Our Digital Future:

A NEW GOLDEN AGE

OF OPPORTUNITY

Carlota Perez

Honorary Professor, IIPP-UCL and SPRU, University of Sussex UK

Visiting Professor, LSE

Professor of Technology and Development, TalTech, Estonia

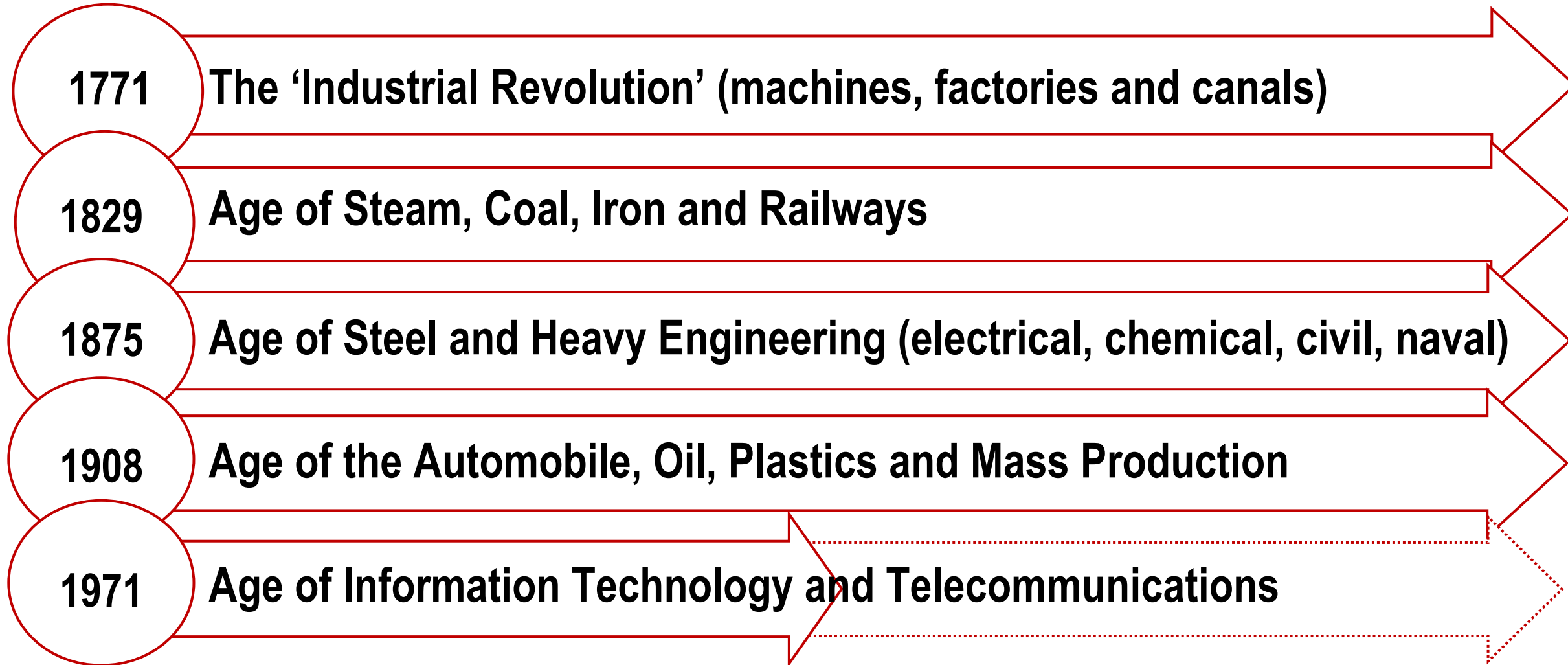Academic in Residence, Anthemis UK

Sogeti, Chicago, September 2019

We are at a crucial

historical crossroads

**WE CAN BUILD A DIGITAL AND
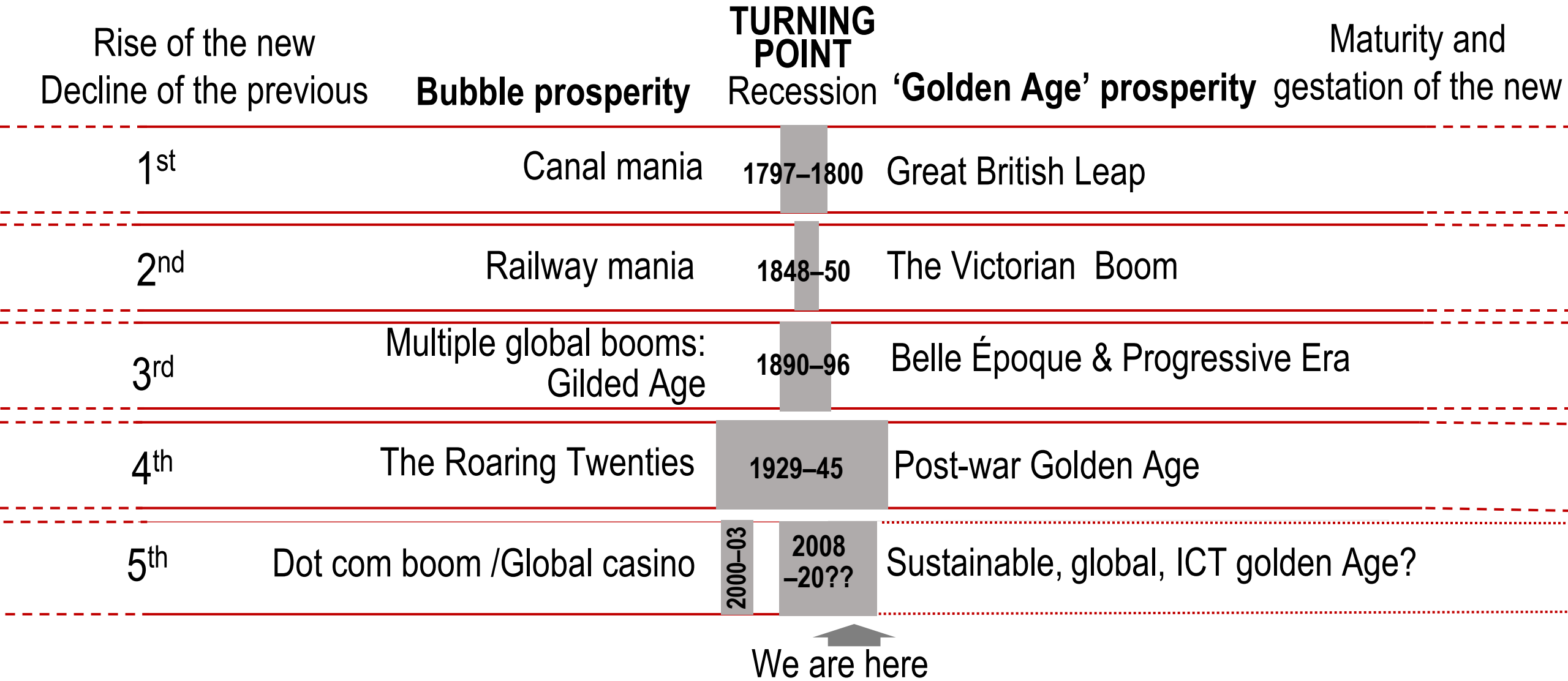SUSTAINABLE
GLOBAL GOLDEN AGE**

or let the world

risk a violent and divided future

full of uncertainty for all

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, Plastics and Mass Production

1971 Age of Information Technology and Telecommunications

Each brings a techno-economic and socio-institutional shift

WITH A NEW PARADIGM FOR INNOVATION AND PROFITABILITY

The historical record reveals a regular sequence of bubbles and golden ages

Rise of the new Decline of the previous	**Bubble prosperity**	TURNING POINT Recession	'Golden Age' prosperity	Maturity and gestation of the new
1st	Canal mania	1797–1800	Great British Leap	
2nd	Railway mania	1848–50	The Victorian Boom	
3rd	Multiple global booms: Gilded Age	1890–96	Belle Époque & Progressive Era	
4th	The Roaring Twenties	1929–45	Post-war Golden Age	
5th	Dot com boom /Global casino	2000–03 2008–20??	Sustainable, global, ICT golden Age?	

We are here

The adequate parallel for today is the 1930s 'turning point'

WHAT IS THE NATURE OF THE TURNING POINT?

As in the 1930s and now

Casino finance

Giant monopolies

Feeble growth

Talk of secular stagnation

Recessions (even depression)

Structural unemployment

Deskilling

Inequality

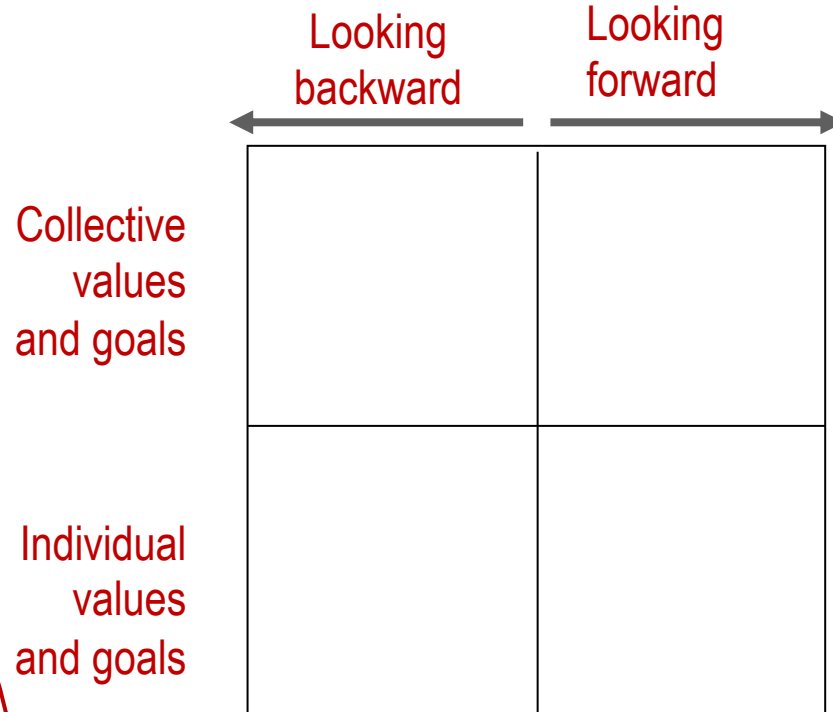Hopelessness

Xenophobia

Economic migrations

Social unrest

Political cleavages

Populist messianic leaders

WITH A HUGE TECHNOLOGICAL POTENTIAL
THAT LACKS A CLEAR COMMON SYNERGISTIC DIRECTION

**It is the historical moment for business and government
to identify – and act upon – the most socially cohesive paths**

EVERY PARADIGM SHIFT
LEADS TO A REALIGNMENT OF THE POLITICAL SPECTRUM

	Looking backward	Looking forward
Collective values and goals		
Individual values and goals		

Traditional parties divide and new movements emerge

there is a shift in culture, values and aspirations

SUCCESS, IN BUSINESS OR IN POLITICS,

GOES TO THOSE WHO BEST UNDERSTAND AND SHAPE THE NEW POTENTIAL

How was the Age of Steel and heavy engineering shaped?

How was the mass production revolution politically shaped?

BRITISH FREE MARKET EMPIRE

PROTECTED AMERICAN GILDED AGE

CARTELIZED AND UNIONIZED GERMANY

NAZI-FASCISM

SINO-SOVIET SOCIALISM

KEYNESIAN DEMOCRACIES

Technology provides the options; society chooses the future

**What directions were given
by the Keynesian democracies?**

SUBURBANISATION
and
THE COLD WAR

**with high taxes
and the Welfare State**

What innovation opportunities did suburbanization provide?

THE HOUSE

Minimum cost; best appearance

THE FAMILY AT HOME

Comfort and disposability (plastics)

Time saving in food and cleaning

Entertainment center

Good life for children and for pets, etc.

SUBURBIA

The car: appearance and improvements

Convenient shops, services, etc.

What did the Cold War mean in terms of innovation?

THE SPACE RACE

Frontier technology in:

materials

spaceships

communication and electronics

food and clothing

THE MILITARY

Missiles, nuclear and conventional weapons

Information and communication systems

and so on

Once the directions are clear, supply and demand follow each other

AND SOCIAL POLICY CREATED A WIN-WIN GAME

IMPROVING CONDITIONS FOR WORKERS

PROVIDED PEACE AND GROWING DEMAND

Good jobs, wages, working hours, accident insurance, health coverage, pensions, etc.

REGULATION PROTECTING CONSUMERS

MADE A SAFE AND EVEN PLAYING FIELD

No monopolistic abuse and no unfair competition with false claims or health hazards,

HIGH TAXES PROVIDED SOLVENT AND RELIABLE DEMAND

Through direct procurement, public employment and income distribution policies

AND FUNDING FRONTIER INNOVATION GUARANTEED THE FOLLOWING REVOLUTION

ALL CONVERGING IN SYNERGISTIC DIRECTIONS

favoring both business and society

**In which directions can
the ICT revolution
be shaped now?**

SMART GREEN GROWTH
and
FULL GLOBAL DEVELOPMENT

**With intelligent taxation
and a redesigned Welfare State**

WHY IS A GLOBAL SUSTAINABLE GOLDEN AGE POSSIBLE
WITH THE IT REVOLUTION?

Because both

dematerialization and globalization

are in the nature of the IT paradigm

BUT NOT THROUGH TECHNOLOGICAL DETERMINISM

Technological revolutions
always offer many possible directions

SMART GREEN –SHARING– LIFESTYLES CAN UNLEASH A FULL EMPLOYMENT GOLDEN AGE

HUMAN CENTRED SERVICES

MODERNIZATION OF PRODUCTION

An aspirational 'good life' with less energy and materials, more ICT and more jobs

Health and care
Personalized services
Leisure and sports
Entertainment
Mobility & distribution
Diversified electricity
Education 'industry'
The arts (to practice and enjoy)
Logistics
Information & networking
Sharing and barter
Conservation, rental & maintenance
Social media (communicating and creating)
Resource recovery, recycling and reuse
Pollution reduction
and so on

Circular economy
Truly durable products
3-D printing
Rental model
Nanotechnology
Renewable energy
Batteries & carbon capture
Sustainable architecture
New construction methods
Bio-plastics & custom materials
FTTH and Wi-Fi infrastructure
Smart electrical grid
Artificial intelligence and robotics
Complex systems engineering
Hydroponics and urban agriculture
and so on

Massive innovation and massive employment in sustainable activities with IT

while also using robotics and AI to maximize wealth creation with very high productivity

FOR A DIGITAL DEMOCRATIC WORLD, BUSINESSES AND INSTITUTIONS
MUST BE REDESIGNED FOR QUALITY-OF-LIFE SERVICES

HEALTHCARE — personal and personalized, in community, plus online and remote…

NUTRITION — new healthier and sustainable sources, less meat, sugar or processing

EDUCATION — flexible, multi-directional, self-managed, lifelong…

TRANSPORT — energy saving, new vehicles, cycling, (dirigibles?)…

HOUSING — sharing, new rental models, sustainability, optimal "cell" design for cities…

CREATIVITY — generalized, enabling spaces and conditions, new forms of funding…

LEISURE — experiences, participation, digital, active communities…

SUSTAINABLE PRODUCTION, WORKING AND LIVING MUST BE TRANSFORMED
made more accessible, more purposeful and more desirable, while also being more profitable

**What did we get with
the mass production golden age?**

**What could we get with
a digital golden age?**

EMPLOYMENT
EDUCATION
HEALTH AND
SECURITY
based on home ownership
and mass consumption

ALL OF THAT, BUT SMART AND GREEN
PLUS:
MEANING, CREATIVITY,
SOCIAL NETWORKS
LIFELONG LEARNING
Based on collaboration,
access, rental, maintenance,
recycling and reuse

**But we destroyed
the environment and
excluded the 'developing' world**

**With an improving global society
FLOURISHING ON A HEALTHY PLANET**

In capitalism,

society shapes and is shaped by

technology

UNDERSTANDING AND USING THE POTENTIAL OF IT

FOR SHAPING A MEANINGFUL SUSTAINABLE FUTURE

IS THE CHALLENGE

OF THIS GENERATION

LET'S MAKE SURE WE FACE IT CREATIVELY!!!

THANK YOU!

www.carlotaperez.org

www.beyondthetechrevolution.org

@CarlotaPrzPerez