

Dreamarks

AUG 2025 | ISSUE NUMBER 10

MAGAZINE

Discordance Between Human and Earth



How to Foresee
& Foresight



Global Risks
Reports
2025

IN THIS ISSUE

- 2 Revitalize The Earth by Rectifying Our Habits
- 5 Global Risks Reports 2025
- 10 Five Pillars of Global Cooperations
- 12 Leadership Foresight & Methodology
- 13 Detecting Mega Trends for Future Foresight
- 14 How The Economy 1995 - 2023
- 15 Maintaining Human & Nature Accordances
- 16 How Each Global Elements Interface Pollution Risks
- 17 Adverse Outcomes of Frontier Technology
- 19 Global Energy Key Challenges
- 20 Global Renewable Energy
- 22 Volatility of Global Key Mineral Prices & Demands
- 23 Global Energy Transformation Stages
- 25 How About Internet Diets?

Dreamarks Magazine

About Dreamarks

Gina Al ilmi

Sole Writer, Books Author, Conceptor
Graphic & Web Designer.
Founder & Director of Dreamarks

Phillips Yosef Setyawan DSL

Writer, Books Author, Conceptor
Scientist, Businessman, Programmer,
CEO of Dreamarks

Address : Bogor, West Java, Indonesia
www.dreamarks.com
gina@dreamarks.com
[@dream.pathways](https://www.instagram.com/dream.pathways)

Revitalize the Earth by Rectifying Our Habits

Leaders are the team that will handle all the matters at the corporations and facing everyone in the public and laws matters for any crisis, issues, disputes, sues, and almost anything that happening around many matters of the corporations. That's why every leaders must master the arts of Foresight to prevent any negativity from happening to the corporations or organizations.

The renowned Danish planning expert Bent Flyvbjerg, now at Oxford University, offered a forceful summary: "The prevalent tendency to underweight or ignore distributional information is perhaps the major source of error in forecasting. Planners should therefore make every effort to frame the forecasting problem so as to facilitate utilizing all the distributional information that is available".

This may be considered the single most important piece of advice regarding how to increase accuracy in forecasting through improved methods. Using such distributional information from other ventures similar to that being forecasted is called taking an "outside view" and is the cure to the planning fallacy. (Flyvbjerg in Kahneman, 2011).

7 billions of earth inhabitants, is a great achievement. In our probable future, there can be failure at global government that can makes global pandemic happening again. For now, we have conquered Covids, and along the ways, we've setting up global systems for the world and all global citizens towards anything close to it.

In order to prolongth the healthy oxygen supply in the Planet Earth, we must do many kinds of diets. From AI diets to Electricity diets, to make sure we'll go hand in hand with the global government in handling global energy crisis and global famine.

AI Diets is something that we have to started and maintain as daily habits. We can think of it further as our brain defences, a learning habits to prevent us from using AI help in our works, and to make sure we're not putting an end to many fields of science and human capital development knowledge by letting AI dictate and govern us.

Meanwhile, The World Economy Forum and World Energy Council has made many useful guidance that we can learn and adopt in our Planning & Development on Future Global Strategy. Several of the source is from the book; "Thinking; Fast & Slow", by Daniel Kahneman, Winner of Nobel Prize in Economy.

We also have to see the Leadership role in this Future Scenarios planning and preparing our best candidates as future Leaders. Leadership Scarcity is one of today's nations problems. But all of it can still be handled if we create and conduct the right scenarios, making sure that the company strategic development are giving vast opportunity and giving everyone a fair chances as Future Leaders. In this way, we can maintain healthy cooperations inside our companies or organizations.

Gina Al Ilmi

Editor-in-Chief



Global Risk Reports 2025

On the technology side, The Global Risks Reports 2025 are viewing that might be chances of Adverse result concerning the AI demand growth. Also the same for frontier technologies development, because of the dependency to AI.

The World Economic Forum Global Risks Reports also put the Lack of economic opportunity or unemployment near to technological censorship and surveillance. This might be because many employer or importer has no insight for seeing their future partner companies before the cooperations signed, thus because of the lack of chances to detect and monitoring, unlike in other countries that gives many windows opens for the future counterparts.

The WEF also concerns about economic downturn that can happened when there were disruptions happens to a systematically important supply chain. Especially if there were intrastate violence, and inflation, then what will happens is there will be asset bubble burts, and talent or labour shortages. while at the lowest point of risks is the non weather related natural disasters.

While almost on the high end there were cyber espionage and cyber warfare risks that are related to inequality, industry migration, industry displacement, polution, societal polarization, state based armed conflict, and technological misinformation and disinformation.

The Risks that was at the peak are environmental focus, such as extreme weather events, biodiversity loss, ecosystem collapse, and the critical change on the earth systems (global leadership change). While geoeconomic confrontation risks are also linked to the risks of errosion of human right and civic freedom, and also there can be crime and illicit economy activity.



Maintaining Peaceful Cooperations of Global Populations

When we thinking about the world, we have to think about the continuation of people who will work, build and run this planet earth, together. But somehow we sees how the westerner are avoding to have children, and always thinking that children is expensive, and children are big burden for the populations.

This is not the way to maintain the world to stay in peaceful cooperations. We can see the content of the internet are growing day to day, but have we makes our childrean learn and benefit from it? Or we just let them being consume by the content that are fullfilling their needs of music and various colours?

The content of the internet are now aiming at juxtaposing our emotions by activating the trigger to various hormones in the brain by thrilling contents, by the ghostly stories behind it, and these kinds of contents are addicting to consume day to day. Making our children in dire needs of evreyday adrenaline spikes from it. The result? emerging Cortisol Attacks; making our children feel exhausted, tired, and bored, if they not online doing gaming.

What we supposed to done is taking our children to play outside, meeting new people, so they can learn about their societies and also can learn a lot about the nature, the vegetables, the fruits, and many kinds of nature harvest that is close to our lives.

If we care a lot about our family, we hope other people in the world are too. Not only having

FIGURE 2.3

Global risks over the long term (10 years), by region



Regional Risks based on Global Risks Reports 2025

As we can see on the diagram above, extreme weather events are the highest risks at the Southern and Eastern Asia, European countries, Northern America and Sub Saharan Africa. There's many of the risks at all the regions that are Environmental risks. This means that there's discordance between the human and earth, making the environment at high risks.

The number two of the Regional Risks are at the Technological domain. Many people at Southern Asia were concerns about the misinformation and disinformation; and also concerns about the adverse outcomes of the AI Technologies.

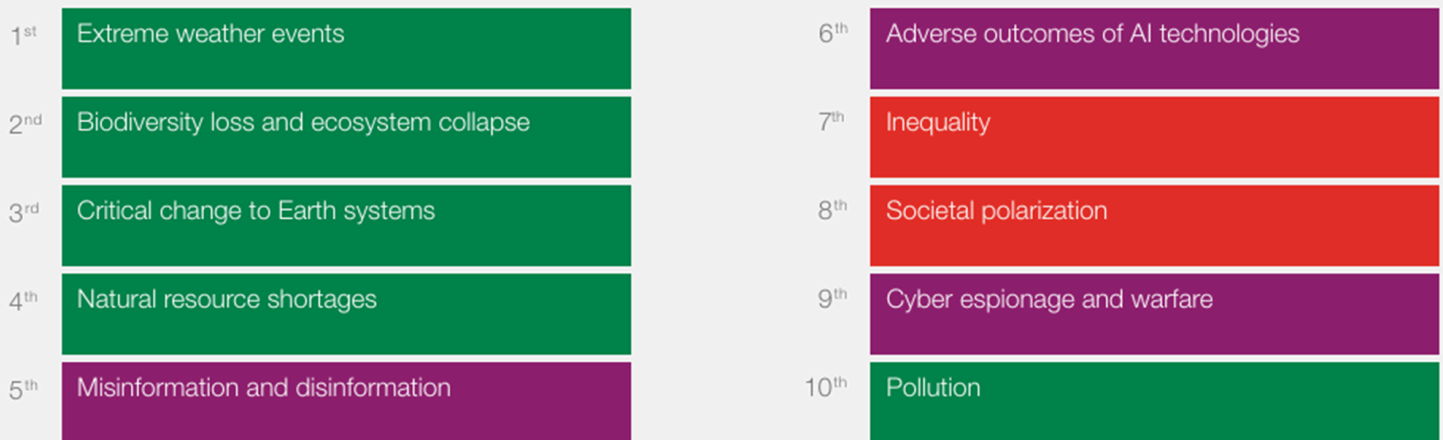
While the Middle East and Northern Africa are concerns about the Cyber Espionage and Warfare that has been happened for so long, and The Adverse outcomes from the AI Technologies, such as sudden insurgence in electricity demand, for data center, whilst the effort to balance the demand and build more power house, not happening overnight, and taking long turn in the diplomatics and bureaucratic process.

In the Europe, what worry most is the number of the citizens that doing involuntary migrations and these migrations had a large effect on the work force, national defense, and overall politics of the government in the Europe.

While in the Latin America and the Caribbean, the above all one to the fifth priorities of the regional risks all are environmental issues. And in the Sub Saharan Africa, the most worrying problems is the lack of economic opportunity, bio diversity loss and environment collapse, crime and illicit economic activity, and the natural resource shortages. What makes us more concern about the discordance of human and earth is these risks projections can take place until 10 more years or more, in the Earth history records. If we have any initiatives, all can be done and even the Saharan can turn green with the help of the Great Green Wall funded by the African Union and from the help from all over the world.

Global risks over the long term (10 years), ranked by severity

"Please estimate the likely impact (severity) of the following risks over a 10-year period."



Risk categories

Economic

Environmental

Geopolitical

Societal

Technological

Global Risk List of Severity

The Global Risks data when viewed overall based on severity, have devastating vast impact to human health, safety and can have regional impacts. Number 1 is the effect of extreme weather events that already had happened such as Katrina Storm, Aceh Tsunami, Turkey Earthquake, , and many other earth calamities that has happened and has impact on several fatalities number of people died.

Pacific Ocean's plastics waste, Spanish Flood, West Java landslide, Europe mountain avalanche, are amongst the most devastated disaster that frequently happens, amid the facts that there's should be early extreme weather warning at each cities when the calamity frequently happened. These types of disaster are include in biodiversity loss and ecosystem collapse.

Because of the vast amount of Green House Gases, this planet has come to the phase of Critical Change to Earth System. Almost everyone in the planet are aware of this. The industry sectors are also doing many innovation in creating machineries with almost zero emission, and with the help of AI, scientist now has analyzed and detecting the needed change in the machineries to make it more energy efficient.

Natural Resource Shortage has also happens and creating high production spending in almost every factory. With the help of AI, the machine efficiency systems has also being improved and many of the improvement are also being scientifically analyzed to make sure that the new innovations can maintain the same level of production with decreasing the cost.

In the technology field, we also have to be more careful in facing the content in the internet and the AI results, because of the large cavity of misinformation and disinformation.



Current Global Risks Conflicts

State based armed conflicts, such as what currently happening at Palestine and Ukraine, has become very severe and creating the most major destruction in the 21st century. Hundred thousand of people has been killed, and half of them are children and women.

How could this scale of devastating conflict can remain for almost two years now, and looks that many global leadership becoming crippled to handle this conflict and the global leadership systems have been very quiet and many seen as numbness of humanity.

Many of them seems unalarmed and doesnt realize that their positions and title has given them the amount of power to move together to creating international decree to stop the war.

The global leadership seems unalarmed that abiding one large conflict like this can have an impact on the geo economic confrontation. The conflicts becoming more severe because of the misinformation and the disinformation. Thus creating Economic Downturn at the state scale of the conflict countries, and creating ripple wave at the Global Societal Polarization and creating the vivid dreams of new global leadership systems, which are endangering the social situations at the related interstates, and also to the world leaders who hasnt being of help to the large conflicts that are still currently happening and making the Palestinian lives at high risks.

The global citizen thus then being more aware of this Earth-scale Erosion of Human Rights and Civic Freedoms. Especially the kind of societal issues that are based on Inequality. And making many young citizen thus choose to move abroad and leaving their countries,

The barometer rests on five pillars of global cooperation



The Five Pillars of Global Cooperations

All of the interstate conflicts, economic downturn, technological advancement adversity risks, should be globally governed by setting the global rules, and also setting the lists of tolerable global barriers of economic and political conducts and focusing more on the equality and equilibrium of the international cooperations.

By creating new global human rights laws & political barriers as rules not only can promote many nations that are still developing, but the overall global economy can also impacted with the new grows in the economic.

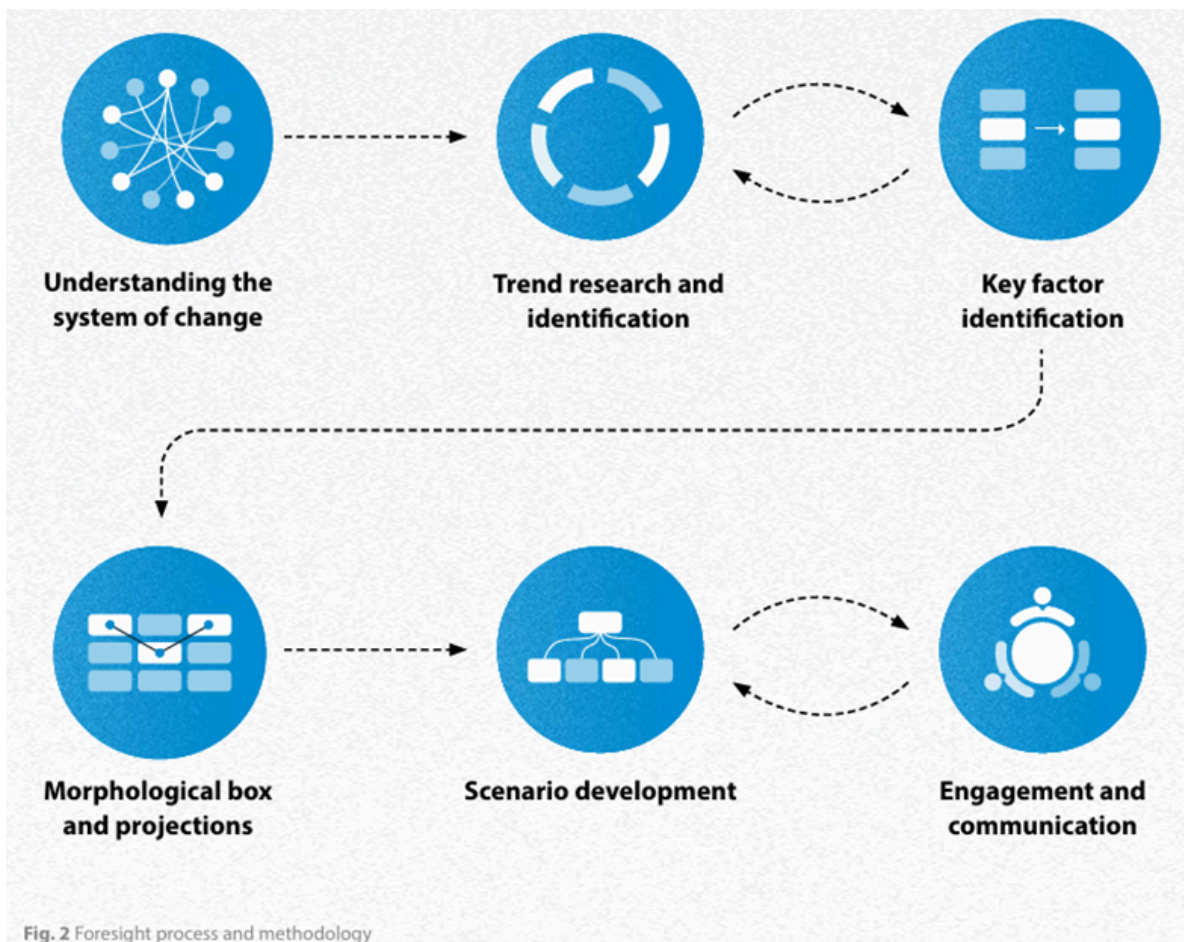
That the economic resilience at the global scale should be entail from the increasing of each countries GDPs by creating global rules that can largely developing global trade and capital, with the hope that every listed global economic laws that will be made, can be made more future oriented, vastly educated and more laws making more humanized, and setting every citizen lives counted as economic capital, and not as an economic burden.

As to be more precise, the global economy should be controlled by the human rights experts viewers, and every lives should be measured with the same chances and opportunity in every countries.

Every academic can gives their contributions in viewing in the why and the how to's of the inequality happening in every nations, to creates more open communications channels, and making the science not as something that should be treated as silo, but as freely contributed.

, This steps are important to helping each government in many parts of the worlds to grew more sharing of powers to creating economic equality, spreading their human resource capital and natural capital.

Therefore the imaginable results is as the big countries to gives their percentage of power shares to be contributed globally, and with the power scale that can help many developing nations and emerging economic regions. One example are already created by the monetary and economic global systems, but what the world still sees as burden is there havent developed at best, and making every United Nations results seems to lack of power because of the VETO power. **10**



Leadership Foresight Process & Methodology

Maintaining healthy corporations has to be started since several years ago. What had happened and should happened today, has to be because we have anticipated this periods or phases, beforehand. But its okay, all of us are not late if the company still exist and the corporations is still operating.

For now, all possible conditions has to calculated by involving every dimension that are around your planning & development scopes. Make a list of of cause and effects that revolving around everything in every dimensions that you are guarding. Make a list of risk and effects on every cause and effects.

How to do this? First, Draw **an overlapping curves of the dimensions themes** that you see are related or in accordance with the current conditions. Then, in other piece of paper, make a list of the **related systems**. Whatever evolving around the dimensions is making the cause and effects in your corporations, there for, it should be systematized. To prevent the outburst of be many losses that will be out of reach. What you are making here is the internal overview of the current internal systems that can be change and made to be more in accordance to the goals that you are aiming right now.

By calculating the effects of many causalities that have major effects whether to company reputations or to the calculated operations, or to the reported everyday increase of incomes, and on the company status at the Balance Score Cards. Calculate everything, and see the predictable calculation that will emerge, from the monitored causalities to every differentiated systems that are in your corporations meta cognitive maps.

Foresight Process & Methodology

From WHO 2022, Foresight is different from a prediction or forecasting of the future. It presents a new approach for better preparedness. It is forward looking, action-oriented and fosters collective ownership of the future. This initiative aims to achieve a two-fold goal.

Firstly, to ensure that we are collectively better prepared to tackle future epidemics and pandemics by bringing key players together.

Secondly, to support informed decision-making for leaders on the transition from emergency response to future preparedness.

The method Central to the foresight initiative is the development of scenarios. Scenarios are hypothetical, yet plausible, illustrations of the future.

They are an invitation to conversations; a way of “thinking the unthinkable”. They are a tool for framing imagination, aiding decision-making, identifying recommendations, testing, and refining strategy and policy options.

Make your planning and development team to try to think like smeagole who is a paranoid person guarding his precious ring. What he's guarding is the chances of a person that can do changing role because of the invisibility capabilities make a person undetectable, unmonitorable. That anyone who is using the ring can be invisible. Make sure that in your planning and development **system of change** (SoC), you have everything and everyone are seen and can be monitored. What is management without monitoring, guiding and leading?

How to make everything in your Systems of Change be able to be monitored? First, create a comprehensive corporate report systems where everyone can reporting anyone in your corporations. Run this report systems, and be careful to not over judge anything. In every reports, make sure your company human resource systems are involved to master this problems, and to run through the precocious efforts of employee turnover prevention management, so there will be no dispute or crisis happening.

Seconds, you have to set regular overview of every person doing anything in her or his computer in your company, especially if they can access the company internal data and the company basic real time data. This is important for you to prevent any fraudulances schemes from being happening or being created.

And always monitors if your employees are went outside on office time to meet competitors. This kind of meets with the competitors are dangerous and opening their capability to disengage with your corporations. Makes every supervisor handle this daily overview. Don't forget to double the guards by making your managers also monitors your supervisor. Write along the lists of observable behaviors that can be click, so your supervisor and managers dont have to write long sentences.

Your corporate office or organizations can have free style and free hours of works, but still be able to monitor these. Just make sure to make the form of the computer system able to detect and monitoring many things. Try to make this **Risks Overview Systems (ROS)**, clear in the **Corporate Management Systems (CMS)** time when the system is operated, and being signed as **Corporate Secrecy Agreement (CSA)** Or in the **Non Disclosure Agreement (NDA)** to everyone that joining your company, and to be signed to all your current employees to make sure about they are conforming to the company rules.

Figure I-2 ■ The Three Dimensions Defining a Megatrend



Detecting Mega Trends for Future Foresight

Leaders are the team that will handle all the matters at the corporations and facing everyone in the public and laws matters for any crisis, issues, disputes, sues, and almost anything that happening around many matters of the corporations. That's why every leaders must master the arts of Foresight to prevent any negativity happening to the corporations.

From the American Management Association, we can read their books about the Six Mega Trends, Leadership 2030. We can see below here, there are 3 dimensions defining a Mega Trends. First that the time dimensions; that The trends should be observable over decades, can be projected with a high degree of probability to at least 15 years into the future.

That the dimension of Reaches, we can see that the Trend will be affecting all regions, and all conditions to the stakeholders, including governments, individuals and businesses. At the Impact dimensions, the trend can fundamentally transform policies, society and the economy.

Figure I-1 ■ The Leadership 2030 Research Process

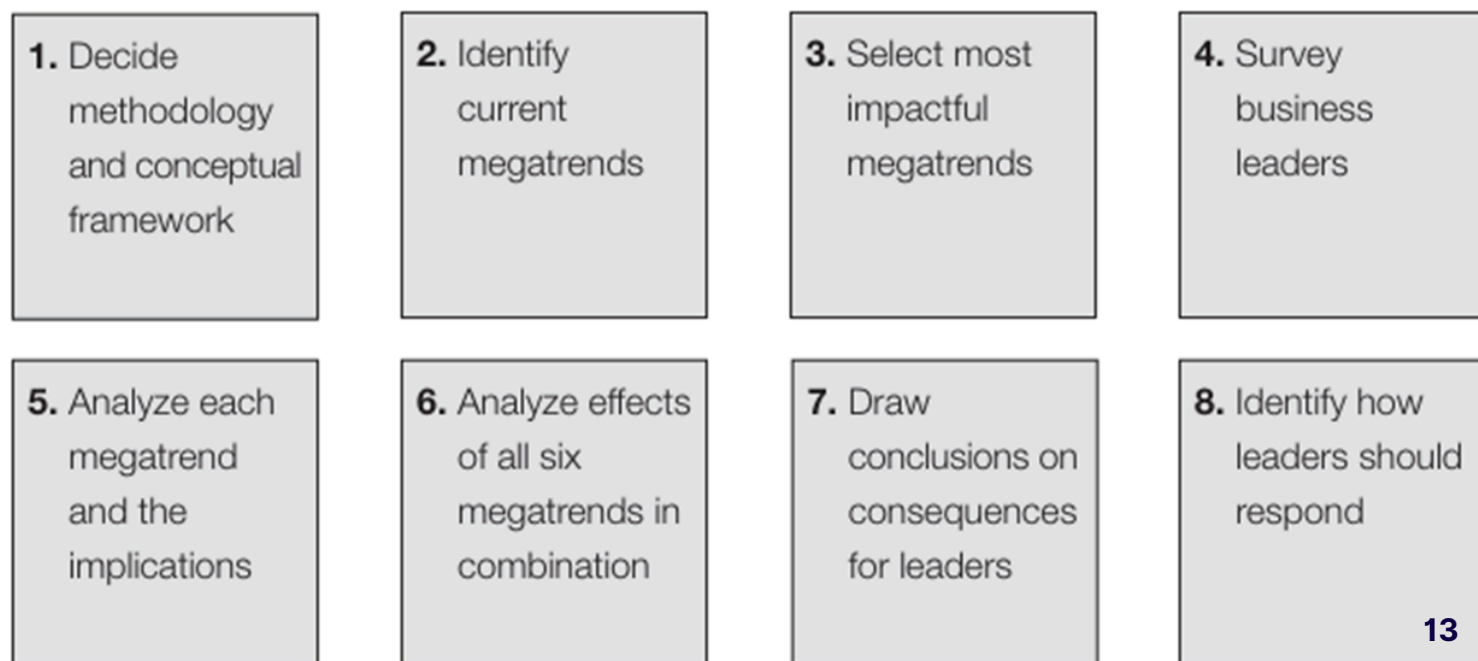
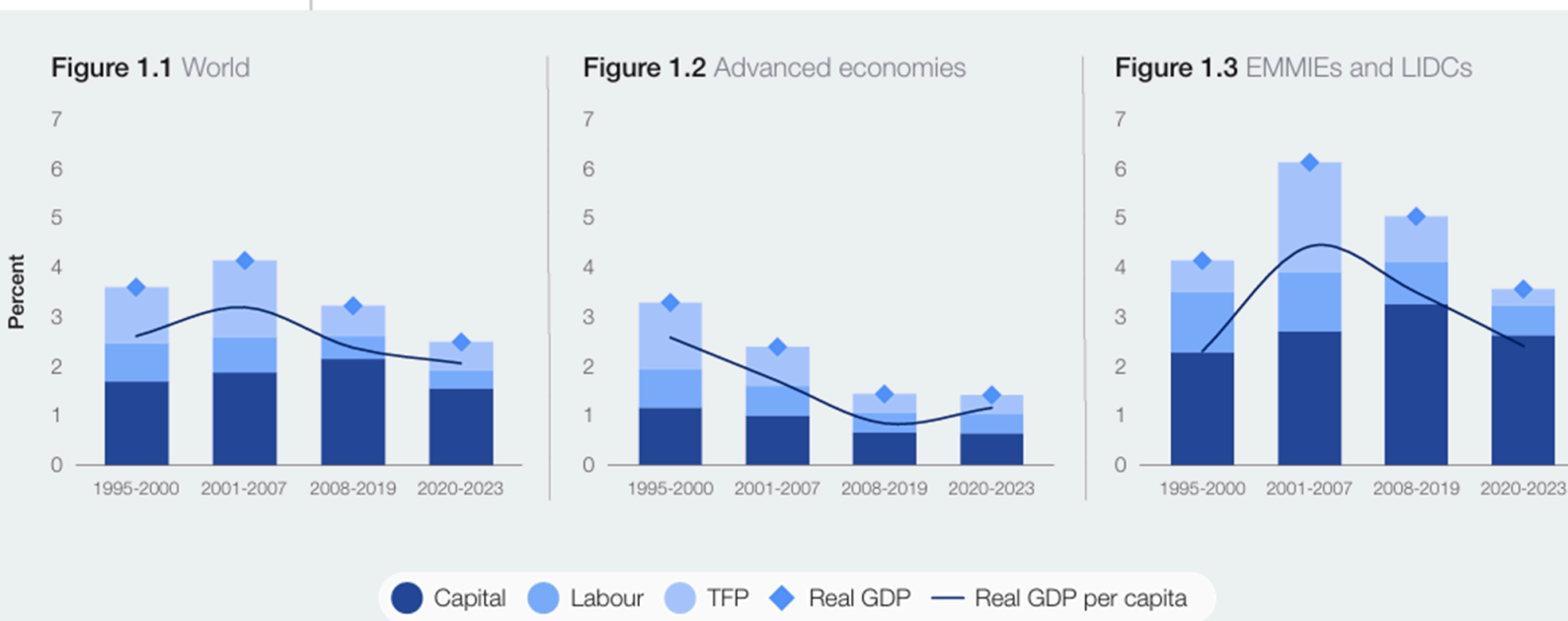


FIGURE 1 | Contribution of components of GDP Growth, 1995-2023



Note: Growth decomposition sample comprises 140 countries. Contributions of capital growth and labour growth reflect output share of respective factor inputs and the growth rates; EMMIEs = emerging market and middle-income economies; LIDCs = low-income developing countries, TFP = total factor productivity.

Source: World Economic Forum and Accenture based on International Monetary Fund, April 2024.

How The Economy 1995-2023

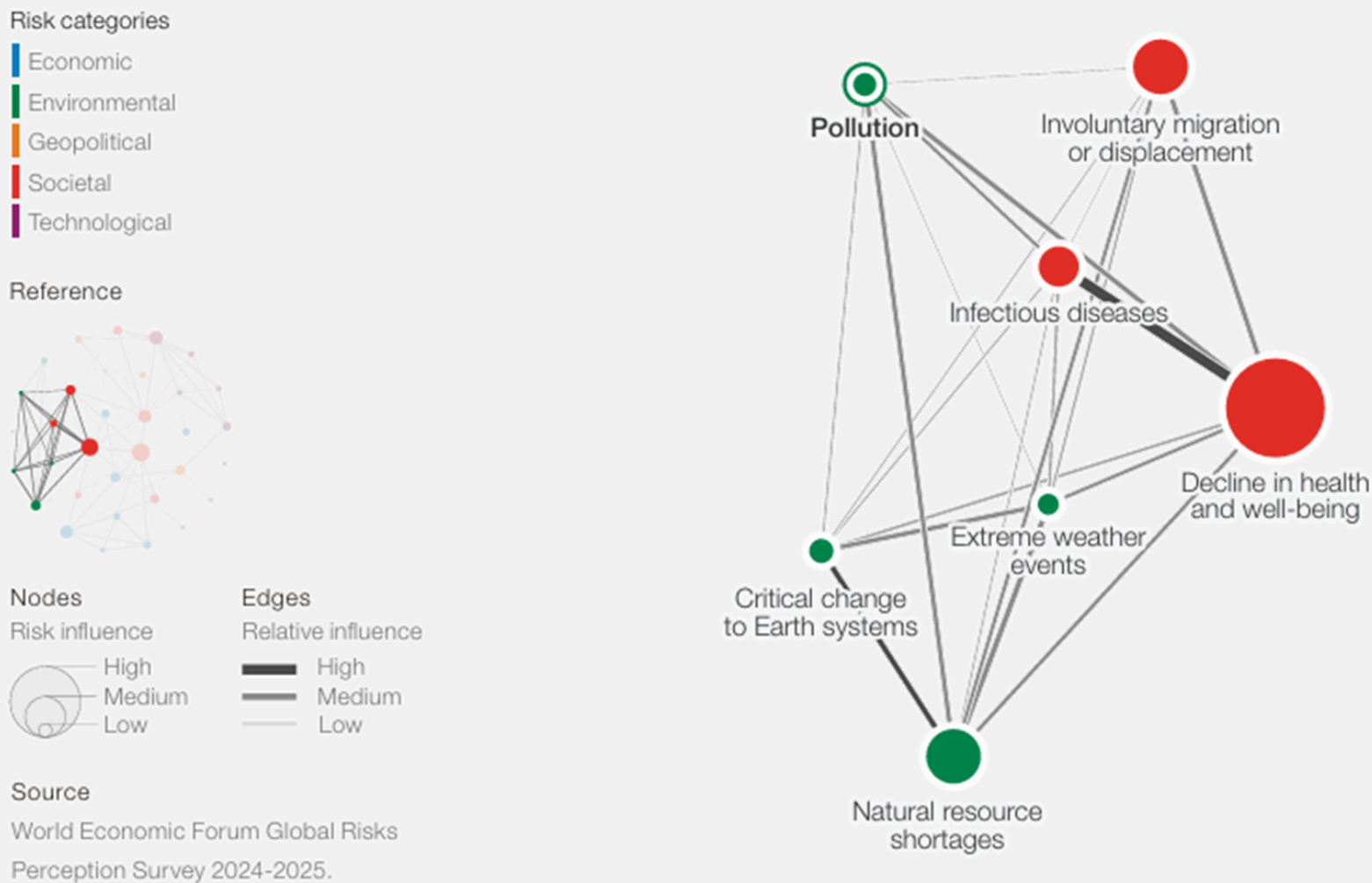
From the charts above, we can see that the Emerging Economy countries, and the Developing Countries are giving more contributions to the world economy. While the advanced economy are giving smaller contributions, and its contributions are decreasing and more decreasing at every five years of statistical evaluations.

We also saw how Total Factor Productivity (TFP) are largely contributed to The World Economy, with percentage that are almost as much as the Capital. After 2008, The Labour Factor always increasing. In the Advanced Economy, The Labour Factor shows decreasing proportions, with Capital Factor that also decreasing.

At the years 2001-2007, The Emerging Economy & Developing Countries showing high increase because of the Large Capital Factor, And this Capital factor becoming more increasing at 2008-2019. From our perspective, this phenomenon was happening because of the Advance Economic Country are giving large Investment to The Emerging Countries and the Developing Economic Countries, to make the world economy more equal.

This great amount of Investment is the main collateral that are used by the Emerging Economic Countries and the Developing Economic Countries to open many fields of jobs. Making the Less powered economic countries to have higher life quality baseline and making the less fortunate countries to become more stronger, by also giving the needed educations, health supports, and human development

In the end, the Emerging Economic Countries and the Developing Economic Countries then gives back to the Advance Economic Country through Exporting and Importing the needed materials and energy, and contributing life supports for all the human in this planet, creating balance and more healthy economic accordance's between human and the whole planet earth.



Maintaining The Human & Nature Accordances

Guarding the Health of our environment, will gives us more time and chances to maintain our own health. Why is this so? Because, so many of natural resources in this earth are not naturally preserves, making the environmental risks become very high, and increasing the risks of new diseases outbreak, whether its pandemic or endemic.

If there's extreme wheather events happened, the situation will be more critical. Many lives are at stake, and the contageous diseases can emerge without any warning. Before this happens, it is very important for us to do the various steps for guarding our environments longevity.

The steps that will help the accordances of our planet earth, are typically easy and simple to do. Such as, planting more trees, cleaning our environment near our home, doing the recycle efforts to make many natural source likes trees for creating papers, and oils for creating plastics and rare earth minerals for technology advancements, still preserved at abundant levels.

One more thing, to keep the earth animals and vegetations still abundant and to avoid many species become scarce, we have to preserve and guards our environment by avoiding rare species hunting, treating forest like a natural museums, and not allowing animal hunters and rare vegetations and trees hunters from entering the guarded forests.

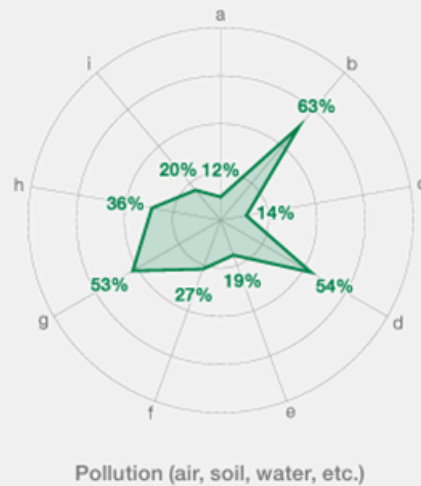
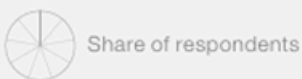
FIGURE 2.8

Risk Governance: Pollution

"Which approach(es) do you expect to have the most potential for driving action on risk reduction and preparedness over the next 10 years? Select up to three for each risk."

Approach

- a. Financial instruments
- b. National and local regulations
- c. Multilateral treaties and agreements
- d. Global treaties and agreements
- e. Development assistance
- f. Corporate strategies
- g. Research & development
- h. Public awareness and education
- i. Multistakeholder engagement

**Source**

World Economic Forum Global Risks Perception Survey
2024-2025.

Risk categories

Economic

Environmental

Geopolitical

Societal

Technological

How Each Global Elements Interface Pollutions Risks

Whatever global campaign we are addressing, if the local and national government doesn't follow it by creating the right public policies, every steps to save the earth will be very difficult to do. The steps to prevent pollutions risks should starts from creating the right laws, the right public policy, and to have the national and local government treating the nature the same as guarding a museum filled with high prices treasures.

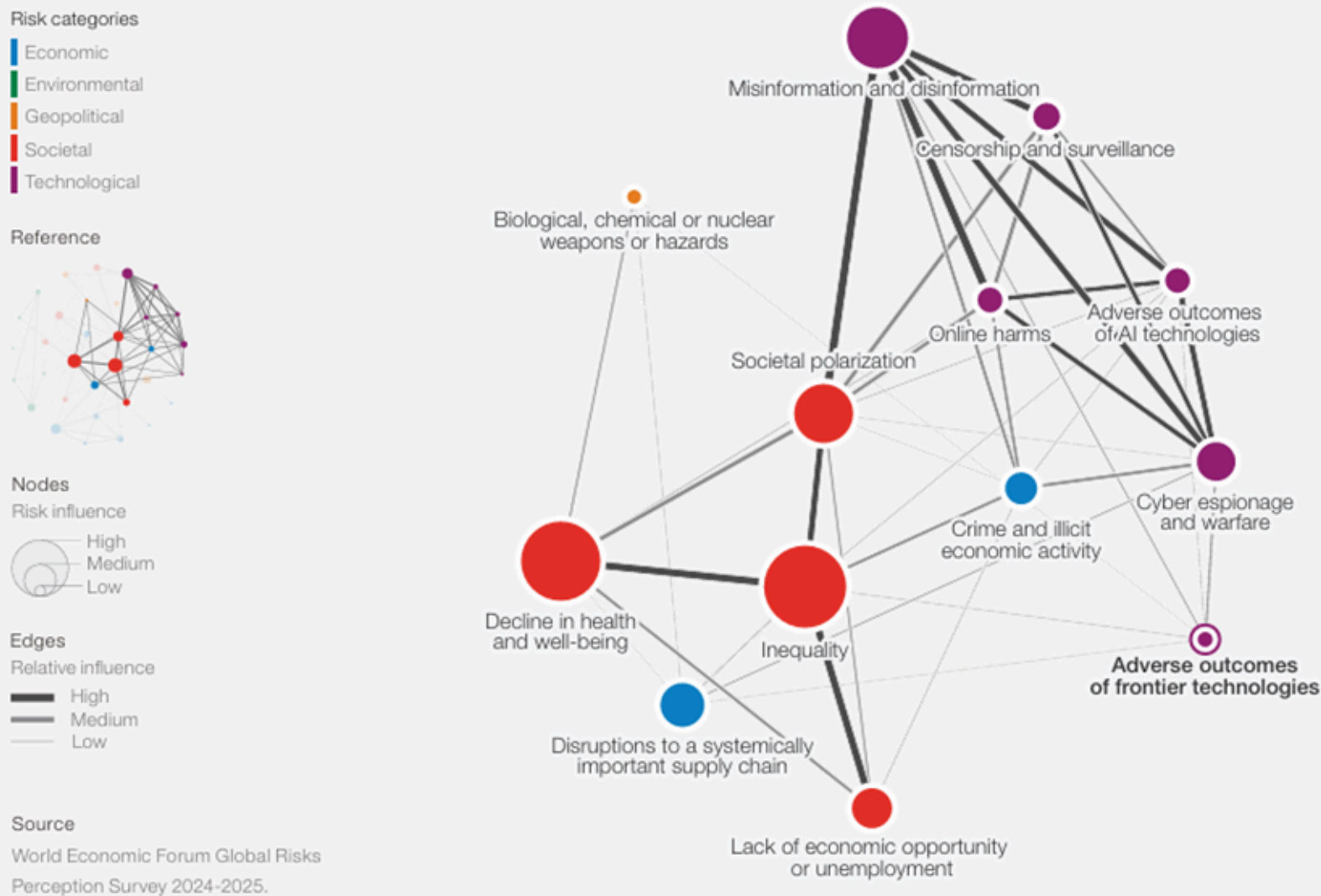
Creating the proper law to guard the nature with Rectifying The Global Treaties and Agreements are also a high priority to be solved by our global leaders around the world. The head of the UN, The head of the African Union, The people in India, Indonesia, Malaysia, and ASEAN Nations and any other countries that still have abundant natural resources, and abundant rare animal species and vegetations species.

More than just words, more than just books of sentences. We have to uphold and obeying the laws and policies. We also have to make sure all the other citizen in our country and at the other the place where Natural Preservation to follow and uphold the Laws and Policies that have been made.

To make sure that the industry we have doesn't gives more pollutions that can create the green house gases, Every nations and local government also have to rectify the laws and policies for preserving the nature from pollutions risks.

We also have to create public awareness, based on research and development that must be done to gives real proofs and real data about the dangerous pollutions in air, water and soil that is currently happening.

If the local, nations, and regional government are discipline in guarding the natural entities in this planet earth, we can keep the longevity of many rare animal and vegetative species. The people power can guard the laws and policies to be uphold, in exchange to still have The Healthy Soil in our garden, forests, and farms, The Healthy Water in our lakes, rivers, oceans, and The Healthy Air in our cities, suburban areas, and at the towns and villages.



Adverse Outcomes of Frontier Technologies

Research is the gateway to developments. On every field of sciences, industries, and technologies, scientist and academician are inventing many things in more faster speeds than 10 years ago.

Thanks to the Development of Artificial Intelligence, Big Data Managements, and the that are given to create the interconnecting communications and technology sharing through interacted system information of data in the world wide web of internet.

Even though the aim of development of all advance technologies is to expand our knowledge and to makes human life can proceed faster, wiser, and safer. Neither does we realize that our hard works then can have adverse effects. Such as the number or worker in the factory, in many industries, that will be cut off because of the Advance AI Technology development.

Also the effects of machinery automation thanks to the sensor technology, realtime monitoring and detections, data interactions and vast spread of information systems development in many factory machineries and the internet of things (IoT).

The other Disruptors is the advancement of robotics and humanoid that makes factories, data input, data admin, information industries, security industries, are now relied more on robots than human.

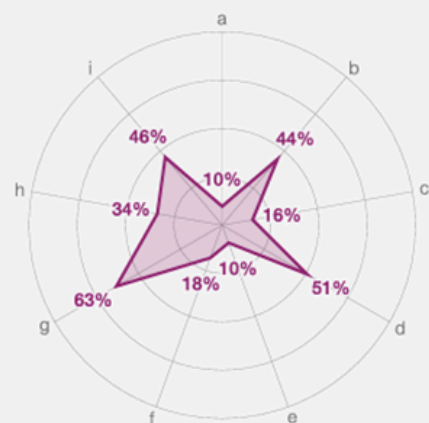
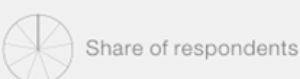
FIGURE 2.12

Risk Governance: Adverse outcomes of frontier technologies

"Which approach(es) do you expect to have the most potential for driving action on risk reduction and preparedness over the next 10 years? Select up to three for each risk."

Approach

- a. Financial instruments
- b. National and local regulations
- c. Multilateral treaties and agreements
- d. Global treaties and agreements
- e. Development assistance
- f. Corporate strategies
- g. Research & development
- h. Public awareness and education
- i. Multistakeholder engagement



Adverse outcomes of frontier technologies (quantum, biotech, geoengineering)

Risk categories

Economic

Environmental

Geopolitical

Societal

Technological

Source

World Economic Forum Global Risks

Perception Survey 2024-2025.

How Each Social Elements Interacted to Face Adverse Outcomes of Advance Technology Development

Quantum Data Processing, Bio Technology Development, Geo-Engineering, are three of the most develop field of science that are accelerated to met the end goals of healthy and advance technological frontiers.

From many technological advancement, what are the 3 most potential for driving actions on risks reduction and preparedness over the next 10 years?

The top technology are developed by creating advance research and building frontiers technology. Several of he top aim are to make sure humankind can have faster data analyzing, and more safe living environment, and to manufacture superiorly advance bio-technology to cure whatever ailments and endemic or even pandemic, if occurring.

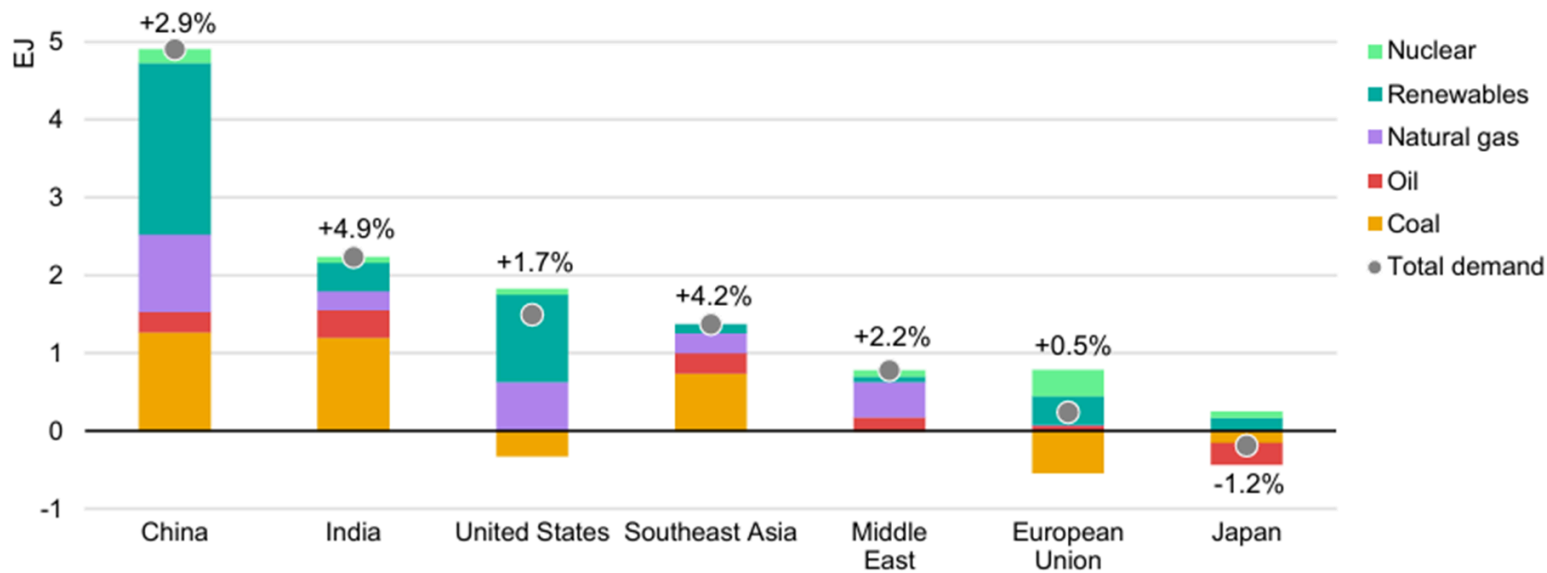
At the same time, the research and development efforts are also had increase and also developed in search of new natural resources that can be harvest or can be laboratory grown and cultivated.

Many rare metals and earth rare minerals can be found using the geo-engineering technology. To found new natural resources that can be harness further to make sure that we can choose which of the rare metals and minerals that can be uses in the future to create more advance device and smaller processor.

The aim of the development of frontiers technology is also to prevent any dangerous occurrences of several natural issues such as natural resource scarcity, the outbreak of a dangerous diseases or harmful ailments, and to create more equally informed world so any new and valuable information can be given to the world citizens in regular basis.

To create equal and healthy world citizen, as a result from the good educations, and the level of high public awareness concerning every aspects that are needed to build the great civil societies, good democrations, and healthy economy, and also equal social chances and wide spread opportunity to grow, from any where in the world.

Change in energy demand, selected regions, 2023-2024



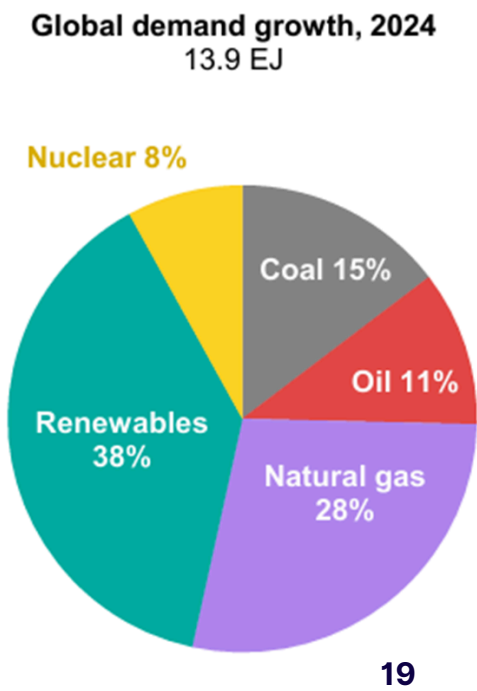
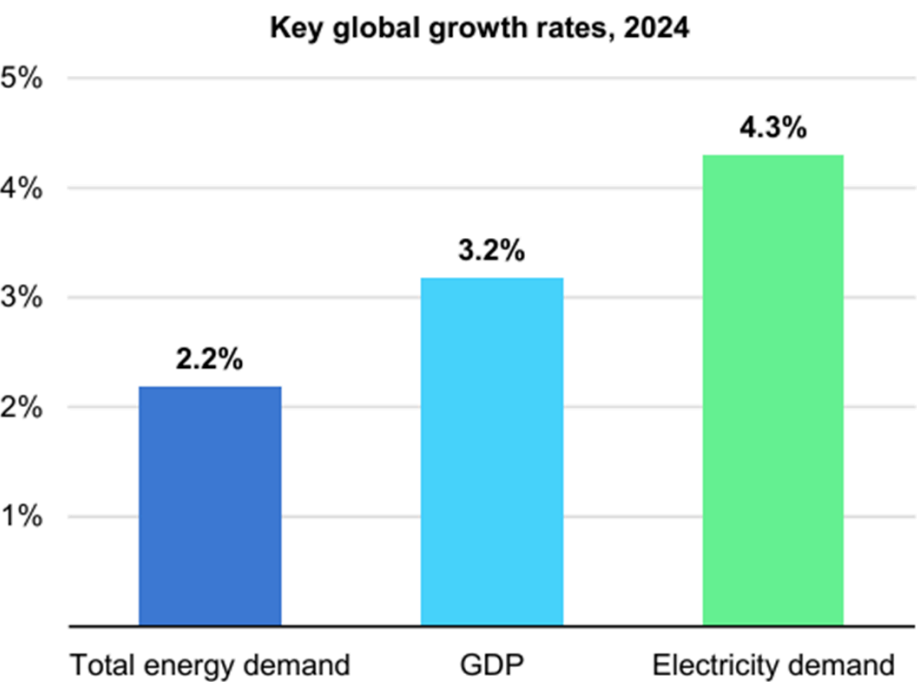
Global Energy Key Challenges

As we see on the graphics above, The China are developing very high energy demand, because of the growth in various industrial sectors. These Chinese manufacturing facilities are largely supporting the world with their innovations and effective approach at their productions, effective trend predicting manufactural demands, and many of the supporting spareparts for allover world populations in all industries, are already made first in China, US and EU before the world sees any new breakthrough and inventions.

Not only having the highest energy demand, at the page before this, we has also sees how The People of The Republic of China has also developing their renewables energy, and has fullfilled their own demand, without any dependence to other nations. So seeing the numbers should not scared us in any ways.

We also see here, where European Union, Japan, The United States are leaving their coal tanker and develop their renewable energies in fast speeds. While at the same time, the southeast asia (including Indonesia), still largely dependent on Coal for electrical energy harvesting.

Key global growth rates and the share of energy demand growth by source, 2024



Terawatt-hours	2023								2024							
	Oil	Natural gas	Coal	Nuclear energy	Hydro-electricity	Renewables	Other†	Total	Oil	Natural Gas	Coal	Nuclear energy	Hydro-electric	Renewables	Other†	Total
Canada	6.8	102.3	23.6	88.4	360.7	58.7	0.8	641.4	7.3	109.0	25.0	85.5	343.2	66.1	0.8	636.8
Mexico	35.3	219.2	13.5	12.4	20.6	50.7	–	351.7	33.8	221.7	12.4	12.3	23.5	51.5	–	355.2
US	17.5	1942.0	738.6	815.7	241.4	733.7	10.3	4499.1	16.4	2005.2	712.4	823.1	238.7	830.0	8.9	4634.8
Total North America	59.6	2263.5	775.7	916.5	622.8	843.0	11.1	5492.2	57.5	2335.9	749.8	920.9	605.5	947.5	9.7	5626.8
Argentina	9.0	76.3	1.8	9.0	31.5	20.2	0.8	148.6	5.8	82.0	1.3	10.4	29.7	22.8	0.5	152.5
Brazil	9.1	38.6	13.3	14.5	426.0	204.2	2.4	708.1	10.6	48.8	16.2	15.8	413.2	238.0	3.1	745.7
Other S. & Cent. America	72.9	117.6	37.4	–	297.7	77.2	^	602.8	74.1	118.1	37.1	–	292.9	85.9	–	608.1
Total S. & Cent. America	91.0	232.5	52.5	23.5	755.2	301.5	3.2	1459.4	90.6	248.8	54.6	26.2	735.7	346.7	3.6	1506.3
France	1.8	31.8	0.8	338.2	55.7	82.2	7.7	518.3	1.9	18.5	0.7	380.5	70.9	79.9	8.9	561.3
Germany	4.9	76.7	124.8	7.2	19.9	255.2	22.6	511.3	5.0	78.4	106.4	–	22.2	261.8	23.5	497.3
Italy	11.1	119.0	14.4	–	40.5	76.1	3.6	264.7	13.0	109.8	13.1	–	55.2	78.1	3.2	272.4
Netherlands	1.5	46.0	10.7	4.0	0.1	56.7	2.4	121.3	1.4	44.0	10.1	3.6	0.1	62.2	1.8	123.2
Poland	2.0	16.5	100.6	–	2.4	43.4	2.4	167.4	2.1	19.3	95.2	–	2.2	48.7	2.1	169.7
Spain	9.3	64.3	4.5	56.9	25.0	118.7	7.3	285.9	9.1	51.5	3.4	54.6	34.4	125.0	7.6	285.6
Türkiye	0.5	69.5	119.8	–	64.0	76.2	1.3	331.1	0.7	65.9	122.7	–	74.9	87.3	1.3	352.9
Ukraine	0.9	8.1	22.5	52.1	12.7	7.7	–	103.9	0.6	8.1	19.6	53.0	12.8	7.1	–	101.1
United Kingdom	1.9	101.7	3.8	40.6	5.5	130.3	8.9	292.7	1.5	86.3	1.9	40.6	5.8	138.9	10.0	284.9
Other Europe	16.6	111.4	121.2	236.7	416.8	291.6	27.6	1221.7	16.8	106.8	110.4	233.9	419.6	324.6	27.2	1239.2
Total Europe	50.5	644.7	523.0	735.6	642.6	1138.1	83.8	3818.3	52.1	588.6	483.7	766.1	698.0	1213.7	85.5	3887.6
Kazakhstan	0.6	33.2	65.3	–	8.8	5.7	–	113.6	1.7	34.7	64.0	–	11.3	6.8	–	118.5
Russian Federation	9.1	533.3	204.1	217.4	200.9	8.2	5.3	1178.2	8.6	545.8	215.2	215.7	210.5	8.3	5.2	1209.3
Other CIS	5.0	157.0	8.7	14.4	43.7	2.8	0.6	232.2	4.8	153.8	9.4	18.5	47.5	7.7	0.6	242.4
Total CIS	14.7	723.6	278.1	231.8	253.4	16.7	5.8	1524.0	15.2	734.3	288.6	234.2	269.2	22.8	5.7	1570.2
Iran	28.0	322.0	0.7	6.6	22.8	1.9	–	382.0	26.6	340.0	0.7	7.3	18.9	2.2	–	395.8
Saudi Arabia	159.0	265.5	–	–	–	4.7	–	429.2	156.8	288.0	–	–	–	9.8	–	454.6
United Arab Emirates	^	118.4	–	34.4	–	14.7	–	167.5	^	121.0	–	40.6	–	15.6	–	177.3
Other Middle East	133.2	332.6	16.2	–	2.7	22.3	0.2	507.1	141.0	356.7	15.2	–	2.9	25.0	0.2	541.1
Total Middle East	320.2	1038.4	16.9	41.1	25.5	43.6	0.2	1485.9	324.4	1105.8	16.0	48.0	21.8	52.6	0.2	1568.7
Egypt	16.6	179.4	–	–	15.1	10.9	–	221.9	17.8	193.0	–	–	14.4	12.2	–	237.4
South Africa	3.6	–	188.1	8.1	2.0	18.5	4.3	224.5	1.9	–	202.3	7.8	1.1	18.2	4.6	235.8
Other Africa	43.3	216.0	40.2	–	150.1	27.7	0.5	477.9	43.7	219.2	42.3	–	154.6	30.4	0.5	490.7
Total Africa	63.5	395.4	228.3	8.1	167.1	57.1	4.8	924.3	63.4	412.2	244.6	7.8	170.1	60.7	5.1	963.9
Australia	4.9	46.7	125.6	–	15.1	80.0	0.9	273.1	5.1	49.1	127.3	–	12.8	85.9	1.3	281.6
China	9.3	297.8	5752.7	434.7	1226.0	1668.2	67.7	9456.4	9.4	320.7	5827.6	450.9	1354.3	2044.6	79.4	10086.9
India	2.5	50.8	1445.4	48.2	149.4	221.2	1.3	1919.0	2.7	56.4	1517.9	54.7	156.5	240.5	1.4	2030.2
Indonesia	6.6	61.0	216.8	–	24.6	40.6	1.1	350.6	7.1	66.1	228.4	–	26.5	45.9	1.1	375.1
Japan	30.0	320.7	302.1	77.5	74.5	148.3	53.6	1006.7	23.0	318.1	300.6	84.9	79.4	153.7	56.7	1016.4
Malaysia	2.4	69.7	93.0	–	32.4	4.7	–	202.3	2.4	73.7	98.0	–	34.4	5.0	–	213.5
South Korea	6.9	167.7	199.1	180.5	3.7	55.3	4.2	617.5	6.7	175.9	188.2	188.8	4.3	56.4	5.1	625.4
Taiwan	3.8	111.6	119.2	17.8	4.0	21.2	4.8	282.3	4.2	122.5	113.3	12.2	4.2	27.3	4.9	288.6
Thailand	0.9	129.4	30.4	–	6.6	23.2	–	190.5	0.3	136.4	33.3	–	6.4	23.2	–	199.5
Vietnam	1.3	26.4	129.8	–	80.6	38.1	0.5	276.6	0.2	21.8	152.8	–	88.7	39.6	0.4	303.6
Other Asia Pacific	37.1	229.8	172.3	22.4	177.2	44.3	0.9	683.9	30.5	234.8	188.6	22.8	185.0	49.0	0.9	711.6
Total Asia Pacific	105.5	1511.5	8586.4	781.1	1794.2	2345.2	135.0	15258.9	91.6	1575.5	8776.0	814.2	1952.6	2771.1	151.3	16132.4
Total World	704.9	6809.7	10461.0	2737.6	4260.8	4745.3	244.1	29963.2	694.7	7001.2	10613.2	2817.5	4452.9	5415.2	261.2	31255.9
of which: OECD	147.8	3504.3	1875.1	1830.6	1391.1	2293.6	152.4	11195.0	141.2	3532.2	1807.6	1881.0	1439.1	2491.3	157.4	11449.7
Non-OECD	557.1	3305.3	8585.8	907.0	2869.6	2451.7	91.7	18768.2	553.5	3469.0	8805.6	936.4	3013.9	2923.9	103.8	19806.2
European Union	44.5	456.0	333.9	619.6	328.8	892.8	65.9	2741.5	46.7	419.2	296.6	649.5	368.5	946.6	67.5	2794.6

* Based on gross output.
† Includes uncategorised generation, statistical differences and sources not specified elsewhere e.g. pumped hydro, non-renewable waste and heat from chemical sources.
^ Less than 0.05.

Global Renewable Energy

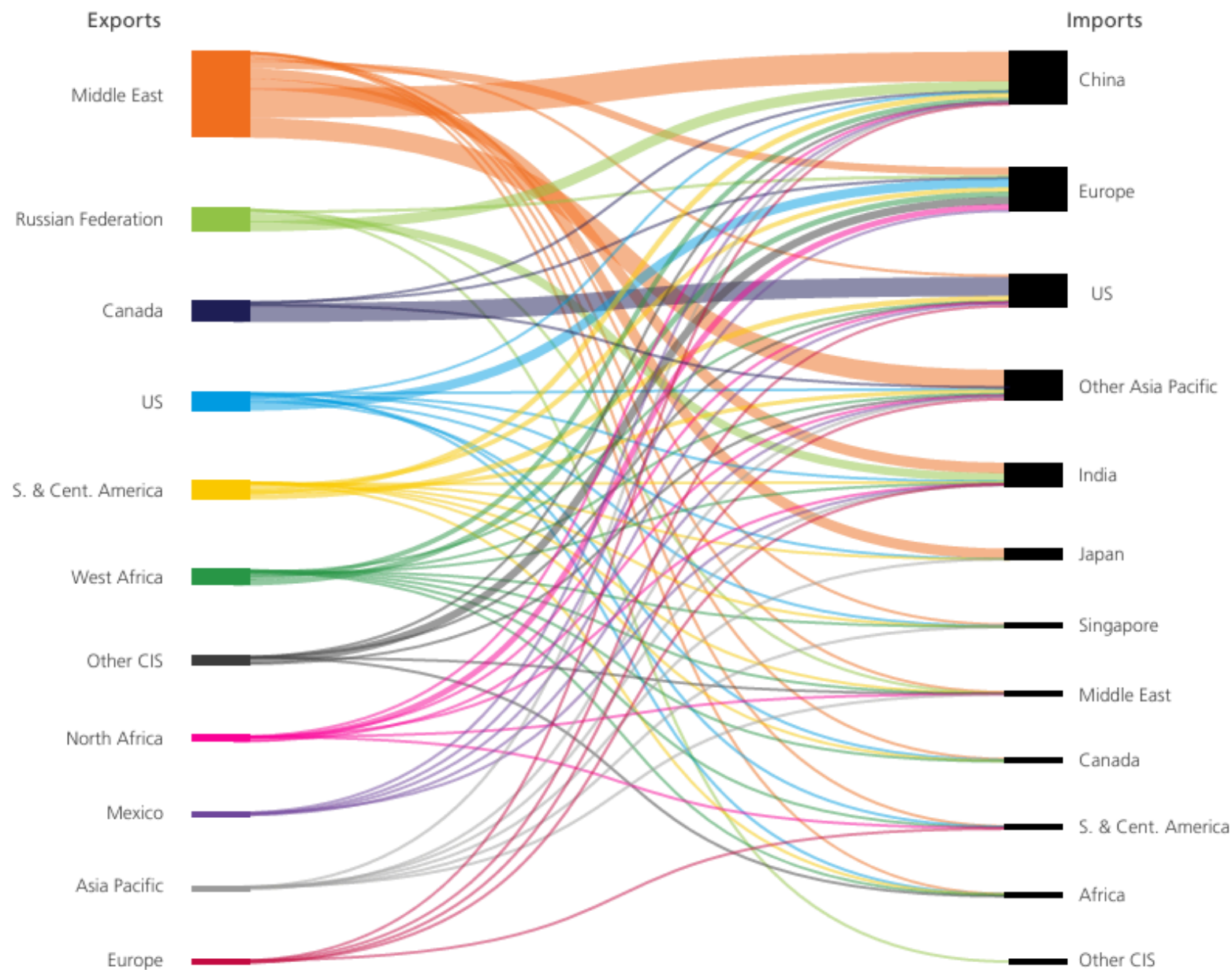
From the graphic above, we can see that the biggest Global Energy production are in China, with the number 9.456 terawatt hours in gross output, from all sources of energy, including oil, natural gas, coal, nuclear energy, hydro-electricity, and renewables.

While the North America in the 2nd positions, followed by Europe, India, and Central America's, in the year 2023. While last year, America itself has reach almost half of China's Alternative Energy outcomes. With the amount of 4.634, while China Energy outcomes are resulting in 10.086,9 and keep increasing.

The biggest place where energy are producing is at the Asia Pasific with the total amount of 16.132, including Indonesia that contributing 375.1, India contributing higher in the total amount of 2030,2 and Japan in 1016,4.

What makes us happy is that the amount of renewable energy that are producing is always increasing in many field of electricity productions. In the USA, the renewables are increasing from 843 in 2023 to 947,5 in 2024. The other form of renewable energy is the hydro electricity, that resulting in 622,8 in 2023 and slightly declining to 605 Terawatt Hours in 2024.

While China renewable energy production are around 1668,2 Terawatt Hours in 2023, and increasing to 2044,6 Terawatt Hours in 2024. In the Hydro Electricity field, China producing 1226 Terawatt Hours in 2023, and increasing to 1354,3 Terawatt Hours in 2024. Nevertheles, China's Dependency to Coal are still around 5752,7 Terawat Hours in 2023, and increasing to 5827,8. Whilst european countries and other big countries are reducing their dependency to coal energy, because of its very hazardous and creating high amount of greenhouse gasses.



Demand and Global Allocations of Crude Oil

On the Global Oil Demands, the charts above are explaining how the middle east are still being the biggest resource for oil supply to the Asia Pacific, China, India, and Japan, in a large amount of petroleum barrels of crude oils.

While Russian Federation are also supporting China's Demand of Oil, we can see that at the same time, The USA were shipping Crude Oils to The Europe in almost the same quantities. The USA are also shipping their crude oils to China, but only in smaller amount.

West Africa also plays a role in this crude oil global trade, with the shipment of Crude Oils to the Republic of China and The Europeans. While South and Central America are also shipping their crude oils to China, Europe, USA, and other Asia Pacific.

This map of dependency to Crude Oil and other non-renewable energy source are hoping to be lessens in several years ahead. Many scientists from all over the world are looking for energy sources from renewable materials, and trying to develop efficient and save energy source such as from Vanadium Redox, and also from the nuclear fields.

From the nuclear fields, 35 countries are in dire search for creating large energy torus (The Tokamak) that are hoping to be producing almost the same amount of the Celestial Energy from the Stars. The experiment has been successful done in China, and the imitation of the Sun can be lit for 12 seconds. This is a great achievement, because the energy that are resulting are in the same amount of celcius like the nearest Sun.



Year	USD\$1000/te						USD\$/KWh					
	Cobalt ¹	Lithium carbonate ²	Nickel Sulphate ³	Pet Needle Coke ⁴	Natural Graphite ⁵	Copper ⁶	Zinc ⁷	Tin ⁸	Aluminium ⁹	Silicon ¹⁰	Lithium Iron Phosphate Cells ¹¹	Lithium Nickel Manganese Cobalt Oxide Cells ¹²
2000	33.42	4.47	—	—	—	1.81	56	255	5	55	—	—
2001	23.26	1.49	—	—	—	1.58	44	211	4	51	—	—
2002	15.23	1.59	—	—	—	1.56	39	195	4	53	—	—
2003	23.37	1.55	—	—	—	1.78	41	232	4	61	—	—
2004	52.76	1.72	—	—	—	2.86	52	409	7	82	—	—
2005	35.19	1.46	—	—	—	3.68	67	361	6	76	—	—
2006	37.96	2.32	—	—	—	6.73	159	419	5	79	—	—
2007	67.35	3.53	—	—	—	7.13	154	679	3	113	—	—
2008	86.00	4.44	—	—	—	6.96	89	865	4	162	—	—
2009	39.38	5.94	—	—	0.91	5.16	78	642	5	116	—	—
2010	45.97	5.19	—	—	1.08	7.54	102	954	6	140	—	—
2011	39.66	5.10	—	—	1.35	8.82	106	1216	8	158	—	—
2012	31.02	5.42	—	—	1.43	7.96	96	990	10	127	—	—
2013	27.07	5.70	—	—	0.99	7.33	96	1041	11	122	—	—
2014	30.79	5.72	—	—	0.92	6.86	107	1023	20	140	—	—
2015	28.46	6.55	—	—	0.69	5.51	96	756	13	127	—	—
2016	25.47	12.02	—	—	0.58	4.87	101	839	8	91	—	—
2017	55.79	17.04	—	—	0.65	6.17	139	937	9	117	—	—
2018	81.17	13.04	—	—	0.78	6.53	141	936	19	134	—	—
2019	35.91	10.29	17.47	—	0.67	6.01	124	868	18	106	—	—
2020	33.95	6.49	16.63	—	0.53	6.17	111	799	12	97	—	—
2021	52.93	15.17	24.42	1.02	0.56	9.32	146	1580	26	220	0.07	0.10
2022	67.06	59.43	27.11	1.38	0.76	8.83	190	1546	30	362	0.10	0.14
2023	35.44	40.30	20.39	0.89	0.65	8.49	151	1256	23	180	0.09	0.10
2024	27.24	12.39	17.57	0.70	0.48	9.14	144	1420	19	170	0.07	0.07

¹2000-2012 spot grade for cathodes, source US Geological Survey. 2013-2017 source London Metal Exchange. Data from 2018 onwards: min purity 99.8%, Cobalt metal EXW Europe, min. 99.8% purity, source Benchmark Mineral Intelligence.

²2000-2008 unit value, data series 140, source US Geological Survey. Data from 2009 onwards: Lithium carbonate global weighted average, min 99% purity, source Benchmark Mineral Intelligence.

³Nickel sulphate CIF Asia, min 22% (100% Nickel contained basis), source Benchmark Mineral Intelligence.

⁴Pre-calcined pet needle coke DDP China, sulphur <0.5%, source Benchmark Mineral Intelligence.

⁵Flake graphite FOB China, -194 mesh, source Benchmark Mineral Intelligence.

⁶Copper, grade A cathode, LME spot price, CIF European ports, source International Monetary Fund (IMF).

⁷SHG delivered US Midwest Mavg, source S&P Global Commodity Insights, ©2025 by S&P Global Inc.

⁸In warehouse US Mavg, source S&P Global Commodity Insights, ©2025 by S&P Global Inc.

⁹P1020 Transaction Premium delivered US Midwest Mavg, source S&P Global Commodity Insights, ©2025 by S&P Global Inc.

¹⁰553 grade delivered US Midwest Mavg, source S&P Global Commodity Insights, ©2025 by S&P Global Inc.

¹¹Global weighted LFP cell, source Benchmark Mineral Intelligence.

¹²Global weighted NCM cell, source Benchmark Mineral Intelligence.

Energy Institute Statistical Review of World Energy 2025

Volatility of Global Key Minerals Prices & Demands

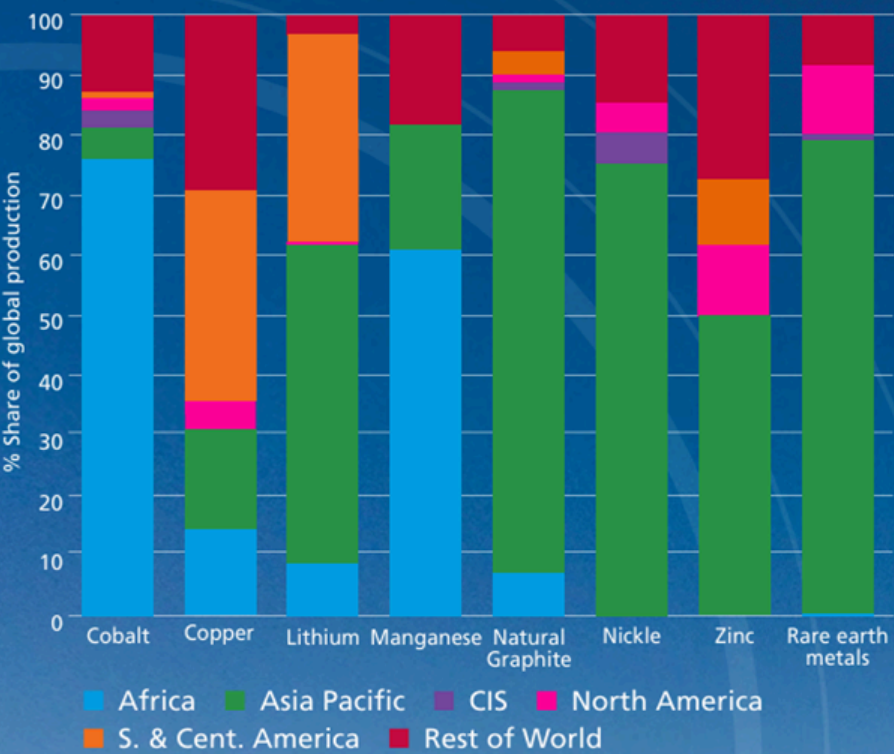
As we can see from the chart above, the use of key minerals in batteries and other usage for the electricity needs, are volatile because of the role of the unpredicted decreasing of demands, such as the cobalts use as cathodes is at 67 thousand dollars, and flunk to 27,24 thousand dollars at 2024.

This also happens to the Lithium carbonate trades that is very high at the 2022 at the price of 59 thousand dollars in 2022 per trace element with 99% purity and fall to 12,4 thousand dollars in 2024. The decreased prices are so large, but the prices of lithium carbonate batteries are still very high. Thus researcher then came with new solutions to change the role of lithium with graphene nitride, and other types of conductor minerals.

We also can see that the price of the minerals are changing due to the development of research and development done by every electric ware producers. Such as when new types of key minerals can be subtituted with the mineral that have lesser prices, then the amount of global price can be affected because of the changing in demands.

This research effects to the global key mineral prices, are happening around the globes. The global key mineral are also affected by the inventions in the electronic development of devices and small electronic ware or even on the prices of machineries, that now are using new types of semi-conductor and cathodes.

In 2024, the Asia Pacific and Africa regions produced 57% of the key metals and materials needed by the global energy system.



On average, key mineral prices fell globally by 16% in 2024

The Origin of Each Key Mineral Producers

As we can see from the charts above, African are main producer of Cobalt and Manganese, follow with the availability of his continent in producing Copper, Lithium and Natural Graphite.

While in the Asia Pacific, there are many countries that producing large amount of Nickel, Lithium Zinc, Natural Graphite, and rare earth minerals, and Manganese.

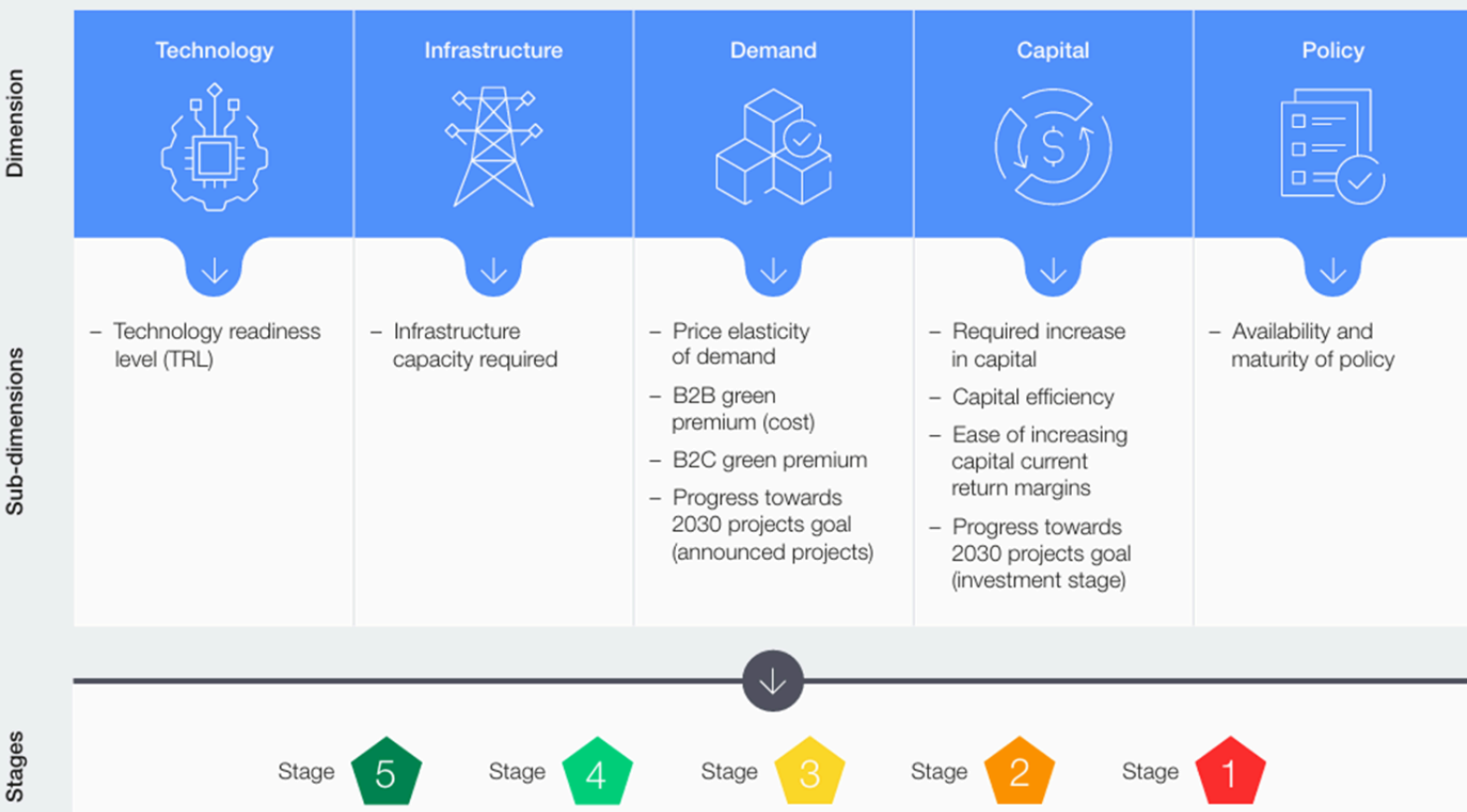
This is why the Europe and the American are dependent to Asia Africa’s productions of key minerals. Without the cooperations between the three continent, the research that done in the US and Europe, as the leader of science nowadays, will not be effective, and the research and development of electronic devices cannot be running, and many new inventions cannot be produced.

The negative point of this charts above are not mentioning about the amount of key minerals that is produced in the China and the Russia, and also not mentioning about the Middle East as producer of the key minerals that are being actively produced and developed in the field of electronic and electrical devices, machineries, and other electrical inventions that are in dire needs of conductor, cathodes, and semi conductor materials.

Whatever socio-political scenarios that are running by the global government, the scientific pursuit leads by the academician and the electronic producer as global electronic company, are now leading the economy right now with their inventions and their expertise of research and development.

That’s why the learning of new technology and the urge for inventions must be given since the early years of every children educations nowadays.

FIGURE 4 | Scoring matrix for transformation dimensions



Global Energy Transformation Stages

If you asking about the How To do's for the Global Energy Transformations, the charts above can help you. The first stage is to set the policies in every country, through the participations of public sectors, the government, and the private sectors, and also for the capital and equity cooperations in the discussion to reformating the previous laws and policies on the field of Energy and on the field of Industry and manufacturer.

The second stage is to have the capital investment in the intended countries or continent, o make sure that the policies that being setting up are aligned with the increasing capial current return margins. Also we have to monitor the progress of every investment towards 2030 project goals.

The volatility level of the demand economy are also forcing the electronic producers to be more elastic in setting price level. The electronic manufacturer are also have to conforms with the B2B green premium to measure the cost, and also in B2C sector. The progress of the manufacturing of electronic devices are also has to align with the 2030 projects goal.

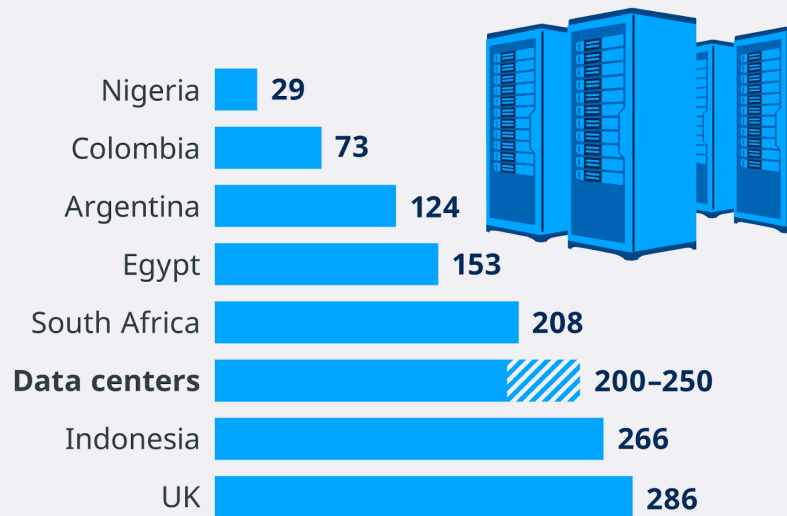
While the government then will setting up the build up and channeling the needed infrastructures and energy capacity that is required by the electronic manufacturers company and factories.

This is now the era of electronic devices. The pursue to create smaller and more high in capacity of the devices is what this centuries is all about. With more speeds, and more stronger devices. The prices of many devices are now being dictate by the amount of the random active memories and the read only memories inside of it.

This era is also the Era of Connectivity. That everyone and everything are interconnected to one another. The essence of the Internet of Things is about interconnectedness between machineries to the data centers. Whether the linkage are inside your factory or up to the data of global shipment that being real-time monitored by the satellites.

Data centers use more electricity than entire countries

Domestic electricity consumption of selected countries vs. data centers in 2020 in TWh



Source: Enerdata, IEA

How About Internet Diets?

When we speak about green energy, have we thought again about our habit towards Internet? It's a 24/7 link, never dis-engage for many of us, from waking us at the morning, and accompany us until bed time.

At the last editions of Dreamarks, we have presented how a simple Love at TikTok or Instagram, needs vast arrays of areas, that is filled with not only full of large data machine, but also several thousands of people working at the same time, around the globe. That simple Love must reach the intended content at the reachable areas of several Acres of Big Data Server, that interconnectively active in several countries across the globe. Somebody must taken the bitter pills, and in this case, it's all of us.

7 billions of earth inhabitants, is a great achievement. In our probable future, there can be fail at global government that can makes global epidemic happens. But, we have conquer Covids, and along the ways, we're preparing the world and all global citizens towards anything close to it. We have solve the Pandemic problems by using vast internet networking, and by using AI projections machines. But lets makes this not as habits, but as the other way out from a problems. Otherwise, we can make our mind dulls because of the dependency to AI. And lets not use AI for problem solving. Lets stay to the wiseness of human discussion, to sharpen our ways of thinking, of learning, of producing new ideas, and of problem solving.

Because the high electricity needed for giving internet services, in order to prolongth the healthy oxygen supply in the Planet Earth, we must do many kinds of diets. Maybe in the near future, we can reduce our Internet time to only be 3 hours a day, and this for anyone, from a kids using roblox, to a workers using AI at the office.