

Identifying your needs

Every steel manufacturer faces unique challenges, which is why IBM consultants are prepared to do a brief yet intensive assessment of your current plate design environment. The result is a well-defined business case and a proposed implementation plan that addresses the specific needs and value drivers that can help you maximize ROI. The plate design application is also architected using open standards and a Web-based graphical user interface, which enables rapid deployment and a low total cost of ownership.

In addition to plate and slab design, the IBM Production Design and Operations Scheduling Solution for Steel contains optimization modules that handle inventory, melting shop scheduling, hot mill scheduling and finishing line scheduling. The solution is supported by the IBM Center for Business Optimization, which brings together IBM's industry and process expertise, as well as its deep computing and advanced analytics capabilities, to tackle some of the most difficult business challenges faced by business and government.

The center offers solutions in supply chain optimization, marketing investment optimization, pricing optimization and risk management.

For more information

To learn more about IBM Global Business Services, contact your IBM representative or visit:

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To learn more about the IBM Production Design & Operations Scheduling Solution for Steel and the IBM Center for Business Optimization visit:

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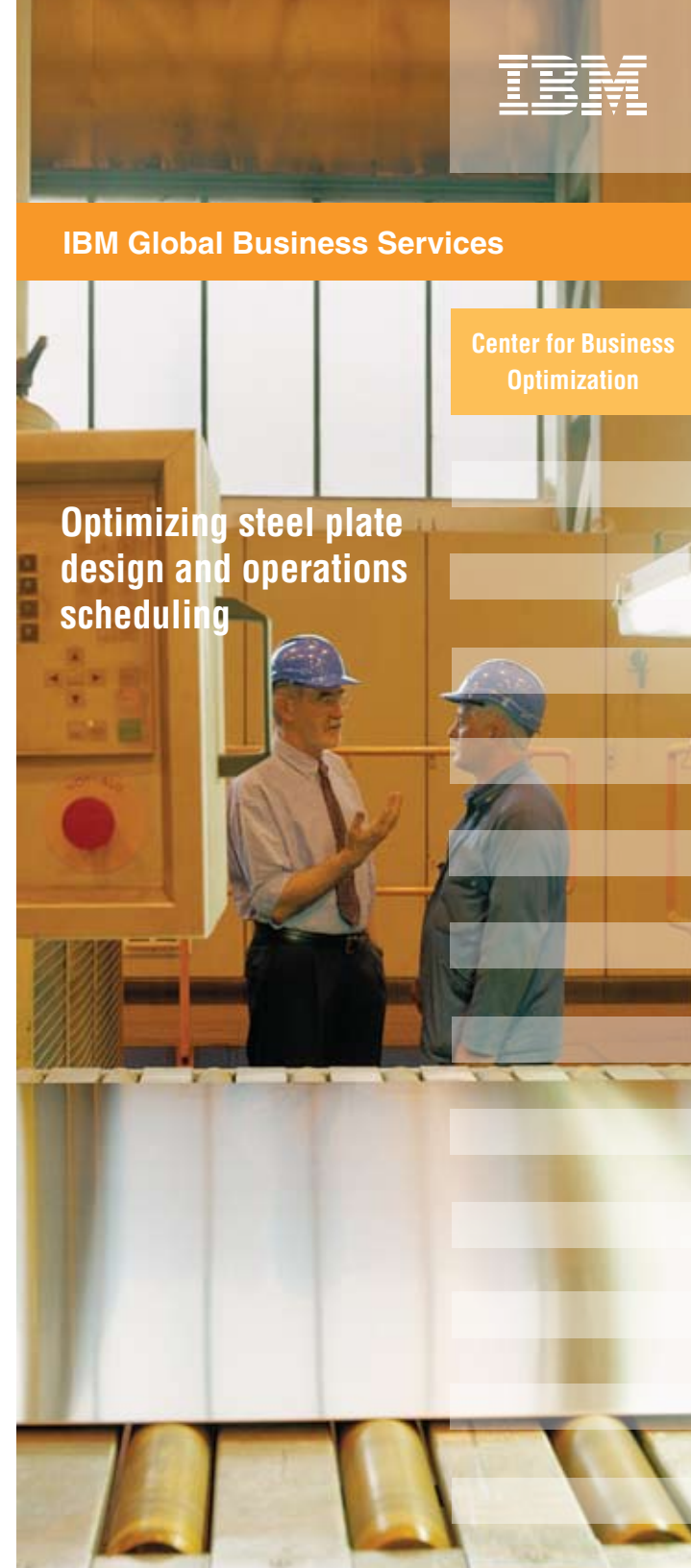
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IBM Global Business Services

Center for Business
Optimization

Optimizing steel plate
design and operations
scheduling



Ever since 1855, when English engineer Henry Bessemer introduced his Bessemer converter and made the mass production of steel practical, steel manufacturers have looked for ways to improve the productivity and efficiency of their operations. Steel production is a capital-intensive, “make-to-order” business, and customer service is a key differentiator in a competitive landscape that continues to undergo significant changes. Today, steel companies operate huge, complex facilities where even incremental improvements in production design and operations scheduling have the potential to dramatically drive down costs, lower inventory and increase profits.

To help companies achieve greater levels of efficiency in their core production processes, IBM has worked with leading steel companies from around the world to develop the Production Design and Operations Scheduling Solution for Steel. A key component of this solution addresses the specific issues related to the design and manufacturing of steel plates.

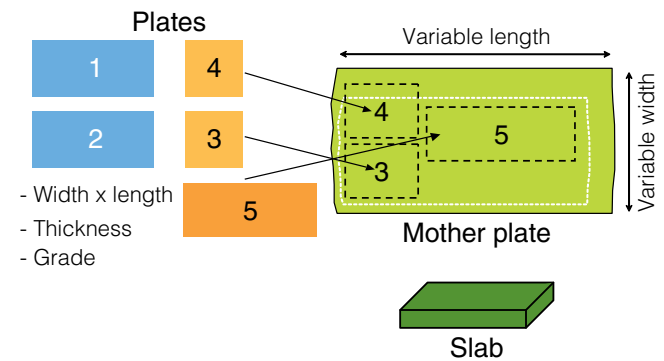


Optimizing plate design

Plate design starts with an order book of plates that need to be produced and tackles the problem of packing those orders into mother plates that satisfy guillotine and materials constraints, while maximizing yield, average slab weight and on-time delivery. Steel mills are typically encumbered from realizing operational efficiencies in plate design by a number of factors. Among them are:

- Plate design is frequently performed manually, which takes time and does not always result in an optimal cutting plan. The potential for waste and delay is further compounded as urgent orders arrive at the mill and need to be folded into the current production schedule.
- Upstream and downstream requirements, such as finishing, are not fully considered.
- There is limited integration with slab design so that casts do not always fit the plate requirements.
- Where applicable, there is no cross-mill optimization to make sure the best suited mill is used for plate production.

The IBM plate design application is designed to remove these inhibitors by using a suite of specially developed algorithms to generate an optimal set of mother plates that covers the order book, reduces handling and waste, and maximizes production throughput based on machinery and capacity constraints. For example, plate designs can be generated in either simple or mosaic patterns, depending on the mill's cutting capabilities. What's more, the application is fast — allowing for continuous optimization.



Working together, the plate and slab design applications examine the order book of plates and determine the optimal sequence and dimensions of the slabs and mother plates that need to be produced to best satisfy delivery requirements, maximize yield and minimize surplus and waste.

When integrated with the IBM slab design application, another component of the Production Design and Operations Scheduling Solution for Steel, further efficiencies in plate design and mill productivity are possible. A slab sequence is generated for the caster that maximizes the number of charges per cast (or heats per tundish) and minimizes the surplus slabs that are introduced to satisfy batch constraints.

After working with IBM to deploy the plate design application, a major steel producer in Asia improved the average slab size by about eight percent while keeping waste and unplanned surplus at the caster to minimum specified levels. These savings not only led to higher productivity and better customer service, but they also provided the steel maker with a return on investment (ROI) in less than one year.