

Caverion

**Large Projects – Moving towards total
technical solutions with a life cycle focus**

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Delivering total technical solutions in Large Projects with focus on life cycle cost and usability

1. Caverion is focusing on revenue growth from the entire life cycle of Large Projects.

2. Caverion is able to run and follow up large and complex projects in a profitable way.

3. Caverion is driving new technological development in Large Projects.



From Technical Installations to total technical solutions including a design element

Technical Installations

- Renovations and new buildings, can include one or several disciplines.
- Technical design is done by the client, or his representative.
- Caverion is responsible for project execution of Technical Installations.

Large Projects

- Proactively sold, Large Projects with total technical solutions.
- Typically includes advisory services, design & engineering, project management and execution.
- Caverion is responsible for managing project fulfilment.

Technical Maintenance

Managed Services

Life Cycle Solutions



Typical contract types and conditions in Large Projects

Contract types

- Tender based
- Design & Build

Average duration

Design phase 3 – 12 month
Execution phase 8 – 24 month

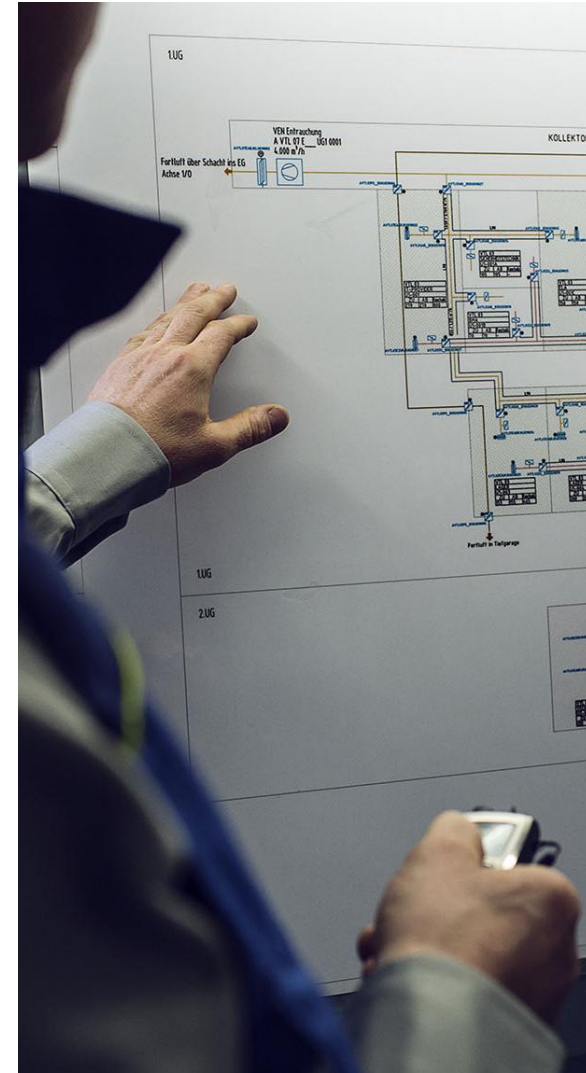
Note: Schedule changes during execution phase are typical

Pricing

- Lump-sum contract
- Unit price contract
- Guaranteed maximum price

Payment terms

- Prepayments
- Advance payments according to work progress / measurement
- Payment plans
- Final payment against guarantee



Henninger Turm, apartment building, Frankfurt



The new building has a height of 140 meters and will be the highest apartment building in Frankfurt with more than 200 luxury units. In the basement there will be additional shopping and commercial facilities and on top floor is a restaurant planned.

Megatrend – Urbanisation

- 2009 half of the world population lived in cities
- 2014 in Germany 74%
- Trend is ongoing

Commercial view:

- EUR 33 million contract size
- HVAC systems with an overall capacity of 340.000 m³/h
- Smoke extraction system with 240.000 m³/h
- 9.000 sprinklers, 1.200 sanitary objects, 18.000 m² cooling ceilings and 6.000 lamps
- Geothermal energy system, the biggest construction so far in Hessen



Why clients choose Caverion for Large Projects?

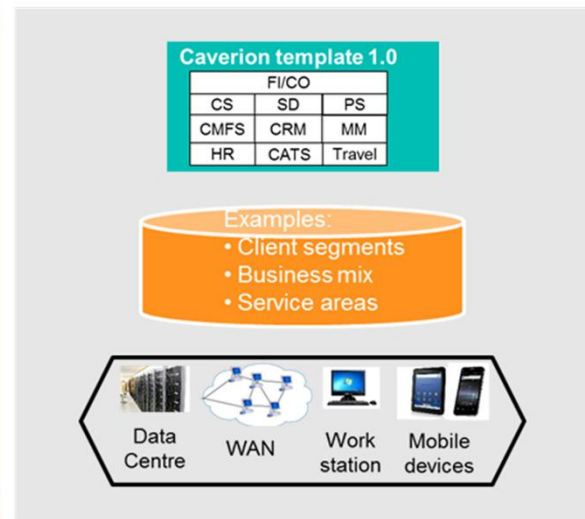
Harmonised processes



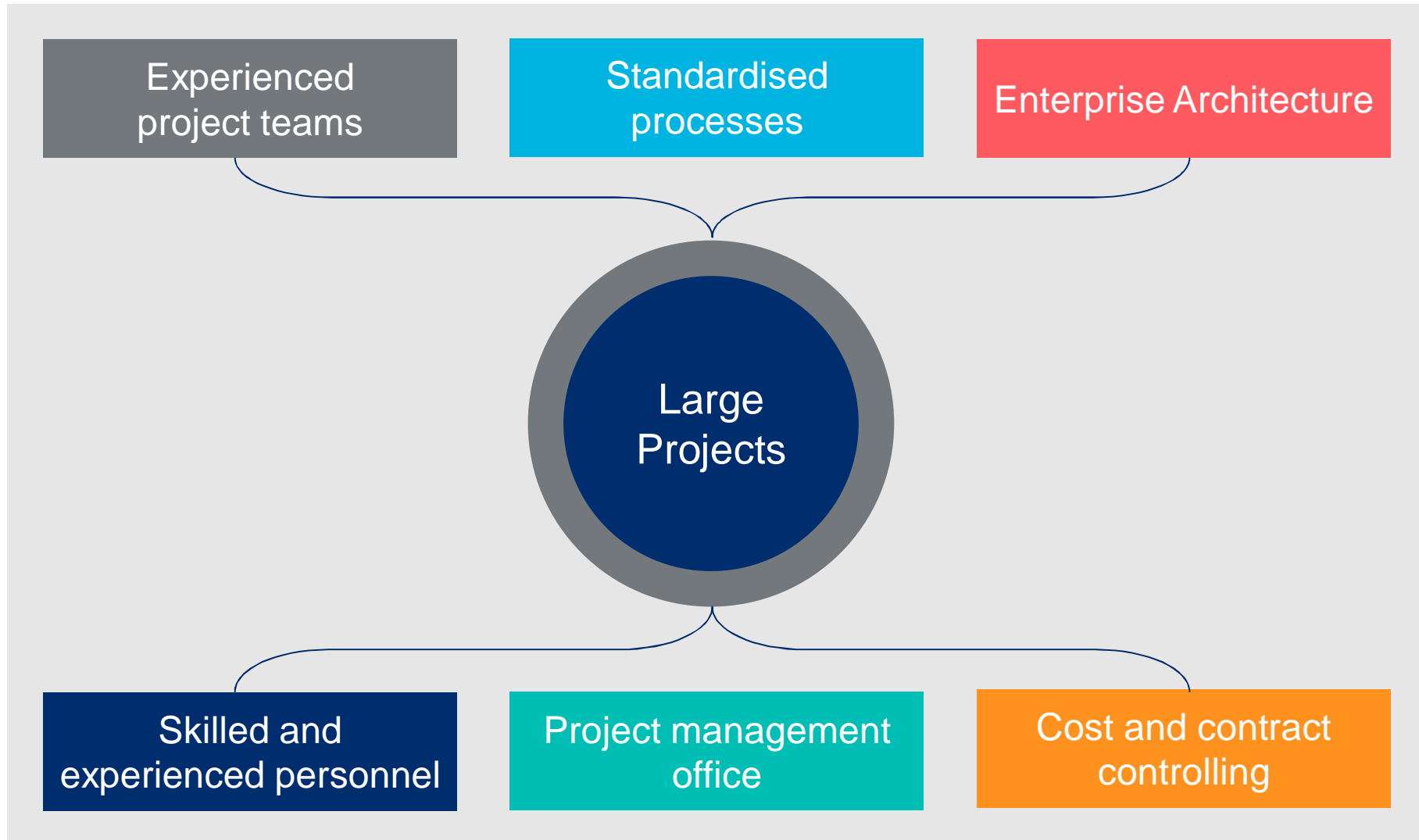
Operational model



Systems and Data



Why clients choose Caverion for Large Projects?



Caverion Enterprise Architecture making it possible

Between 250,000 – 300,000
business actions in total



Improved follow-up of Large Projects through process development

KPI's

- Project margin
- Order backlog
- Utilisation rate

Regular follow-up meetings

- Monthly project team meetings
- Quarterly project follow up with controlling and senior management
- International steering committees

Handling of change of scope

- Immediate written announcement
- No work without order
- Additional offers and negotiations according to contract terms

Growing digitalisation and storage of data

- Usage of document management system
- High performance backbone connecting technical and site offices

Monitor and ensure quality on and offsite

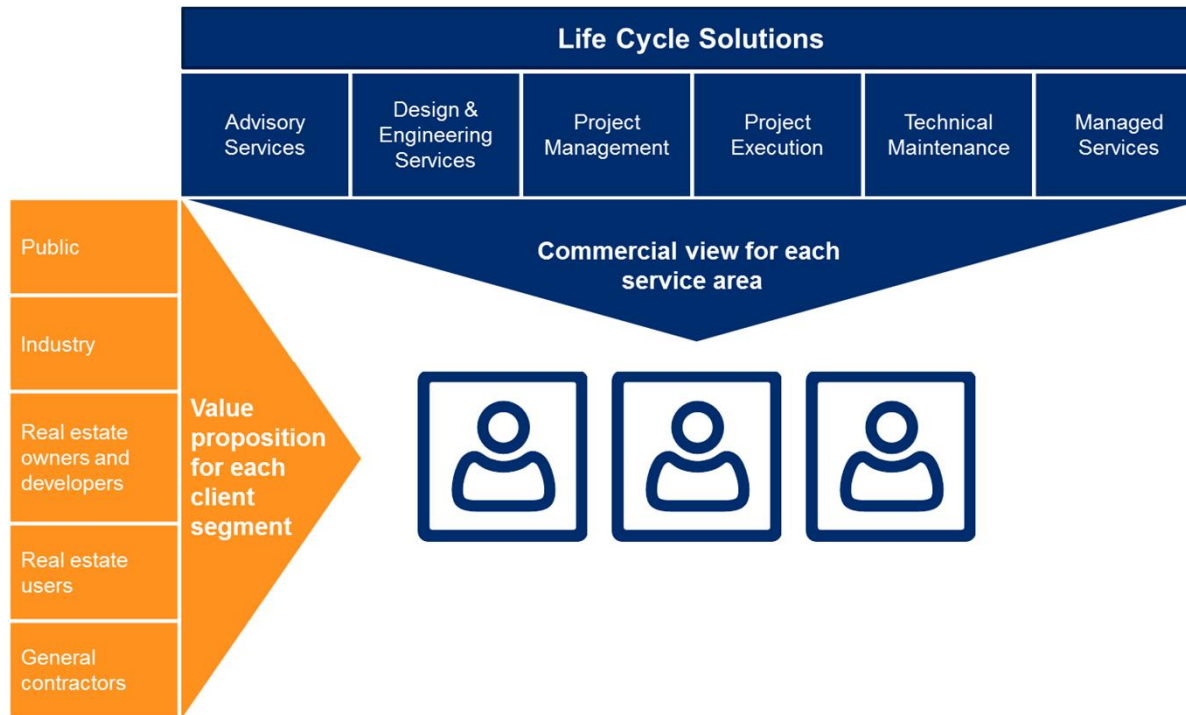
- Regularly site checks for quality and works safety status
- Strict performance of documented processes

Enhanced work safety program

- Work safety risk analysis in starting phase
- Documented safety instructions for all site workers



Focus on life cycle by selling Technical Maintenance and Managed Services in the execution phase



Service Areas

- Integrated offering for Life Cycle Solutions
- Sell Technical Maintenance and Managed Operations in the execution phase

Client segments

- Expertise in many client segments and building types
- Renovation and modernisation of existing buildings
- Tailor-made solutions through own R&D department

Disciplines

- Total technical solutions combining all disciplines
- Earnings potential increasing with complexity



Driving new technological developments

Building Information Modeling (BIM)

- First projects are realised in the Nordic countries.
- In Germany BIM is in the starting phase.

Prefabrication

- Key for shorter mounting times onsite (savings up to 30%)
- Higher quality
- Higher work safety

Energy plus buildings

- From the end of 2020, all new buildings are required to be nearly-zero-energy buildings.
- New concepts and components are developed.

Increase of Design and Build

- Integration of design works in execution projects
- Possibility to optimise execution costs

Remote Services

- State-of-the-art data security and protection is mandatory.
- Growing share of remote energy and fault analysis

Integrated systems

- Building automation and security systems are growing together.
- Trend towards smart components with IP addresses



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**Life Cycle Solutions for
Buildings and Industries**