



Corporate update – March 2018

Highlights include:

- **Titomic large printing cell, installation of robots and spraying equipment – completed**
- **Titomic manufacturing cell, installation of robots and spraying equipment line - completed**
- **Titomic on schedule to begin production trials - Q2 2018**
- **Progress update of current and new projects in key target industries**

Melbourne, Australia, 28 March, 2018: Australian metal additive manufacturing company Titomic Limited (ASX:TTT) (“Titomic” or “Company”) is pleased to provide the following update on its operational progress and business development.

Titomic’s new fully-automated manufacturing facility in Melbourne continues to progress on schedule. The Company is planning a launch event in Q2 CY 2018. The Company has progressed commercial negotiations with multiple international Defence, Mining, Oil & Gas and Industrial equipment companies to produce components with its Titomic Kinetic Fusion additive manufacturing process. Titomic’s Kinetic Fusion process continues to gain interest as an industrial scale additive manufacturing process to replace traditional manufacturing.

Photos of the installed facility equipment are included within the attached corporate update presentation.

For and on behalf of the Company;

Jeff Lang
CEO & CTO

- - - END - - -

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About Titomic:

Titomic (ASX:TTT) is headquartered in Melbourne, Australia. The company overcomes limitations of previous additive manufacturing (3D printing) for metals to manufacture complex parts without shape or size constraints. Titomic offers design and manufacturing methods to enable speed-to-market, superior products at lower production costs and using less resources for a more sustainable future.

Titomic additive manufacturing machines that can customise build size to customer requirements offer additive manufacturing advantages at industrial scale. Multiple robots can be utilised to build larger parts, competing with traditional manufacturing solutions for industries such as aerospace and defence, sporting goods, medical, automotive, industrial equipment, construction and marine.

Other benefits of the Titomic Kinetic Fusion technology include:

- Joining dissimilar metals and composites for engineered properties in a structure
- Stronger structures without welding, folding or bending
- Reduced time to market; no tooling, industry-leading production speeds

Clients will be offered a licence to manufacture via the Titomic Kinetic Fusion technology. Titomic's revenue model will also provide clients with R&D prototyping services, Titomic equipment sales, powder and consumables supply, equipment service and maintenance. For more information visit: www.titomic.com

Forward-looking statements:

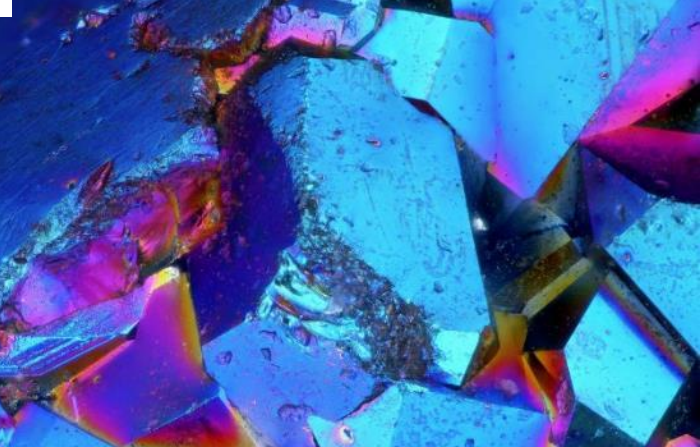
Certain statements made in this release are forward-looking statements and are based on Titomic's current expectations, estimates and projections. Words such as "anticipates," "expects," "intends," "plans," "believes," "seeks," "estimates," "guidance" and similar expressions are intended to identify forward-looking statements. Although Titomic believes the forward-looking statements are based on reasonable assumptions, they are subject to certain risks and uncertainties, some of which are beyond Titomic's control, including those risks or uncertainties inherent in the process of both developing and commercialising technology. As a result, actual results could materially differ from those expressed or forecasted in the forward-looking statements. The forward-looking statements made in this release relate only to events as of the date on which the statements are made. Titomic will not undertake any obligation to release publicly any revisions or updates to these forward-looking statements to reflect events, circumstances or unanticipated events occurring after the date of this release except as required by law or by any appropriate regulatory authority.



Industrial Scale Additive
Manufacturing



Corporate Update
March 2018



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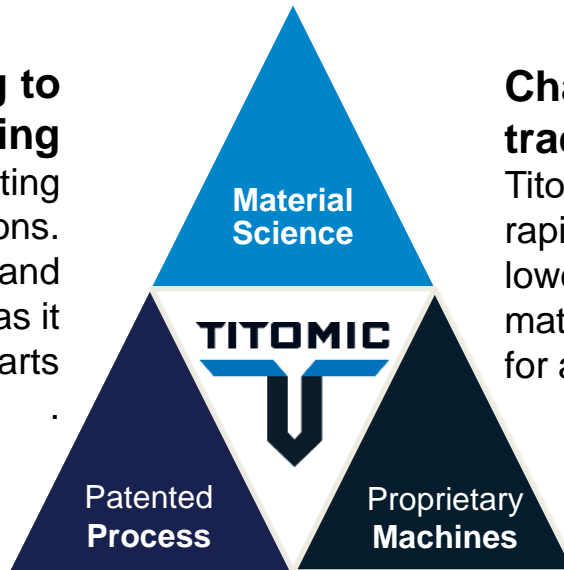


Titomic Kinetic Fusion

Industrial scale advanced manufacturing systems.

Taking 3D Metal Printing to large scale manufacturing

Titomic overcomes metal 3D printing size, speed and oxidation limitations. Titomic offers the worlds fastest and largest metal 3D printing builds as it uses kinetic fusion to form metal parts



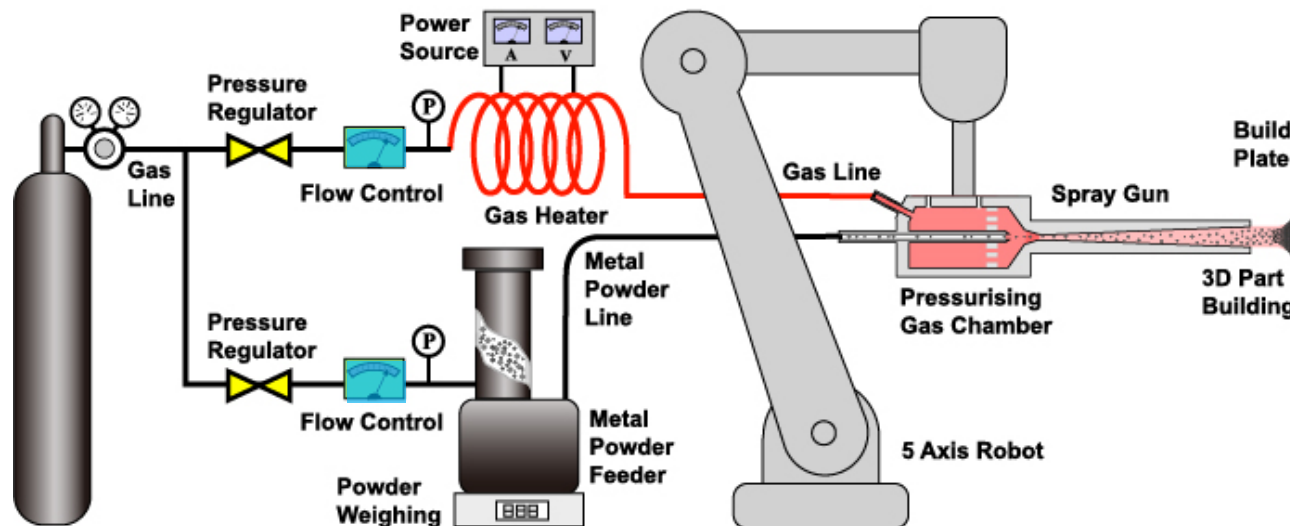
Challenges the core of traditional manufacturing

Titomic's Kinetic Fusion system offers rapid prototyping, superior products at lower production costs and reduction in material waste. Utilising less resources for a sustainable and green tech future.

How does Titomic Kinetic Fusion work

Titomic Kinetic Fusion is a patented process co-developed with the CSIRO. Based on a coatings technology used on aircraft and industrial equipment repair, the manufacturing process involves accelerating metal powders to supersonic speeds onto a surface, fusing on impact to form a 3D load bearing structure.

- Fastest deposition rates of up to 45 kg/hr. Can be faster with multiple robotic heads
- Does not require an inert booth environment
- Cold process – no melting of metal involved, materials retain their properties and are comparable to cast and wrought material
- Process which can fuse a broad range of materials : metals, composites (ceramics) to create superalloys and hybrid materials and fuse dissimilar materials
- Utilises irregular shaped powders in comparison to costly refined powders all 3D printers use



Comparisons between manufacturing

Conventional methods capabilities	Titomic Kinetic Fusion capabilities	Additive Manufacturing / 3D Printing capabilities
Large Production Volumes	Prototyping, short runs scalable to large production volumes Faster production than conventional and AM	Prototyping, short runs/low volume, slow production
Low Material Cost	Lower material cost than all AM/3D Printing Less material than conventional methods	High material costs
Centralised manufacturing	Decentralised or remote manufacturing i.e. Space station, military base, research site	Distributed or remote manufacturing
Materials fabricated by forming, casting, machining, stamping	Difficult or impossible to fabricate dissimilar materials, obsolete parts	Difficult or impossible to fabricate materials
Low transportation and logistics costs	Medium transportation & logistics costs	High transportation and logistics costs
Low fabrication costs	Medium fabrication costs	High fabrication costs
Simple flat shapes or geometry from run-of-the-mill wrought materials	Unique materials, complex geometries, very large parts	Unique materials, very complex geometries, limited size
Consolidation of parts not feasible	Consolidation of complex assemblies into single complex part	Consolidation of complex assemblies into single complex part
Machined or ground surface finishes	Machined or rough surface finishes	Rougher surface finishes

Board with advanced manufacturing experience



Philip Vafiadis : Chair & Non-Executive Director

Executive Chair of Innovyz, Australia's leading tech. commercialisation firms
Founder & Chair of VAF Research, manufacturer of high fidelity speaker systems
Co-founded ZEN Energy, one of Australia's fastest growing companies
Founding member & Director of Australian Transformation & Turnaround Association



Jeff Lang : CEO & CTO

30 years' in composite manufacturing & advanced materials technologies in Australia, Europe and Asia.
VP & Technical Director, Matrix Sports Co. Led company to global leadership in composites sporting goods manufacturing. Matrix Sports is a JV between Force Industries and Heli Group China.



John Barnes : Non-Executive Director

25 years' experience in aerospace product development, strategy and program leadership positions with Honeywell, Lockheed Martin, Australia's CSIRO and Arconic. Recognised internationally for contributions in aerospace additive manufacturing. Expertise in airframe structures, gas turbines, stealth technology, materials and powders development, technology implementations on F-22, F-35 and Airbus A350.



Richard Wilson : Independent Non-Executive Director

20 years' experience as CFO, Company Secretary, Director within resources, agricultural sectors for ASX listed, private and MNCs. Company Secretary for Wilgena Resources and Beston Global Food Company, Non Executive Director for Aus Tin Mining and Unity Housing Company.



Richard Fox : Non-Executive Director

Co-founder of Force Industries, leading manufacturer of composite sports board.
Former Chair and Director of Meditech Research, Director of Research at St Vincent's Hospital, Director of Clinical Haematology and Medical Oncology, Royal Melbourne Hospital. Inaugural Chair of the Cancer Research Centre for Cancer Therapeutics. Awarded the Order of Australia in 2007.

The operational team

Jeff Lang : CEO & CTO

Rhys Jones: Structural Mechanics & Integrity Advisor



Trent Mackenzie : GM of Business Development, Aerospace & Resources Division

Metallurgist with 40 years' experience in aerospace, oil & gas, chemical and power generation sectors, extensive experience in titanium & metal alloys. Former MD for 2 regions at Allegheny Technologies International, global leader in titanium. Responsible for developing Titomic's profile within key markets, provide metallurgical validation and key role in new market expansion opportunities.



Peter Vaughn: CFO & Company Secretary

Chartered Accountant with 13+ years experience with listed companies across a range of industries. Served and provided accounting, administration and compliance and general management services to a number of private and not-for-profit and public company boards of directors and related committees.



Leon Gairns: GM of Research & Development

Engineer with 20 years' experience in design, process and manufacturing operations. Held roles in project management, design, additive manufacturing for leading electric automaker and other automotive OEMs Toyota, Ford and General Motors. Project experience in aerospace, industrial and medical sectors, Responsible for project delivery of Titomic's bespoke R&D projects across various industries



Mich Mak: GM of Investor Relations & Marketing

Marketer with 18+ years' experience managing brand, communications, CRM and digital for tech brands O2, Sony Ericsson and Dassault Systemes. Held project management roles in industrial coatings within Oil & Gas and Mining sector. Part of executive team in O2 and is a committee member on the Victorian Defence Alliance. Responsible for marketing, investor relations & developing Titomic's profile within key industries.



Peter Teschner: GM of Bike Division

One of the most experienced bicycle designers in the industry with 25+ years' experience. Referred to by peers as 'Master Craftsman' working with the finest materials; titanium, scandium alloys and carbon fibre. Responsible for design and bike manufacture to position Titomic as the leading edge of the cycling industry.



Vahram Papyan: GM of Projects & Analytics

Held project and operation management positions in the European mining industry and had experience in procurement and contract management. Responsible for project management and business analysis.

Capital Structure

Ordinary Shares on Issue	113,298,217
Class A Performance Shares*	10,000,000
Class B Performance Shares**	10,000,000
Options	2,005,000
IPO Funds Raised	\$6.5m
Market Capitalisation (27/03/2018)	\$144.4m

* **Milestone 1:** Share price must be more than 150% of IPO price and quarterly revenues must be at least \$1m for two consecutive quarters, within 3 years of IPO.

** **Milestone 2:** Market Capitalisation more than \$100m, and quarterly revenue must be at least \$2m for two consecutive quarters, and must have issued at least 30 product licences, within 3 years of IPO.

Major Shareholders

Holder	Shares	%
Richard Fox (<i>Founder</i>)	27,944,012	24.7%
Jeff Lang (<i>CEO</i>)	10,004,342	8.8%
Tim Fox (<i>Founder</i>)	8,626,646	7.6%
PAC Partners	5,819,050	5.1%
Innovyz (<i>Founder</i>)	5,375,000	4.7%

Founders and Board **46.5%**

Share price performance



Business model

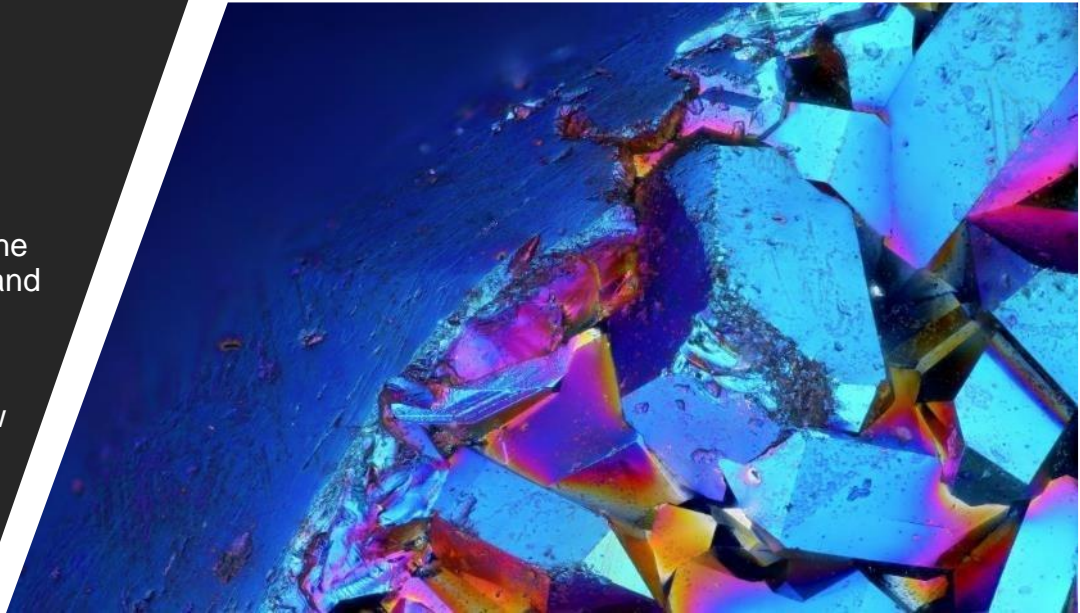
- Titomic is targeting the sales of Titomic Systems (machines and powders) with the validation of Titomic Kinetic Fusion process for clients' manufacturing requirements to 3D print large complex parts through R&D prototyping services. Servicing and maintenance will be another revenue source
- Clients will be offered a licence to manufacture these parts

R&D Prototyping Service	Titomic Equipment Sales	Consumables Supply	Service & Maintenance
<ul style="list-style-type: none"> • Fee for service prototyping for clients • Titomic manufactures client product/part • Client offered a licence to manufacture with Titomic process • In the early stages of business model it is intended that the Titomic service bureau will generate a significant portion of sales revenue 	<ul style="list-style-type: none"> • Titomic design, commission and install machinery • Titomic System sales are intended to be a major revenue channel in the first 5 years of commercial operations 	<ul style="list-style-type: none"> • Supply Titomic branded powders and machine consumables (spray nozzles and powder feeders) • Metal powder and consumable sales are intended to be a major long term, highly profitable, revenue stream from Titomic Systems' customers 	<ul style="list-style-type: none"> • Titomic will offer a preventative maintenance programme for Titomic equipment • Servicing and upgrades to equipment according to client requirements

Powders

The Titomic Kinetic Fusion process fuses metals and composites together to form metal solids and hybrid materials, creating parts with engineered properties **not available with any other manufacturing technology**

- Most aviation grade parts utilise powders costing a minimum of US\$200 per kg and up to US\$800 per kg for specialised purposes
- Titomic offers a range of cost-effective metal alloy powders for additive manufacturing, including proprietary titanium alloy powders for use with Titomic machines
- Unrefined Titanium powder costs less than refined powders at approximately US\$20-50 per kilogram
- Existing additive manufacturing systems cannot currently utilise these unrefined powders
- Many manufacturers still use alloys developed in the 1960s. Titomic can re-define alloying parameters and create new super alloys for industry applications
- New super alloys mean customers can launch new superior products with the Titomic Kinetic Fusion process



Target industries – Current

Titomic has the commercial rights to exploit the licenced patents in the US, China, Japan, NZ and Australia in the following industries. Europe to follow.



1. Aerospace @ \$8bn

- Primary target titanium (Ti) raw market worth \$3.4bn pa
- Secondary target composites @\$2.7bn pa for 787 & A350 production
- Tertiary target superalloys @\$1.9bn pa



2. Military in Australia @\$7.3bn + \$1.5bn in exports

- Australian defence autonomous systems /drones ~\$50m pa
- Submarine, future frigate and offshore patrol vessel market is ~\$7.2bn pa
- Material for ballistics protection & high temperature resistance
- Large seamless fuselage or monocoque wing for drones & submarines



3. Sporting & Consumer Goods @\$33.7bn

- Primary target mountain / racing and road bikes worth \$11bn pa
- Golf club market worth \$4.7bn pa
- Luggage (Travel & Business bag) market worth \$18bn pa



4. Marine in Australia @\$2bn, in Germany @\$5bn

- Primary target catamarans / sailboats & full cabin cruisers \$2bn pa
- Secondary target repairs for corrosion resistance, anti-fouling



5. Mining, Oil & Gas and Power @\$7.8bn

- Target rail tracks, machinery, tanks, pumps, valves and wind turbines repair and preventative maintenance
- Industrial & Mining equipment @ \$2.1bn in Australia alone

Current target industries and progress

Industries	Companies	Project	Contract Schedule
Consumer & Sporting Goods	• Major USA Bike brand	• Titanium bike frames	• R&D project commenced
	• Major USA Golf brand	• Super alloy golf clubs	• R&D Q2'18 project leading to machine & powder sales
	• Local Australian Bike brand	• Titanium tubesets	• R&D Q2'18 project leading to machine & powder sales
	• Major Taiwan Bike brand	• Super alloy bike parts	• R&D Q2'18 project leading to machine & powder sales
	• European Luxury Luggage OEM	• Titanium luggage	• R&D Q3'18 project leading to contract manufacturing
Aerospace	• European Aerospace OEM	• Airframe components & Alloy/CFRP coatings	• Current R&D trials leading to a licensed supply contract Q2'18
	• US Aerospace Prime	• Space & Satellite hypersonic coatings	• Scoping project leading to R&D machine & powder sales
	• US Aerospace Prime	• Additively manufactured Titanium aircraft parts	• Consultation on Q3'18 R&D trials leading to machine & powder sales
Resources: Mining, Oil & Gas, Industrial	• AU Mining & Oil & Gas Engineering Services Co.	• High performance coatings for valves	• R&D project commenced
	• AU Mining & Mining Services Co.	• Titanium bucket teeth and underground wear products	• Consultation on Q2'18 R&D leading to machine & powder sales
	• AU leading pumps manufacturer	• Pump components design and manufacture	• Consultation on Q3'18 R&D leading to machine & powder sales

Current target industries and progress

Industries	Companies	Project	Contract Schedule
Government / R&D Org.	• Leading Asian AM R&D centre	• Powder qualification	• R&D Q2'18 consultancy project
	• South East Asian government	• Powder supply	• R&D Q3'18 consultancy project leading to machine sale
	• Central Asian government	• R&D Machine	• Set up of AM centre
Defence	• European Defence, Oil & Gas, Marine & Space OEM	• Titanium Armament components	• Consultation on Q3'18 R&D trials leading to machine & powder sales
	• Australian Defence Co.	• Steel Armament components	• Prototype project commenced, leading to Q2'18 volume production
	• South East Asian OEM	• Titanium panels	• Consultation on Q2'18 R&D trials leading to volume production
	• US Defence Prime	• Engineering consultancy	• Onsite engineering consultancy project in Q2'18 leading to R&D
	• European Naval OEM	• Super alloy & ballistic components	• Scoping project leading to R&D machine & powder sales
Marine	• AU ship builder	• Maintenance project leading to machine sales	• Maintenance project leading to machine & powder sales

Titomic facility update

Providing clients with a bureau to **manufacture prototypes & products**

Titomic large printing cell *World's largest metal 3D printer*

Installation of production line

Installation of robots completed

Installation of spray equipment completed

Titomic manufacturing cell *World's fastest Metal 3D production line*

Installation of production line

Installation of robots completed

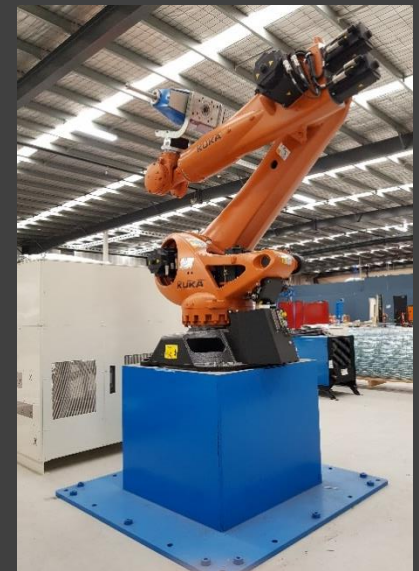
Installation of spray equipment completed

Finalisation of Titomic facility

Factory power supply upgrade Apr'18

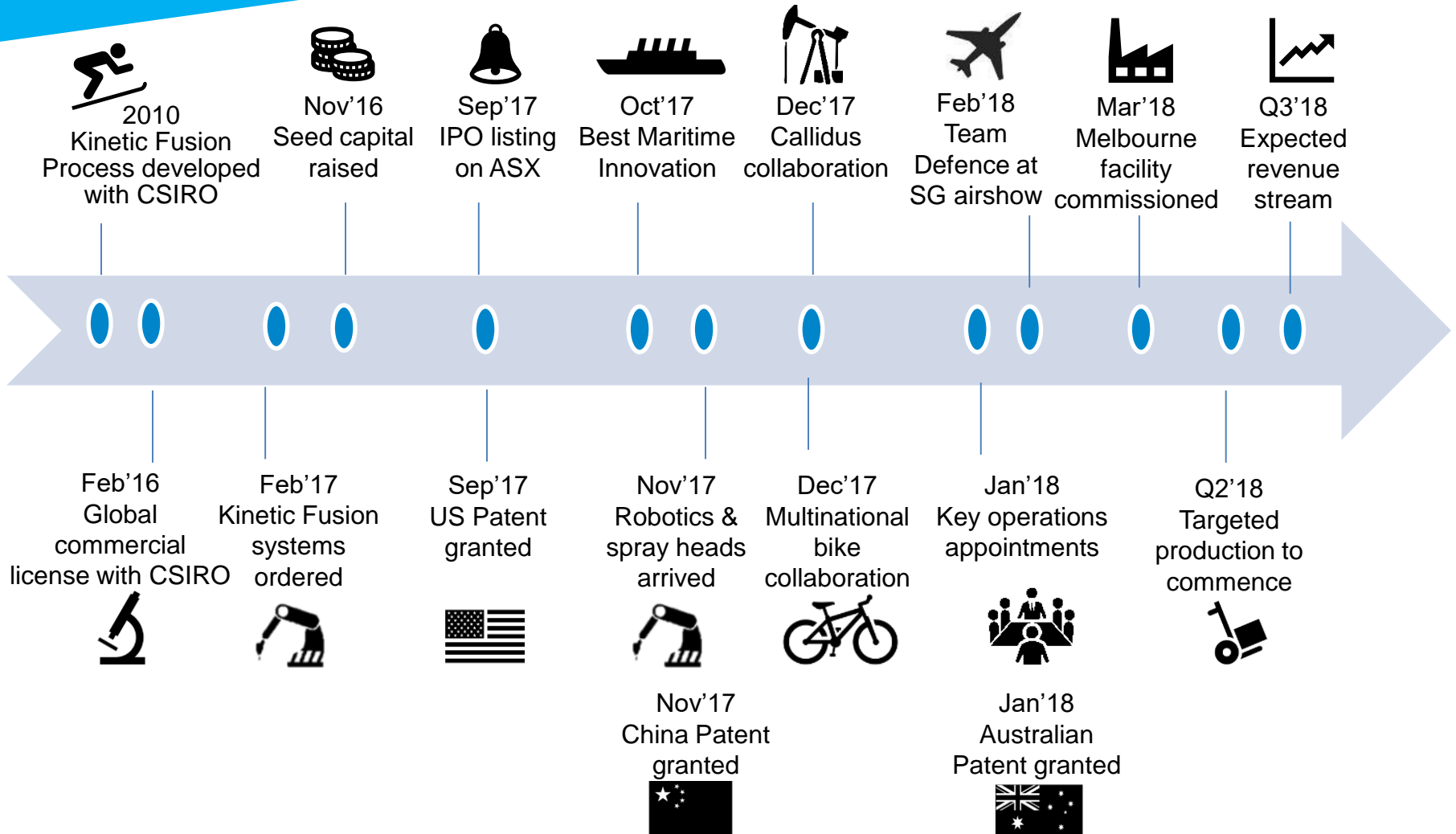
Dust extraction system Apr'18

Installation of sound enclosure booths Apr'18



Titomic is planning a media launch and production to commence in Q2 2018

Milestones



Titomic goals - 2018

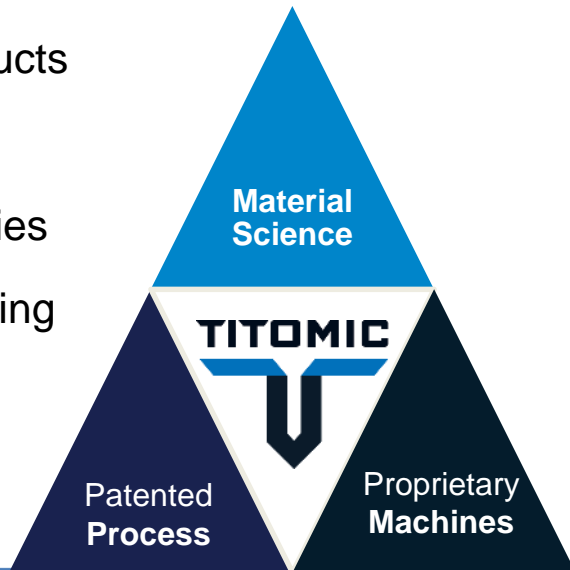
Goals	What
Sales	<ul style="list-style-type: none">• Facility open in Australia and commence production in Q2• Sale of 1st system in 2018• Achieved 10 product licenses by 2018
Revenue	<ul style="list-style-type: none">• Secured 2 collaborative agreements to date• Secure additional contracts for Q2 deployment• Achieve revenue stream in Q3 2018
Product	<ul style="list-style-type: none">• Both manufacturing and R&D systems operational by Q2• Continue new product development• Commence powder supply and distribution
Market	<ul style="list-style-type: none">• Raise profile of Titomic in key geographies• Continue to build pipeline via key trade shows, partnerships and other marketing initiatives
Corporate	<ul style="list-style-type: none">• Increase investor profile for Titomic• Appoint key people across sales, operations and management teams



Summary



- Melbourne facility is commissioned with world's largest metal 3D printer
- Titomic has the fastest manufacturing solution for large metal products
- Key differentiator: no melt process = no oxidation, no distortion and no size constraints = industrial scale manufacturing
- Traditional manufacturing is energy and material intensive and not sustainable, Titomic process is more energy, cost and material efficient
- Highly experienced advanced manufacturing board & operational team
- International patented process developed with CSIRO
- Super alloys and smart materials = superior products
- R&D and production to start in Q2 CY2018
- Applications across a very broad range of industries
- Achieved 3 agreements in diverse markets including Sporting goods, Mining Engineering and Defence



Titomic

Industrial Scale
Additive Manufacturing

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Connect with Titomic:      

Operations update since listing in Sep'17

October 2017

- Won Best Maritime Innovation Award at Pacific'17 International Maritime expo, confirming new revenue market



November 2017

- Chinese patent approved

December 2017

- First collaborative agreement with mining and oil & gas engineering services company, Callidus Welding Solutions, part of the Callidus Group, to start in February'18
- Collaborative agreement with multinational bicycle company
- Appointment of key operational staff including:
 - Leon Gairns, GM of Research & Development
 - Peter Teschner, GM of Bikes Division



January 2018

- Appointment of key operational staff and director
 - Trent Mackenzie, GM of Aerospace & Resources Division
 - John Barnes, Non Executive Director
- Australian patent approved



February 2018

- Exhibited at Singapore airshow as Team Defence Australia

March 2018

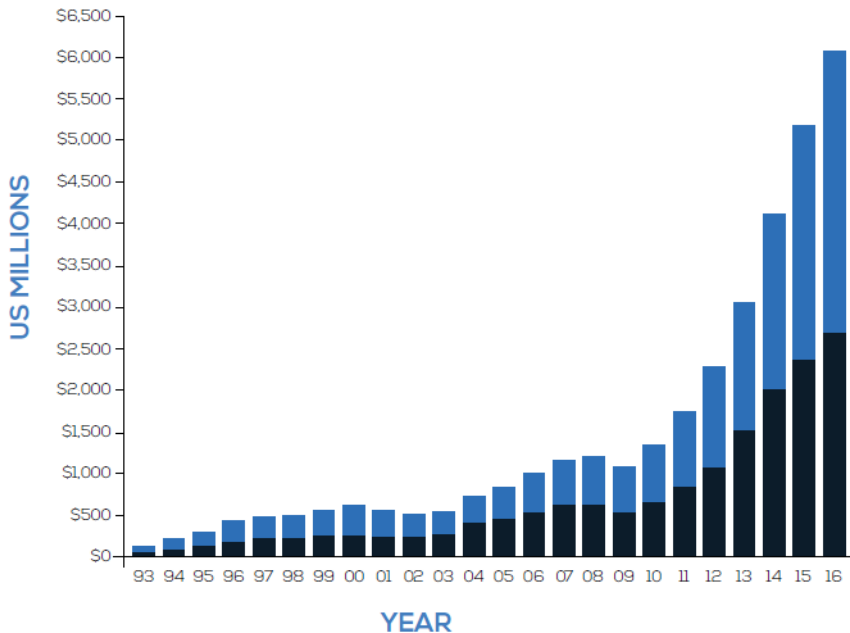
- Prototype project signed with defence customer
- Melbourne facility commissioned

Additive Manufacturing Market Growth

The additive manufacturing industry is expected to grow from \$6.1 billion in 2016 to approximately \$26.2 billion by 2022 (Wohlers Associates, Inc).

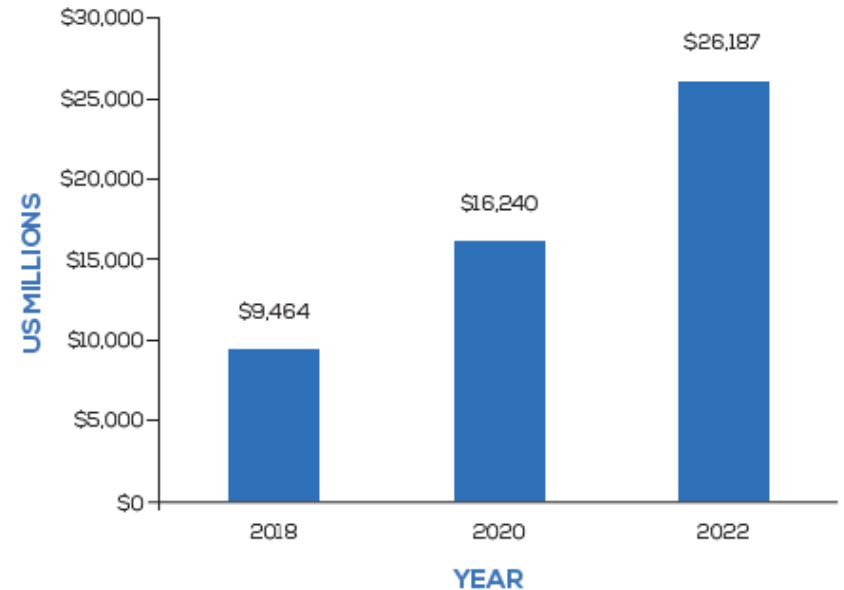
By 2018 the industry is forecast to reach nearly \$9.5 billion worldwide.

Additive Manufacturing 1993-2016




Source: Wohlers Report 2017

Additive Manufacturing 2018-2022



Source: Wohlers Report 2017

 Additive Manufacturing products, systems and material sales

 Additive Manufacturing Services.

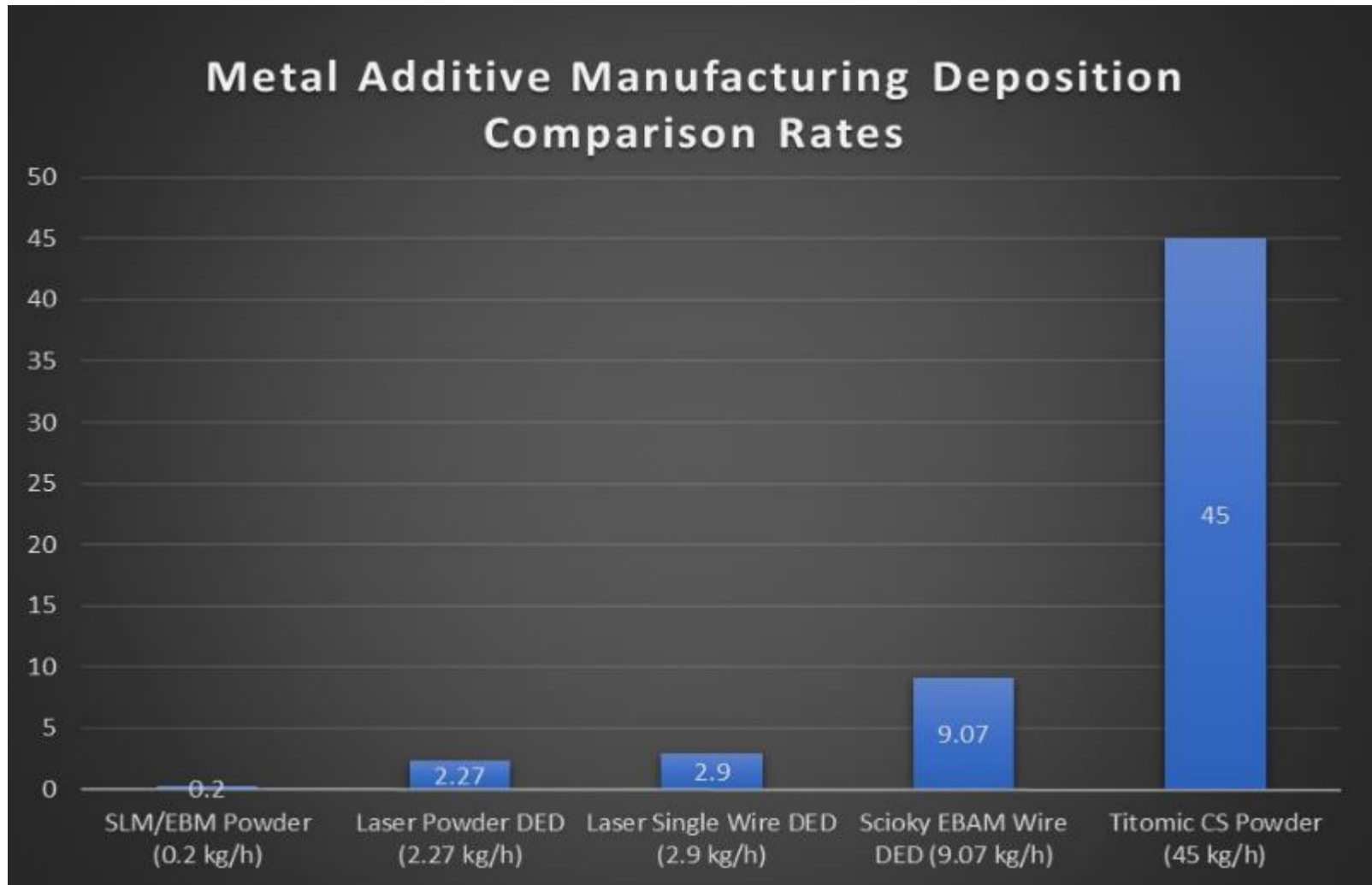
Peers

Company	Business Description
PyroGenesis NASDAQ: PYRNF	Supplies titanium and other metal powders using patented Plasma Atomisation Process
Aurora Labs ASX: A3D	Designs, develops & manufactures 3D printers, 3 different models of printers intended Build Size: 20x20x50cm (0.02m ³)
Voxeljet NYSE: VJET	Manufacturer of 3D printers and prototyping services, Offers 6 different printers. Build Size: 30x20x15cm (0.01m ³) to 4x2x1m (8m ³) Max speed 0.12 m ³ /hr
ExOne NASDAQ: XONE	Designs, develops & manufactures 3D printers, Offers 5 different printers. Build Size: 17x7x7cm (0.001m ³) to 2.2x1.2x0.7m (1.8m ³) Max speed 0.4m ³ /hr
SLM Solutions DB: AM3D	Develops & manufactures 3D printers, supplies powders, Offers 3 systems. Build Size: 13x13x8cm (0.001m ³) to 50x28x33cm (0.05m ³) Max speed 0.001m ³ /hr
Materialise NASDAQ: MTLA	Materialise primarily provides additive manufacturing software solutions (60%) for the medical sector, and prototyping services (40%)
Stratasys NASDAQ: SSYS	Offers complete manufacturing solutions; designs & develops 3D printers, supplies powders, and other services. Offers 20 printers for various uses. Build Size: 49x39x20cm (0.04m ³) to 1x0.8x0.5m (0.4m ³)
3D Systems NYSE: DDD	Designs & manufactures 3D printers, supplies powders, software and manufacturing services. Offers 5 classes of printers, each with several models. Build Size: 10x10x10cm (0.001m ³) to 28x28x42cm (0.03m ³)
Renishaw LSE: RSW	Diversified advanced manufacturer, predominantly related to metrology, also designs & develops 3D printers. Offers 3 types of printers. Build Size: 25x25x30cm (0.02m ³) to 25x25x35cm (0.02m ³)
Titomic ASX: TTT	Commercialisation of 3D printer, and prototyping services. Build Size: 9x3x1.5m (40.5m ³) Max speed, intended 200kg /hr

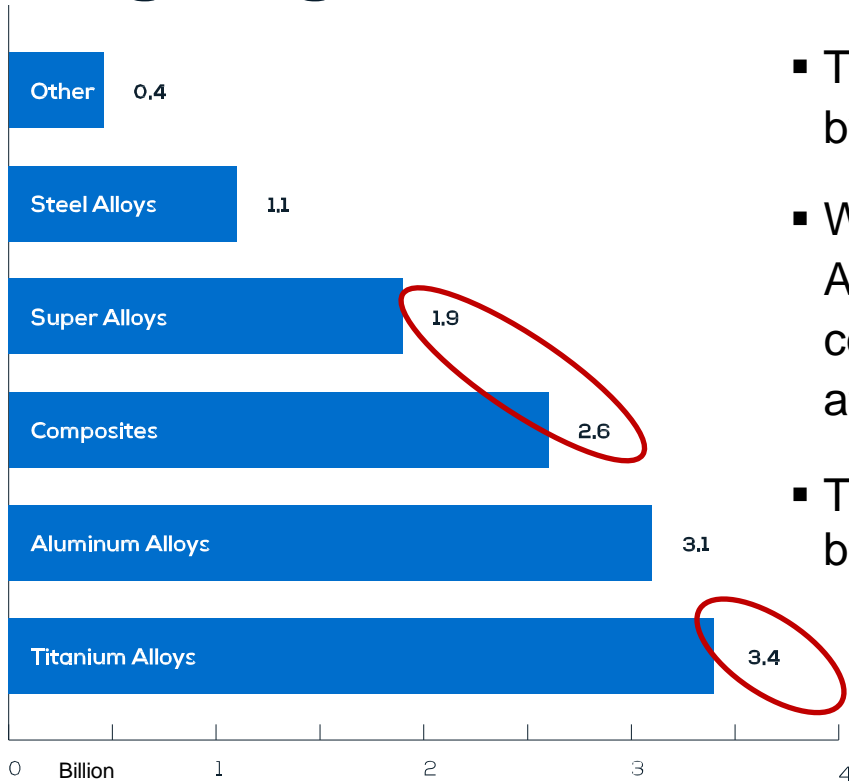
Additive manufacturing technologies

AM Technologies	Description	Max. Size	Max. Speed	Brands
Titomic Kinetic Fusion	All metal powder shot at supersonic speeds causing metal particles to fuse with surface to create 3D part	9 x 3 x 1.5 m no size limitation	Up to 45 Kg/hr for 1 robot, faster with more robots	Titomic
Selective Laser Melting (SLM)	Powder deposited layer by layer on build bed and melted with laser, fusing loose powder to layer below	80 x 40 x 50 cm 250 x 250 x 325mm 248 x 248 x 285mm 500 x 280 x 365mm	0.2 kg/hr 100cm ³ /hour 20cm ³ /hour 171cm ³ /hour	Concept Laser EOS Renishaw SLM Solutions
Direct Energy Deposition (DED)	Powder or wire feedstock is extruded through nozzle and melted by electron beam or laser with both print nozzle and print bed moving	5.78 x 1.2 x 1.2m 20 x 20 x 50 cm 90 x 60 x 30 cm	9.07 kg / hr 17cm ³ /hr	Sciaky EBAM Aurora Labs Norsk Titanium
Electron Beam Melting (EBM)	Powder layers melted together with electron beam	350 x 350 x 380mm	80 cm ³ /hr 0.2 kg/hr	ARCAM
Binder Jetting	Liquid bonding agent selectively deposited to join powder materials, then sintered to remove agent between, leaving metal particles	800 x 500 x 400mm 180 x 100 x 70cm	8000cm ³ /hour 60,000cm ³ /hour	Desktop Metal ExOne
Nano Particle Jetting	Metal reduced to nano-particles and blended with liquid jetting agent. Liquid metal-agent blend is jetted on build plate in a heated chamber, evaporating jetting agent, leaving metal particles	500x140x200mm	408mm ³ /hour	Xjet

Titomic is the fastest metal 3D printer



Targeting \$8bn out of \$12.4 bn Aerospace market



Source: ICF Analysis



- Titanium is the largest material market by value at \$3.48B
- With 787 production ramping up, and A350 long-lead items under production, composites are the third largest category at \$2.68B
- The value of superalloys is \$1.98B driven by aero-engine production

Titomic technology can fuse metals and composites to create hybrid materials



Table 6: Summary of key investment decisions from FY 2016–17 to FY 2025–26

Program title	Program Timeframe	*Approximate investment value
Hobart Class Air Warfare Destroyer (3 ships)	Approved	\$9.1bn
P-8A Maritime Surveillance and Response Aircraft (8 aircraft) and facilities	Approved	\$4.8bn
MH-60R Naval Anti-Submarine Warfare Helicopter (24 helicopters)	Approved	\$1.9bn
Additional Maritime Surveillance and Response Aircraft (4 aircraft)	Scheduled for approval†	\$1bn–\$2bn
Maritime Communications Modernisation	Approved	\$410m
Sea Sparrow Missile Upgrade	Approved	\$330m
Anzac Class Frigate Electronic Support System Improvement	Approved	\$210m
Future Frigate Program – Evaluation	Scheduled for approval†	\$100m–\$200m
Collins Submarine – Sonar Replacement	Scheduled for approval†	\$100m–\$200m
Future Submarine Program – Evaluation	Scheduled for approval†	Less than \$100m
Offshore Patrol Vessel – Evaluation	Scheduled for approval†	Less than \$100m
Future Submarine Program – Design and Construction	2018–2057	>\$50bn
Future Frigate Program – Design and Construction	2017–2040	>\$30bn
Future Submarine Program – Weapons and Systems	2018–2045	\$5bn–\$6bn
Destroyer Program – Combat System	2017–2028	\$4bn–\$5bn
Maritime Anti-Ship Missiles and Deployable Land-based Capability	2018–2037	\$4bn–\$5bn
Offshore Patrol Vessel – Design and Construction	2016–2033	\$3bn–\$4bn
Maritime Area Air Defence Weapons Program	2025–2040	\$3bn–\$4bn
Future Frigate Program – Weapons	2020–2044	\$3bn–\$4bn

Source : Australian Government Department of Defence 2016 Integrated Investment program

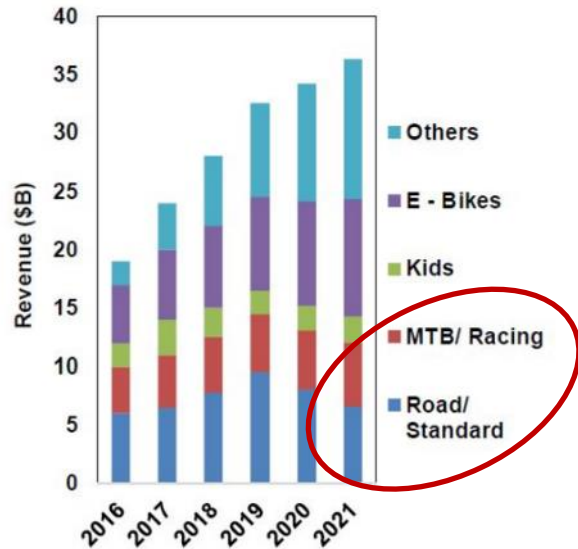
Defence

Rank	Tier 1 target countries	Expenditure \$bn	% of GDP
1	United States	611.2	3.3
6	France	55.7	2.3
7	UK	48.3	1.9
9	Germany	41.1	1.2
11	Italy	27.9	1.5
12	Australia	24.3	2.0

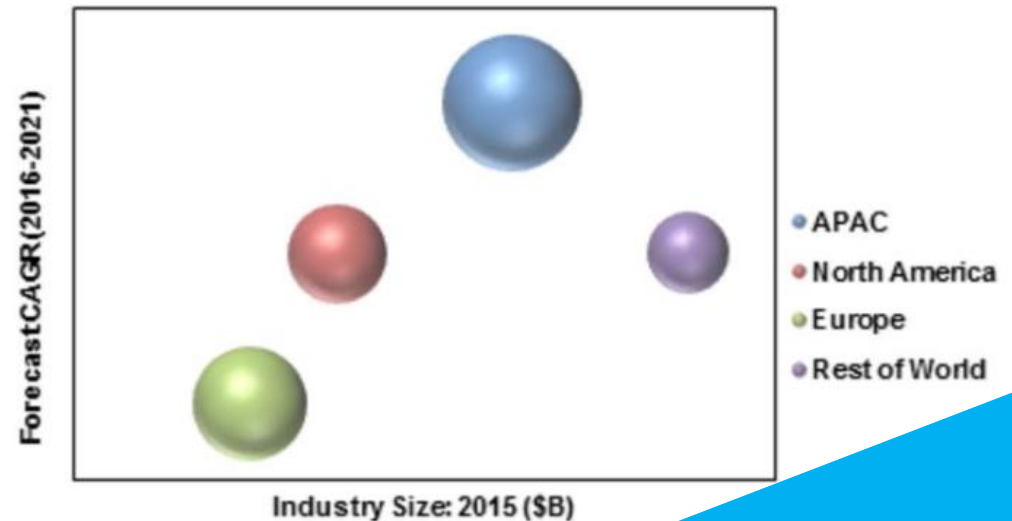
- Targeting the manufacture of large vehicles and defence systems including armaments, armoured land vehicles, naval vessels including submarines, and aircraft & aerospace systems.
- Australia will invest \$195 billion over the next decade to upgrade defence capabilities – a large part of it would be for naval
- Incorporating Titomic in just 1 submarine, 1 future frigate and 1 offshore patrol vessel is already a **\$7.25bn** market.
- The government announced \$50 million funding for defence and industry to develop autonomous systems
- **Titomic has identified key defence capabilities:**
 - Superior material for ballistics protection
 - Large seamless fuselage or monocoque wing
 - Structures with highest strength to density ratio
 - High temperature resistance
 - Corrosion resistance for aggressive environments
 - Anti-fouling

Targeting \$11bn out of \$24bn Bike market

Forecast for the Global Bicycle Industry by Segment from 2016 to 2021- Random Data



Growth Opportunities in the Global Bicycle Industry by Region (2016-2021) - Random Data



Global Bicycle market expected to reach \$59.9 billion by 2021

Titomic is in the process of producing a fully monocoque Titanium bike frame.

Source: Lucintel

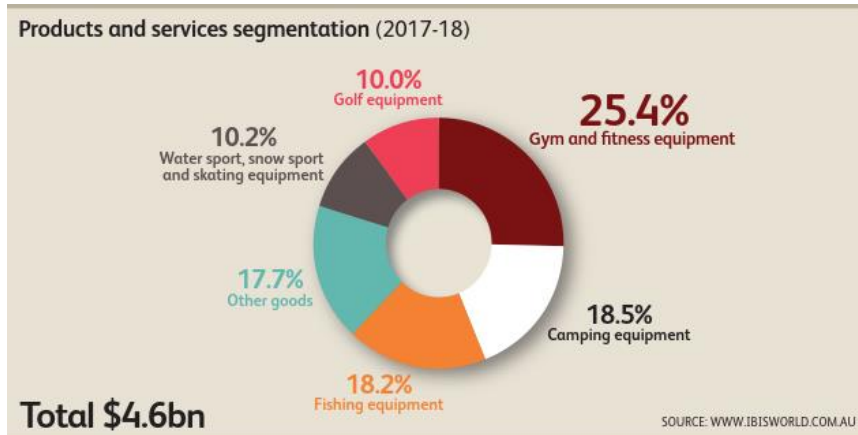
Sporting and Consumer Goods

Australian Market for Golf equipment worth \$460m pa (Figure 1)
IbisWorld, G4241, 2018

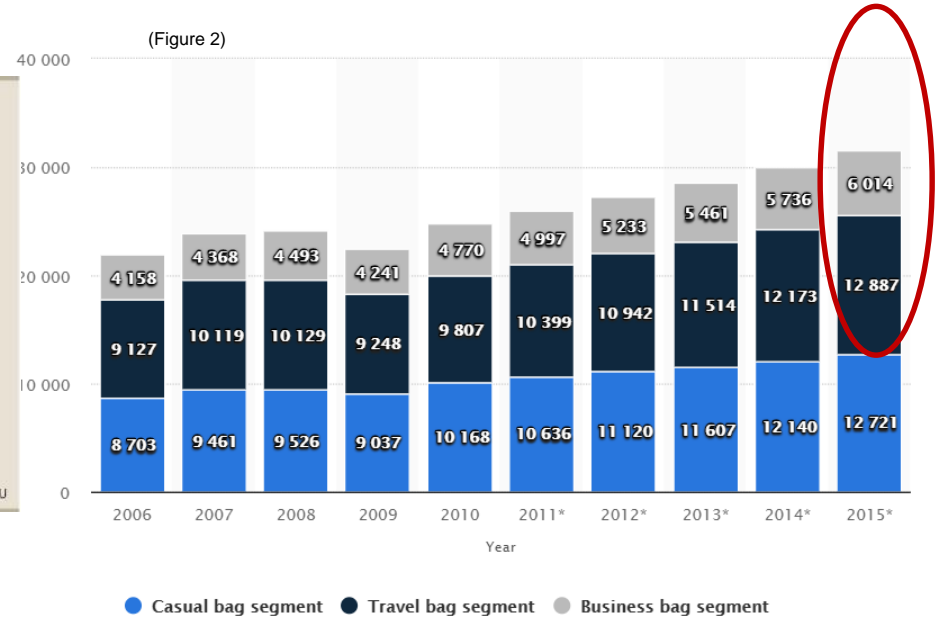
Global manufacturing market for Golf Clubs worth \$4.7 billion in 2015.
Honma Golf Limited, 2017

Global Luggage (Travel & Business bag) Market - \$18 billion (Figure 2)
Statista, Retail sales value of the global luggage market from 2006 to 2015, by segment

(Figure 1)



(Figure 2)



Marine

Titomic's key marine capabilities include:

- Large seamless fuselage
- High strength to density ratio structures
- Corrosion resistance
- Anti-fouling

MARINE EXPORTS

Products and Services Segmentation 2014/15²

Half-cabin cruisers

27.7%

Open runabouts

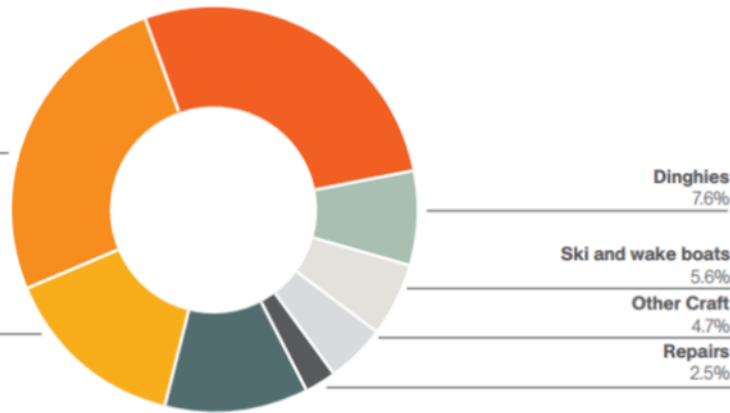
25.8%

Sailboats and catamarans

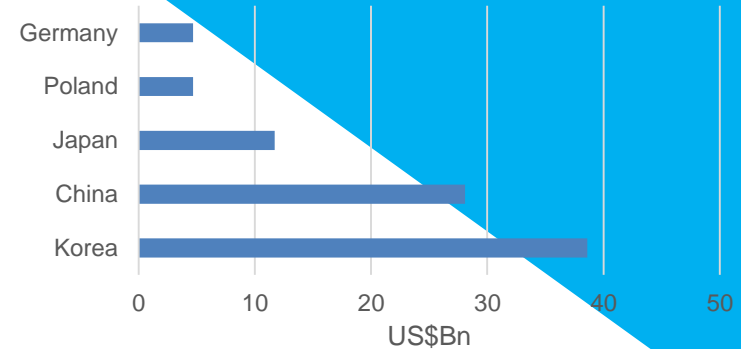
14.8%

Full-cabin cruisers

11.3%



Global Yearly Export – US \$117bn (2015)



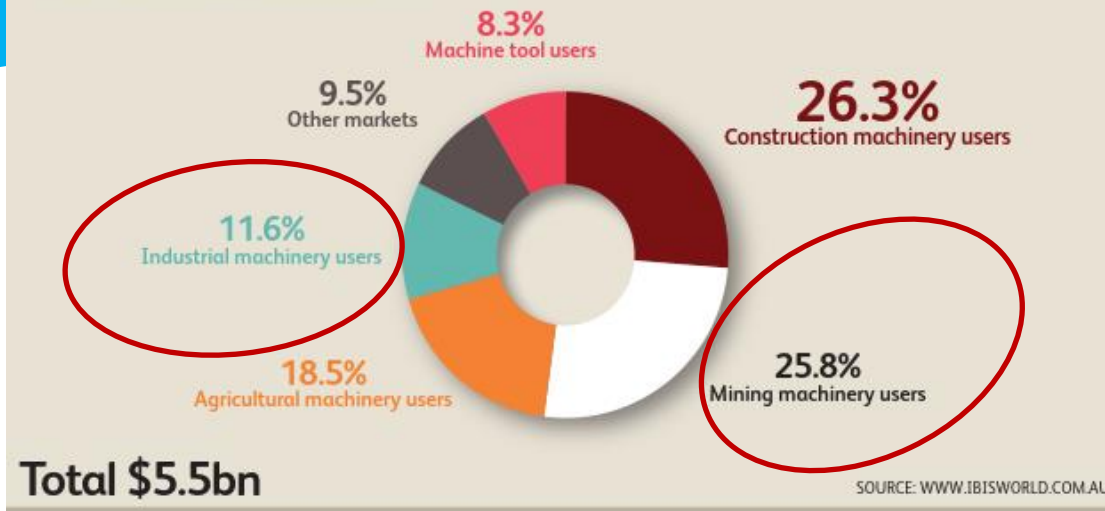
The Australian marine industry includes shipbuilding and boatbuilding and repair, marine equipment manufacturing, and marina operations with \$1.7bn added to the Australian economy and an annual export market of \$575m²

Source : ¹Boating Industries Alliance Association 2014 ²ABS, Australian Industry 2014-15, OECD ANBERD database.

Source: Duke GVC Center, 2017, Korea and the Shipbuilding Global Value Chain

Mining, Oil & Gas, Power

Major market segmentation (2017-18)



Industrial & mining machine manufacture & repair

Target Market @ \$2.1 billion (Australia alone)

Australia Metal Ore Mining @ \$220bn

i.e. machinery construction and maintenance ~\$2.9bn pa

Australia Oil & Gas @ \$46bn

i.e. storage tank maintenance and production ~ \$1.95bn

Australia Electricity Infrastructure Construction @ \$8bn

i.e. wind-farm construction ~ \$1.6bn pa



Target industries – Future



5. Medical equipment and mobility

- Targeting lightweight Titanium wheelchairs & mobility devices



6. Automotive and all Transportation

- Targeting car panels and chassis strength to weight ratio and lightness



7. Commercial & Industrial Building

- Targeting lightweight corrosion resistant cladding and maintenance of metal structures

Taking manufacturing to a whole new level

Build rates of 45 kg p/hr. Significantly faster than existing 3D printers = speed to market

World's largest metal 3D printer L x W x H
9 x 3 x 1.5 m = 40.5 m³

No shape or size build constraints

Industrial scale volumes without extensive tooling

The bigger the product, the more economies of scale

Up to 80% savings in material wastage compared to traditional machining of billet

No melting & no oxidation

Fusion of metals to create super alloys

Fusion of metals & composites = hybrid materials



Faster

Larger



Smarter

