



**SHAPING THE DIGITAL REVOLUTION  
TOWARDS SMART, GREEN, FAIR,  
AND GLOBAL GROWTH**

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**SUCCESSFUL BUSINESSES AND SOCIETIES  
ARE THOSE THAT DO TODAY  
WHAT WILL BE BEST FOR TOMORROW**

**That requires recognising the nature  
of both today and tomorrow**

**We need to examine historical regularities  
in order to understand technological revolutions  
and recognise the role of markets and governments in their patterns of diffusion**

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## **WE ARE CURRENTLY FACING SEVERAL CHALLENGING QUESTIONS**

**Will robotics and artificial intelligence eliminate most jobs?**

**Are environmental policies an obstacle to growth?**

**Is growth an obstacle to environmental sustainability?**

**Can the current level of inequality be overcome?**

**Are markets or States (or both) the best guarantee of progress?**

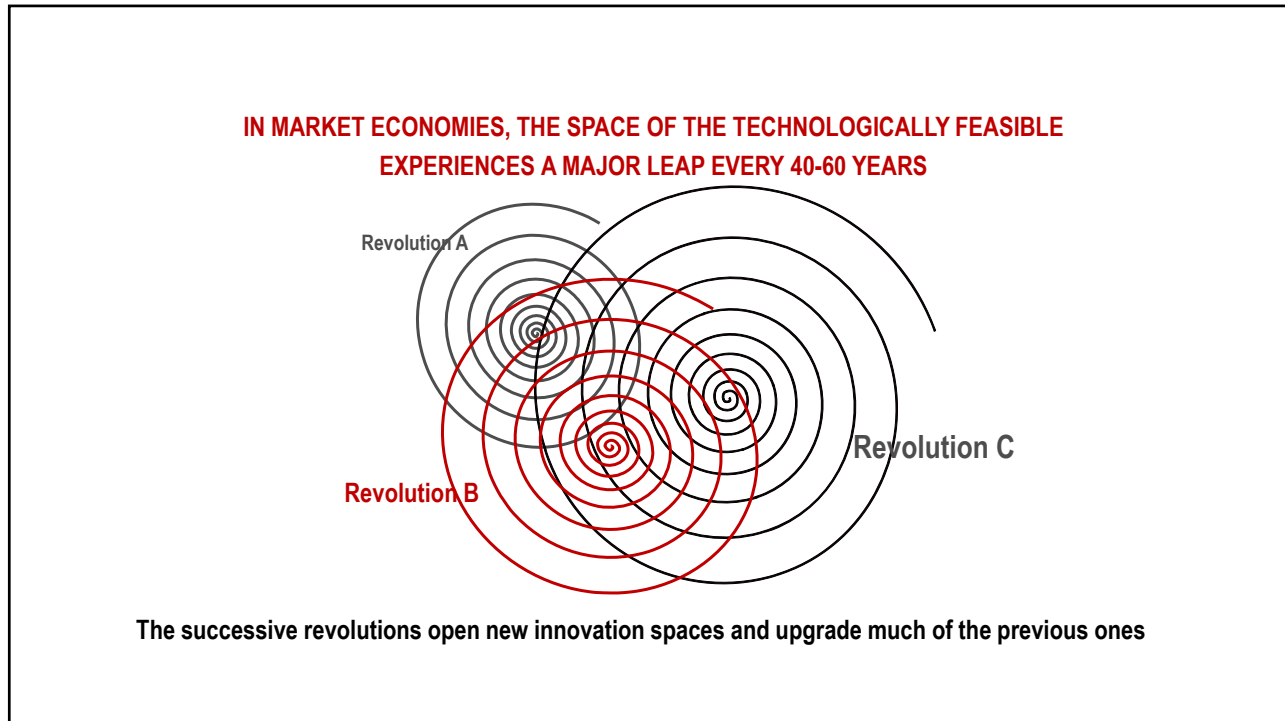
**Will we make the green transition on time?**

## **HISTORY MAY HAVE THE ANSWERS**

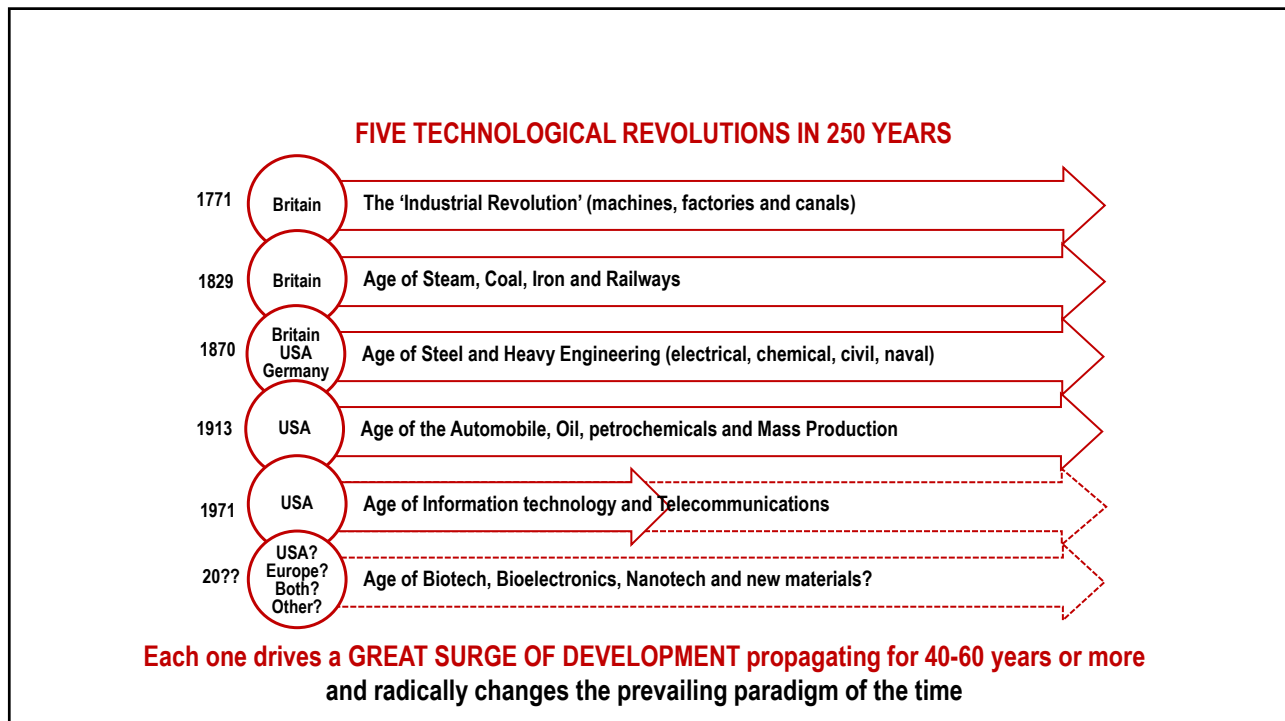
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- **Five technological revolutions; four golden ages**
- **How can we unleash a golden age now?**
- **The role of government in providing direction for synergy**
- **The role of lifestyle changes in paradigm transitions**

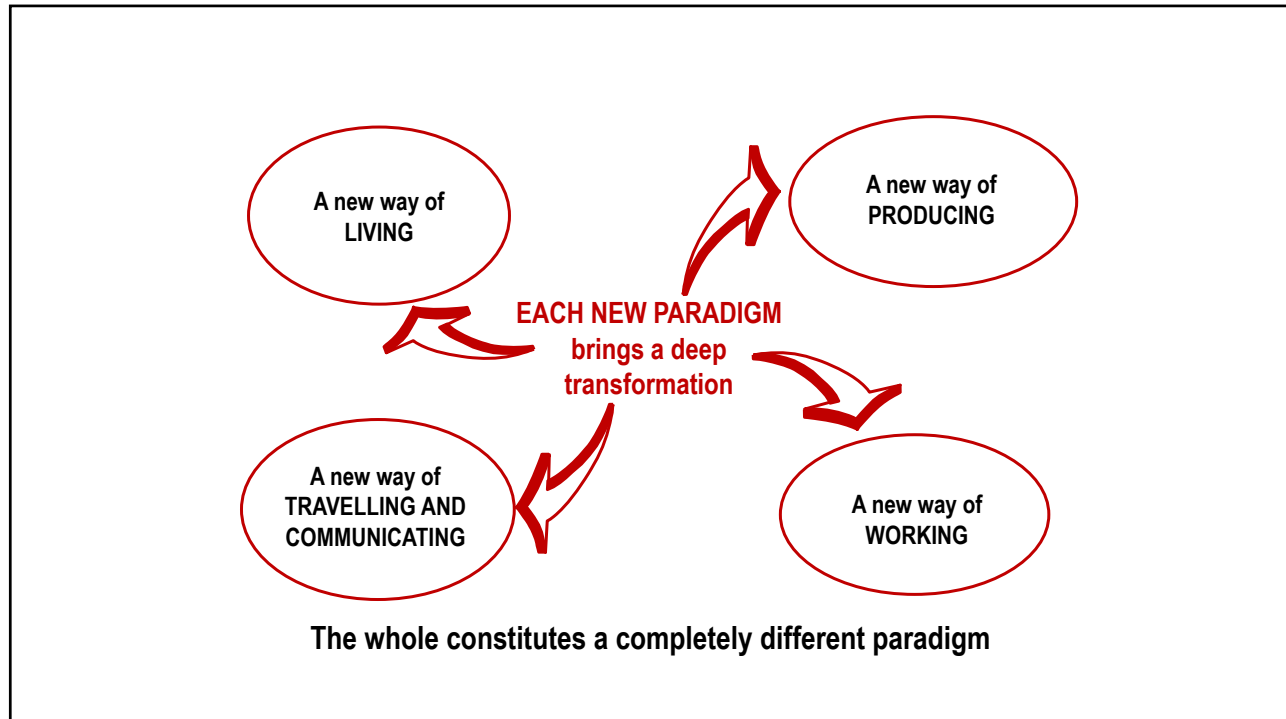
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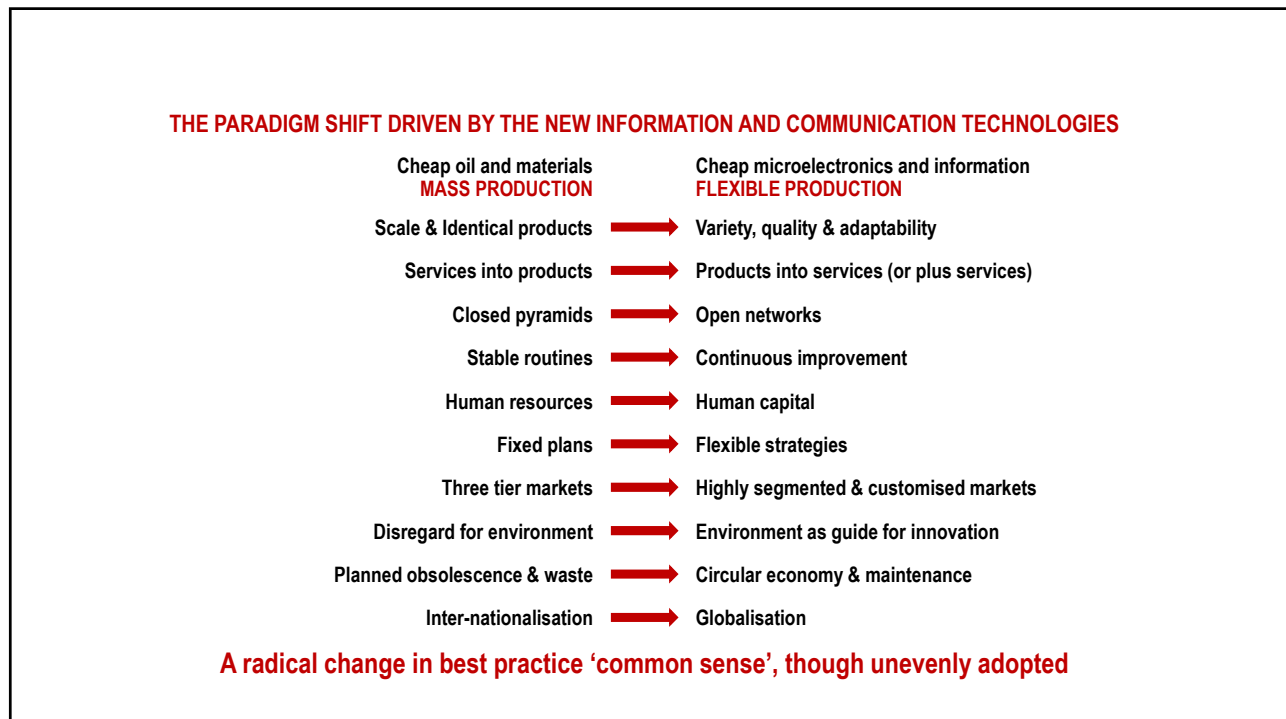
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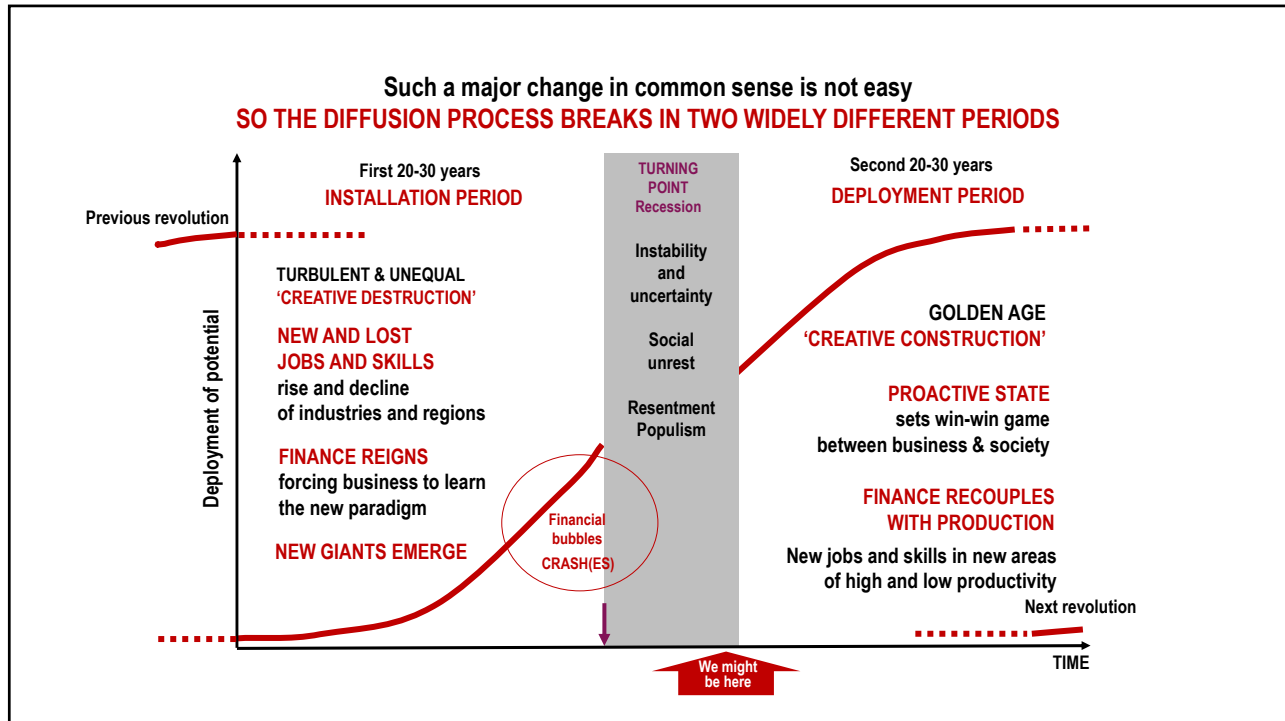
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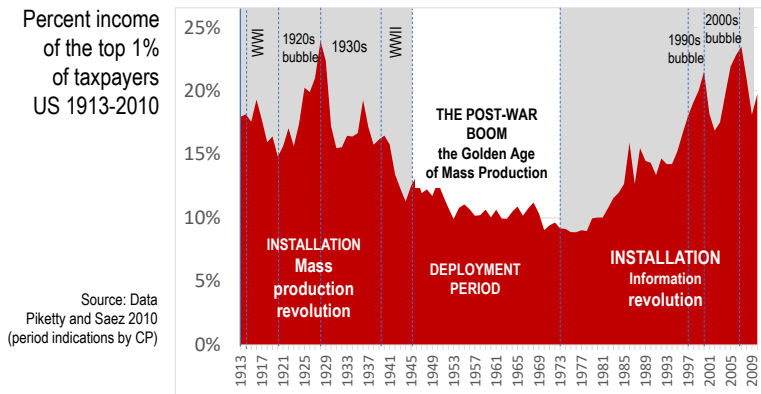


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### Piketty&Saez' graph on changing US inequality in the 20<sup>th</sup> century clearly pictures the process

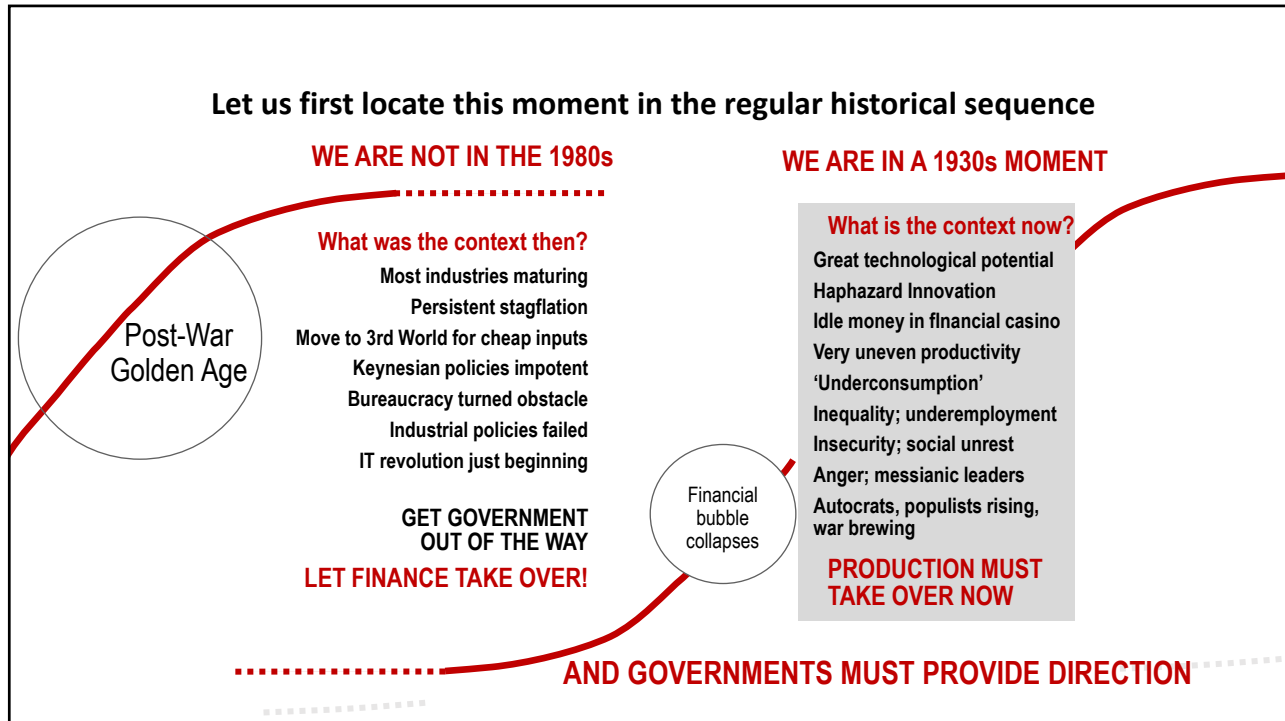


And my research shows the social pendulum swings regularly

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**We must now change the context towards  
SMART, GREEN, FAIR AND GLOBAL GROWTH**

- With the institutional equivalent of Bretton Woods and the Marshall Plan
- A far-reaching change in the economic context towards green
- A radically new consensus: business/government/society
- Massive private and public investments in converging directions
- Initiate the reversal of social inequality (national and global)

**A POSITIVE-SUM GAME BETWEEN BUSINESS, SOCIETY AND THE PLANET  
CAN BE UNLEASHED FOR THE BENEFIT OF ALL**

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**And those directions are not only for humanitarian reasons**

<b>WHY SMART?</b>	Because ICTs are the most powerful tools to innovate and increase productivity
<b>WHY GREEN?</b>	Because, apart from being urgent, it offers a world of new opportunities for innovation and synergies
<b>WHY FAIR?</b>	Because peace and stability are only possible when all can expect a better future, and because consumer demand depends on consumer incomes
<b>WHY GLOBAL?</b>	Because full global development would create massive demand for capital goods, engineering and other job creating exports from 'the North' and would drastically reduce migrations

**So, it's intelligent for business to join the government for change**

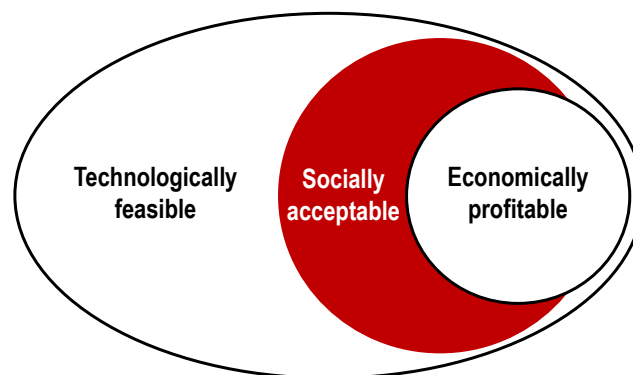
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**FROM TECHNOLOGICAL VIABILITY TO PROFITABILITY AND SOCIAL PROGRESS**



The difference between the profitable and the socially acceptable is bridged by government policy

**THERE IS NO TECHNOLOGICAL DETERMINISM**

The ultimate direction of technology is a socio-economic and political issue

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## **WE ARE AT THE TURNING POINT**

**when the new technologies are sufficiently developed  
and their paradigm and potential are sufficiently understood**

## **IT IS TIME FOR GOVERNMENTS TO TILT THE PLAYING FIELD**

### **TECHNOLOGY ONLY SETS THE STAGE**

**Then, society engages in conflicts and compromises  
to give direction and define the social context for the future**

## **THE SHAPING IS POLITICAL**

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## **WHAT IS THE NATURE OF THE TURNING POINT?**

**Now, as in the 1930s...**

Casino finance	Structural unemployment (or underemployment)	Xenophobia
Giant monopolies		Economic migrations
Feeble growth	Deskilling	Social unrest
Talk of secular stagnation	Hopelessness/resentment	Political cleavages
Recessions (even depression)	Inequality	Populist messianic leaders

### **WITH A HUGE UNDERLYING TECHNOLOGICAL POTENTIAL**

**capable of transforming the whole economy  
and bringing a golden age**

**FOR IT TO HAPPEN, THE STATE MUST SHAPE AND TILT THE PLAYING FIELD**

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**WHEN THE ECONOMY HAS A DIRECTION  
THERE IS SYNERGY IN INNOVATION AND INVESTMENT  
AND MARKETS BENEFIT FROM POSITIVE EXTERNALITIES**

In market economies the direction is not arbitrary.  
It emerges from the main trends already in the market  
and the ones that fulfil expressed social needs

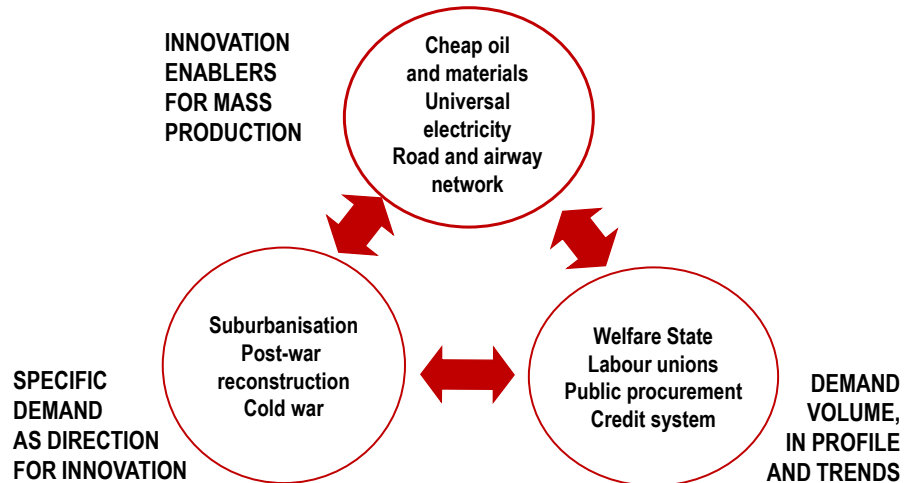
In autocratic regimes, it can respond to political goals

**THE MASS PRODUCTION REVOLUTION WAS SHAPED DIFFERENTLY  
BY HITLER, STALIN AND THE WESTERN DEMOCRACIES**

And growth results from the dynamic demand created by that direction

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**Suburbanisation and the cold War as the directions given to the Post WWII Golden Age**

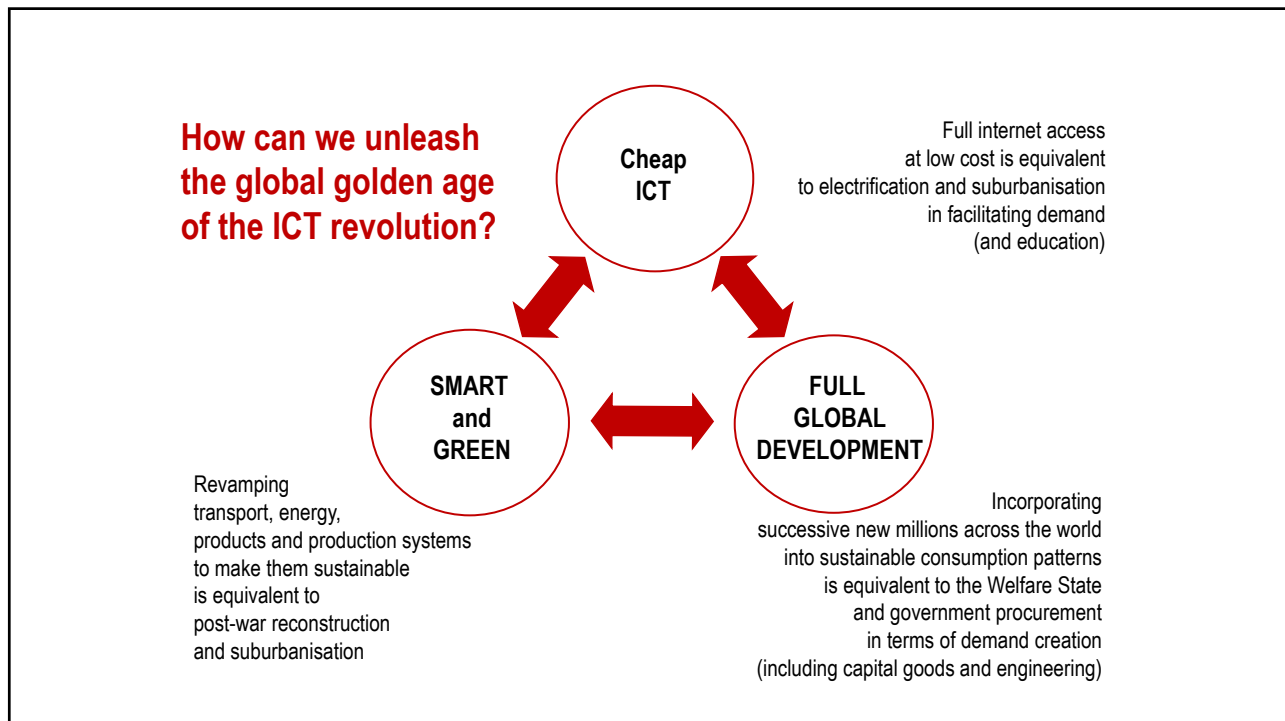


**The various elements were provided in different proportions in each "First World" country**

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Will robotics and AI lead to massive unemployment?

**PROGRESS IN MARKET ECONOMIES IS A VERY BUMPY RIDE**

Every installation period  
brings a new potential  
for wealth creation,  
but it destroys jobs, skills,  
industries and regions



Every golden age deployment  
resets the playing field  
creating new jobs  
requiring other skills  
and changing the ranking  
of industries, regions and countries

**SHIFTS IN LIFESTYLES PLAY A CRUCIAL ROLE  
IN THE CREATION OF NEW EMPLOYMENT**

**And all successful economies have a small high productivity sector  
that supports the wealth of a much larger lower productivity one**

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**EACH GOLDEN AGE ENABLES A DIFFERENT LIFESTYLE AND CREATES NEW JOBS**

The Age of Steam, Coal, Iron,  
Railways and Mechanization



**URBAN VICTORIAN LIVING**  
Manufactured textiles and pottery  
Hand-made everything else  
New jobs in crafts and services

The Age of Steel and Heavy Engineering  
First globalization



**COSMOPOLITAN LIVING IN THE BELLE ÉPOQUE**  
Industrial electricity, paint and materials  
Carpets, objects and art from all over the world  
New jobs in services and entertainment

Age of the Automobile, Oil,  
Petrochemicals and Mass Production



**SUBURBAN FAMILY LIVING**  
All products manufactured  
[preferably plastic]  
New jobs in construction and services

**They also change aspirations, culture, notions of 'community' and forms of leisure and entertainment  
SO, THEY BECOME STRONG SHAPERS OF DEMAND, INNOVATION AND INVESTMENT**

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**But the process is difficult, complex and protracted**

**THE EMERGENCE OF THE 'AMERICAN WAY OF LIFE'**

**As a paradigm shift from the 1910s... Consolidated as a "lifestyle" after WWII**

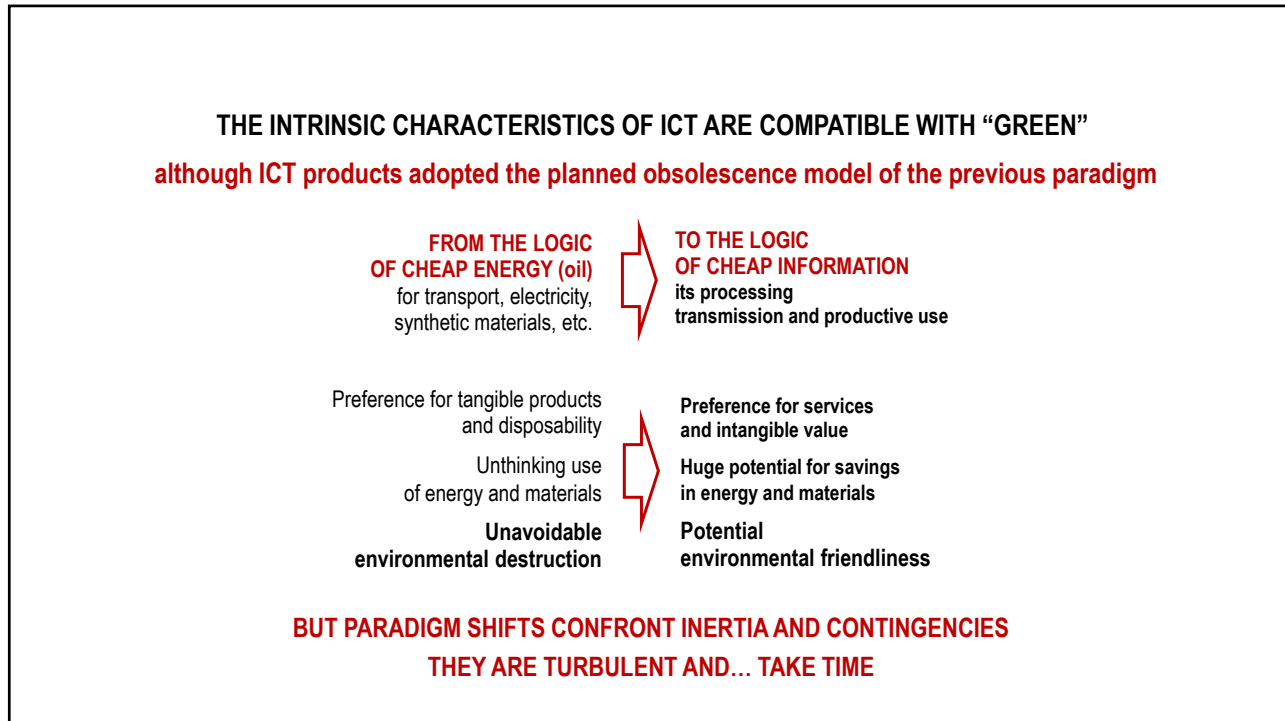
**FROM ENERGY-SCARCE LIVING**  
Energy is expensive and often inaccessible

**TO ENERGY-INTENSIVE HOMES AND MOBILITY**  
Energy is cheap and its availability unlimited

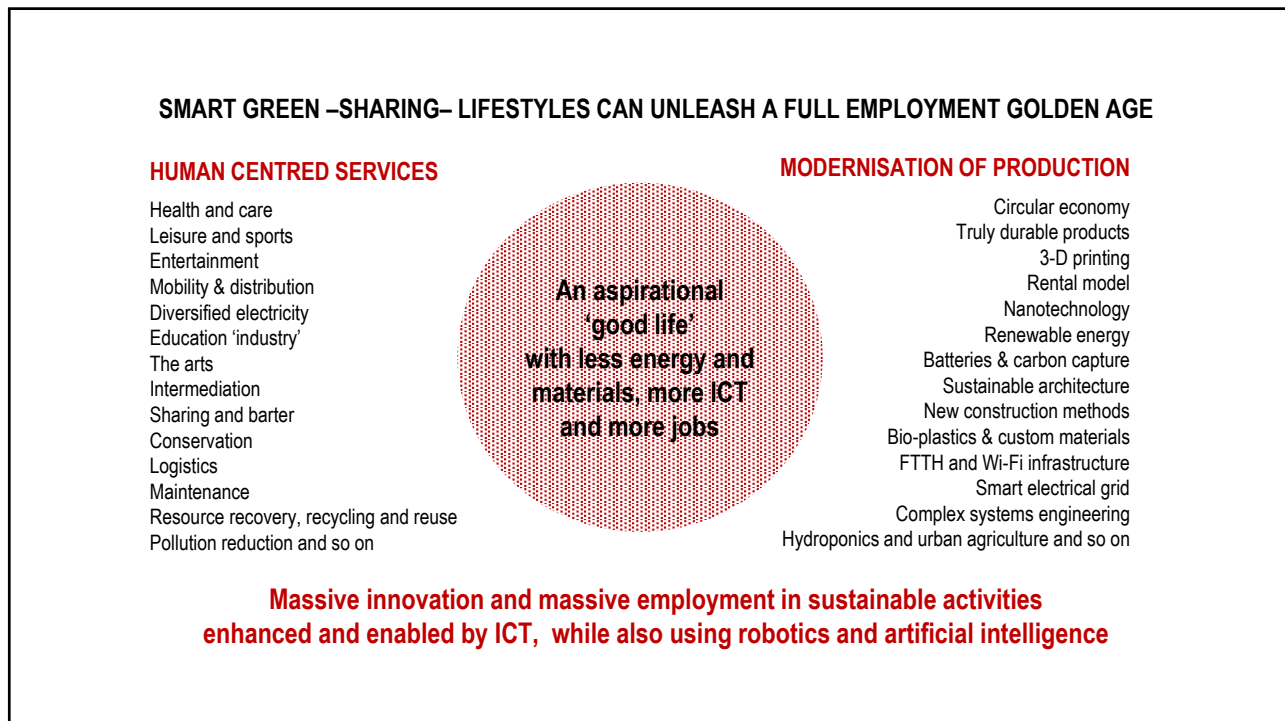
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|--|---|---|
| Trains, horses, carriages, stage coaches, ships and bicycles | ➔ | Automobiles, buses, trucks, airplanes and motorcycles         |
| Local newspapers, posters, theatres, parties                 | ➔ | Mass media, radio, movies and television                      |
| Ice boxes and coal stoves                                    | ➔ | Refrigerators and central heating                             |
| Doing housework by hand                                      | ➔ | Doing housework with electrical equipment                     |
| Natural materials (cotton, wool, leather, silk..)            | ➔ | Synthetic materials   |
| Paper, cardboard, wood and glass packaging                   | ➔ | Preference for disposable plastics of all sorts               |
| Fresh food bought daily from specialized suppliers           | ➔ | Refrigerated, frozen or preserved food bought in supermarkets |
| City or country living and working                           | ➔ | Suburban living separate from work                            |

**...all strongly aided by advertising, business strategies and government policies**

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The shift to “ICT-green” consumption patterns is possible  
**NOT BY GUILT AND FEAR**  
**BUT BY DESIRE AND ASPIRATION**

Through shaping and enabling  
 a change in our notions of luxury and the “good life”

**But it must happen first and visibly**  
**in the advanced countries**

(so that people across the world will want to copy it)

**THERE IS A MAJOR OPPORTUNITY**  
**for the development of a European Way of Life (and of production)**

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**PART OF THE SHIFT IN LIFESTYLES IS ALREADY HAPPENING**

Historically the notions of luxury and good taste have emerged  
 at the top of the income and education scales, and spread by imitation

- Small is better than big
- Natural materials are better than synthetic
- Multipurpose is better than single function
- ‘Gourmet’ and organic food are better than standard
- Minimalist design is better than clutter
- Fresh organic fruit and vegetables are healthier
- Exercise is important for well being; cycling is a good alternative to driving
- Working from home and not commuting is possible and preferable
- Solar power is luxurious and so are electric cars
- Internet communications, shopping, learning, streaming, social media and entertainment are better than the old ways , etc.

**BUT RELATIVE PRICES, POLICIES AND WIDER INTERESTS HAVE TO FOLLOW! WILL THEY?**

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**GOVERNMENT POLICY AND BUSINESS STRATEGIES  
NEED TO ACCELERATE THE SHIFT IN LIFESTYLES**

<b>MASS PRODUCTION REVOLUTION</b>	→	<b>ICT – DIGITAL REVOLUTION</b>
Products	→	Services
Tangible	→	Intangible
Possession	→	Access (Sharing or rental)
Passive	→	Active
Plastic	→	Natural
Processed	→	Fresh
Identical	→	Customised
Centralised	→	Distributed (Networks and platforms)

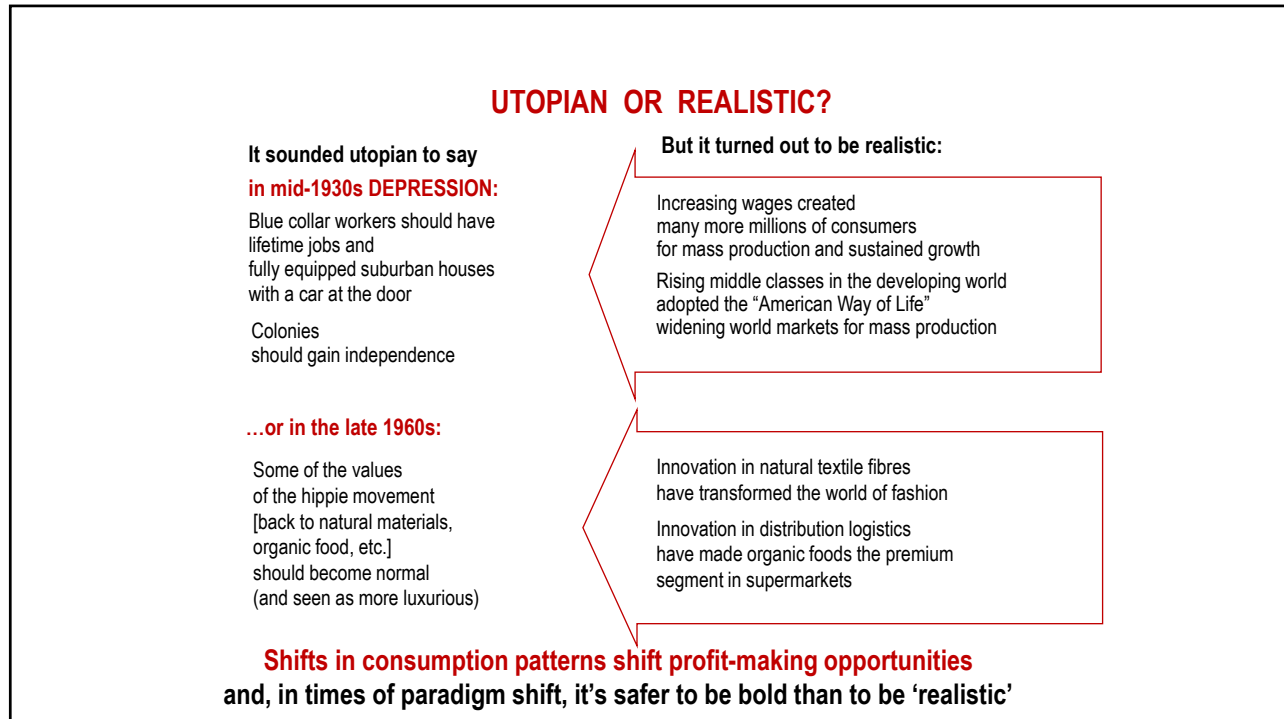
**Sustainable production and living  
must be made cheaper, more profitable, more accessible and more desirable  
And salaries made high enough to provide dynamic demand**

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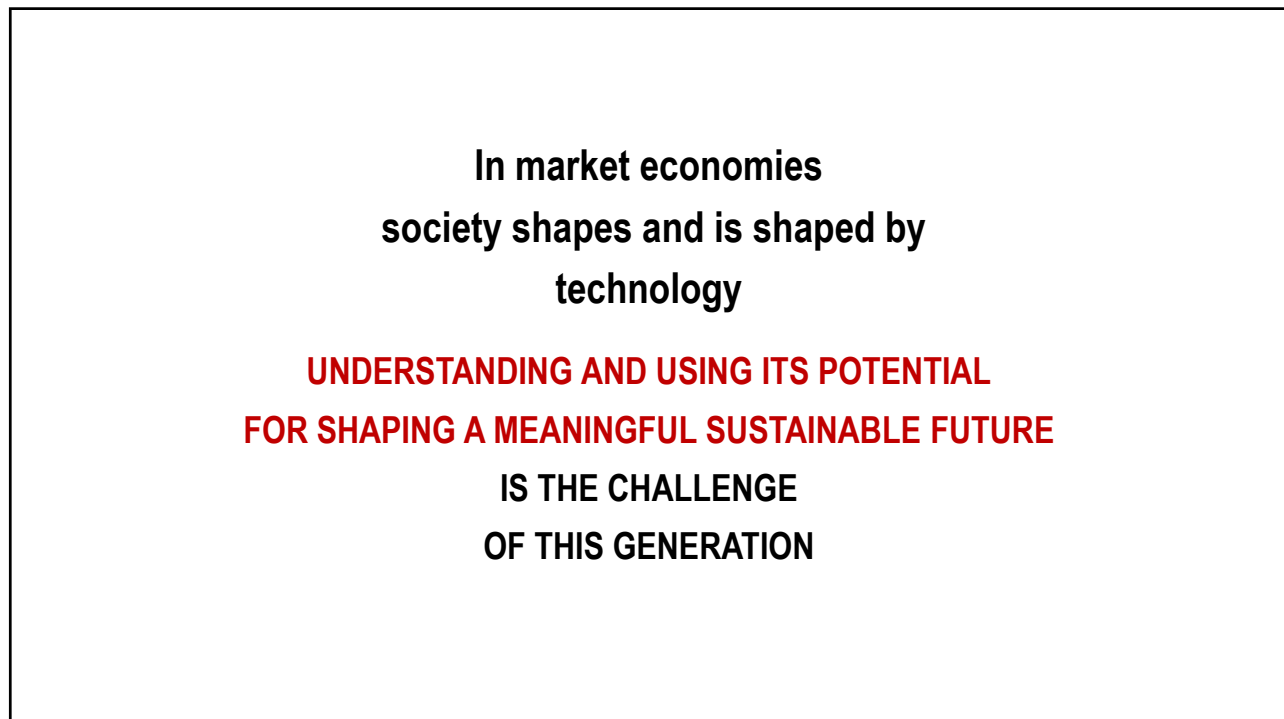
**POSSIBLE MEASURES  
FOR A FAIR GLOBAL  
FUTURE FOR THE  
INFORMATION AGE**

- **Universal basic income**  
(handled with AI + ATM + reimbursement as tax)
- **Good wages for service workers**  
(essential for life and as demand)
- **Increase the prices of fossil fuels and materials**  
(encourage materials and energy saving, help fund development)
- **Set a financial transactions tax for a 'Marshall Plan' to fund development**  
(encourage investment and an innovative sector in sustainable adequate capital goods)
- **Promote a rental system for all appliances (which should last 100 years)**  
(thousands of maintenance jobs, 3D printing of parts, recycling at the end)
- And so on

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