



SOCIETY OF THERMAL
ENGINEERS OF SERBIA

ENERGY DAY SERBIA
BELGRADE 08 JUNE 2018

ENERGOPROJEKT
ENDEL

Energy Sector as a Key Potential of Serbian Economy

Prof. Dragan Đuričin
Faculty of Economics Belgrade



SUSTAINABLE
ENERGY WEEK
04-08 JUNE 2018

An initiative
of the  European
Commission

Macroeconomic indicators, 2008-17

INDICATORS	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Budget deficit/surplus, in % of GDP	-1.7	-3.2	-3.4	-4.0	-5.9	-5.2	-6.3	-2.8	-0.2	0.8
Current account, in % of GDP	-21.1	-6.6	-6.8	-10.9	-11.6	-6.1	-6.0	-4.7	-3.1	-5.7
CPI, in %	8.6	6.6	10.3	7.0	12.2	2.2	1.7	1.5	1.6	3.0
Real GDP growth, in %	5.4	-3.1	0.6	1.4	-1.0	2.6	-1.8	0.8	2.8	1.9
Unemployment, in %	13.6	16.1	19.2	23.0	23.9	22.1	19.2	17.7	15.3	13.5
Public debt, in % of GDP	28.3	32.8	41.8	45.4	56.2	59.6	70.4	74.7	71.9	61.5
External debt, in % of GDP	62.3	72.7	79.0	72.2	80.9	74.8	77.1	78.3	76.5	69.9
FDI, net (=assets - liabilities)	-2,486	-2,068	-1,133	-3,320	-753	-1,298	-1,236	-1,804	-1,899	-2,415

Vulnerability indicators, 2017

OPERATIONAL

Indicators	Value	Referent Value
Transitional output gap	25%	0%
Okun index (inflation + unemployment)	16.5%	<12%
Gini coefficient	38.6%	<30%
Macro deficit/surplus		
• Current account	-5.7%	<5%
• Consolidated budget surplus	1.2%	<3%
Dependency ratio	0.51	>1
Youth unemployment	31.9%	<20%

FINANCIAL

Indicators	Value	Referent Value
Indebtedness		
• Public debt/GDP	61.5%	<45%
• External debt/GDP	69.9	<45%
• External debt/Export	133.1%	<220%
Non-performing loans	11,1%	<10%
Credit rating		
• S&P	BB/stable	rank > BB+
• Fitch	BB/stable	rank > BB+
• Moody's	Ba3/stable	rank > Ba1

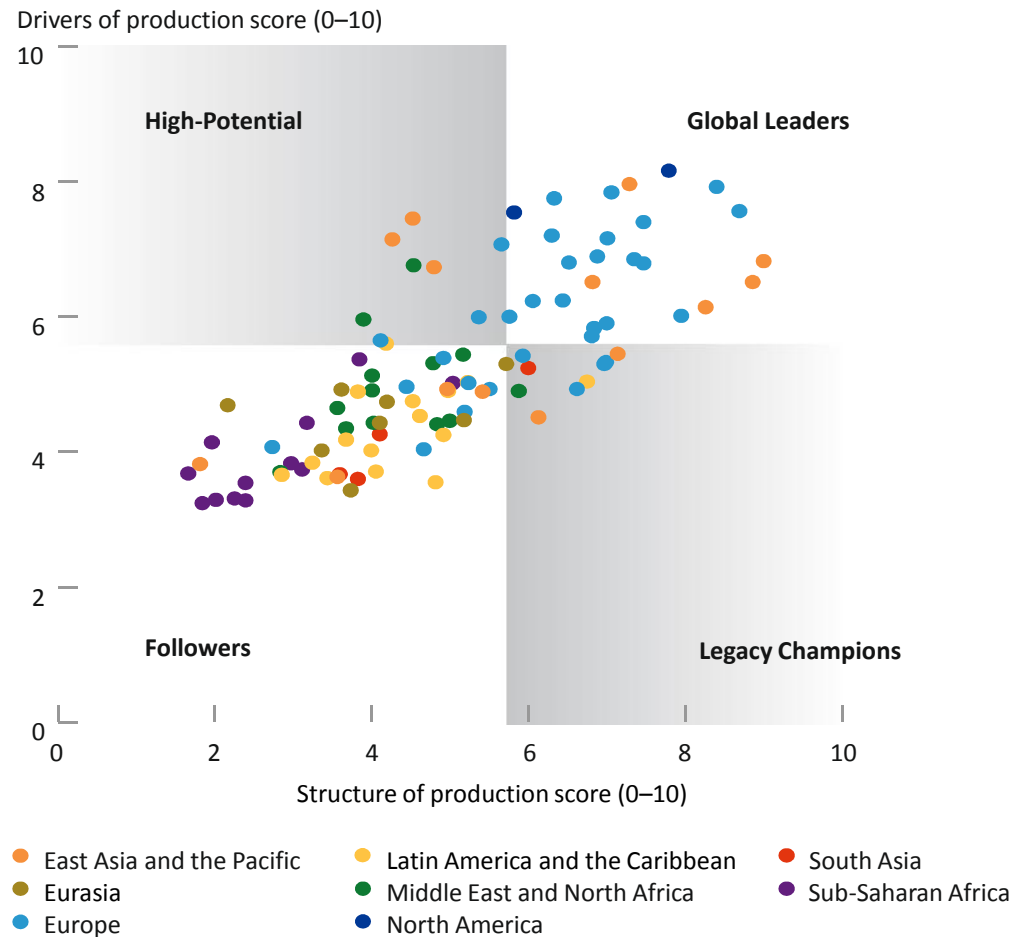
COMPETITIVENESS

Indicators	Value	Referent Value
Export (goods)/GDP	38.3%	>50%
Currency change (Dec2017/Dec 2016)		
• Nominal appreciation	3.6%	<5%
• Real appreciation	5.2%	<0%
Global Competitiveness Index	78 od 137	65- SEE average
Corruption Perception Index	77 od 180	59- SEE average
Ease of Doing Business	43 od 190	60- SEE average
Economic Freedom Index	80 od 180	62- SEE average

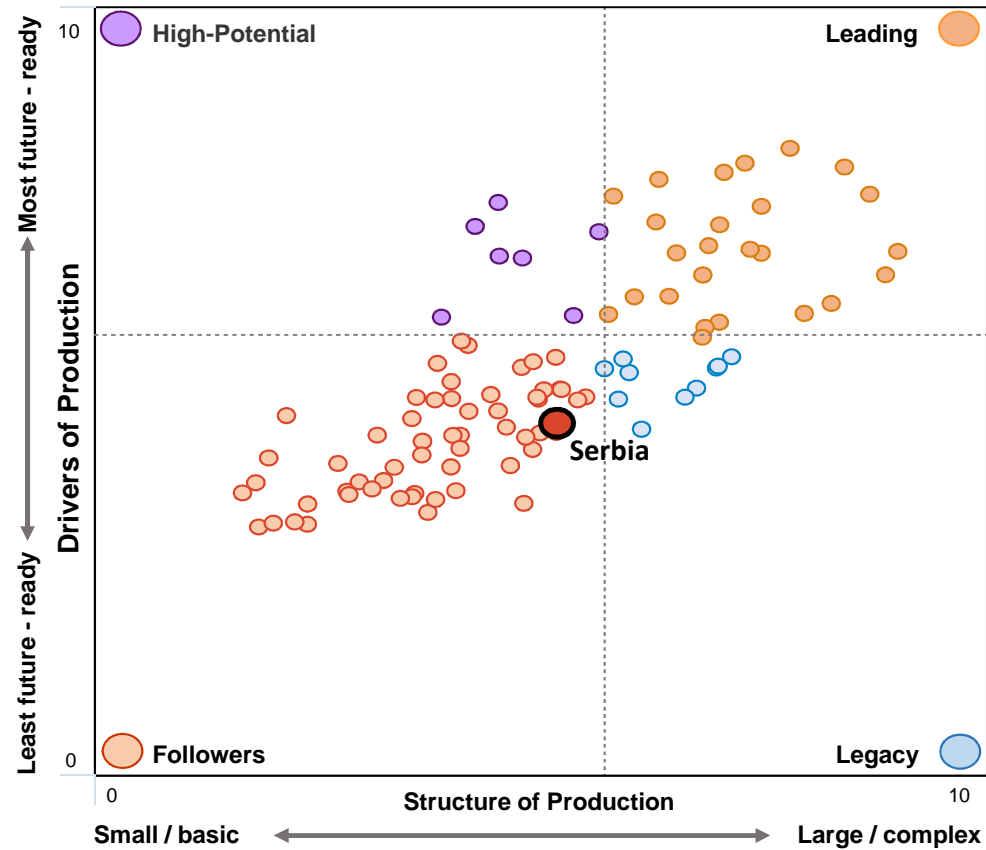
Company archetypes, WEF classification



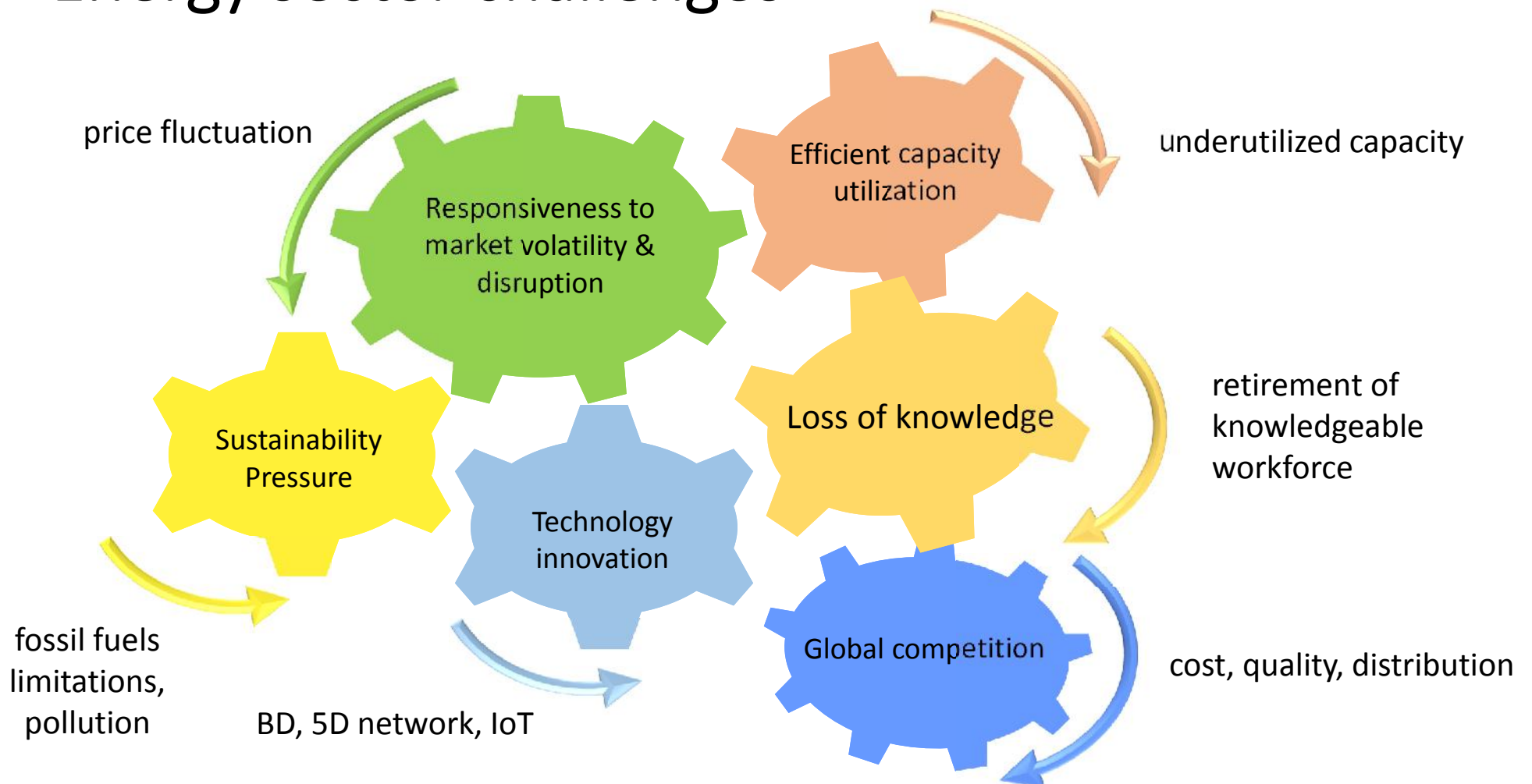
Country Readiness Index, WEF classification



Strategic audit of Serbia's economy



Energy sector challenges



Tradable sectors in Serbia

SECTORS WITH PERMANENT COMPETITIVE ADVANTAGE

ICT

Organic food

Health tourism

SECTORS WITH COMPETITIVE ADVANTAGE

Metal industry

Transport & logistics

Wood & furniture

Manufacturing

SECTORS WITH COMPARATIVE ADVANTAGE

Agriculture

Energy

Automotive

Fashion & design

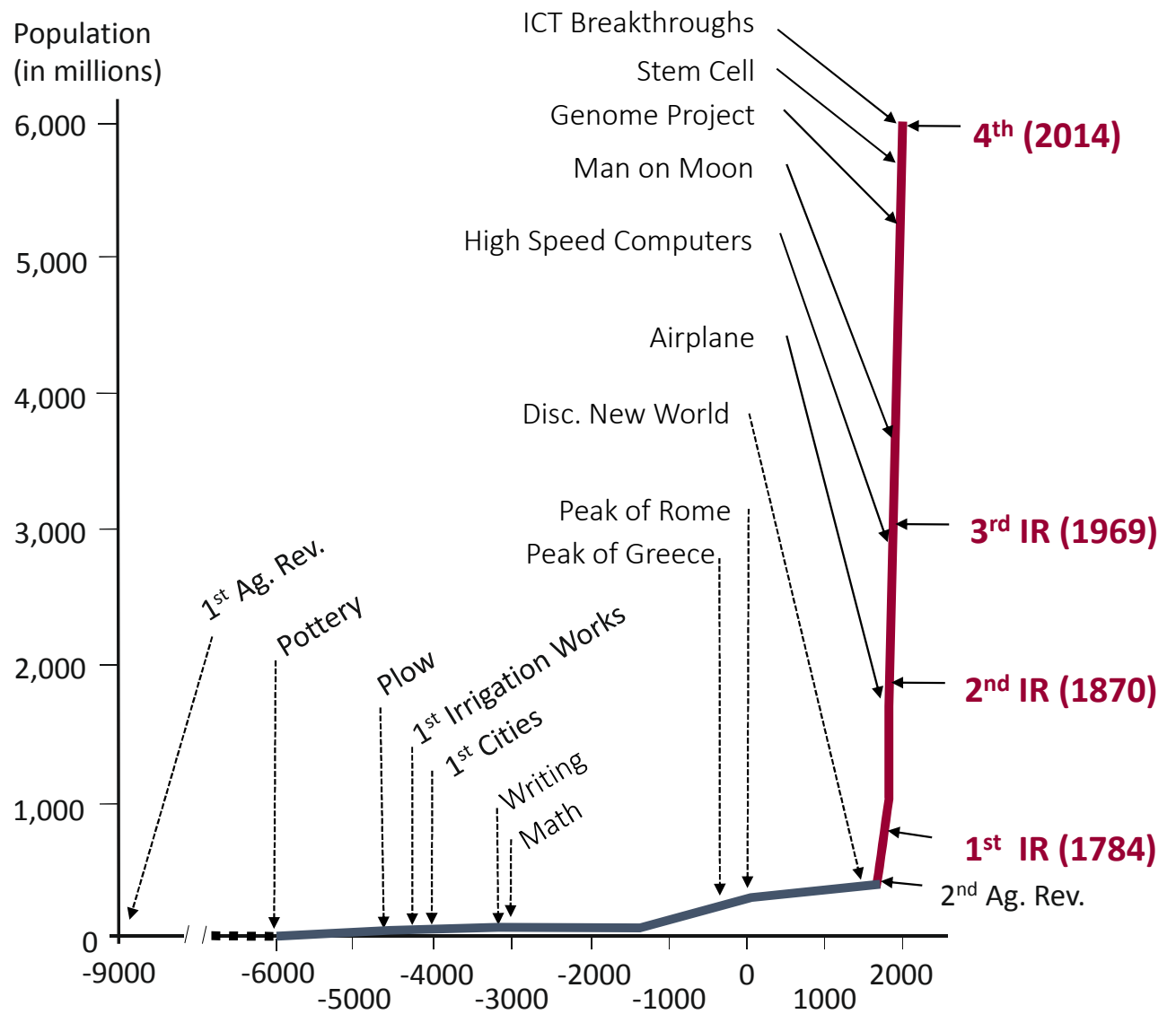
Waste mngt.

Impact of technological progress

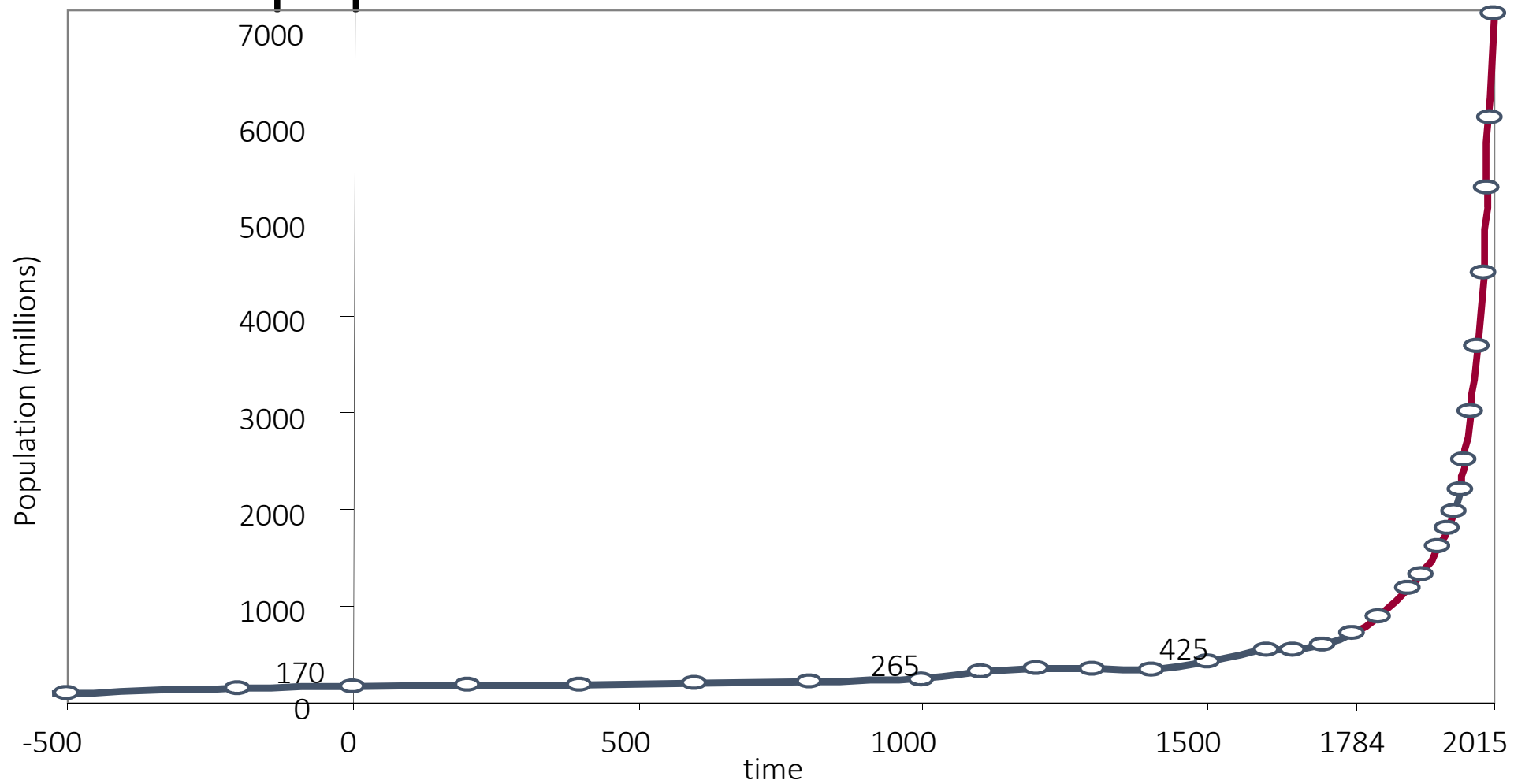
- Management (macro, micro and political) always depends of:
 - Social context
 - Ideology
 - Technological progress
- After 2014 paradigm change:
„Innovate, digitalize or go away from the scene“

History of Technology Progress

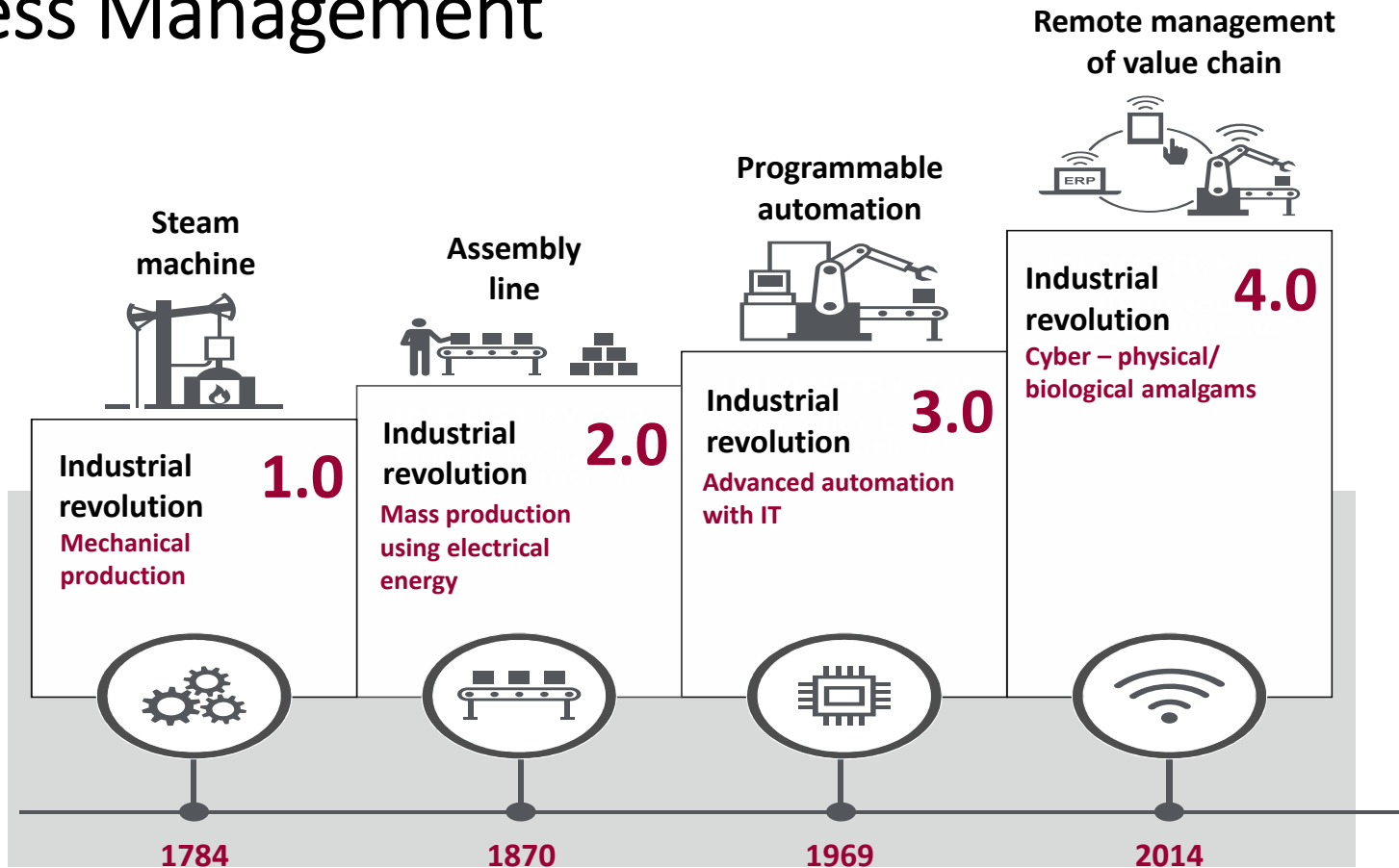
Modified according to: *Growth of World Population and the History of Technology.*
Robert Fogel/University of Chicago



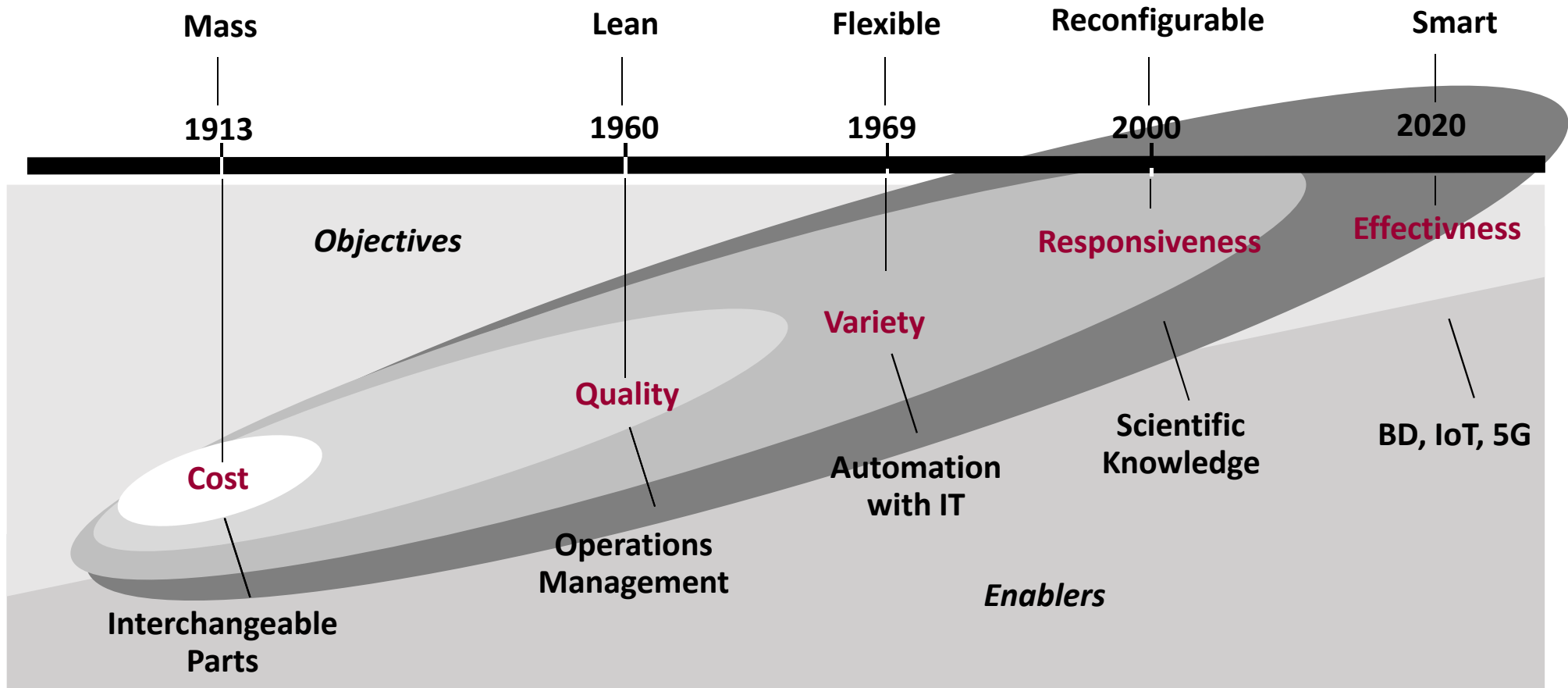
World population trend



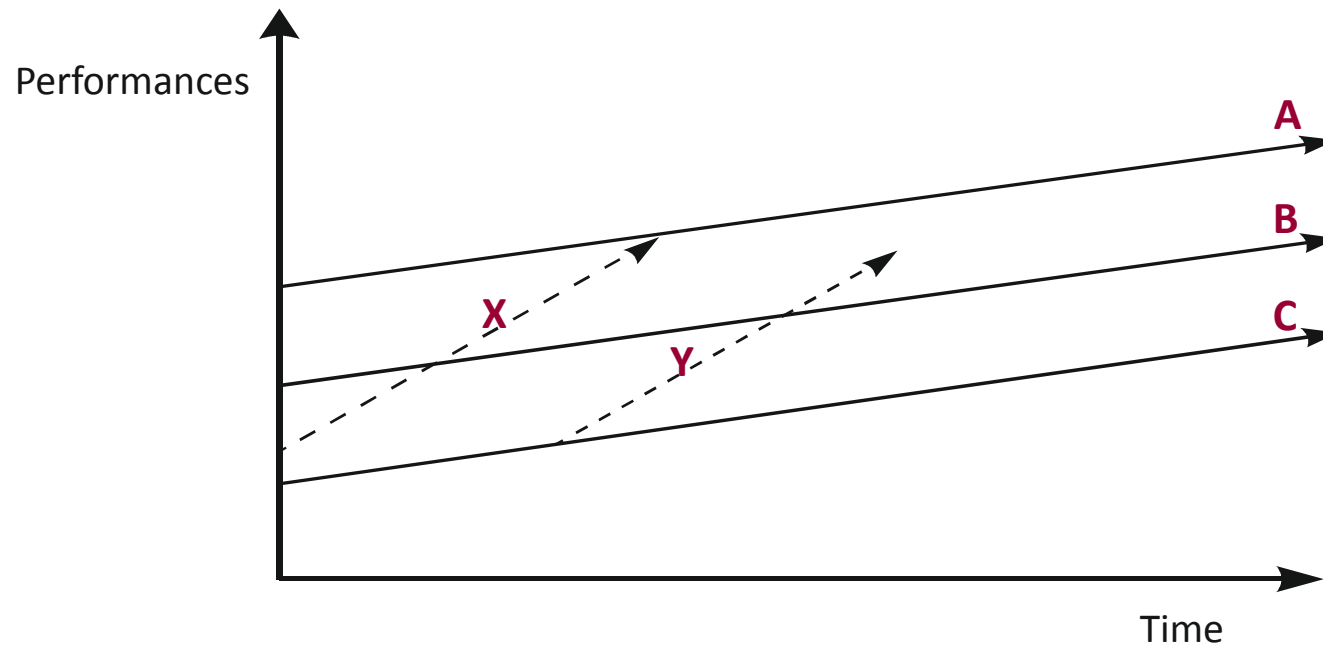
Industrial revolution impact on Business Management



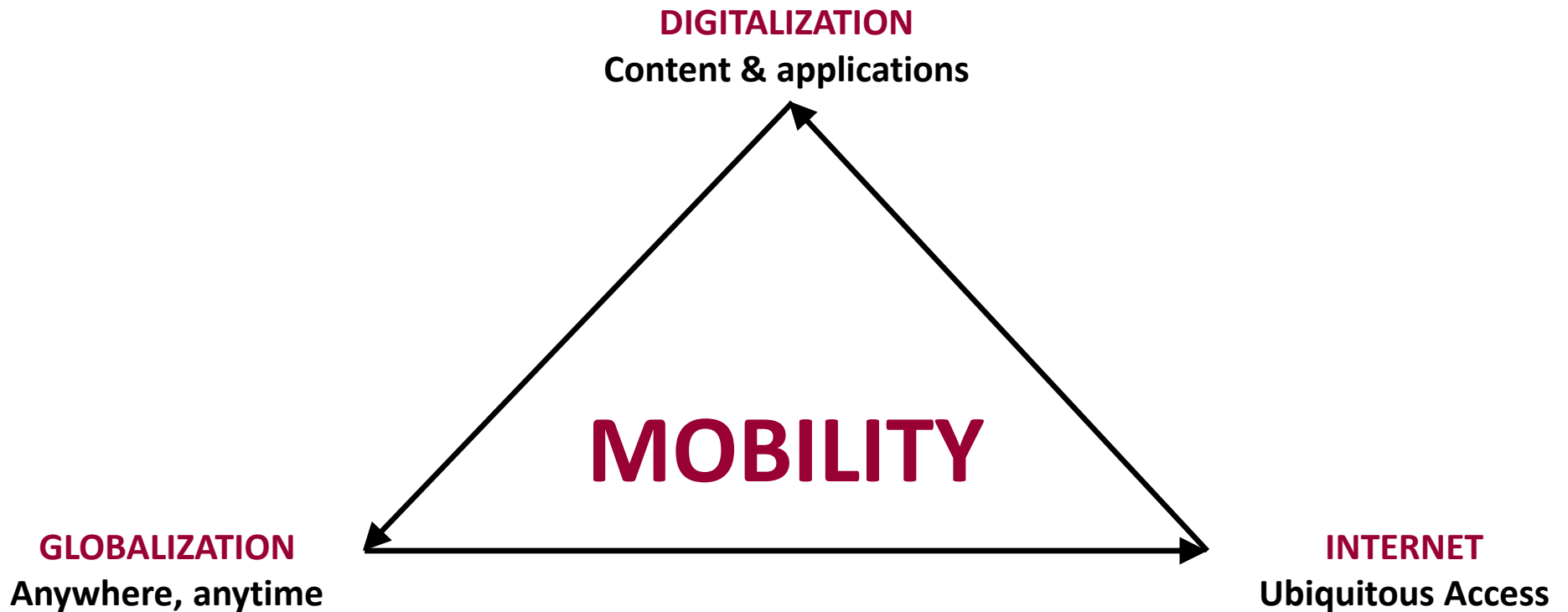
Key success factors in manufacturing



IR 4.0: Disruptive innovations



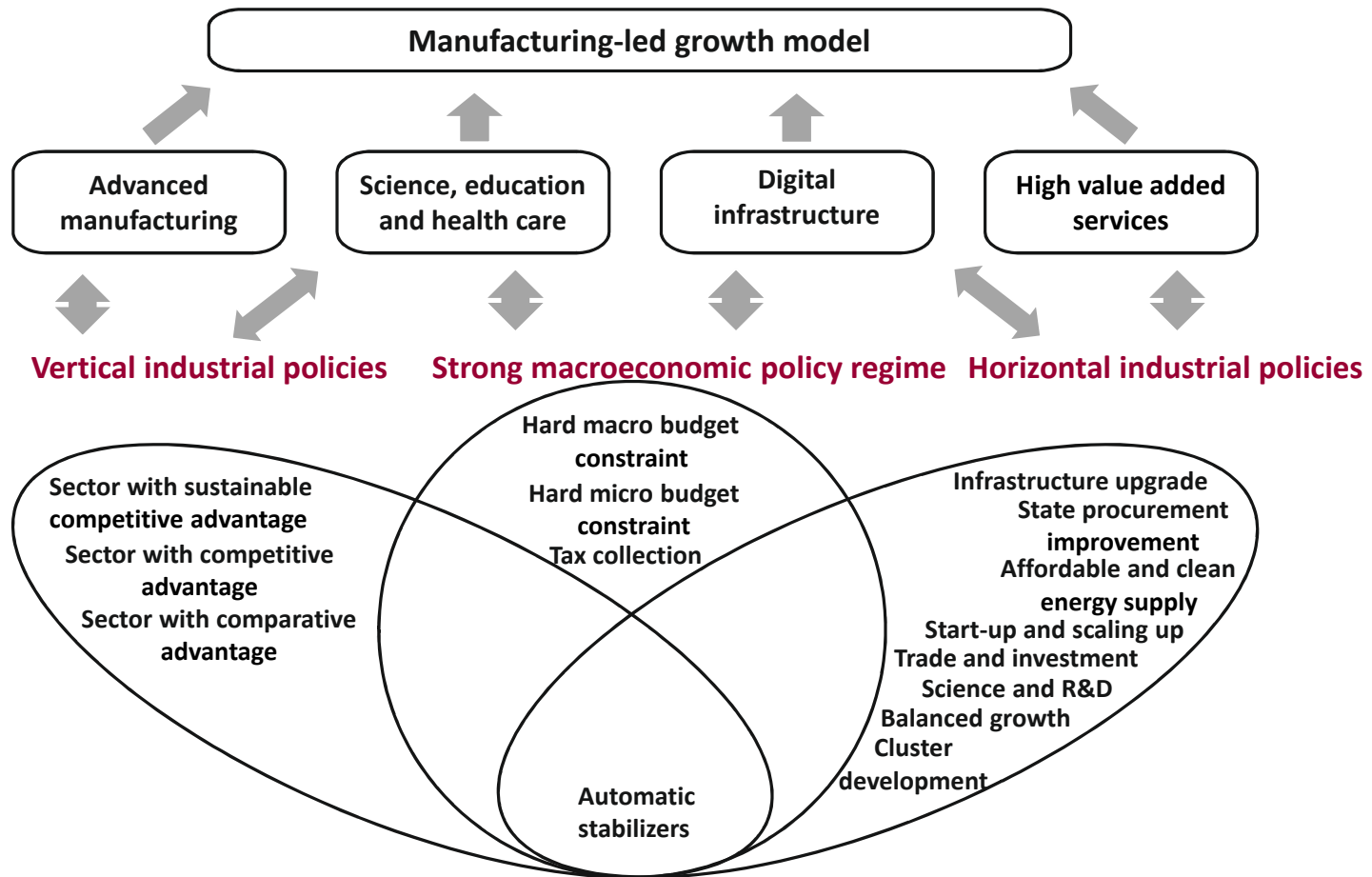
Mobility as a free good



5G as a component of innovative amalgams

- IoT and Blockchain will drive 5G
 - 5G means massive data speed (20 Gb) and near zero latency
- Key applications of 5G
 - Energy consumption optimization
 - Advanced manufacturing
 - Smart cities (villages, and homes)
 - Autonomous traffic
 - Augmented reality applications

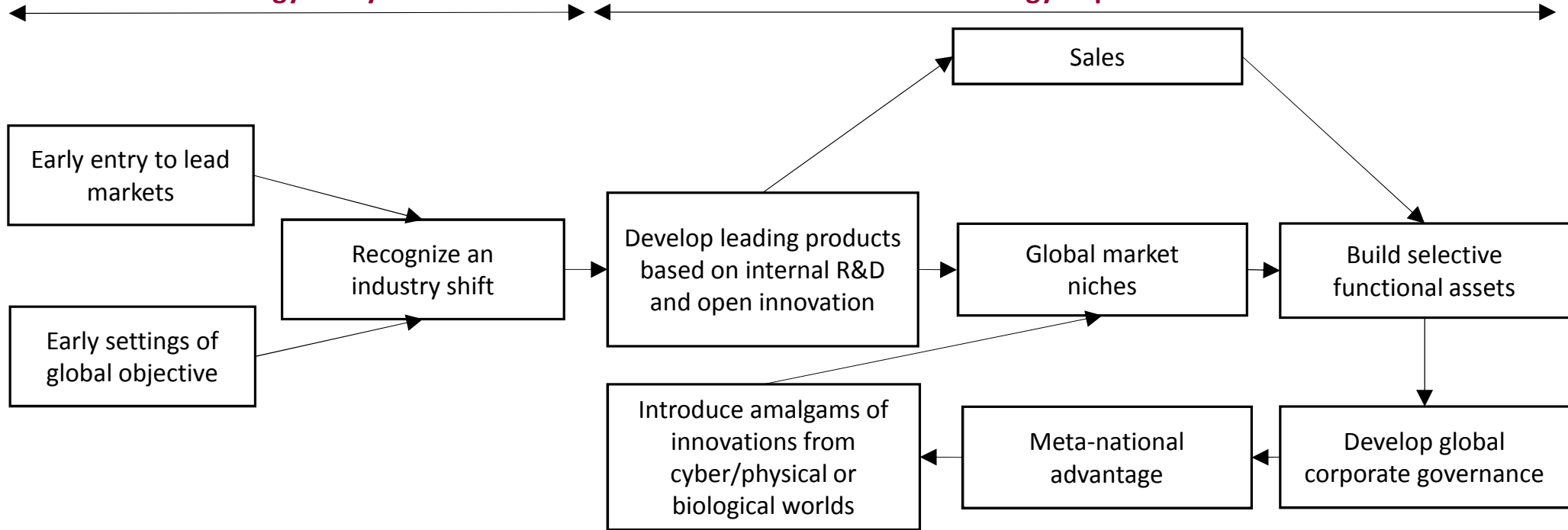
Industrial policy rejuvenation



Strategy pattern in Industry 4.0

Strategy Analysis

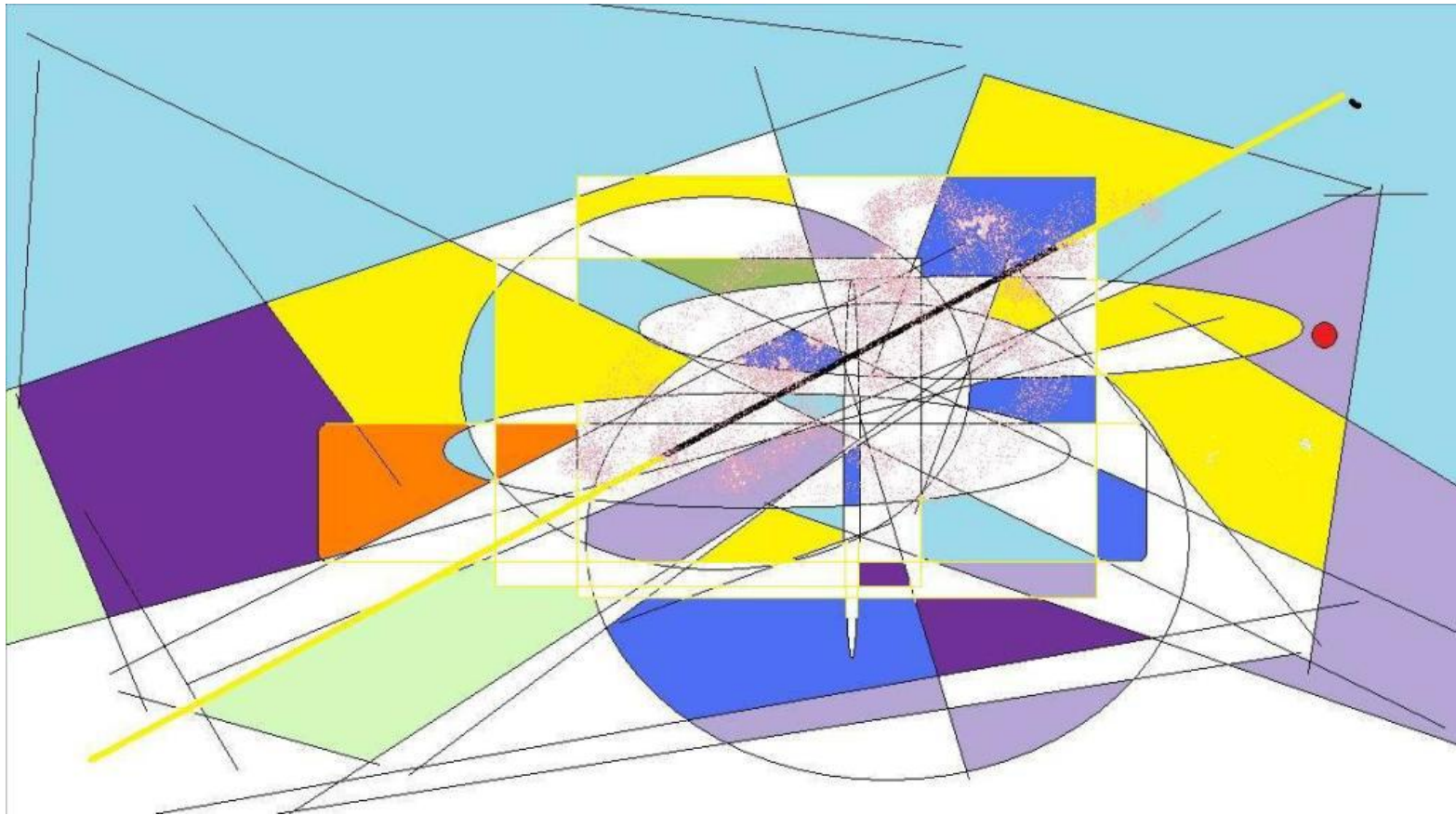
Strategy Implementation



Potential for growth in energy sector, F: 2018-2033

- Contractual PPP (2020)
- Energy efficiency (2020)
- “One cent per Kwh” for solar and wind (2025)
- Huge investment in energy infrastructure, including optimization of consumption systems (2033)

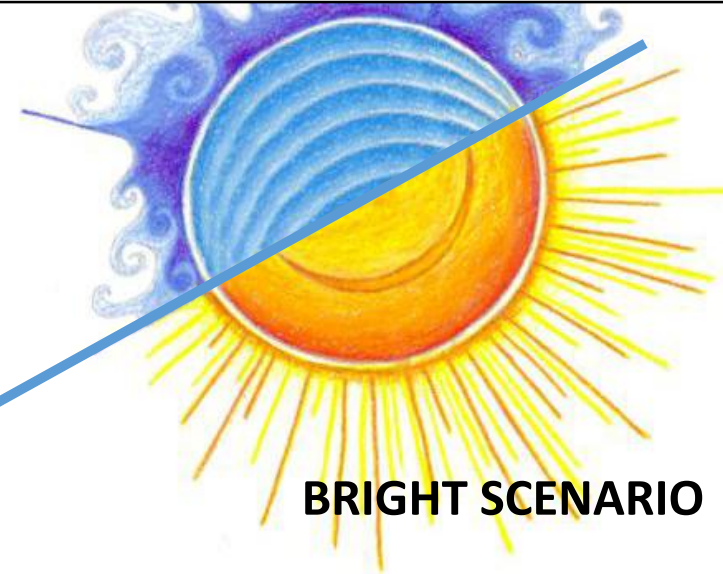
From Manufacture to ManuFuture, *F. Jovane*



DARK SCENARIO

- Orthodox economic policy platform
- Low density of relevant business organizations
- Outside ownership of innovative start-ups
- Lack of coordination in building infrastructure
- Focus on cost – leadership
- Fragmentation of R&I policy
- Untransformed education
- Slow and limited circular economy

- Ownership of innovative start-ups from domestic investors
 - Coordination in building infrastructure
- Competitiveness based on added-value products
 - Effective R&I support
- Encouraging STEM education and training
- Circular economy as a basis of competitive strategy
- Heterodox economic policy platform
- High density of relevant business organizations



BRIGHT SCENARIO