with academic rigour, having worked as technology leaders within universities, with global environmental and engineering companies, and as private consultants.

Equium's deep knowledge of the commercial applications of Big Spatial Data has helped NASA, European Space Agency and UNESCO. Our expertise has made multi-million dollar inter-governmental programs possible and we are early adopter Data Scientists for Primary Industries.

Equium's Mining and Exploration experts have tertiary qualifications as Mining and Oil & Gas geologists and their field work reports are widely published in scientific and engineering publications.

Core Capability: Prescriptive Analytics

Equium uses Prescriptive Analytics to provide our clients with evidence-based insights that assist with forward planning and give them a competitive edge. This specialist capability enables organisations to understand longer term forecasting outcomes - those related to data trends, certainty, mitigation and future risk - that will impact strategic decisions. The result is that they are not only able to anticipate what will happen to their business and their sector, but when and why.

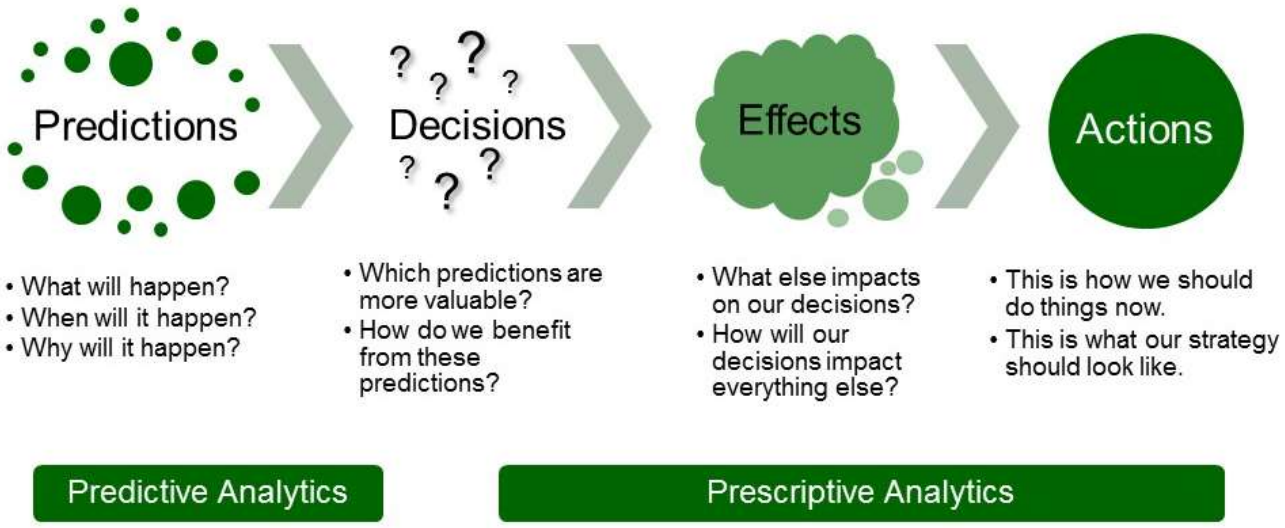
A combination of high level analytical and Big Data capabilities that synthesises multiple disciplines of mathematical and computational sciences with business rules, Equium's Prescriptive Analytics Capabilities are essential for any organisation wishing to remain sustainable into the future.

More complex than Descriptive and Predictive business analytics, Prescriptive Analytics focuses on developing new insights from understanding performance-based measures and statistical methods, facilitating action. Equium uses all three phases of analytics to perform analysis that is precisely tailored to your business needs.

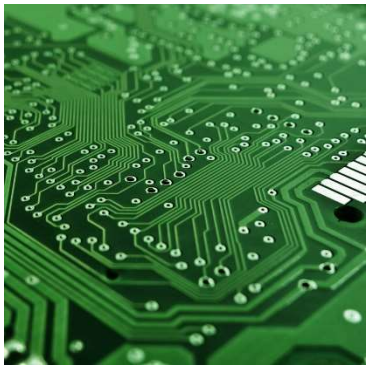
Firstly, we apply Descriptive and Predictive Analytics to your business information. By combining historical performance data with sophisticated rules, algorithms and other data, we can determine the probable future outcome of an event or the likelihood of a situation occurring. This reveals the most likely opportunities and risks. We blend these results with our Big Spatial Data capabilities and apply sophisticated Prescriptive Analytics skills and technologies.

The outcome is a series of robust, fact-based actions within a known timeframe, along with implications for each option.

In order to scale Prescriptive Analytics technologies into existing client systems, our solutions are designed to be adaptive and take into account the growing volume, velocity and variety of data that are increasingly an inherent part of modern business projects.





Eco-technology Solutions for Mine Restoration

Soil Restoration

- Full Service soil and plant restoration for Mining, Oil & Gas and Industrial sectors
- Restoration engineering design and project delivery
- Industrial land restoration
- Infrastructure landscapes
- Disturbed urban landscapes
- Design & monitor adaptive restoration solutions for mine problem areas
- Research and design most cost efficient soil type & structure
- Time-series soil & plant monitoring including care & maintenance
- Test and monitor soil, groundwater and leachate
- Bioavailable soil chemicals
- Soil sustainability assessments
- Eco-technology automated logging

Ecology and Sustainability

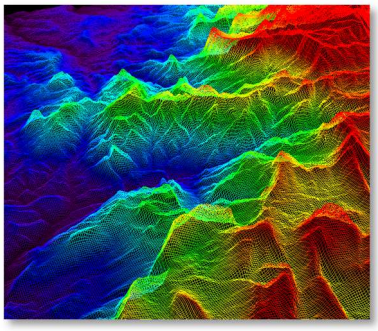
- Recommend most appropriate vegetation species and landscaping
- Design and deliver seeding & planting programs
- Environmental Risk Analysis
- Model ecotypes and biodiversity
- High density ecological plots via ground & UAV analytics
- Monitor vegetation biochemistry
- Monitor ecological performance, vegetation succession and biodiversity measures
- Biodiversity Banking Offsets
- Agroforestry solutions for mining
- Assess blue-carbon sequestration
- Model regional natural ecosystems to benchmark compliance & ecosystem function variability
- Biochemical & biophysical survey
- Wetland leachate restoration

Data Science & Analytics

- Prescriptive Analytics of mine and industrial land restoration data
- GeoInformatics and multi-dimensional mapping
- Time-series regional and local environmental analysis
- eco-Technology Analytics
- Environmental data integrated and analysed via Big Data Science
- Time-series satellite, aerial, UAV & Geographic Information Systems
- Big Spatial Data Analytics
- Model and reporting "% Restoration Completion" over time and area
- Prescriptive calculations for "Date to Full Restoration Compliance"
- Create 3D restoration topography and fly-through visualisations
- Data monitoring, statistics, IoT & Dashboard reporting

Business benefits

- Risk forecasting, mitigation and management improvements
- Quantitative cost control for remediation and restoration
- Better forward planning
- More timely, accurate and detailed outcomes measurement
- Robust regulatory and stakeholder reporting
- Improved compliance performance
- Enhanced environmental planning and monitoring
- Accurate forecasting of environmental risk across the life of the mine
- Ability to plan restoration activities across project timelines
- Measuring current restoration success and long term sustainability
- Forecasting future restoration compliance completion dates and milestones
- Monitoring mine closure and care and maintenance
- Planning and monitoring mine environmental and carbon offsets
- Generating regulatory recognition for tracking and delivery of outcomes
- Easy to understand stakeholder reporting - graphics, dashboards, reports, visualisations



TECHNOLOGY-TO-BUSINESS

CONTACT

Dr Ray Merton | Principal
Equium

(+61) 0438 771 996

ray.merton@equium.com.au

www.equium.com.au

ABN: : 45417531807

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