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Taking Production to the Next Level

To ensure continuous and efficient manufacturing, this Indonesian wheat flour miller upgraded its industrial networks to gain visibility over its processes and address issues as they happen. *Stephen Las Marias* reports.

Bogasari Flour Mills, a division of PT Indofood Sukses Makmur Tbk, is not only the largest integrated flour miller in Indonesia but also the largest installation of its type in a single location anywhere in the world. It has two flour mills – one in Tanjung Priok, Jakarta, and another in Tanjung Perak, Surabaya – and has a daily production capacity of 10,000 tons of wheat, according to Christianus S. Kaluli, Vice President, Technical Support. Its integrated factory in Jakarta alone covers 32 hectares,

has 15 mills (Mill A to Mill O), and has rows and rows of massive wheat silos.

Bogasari produces a variety of wheat flour – under the Segitiga Biru, Kunci Biru, and Cakra Kembar brands – for use in the production of noodles, breads, cakes, brownies, and other baked snacks. It is also the largest producer of pasta not only in Indonesia, but the whole of Southeast Asia. Marketed under the La Fonte brand, Bogasari's pasta products – spaghetti, macaroni, and fettuccini, among others – are not only for local consumption but also exported to countries including Japan, the Philippines, and South Korea.

Addressing competition

“Demand has been increasing year-by-year,” says Christianus. “The flour market is growing, not only because of the population growth, but also the changing consumer habits and the growing middle class in Indonesia. People now are eating bread and pasta more. Before, it's only rice and noodles.”

In line with the continuously growing demand for flour products, more and more companies have established milling operations in Indonesia.

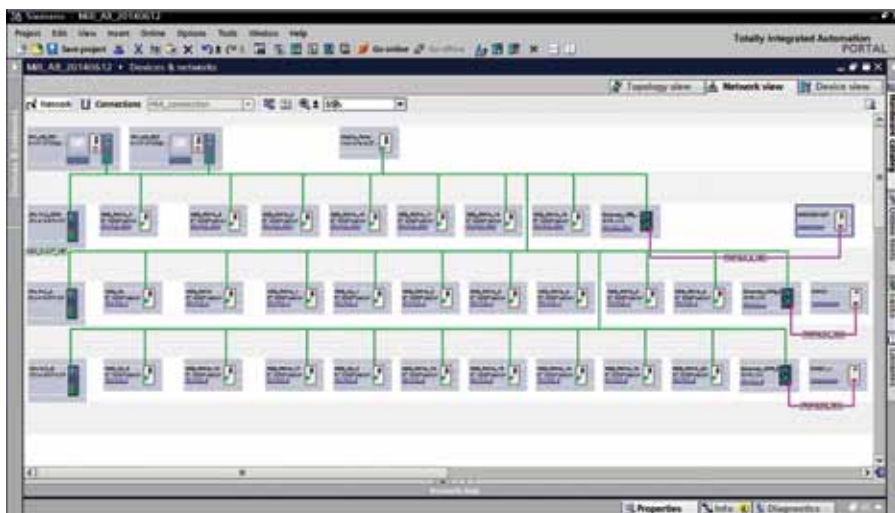
“Currently, there are around 20 flour mills in Indonesia, compared to just three a few years ago – Bogasari Jakarta, Bogasari Surabaya, and Eastern Pearl Flour Mills in Sulawesi,” he explains. “Before, our market share is about 90%; but now, it's only about 55-60% because of the competition.”

Christianus emphasizes on the importance of product quality to keep up with the competition. “Our main challenge is quality. We need to make sure that the quality is uniform for all the batches of the products, especially now that there are other players in the market. The quality has to be good,” he says. “We are already ISO and GMP certified. We are now working on getting the FSSC 22000 certificate.”

Apart from quality, Christianus notes that capacity is also an issue. “Our Jakarta plant is now more than 40 years old. As our machineries are already old, our capacities are reduced. That is why we need to upgrade some of our systems,” says Christianus, noting that they are now on the process of migrating their systems to newer models and versions. He says they started this process by upgrading three of their mills in Jakarta to increase their capacity, and improve their yield and efficiency.



Bogasari is the largest integrated flour miller in Indonesia. This photo shows the rows of wheat silos in its 32ha facility in Jakarta.



With the migration to Profinet, operators can now easily determine which nodes in the production line have issues or error alerts.

From Profibus to Profinet

Bogasari was initially using Profibus as the communications platform for its HMI, controllers and I/Os. Its Mill A, B, and C have various instruments such as flowmeters, which are also running on Profibus.

But Christianus notes that they sometimes have issues regarding I/Os of their field devices. One particular intermittent issue is between the Profibus and the Ocrim milling system. Christianus says previously, if one system fails, the whole network goes down, thereby halting production.

“We are a big flour mill. If we stop even for just one hour, you can just imagine the capacity lost within that that period,” says Christianus.

Ato Ansori, Business Development at Java Diamond, a Siemens Partner in Indonesia, worked with Bogasari regarding the system upgrades at its mills. “Regarding migration, we have to know completely what the existing applications are – from the basic applications like the HMI, or SCADA, to advanced applications like reporting, or communications, or interfacing with another software. Sometimes, the engineers do not use standard software, let’s say for PSA. One big issue here is reporting. For instance, WinCC already has add-on tools for reporting, but the engineer prefers to use non-WinCC options. The OEM in fact was using Excel by DDE. If we



Docking stations for the Siemens HMI Mobile Panels for fast access to the HMI.

convert, we will get errors,” explains Ato.

To address the above issues, Bogasari worked with Java Diamond to migrate its Profibus network to Profinet. It is also now using TIA Portal Version 12.

“The migration was easy,” says Christianus. “After we migrated to Profinet, we will get just message alerts if there are some issues, for instance, 300ms or 400ms of failure, and therefore we don’t need to stop the plant.” Another big advantage was the easy integration of the existing Profibus instruments into Profinet with Proxy technology, in this case Siemens IE/PB-Link.

With the migration to Profinet, Christianus says the reliability of the system is higher than before. He notes that now, they can also pinpoint the particular field device that is causing problems in

the production. “It made the system more robust and flexible in topology,” Christianus notes. “After the migration to Profinet, the operator now gets the error message easily – which, sometimes could just be a network disconnect. The important thing here is that there are no more production halts or disruptions. If it is a critical operation, then it will be stopped; but otherwise, it will just



The ET200U stations were migrated to the new and fast IO System ET200SP.

So far, so good

Bogasari and Java Diamond finished the Profibus-to-Profinet migration in December last year. “It’s been more than around six months already. There are many benefits, but one main thing is that with the upgrade, the system has been running smoothly and without disruptions,” says Christianus. “The spare parts are also easier to get.”

On why choosing Siemens solutions, Christianus highlights the fact that one of their main criteria is the automation system itself. “Siemens has good solutions, and being a big company, they can develop the software and the hardware; and the development is continuous. Secondly, in Indonesia, Siemens is popular. It’s easy to get the spare parts. Every region, there is Siemens—Surabaya, Semarang, Medan. That is our main consideration.”

Bogasari’s parent company, Indofood, also has a lot of Siemens systems installed at its plant, especially the noodle group. “If Siemens systems are good for some processes, we also implement them in the units in other divisions,” says Christianus.

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