

PULP AND PAPER

Secure operations and enhanced connectivity takes DS Smith's Kemsley mill to the next level



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Kemsley Paper
Mill in Kent, UK

Analyzing a generational challenge

DS Smith is a leading provider of sustainable fiber-based packaging worldwide, supported by recycling and papermaking operations. The company's Kemsley Paper Mill in Kent, UK, has been in operation for 99 years and is today the second largest recycled paper mill in Europe with an annual production capacity of over 820,000 tons.

As it edges towards its centenary, the DS Smith Kemsley team faces a new generational challenge to create highly automated, increasingly connected and more secure operations. As a technology leader with decades of history and many industry firsts in pulp and paper, ABB is embedded in the mission.

For the last decade, an older version of ABB Ability™ System 800xA distributed control system (DCS) was used successfully, but it did not lend itself to effectively supporting the latest technology and hardware. The time had come for a full system upgrade with enhanced cyber security architecture to meet modern requirements.

Combining safety with automation

Together with a quality control system (QCS), drives and machine control across all three paper machines on the 1.1km² site, the DCS touches every area of the mill. At such a scale, the idea of a seamless upgrade may have seemed impossible to many.

For the Kemsley mill, cyber security is an important part of its license to operate. The team wanted to maintain their security but recognized the importance digitalization plays now and in the future. Industry 4.0 was a driving force behind this large-scale and complex project, as well as a deciding factor in partnering with ABB.

Tackling the complexities of a large-scale upgrade

ABB and DS Smith worked together over an 18-month period developing a process of design, focusing on architecture and a comprehensive solution to deliver on the goals set by DS Smith. This collaborative approach shaped the solution



and ensured an effective planning and testing process, mitigating obstacles and challenges ahead of implementation.

The mill scheduled shutdown on all three paper machines, beginning with PM3 and PM4 simultaneously, followed by PM6 and their effluent and freshwater plant. The team recognized the importance of the project and timed it for minimal disruption to normal operations. Having three paper machines on one site isn't common within the industry and added to the complexities and logistics of such a project - raising the stakes significantly.

It became one of the largest system upgrades that ABB has supplied into the industry, taking over 6000 hours in advance and 12 days on site. The team completed a full upgrade of the ABB Ability™ System 800xA distributed control system (DCS), quality control system (QCS) and paper machine drives, with mill-wide integration.

Virtual measurements were also included in the scope of project delivery, adding Strength and Weight Measurements for more accurate and frequent measurements. Additional complexity lay in integrating across the operational technology, implementing cyber secure architecture all the way from automation to control to IT.

“The collaborative approach we undertook with DS Smith, working closely with them to develop this project, will help DS Smith with their digitalization journey and future evolution plans,” shared Paul Clark, Account Manager for ABB Pulp and Paper.

Securing mill-wide operations

Mapping out a complex architecture to deliver cyber security at every level of operations, ABB had the expertise and power of both local and co-ordinated resources to deliver a close-to-seamless upgrade.

ABB Ability™ System 800xA is a key operating system for DS Smith and with enhanced integration and more secure options, visibility of operations mill-wide have improved significantly.

Having a long-standing relationship with the local teams and co-ordinated resource from ABB's Europe Regional Execution Center (EUREC) was crucial to project success, aiding smoother communication and project management. DS Smith was comfortable putting their trust in the ABB team.

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“Facing a challenging upgrade across a heavily integrated system, we anticipated many obstacles. Thanks to ABB's time, effort and expertise, we achieved a seemingly impossible seamless upgrade! It has very much prepared the ground for what we want to do in the future.”

Adrian Clark,
Electrical and Automation Development Manager