

5.8 Research and development (HL)

Incremental and disruptive innovation

Creativity is the process of coming up with a new idea. Adaptive creativity refers to changing or improving something that already exists. Innovation refers to the concept of creating or developing new ideas and turning them into something commercially viable. Innovation goes one step further than creativity. Innovation can be categorised into four different areas, as shown in **Table 1**.

Table 1. Four types of innovation.

Type of innovation	Description
Product innovation	Developing and improving existing products. For example, food manufacturers have been developing new products, flavours and tastes to cater for vegetarian and vegan markets.
Positioning innovation	When a product is marketed to a new target audience. For example, AirBnB was originally positioned for the conference market before moving into tourism and holiday accommodation.
Process innovation	Developing new methods of production or product delivery. The development of artificial intelligence has led to the development of sophisticated, automated robotics within factories, reducing the costs and increasing the efficiency of operations for the businesses that have adopted them.
Paradigm innovation	A change that fundamentally alters an entire industry. For example, Netflix revolutionised the home entertainment industry with its streaming service.

Innovation can either take the form of a steady process (incremental innovation) or it can be a radical change that completely disrupts a market (disruptive innovation).

Incremental innovation

Incremental innovation occurs through a series of small, minor adaptations or changes that happen steadily over a period of years. For example, the video game Subway Surfers, which has been downloaded over a billion times, is updated every 3 weeks with new locations. The core of the game does not change, and the changes are minimal but improve the game. Another example of incremental innovation is where food manufacturers regularly update products, making steady improvements to packaging, recipes and flavours.

Disruptive innovation

Disruptive innovation involves the creation of new industries or markets. The rise of digital ride hailing apps and food ordering apps, for example, have radically changed the way people order taxis or takeaway food. Bicycle sharing apps have also changed the way people get around; in many cities around the world, people can now rent bicycles in order to make their journeys, reducing the need for many to purchase their own bicycle.



Figure 1. Bicycle sharing apps are an example of disruptive innovation.

Credit: Westend61, Getty Images

International Mindedness

Some innovations are so revolutionary they can impact businesses and people in every nation across the world and disrupt or change global actions in some way. The internet made it possible for people to connect across distances and buy products from businesses around the world. More recent innovations, such as 3D printing, have also had a global impact. 3D printing has made prosthetics (artificial body parts) cheaper globally, reducing costs and making it possible for amputees around the world to improve their quality of life.