



DIGITAL MANUFACTURING SOLUTIONS

ANNUAL GENERAL MEETING

Mr Jeff Lang  
Managing Director

29 NOVEMBER 2019



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## About Titomic

Titomic is an Australian public company specialising in digital manufacturing solutions for industrial scale metal additive manufacturing using its patented Titomic Kinetic Fusion® technology. Incorporated in 2014, Titomic was created to commercialise Titomic Kinetic Fusion®, or TKF, a technology co-developed with Australia's CSIRO to capitalise upon, and add value to, Australia's abundance of titanium reserves. Titomic has the exclusive rights to commercialise this proprietary and patented process.

Titomic Kinetic Fusion® is based on the deposition of metal powders at supersonic speeds to create industrial scale parts and complex surface coatings. Titomic leverages this patented process and material science to create high performance products, and solves complex engineering challenges utilising automation and additive manufacturing.



Digital  
Manufacturing  
Solutions

**TITOMIC**

# Titomic Kinetic Fusion<sup>®</sup> Systems

Machine Sale, Lease & OEM

Titomic provides a range of additive manufacturing systems, from turnkey solutions at one cubic metre, to the world's largest bespoke, purpose built systems and automated production lines.



TKF 1000

TKF 9000



TITOMIC



# Leadership Team

Drawing upon a broad spectrum of experience, TITOMIC's leadership team is well-equipped to commercialise TITOMIC's unique technology.

TITOMIC's leaders hold a strong track-record of high-performance across multi-billion dollar and publicly listed companies.

## The Board



Philip Vafiadis  
Non-Exec Chairman



Jeff Lang  
Managing Director



Richard Willson  
Non-Exec Director



Richard Fox  
Non-Exec Director

## Executive Team



Glen Casey  
Chief Operating Officer



Robert Turner  
Chief Financial Officer



Peter Vaughan  
Company Secretary  
& Chief Business Officer



Vahram Papyan  
Chief Strategy Officer



Nathanael Miller  
Chief Technology Officer

# Technical Advisory Committee

The Technical Advisory Committee comprises subject matter experts from Australia's most prolific research institutes and commercial organisations.

The TAC will consider innovative solutions for industry through collective thought leadership, industry enhancements, and application of research programs whilst maintaining a clear focus on the delivery and adoption of research in line with Titomic's strategic outputs.

## Technical Advisory Committee (TAC)



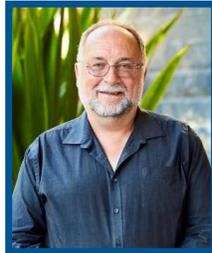
Professor Rhys Jones



Dr Richard Hannink



Dr Airlie Chapman



Professor Ivan Cole



Professor Raman Singh

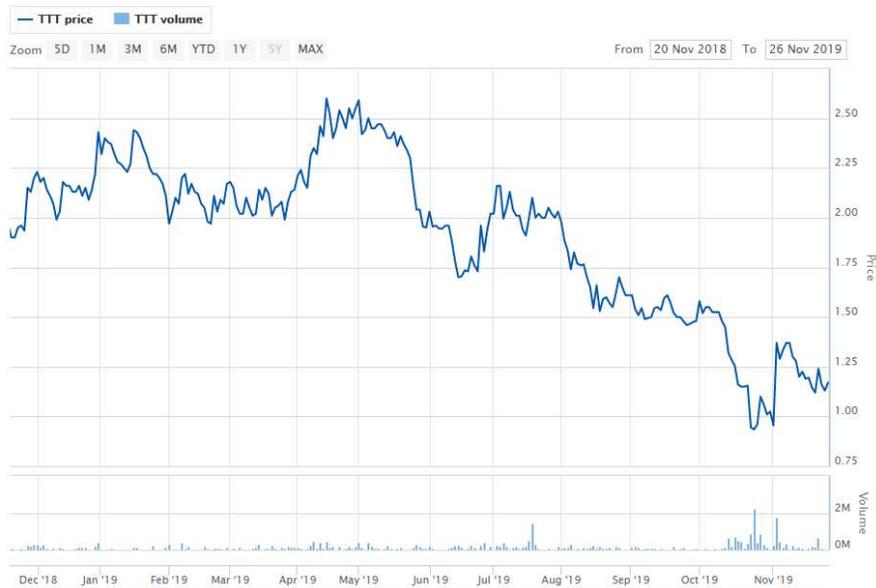


Professor Emad Gad

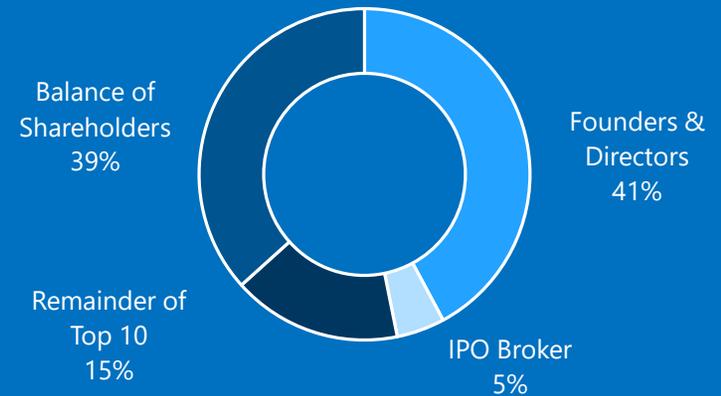
# Key Figures

- Market Cap on ASX listing in Sept 2017 - \$20M @ \$0.20 per share
- Market Cap on ASX as at 26 Nov 2019 - \$148M @ \$1.17 per share
- Total of \$28.7m Capital Raised To Date

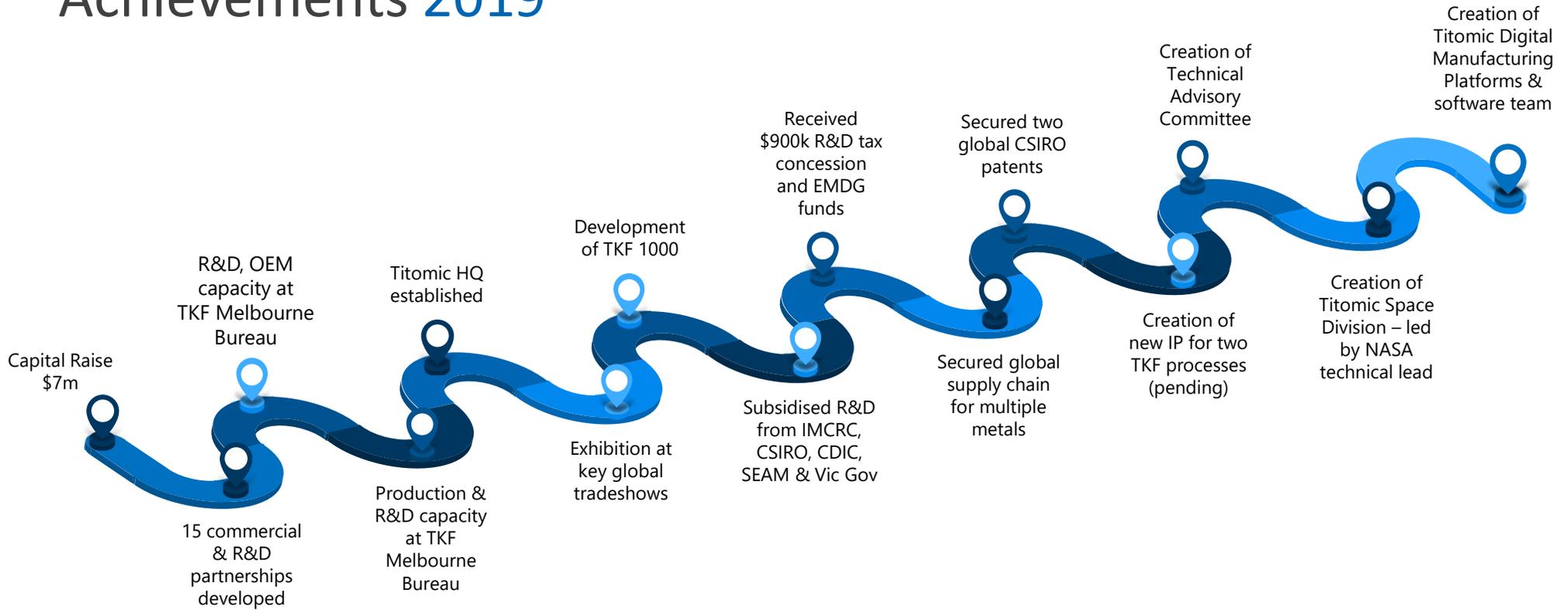
Capital Structure (26 <sup>th</sup> November 2019)	Shares
Shares on Issue	127,215,865
Performance Shares <i>*Subject to Performance Milestone Achievement</i>	20,000,000
Director Performance Shares	140,123
Listed Options ( <i>Exercisable at AUD\$2.50 on or before 10 July 2021</i> )	2,058,839
Unlisted Options ( <i>Exercisable at various prices and dates</i> )	2,105,000
Market Capitalisation (26 Nov 2019)	AUD \$148M
Cash Balance (30 Sept 2019)	AUD \$5.5M



## Ownership Breakdown (26<sup>th</sup> Nov 2019)



# Achievements 2019





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# Cutting Edge Materials

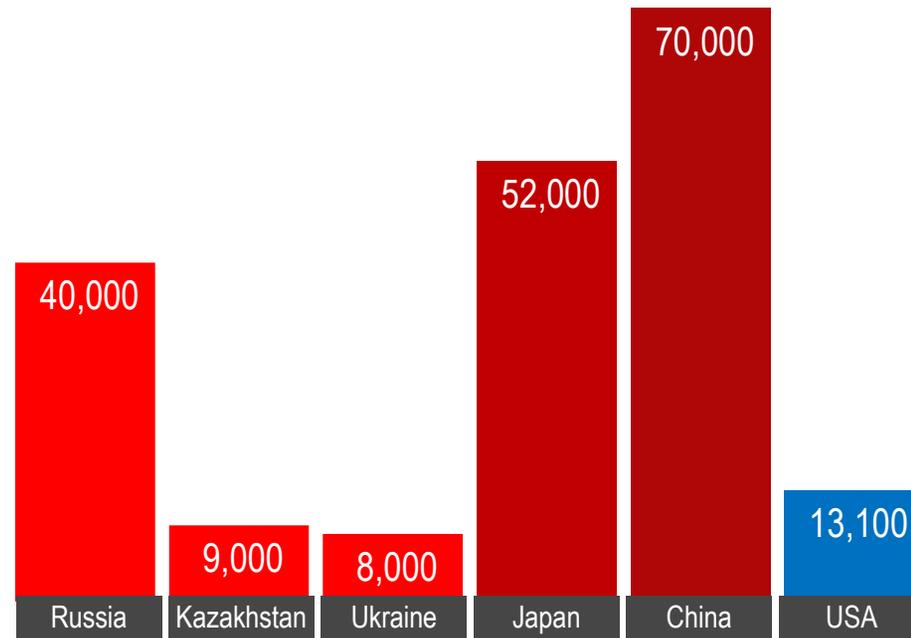
Titomic can produce the following capabilities and properties for countless industries

- Lighter and stronger materials
- Anti-fouling and repair
- Corrosion resistance
- Continuous tube production
- Ballistics protection
- Improved surface friction
- Smart hybrid materials

# Titanium Industry

## 180,000/t<sup>1</sup>

Six countries



- The United States is the world's **largest** titanium metal importer (2018 ranking). In 2018, the U.S. imported 74,400 metric tons of titanium metal.
- Top three import sources: Japan, Russia, and China.



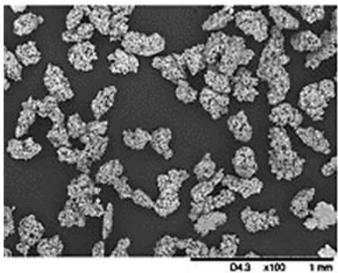
- Australia is the **biggest** titanium mineral importer to the USA. In 2018, the U.S. imported 336,602 (34.4%) tons of titanium ores and concentrates from Australia.
- Australia has the **largest** reserves of titanium minerals in the world; 250 million tones of ilmenite and 29 million tones of rutile, 28.4% and 46.7% of world's reserves respectively.

# Global Supply Chain

TKF process can utilise metal powder grades at different price points

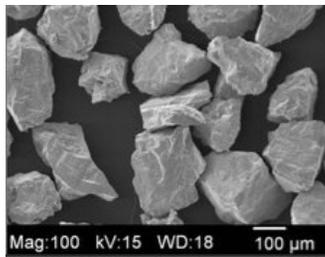
In fact the TKF process allows lower grade powders that were once unviable, to be utilized for high end, high spec products at **greater affordability, productivity and performance** (than traditional forging & casting)

**Titanium STP**



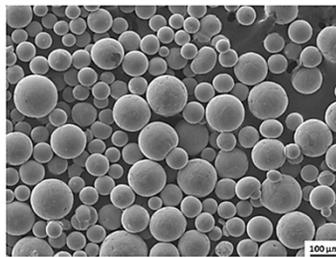
Current – R&D Phase  
Future – 40,000 tonnes

**HDH Ti Powder**



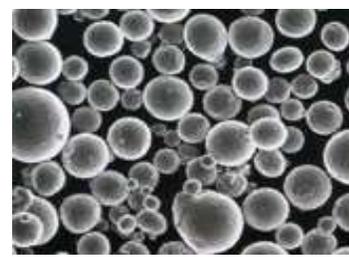
Current – 3,000 tonnes  
Future – 10,000 tonnes

**Gas Atomised Ti Powder**



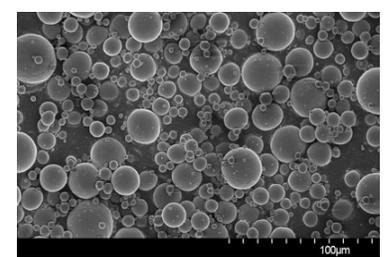
Current – 2,000 tonnes  
Future – 5,000 tonnes

**SS PREP Ti Powder**



Current – 780 tonnes  
Future – 1,200 tonnes

**Plasma Atomised**



Current – 1,000 tonnes  
Future – 1,500 tonnes

Price-Point Grade

Mid-Grade

Aerospace Grade



# Competitive Advantage



**Productivity**



**Affordability**



**Performance**

## Titanium Rifle Barrel

Target Market Size \$450m

50% Cheaper to Manufacture

69% Lighter Weight

Faster Production Time ~3.9mins

Total US Market Size US\$3.6 billion



## Invar36 Tooling

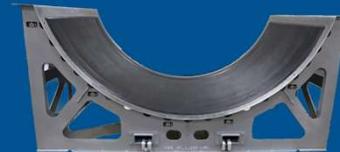
Target Market Size \$240m

75% Faster Production time

Reduced Porosity 5% → 03%

Materials Wastage down 75% → 10%

Total US Market Size US\$24 billion



# Target Segments

## AEROSPACE & SPACE

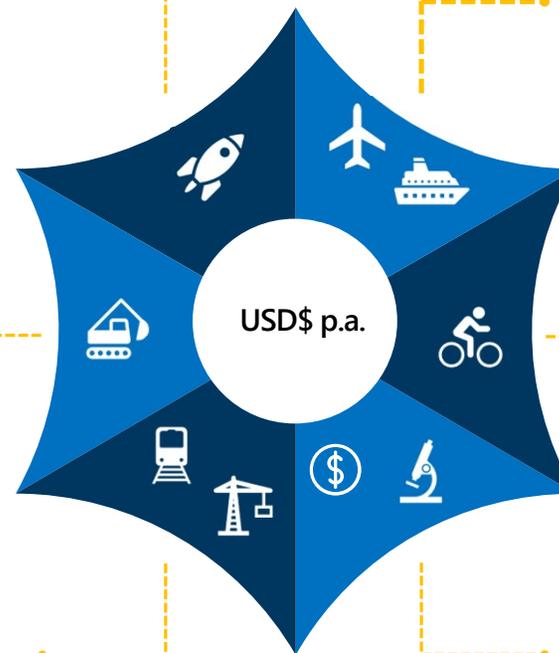
- Special coatings \$9 Billion
- Tool molds \$24 Billion
- Near net shape parts \$3.5 billion
- Space manufacturing \$72 billion

## MINING, OIL & GAS

- Pipelines \$264 Billion
- Valves & Pumps \$88 Billion

## CONSTRUCTION, TRANSPORT, AUTOMOTIVE

- Cladding & Architectural \$230 Billion
- Titanium Car Rims \$40 Billion
- Metal Parts \$84 Billion



## DEFENCE

- DoD Projects \$760 Billion
- Soldier Systems \$9 Billion
- Special coatings \$50 Billion
- Titanium Boat Hulls \$30 Billion

## CONSUMER

- Sporting Goods \$33 Billion
- Bicycles plus Parts \$52 Billion

## GOVERNMENT – R&D

Powder production and testing facilities

Near Term Market Potential (US Dollars)

# Revenue Streams

## Advisory & Prototype



### Technical Talent and Laboratory

R&D services to clients including design for manufacture, prototyping, feasibility studies, and process validation.

## OEM Manufacture



### Titomic Bureau Expansion

Titomic provides scalable OEM production to client specification at a Titomic Smart Bureau.

## TKF System Sales



### Strategic Acquisitions

Titomic offers turnkey and large, purpose-engineered systems and automated robotic production lines.

## Metal Powder Sales



### Gas Atomiser Program

Titomic supplies a cost-competitive range of metal powders for all additive manufacturing requirements.

## Project Status

Previously announced projects have all been initiated with some now moving into next phase of production trials after successful results from Phase 1 testing.

### R&D PROJECTS

20+ Completed

#### Current Projects: 38

Aerospace – 5 projects

Mining – 4 projects

Consumer Goods – 9 projects

Defence – 16 projects

Gov R&D – 4 projects

### PRODUCTION TRIALS

5+ projects completed

20+ current projects

### OEM SALES FORECAST 2020

Soldier Systems - \$2.2m

Tooling Systems - \$10m

Aerospace - \$1.6m

Defence - \$3.5m

# 3D Printing Market

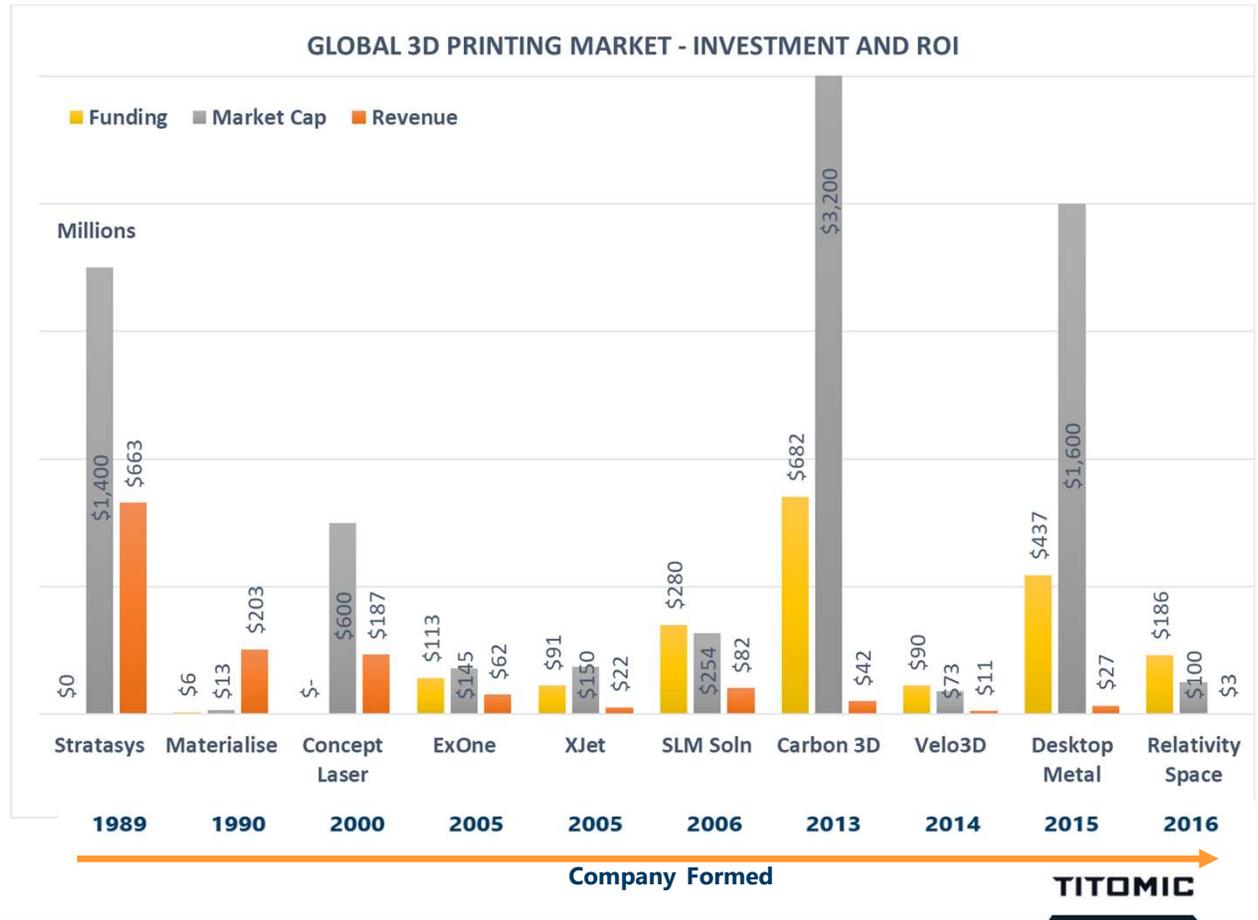
**2018**

\$10.6b

**2024**

\$49.0b

The 3D printing market was valued at USD 10.58 billion in 2018, and is expected to reach USD 49.01 billion by 2024. A CAGR of 29.48% over the forecast period 2019-2024. (Source: Mordor Intelligence)

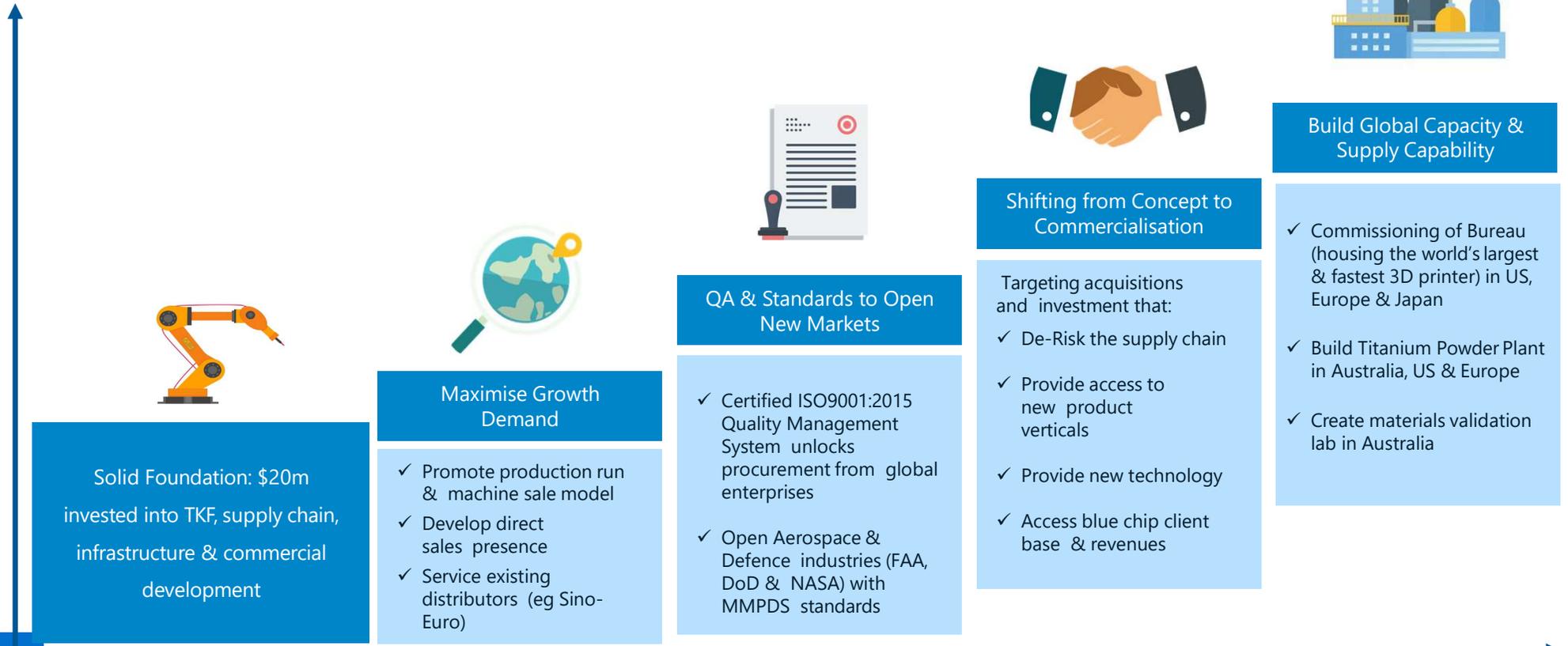


# GROWTH

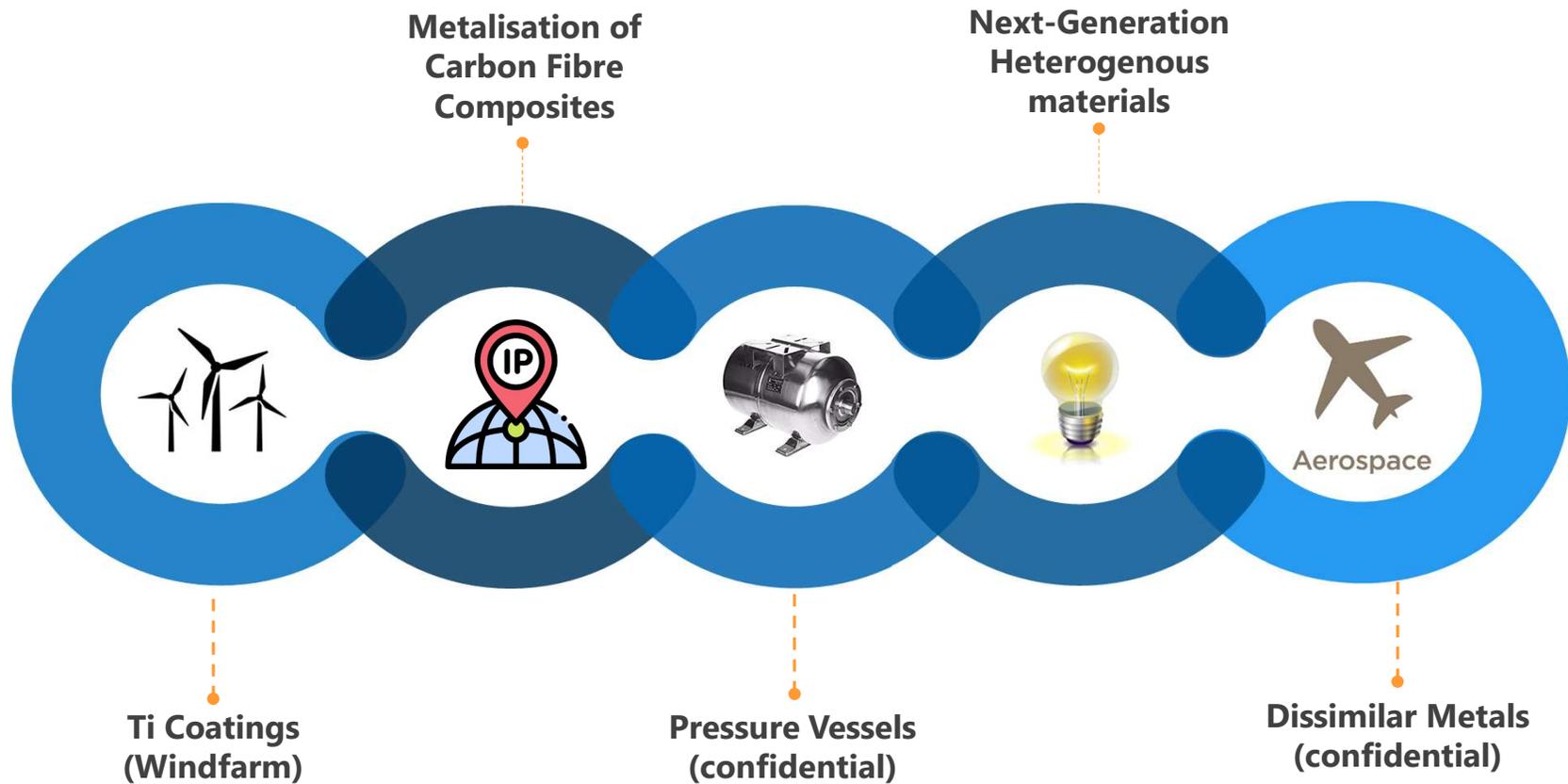
## OUTLOOK

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# Strategic Growth Plan



# Future Projects



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## Contact Us



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[@Titomic\\_Limited](https://twitter.com/Titomic_Limited)