



Skyp*x*I

Aerial Intelligence

## Skypxl Capabilities

As RPAS (Remote Piloted Aircraft System) Drone technology evolved significantly in 2013, it became a game changing solution for many industries. In the meantime, national aviation authorities such as FAA, CASA have prepared stable regulatory frameworks for realising RPAS operations and today almost every industry is deploying RPAS's to increase productivity and safety.

Industries such as mining, construction and infrastructure have been early adopters and in some cases are almost operating fully automated RPAS operations, enabling data in the same or better quality in significantly less time and cost compared to traditional methods from ground or by plane or satellite.



We at **Skypxl** are passionate about RPAS (Remotely Piloted Aircraft Systems) technology, the opportunities and possibilities the world of UAV | RPAS delivers. Our experienced team come from diverse industry sectors such as Aviation, Construction, Capital Equipment, Extractive Industries, RPAS Software systems integration and AV Production.

This unique combination gives us the ability to understand your unique requirements and deliver a high level of custom data supported by outstanding service, resulting in superior project outcomes.

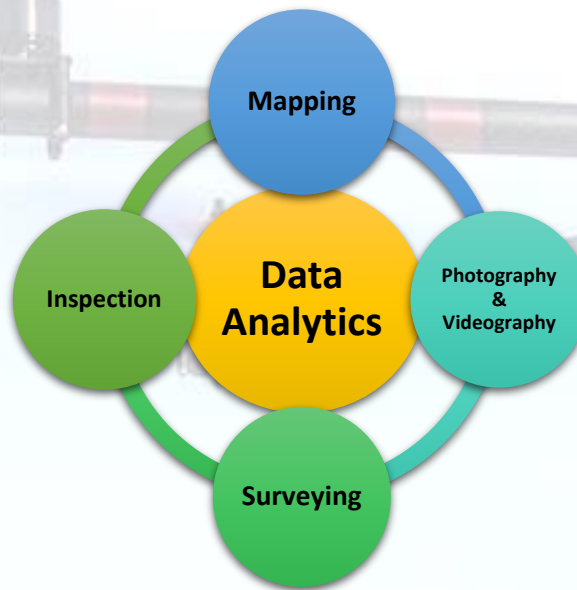
We are always growing our capabilities and take it to a whole new level with our professional RPA systems that's facilitated by multi-rotor drones that boast the latest technology and precision.

Skypxl core values are to always put **safety first** in all we do, demonstrate the unique capabilities UAV technology can deliver to your business and strive to exceed our customers' expectations, that's the Skypxl difference.



## What We Do?

Skypxl capture data using RPAS (Remote Piloted Aircraft Systems) Drones



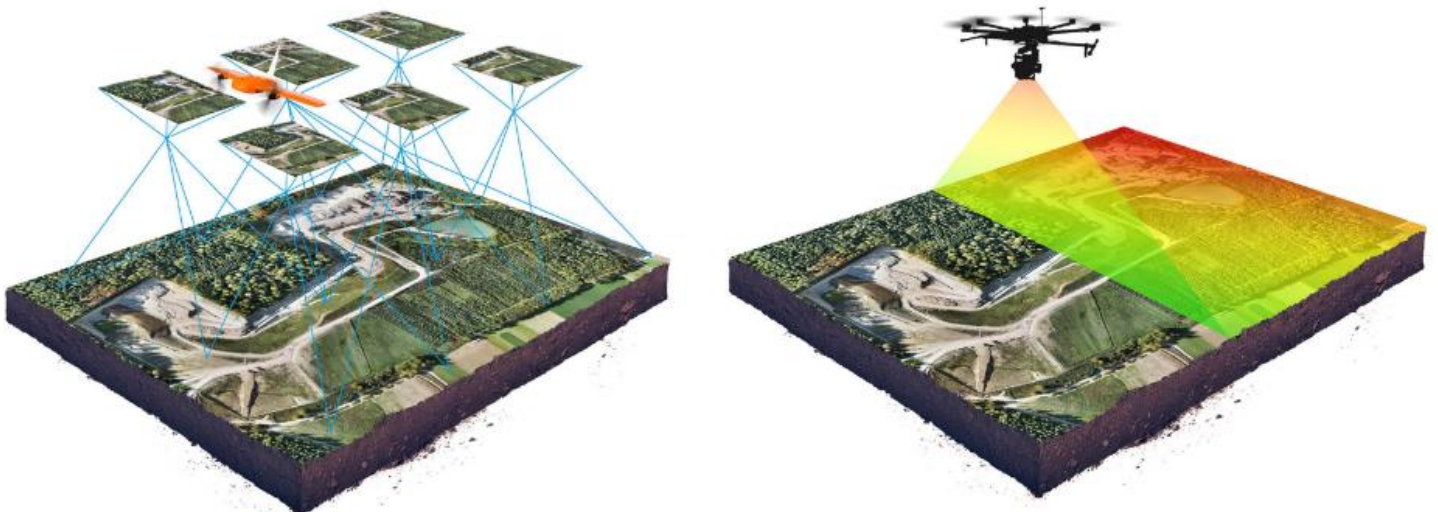
Why Aerial Mapping & Surveying using RPAS (Drones)? **Faster – Safer - Smarter**

### 1. Hi-Resolution Aerial Mapping & Surveying

Skypxl hi-resolution aerial mapping and surveying delivers our customers a variety of data solutions.

Our actionable data sets (Photogrammetry or Lidar) are delivered quickly rather than taking weeks like traditional on the ground or large fixed wing surveying solutions.

The Skypxl surveying solution will allow you to quickly and effortlessly collect data and we will deliver insights you can act on. Leveraging RPAS (drones) for surveying decreases risk and saves you the customer, valuable time and resources.



## Acquired Data Capabilities

**Densified 3D Point Cloud** – This is a set of 3D points that reconstruct the model. The X,Y,Z position and the colour information is stored for each point of the Densified Point Cloud.

**Digital Surface & Terrain Model** – Get the elevation value of each pixel, with or without above-ground objects, ready for your preferred GIS workflow.

**Orthomosaic** – A geolocated high-resolution map with each pixel of the original images projected onto the digital surface mode.

**Volume Calculation** – Accurate volume calculations on a perfect representation of your stockpiles, with fully-adjustable base height.

**Contour Lines** – A simplified representation of the topography with closed contours displaying the elevation.

**3D Textured Model** – Triangular mesh with photo realistic texture.

**Reflectance Maps** – Assess reflectance based on the pixel value in multispectral or thermal imagery.

**Index Maps (NDVI, NDRE)** – Work with well-known indices such as NDVI and NDRE used by [agriculture drones](#) or create custom indices.

**Application Maps** – Aggregate and visualize the values derived from your index maps.

**Thermography** – A radiometrically-accurate map with a temperature value of each pixel.

### Software Output Formats – [third party collaboration](#)

- Colour point cloud – .las, .laz, .ply, .xyz
- Ground digital surface model (DSM)- GeoTIFF (.tif), .xyz, .las, .laz
- Digital terrain model (DTM)/Digital elevation model (DEM) – GeoTIFF (.tif)
- Ground Orthomosaic – GeoTiff (.tif), .kml
- Contour lines- .shp, .dxf, .pdf
- Facade digital surface model – GeoTiff (.tif)
- Facade Orthomosaic- GeoTiff (.tif)
- 3D textured mesh- .ply, .fbx, .dxf, .obj, .pdf
- Level-of-detail mesh in .osgb, .slpk
- Digitized vectors- .shp
- Index maps – GeoTiff (.tif), .shp
- Thermal maps – GeoTiff (.tif)

## 2. Asset Inspection

Our RPAS asset inspection services provide our customers with more comprehensive insights and understanding of their valuable asset, with the asset's digital twin delivered to your desktop, data sharing and collaboration has never been easier. Make key decisions smarter, faster and safer. Skypxl most commonly serves the energy, utility and construction industries. With our expertise and consultative approach, we can work with you to develop the best solution for your industry.

## 3. Photography & Videography

Skypxl offers aerial photography and videography to a variety of industries. Whether the need is for documentation or marketing purposes, Skypxl has the right solution for your next project.

## 4. Data Management

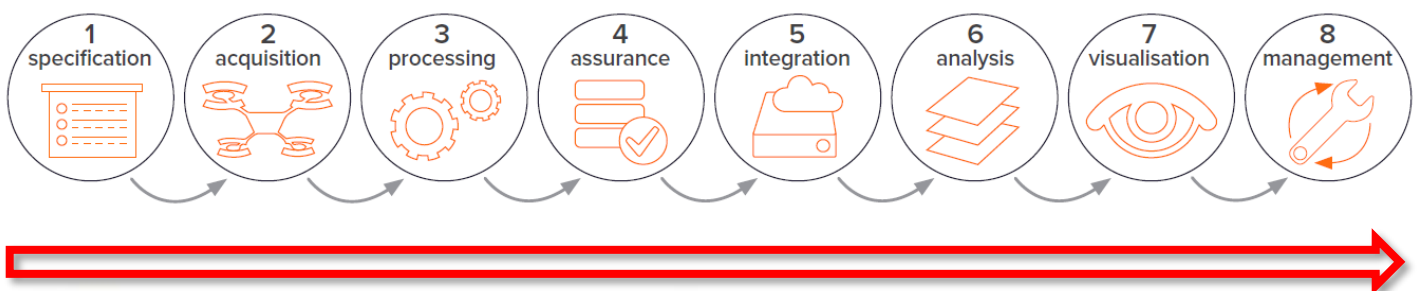
### Better Data, in Dramatically Less Time

We at Skypxl understand the critical importance of Data Management, from early specification, acquisition to reporting, data that offers real insights into your asset - project resulting in increased safety, efficiencies, productivity and ROI.

- ✓ Automated Flight
- ✓ Fast Data Processing
- ✓ Elevation & 3D Models
- ✓ Instant Measurements
- ✓ Collaborative Insights
- ✓ Quick ROI

### Data Analytics

Data Management is vital to the success of RPAS (Drone) integration into your business. Through all of our services Skypxl offers actionable analytics and insights. Leveraging a RPAS means our data is more detailed and delivered faster than traditional methods



## 5. RPAS Consultancy

Skypxl also offers a comprehensive consultancy service. Is your business looking to embrace RPAS technology? Skypxl will work with you to explore, plan and implement the right RPAS technologies into your business. Call 1300 20 54 30 to discuss with one our team.

## Industries Supported

### MINING

- ✓ Asset Inspection
- ✓ Stockpile Volume Calculations
- ✓ Site & Asset Tracking
- ✓ Rehabilitation Monitoring
- ✓ Pit Monitoring & Change Detection
- ✓ Wastewater & Tailings Measurement

### WATER

- ✓ Asset Inspection
- ✓ Tree & Vegetation Identification
- ✓ Portable Water Tank Inspection

### CULTURAL HERITAGE

- ✓ Heritage Buildings Documentation

### ENVIROMENTAL MONITORING

- ✓ Hazardous Material Spillage Monitoring
- ✓ Landslide Monitoring
- ✓ Coastal Erosion Monitoring
- ✓ Wildlife Population Survey

### EMERGENCY MANAGEMENT

- ✓ Search & Rescue
- ✓ Planned Burn Monitoring & Management
- ✓ Grass Growth Monitoring for Bushfires
- ✓ Emergency Monitoring
- ✓ Flood Debris Monitoring

### AGRICULTURE

- ✓ Crop Status & Pest Monitoring
- ✓ Disease Detection & Mapping
- ✓ Assessing Biomass
- ✓ Early Pest & Disease Mapping
- ✓ Missing Crop Identification
- ✓ Undergrowth Mapping

### CONSTRUCTION

- ✓ Estimating Earthwork Volumes
- ✓ Site Topographic Mapping
- ✓ Road & Highway Construction Surveying
- ✓ Asset Inspection
- ✓ Asset Audit
- ✓ Safety – Audit Inspection

### SURVEYING & MAPPING

- ✓ Aerial Surveying & Mapping
- ✓ Rock Stratigraphic Layer Mapping
- ✓ Roadside Vegetation Mapping
- ✓ Multispectral Island Mapping
- ✓ Complex Facilities and Infrastructure Surveying

### INFRASTRUCTURE

- ✓ Structure Condition Assessment
- ✓ Communication Tower Assessment
- ✓ Asset Management (Roads)
- ✓ Wind Turbine Inspection
- ✓ Powerline Inspection

### LOCAL GOVERNMENT

- ✓ Footpath Condition Assessment
- ✓ Green Space Mapping
- ✓ Cemetery Plot Monitoring
- ✓ City Centre Marketing
- ✓ Illegal Construction Monitoring
- ✓ Solar Panel Inspections

### FORESTRY

- ✓ Post Thinning Assessment
- ✓ Disease Detection & Mapping
- ✓ Stand Boundary Mapping
- ✓ Invasive Weed Detection
- ✓ Post-Harvest Coarse Woody Debris Detection
- ✓ Vegetation Health Monitoring
- ✓ Forestry Plot Monitoring

## RPAS FLEET – Multi Rotor (MR)

Through continuous investment in our RPA systems we have developed unique capabilities, our fleet is diverse and modern, enabling various AC – Payload configurations. We maintain all our aircraft to OEM specifications. Mission and AC data is captured and recorded using AVCRM.



The revolutionary **DJI Matrice 200 Series** is designed to specifically cater to the needs of enterprise users who require powerful, reliable and accurate performance to meet the needs of any demanding professional task.

The Matrice 200 series is the ideal aerial platform for use in industries including Public Safety, Infrastructure, Energy, Agriculture and more. Across a wide variety of commercial sectors, the Matrice 200 Series will enable operators to collect aerial data that will transform the way operations are conducted. Request further information [here](#)



**The Inspire 1** was a revelation. The first filmmaking drone in the world to integrate an HD video transmission system, 360° rotating gimbal and a 4K camera, as well as the simplicity of app control. The launches of the Zenmuse X5 and X5R cameras further cemented the Inspire as a critical tool for filmmakers around the globe.

**The Inspire 2** takes everything that was good about the Inspire 1 and improves it. The image processing system CineCore2.0 has been upgraded to CineCore2.1, recording video at up to 6K in Cinema DNG/RAW and 5.2K in Apple ProRes when used with Zenmuse X7 camera. Request further information [here](#)



The **DJI Phantom 4 RTK** A new RTK module is integrated directly into the Phantom 4 RTK, providing real-time, centimetre-level positioning data for improved absolute accuracy on image metadata.

Sitting just beneath the RTK receiver is a redundant GNSS module, installed to maintain flight stability in signal-poor regions such as dense cities. Combining both modules, the Phantom 4 RTK is able to optimize flight safety while ensuring the most precise data is captured for complex surveying, mapping and inspection workflows. Request further information [here](#)



The **DJI Phantom 4 Pro** boasts an updated camera and is equipped with a 1-inch 20-megapixel sensor capable of shooting 4K/60fps video and Burst Mode stills at 14 fps. The adoption of titanium alloy and magnesium alloy construction increases the rigidity of the airframe and reduces weight, making the Phantom 4 Pro similar in weight to the Phantom 4. The Flight Autonomy system adds dual rear vision sensors and infrared sensing systems for a total of 5-direction of obstacle sensing and 4-direction of obstacle avoidance. Request further information [here](#)



**DJI Mavic Pro Platinum** with enhanced endurance and quieter flight it is DJI's best portable drone yet. Aircraft noise has been reduced by up to 4dB\* (60% noise power) and extended flight time to 30 minutes with new FOC sinusoidal driver ESCs and 8331 propellers for a quieter, more enjoyable flight experience. Request further information [here](#)

## RPAS FLEET – Fixed Wing (FW)



The flagship **Delair UX11 PPK**, is widely considered the world's most advanced large area fixed-wing mapping drone. This remarkable UAV enjoys embedded PPK technology, on-site ease of operation (hand-launching) and provides pilot confidence through its deep stall landing technology.

What also sets it apart as a mapping tool is that it requires minimal surveyed Ground Control Points (GCP). Request further information [here](#)







**Parrot Disco-Pro Ag** is the multi-purpose all-in-one precision agriculture solution for farmers that fits in their everyday toolbox to help them improve ROI of their large crops. This end to end multi-purpose solution allows farmers to have easily and quickly insights on their crops whenever they need to:

- Identify crop health, relative crop maturity and areas damaged thanks to the AIRINOV report based on NDVI maps
- Perform a quick overview of the crop and the farming infrastructures with the Parrot Disco-Pro front Full HD stabilized camera. Request further information [here](#)

## RPAS FLEET PAYLOADS

RPAS camera (pay load) technology is evolving exponentially, from high end RGB, Thermal, Multispectral to LIDAR the choice is amazing, Skypxl are constantly adding to its capabilities.



The **DJI X5S** is equipped with an uprated Micro 4/3 sensor, the Zenmuse X5S has a dynamic range of 12.8 stops with a much-improved signal to noise ratio and colour sensitivity than the X5R. It supports up to eight standards M4/3 lenses (including zoom lenses) with focal lengths ranging from 9mm-45mm (equivalent to 18mm-90mm on a 35mm camera), allowing more creative flexibility. Request further information [here](#)



The **DJI Zenmuse X4S** is a powerful camera featuring a 20MP, 1" sensor and maximum ISO of 12,800. Dynamic range is increased from the Zenmuse X3 by 1 stop, and signal to noise ratio and sensitivity are increased by 1.5 stops for next-level image quality. The Zenmuse X4S uses a DJI-designed compact lens with low dispersion and low distortion 24mm equivalent prime lens. This 84° POV, high-resolution lens makes the Zenmuse X4S as powerful during aerial imaging as it is on the ground. Request further information [here](#)



DJI has teamed up with FLIR to create a completely integrated EO/IR gimbal system for DJI drones. The product of that effort is the brand new **DJI Zenmuse XT2 R**. The original Zenmuse XT set a standard in the thermal imaging industry, quickly becoming the Number 1 thermal drone payload on the market. The new Zenmuse XT2 R takes that same innovation to the next level. The Zenmuse XT2 R's dual sensor setup lets pilots do more in less time, collecting easily comparable visual and thermal data in a single flight. The processing power behind the XT2 also allows for several smart functions, leading to actionable thermal data even while still in the air. Request further information [here](#)



**The Parrot Sequoia+ multispectral sensor** is revolutionising the sector, offering a comprehensive, adaptable solution that is compatible with all types of drones. With its two sensors, multispectral and sunshine, Parrot Sequoia+ analyses plants' vitality by capturing the amount of light they absorb and reflect. Collecting this data means that farmers can do what's best for their fields. Request further information [here](#)



As with all **SLANTRANGE** sensors, the 3PX delivers ultra-high-resolution multispectral imagery designed specifically for agricultural applications. Whether you're using our [SlantView](#) analytics package, DroneDeploy, Pix4D, or your own analytical tools, 3PX image quality and accuracy forms the starting point for valuable new data analytics in agriculture. Some unique use cases include:

- Counting and sizing individual plants for improved yield forecasting
- Detecting weed growth for more precise herbicide applications
- Measuring plant health conditions for more efficient nutrient use
- Enabling users to train 3PX to find features and signatures of interest to their own operations with our proprietary SmartDetection™ algorithms. Request further information [here](#)

## SkyPxl Operations – Service Coverage

Our corporate head office is located at Norwest NSW, with service coverage throughout Australia \* 



### SkyPxl – Accreditations

- ✓ [CASA ReOC. ReOC 6354](#)
- ✓ Chief Pilot – Paul Mandeno: CASA RePL #1051610 – 25kg Unrestricted
- ✓ Pilots: CASA RePL – 25kg MR and 7kg FW

### SkyPxl – Insurances

- ✓ RPAS (Drone) Public Liability: \$20M
- ✓ Public Liability: \$20M
- ✓ Professional Liability: \$20M
- ✓ Workers Compensation

### SkyPxl – Systems

- ✓ AVCRM - Aviation Compliance and Risk Management Software – [more info](#)
- ✓ Pix4D - [more info](#)
- ✓ Virtual Surveyor – [more info](#)
- ✓ DroneDeploy - [more info](#)
- ✓ Optelos - [more info](#)
- ✓ CASA - RPAS Operations Manual
- ✓ CASA - RPAS Operational Procedures Library

## SkyPxl – Industry Groups

- ✓ AAUS - Australian Association for Unmanned Systems
- ✓ AIDN – Australian Industry Defence Network
- ✓ IQA – Institute of Quarrying
- ✓ CCF NSW – Civil Contractors Federation NSW
- ✓ IPWEA – Institute Public Works Engineering Association

## SkyPxl - Contact Information

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