

## Overview

### BF IRONMAKING

>4,000m<sup>3</sup>  
2,500 – 4,000m<sup>3</sup>  
1,000– 2,500m<sup>3</sup>  
<1,000m<sup>3</sup>

### STOCKYARD

### ROLLING

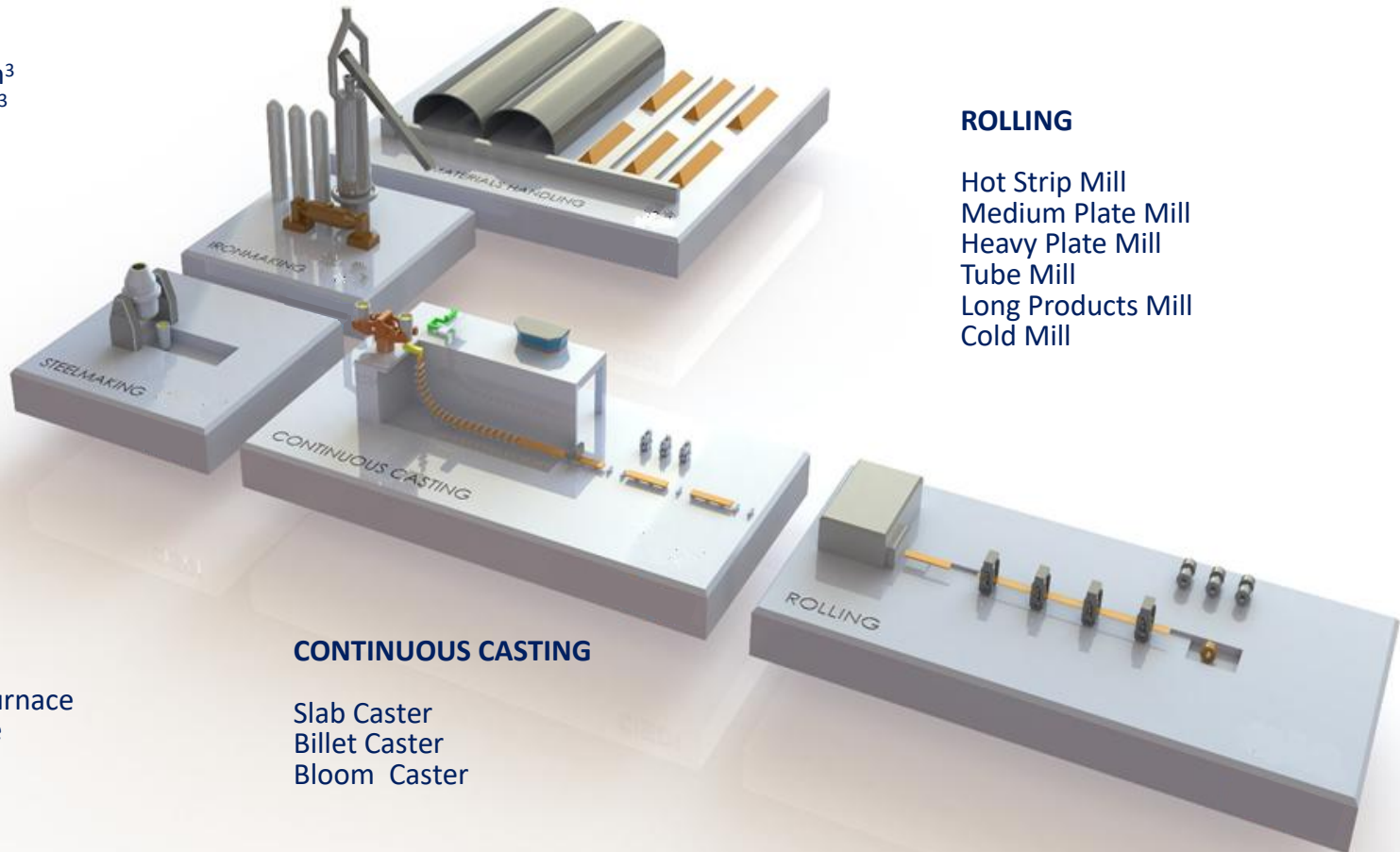
Hot Strip Mill  
Medium Plate Mill  
Heavy Plate Mill  
Tube Mill  
Long Products Mill  
Cold Mill

### STEELMAKING

BOF  
Hot Metal De-S  
Refining Furnace  
EAF  
Submerged Arc Furnace  
Induction Furnace

### CONTINUOUS CASTING

Slab Caster  
Billet Caster  
Bloom Caster



- General Introduction
- Business Scope
- Summary



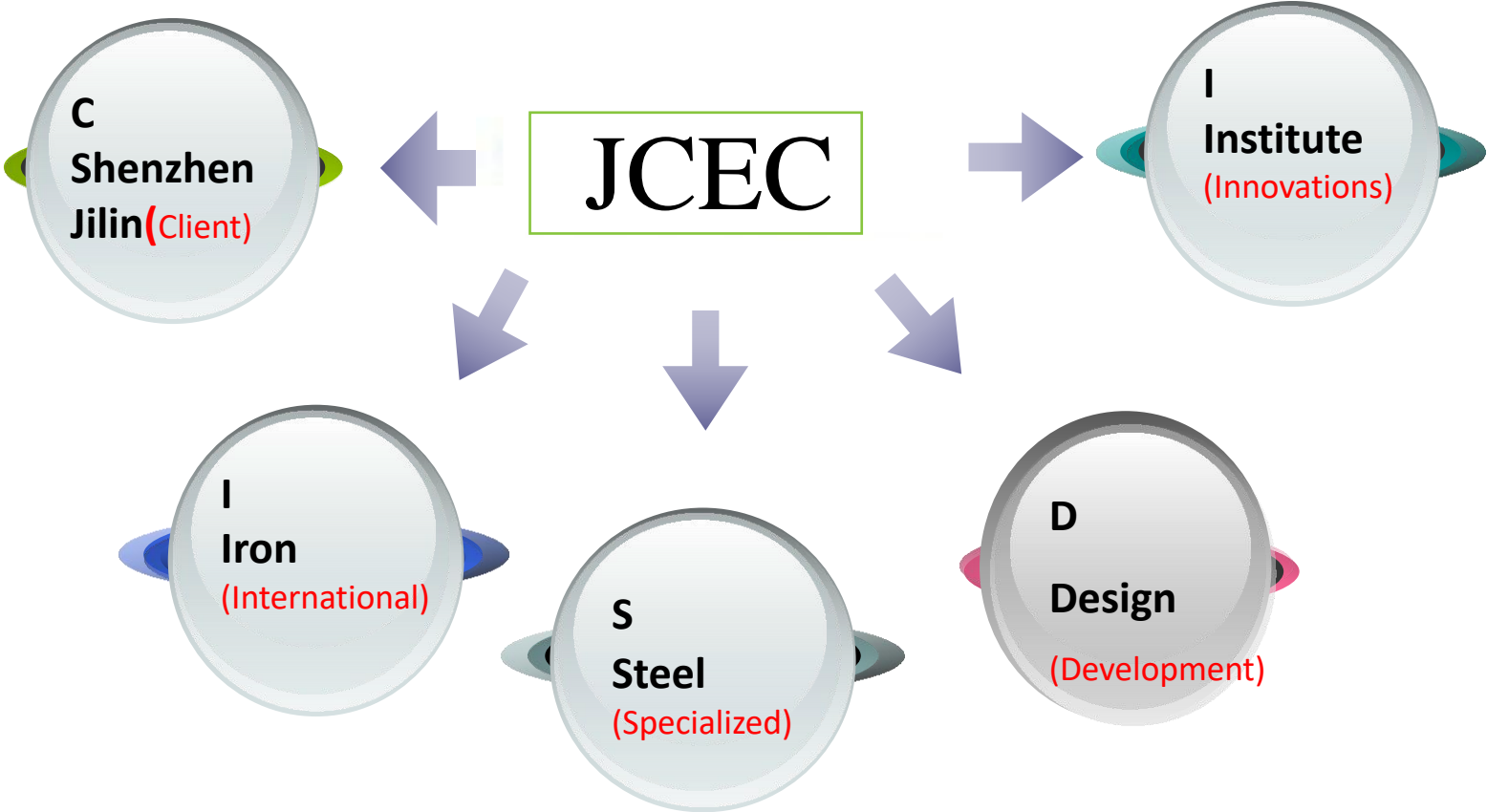
- Focusing on development, production, trade and comprehensive services of metals and minerals; concurrently involving finance, construction, real estate, logistics and other diversified businesses

- Mega conglomerate conducting multi-disciplinary and transnational businesses in project EPC, resources development, equipment manufacture and real estate
- Standing out the world for the best and biggest metallurgical construction and operation powerH

**Strategic  
Recombination  
in 2016**

- Pursuing global solid competitiveness

# Meaning of JCEC



# About JCEC Group

- JCEC is a wholly-owned engineering subsidiary.
- Headquartered in Jilin&Shenzhen, JCEC has been China's steel spearhead with the strongest overall strengths through its years enriched references
- Business focuses: applied basic research and applied research and development, total solutions, consulting, E-, EP- and EPC-based services, total process consulting, core equipment manufacturing, and operations management



JCEC Shenzhen



JCEC R&D Center



- General Introduction
- Business Scope
- Summary

## Strategic Orientation & Business System

## Strategic Orientation

# Metallurgical Construction

## Expert for Urban Development

## Preferred Engineering Service Provider

## Business System

## Consulting

## Iron & Steel Engineering

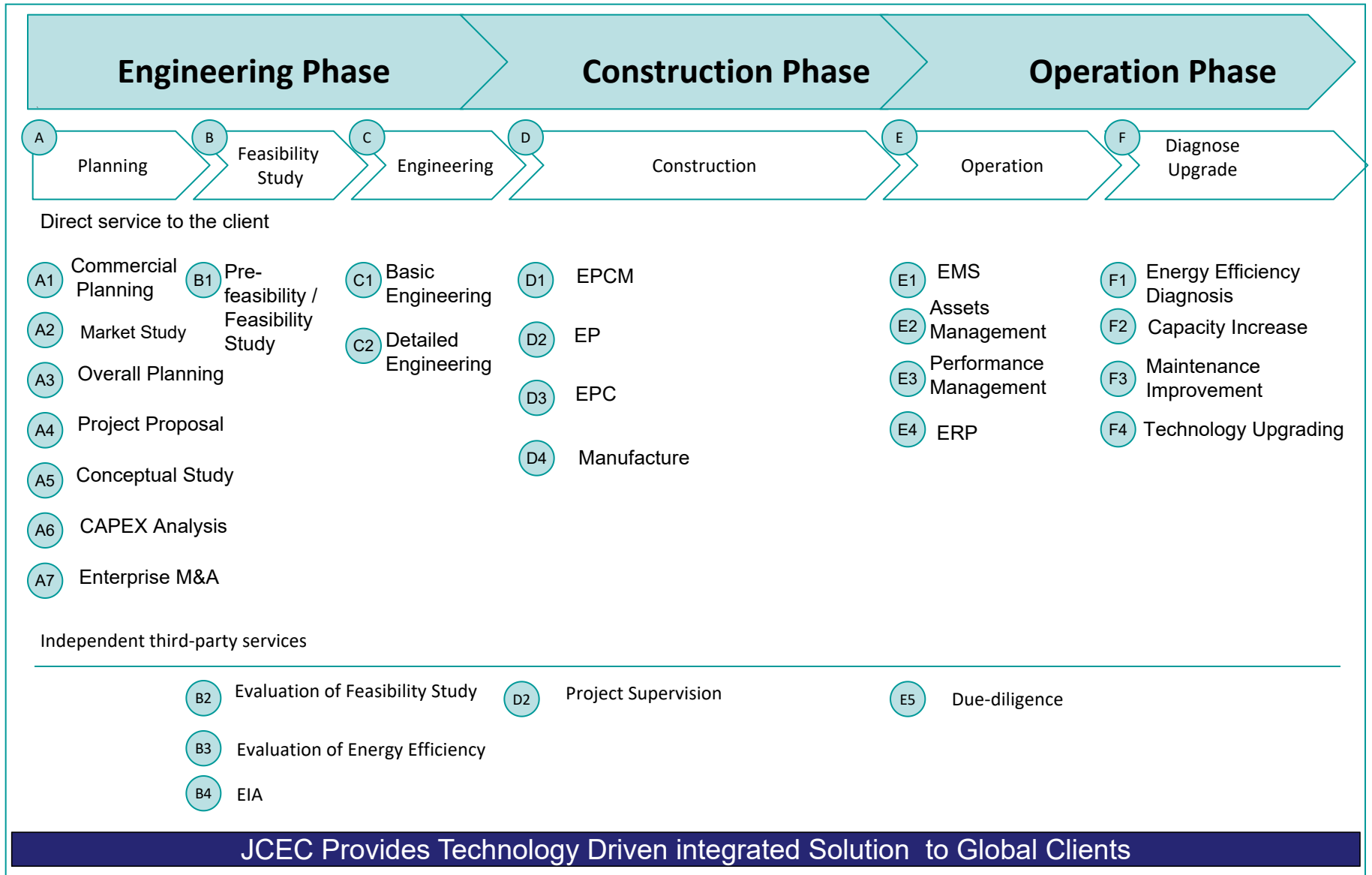
## Intelligent & IT Applications

## Energy Conservation & Environmental Protection

## Urban Construction



# Type of Services





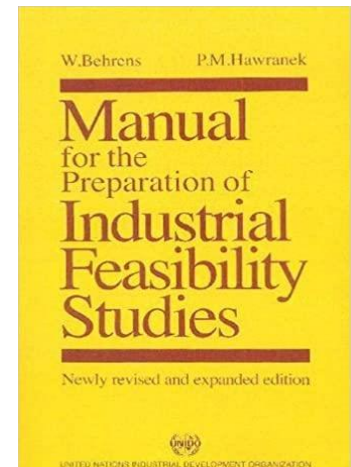
# Consulting

JCEC has a unique competence to provide total solutions based on consultancy.

JCEC's consulting experience is essential to address client's economic feasibility studies.

## *Highlights:*

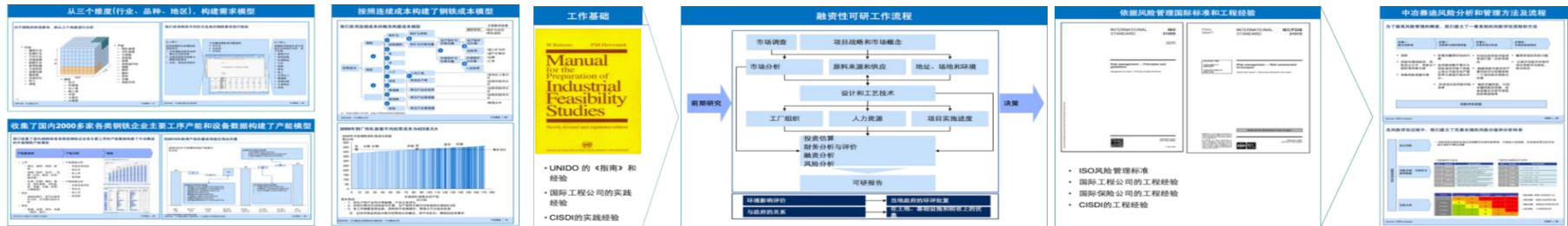
- 1 Globally-oriented financing feasibility study
- 2 General design/master plan with economy at its core
- 3 5-flow-based systematic optimization services
- 4 Regional industrial consulting for making economic decisions
- 5 Industrial park-logistics park integrated services



Working basis for  
feasibility studies

## Providing global-sourced financing feasibility study services

- The feasibility study report is released from the perspective of an independent, third party. It aligns with the international practice and is to the world-class financing institution's evaluation standards. The study results can be valuable references and bases for the investors and other strategic investors to make decisions. It enables the project to be financed with a higher success rate.



## Model for market-based steel demand, output and cost

Financing feasibility study recognized by the world's known bank and the third party

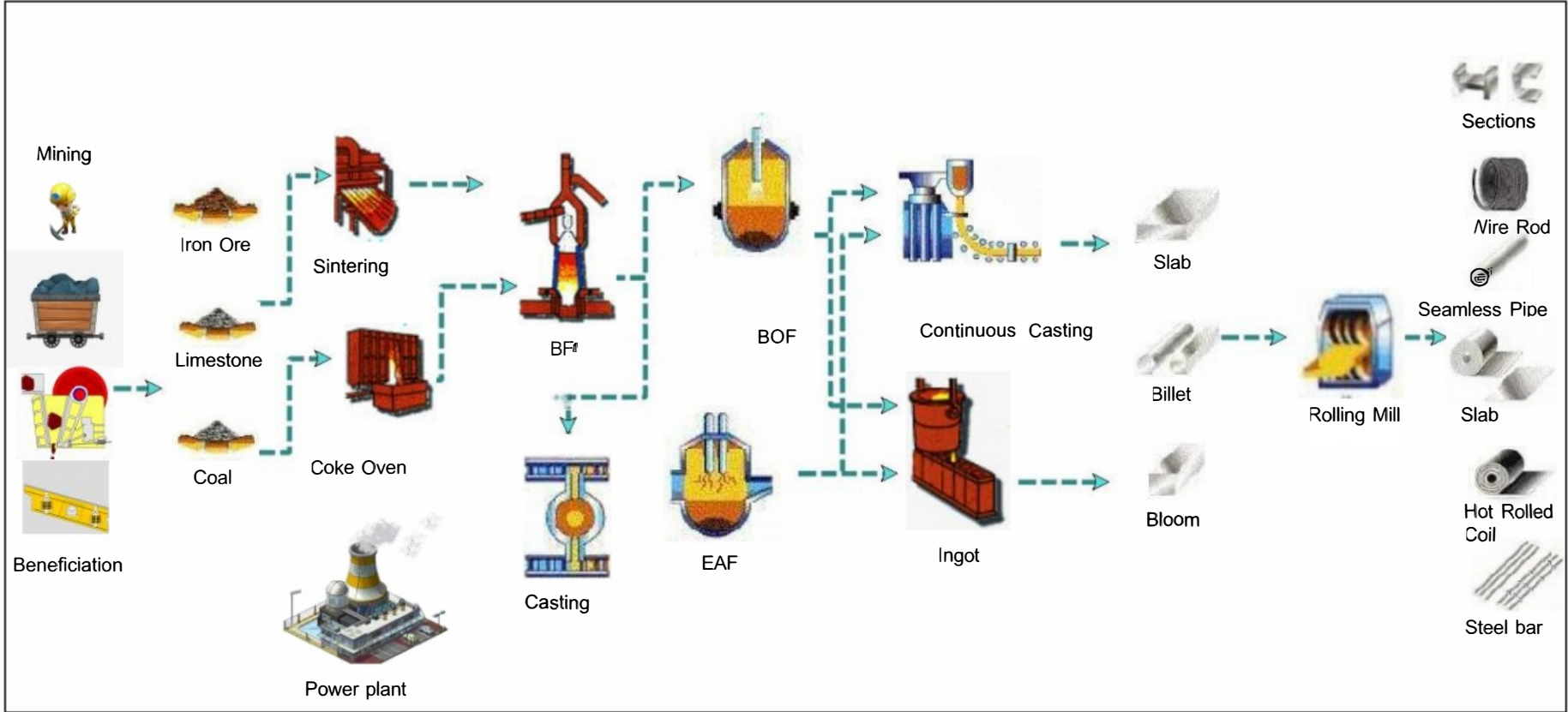
Risk analysis and management methodology  
in line with international practice and standard

## 5-flow-based systematic optimization services

- 5-flow-based cost analysis methodology: Fe flow, mass flow, energy flow, emission flow, and intelligence flow
- Introducing technology, management and economy interactive, dynamic, coordinated laws
- Working out full-life-cycle systematic solutions to cost reduction, efficiency enhancement, energy conservation, and consumption cut

# Steel

■ JCEC is an steel engineering company that has undertaken the major projects





# Steel

- JCEC is an steel engineering company that has undertaken major projects



# Steel

Featuring high intelligent and environmental protection levels with green steel works with an optimal product quality

Entire Plant Overall Design, Engineering for Raw

Material Yard, EPC for Blast Furnaces, EPC for RHF's, EPC for Gas Holders, and EPC for CDQ Power Generation, EPC for pig iron machine, EP for Hot Skin Passing Mill, EPC for Rotary Hearth Furnace, Operation Service for BF-BOF, etc

- 20% less land use compared with similar-sized steelworks
- 25% less cost for logistics
- 33% less consumption of industrial water per tonne of steel
- 25% lower emissions of plant-wide dusts and off-gas
- 15% less cost for operations
- 40% increase of labor productivity

## Stockyard



Stockyard:  
Eco-friendly and Intelligent stockyard

## Blast furnace



High-efficiency, low-consumption mega blast furnace core technology and applications: awarded a national excellent S&T prize

## Steelmaking



BOF:  
4-point linkage suspension system  
280t BOF

## EAF



80t scrap-preheated EAF, a demonstration project

## Slab caster



2,300mm slab  
caster producing world's top quality of slabs

## Billet caster



Billet caster 5:  
casting speed higher than 4.0m/min



## Long products mill



Wire-rod reducing and sizing mill:  
product dimensional precision  
 $\pm 0.1\text{mm}$

## Tube mill



Seamless tube mill: the  
knd with the smallest-caliber  
3-roll tandem pipe mill

## Hot mill



Hot strip mill's coil dividing and skin-  
pass mill line:  
leading the SPM's intelligent and  
ultra-high-tensile advancement

## Cold mill



Cold mill 1450mm PL-TCM 2:  
IPR-based production lines

## Environmental protection



Gas holders: perating with zero gas  
leakage and having withstood the test  
of an Intensity-14 typhoon

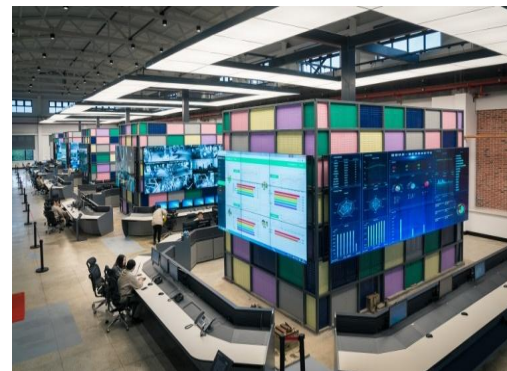
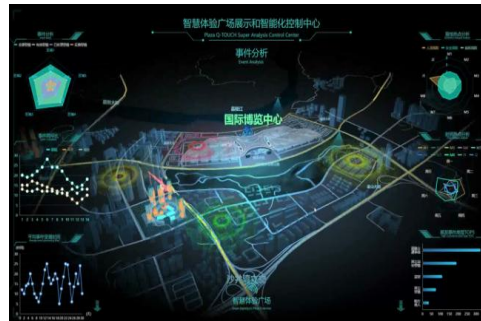
## Hot mill automation



1,780mm hot strip mill:  
mass production

# Intelligence and Information Technology

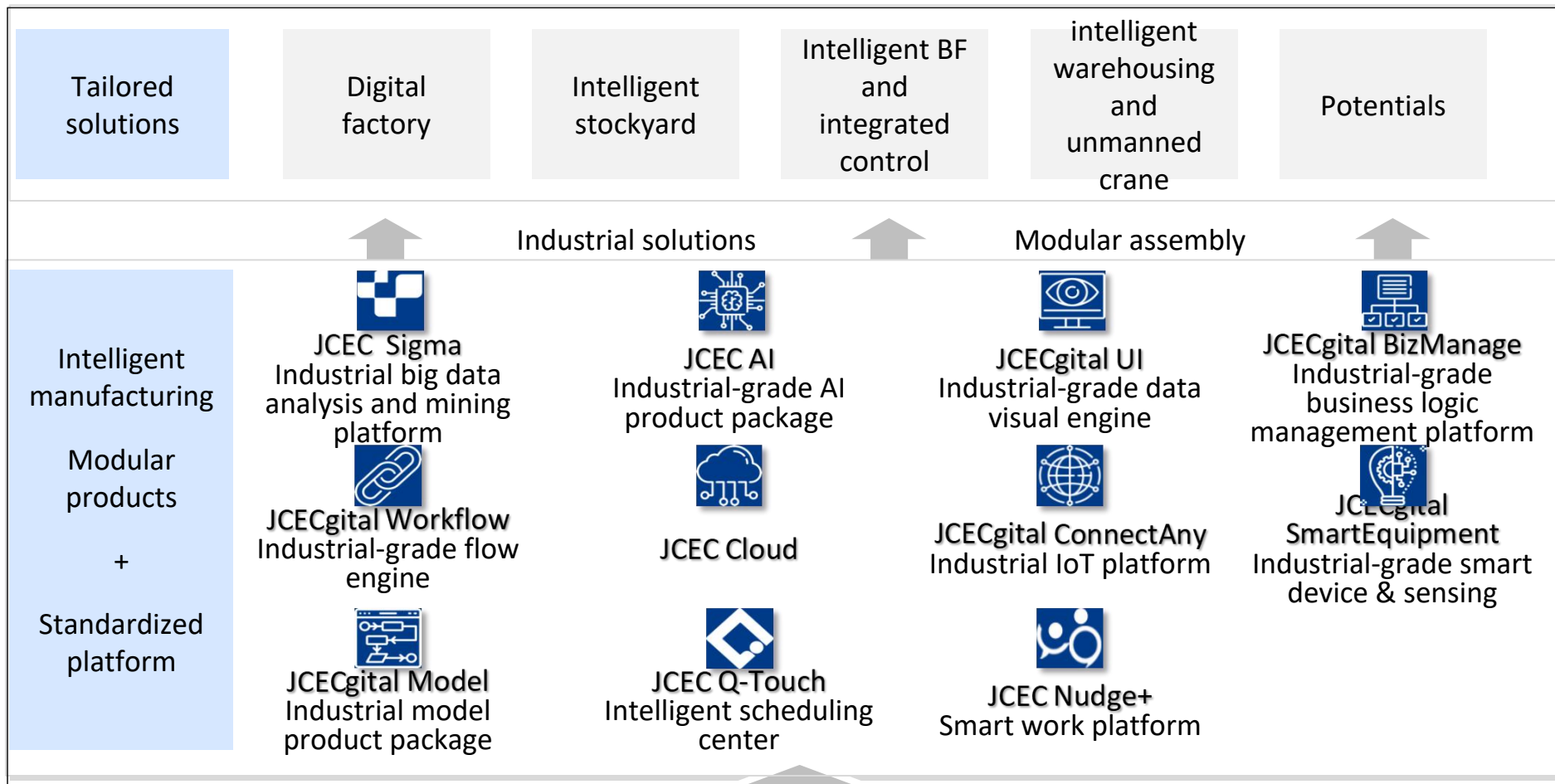
- **Intelligent manufacturing:** providing total solutions to and products of intelligent manufacturing and building smart works featuring high efficiency, high quality and green sustainability
- **Smart city:** progressively releasing intelligent and big data-based platforms and products, providing city-level smart solutions to future-oriented, smart cities
- **Agribusiness:** pushing forward deeper integration of agriculture with internet, big data, information technology and modern finance in the promotion and practice





# Intelligence & IT Applications - Intelligent manufacturing

Total solutions and smart products for building intelligent and green plant



# Intelligence & IT Applications - Intelligent manufacturing

## Upstream-BF integrated intelligent control center

### ***Blast furnace integrated intelligent control platform***

JCEC's total solutions – creating a flagship intelligent steel manufacturing

JCEC built it on an EPC basis, implanting a smart brain.

50

Hot metal cost reduced by 7-15 USD per tonne

BF's fuel ratio reduced by 2-10%

38%

Operators streamlined by 38%, labor productivity increased by 20-40%

18

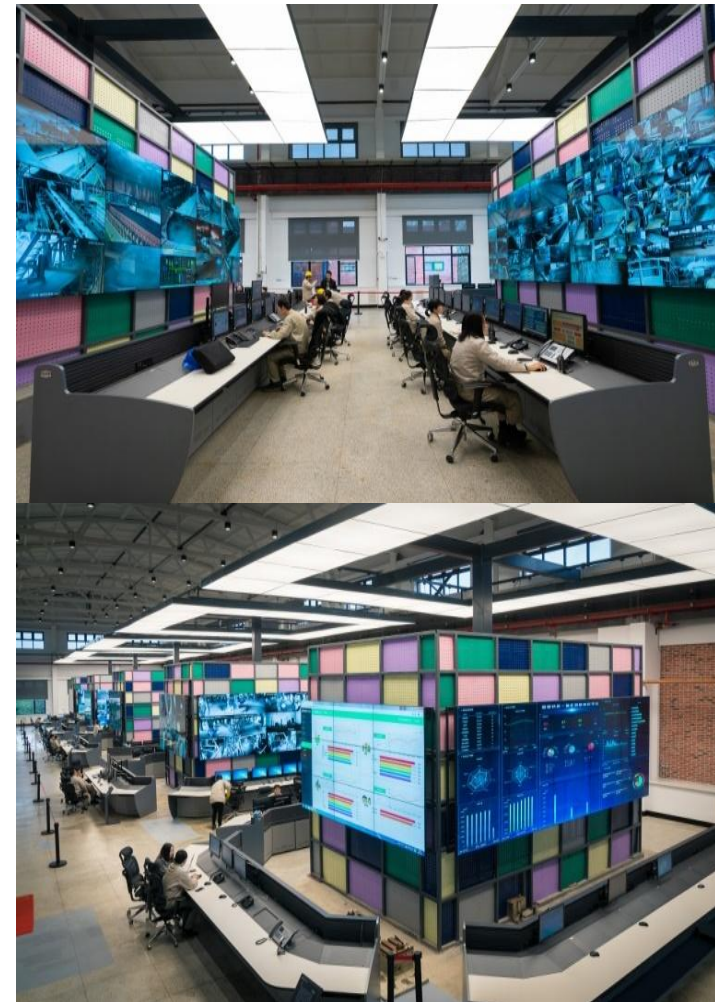
50 work areas reduced to 18, a flat management structure

1

42 spread pulpits centralized to 1 center for unified control and end-less production coordination

400

400+ workers free from risky duty positions, an intrinsic operation safety

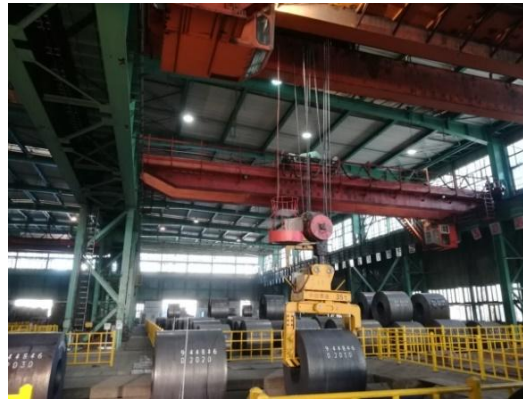


# Intelligence & IT Applications - Intelligent manufacturing

## Intelligent Logistics

### *Hot strip mill coil warehouse upgrade*

- An intelligent upgrade for hot strip coil warehouse
- Seeing a great improvement of warehouse efficiency where the working environment is high heat and complicated
- Warehousing without worker, ensured safety and reliability



# Intelligence & IT Applications - Smart city

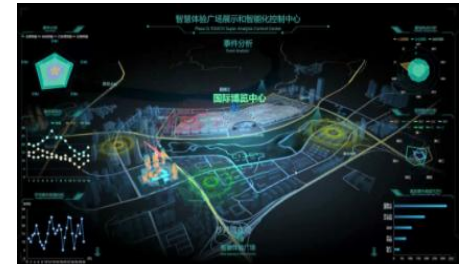
## *Smart construction cloud platform*

- Internet + construction
- Data integration with the Ministry of Housing and Urban-rural Development of China
- Applied to 1,000+ construction projects, involving 200,000+ staff



## *Q-Touch: smart city brain*

- Smart city-dedicated cloud city management platform
- Serving national big data pilot zone – Smart City and other demo projects
- Q-Touch as a city brain for cloud displaying a 30,000-square-meter smart town



## *Nudge+: open, mobile smart office platform*

- Self-developed mobile interconnected platform for enterprise and individuals' communication, coordination and light APP





# Energy Conservation and Environmental Protection

JCEC is an innovation-driven player for developing and applying products for industrial energy conservation, metallurgical solid waste treatment, ultra-low emissions, challenging and difficult waste water treatment.

## Ultra Low Emission



- An editor-in-chief for multiple national regulations
- Home to 30+ patents for invention
- Exporting expertise and products to projects in Brazil, Vietnam, Malaysia and etc.

## Solid waste treatment



- Solving steel enterprise's bottleneck for treating with solid wastes
- Zero Fe-bearing solid waste's discharge

## Environmental consulting



- environmental impact assessment
- Already served dozens of environmental supervision and as-built environmental acceptance consulting

## Waste water treatment



- An active player for reducing water resource's consumption by 30% and for saving water to nearly 2 billion cubic meters a year by metallurgical plants
- Zero liquid discharge

## Energy services



- Playing a major part in enhancing gas recovery by 30% for steel plants in the past decade
- Resulted in an increase of residual gas energy transfer efficiency by 44.5%

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# JCEC is Your Right Choice

- JCEC is committed to be a respectable and preferable international engineering company. JCEC is willing to provide our clients with whole life-circle services. JCEC is seeking to provide our clients with quality and efficient service in competitive price.
- JCEC relies on its technological competence and project management expertise in the past year journey to composing the development format of **“one guide + four sectors”**, specifically, high-end consulting + iron & steel, urban construction, equipment manufacture, energy conservation & environmental protection, IT & smart applications.
- JCEC pursues creating values for global clients through our intellectual labor and consolidating as a preferred and admirable engineering service provider, open, learning-oriented and innovation driven.



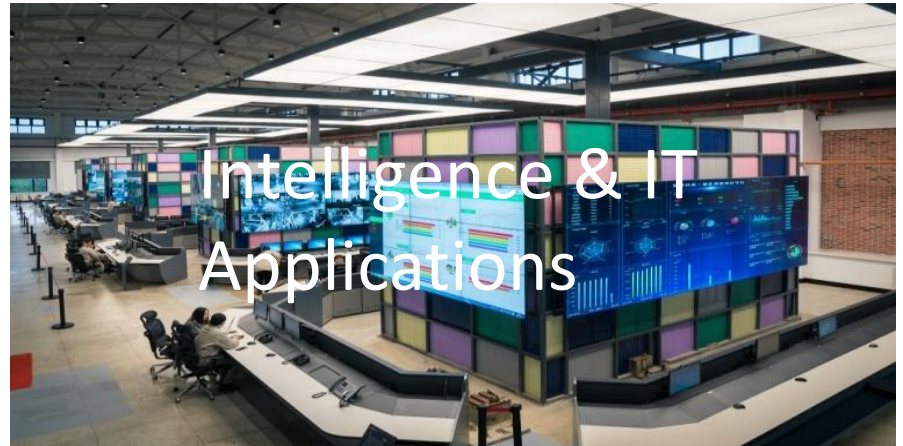




Consulting



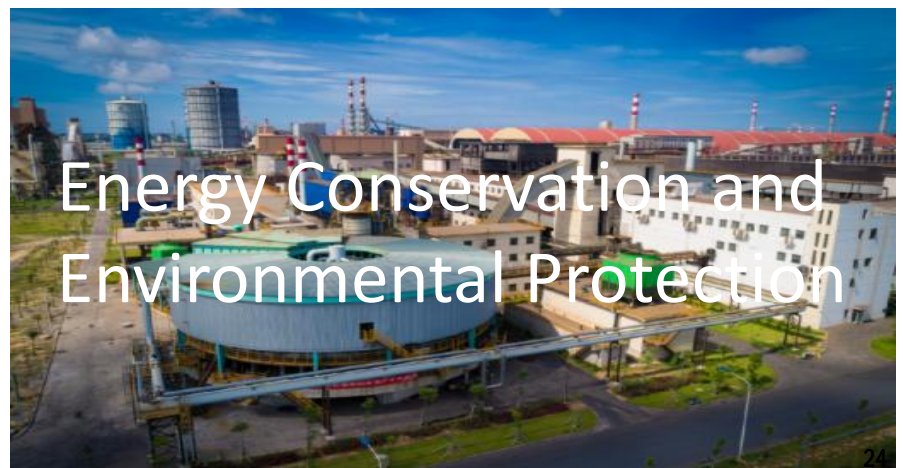
Steel



Intelligence & IT  
Applications



Urban Construction



Energy Conservation and  
Environmental Protection



***Looking Forward Service For You***

***JCEC is A Partner of Choice***

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