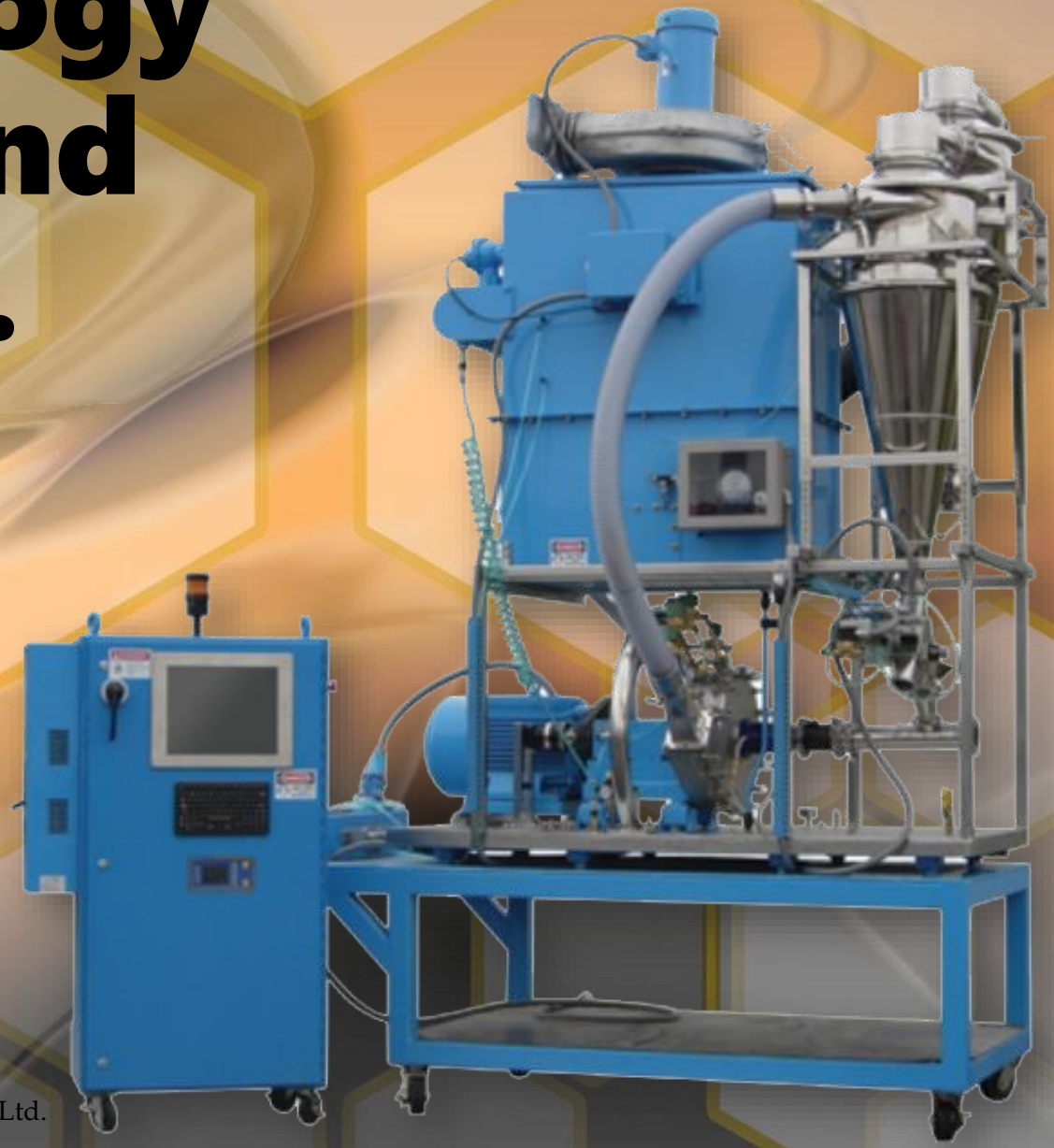
Disruptive Technology for Comminution and Mineral processing.



Gold Exploration Co. (Pty) Ltd.

Conventional Technology is….

…Heavy

Which means Big Capex and Large Deposits to balance economies of scale.

…Costly to Build and Run

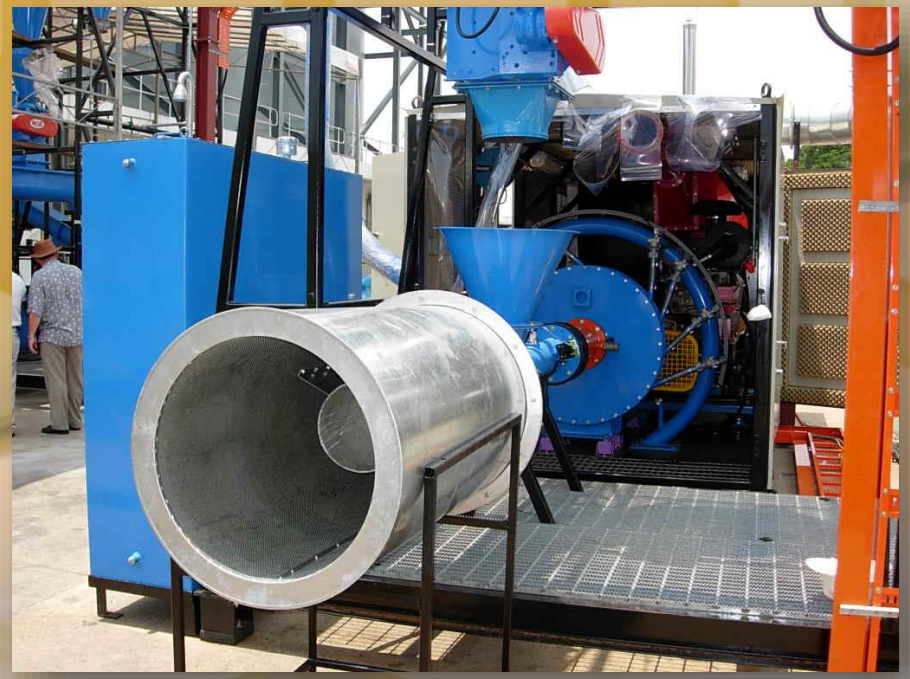
Which means higher all inclusive sustaining costs that disrupt viability of smaller deposits and higher prices for powderized products.

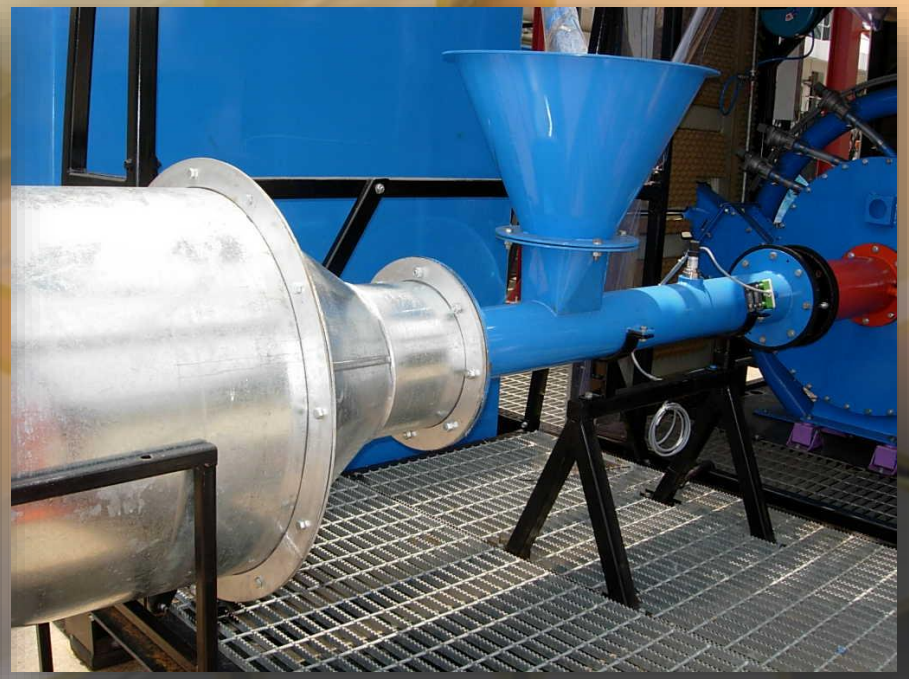
…Inelegant in Execution

Which means all particles are indiscriminately smashed in an impact or attrition environment and not separated in accordance with its frangibility.

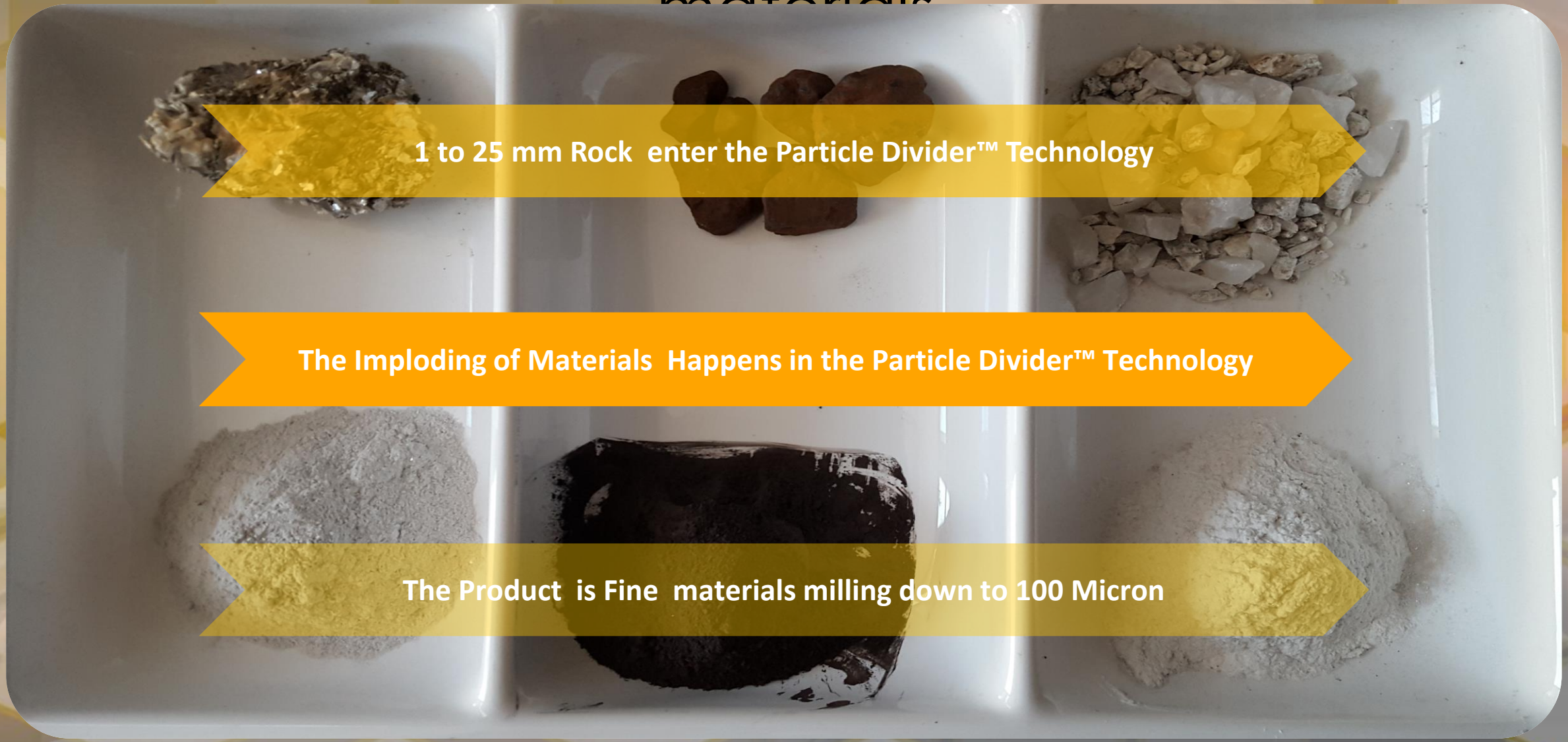
The Particle Divider ™

(PD TECHNOLOGY)
From Gold Rock to
Gold in Seconds





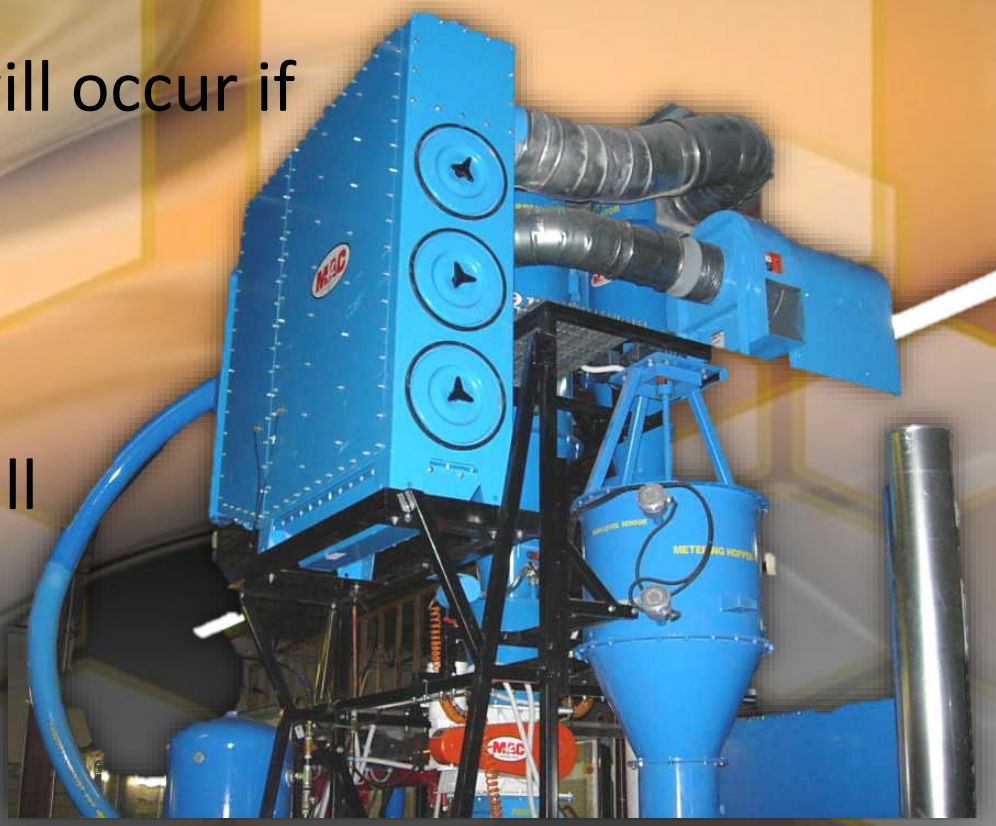
The effect on brittle non-metallic materials



A reduction in Capex / Opex expenditure will lead to an increase in profits and…

… a further increase in profits will occur if separation is to occur at particle division and…

…a further increase in profitability will occur if small and low grade deposits can be processed economically



How it works

Doppler Effect

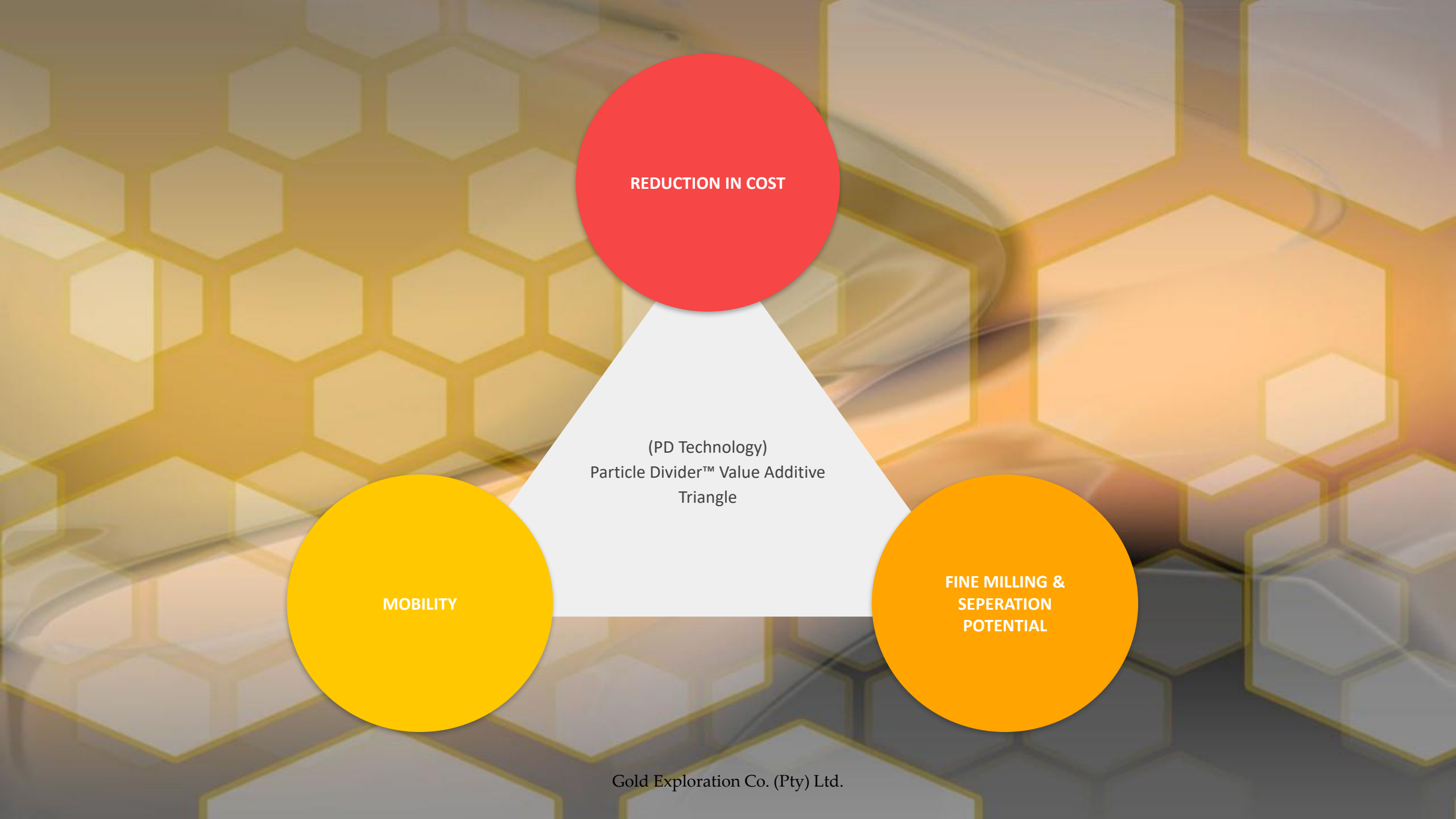
The motion of electrons in a material induces magnetism. Each electron has a property of a micromagnet, i.e., a spin. Electron spins, or the directions of micromagnets, in a material without magnetism have various directions, resulting in no overall magnetic property and magnetism is not expressed. In contrast, the magnetic properties of electrons are macroscopically observed in magnetic materials because a certain number of electron spins are aligned in the same direction. Electrons rotate around a nucleus; this orbital motion also contributes to the properties of micromagnets. When the contribution of the orbital component is great, the magnetism of the material tends to align in a certain direction. This property is called magnetic anisotropy and is an important characteristic of magnetic recording materials.

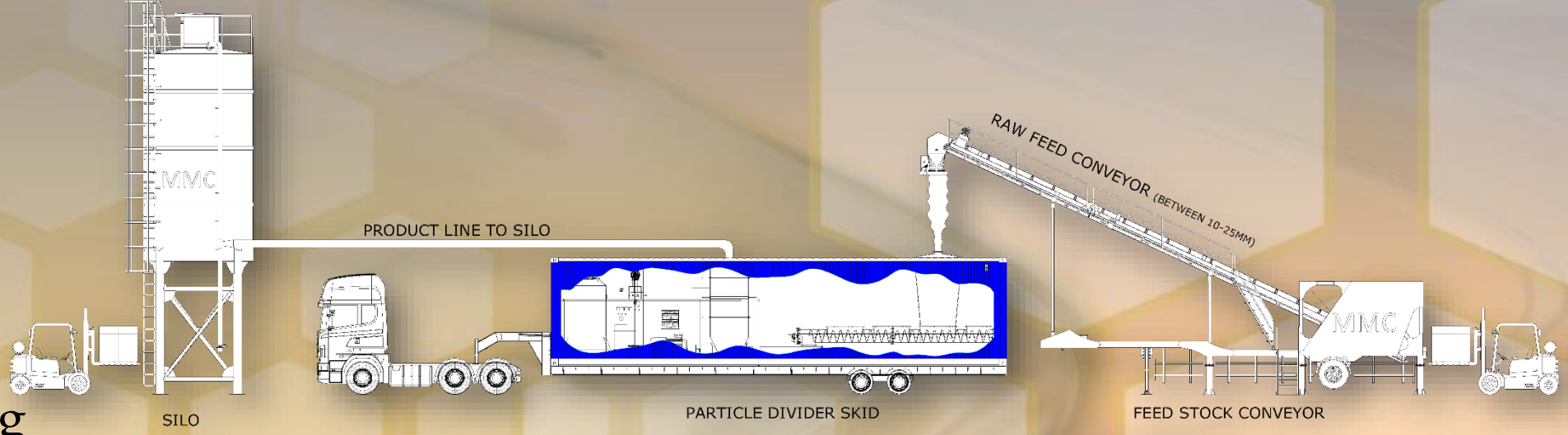
Sonic Movement of Air

Magnetism is caused by unpaired electrons surrounding the atoms of the material. Due to a quantum mechanical property called “spin”, unpaired electrons induce a magnetic dipole (like the two poles of a bar magnet). However, electrons often like to team up in pairs, and the opposing spin of the two electrons cancels out the magnetic effect.
A single atom of gold has an odd number of electrons, so it will always have one unpaired electron. But in bulk gold, these unpaired electrons can be shared between atoms, allowing them to find a buddy and form a pair. This means that metallic gold has no unpaired electrons, and it does not display classical magnetism.

• Singularity at Partical Divider

Is achieved through the generation of subsonic harmonic and particle acceleration techniques. The process alters particle wave patterns resulting in the “imploding” of the molecular and sub-molecular solids particles.
The flash disintegration that occurs with both innovations offers a dual process of dispersion and highly magnetic frequencies where shattered particles micronized and simultaneously producing gold and fine powder that is divided by cyclones.
Gold particles will be divided by the particle divider.


REDUCTION IN COST
(PD Technology)
Particle Divider™ Value Additive
Triangle
MOBILITY
FINE MILLING &
SEPERATION
POTENTIAL



Pilot Plant

Continue testing on the existing 1tph pilot plant on different materials to collect data for design of mobile plants.

Early Cash Flow

Developing opportunities in powderization of materials:

Agriculture, Industrial Minerals, Small Scale comminution of raw materials

Processing

Advance technology to be incorporated into existing mobile processing facilities at remote mine sites by commissioning 5tph units

Proving the Concept

Applications for Early Cash Flow

Calcium

Application of micronized soil control in agriculture through irrigation instead of energy intensive mechanical distribution

Feldspar

Coarse grinding, washing and fine grinding for use in paints

Gold rock

Pulverisation of gold pay dirt to recover gold nuggets and flakes

Chrome ore

Coarse grinding for washing and fine grinding to chemical grade

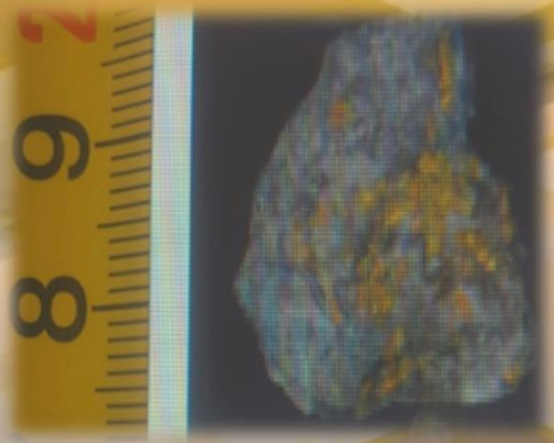
Manganese Ore

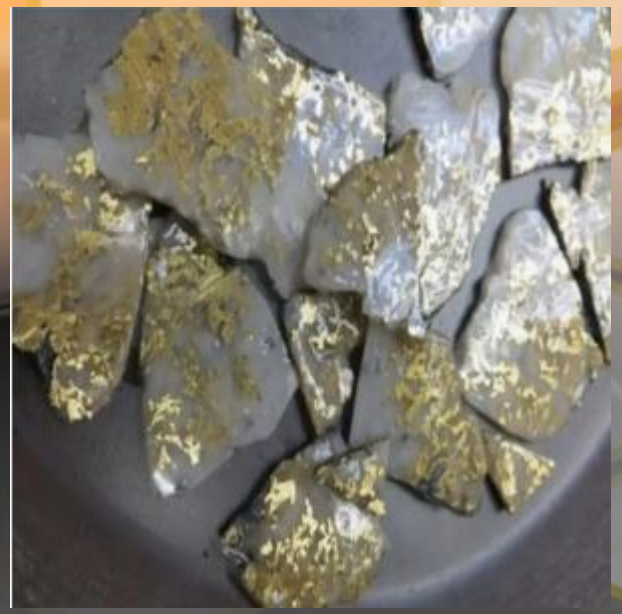
Fine grinding of high grade ore for cathode application in battery metals industry

Mica Ore

Pulverisation of many materials for powder coatings and electrophoretic painting (such as nano-diamonds to suppress dendrites in Li-ion batteries)

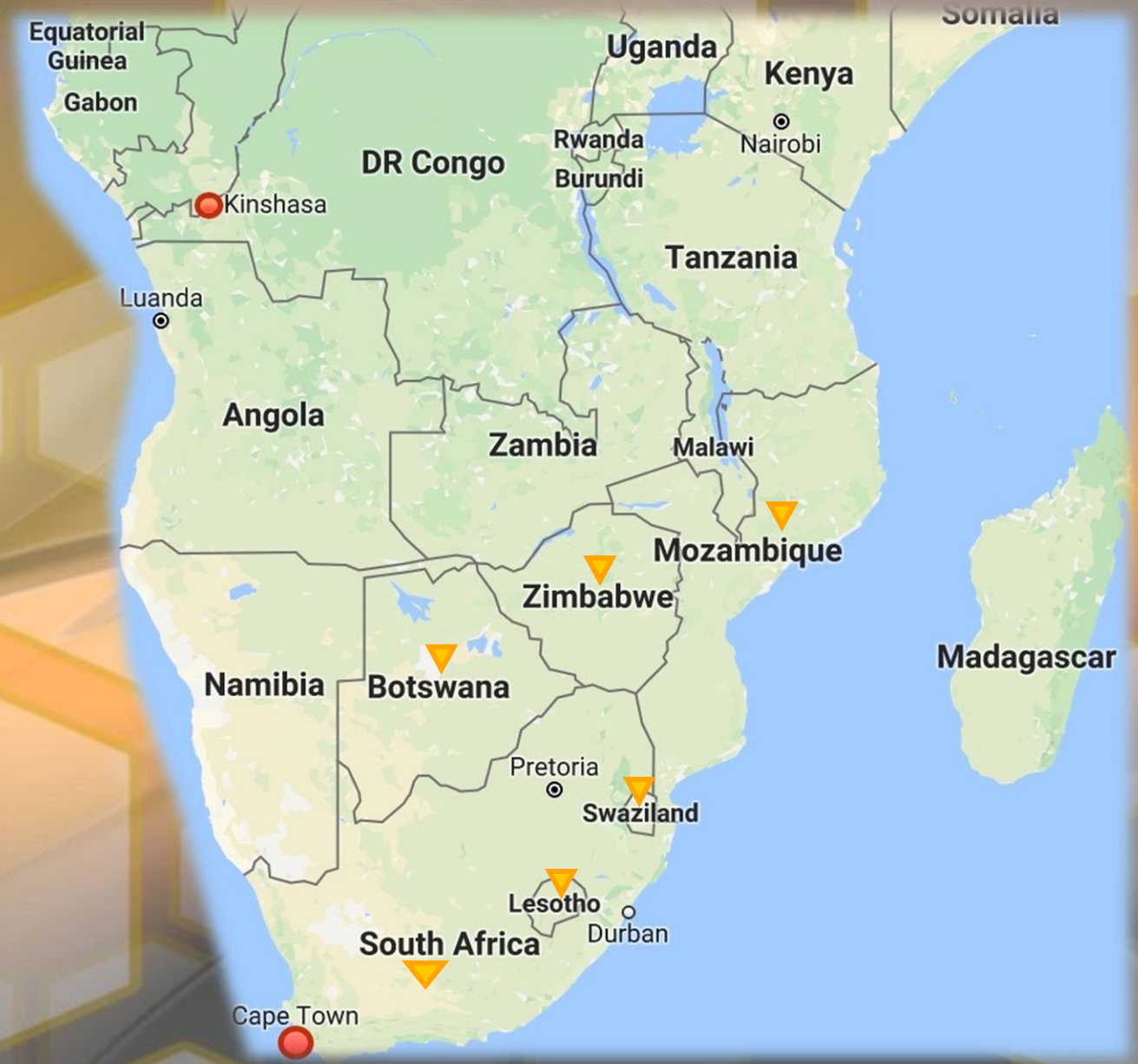
Gold is commonly found in quartz. This specimen is from the Fremont grant in Mariposa County, site of California's first gold mill.





License is..

- For South Africa, Botswana, Zimbabwe, Swaziland, Lesotho and Mozambique
- Renewable every 5 years
- Subject to a royalty dependent on profitability model



THANK YOU FOR WATCHING