



Competitiveness Advantage of Technology

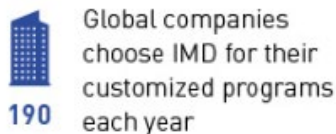
Christos Cabolis
Chief Economist, IMD World Competitiveness Center

November 30, 2021
3rd Taiwan-Switzerland Joint Business Council Meeting

- IMD is an independent business school with Swiss roots and global reach. Focused on developing leaders and transforming organizations, IMD designs and delivers interventions that challenge what is and inspire what could be.
- IMD is proud to follow international standards of excellence and innovation. It is the only Swiss business school to hold all three of the top global accreditations :



- IMD is based in Lausanne, Switzerland, and Singapore.
 - More than 9,000 executives from over 100 countries come to IMD each year
 - Over 190 global companies choose IMD for their customized programs each year
 - Our alumni network counts more than 100,000 members and almost 50 clubs worldwide
 - Over 34 different nationalities represented in the IMD Faculty and staff
 - IMD is ranked FIRST in open programs worldwide and in the TOP 3 in executive education worldwide – 9 years in a row (*Financial Times* 2012-2020)



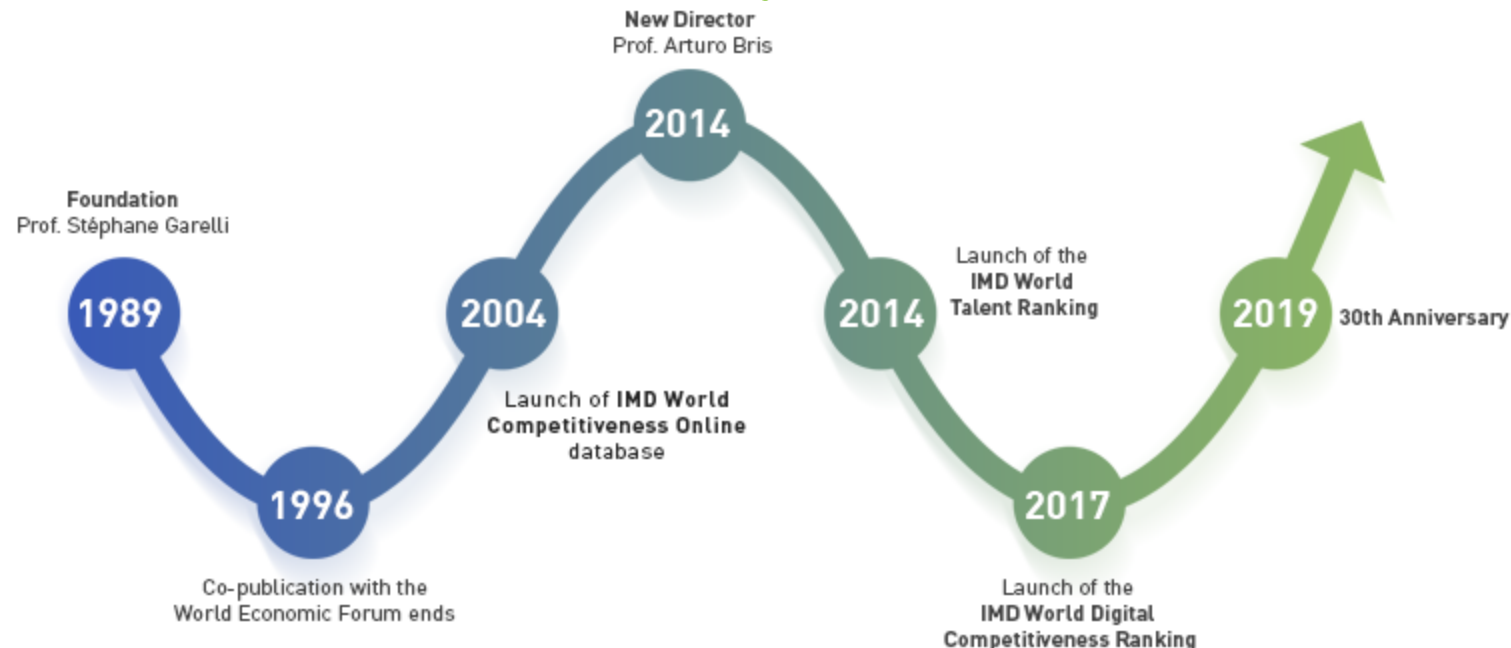
Our Mission

We are dedicated to the advancement of knowledge on world competitiveness by offering benchmarking services for countries using the latest and most relevant data on the subject.

For more than thirty years, the IMD World Competitiveness Center has pioneered research on how nations compete to lay the foundations for future prosperity.

The competitiveness of nations is probably one of the most significant developments in modern management, and IMD intends to remain the leader in this field.

Our History

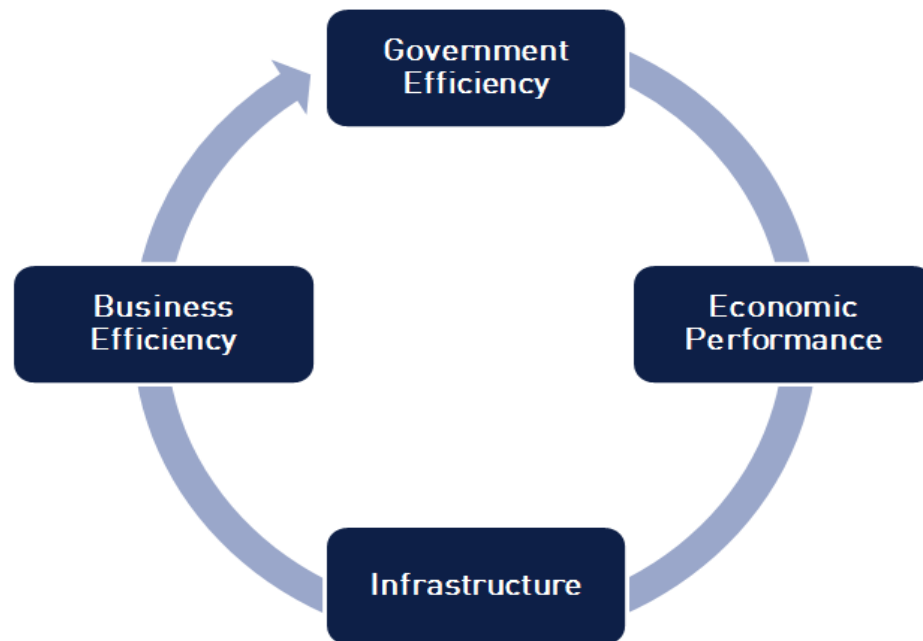


IMD World Competitiveness Analysis:

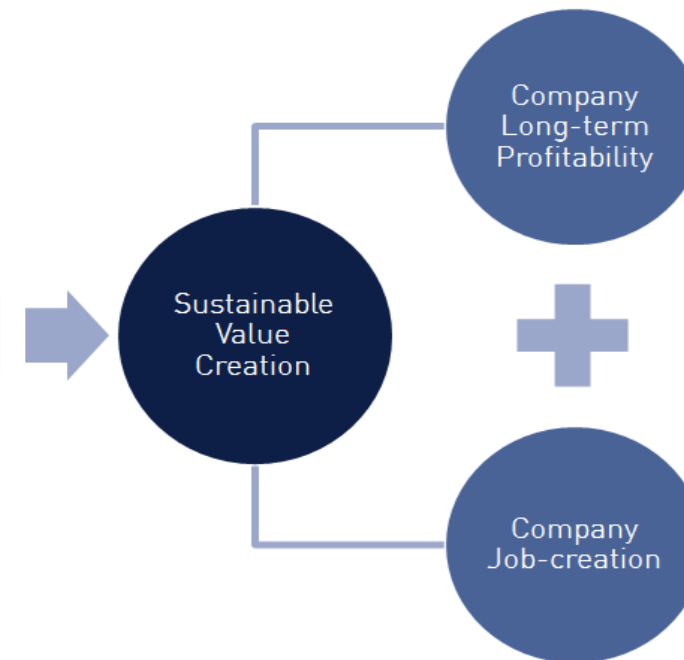
Components of an economic ecosystem

“Competitiveness is the extent to which a country is able to foster an environment in which enterprises can generate sustainable value creation...”

A. The Competitiveness Factors



B. Measuring Competitiveness



64 ECONOMIES COMPARED

IMD World Competitiveness Ranking

Assesses the extent to which an economy fosters an environment in which enterprises can generate sustainable value creation

1.



Switzerland
2.



Sweden
3.



Denmark
4.



Netherlands
5.



Singapore

4 FACTORS

Economic Performance

Macro-economic evaluation of the domestic economy, employment trends and prices

1.



Singapore
2.



Netherlands
3.



Germany
4.



China
5.



USA

- Domestic Economy
- International Trade
- International Investment
- Employment
- Prices

Government Efficiency

Extent to which government policies are conducive to competitiveness

1.



Hong Kong SAR
2.



Switzerland
3.



UAE
4.



Norway
5.



Singapore

- Public Finance
- Fiscal Policy
- Institutional Framework
- Business Legislation
- Societal Framework

Business Efficiency

Extent to which the national environment encourages enterprises to perform in an innovative, profitable and responsible manner

1.



Denmark
2.



Sweden
3.



Hong Kong SAR
4.



Netherlands
5.



Switzerland

- Productivity
- Labor Market
- Finance
- Management Practices
- Attitudes and Values

Infrastructure

Extent to which basic, technological, scientific and human resources meet the needs of businesses

1.



Switzerland
2.



Sweden
3.



Denmark
4.



Norway
5.



Finland

- Basic
- Technological
- Scientific
- Health & Environment
- Education
















20 SUB-FACTORS

334 CRITERIA

163 ranked statistics + 92 Survey = 255 ranked criteria + 79 background criteria

IMD World Competitiveness Ranking

Top Performers 2021

Overall Rank			Economic Performance	Government Efficiency	Business Efficiency	Infrastructure
1	Switzerland		7	2	5	1
2	Sweden		16	9	2	2
3	Denmark		17	7	1	3
4	Netherlands		2	12	4	7
5	Singapore		1	5	9	11
6	Norway		25	4	6	4
7	Hong Kong SAR		30	1	3	16
8	Taiwan, China		6	8	7	14
9	UAE		9	3	8	28
10	USA		5	28	10	6
11	Finland		34	14	12	5
12	Luxembourg		10	10	13	24
13	Ireland		22	13	11	20
14	Canada		14	15	16	8
15	Germany		3	23	23	10

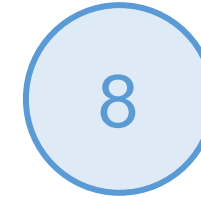
The IMD World Competitiveness Ranking assesses the extent to which an economy is able to foster an environment in which enterprises can generate sustainable value creation.



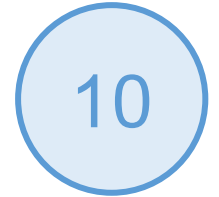
Technology

- Digitally advanced economies that have seamlessly transitioned to “work-from-home” have thrived compared to their peers. This is largely measured in the **Technological Infrastructure** sub-factor. Singapore has topped this sub-factor, followed by Netherlands, Sweden, Finland and USA.

Switzerland
Technological Infrastructure



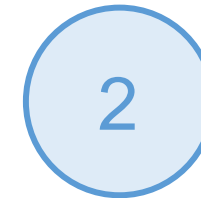
Taiwan, China
Technological Infrastructure



Government

- Those economies that provide a strong social net, including unemployment benefit have bounced back quicker. Some economies have provided this over many years, while others have stepped up for the short term. We note that this can be financed through tax, government debt or reserves. These aspects are picked-up across the **Government Efficiency** factor rather than a single sub-factor. Hong Kong SAR, Switzerland, UAE, Norway and Singapore are the top performers

Government Efficiency



Government Efficiency



Healthcare

- Health provision is dominated by wealthy economies with a strong social net, measured in the **Health and Environment** Sub-Factor (Switzerland, the Nordic economies and Singapore take the top positions.)

Health and Environment



Health and Environment



Society

- We note that societies that have a strong **Societal Framework** have performed particularly well. This picks up on aspects beyond the social net and measures how well the government and citizens work in tandem. This measures long-term characteristics such as gender equality and homicide as well as non-tangible attitudes picked up in the Executive Opinion Survey carried out in January-May 2021. The Nordic economies top this sub-factor. The Societal Framework is also highly reflective of the effectiveness of government Covid-19 containment policies.

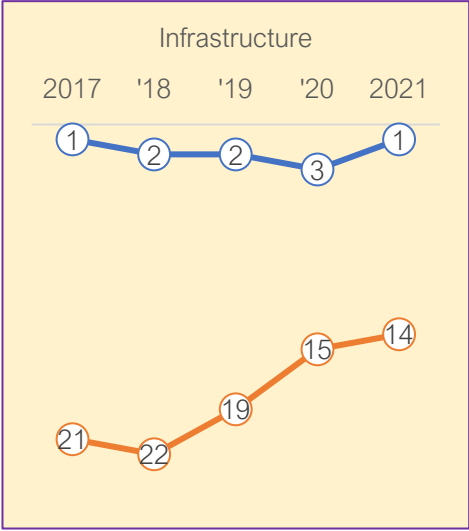
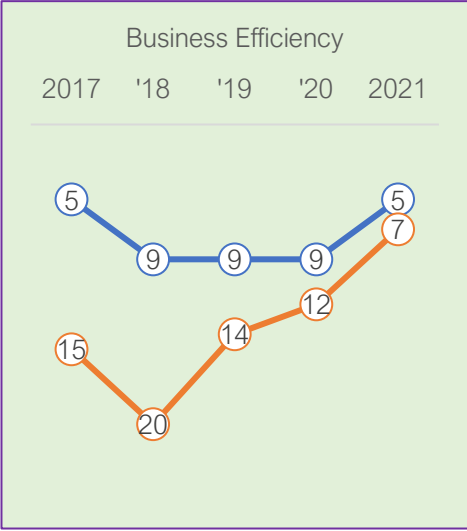
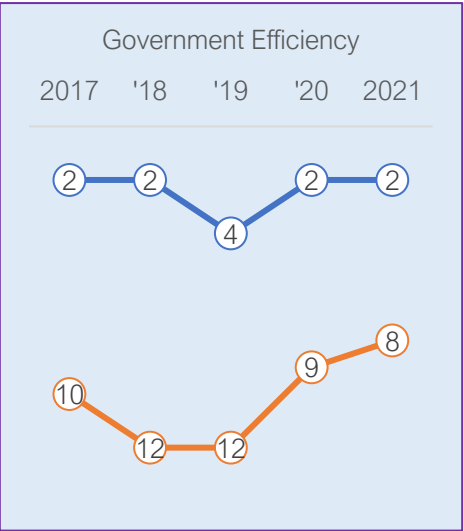
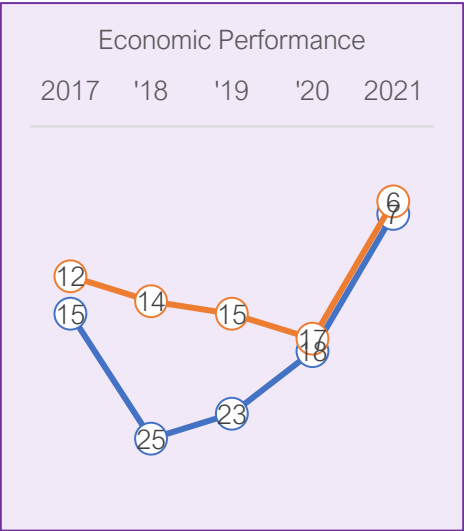
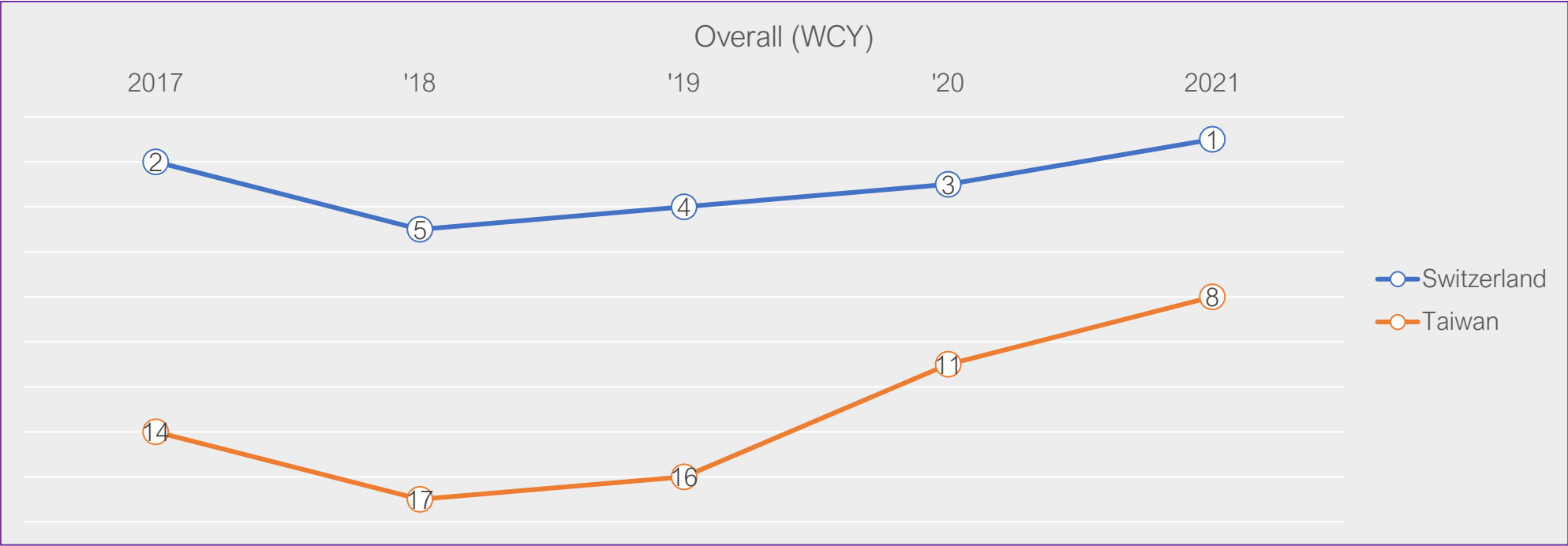
Societal Framework



Societal Framework

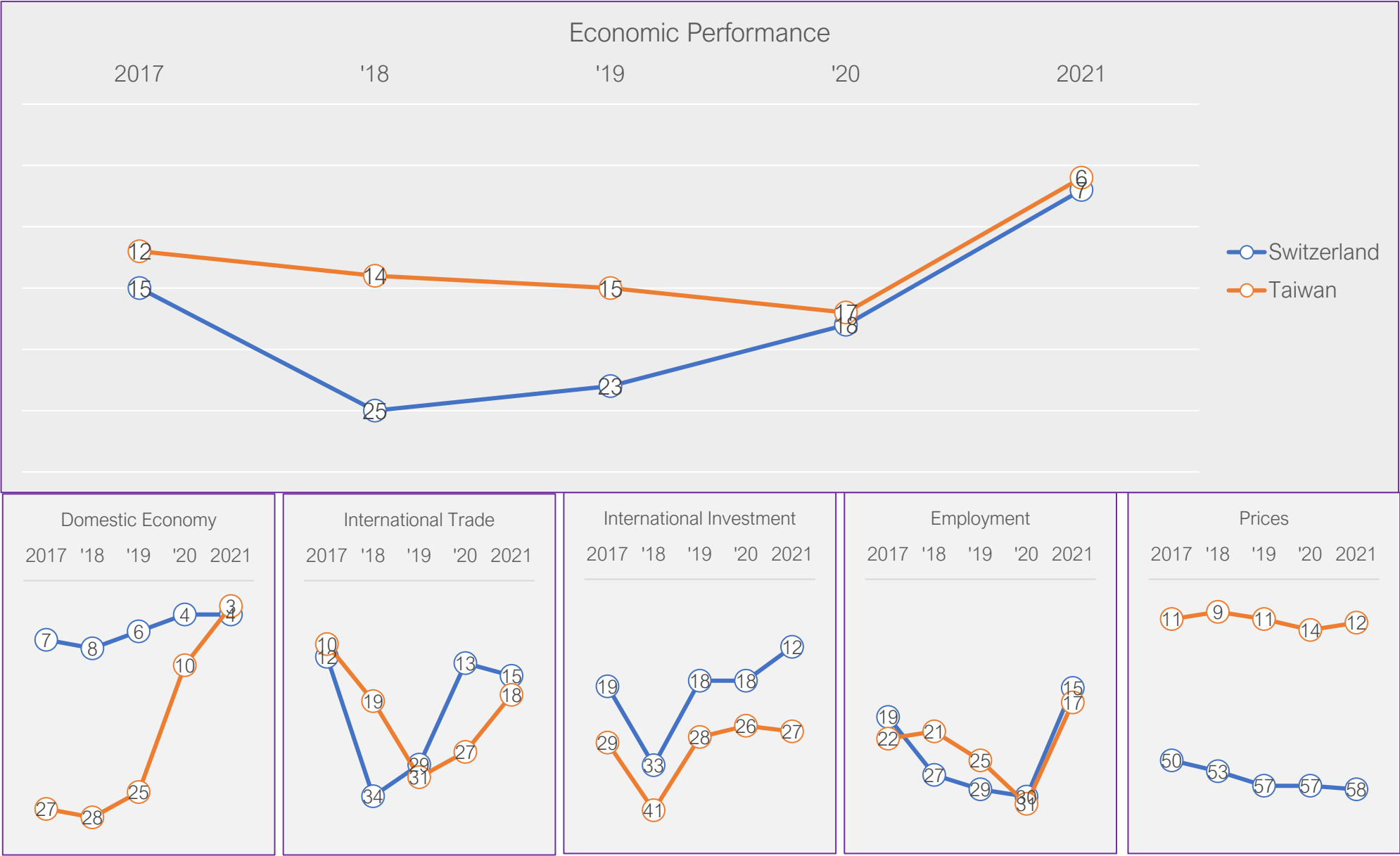


IMD World Competitiveness Analysis: Overall ranking 5-year evolution

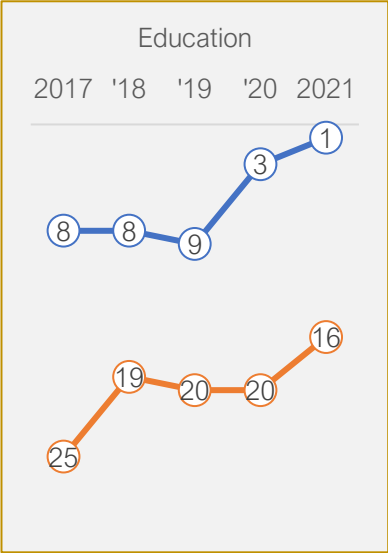
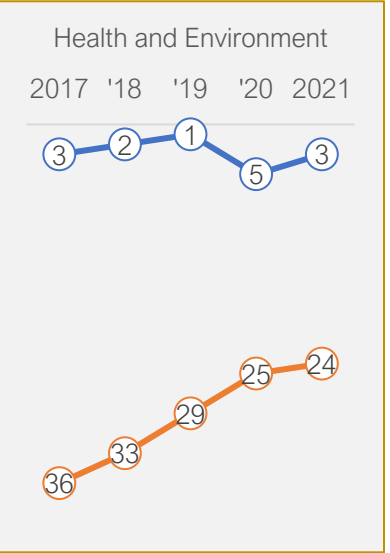
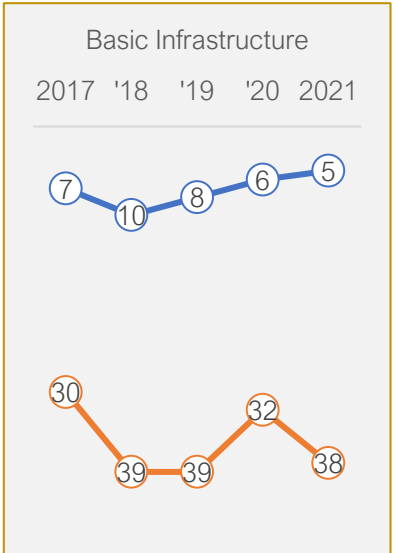
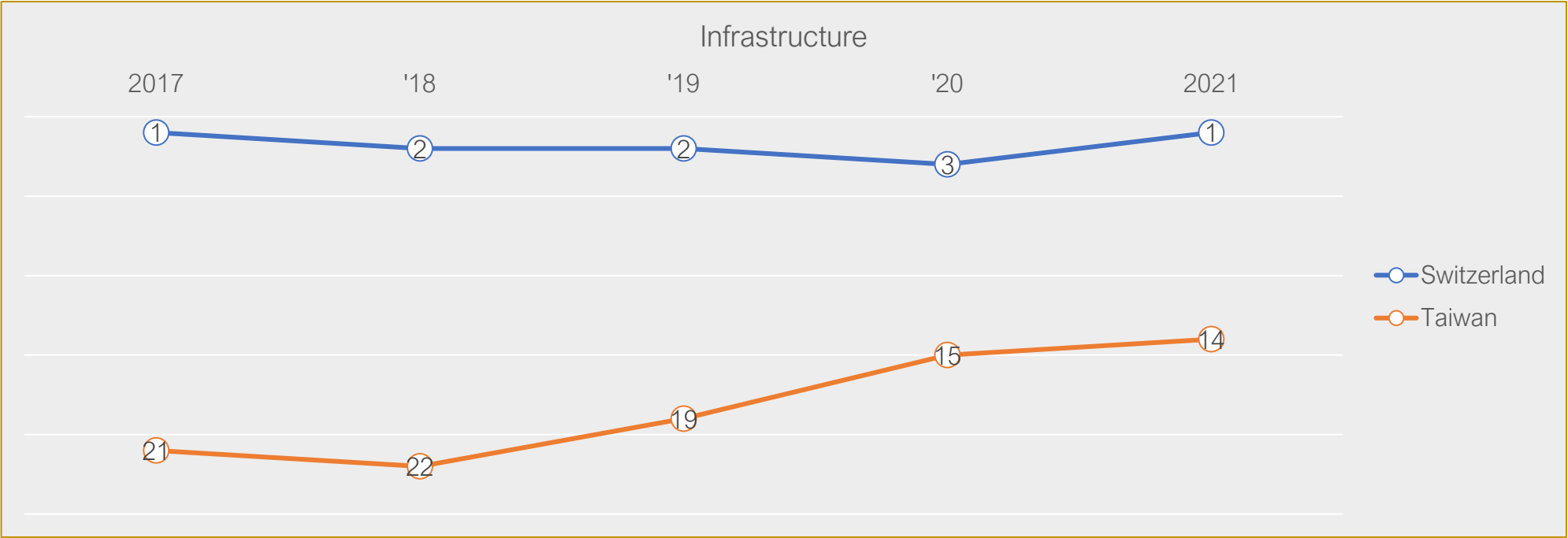


IMD World Competitiveness Analysis:

Economic performance 5-year evolution



IMD World Competitiveness Analysis: Infrastructure 5-year evolution



IMD World Digital Competitiveness Ranking

Overview



64 ECONOMIES COMPARED

IMD World Digital Competitiveness Ranking

Assesses the capacity and readiness of an economy to adopt and explore digital technologies as a key driver for economic transformation in business, government and wider society.

1.

USA
2.

Hong Kong SAR
3.

Sweden
4.

Denmark
5.

Singapore

3 FACTORS

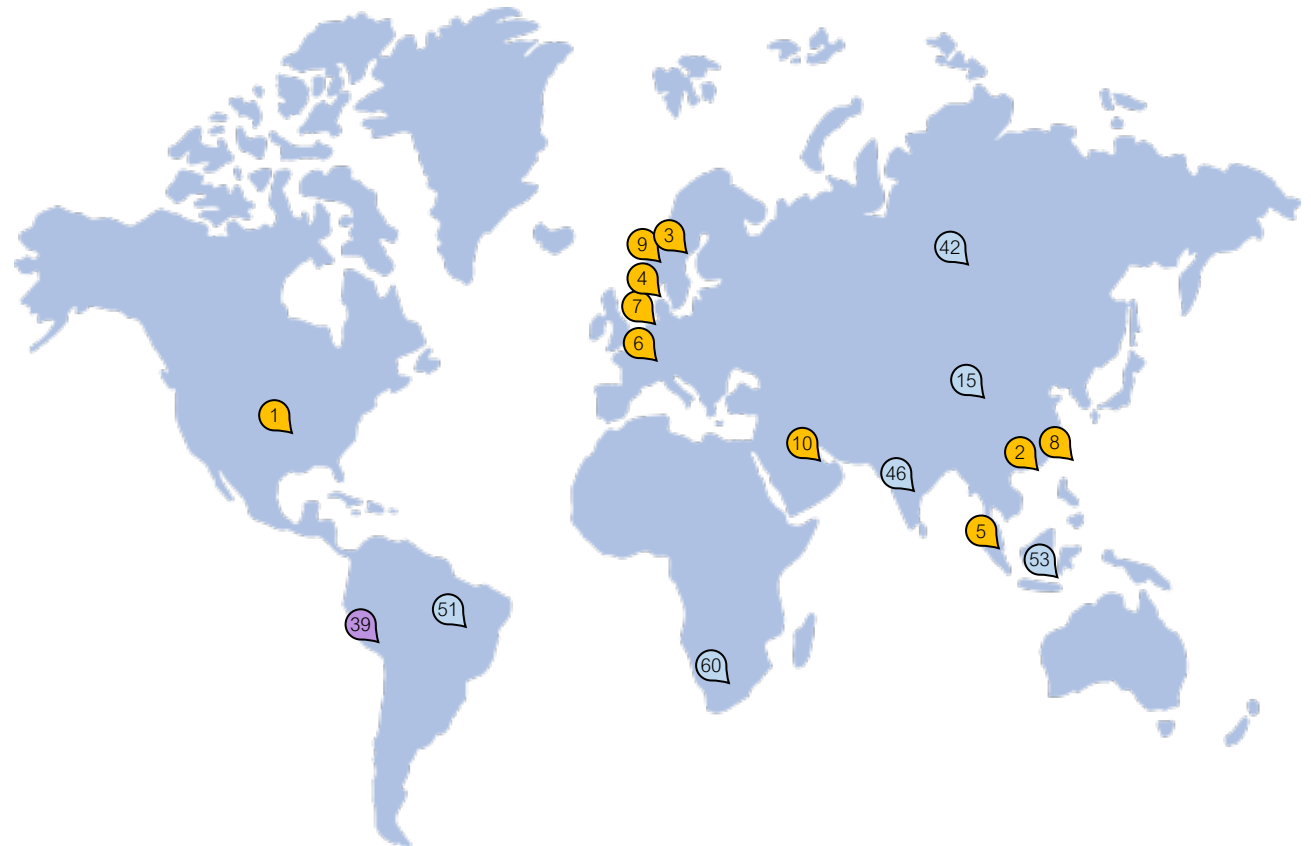
Knowledge	Technology	Future Readiness
the infrastructure that underlines the process of discovery, understanding and learning of new digital technologies.	the overall context through which the development of digital technologies is enabled.	the level of preparedness of an economy to assume its digital transformation
<div><div>1.</div><div></div><div>Switzerland</div></div> <div><div>2.</div><div></div><div>Sweden</div></div> <div><div>3.</div><div></div><div>USA</div></div> <div><div>4.</div><div></div><div>Singapore</div></div> <div><div>5.</div><div></div><div>Hong Kong SAR</div></div>	<div><div>1.</div><div></div><div>Hong Kong SAR</div></div> <div><div>2.</div><div></div><div>Taiwan, China</div></div> <div><div>3.</div><div></div><div>Singapore</div></div> <div><div>4.</div><div></div><div>USA</div></div> <div><div>5.</div><div></div><div>UAE</div></div>	<div><div>1.</div><div></div><div>USA</div></div> <div><div>2.</div><div></div><div>Denmark</div></div> <div><div>3.</div><div></div><div>Switzerland</div></div> <div><div>4.</div><div></div><div>Netherlands</div></div> <div><div>5.</div><div></div><div>Korea</div></div>
<div><div>Talent</div></div> <div><div>Training & education</div></div> <div><div>Scientific concentration</div></div>	<div><div>Regulatory framework</div></div> <div><div>Capital</div></div> <div><div>Technological framework</div></div>	<div><div>Adaptive attitudes</div></div> <div><div>Business agility</div></div> <div><div>IT integration</div></div>

9 SUB-FACTORS

52 CRITERIA

32 ranked statistics + 20 Survey = 52 ranked criteria

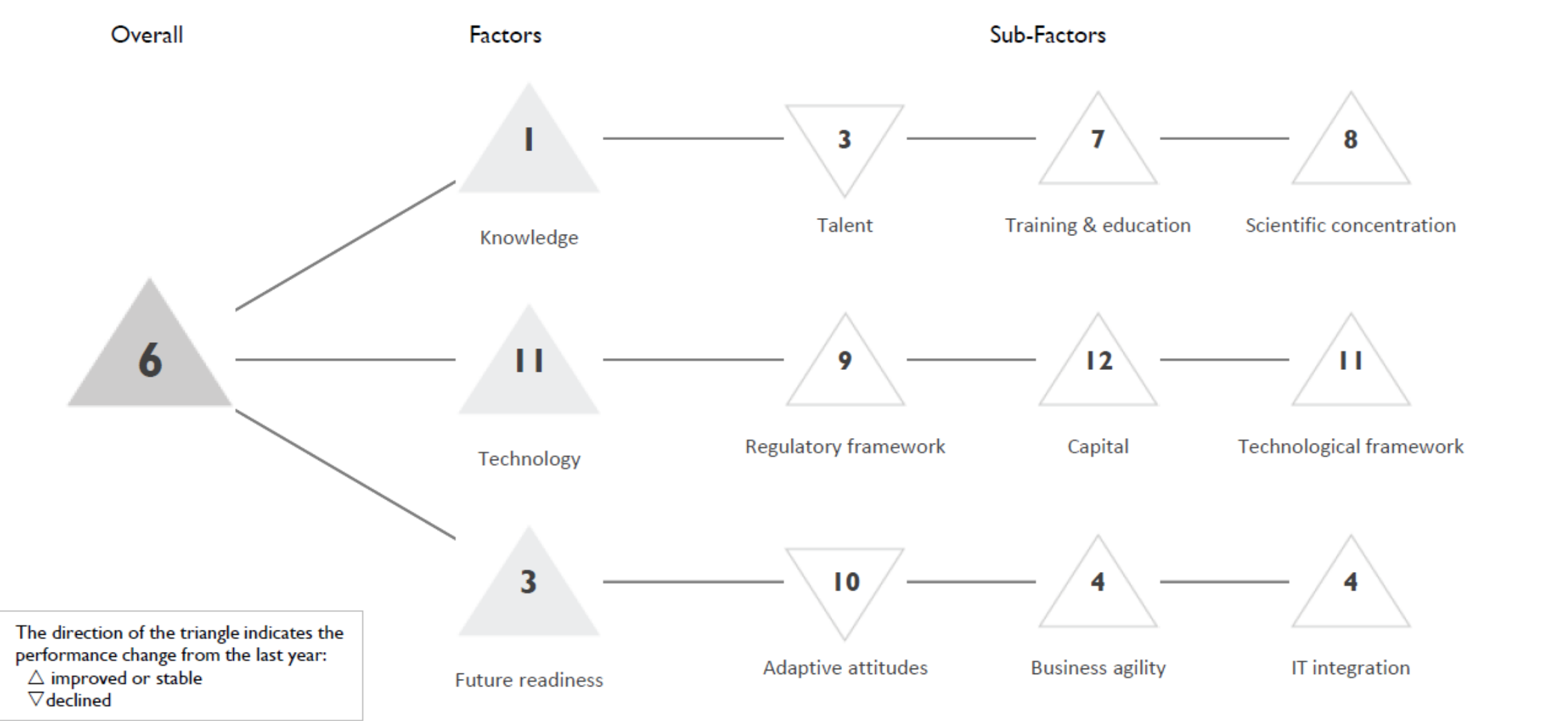
The IMD World Digital Competitiveness Ranking assesses the capacity of an economy to adopt and explore digital technologies leading to transformation in government practices, business models and society in general.



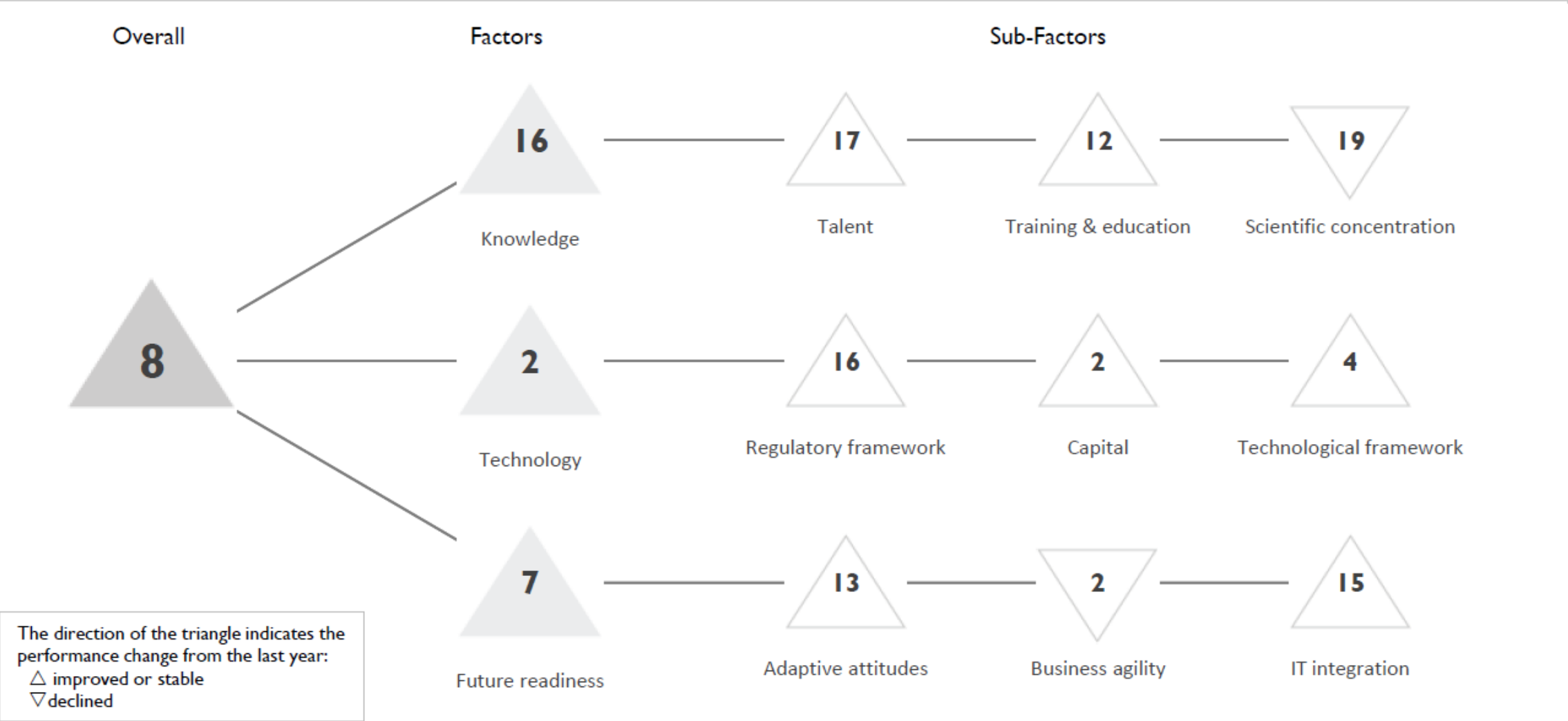
Top 10
BRIICS (Brazil, Russia, India, Indonesia, China, South Africa)
Best S. America (Chile)

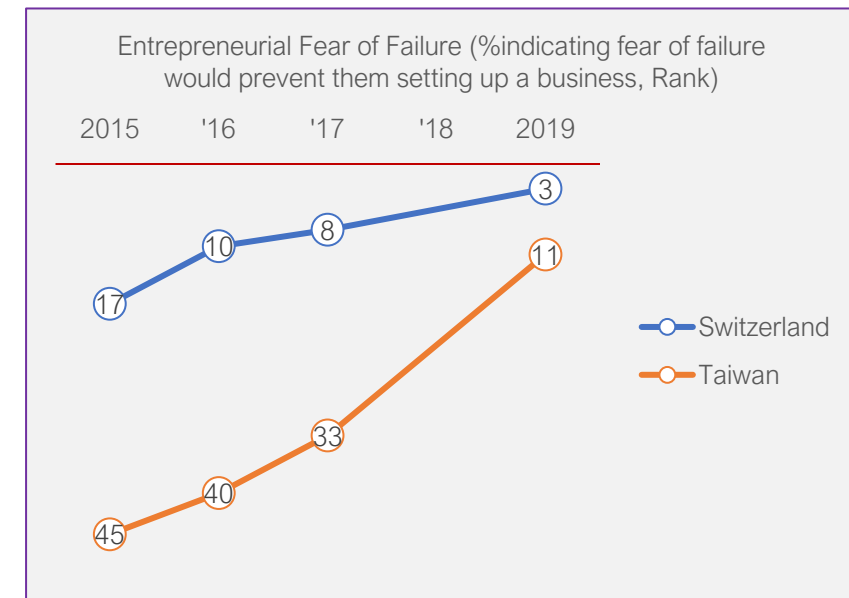
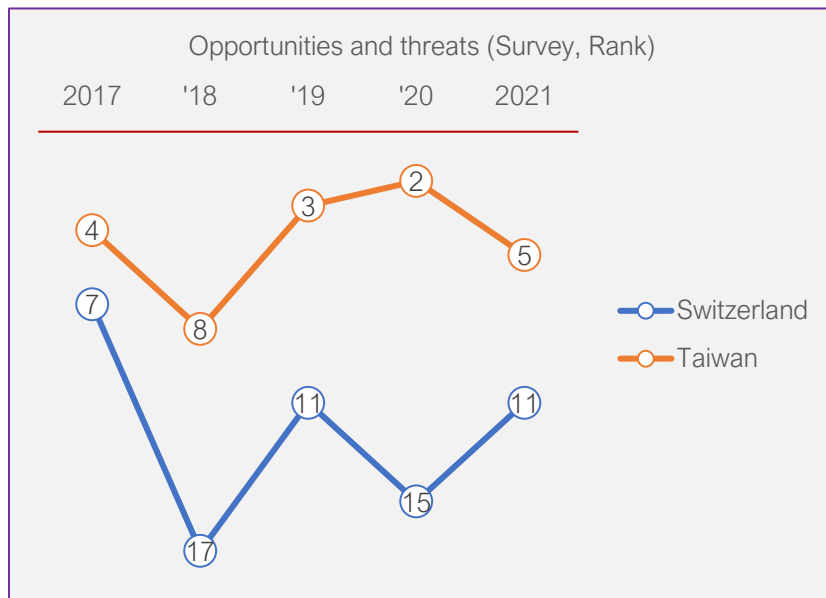
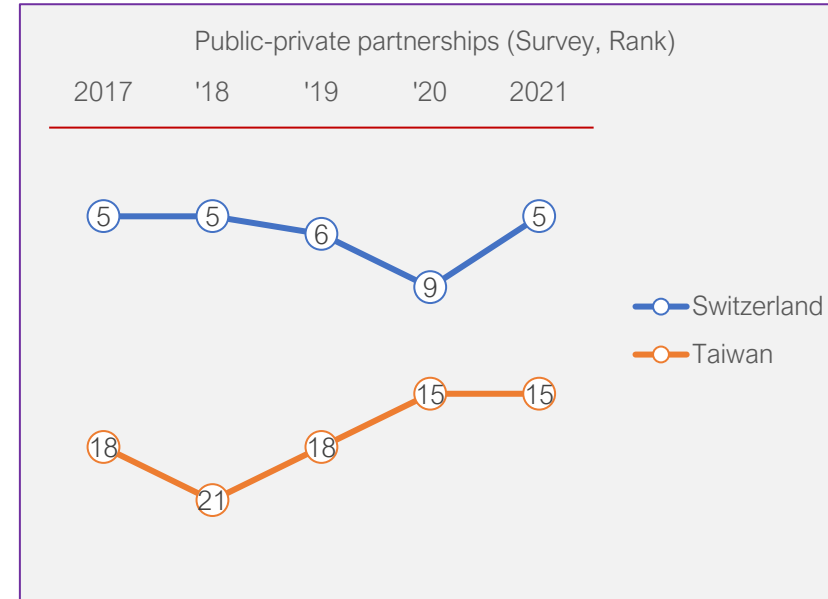
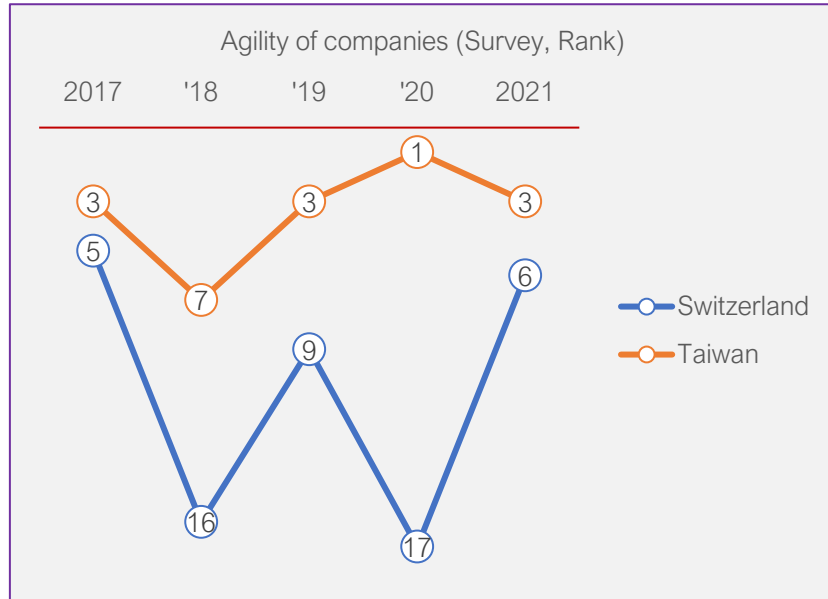
Overall Rank			Knowledge	Technology	Future Readiness
1	USA		3	4	1
2	Hong Kong SAR		5	1	10
3	Sweden		2	8	6
4	Denmark		8	9	2
5	Singapore		4	3	11
6	Switzerland		1	11	3
7	Netherlands		11	7	4
8	Taiwan, China		16	2	7
9	Norway		17	6	8
10	UAE		18	5	12
11	Finland		9	12	9
12	Korea Rep.		15	13	5
13	Canada		7	15	15
14	United Kingdom		13	17	13
15	China		6	20	17

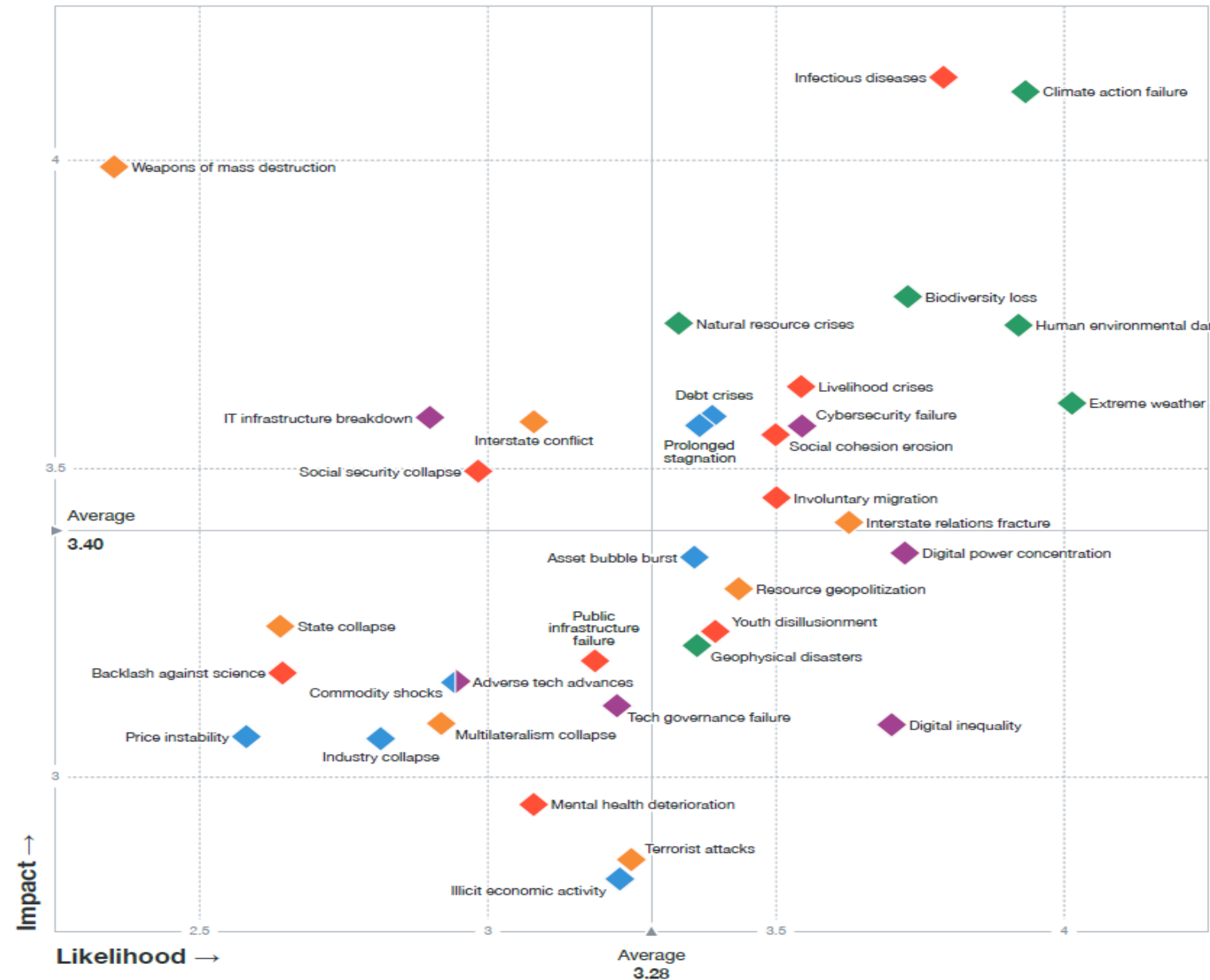
OVERALL PERFORMANCE (64 countries)



OVERALL PERFORMANCE (64 countries)







Risk categories

- Economic
- Environmental
- Geopolitical
- Societal
- Technological

Top Risks

by likelihood

- Extreme weather
- Climate action failure
- Human environmental damage
- Infectious diseases
- Biodiversity loss
- Digital power concentration
- Digital inequality
- Interstate relations fracture
- Cybersecurity failure
- Livelihood crises

Top Risks

by impact

- Infectious diseases
- Climate action failure
- Weapons of mass destruction
- Biodiversity loss
- Natural resource crises
- Human environmental damage
- Livelihood crises
- Extreme weather
- Debt crises
- IT infrastructure breakdown

Source: WEF, “The Global Risks Report, 2021,” Figure II



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