

ECONOMIC AND BUSINESS HISTORY 25/26

LECTURE 5 – INNOVATION AND THE MODERN FIRM

1. Schumpeterian Innovator



Innovation of the Entrepreneur



The Schumpeterian Innovator

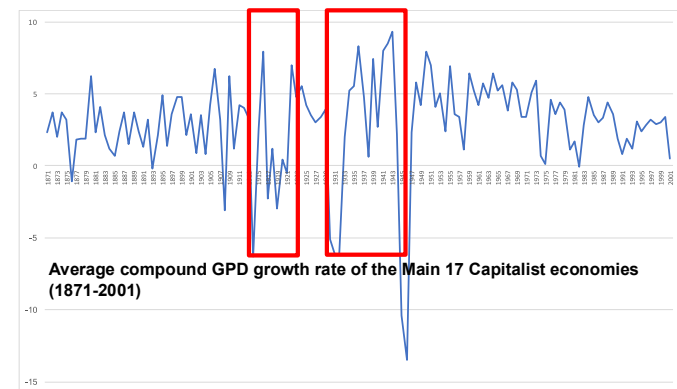


The importance of Railways



Rise of the Modern Firm

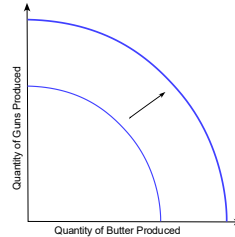
MEG has been irregular, not smooth



Average compound GPD growth rate of the Main 17 Capitalist economies (1871-2001)

MEG: Why so irregular?

- In the long run, growth implies that technological and organizational innovations expand the PPF
- This process is irregular
- It depends on the success of the **entrepreneurs** (not inventors, or scientists)



5

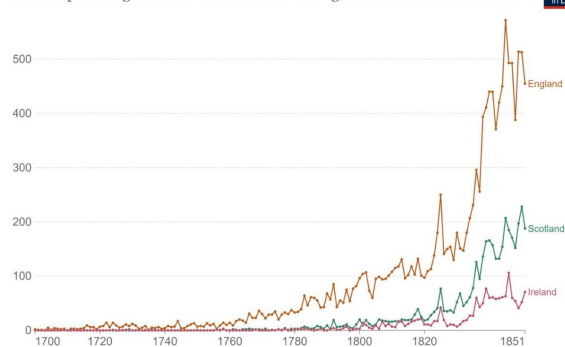
The Role of the Entrepreneur

- The Entrepreneur innovates by devising:
 1. New products
 2. New production methods and processes
 3. New markets
 4. New raw materials
 5. New organizational solutions
- IF there is a market mechanism and competition,
- Innovations are rivalled, copied, adapted and improved

6

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Annual patents granted in Great Britain during the Industrial Revolution

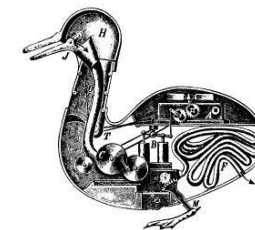


Source: Bottomley, S. (2014). Patenting in England, Scotland and Ireland during the industrial revolution, 1700–1852. OurWorldInData.org/research-and-development • CC BY

7

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Invention



Vaucanson's duck 1740. Walked (M), ate (J), "digested" (B and F) and expelled "food" (F) by means of clockwork mechanism.

Innovation

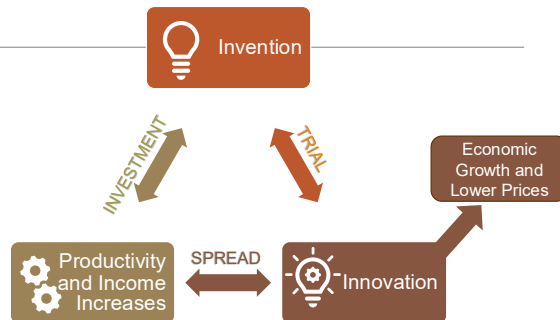


Spinning engine by Arkwright. Water powered. Research by Arkwright and his team of clockworkers from 1767 to 1771. Patented.

8

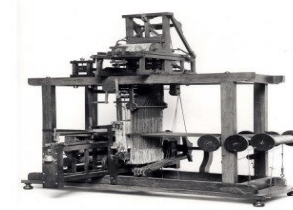
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Invention and Innovation



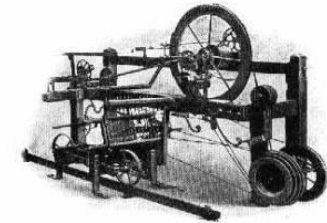
9

Invention



Silk loom inveted by Vaucanson, 1745, by order of the king for 'helping' the silk industry. Yet, the great manufacturers rejected, because it was more expensive than the wages it saved

Innovation



Authomatic Loom by Cartwright, 1789. Inspired by Vaucanson, Reverend Cartwright was able to create and patent a loom. Widely spread in England, because wages were higher

10

Example: Productivity Increases in GB cotton industry

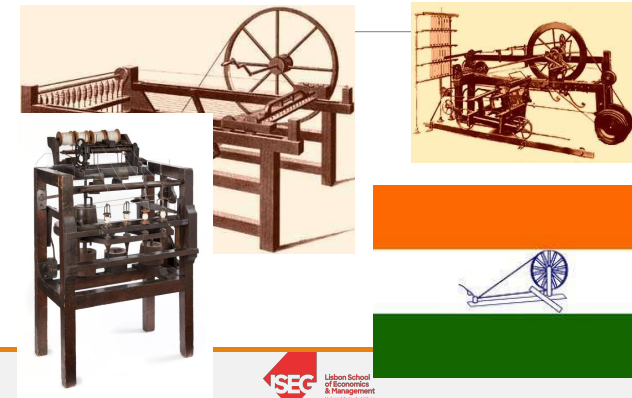


	Cost for spinning 100 lb of cotton in current GB pounds (Arkwright's water frame)	Cost for spinning 100 lb of cotton (100 = cost in 1780) (Spinning Jenny)	Hours for spinning 100 lb of cotton (100 = cost in 1780) (Crompton' s mule)
1780	2.10	100	100
1795	0.57	23	15
1830	0.13	4	7

11

Source: Paulinyi (1989)

This Process is also Destructive

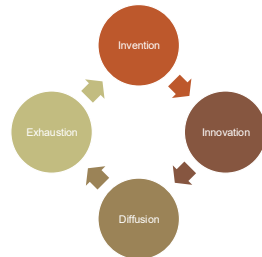


12

Creative Destruction

Through other businesses the original innovation expands its simultaneous CREATIVE (for the economy as a whole and labour productivity) and DESTRUCTIVE effects (for some sectors and technologies)

"This process of **Creative Destruction** is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in." (Schumpeter, 1942)



13

2. Railroads



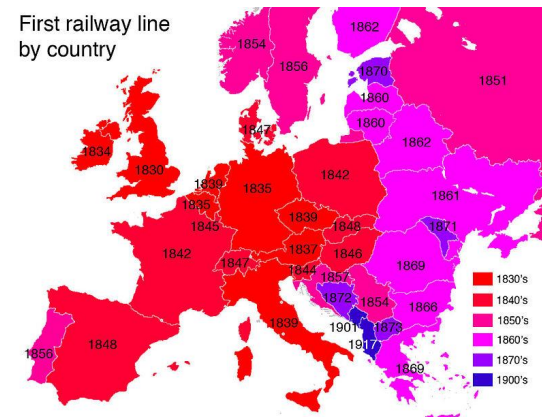
14

Why so important?

- MEG started in textile and ironworking firms in the eighteenth century
- Machinery and other investments were very often financed by the firm owners (remember Arkwright)
- Rapid returns meant that short-term credit was enough
- On account of their scale, 1840s and 1850s railways, however, posed different problems

15

First railway line
by country



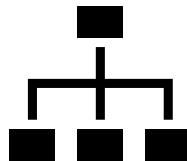
Why so important? (2)

- Their very large dimension called for high levels of investment
 - Need for larger stocks of physical capital (rails, stations cars and locomotives)
- Complexity of operations (tickets, traffic coordination, complexity of services, multi-divisions)
 - Need for a new type of organizations: the modern firm
- Because of these 2 features, railroads are the **cradle of the modern firm**

17



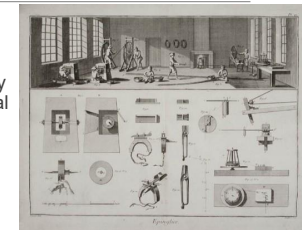
3. The Modern Firm



19

Traditional Firm

- Capital and property are united in the same person
- Firm grows by labour productivity, typically by adding more (physical or human) capital per worker
- As a result, the firm is a Price Taker, thus contributing to lower prices and hence increase the 'Wealth of Nations'.



A 18th-cent. pin factory. Adam Smith's example of how the division of labour multiplied productivity by a very large factor

20

‘Modern Firm’?

- It has a multiunit or multidivisional structure
 - Specialization within the firm
 - Complexity of operations
- It has a 'visible hand'
 - **Managerial hierarchy** which understands price mechanisms turning the firm into a Price Maker
 - With managers, businesses aim for growth and not simply profit
- Separation of ownership and management
- Reliance on capital markets

21

Organigram of a typical multidivisional firm

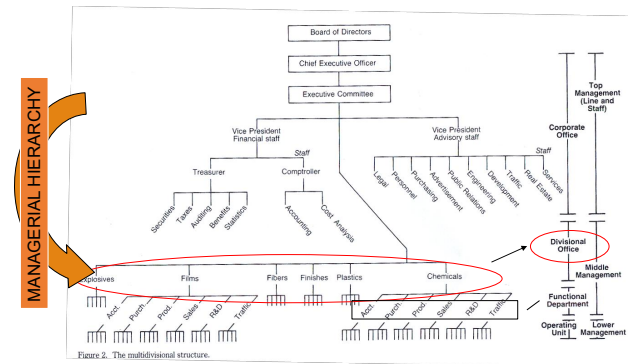
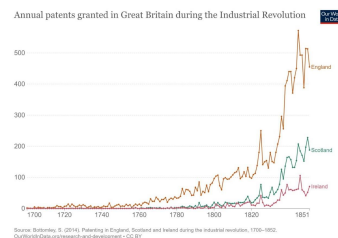


Figure 2. The multidivisional structure.

‘Modern Firm’: why so important?

- Through R&D, firms channel capitals obtained with growth to create innovation
- With firms, innovation becomes more intense and almost predictable



23