



Andromeda

Investor Update

Sydney

8-9 June 2023

ASX:ADN

www.andromet.com.au

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Mineral Resources and Ore Reserves Estimates

As an Australian company with securities listed on the Australian Securities Exchange (ASX), Andromeda is subject to Australian disclosure requirements and standards, including the requirements of the Corporations Act and the ASX. Investors should note that it is a requirement of the ASX listing rules that the reporting of ore reserves and mineral resources in Australia comply with the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the **JORC Code**) and that the Ore Reserve and Mineral Resource estimates underpinning the production targets in this presentation have been prepared by a Competent Person in accordance with the JORC Code.

Information that relates to Mineral Resources estimates has been previously announced to ASX on 23 December 2019, "Significant increase in Mineral Resource for the Poochera Kaolin Project", 29 September 2020, "New mineral resource estimate for Hammerhead Halloysite-Kaolin Deposit" and 11 August 2020, "New Mineral Resource for the Mount Hope Kaolin project", all available at <https://www2.asx.com.au/markets/company/adn>. Andromeda confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. Andromeda confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

Competent Person's Statements

Information in this announcement has been compiled by Mr. James Marsh a member of The Australasian Institute of Mining and Metallurgy (AusIMM). Mr. Marsh is an employee of Andromeda Metals Limited who holds shares and options in the company and has sufficient experience, which is relevant to the style of mineralisation, type of deposits and their ore recovery under consideration and to the activity being undertaking to qualify as Competent Persons under the 2012 Edition of the 'Australasian Code for reporting of Exploration Results, Mineral Resources and Ore Reserves' (JORC Code). This includes Mr. Marsh attaining over 30 years of experience in kaolin processing and applications. Mr. Marsh consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.



Acknowledgement of Country

I begin today acknowledging the Traditional Custodians of the people on whose land we are gathered here today, the Gadigal people of the Eora Nation, and on the lands on which Andromeda operates, being the Kurna people of the Adelaide Plains and the Wirangu people of South Australia's Eyre Peninsula.

We pay our respects to their Elders past and present and extend that respect to other Aboriginal and Torres Strait Islander people who are present today.



Our Board and Executive Team

New Board with exceptional industry expertise



Mick Wilkes
*Independent Non-Executive Chair
Chair of Remuneration and
Nomination Committee*



Melissa Holzberger
*Non-Executive Director
Chair, Sustainability & Governance
Committee*



Austen Perrin
*Non-Executive Director
Chair, Audit & Risk Committee*

Expanded executive team with strong operational capabilities



Bob Katsioularis
*Chief Executive Officer &
Managing Director*



James Marsh
*Executive Director,
Sales & Marketing*



Joe Ranford
Chief Operating Officer



Tim Anderson
Chief Commercial Officer



Sarah Clarke
*General Counsel and
Company Secretary*



Our Vision

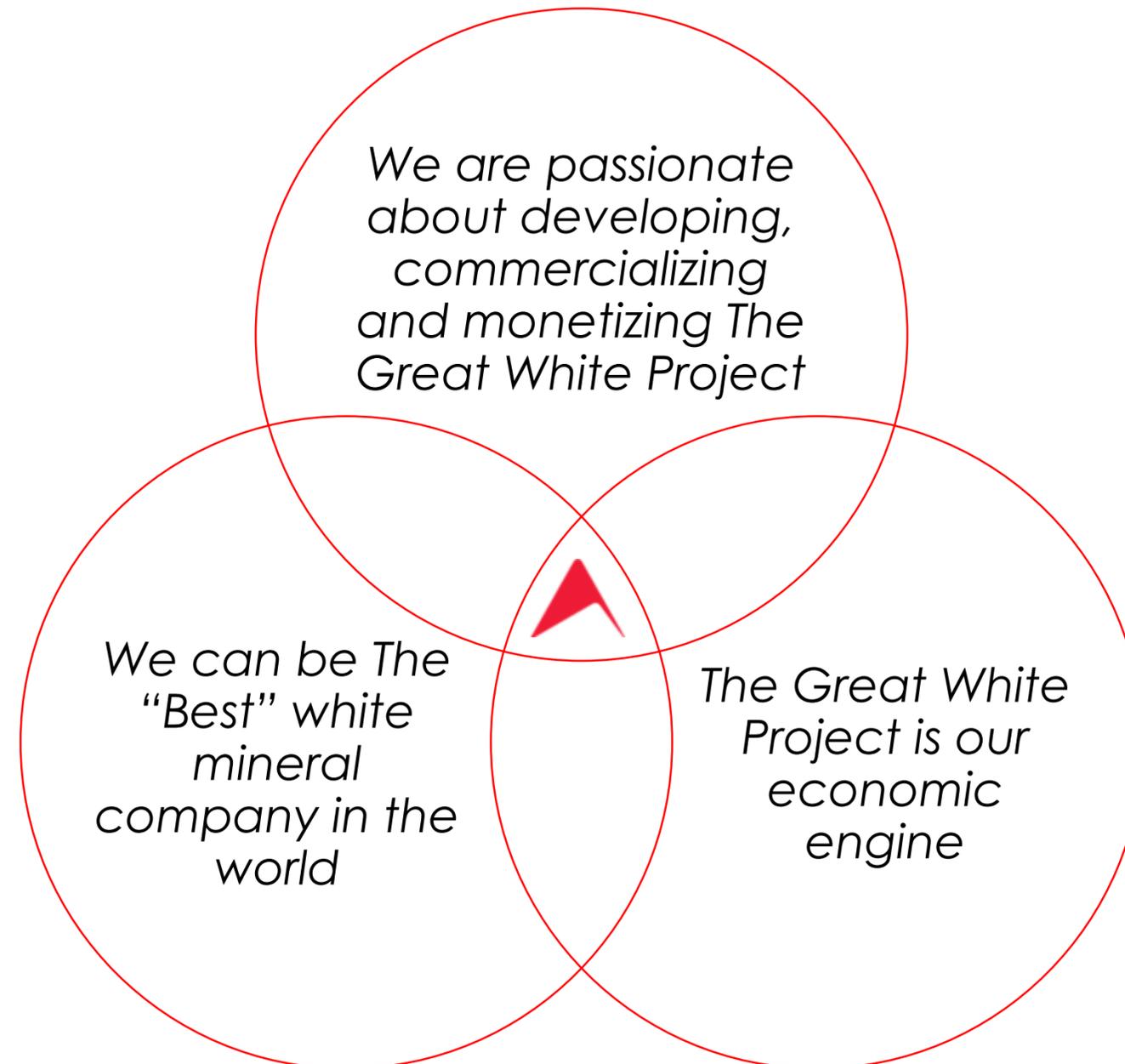


The Great White Mineral Company



Strategic Intent

To be The Great White Mineral Company





Our Business Approach

Current State (Today)

- Commodity mindset
- Price sensitive
- Defining product and market portfolio

Our Positioning (To be)

- De-commoditizing
- Shared view of value-in-use across product portfolio
- Supplier, partner and employer of choice
- Defining contestable market share

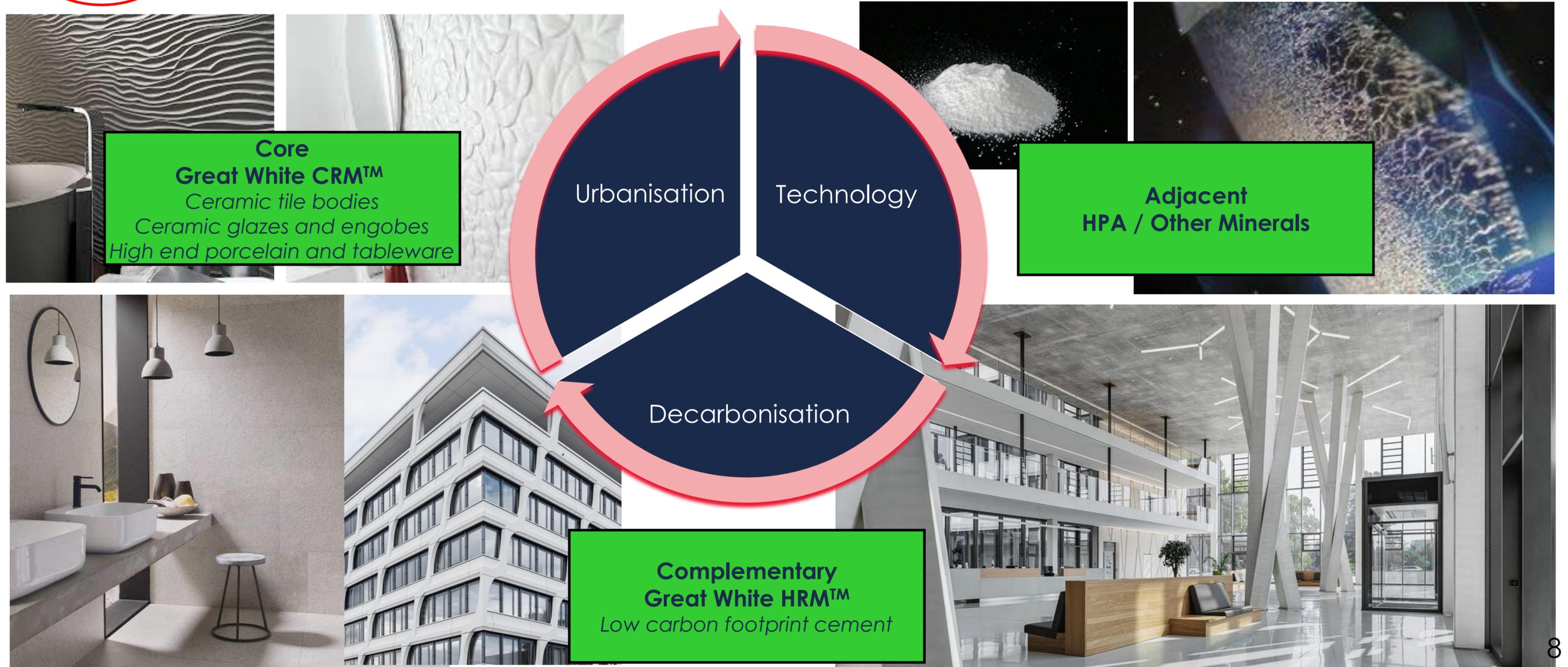
Our Approach

- Optimum value identified by balancing Mine-to-Market vs Market-to-Mine
- Operational and commercial excellence to accretively release the latent life-of-mine option value of The Great White Project



Our Products

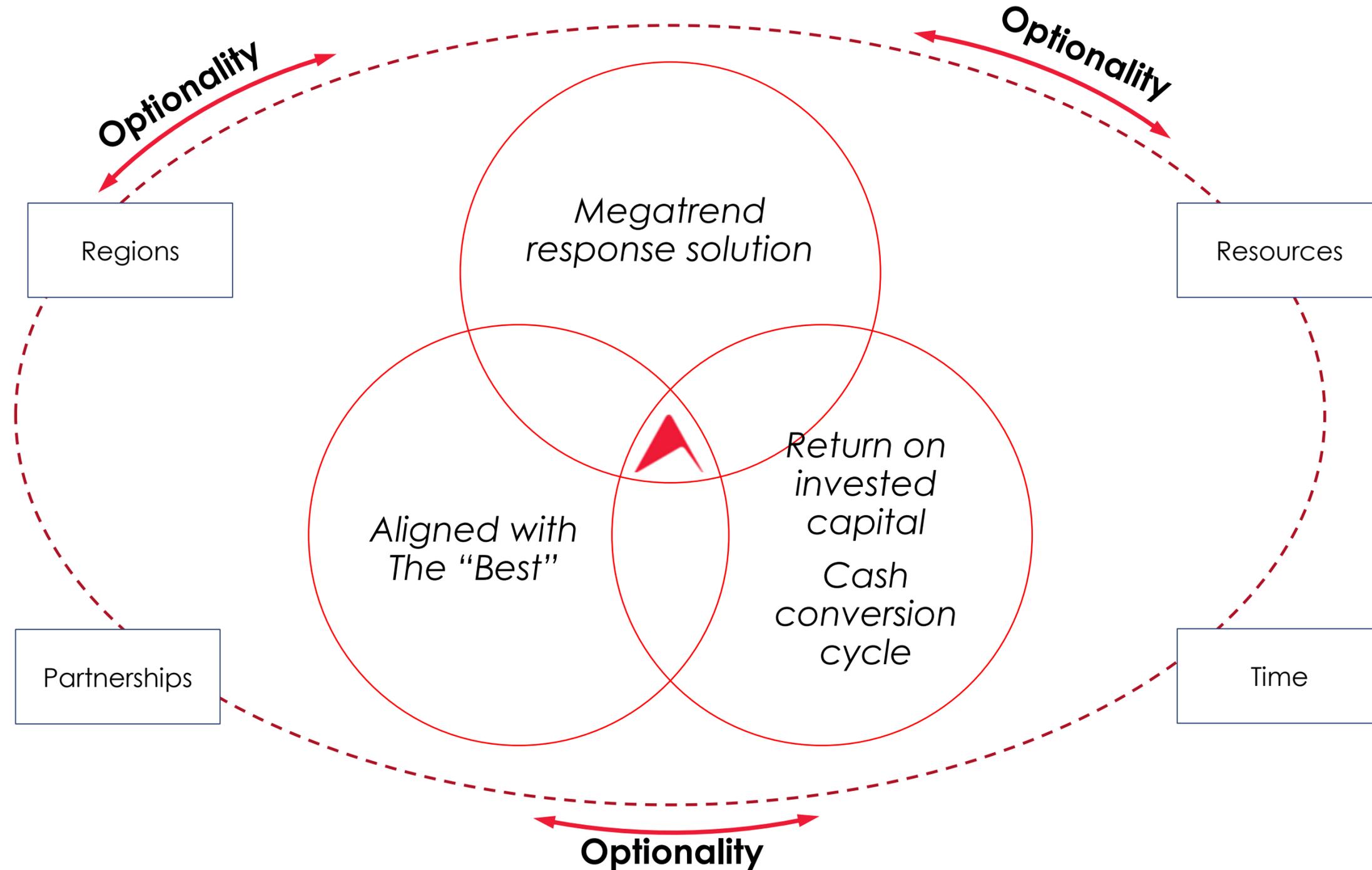
Positioned to respond to megatrends





Strategic Lens

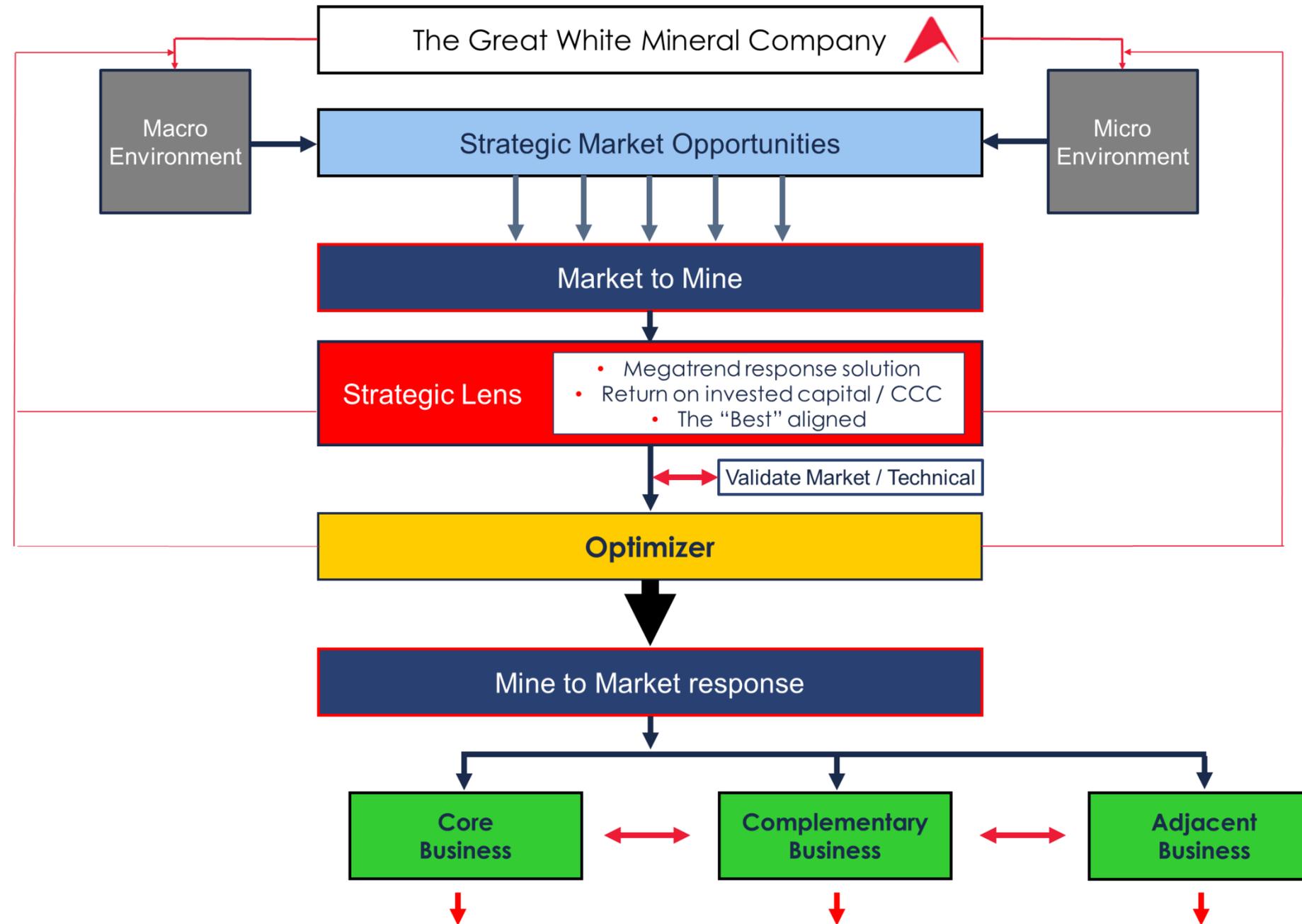
Where we participate, with whom and why





Commercial Strategy Map

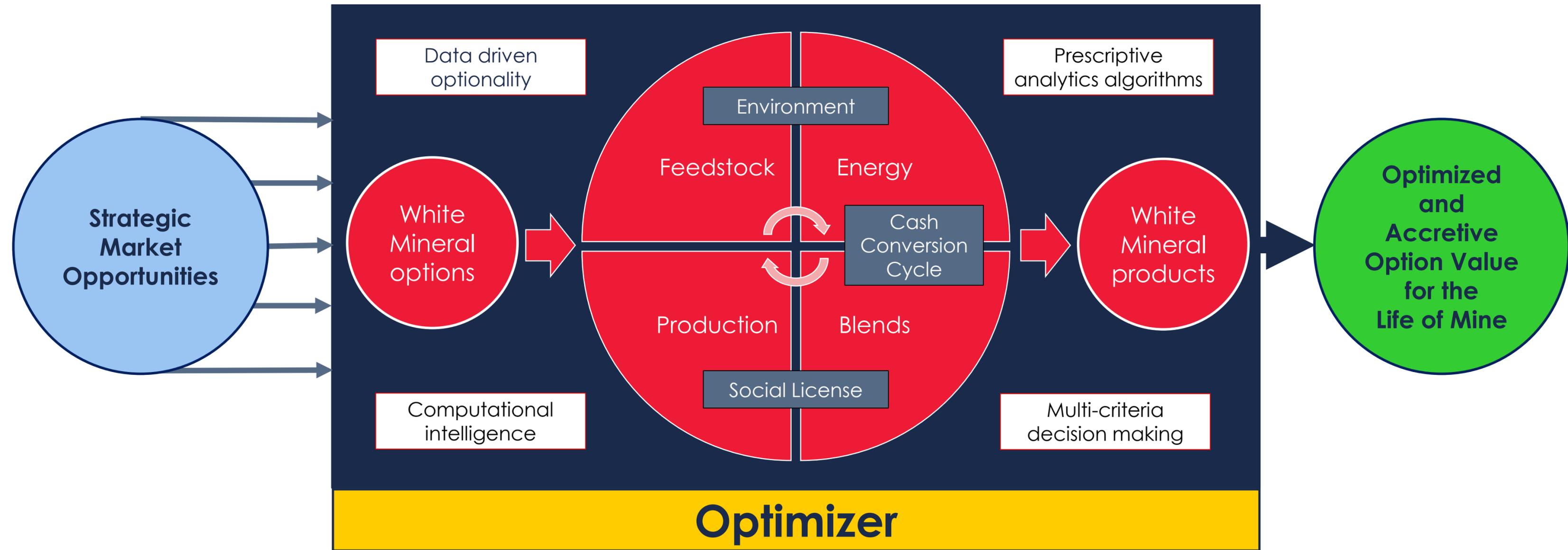
A structured methodology





Our Optimization Platform

Optimal Market to Mine / Mine to Market response

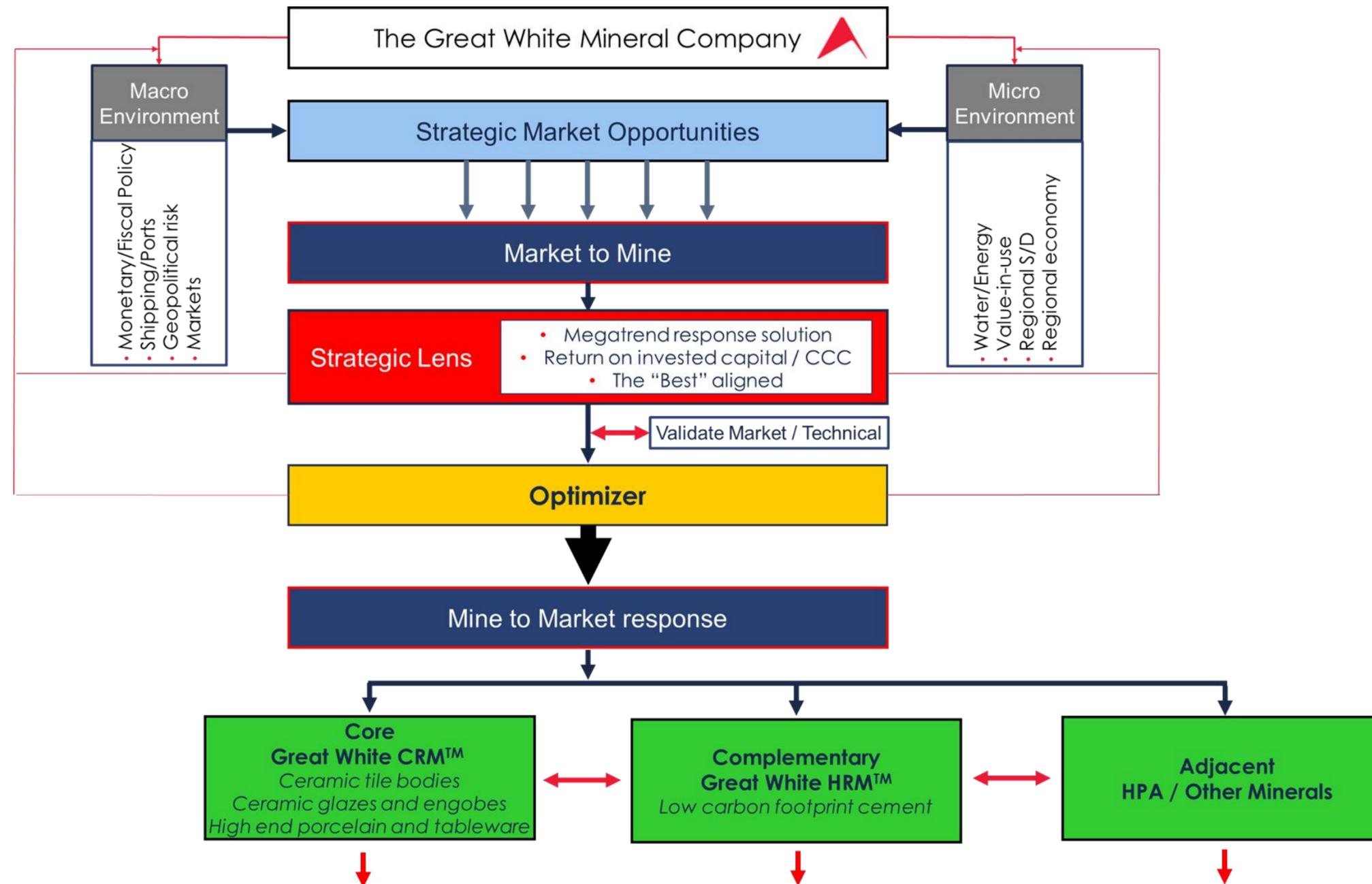


Results to be included in updated DFS (due mid-August 2023)



Go To Market

Execute with a focus on Core and Complementary





Commercial Strategy

Next Steps

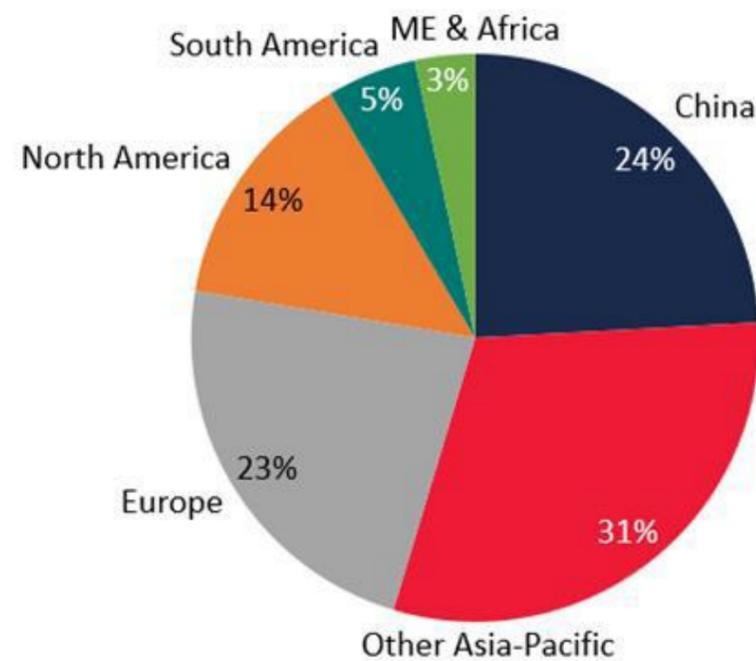
- Great White CRM™ detailed technical evaluation and formulation at pilot plant level, including value in use – end of June
- Great White HRM™ technical evaluation, and relative economic value in the cement and concrete decarbonization value chain – end of June
- Incorporate Commercial Strategy into Updated DFS – mid-August
- Commercial negotiations / discussions aligned with Andromeda Commercial Strategy – ongoing



Markets

Kaolin – Global Demand by Region

The outlook for global demand growth for kaolin between 2020 and 2025 is 4.3% CAGR, adding 7.3 million tonnes to the market over this period – TZMI.



By Region 2021

000 tonnes	2020	2021	2022	2023	2024	2025	CAGR '20-'25
China	7,884	8,349	8,816	9,233	9,659	10,123	5.1%
Other Asia-Pacific	9,103	10,554	10,629	10,565	10,703	11,023	3.9%
Europe	7,219	7,954	8,214	8,370	8,648	8,787	4.0%
North America	4,409	4,785	4,937	5,032	5,191	5,327	3.9%
South America	1,603	1,760	1,820	1,857	1,922	2,005	4.6%
Middle East & Africa	1,071	1,184	1,226	1,254	1,300	1,358	4.9%
Total	31,289	34,584	35,641	36,310	37,422	38,623	4.3%

Source: TZMI: "HQ Kaolin Market Study"

Focus to target largest primary markets of China and Rest of Asia Pacific and Europe that accounted for combined 78% of the global kaolin market.



Key Market Macroeconomic Driver

Geopolitical Risk - Ukraine

Of all the Ukraine produced minerals, it is the ceramic clay supply sector which is perhaps going to have the most severe impact on European consumers – [IMFR](#).

Ukraine was a leading exporter of high-quality ceramic clay, with almost 5 million tons of kaolin exported in 2019.

The majority of Ukrainian kaolin deposits are concentrated in the Donbas region.

The top consumers of Ukrainian exported ceramic clay were ceramic tile manufacturers from Spain and Italy, who consumed 60% of Ukraine exported ceramic clay in 2019.

Replacement of Ukrainian clays is occurring globally, but mainly in Europe.

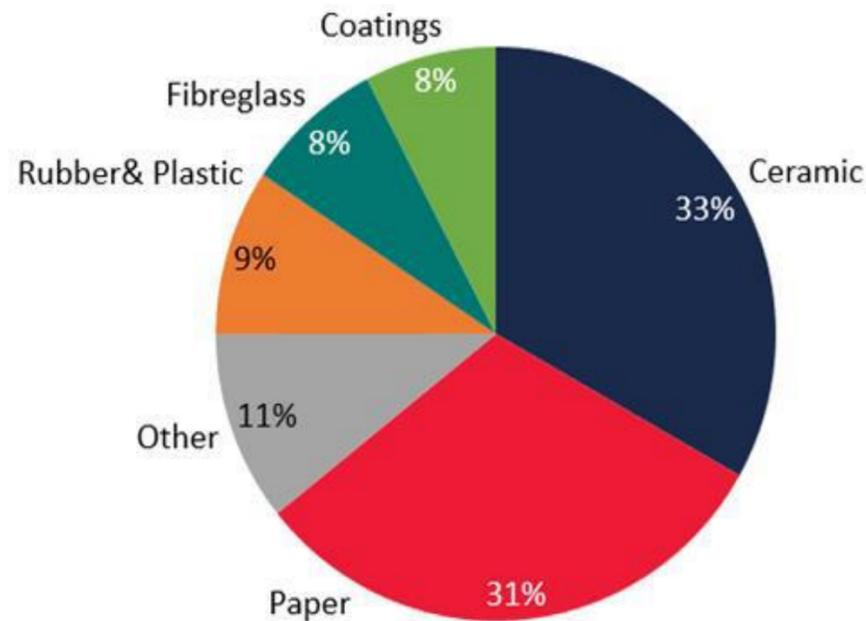
Consider that Spanish and Italian ceramic tile manufacturers will continue to need to seek sustainable supply sources for ceramic clay, including kaolin.



Markets

Kaolin – Global Demand by End Use

The ceramics sector accounted for 33% of the global kaolin market in 2021 and is forecast to grow at 6.4% CAGR between 2020 and 2025 – TZMI.



000 tonnes	2020	2021	2022	2023	2024	2025	CAGR '20-'25
Ceramics	9,504	11,484	11,813	12,198	12,584	12,942	6.4%
Paper	10,491	10,739	10,980	11,228	11,482	11,742	2.3%
Fibreglass	2,620	2,778	2,991	3,165	3,352	3,580	6.4%
Rubber & Plastics	2,799	3,242	3,262	3,024	3,054	3,113	2.2%
Coatings	2,326	2,630	2,700	2,619	2,707	2,817	3.9%
Other	3,549	3,711	3,896	4,076	4,244	4,429	4.5%
Total	31,289	34,584	35,641	36,310	37,422	38,623	4.3%

Source: TZMI: "HQ Kaolin Market Study"

By End Use 2021

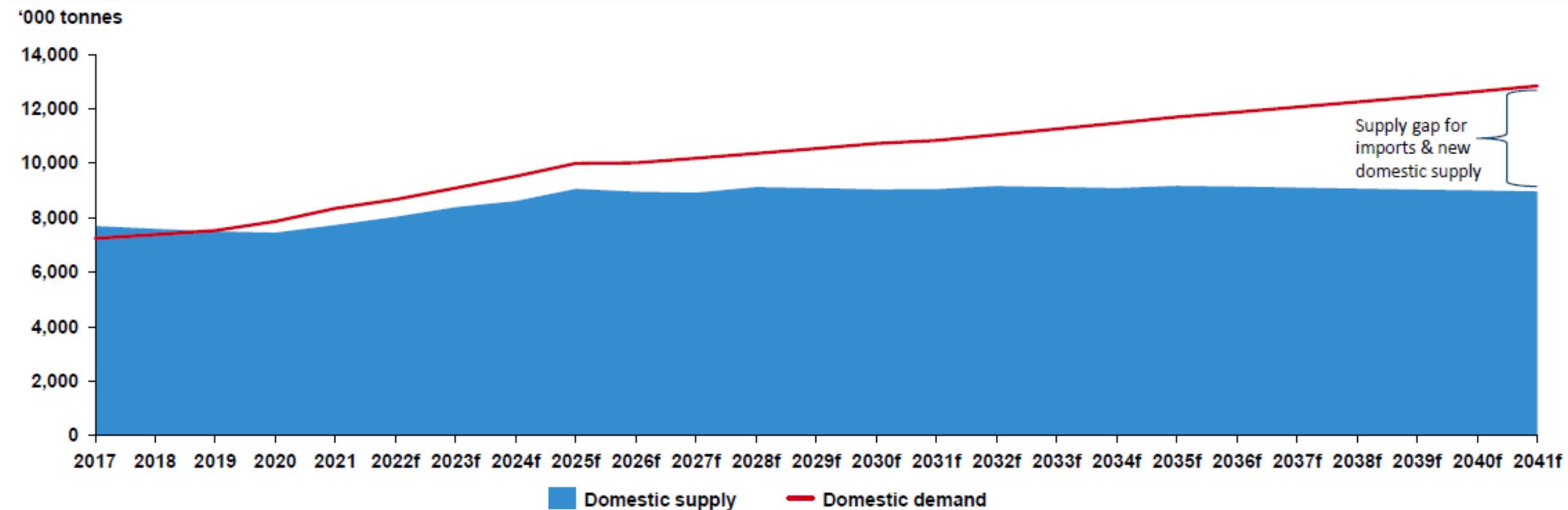
Focus to target primary end use ceramics markets that accounted for largest market segment and has high forecasted growth.



Markets

Kaolin – China Supply Demand Balance

China's domestic supply of kaolin has been constrained due to resource depletion and environmental protection practices that limit mining – TZMI.



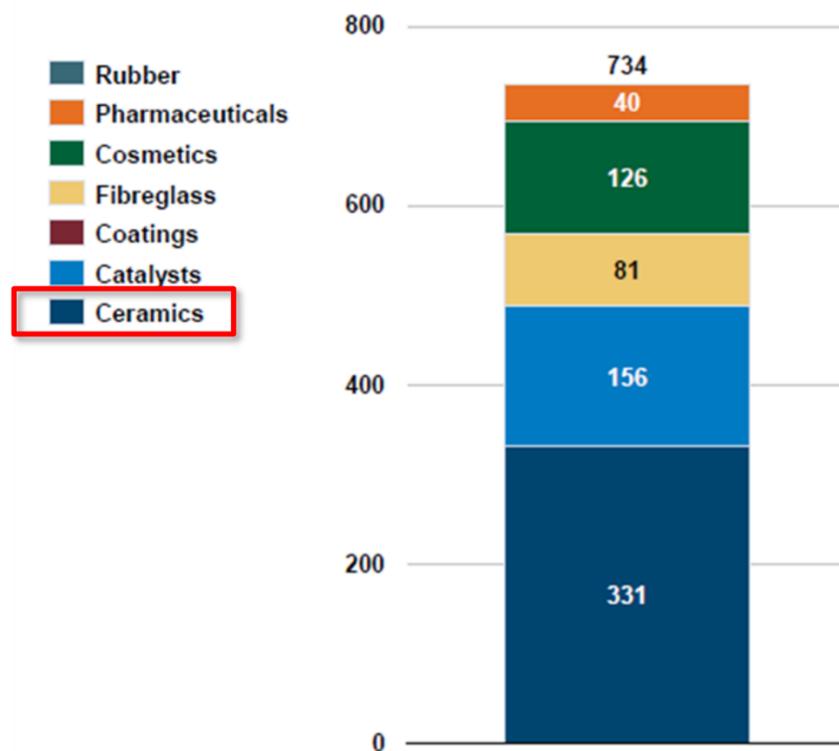
Consider impact of shortfall in long term supply and deficit of high-quality product with some users having to compromise with lower quality product (TZMI).



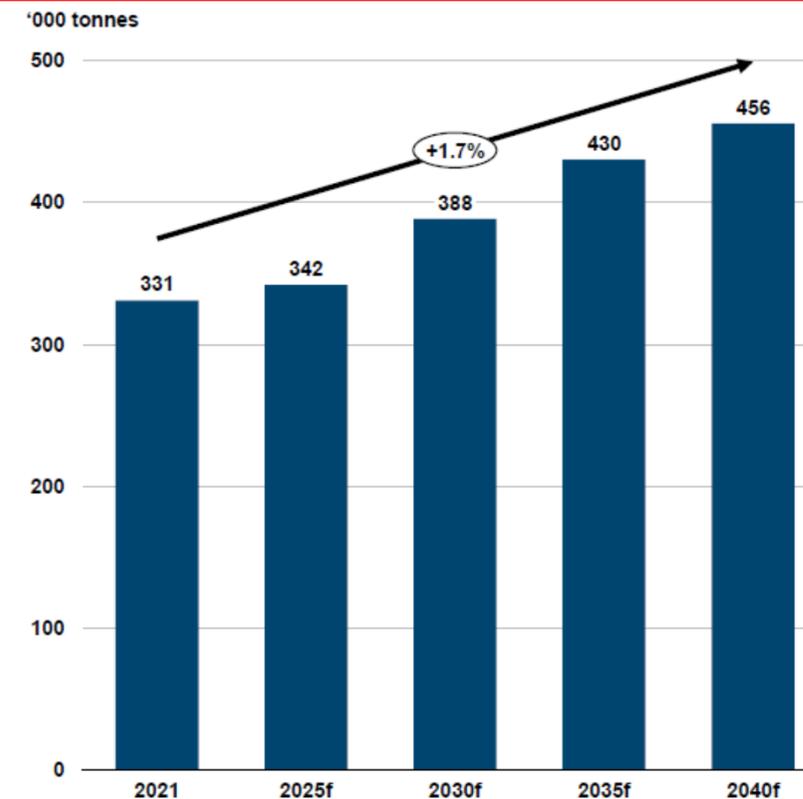
Markets

Kaolin – China Ceramics Addressable Market

Upgrading to ceramic slabs, large format tiles and growth in tile digital printing mean increased requirements for higher quality kaolin in China - TZMI



Ceramics Addressable Market - 2021



Ceramics Addressable Market Forecast

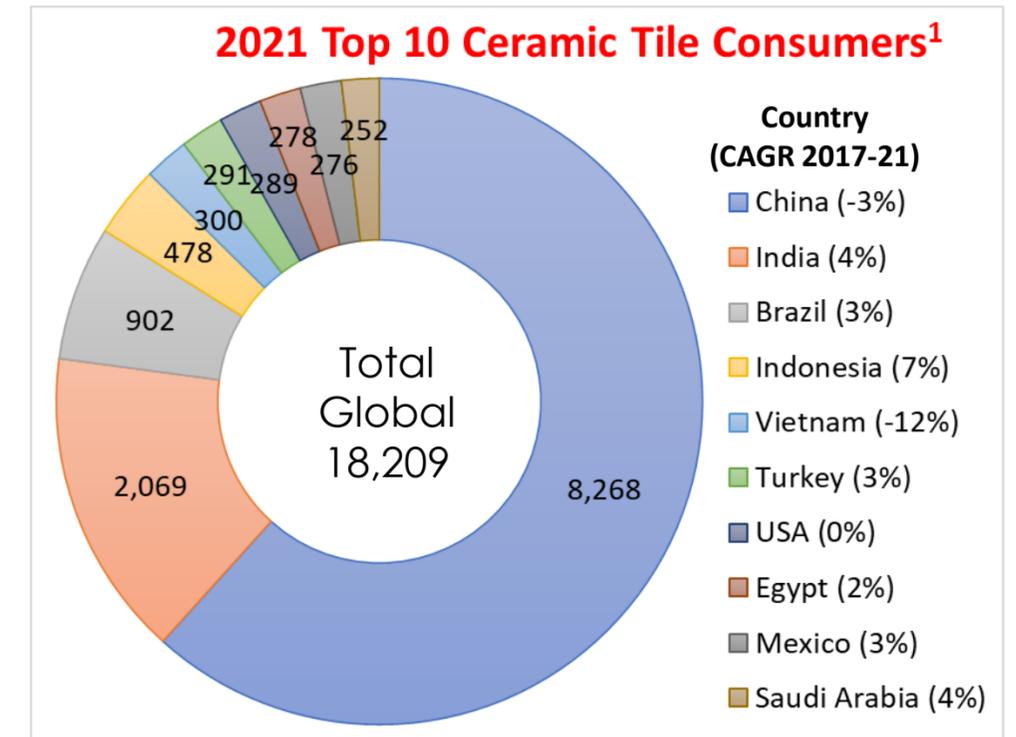
Consider impact of upgrading from commodity tiles to ceramic slabs, large format tiles and growth in tile digital printing for need of higher quality kaolin.



Global Ceramic Tile Market

Spain and Italy are technology and export leaders

Global tile production, export and consumption, measured in million metric square metres (sqm)
 (2021: Top 10 account for 84%, 85% and 74% of global market for production, export and consumption respectively)



Globally, >60% of tiles produced are porcelain

- For Italy this figure is 90% (of which, 30% unglazed)
- For Spain this figure is 50% (of which, 20% unglazed)

Global ceramic tile production is forecast to grow at 3.2% CAGR to 2026 (21.4bn sqm)¹

- Porcelain tiles are forecast to grow at 7.3%
- Glazed tiles are forecast to grow at 4.7%

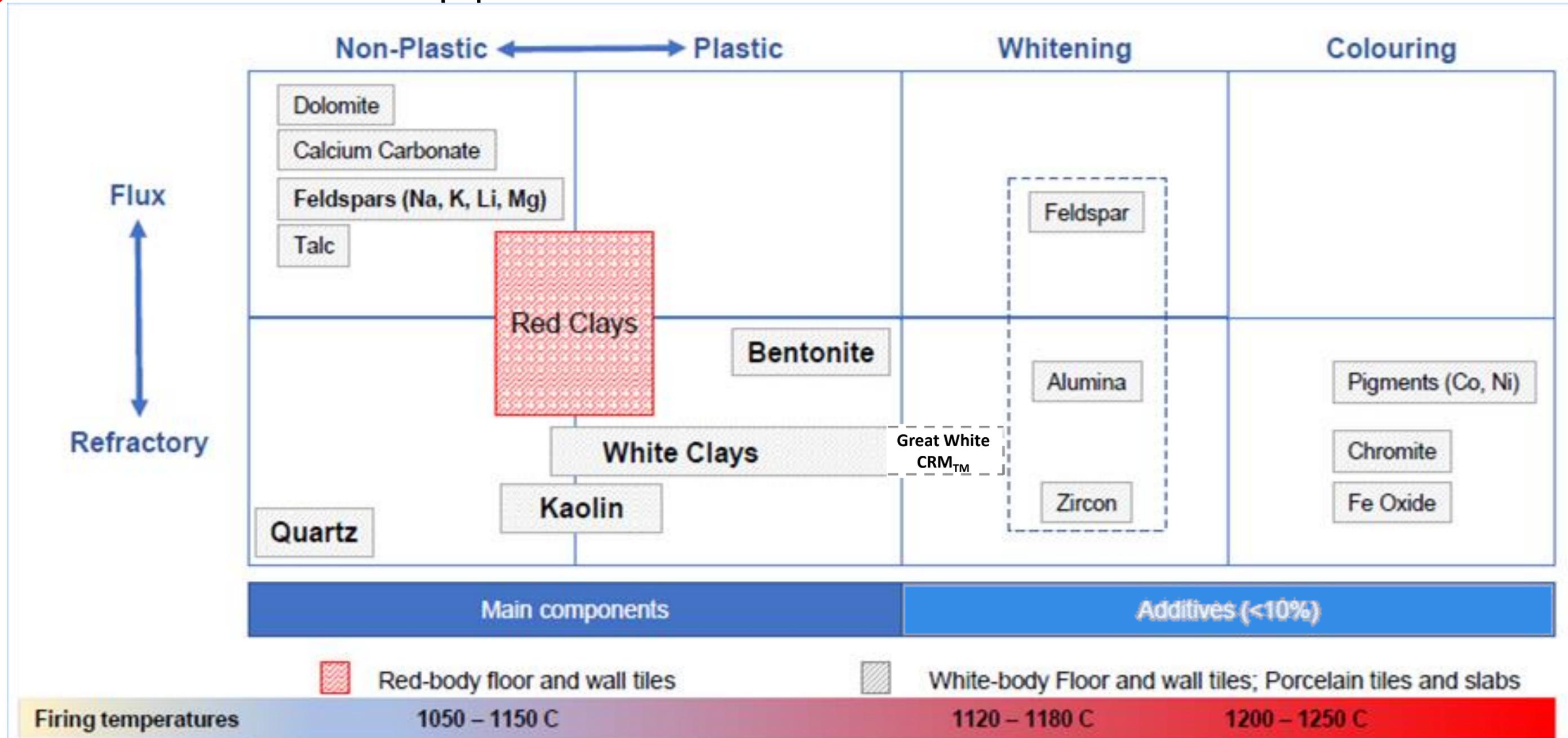
Global tile production uses >400 million metric tonnes of materials per year

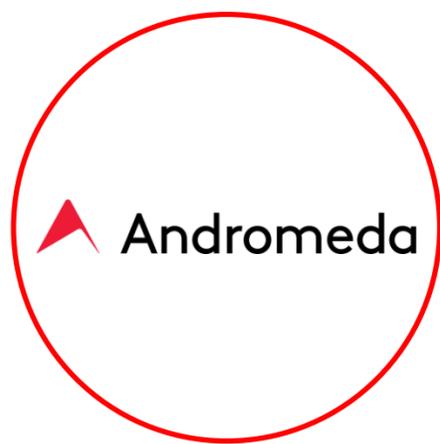
¹ Data from "World production and consumption of ceramic tiles", MECS/ACIMAC report, 2022



Ceramic Tile Body Formulation

Value-in-use opportunities





Confirmed High-Quality Global Leader

International benchmarking by IberoClays confirms Great White CRM™ as a market leading product

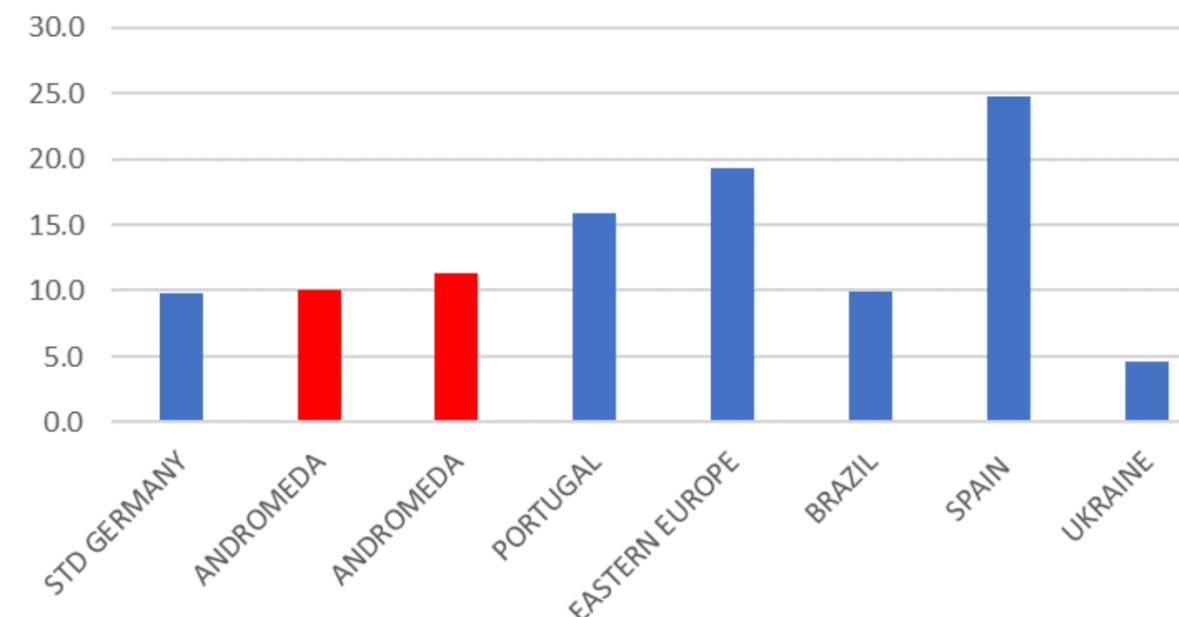
CERAMIC CONTROL

Reference	Supplier	Fired Samples at 1200 C					
		C.L.	AA	p.p.c.	Colour Measurement		
Units		(%)	(%)	(%)	L*	a*	b*
KAOLIN 1	STD GERMANY	8.74	0.03	4.36	81.79	1.98	7.89
CRM-1097	ANDROMEDA	8.77	0.01	4.70	82.35	1.91	7.52
CRM-1098	ANDROMEDA	8.79	0.06	4.64	81.75	1.88	7.56
KAOLIN 2	PORTUGAL	8.19	0.03	4.11	79.32	1.83	8.84
KAOLIN 3	EASTERN EUROPE	8.75	0.01	4.38	79.73	2.00	7.98
KAOLIN 4	BRAZIL	8.70	0.07	4.50	81.32	1.87	7.38
KAOLIN 5	SPAIN	8.36	0.01	4.19	79.20	1.93	9.07
KAOLIN 6	UKRAINE	8.75	0.03	4.68	80.81	1.81	8.49

CERAMIC CONTROL

Reference	Supplier	Mechanical Strength				
		Pressure	R.M. 400	Density	RM1,935	Press
Units		(Kg/cm ²)	(Kg/cm ²)	(g/cm ³)	(Kg/cm ²)	(Kg/cm ²)
KAOLIN 1	STD GERMANY	249	2.83	1.973	2.55	298
CRM-1097	ANDROMEDA	405	2.22	1.912	2.54	457
CRM-1098	ANDROMEDA	398	2.08	1.897	2.79	524
KAOLIN 2	PORTUGAL	251	1.97	1.983	1.79	335
KAOLIN 3	EASTERN EUROPE	247	2.41	1.944	2.40	384
KAOLIN 4	BRAZIL	297	2.10	1.939	2.00	379
KAOLIN 5	SPAIN	252	1.97	1.967	1.73	374
KAOLIN 6	UKRAINE	293	2.22	1.968	2.17	432

Ratio Fe₂O₃/Al₂O₃ Content (x1000)





Confirmed High-Quality Global Leader

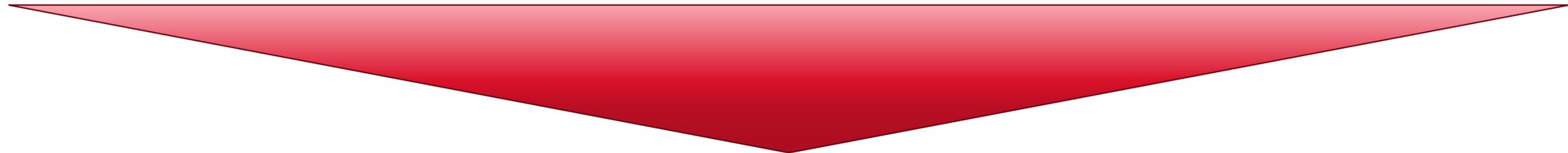
Properties of Great White CRM™ provides above market value-in-use, to fastest growing ceramics segments

Great White CRM™ properties and applications¹

✓ **Top 3 Iron/Aluminium ratio** (Fe₂O₃/Al₂O₃) of global kaolin samples

✓ High brightness is retained in high temperatures, with very good colour evolution, which is valued in **high quality porcelain and ceramic tiles**

✓ Very high dry mechanical strength is highly-valued in **large format porcelain tiles**



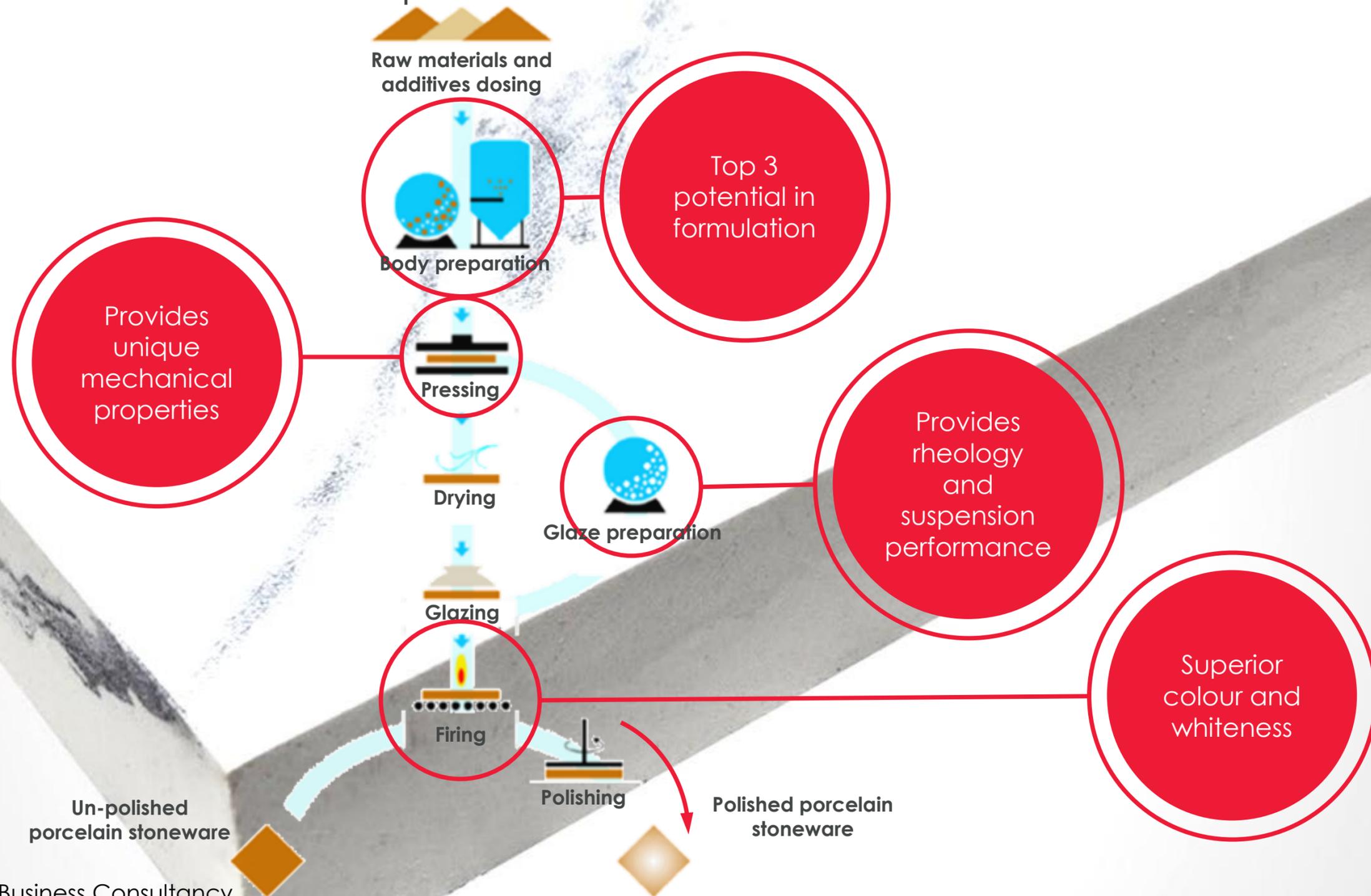
Porcelain ceramic, glazed, large format tiles
Positioned to offer exceptional value-in-use

¹ As determined by testing conducted on Great White CRM™ by IberoClays



Ceramic Tile Manufacturing

Great White CRM™ performance in the ceramic tile manufacturing process

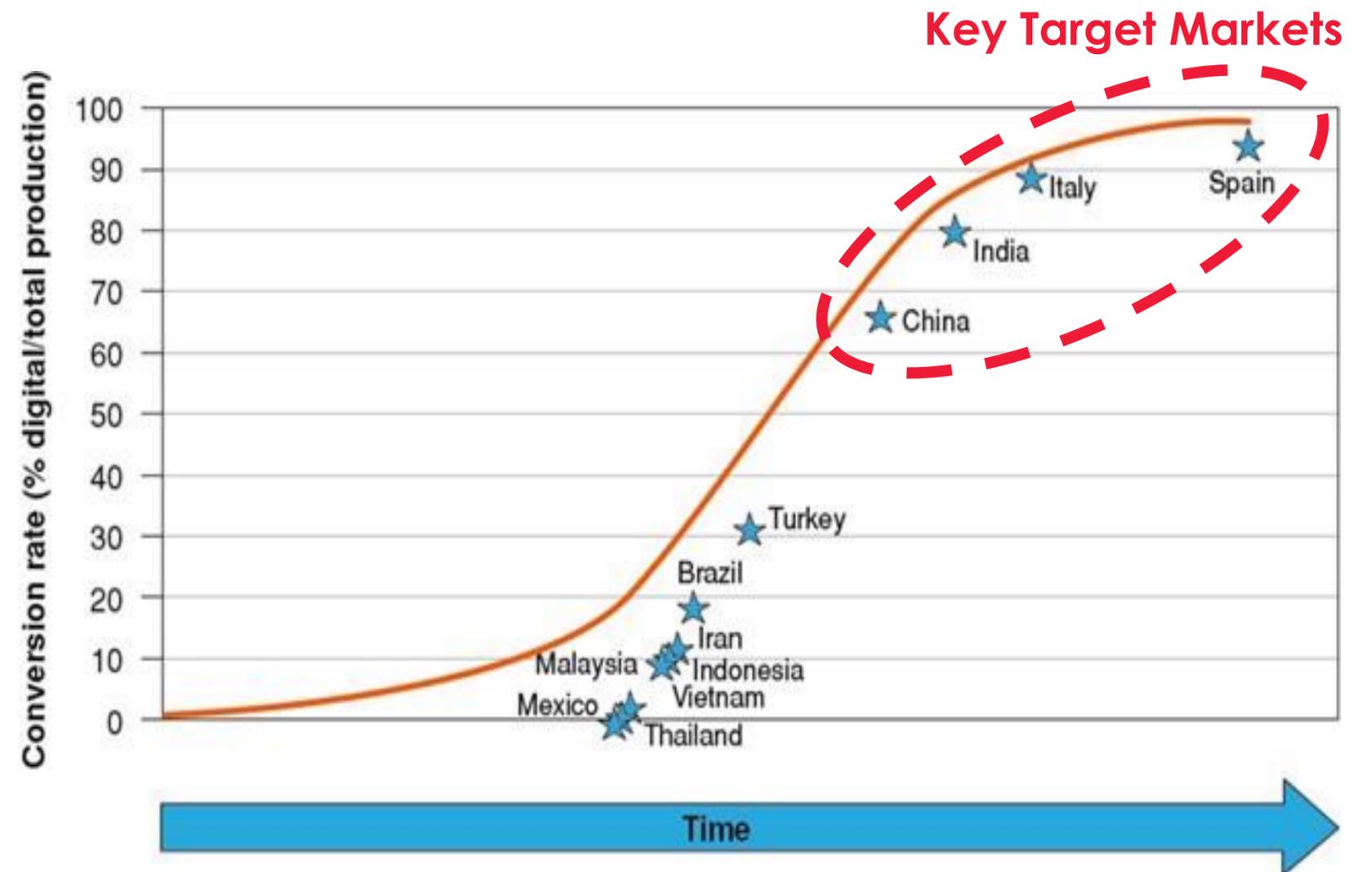




Digital Tile Printing

Digital printing has been adopted as the state-of-the-art technology for tile decoration

- It is estimated that 70% of global tile production is decorated (glazed), of which 75% are digitally printed.
- The trend continues with no other technology in sight.
- Italy & Spain are key target markets, as they export to global markets 84.4% and 83.6%¹ of tile production, respectively.



Source: Ferrari (2016).²

¹ Data from World production and consumption of ceramic tiles, MECS/ACIMAC report, 2022

² Source: «Esmalglass-itaca: New developments on digitalisation of the ceramic tile production process», ACIMAC Ceramic World Review



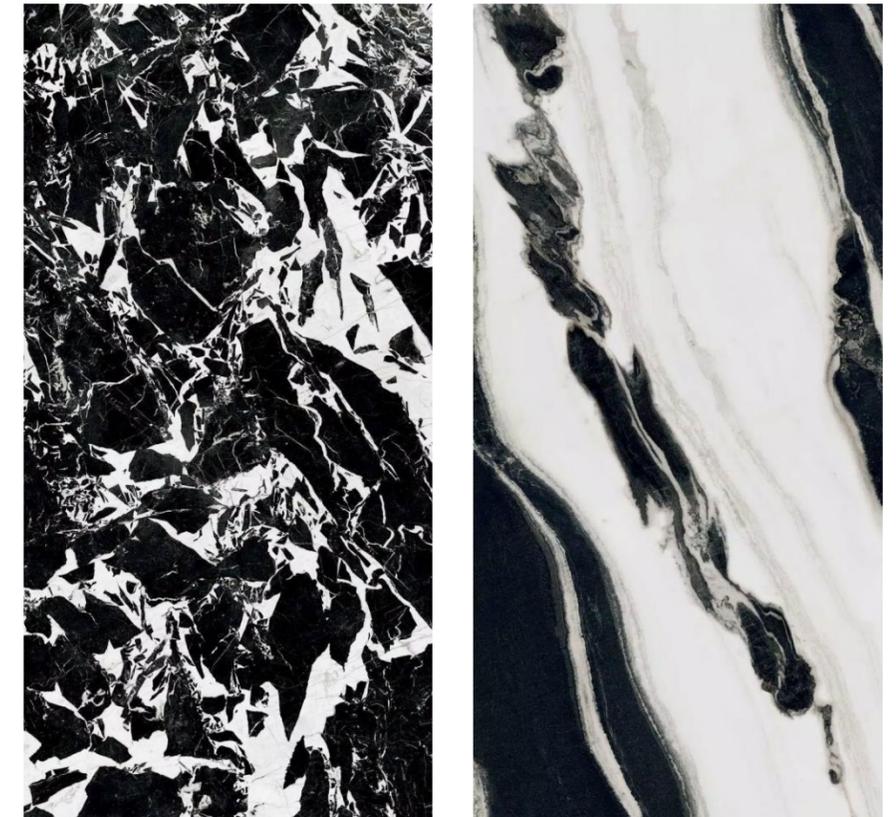
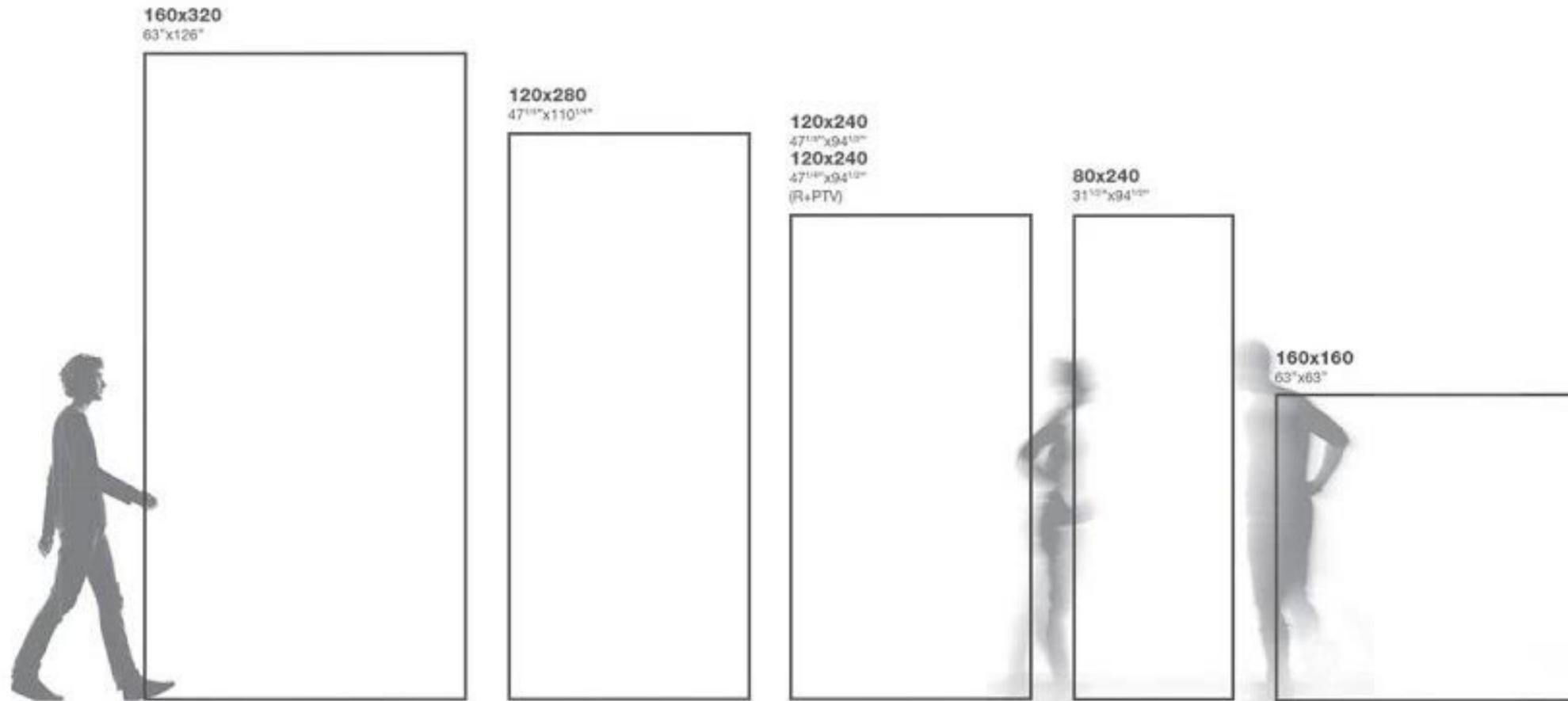
Key Market, Product and Technology Trends

Trend	Impact for Kaolin demand
<p>1. Commodity products growth in Asia</p> <ul style="list-style-type: none"> 1. Double firing disappearing, porcelain, slabs growth but yet to improve final quality 2. Need for higher quality raw materials (whiter) 3. Continue to follow developments from Europe (Italy machinery and Spain design) 	<p>The increase in commodity tile production will attract the demand for lower grade kaolin in the glaze, engobe and body segments in Asia, leaving less competition in the premium segments (porcelain, slabs).</p> <p>Trend to reduce glazed tiles in future (5+years), not yet there.</p>
<p>2. High-Quality products growth in Europe</p> <ul style="list-style-type: none"> 1. Commodity products residual in Spain/Italy – high energy, raw material costs 2. Move to Porcelain/Slabs - differentiation 3. Need for higher quality raw materials (whiter) 4. Increased plasticity required for thinner (i.e. 3 mm) slabs 	<p>Demand increase for higher quality raw materials and increased share of wallet for differentiated producers.</p>
<p>3. Replacement of Ukrainian clays – globally but mainly in Europe</p>	<p>Ukrainian clays out of the market for next 5-10 years. Difficult to replace, right combination of plasticity, press-ability, whiteness and firing range. Increased demand for whiter raw materials (low Fe₂O₃, TiO₂)</p>
<p>4. EHS more and more important</p> <ul style="list-style-type: none"> 1. Consumer-facing market vs construction demand 2. Crystalline silica becomes an issue (health and legal) 3. Carbon footprint / Recycled materials 	<p>Demonstrate EHS credentials – REV with other alternatives/substitutes</p> <p>Crystalline silica issues in USA with composite stones (resine+quartz) accelerate demand for sintered stones (i.e. Neolith). Producers looking for zero-crystalline silica final products. Plastic clays have 5-50% free silica.</p>



Ceramic Tile Segments

High-quality kaolin and ongoing innovation has seen porcelain tiles evolve into larger, high-end design formats



From 160 x 320 cm and beyond...



Images of Porcelanosa ceramic and porcelain tiles



Images of Porcelanosa ceramic and porcelain tiles



The Great White Project Readiness/Targeted Timeline

Discussions with investors regarding a mix of debt and equity options

1. Data room is open to debt-only investors:

- Investment Memorandum (IM)
- Detailed financial model
- Bankable Feasibility Study (BFS)
- Independent Technical Consultant (ITC) report
- Independent Marketing Consultant (IMC) report

Stage 1A

Starter Plant capital cost of \$55 million to produce 50ktpa of product

2. Stage 1B – updated to deliver 150ktpa

- Commercial Strategy validated through technical evaluations (due by end of June) and subsequent commercial engagements
- IM updated to support expansion – due by end of June
- Detailed and updated financial model
- Updated Definitive Feasibility Study (uDFS) due mid-August

3. Construction to follow anticipate lodgement of Environmental Bond & payment into Native Vegetation Fund by mid-July 2023

4. Planned **first shipment** of product due October 2024

*“Ceramics is the industrial sector where **changeable** raw materials with **uncertain purity** are exposed to **poorly defined** temperatures during a certain period of time in which **unknown reactions** take place **partially**, rendering **heterogeneous non-stoichiometric products**, known after the name of ceramic products.”*

Bradstreet, 1960



Acknowledgements

Progressing this important work could not have been done without the important contributions from:

- **IberoClays** for conducting testing on Great White CRM™
- **Strateg-on Business Consulting**, and its Principal Miguel J. Galindo, for providing strategic advice on product and market development
- **Porcelanosa**'s Jorge Fabregat Cid and Jose Pascual Pesudo for their time and discussions on market and product opportunities
- Porcelanosa's local dealer **EARP Brothers**, including brothers Richard and Michael Earp, for providing their amazing showrooms and staff for Andromeda to hold investor events



Andromeda

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