

## CIP Networks in Action

*Asahi Breweries Group*



### **Factory Automation Technologies Help Asahi Breweries Group to Leverage its Brewing and Management Expertise to Achieve Its Business Goal to Continue Increasing the Value of the “Asahi” Brand**

*Asahi chooses the Common Industrial Protocol (CIP™) as its standard protocol in brewery installations based on the success of the Kanagawa Brewery, a 21<sup>st</sup> Century green manufacturing operation*

Kanagawa Brewery is one of the newest breweries of the Asahi Breweries Group (Asahi). Its concept goes hand-in-hand with Asahi's goals to provide its customers with lifelong enjoyment and excitement in the domain of food and health. The brewery is designed to achieve harmony with the earth, local community, and neighboring people. Kanagawa is a 21<sup>st</sup> century “environment-creating” manufacturing site with 50% of its property preserved as a forestation area. Thanks to the various measures taken by Asahi to improve the water quality and massive planting of trees, the Kanagawa site is home to a lot of water and greenery, so much so that visitors to the site can enjoy cherry blossoms in spring and fireflies in summer.

To help further these goals, Asahi is proactively promoting network systems at all its breweries and manufacturing sites for improvement of quality management and productivity and to save energy. By adopting network systems throughout its facilities, Asahi has strived to make all processes and shop floor visible and consolidate information. The result has been enormous improvement of productivity and achieved through:

- Substantial reduction of lead time for starting up the system operation
- Drastic reduction of wiring and associated work
- Remote program change and program edit from the centralized control room
- Easier and quicker software edit for better quality management
- Earlier identification of abnormality/errors and earlier corrective action

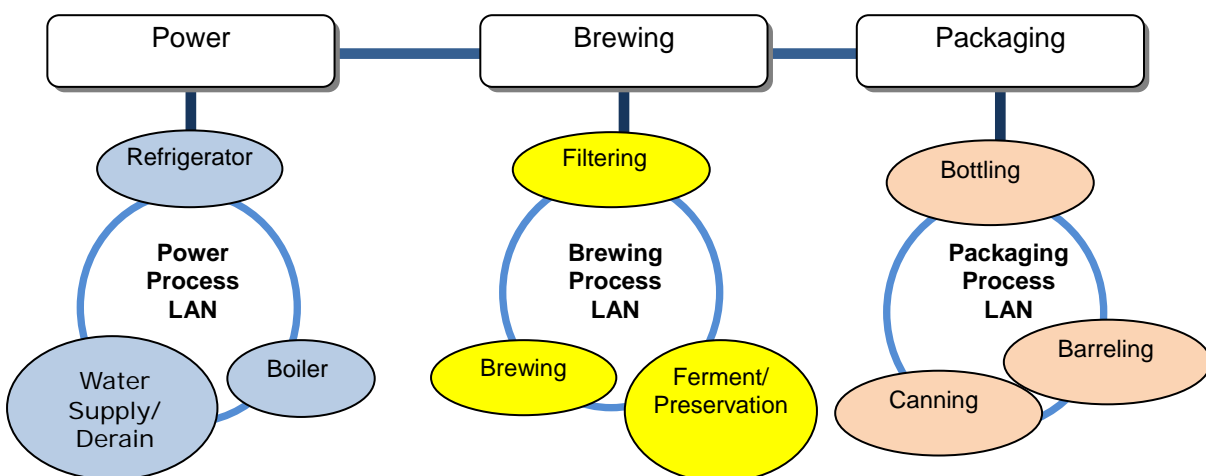
Learn how CIP™ and the network adaptations of CIP is helping Asahi achieve these goals as first realized at its Kanagawa Brewery.

## The reasons Asahi standardized on CIP™

Asahi made a thorough study of factory automation technologies – looking at issues such as scalability, utilization of existing assets, and protection for the future investment. Message transparency from the higher to the lower layers of the network and vice-versa was one of the features of CIP which led Asahi to choose CIP as the standard networking protocol for their breweries. Another part of the consideration and reason that Asahi chose CIP was that the protocol is managed by ODVA, a vendor-neutral standards development organization. The openness of ODVA allows easier participation of various device suppliers and, subsequently, wide product availability throughout the world.

## Network Architecture at Kanagawa Brewery

The network system at Kanagawa integrates three key aspects of the brewing process – power, brewing and packaging. In the brewing process, CIP enabled high visibility of all real time data in the process where monitoring and controlling of the data of each process such as boiling, fermenting, preserving and filtering have been separated. Thanks to this high visibility and consolidation of information, real-time monitoring and control of all processes at a centralized station were achieved. CIP also allows monitoring and real-time control of packaging processes such as bottling, barreling, and canning as well as power aspects of the brewing process.



The network architecture a Kanagawa uses CIP running on both DeviceNet™ and EtherNet/IP™ connected to the plant Ethernet LAN.

## Accomplishments of the Network System at Kanagawa Brewery

Before starting up the brewery, Asahi realized:

- Drastic reduction of wiring.
- Substantial cut-down of lead time for the start-up.

After the brewery started its operation, thanks to the high visibility and real-time monitoring, Asahi realized:

- Flexible and straight forward change of production specification.
- Operation with fewer operators that helped to reduce the cost.

As a result of the success at Kanagawa, Asahi decided to standardize the network architecture deployed at Kanagawa brewery and promote that architecture at all other breweries.

## Expectations and Requirements for ODVA and CIP

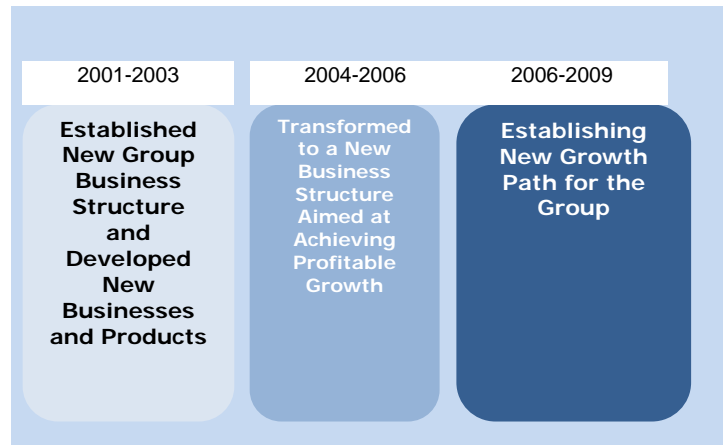


**Mr. Yoshitaka Kimura**  
Production Headquarters  
Asahi

Mr. Yoshitaka Kimura, of Asahi's production headquarters, spoke about Asahi's decision to standardize on CIP and related ODVA technologies. "Asahi Beer Company is promoting CIP at its all breweries, taking advantage of the experience we have obtained at Kanagawa Brewery. Asahi is satisfied with CIP technology and the performance we have experienced so far. Asahi plans to drive usage of CIP, including EtherNet/IP, for building new network systems and expansion of existing systems as well. We expect that the number of control points at our breweries will continuously grow for further improvement of quality and sustaining it. This will definitely require a continuous grow of number of nodes at our breweries. Consequently, the network performance will become increasingly critical. To further utilize the assets and protect our investment, ODVA should continue look for way to enhance CIP technology to offer new ways to help realize the potential performance gains possible with network technologies."

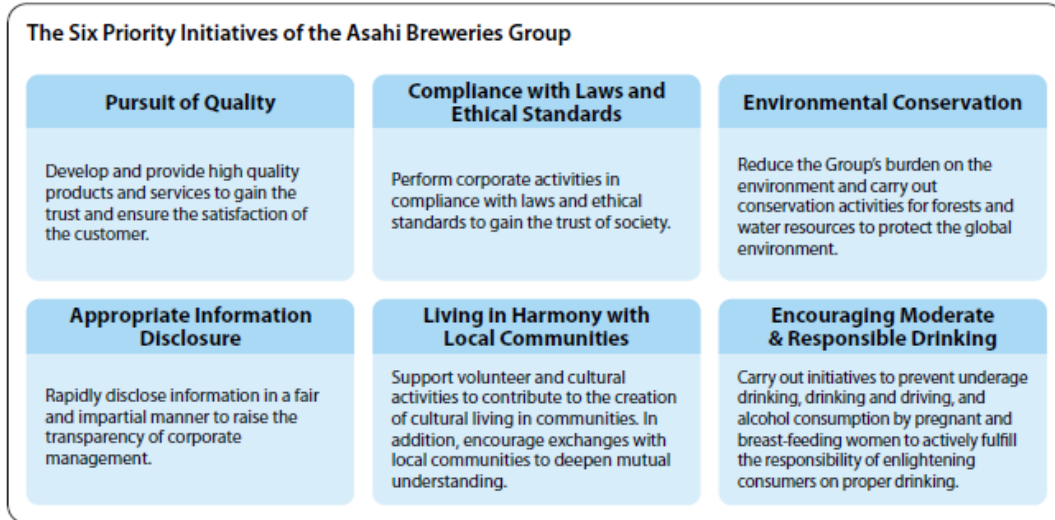
**About the Asahi Breweries Group:**

Asahi Breweries Group, led by Asahi Beer Company, consists of over 100 companies inside and outside of Japan. Its major businesses are Alcoholic Beverage, Soft Drinks, Food and Pharmaceutical. Asahi Breweries Group has been successfully running its medium management plans to “shape a superb future” for the group. The goal of the 1<sup>st</sup> medium term plan was to “establish new group business structure and develop new businesses and products” followed by the 2<sup>nd</sup> term plan for “transforming to a new business structure aimed at achieving profitable growth”. The 3<sup>rd</sup> and on-going plan is to “place the group on a new growth trajectory.” The group’s long-term vision is to become a “leading company” with high growth potential by providing customers with lifelong enjoyment and excitement in the domain of food and health. The Group is striving to achieve its long-term goal and raise the value of its corporate brand by leveraging its advantageous expertise in brewing and management strength.



Asahi Breweries Group is guided by its Corporate Social Responsibility (CSR) Policy which states: seeks to bring about a sustainable society, and as we pursue our primary business domains of food and health, we will respond to customer expectations by carrying out our social responsibility through business activities that take the environment and society into consideration. We will pursue this effort from the perspective of the entire supply chain and global business development by seeking collaborative actions with our business partners.

Asahi Breweries Group's CSR activities are focused on six initiatives.



Asahi Breweries Group also strives after reduction of waste generation. In 2008, the Group developed a world's first, epoch-making technology in beer brewing. The technology is called PIE (Pre-Isomeriser & Evaporator). It cuts down the boiling time in brewing and eventually reduces the emission of CO<sub>2</sub> by 30%. The hop is boiled separately in a smaller kettle, approximately 1/50 in size of the kettle that is used for boiling the wort, before it is mixed with wort. This makes the high-boiling component of the hops evaporate and eventually cuts down the entire boiling time. In addition, PIE also streamlines the boiling process of hops and reduces consumption of hops by 5%. As a side effect of enormous reduction of heat energy, PIE also helps to save more protein contents and keeps the bubble of beer for longer time. The Group plans to promote installation of PIE technology at all of its domestic Japanese breweries.

## About ODVA

ODVA is an international association comprising members from the world's leading automation companies. Collectively, ODVA and its members support network technologies based on the Common Industrial Protocol (CIP™). These currently include DeviceNet™, EtherNet/IP™, CompoNet™, and ControlNet™, along with the major extensions to CIP — CIP Safety™ and CIP Motion™. ODVA manages the development of these open technologies, and assists manufacturers and users of CIP Networks through its activities in standards development, certification, vendor education and industry awareness.

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