



**EXPERIENCE TO KNOWLEDGE**

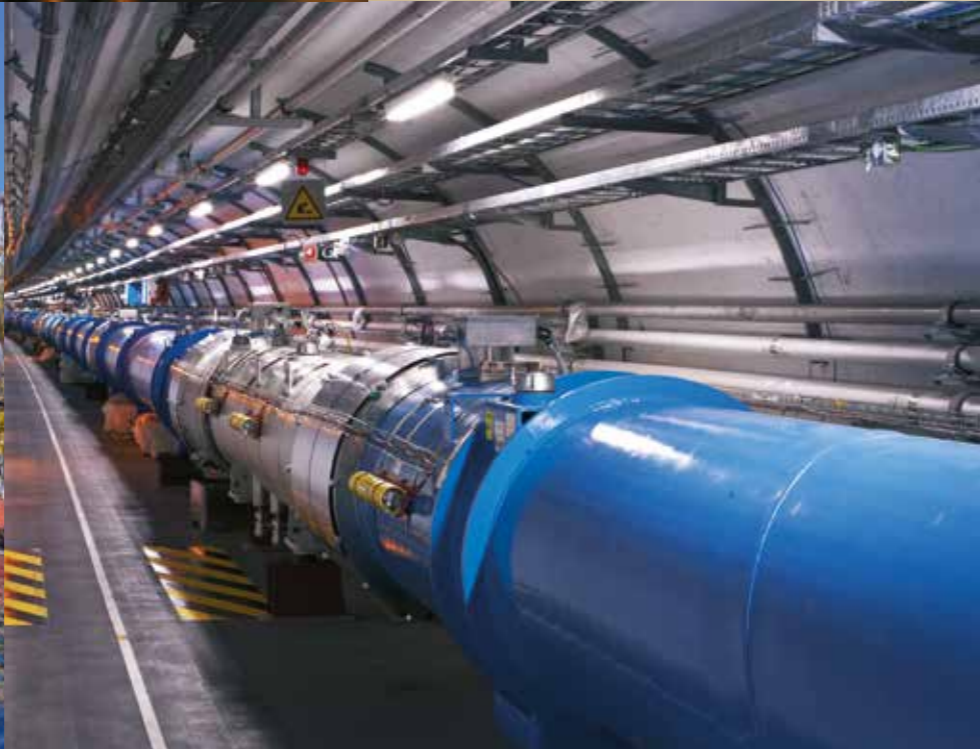


GROUP

## INDEX

MB Group History	6
Group structure	7
Services offered by MB Engineering	9
Process Engineering	9
Civil and Structural Engineering	9
Mechanical and piping Engineering	12
Electrical Engineering	12
Instrumentation and Automation Engineering	13
Firefighting and Safety Engineering	13
Services offered by MB Ravenna	16
MB Workshop	17
MB Group business units	20
Renewable and environment	22
Oil & gas	24
Plant and production engineering	26
Energy	28
Research and development	30
Clients	31
Organization chart	33
2024 Annual production capacity	35
Software	38
Quality health safety environment	40
MB Group philosophy	41

## COMPANY PROFILE



## MB GROUP HISTORY

In September 1987, two Project Managers working at the nuclear power plants of Trino Vercellese, Cirene Alto Lazio, PEC Brasimone, decided to put their experience to good use and establish MB.

Technical knowledge and management in quality systems of the nuclear sector allowed MB to expand areas of competence: passing first to cogeneration and trigeneration plants, and then to the chemical, petrochemical and Oil & Gas sectors.

Over the last three decades, MB has expanded its knowledge and skills by operating not only in Italy and Europe but also worldwide for EPC and oil companies, thanks to a staff of technicians and managers covering all engineering disciplines.

Today, due to the skills acquired in the production of energy from alternative sources such as solar, hydrogen, as well as in regeneration and waste recycling, MB stands as a leading engineering company tackling the new frontiers of industrial and technological development.

## GROUP STRUCTURE



LEGAL NAME	<b>MB Engineering</b>
ESTABLISHMENT	1987
HEADQUARTERS	ITALY - 48124 Ravenna Viale Isaac Newton 32
V.A.T. NUMBER	02326490394
REG. NUMBER	02326490394
R.E.A. NUMBER	RA-191812



LEGAL NAME	<b>MB Ravenna</b>
ESTABLISHMENT	2018
HEADQUARTERS	ITALY - 48124 Ravenna Viale Isaac Newton 32
V.A.T. NUMBER	02593010396
REG. NUMBER	02593010396
R.E.A. NUMBER	RA-215625



LEGAL NAME	<b>MB Workshop</b>
ESTABLISHMENT	2021
HEADQUARTERS	ITALY - 48124 Ravenna Viale Isaac Newton 32
V.A.T. NUMBER	02699520397
REG. NUMBER	02699520397
R.E.A. NUMBER	RA-224447

## SERVICES OFFERED BY MB ENGINEERING

### PROCESS ENGINEERING

- Consultancy and feasibility studies
- Process Design Data Books (system operational capability, technology description, process unit description, site environmental conditions, consumptions and characteristics of raw materials, utilities characteristics and relevant energy consumption, preliminary plant layout)
- Energy and material balance
- Fluids lists with specified design conditions and materials requirements
- PFD (Process Flow Diagrams)
- P&ID (Piping & Instrumentation Diagrams)
- Equipment sizing, control instrument and safety equipment
- Technical specifications for purchase and request for technical proposal,
- Evaluation and technical alignment of technical bids
- Operation management and works supervision

### CIVIL AND STRUCTURAL ENGINEERING

- Structural calculations (reinforced concrete elements, metallic structures, etc.)
- Stress and deformation analyses of the structures
- Structural limit state analysis
- Structures instability analysis
- Foundations loads calculations
- Definition of lifting schemes/technical procedures
- Bureaucratic procedures for building permits Permitting procedures and assistance
- Operation management and works supervision
- Feed study and Basic design, Detail design, Construction design.





### **MECHANICAL AND PIPING ENGINEERING**

- Site survey and network optimizing analysis
- Equipment Data Sheets (tanks, vessels, columns, heat exchangers, etc.)
- Pressure Equipment Sizing conforming to PED (Pressure Equipment Directive)
- Design of machines, equipment, and systems
- Design of sub-sea and deep-water equipments
- Equipment layout study
- Stress Analysis
- Feed study and Basic design, Detail design, Construction design

### **ELECTRICAL ENGINEERING**

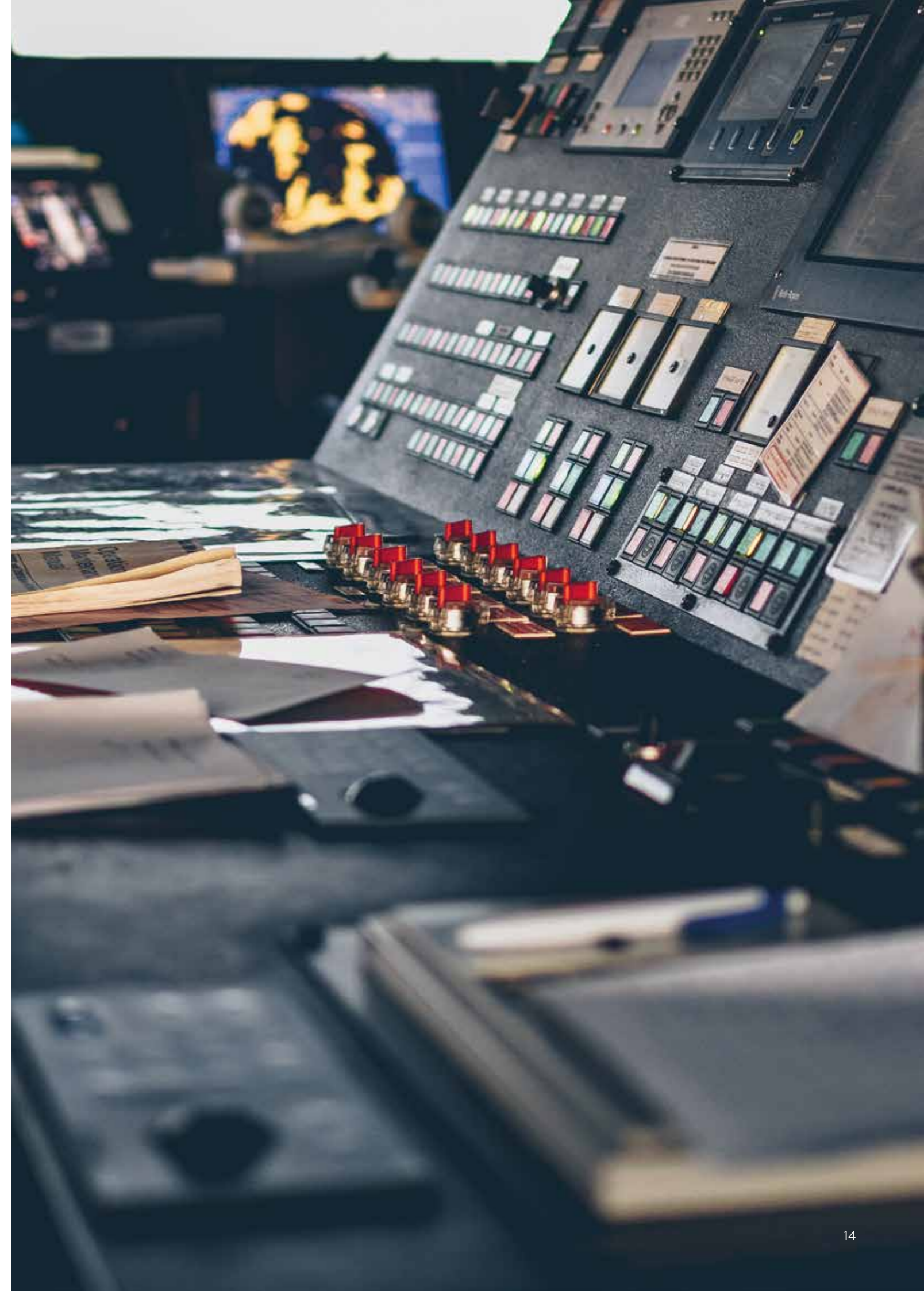
- System verification w.r.t standards and regulations compliance
- HV Transmission lines
- HV Sub-stations
- HV/MV L.E.R. Substations
- MV/LV Electrical cabins
- Electrical studies and calculations
- Technical specifications for purchase and request for technical proposal, evaluation and technical alignment of technical bids
- MTO (Material Take Off) and BOQ (Bill of quantities)
- Operation management and works supervision
- Feed study and Basic design, Detail design, Construction design.

### **INSTRUMENTATION AND AUTOMATION ENGINEERING**

- Data sheets of valves, metering, control and safety instruments
- Control room architectural and ergonomic study
- Intrinsically Safe Loop verification
- Functional specifications of automation / control systems
- Cause-Effect Analysis diagrams/tables
- DCS , ESD , SCADA Engineering , selection, Technical specification definition.
- PLC (Programmable Logic Controller), DCS (Distributed Control Systems), ESD (Emergency Shutdown System), F&G (Fire & Gas), SIL (Safety Integrity Level), PCS (Process Control System)
- System Integrators activity, Precommissioning, Commissioning, Start-UP

### **FIREFIGHTING AND SAFETY ENGINEERING**

- Fire Resistance Certifications of structure
- Sworn confirming compliance with the applicable regulations in fire safety
- Renewal of the Fire Prevention Certification for existing activities
- Egress Route plans in compliance with Italian Ministerial Decree dated 10 March 1998
- Operation management and supervision
- Feed study and Basic design, Detail design, Construction design







## SERVICES OFFERED BY MB RAVENNA

### PROJECT MANAGEMENT SERVICES

Project Organization/Budget and Cost Control  
Time Schedule Control/Quality Assurance

### REVAMPING SERVICE

Laser scanning technology, reverse engineering,  
process & BOP performance improvement & plant modernization.

### FIELD ACTIVITIES

Field Construction Supervising / Field Engineering Supervising  
Field Coordination and Management Maintenance Planning and Management

### CONSULTING SERVICES

Environmental Assessments Sustainability Assessments  
HSE Consulting / HAZOP and HAZID Assistance

### MARKETING AND PROPOSAL SERVICES

Market Research/New Technologies Investigation  
Commercial Proposals Assistance

### PROCUREMENT SERVICES

Client Assistance for Equipment Supply/Services and Subcontracts Management  
Orders and Contracts Supporting / Bid Evaluations and Vendors Follow-up  
Equipment and Materials Inspections / Packing and Shipment Assistance  
Transportation, Insurance and Storage Assistance

### COMMISSIONING & START-UP

Scheduling / Pre-Commissioning Activities / Initial Operations / Test Runs  
Performance / Acceptance Tests / Operating Manuals  
Start-up Procedures



## SERVICES OFFERED BY MB WORKSHOP

- High-tech Skids
- Process Skids
- Modular items
- EPC contracts

MB Workshop, thank to its field experience and attitude, also assists and supports MB Engineering and MB Ravenna in selecting the correct approach on constructability and construction engineering.





## MB GROUP BUSINESS UNITS

- RENEWABLE & ENVIRONMENT
- OIL AND GAS
- PLANT & PRODUCTION ENGINEERING
- ENERGY
- RESEARCH & DEVELOPMENT



## RENEWABLE AND ENVIRONMENT

### • BIOMETHANE

At MB, we pride ourselves on being at the forefront of biomethane engineering. Our extensive engineering capabilities and a robust portfolio of ongoing projects make us one of the most significant players in the industry. Our expertise is unparalleled, covering every aspect from process design to automation, ensuring that we deliver innovative, efficient, and sustainable solutions tailored to our clients' needs.

Our team of highly skilled engineers and specialists work tirelessly to push the boundaries of what's possible in biomethane production. We leverage cutting-edge technology and industry best practices to optimize every stage of the process, from the permitting phase through to production. This comprehensive approach not only enhances the efficiency and reliability of our projects but also ensures that we meet the highest standards. MB is not just a service provider but a reliable partner due to unmatched competence and a passion for innovation together with projects experience

### • HYDROGEN

With a commitment to excellence and a track record of successful projects, MB has earned a reputation for delivering top-tier engineering solutions. Our ongoing projects span a wide range of applications, demonstrating our versatility and capability to handle complex challenges. Whether it's developing new technologies or refining existing processes, MB is dedicated to advancing the field of Hydrogen engineering.

- Power to Gas
- Skid-mounted systems
- Cruise Ship solutions
- Refueling technologies

### • PHOTOVOLTAIC

MB stands at the forefront of photovoltaic (PV) design and engineering, offering comprehensive solutions that span the entire project lifecycle—from permitting to final commissioning, with acquired experience from 1MW plants all the way to 100+MW. Our expertise and dedication to excellence make us a trusted partner in the renewable energy sector.

- Permitting and Regulatory Compliance: Navigating the complex landscape of permits and regulations, we ensure that your project meets all legal and environmental requirements.
- Innovative Design: Our team of expert engineers and designers create optimized PV systems tailored to your specific needs, maximizing efficiency and performance.
- Advanced Engineering: Utilizing the latest technologies and industry best practices, we engineer robust and reliable PV systems that stand the test of time.
- Project Management: From initial planning to final execution, our project management team ensures that every phase of your project is completed on time and within budget.



## OIL & GAS

### • ON SHORE

Thanks to our almost 40 years of experience in Oil & Gas processes, we can contribute with solutions for numerous fields

- Chemical Plants - Pipelines
- Land Drilling rigs - LNG terminals
- Upstream Oil & Gas plants

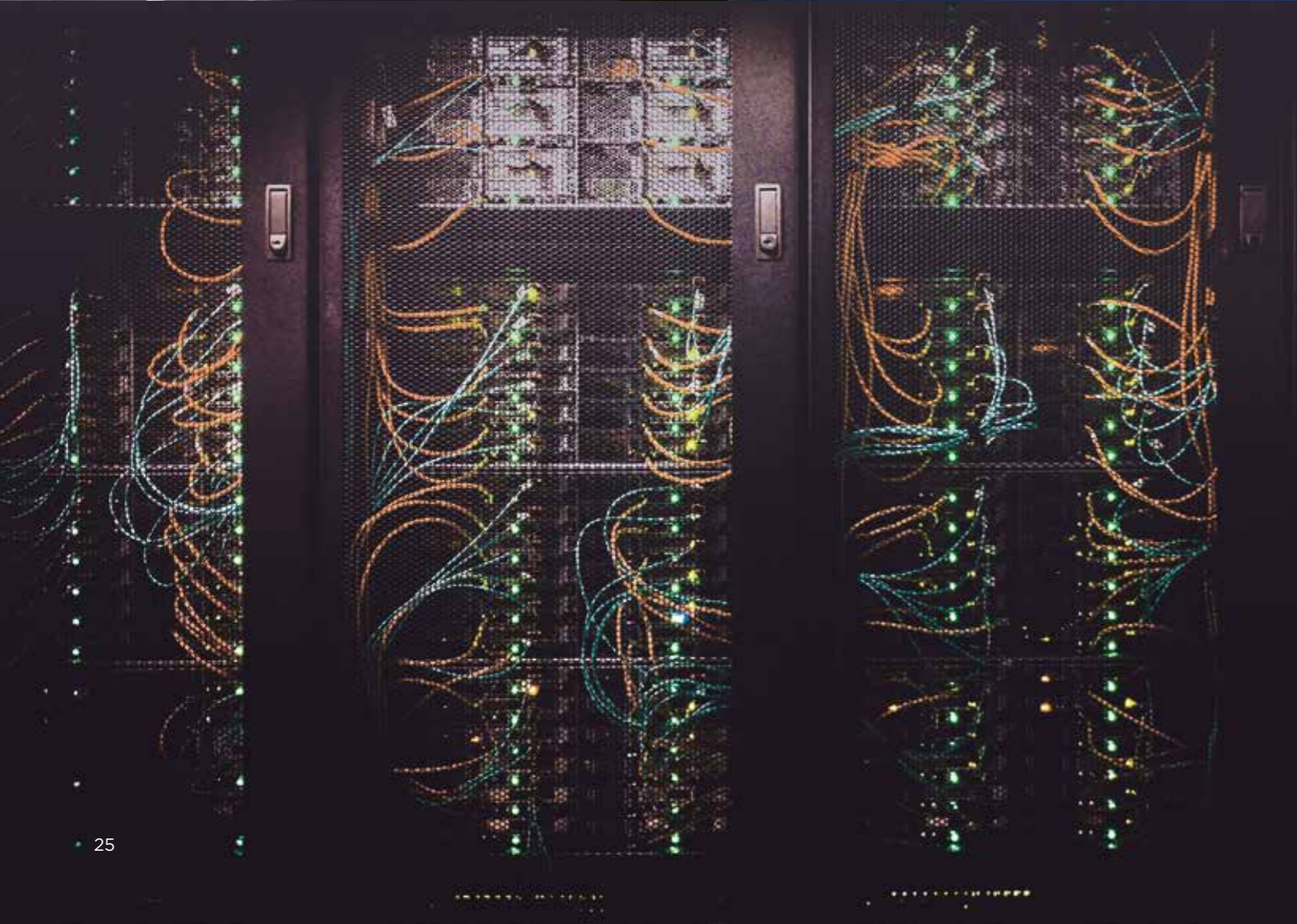
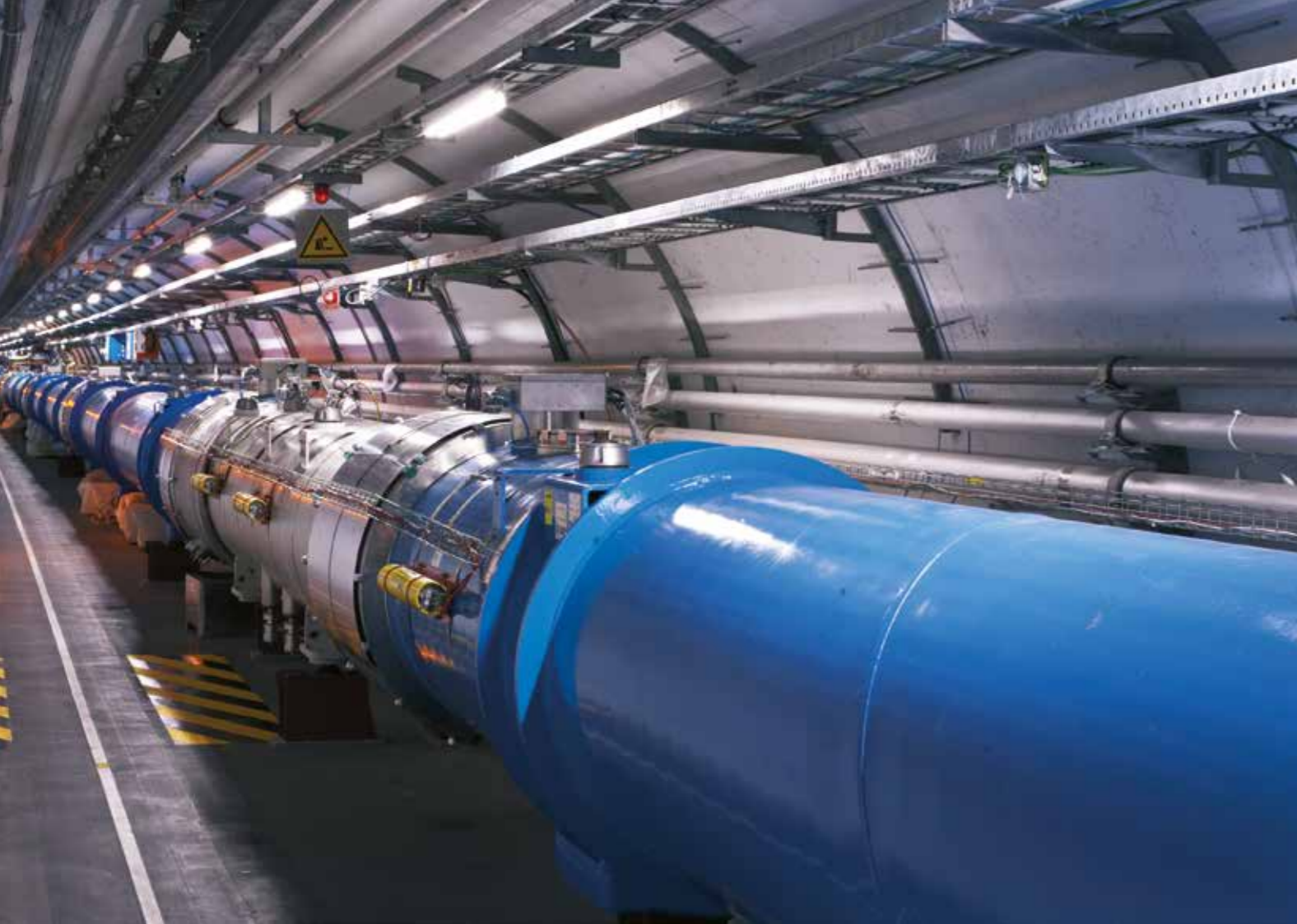
### • OFF SHORE

Ravenna is considered one of the historical capitals of off-shore in Italy, as proved by the numerous platforms visible from the shore.

MB was lucky enough to be here from the start of this “race”, allowing us to acquire a priceless experience later put at good use also on other off-shore topics.

Full engineering/Upgrade/Revamping of:

- Drilling platforms
- FPSO
- Umbilical chords
- Deep water drillships
- Semisub Drillships
- Deep water diving bells



## PLANT AND PRODUCTION ENGINEERING

- **PLANTS UPGRADES**

Our extensive cooperation with leading companies has enriched our competence in the steel industry, allowing us to express our services in the form of:

- Site surveys and laser scanning surveys for brown field revamping
- Basic and detail design up to shop drawings when required.
- Process support and complete design of balance of plant and ancillary equipment.
- Providing assistance and solutions for layout optimization
- Support or even direct involvement on permitting phase

- **DATA CENTERS**

MB has rapidly acquired significant expertise in data center design and engineering, driven by our experiences in the thriving Milan area.

We possess the competences to full design all the way to workshop drawings together with experienced staff managing BIM coordination and clash analysis.



## ENERGY

- **ELECTRIC POWER PLANTS**

Starting from the exploitation of fossil fuels, like petroleum products, coal and gas, we have been able to support our customers with our resources and know-how in the field of electric power production.

Classic systems like thermal power stations have been considered, as well as more traditional systems, like hydroelectric complexes in those geographical areas where their construction is still possible.

- **COMBINED CYCLE POWER PLANTS**

More widely known as cogeneration plants, this kind of power stations are now included in our well-established expertise.

From small plants with a few dozens MW power, to larger plants with hundreds of MW power, every system has been engineered with careful consideration for all electrical details and its interface with the existing network.

- **SUBSTATIONS**

MB excels in substation engineering, offering comprehensive solutions that ensure the reliability and efficiency of power distribution systems.

Our expertise covers all aspects of substation projects, from initial design to final commissioning



## RESEARCH AND DEVELOPMENT

At MB, we place a high priority on assisting our customers with research and development (R&D) by providing tailor-made solutions that address their unique challenges and goals. Our dedicated R&D team works closely with clients to understand their specific needs and develop innovative strategies that drive progress and success.

- **CUSTOMIZED SOLUTIONS**

We recognize that each project is unique, requiring bespoke approaches to achieve optimal results. Our team conducts thorough analyses and collaborates with clients to design solutions that are precisely tailored to their requirements. This personalized approach ensures that our clients receive the most effective and efficient solutions possible.

- **INNOVATIVE RESEARCH**

MB is committed to staying at the forefront of technological advancements. Our R&D efforts focus on exploring new technologies, materials, and methodologies that can enhance our clients' projects. By continuously pushing the boundaries of innovation, we help our clients stay ahead in their respective fields.

- **COLLABORATIVE APPROACH**

We believe that the best results come from strong partnerships. Our collaborative approach involves working closely with clients throughout the R&D process, from initial concept to final implementation. This ensures that our solutions are not only innovative but also practical and aligned with our clients' objectives.

- **PROVEN EXPERTISE**

With a wealth of experience across various industries, MB has a proven track record of delivering successful R&D projects. Our expertise spans multiple domains, allowing us to provide comprehensive support and insights that drive meaningful advancements.



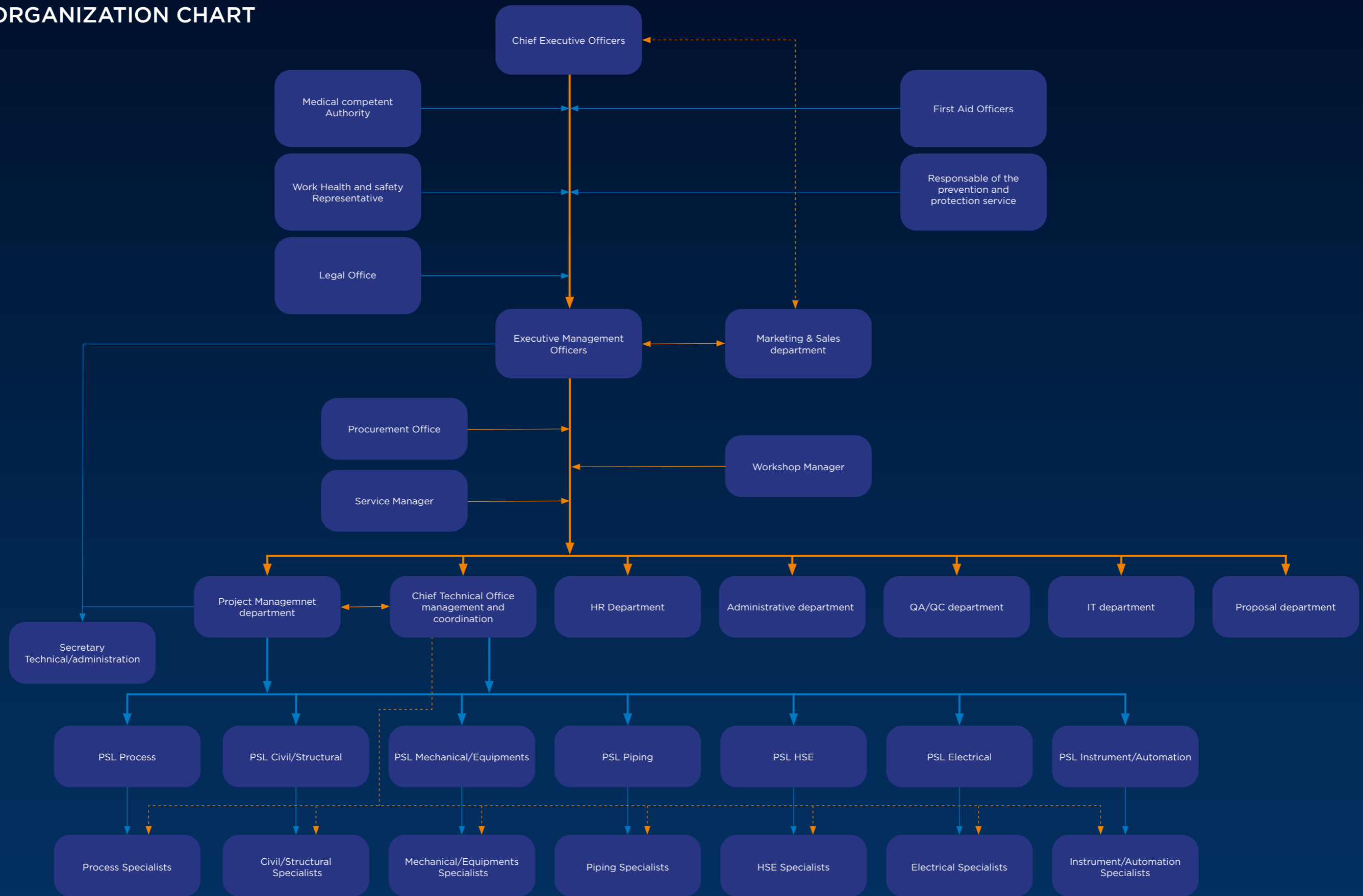
DIRECT CLIENTS



FINAL CLIENTS



# ORGANIZATION CHART



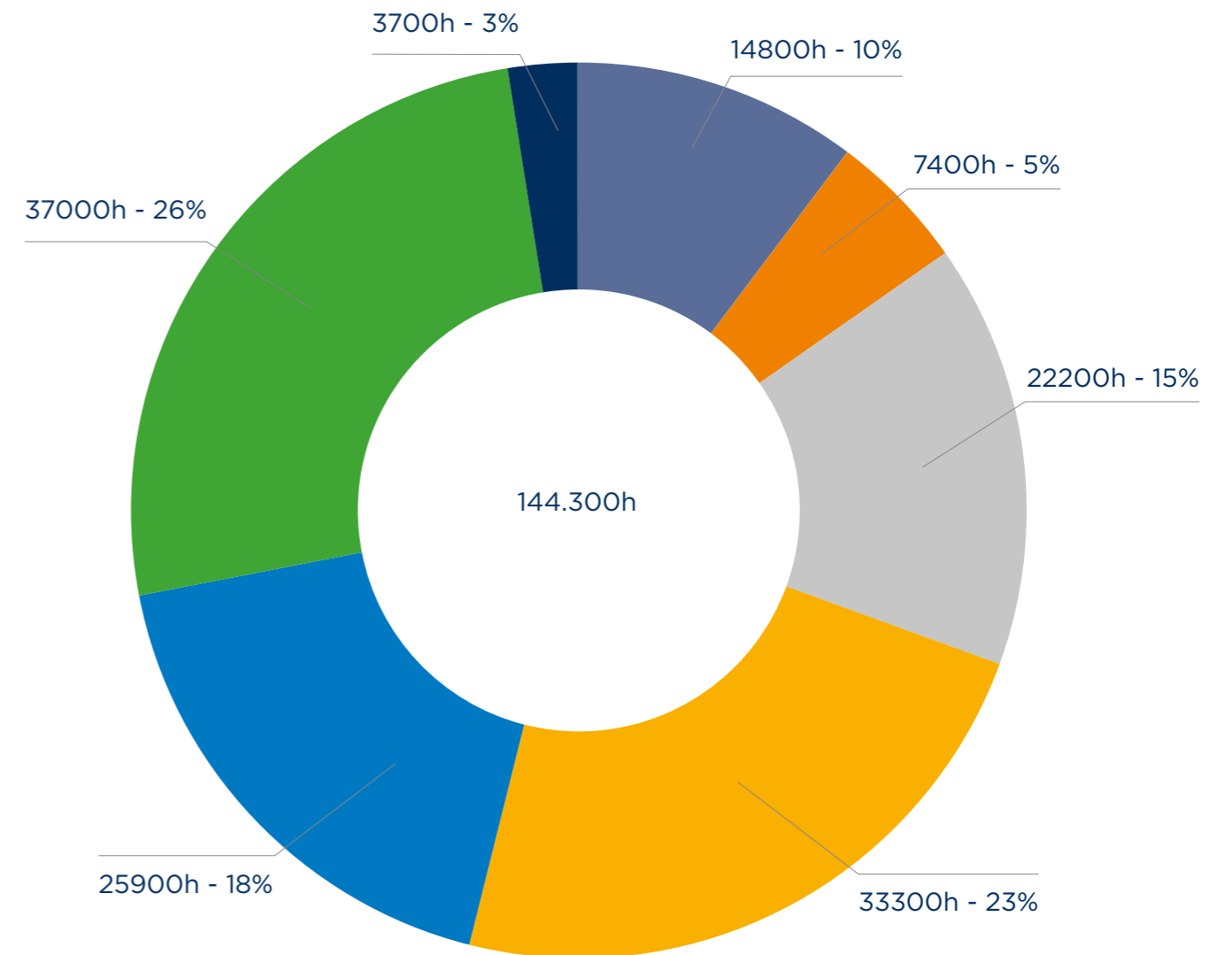
MB has structured the office of “Executive Management Officers” to carry out the task of implementing the strategies and policies promoted by the Board of Directors.

This office interfaces with the heads of the various departments, coordinating activities and sharing strategies so that they are applied homogeneously at all levels.

## 2024 ANNUAL PRODUCTION CAPACITY

Departmental capacity is structured to deal with multidisciplinary projects entirely internally. MB maximises skills exchange while eliminating the loss of information

- Management
- Process
- Civil & Structural
- Mechanical & Piping
- Electrical & Instrumental
- Automation Eng. & Service
- HSE/Fire & Gas/Safety



```

mirror_mod = modifier_ob.
set mirror object to mirror
mirror_mod.mirror_object

operation == "MIRROR_X":
mirror_mod.use_x = True
mirror_mod.use_y = False
mirror_mod.use_z = False
operation == "MIRROR_Y":
mirror_mod.use_x = False
mirror_mod.use_y = True
mirror_mod.use_z = False
operation == "MIRROR_Z":
mirror_mod.use_x = False
mirror_mod.use_y = False
mirror_mod.use_z = True

selection at the end -add
mirror_ob.select= 1
modifier_ob.select=1
context.scene.objects.active
("Selected" + str(modifier
mirror_ob.select = 0
= bpy.context.selected_object
data.objects[one.name].select

print("please select exactly

-- OPERATOR CLASSES -----

types.Operator):
X mirror to the selected
object.mirror_mirror_x"
mirror X"

context):
context.active_object is not

```

## SOFTWARE

- ASPEN - HYSYS *(Process simulators)*
- CONVAL *(Process simulators)*

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- AVEVA *(3D plant modeling)*
- ESAIn ESAPRO 3D *(3D plant modeling)*
- Autodesk INVENTOR *(3D plant modeling)*
- ADVANCE STEEL *(3D plant modeling)*
- BENTLEY OpenPlant *(3D plant modelling)*
- Siemens ISDM *(3D plant modelling)*
- Smart Plant 3D *(3D plant modelling)*

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- Hexagon - CAESAR II *(Stress analysis)*

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- TEKLA *(3D structural BIM modelling software)*

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- ETAP *(Electrical software)*
- AMPERE PROFESSIONAL *(Electrical software)*
- DIALUX *(Electrical software)*
- ZEUS *(Electrical software)*

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- PROSAP *(Structural calculator & fem analysis)*
- SAP 2000 *(Structural calculator & fem analysis)*
- STAAD *(Structural calculator & fem analysis)*
- ANSYS *(Structural calculator & fem analysis)*

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- MS Project *(Standard office software)*
- AutoCAD *(Standard office software)*
- MS OFFICE 365 *(Standard office software)*



## QUALITY HEALTH SAFETY ENVIRONMENT

ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 share the same high level structure which simplifies the overall approach to consolidating their requirements to create a robust set of integrated management system manuals

The manual and integrated procedures adopted by MB combine the requirements of ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 as a framework to create a single integrated management system that reduces duplication and the potential for non-compliance during activities of the group.

The integrated system adopted by MB Group is constantly updated with the aim of improving and achieving customer satisfaction, improving sustainability and meeting the needs and expectations of workers, regulatory authorities and all interested parties



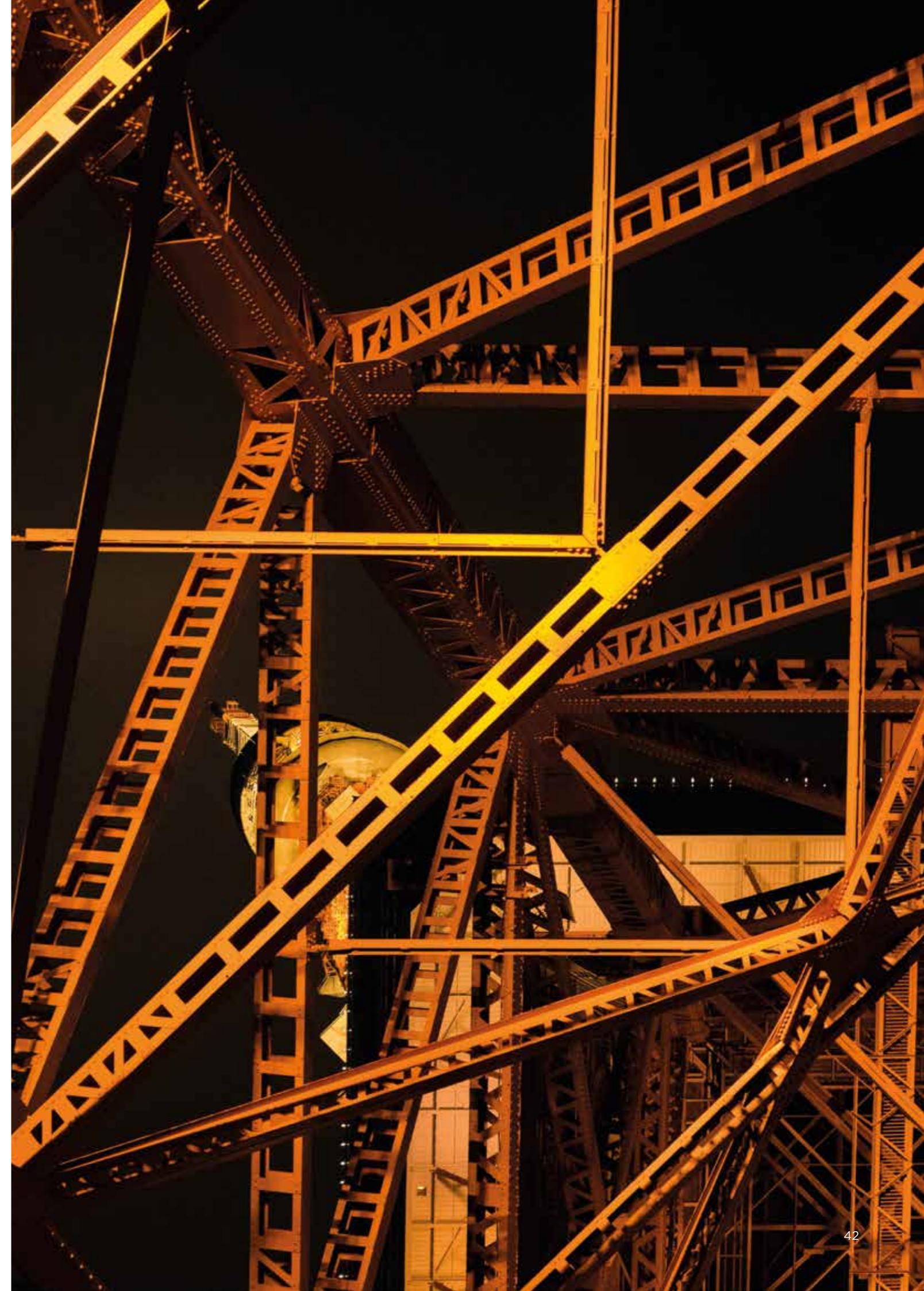
## MB GROUP PHILOSOPHY

As early as the first line of **Plato's Meno**, teaching and **knowledge** are placed in contrast with practice or **experience**, emphasizing the distinction between these two operations in both meaning and purpose. In this discussion, Socrates and Meno debate the process in which **knowledge** is acquired, contemplating whether understanding is obtained through instruction, application, or natural causes, which further stresses the difference between teaching and **knowledge**, and practice or **experience**.

At first glance, **knowledge** and **experience** look very similar to one another. By definition, **knowledge** is information and skills acquired through **experience** or education. Similarly, **experience** is defined as the **knowledge** or skill acquired by a period of practical **experience** of something. Although the two words are used in each other's definitions and are seemingly very similar, a distinction can be made between **knowledge** and **experience**.

**Knowledge** emphasizes theory and the obtainment of information and ideas. **Experience**, on the other hand, stresses practice, or the application of **knowledge** over a prolonged period of time, in order to reinforce understanding of subject matter or a certain task. While further **knowledge** on a subject or task can be gained through **experience**, **experience** cannot be obtained through instruction. **Experience** comes with time, exposure, and practice. It is based off of practical application rather than supposition. **Knowledge**, on the other hand, is founded upon the accumulation of information through either **experience** or education. It can be taught unlike **experience**. Therefore, here lies the greatest difference between the two. While **knowledge** is the sum of impressions based off of sensation, **experience** is the act of exercising or challenging **knowledge** in order to obtain sensation.

MB puts its 35 years of **experience** at the service of **knowledge**, in a combination capable of facing and solving the most complex challenges





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