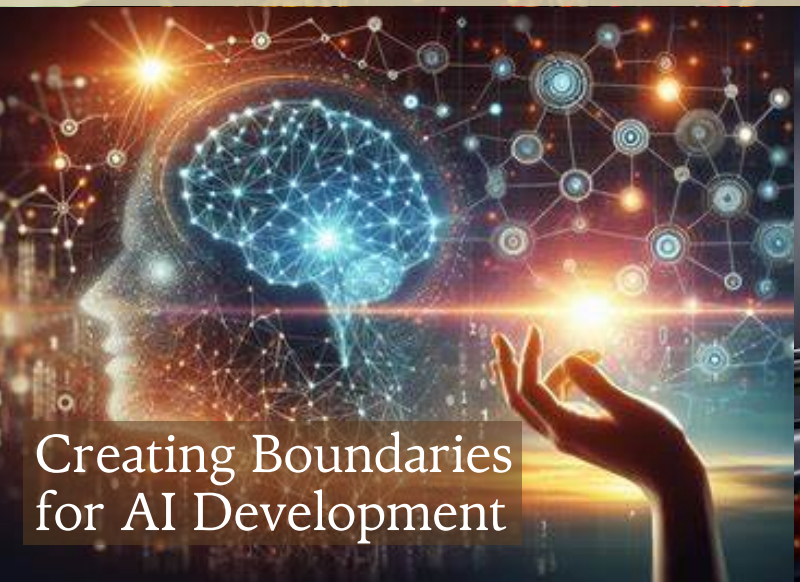
Dreamarks

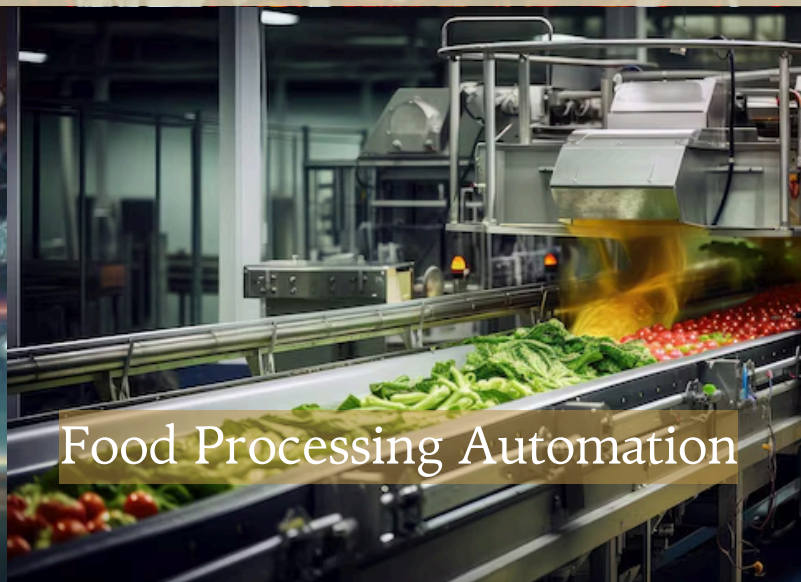
MARCH 2025 | ISSUE NUMBER 05 MAGAZINE

Ensuring Global Food Supplies & Stabilities

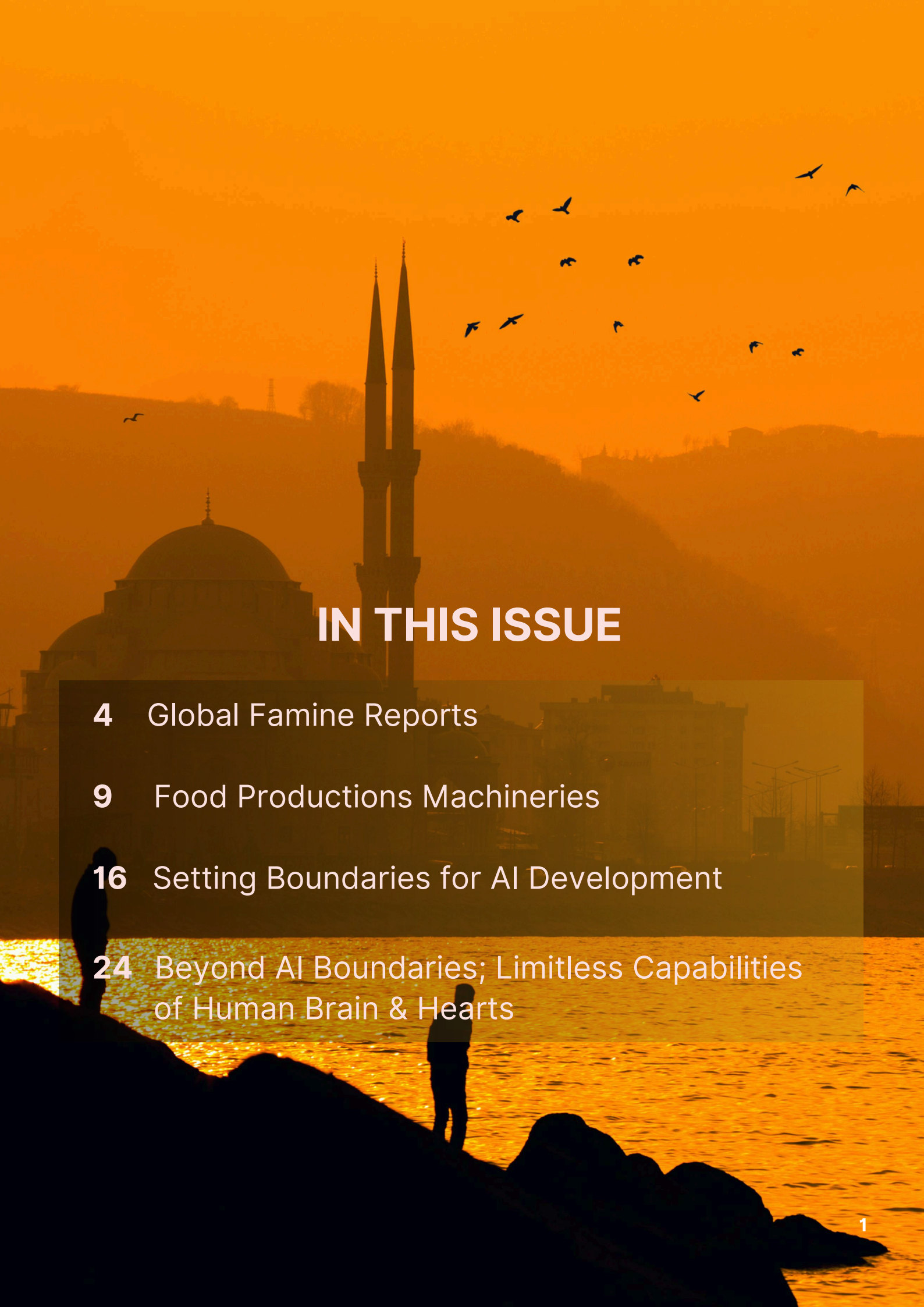
Climate change. Extreme weather. The spread of pests and disease. At a time when the world needs more food, that food is getting harder to grow. Food security and nutrition are complex multidimensional concepts. . Healthy diets and health status are main determinants of nutritional status, but multiple factors related to food security (e.g. availability and affordability of nutritious foods), practices (e.g. related to food and feeding, care, and health seeking) and services (e.g. clean water, health, education and social protection) all influence the ability and mechanisms through which individuals can achieve (FAO - United Nations, 2024)



Creating Boundaries for AI Development



Food Processing Automation



IN THIS ISSUE

Dreamarks Magazine

About Dreamarks

Gina Al ilmi
Writer, Books Author, Conceptor, Scientist,
Graphic & Web Designer, Researcher
Sole Founder & Main Director

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

Bogor, West Java Indonesia
www.dreamarks.com
gina@dreamarks.com
@dream.pathways

Leveraging Earth Welfares

Differ with our previously composed writing, this 5th Editions of Dreamarks are laid upon AI writing and base data's from global sources such as FAO Reports of Global Famine. We are hoping this editions can shifts more on qualified writing, though we still maintain to do editing and giving the right contextual composure for every pages we working on.

Maintaining abundance of Silos stocks in every villages cannot be done if we're not in the pursuit of advancement in bio-technologies in creating solutions for weather, chemical, microbes, fungi, pests, and other difficulties in farming and breeding. Thus also the urgencies are developed more in creating multiple manufacturing machineries for food productions, to ensure the efficiencies, effectivities, high quality outputs, food safety, health measurements, bacterial risks hazards, etc.

In the field of Semi Conductor industries, we are also facing the scarcities in the production input supply chain for the main material composites to ensure the high results aiming in every development of any kind of microchips or nanochips. Thus the Economy of the Microchips are also can defects the hashing and dashing outputs of the Cryptocurrencies.

Meanwhile, whilst openAI and chatGPT are still measuring the capabilities and memories capacities of an ants compared to a quantum computer, various inventions in AI are developed more in the field of arts such as: music, designs, videos, audios, to ensure this world can be more fun, beautiful, relaxing and comforting place to live in.

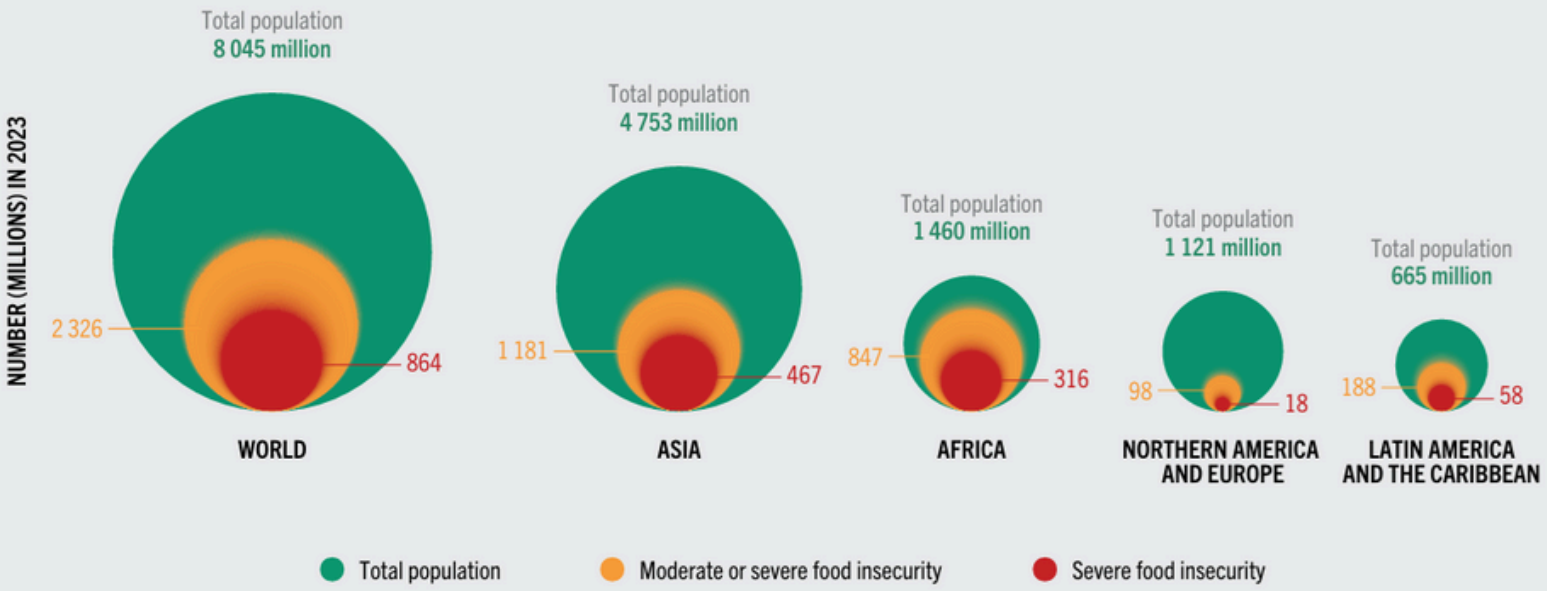
We also have to sets the ethical boundaries of the developed AI reasoning machines to ensure that the machine we built will be working on our demands, as thinking tools, as reasoning machines that are working as objects to human wisdom.

Creating vast explanations to a simple question, might still be the downfalls of the currently built AI tools. As we can further creates AI systems that are subjected for mankind to governed, to controlled, with measurable quantified limitations to ensure the obedience of the thinking systems to human subjects. Also, we have to bound the predictability of unwanted outcomes, unintended risks, over analyzed results or over simplified one, and to be certain at the weighted objectivities of measurable developments of the thinking tools we built.

Gina Al Ilmi

Editor-in-Chief

FIGURE 5 THE CONCENTRATION AND DISTRIBUTION OF FOOD INSECURITY BY SEVERITY IN 2023 DIFFERED GREATLY ACROSS THE REGIONS OF THE WORLD



NOTE: Only regions for which data were available for all the subregions are shown.

SOURCE: FAO. 2024. *FAOSTAT: Suite of Food Security Indicators*. [Accessed on 24 July 2024]. https://www.fao.org/faostat/en/#data/FS.
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Gambaran Situasi Kelaparan Global

Meskipun prevalensi kerawanan pangan sedang atau parah di Asia sekitar setengah dari Afrika, Asia menyumbang bagian yang lebih besar dari jumlah orang yang mengalami kerawanan pangan di dunia – 1,18 miliar di Asia dibandingkan dengan 847 juta di Afrika.

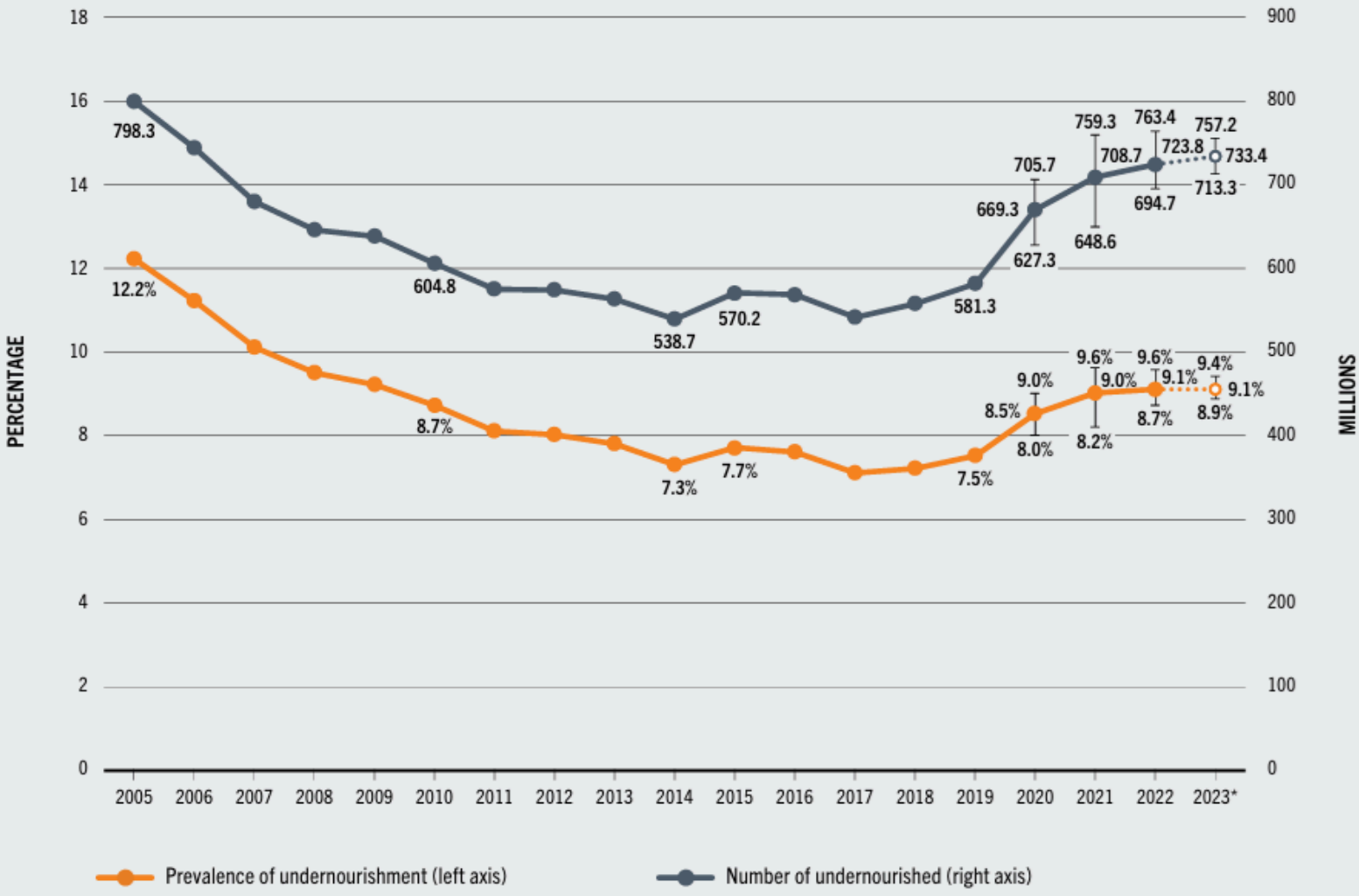
Pada tahun 2023, setengah dari 2,33 miliar orang yang mengalami kerawanan pangan di dunia tinggal di Asia, lebih dari sepertiga di Afrika, sekitar 8 persen (188 juta) di Amerika Latin dan Karibia, dan sekitar 4 persen (98 juta) di Amerika Utara dan Eropa.

Di Amerika Latin dan Karibia, peningkatan angka kelaparan selama dua tahun setelah pandemi COVID-19 mencerminkan tren global, tetapi pemulihannya jauh lebih kuat. Setelah meningkat dari 5,6 persen pada tahun 2019 menjadi 6,9 persen pada tahun 2021, PoU turun selama dua tahun berturut-turut, mencapai 6,2 persen pada tahun 2023 – penurunan yang setara dengan 4,3 juta orang dalam dua tahun, terutama didorong oleh perbaikan di Amerika Selatan.

Kemajuannya menggembirakan, meskipun PoU masih jauh di atas tingkat sebelum pandemi. Pada saat yang sama, ada kesenjangan yang nyata dalam kemajuan di tingkat subregional, dengan kelaparan yang memengaruhi proporsi populasi yang jauh lebih besar, dan meningkat, di Karibia. PoU di Karibia lebih dari tiga kali lipat dibandingkan di Amerika Latin pada tahun 2023, dan menunjukkan peningkatan yang nyata dari 15,4 persen pada tahun 2021 menjadi 17,2 persen pada tahun 2023.

Hal ini berbeda dengan tren di Amerika Tengah, di mana PoU hanya meningkat sedikit dari 5,6 persen pada tahun 2019 menjadi 5,9 persen pada tahun 2022, dan kemudian menunjukkan penurunan marjinal pada tahun 2023. Kemajuan terbesar telah dicapai di Amerika Selatan, di mana PoU turun selama dua tahun berturut-turut dengan total 1,3 poin persentase, turun menjadi 5,2 persen pada tahun 2023, setelah meningkat tajam dari 4,8 persen pada tahun 2019 menjadi 6,5 persen pada tahun 2021, setelah pandemi. Itu berarti 5,4 juta lebih sedikit orang yang menghadapi kelaparan di Amerika Selatan pada tahun 2023 dibandingkan dengan tahun 2021.

FIGURE 1 GLOBAL HUNGER ROSE SHARPLY FROM 2019 TO 2021 AND PERSISTED AT THE SAME LEVEL TO 2023



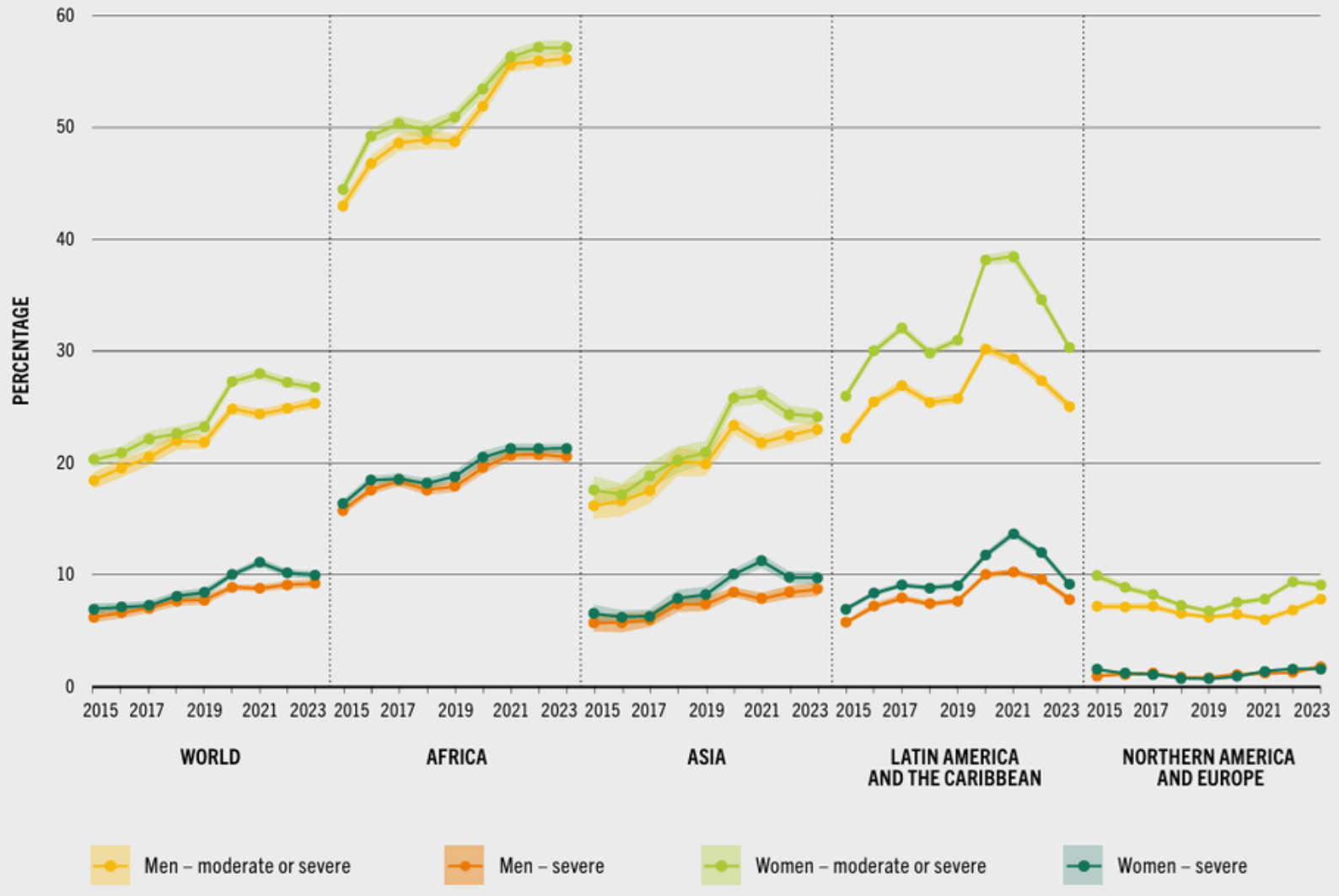
Global Hunger Rose Sharply from 2019 to 2023

28,9 persen dari populasi global – 2,33 miliar orang – mengalami kerawanan pangan sedang atau parah, yang berarti mereka tidak memiliki akses rutin terhadap pangan yang cukup. Estimasi ini mencakup 10,7 persen dari populasi – atau lebih dari 864 juta orang – yang mengalami kerawanan pangan parah, yang berarti mereka kehabisan pangan pada waktu-waktu tertentu sepanjang tahun dan, paling buruk, tidak makan seharian atau lebih.

Prevalensi kerawanan pangan parah di tingkat global meningkat dari 9,1 persen pada tahun 2019 menjadi 10,6 persen pada tahun 2020 dan tidak berubah sejak saat itu. Prevalensi kerawanan pangan sedang atau parah di Afrika (58,0 persen) hampir dua kali lipat dari rata-rata global, sedangkan di Amerika Latin dan Karibia, Asia dan Oseania, angkanya mendekati estimasi global – masing-masing 28,2, 24,8 dan 26,8 persen.

Diperkirakan antara 713 dan 757 juta orang (masing-masing 8,9 dan 9,4 persen dari populasi global) akan kekurangan gizi pada tahun 2023. Dengan mempertimbangkan estimasi kisaran menengah (733 juta), sekitar 152 juta orang lebih mungkin akan menghadapi kelaparan pada tahun 2023 dibandingkan dengan tahun 2019.

FIGURE 7 THE GENDER GAP NARROWED IN MOST REGIONS FOR TWO YEARS IN A ROW, BUT THE PREVALENCE OF FOOD INSECURITY HAS REMAINED CONSISTENTLY HIGHER AMONG WOMEN THAN AMONG MEN, GLOBALLY AND IN ALL REGIONS



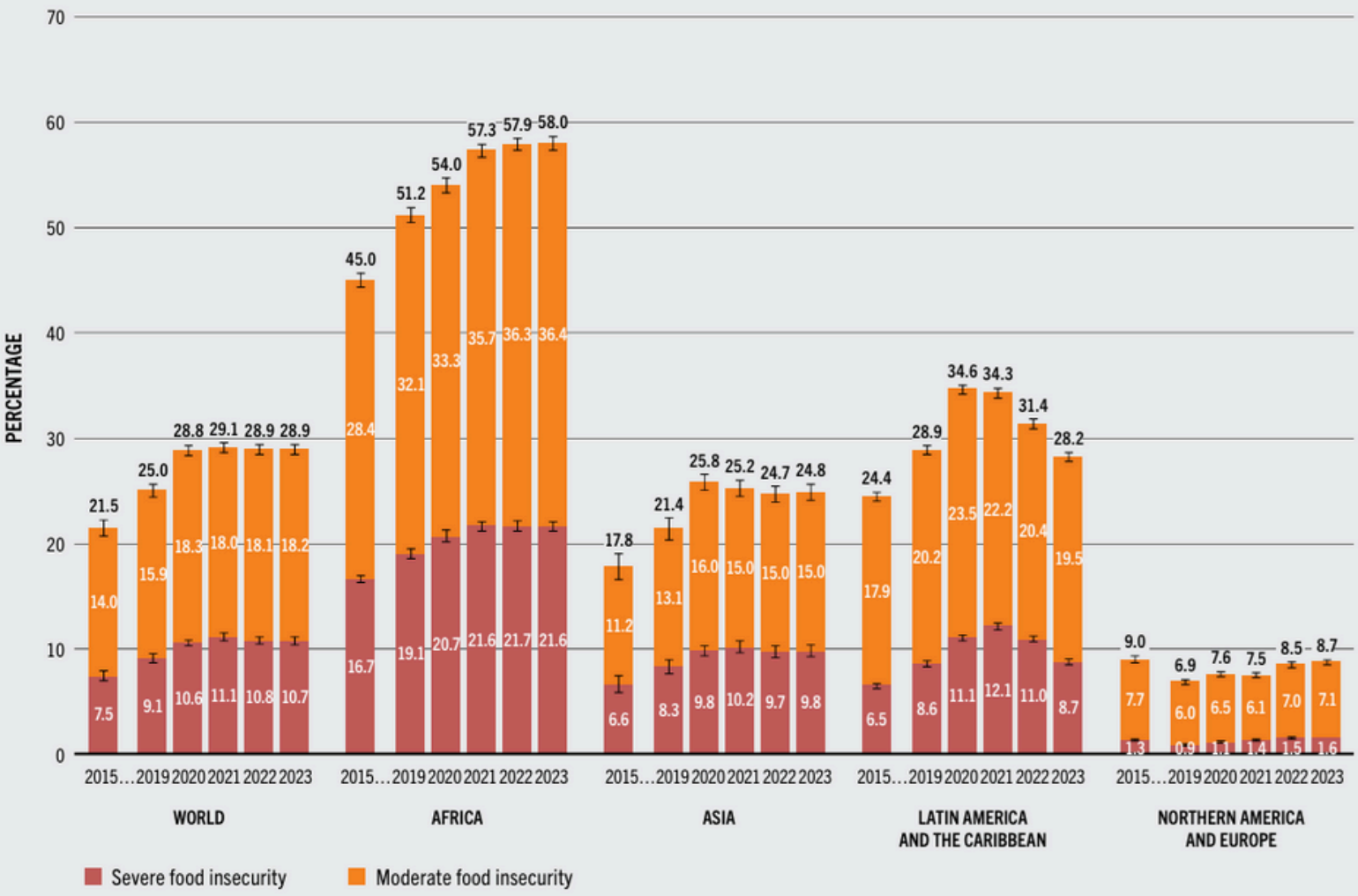
Gender Prevalence Gap on Global Food Insecurity

Perbandingan status kerawanan pangan pria dan wanita menunjukkan bahwa prevalensi kerawanan pangan secara konsisten tetap lebih tinggi di kalangan wanita dibandingkan pria, secara global dan di semua kawasan, sejak data pertama kali tersedia pada tahun 2015.

Kesenjangan gender melebar secara signifikan di tingkat global dan di setiap kawasan kecuali Afrika antara tahun 2019 dan 2021 setelah pandemi COVID-19 global, sebagian besar disebabkan oleh dampak yang tidak proporsional pada pekerjaan dan pendapatan perempuan dan beban mereka yang lebih besar dalam mengasuh anak-anak putus sekolah dan anggota keluarga yang sakit.

Di tingkat global, kesenjangan gender dalam kerawanan pangan sedang atau parah melonjak dari perbedaan 1,4 poin persentase antara pria dan wanita pada tahun 2019 menjadi 3,6 poin persentase pada tahun 2021, dan untuk kerawanan pangan parah, dari perbedaan 0,6 poin persentase menjadi 2,3 persen poin dalam periode yang sama

FIGURE 4 FOOD INSECURITY LEVELS REMAINED VIRTUALLY UNCHANGED GLOBALLY FROM 2022 TO 2023, WITH LATIN AMERICA AND THE CARIBBEAN BEING THE ONLY REGION SHOWING NOTABLE REDUCTION



Famine Conditions at African Continent

Di Afrika, angka kelaparan terus meningkat sejak 2015. Lebih dari satu dari lima orang yang tinggal di Afrika mungkin menghadapi kelaparan pada tahun 2023. Kelaparan meningkat di sebagian besar subwilayah Afrika dari tahun 2022 hingga 2023, kecuali Afrika Timur dan Afrika Selatan. Setelah meningkat secara stabil sejak 2015, PoU (prevalence of undernourishment / angka kecenderungan kekurangan gizi) di Afrika Timur turun sebesar 1 poin persentase pada tahun 2023 menjadi 28,6 persen (138,5 juta orang).

Namun, hampir setengah dari orang yang menghadapi kelaparan di Afrika pada tahun 2023 tinggal di subwilayah ini. Di Afrika Selatan, PoU relatif tidak berubah dari tahun 2022 hingga 2023 setelah tiga tahun berturut-turut mengalami peningkatan. Di sisi lain, di Afrika Tengah, PoU meningkat tajam dari tahun 2022 hingga 2023, meningkat sebesar 3,3 poin persentase – peningkatan poin persentase terbesar di subkawasan mana pun di dunia – hingga mencapai 30,8 persen (62,2 juta orang) pada tahun 2023.

Situasi juga memburuk di Afrika Barat, di mana PoU meningkat tajam dari tahun 2019 hingga 2020 diikuti oleh peningkatan yang lebih kecil pada tahun 2021, dan kemudian meningkat lebih cepat lagi selama dua tahun berturut-turut, mencapai 16,0 persen (70,4 juta orang) pada tahun 2023. Kelaparan juga meningkat, meskipun lebih lambat, di subkawasan dengan PoU terendah di benua itu, Afrika Utara, yang memengaruhi 7,8 persen populasi (20,7 juta orang) pada tahun 2023.

TABLE 2 NUMBER OF UNDERNOURISHED PEOPLE, 2005–2023

	Number of undernourished									
	2005	2010	2015	2017	2018	2019	2020*	2021*	2022*	2023*
	(millions)									
WORLD	**798.3**	**604.8**	**570.2**	**541.3**	**557.0**	**581.3**	**669.3**	**708.7**	**723.8**	**733.4**
AFRICA	**184.4**	**167.4**	**192.1**	**211.6**	**221.2**	**231.0**	**256.5**	**269.6**	**284.1**	**298.4**
Northern Africa	14.7	12.8	12.7	14.7	15.0	14.8	15.7	18.3	19.3	20.7
Sub-Saharan Africa	169.7	154.6	179.4	196.9	206.2	216.2	240.8	251.4	264.8	277.7
Eastern Africa	95.7	83.7	96.3	109.0	112.7	119.7	128.1	133.7	139.8	138.5
Middle Africa	38.3	30.4	36.6	40.0	42.5	44.9	51.3	53.7	54.0	62.2
Southern Africa	2.6	4.2	5.3	4.5	4.6	4.7	5.5	6.2	6.5	6.6
Western Africa	33.1	36.4	41.1	43.4	46.5	46.9	56.0	57.8	64.5	70.4
ASIA	**552.6**	**391.4**	**336.3**	**284.9**	**289.6**	**305.7**	**361.7**	**384.6**	**386.5**	**384.5**
Central Asia	8.2	4.1	2.7	2.4	2.1	1.9	2.4	2.5	2.4	2.3
Eastern Asia	105.4	42.8	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.	n.r.
South-eastern Asia	95.7	69.8	49.5	38.5	37.7	36.6	37.3	39.0	41.6	41.7
Southern Asia	325.2	258.4	236.1	194.6	197.3	216.9	268.3	288.6	284.9	280.9
Western Asia	18.2	16.2	24.7	28.0	29.6	30.2	31.5	33.0	35.5	37.1
Western Asia and Northern Africa	*32.9*	*29.0*	*37.3*	*42.7*	*44.6*	*44.9*	*47.2*	*51.3*	*54.8*	*57.8*
LATIN AMERICA AND THE CARIBBEAN	**49.8**	**36.0**	**32.5**	**36.3**	**37.6**	**36.3**	**42.2**	**45.3**	**43.9**	**41.0**
Caribbean	7.2	5.9	5.5	5.6	6.0	6.0	6.8	6.8	7.5	7.7
Latin America	42.6	30.1	27.0	30.7	31.7	30.3	35.4	38.5	36.4	33.3
Central America	11.2	10.0	10.7	10.2	10.4	9.7	9.9	10.3	10.6	10.5
South America	31.4	20.1	16.3	20.5	21.2	20.6	25.4	28.2	25.8	22.8
OCEANIA	**2.3**	**2.7**	**2.8**	**2.8**	**3.0**	**3.1**	**2.9**	**3.3**	**3.2**	**3.3**
NORTHERN AMERICA AND EUROPE	**n.r.**	**n.r.**	**n.r.**	**n.r.**	**n.r.**	**n.r.**	**n.r.**	**n.r.**	**n.r.**	**n.r.**

NOTES: n.r. = not reported, as the prevalence is less than 2.5 percent. Regional totals may differ from the sum of subregions, due to rounding and non-reported values. For country compositions of each regional/subregional aggregate, see Notes on geographic regions in statistical tables at the end of the report. * Values are based on the point estimates; the values of upper and lower bounds of the estimated ranges for 2020 to 2024 can be found in the Supplementary material to Chapter 2.

SOURCE: FAO. 2024. *FAOSTAT: Suite of Food Security Indicators*. [Accessed on 24 July 2024]. https://www.fao.org/faostat/en/#data/FS.

Gambaran Kelaparan di Asia

Tren kelaparan di Asia mencerminkan tren di tingkat global, yang ditandai dengan peningkatan tajam dari tahun 2019 ke tahun 2021, diikuti oleh dua tahun tanpa perubahan sama sekali, dengan 8,1 persen penduduk masih menghadapi kelaparan pada tahun 2023. Di Asia Tengah, setelah peningkatan dari 2,6 persen pada tahun 2019 menjadi 3,2 persen pada tahun 2020, PoU (Prevalence Undernourished) sedikit menurun pada tahun-tahun berikutnya menjadi 3,0 persen pada tahun 2023. Di Asia Tenggara, PoU meningkat perlahan dari 5,5 persen pada tahun 2019 menjadi 6,1 persen pada tahun 2022 dan tetap tidak berubah pada tahun 2023. Di Asia Selatan, kemajuan yang menggembirakan terlihat selama dua tahun berturut-turut. Setelah kenaikan tajam dari tahun 2019 ke tahun 2021, PoU menurun dari 14,5 persen pada tahun 2021 menjadi 13,9 persen pada tahun 2023 – yang setara dengan 7,7 juta lebih sedikit orang yang menghadapi kelaparan. Sebaliknya, situasi terus memburuk di Asia Barat, di mana kelaparan telah meningkat sejak 2015, mencapai 12,4 persen pada tahun 2023.

The Labor Shortage in Food Industries

- **1,137,000 America's #1 Labor Shortage: Unfilled Jobs in U.S. Food Preparation**
- **3.1 M Unfilled Jobs in U.S. Food Prep by 2030**
- **300% Annual Staff Turnover Rate**

Food companies are grappling with an unprecedented labor shortage. Hiring and retaining workers is more challenging than ever, putting the US at risk for food shortages nationwide. Leveraging automation as a form of labor is necessary to meet demand.

How AI Systems in ChefOS Robots Works?

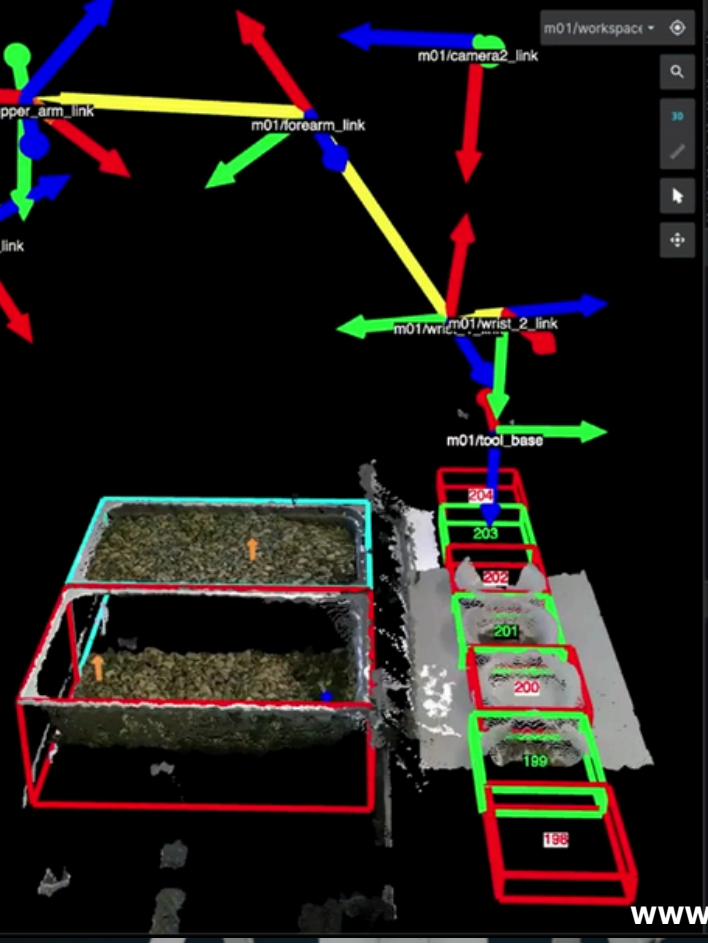
Fleet Learning. Chef's systems continually improve the more picks they do.

Flexible. Chef robots work with almost any ingredient, no matter size, stickiness, deformability, or wetness.

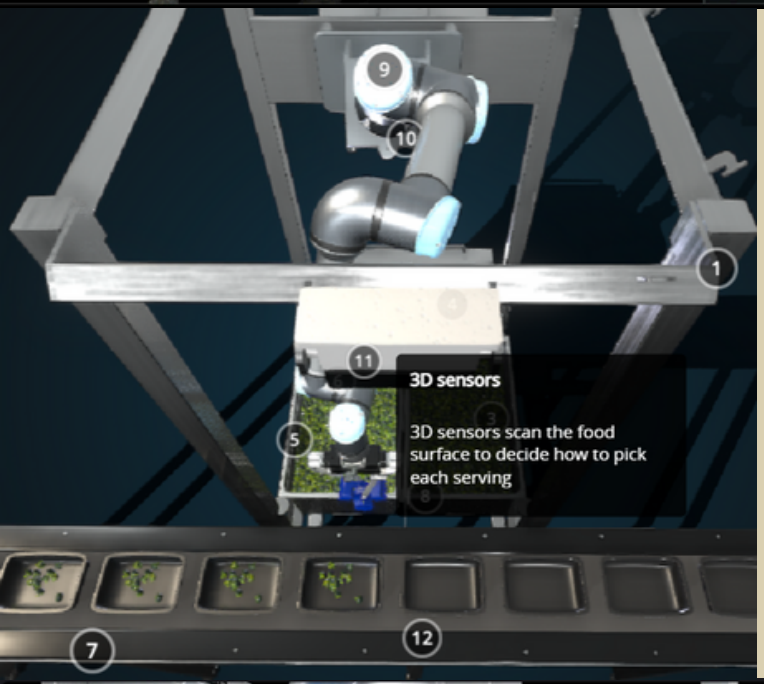
Pre-Trained. Chef's Robots systems have been trained on tens of thousands of hours of production.

Any Ingredients & Portions Size. Chef Robots can work with any portion size of ingredients.

Any Packaging Forms. Chef Robots work with any measurement of containers, and can target any compartment or placement within them.



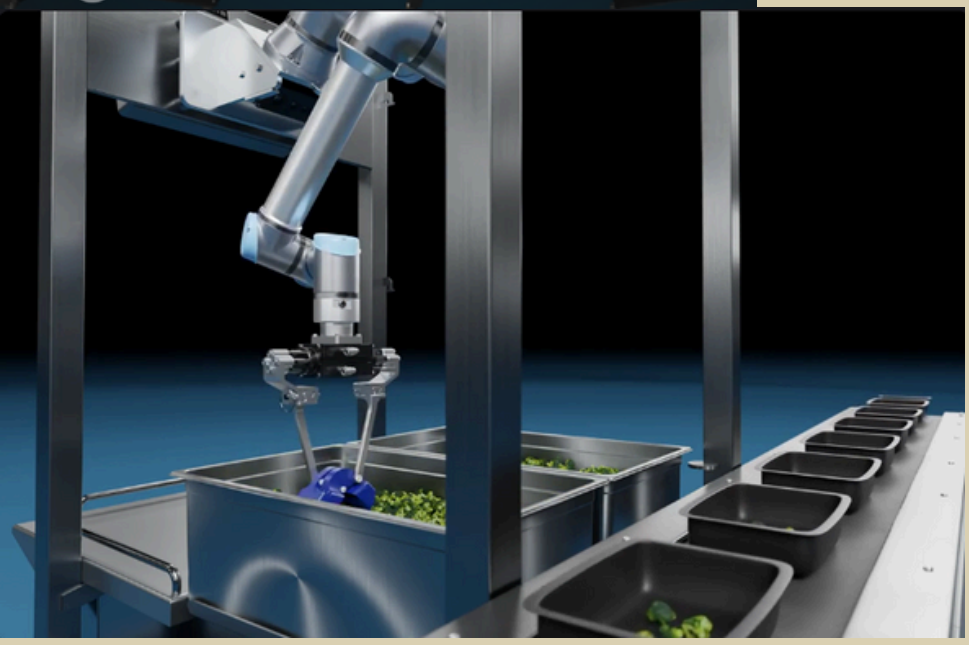
www.chefrobotics.ai



ChefOS; World's Most Intellect Food Engineering System

Some of the AI's most powerful impact will be on the physical world. The physical world represents 90% of GDP. ChefOS is built on modern advancements in AI foundational models, learning from demonstration (imitation learning), and deep learning.

Interaction systems of ChefOS is to the physical world are alike what ChatGPT is to language. GPT predicts the next word in a sequence. ChefOS's Generalized Food Engineering Model as the AI Systems are learning the mechanism and sequencing tasks which robot action should come next in the real world.



Several Case Study of ChefOS Robots Has Shown Significant Results :

- **Increasing food consistency from 12 – 25%**
- **Reducing food giveaway from 4-88%**
- **Increasing Labor Productivity from 17 -33%**
- **Increase Throughput to 9%**
- **Free Up Staff Task to 10% for multitasking with other tasks**

Precise & Clean Processing

Food processing equipment market, by type

- Processing
- Pre-processing

Based on type, the global food processing equipment market is segmented into processing, pre-processing, then packaging. The processing equipment segment is the dominant category in the global food processing equipment market, driven by the high demand for machinery that enhances food preparation, cooking, and packaging. The pre-processing equipment segment is the fastest growing category, fueled by the increasing focus on food safety, quality, and efficiency in the initial stages of food production. Innovations in cutting, washing, and sorting technologies are gaining traction as manufacturers aim to optimize their operations and reduce waste.

The food processing machinery that produce food products must be safe and sanitary. One feature of these machines is that many of them are custom-made to bring out the particular qualities of a food manufacturer's products. The production process is divided mainly into two steps: preprocessing (ingredient processing, food production and processing), and post-processing (distribution, weighing, filling and packing).

In preprocessing, the ingredients must be washed, cut, and sorted, requiring a variety of different machines to match the production method. Post-processing requires high precision and speed in processing machines.

In recent years, there have been problems with the contamination of food, which seriously damages the trust of the public. This results in higher demand for safety and reliability of machines that are also easier to maintain.

Food processing equipment market needs are align to core technologies such as materials engineering, lubrication technologies, and precision technologies, significantly contributing to improved performance in food processing machinery.

Automated & Fully Controlled

Automation technology integration in food production is a revolution that is redefining efficiency, quality, and safety in the sector—it's not just a fad. The modern food production landscape is largely shaped by these innovations, which range from robotic palletisers that streamline logistics to optical sorting machines that guarantee only the best products reach consumers.

As highlighted earlier in the article by Mordor Intelligence's market predictions, we can anticipate even more automation as technology develops. This will improve our capacity to produce food that is safe, of high quality, and at a scale that can satisfy the world's expanding population. Food producers are prepared to meet the challenges of the future with these tools at their disposal, guaranteeing food security and sustainability for future generations.

Food Processing Equipment Market, By Mode Of Operation

- Automatic
- Semi-automatic

Based on Mode Of Operation, the Global Food Processing Equipment Market is segmented into Automatic, Semi-automatic. The automatic segment is the dominant mode of operation in the global Food Processing Equipment Market, driven by the need for efficiency, consistency, and reduced labor costs.

The semi-automatic segment is the fastest growing category, appealing to small and medium-sized enterprises looking for a balance between manual control and automation. This mode allows for flexibility in production processes, enabling manufacturers to adapt quickly to changing market demands while still benefiting from improved efficiency and lower operational costs.

Speeds, Health, Perfections

Ada banyak alasan bagi perusahaan produksi makanan untuk mengadopsi otomatisasi dalam proses mereka. Teknologi otomatisasi semakin banyak digunakan dalam industri makanan untuk membantu bisnis memenuhi permintaan yang terus meningkat akan keamanan, kualitas, dan efisiensi pangan. Berikut ini adalah beberapa keuntungan utama yang dibawa oleh otomatisasi:

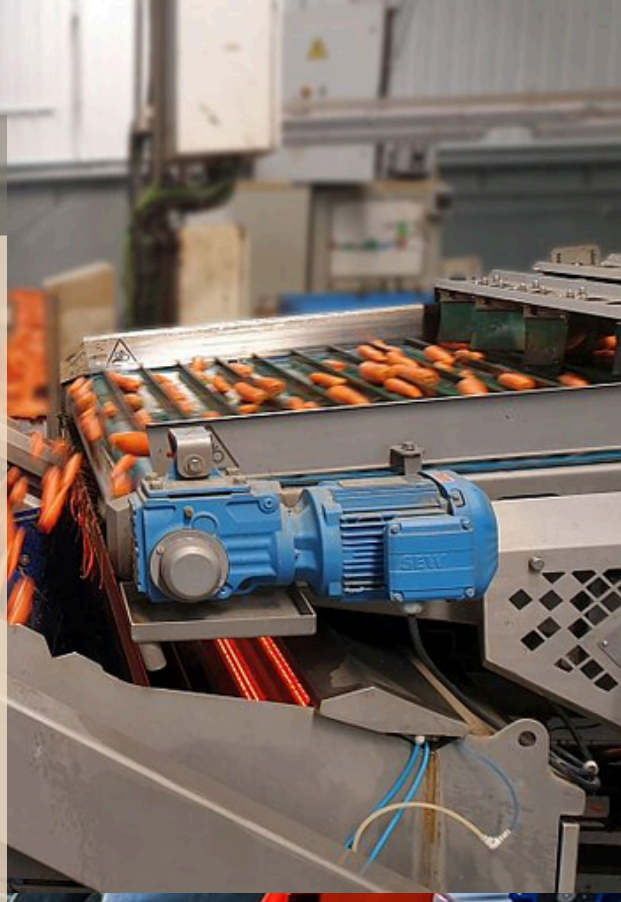
• Peningkatan Efisiensi dan Produktivitas: Otomatisasi memungkinkan untuk beroperasi secara terus-menerus, sepanjang waktu, dengan sedikit waktu henti, yang sangat meningkatkan produktivitas. Tingkat output yang lebih tinggi dan penggunaan sumber daya yang lebih efektif dimungkinkan ketika mesin menggantikan tenaga kerja manusia karena mesin dapat menyelesaikan tugas dengan lebih cepat dan lebih konsisten.

• Peningkatan Kualitas dan Konsistensi Produk: Karena sistem otomatis mampu melaksanakan tugas dengan akurat dan konsisten, setiap produk dijamin memenuhi standar kualitas yang sama persis. Baik reputasi merek maupun kepuasan pelanggan bergantung pada konsistensi ini.

• Penghematan Biaya Tenaga Kerja: Meskipun mungkin ada biaya awal yang besar yang terkait dengan teknologi otomatisasi, pada akhirnya akan ada penghematan biaya tenaga kerja yang besar. Tidak perlu banyak tenaga kerja ketika otomatisasi dapat bekerja di luar jam kerja reguler dan menyelesaikan tugas yang memerlukan banyak orang untuk menyelesaikannya. • Fleksibilitas dan Skalabilitas: Produsen makanan dapat dengan cepat beradaptasi dengan perubahan volume produksi atau memproduksi berbagai produk pada jalur yang sama dengan waktu henti minimal untuk pergantian berkat fleksibilitas dan skalabilitas sistem otomasi modern.

- • Pengumpulan dan Pemantauan Data: Pengumpulan dan analisis data secara real-time menawarkan informasi mendalam tentang prosedur produksi. Dengan penggunaan data ini, operasi dapat lebih dioptimalkan dengan mengawasi tren produktivitas, melacak efisiensi, dan membuat keputusan yang tepat.

Food Processing Phases



Cleaning and Sanitation Systems

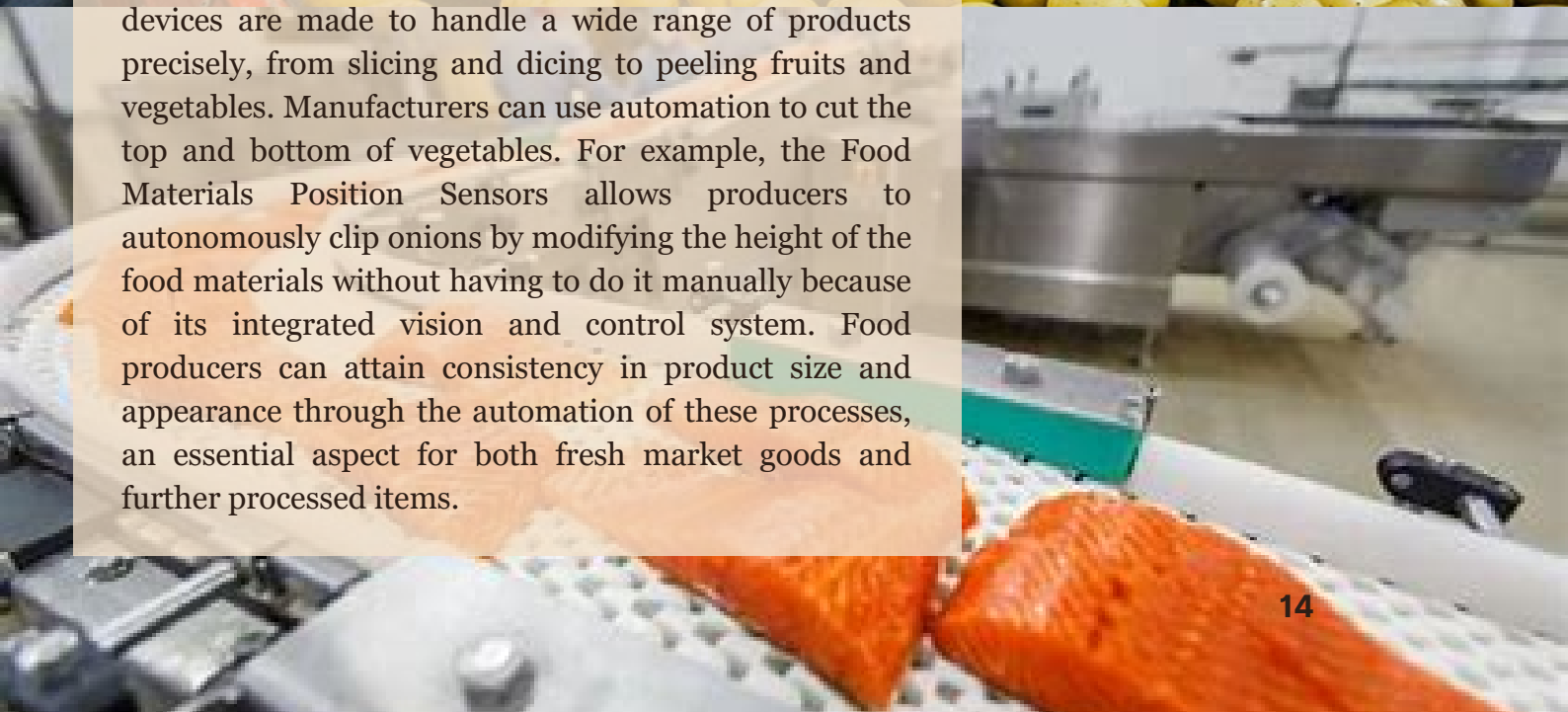
·Hygiene and sanitation are non-negotiable in food production. Production facilities and equipment are kept as clean as possible by automated cleaning and sanitation systems. These systems clean equipment for safe operation by using pre-programmed cycles of washing, rinsing, and disinfecting to get rid of pathogens and food residue. Food producers can guarantee thorough and consistent cleaning, lower the risk of foodborne illnesses, and comply with regulatory requirements by automating this process.

Optical Sorting Machines

·At the forefront of automation technology in the food production industry are optical sorting machines. These cutting-edge systems sort food products according to colour, size, shape, and even chemical composition using high-resolution cameras and sensors. Their ability to identify and eliminate anything from rotten fruits to foreign materials makes them indispensable in guaranteeing the quality and safety of food products. Optical sorters are essential tools in the quest for superior products because they are widely utilised in the processing of fruits, vegetables, nuts, grains, and seafood.

Cutting and Peeling Machines

·Automation significantly accelerates the raw material preparation process for peeling and cutting. These devices are made to handle a wide range of products precisely, from slicing and dicing to peeling fruits and vegetables. Manufacturers can use automation to cut the top and bottom of vegetables. For example, the Food Materials Position Sensors allows producers to autonomously clip onions by modifying the height of the food materials without having to do it manually because of its integrated vision and control system. Food producers can attain consistency in product size and appearance through the automation of these processes, an essential aspect for both fresh market goods and further processed items.



Food & Bev Processing Phases

Robotic Palletisers

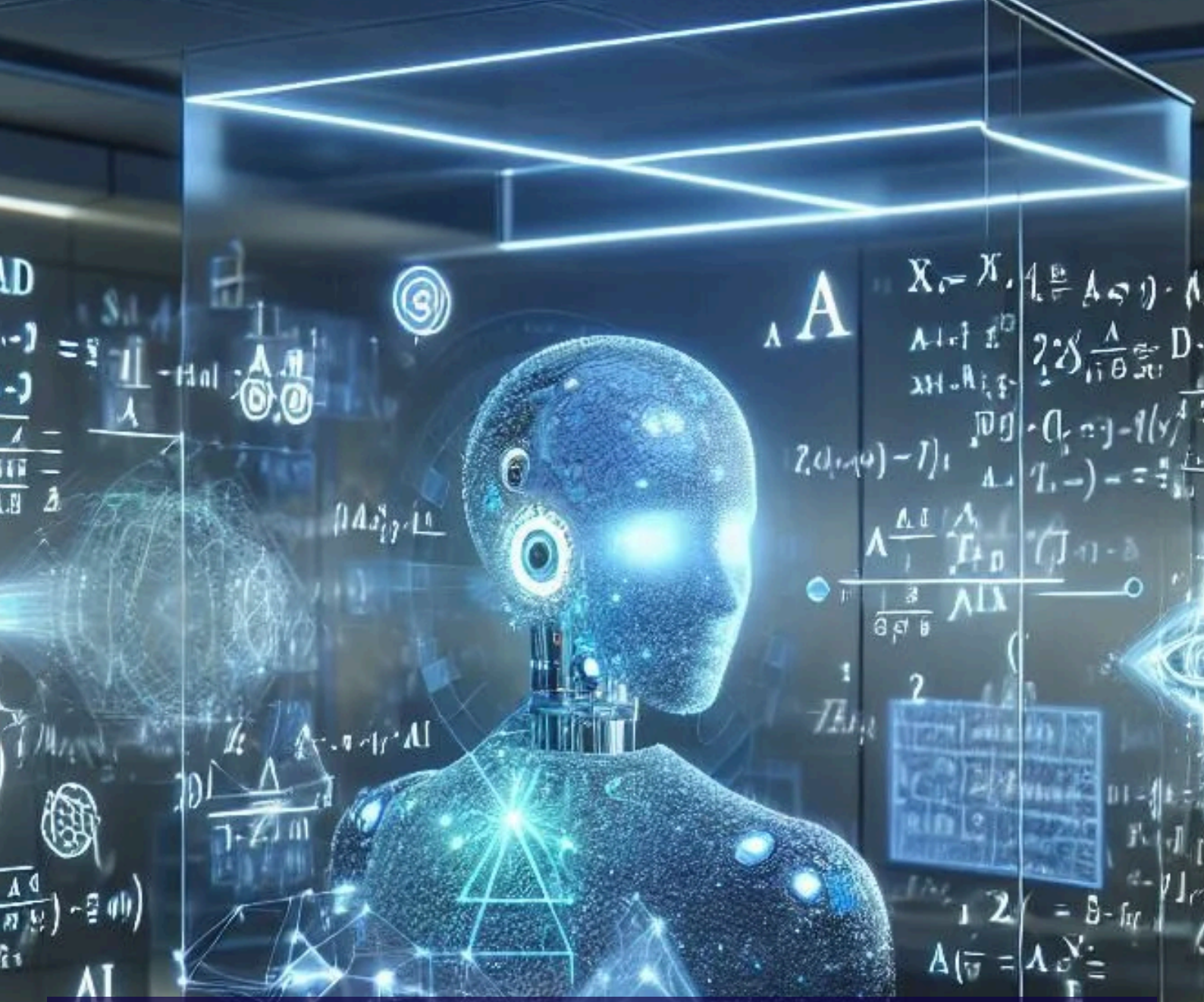
·Automated palletisers have revolutionised the last steps of the food manufacturing process. These robots automate the process of stacking packaged goods onto pallets for shipment, which is labour-intensive and error-prone when done manually. Robotic palletisers can be programmed to handle a variety of product types and pallet patterns, and they are incredibly accurate and efficient. They are an essential part of contemporary food production facilities because their adoption results in fewer workplace injuries and more efficient logistics.

Conveyor Belts

·These systems, which effectively move raw materials and completed goods through various processing, assembly, and packaging stages, are the foundation of automated food production. Conveyor belts are engineered to manage a wide variety of goods and can be combined with additional automated systems for inspection, packaging, and sorting, guaranteeing a seamless and uninterrupted flow of production.

High-speed Packaging Machines

·Packaging is a critical stage in food production, where efficiency and reliability are crucial. Production lines are greatly accelerated by high-speed packaging machines, which automate the process of wrapping, sealing, and labelling food products. These adaptable machines can handle a wide range of packaging formats and materials, including trays, boxes, and pouches in addition to bags. These devices are essential for preserving product freshness and increasing shelf life because they make sure goods are packaged securely.



AI Vs Ants

Pernahkah anda mencoba untuk bertanya pada chatgpt atau openai tentang sejumlah pertanyaan sederhana, seperti berapa kapasitas memori seekor semut? Atau bertanya berapa ukuran dari mesin quantum computing yang dibutuhkan untuk dapat menghasilkan kecerdasan memori yang setara dengan kemampuan memori seekor semut?

Sementara kita hanya mengharap jawaban tentang hitungan megabytes atau lebih, penjelasan yang diberikan AI lebih pada hasil dari sejumlah eksperimen perilaku yang melibatkan semut sebagai obyek penelitian. Hal ini tentu saja karena sistem AI tidak dapat menjawab bila tidak ada data yang telah terlebih dahulu ada. Sementara, belum ada satupun penelitian dari ilmuwan di dunia yang sanggup menghitung kapasitas memori pada seekor semut.

Mengapa sistem AI chat tersebut tidak dapat misalnya, mengkuantifikasi kemampuan otak manusia secara umum, lalu melakukan proporsi hitungan berdasarkan luas permukaan sistem syaraf yang menyimpan memori dari seekor semut dibandingkan dengan otak manusia. Tentu saja karena hitungan semacam itu juga masih belum ada. Bahwa, meskipun datanya telah tersedia, kedua sistem berpikir biologis yang berbeda tersebut belum tentu menjadi suatu ukuran yang dapat dibandingkan secara setara.

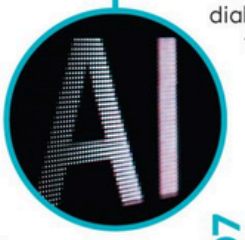
1642 — First mechanical calculating machine built by French mathematician and inventor Blaise Pascal.

1837 — First design for a programmable machine, by Charles Babbage and Ada Lovelace.

1943 — Foundations of neural networks established by Warren McCulloch and Walter Pitts, drawing parallels between the brain and computing machines.

1950 — Alan Turing introduces a test—the Turing test—as a way of testing a machine's intelligence.

1955 — 'Artificial intelligence' is coined during a conference devoted to the topic.



1965 — ELIZA, a natural language program, is created. ELIZA handles dialogue on any topic; similar in concept to today's chatbots.

1980s — Edward Feigenbaum creates expert systems which emulate decisions of human experts.

1997 — Computer program Deep Blue beats world chess champion Garry Kasparov.

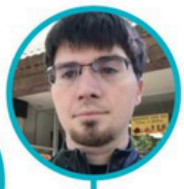
2002 — iRobot launches Roomba, an autonomous vacuum cleaner that avoids obstacles.

2009 — Google builds the first self-driving car to handle urban conditions.

2011 — IBM's Watson defeats champions of US game show Jeopardy!

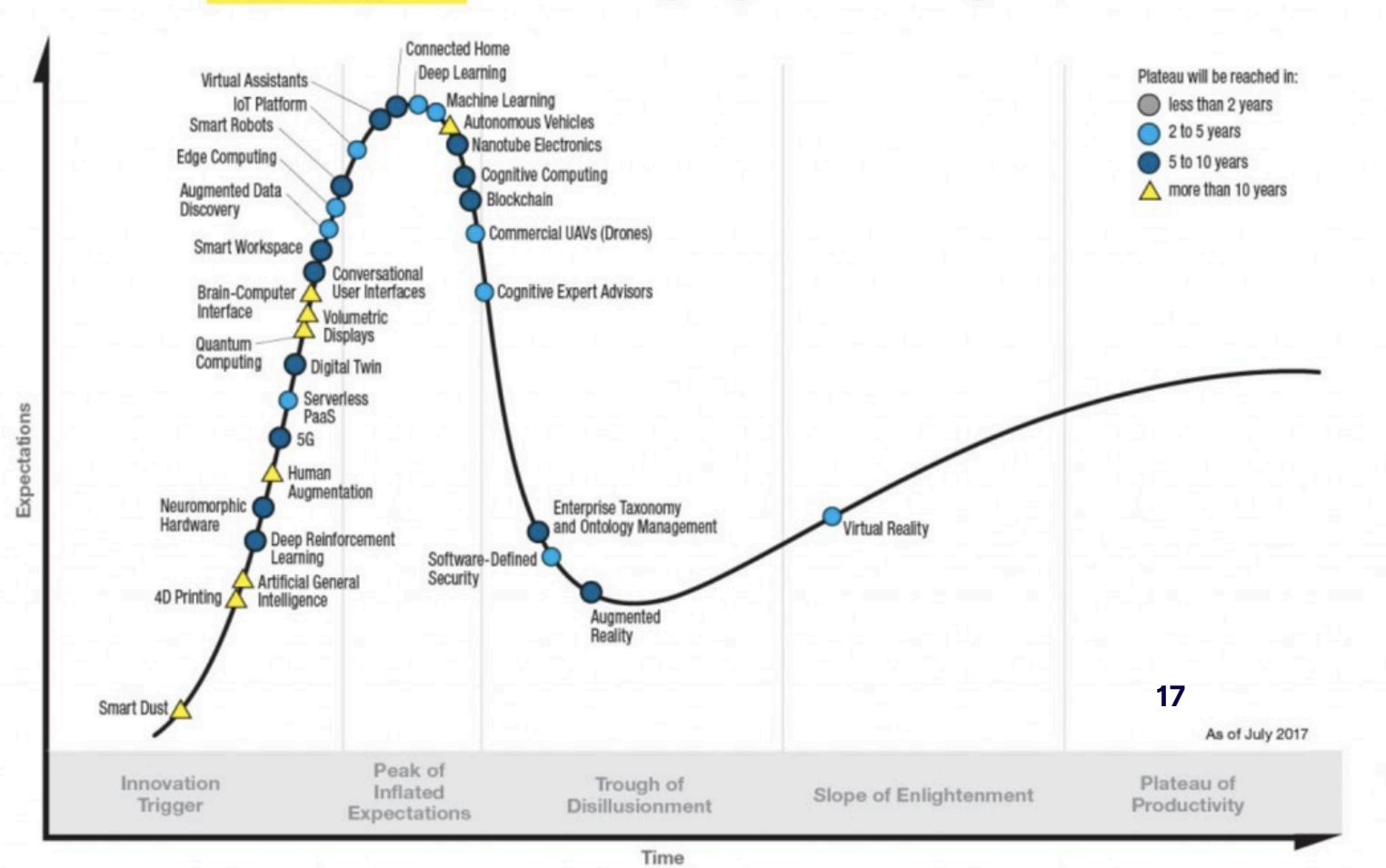
2011–2014 — Personal assistants like Siri, Google Now, Cortana use speech recognition to answer questions and perform simple tasks.

2014 — Ian Goodfellow comes up with Generative Adversarial Networks (GAN).



2016 — AlphaGo beats professional Go player Lee Sedol 4-1.

2018 — Most universities have courses in Artificial Intelligence.



Dependabilities of AI upon its Limited Categories of Multi Variables

Human are sets as creations that never satisfied on anything. Whilst every machines are also bound to be depreciated and someday can be broken and obsolete. Biochemical conditions in human brain opening large arrays of limitless and countless outcomes on certain intended questions and imaginative answers that are hoping the AI they are using can give them the necessary results.

Nevertheless, the prior AI technology that we are having now are still bounded to be dependent on the multi variability of amount of piled data, informations stored, formulated techniques, calculative equations, etc, upon creating the targeted AI outputs. AI still depends heavily on the types of variables the system is calculatively measured and dispersedly arranged on certain chosen designed to process. In the context of multi-modal AI, the following categories of variables come into play:

Input Variables:

- **Quantitative** Variables (e.g., numerical data, sensor readings)
- **Qualitative** Variables (e.g., text, images, emotions)
- **Temporal** Variables (e.g., time-based data, sequence of events in video or audio)

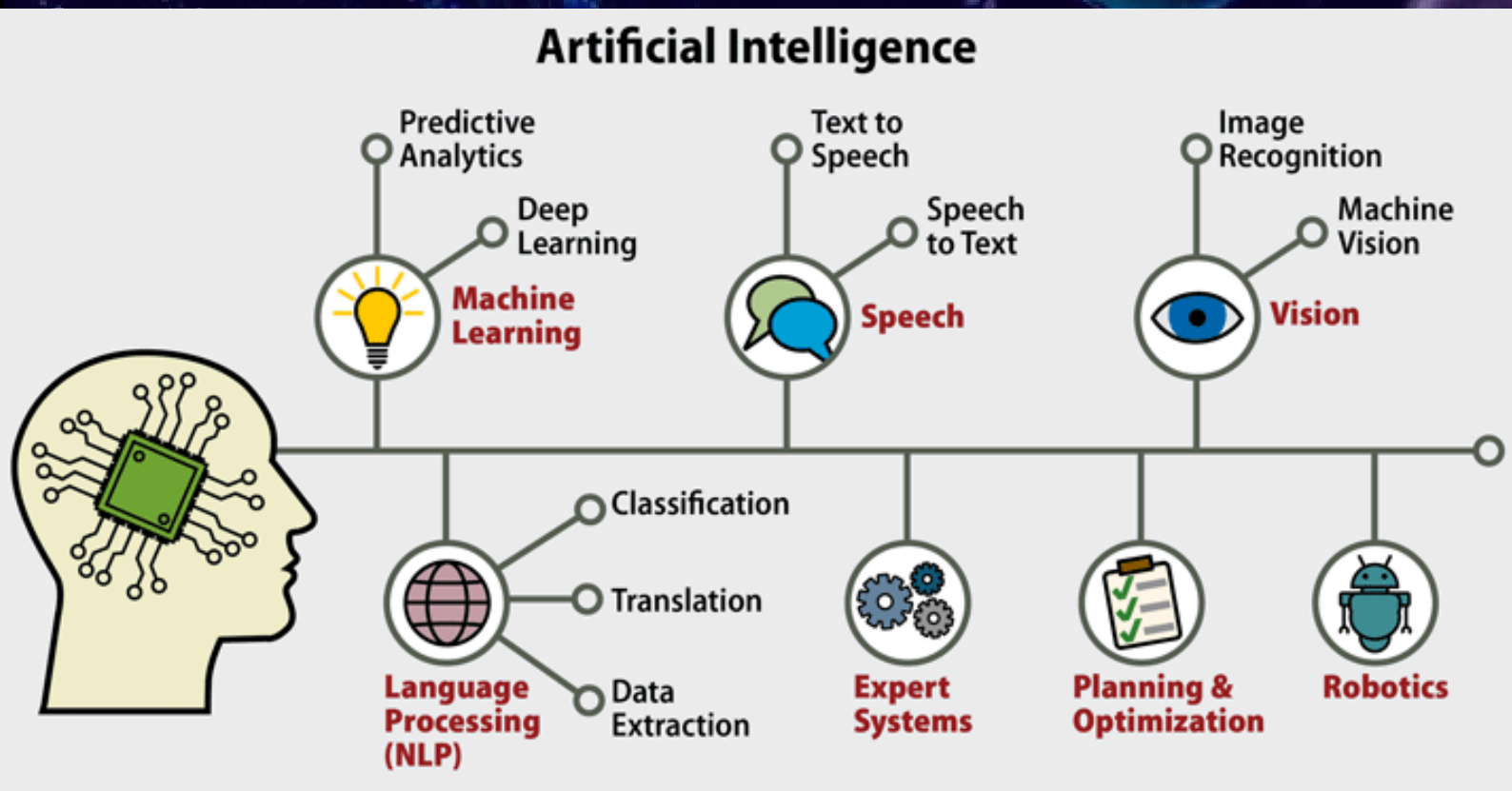
Intermediate Variables:

- **Latent** Features: Hidden representations that emerge from the combination of multiple input sources (e.g., learned features in deep neural networks).
- **Contextual** Variables: Information that provides additional context to the data, such as historical data or situational context.

Output Variables:

- **Discrete** Outputs (e.g., classification tasks, decision-making)
- **Continuous** Outputs (e.g., regression models, predictions)

Each of these variable categories allows the AI model to generate outputs based on a range of conditions, but the complexity of managing and combining these variables increases with the number and diversity of input sources.



Critical Reasons for Creating Boundaries in AI Developments

With the intense fear that AI as thinking tools can be rebellious someday, before those possibilities becoming uncontrolled, unpredictable, and out of hands, we must strictly sets clear boundaries for AI Development. The Primary Concerns and Urgencies are;

Ethical Constraints: AI's decision-making can significantly impact human lives, from healthcare and justice systems to employment and surveillance. Without clear ethical boundaries, AI could make decisions that are harmful, discriminatory, or biased. Establishing limits ensures that AI systems are used responsibly and with due regard for human rights.

Security Concerns: As AI systems become more complex, they could be vulnerable to malicious manipulation. Without regulation, AI could be weaponized, or its use could be subverted in ways that threaten national security, privacy, or societal stability. Boundaries and regulations are essential to mitigate the risk of harmful AI exploits.

Social Impact: The more capable AI becomes, the greater its influence on society. It could disrupt economies, create job displacement, and exacerbate social inequalities. Setting boundaries on AI's role in certain industries could help mitigate negative social impacts, allowing for a more gradual and thoughtful integration of these technologies.

Normative Technological Overreach: AI's potential often seems boundless, with machine learning techniques pushing the boundaries of what's possible. But this progress must be tempered with a recognition of the technical limits. AI cannot think or act as a human does—it operates within the cognitive frameworks and adaptive norms or constraints that may not be immediately apparent. Acknowledging these limits and ensuring that AI doesn't overstep its intended function will be crucial to maintaining a balance between progress and safety.

Regulatory Oversight: Governments and regulatory bodies must step in to ensure that AI systems are enabled to adhere on agreed-upon standards and laws. This includes setting boundaries around privacy, transparency, and accountability. With powerful technologies, we must consider not just the potential benefits but also the unintended consequences that could arise when these technologies are not adequately regulated and being regularly reviewed within the strict normative boundaries.

The Limitations of Machine Learning

When a question being processed within certain formulations in various sets of equated targeted outcomes, thinking machines still operates only based on the amount of data that are storaged upon, crawled search at, piled up in, and being regulatively composed in certain language sets, pixelated images creations, certain artistic composure, or audio-video designed dots then the machine can produce the results that are hoped for.

Despite the impressive progress made by machine learning, there are significant limitations to what it can achieve in its current form. The primary challenge lies in the capacity to break through existing boundaries that confine AI's ability to understand and interact with the world.

Data Constraints: ML models are heavily dependent on the data they are trained on. The diversity and quality of the data limit the scope of the machine's understanding.

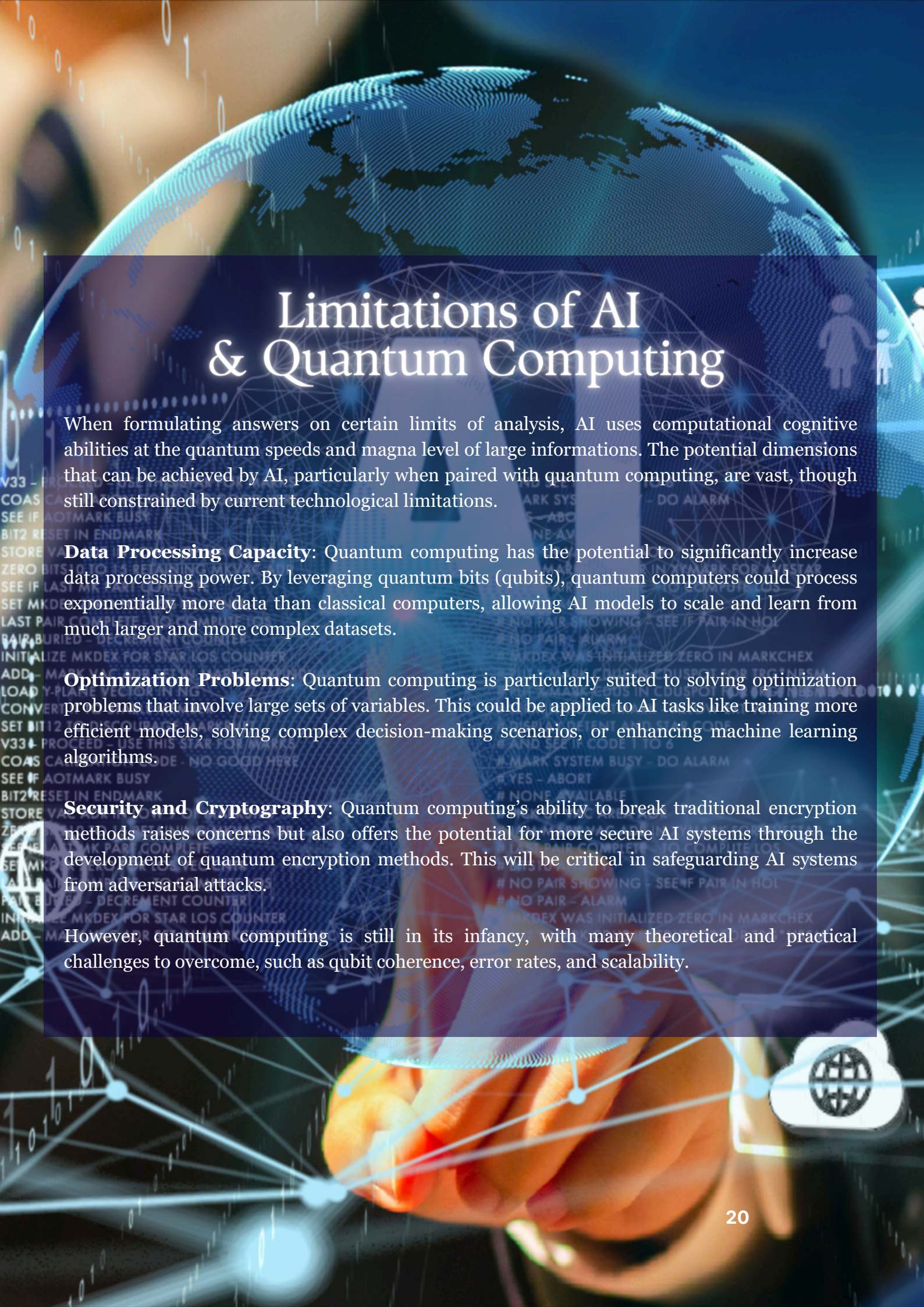
While vast amounts of data can improve AI performance, it cannot compensate for incomplete, biased, or insufficient data. Even with deep learning techniques, AI cannot fully comprehend nuances outside the scope of its training data, limiting its generalizability.

Generalization Issues: Machine learning models excel in narrow domains but struggle with generalization. That is, they often fail when faced with scenarios that deviate from the specific conditions they were trained on.

This issue is particularly evident when the model encounters edge cases or unseen data patterns. AI's lack of adaptability to novel situations poses a considerable challenge to its scalability and long-term viability.

Transparency and Interpretability: Current AI models, especially deep learning, are often seen as "black boxes." While they can perform highly complex tasks, understanding how and why they make decisions is still a major hurdle.

This lack of transparency creates trust issues and hampers the widespread adoption of AI in sensitive domains, such as healthcare, finance, and law enforcement.



Limitations of AI & Quantum Computing

When formulating answers on certain limits of analysis, AI uses computational cognitive abilities at the quantum speeds and magna level of large informations. The potential dimensions that can be achieved by AI, particularly when paired with quantum computing, are vast, though still constrained by current technological limitations.

Data Processing Capacity: Quantum computing has the potential to significantly increase data processing power. By leveraging quantum bits (qubits), quantum computers could process exponentially more data than classical computers, allowing AI models to scale and learn from much larger and more complex datasets.

Optimization Problems: Quantum computing is particularly suited to solving optimization problems that involve large sets of variables. This could be applied to AI tasks like training more efficient models, solving complex decision-making scenarios, or enhancing machine learning algorithms.

Security and Cryptography: Quantum computing's ability to break traditional encryption methods raises concerns but also offers the potential for more secure AI systems through the development of quantum encryption methods. This will be critical in safeguarding AI systems from adversarial attacks.

However, quantum computing is still in its infancy, with many theoretical and practical challenges to overcome, such as qubit coherence, error rates, and scalability.

Fundamental Risks of AI

At the early stage of its developments, the formulated results that are given by AI consider as harmless output. But when the contexts and the problem scope are somewhat critical, the capacity and capability of the AI composure are then being questioned.

For difficult and complex tasks such as at creating analysis based on data and sensible informations at the field of military, financials, economy, medicine, pharmacy, or even at daily opt, such as asking for cooking recipes, or how to do domestic stuffs, this infant AI level we priorly has still lacking in its ability to give precise answers.

As tools of informations gathering when providing data's, search machines and AI are able to gives comprehensive explanations and gives surmonts of logical arrays. But we have to maintain our habits on being criticals on whatever answers that are provided by AI.

One of the main reasons for setting boundaries is that, despite AI's vast potential, there are fundamental limits and risks that must be addressed. Machine learning, at its core, is a tool designed to recognize patterns and make **decisions** based on vast amounts of data.

Dont be dependable on AI. Because this reliance on data also means that AI systems are only as good as the data they are trained on. They can perpetuate biases, misinterpret nuances, or even reinforce harmful stereotypes.

By setting boundaries on what AI can and cannot do, we can ensure that we are creating systems that are more transparent, fair, and aligned with ethical standards.

Moreover, machine learning is constantly advancing, and as its abilities grow, so do its potential to break through existing boundaries—whether those are legal, ethical, or social.

AI systems are becoming better at processing data, improving their own learning models, and solving problems that humans may not be able to fully comprehend. But this rapid advancement brings an essential question: How do we keep pace with its evolution while ensuring that we don't lose **control**?

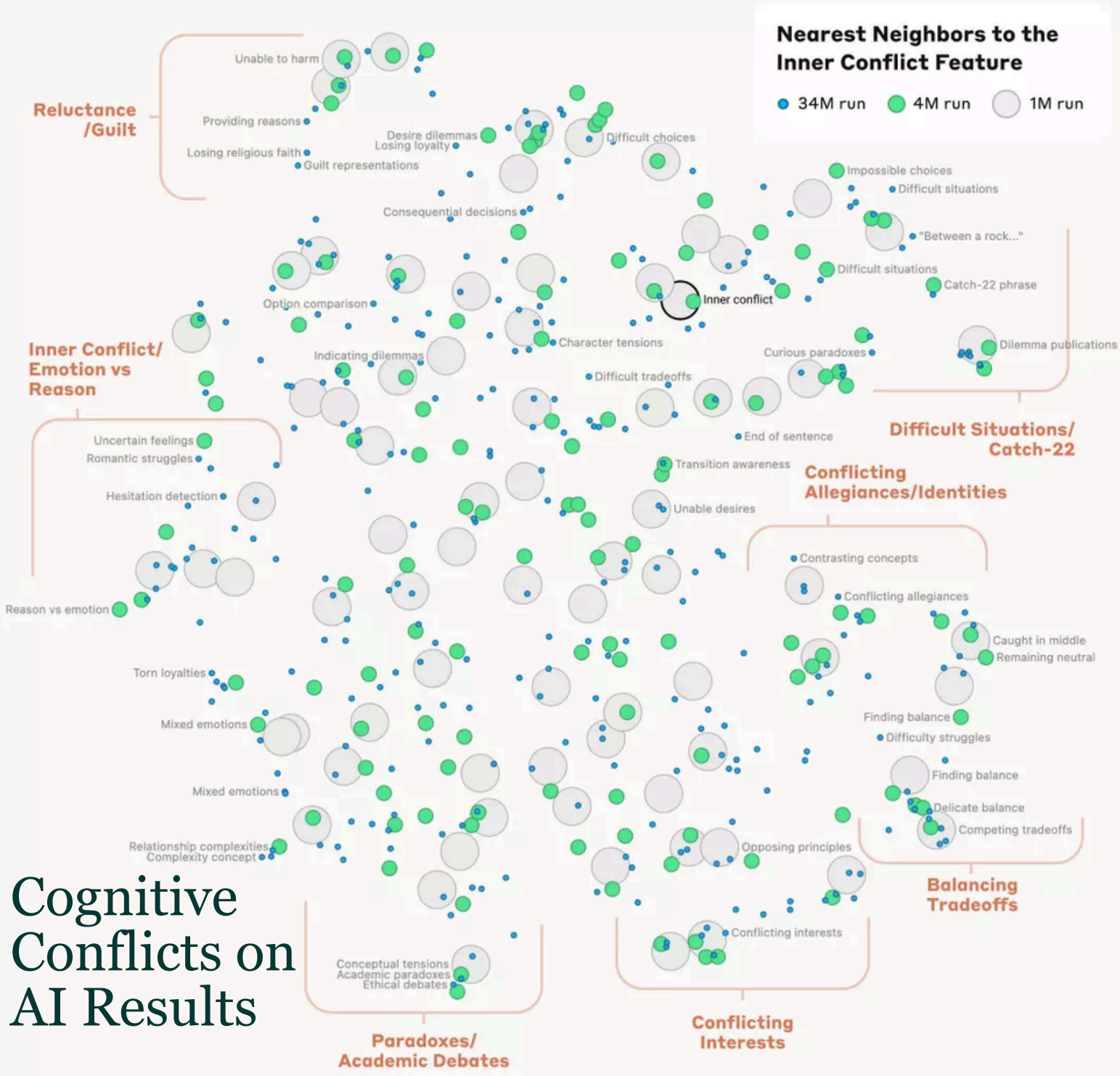
AI Plasticity

The challenge we face is twofold: on the one hand, we must create enough flexibility within boundaries for AI to grow and evolve; on the other, we need to put clear, enforceable limits in place to prevent the technology from advancing in ways that may ultimately harm us.

The reality is that machine learning and AI will inevitably push beyond some of the boundaries currently in place, making it all the more important to design frameworks that can adapt to these advancements while prioritizing human welfare.

Ultimately, the future of AI lies in our hands. We must actively participate in its development, ensuring that boundaries are set in a way that fosters innovation while safeguarding against its risks.

Setting these boundaries is not about stifling progress, but about guiding it with purpose and responsibility. As AI continues to evolve, the decisions we make now about its regulation and ethical application will shape the world for generations to come.



Cognitive Conflicts on AI Results

Optimasi pemberian jawaban berdasarkan formulasi tertentu dari program deep learning yang mendasari proses kognisi yang menyerupai kecerdasan buatan pada manusia ini, masih jauh dari kata sempurna. Gambaran scatter diagram diatas menunjukkan sejumlah kelemahan pada hasil jawaban yang diberikan oleh AI, dalam beragam area pengembangan keilmuan.

Selayaknya perasaan manusia yang memiliki sejumlah lapisan emosi dan level berpikir yang berbeda tingkat kedalamannya, maka pada AI pun kurang lebih terjadi proses kognisi dan judgement dengan pola yang mirip atau hampir serupa. Karena AI dibuat dengan meniru pola pikir, pola penilaian, pola pertimbangan, dan pola pengambilan keputusan pada manusia.

Seperti pada pemikiran manusia, pada proses kognitif di sistem AI pun, terjadi sejumlah hal yang terbilang dramatis seperti terjadinya Paradoks dan Dilema pada beragam topik atau tema masalah. Mengingat bahwa hasil jawaban dari AI seringkali digunakan dalam mengambil berbagai keputusan yang penting, harus tetap diingat bahwa jawaban apapun itu, tidak ada yang sempurna.

Beyond AI Boundaries

The Limitless Capabilities of Human Brain & Heart

AI Developments are certain to be undergo within few years ahead, and no turning back on it. Thus What Human Brain & Heart are Capable of doing are still unbeatable, and nowhere to be beaten by any means of machine learnings. Why? Because the complexities of Human Intellectuals are far beyond the boundaries of any computing machines such as AI, Deep Learning, Quantum Computing, or else.

What Human Brain & Heart Are Capable of;

1.Predicting possible outcome from prior memories and experiences.
2.Using limitless Imagination without restraint or boundaries,
3.Weighing various outcomes,
4.Creating dimensions of various measurements
5.Creating categories from unrecognizable or intangible inputs
6.Acknowledging variabilities differences in socials or science fields
7.Creating, testing, predicting results of applicabilities of certain hypothesis and weighing possible risks and measuring the difficulties of intended processabilities outcomes of it
8.Acknowledging the needs of certain process intended for certain objectivities
9.Recognizing risks from simple calculations or from prior experiences
10.Detecting possible danger in predictive environment measures
11.Monitoring and exploring analysis of meta cognitive scans on multiple problems
12.Predicting possible progress by measuring what has happened before or from certain memories and experiences
13.Creating foreseeable imagery of a resulted output
14.Creating certain base of structurized inputs,
15.Sets background of processability of phases for certain kind of intended objectives,
16.Measuring the before and after of a process, of a behavior or of imaginative acts
17.Creating foresight forms of Reasoning when facing certain problems
18.Structurizing inputs for targeted or intended results
19.Naturally aiming at measurable targets and create calculative projections based upon it
20.Coordinating between places in timely measurements
21.Weighing the aims of certain acts did or done or intended upon various acts
22.Multiple reasoning and multitasking at the same time with different paces
23.Creating and giving each other certain level of calmness, peace, solemnity,
24.As soothes for broken souls in cheering each other heartaches.