

Overview of the Research Activities of Jpn. Soc. Promot. Mach. Ind. Econ. Res. Inst.

CI (Connected Industries) Study Group Overview of FY2020 Activities

1. Intent and Objective of the Research

The exploitation of digital technology in the machinery industry has made rapid progress in mass production processes, routine processes, etc. and has achieved significant benefits, such as improved productivity and freedom from 3K labor. As the next step, the expansion of the use of digital technology to more advanced application areas has begun in a wide range of fields, including prototype development, production, and customer services.

The industrial transformation through the exploitation of digital technology has progressed across many phases, including the market aspects of the creation of new products and services and the sophistication of existing products, the production aspects of their development, manufacture, and supply, and the management aspects of the advancement of indirect divisions.

Both information processing and networks support and amplify the characteristics and performance of digital technology, which excels in the collection, storage, transfer, and processing of information. In recent years, these rapid technological advances and the introduction of infrastructure have brought about a situation in which the exploitation of digital technology extends to a wide range of industrial, economic, and social fields, and which can be called digitalization.

These changes in technological aspects are not limited to the quantitative expansion of high-speed and large-capacity processing and communication, but are also rapidly accelerating qualitative advances, such as the successive realization of new functions. In application aspects, the effect of these changes is expanding to many phases, and it is not an easy task to comprehensively understand it and apply it to, for example, management strategies or product strategies. IoT, Industry 4.0, robots, big data, CPS, AI, 5G, DX, and many other topics have also come up, and earnest initiatives have been implemented for each of them, but a lot of effort is required to merely keep track of them.

Being aware of these new waves, the Study Group continues to collect information about the situations visible to workplaces on the front lines of the machine industry and the supply chain from its upstream to clines, problem consciousness occurring to them, many attempts actually made, and challenges and hints learned from them, and exchange opinions from different standpoints, such as the industrial workplaces, policy making and implementation, and academia.

Rather than rushing to form conclusions or hypotheses, the Study Group is prioritizing finding something that will trigger the next activities in industry, policy making, and academia.

2. Past activities of the Study Group (Company names are abbreviated.) (FY2015)

Started as an IoT Study Group. Three workshops were held by inviting lecturers. Research

trends in related technologies, the state of industrial policy making side, the progress of the implementation of advance demonstration project policies, etc. were reported, opinions about them were exchanged, and the operation policy for the Study Group for the next and subsequent fiscal years was reviewed. Following that, the internal members of the Economic Research Institute held a Study Group meeting almost every month.

(FY2016)

Six workshops were held by inviting lecturers (Manufacturing Industries Bureau of the Ministry of Economy, Trade and Industry, Fuji Film, Konno Corporation, Daicel, Kojima Press, Regional Economy Group of the Ministry of Economy, Trade and Industry).

(FY2017)

Four workshops were held by inviting lecturers (JTEKT, Okuma, OMRON, Bushu Kogyo).

(FY2018)

Five workshops were held by inviting lecturers (Screen, Tohoku University, Tokyo Electron, Zeon Corporation, Toshiba Memory = current Kioxia).

The open symposium "Think about Manufacture in the Connected Industry Era - Possibilities and Challenges for Small and Medium Enterprises to Use IoT" was held (lecturers: Kojima Press, Bushu Kogyo, KMC).

(FY2019)

The Study Group was renamed the "Connected Industries (Cis) Study Group." Four workshops were held by inviting lecturers (Kyoto Kagaku, Kuno Kinzoku Industry, Aster, industria). The open symposium scheduled for March 20 was postponed.

3. Events held in FY2020

Two workshops were held in the form of a web conference. Preparatory interviews conducted by visiting the lecturer companies in advance and management meetings that were held almost every month were also held in the form of a web conference. The open symposium was re-postponed to the subsequent year.

First workshop:

Date: November 13, 2020

Lecturer: Mr. Hiroaki Muramatsu (Representative Director, Miruc Optical Co., Ltd.)

Theme: "Combining Analog Optical Technologies and Digital Technologies into a Solution"

Second workshop:

Date: March 18, 2021

Lecturer: Mr. Hisashi Odakura (Representative Director, Hibara Corporation Co., Ltd.)

Theme: "Operation of a Remote Painting Plant Utilizing IoT"