Chapter 17
Smart Society 5.0 for Social and Technological Sustainability

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Abstract Based on recent publications, we hope to gain a better understanding of the framework of Society 5.0 in commercial, as well as its latent for proactivity in the Sustainable Development Achievements, as well as possible consequences on sustainability and accounting reporting. Given the breadth of the deviations forced by the 4.0 industry, it is very critical to comprehend the current effects and forthcoming opportunities of this progress with Cross-industry 5.0. All residents are expected to become dynamically involved in Society 5.0, incorporating digital technology into a range of systems and speeding up their implementation. As a result, it is projected to expand on the notion and possibility of the specific technology interaction in the advancement of their own and society's quality of life, with an emphasis on sustainable development, sustainability, and reporting. As a result, it is a contribution that aims to contribute to this extremely important and vital conversation by offering its progression. It is determined that Industry 4.0 and, more newly, Industry 5.0 are here to remain, putting artificial intelligence (AI), big data, robotics, and other technologies by the provision of man in a world where everything will be connected and society will have to adapt. This position paper aims to create a theoretically focused perspective on sustainable digital inventions in the framework of Society 5.0, as well as the underlying empirical potentials of this association.

17.1 Introduction

The Government of Japan released information on the "Fifth Basic Plan for Science and Technology (2016–2020)" in January 2016. The effort, dubbed "Society 5.0," aims to build a supportable society that also adds to people's comfort and safety.

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The term "Society 5.0" refers to a group of people who have come together as individuals who are dependent on a particular cyber-physical system [1, 2]. Numerous systems are included in it. For the moderation of both global and local threats, systems are connected via the Internet.

Society 5.0 is a concept that tries to solve societal challenges from a fresh perspective. Different aspects of society would be connected in this new era, and technology would link a super-intelligent society with full integration of artificial intelligence (AI), the Internet of Things (IoT), big data, and people facilities to ease physical and digital infrastructures for humans. The goal of this project is to build societal foundations that allow anyone to produce value at any period and in any location, in a harmless atmosphere, and in accordance with natural settings, deprived of the constraints that already exist [3].

The chapter is organized such as Sect. 1.1 gives the introduction; in Sect. 1.2, we focus on what is Society 5.0. In Sects. 1.2.1, 1.2.2, and 1.2.3, we described the revolution of Society 5.0 in detail followed by Societal effects of 4IR, evolution, respectively. Section 1.3 highlights the Schema of Society 5.0. Section 1.4 gives new solutions for new problems with detailed applications. Section 1.5 shows how we enter into Society 5.0 with examples. In Sect. 1.6, Cybersecurity 5.0 is explained. Then in Sect. 1.7, we explained the difference between real space and cyberspace followed by Sect. 1.8 describing what is the use of cyberspace andg Sects. 1.8.1 and 1.8.2 wherein working of cyberspace and the difference between the Internet and cyberspace are described, respectively. In Sect. 1.9, we listed 5.0 society. Section 1.10 gives Sustainability and environmental harmony and Sect. 1.11 Equality and Sustainability 5.0 with some important key terminologies. Section 1.12 describes Sustainable Digital Innovations in Society 5.0.

17.2 What is Society 5.0?

Society 5.0 is a scenario of a world, in which people and machines work together to "co-create" answers to societal problems by combining the Internet and real space. And, contrary to popular belief, most of the technology we will require is already available.

Society 5.0 refers to a new era marked by transformations fueled by scientific and technical innovation in order to address societal difficulties such as declining birth rates, elderly populations, and environmental and energy concerns. Advanced technologies such as the Virtual Reality (VR/AR), Internet of Things (IoT), Big Data, Artificial Intelligence, and Robotics have a significant impact on people's quality of life.

Human-centred society is a Society 5.0 which stabilizes financial growth with the determination of communal issues through a scheme that tightly integrates physical space and cyberspace; goods and services will be made available to people irrespective of their language, location, gender, age, or other limitations.

The idea of Society 5.0 has been established primarily in Japan, defining a perfect situation in the direction of which each country should advance to fully influence incessant technological revolutions, thus benefiting all their peoples [4].

Society 5.0 can be understood by building a unified common service model that standardizes and combines data formats, low code development, microservices, API, open innovation, information processing technologies, databases, advanced systems, projects, systematic services, visualization, and so on.

The innovations related to the transport, handling, and gathering of data on the Internet are crucial advancements in structuring our world-leading great smart society and extracting value from vast amounts of data. As a result, Japan will expedite the formation of the central invention that comes with it.

- Cybersecurity: invention that supports secure communication and data, taking into account the characteristics of the Internet of Things, like lengthy life cycles from formation to transfer.
- The system architecture technology of the Internet of Things enables the presentation of programming and equipment as segments, as well as the construction and operation of large-scale structures [5].
- Big data (BD) analytics is a type of innovation that involves extracting knowledge and value from a large amount of data, particularly unstructured data.
- AI is a technology that underpins IoT, massive data analysis, and enhanced communication.
- Device technology is an advancement that allows for the fast, actual preparation of huge quantities of data while overwhelming minimal power.
- Network innovation is a type of technology that allows enormous amounts of data to be accessed at a high rate.
- Edge computing is a technology that permits quicker and more precise real-time giving out at the system level, which is critical for encompassing the IoT's utility.

17.2.1 The Revolution: Society 4.0

The incorporation and dissemination of calculating power utilized for automation in information technology and production ushered in the Industry 3.0 revolution, which saw a move from electronic and mechanical devices to digital technology. Nowadays, the Industry 4.0 Revolution is based on the third digital revolution, which is being shaped by a confluence of technologies distorting the boundaries between the digital, biological, and physical realms.

Because of the speed, scope, and severity of this change, we must reconsider in what way countries should grow, how businesses should generate worth, and even what it means to be communal. Everybody benefits from harnessing technologies to create an inclusive, citizen-centred future, with leaders, lawmakers, and people.

Industry 4.0 is a term that refers to the digital revolution in transforming economies, allowing for more inexpensive digital breakthroughs, products, and services to better people's lives all around the world. Taking advantage of rapid

breakthroughs in AI and IoT technology, billions of individuals are associated via hand-held devices that have unrivalled computing power, storage space, and access to vast knowledge, revolutionizing companies around the world.

Remodelling machines gain the skill to communicate and share important data with nominal social interaction, thanks to a combination of operational technology and Industrial Internet of Things (IIoT).

Every day, new breakthroughs in disciplines like artificial intelligence, robots, the Internet of things, autonomous cars, quantum computing, energy storage, material science, biotechnology, nanotechnology, and 3-D printing expand the possibilities. Computational design, synthetic biology, material engineering, and additive manufacturing are all being combined with biological science to orchestrate an association between human bodies, commodities, microorganisms, and even our houses.

We are in the early phases of the Fourth Industrial Revolution (4IR), a period of tremendous technical improvement in "cyber-physical systems" that has resulted in dramatic changes in society and a re-imagining of manufacturing through digitization.

To increase output, the First Industrial Revolution used steam and water power. The second did the same thing with electricity. Computers and automation were utilized to speed up production during the Third Industrial Revolution.

The Fourth Industrial Revolution (4IR) relates to our present economic world's fundamental change towards a new approach based on the merger of digital and physical worlds in cyber-physical systems and the increasing use of emerging technologies like AI, Robotics, IoT, and cloud.

A subtype of 4IR centred on the use of cyber-physical systems and artificial intelligence to alter manufacturing which is the most well-known example of 4IR transformation is Industry 4.0. Industry 4.0 is already transforming the way we produce goods. By introducing machine and system autonomy, it expands on the capability of computerized automation. Huge volumes of industrial data are collected and processed by computers, machine learning, big data, and, increasingly, artificial intelligence (AI), which is now of the "narrow" or "weak" variety, via wireless networks of receivers, sensors, and processors.

These self-contained configurations of digital and physical computing elements are interested in real learning. They make decisions based on super-fast analysis of actual and previous data collected from the manufacturing environment to continually enhance production operations.

The demand for human labour was lessened during the First Industrial Revolution. The second improved productivity by automating massive production lines. The third used computers to further automate these procedures, but production was still managed by people.

The 4IR goes much further, rendering human participation in industrial applications nearly obsolete. Smart factories, for example, are envisioned as self-contained cyber-physical systems (CPSs) in which humans are only required for specialized tasks, machine maintenance, high-level network management, and strategic leadership. In terms of the technologies used and the concept of uniting the biological worlds, physical, and merging of cyber, Society 5.0 is akin to 4IR. Society 5.0, on

the other hand, is a broader notion that encompasses more than just industry and trade and envisions a full overhaul of our way of life. Society 5.0 is a human-centred suggestion that aims to tackle societal problems by using the same linkages between cyberspace and physical space as 4IR.

17.2.2 Societal Effects of 4IR

What will happen to the nature of labour, communities, and social structures if AI and automation eliminate many human jobs?

What will occur to economies as a result of medical advances and an ageing population? What will become of the environment when human productivity and consumption expand?

These are wicked problems, even though they are the result of largely positive trends towards more widespread human wellbeing. And they would not be vexing us were it not for technology.

Of course, this does not make technology bad, or even good—it is agnostic—but it does raise the question: if we used technology to get ourselves into these dilemmas, can we use it to get ourselves out?

The idea of Society 5.0 is a resounding affirmative response to that question. It claims that we may establish a forward-thinking society in which everyone can live an active and joyful life by incorporating technology deeply as shown in Fig. 17.1.

17.2.3 The Evolution: Society 5.0

Data Overabundance to store, identification of real and applicable data to evaluate, and limited possibility of act because of physical ability and a deficiency of laws and guidelines are putting a stress on the nations' current social infrastructure, economic, and industrial, preventing them from taking satisfactory measures to determine and resolve any critical issues in a timely manner as shown in Fig. 17.2. Globalization and life expectancy are increasing, as are economies' progress, international competitions, and social and regional inequities. Sustainability in all industries, as well as Social Innovation, Climate Control, and Green Energy, are critical.

The immense possibility of the Industry 4.0 Revolution is paving the technique for countries to the encirclement of Civilization 5.0, a future authenticity that will serve as a milestone to a thriving data coordinated Super Smart human-centred society. Social Innovation is the process of using new technologies such as Big Data, Robotics, AI, IoT, and Advanced Analytics to create a thriving society that equalizes financial progress with the determination of social issues.

By gathering big data from many sources via gadgets and sensors, people, objects, and systems are all associated in kicking off the Society 5.0 evolution, integrating real space and cyberspace. Big Data is examined with the help of Artificial Intelligence

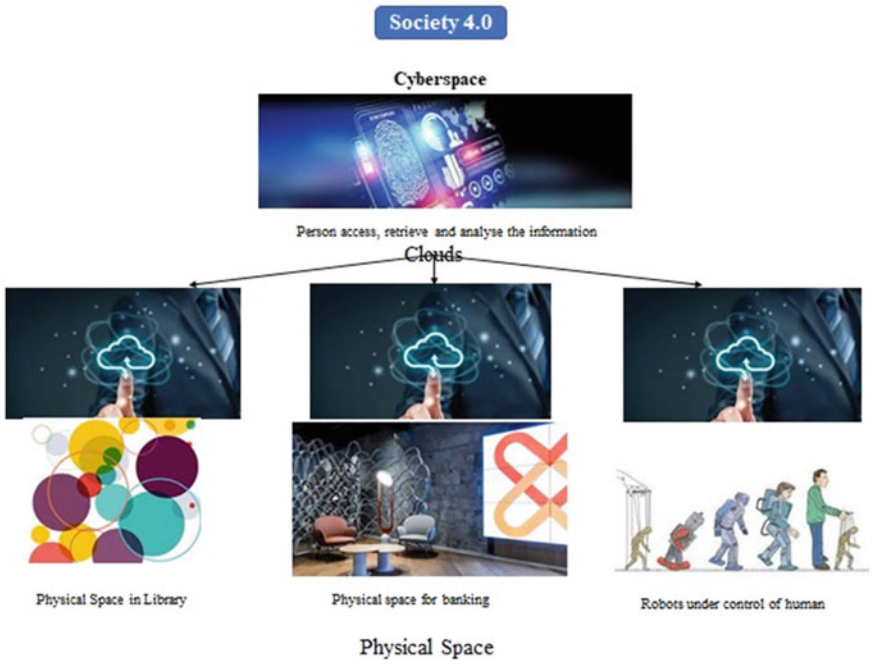

Fig. 17.1 Transition from Society 4.0–5.0

capabilities to integrate back into the physical space, by new values for individuals, industries, and businesses through various media and forms in order to accomplish both financial development and resolutions to social problems at the same time.

In Society 5.0, the innovative value created by Social Invention bridges geographic, gender, age, and language divides, allowing for customization of products as well as services to meet a wide range of individual demands. It demonstrates the ability to tackle a wide range of problems in industries such as energy, disaster management, manufacturing, food, agriculture, healthcare, and many more.

The vision of Hitachi—"Sustainable Society"—in which everybody may enjoy a safe as well as joyful life is fully integrated into the Society 5.0 idea. Hitachi is prepared to work with the government in attaining this genuineness by emerging a vigorous framework for a smooth transition to Society 5.0 and assisting in the resolution of various social challenges through new-age digital technologies. Hitachi's collaborative co-creation with the government in e-Government, Urban Development, Agriculture, Finance, and Railways, as a key partner to the government's "Digital India" project, is driving India to become a nation that is able to fulfil the expectations of Society 5.0 in the future.

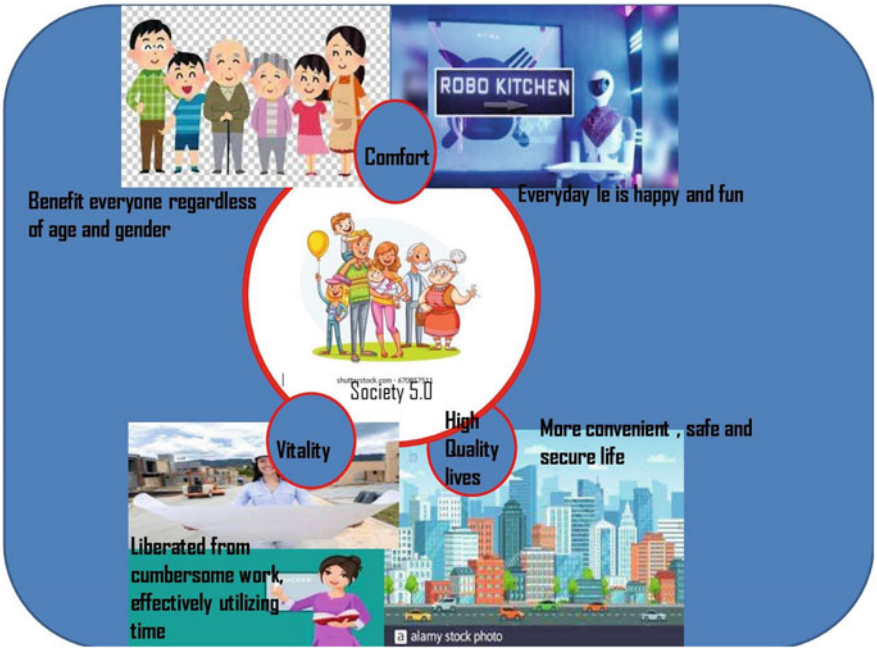

Fig. 17.2 Society 5.0

17.3 The Schema of Society 5.0

Data is taken from the "real world" and handled by computers, with the findings actually being applied in the real world, according to Society 5.0's core schema. Air-conditioning units, for example, preserve a room's environment at the temperature programmed into the appliance. The air conditioner notices the temperature of the room on a regular base, and an inbuilt microcomputer compares the reading to the recorded temperature set. The airflow is inevitably stopped or triggered based on the result, guaranteeing that the room preserves the proper temperature. This basic principle is used in many of the systems we rely on in society. It underpins the mechanisms that keep our homes well-supplied with energy and the trains operating on time. Computerized automatic controls are used in this system. Information society refers to a society in which each of these systems takes data, processes it, and then uses the results in a specific real-world setting. Society 5.0 will include systems that work together to keep society running smoothly. It is not enough to have pleasant room temperatures to ensure enjoyment and comfort. We need comfort in all elements of our lives, including transportation, energy, shopping, medical care, education, and employment.

In short, Society 5.0 will follow an iterative aspect cycle in which data is collected, processed, and then translated into useful information, which is then used in the actual world; moreover, this cycle operates at a society-wide level.

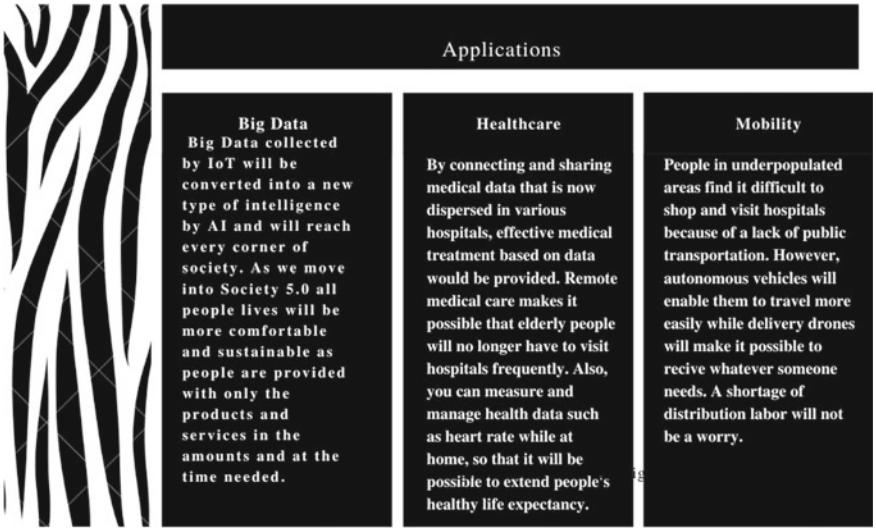

Fig. 17.3 Application of Society 5.0

17.4 New Solutions for New Problems

Because of the speed and scope of globalization, new difficulties have surfaced that were either not foreseen or not expected for some time. A more integrated world also means more integrated problems, which are more difficult to tackle.

Maintaining economic growth while reducing income inequality and environmental destruction; enhancing the welfare of an ageing population while ensuring opportunities for the youth; feeding more people with limited resources; and slowing, stopping, and then reversing the effects of climate change are all wicked problems, according to Watkins and Wilber.

Society 5.0 imagines technology and humans working together to approach these Gordian knots in a number of different areas (Fig. 17.3).

Society 5.0 Japan's idea signifies the fifth form of society in our human history, sequentially following information, industry, hunting, and farming. The Fourth Industrial Revolution is generating new values as well as services one after another, carrying a wealthier life to all.

17.5 Entering Society 5.0

See (Fig. 17.4).

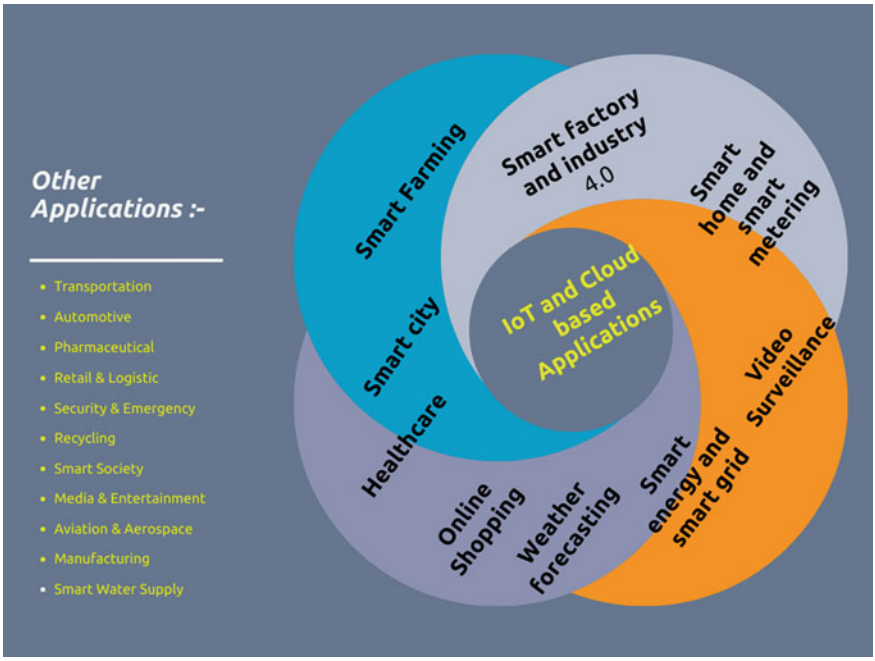

Fig. 17.4 IoT and cloud based applications

17.5.1 Healthcare

Japan is recognized for having a society that is highly weighted towards older citizens—roughly a third of the population is 60 years or older—which is one of the reasons why Society 5.0 places a major emphasis on greater health and wellbeing, particularly for the elderly.

However, as medical technology advances in quality and price around the world, all countries will face the issues of an ageing population. Increasing medical and social security costs, as well as the obligations of care for the elderly, are among them.

Wearable medical devices will permit healthcare and physiological data to be gathered, uploaded, and analysed remotely in Society 5.0, allowing for early (AI-driven) ailment identification and diagnosis. Drones and driverless cars will carry medication and healthcare services, offering older people in rural places equal access to high-quality care. Robots and artificial intelligence (AI) will assist in providing living assistance to the elderly, including providing them with the dialogue and companionship that is necessary for better mental health.

These findings will reduce the strain on public healthcare systems by reducing the number of hospital visits and improving the accuracy and efficiency of diagnoses and treatments.

17.5.2 Mobility

Traffic and transportation system overload are becoming more severe as the world's urban populations grow. Depopulated rural locations, on the other hand, have fewer, if any, public transportation options.

As we approach the fifth iteration of civilization, technology will play an increasingly important role in tackling these issues.

Traffic control systems in cities and congested metropolitan areas will be directed by ubiquitous sensors and cameras. These will generate massive amounts of data, which will be coupled with weather data and regional event data using artificial intelligence to improve traffic flows.

Different individuals have their own choices for travel, cuisine, and leisure which will be combined with universal transportation data to provide customized trip suggestions.

For public transportation in rural areas, autonomous taxis and buses will be promoted. The reach of distribution and shipping services will expand.

17.5.3 Infrastructure

In Society 5.0, social care for public infrastructure and services will become proactive, just as it is for individual health. In smart cities, this will form the backbone of civil management.

Streets, structures, tunnels, and reservoirs will all be monitored by sensors that provide a continuous stream of data. Preventive maintenance and efficient deployment of technicians with specialized skills will be possible with this information.

As a result, accidents will be decreased, as will the time and money have spent on building and maintenance work. The level of safety and productivity will rise.

17.5.4 Agriculture

A workforce shortage in agriculture is resulting from a global rural population decline, which comes at a time when the sector is under increasing pressure to increase production while dealing with the problems of more harsh climate patterns.

AI analysis of large data, such as weather data, crop growth data, economic conditions, and food patterns and demands, will lead to hyper-efficient agriculture management in Society 5.0. Autonomous farming vehicles and equipment will make these "intelligent" data-based decisions. Robots, drones, and self-driving farm equipment will take over many traditional farm labour jobs, from crop establishment to crop harvesting to planting (Fig. 17.5).

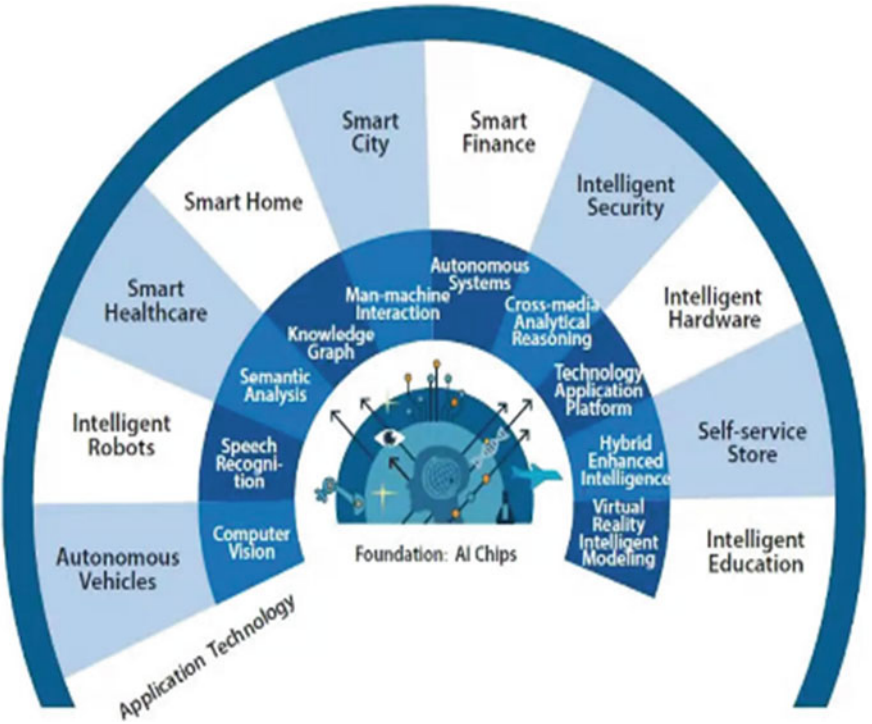

Fig. 17.5 Stacks

By 2050, the global population is predicted to surpass 9 billion people. We will only be able to feed so many people using AI and machine-optimized agricultural management.

17.5.5 Disaster Prevention and Response

The potential importance of predicted climatological and geological information is becoming increasingly obvious as we see more examples of severe weather around the world.

Data collected from terrestrial weather radar, observatories, drones, geological sensors, and public observation systems will become invaluable as Society 5.0 unfolds. This data will be processed in real time using AI to provide those crucial minutes or hours of warning of imminent tragedy that can save lives.

Widespread access to mobile networks will enable for direct distribution of safety and preventive broadcasts to end users, as well as the use of devices to geolocate individuals in need.

Drones can transport relief and rescue goods to persons caught by natural catastrophes, and they will be able to transmit back video footage of the victims' condition.

17.5.6 Energy

Much of the fight for resources in a world of 9 billion people will be a competition for energy. A peaceful society will require optimal energy development and maintenance.

Weather is becoming increasingly significant as energy generation shifts to green alternatives such as wind and solar. Weather data analysis and accurate forecasting will be critical components of dependable electricity production.

AI-powered big data processing will also optimize electricity flows throughout the system to meet demand and supply fluctuations. This will be especially crucial in smart cities, where energy will be managed down to the minute by responsive systems in buildings and public spaces, and most modes of transportation will be electric.

17.6 Cybersecurity 5.0

The ultimate strength of Society 5.0 will be found in its level of integration. The stronger the integration of the virtual and physical worlds, the larger the benefits we will reap.

Cyberrisks, on the other hand, are the same. The greater the risk to our personal and collective safety as technology is integrated into every aspect of our social being, including our physical being [7].

The foundation of Society 5.0 is a sophisticated network of sensors, devices, and systems—a massive Internet of everything. Each of these elements increases the attack surface while also raising the stakes in the event of a cyber-attack.

It's easy to understand the potential pitfalls when technology is woven into the fabric of everything we do. Autonomous vehicles, AI-assisted public transportation, drone fleets, and vital disaster-prevention systems can all be compromised. That is still true in today's society, but in Society 5.0, all relationships are cyber-kinetic. Virtual events have real-world consequences. People are injured. Or even worse.

17.6.1 Society 5G.0

Society 5.0's connectivity requirements are practically unfathomable. Devices and humans will be in constant real-time communication in all locations, from urban to rural. Without 5G, this will not be possible.

Only 5G has the ability to achieve the Society 5.0 vision, with its lightning speeds, high device connection capacity, and near-zero latency. It will make AI's full potential accessible, allowing it to evaluate oceans of data in real time and make critical decisions that affect millions of people.

Edge computing and network slicing will become even more significant than they are currently as a result of Society 5.0's vast geographical spread of services.

5G is already one of the most important Critical Infrastructures. However, in the fifth generation of society, it could be the key to a better existence for all of us.

17.6.2 Cyberspace

With the arrival of the Internet in the mid-1990s, the word "cyberspace" became popular, which was coined by Gibson as a science fiction idea and then extended to computer-based communications and virtual reality technology. For example, cyberspace has been variously called as follows: "Cyberspace is a globally networked, computer-sustained, computer-accessed, and computer-generated, multidimensional, artificial, or 'virtual' reality," according to Wikipedia. Interactivity Space: "Cyberspace is defined by interactivity between remote computers…cyberspace is not necessarily imagined space—it is real enough in that it is the space created by individuals who communicate using remote computers." Conceptual Space: "Rather than the technology itself, the conceptual space within ICTs (information and communication technologies)."

17.7 Difference Between Real Space and Cyberspace

The basis of any digital transaction is packet prioritization, which is the distinction between physical space and cyberspace. Ones and zeros do not carry any independent information by default; nevertheless, a real-space transaction does carry indivisible secondary data. Digital transmissions can simply transmit; unless explicitly stated, there is no secondary information embedded in the transmission. As a result, more information must be carried with cyberspace transactions for identity purposes for verification purposes. Identity theft is a concern when more information is provided through digital communication. Because there is no way to prohibit the transmission of fraudulent identity information or the duplicate of someone else's identity information. To avoid these issues, the sender's true identity should not be communicated with the message; instead, a verification mechanism should be employed to persuade the recipient that the message was indeed delivered by the sender. It is no longer necessary to send one's true identity. The principle of validating rather than exposing provides the sender with an additional degree of security. The digital certificates that were issued to validate these qualities are another source of risk. These certificates are intended to be used solely by their owner, but if they are obtained by a

third party, that third party can impersonate him and represent him as the person for whom he holds digital certificates. We must determine how to store by using these certificates in terms of architecture. The certificates can be kept on a smart card for usage on a computer terminal, or they can be stored in a "identity server" that is protected by a password or biometrics and accessible for transmission. In real life, selecting, verifying, or revealing elements of one's identity is difficult: most forms of identification contain far more information than is required for any transaction. Because of the unbundling capabilities of cyberspace, pieces of an individual's identity can be disassociated and validated by a third party. This not only creates the capacity to verify using the least revealing method possible, but it also creates the framework for anonymous transactions, as it is possible to simply verify the correct information without ever disseminating the same characteristic. Furthermore, users of cyberspace have control over the strength of the relationship between their physical and virtual selves.

17.8 What is the Use of Cyberspace?

Let us now discuss the benefits of cyberspace to us. We live in an Internet era, and the Internet's indispensability is something we cannot dispute. Cyberspace has evolved from the ever-expanding computer network, technology, and the Internet. It is a virtual environment in which computer networks communicate with one another.

Cyberspace brings in various purposes. It allows you to do everything via the Internet. Everything today is related to what is known as cyberspace, whether it be education, military, money, or even education. There isn't a single aspect of our lives that isn't influenced by social media.

The Internet has made data storage and management more efficient. It has helped to organize and systematize man's life. Cyberspace is omnipresent, whether for e-banking, ordering tickets, or even working online.

17.8.1 Working of Cyberspace

We all realize that life today would not be possible without online. So, how does the Internet work? Understand how the Internet allows you to send and receive data from anywhere on the planet, including space. Getting online appears to be rather simple. But there's a lot more going on behind the scenes.

Complex and huge cables, as well as networking satellites, are hidden beneath the sea level and above the earth's surface, allowing you to stream your favourite movie and use the maps to get to your preferred place. There are a variety of physical installations that allow you to connect to the Internet wirelessly.

The majority of cyberspace infrastructure is developed and maintained by private companies. We're all online, but there's no international or centralized authority in

charge of what happens online or how cyberspace is handled and organized. There are submarine cables that employ fibre optic technology to carry data. These submarine cables are the primary data carriers, and they transfer a large amount of data at a low cost.

17.8.2 Is Cyberspace the Same as the Internet?

Cyberspace and the Internet have the ability to create a virtual world for a variety of cultural and social behaviours. It is now possible to observe, communicate, and handle data using virtual cyberspace reality. The Internet, or cyberspace, is a virtual world of computers that allows people to communicate across the Internet. Information is conveyed through the Internet in today's environment. The Internet in cyberspace, on the other hand, is not the same as the Internet. The Internet is a worldwide network of computers that provides information and promotes communication via interconnected networks. This is accomplished through the use of established communication protocols.

On the other hand, cyberspace Internet is a virtual world of computers that exists within a virtual computer network environment.

To fully comprehend the concept of cyberspace and its differences, the Internet can be defined as a collection of computer networks that communicate via the Internet protocol. This is where you'll find the intranet. Cyberspace is a virtual environment connected to the Internet.

17.8.2.1 5.0 Society

The Japanese government suggested the notion of the "5.0 Society" to mitigate the potential negative consequences of technology. A vision of the future in which digital transformation enables people to realize their goals while also contributing to the construction of a more sustainable and resilient society.

A 5.0 civilization strives for digital technology innovation to be the pillar that leads us to a future with limitless potential for humanity. The following principles will characterize this future society.

17.8.3 Diversity

As a result of the standardization of products and procedures, we have established a civilization of patterns and uniformity. Having everyone think and act in the same way is frequently the goal.

Individual diversity would be a significant component of the human race's evolution in a 5.0 society. Different kinds of people with different abilities may be capable

of contributing to a society in which high levels of creativity are necessary to recognize and translate various types of demands and issues into business concepts.

Momlancers, for example, is a Mexican platform that connects businesses with freelancers with children who are looking for flexible hours and/or project-based employment. The idea is for them to be able to balance their personal and professional life at home.

This platform exemplifies how technology enables us to tap into a talent pool that would otherwise be unemployed.

The biggest challenge for momlancers is persuading more companies to trust and value what a per-project worker can bring to the table. If the platform succeeds in this, more mothers will be able to profit from its efforts.

17.8.4 Value Creation

The purpose of modern consumer culture is to create economic value above everything else. A 5.0 society is a concept in which enterprises, governments, and consumers work together to solve problems and create value.

Every day, more entrepreneurs choose to create company models that go beyond financial rewards in order to make a difference, where genuine value is made for either customers or the environment.

With its Vi-Sor service, the Chilean company Red Apis exemplifies this understanding of value generation. It's a customer service language interpretation system that works in real time. Vi-Sor is primarily designed to assist non-Spanish-speaking Haitian migrants in communicating.

Migrants benefit greatly from Red Apis' system since they can better integrate and complete legal procedures in businesses and government entities.

Because not every firm or government agency sees the advantage in investing in a system like Vi-Sor, Red Apis' impact is limited.

17.8.5 Decentralization

One of the key causes of social inequality today is the concentration of wealth and information in the hands of a few.

In a 5.0 society, technology is used to deliver possibilities to everyone, regardless of their location, education, social class, or other factors. Relationships become more horizontal in this manner. Everyone can play a part in creating a more equal society by contributing their unique talents.

The financial system in Latin America is a good example of a lack of access to opportunities. According to the IDB, half of the region's adult population does not have a bank account. As a result, they are unable to use the financial system.

Sumatoria, a digital crowdlending platform, was created in Argentina to address this problem. It enables anyone to invest in entrepreneurial enterprises that might otherwise be ineligible for a bank loan.

The platform provides investors with a proportion of a guaranteed financial return as well as traceability data on the social impact of their money.

Sumatoria has the problem of educating consumers so that they opt to deposit money on a loan for a network entrepreneur rather than keep it in a typical bank savings account by offering such an innovative solution.

17.8.6 Resilience

Externalities such as natural disasters and criminality are currently posing a significant threat to civilization or, for example, the deterioration of public infrastructure, such as health care.

Through technology, Society 5.0 aims to improve human and natural resilience. The objective is to reduce or eliminate the harmful effects of natural disasters or failing health systems.

AdApp designed a mobile application that involves people and farmers at the Gran Chaco to achieve this goal. Between Bolivia, Paraguay, and Argentina, there is an area known as the Andes.

Users acquire information from rainfall monitoring and data collecting, as well as river water levels, to make decisions such as harvesting or transporting items and animals from one location to another.

The residents of the Gran Chaco have been able to better adjust to the consequences of climate change as a result of this application, saving their products and even their lives.

17.8.7 Sustainability and Environmental Harmony

It is critical that we adapt our model of mass consumption of natural resources and limit the environmental impact of productive activities in order to ensure the existence of the human species and the planet.

Society 5.0 proposes to harness technology advancements such as Big Data to promote environmental harmony.

We can eliminate food waste, develop more sustainable cities by using alternative and efficient energy sources, and reduce production and mass consumption by using the collaborative economy.

Kingo is a firm that brings energy to houses in rural Guatemala using solar energy, the Internet of Things (IoT), and Big Data.

Kingo has developed a pre-paid energy sales model, in which clients purchase the energy consumption time they require, helping them to better manage their restricted budgets.

Despite the beneficial impact Kingo has on these communities, the high cost of developing and maintaining Kingo energy units prevents them from scaling at the desired rate, limiting the company's growth.

17.8.8 Equality and Sustainability 5.0

The notion of society 5.0 encourages us to use technology to co-create a more sustainable and inclusive future for all by bringing together all actors in society [8]. In the digital context, innovation, mobilizing the digital, is the key concept [9–11] (Table 17.1).

Table 17.1 Key terminologies

Key terminologies	
Terminology	Detail
Machine learning:	Machine learning is an important part of many business applications and research ventures, ranging from medical diagnosis and care to social networking with friends [6]
Internet of Things	Internet of Things communication methods and better results for a precise smart environment. Nowadays, Cloud computing as well as IoT are common to the people. Moreover, researchers are integrating Cloud Computing and Internet of Things [12]
Cyberspace	Cyberspace is a globally artificial, multidimensional, computer-generated, computer-accessed, computer-sustained, networked, or 'virtual' reality," according to Wikipedia
Deep learning	Deep Learning (DL) is a recent machine learning field which has been launched with the aim of getting machine learning (ML) and artificial intelligence (AI) nearer
Cloud computing	Cloud computing is the newest development in Information Technology, it carries desktop computing to the whole web, and the user does not need to concern about managing and adapting any of the devices
Big data analytics	Big data analytics is the use of advanced analytic techniques to very large, heterogeneous data sets, which can contain structured, semi-structured, and unstructured data, as well as data from many sources and sizes ranging from terabytes to zettabytes
Computer vision	Computer vision is a branch of artificial intelligence (AI) that allows computers and systems to extract useful information from digital photos, videos, and other visual inputs, as well as to conduct actions or make recommendations based on that data

17.8.9 Sustainable Digital Innovations in Society 5.0

Sustainable invention can be defined as a process in which financial, social, and environmental sustainability issues are integrated into organizational systems from idea development to Research and Development and following commercialization of the outcomes. This applies to new business and organizational structures as well as products, services, and technologies (Charter & Clark, 2007). The importance of the environmental, social, and economic factors essential in the innovation process is referred to when the concept of sustainability is mentioned as a vital ingredient gearing innovation. The profit component of sustainability is concerned with concerns such as economic growth, resource efficiency, and the financial viability of businesses. The environmental dimension is concerned with pollution control and the wise and effective use of natural resources. Equal chances, fair economic distribution, equity, justice, and ethical behaviour are all aspects of the social dimension. According to the European Commission (2010), advocating for a more competitive economy that promotes sustainable economic growth with more and better jobs and social cohesion comprises inclusive growth, sustainability, and intelligence. The triple bottom line can be used to examine the relationship between innovation and long-term development (Fig. 17.2). The sustainability triangle serves as the foundation for this viewpoint, which provides a systematic relationship between the innovative dimensions (Fig. 17.6).

Furthermore, the big data itself is not fully accessible and can act as a factor of economic and social differentiation in surveillance and control strategies [13] as shown in Fig. 17.7.

17.9 Summary

Due to the advancement in technology, Society 5.0 is the new terminology that rises with the high rate of involvement of all modern technologies such as Artificial.

Intelligence, big data, and IoT. The concept of Society 5.0 aims to provide a luxurious and good quality of life. The revolution from Industry 4.0 to Industry 5.0 also impacts the betterment of life which makes the individual to get everything on a single click. In this chapter, the various factors responsible for Society 5.0 and applications such as innovations in healthcare, Banking, and agriculture which make the society as Society 5.0 are discussed. The various key terminologies that are effective and impactful with respect to society 5.0 are also described. The Cyber-physical spaces that are the main source for inventing Society 5.0 are also discussed and compared.

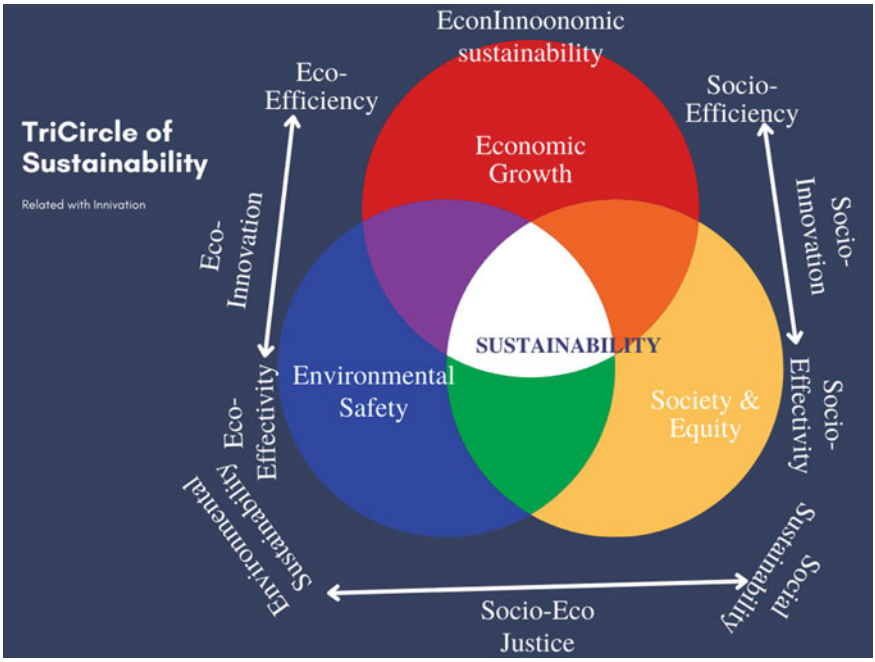

Fig. 17.6 TriCircle of sustainability

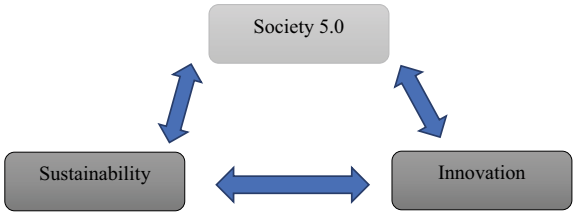

Fig. 17.7 Trimetric interconnection of innovation, Society 5.0, and sustainability

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