Technological Revolutions and Finance Capital:

the Dynamics of Bubbles and Golden ages (Ch 7~10)

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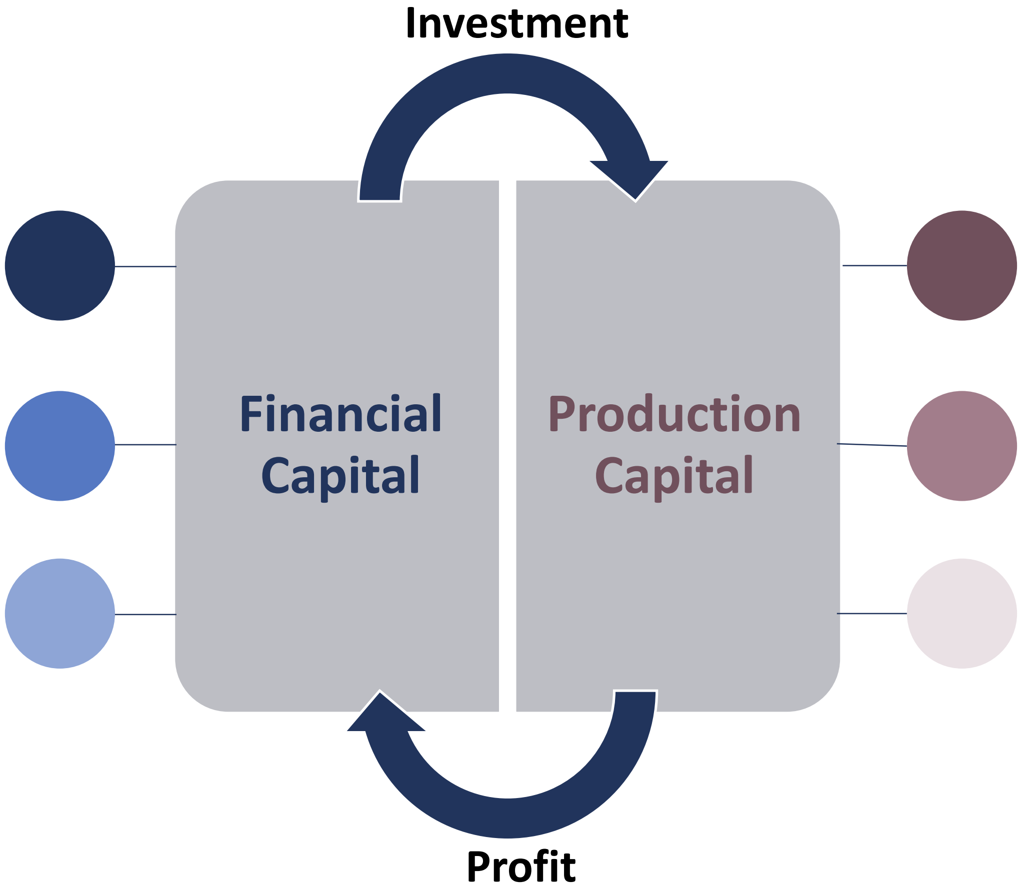
0. Table of Contents

1-1. Financial Capital and Production Capital

Possess wealth in form of money to increase wealth

Reallocating and **Redistributing** wealth

Invest in firm and project without much knowledge



Generate new wealth by **producing goods** or **performing services**

Accumulate greater profit-making capacity **tied to concrete products**

Based on **knowledge** on the product, process, and market

1-1. Financial Capital and Production Capital

Table 2.1 Five successive technological revolutions, 1770s to 2000s

Technological revolution	*Popular name for the period*	*Core country or countries*	*Big-bang initiating the revolution*	*Year*
FIRST	The 'Industrial Revolution'	Britain	Arkwright's mill opens in Cromford	1771
SECOND	Age of Steam and Railways	Britain (spreading to Continent and USA)	Test of the 'Rocket' steam engine for the Liverpool–Manchester railway	1829
THIRD	Age of Steel, Electricity and Heavy Engineering	USA and Germany forging ahead and overtaking Britain	The Carnegie Bessemer steel plant opens in Pittsburgh, Pennsylvania	1875
FOURTH	Age of Oil, the Automobile and Mass Production	USA (with Germany at first vying for world leadership), later spreading to Europe	First Model-T comes out of the Ford plant in Detroit, Michigan	1908
FIFTH	Age of Information and Telecommunications	USA (spreading to Europe and Asia)	The Intel microprocessor is announced in Santa Clara, California	1971

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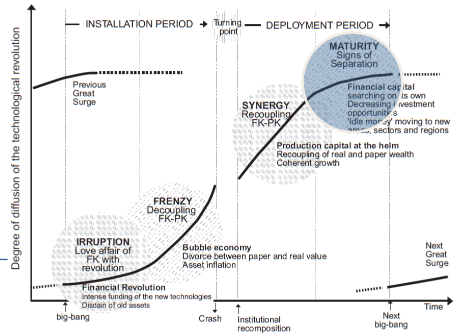
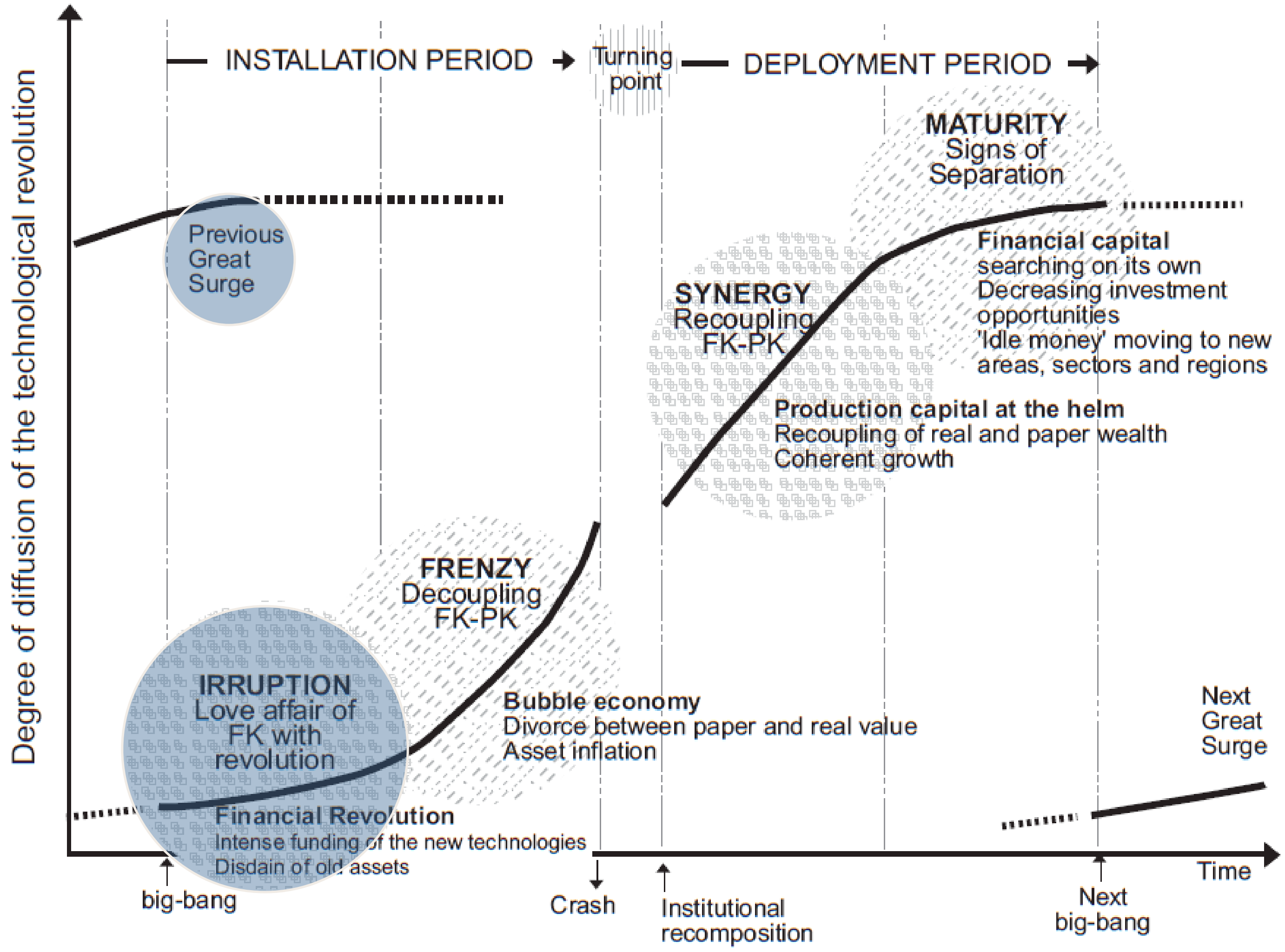
1971 — 5 — Information and Telecommunications



1-2. The Changing relationship between financial and production capital



Irruption phase

- **Technological revolution Big-bang**
- New entrepreneurs outstrip the profit-making potential.
- Rush of financial capital plays to help spread the revolution
- **idle money** in search of profitable use

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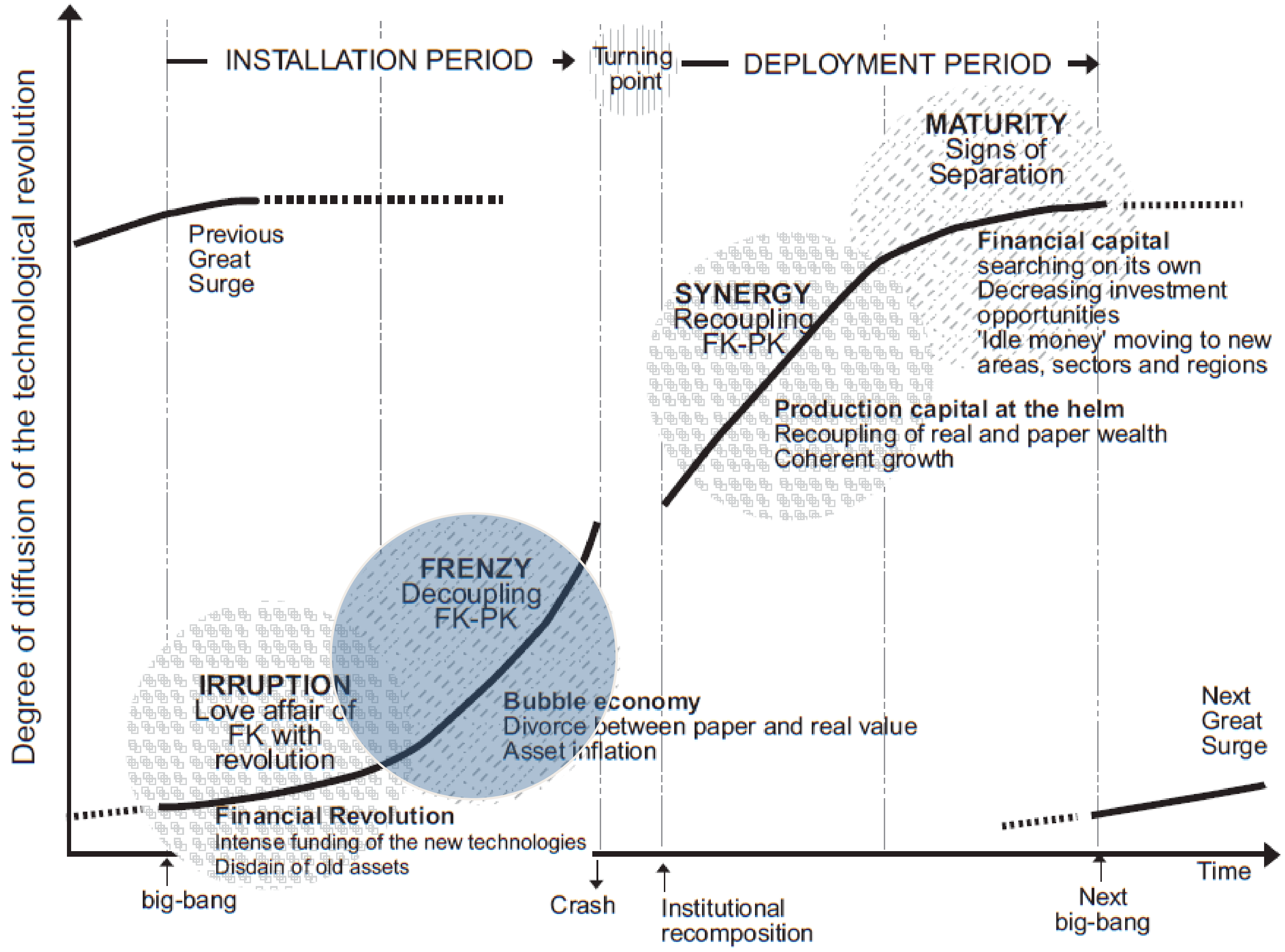

Decoupling in the frenzy phase

- Massive **creative destruction**
- **Financial capital**
  - Convinced its capacity of generating wealth.
- **Production capital**
  - New paradigm for new products, processes and services as well as for rejuvenating the old

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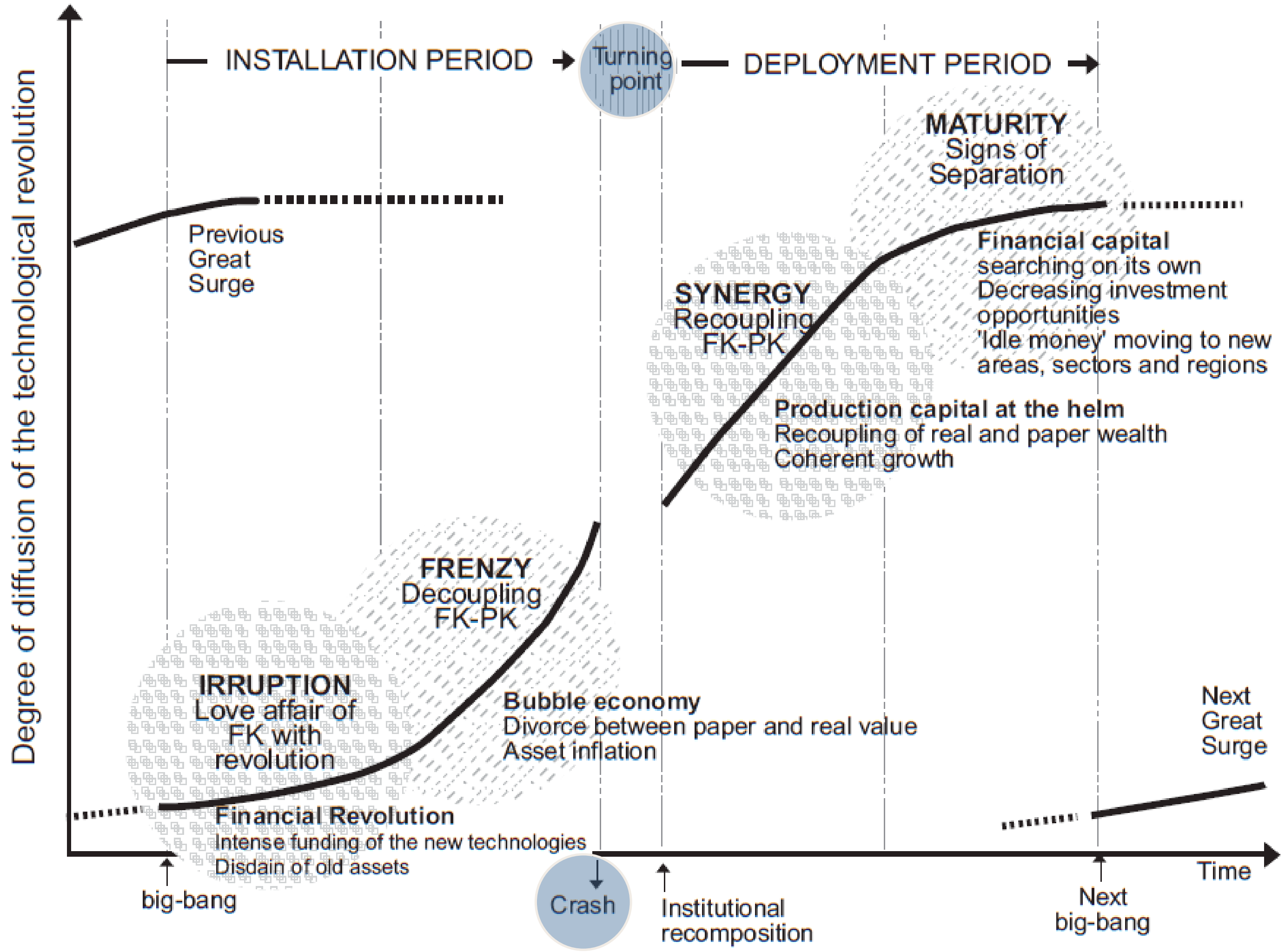

The turning point

- The end of frenzy phase bring **implosion of bubble**
- Reckoning and acceptance, **regulation** is put to financial capital
- Re-established connection with production capital

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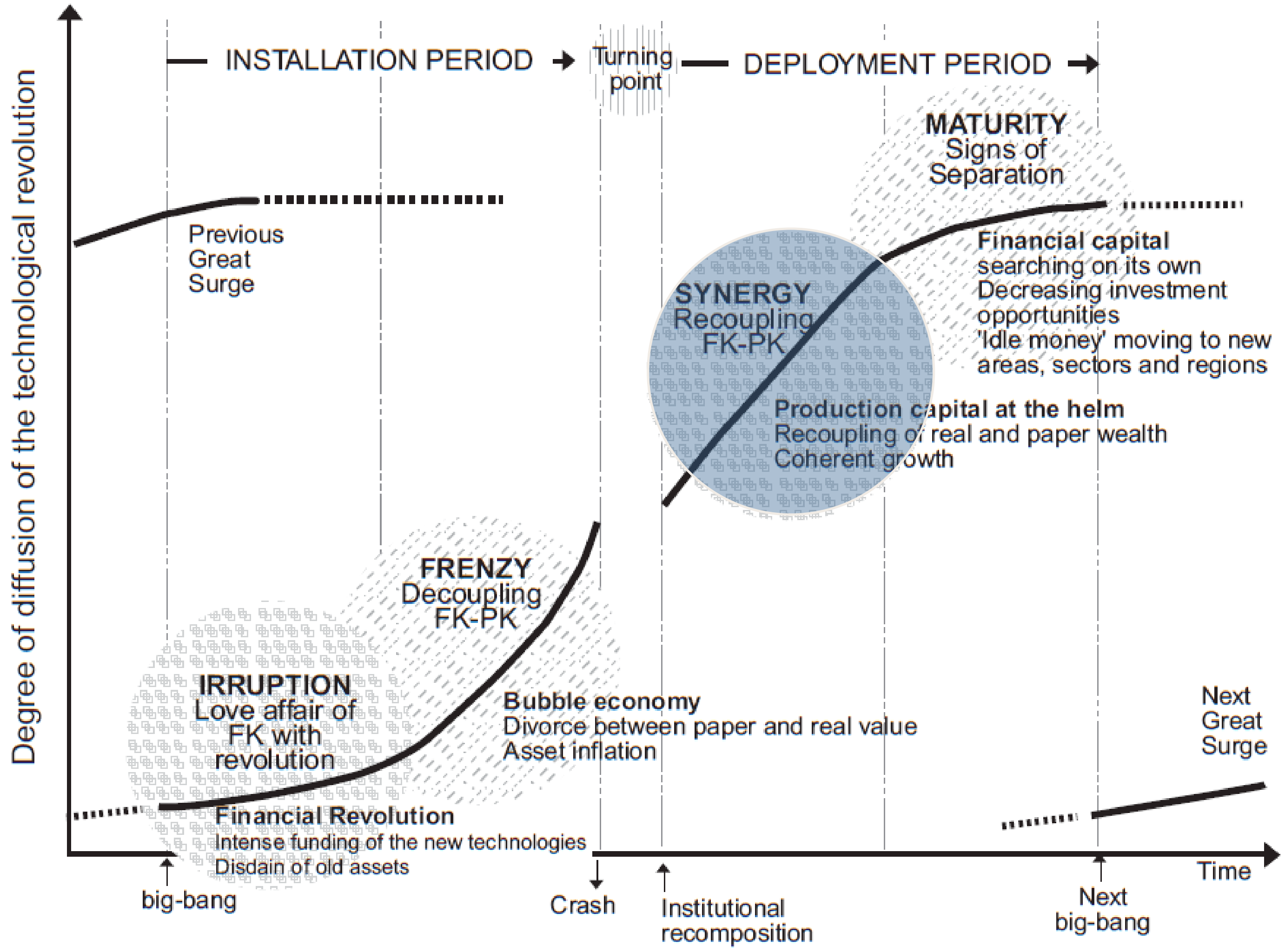

Synergy phase: The period of Deployment

- **Recoupling** of financial and production capital
- **Production capital** wealth-creator
- **Financial capital** as a Facilitator
- Innovation and growth take place across the whole productive spectrum

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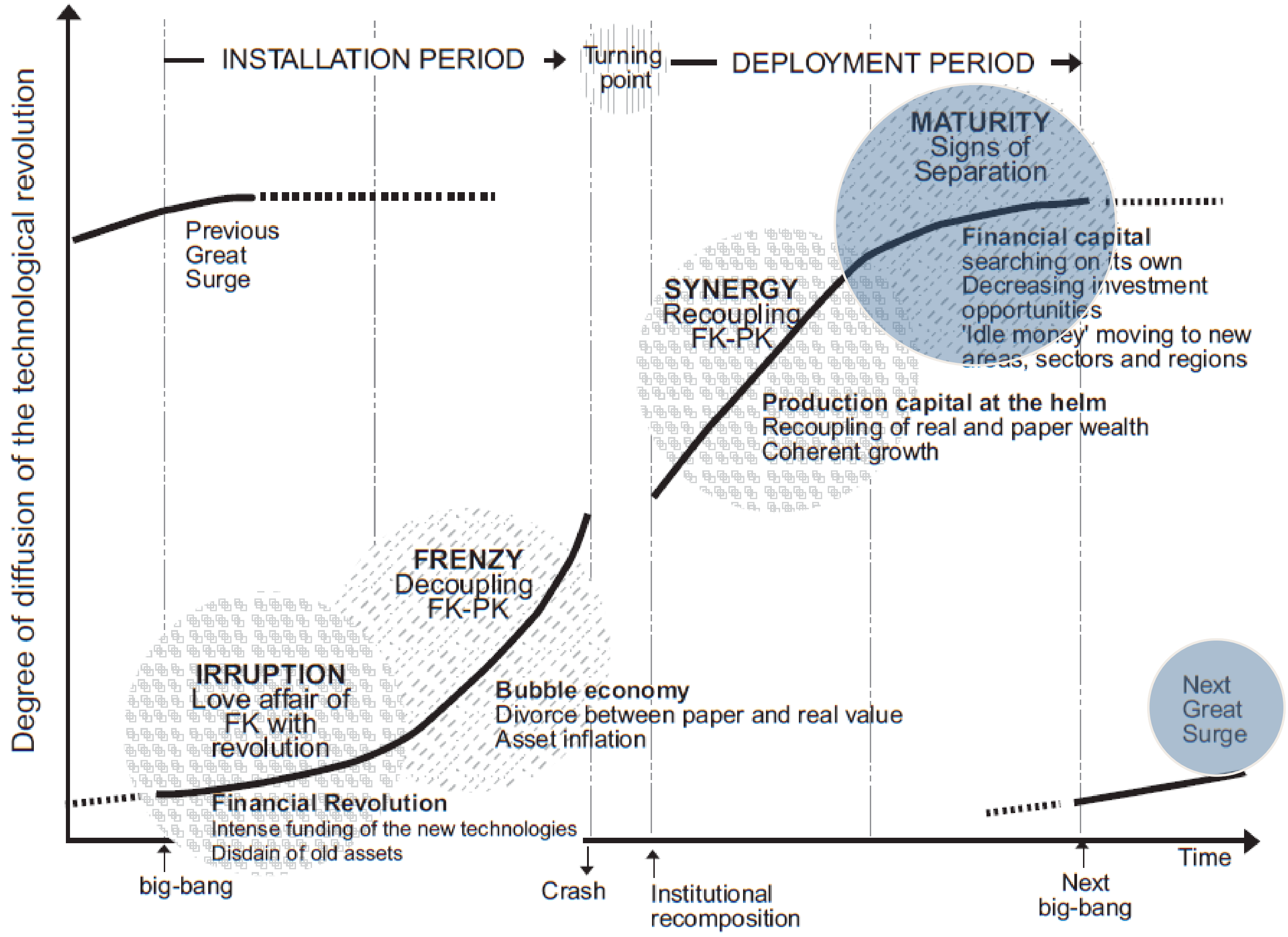

Trouble again in maturity

- **Production capital**
  - Begin to reach **limit** to growth in productivity and market
  - Firms preserve profits for investment as **idle money**
- **Financial capital**
  - Look around for other profitable new technologies
- Next technological revolution emerges

Financial Capital Planting the seeds of Turbulence at the end of the previous surge

2. Maturity Phase

2-0. Maturity Phase

- **Maturity** is the end of the development period.
  - Exhaustion of original core industries of the prevailing paradigm.
  - Old industries find difficulties to increase productivity or markets.
  - Begin spreading Geographically, reaching for peripheral markets or for lower-cost production.
- **Financial capitals** support flourishing the last sectors, and attempt to their threatened profits.
  - Now become huge and faces difficulty in finding fruitful investment for their mass of profit.
  - Pushes them into buying up smaller competitors to increase market share, trying untested technologies for stretching their trajectories and venturing into distant markets or production locations.

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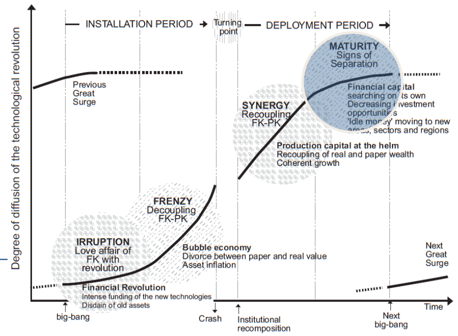

2-1. Power-Seeking Behavior

- **Blue chip** strategy
  - Financial capital support strongest production capital
  - Closely attached to the production clients(or partners)
- Powerful firms increase market control
  - Squeezing out of the market
  - Buying up smaller competitors to create closed oligopolies
  - Acquire firms in other sectors to build diversified giants

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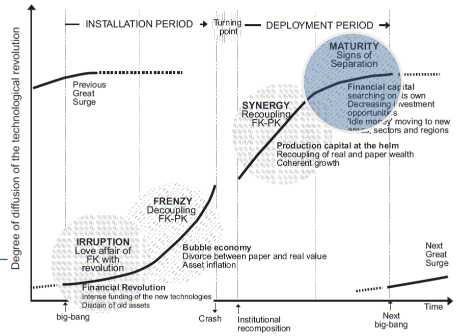

2-2. Redeployment: Investing away from the Core Countries and Sectors

- Financial capital starts **Redeployment** for stretching of business possibilities
  - Support investment in marginalized sectors **(Sectors)**
  - Sales to new distant clients **(Investment)**
  - Moving of production to cheaper location **(Geographic)**
- Overflows of investment to peripheries
  - Catching-up processes in countries that are ready for it
  - Catching-up efforts of lagging countries

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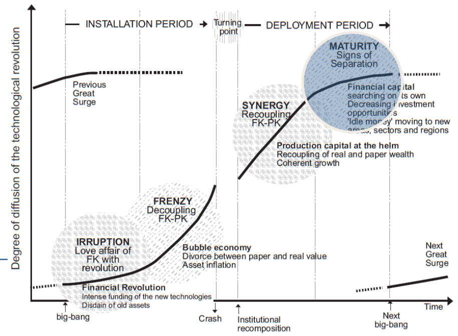


2-2. Redeployment: Investing away from the Core Countries and Sectors

Table 8.1 Fluctuations in UK foreign investment (at current prices) as percentage of total net capital formation, 1855–1914

Years	%	Phase and surge*
1855–1864	29.1	(Since 1851) Synergy second great surge
1865–1874	*40.1*	*Maturity second great surge*
1875–1884	28.9	Irruption third great surge
1885–1894	*51.2*	*Frenzy third great surge*
1895–1904	20.7	Synergy third great surge
1905–1914	*52.9*	*(After 1907) Maturity third great surge***

Notes: * Periods roughly classified by phases in the corresponding surges.
** In the USA, this is also the beginning of the irruption phase of the fourth surge, which makes it a powerful magnet for idle British financial capital.

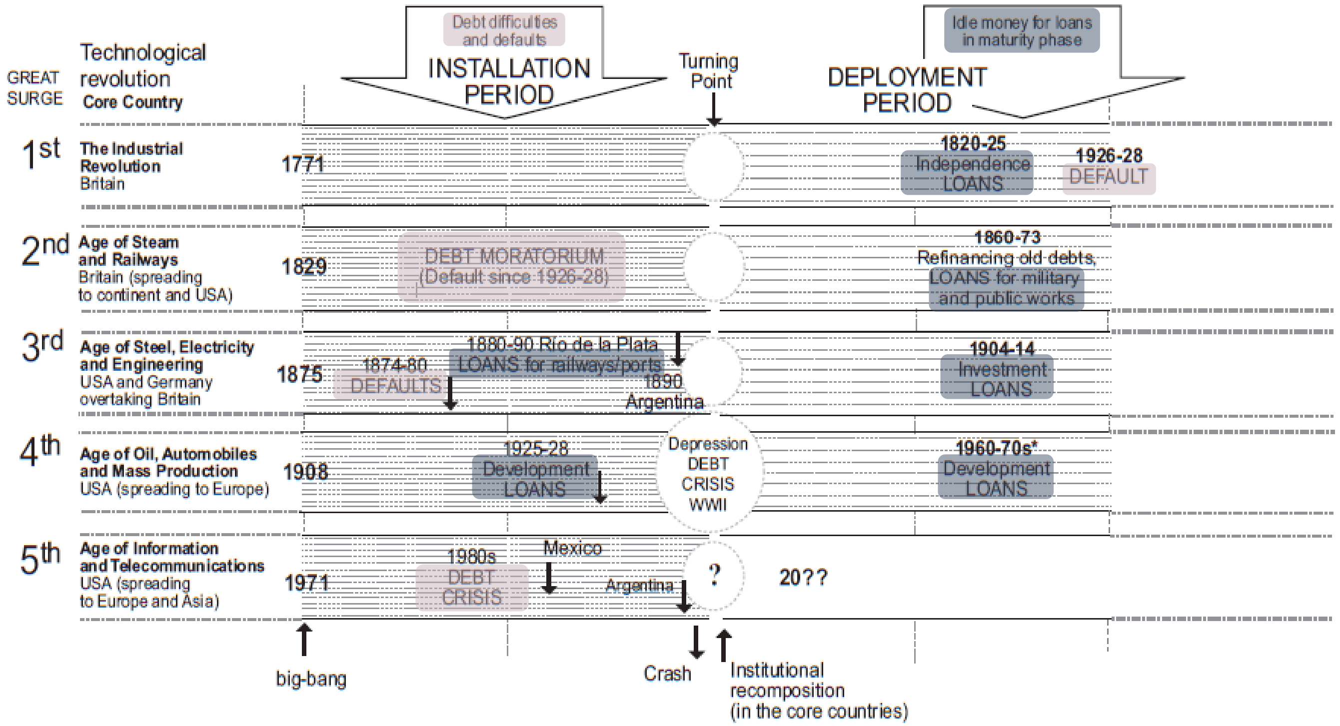
- **Irruption** and **Synergy**: Investment concentrates on domestic firms
- **Frenzy** and **Maturity**: Capital migration

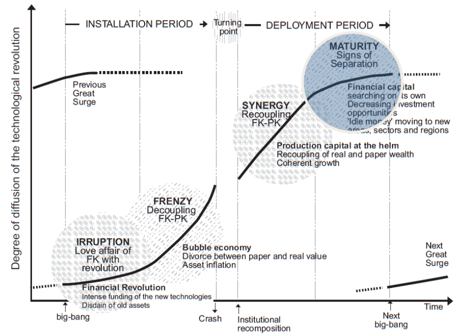
2-3. Idle Money Leads to Bad Loans

- Loans are granted to weaker creditors
  - The creation of great volumes of *sovereign dept,* that nurtures future debt crises

  ex) Latin America: recurring cycle of loan fever in maturity phase, and default during the process of paradigm shift.

Figure 8.1 The recurrence of loan fever and default: the Latin American case





The love affair of financial capital
with the technological revolution

3. Irruption Phase

3-0. Irruption Phase

- **Coexistence** of two paradigms; Old and New
  - The present scheme the final phase of life cycle of a paradigm
  - Initial phase of the next technological evolution
- **Financial capital** is still intensively engaged in old, but the appearance of new territory is very quickly realized
  - **Idle capital** rapidly engages to support new industries and entrepreneurs
  - Financial capital and banking jump to the quick adoption of modernizing innovation for their own operations

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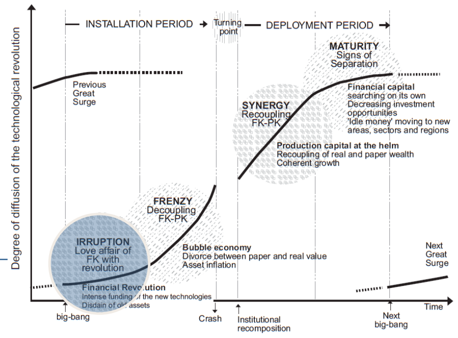
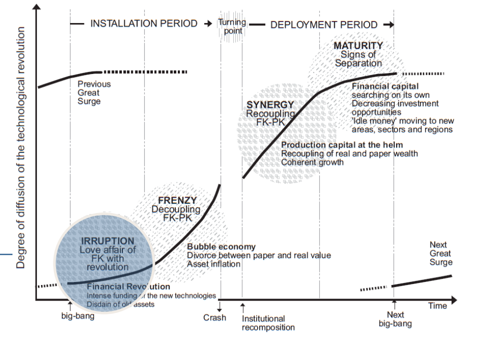


3-1. New ‘Risk Capital’ Instruments

- Requirement of **Financial support**
  - The pioneers could break the new ground on their own
  - However, the expansion and the continuing momentum require substantial support from the financial system
- The role of finance is determined by the specific characteristics of innovation

  1) Industrial Revolution in England
    - One-time funding requests for mechanization of cotton industry

  2) Development of the railways
    - Required the great quantities of investment, that were rarely available from a single firm.
    - **Joint-stock companies** concentrated capital, spread the risks, and made diffusion of innovation.



3-1. New 'Risk Capital' Instruments

3) Age of Steel: Banking and institutionalized financial capital became a powerful and indispensable part of the industrial system

  - Allow the emergence of new entrepreneurs

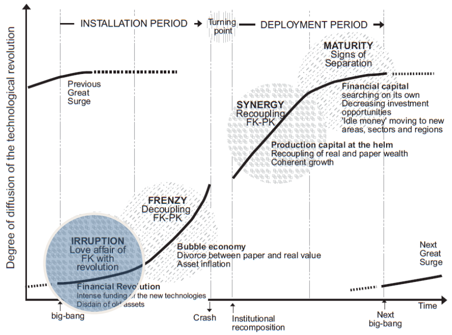
- Opens a window of opportunity for **catching-up countries** and regions
  - Outspreading of capital to distant places from the maturity phase incorporates them into the range of action of financial capital and makes various ventures possible.

- Private capital & State involvement

  ex) Japan in 1960s and 1970s

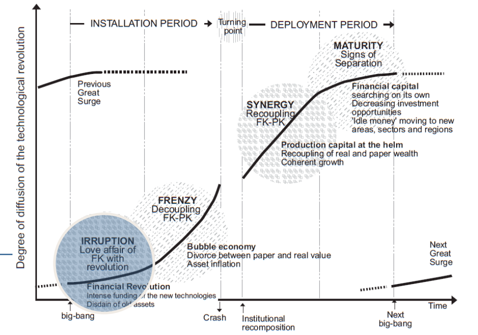
  ex) US Railway 40% funding was put up by state governments

> "The shift of power from the industrial to the finance capitalist came when the expansion of industry reached a size beyond the resources of individual entrepreneurs or banks, and when the movement for consolidation reached a stage where the services of a central investment house became necessary to handle the finance involved." – Harold Faulkner



3-2. Funding the rejuvenation of old core branches

- **Idle money** in hands of production capital
  - Powerful firms of the previous revolution often acting as oligopolies
  - The funds used for geographic redeployment are reinvested
- The old core firms become agents in the construction, diffusion, and installation of the new techno-economic paradigm.
- Expecting all investment to be profitable
  - New industries and infrastructures continue to gather momentum in this period and are growing and diffusing at an amazing pace



Self-sufficient financial capital
governing the Casino

4. Frenzy Phase

4-0. Frenzy phase

- Frenzy is period of extremely unbalanced prosperity and of polarization
- The **Decoupling** of **Financial** and **production capital**
  - Producing firms may bend their decisions to provide high short-term gains required by the stock market
  - General behavior of the economy is increasingly geared to favoring the multiplication of financial capital

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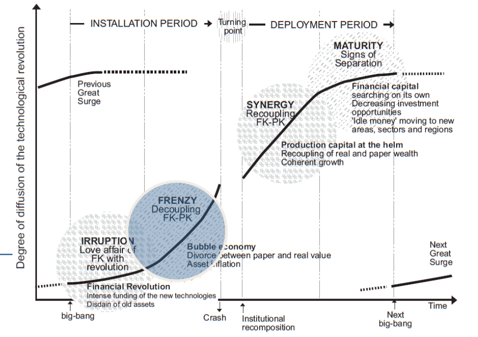
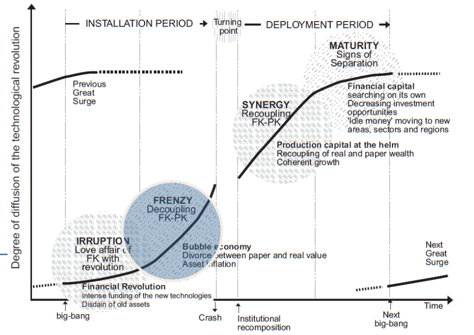


4-1. Speculating with Old Wealth: Asset inflation

- **Financial capital** invented and applied to make more wealth out of existing wealth
- Indirectly tied to production
  - Taking control over the operating firms, building ‘inverted pyramids’
  - Hedge funds, junk bonds, and other instruments serve to bring in capital for a wider than usual range of investment.
  - *‘Bring everybody into an investor’*
- Diverting finance from wealth creation and simply find other investment

  ex) Real estate

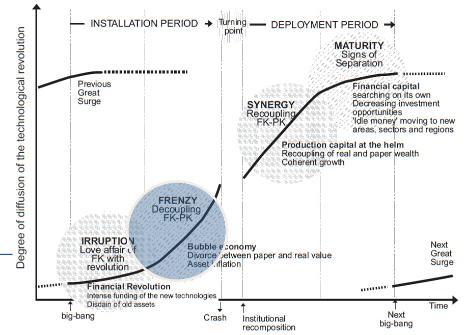
  - Notion of ‘fundamentals’ is set aside and price/earning ratio argument out of all proportions.



1771 ① Industrial Revolution — 1829 ② Stream and Railways — 1875 ③ Steel, Electricity, Engineering — 1908 ④ Oil, Automobile, Mass production — 1971 ⑤ Information and Telecommunications

4-2. Crises in the Weaker Nodes of the World Economy

- Widening **Social Gaps**
  - Transformation and wealth creation with the installation of infrastructure to new paradigm
  - The industries, countries, regions and firms that have not taken the modernization path, are entering a vicious spiral of low growth and lack of funds
  - “Rich get richer and poor get poorer”
- The risk of default in lagging sectors
  - The **weaker countries** that received the idle money in the previous periods are fragile
  - Leading to increasing foreign control over the already battered wealth-generating capability of economics, weakens them in their debt-paying capacity



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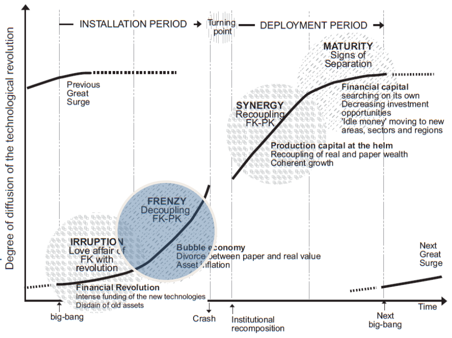
4-3. Windows of Opportunity for Catching up

- **Catching up** where the behavior of financial capital, from the maturity phase through the installation period, plays a particularly important part.
  - National, international, historical and geographic reasons, to make a catching-up leap with new paradigm.
  - ex) **Asian Tigers**: Geopolitical forces of Cold War to facilitate a wave of foreign investment
  - ex) **Argentina** before the Baring crisis in 1890: Steam-powered and refrigerated shipping technology made Argentina to become a supplier for northern hemisphere.
- Latecomer economies are naturally more fragile, vulnerable to sudden retrieval of funds
  - Severely affected by the shrinking of markets



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4-4. Manias and Frantic Competition

- Frenzied and confusing atmosphere of the casino economy
  - Huge trial and error process eventually to affect the whole of society
  - Market experience irregular chaotic growth and intense investment can lead to overcapacity problems
- General disorder and lack of coordination in investment decision
  - *‘Trillion dollar scrap-heap’* telecommunications investment in late 1990s – Dan Roberts, The Financial Times
- **Mania** leading to panic collapse
  - 1798, canal mania
  - 1847, railway mania
  - 1929, real estate and stock market mania
  - 1990s, Internet mania

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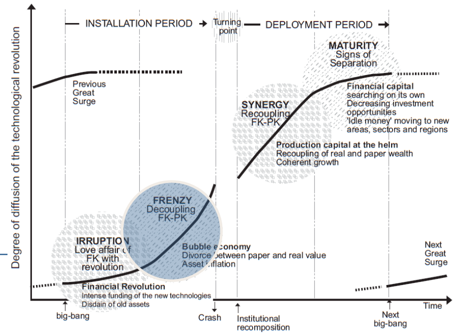
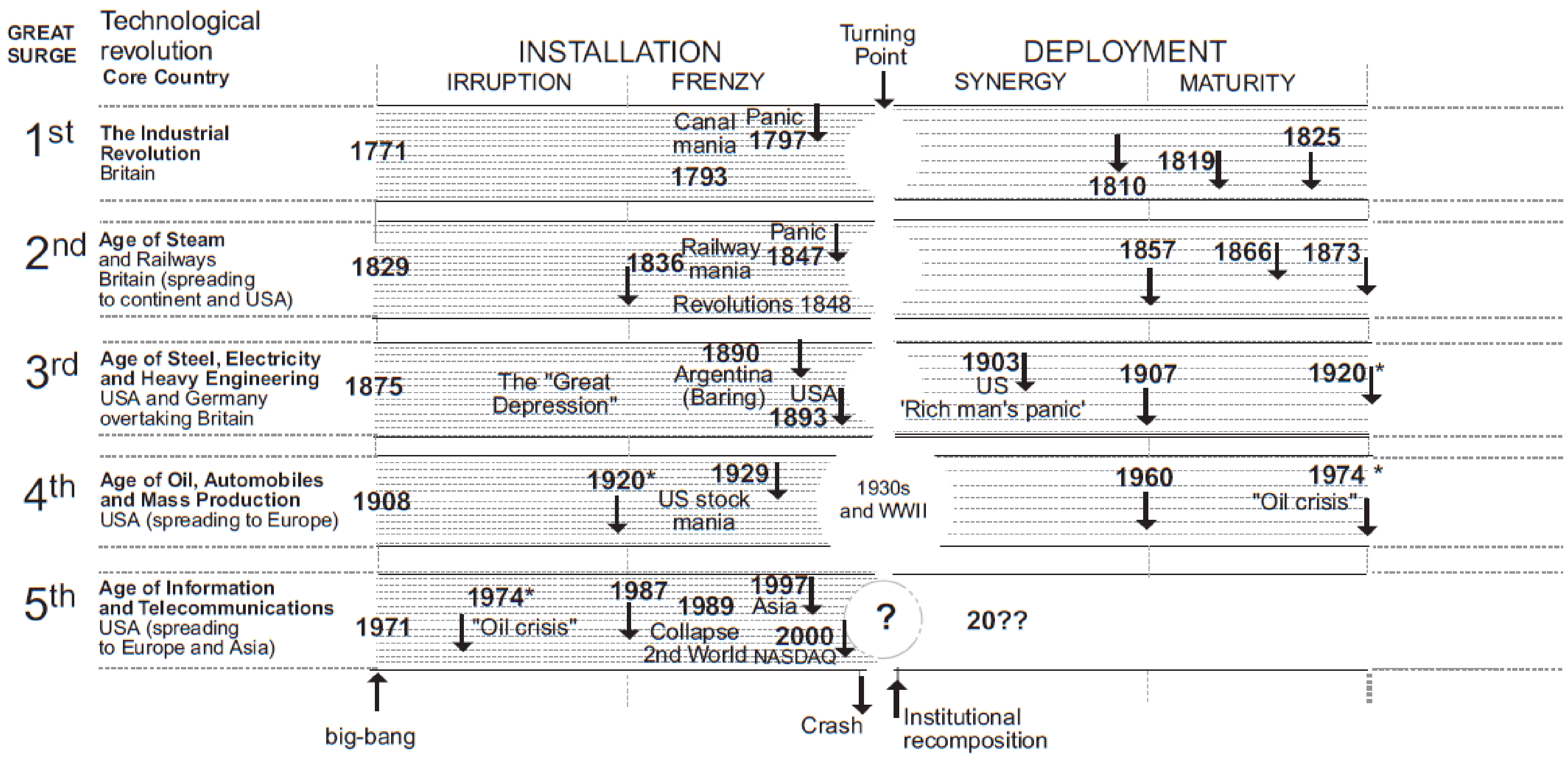


Technological Revolution
and Financial Bubbles

5. Sum-Up

5. Technological Life Cycle Chain

Figure 7.2 Five successive surges, recurrent parallel periods and major financial crises



- Who are responsible in the economic collapse?
- How could states or international governments associations control the financial default? Is it even available?