



ILUKA



Iluka Resources Business Briefing Marketing, Technology and Development

Sydney
22 May 2015

Iluka Resources Limited (ASX: ILU)

Disclaimer, Forward Looking Statements

Forward Looking Statements

This presentation contains certain statements which constitute “forward-looking statements”. These statements include, without limitation, estimates of future production and production potential; estimates of future capital expenditure and cash costs; estimates of future product supply, demand and consumption; statements regarding future product prices; and statements regarding the expectation of future Mineral Resources and Ore Reserves.

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- changes in equipment life or capability;
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This presentation uses non-IFRS financial information including mineral sands EBITDA, mineral sands EBIT, Group EBITDA and Group EBIT which are used to measure both group and operational performance. A reconciliation of non-IFRS financial information to profit before tax is included in the supplementary slides. Non-IFRS measures have not been subject to audit or review.

This presentation constitutes a summary of Iluka’s financial performance and should be read in conjunction with the Iluka Resources Limited ASX Preliminary Final Report – 31 December 2014, which contains financial statements and consolidated financial statements of the group.

Mineral Sands – Part of Everyday Life



Iluka's Approach

Objective: Create and deliver value for shareholders



Three key aspects:

- flex asset operation in line with market demand
- preserve and advance growth opportunities
- act counter cyclically where appropriate

Organisational capabilities and alignment critical

Structure and Purpose of Briefing

- Insight into two areas of Iluka capability
 - marketing and market development
 - technology, innovation and sustainability
- Value creation via
 - market development, sales volume and revenue growth
 - market leadership – e.g. zircon price framework and approach
 - operational performance across multiple ore bodies
 - resource to reserve conversion
 - non conventional resource delineation
 - advancement of options external to portfolio – Tapira, Metalysis, potentially Kenmare
- Ability to meet key senior management

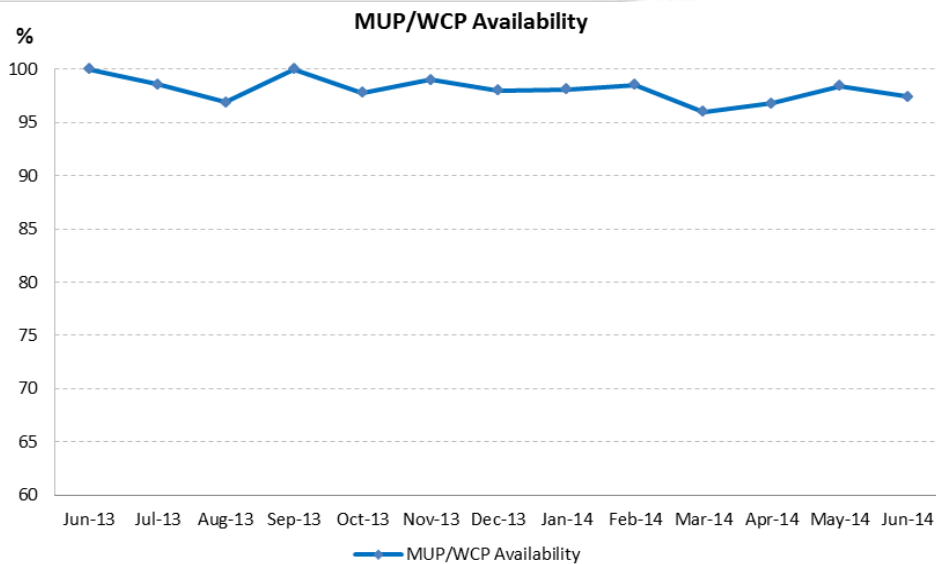
Success in Mineral Sands

- Success in mineral sands requires
 - balance sheet strength, industry-specific technical expertise
 - market knowledge, access and reach
- Self-sufficiency a competitive advantage/essential for success
- Industry examples of shareholder value destruction associated with
 - lack of detailed understanding of ore body characteristics
 - failure to achieve throughputs, recovery, consistent product quality
- Commitment at Iluka to enhancing the company's technical expertise
 - process since 2006
 - initially a focus on “master of mineral sands” capabilities, project management
 - building bench strength in geological, metallurgical and processing capabilities
 - aided by appointment of industry experts internationally
 - more recent focus on innovation, especially resource to reserve conversion
 - feeds directly into product development and enhanced offer to customers
- Can produce superior returns for Iluka shareholders

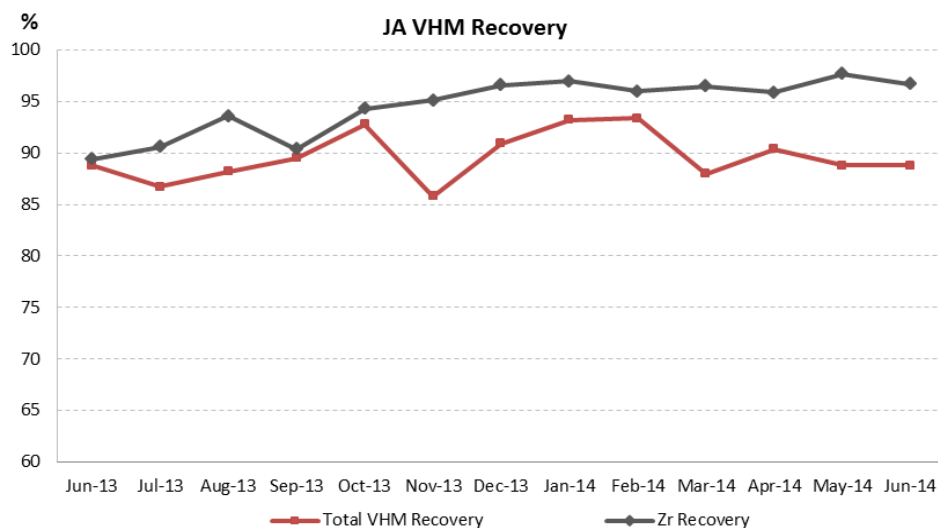
Project Execution and Delivery



Operational Performance



- Risk: MUP downtime \longleftrightarrow WCP downtime
- Downtime equals inefficiency
- Consistently high MUP/WCP availability >95%
- Includes maintenance and MUP moves outages



- Risk: sudden large orebody grade variations
- Focus on in-pit blending for stable WCP feed grade
- Maximise VHM recoveries
- Consistent HMC grade to maximise MSP recovery
- Continuous improvement to standard operations

MUP = mining unit plant
 WCP = wet concentrator plant
 VHM = valuable heavy mineral
 HMC = heavy mineral concentrate
 MSP = mineral separation plant

Source: Iluka Jacinth-Ambrosia Site Visit, June 2014

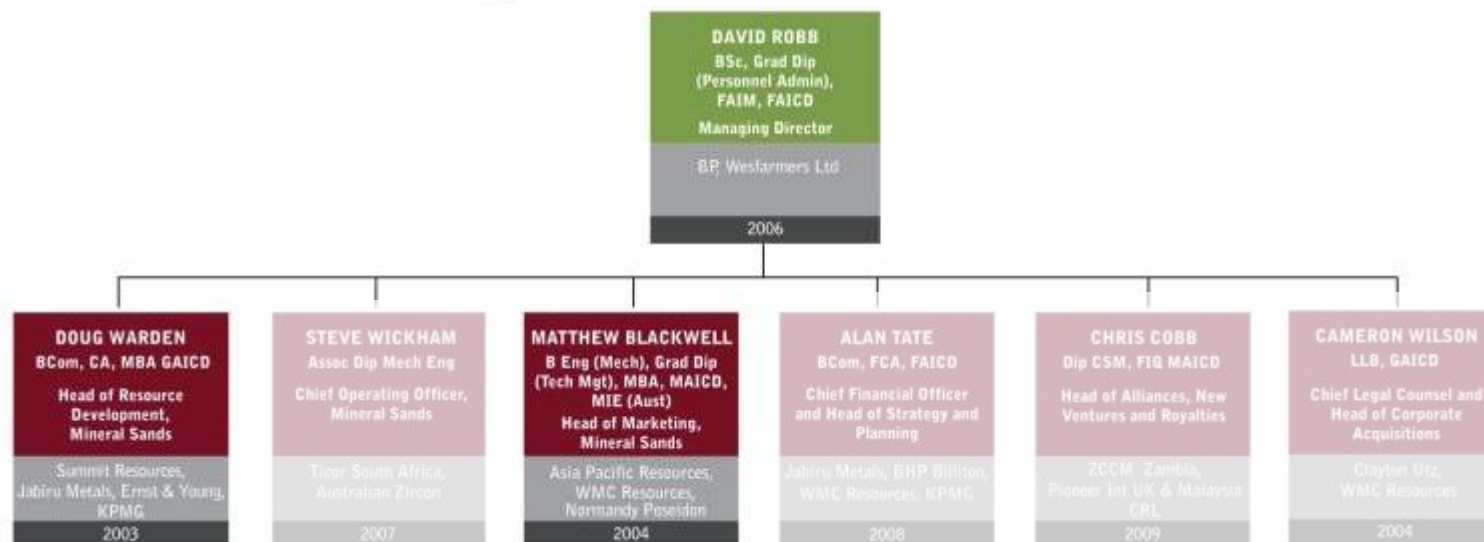
Marketing and Market Development

- Building downstream industry knowledge
- Supporting industry research (ZIA)
- Focus upon individual customers, value-in-use
- Dedicated zircon and titanium dioxide sales teams
- Expanded market presence and logistics flexibility
- Direct supply model where practical
- Commitment to product quality and consistency
 - all products in 2014 delivered to defined specifications
- Product development, R&D
- Focused investment in developing markets
 - China Technical Centre to be established
- New zircon pricing and payments framework



Artist's impression - Iluka China Technical Centre

Briefing Session Presenters



Executive Team



Iluka Planning Forum



ILUKA

Technology and Development



Doug Warden, Head of Resource Development / CFO Elect

Rob Hattingh, General Manager Innovation Technology and Sustainability

22 May 2015

Minerals Sands

Technical Capability Imperative

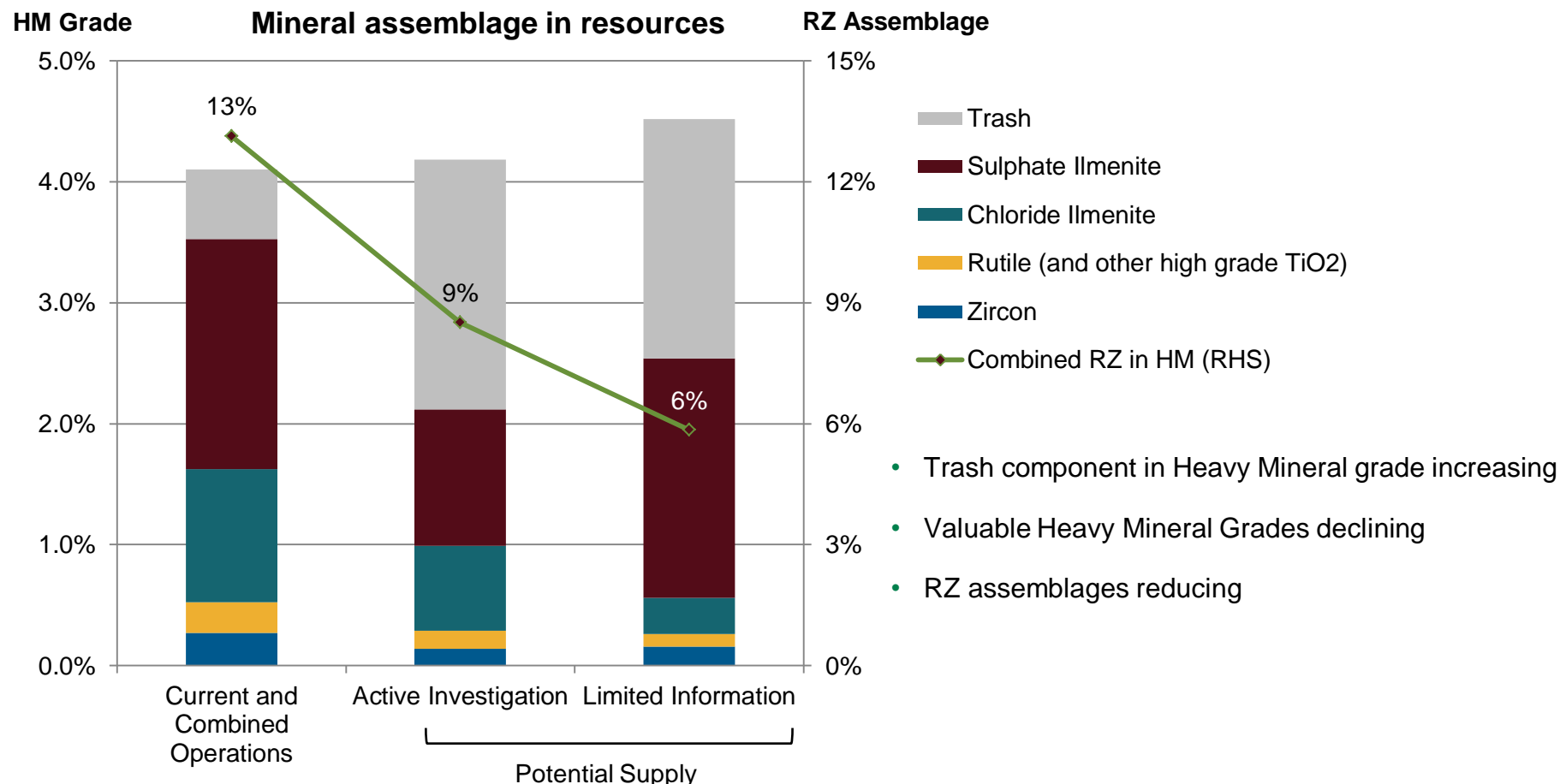


- No mineral sands deposits are the same
 - ore body characteristics can vary substantially
 - concentration and separation facilities tailored for each ore body
 - necessity to achieve throughputs, recovery, consistent product quality
- Geo-metallurgy often complex, low commonality with other industries
- Technical failures have occurred (e.g. Beenup, Wemen...)
- Iluka has developed 32 deposits and made 18 concentrator moves in the last 20 years
- Small industry requires in-house expertise
- Tailoring products for specific customer requirements

Industry Dynamics

VHM GRADE / ASSEMBLAGE DECLINE	MEDIUM TO LONGER TERM SUPPLY CHALLENGE	MATURING ORE BODIES / FRESH CAPITAL REQUIRED	HIGHER PRICES REQUIRED TO INCENTIVISE SUPPLY?	RISE OF CHINA – SULPHATE AND CHLORIDE PIGMENT
<ul style="list-style-type: none"> • Global decline in VHM <ul style="list-style-type: none"> – increasing trash • Global decline in assemblage <ul style="list-style-type: none"> – lower R/Z – higher sulphate ilmenite • Zircon and rutile credits critical to project economics • Technical challenges of new supply 	<ul style="list-style-type: none"> • Limited known high quality deposits • Poorer resources, often in higher risk jurisdictions • Supply issue in context of: <ul style="list-style-type: none"> – usage intensity increase (e.g. pigment in China) – urbanisation – consumerism – new applications 	<ul style="list-style-type: none"> • Major players operating within mature provinces • Increasing capital required to sustain production levels • Significant capital required for new supply to meet demand 	<ul style="list-style-type: none"> • Declining grades and assemblages <ul style="list-style-type: none"> – challenging economics • Operating costs increasing • Jurisdictional challenges more pronounced 	<ul style="list-style-type: none"> • China's consumption of TiO_2 is expected to continue growing • Production to date predominately sulphate • China chloride pigment industry encouraged • Requirement for imported feedstocks • Higher grade feedstock imports/ilmenite for domestic upgrading

Global Grade and Assemblage Challenges



Exploration

- Consistently and well funded exploration programme ~\$20 million per annum
- Gated approach to exploration expenditure
- Mineral sands exploration in Australia
 - testing new concepts in mature basins
- Increasing international focus
 - Sri Lanka, Kazakhstan, Brazil, US, Denmark
- Targeting ‘adjacent’ commodity opportunities
- Capturing opportunities when others are ‘cash strapped’

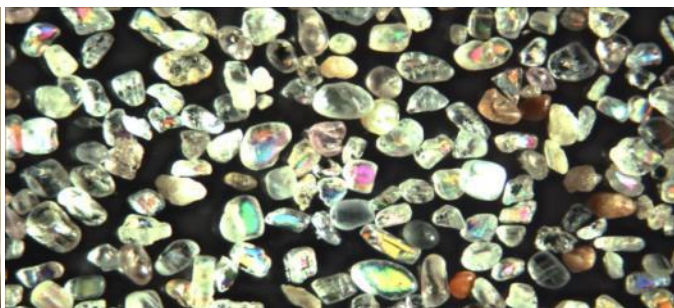


**Consistent Investment
in Exploration**

- Means to address resource challenges / marketing development opportunities
- Network of site based process specialists supported by central technology group
- Dedicated Metallurgical Test Facility (MTF):
 - mimics mineral sands value chain
 - supports development of new technologies
- Supported by Iluka Analytical Laboratories
- Additional support from ANSTO, CSIRO Minerals, Mintek, JKMRC, Curtin University
- Commercial labs provide bulk analysis support
- Technical bench strength:
 - MTF: 11 technical officers and metallurgists ~150 years mineral sands experience
 - technology group: 20 metallurgists/chemical engineers ~230 years experience
 - International mineral sands experience – Australia, South Africa, Africa, Europe

Mineral Liberation and Separation

- Test new deposits to ensure processes yield maximal recovery of saleable products
 - mining efficiency, grade control, plant recoveries and utilisation, product separation
- Physical processing test work, including crushing and screening
- Various physical separation techniques can be tested on pilot scale samples:
 - flotation – for selective removal or concentration of target minerals
 - magnetic separation on the full range of weak to strongly magnetic minerals
 - gravity separation
 - electrostatic separation



Ore under a microscope

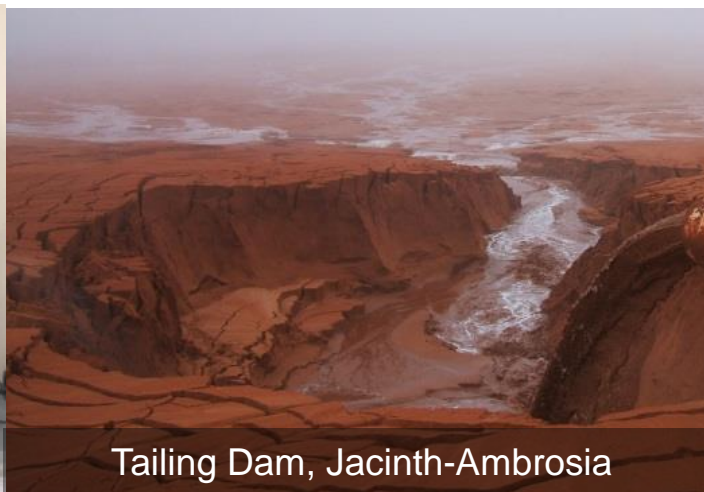
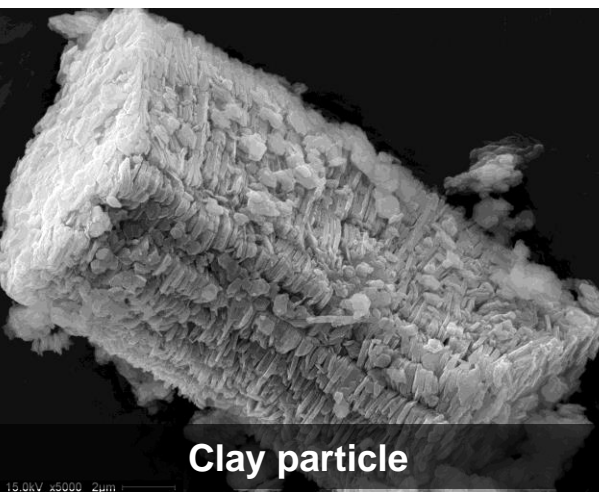
Pyro and Hydro-metallurgy

- Enhance and optimise use of synthetic rutile infrastructure
 - optimise throughputs, ilmenite feed source characteristics, product development
- SR process evaluation conducted using a range of kilns and aerators
- Activated carbon generation and test programs to enhance marketability
 - saleable product and potential significant co-product as an offset for SR costs
- Development of alternative sulphate pigment feedstocks
 - part of sulphate market development activities



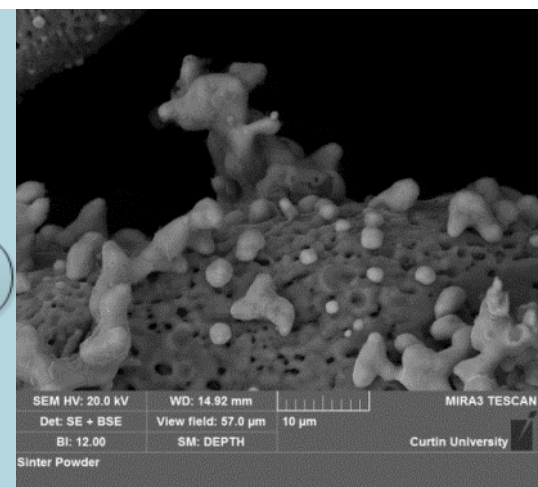
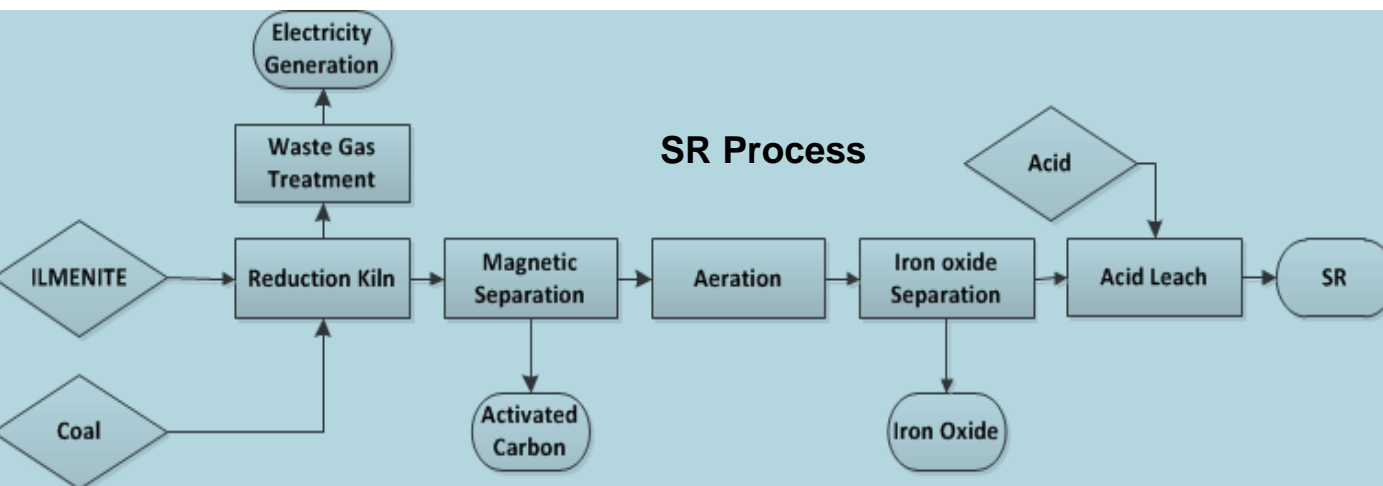
Tailings Management

- Establishing cost-effective options aligned with rehabilitation requirements
- Clay characterisation to improve pump calculations
- Test work to calculate equipment size (thickeners)
- Static and dynamic testing to determine reagent consumption for financial modelling
- Determination of final settled density to improve tailing storage estimates



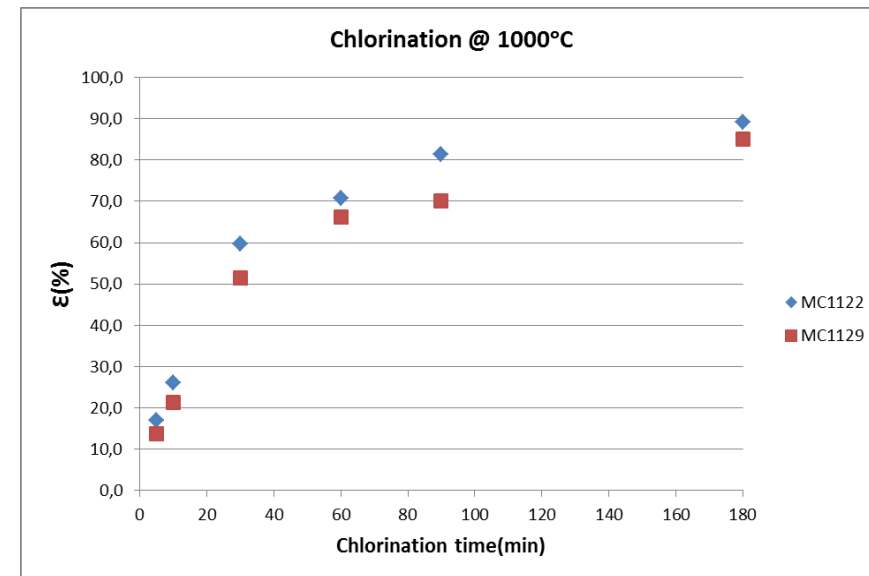
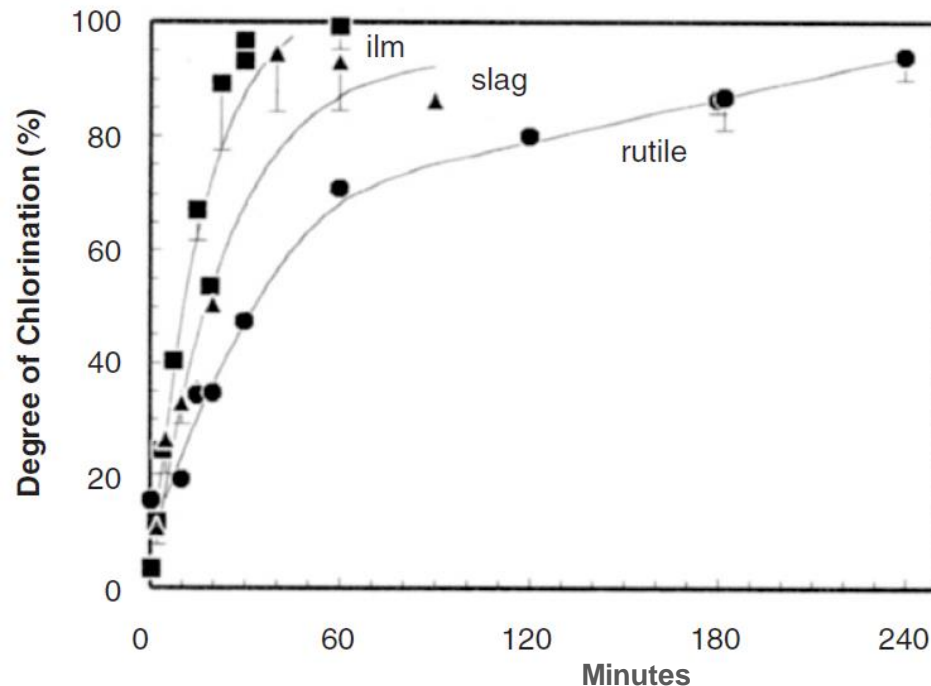
Synthetic Rutile Process Improvements

- Significant advancement of SR operational parameters achieved to date
- Improving the technical understanding of the process assists in:
 - improving the reaction kinetics, hence throughput or product quality
 - minimise production impacts due to sintering (formation of concretions)
- Other research is aimed at:
 - generating a more diverse range of products
 - providing more value for customers out of existing products



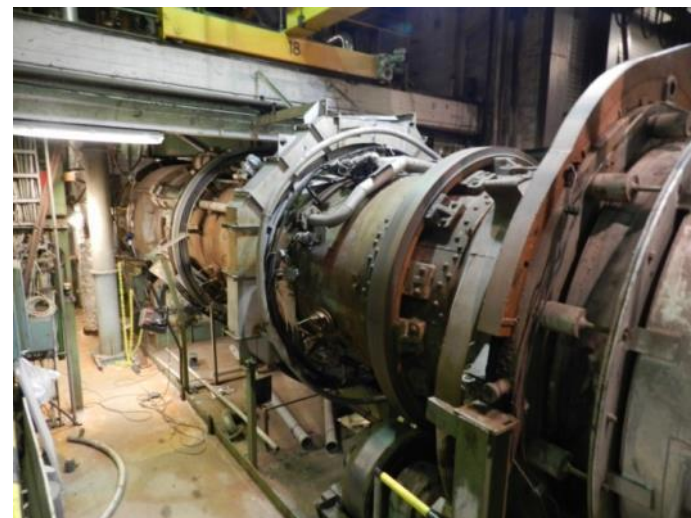
Chlorination Kinetics

- Convey the attributes of SR versus slag – market penetration opportunity
- Work on the comparative chlorination behaviour of SR, natural rutile and slag
- Test work verified earlier published work confirming that SR compares well with rutile



Acid Soluble “Synthetic Rutile”

- Development of acid soluble SR (high grade sulphate feedstock) well advanced
- New sales/revenue opportunity, broadens market offering
- Lower environmental impacts compared with lower grade feedstocks
- Progressive work over 7 years, building on earlier work
- Focus on the mineralogical process and process kinetics/thermodynamics
- Demonstrated production of ASSR:
 - bench scale using various ilmenites
 - pilot scale using Murray Basin ilmenites
- Customers assessing product suitability
- Key focus areas:
 - produce ASSR from any ilmenite
 - switch to ASSR without disrupting SR operation



Flexible Mine Move Capability

- Relocation of the Murray Basin Kulwin plant 25 kms to WRP mine location
- Plant includes:
 - pre-concentrator
 - concentrator
 - magnetic separation and thickeners
- Other areas of mobile mining equipment under evaluation



SR Production from Murray Basin Ilmenite

- Murray Basin ilmenite previously considered unsuitable for SR due to chrome contamination
- Further physical processing reduced chrome to SR premium spec
- Utilisation of a “waste” product enhances project economics
- Potential significant source with Balranald development



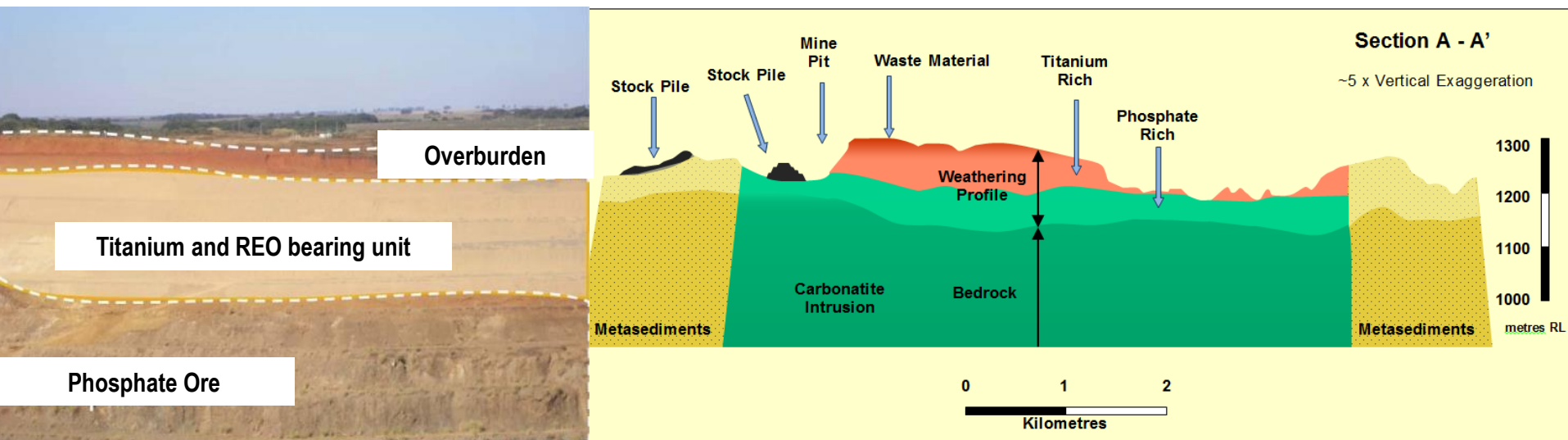
Process Innovation – SR Production

- Kiln modelling predicted performance improvements could be achieved
- Volumetric capacity modifications resulted in 16% increase in kiln throughput



Tapira, Brazil

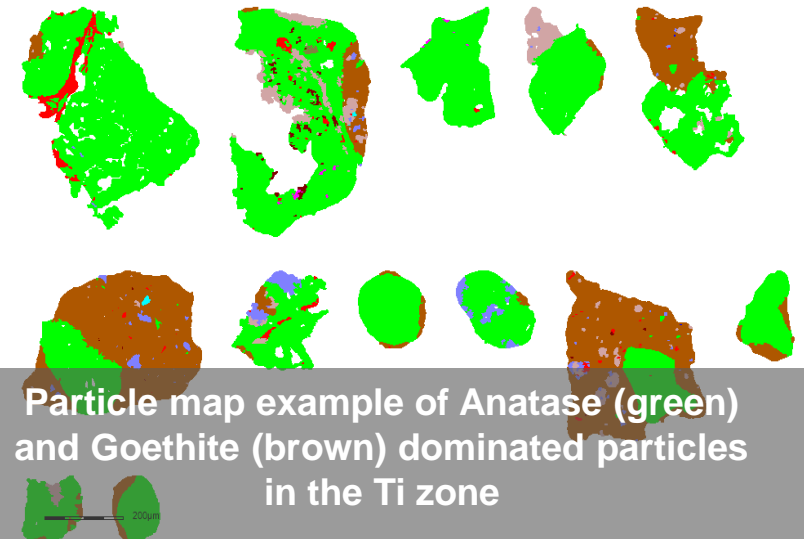
- Joint venture with Vale Fertilizantes and Vale S.A.¹
- Titanium and rare earth mineralisation in overburden of an existing phosphate mine
- Minerals include anatase, ilmenite, monazite, crandallite
- Phase 1 of Agreement - 2015
 - geological, technical evaluations, market assessment and pilot plant design
 - subsequent phases potentially include pilot plant, PFS, DFS and commercialisation



¹ Refer Iluka ASX Release 4 June 2014 and associated disclosure details.

Tapira, Brazil

- Recent drilling of in situ mineralisation
- Mineralogical and geochemical evaluation under way
- Various beneficiation and downstream options under investigation



- Iluka equity holding of 18.3%
 - right to increase up to 24.9% in event of IPO
- May revolutionise metal processing:
 - cost-effective and simple
 - transformational products customised TiO_2 feedstock capability
- Iluka shareholder value potential:
 - titanium feedstock customisation
 - increase demand for Iluka feedstocks
 - right of first offer over Ti production licence

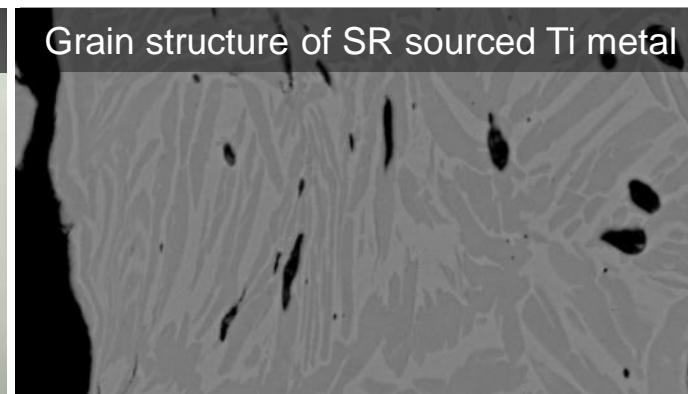
SR Mineral



Ti Billet



Grain structure of SR sourced Ti metal



Metalysis, UK

- Metalysis process:
 - low energy requirements
 - two step process
 - benign reagents and no toxic by-products
 - lower greenhouse gas emissions
- Current Ti metal products highly energy and resource intense
- Metalysis process restricts usage of Ti metal products

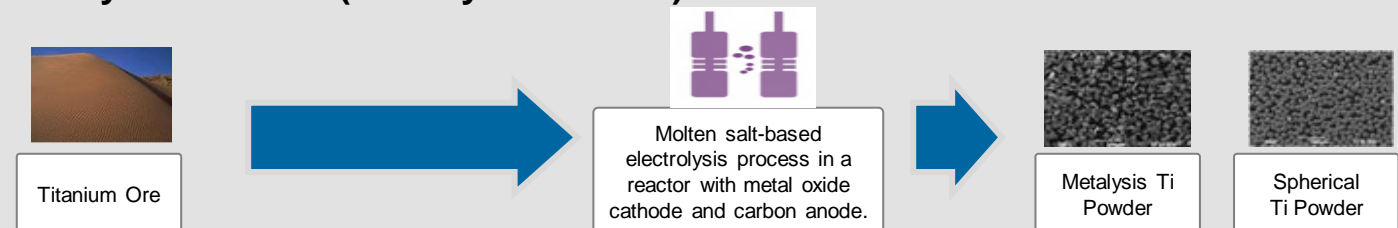
Volume usage of high-value metal powders in industrial manufacturing held back by cost of manufacture

Conventional Multi-step Process to Powder (Ti – Kroll process)



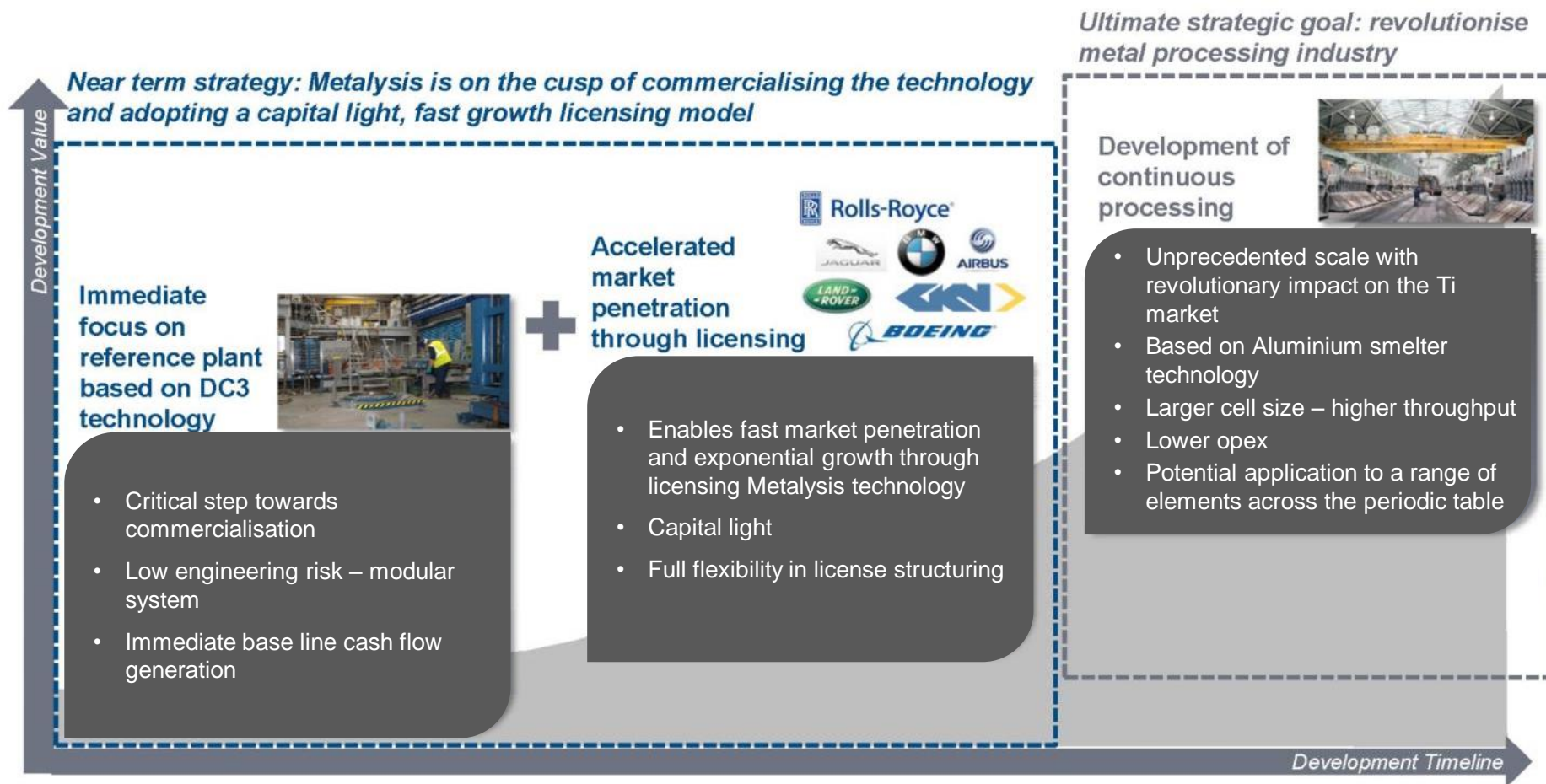
Metalysis technology simplifies and can dramatically reduce the cost of metal powder production

Metalysis Process (directly to Powder)



Metalysis - Use of Synthetic Rutile

- Iluka contribution includes metallurgical capabilities (feedstock customisation)
- SR and rutile have been processed to Ti powder at laboratory scale
- Developing in-house IP for customised SR as feed to the Ti metal process
- Installing larger equipment in Iluka facility to produce larger SR sample batches



Technology and Development

Conclusion

- Future mineral sands' deposits more challenging
- Small industry – must be technically self-sufficient
- Application of Iluka's technical expertise to potentially disruptive projects



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Marketing and Market Development



Matt Blackwell

Head of Marketing, Mineral Sands

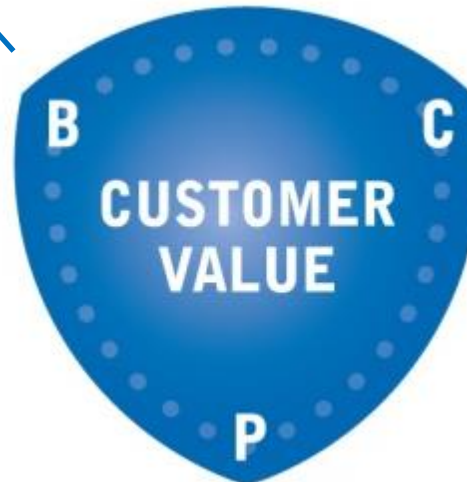
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Iluka Game Plan



Iluka's Customer Proposition

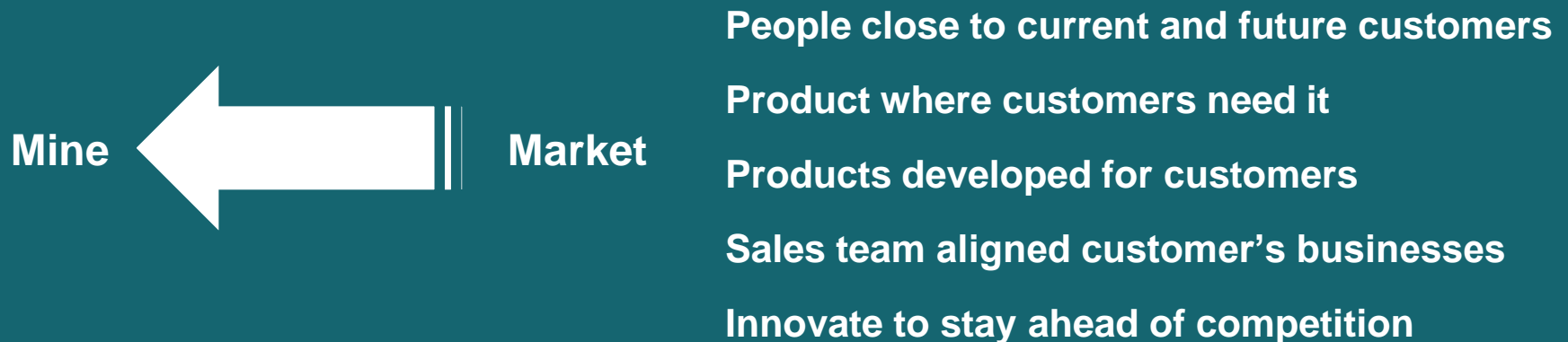
Reliability of Supply
Product Range
Product Quality
Technical Support



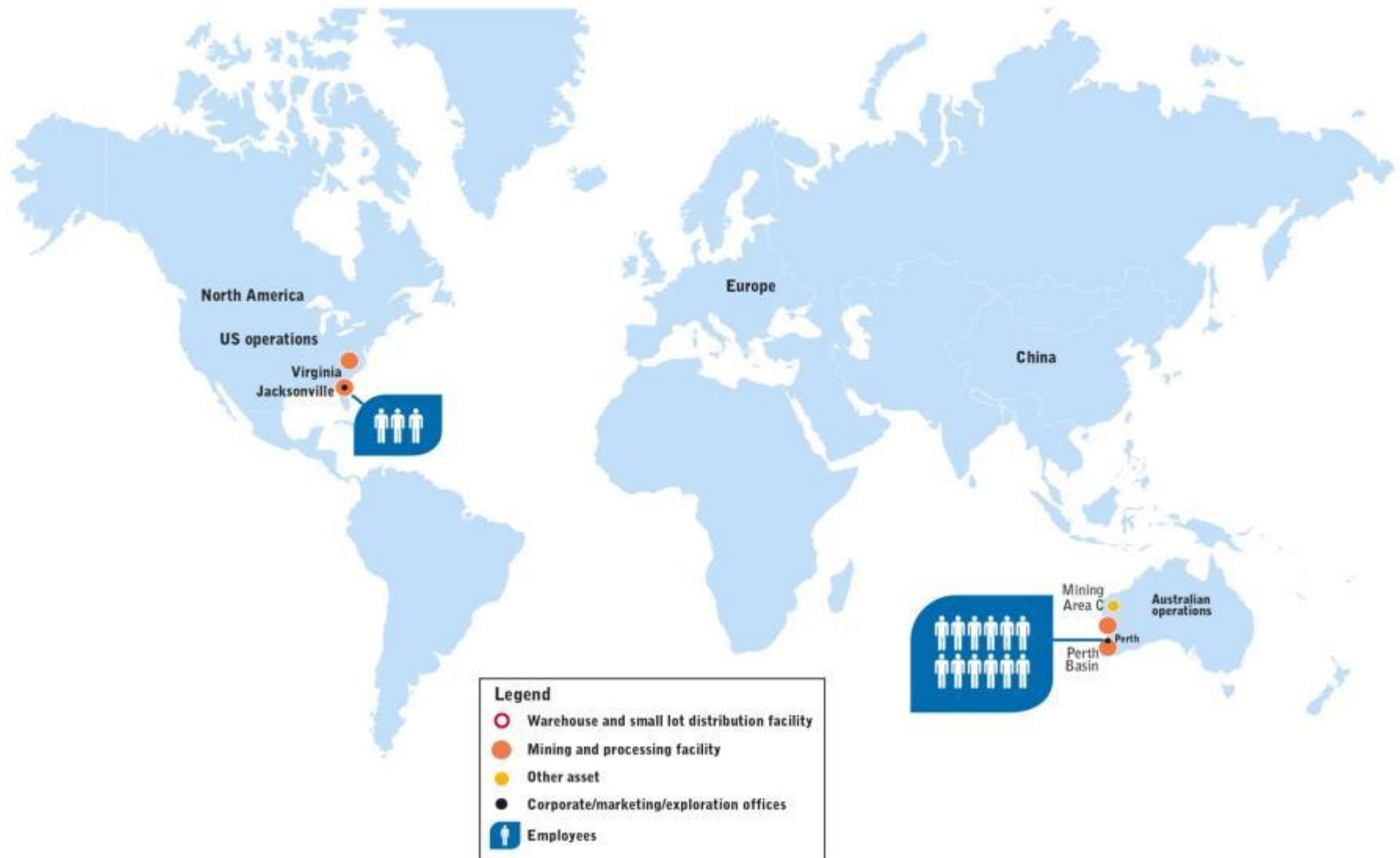
Efficient Operations
Efficient Delivery
Removed Intermediaries
Economies in Bundling

Competitive
Increased Transparency
Based on Relative Economic Value
Grounded in Analysis

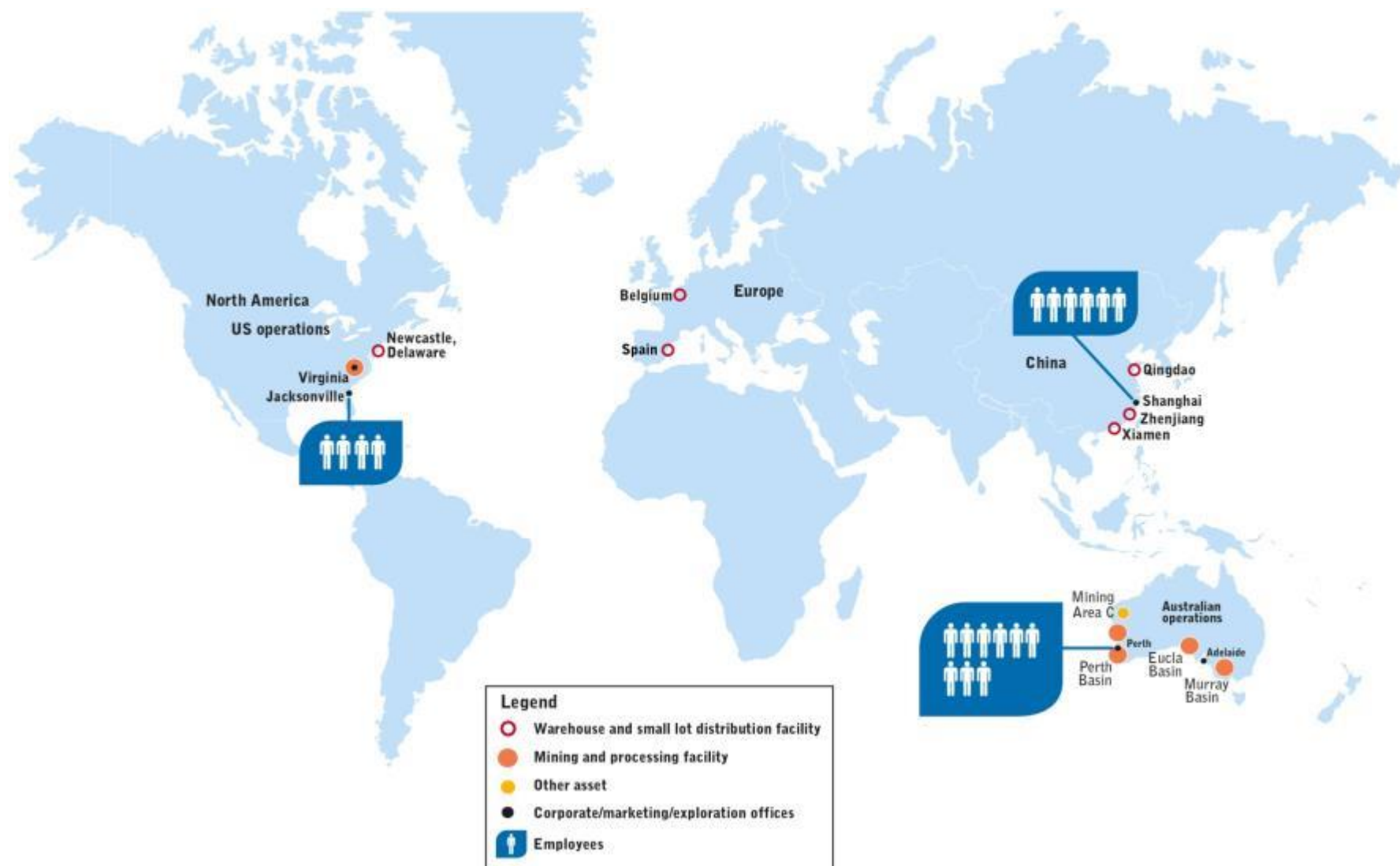
Evolution of Iluka Marketing



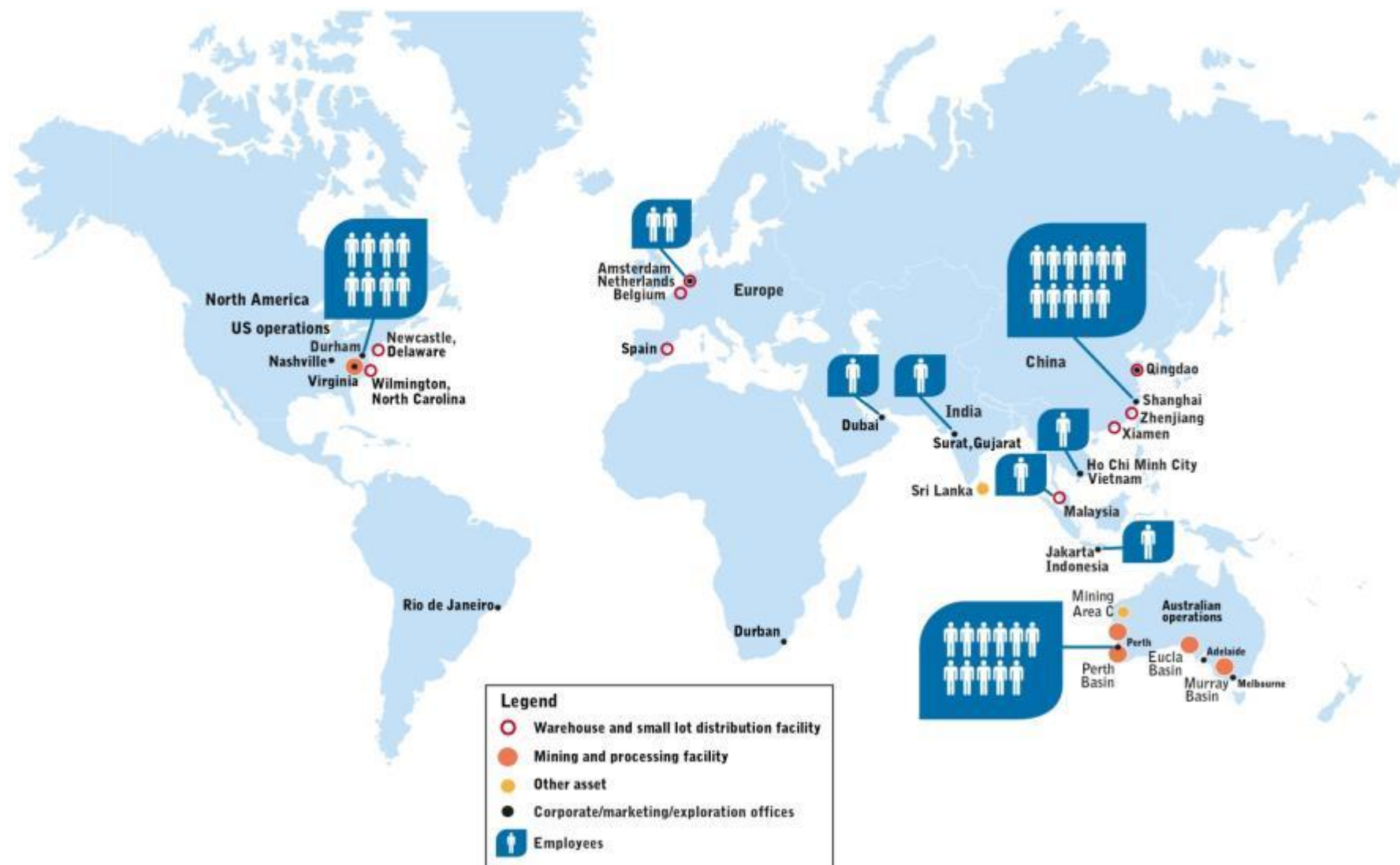
2005 – An Australian Centric Model



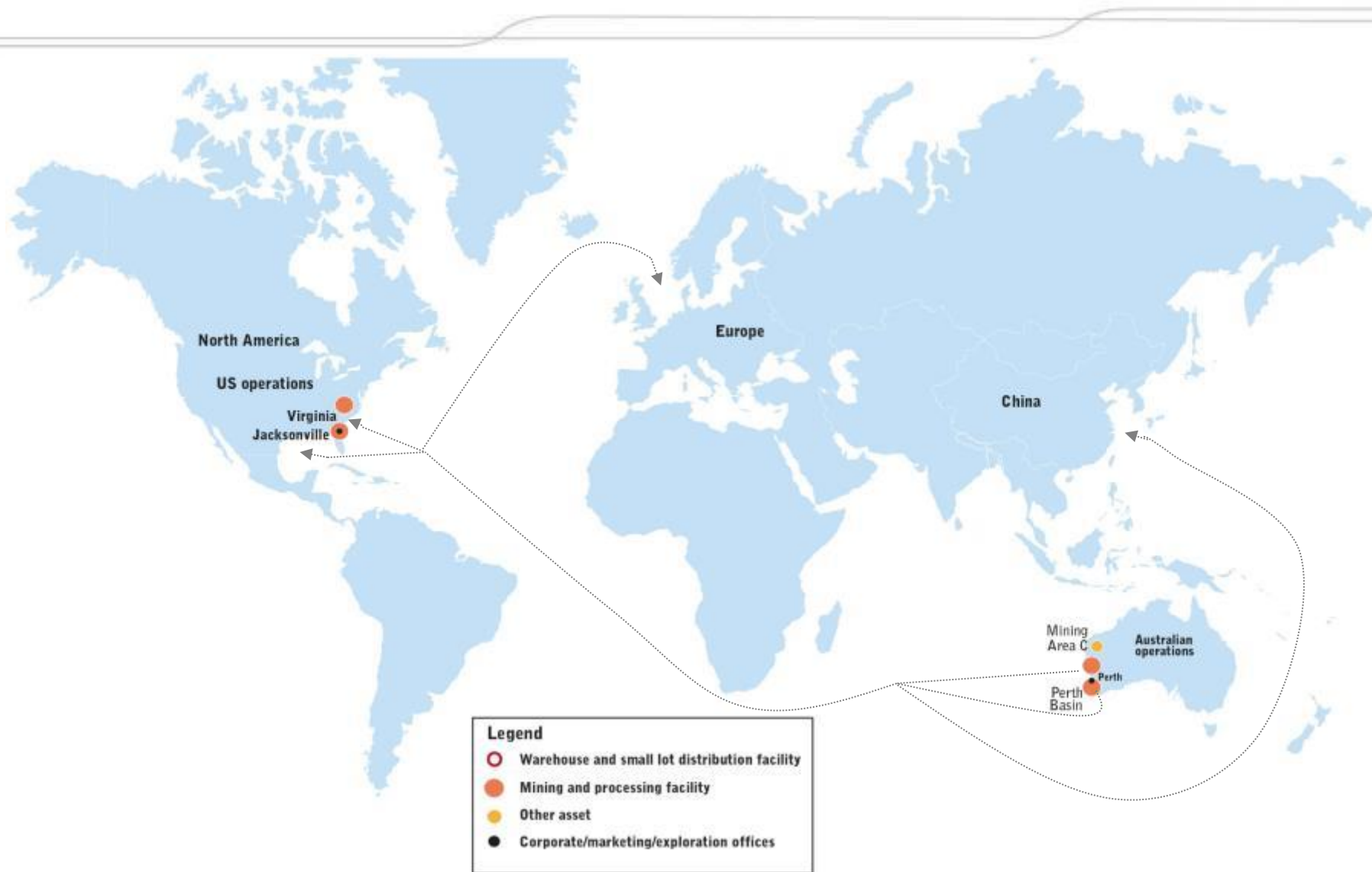
2010 – Expanding Presence



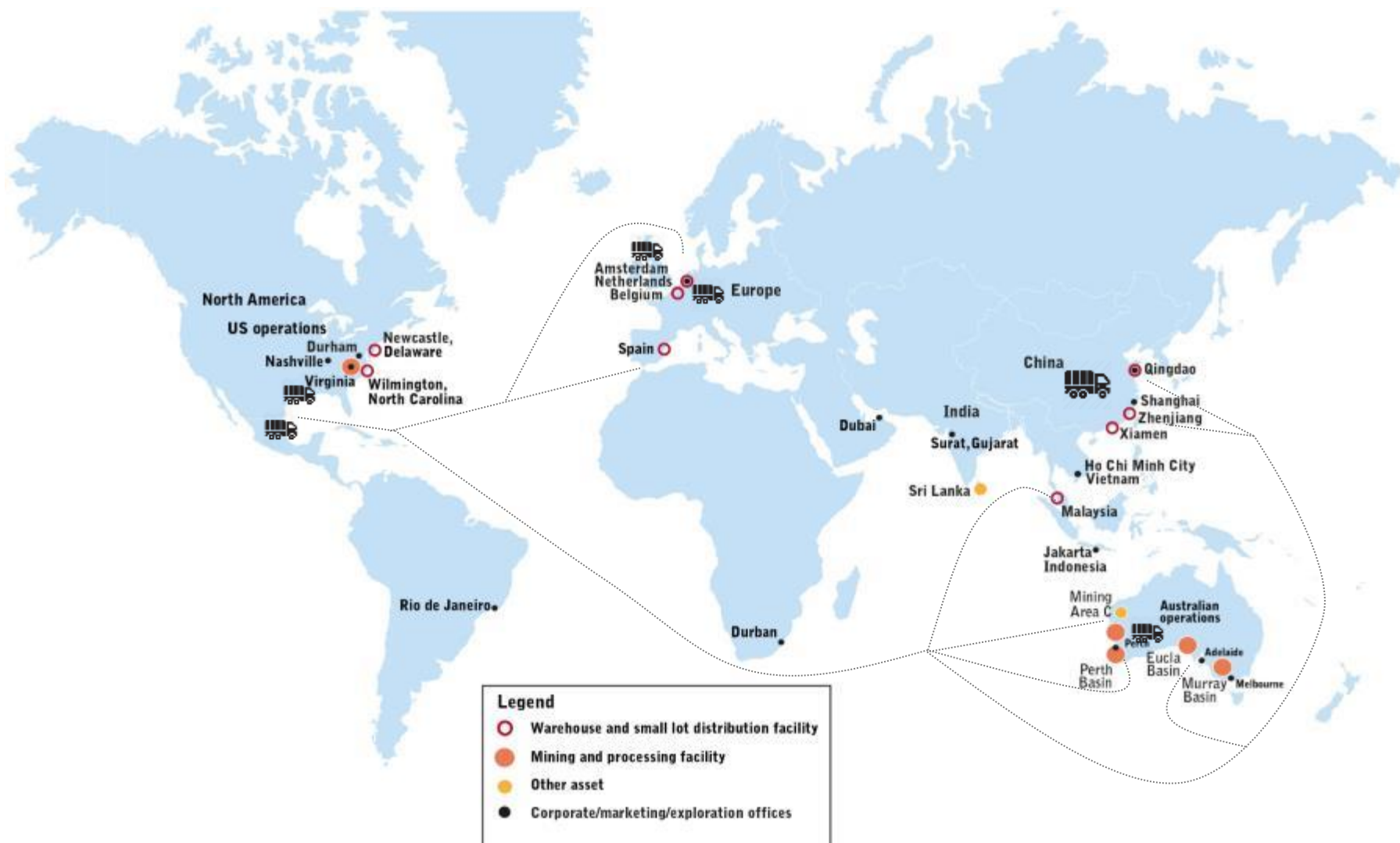
Today – A Global Footprint



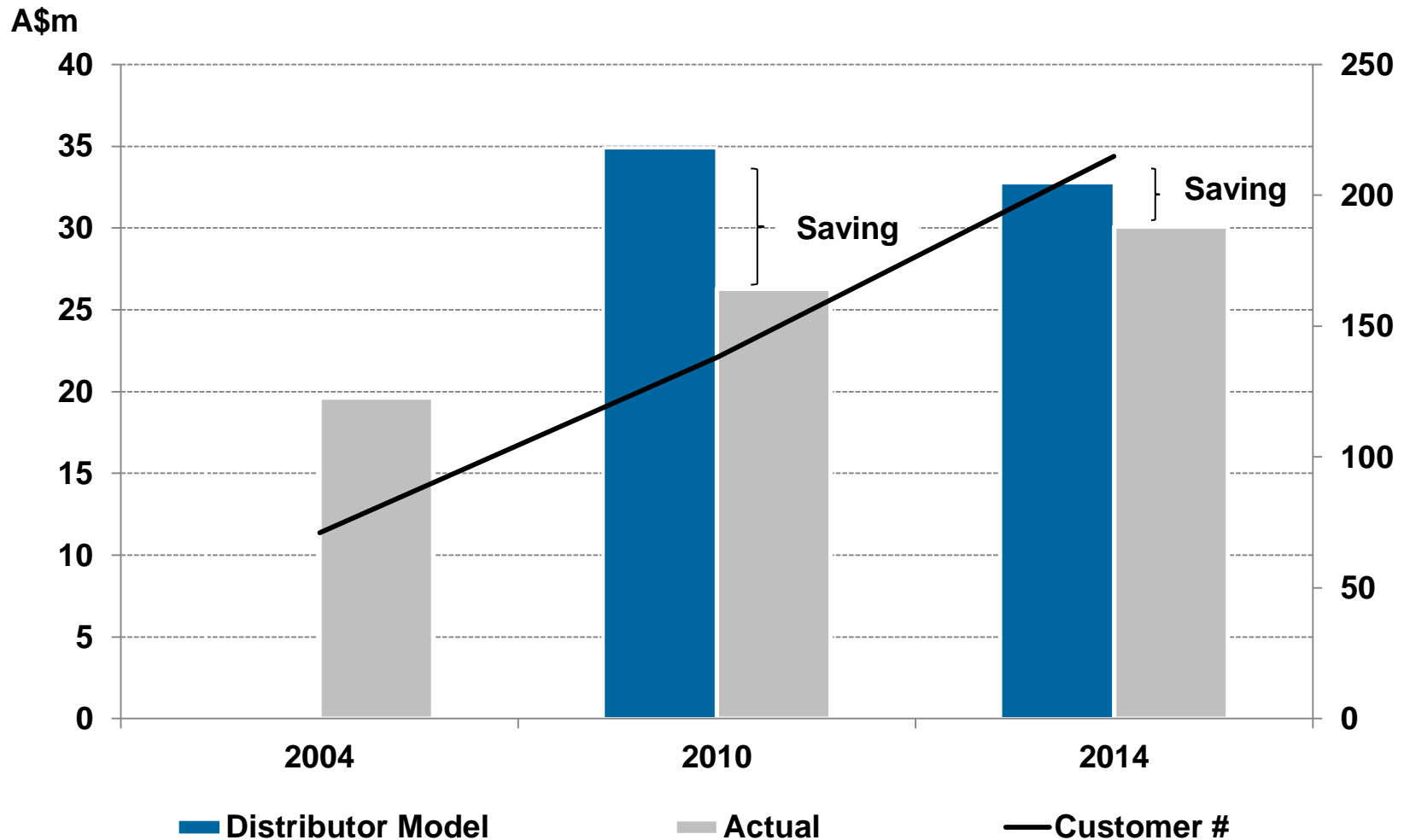
2005 FOB Sales Model



2015 Hub and Spoke Distribution



Tangible Benefits



Marketing and Selling costs as per Annual Report (2004, 2010, 2014) All costs 2014 dollars.
Distributor Model assumes actual volumes for 2010-2014 with distributor fees per 2004 sales ratio

Organised to Understand Customers

- Separate marketing, sales and analytics enables laser focus and deeper insight
- Embedded into the organisation experts who understand our customers industries
- Sales team speaks our customers language – 10 nationalities and 17 languages

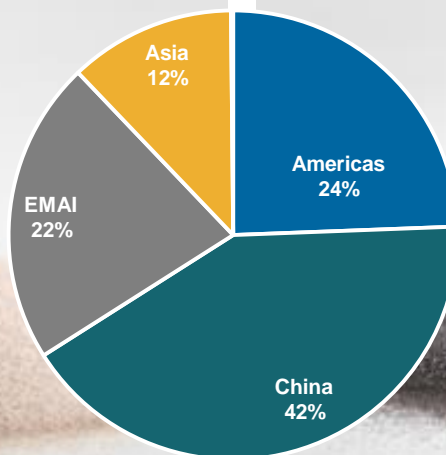
Zr

Ti

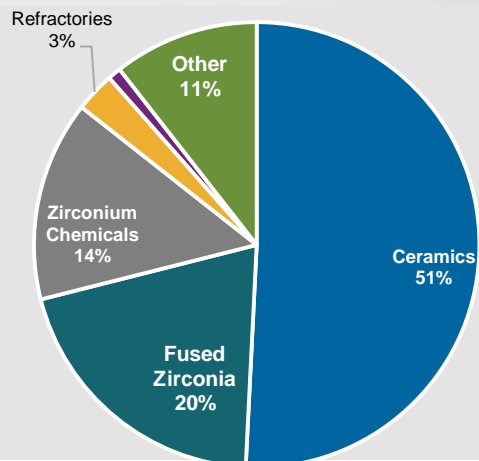
IMTI

Diversity in Customer Base

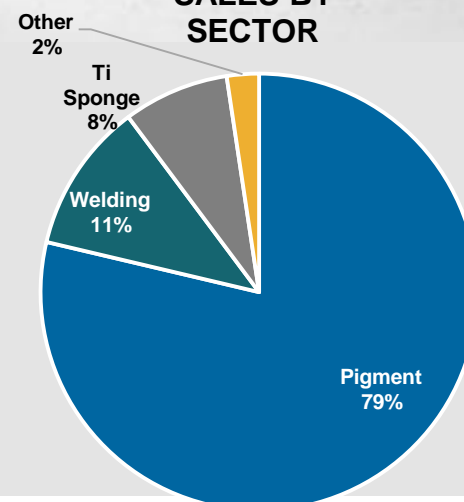
**COMBINED SALES BY
GEOGRAPHIC REGION**



**SALES BY
SECTOR**



**SALES BY
SECTOR**



Reliability in Product Offering

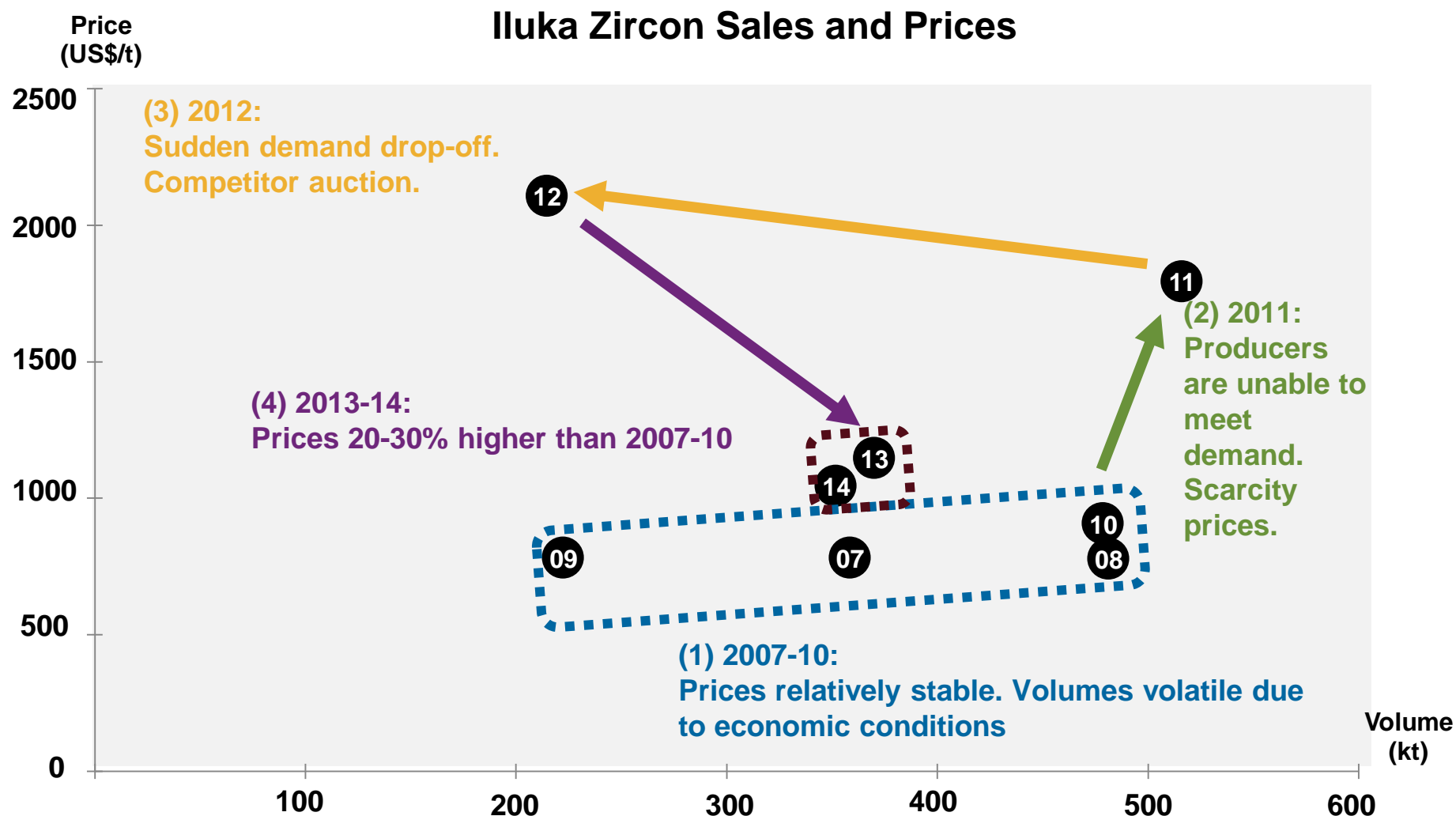
- Certified as complying with ISO 9001: 2008
- All product shipped in last 12 months in conformance with specification
- Offer wide range of TiO_2 feedstock grades and Zircon for all applications
- 8 new products launched in last 18 months



Target Responsible Volume Growth

- Disciplined – will not push unneeded material into the market
- Focused – on sectors and geographies where Iluka can bring additional value
- First mover – will continue to position in markets/segments where we see growth
 - early in China
 - now positioning in other emerging economies
- Expand Product Offering
 - designing products for tomorrow's needs (3D Printing)
 - servicing the sulphate ilmenite market

More Consistent Revenue Growth



Reset Zircon Pricing Strategy

- Undertook rigorous evaluation of pricing dynamics - especially 2009 to 2013
- Engaged foremost global pricing consultants to range of industry sectors
- Developed new pricing strategy with following objectives:
 - reduce price and volume volatility facilitating better planning - customers and Iluka
 - quarterly pricing to support stability and predictability and reduce cost-to-serve
 - spot business to react to short-term changes and as a price discovery mechanism
 - apply distinct contract and spot pricing strategies
 - price decisions guided by roadmap - market conditions will drive pace and momentum

Zircon Marketing Approach



Simon Hay
General Manager – Zircon Sales
22 May 2015



Iluka Zircon Marketing Approach

Understand customer buying preferences

- Understand their businesses and feedstock requirements
- Assess downstream industries to give further insight
- Develop customer relationships
 - face-to-face interaction vital in many regions
 - quarterly meetings on average
- Reduced usage of agents as Iluka offices expand

Sales staff

- Sales offices located close to customer clusters
 - Shanghai, Qingdao, SEA, N Europe
- Regional sales staff are local hires
- Senior hires - industry specialists with experience in
 - zircon milling, glaze and frit production
 - zircon procurement, ceramic innovations

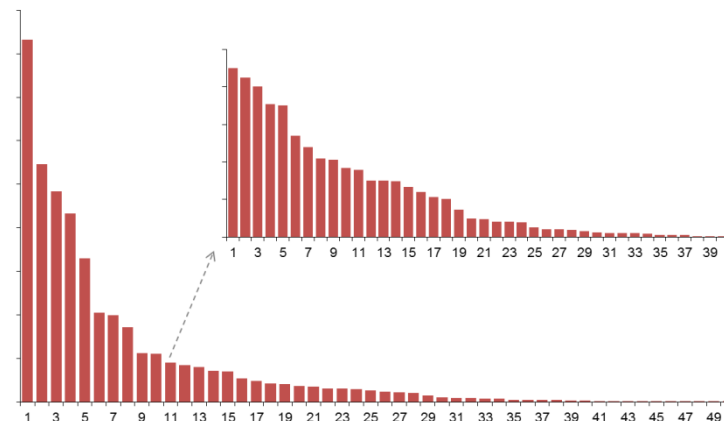


Chinese customer tour to Iluka mines May 2015

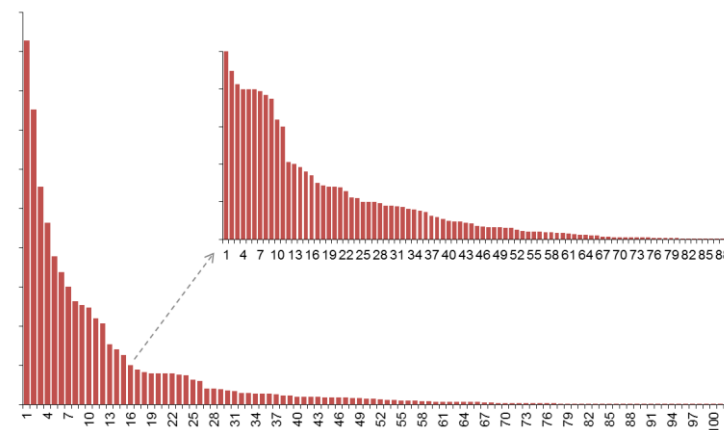
Marketing Approach – The Long Tail

- Substantial customer base growth
 - mostly due to the regional sales model
- Many zircon consumers are small enterprises
 - typical of millers, foundry suppliers, refractory
- A regional approach is essential to supply this market
- Small customer have doubled over the last 5 years
 - 40 customers < 5 kt sales in 2009
 - 88 customers < 5 kt sales in 2014
- Two largest customers in 2014
 - were numbers 5 and 10 in 2009
 - sales to these two have grown ~300%

Global Zircon Customers: 2009



Global Zircon Customers: 2014



Logistics and Supply Arrangements

Availability and Distribution

- Strategy is simple – have product available, always
- Buying can be lumpy as buyers often return in a rush
 - stock availability has and continues to win orders
- Bulk ship to Asia, Europe and US, bag then distribute
 - more efficient than bag and distribute ex-Australia
 - also helps customers reduce their working capital
- Flexible – can add or subtract venues easily
- Caters for large and small orders (required for long tail)



WFOE in China

- Customs-cleared service very popular with small users
- Attractive for those with no access to foreign currency
- Sales growing strongly: 8% of China sales (0% in '13)
- Developing the same approach in another market



Zircon Product Portfolio

- Iluka products span the full spectrum of zircon feedstocks
- Most competitors unable to match our range

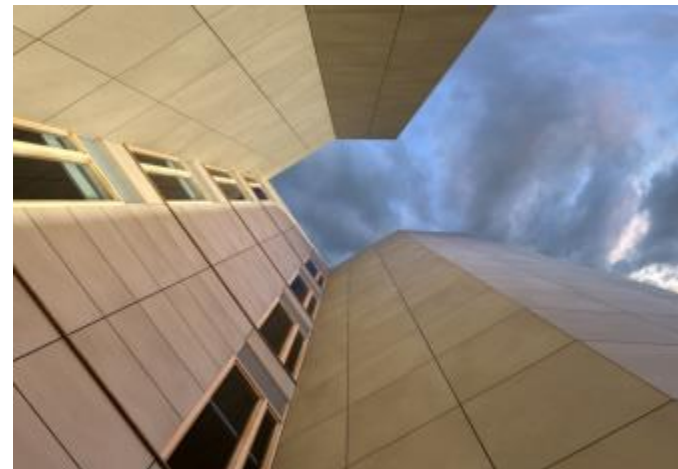
PREMIUM	UNIVERSAL	STANDARD	CONCENTRATES / TAILINGS
<ul style="list-style-type: none"> • J-A, MB, US Ops • 66.0% ZrO₂ min • Very low TiO₂ & Fe₂O₃ impurities • High end applications in ceramics, fused zirconia, refractory and casting 	<ul style="list-style-type: none"> • J-A Operations • 66.0% ZrO₂ min • Low TiO₂ & Fe₂O₃ impurities • Developed in 2013 for Frit production and the growing needs of digital printing 	<ul style="list-style-type: none"> • J-A, MB Operations • 65.0% ZrO₂ min • Slightly higher TiO₂ & Fe₂O₃ impurities • Preferred feedstock of ZOC producers. Some use in ceramics & foundry 	<ul style="list-style-type: none"> • Profitable outlet for by-product streams • 25-50% ZrO₂ range • Majority is toll processed with final product sales by Iluka • Also sales to end-users with upgrading capability

- New products currently under development for the foundry and welding markets
- Iluka is a major supplier of tailings to SEA and understands the processor businesses well
- Iluka has the capability to take on new sources of tailings and concentrates

Ceramics Opacifier and Flour

 **51%**

- Market size ~550 ktpy, half of zircon consumption
- Zircon sand is fine milled prior to use in ceramics
 - opacifier: used in tile bodies, engobes and glazes
 - frit: glass produced from zircon, boron & others
 - frit used to produce glazes and engobes
- Very few tile manufacturers process their own zircon
- Zircon ceramics industry is highly fragmented
 - average Iluka customer consumes ~5,000 tpy
 - average tile manufacturer consumes < 1,000 tpy



Ceramics Opacifier and Flour

 51%

- New technology, is changing the way zircon is used
 - less zircon used in ceramic body as an opacifier
 - more zircon being used in frits, glazes and colours
- Iluka responded to the changes with new products
 - e.g. Universal Grade suited to new technology

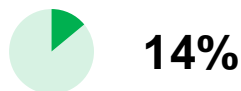


Current market conditions

- Overall demand is stable
- China demand and sales stable, solid. Property market concerns not affecting sales
- European milling capacity in over supply
- Indian outlook is positive. Tile manufacturing growth is outpacing domestic sales

Specialty Chemicals Market

Zirconium Chemicals



- 95% of ZOC production concentrated in China
 - half in Shandong then Jiangxi and Zhejiang
 - sales office and warehouse in Shandong to support
- Large ZOC players emerging: top 3 hold 45% of market
 - small producers under pressure; cost & environment
 - consolidation is likely at some stage
- Feedstock: prefer standard grade zircon
 - Iluka increased standard production to meet demand
- Output is growing – CAGR of 6% from 2007-2012
- Current market conditions
 - Chinese export stable, domestic competition is tough
 - producers operating at 70-80% utilisation



End products are very diverse

Industrial uses:

Paper coatings, refractories, paint dryers, auto catalysts, fire retardant, leather tanning

Personal care and health:

Antiperspirants, cosmetics, artificial teeth

Nuclear end-uses:

Zr metal production and nuclear fuel tubing

Fused Zirconia



- Industrial end uses
- Major players have factories in China, US, Europe
 - Iluka a major supplier across all regions
- Domestic Chinese production is growing
 - Iluka has a good position with the major producers
- Feedstock: premium grade zircon with low impurities
 - developed tailored grades to suit specific customers
- Current market overall is stable
 - Chinese ceramic pigment market and exports steady
 - some easing in US due to slow down in oil drilling
 - European demand is stable



End uses include:

Industrial abrasives, auto brake pads, fine polishing, ceramic pigments, steel and glass refractories, milling media, paint coatings.

Refractory and Foundry Market

Refractory and Foundry



Refractory – steel and glass

- Steel refractory linked to health of steel industry
- Chinese glass industry suffering from over-capacity
- Global smart glass applications are a bright spot
- Current demand is stable: quality producers doing well

Foundry and Investment Casting

- Market is highly fragmented
- Zircon is sold to intermediaries who supply foundries
- Zircon used in high-end castings mostly
 - turbine blades, engine components, golf clubs
- Consumption is linked to regional industrial activity
- Japan positive with weak Yen



Zircon Pricing Strategy Details

Major elements of the new pricing structure

- Establish a reference price for zircon
 - based on most commonly sold Iluka tonnage combination
 - transparent reference price for customers updated quarterly
- Payment terms
 - flexibility in commercial terms with transparent associated costs
- Price structure based on different regions and our product range
 - simplicity: when the reference price moves, other Iluka prices move accordingly
- Incentivise loyal customers who display preferred buyer behaviours
 - mutual benefits including reduced volume volatility

Benefits for customers

- Greater predictability of price over time and across regions and product ranges
- Enhanced ability to pass on price changes downstream
- Choice of payment terms to suit their cash flow and working capital constraints
- Incentive to grow their business with Iluka zircon

Product Development

A push-pull approach to creating zircon sales and new demand

COLLABORATION	INDUSTRY ANALYSIS	TECHNICAL SUPPORT
<ul style="list-style-type: none">• Collaboration with Industry bodies and universities across various segments – leads to projects on industry-wide issues and new opportunities• Engage with like-minded customers for partnering on a range of opportunities	<ul style="list-style-type: none">• Assess end sectors, deepen our understanding and track emergent trends• Ability to position Iluka early to benefit from new trends or adapt• Example: Ceramic tile study in its fourth year	<ul style="list-style-type: none">• Solution-focused support for customers around feedstocks and process issues• Multi-layered engagement with customers - not just a commercial relationship• Has, and continues to, lead to the tailored development of new products



- Currently 10 development projects underway with partners of various types
- 5 projects in the ceramics sector, 4 in foundry and 1 in chemicals
- Projects at various stages – from early R&D to one entering commercialisation

2014 Ceramic Tile Study

Tile Study

- Annual empirical study of zircon loadings in tiles
- 2014: expanded number of tiles and regions

2014 results

- Confirms substitution / thrifting focus now played out
 - no impediment to zircon usage in new tile designs
 - matches feedback from millers and tile producers
- Zircon loading of Chinese tiles in 2014 > 2013
- China's famous brands use higher zircon loadings
- Ongoing shift of ceramic tile product mix
- Indian zircon loadings compare favorably to China
- European loadings stable and higher than Asia

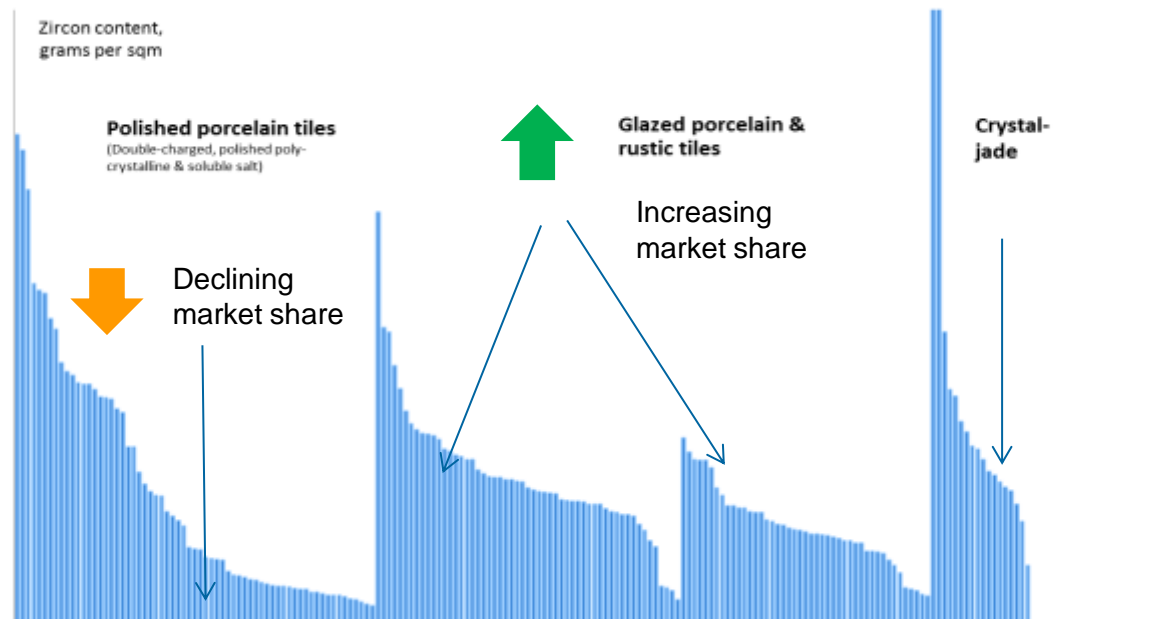


Ceramic Tile Study

China results and tile mix

Key results

- Shift towards glazed products
- Driven by digital printing
- Positive for zircon demand
- New tile types show a 'floor'
- Difficult to lower zircon loading



Glazed porcelain digitally printed vivid designs



Differentiated Marketing Approach

Key differentiators for Iluka zircon marketing

- Highly reliable global supplier in terms of delivery timeliness and quality
- Focus on premium products but with full product range (from Ultra Premium to tailings)
- Being the biggest supplier has its advantages
 - some customers only want to deal with Number 1
- Product development a significant focus
 - engagement with multiple parties and bringing new products to market
- Flexibility of supply: >100 kt of latent zircon capacity and ability to bring online quickly
- Iluka position in emerging zircon markets
 - China office, 7 years, 11 staff, low turnover
 - SEA, Middle East and Indian offices established
 - growing our South American capability

TiO₂ Feedstock Marketing



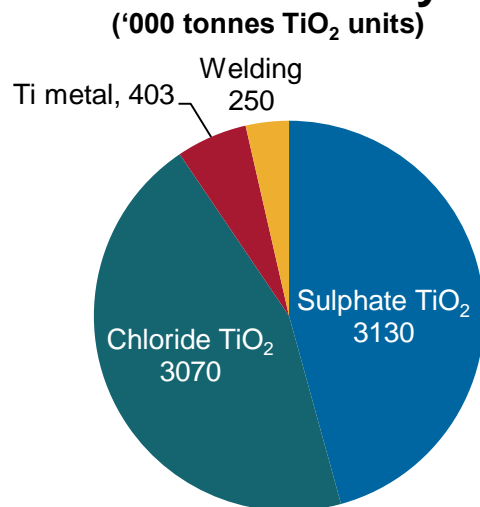
Robert Gibney
General Manager – TiO₂ Sales
22 May 2015



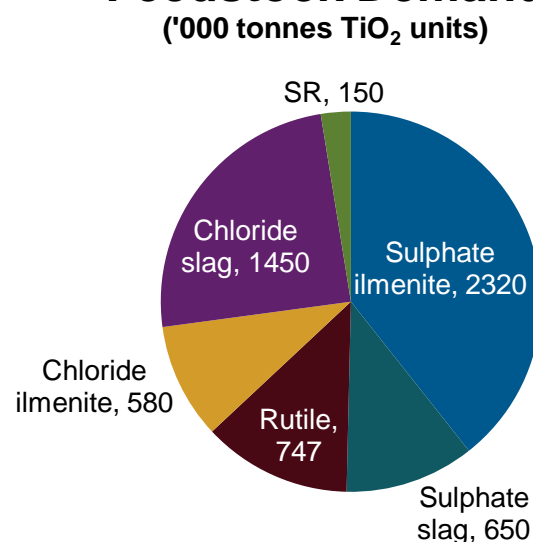
Global TiO₂ Market

- Annual demand growth tightly correlated with global GDP averaging ~3.2%
- Top six TiO₂ producers with 57% of global capacity with a mix of both sulphate and chloride
 - Chemours (formerly DuPont), Huntsman, Cristal, Kronos, Tronox, Henan Billions/Sichuan Lomon,

Ti feedstock demand by end use



Feedstock Demand



Iluka TiO₂ Feedstock Marketing Approach



- Focus upon customer needs – “pull vs push”
- “Value in Use” marketing approach
 - demonstrate differentiated value of Iluka feedstocks versus competitor products
- Expanded technical collaboration with customers
 - deepen understanding of Iluka feedstock performance characteristics
 - unique requirements which are often unarticulated by customers
 - leverage deeper understanding of end use markets and mineral sands expertise
 - establish industry leading China Technical Centre as platform for technical marketing

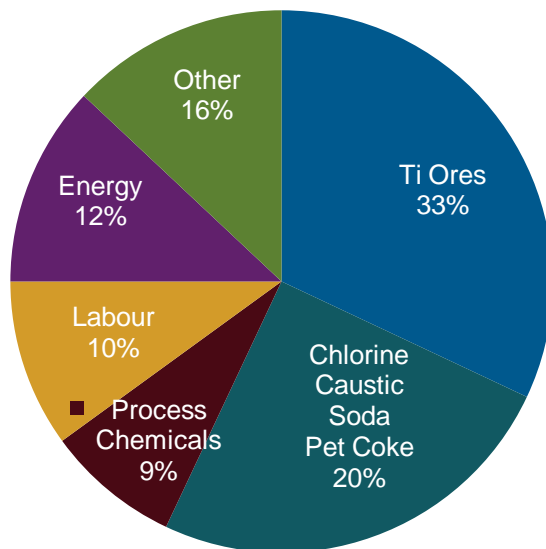
Focus on Customer Needs

- Traditionally the mineral sands industry has focused on the “business” side
 - Supply Chain
 - Purchasing
 - Logistics
- The mineral sands industry historically pushed feedstocks into the market
- Iluka will “pull” customer needs back to the mine and process facilities
- Iluka increasingly focused on customers’ technical needs

Pigment Market - Understanding Customer Needs

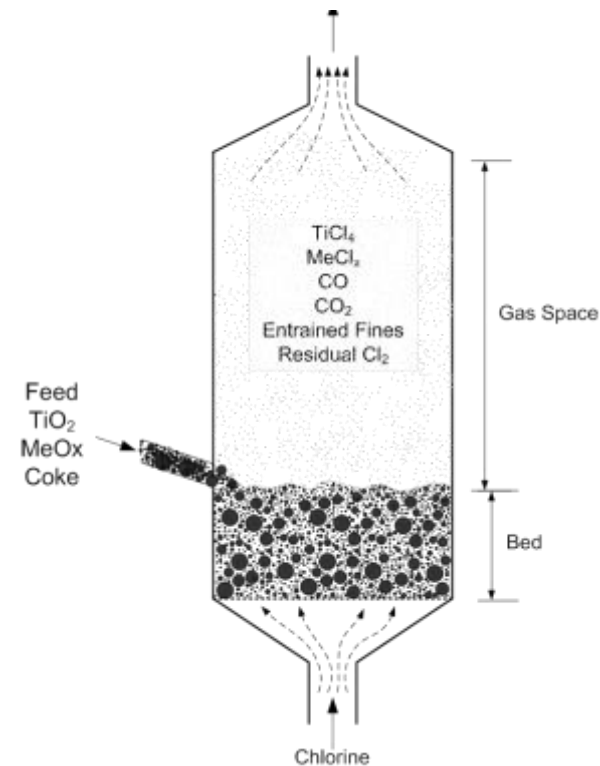
- Pigment producers focus considerable attention to feedstocks

**Chloride Producer
Cash Costs**



Source: Iluka Marketing estimates

Chlorinator

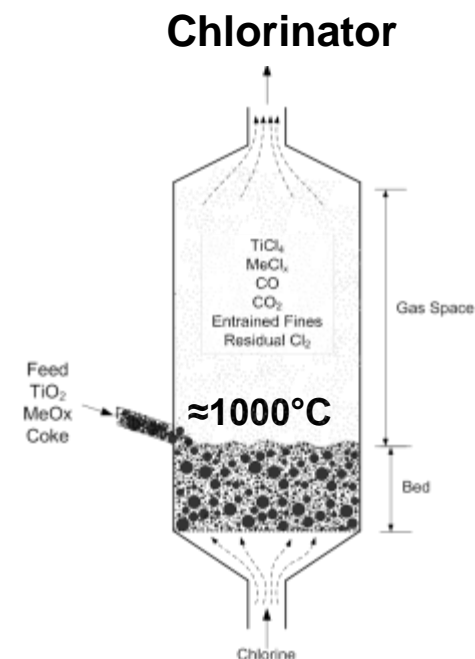


Chloride Pigment Process

Plant Economics – Value in Use

- Majority of chloride pigment plants target a “head grade” between 88% and 92%
- Feedstocks have unique characteristics – requiring extensive testing and optimization:
 - value in use models
 - waste generation, by products
 - each plant unique in feedstock preferences

TYPICAL CUSTOMER FEEDSTOCK BLEND		
Feedstock	TiO ₂ (%)	Value in Use Considerations
Synthetic Rutile	92	High TiO ₂ content – good lateral velocity resulting in reduced wear on refractory lining
Chloride Slag	86	Lower TiO ₂ content, higher chlorine consumption, higher waste generation
Target Head Grade	90	Provides best economic fit for various parameters



Customer Value “Common Consideration”

AVAILABILITY / RELIABILITY SUSTAINABILITY	PRODUCT QUALITY	PRODUCT PERFORMANCE	PRICE “VALUE IN USE”
<ul style="list-style-type: none"> • Rule 1: never ever run out • Logistics differentiating factor <ul style="list-style-type: none"> – regional warehouses – ability to service customer requirements quickly • Scale – large volume customers need long-life assets from reliable suppliers • Sustainable 	<ul style="list-style-type: none"> • Titanium feedstocks are not commodities as each product has unique characteristics • TiO₂ content number 1 followed by other analytes, such as Fe, Mg, Ca, Zr, Si • Consistency 	<ul style="list-style-type: none"> • Enablers or detractors in manufacturing process • Throughput • Uptime • Maintenance • Waste and by product handling / disposal • Energy intensity • Chlorine and other chemical consumption 	<ul style="list-style-type: none"> • Iluka determines prices utilising the “Value in Use” approach • Factoring in availability/reliability/sustainability/product quality and performance attributes • Iluka seeks to maximize the value of our products while matching customer needs

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<i>Iluka is the number 2 producer of feedstocks with an expanded global logistics network</i>	<i>Iluka has industry leading quality and consistency of both High Grade and Low Grade feedstocks</i>	<i>Iluka’s products are proven enablers for pigment, sponge and welding applications</i>	<i>Iluka is dedicated to achieving full value for its products each and every day</i>

Technical Marketing Approach

- Regular technical visits to customer production facilities – deepen collaboration
- Educate customers on Iluka's resources, expertise, investment and commitment
- Utilise state of the art equipment to optimise Iluka's products in customer formulas
- Provide local quality testing capabilities

TECHNICAL COLLABORATION



MARKET DEVELOPMENT



PROCESS TECHNOLOGY

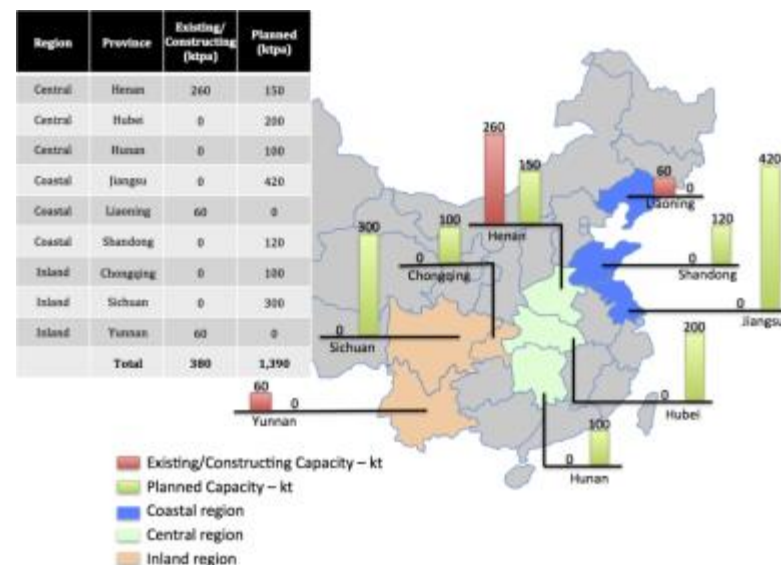
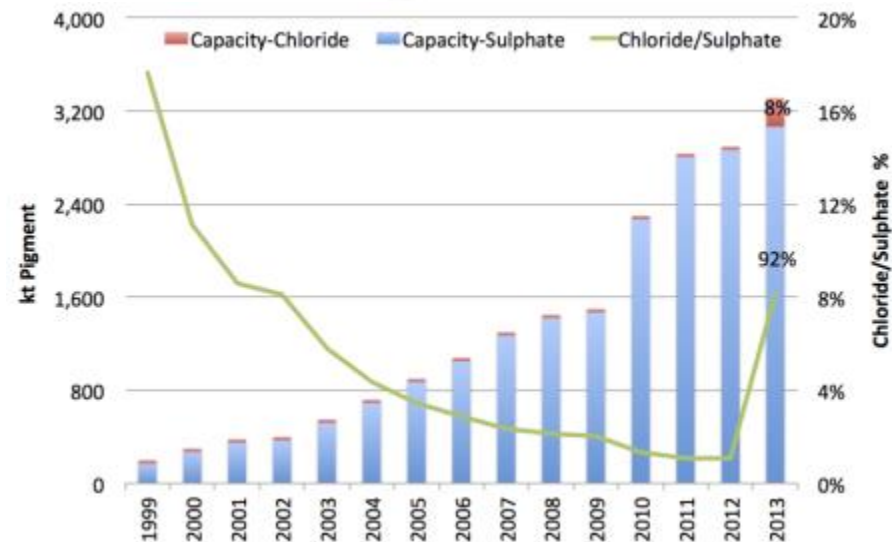


QUALITY TESTING



China TiO₂ Market

- Iluka sales potential substantial
- Robust marketing presence in China
 - conducting in house research
 - providing real-time insights
- China world's largest producer TiO₂
 - sulphate still dominates market
 - chloride technology progressing



China TiO₂ Market – Changing Landscape

- China has over 61 TiO₂ plants (57 sulphate, 4 chloride)
 - restructuring of Chinese TiO₂ industry is via permanent shutdowns
 - (10 plants with 280ktpa capacity in 2015 according to TZMI)
 - due to environmental and sub economic conditions
 - potential combination of two largest producers and follow on mergers
 - Henan Billions and Sichuan Lomon reported to be in discussions
 - Fourth largest producer with 560ktpa sulphate + 100ktpa chloride TiO₂
 - developing chloride technology with clear mandate from central government
 - four plants in various stages of start up
 - Henan Billions 100ktpa plant currently ramping up

- 12th Five Year Plan Guiding Catalogue for Industrial Structure Adjustment

7、水性木器、工业、船舶涂料，高固体分、无溶剂、辐射固化、功能性外墙外保温涂料等环境友好、资源节约型涂料生产；单线产能3万吨/年及以上、并以二氧化钛含量不小于90%的富钛料（人造金红石、天然金红石、高钛渣）为原料的氯化法钛白粉生产

7. Production of environmentally friendly, resource-saving paint, such as waterborne wood, industrial and marine coatings, external-wall insulation coatings of high solid content, solvent-free, radiation-curable, and functional features; chloride titanium dioxide plants with capacity of individual line of 30,000 tons/year and above, and use feedstock that contains no less than 90% TiO₂ (including synthetic rutile, natural rutile and high titanium slag)

China TiO₂ Feedstock Marketing Strategy

- Technical Collaboration – to be viewed as a trusted advisor by Chinese customers
- Utilise new China Technical Centre as platform for direct customer interaction
 - technical and commercial
- Iluka committed to developing a suite of products to meet both sulphate and chloride process
 - ASSR, sulphate ilmenite, Chloride SR and Natural Rutile
- Leverage extensive in country logistics capabilities



China Technical Centre (CTC)

- Emerging chloride pigment technology in China
 - demonstrate value of Iluka unique feedstock qualities and benefits
 - Western producers have decades of experience and knowledge
- Platform to engage technically
 - laboratory to test feedstocks in chlorination and sulphate process
- Technical centre for both TiO_2 and zircon – testing, demonstration and educational facilities



**China Technical Centre,
Shanghai China**

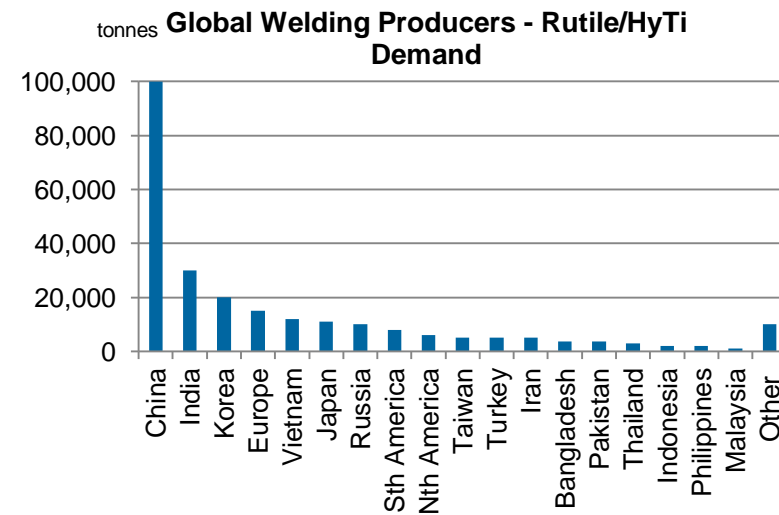
- Global titanium metal demand strong with estimated growth of 5.2% CAGR 2013-2018
 - driven by aircraft sector
 - 12,924 commercial aircraft backlog over next eight years – largest ever
 - new aircraft (787, A380) contain 3x titanium compared to older generation
- Iluka's suite of high grade chloride feedstocks preferred for the titanium metal sponge market
 - Natural Rutile – high TiO_2 content and low impurities
 - Synthetic Rutile – high TiO_2 content and performance in molten salt reactors



Strong global Ti metal market

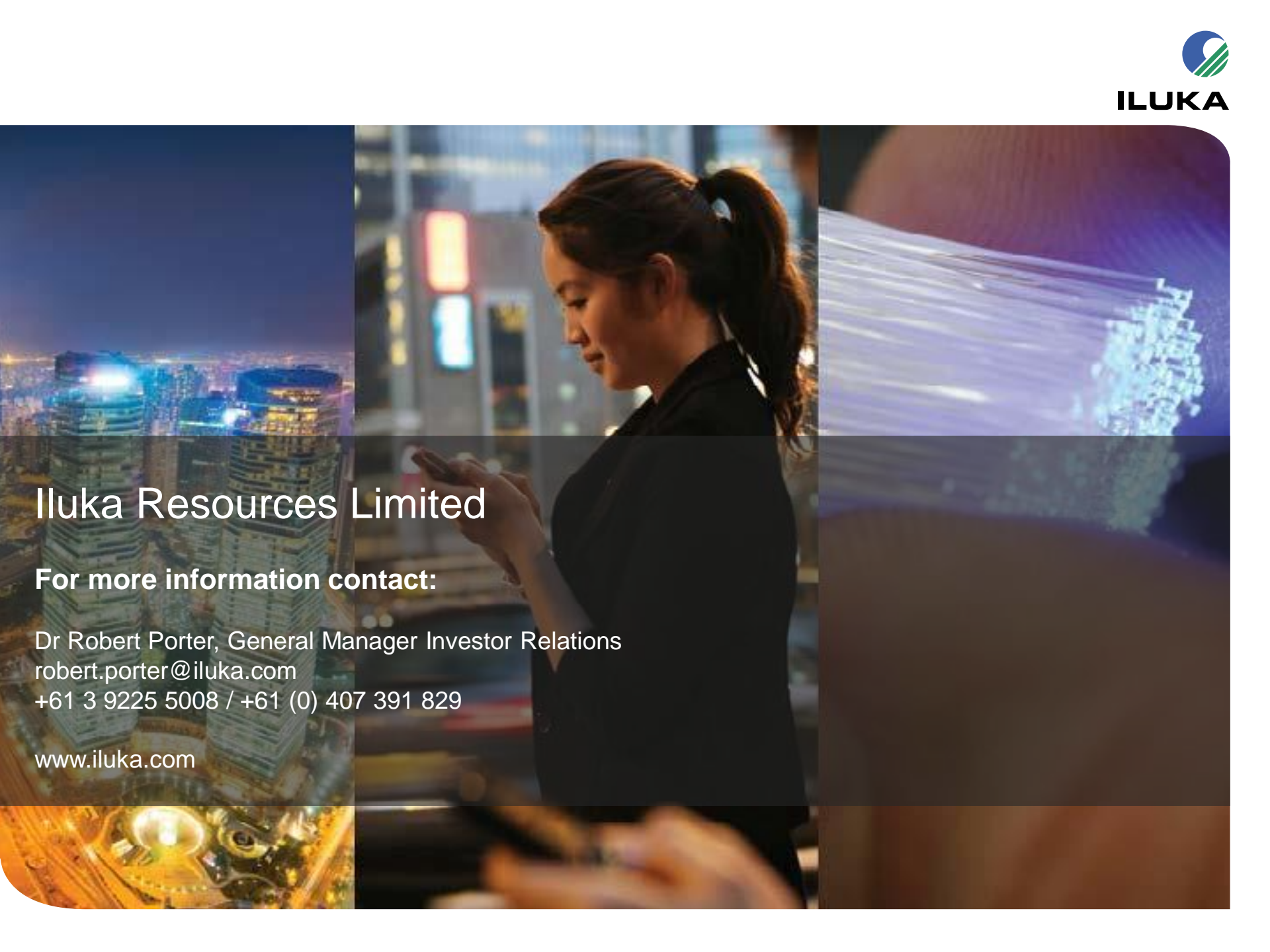
Welding Market

- Global welding market demand growth of 8-9%
- Total annual Rutile and HyTi demand 250ktpa:
 - driven by infrastructure spend in developing countries
 - China accounts for 2/3 global stick electrodes and 1/3 flux cord wire
- Iluka's natural rutile and HyTi90 are preferred
 - natural rutile quality and performance
 - over 200 customers (long tail)
- Currently strongest market segment
 - spot shortages of rutile 92 reported





Q&A



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