



Technological revolutions: the mutual influence of technology and society

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I have an important message for you:

**THE POSSIBILITY
OF A SUSTAINABLE GLOBAL
GOLDEN AGE LIES AHEAD**

- We can rescue the good life that the welfare state promised in the advanced world
- Make it reach the majorities in the world population
- And save the planet for us and for future generations

**THIS CAN BE SAID, BY LEARNING FROM
THE HISTORY OF TECHNOLOGICAL REVOLUTIONS**

FIVE TECHNOLOGICAL REVOLUTIONS IN 240 YEARS

1771

The 'Industrial Revolution' (machines, factories and canals)

1829

Age of Steam, Coal, Iron and Railways

1875

Age of Steel and Heavy Engineering (electrical, chemical, civil, naval)

1908

Age of the Automobile, Oil, Petrochemicals and Mass Production

1971

Age of Information Technology and Telecommunications

20??

Age of Biotech, Nanotech, Bioelectronics and new materials?

EACH ONE LEADS TO A TECHNO-ECONOMIC PARADIGM SHIFT
that changes the direction of innovation in the economy and society

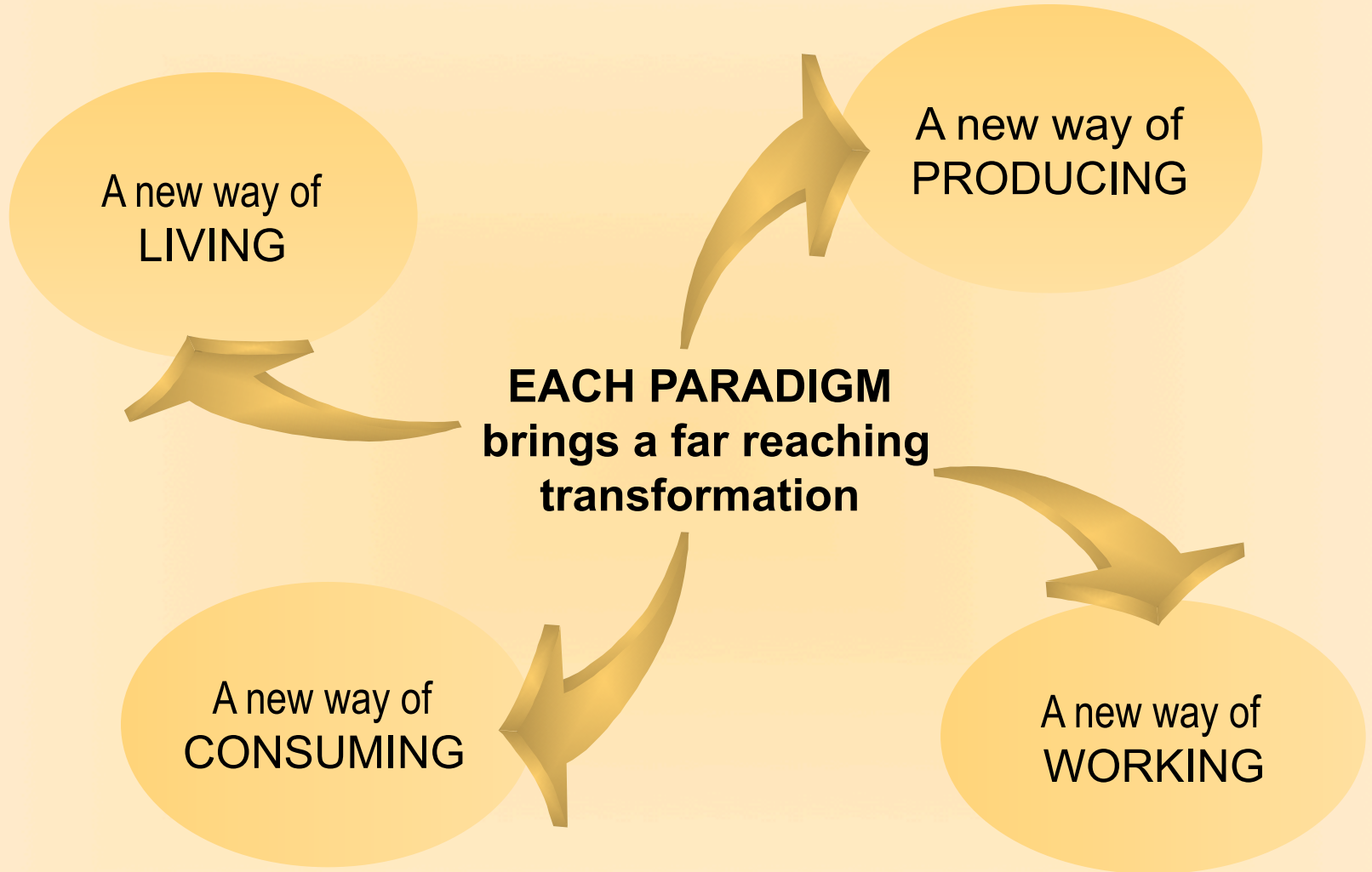
A new way of
LIVING

A new way of
PRODUCING

**EACH PARADIGM
brings a far reaching
transformation**

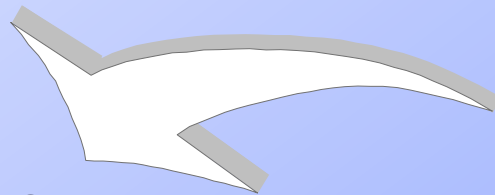
A new way of
CONSUMING

A new way of
WORKING



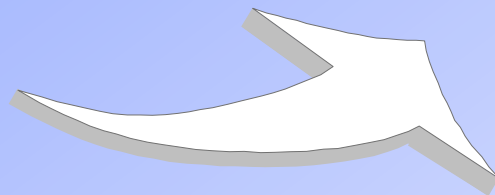
Because of resistance to such major paradigm shifts

**CAPITALISM EXPERIENCES PENDULAR SWINGS
EVERY TWO OR THREE DECADES**



**From a period of
FINANCIAL CAPITALISM
to force the
INSTALLATION
of each technological revolution
with unfettered
free markets
and income polarization**

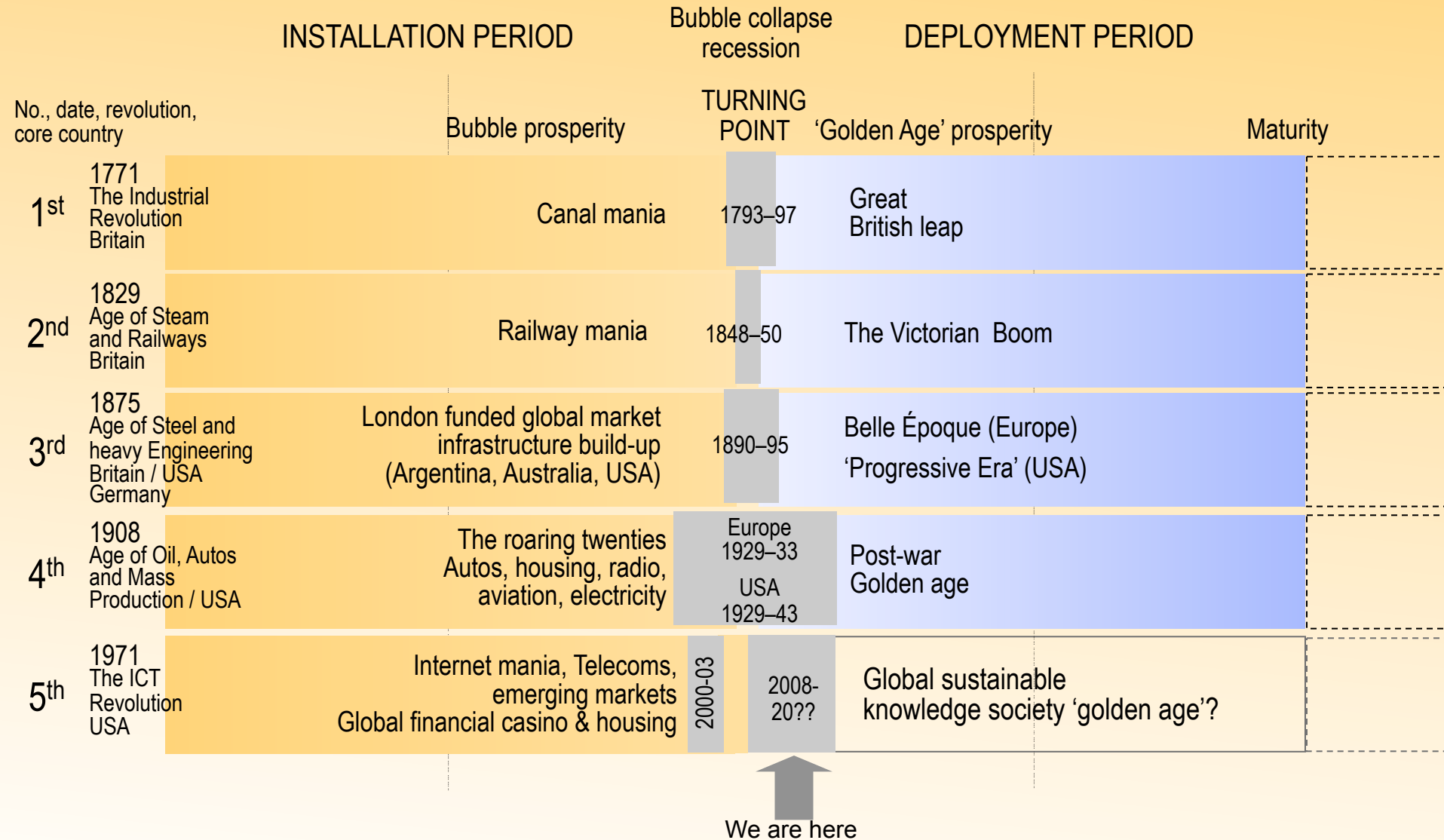
**To a period of
PRODUCTION CAPITALISM
aided by government
to enable the full
DEPLOYMENT
of the new potential
across the economy
and spread its benefits to society**



**A MAJOR BUBBLE COLLAPSE
SIGNALS THE NEED TO SWING THE PENDULUM**

It is time for government and civil society to unleash the Golden Age

THE HISTORICAL RECORD: Bubble prosperities, recessions and golden ages



And the two prosperities are fundamentally different, in nature and social consequences

STYLIZED DESCRIPTION OF THE TWO FORMS OF GROWTH

INSTALLATION

DEPLOYMENT

Production structure	Creative destruction turbulent decline and rise	Recession post bubble collapse. Shift from finance to production and new lifestyles	Creative construction growing synergies
Investment	Concentrated in new technologies and finance		Widely spread across the real economy
Employment	Declining with modernization and geographical shifts		Reviving with new fabric of the economy (depending on policy)
Government	Impotent, stays out (or is pushed out)		Active, shaping markets and guiding innovation
Finance	Self-serving casino behaviour		Profitable services to the new real economy
Innovation	New products, services, processes and infrastructure		Institutional and social innovations helping transform production
Direction of shaping	Technology shapes society		Society shapes technology

And people recognize when the times change from one mode to the other

ONE OF THE SIGNS IS THE SPREAD OF THE NEW 'GOOD LIFE'

With a new inter-related set of life-shaping goods and services at 'affordable' prices

From the 1850s:
VICTORIAN LIVING

The rise of the urban
upper and middle classes
different from the rural aristocracy

From the 1900:
THE BELLE EPOQUE

Cosmopolitan lifestyles
for middle classes and skilled workers

After WWII:
THE AMERICAN WAY OF LIFE

Suburban lifestyles, reaching
all workers in the advanced countries
and middle classes in LDCs

From now on:
MANY SUSTAINABLE LIFESTYLES?

Global diversity, using ICT
in a green direction
and gradually lifting all boats???

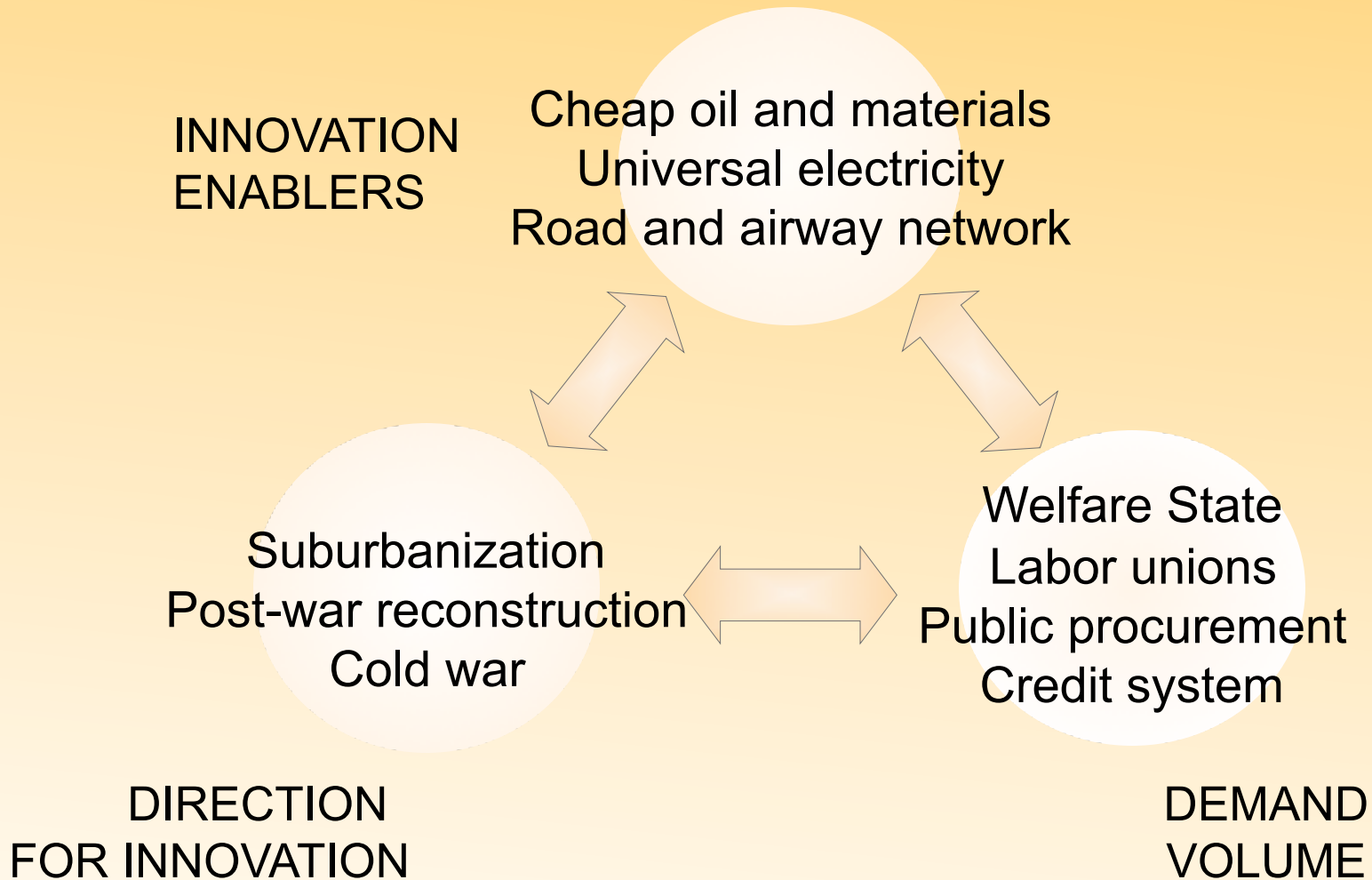
EACH NEW STYLE PROPAGATES THROUGH CHANGES IN VALUES AND ASPIRATIONS
shaping the consumption desires of the majority
guiding innovation trajectories and favoring a new pattern of growth

BUT THIS DOESN' T HAPPEN AUTOMATICALLY

- **It will confront strong resistance from the old lifestyle**
- **It must respond to social movements and aspirations**
- **It needs to be synergistic, providing increasing new opportunities and advantages**
- **It has to be recognized as a positive sum-game (both socially desirable and economically profitable)**

**IT WILL REQUIRE BOLD AND MASSIVE
INSTITUTIONAL AND SOCIAL INNOVATION**

How was the Post-War Golden Age unleashed?

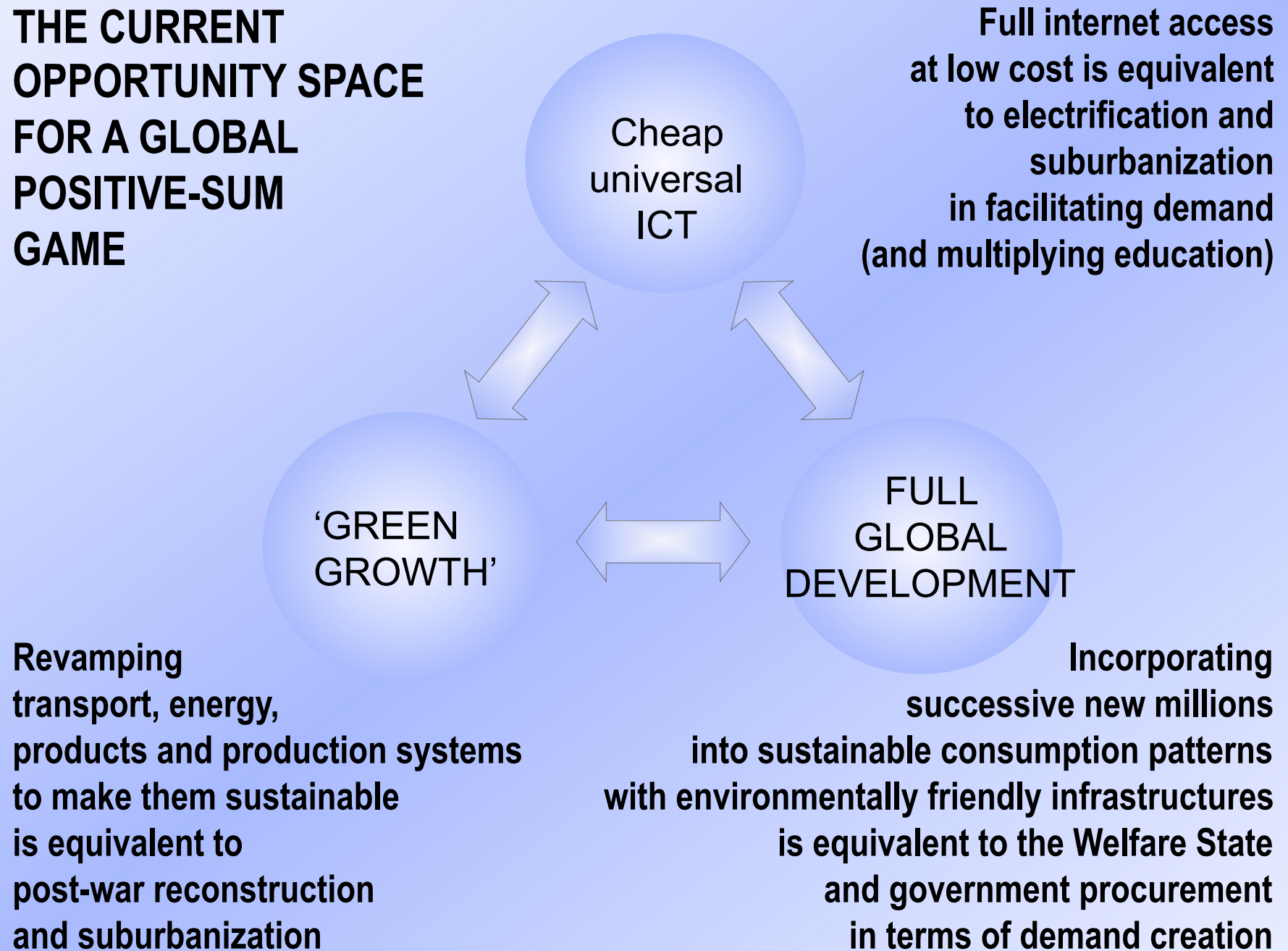


The same basic framework with a wide range of variation between countries plus the new Bretton Woods institutions at the international level

**IT WAS A POSITIVE-SUM GAME
BETWEEN BUSINESS AND SOCIETY
THAT PRODUCED
THE GREATEST BOOM IN HISTORY**

Can the ICT paradigm do for the global population what the mass production paradigm did for the great majorities of the 'First World'?

THE CURRENT OPPORTUNITY SPACE FOR A GLOBAL POSITIVE-SUM GAME



THE NEW TECHNOLOGIES AND THEIR PARADIGM ONLY DEFINE THE SPACE OF THE POSSIBLE

**A Golden Age
is one viable option
for Deployment**

with 'green growth'
bringing worldwide
social and environmental
sustainability

**A 'gilded age'
is another
equally viable option**

with financial markets
and the military
shaping the playing field
for a very turbulent world

**SOCIETY WILL BUILD THE FUTURE
(globally, nationally and locally)**

SELECTING A DIRECTION WITHIN THAT WIDE SPACE OF THE VIABLE

**It is the task
of this generation
to be bold,
to choose well
and act upon it!**

PREDICTIONS OF THE FUTURE —EVEN WHEN RIGHT— MAY SOUND UTOPIAN

Imagine someone saying
in the mid-1930s depression:

**Blue collar workers
will have lifetime jobs and
fully equipped suburban houses
with a car at the door**

**Most colonies
will gain independence**

...or saying in the late 1960s:

**Some of the values
of the hippie movement
[back to natural materials,
organic food, etc.]
will become
the luxury norms**

And that's what happened!

**Increasing wages and access to credit
made them the best mass consumers**

**The rising middle classes in LDCs
adopted the 'American Way of Life'**

**Innovation in natural textile fibers
transformed the world of fashion**

**Innovation in distribution logistics
made organic foods the premium segment**

WITH PARADIGM SHIFT PREDICTIONS, IT IS SAFER TO BE BOLD THAN TIMID!

THANK YOU!

To find out more about
this way of understanding the current situation
with a historical lens, go to:

www.carlotaperez.org