

What Makes a Successful Innovation?

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Medieval oil lamp

Jablochkoff Candle Lamps, Hotel Continental Paris (1879)

TE-polarised red light traversing a photonic band gap crystal (1997)

A roulette wheel is a deterministic system, that is to say, the ultimate resting place of the ball depends precisely on the physical parameters of its initial trajectory and those of the motion of the wheel. However, the financial returns are influenced by many other factors, such as the personality of the gambler, the management policy of the casino and the regulatory regime under which it operates, together with the success of a liaison with Lady Luck. The financial return from an innovation may likewise be expected to depend on diverse components.

This book examines various inventions which have given rise to a major expansion of the global economy to show how success is controlled by many elements, including the laws of physics, chemical properties of materials, the historic timing of the inventions and the stimulus and countervailing action provided by intellectual property monopolies, competition law and direct regulation, as well as the idiosyncratic contribution of the inventor's personality and the unpredictable incidence of good fortune.

The chosen subjects include the incandescent-filament electric lamp, the telegraph, wireless and the thermionic valve, the transistor and the relatively recent inventions of microprocessor and memory chips, personal computers and software.