

PLATINUM

DIVERSE DRIVERS OF DEMAND

Platinum is one of the **rarest metals in the world** with unique physical and catalytic properties making it highly valued across a number of **diverse demand segments**.

THE DRIVERS OF DEMAND

There are four core segments of platinum demand:

AUTOMOTIVE
36–43%*



INDUSTRIAL
21–26%*



JEWELLERY
26–35%*



INVESTMENT
0–15%*



* Minimum and maximum ranges over period 2015 - 2019

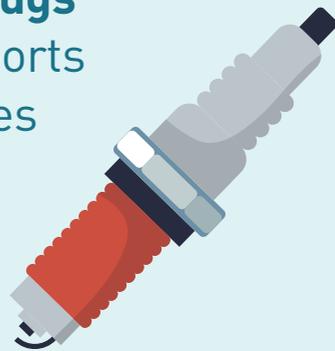
AUTOMOTIVE

Platinum demand from auto catalysts has equated to between **36–43%** of total demand in the last 5 years

Platinum is central to **reducing vehicle emissions** both now and in the long term



Platinum in **spark plugs** and **O₂ sensors** supports more efficient engines



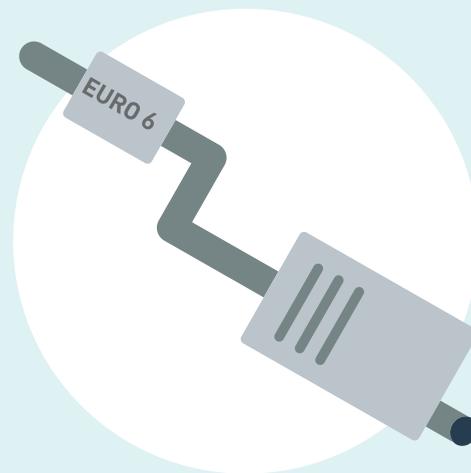
Platinum supports **diesel** cars which are on average **20% more CO₂ efficient** than an average gasoline car



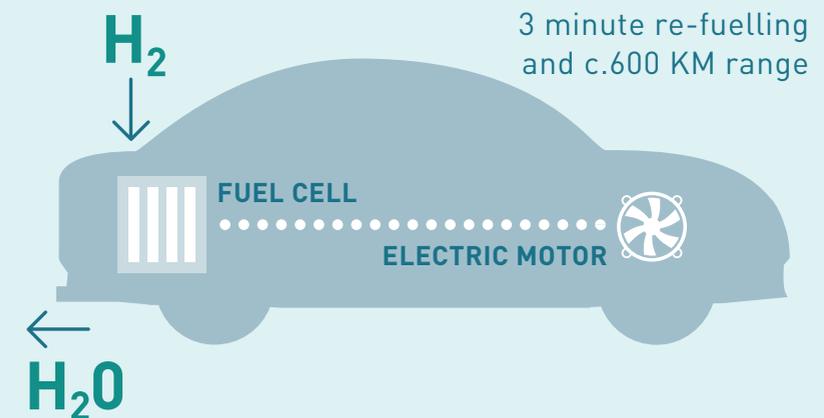
20%
MORE
EFFICIENT

Euro 6d (RDE) and China 6 compliant catalysts use more platinum per car to achieve the lower emissions requirements

Platinum use in gasoline (substitution for palladium) is a material demand growth driver



Platinum's superior catalytic and conductive properties in fuel cells turn **hydrogen and air into water** producing electricity to power **electric cars with zero emissions**



Fuel cell electric vehicles (FCEV) use more than **twice the amount of platinum** in internal combustion engine vehicles. **Early adopters** with commercially available cars include Toyota, Hyundai and Honda

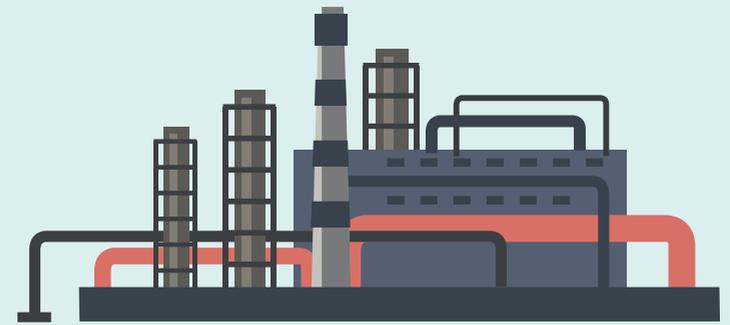
INDUSTRIAL

Platinum's diverse other industrial uses account for between

21–26%

of total demand in the last 5 years

Platinum catalysts **increase yields** in chemical processes, an example being more high octane fuel per barrel of oil

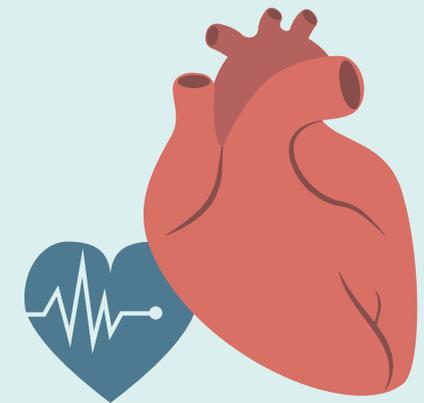


Platinum improves chemical process efficiency and increases media storage capacity globally



Platinum is necessary for vessels that **hold and form molten glass** for liquid crystal displays, optical and ophthalmic, glass fibre and other applications

Platinum increases storage density on hard discs for laptops and **servers supporting cloud storage**. Platinum also supports numerous electronic applications



Platinum is biocompatible and remains in the body **connecting pacemakers** and makes instruments visible during **keyhole surgery**. Platinum-based therapies have been at the **forefront of cancer treatment** for more than forty years.

JEWELLERY

Global annual jewellery demand has been between

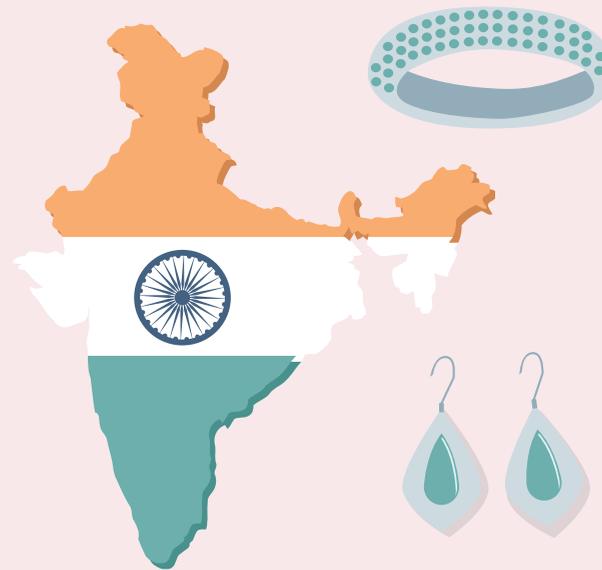
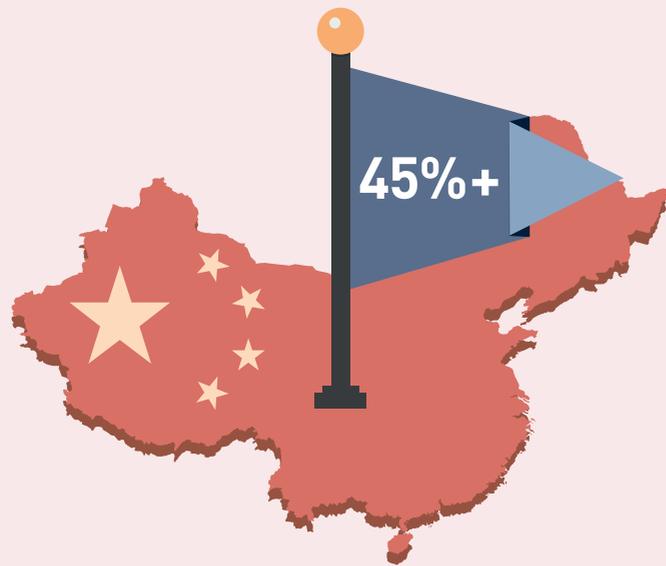
26 – 35%

of total platinum demand over the last 5 years

Platinum jewellery has achieved **global premier status** and **strong association with love**. Market developed by Platinum Guild International since 1975

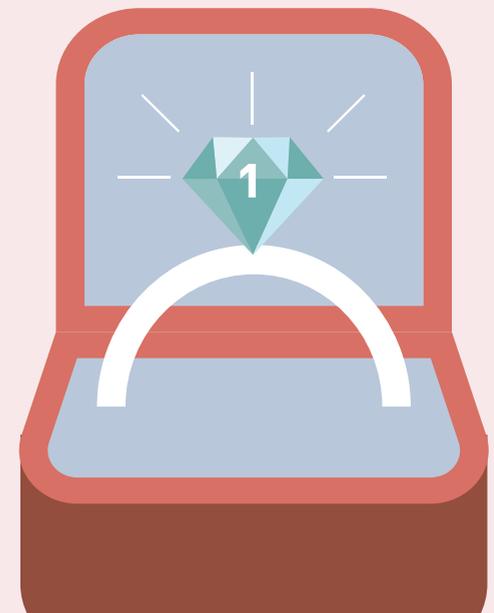


China is the world's largest market for platinum jewellery



India is a **driver of growth** including a rising men's jewellery market

In the US, platinum is a **preferred** choice for engagement rings, while in Japan it is the favoured choice for **generations** of brides and grooms



INVESTMENT

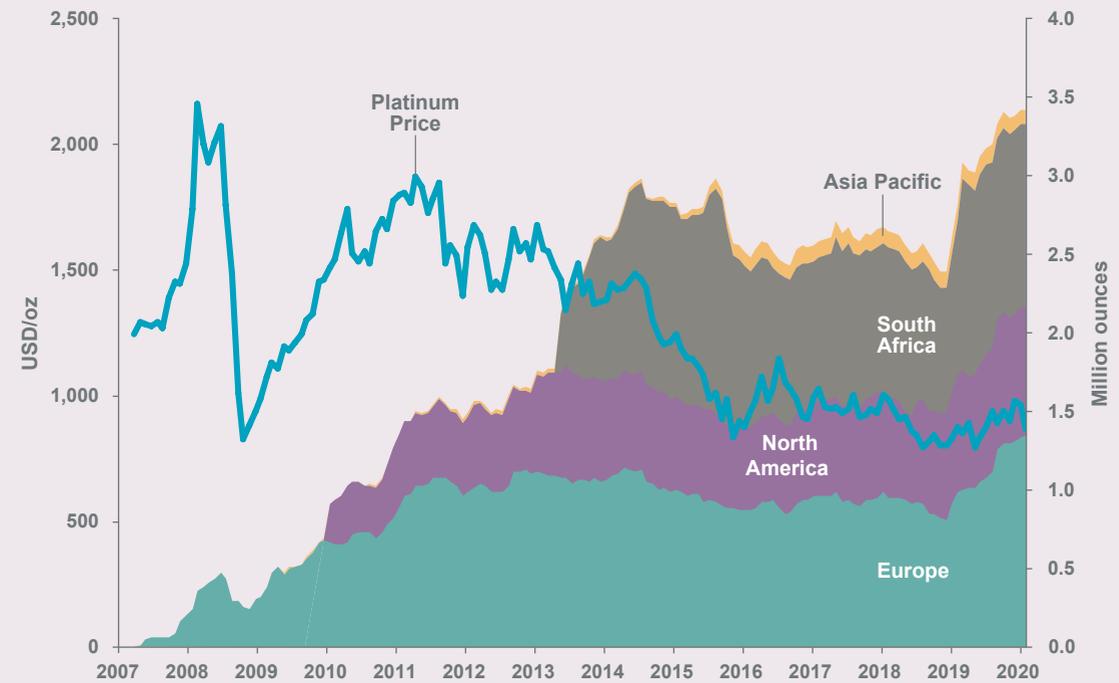
Investment is the most variable factor over the past five years, ranging between

0-15%

of total demand (net investment, excluding increases or decreases in above ground stocks)

Created in late 2014, the World Platinum Investment Council (WPIC) exists to **stimulate investment demand** for platinum

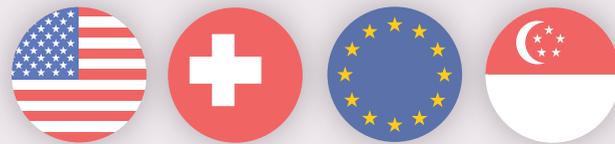
Physical platinum exchange traded funds (ETFs) have become firmly established in several regions. In 2019, investors added almost 1 million ounces in ETFs



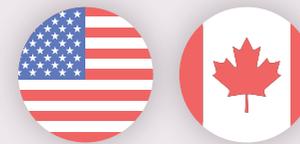
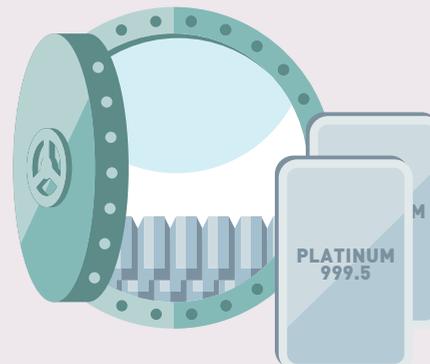
Examples of investment products in different geographies



Private individuals in Japan have been able to invest in platinum **accumulation plans** since the 1980s



High-net worth and institutional investment in **vaulted bars**



North American individuals investing **platinum bullion coins and bars** into their retirement savings plans



Chinese citizens can access a growing range of **platinum bullion products**

