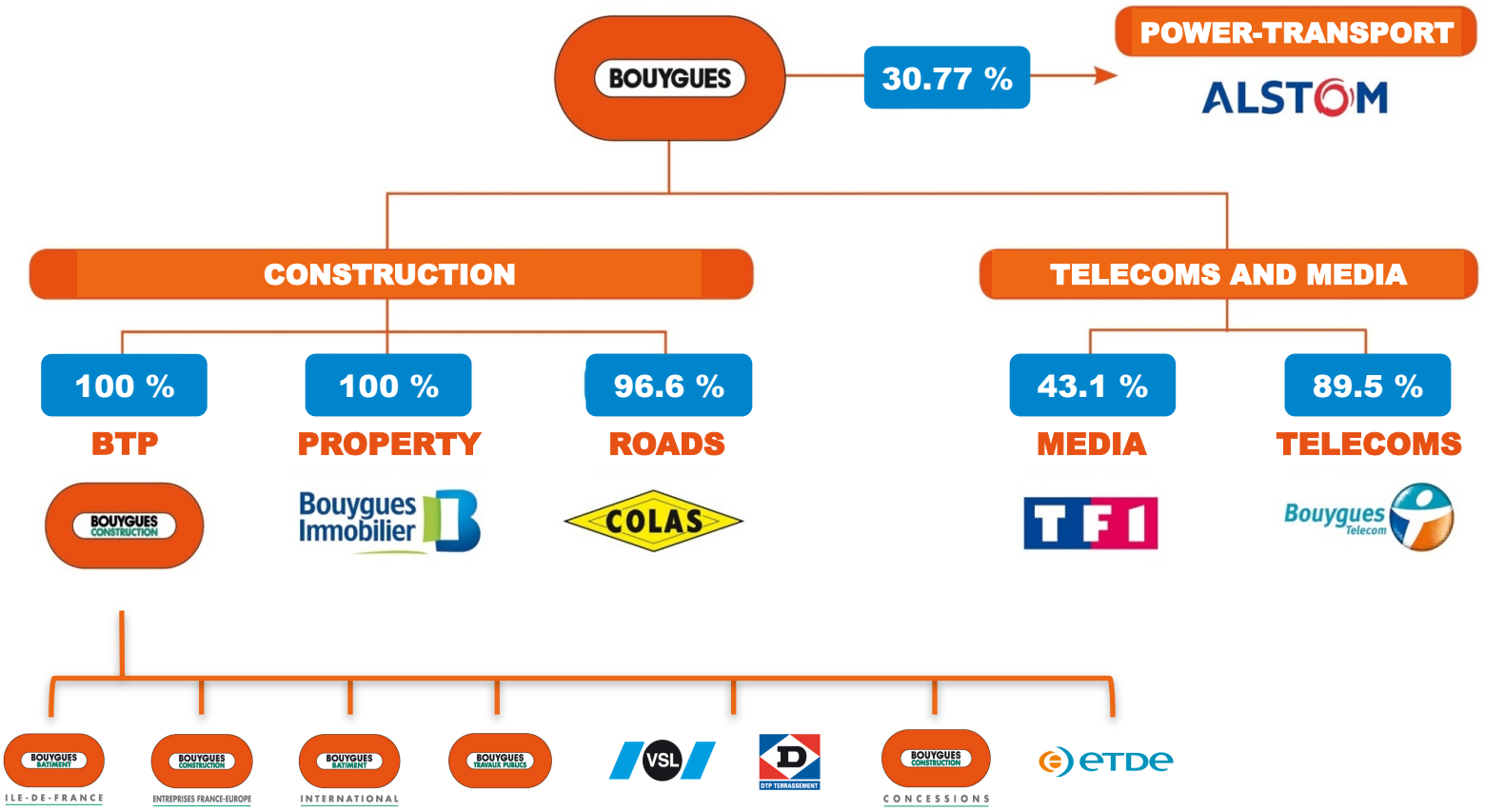
INTERGALVA 2012 - A new way of conceiving works in Public Private Partnership
Vélodrome Stadium in Marseille

A leading diversified group

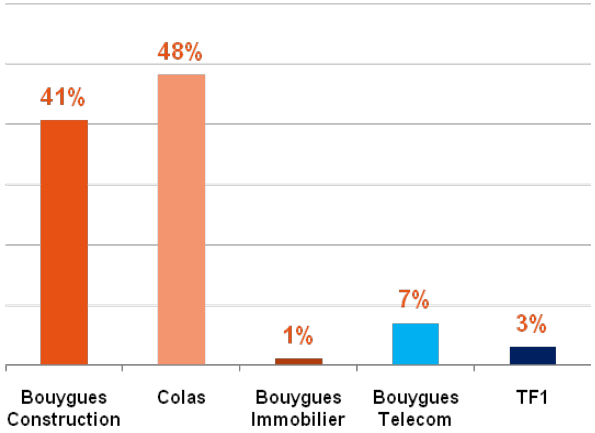


Strong commercial performance and a sound financial structure

WORKFORCE

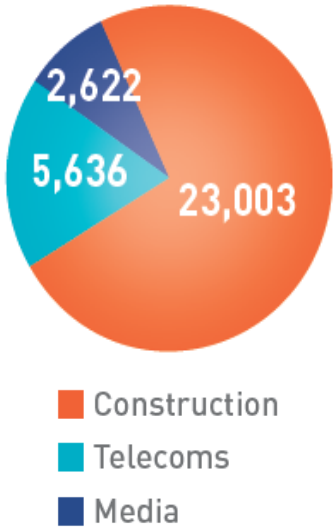
133,456

employees at end December 2010



BREAKDOWN OF 2010 SALES BY BUSINESS AREA

(in millions of euros)



Annual sales
€31.2 billion

International sales
€9.7 billion
31% of total sales

Current operating profit
€1,760 million

Net profit, Group share
€1,071 million

Three business areas with high added value

With an extensive range of know-how, Bouygues Construction is involved through the entire value chain of building, infrastructure, energy and services projects: finance, design, construction, operation and maintenance.

BUILDING
Housing, schools, hospitals, universities, hotels, office buildings, stadiums, airports, exhibition centres, leisure amenities, etc.

CIVIL WORKS
Underground works, engineering structures, earthworks, roads, ports, public transport infrastructure, etc.

ENERGIES AND SERVICES
Integrated technical solutions in the areas of energy, industry, the service sector, transport, the environment and telecoms.

Bouygues Construction is a world actor in domains of building, public works, energy and services present on five continents.
A know-how recognized by all stages of the projects: financing, conception, construction, operation and maintenance.

Bouygues Construction places the social, societal and environmental stakes in the heart of its strategy of development with an objective to be a leader in sustainable construction (Ecological and social point of view).

I belong to the identity of **Bouygues Bâtiment International** (Bouygues International Building) in the competence center of Steel Structure.
My work consists in establishing the conception and in realizing the price study of metallic construction projects.

Stadium of Bata in Equatorial Guinea - 2012

Kai Tak Terminal cruises in Hong Kong

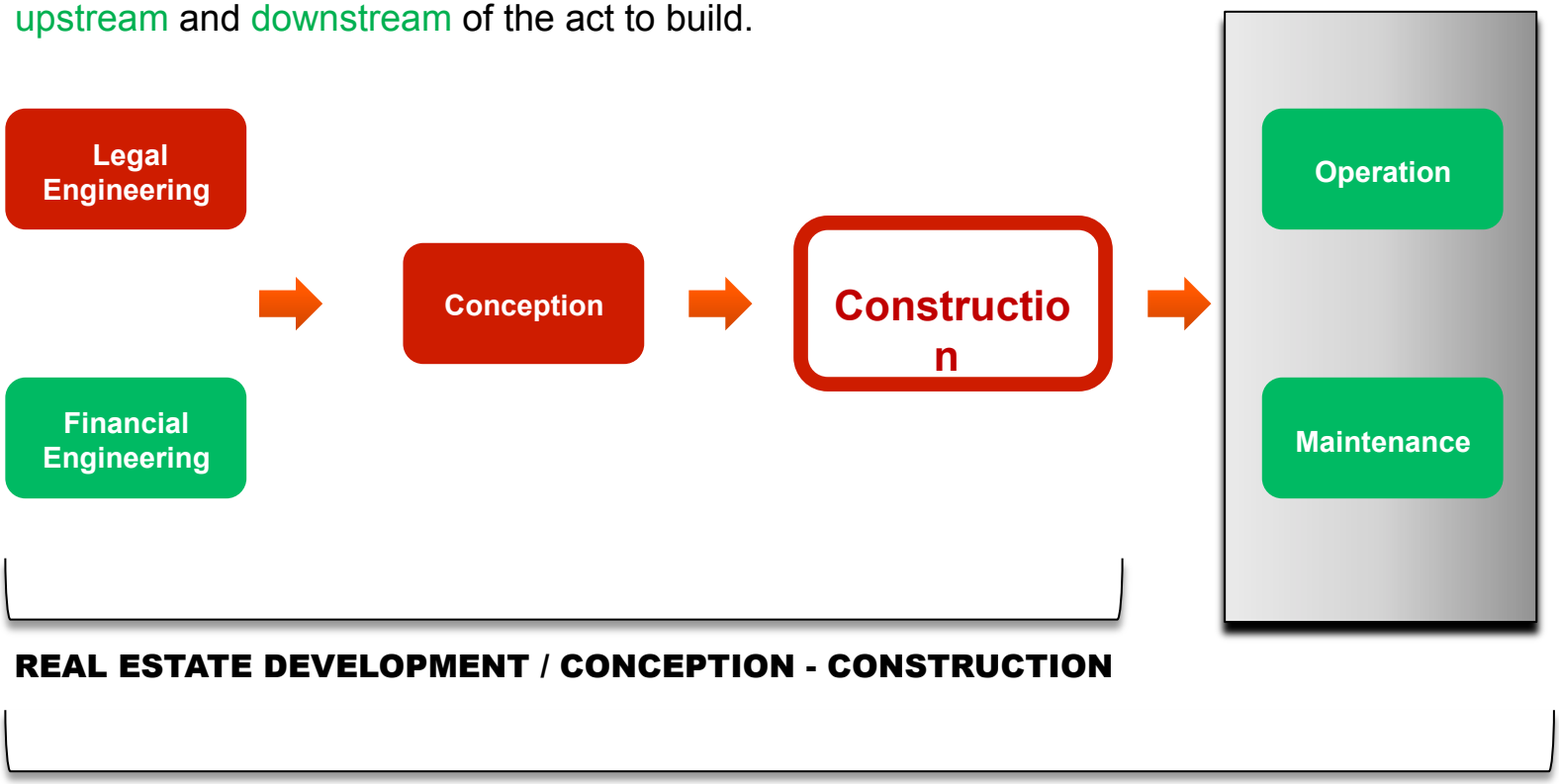
Real estate program QP Qatar District

Singapour Sports Hub

Larnaka Airport in Cyprus - 2009

Vélodrome Stadium in Marseille

A development strategy of the valuable chain,
upstream and downstream of the act to build.



The Project :

- ✓ **Reconfiguration of the Velodrome Stadium for an amount of 267 M€.**
- ✓ **Delivery in June, 2014 for the Euro 2016 of Football.**

Actors :

- ✓ **Public-Private Financiers :**

City of Marseille is the sponsor (47 M€),
The State (28 M€),
The General Council 13 (30 M€),
The Urban District (20 M€),
The Regional Council (10 M€),
The company of the Project AREMA (132 M€).

AREMA has for mission the conception, financing, renovation, restructuring, maintenance and operation of the Velodrome Stadium.

✓ The shareholders of AREMA:

The deposit and consignment office,

The Provence-Alpes-Corse savings bank,

The FIDEPPP (Investment Fund and development of the PPP),

OFI INFRAVIA,

GFC construction (subsidiary of Bouygues Construction),

Exprimm (subsidiary of Bouygues Construction).

✓ The grouping director :

SCAU,

Didier ROGEON Architecte,

IOSIS Méditerranée,

Garcia Ingénierie,

BETREM Ingénierie,

EXPRIMM (subsidiary of Bouygues Construction),

GFC Construction - MANDATAIRE (subsidiary of Bouygues Construction).

The Project :

- **A high-end stadium, classified UEFA Elite.**

67 000 seats will entirely be covered and protected from the wind.

The Velodrome Stadium is situated in the heart of the city of Marseille and very close to Mediterranean Sea (2.0 km).

The category of corrosion: C4 is retained for the weather situation according to the standard ISO 14 713 (2010).

The durability is very high: TH 30 years (lasted the operation) by the private front delivery in the city of Marseille).

The duration of expected protection is the life cycle of the work.

The galvanization of the metallic skeletons (inside and outside of tubes) according to the standard ISO 1461 (2009) was chosen.

The losses of zinc thickness will be considered between 2 and 4 the µm / year for steels class C according to the standard NFA 35 503 (2008) is 130 in 170 µm / face.

- **The realization of the project is made in Public Private Partnership and our GFC construction subsidiary is proxy of the grouping.**

➢ A Public Private Partnership

➢ The choice of the hot galvanization:

Comparative degree of the global cost of the painting and the hot dip galvanization:

	Paint		Hot dip galvanization
Grit blasting in Factory DS 2.5	48.0€/T	Additional cost steels C category - NFA 35-503	80.0€/T
Primary Epoxy in factory tk. 50µm	88.4€/T	Additional cost of purchase of galvanized bolts	60.0€/T
Intermediary Epoxy tk. 110µm	120.6€/T	Transport to the galvanization (714€/truck)	42.0€/T
Alterations & on-site finish tk. 60µm	223.0€/T	Cost of galvanization guaranteed, tube 20m²/T	330.0€/T
Total in the construction	480.0€/T	Total in the construction	512.0€/T
Repainting-maintenance after 15 years	290€/T		
Repainting-finish for the delivery	223.0€/T	Inspection of the galvanization for delivery	110.0€/T
Total price painting	993.0€/T	Total price Hot Dip Galvanization	622.0€/T

➢ Conclusion :

Comparative degree of the painting and the hot dip galvanization:

For this project of more than 5000 tons of steel, the choice of the galvanization allows:

➢ The realization of economy about **2 M€** on the cost of the protection of steels.

➢ A carbon assessment lower than painting, thus **more ecological**.

➢ **A simple conception** of assemblies for tubes.

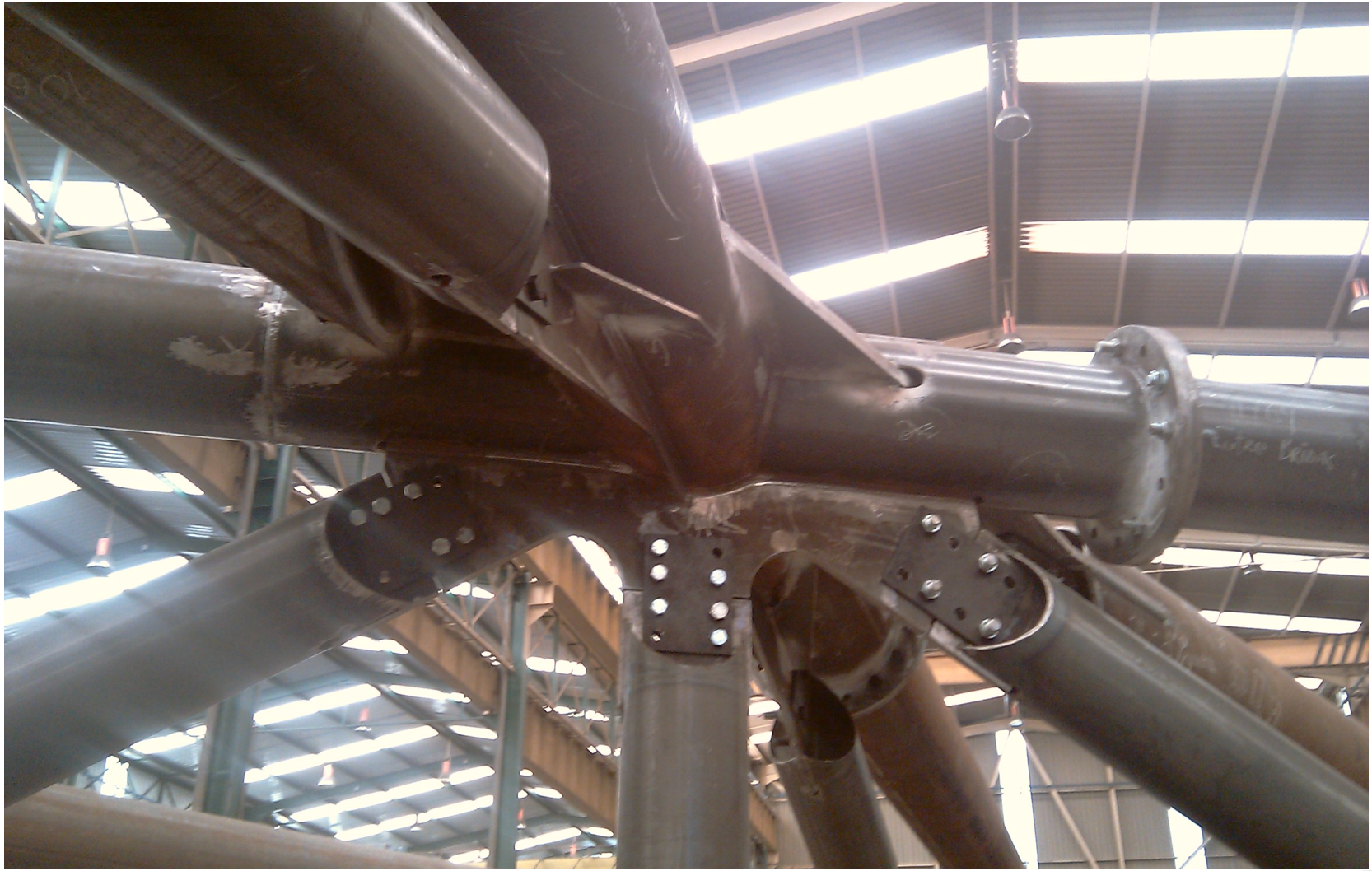
➢ An **internal and outside protection** of the tubes.

➢ The **speed of on-site intervention** because there is no painting of finish.

➢ **No fixed immobilization of stands or operating loss** for the maintenance.

Assembly in factory of skeletons.

The Vélodrome Stadium of Marseille



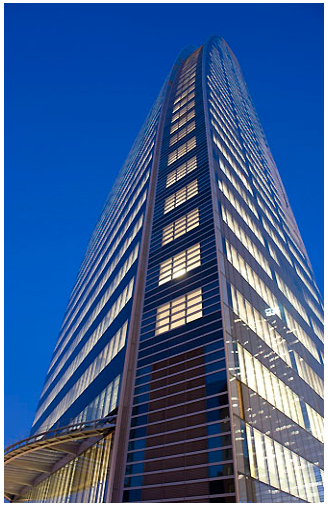
INTERGALVA 2012 - BOUYGUES CONSTRUCTION / MAIN ASSETS

Prestigious references for more than 50 years

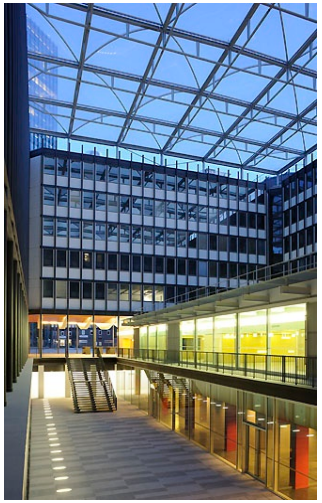
Liaison ferroviaire de Gautrain (Afrique du Sud)

Musée du Quai Branly (Paris) 2006

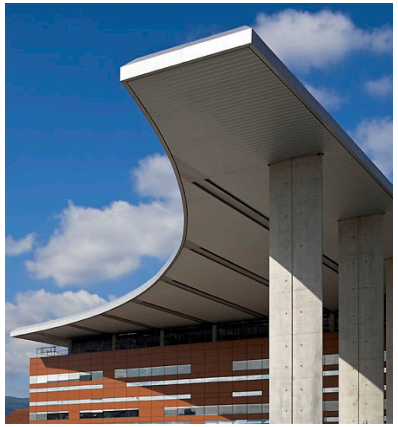
Autoroute A41 Annecy – Genève - 2011



Tour T1 (La Défense) 2008



Université de Jussieu (Paris)



CHU de Clermont-Ferrand

INTERGALVA 2012 - BOUYGUES CONSTRUCTION / MAIN ASSETS

Prestigious references for more than 50 years

Tours Sail@Marina

(Singapour) 2008

AsiaWorld Expo
(Hong Kong) 2006

Tunnel de Chong Ming à Shanghai (Chine)

Learning center de l'EPFL
(Suisse) 2011

Home office (Royaume-Uni) 2005

Masan Bay Bridge (Corée du Sud)

Thank you for your attention

www.bouygues-construction.com

http://blog.bouygues-construction.com