

CC-Link Partner Association

Global Activity Report

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Special Interview

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Mr. Sedat Sami ÖMEROĞLU
Chairman, Industrial Automation Manufacturers' Association (ENOSAD), Turkey

Networks are the keys for innovation Japanese technology enriches the World

Mr. Fumihiko Kimura, a professor of the Faculty of Science and Engineering at Hosei University, has taken up the post of the new chairman of the CC-Link Partner Association (CLPA). Prof. Kimura is known as a leading person in production system engineering and CAD/CAM fields in Japan, and his achievements are highly valued in Japan and overseas. We asked him about his ambitions as the chairman of the CLPA and the potential for industrial open networks including CC-Link and CC-Link IE to contribute to the development of manufacturing industry.

—What would you say is the reason you accepted the nomination as chairman of the CLPA?

Prof. Kimura I believe that network technologies will play an important role in innovation for manufacturing industry. I was strongly drawn to the potential of the CLPA's activities to promote these important technologies, and I accepted the nomination as chairman of the CLPA to contribute to the promotion.

—What do you think is the innovation

that network technologies will bring?

Prof. Kimura It is the "Internet of Things", the so-called "IoT". I believe that the "IoT" will have a much larger impact than the Internet itself did. Since the "IoT" connects many more things than the world's population, the scale of the network will become much larger than the Internet connecting people and the data quantity will significantly increase.

First, the spread of the "IoT" will change the way that people use things. Moreover,

the information collected from various things will change them. In response to this movement, manufacturing may change. In the future, the industrial open networks including CC-Link and CC-Link IE will play a part in the IoT's platform.

I think that the "IoT" will spread quickly and suddenly when its penetration reaches a certain level, like the Internet. I feel that it is now reaching this level.

Solving the problems that manufacturing industry is facing

—What do you think about how the network technologies will change manufacturing industry?

Prof. Kimura Now many companies related to manufacturing are facing a fundamental problem - "what to manufacture?", and this trend is already obvious in developed countries. This is because they cannot understand market needs as clearly as before.

Without constructing a mechanism to understand potential market needs and promptly commercialize them, it is difficult to exploit new markets. I think it is difficult to solve this problem with the extension of conventional ideas. Some innovations are needed here. It is the "IoT" and the network technologies that bring the innovation.

—Would you give us concrete examples?

Prof. Kimura For example, extracting and analyzing a large amount of data about consumer behavior and so on will show new market needs. Then manufacturers can launch products developed based on the needs, and collect data related to the reaction and the usage of customers. Using the data as feedback for the next product development and production will improve the products further. By visualizing the whole life cycle of products and developing the manufacturing this way, the problem of "what to manufacture" will

be solved. To create this mechanism, networks in the broad sense are essential.

Japanese companies are good at manufacturing high-quality products by joint efforts. Because of the manufacturing process containing factors that can cause dependency on other people, collecting objective data can be difficult. As for craft products with high value added, the "skill" of technical experts is important. However, "versatility" is required for the manufacturing process of industrial products. A mechanism to collect data from the whole life cycle of products and a cycle to improve the products with the feedback of such data for production processes should be created. I believe that one of the technologies to support this mechanism is FA (Factory Automation) including open industrial networks.

Increase the competitive strength with "Technology Originating from Japan"

—The movement to strengthen manufacturing industry by using FA and ICT (information and communication technology) is well established in Europe and the United States.

Prof. Kimura For manufacturers in developed countries where the employment cost is high, it is getting harder to maintain the competitive strength in the global market. However, I think it is important to maintain the manufacturing industry in their domestic markets as the basis for developing the industry. I think this idea may have supported the large-scale activities in Europe and the United States to strengthen their manufacturing industries, such as various campaigns in the United States called "Manufacturing Renaissance" and Germany's national strategy "Industrie 4.0".

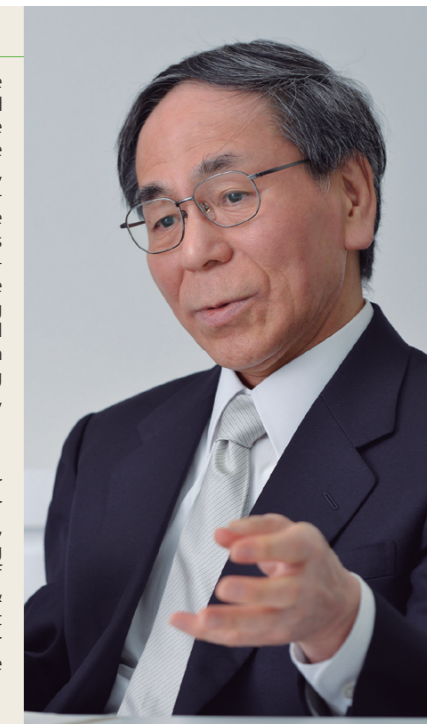
Approaches for maintaining manufacturing industry are also needed in Japan, and CC-Link and CC-Link IE, "the technology originating from Japan", will play a significant role in such approaches, I think. Various new technologies are needed to construct platforms for new manufacturing processes. However, products manufactured outside

Profile

Prof. Kimura passed through the doctoral course of the graduate school at the University of Tokyo in 1974, and then entered the Electrotechnical Laboratory of the Agency of Industrial Science and Technology of the Ministry of International Trade and Industry. In 1979, he started research on "inverse manufacturing", "life-cycle engineering", and "geometric modeling" at the University of Tokyo. In recent years, he expanded his research area to include topics such as environmentally-friendly product design (eco design), product life-cycle design for the sustainability of the earth, and the building method of production systems that can flexibly respond to changes. He then transferred to Hosei University in 2009. There he has been engaged in research focusing on production system engineering, design engineering, and life-cycle engineering.

[Awards]

JSME MEDAL for the Best Papers (1980), IFIP 20th-year Anniversary Best Paper Award (1980), JSPE Best Paper Award (1986 and 1988), JSPE Prize (1993 and 2011), IFIP Silver Core Award (1994), JSME Manufacturing Systems Award (1997), Prize from the Minister of International Trade and Industry (2000), JSME Design & Systems Achievement Award (2003), IMS Achievement Award (2005), JSME Codes and Standards Award for Distinguished Contribution (2008), Medal with Blue Ribbon (2011), JSME Design & Systems Award (2012)



Japan now dominate CAD/CAM and other markets.

I think, to show the unique strength of Japan's manufacturing industry, technologies to support the new platform should be developed here in Japan. So, I would like to improve the value of CC-Link and CC-Link IE, the industrial open network "originating from Japan", to be one of the technologies supporting the new era of manufacturing in Japan.

The potential of industrial networks is increasing

—We have heard about your many achievements in the production system engineering field and CAD/CAM field. Would you kindly explain how you engaged with industrial open networks for our readers?

Prof. Kimura Collecting data is essential to evaluate and analyze manufacturing systems. I had been noticing the technologies of industrial open networks as the means to effectively collect necessary data from production sites.

For example, one of my recent major research themes is "Environmentally-friendly product design". Although the effect of manufacturing processes on the

environment must be evaluated to realize the objective, the evaluation method was not established until recently. What must be done first to develop a mechanism of an evaluation method is to collect data. The networking and automation of the data collection system are essential to effectively collect various data from manufacturing processes and their surrounding environments. I already get data collected through CC-Link or CC-Link IE in production sites from some companies, and use the data for verification of the evaluation method.

—Would you give us your view of the future direction of the CLPA?

Prof. Kimura The technologies of industrial open networks should not be kept inside factories. Connecting those networks with various external systems to widely distribute data outside the factories will bring various innovations in a lot of fields. Based on this idea, I will encourage the promotion activities of CC-Link and CC-Link IE, which are global standards for industrial open networks, with respect to a detailed scenario to realize the new era of manufacturing. I would like you to keep an eye on the activities of the CLPA.



Professor Fumihiko Kimura

Professor in the Faculty of Science and Engineering Department of Mechanical Engineering at Hosei University
Emeritus professor at The University of Tokyo
Doctor of Engineering
Member of Science Council of Japan

A new CLPA branch opens in Turkey The new branch accelerates the adoption of CC-Link in developing countries

The CC-Link Partner Association (CLPA) opened a new branch in Turkey, where industries are expected to significantly grow against a backdrop of rapid economic growth. We asked Mr. Tolga Bizel, who is responsible for CLPA-Turkey since its beginning in March 2014, about the future direction and trend of FA (Factory Automation) in Turkey. He has been engaged in the FA industry for more than 20 years, and says that the adoption of CC-Link and CC-Link IE is increasing.

—What would you say is the reason why CLPA-Turkey was opened?

Mr. Bizel For the past five years, the economy of Turkey has been steadily growing. Even while the economy of the developed countries was in recession, the economy of Turkey was still strong. Today, the economy of Turkey still has great

potential. To expand business in Turkey, the next 10 years will be a very important period, I think. This is why the CLPA established a new branch in Turkey and increases the activities here.

—Would you tell us about the trend of FA in Turkey?

Mr. Bizel Because the Turkish government has set out a policy of increasing machinery exports, the demand for FA devices will greatly increase.

The Turkish government has set a concrete goal of achieving an annual export growth rate of 17.8%, 100 billion dollars or more in export figures, and a global market share of 2.3% by 2023. If the government achieves this goal, the machinery export percentage will increase to 18% of the total exports of Turkey. Furthermore, more and more manufacturers will improve their production facilities with the economic growth, and I am quite sure that this will accelerate the increase in the demand for FA devices.

Although it may take some time for Turkey's machine industry to become competitive with big companies in Europe, the presence of Turkey in the global machinery industry will be strengthened because Turkey has great potential, like fresh human resources that can be trained and educated from now on. Accompanying the growth of the machinery industry, the market will also be expected to expand into the FA field.

Supporting local users and vendors

—In Turkey, where the momentum of the FA market growth is increasing, what kind of activities is CLPA-Turkey going to conduct?

Mr. Bizel We provide the latest information to the CC-Link and CC-Link IE users, and promote the networks by supporting the business of the compatible device vendors, as well as the other CLPA branches.

For these purposes, we are going to increase our actions, and we roughly classify these actions in two ways.

The first is education and awareness campaigns. We will hold technical seminars for local companies in the four major cities

of Turkey; Istanbul, Ankara, Izmir, and Konya. This is because these cities take the lead in the development of Turkish industry and the need for automation systems are increasing there.

The other is to conduct conformance tests for CC-Link- or CC-Link IE-compatible devices developed by partner companies in Turkey. The conformance tests are conducted for every product so that interoperability among CC-Link- or CC-Link IE-compatible devices is ensured. This will enable users to build highly-reliable FA systems.

Contributing to growth of Turkey's manufacturing industry

—Does the CLPA-Turkey work only in Turkey?

Mr. Bizel The CLPA is a global organization. It has its headquarters in Japan and branches all over the world including South Korea, Taiwan, North America, Europe, China, and India. CLPA-Turkey is one of such branches. By closely cooperating with each other, we and the other bases in the world help user companies and partner companies promote their global activities.

—Would you tell us about the prospect

for the results of the CLPA's activities?

Mr. Bizel The fields in which manufacturing industry companies in Turkey are engaged are varied, and their needs relating to FA are similarly varied. I think, thus, that there are many chances to create new solutions. For the development of new solutions, CC-Link and CC-Link IE, which have high reliability and interoperability, can contribute in various ways.

The CLPA intends to help enhance the competitiveness of Turkish companies in the global market by promoting these sophisticated technologies.



Media gathered at the opening ceremony Introduction of the Marmaray project accomplishments

The CLPA held an opening ceremony for CLPA-Turkey in Istanbul, Turkey on March 19, 2014. The ceremony was held alongside the major FA-related exhibition "WIN Automation-World of Industry Fairs", and was attended by many key media and industry people.

The ceremony began with a greeting by Mr. Masahiro Fujisawa, President of Mitsubishi Electric Turkey. Members of Mitsubishi Electric, the developer of CC-Link and CC-Link IE, and the CLPA also gave speeches. Ms. Naomi Nakamura, Global Director of the CLPA, emphasized the advantages of CC-Link and CC-Link IE over various other industrial open networks, and Mr. Haruyuki Otani, CLPA Technical Task Force Chairperson, explained the technical features of CC-Link and CC-Link IE and their value to industry. Among various speeches, the speech given by Mr. Nurettin GEÇGEL, Deputy Division Manager of Mitsubishi Electric Turkey, especially drew the attention of the attendees. He introduced the "Marmaray project", which is one of the



● Photograph. Opening ceremony of CLPA-Turkey

most important CC-Link and CC-Link IE application examples in Turkey.

The Marmaray project included the construction of a 1,397m undersea tunnel linking the Asian and European sides of the Bosphorus Strait in Istanbul, along with a 13.2km railway linking these sides through the tunnel. The railway was opened on October 29, 2013. CC-Link IE networks were installed

throughout the underground stations, above ground stations, ventilation facilities, and power generation facilities. This permitted the lights, elevators, pumps, and air-conditioning facilities to be controlled in an integrated way. CC-Link IE, with its large capacity and high transmission speed, was necessary to control the vast number of devices involved.



Mr. Tolga Bizel
CLPA-Turkey
Director

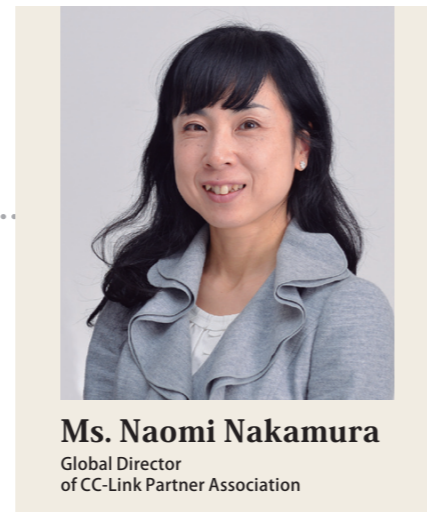
Strengthening the Asian strategy to build a base for the future

The CC-Link Partner Association (CLPA) is responsible for the global promotion and development of the CC-Link family of open automation networks. Through its successful "Gateway to Asia" (G2A) programme, it is helping companies worldwide increase their business in Asia via the adoption of CC-Link technology in their products.

Since November 2000, when the CLPA was founded, the number of partner companies supporting the CLPA has been consistently increasing. The CLPA had 134 partner companies at its foundation, but now the number has increased to 2,097 as of the end of March 2013. About 70% of

the partner companies are outside Japan (see the figure). As of the same time, the number of CC-Link- or CC-Link IE-compatible models is 1,356, and more than 12 million devices have been shipped.

To support partner companies and users, the CLPA has acted globally, with



Ms. Naomi Nakamura
Global Director
of CC-Link Partner Association

offices in South Korea, Taiwan, United States, Germany, UK, China, Singapore, and India. Recently, a new branch was opened in Istanbul, Turkey in March 2014. The CLPA is also going to open more branches in the ASEAN area, which has been growing significantly as a global production base. "On grounds of the low labour costs, incentive policies by local governments, and increased consumption resulting from economic growth, more and more companies are opening their production bases in the ASEAN region. However, many such bases are not automated yet. ASEAN is still at the dawn of the automation era, and so we are encouraging the early adoption of CC-Link and CC-Link IE there," said Ms. Naomi Nakamura, Global Director of the CLPA.

Encouraging the adoption of CC-Link IE

The CLPA is now focusing on the promotion of the industrial Ethernet-based network "CC-Link IE". "The market for Ethernet-based industrial open networks is rapidly growing. Independent research has indicated growth rates as high as 15%. Hence it is important for us to strengthen our position in this market to provide increased market opportunities for our partners", stated Ms. Nakamura.

One of the key strengths of CC-Link IE is its advanced specification. For example, CC-Link IE has a data transmission speed of 1 Gbps, faster than any other Ethernet-

based industrial network. "Some have said that it was not necessary for industrial Ethernet to offer such high performance. However, CC-Link IE was developed in response to demand from industries such as flat panel displays and automotive that required such performance. Since then, more and more companies have recognized how CC-Link IE's superior performance can impact their operations for the future. Moreover, new trends such as "Industry 4.0" are requiring the bandwidth offered by technologies such as CC-Link IE," commented Ms. Nakamura.

"One of the reasons for this trend is intensified global competition. This has lead companies to handle a vast amount of data related to production and quality, with a consequent need to improve the speed and capacity of the equipment in their factories and networks. CC-Link IE already fulfills these requirements. Hence we can say that the era of CC-Link IE has just started," she continued.

Another key strength of the CC-Link networks is their heritage in the Japanese manufacturing base. Japan has long been regarded as a world leader in manufacturing, and CC-Link IE's underlying technologies borrow heavily from the experience and know-how of this heritage. Hence the CLPA intends to continue aggressively promoting the benefits of this background for advanced manufacturing applications in the global market via its worldwide network of branches," she concluded.

Expanding the strategy for Asia

A further key point is the new "Gateway to Asia" or "G2A" programme. This programme assists companies worldwide to develop their business in Asia when they incorporate CC-Link technology in their products. The programme began in 2011 as "Gateway to China", or "G2C". "We began with China because of the vast manufacturing base in this nation and the corresponding automation opportunities. In the past, many Chinese companies were only engaged in simple assembly processes.

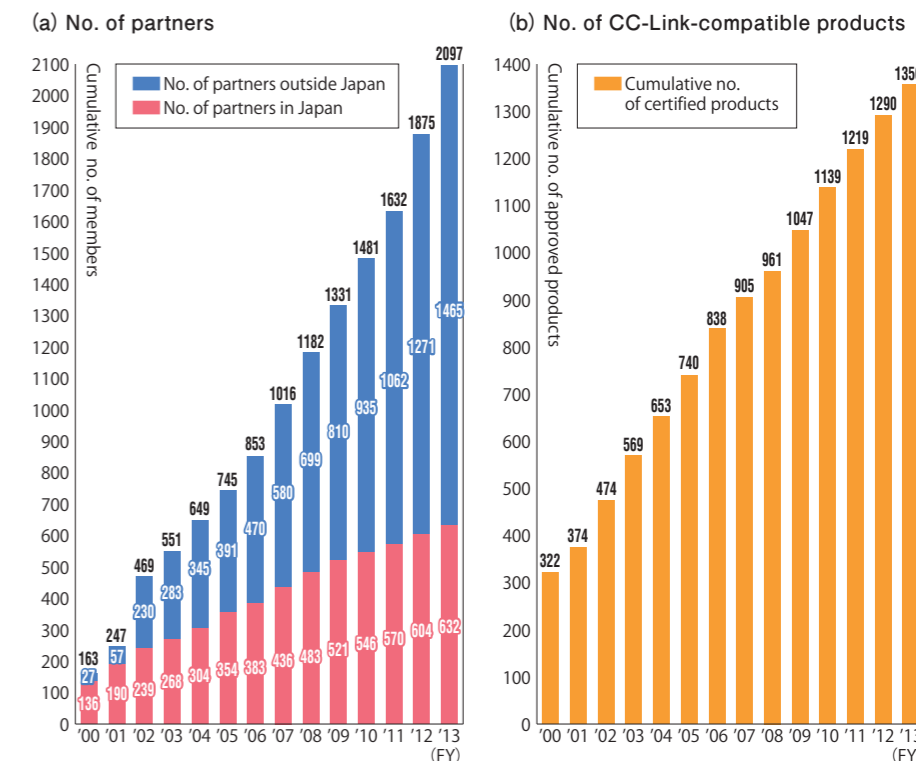


Figure. Continuing adoption of CC-Link & CC-Link IE

Now, many companies have progressed to producing materials and components in addition to assembly. Furthermore, as the market expands, more companies need to improve their productivity and also the quality expectations of the market have increased. This has directly driven the need to automate, since manual methods have become inadequate. In turn, this has also increased the demand for automation networks," stated Ms. Nakamura.

The CLPA has already achieved concrete results in China. "For example, more device manufacturers in Europe and America are now employing CC-Link or CC-Link IE to enter the Chinese market," continued Ms. Nakamura.

During the operation of the G2C campaign, it became clear that many global companies had interest in other Asian markets as well as China. Hence in 2013, the CLPA decided to extend the campaign to the whole of Asia, and hence renamed it "Gateway to Asia", or "G2A".

The G2A programme is intended to increase the momentum of CC-Link in Asia. As more companies enter the market

there with CC-Link compatible products, the greater variety will increase the application possibilities and hence the market share.

"The CLPA will become a gateway and encourage companies handling CC-Link- or CC-Link IE-related business to enter the Asian market", said Ms. Nakamura. "Specifically, the CLPA plays a leading role in promotion activities and events, such as running a booth or holding seminars at exhibitions. For the companies that develop CC-Link- or CC-Link IE-compatible devices, the CLPA also provides a development support kit containing the dedicated LSI, and associated components, or may even bear the cost for CC-Link conformance tests."

"We actively collect information about the situation of the manufacturing industry and required technology and products in Asia. By sending this information as feedback to the partner companies, we support the expansion of the lineup of CC-Link- and CC-Link IE-compatible products and accelerate the adoption of CC-Link and CC-Link IE", she concluded.

Your Gateway to Asia

CC-Link
CC-Link IE

G2A PARTNERS

BALLUFF Autonics DATALOGIC
Industrial Journal IDEC MOLEX FESTO
Pro-face ABB 上海电气集团 frontline
Weidmüller COGNEX 3M MITSUBISHI ELECTRIC
Automazione Bihi Wiedemann WAGO Fieldbus Networks
hms METLER TOLDO PEPPERL+FUCHS hi sen
RENESAS SCHAEFFLER FAG NEC

Access markets closed to your current network strategy

Image of "Gateway to Asia"



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