

22nd Industrial Minerals International Congress and Exhibition  
1 - 3 April 2014 : Vancouver, Canada



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1 April 2014

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## 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 product pricing assumptions;
- major changes in mine plans and/or resources;
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## Non-IFRS Financial Information

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.

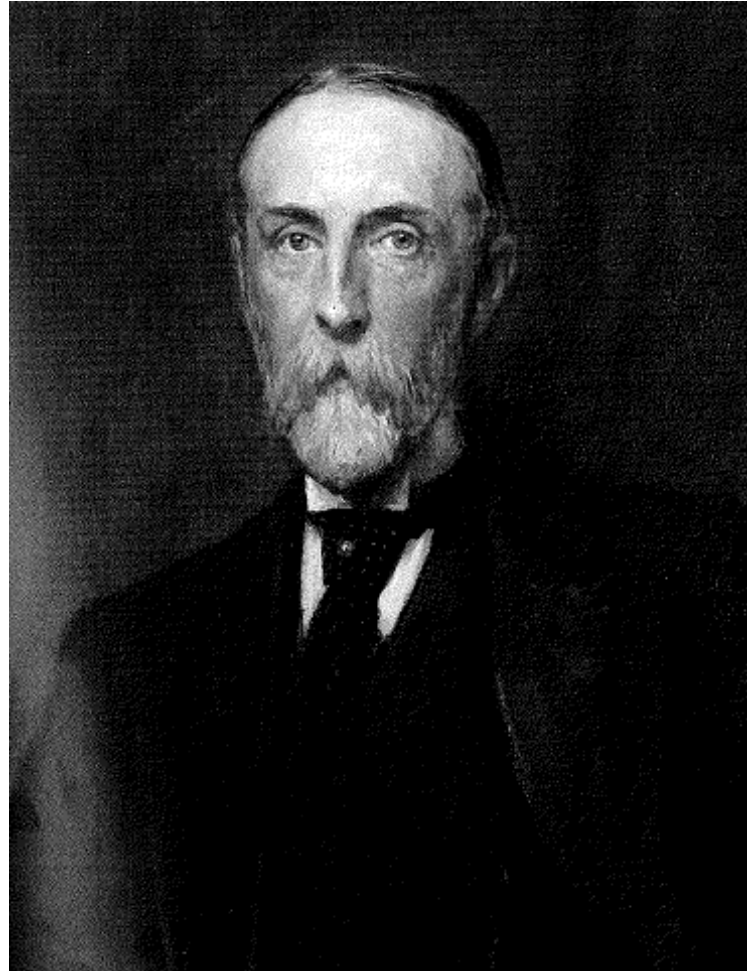
## *“Shifting Sands”*

- A changing mineral sands landscape
- The role of technology – past, present and future
- Iluka’s response

# South African Origins



Cecil John Rhodes (1853 - 1902)



Charles Rudd (1844 -1916)

# Australian Origins

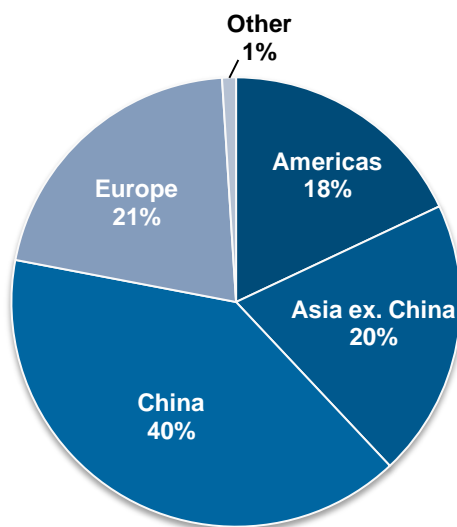


George Renison Bell (1890 - 1958)

# Company Overview

- Largest producer of zircon in the world
- Significant high grade titanium dioxide producer (rutile and synthetic rutile)
- ~10 years reserve life; resources<sup>1</sup> ~ 5 times reserves
- Royalty from BHP Billiton's Mining Area C in WA
- Strong balance sheet, 11.8% gearing as at 31 December 2013

**2013 Revenue by Region**

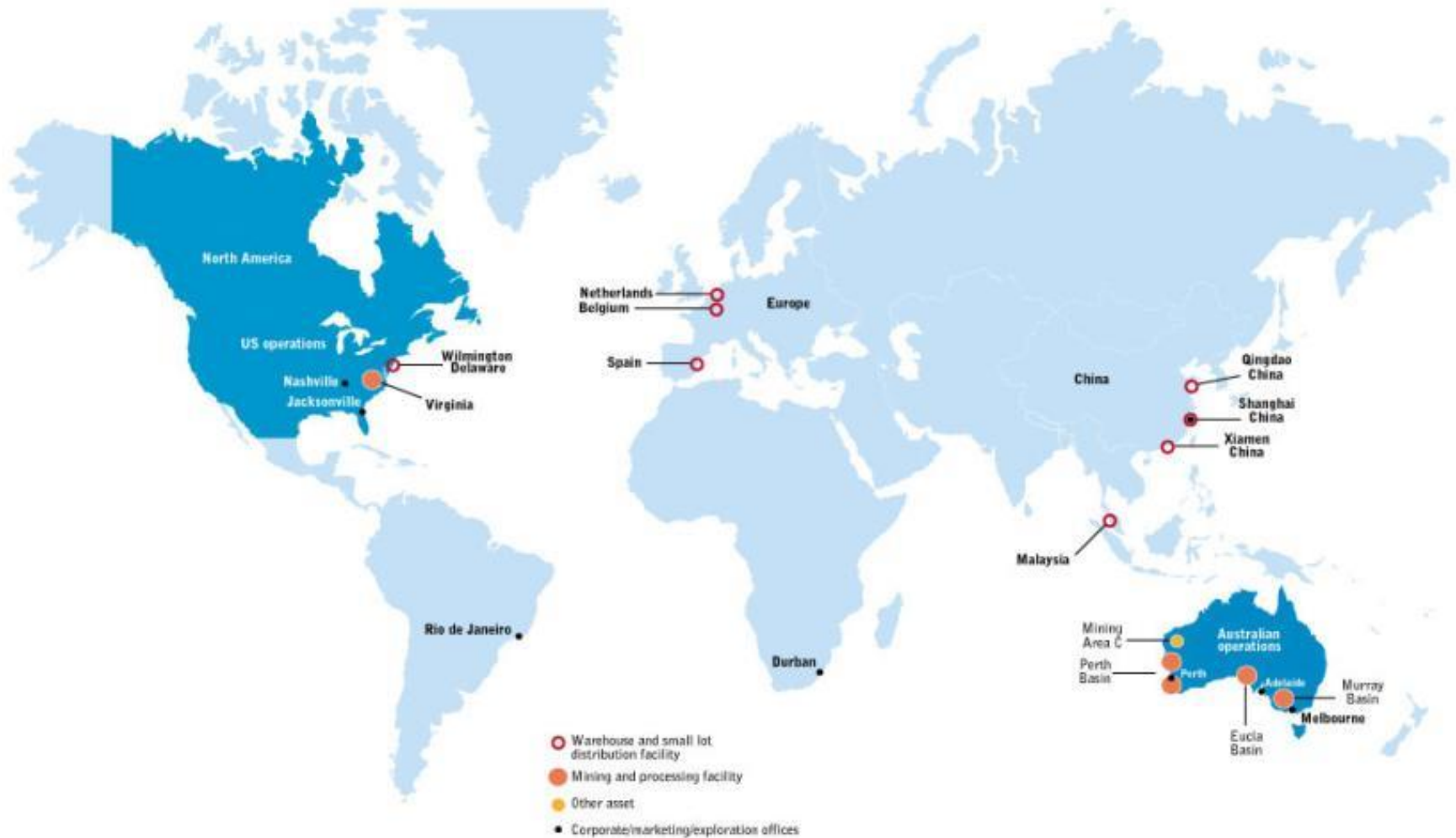


Note: Revenues include MAC royalty  
(1) As of December 2013  
(2) Reflects FY 2013 Revenue Distribution

**Notes:**

<sup>1</sup> Net of reserves

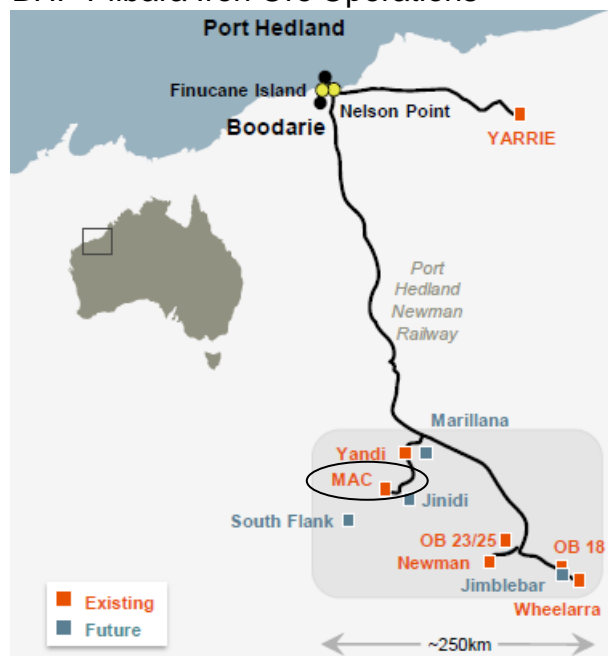
# Iluka Operating and Marketing Locations



# Mining Area C Iron Ore Royalty

- MAC covers part of BHP Billiton's iron ore mining operations in WA's Pilbara region, operated by BHP (85%) under a JV with Itochu and Mitsui

BHP Pilbara Iron Ore Operations



Source: BHP Billiton (Mar 2013)

Note: all production volumes based on wet metric tonnes.

- In perpetuity royalty stream
  - 1.25% of FOB A\$ revenues
- One-off payments: \$1m per 1mdmt production increase
- FY13 production for MAC of 50.5mdmt
- BHP WA Iron Ore capacity +220mtpa by end FY15
  - can cost effectively grow towards 260-270mtpa
- Capacity growth to come from:
  - debottlenecking, mobile crushers (+20mtpa); and
  - low cost option to expand Jimblebar to 55mtpa
- MAC an important part of non-Jimblebar growth

# Zircon Attributes and Applications

## Ceramics

Opacity (whiteness)

Water, chemical & abrasion resistant



Floor and wall tiles

Sanitary ware

Table ware

## Refractory and Foundry

Heat resistant

Non-reactive



Steel & glass manufacturing

Precision metal casting

## Zirconium Metal

Low thermal neutron absorption

Corrosion resistant

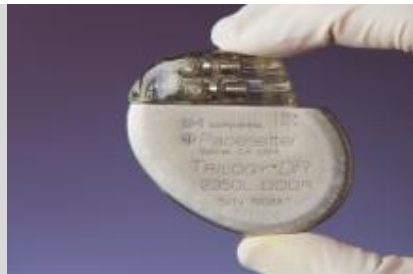


Nuclear reactor cores & fuel rods

Heat exchangers

## Zirconia & Zirconium Chemicals

Many unique properties



Electronics

Catalysts

Fibre optics

Catalytic converters

# Titanium Dioxide Attributes and Applications

## Pigment

Opacity (whiteness)  
UV resistant  
Non-toxic and inert



Paints and coatings  
Paper  
Inks  
Packaging

## Titanium Metal

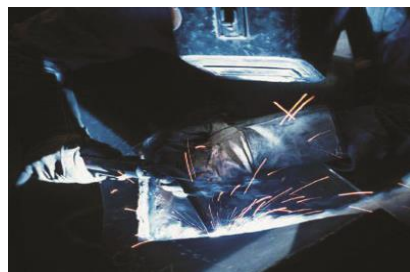
High strength to weight ratio  
Corrosion resistant



Aircraft engines and frames  
Defence armourments  
Chemical & desalination plants  
Medical applications  
Sporting equipment

## Welding Flux Agent

Corrosion resistant



Steel construction  
Ship building

## Nanomaterials

Many unique properties



Dye-sensitised solar cells  
Water purification  
Cancer treatments  
Noise absorption

# Robust Longer Term Demand Growth

**Urbanisation**



**Consumption based  
growth in developing  
economies**



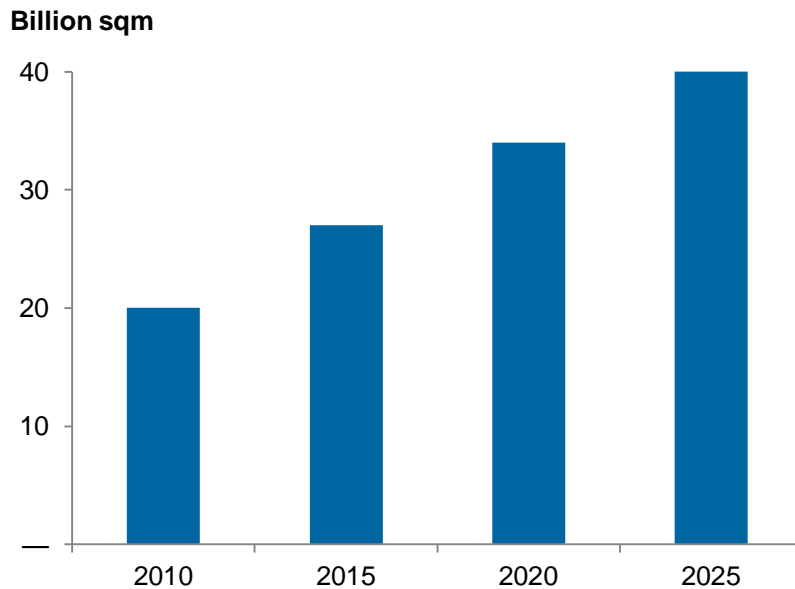
**Increasing array of  
applications**



# Urbanisation and Tiles

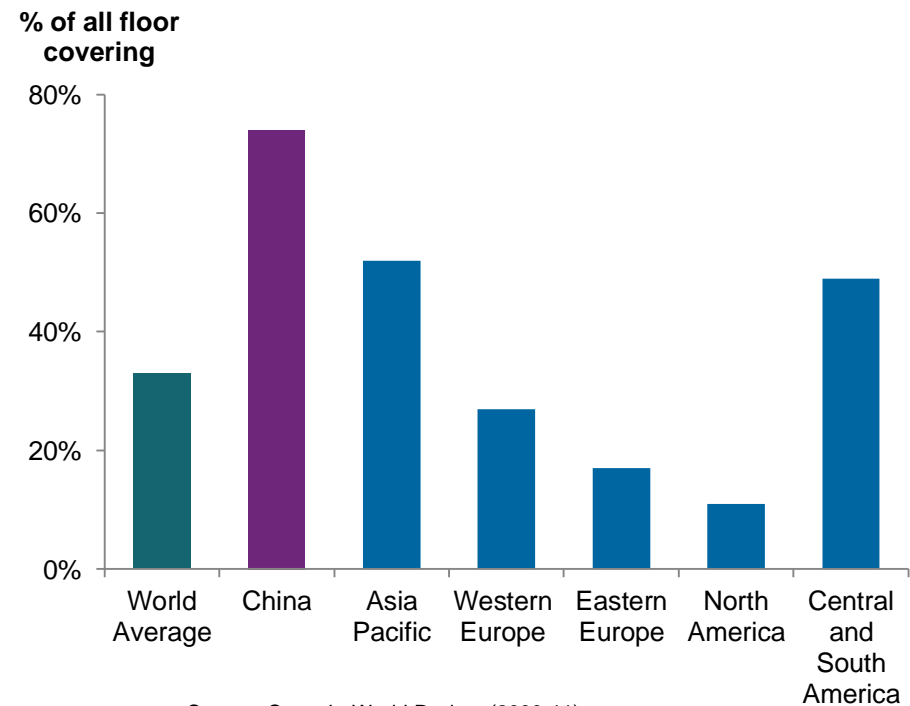
- Large urban population and floor space increases in developing countries
- Growth regions have preference for tiles as floor covering

**China Urban Residential Floor Space**



Source: Global Insight (2011), BHP (2011), RBS (2012)

**Tile Use as Floor Covering**

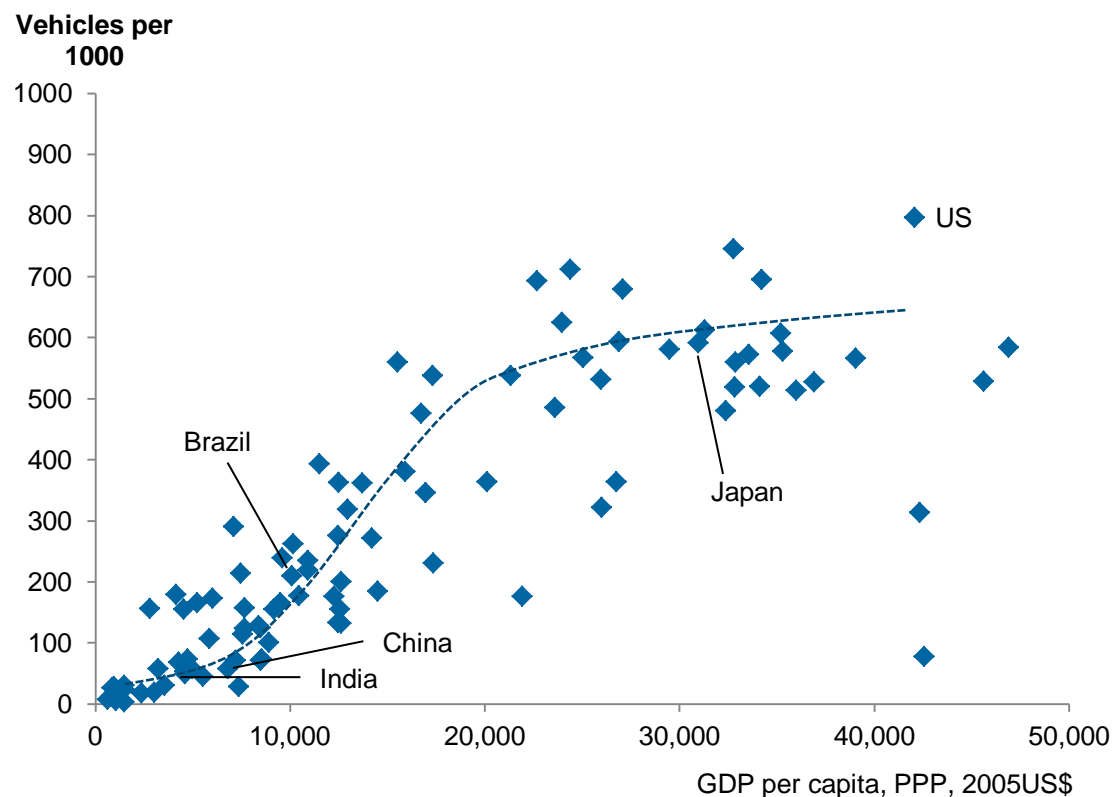


Source: Ceramic World Review (2000-11)

# Consumption Based Growth

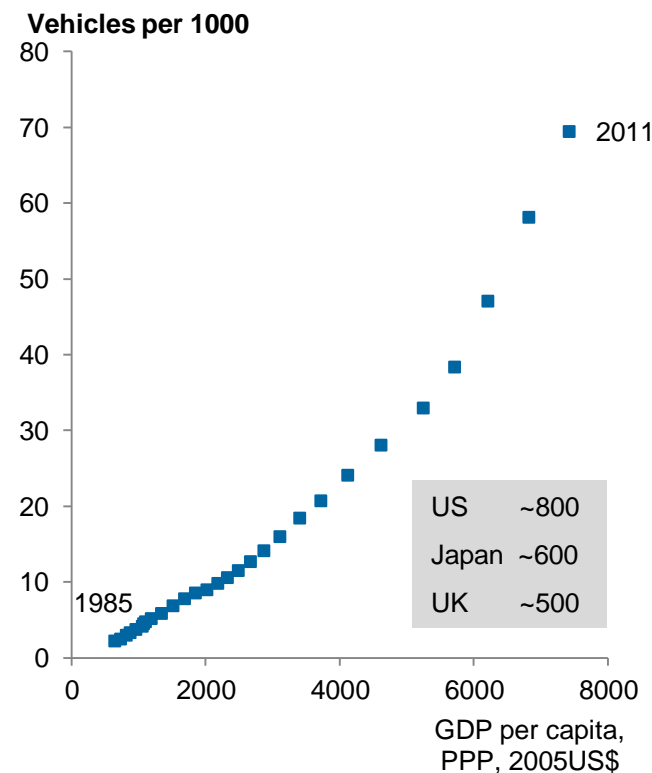
- Developing economies moving from investment to consumption based economic growth
- Rising incomes and living standards create S-curve demand trend

**Motor Vehicles Per Capita  
2010/11**



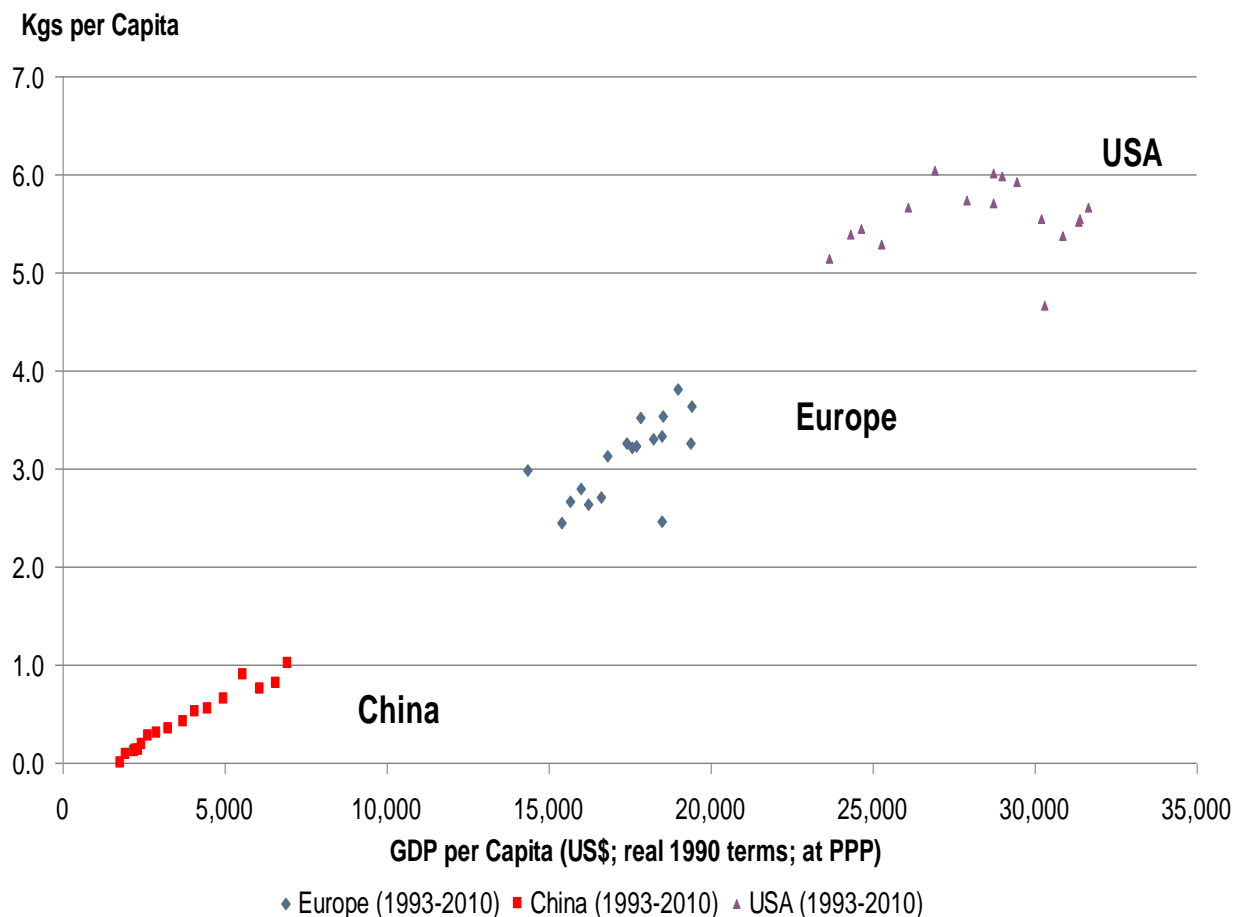
Source: World Bank (2013)

**China Motor Vehicles Per Capita  
1985-2011**



# Pigment Demand Intensity

## TiO<sub>2</sub> Feedstocks: Intensity of Use



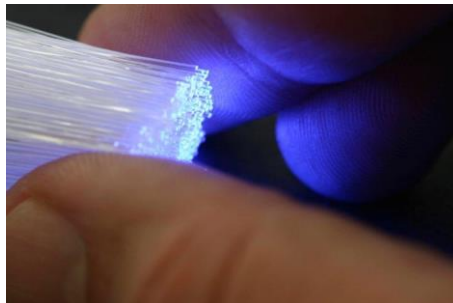
# Increasing Array of Applications

## Zircon Chemicals Applications

- Catalytic converters
- Nuclear fuel rods
- Oxygen and pressure sensors
- Fibre optics
- Electrical motherboards and capacitors

## Titanium Metal Applications

- Desalination plants
- Offshore oil and gas components
- Power plant cooling systems
- Aerospace
- Nanotechnologies
- Defence armaments



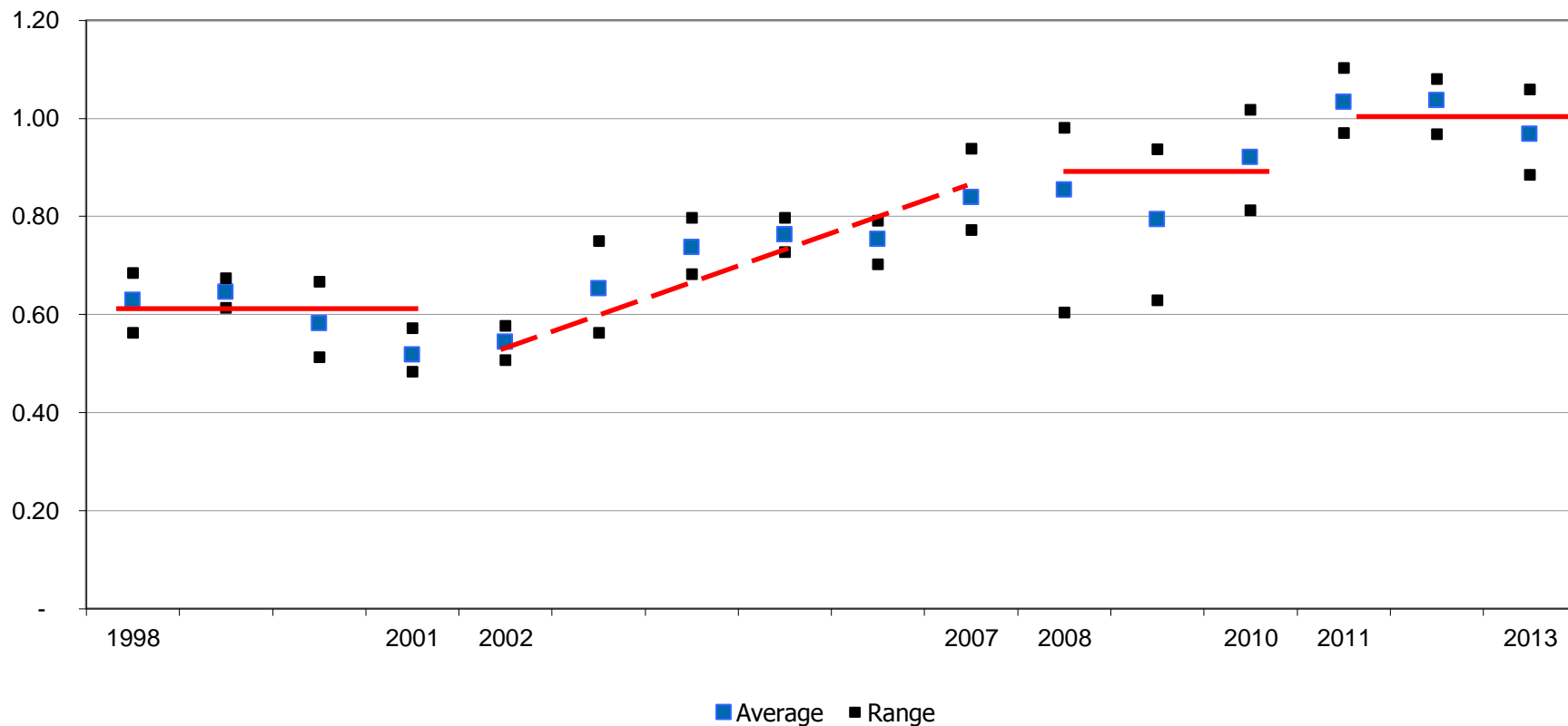
# A Changing Landscape

- Recent industry activity
  - Sichuan Lomon MOU with WTR (subsequently rescinded)
  - Huntsman/Rockwood
  - DuPont spinoff
  - Iluka re-acquisition of Puttalam resources in Sri Lanka
- Assets/operations/businesses for sale – all parts of value chain
- DuPont Altamira chloride pigment expansion ~200kt in 2015
- China advancement of chloride pigment capacity
  - Government policy settings encouraging move to chloride
  - multiple projects underway or foreshadowed
  - first chloride producers ramping up
- No “new news” on additional mineral sands ore supply
- No exploration

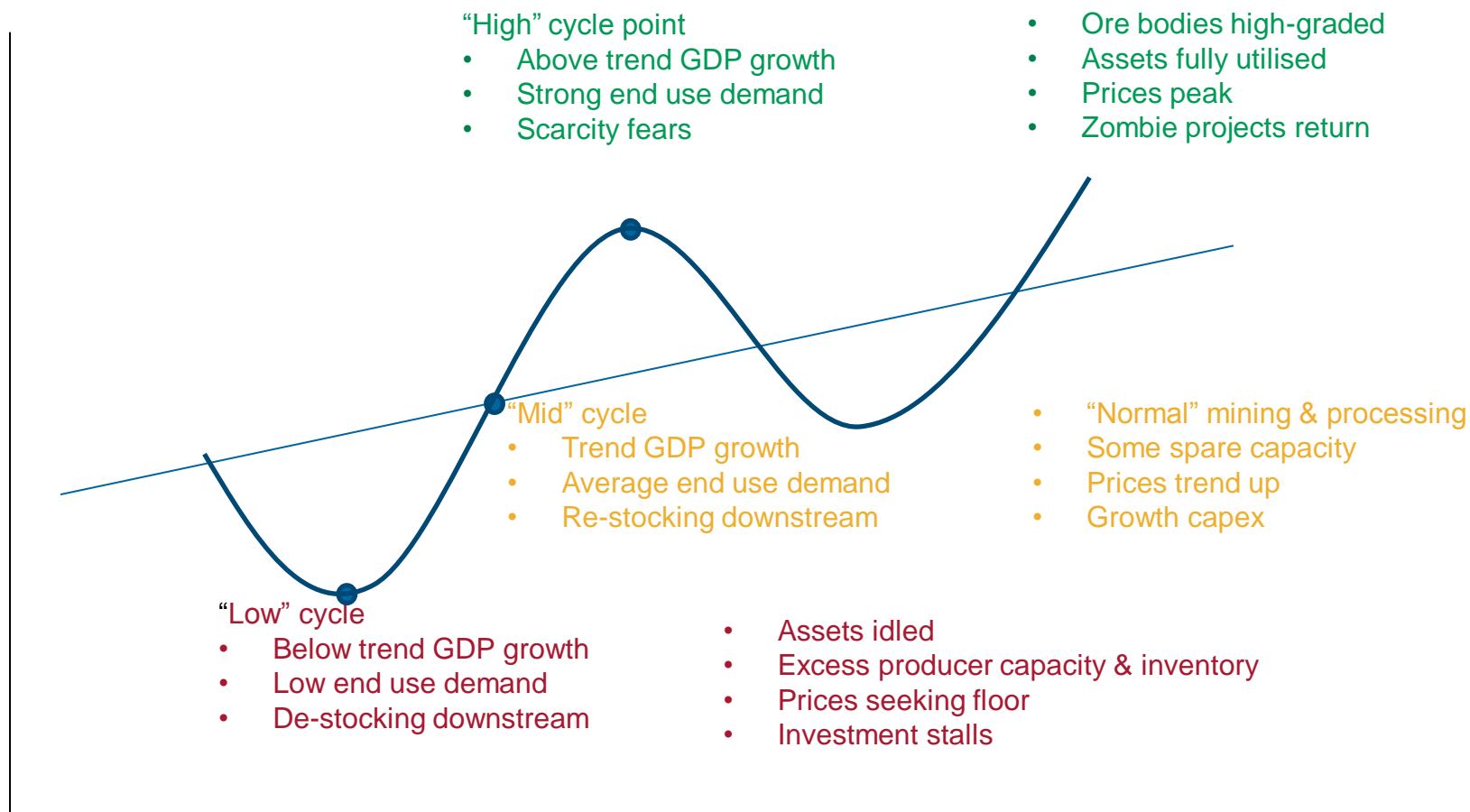
# Exchange Rate Pressures

## 1998 to 2013

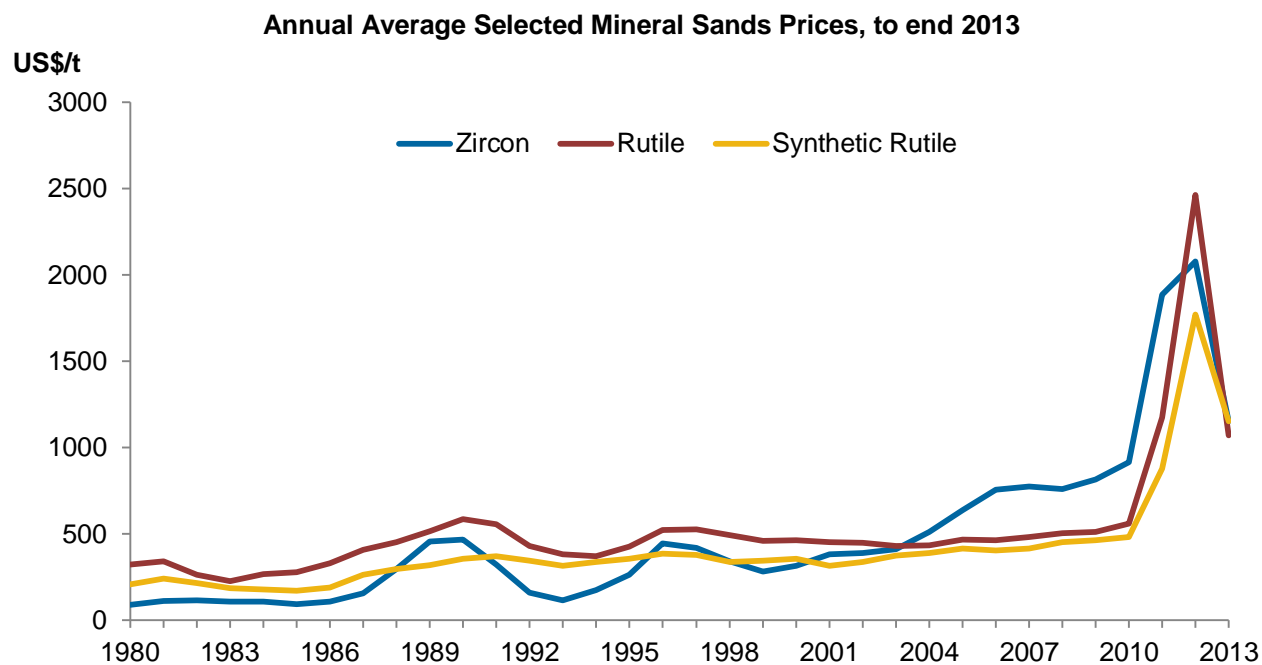
A\$ : US\$ FX Rate



# Mineral Sands Cycle Characteristics



# Price Volatility

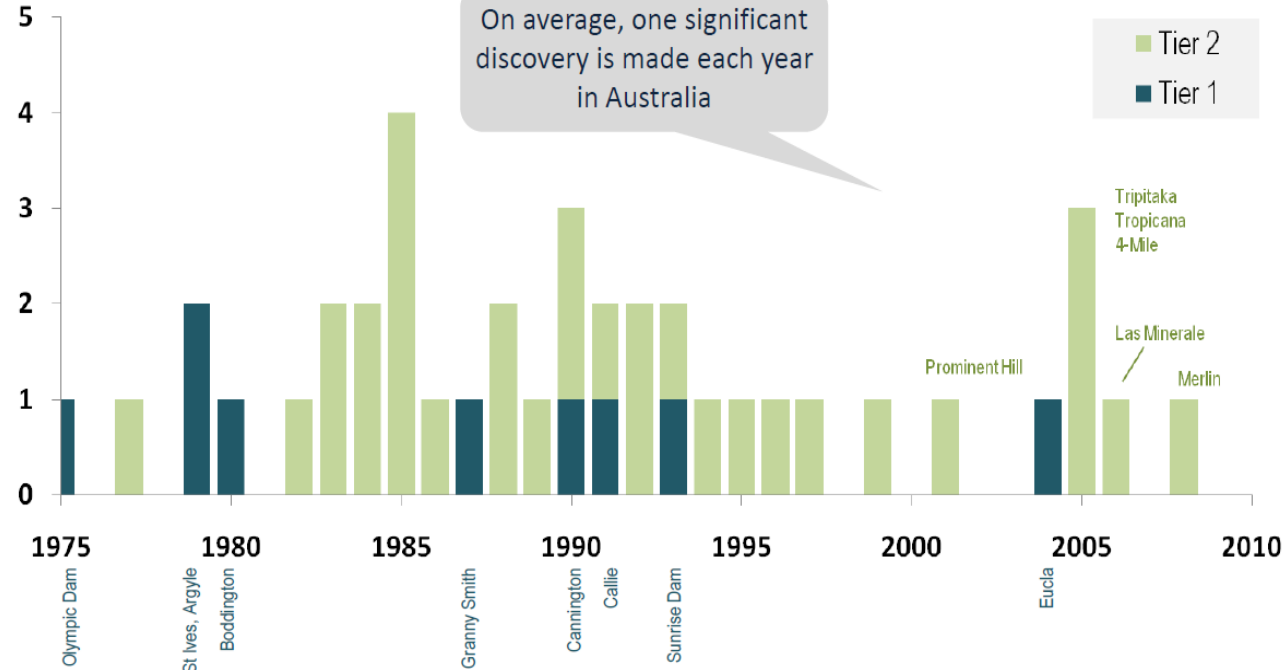


Source: Iluka and TZMI

# Tier 1 & 2 Discoveries: Australia

## Tier 1&2 Discoveries : Australia

Number of Discoveries



Tier 1 = "Company Making" Mines. They are large, long life and low cost

Tier 2 = "Significant" Deposits. Has some, but not all, of the characteristics of a Tier 1

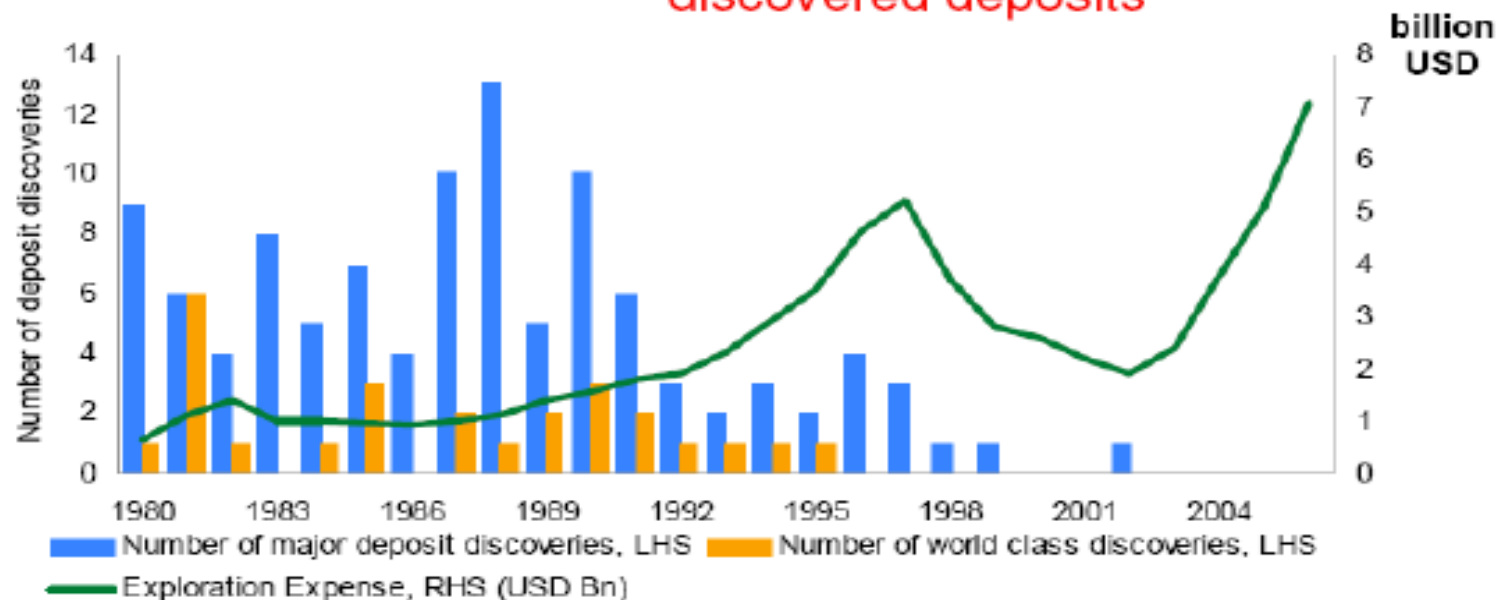
Source: MinEx Consulting May 2010

# Discovery Rate of Major Mineral Deposits

Metal minerals reserves

## Discovery rate of major mineral deposits

low expectations of yet to be discovered deposits

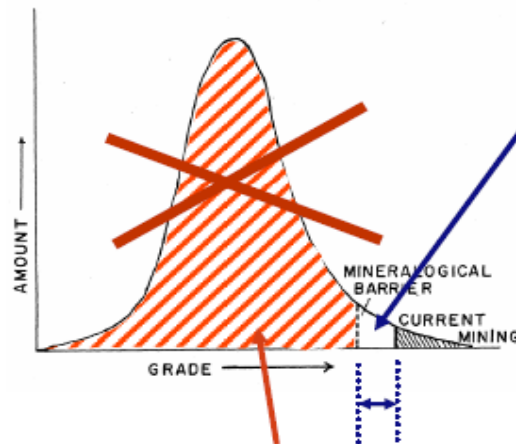


Sources: BHP Billiton, MEG, UBS WMR. , Raw Materials Group

# Mineralogical and Energy Intensity Barriers

Energy scarcity means materials scarcity

Mineralogical barrier for elements  $\geq 0.1\%$   
(mass) earth's crust



Remaining relevant resources of  
**aluminum, iron, silicon,**  
**magnesium, titanium, ....**

Source: "Exploring the resource  
base" by Brian J. Skinner, Yale  
University, 2001

**Extremely energy-intensive to extract**

# What Prompts Innovation

- Desire to achieve
- Problem Solving
- Desperation / Survival
- Mistakes
- Risk Management
- Economics
- Tyranny of distance

# Heavy Minerals Innovation

## Innovation Examples

### 1920's

Zircon Flotation

### 1930's

- Monazite concentrate (wet tables) ➡ Cerium
- Kroll process ➡ Ti Sponge

### 1940's

- Air tables ➡ HM Separation
- Electro-magnetic separation ➡ Ilmenite from rutile concentrate
- HT roll electrostatic plate separator
- Dredge mining – pontoon mounted pump, land based spiral plant

# Heavy Minerals Innovation

## Innovation Examples

### 1950's

- Chloride pigment
- Australian rutile → Titanium metal for aircraft
- Suction cutter dredge
- Rock ilmenite → Sulphate slag, Canada

### 1960's

- Improved fibre glass spiral and cone concentrator
- Becher SR, Australia

### 1970's

- Ilmenite → Chloride slag, South Africa

### 1980's

- Rare earth roll magnets, hydrosizers, up current classifiers
- "Wallace" air core drill
- Circular slag furnace, Norway

# Iluka Synthetic Rutile Evolution

Kiln	Location	Commissioned	Decommissioned
'A'	South Capel	1968	1993
'B'	South Capel	1974	1997
SR1	North Capel	1986	
'C' = SR3	Narngulu	1988	
'D' = SR4	Narngulu	1991	
SR2	North Capel	1997	

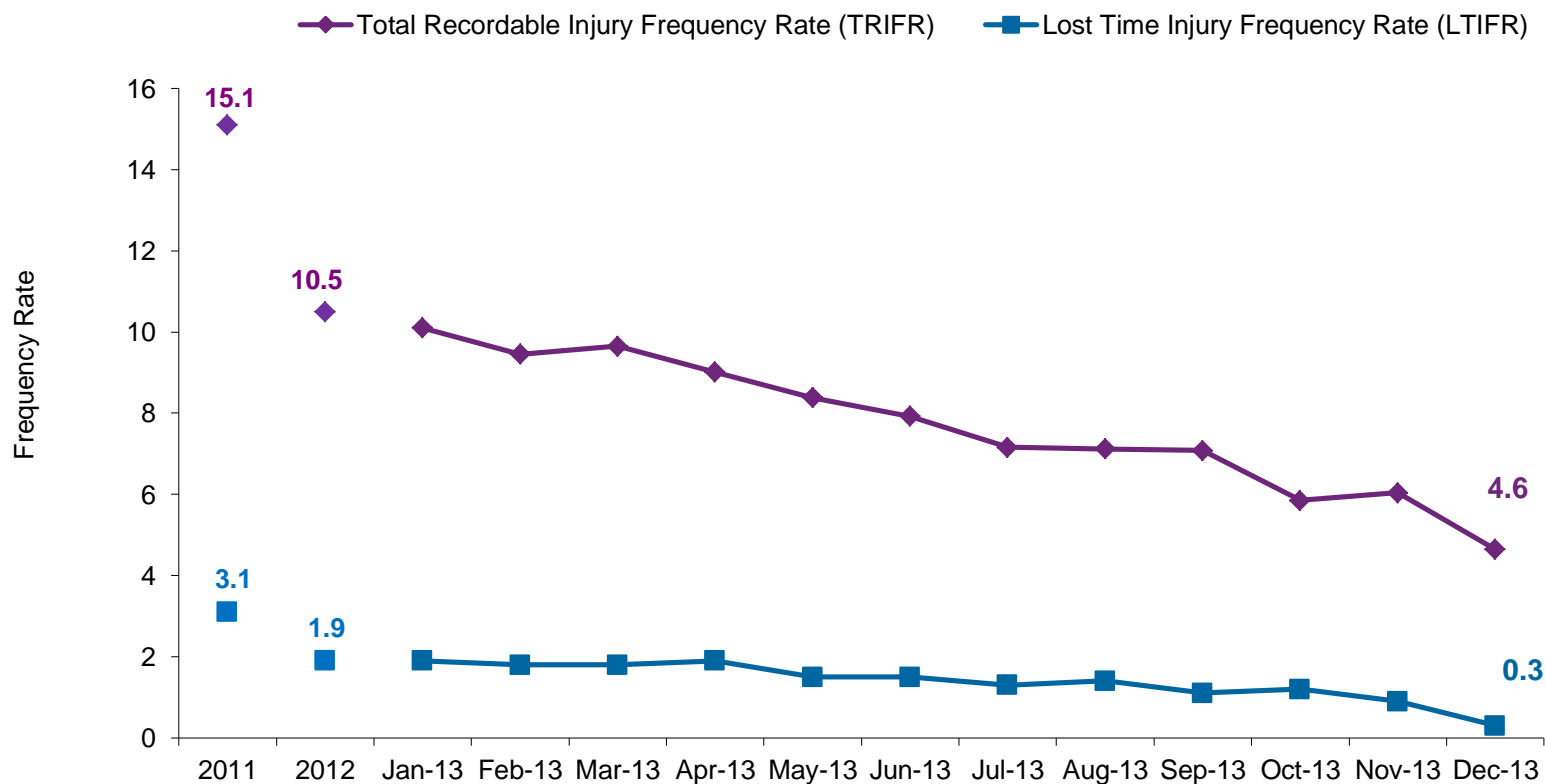
# Where To From Here



# Iluka Response Game Plan



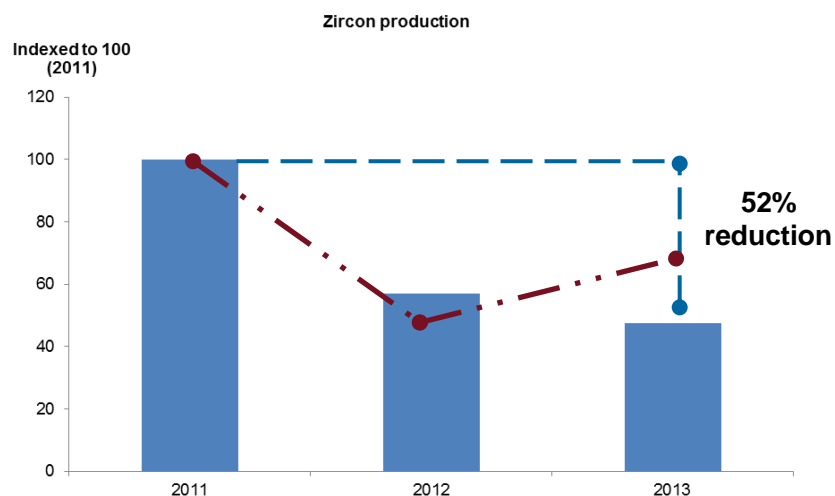
# Continued Improvement in Safety Performance



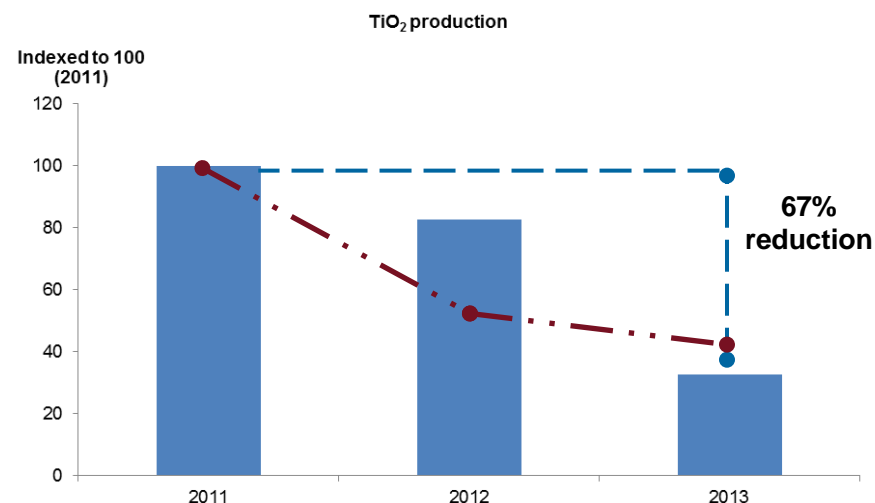
- 63% reduction in TRIFR since 2011 (commencement of Safe Production Leadership)
- 90% reduction in LTIFR since 2011

- Focus on shareholder returns through the cycle
- Flex asset operation in line with market demand
- Continue market development through the cycle
- Preserve/advance mineral sands growth opportunities
- Maintain strong balance sheet
- Continue to evaluate/pursue corporate growth opportunities
- Act counter-cyclically where appropriate

# Production Flex – Zircon & High Grade TiO<sub>2</sub>

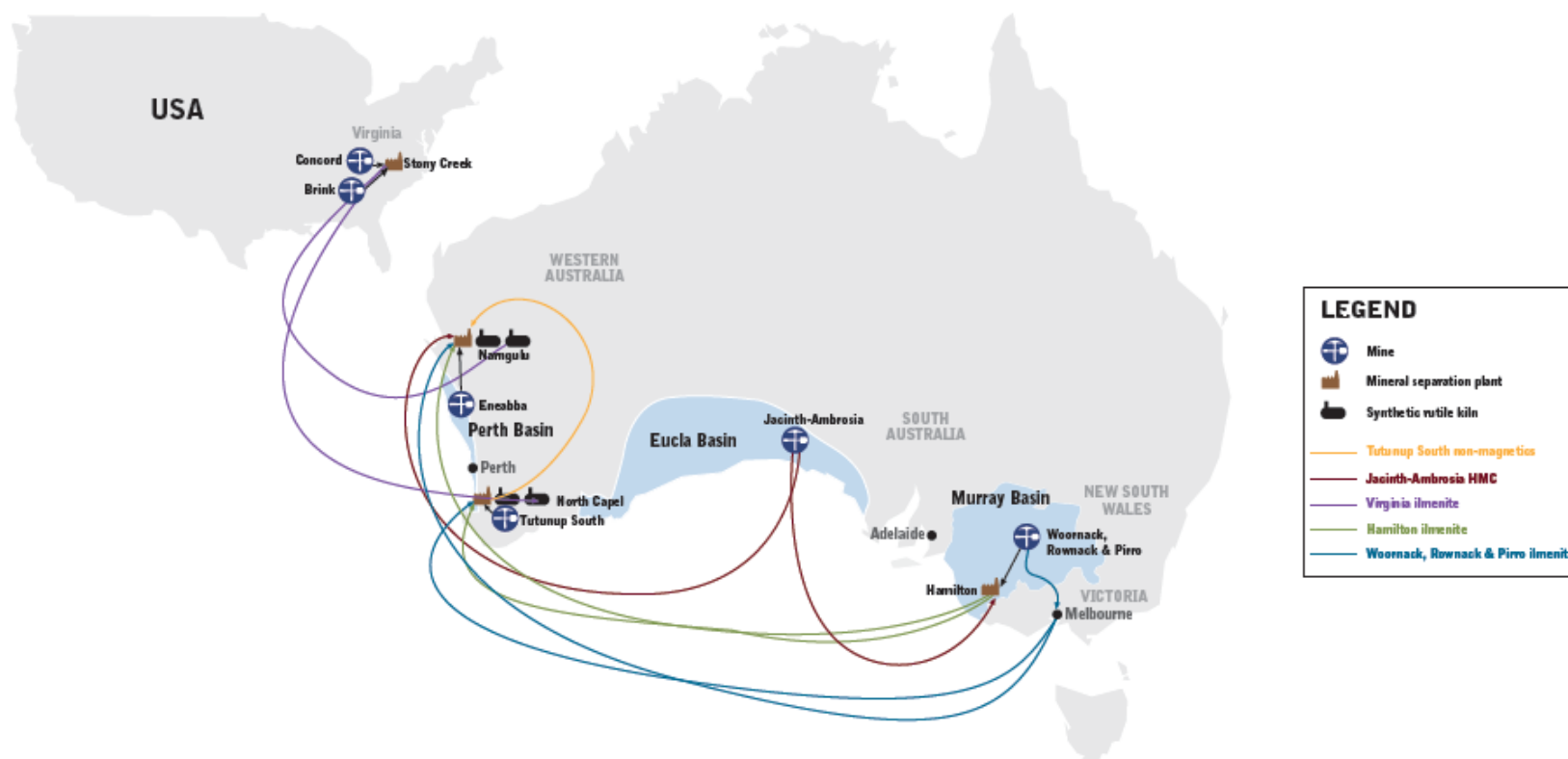


—●— Sales profile - zircon

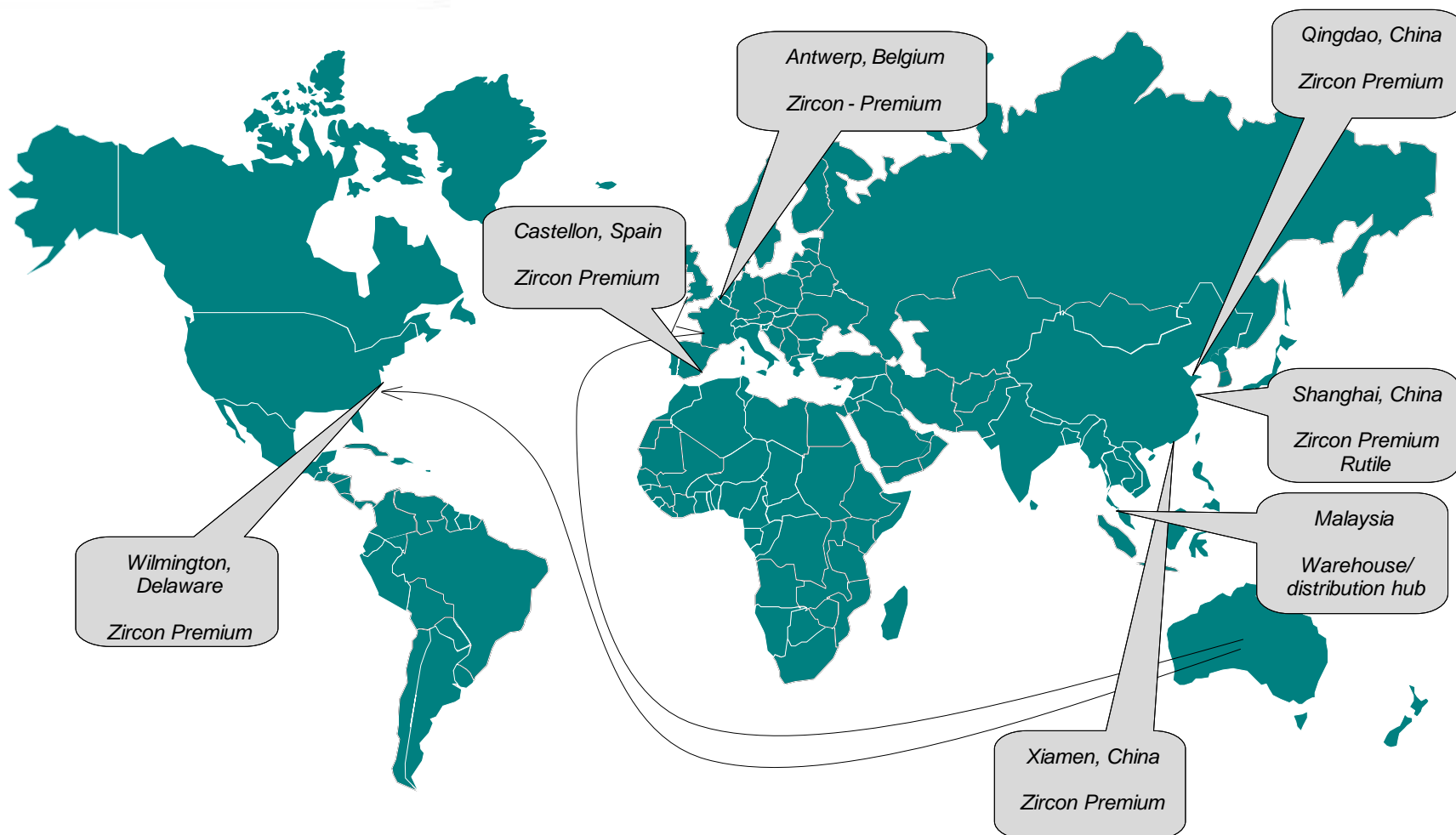


—●— Sales profile (rutile and synthetic rutile)

# Integrated Operations

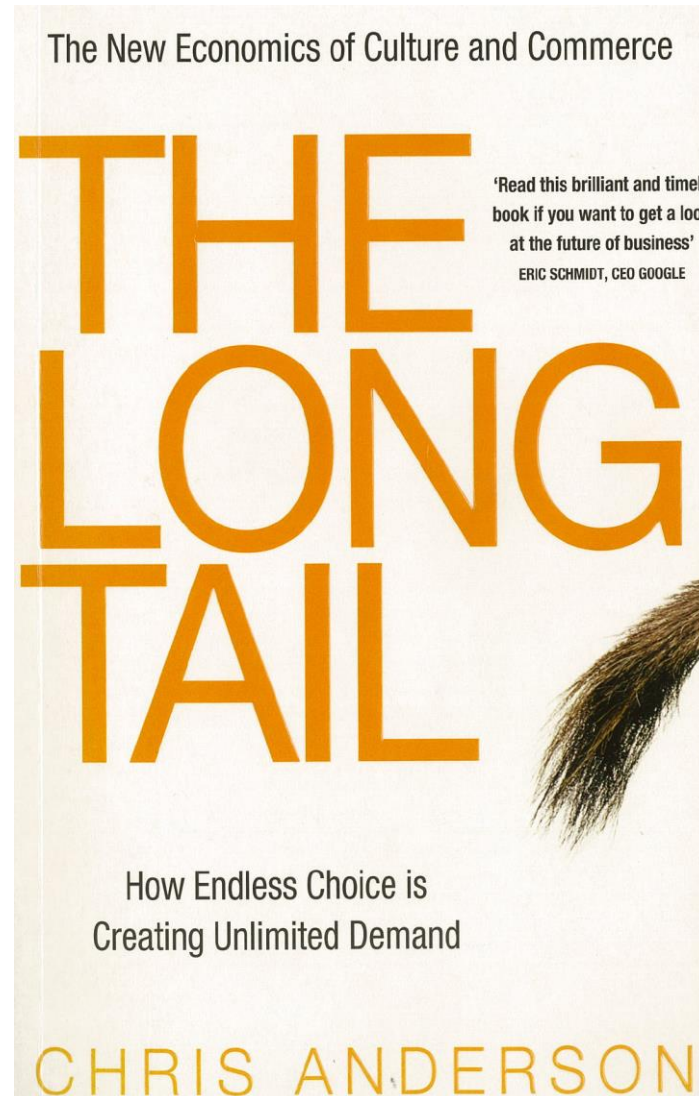


# Marketing and Supply Evolution



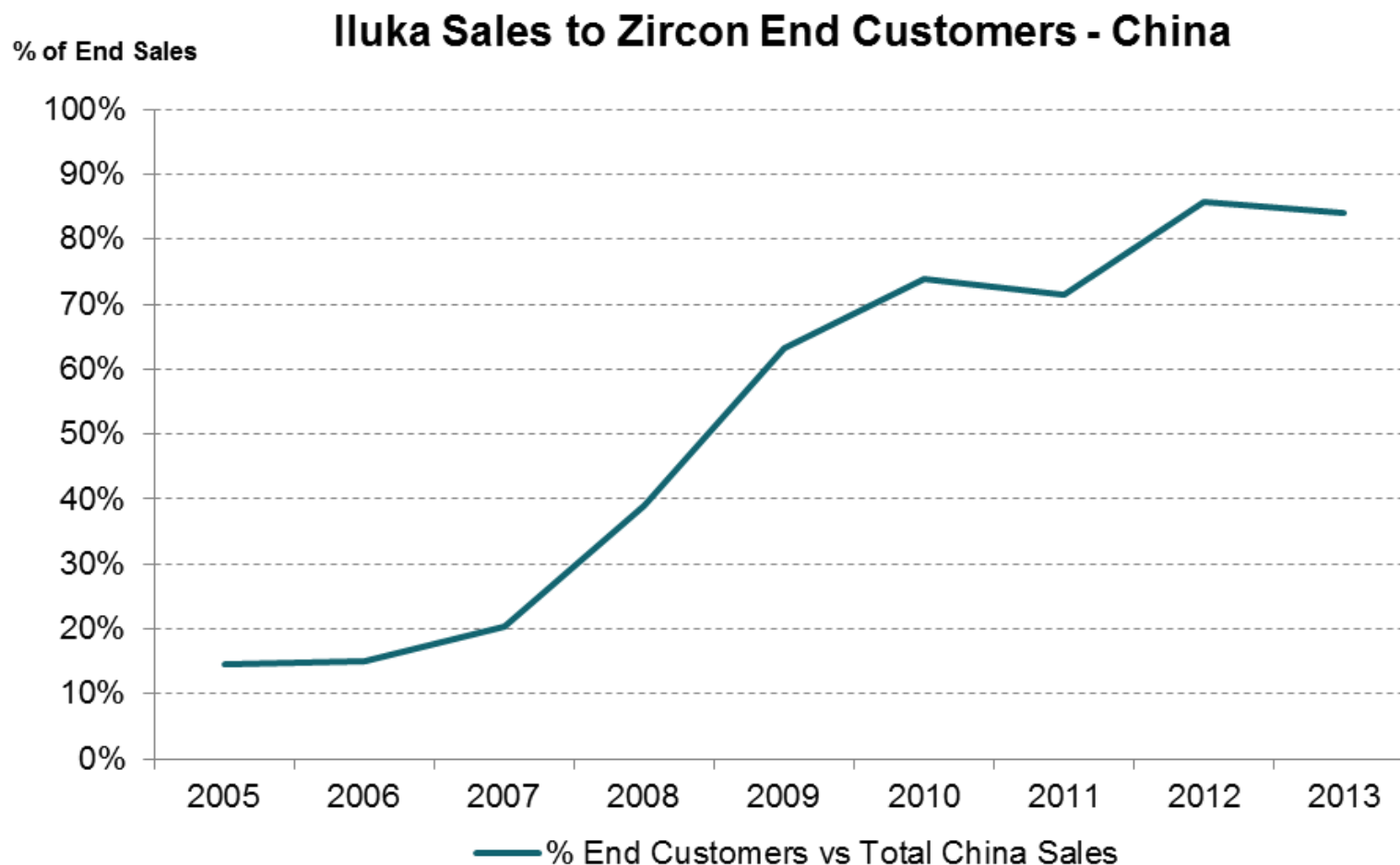
- Iluka has grown its presence in growth markets, especially China
- Iluka's high grade titanium customer base has grown from 20 customers in 2007 to 75 customers as at September 2011
- Iluka's zircon customer base has grown from 45 customers in 2007 to 135 customers as at September 2011

# The Long Tail

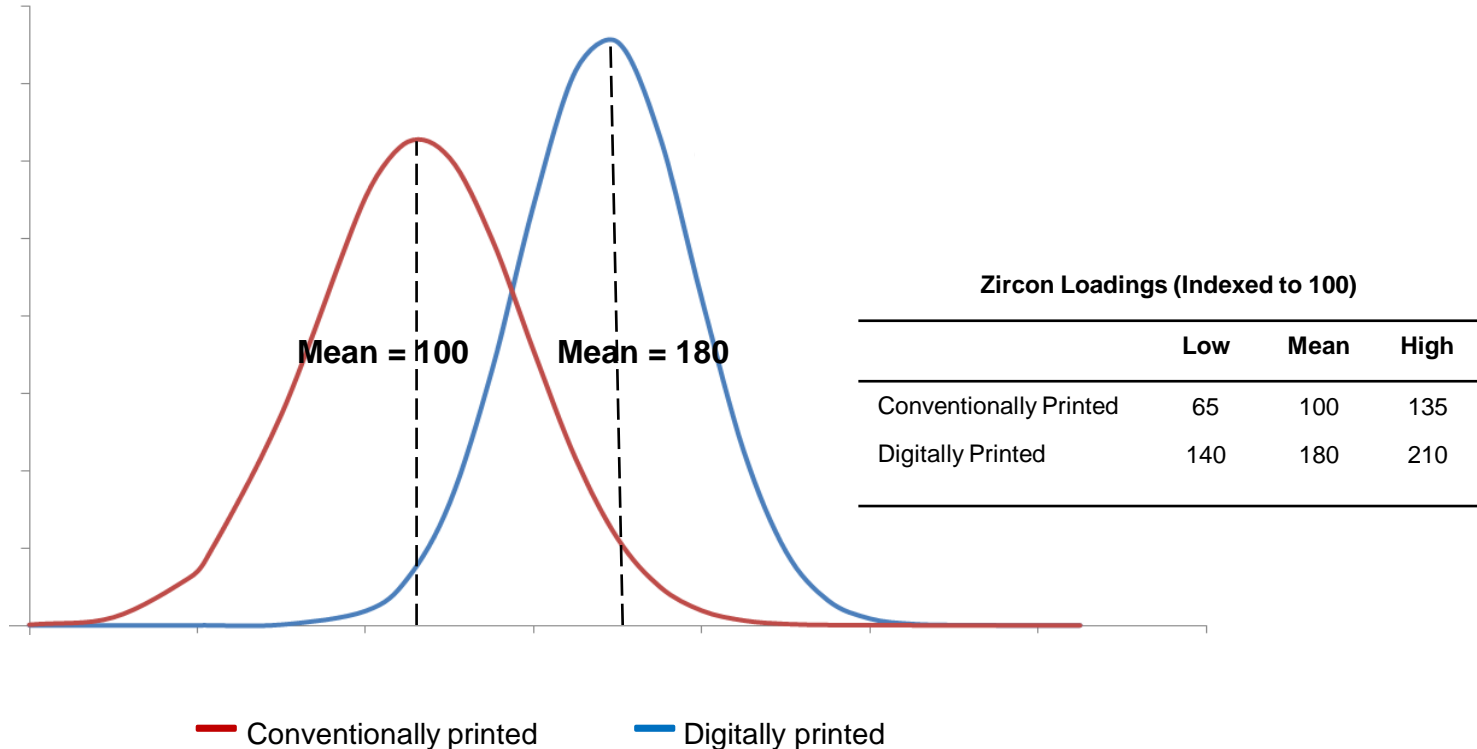


# China

## Direct Sales to China Customers



# Zircon Loading - Digital vs Conventionally Printed Tiles



## Notes:

- This slide charts the distribution of zircon loadings for conventionally printed and digitally printed tiles, from Iluka's 2013 ceramics tile survey. The zircon distribution is shown as grams/sqm (data excluded for proprietary reasons).
- The mean of conventionally printed tile zircon loadings is shown as 100. Digitally printed mean zircon loading is shown as 180, hence 80% higher than the mean of conventionally printed tiles. The low and high zircon loadings for both types of tiles are shown in the table at 5% and 95% confidence intervals.

# Mineral Sands Project Development

Project	Location	Characteristics
<b>Pre-execute</b>		
Hickory	Virginia, USA	<ul style="list-style-type: none"> <li>• Chloride ilmenite with associated zircon</li> <li>• Utilisation of existing mineral separation plant (MSP)</li> <li>• ~ 10 year mine life</li> </ul>
<b>Definitive Feasibility Study</b>		
West Balranald	Murray Basin, NSW	<ul style="list-style-type: none"> <li>• High grade rutile, zircon, ilmenite</li> <li>• Next planned mine development in Murray Basin</li> <li>• ~ 8 year mine life</li> </ul>
Cataby	Perth Basin, WA	<ul style="list-style-type: none"> <li>• Chloride ilmenite with associated zircon</li> <li>• Next planned mine development in WA</li> <li>• ~ 6 year initial mine life</li> </ul>
Eucla Basin Satellite Deposits	Eucla Basin, SA	<ul style="list-style-type: none"> <li>• 3 chloride ilmenite with associated zircon deposits</li> <li>• Close proximity to Jacinth-Ambrosia infrastructure</li> <li>• Mine life extension to ~2027+</li> </ul>
Aurelian Springs	North Carolina, USA	<ul style="list-style-type: none"> <li>• Chloride &amp; sulphate ilmenite with associated zircon</li> <li>• Utilisation of Virginia MSP</li> <li>• ~ 11 year mine life</li> </ul>
<b>Scoping / Pre PFS</b>		
Puttalam	Sri Lanka	<ul style="list-style-type: none"> <li>• Large, long life mainly sulphate resource, re- acquired by Iluka in 2013</li> </ul>

## Notes:

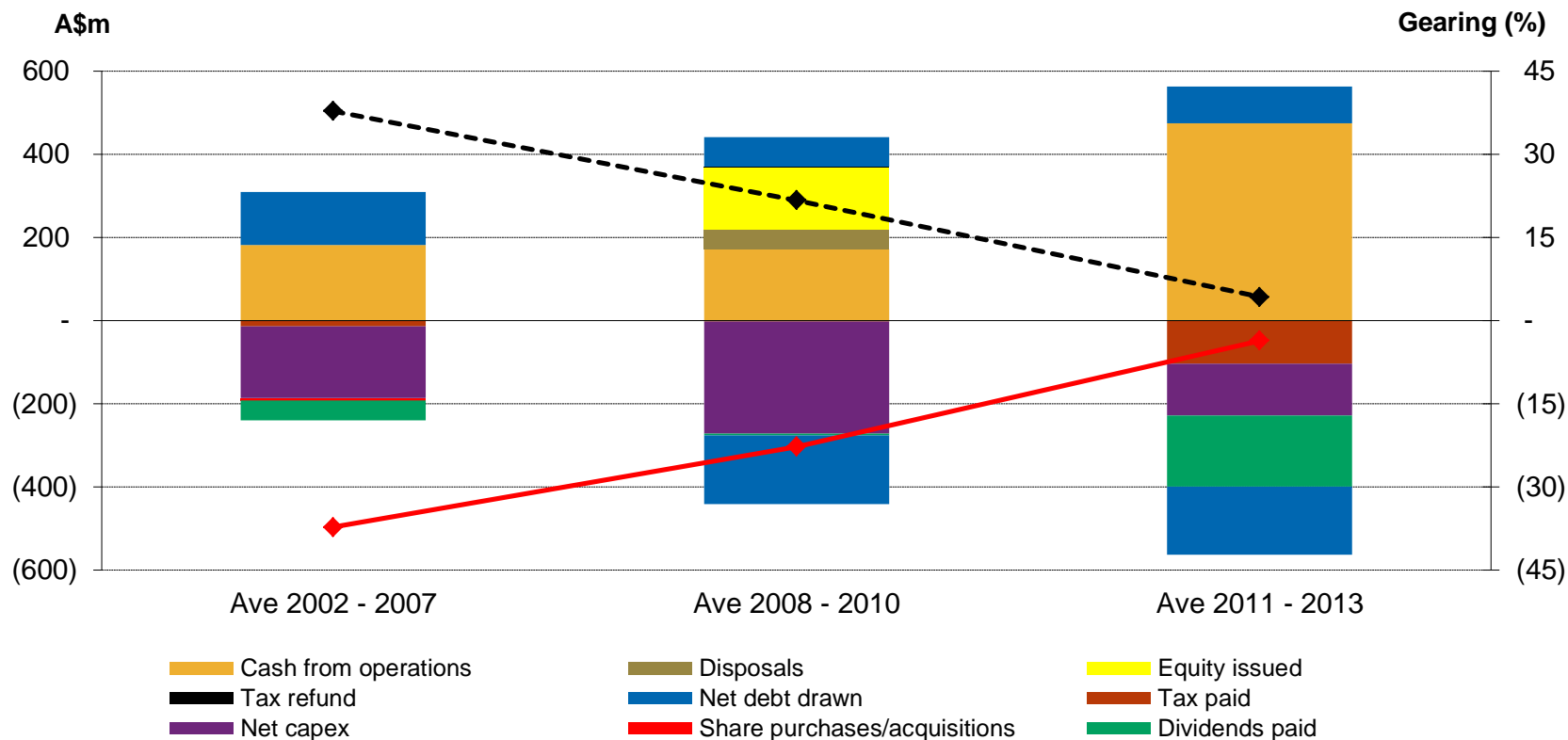
In some cases, particularly the US, projects may be a significant component of the carrying value of the associated assets.

# WRP Mine Move



# Iluka Response

## Sources and Uses of Funds



# Metalysis – Strategic Fit

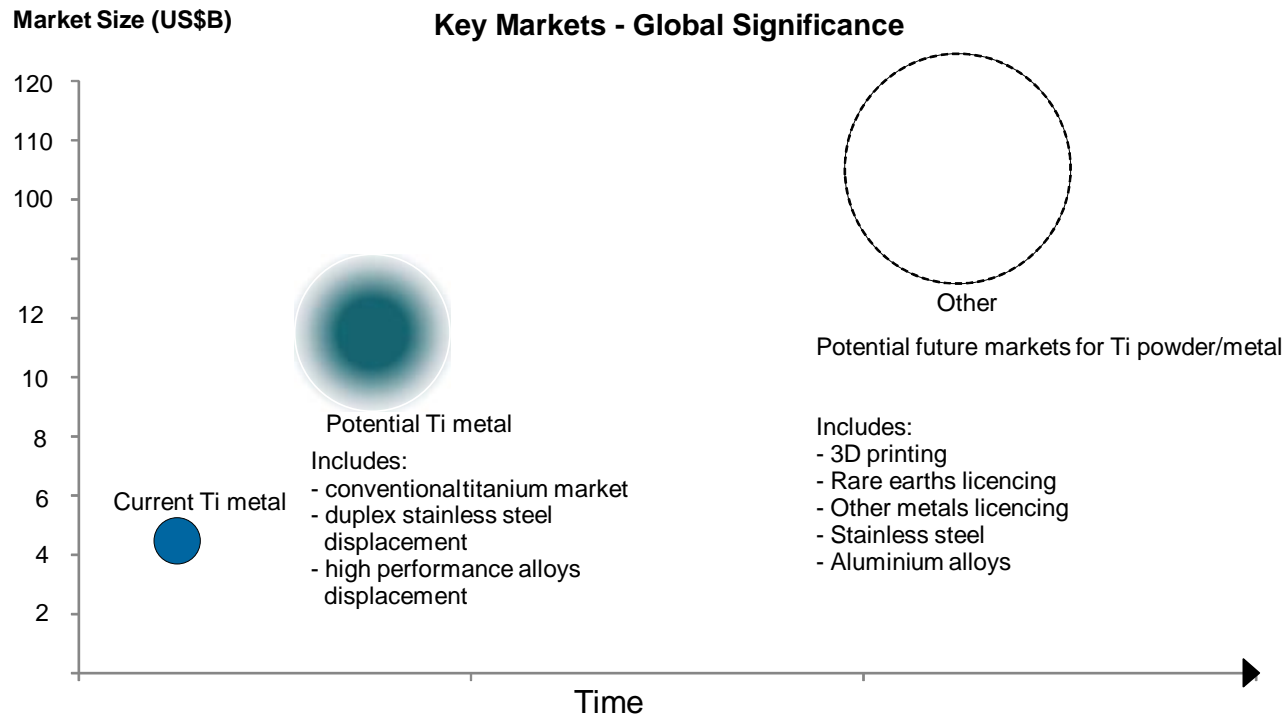
- Adjacencies with mineral sands business
  - could transform demand for titanium metal
- “Right” stage of technical/commercial development
- Ability for Iluka to contribute more than cash
  - supply of high grade titanium feedstocks
  - process engineering
  - project management
  - product development
  - global marketing
- Significant investment returns possible

# New Investment - Metalysis

- 18.3% equity interest in Metalysis (UK VC Company) for \$22.5 million
- Metalysis can produce titanium powder directly from rutile
  - process has the potential to materially reduce the cost of titanium powder
- Metalysis process
  - developed patented production process for high value metals at lower cost
  - initial application tantalum metal powder
  - close to commercialisation
  - plan to construct processing plant
  - titanium (Ti) metal viewed as key market application for technology
- Potentially disruptive technology. If successfully commercialised:
  - new growth pathway for high value metals and alloys
  - major impact on Ti metal demand
  - application to new manufacturing technologies – including 3D printing

# Ti Metal Industry – Potential

- Lower cost Ti metal compete with High Performance Alloys (US\$4.5b market) & Duplex stainless steel (US\$2.3bn market)
  - access to a small percentage of these markets would significantly increase the size of the Ti metal industry
- 3D printing: potential market size of \$230-\$550 billion per year by 2025\*
- Flow through increase in demand for titanium feedstocks (~2.5t of rutile required for 1t of Metalysis Ti powder)



- Focus on shareholder returns through the cycle
- Flex asset operation in line with market demand
- Continue market development through the cycle
- Preserve/advance mineral sands growth opportunities
- Maintain strong balance sheet
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- Act counter-cyclically where appropriate

# Iluka Resources Limited

[www.iluka.com](http://www.iluka.com)

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