

Broner Metals Solutions

鐵鋼산업 **Supply Chain** 솔루션

MBI
Technology Group

www.mbitg.com

- Broner 솔루션 개요
- Broner Module Overview
- Special Topic : Hot Charging 솔루션
- Special Topic : Meltshop Control Centre
- 성공사례 : 일본 A 제철

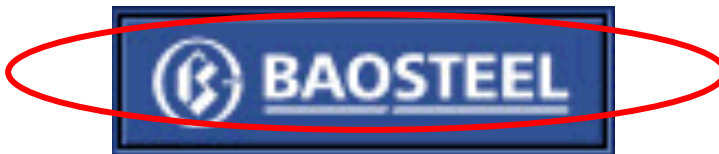
Broner Metals Solutions

Broner 솔루션 개요

고객사(일부)



일본 新日本製鐵



중국 上海宝钢集团公司

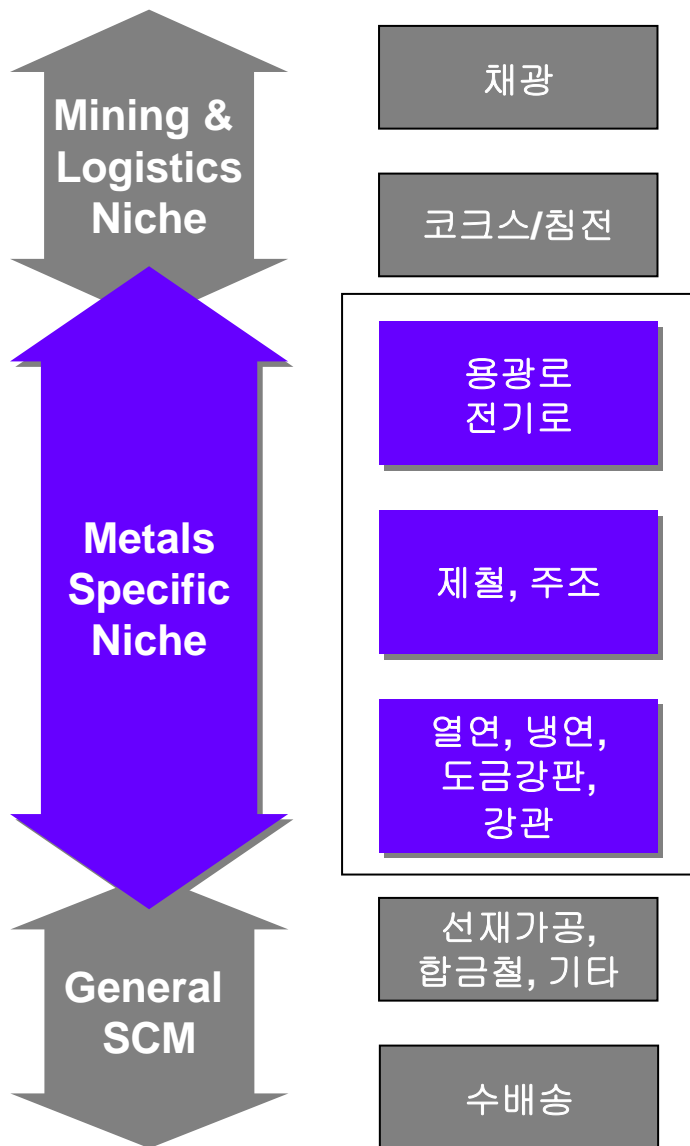


일본 日新製鋼



Broner Metals Solutions

- Will be the global brand for all the software technology needs of the Metals industries
- Will build on a 15 years strong track record and proven technology to be the dominant supplier in the Metals industry for :
 - ✓ Advanced Planning and Scheduling
 - ✓ Metals Supply Chain Management
 - ✓ Manufacturing Execution Systems



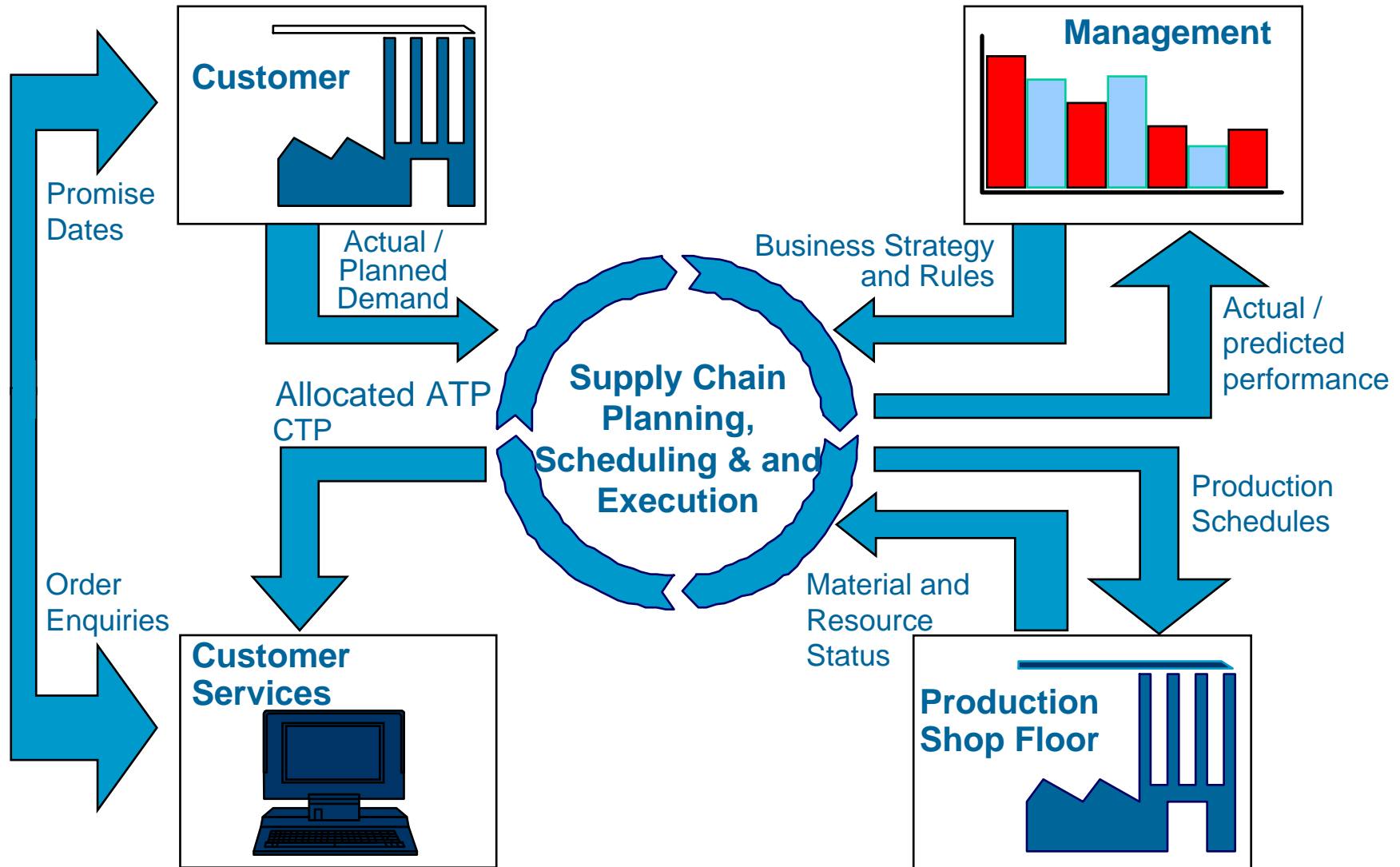
- Supply chain Planning, Advanced Planning and Scheduling and Manufacturing Execution Solutions for:

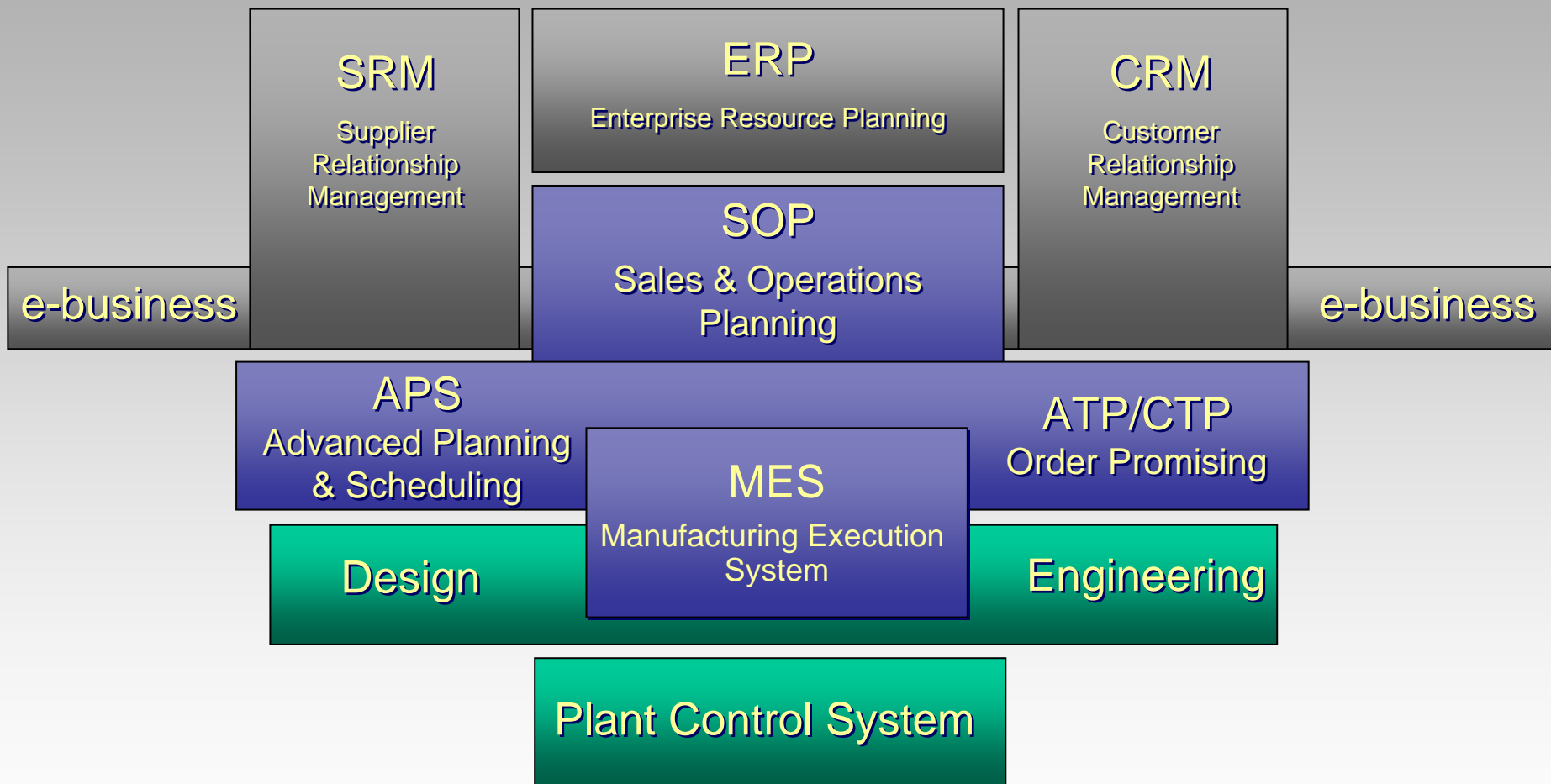
- ✓ Integrated strip mills
- ✓ Plate Mills
- ✓ Cold Mills and Coating
- ✓ Mini-mills
- ✓ Rod & Bar Mills
- ✓ Section Mills

요약

- 전세계적인 생산능력 과다에 의한 경쟁심화
- 업체간 인수합병 추세
- 투하 자본 회수기간
- 수요의 변동성 / 수요예측 정확성
- 고수익 시장의 인식
- 생산공정의 안정화
- 원재료(고철)의 가용성 / 품질변동
- 생산성

- 시장 수요와 생산 현황 정보를 신속 정확히 제공하는 실시간 영업, 생산 모니터링 시스템
- 다음과 같은 업무분야에 대하여 철강산업 고유의 비즈니스 환경을 지속적으로 지원하는 통합된 전사적 의사결정 지원 시스템
 - ✓ 판매계획 및 실행
 - ✓ 생산계획 및 실행
 - ✓ 원재료 구매계획 및 실행





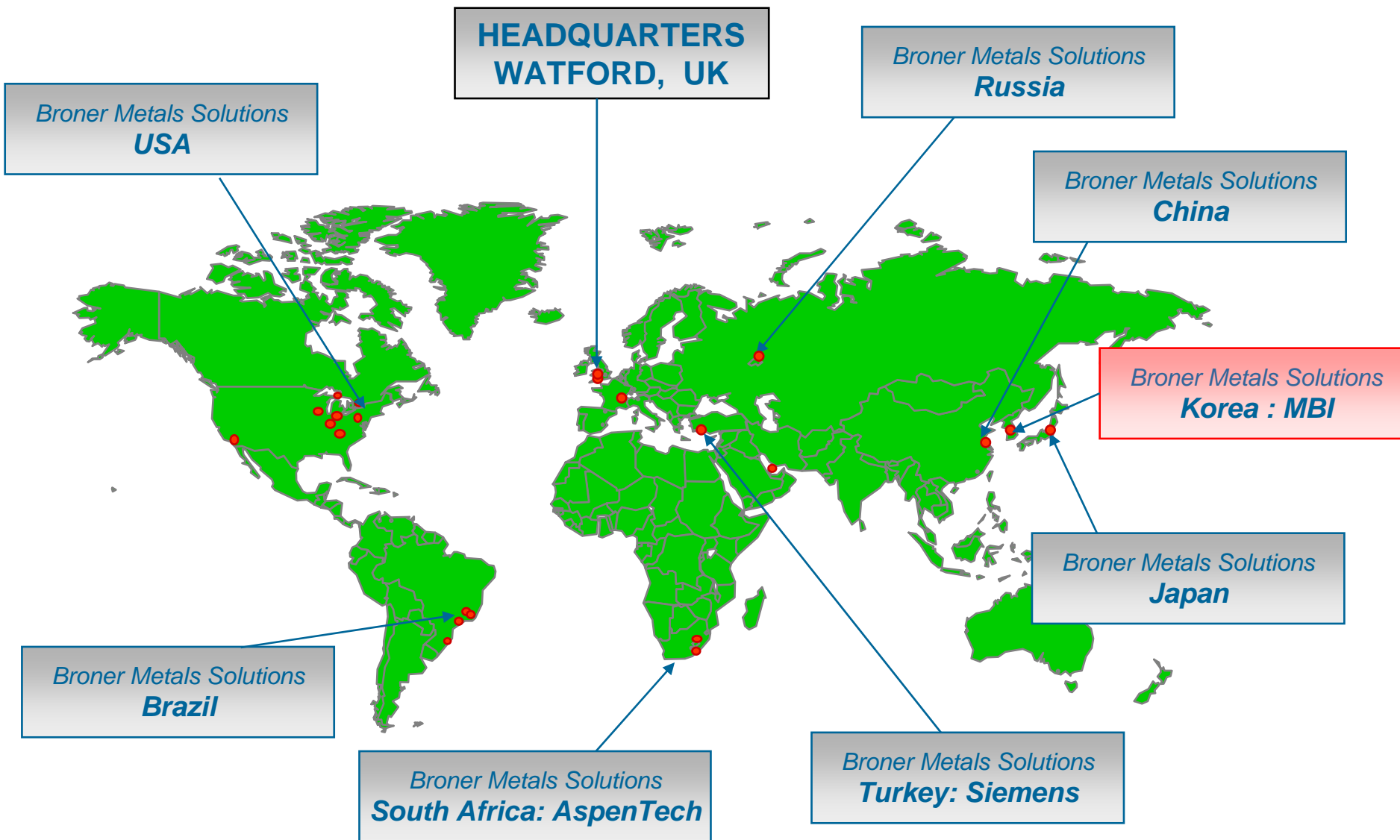
 **Broner Metals Solutions**

고객명	Examples of Value Delivered
ALCOA	<ul style="list-style-type: none"> ➤ 50% inventory reduction in 12 months (est. value US\$200 mill) ➤ Manufacturing lead time reduced by 50% ➤ Delivery Performance 97% on-time
Gerdau Group (Acominas)	<ul style="list-style-type: none"> ➤ Eliminated shortage for raw materials (ferro alloys) ➤ Improved coordination of steel by steel making to eliminate temperature related during casting
Gerdau Group (Acos Finos Priatini)	<ul style="list-style-type: none"> ➤ Improved delivery performance from 40% to 85% in 6 months ➤ Eliminated backlog ➤ Plat profitable for first time
CORUS Shotton Works	<ul style="list-style-type: none"> ➤ Inventory reduced by 30% (estimated value US \$ 6 mill) ➤ Throughput increased 20% ➤ On-time delivery increase by 30%
DOFASCO Inc	<ul style="list-style-type: none"> ➤ 10% reduction in excess inventories (estimated value US\$10.5 mill) ➤ Reduced backlog and improved on-time delivery ➤ Rated No1 for Customer Service compared to competitors
COSIPA	<ul style="list-style-type: none"> ➤ Reduction in inventory 50% ➤ Delivery performance improvement from 80% to 97% ➤ Reduction in manufacturing & sales lead time 50% ➤ Increase average master coil Weight 15%

Steel

British Steel Shotton	<i>Planning & Scheduling</i>	COSIPA – Brazil	<i>Sales & Operation Planning, Order Promising, Planning and Scheduling</i>
Dofasco – Canada	<i>Planning, Scheduling & Order Promising</i>	ACOMINAS – Brazil	<i>Planning & Scheduling</i>
British Steel - Llanwern	<i>Planning & Scheduling</i>	CSN – Brazil	<i>Planning & Scheduling</i>
British Steel - Port Talbot	<i>Planning & Scheduling</i>	Dofasco Inc – Canada	<i>Melt Shop Scheduler</i>
British Steel Tinplate Ebbw Vale	<i>Planning & Scheduling</i>	Nisshin Steel – Japan	<i>Planning & Scheduling</i>
British Steel Tinplate Trostre	<i>Planning & Scheduling</i>	Nippon Steel – Japan	<i>Planning & Scheduling</i>
Algoma Steel Inc – Canada	<i>Planning & Scheduling</i>	Bao Steel – China	<i>Planning & Order Promising</i>
Acos Finos Piratini - Brazil	<i>Planning, Scheduling & Order Promising</i>	Borcelik/ Arcelor Turkey	<i>Sales & Operation Planning, Order Promising, Planning and Scheduling, Manufacturing Execution System</i>
British Steel Strip Products	<i>Supply-Chain Planning</i>		
California Steel Industries – USA	<i>Material & Production Planning</i>		
British Steel	<i>Melt Shop Scheduler</i>		
British Steel	<i>Material Planner</i>		
Algoma Steel Inc - Canada	<i>Melt Shop Scheduler</i>		
Columbus Stainless – S. Africa	<i>Planning & Scheduling</i>		
USIMINAS – Brazil	<i>Sales & Operation Planning, Order Promising, Planning and Scheduling</i>		
		<u>Aluminium</u>	
		ALCOA Davenport, USA	<i>Planning Scheduling</i>
		ALCOA Warrick, USA	<i>Planning & Order Promising</i>
		ALCOA Tennessee – USA	<i>Planning & Order Promising</i>
		Hulett Aluminium, S. Africa	<i>Planning, Scheduling & Order Promising</i>
		Norandal USA Inc	<i>Scheduling</i>

전 세계 영업/지원망



- 비즈니스 컨설팅
- 교육 / 트레이닝
- 기술 지원
- 시스템 유지보수
- 온라인 서포트

Broner Metals Solutions

Team is experienced, The group provides reliable, proven and flexible supply chain solutions to the Metals Industry.

Name	Position	Metals Supply Chain Experience
Tim Hurn	Business Development Manager	18 years
Andie Stephens	Services Manager	16 Years
Julie Gillanders	Project Manager	6 Years
Tim Banks	Project Manager	18 years
Tim McAlpine	Development Manager	7 years
David Rice	Implementation Engineer	3 years
Maarten Hamersma	Business Consultant	12 years
Jim Waters	Technical Manager	15 years
Peter Gregory	Development Team Leader	7 years
Kevin Binns	Software Architect	15 years
Ben Higgins	Software Engineer	6 years
Pieter von Wielligh	Project Manager	5 years
Paige Hong	Business Consultant	2 years
Rui Castelli	Implementation Engineer	3 Years
Fernando Guerra	Business Consultant	5 years

Broner는 진정한 고객가치를 전달하기 위해 다음과 같은 영역에서 주요 컨설팅사 및 SI사와 파트너십을 맺고 있습니다 ;

- 업무 프로세스 개선
- 변화관리
- 어플리케이션 및 시스템 통합
- IT 컨설팅
- 조직진단 및 솔루션 구축
- IT 관리 및 어플리케이션 호스팅
- 프로젝트 성과 분석

Why Broner Metals Solutions ?

- 철강산업 고유의 솔루션
 - 철강산업 특유의 요구사항을 완벽히 소화
 - 낮은 총소유비용(TCO)
 - Low Risk 솔루션(많은 구축 사례)
 - 구현 경험 풍부한 컨설턴트(英國)
- 모듈별 단계적 구현가능
- 프로그래밍 지식이 필요 없는 유연한 구조
- ROI를 높이는 쉽고 신속한 구현

Broner Metals Solutions

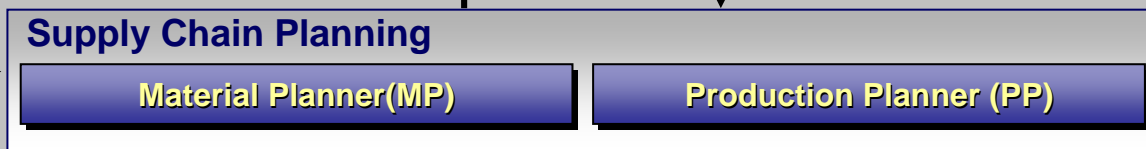
Broner 솔루션 Module Overview

철강산업을 위한 통합된 Supply Chain Management 솔루션

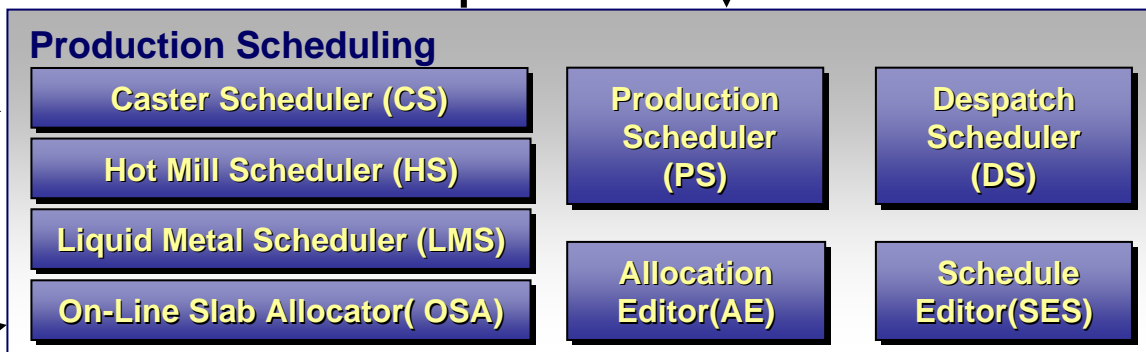
Term
3 - 36 months
(Updated Monthly)



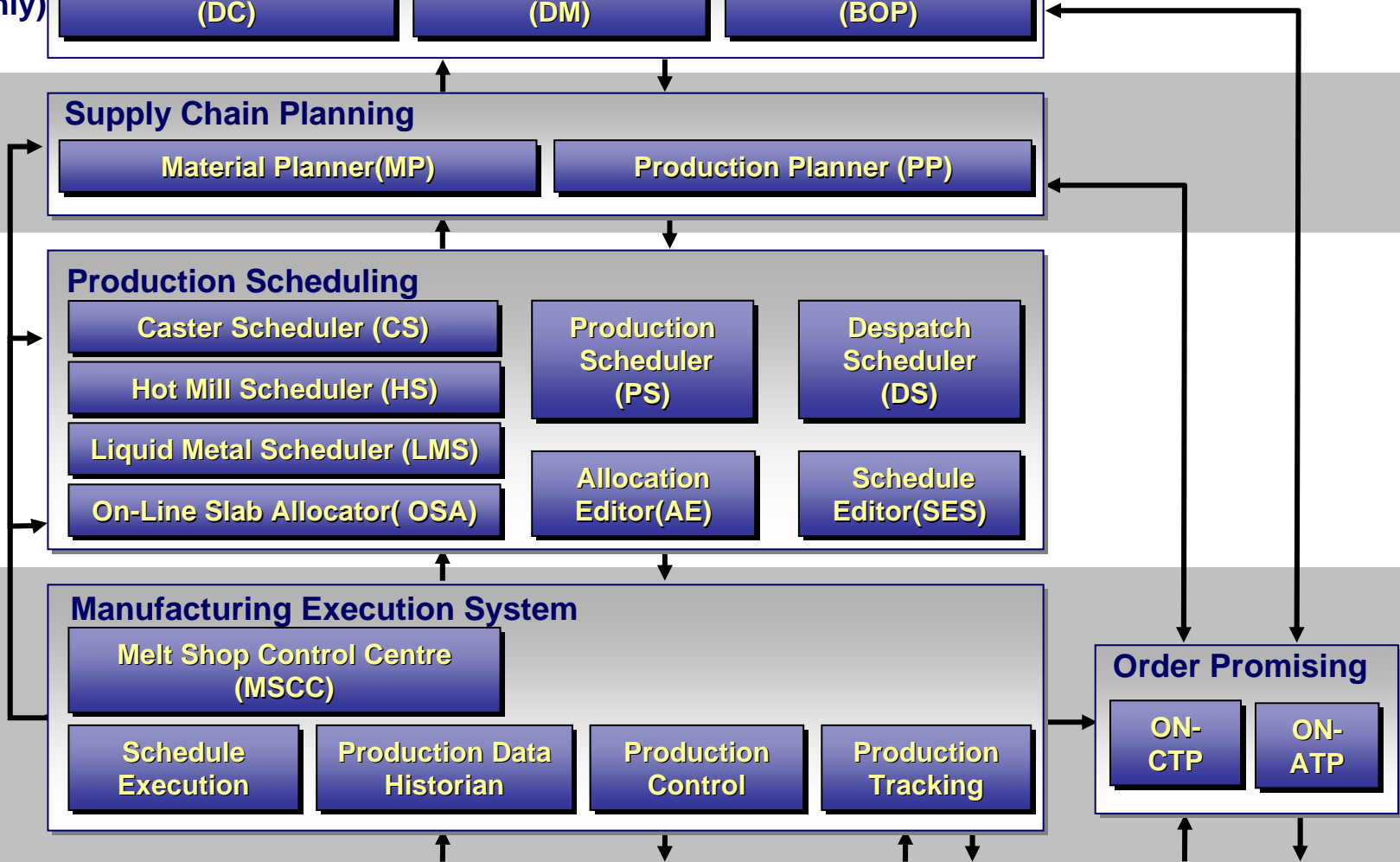
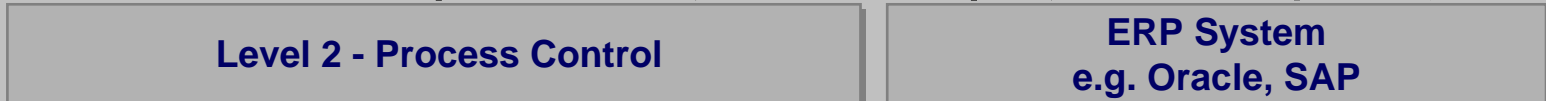
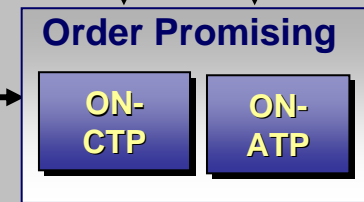
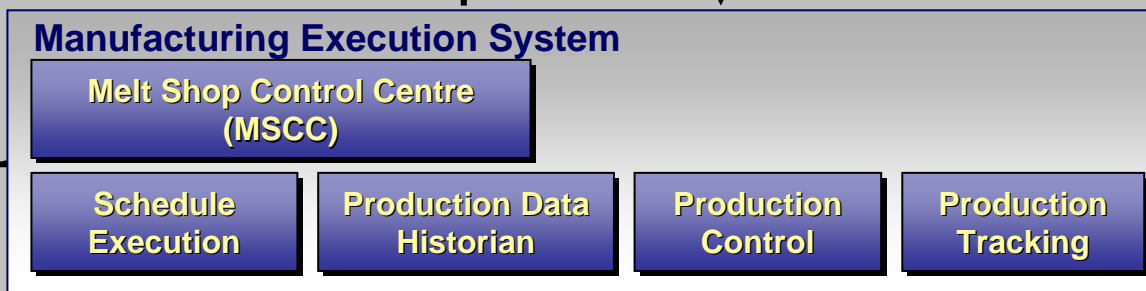
2 - 3 Months
(Updated Daily)



1 - 3 Days
(Updated Daily or as required)



Real Time

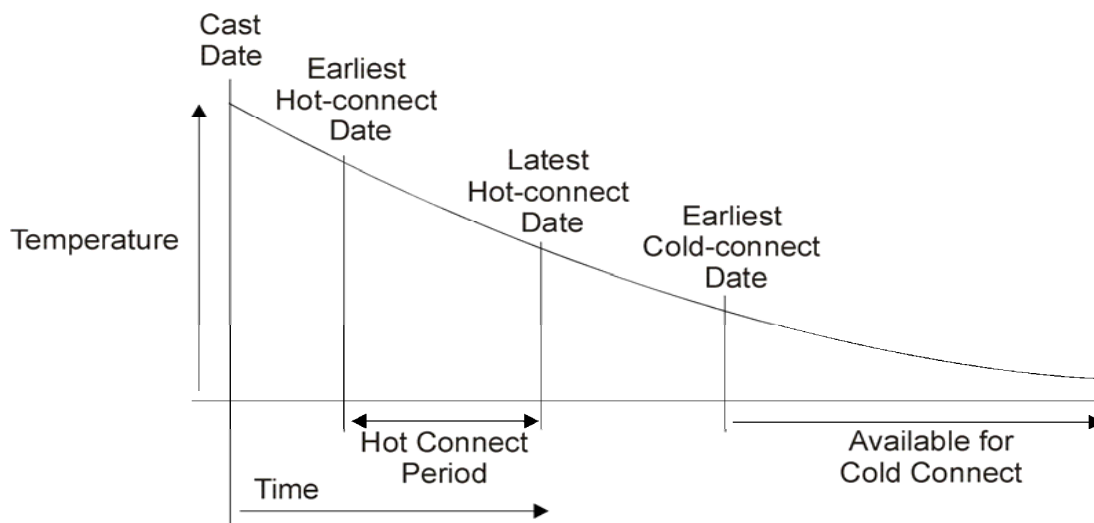


Broner Metals Solutions

Hot Charging Solution

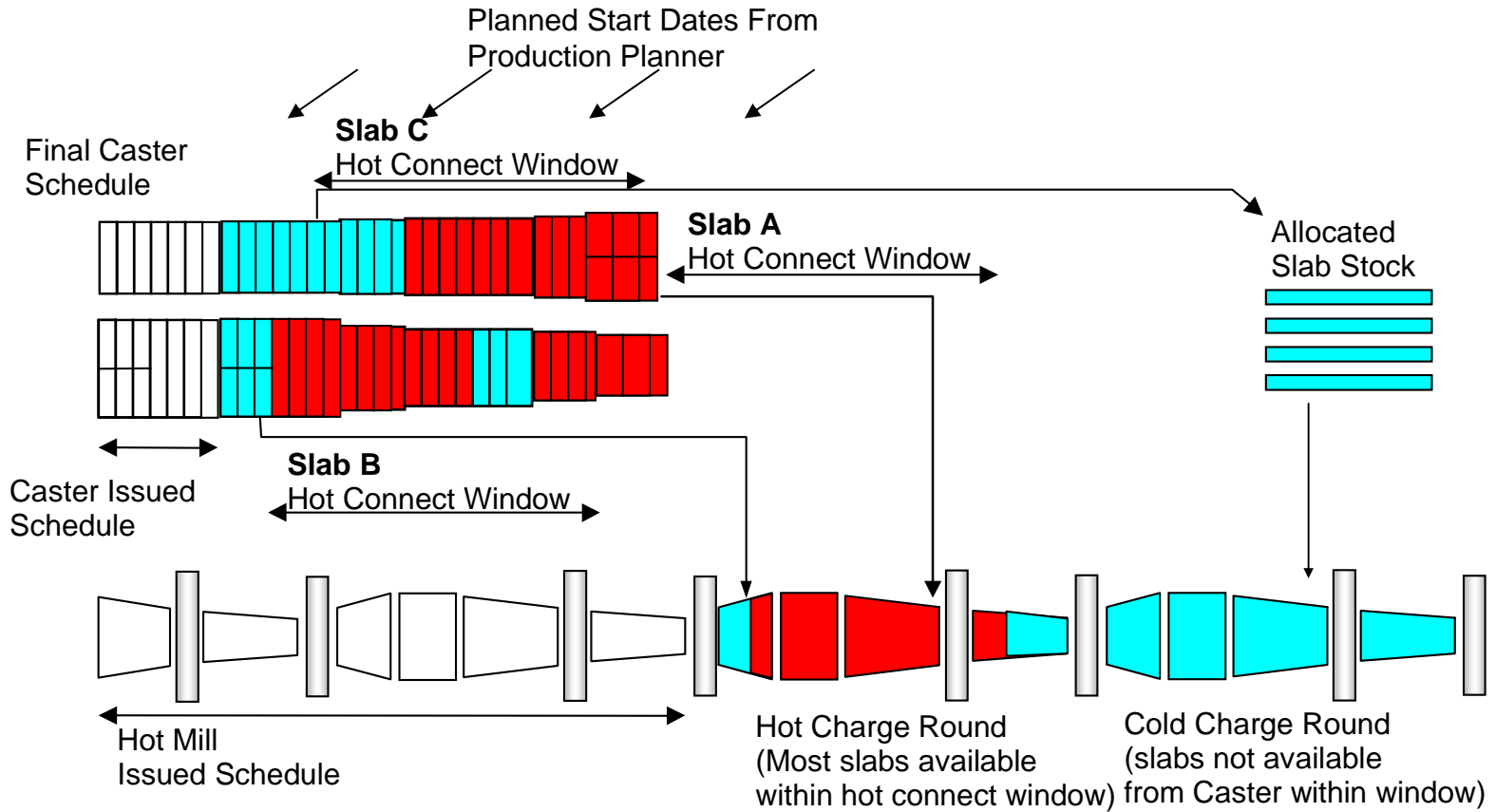
What is Hot Connect ?

- Processing slabs on the Hotmill directly or soon after they are cast



- Benefit is reduced energy cost (up to 40% or 0.8 Giga joules/ton)
- Not all slabs can be hot charged due to scarfing/slitting requirements
- Some plants use “warm charge” technique

Caster Driven Hot Connect Illustration



Melt Shop Planning (Rolling)

Hot Mill Planner - [Resource View]

File Edit View Setup Window Help

PC HSM ONE

PC HSM TWO

Aliens [Total: 0 - Planned: 0]
 STEEL TYPE 1 [Total: 0 - Planned: 0]
 STEEL TYPE S [Total: 0 - Planned: 0]
 STEEL TYPE 2 [Total: 0 - Planned: 0]
 Aliens [Total: 577 - Planned: 0]
 STEEL TYPE 1 [Total: 0 - Planned: 0]
 STEEL TYPE S [Total: 83 - Planned: 0]
 Total weight: 0
 Total weight planned: 0
 Total rolled length: 0
 Total roll length planned: 0
 Desirability: 0 %
 STEEL TYPE 2 [Total: 144 - Planned: 0]

Set Round of Interest
 Auto Plan
 Auto Unplan
 Unplan
 Unplan All
 Schedule
 Discard Schedule
 Issue
 Save Plan
 Edit Option
 ✓ CYCLE B
 CYCLE C
 CYCLE D

Work Order No.	Sales Order No.	Entry Gauge	Exit Gauge	Entry Length	Exit Length	Entry Width	Exit Width	Planned Qty	Steel Grade
PLT266317301	601	252	252	0	0	1200	12250	13843	304002
PLT266314301	601	252	252	0	0	1200	12250	13843	203005
PLT266308321	601	252	252	5000	5000	1200	12250	13843	301048
PLT266305291	601	252	252	5000	5000	1200	12250	13841	321023
PLT266297311	601	252	252	0	0	1000	10250	11533	301048
PLT266289251	601	252	252	5000	5000	0	12250	13843	
PLT266285221	601	252	252	5000	5000	1110	11350	12804	301044

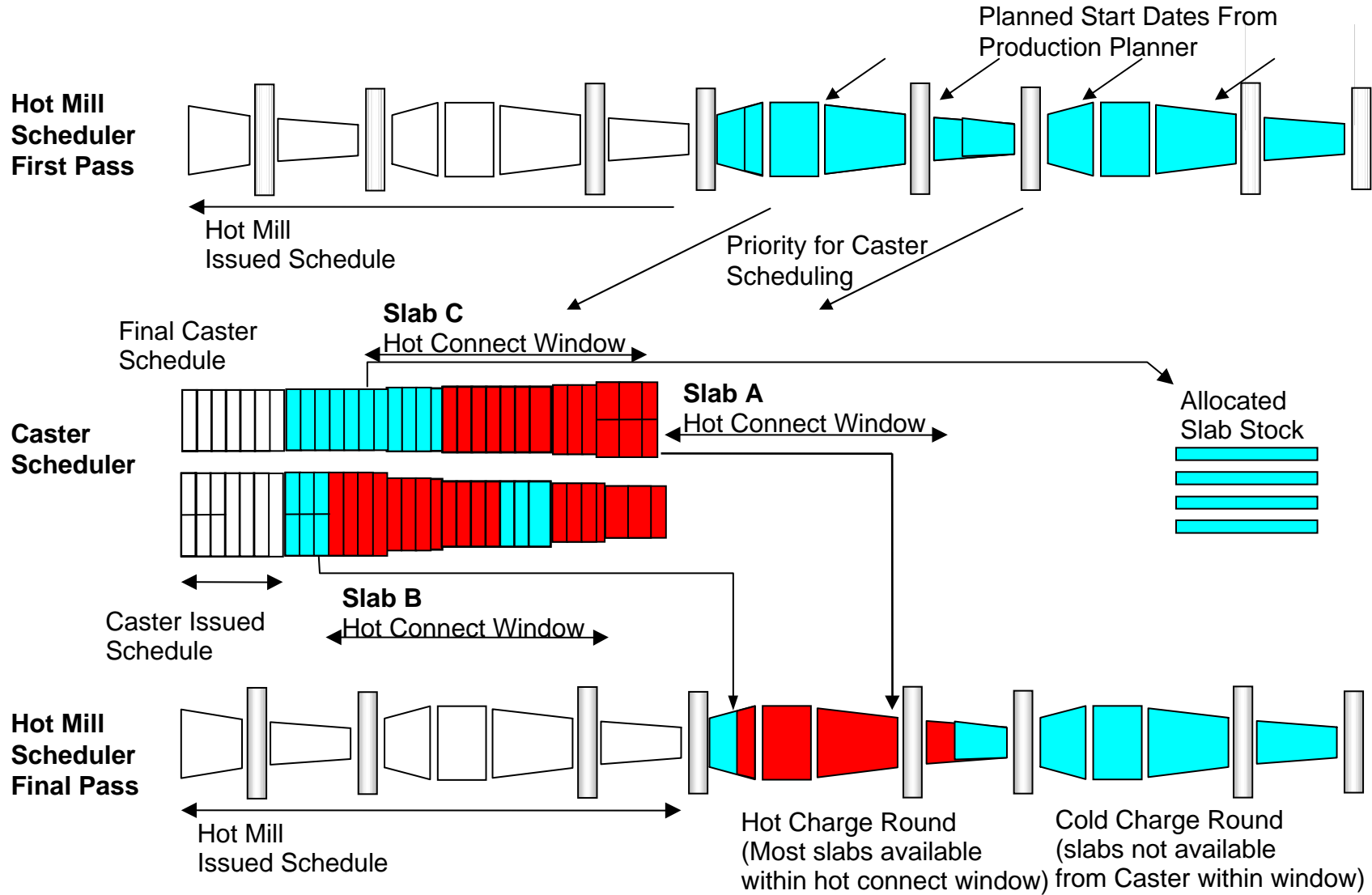
Invoke auto planning for one or more rounds

HMS: READY FLASH: READY NUM

Start | Inbox - Micros... | SmarTerm X | xterm | HMClient - Mic... | MSDN Library ... | Hot Mill PL... | Microsoft Wor...

10:19

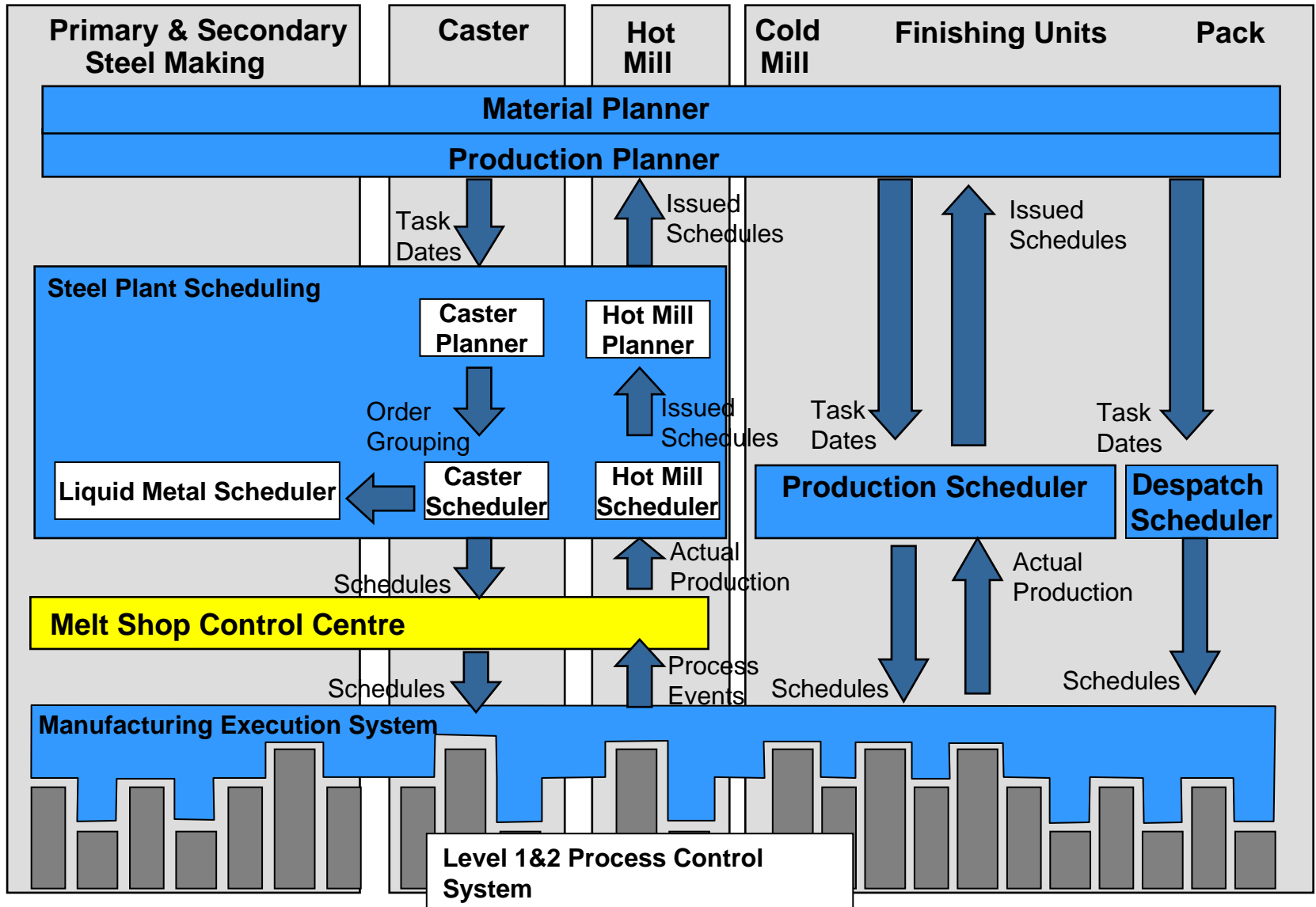
Hot Mill Driven Hot Connect Illustration



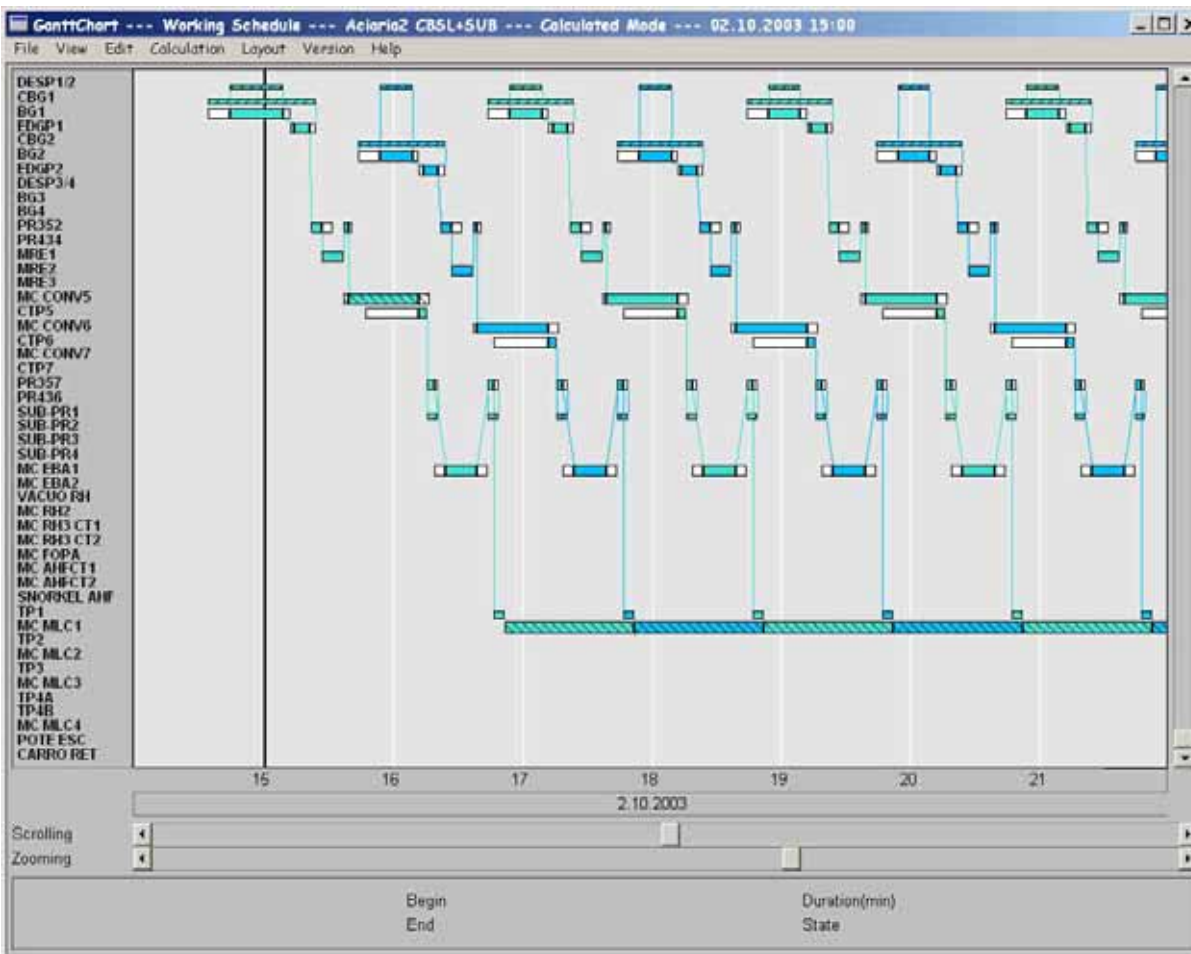
Broner Metals Solutions

Melt Shop Control Centre Overview

Scheduling Context



Melt Shop Control Centre



- Receives Caster Schedule
- Calculates Steelplant schedules
- Tracks L2 Events
- Allows user to reschedule in real time
- Temperature modelling
- All resources including ladles, cars, cranes . . .

Torpedo Car Status & Allocation

DLC - Production Control Facility - Allocate Torpedo Car

Tor...	Arrival Time	Total Steel	Availabl...	Sulfur	Silicon	Temp.	Location	Cycl
CT01	02.08.2000 16:25	192	192	14	52	1704	Melt Shop Area	0
CT02	31.12.1970 21:00	0	0	0	0	0	Blast Furnace Area	0
CT03	31.12.1970 21:00	0	0	0	0	0	Blast Furnace Area	0
CT04	31.12.1970 21:00	0	0	0	0	0	Unknown Area	0
CT05	31.12.1970 21:00	0	0	0	0	0	Unknown Area	0
CT06	31.12.1970 21:00	0	0	0	0	0	Unknown Area	0
CT07	31.12.1970 21:00	0	0	0	0	0	Unknown Area	0
CT08	03.07.2000 23:25	150	60	5	50	1450	Unknown Area	0
CT09	02.08.2000 12:08	55	0	22	23	24	Melt Shop Area	0
CT10	31.12.1970 21:00	195	195	0	0	0	Blast Furnace Area	0
CT11	03.07.2000 23:35	180	180	0	0	0	Unknown Area	0
CT12	02.08.2000 10:20	190	190	9	52	1410	Melt Shop Area	0
CT13	31.12.1970 21:00	0	0	0	0	0	Unknown Area	0
CT14	24.07.2000 22:28	155	155	7	0	1475	Unknown Area	0
CT15	31.12.1970 21:00	0	0	0	0	0	Unknown Area	0
CT16	31.12.1970 21:00	0	0	0	0	0	Unknown Area	0
CT17	31.12.1970 21:00	0	0	0	0	0	Unknown Area	0
CT18	31.12.1970 21:00	0	0	0	0	0	Unknown Area	0
CT19	31.12.1970 21:00	0	0	0	0	0	Unknown Area	0

	Torpedo Car	Amount [t]	Sulfur	Silicon	Temperature
Deallocate1	CT08	90	5	50	1450
Deallocate2	CT09	55	22	23	24
Allocate3					
Allocate4					
Ladle / Calculated		145	11	40	909
Target		145	14	30 - 60	1300 - 1500

Buttons: Save, Cancel, Calculate, Help

Ladle Status

DLC - Production Control Facility - Ladle State

Ladle: PAN_A01 Location: Unknown Area
State: own Resource S

Last Maintenance: 14.03.2001
 max. Number of Cycles: 50
 act. Number of Cycles: 14
 max. Steel Production [t]: 1000
 act. Steel Production [t]: 307
 Cycles of the Day: 2
 Med. Amount of the Day: 412

Name ▾	Value

Allocated Heats

- 1001 (0)
- 3004 (0)
- 4000 (0)

-> Data

Cycles

0 % 100 %

Steel [t]

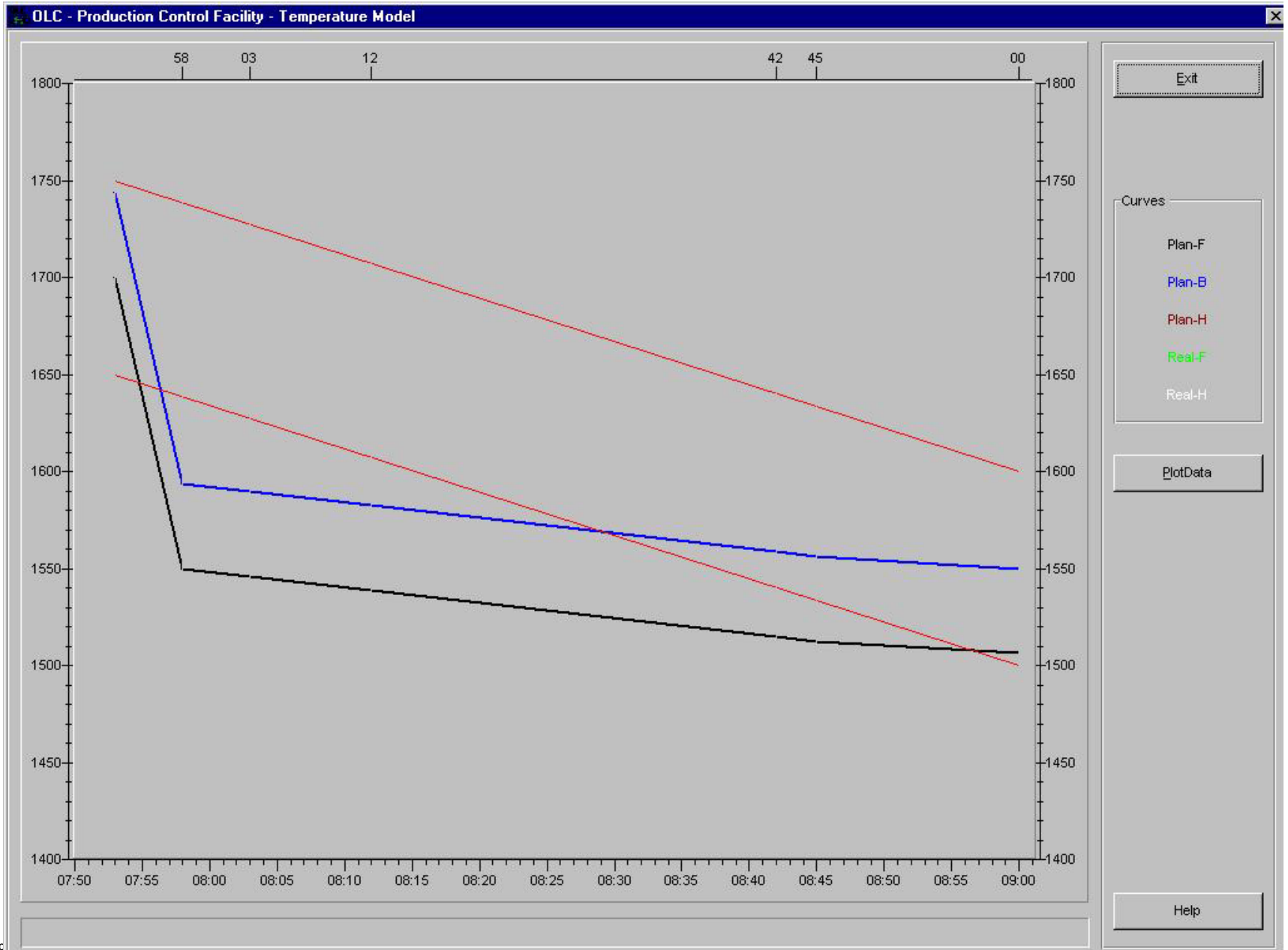
0 % 100 %

Save

Cancel

Help

Temperature Model



Broner Metals Solutions

Case Study Japanese Customer A


- **Location:** Fukuoka, Japan
- **Production Size:** 5 million tons per annum
- **Main product shape and type:** Flat products/ Mild Steel, Stainless Steel and Special Steels
- **Main products:** Coil and Sheet
- **Scope of production:** Integrated steel plant
- **Systems environment:** Home grown business systems and MES systems
- **Other systems projects:** Re-implementing new business and MES systems
- **Centralized Order Intake at Headquarters, with extensive monthly/quarterly planning to divide the order book between the six plants. Order horizon at each plant is not more than 6 weeks.**

Improvement areas/required functions of new planning system


Improvement areas

- Shorten Supplying Lead-time
- Production Control based on Mill Due Date
- More accurate Due Date Commitment / Available Capacity Visibility
- Better Response to Production Variance

Required functions of new planning system

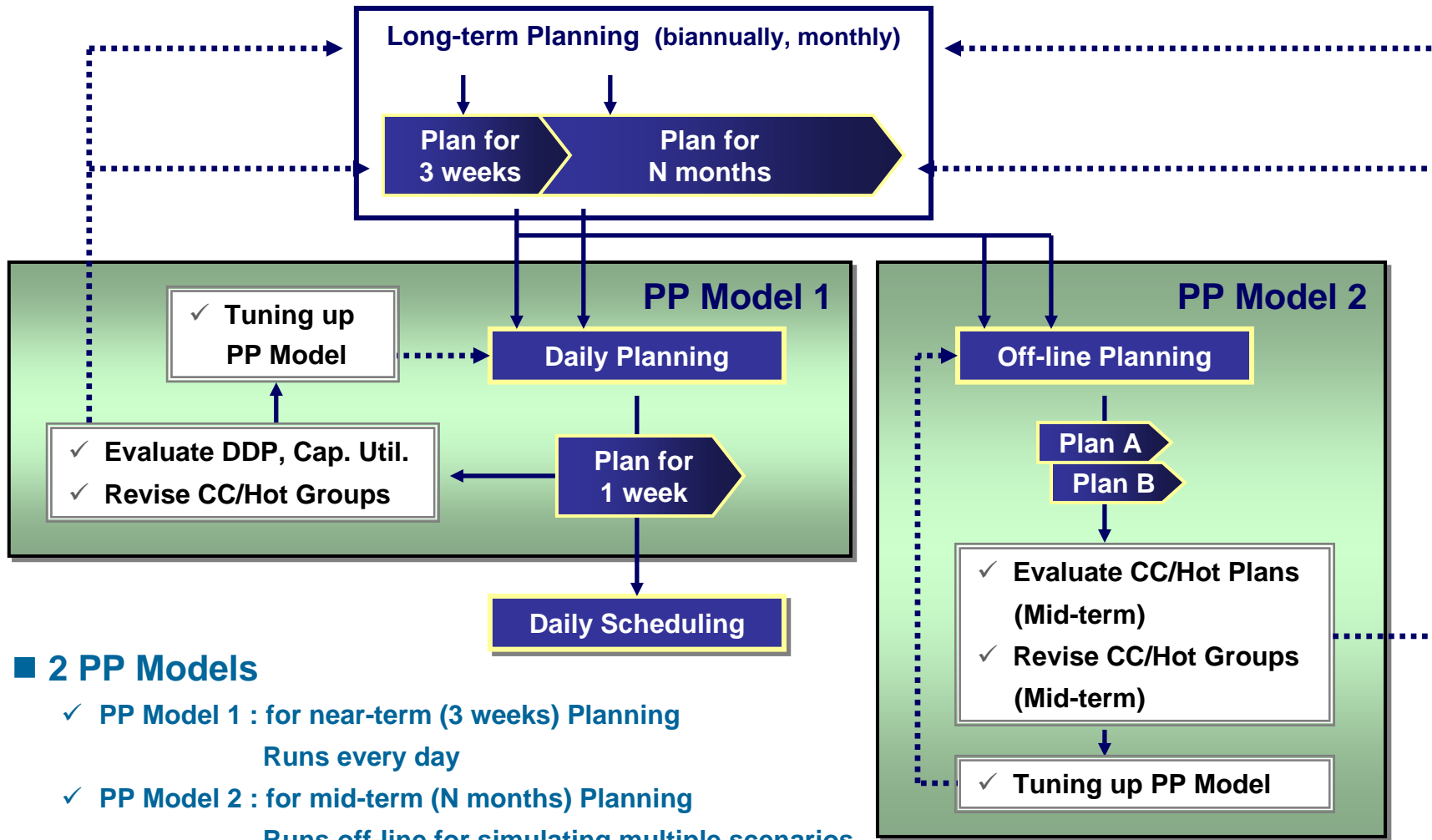
- 
- Weekly to Daily Planning Processes
 - Uniting multiple Planning Processes
 - Plan based on Due Date & Current Inventory at each process

- 
- Load Balancing based on Mill Due Date and optimal Lot Sizing
 - Load Balancing considering monthly Plan(maintenance etc.)

- 
- Due Date Quote based on daily Plan / Schedule
 - Alerting against Due Date, Production Constraints
 - Offering Capacity Availability info to satisfy Sales Forces

- 
- Swift and accurate re-Planning
 - Simulation with multiple sets of parameters

To-Be Planning Processes



■ 2 PP Models

- ✓ PP Model 1 : for near-term (3 weeks) Planning
Runs every day
- ✓ PP Model 2 : for mid-term (N months) Planning
Runs off-line for simulating multiple scenarios

■ Groups Revision in PP Planning will be reflected on long-term Plan

- Configuration focus:
 - ✓ Constrained at Casters & Hot Mill
 - ✓ Detailed grouping functions to optimise constraints and forward plan downstream units.
- Size of team:
 - ✓ 3rd party: 2 people
 - ✓ Core customer team: 2 people
 - ✓ Broad customer team: 15 people
 - ✓ Broner implementation team: 2 people
- Characteristic of the project:
 - ✓ Effort of Project teams to create a common vision for the planning solution
 - ✓ To adapt existing corporate culture to the use of a specialized packaged solution
 - ✓ The ease with which the generic Broner Solution could be adapted to the specific needs of the plant.

- Results achieved:
 - ✓ The NSC Team learnt a lot about their own production environment and production strategies
 - ✓ Being able to visualise the full production plan.
 - ✓ Improved delivery performance to specific date (not weekly or monthly promise buckets)
 - ✓ Declare capacity to Head Quarters more accurately, after providing for Maintenance and Product Mix requirements.

Appendix : MBI 소개

MBI는 영국 **Broner**사와 국내 독점 공급계약을 맺고 **Broner** 솔루션의 판매, 구축 및 사후 유지보수를 수행하고 있습니다.

- ✓ 회사명 : (주)엠비아이 티지, MBI Technology Group Co., Ltd.
- ✓ 회사형태 : 법인사업자, 주식회사
- ✓ 설립일 : 2004년 5월 27일
- ✓ 자본금 : 5천만원
- ✓ 직원수 : 7명
- ✓ 사무실 위치 : 서울시 강남구 역삼동 738번지 KS빌딩 3층
- ✓ 대표전화 02 556 9960
- ✓ 홈페이지 : www.mbitg.com

MBI는 Broner외에 미국 AspenTech사 등과의 Partnership으로 국내외 다수 기업을 대상으로 **SCM** 솔루션을 구축하는 **Professional SCM Solution Provider** 입니다.

사업영역

- ➔ 미국 AspenTech SCM 솔루션(MIMI)의 판매, 구축 및 유지보수
- ➔ 영국 Broner SCM 솔루션(BMS)의 독점 판매, 구축 및 유지보수
- ➔ 기타 생산계획 및 스케줄링 관련 솔루션의 판매 및 구축

Missions

- ➔ SCM Experts : **SCM**을 통한 고객의 경쟁력 향상
- ➔ Real Value Provider : 고객에게 진정한 가치 제공
- ➔ True Partnership : 신뢰에 바탕을 둔 고객과의 동반 성장

