

Society 5.0

ソサエティ
Družba

Družba 5.0 v Sloveniji
Society 5.0 in Slovenia



Slovenia–Japan Business Council
Slovensko–japonski poslovni svet



Slovenia-Japan Business Council is a non-political, non-profit organization, whose goal is to promote the business relationships between Japan and Slovenia through the interactions of companies and organizations, and to strengthen the cooperation in industries of the both countries.

sjps.si

ORGANIZED BY



Slovenia-Japan Business Council
Slovensko-japonski poslovni svet
スロベニアー日本ビジネス協会

WITH THE SUPPORT OF



Ministry of Economic Development and
Technology of the Republic of Slovenia

SPIRIT Slovenia - Public Agency

Slovenia and Society 5.0 Development Concept



The Society 5.0 concept is a unique opportunity for Slovenia to cope with the coming global challenges. Society 5.0 is giving us a wide range of development possibilities:

CHOICES/opportunities

If we are able to embed Society 5.0 experiences and direction in the real life of Slovenian society, this will allow/enable us to create great advantages for our economy. We will develop a strong and competitive economy sector that will be able to support the social needs of Slovenian society.

At the same time, this will be a great incentive for further developing our collaboration with Japan – our strategic partner for the development of Society 5.0 standards, regulations and values.

CHALLENGES

It is clear that the world needs to be changed. Human society is in danger from many directions, for example, climate change, energy shortages, aging population, social differences, etc. Society 5.0 is offering a framework or directions on how to cope with these problems. But it will be a great challenge for every society to include the principles of Society 5.0 in their development plans. Slovenia is well on its way towards doing just that. Support is growing parallelly with the problems of social life. As a member of the EU, we have the chance to be a pioneer of the promotional ideas of Society 5.0 across the European Community. The implementation of Society 5.0 ideas is perhaps the biggest challenge we are facing in recent history.

CHANGES

The world is on the threshold of major changes. It is up to us which way these changes will go – what the outcome will be! Society 5.0 is giving us a relatively clear idea how to change society so as to be able to confront the growing problems. Changes will come, but the question is, what kind of changes? Society 5.0 is providing us with the opportunity to create a new, better human society with an environmentally friendly economy and a decent life for all people/humankind.

Miran Skender

Secretary General of Slovenia-Japan Business Council

About Society 5.0

Transforming complex processes into useful solutions

In theory, Society 5.0 is just a promising idea how to connect people with technology. A complicated process with high ambitions and complexity, which works really well, when integrated in all areas of our lives.

When it is implemented correctly and precisely, Society 5.0 can achieve a high degree of convergence between cyberspace - virtual space and physical space - real space. It brings a complex but also effective upgrade to information society – Society 4.0, where people would access a cloud service (databases) in cyberspace via the Internet and search for, retrieve, and analyze information or data.

In Society 5.0, a huge amount of information in physical space is accumulated in cyberspace. This big data is analyzed by artificial intelligence (AI), and the analysis results are fed back to humans in physical space in various forms.

Society 5.0 is Japan's vision for the future. A smart society where technology such as big data, Internet of Things (IoT), artificial intelligence (AI), and robots fuse into every industry and across all social segments in order to solve currently impossible problems and making everyday life more comfortable and sustainable.

The country's education sector is tasked with preparing its students for an unknown but exciting future, creating a generation that will be instrumental in making it a reality. And as Japan is already one of the most advanced societies on earth, the rest of world is paying close attention.

“The essence of Society 5.0 is that it will become possible to quickly elicit the most suitable solution that meets the needs of each individual, therefore we have to give students the skills to both survive the changing society and for them to lead that change.” said Japan's education, sports, science and technology minister, Yoshimasa Hayashi.

A highly profound idea of development of human society

By Work and Technology, which have always been a basis for humankind's existence, we can finally create a World of justice, equality, good and healthy environment, no hunger and, what is most important – a basis that will allow for further global economic growth.

Utilization of technological innovations for creating a better society

The Slovenia-Japan Business Council (SJBC), with the support of the Slovenian Government (Ministry of Economic Development and Technology, Ministry of Foreign Affairs, Ministry of Infrastructure, Ministry of Education, Science and Sport), the National Council of Republic of Slovenia, and the Embassy of Japan in Slovenia, started an initiative to promote the SOCIETY 5.0 development concept.

As a first step, we organized the 5th FORUM: How to do successful business with Japan – an event which we are preparing traditionally. The 5th Forum was completely dedicated to the Society 5.0 concept. Our goal is to detect, from the general idea of Society 5.0, concrete projects or at least a concrete agenda of society development that can serve as a basis for collaboration between Japan and Slovenia.

Why Slovenia?

We believe that Slovenia, as a European (EU) country, has a good basis for starting the concrete implementation of the Society 5.0 idea. We have reached a certain level of social justice, as well as technological development, and we are doing our utmost to follow sustainable development in all fields. As such, being positioned in the middle of Europe, we are an excellent location for various pilot-trial projects. Our government is seriously considering Society 5.0 as a development model.

Why Japan?

Japan, as the originator of the Society 5.0 development concept, and Slovenia have excellent relations and a good basis to start various joint projects related to Society 5.0. We already have good mutual experience in robotics, smart grid-smart communities, mobility, etc. As such, we can be a good partner to Japanese companies coming to Europe with new technologies and products.

Welcome speeches





Mr. Aleksander Mervar, MSc
CEO of ELES and President of SJBC

»The world is on the brink of great changes« - this is a statement that we hear very often these days. On a daily basis we are witnessing technological and scientific breakthroughs in various fields. But we are also hearing daily warnings that humankind is facing numerous problems that are calling for profound social changes. With the help of science and rapidly developing new technologies, these changes will provide for a better, more just society for all peoples.

Humans and technology have been closely interwoven from the very beginning of human existence. Without technology, we wouldn't be here today, and one cannot even imagine what the future of humankind would be like without the rapid development of science and technology. This is the foundation of our existence. With the Society 5.0 project, we are embarking on a very challenging task – how to organise human society so that the development of science and technology will benefit all peoples, protect the environment in which we live, and at the same time provide for the long-term development of human society.

The Japanese development initiative, known as Society 5.0 or Super Smart Society, is, in my opinion, a highly suitable basis for similar endeavours in Slovenia as well. And that is because this development concept encompasses all issues which humankind is facing today, and because Slovenia has a very sound basis for cooperating with this economic superpower. Our economic cooperation is excellent. We have references in the field of energy – the NEDO smart cities project being conducted by Eles and Hitachi, with the support of the Japanese development agency NEDO, is already in its second phase. At this very time the robot factory of the Yaskawa Corporation is starting its operation in Kočevje. This is a smart factory and Yaskawa's second of its kind in Slovenia, which is becoming the centre of Japanese robotics in Europe.

Our cooperation is commendable in the area of mobility, state-of-the-art cancer treatment systems, logistics – Toshiba has just finished equipping a modern logistics centre of the Slovenian Postal Company in Ljubljana, and there are, of course, many other examples of our successful partnership.

It is my belief that Slovenia and Japan have a similar outlook on the problem of the further development of human society. The Society 5.0 development concept can further strengthen our business relationship. And Slovenia, as a member of the EU, also has the opportunity to promote and develop this concept within the European integration. An exceptional opportunity for this will be Slovenia's presidency of the EU Council in 2021.

A great deal is being said these days about new technologies, scientific breakthroughs, etcetera, but not enough about what all of this means for the development of human society and the environment in which we live. The Society 5.0 development concept is doing just that – searching for solutions to how technology and science can provide a system of human society that will be friendly to seniors, young people, the environment, and all that is important for the health and quality living of people. At the same time, this concept will support the further development of humankind.

Today's Forum is bringing the cooperation between Slovenia and Japan onto a new, higher quality level. The Slovenia-Japan Business Council will, together with partners, systematically devote its efforts towards ensuring that Society 5.0 becomes a permanent process. Already in 2019 we are planning a number of events in Slovenia and Japan in order to promote this process.

I wish the Forum, and in particular the endeavours for Society 5.0, much success!



Mr. Jože Mermal

Chairman of the Board of Directors,
BTC Company

Today, as we are aware that long-term business success demands being in harmony with sustainable development, care for the social and natural environments has become one of the cornerstones of many organisations.

The future, however, is increasingly dictating a direction heading towards a vigorous introduction of innovative solutions in different areas, be it business operations or individual lives. Companies are responsible for finding answers to complex questions about the direction of technological development to the benefit of not only economic progress but also social and individual prosperity. These are the needs addressed by Society 5.0, an initiative supported and adhered to by BTC.

BTC is a dynamic, open and modern company, one that always strives for progress. Throughout history, its actions have been characterised by a well-considered but also ambitious and visionary realisation of bold ideas, a reflection of its successful development.

The company has always progressed in the spirit of sustainability, taking into account the needs of the broader community and all those we associated with on our common journey. With permanent partnerships and ground-breaking stories, we gradually forged the urbanised area of BTC City, which is open to all and as such presents infinite possibilities and opportunities for future development. It is a crossway where entrepreneurial, social and innovative ecosystems intertwine, as well as a regional hub of innovations, investments and industries. It is here that we started to implement our globally-oriented project BTC Living Lab, which represents a unique environment for testing innovative solutions for technologies of the future that benefit humankind, and which I am convinced will play a leading role in the implementation of Society 5.0.

In this way, we are realising our mission and our vision, not only in terms of fostering business development but also aiding progress aimed at an open and integrated BTC as an institution based on socially responsible actions addressed by Society 5.0.



Mr. Alojz Kovšca

President of the National Council
of the Republic of Slovenia

We live in a time when the structure of our conditions through the prism of the individual and society is changing significantly. Time is simply running differently – faster; it's actually leaping. This is clear to every one of us. Postmodernism, which we are witness to, is again offering us a new industrial revolution. A revolution that is changing economic relationships at their core. The important pillars of the industries of the world are losing dominion, which a hundred years ago they thought it would last forever. Today the leading positions are taken by smart societies – countries, unions, companies, corporations, alliances, individuals, cities and villages, etc.

Today, what does it mean to be smart? Is it about wisdom, based on progress? Is it a skill of overall networking and the new synthesis of acquired knowledge? Is it green responsibility in informed decisions? We should admit to ourselves that technological progress is following this prescribed path faster than other social processes. In social, humanistic and morally-ethic contexts, science, research and innovation without us cannot reach their full value. The invitation to this event stated that the final goal is a fair human society. But do we know where we are going? Do we know how to get there? Are we mature and responsible enough? Are we competent and empowered enough for this leap into the future?

I feel privileged to have the honour and opportunity to stand in front of you today – before this respectable forum, which aims to globally support the Society 5.0 developmental concept, instigated by Japan, which is one of the leading economic powers in the world. The popularity of the concept is recognised by numerous societies around the world, not only in Slovenia. The National Council is constantly striving for our international contacts and diplomatic relations to be directed toward concrete results of strategic cooperation, and toward good business relations of Slovenia with the world. Events like this forum are an excellent opportunity not only for Slovene and Japanese companies, but principally for the national policy and the common EU policy makers to choose the developmental paradigm, which will soon bear fruit. Slovenia's developmental strategy is ambitiously looking to 2050. In order to live our vision of the common future, we must act in the present. We are small enough and at the same time big enough to become an example of good practice on all levels, which the Japanese concept is offering - robotics, artificial intelligence, energy industry, sustainable mobility, etc. These are only fragments of a larger story whose chapters we are writing ourselves. Let's be among the first.



Mr. Jernej Pikalo, PhD

Minister of Education, Science and Sport
of the Republic of Slovenia

I have to say that I am honoured to be here in this afternoon. What this event gives us, or what this event shows us is that we have on one side the social problems – the aging population, mobility, issues with electricity, transportation and so on.

On the other hand, we have science than can come with solutions to those issues. And I think this is ideal. It is science, where a lot of different approaches come together. It is a science where no easy solutions are there. It is not that there would be just technical solutions. It is not that there would be just social solutions, but they have to work together.

Because this is what Society 5.0 is all about. When I first heard of it, and the ambassador knows that this was in the first weeks of my current position, I have to say I was impressed.

I was impressed when I was visited by His excellency chief scientific officer and we were honoured to be there, to be presented with the very concept of the Society 5.0, because this is what us and this is also what the European union at the end needs. And we are honoured in this aspect that Slovenia can serve as a platform.

And again, to my big thanks, first of all to all our Japanese partners, and secondly to our future Slovenian partners that will hopefully work together.

As I have said, this is never just one way, it is always collaborative. It is always coming from different technological and sociological aspects. Because the issues are complex. And the issues can be solved to an extent by technology, but then there are issues that require management of the human relations. There are issues that require different solutions that we have seen so far.

One of the biggest Slovenian challenges of the future is demographics. We are a rapidly aging society. And if we continue like this, without proper solutions, we will have, if I saw it correctly, in 2025 first big issues. In 2035, we will have enormous issues, if we do not do anything. So, we have to think about it now, because we know how many people have been born in those years, and we know what the current population is, how is the population going to retire and we roughly know what will happen in the future. So, we know all of this, but we still fail to act.

This idea of a Society 5.0 is about this. It also gives us a reflection, because we have strategies for a long-term living. But we have to make it operational. We have to make it technological. We have to make it in many other aspects. And this is where concepts of the Society 5.0 really helps.

So, thank you so much for bringing a platform to us and at least from our prospective, we will be glad to help you.



Mr. Zdravko Počivalšek

Minister of Economic Development and Technology of the Republic of Slovenia

First, let me say a few words about the Society 5.0 initiative and the progress Slovenia has made in this area. For a few years now we have been dealing with the developments, which were brought on by Industry 4.0 in industrial manufacture and exchange of information. Undoubtedly, this has increased the efficiency of business and technological processes, and added value to products and services. But within this incredible technological development and digitalisation we should not forget the people and society. The world, including Japan and Slovenia, is facing numerous new social challenges, such as ageing populations, environmental and climate challenges, famine, healthcare, etc.

All these are the challenges that have solutions in the next developmental step, Society 5.0. It represents a way where different existent technologies can be used to address the abovementioned social challenges. In developing these approaches, we must uphold standards, provide appropriate consumer protection, support ethic and values. I believe that Society 5.0 represents a myriad of opportunities for further technological breakthroughs also for Japanese and Slovene companies. The efforts of Society 5.0 are directed toward the Slovene economic slogan "Green. Creative. Smart.," therefore we are strong supporters of this initiative. I daresay we are living it.

Toward this end the Ministry of Economic Development and Technology has been preparing or implementing two sets of measures.

- a) We are preparing a special Programme for digital transformation. With it we are implementing new measures for the digital transformation of society and companies, for which we will allocate between €50 million and 70 million.
- b) We are also supporting pilot and demonstration projects in industry, for which we allocated €57 million. We are in the phase of assessing the projects, and I can say that we received a number of good projects for improving the environment in the healthcare industry, the use of water resources, and with solutions for the energy sector.

By supporting the actual projects, the Ministry of Economic Development and Technology would like to add its piece to the mosaic of further development toward the Society 5.0 initiative.

Collaboration with Japan is of the greatest importance for Slovenia, therefore we chose Japan as a strategic partner in our strategic documents. We can learn from Japan, since the country is a synonym for high added value, high technology, new knowledge and positive growth trends.

Our countries are both similarly distinguished by a dedicated and highly educated workforce, innovativeness and technological development, appropriate economic climate, and the environment, conducive to investment.

The strength of our cooperation is also evident from the increasing trade exchange, which in 2017 reached €227 million.

We see the strengthening of investments by both countries; to name but a few examples of good practice of investments of Japanese companies in Slovenia: Yaskawa robotics project, Daihen Varstroj with welding equipment, pharmaceutical and medical products by Lonstroff (Sumitomo Rubber Industries), Bia Separations in biotechnology. Or Slovene investments in Japan such as: Elan Japan, Instrumentation Technologies-MTT Corporation, Cornnet Global, Cosylab, and Knauf Insulation since May 2017.

Lastly, we cannot ignore the good practices in cooperation between our countries in establishing the smart electric grids NEDO.

I wish to enjoy such good economic and trade relations in the future, to not only preserve them but to strengthen them in all areas. In the end I would like to thank the organisers of this business forum for providing interesting challenges, and for strengthening the exchange of knowledge and cooperation between the countries. I wish you a successful forum.



H.E. Masaharu Yoshida

Ambassador of Japan to the Republic of Slovenia

First of all, let me explain the background of the Society 5.0 concept. Since coming to power in late 2012, Prime Minister Shinzo Abe and his government have unveiled a comprehensive policy package to revive the Japanese economy while maintaining fiscal discipline. This program became known as Abenomics. While Abenomics started as a stimulus measure based on three arrows, it has evolved over the years into a broader blueprint for pro-growth socioeconomic change that aims to lead Japan in tackling today's challenges head-on. The changes are designed to benefit all parts of Japan's economy – the people, companies, investors, and the country as a whole. Demographic change is a social challenge that will soon be shared by most developed countries across the world. Japan is committed to achieving sustainable growth and becoming a pioneer in the establishment of a new social model. We call this the Society 5.0, Japan's vision for the next step in human evolution after hunter-gather, agrarian, industrial and information society stages. It will enhance industrial competitiveness and help with the establishment of a society more attuned to individual needs. The focus is on the vast potential of accumulating data and new technologies of the fourth industrial revolution (the Industry 4.0), in order to find solutions to social issues such as the declining birthrate, aging population, and environmental and energy issues. It envisions a super-smart society where technologies such as big data, Internet of Things (IoT), Artificial Intelligence

(AI), and robots fuse into every industry and across all social segments. The hope is that this information revolution will be able to solve the currently unsolvable problems, making everyday life more comfortable and sustainable. Taking care of the elderly and disabled persons, for example, should be easier with the utilization of such technologies.

Needless to say, the Society 5.0 is not only for Japan but also for all the countries facing similar social problems, such as Slovenia. In fact, in the summer of 2018, it was announced that Tokyo would become a hub for the 'World Economic Forum Center for the Fourth Industrial Revolution Japan: C4IR (Japan)'. This means Japan's innovations in science and technology will be shared across the world in sectors such as healthcare and mobility.

From this point of view, Japan welcomes the eagerness of the Slovenian partners, including the Government of Slovenia and the Slovenia Japan Business Council (SJBC) to work together with us in realizing the Society 5.0. It is very encouraging that the SJBC, which has become a strong driving force for the enhancement of business relations between our two countries, will be our partner in this very important endeavour. It is my strong belief that Slovenia could become a leading pioneer in implementing the Society 5.0 for the following reasons: (1) Slovenia is a high-tech oriented country with many companies and research institutions

with advanced knowledge in the areas related to the Society 5.0; high-tech company Cosylab, for instance, has become the leading global developer of integrated control systems for particle accelerators, be it for experimental physics research or proton therapy; they work with the world's top scientific institutions, including KEK, the High Energy Accelerator Research Organization in Tsukuba, Japan; (2) Slovenia faces similar social problems, such as aging society which needs to be tackled with the help of advanced technologies; (3) Slovenia's relatively compact size makes it easier to introduce such a concept even faster than in large countries like Japan; (4) Slovenian people are very strongly oriented towards the welfare of citizens as well as the protection of the environment. "Innovation and the social wellbeing of the population need to work in tandem." And last but not least, (5) Japan and Slovenia already have a strong base for cooperation in high-tech areas through joint efforts in many different projects.

Let me emphasize that last Friday, as some of you may know, the Economic Partnership Agreement between the EU and Japan, the biggest bilateral trade agreement ever negotiated, entered into force. This will represent a historic opportunity for our two countries to enhance the ties not only in trade and investment but also in science and technology, thus creating excellent conditions for the realization of the Society 5.0 concept.

In fact, we already have some very good and concrete examples of collaboration in the areas related to the Society 5.0, to name but a few:

1.) New Energy Development Organization of Japan (NEDO) and Hitachi are working together with the Slovenian government and ELES to develop and demonstrate advanced cloud-based integrated distribution management systems (iDMS), as well as energy management systems (aEMS) and systemic energy storages. We sincerely hope

that the technological solutions and products which are jointly developed and produced by the companies of both countries will be exported to other European countries in the future.

2.) As you may well know, Yaskawa Electric, one of the largest producers of industrial robots in the world, is building a robot factory in Kočevje, which will cover about 75% of the demand for Yaskawa's products in Europe, the Middle East and Africa. Yaskawa, which already has a very strong collaboration with the Institute Josef Stefan as well as the University of Ljubljana, will also establish an R&D center in order to strengthen its R&D capacities in Europe. In addition, Yaskawa is collaborating with Slovenian-owned company RoboticsX, which is located here in the BTC, to develop solutions for a smartfactory called "Yaskawa Cockpit."

3.) Toyota Adria is working together with Slovenian company Brend7, the developer of BDF Handle innovative lever for disabled car drivers, to promote the implementation of Toyota's "Mobility for All" global concept in the region. To further this concept, Toyota Adria is also working closely with the BTC Company to introduce highly advanced car sharing solutions here in the BTC. Furthermore, in line with the "Mobility for All" philosophy, Toyota Motor Corporation has concluded a partnership with the International Olympic and Paralympic Committee as well as with individual national Paralympic Committees, including Slovenia's, to support their activities on the way to Tokyo 2020 Games and beyond.

4.) Japanese electric giant NEC and Slovenian ICT company LIT Transit are cooperating in the development and production of intelligent public transport management solutions for smart cities, e.g. cloud-based fleet management, automated fare collection and ePaper displays.

5.) Slovenian aviation high-tech company Airnamics is participating in the KamomeAir Project to develop the next-generation unmanned logistics/cargo VTOL aircraft codenamed KamomeCopter. The project is aimed at enabling regular delivery services of essential goods to small and remote Japanese islands which are facing a serious depopulation issue.

6.) When it comes to future projects, there is a huge potential for collaboration in the medical field, which is an integral part of the Society 5.0. I sincerely hope that the advanced technologies of Japanese companies, such as Hitachi whose presentation we saw this morning, will be utilized in the planned project for the construction of the Slovenian Proton Therapy Centre for Cancer Treatment (SIPTC) in cooperation with Slovenian partners. Contacts have also been established between Toyota Adria and the University Rehabilitation Institute of Slovenia on possible collaboration in the field of rehabilitation robotics.

In the end, I would like to touch upon two major international events hosted by Japan in the near future: the Olympic and Paralympic Games Tokyo 2020 and the Expo 2025 in Osaka-Kansai. The Tokyo Games are set to be the most innovative in history and will serve to introduce some of the latest high-tech solutions applicable not only in sports but also logistics, security, entertainment and other areas related closely to the Society 5.0 concept. Japan also puts a strong emphasis on the importance of the Paralympic Games and their message of promoting and facilitating the integration of people with disabilities into the society thru sports.

On behalf of the Government of Japan, I would like to express sincere gratitude for the support of the Government of Slovenia to the candidature of Osaka-Kansai at the BIE meeting in Paris in November last year. The main theme of the Expo 2025 will be “Designing Future Society for Our Lives” in order to lead a healthy life in a diverse manner as well as to ensure Sustainable Socioeconomic Systems. In the future society, we not only have to focus on advanced technologies themselves but also on human lives; thereby contributing to the achievement of the UN Sustainable Development Goals (UN SDGs). We believe that the realization of the Society 5.0 is a key to the achievement of the SDGs, and we would like to make the Expo 2025 a showcase for effective solutions to various global and social issues utilizing the concept of Society 5.0. I sincerely hope that Slovenia will be a front-runner for the achievement of the Society 5.0 in the world, even ahead of Japan. It is my honest wish that the Expo 2025 becomes a venue in which Japan and Slovenia can show to the world what we will have achieved in the areas of Society 5.0.

Company presentations and keynotes



Society 5.0

FORUM | **SOCIETY 5.0 IN SLOVENIA** | 6th February 2019
FORUM | **SOCIETY 5.0: NEXT STEP** | 4th November 2019



www.nedo.go.jp/english/



www.toyota.si



www.eles.si



www.lit-transit.com



www.AVLivingLab.com



www.cosylab.com



www.yaskawa.eu.com



www.btc.si



www.roboticsx.com

Dr. Yoshiaki Ichikawa, Senior Chief Engineer at International Standard Office in Hitachi, Ltd., a Visiting Professor at Tama University and Tokyo City University, a Chairman of ISO/TC 268/ SC 1 "Smart community infrastructures"

Mr. Koichi Akaishi, Vice Minister for Innovation Policy, Cabinet Secretariat

Implementing Society 5.0 in Slovenia Panel discussion

Challenges for the Future of Our Society 5.0 Panel discussion



Kazuo Yokota

Director General, Smart Community Department,
New Energy and Industrial Technology Development
Organization (NEDO)

NEDO plays an important role in economic and industrial policymaking in Japan as one of the country's largest public research and development management organizations. It has two basic missions. One is to address energy and global environmental problems, and the other is to enhance industrial technology.

NEDO facilitates industry-academia-government collaboration by integrating its knowledge and skills.

NEDO has been implementing 18 Smart Community Demonstration projects across the world that would contribute to realizing Society 5.0, aiming to increase the deployment of distributed energy resources and renewable energy.

Project in Slovenia

The Project is being implemented to increase the use of renewable energy such as PV and wind power and to improve the quality of electricity utilizing advanced grid management technology in cooperation with the Government of the Republic of Slovenia.

The Distribution Management System (DMS) aims to address challenges anticipated in connection with the increase in renewable energy adoption and electricity demand, such as voltage fluctuation, power outage, overload, and energy reserve.

The Advanced Energy Management System (AEMS) with batteries aims to provide electricity to critical facilities such as hospitals during huge power outages, and to mitigate damages from voltage dips (a momentary decrease in voltage caused by snowfall, lightning strike or other natural disasters).

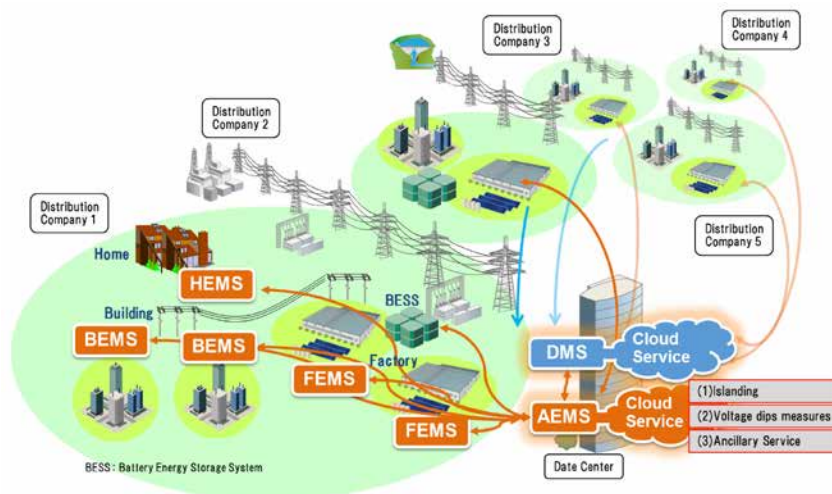
A distinct feature of this project is a utilization of a cloud-based integrated DMS and AEMS. TSOs, DSOs, retailers, large customers and many residents participated in this project. Through the participation of various stakeholders, NEDO is confident that this project will contribute to realizing the Society 5.0 in Slovenia.

NEDO also believes that it can contribute to solving similar challenges other EU countries are faced with.



**NEDO / The New Energy and
Industrial Technology Development
Organization**

www.nedo.go.jp/english/



As the transmission system operator ELES ensures the safe, reliable and uninterrupted transmission of electricity. ELES is the guardian of Slovenia's electric power system, which is closely connected with the transmission networks of the neighbouring countries and integrated into the European energy system. As experts in the field of energy, and through the application of knowledge and advanced technology, ELES provides both suppliers and consumers with the quality transmission of energy – a quality of life.

Slovenian Japanese Partnership in the Field of Smart Grids and Smart Communities

Advanced electric power system will operate under conditions where every household will be an active participant in the system and where many households will own different renewable generation sources and or storage units. ELES is preparing for the transition of the power sector towards Society 5.0 and one of the activities is Slovenian Japanese Partnership in the Field of Smart Grids and Smart Communities, where NEDO, Hitachi and ELES participate in project named NEDO.

NEDO is a three-year smart grid project whose principal partners are NEDO with its entrusted party Hitachi, and ELES. Alongside ELES, a large number of stakeholders from Slovenia participates in the project, which is why it can be called a national project and the only one of its kind in Europe. Activities will be carried out on all levels of grid infrastructure in Slovenia and two municipal communities.

Benefits of the project are in the use of advanced solutions that can respond to the challenges of modern electricity systems by means of environment-friendly solutions. Instead of investing in grid expansion, the use of advanced secondary equipment, ICT and cloud solutions will enable better exploitation of the existing grid. Part of ELES's system services, which are primarily provided by coal- and gas-fired power plants, will be provided from storage systems. Consumers will receive a higher quality of electricity supply and the option to actively participate in electricity markets and system services.

ELES d.o.o.
www.eles.si

ELES
PRENAŠAMO ENERGIJO,
OHRANJAMO RAVNOVESJE.



Damjan Kralj, M.Sc.

Chief Executive Officer, Member
of the Board of Directors, BTC

The BTC Company is one of the leading commercial property development companies in the region. Under the brand name BTC City, it manages one of the largest business, shopping, entertainment, recreational, and cultural centers in Europe, located in Ljubljana, the capital of Slovenia.

Additionally, it also manages two shopping centers in Novo mesto and Murska Sobota and provides first-class property management services for the largest Slovenian clients in the commercial real estate service sector. The BTC Company also runs a logistics service business unit, which holds the leading market position in FMCG logistics in Slovenia. As one of the main co-founders, the BTC Company also supports a unique and globally positioned

startup ecosystem ABC Accelerator – best 2017 & 2018 regional accelerator by CESA – that has more than 90 startups in its portfolio.

To co-create the promising industry 4.0 landscape, the BTC Company together with its partners runs a stimuli-rich Living Lab platform, based on BTC City Ljubljana's multipurpose hybrid concept, consisting of shopping, business, and leisure components. A variety of content and infrastructure blended into a harmonized social area attracts the different customer and business segments. As such, it provides an infinite quantity of human and technological footprints each day, making BTC Living Lab ideal testing and developing platform, which enables Industry 4.0 and Society 5.0 promising solutions to be tested and further developed in a real testing environment.

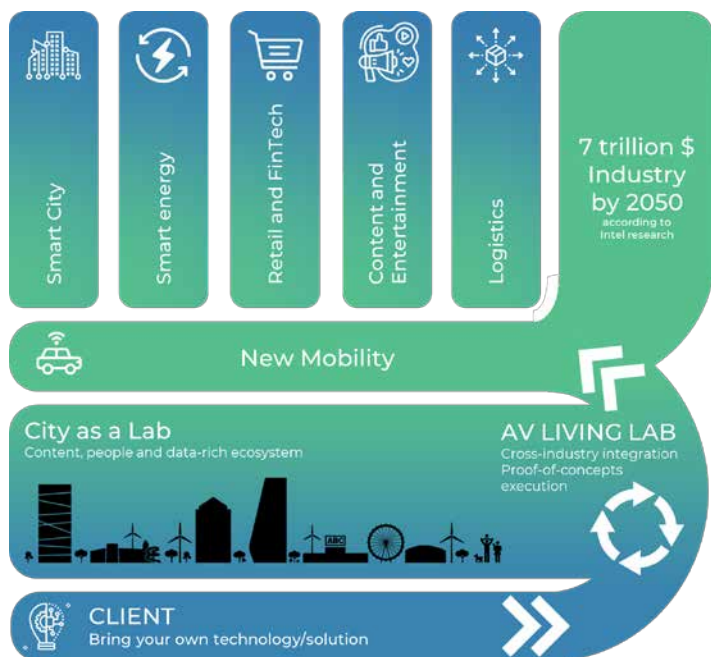
With a bold vision, we became a sustainable and innovative hub with dedicated team, where international and local partners cooperate in living lab programs, perform pilot projects, and develop sustainable, innovative, and digitalized solutions for better tomorrow. Until now, we have successfully performed more than 30 projects, among which couple of them with our Japanese partners, such as Toyota, NEDO and Hitachi.

Our techno-social ecosystem with more than 21 million visits per year is a perfect landscape for Japanese companies, trying to transfer their people-friendly and super-smart society solutions into Europe.

Welcome to BTC City Ljubljana, the habitat of Society 5.0 ready ecosystem and your R&D gateway to Europe.



BTC Company
Ljubljana, Slovenia
society@btc.si
www.btc.si



AV Living Lab is an integrator and unique world-class living lab.

It connects multiple industries, advanced technologies, data, content, and people-rich ecosystem, physical and digital infrastructure of one of the biggest shopping, business, and entertainment centers in Europe to develop breakthrough solutions for the future of mobility. Work areas include Living Lab Orchestration and Services, operation of Startup proving ground and Mobility-oriented Event management.

City as a Lab as an accelerator of Society 5.0

Proving grounds, test and race circuits, closed laboratories and other controlled facilities were supposed to be ideal for pushing the ideas to the limit. We believe this is not the case anymore. The only way to successfully implement ideas, ranging from business and technology to bold visions of the future, such as Society 5.0, is to test it in a real-life environment. We call it City as a Lab, a complex but controllable habitat, composed of people and technology interacting and mutually influencing one another.

City as a Lab is a cross-industry ecosystem in BTC City Ljubljana with advanced physical and digital infrastructure in one of the largest European business, shopping, and entertainment centers. 475 thousand square meters, more than 21 million visitors per year, 12,5 million cars crossing 11 kilometers of streets, 3.000 companies, more than 450 shops, 70 restaurants and 8,500 free parking spaces are prepared to be transformed for testing new proofs-of-concepts and improving the quality of urban life.

City as a Lab is a "Society 5.0 accelerator", with infrastructure, ready to implement technology solutions, perform Proof-of-concept operations, validate the idea, and prepare a production-scale implementation anywhere in the world.

In City as a Lab ecosystem, we have already tested and implemented 30 proof-of-concepts, such as autonomous shuttle, smart parking, car-sharing platform, car simulator, digital payment platform, waste heat recuperation, smart city platform, and many others. Technologies, ready for Society 5.0, are our next logical step.

AV Living Lab, Innovative technologies, Ltd.

www.AVLivingLab.com
info@avlivinglab.com





Society 5.0

ソサエティ



WHAT?

Human-centric cross-industry engagement



Smarty City



Smart Energy



Retail/Fintech



Content and Entertainment



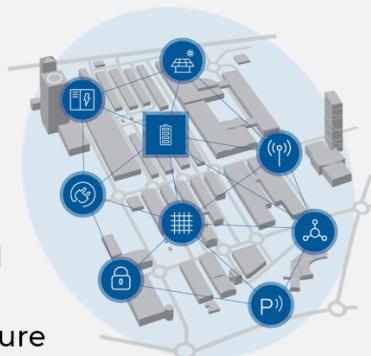
Mobility and Logistics

City as a Lab **Ecosystem**

WHERE?



Physical
Digital
infrastructure



475.000 m²
surface area

21 mio
visits per year

450
shops & services

11 km
of roads

Content and people-rich environment of BTC City Ljubljana



AV Living Lab is an integrator and unique world-class living lab, connecting content, data, and people rich ecosystem, physical and digital environment to validate your new breakthrough solutions in this unique City as a Lab environment.

WHO?

CLIENT'S TECH
& CHALLENGE

AV LIVING LAB SERVICES

Cross-industry integration
Research and development
Proof-of-concept
implementation
and execution

NEW BUSINESS
MODELS AND
SOLUTIONS



Better mobility for all and respect for the environment

The success story of Toyota Adria is built on innovation. First in terms of its products and services, but more importantly on the dedication and passion of the people creating them. Every day we strive towards a brighter future

and evolve beyond a simple car company. We want to share and apply our know-how in ways that benefit people, the community and our planet in order to build a better today and an even better tomorrow.

Toyota Adria | Toyota Slovenia
toyota.si



As part of Toyota global operations and focus on becoming more than just a car selling company we are proud to encourage the **“Mobility for All”** and **“Start Your Impossible”** initiative in Slovenia with highly effective projects we can be proud of.

First we are delighted to announce that we finished our sales in 2019 with a 64 % Hybrid ratio. Our hybrid sales are helping to grow a real life Toyota forest. Together with the Slovenian Alpine Association and Slovenian Forest Service we plant a tree for each sold Hybrid as part of our **“One Hybrid. One Tree”** project.

An important aspect of Toyota Corporation's way of working is the ability to adjust to local circumstances and environments. In Slovenia this concept is being realized by **Mr. Kensuke Tsuchiya**, President of Toyota Adria: *“Slovenia has 170,000 people with different physical disabilities. As many as 5100 people are wheelchair-bound and there are 2800 registered disabled drivers, but we have nevertheless seen a relatively modest degree of social responsibility towards drivers with different physical disabilities. That is why our “Mobility for All” campaign supported several actions directed at changing perceptions and experiences for the better.”*

For the third year now we have been supporting the **Heros in Pyjamas** project together with Zavod Vozim to raise awareness about safe driving, accident prevention and advocate zero tolerance for alcohol when driving (in Slovenia, 30 % of total car accidents are done by young people, and 40 % are caused by alcohol). The project was recognized by the European Commission as the best road safety initiative in the EU in 2016 – 2019, winning the prestigious Jacques Barrot Grand Prize.

We are also the only car company in Slovenia to be associated with and work closely with the company that created the **“BDF. Handle”**. This co-operation brings the freedom of independent and safe driving to people who do not have the use of their legs but have fully or partially functional upper bodies. The handle is also the only product in Slovenia to be officially certified as appropriate and safe for use. Toyota is the only car brand in Slovenia to offer customers cars equipped with the “BDF. Handle” for test drives. In cooperation with **AMZS**, the Slovenian national automobile association, we also provide safe driving school services free of charge.

We are actively contributing to create a society where everybody has the same mobility options. No mobility, no life! One of our greatest achievements in the field of **rehabilitation and recovery** is

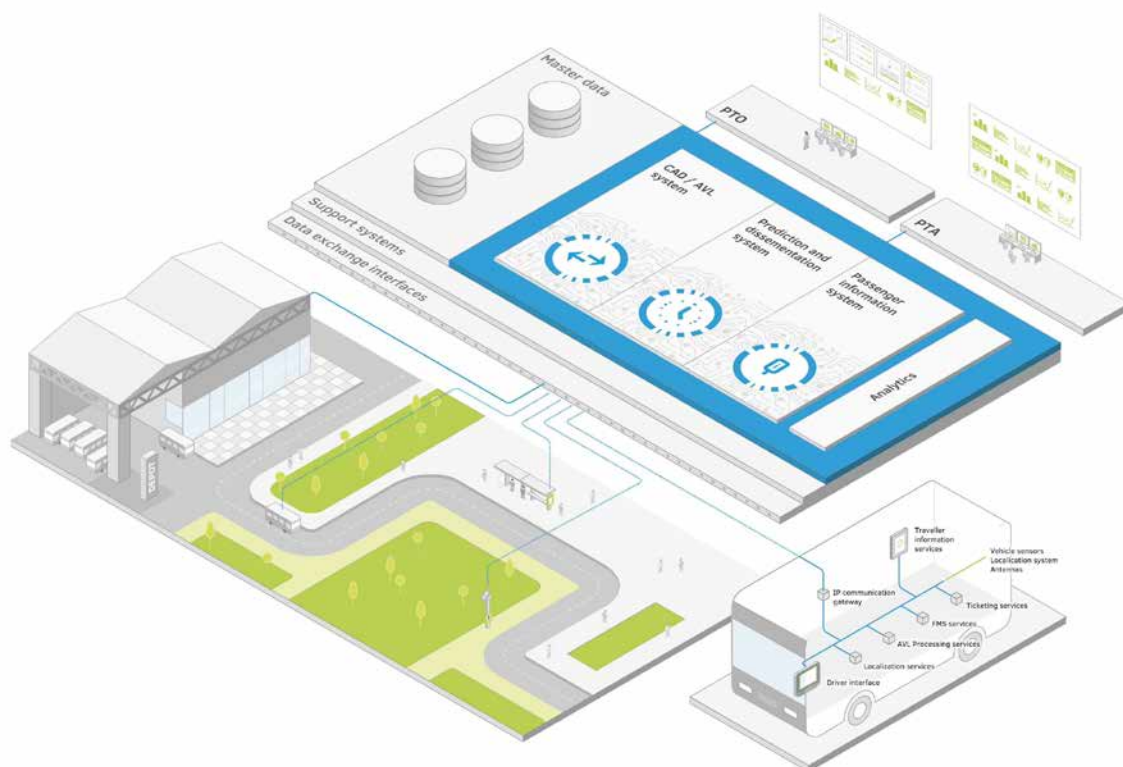
the collaboration between the Soča national rehabilitation institute, the University of Ljubljana, the Fujita University and Toyota Motor Corporation in the research and development of robotized rehabilitation devices. The commencement of this collaborative project was praised as a major paving stone for further cooperation between Slovenia and Japan. We also donated a vehicle to the Soča rehabilitation institute for the purpose of patients being able to practice getting in and out of vehicles after being discharged from the hospital.

Following global guidelines and providing trending solutions, Toyota Adria has collaborated with two other Slovenian companies, BTC and AV Living Lab, to launch the **DriveMe** pilot project and develop a new form of mobility. Toyota DriveMe is a local vehicle sharing and modern fleet management service. With the use of Toyota and Lexus hybrid vehicles the service promotes greener, more efficient use of transportation based on shared economy rather than ownership, allowing users to reduce costs, secure parking spaces and use cars in a smarter and more optimized way.

Considering we are in an Olympic year, we are very proud to have **Miroslav Cerar as our ambassador**. For over a decade he was considered unbeatable on the pommel horse and became the epitome of a winning athlete with his grace and power. Cerar won the gold medal at the 1964 Tokyo Olympics on the pommel horse and bronze on the horizontal bar. This year he is returning to Tokyo as the head of the Slovenian Olympic Team.

Working towards a better future for everybody requires the provision of our products and services in close collaboration with other local and international organizations active in Slovenia. By strengthening our partnerships and networks we are pursuing the motto “Together Stronger”. It guides the smallest steps we take with passion, honest hearts and a strong will. This is why we know our future will be bright!

#StartYourImpossible



LIT Transit is a company with more than 20+ years of experience in public transportation solutions / telematics / IoT and payment systems from around the globe and one of the largest players in APAC and EMEA region.

Currently we have 80+ employees with a HQ in Slovenia, however you can also find our offices in London, UK and Tokyo, Japan.

LIT Transit solutions can be found on over 20,000 buses and 30,000 bus stops world-wide.

LIT Transit is an innovative company focused in specialized IoT solutions for public transport all around the globe. LIT's goal is to simplify complex public transport processes using latest technology. Our solutions cover the fields of service management, passenger experience, revenue collection and contract performance.

We focus on full fleet management CAD/AVL solutions, with useful integrated BI tools.

Great public transport means, that all of the information available to the passengers is accurate and in real-time- With the use of machine learning, AI and deep learning, we are able to achieve outstanding estimated time of arrival predictions that drastically improve quality of public transport.

Automatic fare collection, is one of our core solutions and can be found in multiple countries and continents. We strive to optimize payments in public transport and increase customer experience. We follow maximization of revenue goals of our clients as well as smoothness of usability for the passengers.

At the end of the data flow within the system we take care of the passengers at bus stops. We have created ultra-low energy consumption screens under the brand name Papercast, that are based on e-paper technology. Full integration with AVL systems, IoT capability, low energy consumption, brilliant direct sunlight visibility and plug and play installation make this a market leader in its field, extremely environment friendly and ready for the use in Society 5.0.

LIT-Transit d.o.o.
lit-transit.com





Cosylab is a solution provider for the world's most complex, precise and advanced systems.

We enable research organizations to make scientific breakthroughs, hospitals to deliver better cancer treatment and organizations to improve their performance. We are the world-leading provider of medically-certified solutions for a safer, more effective and more affordable cancer treatment with particle therapy. Through this we strive to play a part in building Society 5.0.

The need to establish a particle therapy center in Slovenia that will be beneficial to a broader region, arises, first of all, from the needs of Slovenian oncology patients, followed by the needs of the oncology profession, and of the scientific and business community in Slovenia. This is why the establishment of the Slovenian Particle Therapy Centre (SIPTC) is defined in the National Smart Specialization Strategy, and also indirectly in the National Cancer Prevention Program, and also included in the National Development Policy Program. This defines the Institute of Oncology Ljubljana (OIL) as a regional reference center for radiotherapy, and particle therapy as an important complement to conventional radiotherapy. The fundamental vision of OIL, as the leading medical institute in the field of oncology in the country, is to be one of the leading oncology centers in Europe. This goal obliges OIL to follow novel developments in all areas of oncology, which also includes particle therapy for cancer treatment.

Mission of the SIPTC:

- To create a **regional, patient-focused** centre where **health care and science are combined** to make the best possible contribution to society.
- To promote collaboration between science, health care and industry - the **consortium** shall consist of the most advanced **national and foreign partners** that will introduce **cutting edge solutions**
- **Optimum value for money** using the **PPP and EFSI** mechanisms and thus a **flag ship project for the government**, patients and the whole health care system, research, and businesses in the **region**.
- To introduce **training programs and a platform for education** and to attract experts from the region and for the region – to stop the brain drain or even to reverse it.

The construction of the SIPTC is undoubtedly a technical and technological challenge, which we shall manage on a global scale due to the important contributions to Slovenian society.

Cosylab is a prominent partner in the field of particle therapy when integrating all medical application software together requires an intimate knowledge of, and the latest insights into, therapeutic processes and planning. Based on Cosylab's extensive experience with large-scale medical and research accelerators, Cosylab is in a unique position to offer a full PT accelerator control system as a turnkey solution and an integration of all treatment systems.

In conclusion, efforts to build the Slovenian Particle Therapy Centre that will be beneficial to a broader region, derives from the need to ensure the welfare of patients, the socially responsible progress of medicine, science and the economy, and the long-term development of society.



COSYLAB

Cosylab d.o.o.
www.cosylab.com



YASKAWA Electric is one of the world's leading manufacturers in the fields of drive technology, industrial automation and robotics based in Kitakyushu, Japan.

Founded in 1915, we see ourselves as a pioneer in these sectors, always striving to optimise the productivity and efficiency of machines and industrial systems with our innovations.

Yaskawa Slovenija d.o.o. is active in the field of robot sales, robotic systems and solutions in Slovenia and on the markets of the former Yugoslavia. Yaskawa Ristro d.o.o. is an Intercompany production factory for complexed robotic systems and solutions for whole EMEA region.

YASKAWA Wider Perspective SOCIETY 5.0:

A human-centered society that balances economic advancement with the resolution of social problems by a system that highly integrates cyberspace and physical space."

Yaskawa, a high-tech company that produces robots and related software and operational solutions, making the transition to industry and the information society 4.0 by itself. Some of our values and goals are already fulfilled, but in order to achieve

society 5.0., the proper functioning and adaptation of other systems (state policies, education, the labor market) is also required.

Human focus is a goal that we, as a society, still need to achieve. The main communication tool in the economy is money and a number of criteria for efficiency and growth.

In our line of work, a product is a key that helps achieve business goals and thus contributes to the solution for the owner, managers and production workers. We replace or supplement difficult, non-economic and hazardous work that can lead to permanent injury, pain and early retirement.

With Society 5.0 we refer to the impact and application of industry 4.0 solutions on the entire society. We are talking about smart society. Our company sees the future of 5.0 as a society with its own mechatronic solutions, including robotics, as well as motors, regulation, inverters, green energy, which include wind inverters.

Yaskawa's vision in the context of Society 5.0 is about the well-being of society, about serving society. We are developing robots for a better life, aided by technology. At Yaskawa Industry 4.0, which will transition to 5.0, we call i3 mechatronics that talks about innovation, integration and intelligence; the latter means artificial intelligence and algorithms that will be able to make decisions based on input data. At the heart of all this is human and services for a better life for people.

With mechatronic products and robots, Yaskawa takes care of the welfare of society and, consequently, the happiness of families.

Yaskawa Electric Corporation
www.yaskawa.eu.com

YASKAWA

Collect and transfer complete device data in real time.

MES and ERP solutions

X1 GRID™

Connect, configure and control devices with ease. The real-time data from devices transformed to actionable information for end user.



RoboticsX GmbH, a German high-tech company, develops specialty industry automation software for automotive, steel and aerospace industry.

Our product X1 GRID™, with IBM Watson services, brings artificial intelligence with machine learning to industrial manufacturing devices, and helps businesses to digitize their productions. We are members of various trade and network organizations in Germany, Slovenia, and Japan.

RoboticsX mission is to enable industrial manufacturers, machine and component builders, to realize the dream of mass customization – “Batch size of one”. In 2018 we signed partnership with Yaskawa Europe to build their Industry 4.0 solution, application called Yaskawa Connected Factory, to fully support the development of Yaskawa application and X1 GRID product development, we

moved to new research and development center in Ljubljana.

Supportive environment (government support, local communities, academia...) enables a great testbed for Society 5.0 solutions. The government in Slovenian recognized the opportunity and importance of encouraging ecosystem and together with Yaskawa investment (YASKAWA Europe Robotics new factory in Kočevje) made an important step towards Society 5.0.

RoboticsX solutions will enable Kočevje smart factory two big advantages, that make Society 5.0 possible:

- Abundant accumulation of real-time data
- Technology cultivated from “monozukuri” and years of basic research

RoboticsX is building its ecosystem, partners network, through active memberships in DJW, JETRO, SJBC, VDMA, AHK, IHK and as active participants on events, organized by the Japanese Government.

Our daily life will change. Our working style will change. Cutting-edge technology will be integrated at all levels, enabling solving problems by utilizing a vast volume of data. This is the age, in which all things are connected, all technologies fuse, and this is the advent of Society 5.0.

ROBOTICS

RoboticsX
www.roboticsx.com



Dr. Yoshiaki (Yoshi) Ichikawa
Visiting Professor, Tama University

6th February 2019

Dr. Ichikawa is a Senior Chief Engineer at International Standard Office in Hitachi, Ltd., a Visiting Professor at Tama University and Tokyo City University, a Chairman of ISO/TC 268/SC 1 “Smart community infrastructures”.

He obtained a Ph.D. in Engineering from the University of Tokyo and joined Hitachi, Ltd. as research scientist at the Energy Research Laboratory in 1979. He also served as Head of Chief Architect Office at Hitachi's Research and Development Group between 2016 and 2018 and as a Chairman of IEC/TC 111 "Environmental standardization for electrical and electronic products and systems" between 2009 and 2018.

1. Background - differentiating economy

The GDP growth rate in Slovenia is gradually improving but not so much appealing. If we compare this with the GDP growth in San Francisco Bay Area, which shows acceleration of the growth. The difference is obvious.

A similar growth curve is seen in private companies. The growth curve of the annual net sales of Amazon.com in recent 12 years is the same accelerating curve (frequently called "hockey stick"). Conventional

manufacturing companies do not grow like Amazon; even though they grow, the growth is linear and not hockey-stick-like.

However, some new challenges have already occurred. Toyota motor and Softbank have launched a new start-up business called "e-Palette" which provides "mobility" as a function (often said MAAS: Mobility As A Service). Their business model does not aim to earn profit by selling cars. They create business opportunities for various types of service providers by enabling them to move around regional communities on fully automated driving vehicles. The new company, MONET, features itself as "platform". Platform is an essential element of business ecosystem and the ecosystem can grow in a hockey stick manner under specific conditions which will be shown later.

2. Basics 1 - Business ecosystem for rapid scaling

Actors A is a certain type group of actors in the same business community such as "food shops". Actor B is another type of group such as "restaurants". Actor C is even another such as "delivery service providers". Off course "consumers or end-users" has to be included as a type of actor. We can imagine many different types of actors in a collective community.

We often see the "network effect" in such an ecosystem which induces an exponential growth (a hockey stick) in the scale of business within the ecosystem. The network effect can be in effect under the condition that every actor contributes to other actors positively in a direct or indirect manner.

In order to build and maintain an ecosystem, we need a platform to facilitate positive interactions (fostering) between actors in the ecosystem. This idea is lead to the idea of "Society 5.0" as an "Innovation Ecosystem Platform to achieve SDGs".

3. Basics 2 - Needs for standards

When we want to establish and maintain a platform, it is not only about a computer system. It is rather more relevant to “rules” including “standards”:

- Business ecosystems need a common agreement, which ensures mutual benefits for all actors – rules.
- An appropriate rule can be a catalyst for growth by integrating network effect.
- A new social regulation act as a game changer will make a blue ocean in the market.

An example of the role of such a rule is the case of “Corporate Health & Wellbeing Management”, which is a very effective rule for the ecosystem approach in line with society 5.0 concept. Japan is an extremely ageing society and Slovenia is also following Japan in this regard.

In order to solve this situation Japan promulgated “Data Health Law” which obligates each corporation to address improvement of employees’ health status so that they will not suffer from life-style diseases such as diabetes when they will retire and get aged in the future. The key point is the full utilization of an evidence-based and scientific approach with modern data utilization technologies for the relevant big data; as such this law is named “Data Health”. In Japan thanks to this law, an associated business ecosystem is rapidly growing. This is a typical case where a “rule” creates a rapidly growing business ecosystem.

It is also ongoing in other regions such as Sri Lanka where no law is in place but an internationally available standard, PAS 3002, which contains the same framework as the Data Health Law is introduced associated with an award for best-practice corporations.

The intention of this rule-making (PAS 3002) is to create and maintain a business ecosystem for Data-based health management and solve the ageing issue in the society.

The same approach is ongoing as well in the business field of Smart Cities. We have been leading the ISO standardization committee “Smart Community Infrastructures” and published a number of standards for the purpose of facilitating a business ecosystem.

4. Society 5.0 definition and features

We are now ready to discuss Society 5.0 based on the understanding as stated previously. Human societies have been evolved by utilizing new technologies (or industry revolutions). In 1990s, we were in the society 4.0 (Information Society) triggered by “information technology” (e.g. internet and world-wide-web). After 2000 we are getting into a new society 5.0 which is leveraged by “advanced data utilization technologies” such as IoT, AI, Robotics, and Big data. This transformation is also called “4th Industrial Revolution”.

The Society 5.0 has its own purpose, which aims to balance economic advancement with the resolution of social problems by incorporating the new technologies.

The latter element in the balance is represented by Sustainable development goals (SDGs) and it is estimated that SDGs will create 12 trillion dollar per year after 2030. This means that the first element (economic advancement) is leveraged by the second element (the resolution of social problems).

In Japan, the Society 5.0 is already addressed as a national initiative. While multiple ongoing projects are sectoral versions of Society 5.0 ideas, an even higher level attempt has started which aims at building a cross-sectoral platform to facilitate innovations in the society especially in the business field. The cross-sectoral platform will be a key element to boost economy as well as to resolve social issues represented by SDGs because such an ambitious attempt needs innovative approaches that have not existed before.

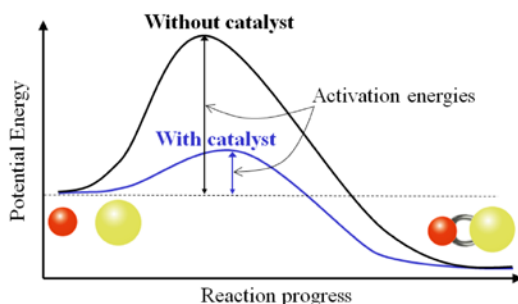
It may be needed to explain why cross-sectoral approach leads to innovation. Innovation does not necessarily need an invention of a new technology but the new combination of often existing technologies, services, or products can lead to innovation, e.g. sharing economies, mobility as a service (MaaS) and Fintech. This “combination” idea is very much in line with the business ecosystem. However, it is usually very difficult to combine. It can be seen and understood when we imagine combining two molecules.

A chemical reaction process to combine two molecules takes place along the horizontal axis and associated potential energy is shown along the vertical axis. Even though the final potential energy is lower than the initial status (which means eventually better), the transition has to overcome



SDGs and its Business Creation

the high barrier in between (activation energy). This is the reason why the combination does not happen usually. However, if we introduce the catalyst to lower the barrier the reaction process is facilitated. The analogy well explains why “cross-sectoral platform” is needed to make innovations happen.



Society 5.0 for Business Ecosystem - Like A Catalyst

5. Recommendation and next steps

Japan is now working on developing a text-book of Society 5.0 as a standard document. The concept level of the preliminary draft has been already completed. We will be making it JIS (Japan Industrial Standard) and ISO. The concept itself is not immediately applicable to leverage any specific business because it is a generic framework. However, each specific business level standards are expected to be developed afterwards. The ISO is one of the opportunities where Slovenia can promote Society 5.0 together with Japan.

Recommendations to Slovenia government and private sectors are as follows;

1. Slovenia can explode its scale in economical & technological innovation by igniting a chain reaction between actors in the nation.
2. The mechanism to implement the chain reaction is to create an ecosystem with strong built-in network effects.
3. The rule-making including standardization and regulations/ deregulations are the key to design the network effects of the ecosystem.
4. Society 5.0 will be an effective framework for the ecosystem, which can lower the barrier to start the chain reaction like a catalyst.

Actions for realizing the recommendations will be as follows:

1. Establish an expert team to make a strategic plan of implementing Society 5.0 into Slovenia with a time-line (2021 will be a milestone).
2. The team identifies target business ecosystems with priorities taking into account their feasibility, network effect and scale of benefit.
3. The team identifies critical new rules including standards, regulations/ deregulations, and also leads in international standardization (ISO) together with Japan.
4. Create a platform(s) and lean-start (test marketing) the identified business ecosystem(s) in a well-controlled real world with scientific observation.
5. Scale-up the validated business ecosystems in a larger market.

**Dr. Yoshiaki Ichikawa**

Visiting Professor, Tama University

Proposal on How to Implement the Society 5.0 in Slovenia

1. The Society 5.0 – a human-centered society

The Society 5.0 is a concept for realizing a human-centered society that balances economic development and solves social issues. We are living in an era where information is abundant, but so far humans have mediated between cyberspace and physical space. In the Society 5.0, the two spaces are highly integrated using technologies such as AI, with minimum human intervention to resolve problems. An example is the idea of autonomous refrigerator which analyzes needs based on past data and automatically orders the contents of the refrigerator for the user.

2. The Society 5.0 as a platform for SDGs

The Society 5.0, which aims to solve social issues, also contributes to the achievement of the SDGs. However, the 17 fields of the SDGs are organically connected, and it is difficult even for large companies to respond to them individually. All of stakeholders in the society need to cooperate and solve them together and in an integrated manner. The Society 5.0 proposes the establishment of a common platform to drastically scale-up this collaborative effect for addressing these difficult issues.

3. How Slovenia can lead the way

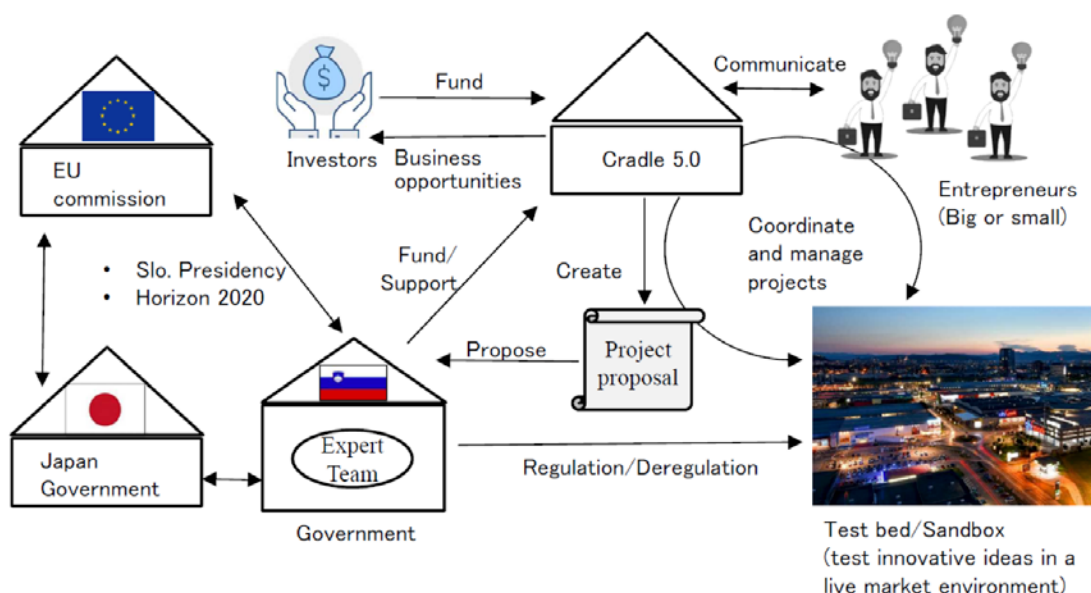
(1) Standardization

One such platform is standardization. It is important to clarify the aims and rules of the Society 5.0. In the future, it will also be possible to use this standard as a common indicator to assess whether funds for promoting the Society 5.0 are used for achieving the goals of the human-centered society. In the previous forum in February 2019, we witnessed that there are already many business projects where the concept of the Society 5.0 is tried in Slovenia. I believe Japan and Slovenia can cooperate with other like-minded countries with expertise in developing new standards, including the ISO standards.

(2) Promotion and Incubation

It is also conceivable that companies and investors cooperate to establish a private entity to carry out publicity activities for the promotion of the Society 5.0, and to incubate relevant pilot projects. This entity may act as an adviser for the proposal of seed projects eligible for funding from relevant EU programs such as the Horizon 2020. Furthermore, if the organization functions as a think tank that collects and analyzes information for the realization of the Society 5.0, know-how and expertise can be accumulated for long-term benefits. In essence, this entity will be key to creating an ecosystem to bring in the stakeholders together with strong network effects.

A Possible Framework to Implement



(3) Areas of Possible Projects in Slovenia

I would like to introduce an example of efforts to promote the Society 5.0 in Japan. As Japan is facing the challenge of ageing society, new business opportunities have been created for elderly people to provide them with health support or health advice using apps on mobile devices. The healthcare data are recorded by the user and, with the consent of the user, the database is connected to relevant service providers in order to, for example, recommend food or activities according to individual condition or provide coupons and other incentives when the health target is achieved. As Slovenia faces similar demographic challenges, health and welfare can be a field where technology and innovation can create new markets.

Slovenia has advanced technologies that are applicable to not only health, but also disaster prevention, supporting elderly people's lives and creating smart cities or villages. I hope Japan and Slovenia can work together to further scale-up the identified business ecosystem and also set international standards for the Society 5.0.



Mr. Koichi Akaishi

Vice Minister for Innovation Policy,
Cabinet Secretariat

Graduated from the University of Tokyo (LL.B., Faculty of Law), and joined the Ministry of International Trade and Industry (MITI) in 1985. Between 2009 and 2014, held various leadership positions in METI (Ministry of Economy, Trade and Industry) including Deputy Director General for Global Environmental Affairs and Deputy Director General for Trade Policy.

In 2013, became Deputy Director General for Japan Economic Revitalization Bureau, Cabinet Secretariat; in 2018, Director General for Science, Technology and Innovation, Cabinet Office. Current position of Vice Minister for Innovation Policy, Cabinet Secretariat, since 2019.

In the past 7 years, Prime Minister Abe and his administration have been pursuing the so-called Abenomics policies and supporting activities in the areas such as strengthening of corporate competitiveness, promotion of international cooperation and women's participation in business and society, in order to drive the economic growth. In this context, the Society 5.0 is a project that the Government of Japan has been promoting continuously in the past several years. Therefore, when I met Mr. Cantarutti, State Secretary of the Ministry of Economic Development and Technology of Slovenia in Japan last April, I was impressed to hear that Slovenia was passionate about implementing the Society 5.0.

Today, we face various challenges in our society, including the declining birthrate combined with the growing share of elderly people, and rapid digitalization that entails issues of privacy and security. The Society 5.0 is not only a concept for economic growth but also one that endeavors to solve societal problems, thus aiming to realise a human-centric world. Transformation of society seems like a very long process. However, in Japan, examples already exist where changes can happen quickly- for example, fast dissemination of cashless transactions with the introduction of point system incentives when the value-added tax rate was raised in 2019, and the speedy implementation of a new face recognition system at airports around the country.

The Japanese government is promoting various projects from basic research to practical and commercial application of latest technologies through the cross-ministerial Strategic Innovation Promotion Program (SIP). In the first phase of 2014

to 2018, 11 areas of research were covered including Automated Driving System and Infrastructure Maintenance, Renovation, and Management. For the second phase of 2018 to 2022, 12 areas of research have been chosen.

Let me give a few examples. In the field of agriculture, ageing population is one of the key challenges, and research has been carried out on smarter, automated technology in order to make agriculture more accessible and attractive to different groups of people including youth. In the area of disaster prevention, the aim is to develop an information system that, by utilizing technologies such as the satellite system, IoT and big data, assists the state or local governments in making decision for safe evacuation of citizens and fast economic recovery of the affected and wider regions. In autonomous driving, high-resolution 3-D mapping information has been provided and pilot projects have been carried out on parts of the Metropolitan Expressways. At the same time, it is essential that data can be collected in the events of natural disasters and that certain rules are amended in order to realize trouble-free operation of autonomous driving.

For the realization of the Society 5.0, bases for aligned data have to be put in place. Currently, many different kinds of hardware and software exist in a mixed manner. Therefore, there is an urgent need to merge the scattered data into one big data using the same platform. Furthermore, AI is key to making full use of the collected data. In this regard, Japan has created an AI strategy which includes an education system reform for securing IT personnel.

Besides, it is also important to decide on priority areas and work towards realizing the goals. Smart city is one of the important areas of the Society 5.0, but there are various kinds of “Smart Cities” today. The EU, Canada, Singapore and China are all promoting this initiative, but each smart city has a different form, and there competition among various implementing bodies and methods that run in parallel. In the future, it is important to formulate a common architecture for smart cities based on the same platform, and ensure interoperability at the international level. This is why the Global Smart Cities Alliance was formed. Currently, there are more than 20 cities around the world expressing interest in participating, and around 20 organizations are registered as partner institutions.

The Society 5.0 is highly compatible with the SDGs. In the SDGs Action Plan, Japan has set the promotion of the Society 5.0 as one of the pillars. Japan is working to create the “STI for SDGs Roadmap” with the World Bank, and the STI for SDGs Platform with the United Nations. Japan will also collaborate with partners such as the EU and the United States on the Moonshot Research and Development Program. I understand that Slovenia has high ambitions and expectations in cooperating with Japan in the area of the Society 5.0. It is my sincere wish that such cooperation is further enhanced between Japan and Slovenia as well as between Japan and the EU.

Implementing Society 5.0 in Slovenia

Panel discussion

Mr. Aleš Cantarutti, State Secretary, Ministry of Economic Development and Technology of Slovenia

H.E. Mr. Masaharu Yoshida, Ambassador of Japan in Slovenia

Prof. dr. Igor Papič, Rector of University of Ljubljana,

Dr. Yoshiaki Ichikawa, Senior Chief Engineer, Hitachi Ltd.,
Visiting professor Tama University Research Center for Rule Making Strategy

Panel moderator: Mr. Daniel Avdagič, Managing Director of AV Living Lab

"We have completed 29 advanced and innovative proof-of-concepts so far and we are building an ecosystem for implementation of Society 5.0 for European markets", said Daniel Avdagič when opening the round table

and asked: "What should be our first steps? How can we change from vertical to horizontal approach which is typical for Society 5.0?"

"I was very impressed to hear about start-ups working in BTC, but they still act as individuals. They need mentors to coordinate their efforts to gain a bigger outcome," commented Professor Dr. Yoshiaki Ichikawa. He believes the Society 5.0 still needs, what we call a business producer, to connect all the factors together.



Profesor Igor Papič added that in academic side of the Society 5.0, University of Ljubljana is already involved in one of the alliances that connects European Universities together. We already know that in the future, we will have to learn all the time, no matter the age. "We, as a University will have to adopt with new programs and offer education for Society that will be substantially different." Perception is that in the future, we will learn not only in the young age but practically all the time.

And how ready is Slovenia for Society 5.0 today? His Excellency Mr. Masaharu Yoshida, Ambassador of Japan is a newcomer in Slovenia, but already believes Slovenia is very well prepared, especially comparing to the countries he was working in before. He sees Society 5.0 as a more refined concept of combining and accumulating personal data.

State Secretary Aleš Cantarutti added: "We are certainly prepared to become a natural hub or a pilot example in the middle of Europe. I believe that either we will go in this direction or there will not be a democratic society anymore. "What we did in the last years, is to secure the investments of foreign companies like Yaskawa and Magna in Slovenia. Now we have to make a step forward, securing jobs that will lead from industry to an evolving Society."

Challenges for the Future of Our Society 5.0

Panel discussion

Mr Koichi Akaishi, Vice Minister for Innovation Policy, Cabinet Secretariat

Dr Yoshiaki Ichikawa, Visiting Professor of Tama University and Tokyo City University, Chairman of ISO/TC 268SC 1 “Smart community infrastructures”

Dr Igor Papič, Rector, University of Ljubljana

Mr Jernej Salecl, Head of Division for Industry, Innovation and Technology, Ministry of Economic Development and Technology

Mr Damjan Kralj, CEO of BTC d.d.

Panel moderator: Mr. Daniel Avdagič, Managing Director of AV Living Lab

Society 5.0 is not just a vision of technological development, it is a vision of social transformation, bringing balanced economic advancements with the resolution of social problems. As Vice-Minister for Innovation Policy Mr. Koichi Akaishi stressed, to change

society, cooperation between EU, Slovenia and Japan is crucial. He believes that Slovenia can be a gateway for Society 5.0 in Europe.

Mr. Akaishi also sees the Society 5.0 initiative as one of the solutions of the aging population – to bring elderly the possible future and active life, and not to extend only biological life, but also societal.

While cooperation between countries is vital to the changes toward Society 5.0, Dr. Yoshiaki Ichikawa sees the need of independent organization, which will coordinate activities and invite various



stakeholders into the process, while promoting Society 5.0 idea locally and worldwide. Mr. Ichikawa also underscored that Japanese corporations are very cautious in Japan, and may be more open for testing new ideas abroad. Japanese companies are seeking the environment to test, and Slovenia may be the right country for those challenges.

Dr. Igor Papič, the rector of the University of Ljubljana, emphasized the key role of universities in lifelong learning processes and the knowledge society. Universities offer a blend of technical and social sciences, which can together co-create the future.

Mr. Jernej Salecl from the Ministry of Economic Development and Technology emphasized that Society 5.0 initiative has intense support from the government and industry as well. Slovenia will hold the EU presidency in 2021 and has put Society 5.0 among the priorities. Slovenia does not have many

big cities and Mr. Salecl sees Society 5.0 as a way to implement Smart city concepts in villages to create smart villages.

Mr. Damjan Kralj, CEO of BTC company, perceives Society 5.0 as a next transformation in the 65 years of the company history. Apart from being one of the biggest retail, business, and entertainment centers in Europe, BTC company manages an ecosystem rich with stakeholders, that generate ideas, such as living labs for mobility, robotics, logistics, energetics, and smart city, a startup accelerator, a center for lifelong learning for elderly population, all being oriented towards well-being. BTC is an ideal ecosystem for Society 5.0.





Society 5.0

IN SLOVENIA | PARTNERS

ELES
STELKOM
POŠTA SLOVENIJE (SLOVENIAN POST)
BTC
KOLEKTOR IGIN
TOYOTA ADRIA
YASKAWA SLOVENIA
JT INTERNATIONAL
ELEKTRO LJUBLJANA

MUNICIPALITY OF KOČEVJE
SPIRIT SLOVENIA

DIAGNOSTIČNO-ANALITSKI CENTER



Transmitting energy, maintaining balance.

WWW.ELES.SI

Step into the world of electronic communications with



Our partners include:

NEC

- Software Defined Network implementation and development as a backbone for all the future telecommunication services.
- Face recognition solution for smart identification management solutions that improve the safety and security of people, public spaces and infrastructure.
- Fiber sensing is using artificial intelligence and optical fiber enables different types of security monitoring.
- IP Cloud Telephony with integration of CRM applications into customers own IT system.



Cambium Networks™ Private LTE

- Together with our partners we are testing Private LTE technology for the needs of critical infrastructure management.

HITACHI
Inspire the Next

- Stelkom is a leading partner in the field of information and telecommunications solutions in the project of the Slovenian-Japanese partnership NEDO, which aims to build the most modern energy system.

And more ...

- Project of autonomous recording and control of transmission lines without human presence using drones. Our role will be to ensure connectivity between individual locations.
- Part of the strategic initiative for the deployment of **5G** infrastructure and services with the aim of achieving the goal of becoming a 5G reality for all citizens and businesses by the end of 2020.
- **Ideal partner for testing new technologies due to access of electric industry infrastructure.**
- Access to more than 10.000 transformation stations equipped with optical fiber, with possibility to upgrade to additional 100.000 transformation stations.



www.stelkom.si info@stelkom.si

For every story,
only one address
is the right one!



ALWAYS WITH YOU!

When you are the right one for running a business in the cloud and nothing can stop you on your way to success. When you need a spare part or a partner who will take care of you every day. When the bank is already closed or you wish to add to your collection a new stamp. When you want to bring smile with a good wish or surprise with a nice gift. **For every story, only one address is the right one!**

 **Pošta Slovenije**
Always with you!

The Society 5.0 habitat and your R&D gateway to Europe

BTC City Ljubljana

One of the largest shopping,
business, and leisure centers in
Europe

21 million visits per year

Infinite quantity of human and
technological footprints each day

An ideal testing and
developing living lab
ecosystem for
Industry 4.0 and
Society 5.0 solutions



BTC Company
Ljubljana, Slovenia

society@btc.si
www.btc.si

Kolektor Igin d.o.o. is the leading Slovenian integrator in the field of electrical power engineering specialised for the delivery, installation and commissioning of HV and MV equipment with its complementary secondary systems of protection, control and metering.



With over 50 employees, we have become the leading Slovenian company, which delivers all-inclusive integrated projects in the field of electrical power engineering for the transmission system operators, distribution system operators, electrical power producers or industry. Primary these are substation reconstructions but lately we are facing the increase of green field projects. We are witnessing also the rise of demand for turnkey projects where together with our concern companies, especially Kolektor ETRA d.o.o., Kolektor Koling d.o.o. and Kolektor Turboinštitut d.o.o., we can execute the projects from its initialisation to completing including civil engineering and construction works.

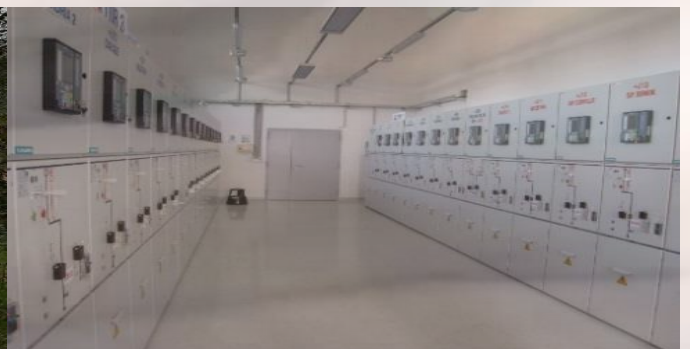
Our company with its own specialists is able to prepare complete project documentation, perform purchasing and deliveries, execute all acceptance tests (FAT, SAT) and commissioning tasks. Within our company, we are also assembling the electrical secondary systems panels and execute complete site electrical installation works. If needed also permanent verified subcontractors are engaged.



The predominant part of our work are still the services in the area of secondary systems. We are specialised for the design, configuration, parametrisation and commissioning of secondary systems of all internationally renowned equipment producers and execution of all planned maintenance task for this equipment.

In the field of control and supervision systems, we are offering complete solution for the control of electrical transmission and distribution substations and for all types of electrical generating facilities (hydro, thermal, nuclear).

We have developed our own electrical transformer monitoring system, which is applied for bigger Kolektor ETRA transformers.



"Turn key" project (SS Kobarid)



TOYOTA

ALWAYS A
BETTER WAY

BETTER MOBILITY FOR ALL AND RESPECT FOR THE ENVIRONMENT



YASKAWA



WELDS TOGETHER WHAT BELONGS TOGETHER – YOU AND YOUR CUSTOMERS

If you value the quality of your products, use welding robots from the MOTOMAN MA series. Your customers will reward you for it with their loyalty. If the robotic welding is good, the product will be good – and your customer satisfied.



I THINK
REGULATION
IS GOOD
IF IT WORKS

SO DO WE

We agree that tobacco products should be regulated. But to be effective, policies need to be based on credible evidence, not assumptions. We provide solid proof to back up our positions and arguments.



BUILDING ON 120 YEARS OF
KNOWLEDGE, EXPERIENCE AND
TRADITION TO BRING ENERGY
INTO THE FUTURE.

www.elektro-ljubljana.com



Elektro
Ljubljana

Kočevje

**Fastest Growing Municipality
with Sustainable Environment
for High-tech Investments**

**Single-layer local administration to efficiently
champion your investment on all levels**

Infrastructure set for growth

Training people for Society 5.0 skills

Municipality of Kočevje

Ljubljanska cesta 26, 1330 Kočevje
Slovenia

+386 1 893 82 20
obcina@kocevje.si



OBČINA KOČEVJE

kočevsko
The Secret Forest
of Slovenia

I FEEL
SLOVENIA

GREEN CREATIVE SMART

SMART SOLUTIONS FOR GLOBAL
COMPETITIVENESS



1st

Doing business with Slovenia is simple...as proven by the status of being the leading country in cross-border trade (World Bank Group, Doing business 2019)



5th

Smart products delivered daily by the Slovenian digital and robot intensive economy (5th place OECD) (OECD Science, Technology and Industry Scoreboard & Digital Economy and Society Index 2017)



47.7%

The foundation of our high value added products and services are almost half of highly skilled young people, studying and researching at Slovenian world-renowned universities (Statistical Office of the Republic of Slovenia 2018)



Sustainable and innovative Slovenian automotive components are integrated into basically every European vehicle (Automotive Cluster of Slovenia)



Slovenia-Japan Business Council
Slovensko-japonski poslovni svet
スロベニアー日本ビジネス協会

sjps.si

Society 5.0

FORUM | Wednesday, 5th February 2020
JETRO Japan HQ, Ark Hills, Akasaka,
Tokyo, Japan

In partnership with

The Ministry of Economic
Development and Technology
of the Republic of Slovenia,
Spirit Slovenia, Public Agency,
Embassy of the Republic of
Slovenia in Japan

Co-Organized by

Japan External Trade
Organization - JETRO

Building Global Future Together

After the successful February and November 2019 Forums dedicated to initiating the Society 5.0 development concept in Slovenia and the October 2019 Business Forum promoting opportunities for bilateral economic cooperation, it is time for Slovenia and Japan to take the next joint step towards the next society, one of advanced technological solutions for the benefit of everyone, one that could tackle the key social and economic problems simultaneously – Society 5.0.

KEYNOTE SPEECHES

How to support Japanese companies in Slovenia – investment environment

Mr. Matej Skočir, MSc, Director, Sector for Internationalization, Ministry of Economic Development and Technology of RS

Success Stories of Japanese companies in Slovenia

Yaskawa Electric Corporation – Mr. Hubert Kosler, PhD, Yaskawa Europe
Daihen Corporation – Mr. Masaharu Nishimura, Daihen Corporation

Slovenian education system in relation to business needs

Mr. Igor Papič, PhD, Rector of the University of Ljubljana

FORUM: BUILDING GLOBAL FUTURE TOGETHER – SOCIETY 5.0

Society 5.0 as the next priority of the Slovenian government during the EU Presidency in 2021

Mr. Aleš Cantarutti – State Secretary at the Ministry of Economic Development and Technology of RS

Society 5.0 and Smart City: current status and global alliance

Mr. Koichi Akaishi, Vice-Minister for innovation Policy, Cabinet Secretariat

Proposal on how to implement Society 5.0 in Slovenia

Dr. Yoshiaki Ichikawa, Visiting Professor of Tama and Tokyo City University, Chairman of ISO/TC 268SC1

BTC City as a unique world-class living lab for BTC City as a unique world-class living lab for Society 5.0 solutions

Mr. Damjan Kralj, MSc, Chief Executive Officer and Member of the Board of Directors, BTC Company

FORUM: ENERGY, INFRASTRUCTURE, TRANSPORT & LOGISTIC

Smart infrastructure development policy in Slovenia

Mr. Bojan Kurner, MSc, State Secretary, Ministry of Infrastructure of RS

Energy System in Japan and NEDO Smart Community Project

Mr. Kazuhiko Muto, Director General of Smart Community Department, NEDO

Cloud-Based Advanced Energy Management System Demonstration Project with NEDO in Slovenia

Mr. Uroš Salobir, MSc, Director of Strategic Innovation Department at ELES
Mr. Kazuo Yokota, Director General, Smart Community Department, NEDO

Slovenian distribution facing European energy transition

Mr. Andrej Ribič, MSc, President of the Management Board at Elektro Ljubljana

Slovenian-Japanese partner for transport and logistics

The Slovenian Post – partner for Japanese logistics in Europe
Port of Koper – major port of the Northern Adriatic
Mr. Andrej Rihter, MSc, Member of Executive Management, Slovenian Post
LIT-Transit in the field of mobility technology solutions
Mr. Rado Skender, VP Development, LIT Transit



SLOVENIAN DELEGATION

HEAD OF THE DELEGATION: H.E. Mr. Zdravko POČIVALŠEK, Minister of Economic Development and Technology of the Republic of Slovenia

MINISTRIES:

Ministry of Economic Development and Technology of the Republic of Slovenia, Ministry of Infrastructure of the Republic of Slovenia, Ministry of Foreign Affairs of the Republic of Slovenia, Embassy of the Republic of Slovenia in Tokyo

BUSINESS DELEGATION:

ELES, Slovenia-Japan Business Council, Olympic Committee of Slovenia, University of Ljubljana, Municipality of Kočevje, Elektro Ljubljana, Elektro Primorska, Chamber of Commerce and Industry of Slovenia, BTC Company, Pošta Slovenije (Slovenian Post), Yaskawa Europe Robotics, Avteħ, Stelkom, Japan Tobacco International, Daihen Varstroj

Slovenia-Japan Business Council
Slovensko-japonski poslovni svet
スロベニアー日本ビジネス協会

