The uncertainty principle for energy and time and position and momentum

The Heisenberg uncertainty principle states that

- If the energy state E only lasts for a brief period of time t, its energy is uncertain.

$$\Delta E \, \Delta t \geq \frac{1}{2} \hbar$$

- Position and momentum cannot be measured simultaneously with precision. The more precisely the position x is determined, the less precisely the momentum p is known, and vice versa.

$$\Delta p \, \Delta x \geq \frac{1}{2} \hbar$$

The uncertainty principle actually states a fundamental property of quantum systems and is not a statement about the observational success of current technology.