ENGINEERING FIRMS AND THE CURRENT ECONOMIC CRISIS

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CEO TYPSA Group  

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TYPSA Consulting Engineers and Architects based in Spain

- 16 offices in Spain
- 22 offices in the world
- over 2000 staff

-revenue 2008
  - €163,750,000
  - $235,840,811*

* €1 = $1.44 (08/09/09)
ENGINEERING FIRMS AND THE CURRENT CRISIS

PRE-CRISIS
NEW SCENARIO
CONSEQUENCES FOR ENGINEERING FIRMS
ENGINEERING FIRMS AND THE CURRENT CRISIS

- NEED FOR REACTIVATION PLANS TO:
  - STIMULATE THE ECONOMY
  - CREATE EMPLOYMENT
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What should concentrate on?

- Project sustainability management
- Financing facilities
- Reducing delays in payment
- Reducing energy consumption in transportation and buildings
- Investing in infrastructure
- Improvements in energy efficiency
ENGINEERING FIRMS AND THE CURRENT CRISIS

- Investment in infrastructure
- Reduction in delays in payment
- Financing facilities
- Reduction of energy consumption in transportation and buildings
- Project sustainability management
- Improvements in energy efficiency
### Economic Stimulus Plans: Investment in Public Works

<table>
<thead>
<tr>
<th>Country</th>
<th>Budget for Public Works (in billions)</th>
<th>Budget for Public Works (billion US $)</th>
<th>Budget for Public Works (billion €)</th>
<th>% of GDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>20 (GBP)</td>
<td>33</td>
<td>23</td>
<td>1.4</td>
</tr>
<tr>
<td>Germany</td>
<td>50 (euro)</td>
<td>72</td>
<td>50</td>
<td>2.5</td>
</tr>
<tr>
<td>France</td>
<td>26 (euro)</td>
<td>38</td>
<td>26</td>
<td>1.3</td>
</tr>
<tr>
<td>USA</td>
<td>787 (US dollars)</td>
<td>787</td>
<td>596</td>
<td>5.5</td>
</tr>
<tr>
<td>China</td>
<td>4000 (yuan)</td>
<td>586</td>
<td>405</td>
<td>13.3</td>
</tr>
<tr>
<td>Japan</td>
<td>7500 (yen)</td>
<td>81</td>
<td>56</td>
<td>2</td>
</tr>
</tbody>
</table>

*Source: International Monetary Fund*
COMPANY ACTION

WHAT WE CAN DO TO SURVIVE THE CRISIS
COMPANY ACTION
WHAT WE CAN DO TO SURVIVE THE CRISIS
CONSULTING ENGINEERING SERVICES HAVE THE GREATEST IMPACT ON THE LIFE-CYCLE COST OF THE PROJECT YET ARE THE LEAST COSTLY COMPONENT

Typical Life-Cycle Cost and Impact on Project Success

- **Engineering**
- **Construction**
- **Operation & Maintenance**
Repercussion of investment in engineering on infrastructure costs

![Graph showing investment in engineering costs over time. The graph compares the original construction contract costs to the engineering investment costs. The x-axis represents millions of € invested in engineering from 2000 to 2014, while the y-axis shows millions of €. The graph indicates that while the engineering investment increased, the original construction contract costs remained relatively stable.]

Source: Own analysis
Repercussion of investment in engineering on infrastructure costs
Repercussion of investment in engineering on infrastructure costs

Source: Own analysis
Repercussion of investment in engineering on infrastructure costs

- Total Cost
- Original Construction Contract
- Cost of 25 years maintenance
- Engineering Investment
- Cost of Additions and Modifications

Source: Own analysis
TOTAL PUBLIC INVESTMENT PER YEAR IN INFRASTRUCTURE IN SPAIN
(IN € BILLION INCLUDING CENTRAL, REGIONAL AND LOCAL)

Source: Spanish Ministry of Public Works
A TOTAL OF € 40 BILLION IS SPENT ON INFRASTRUCTURE IN SPAIN PER YEAR BUT 1% MORE INVESTED IN ENGINEERING WOULD SAVE HALF THE INCIDENTS RELATED TO DESIGN DEFICIENCIES

- + 1% invested in Engineering (+ €300 M )
- - 50% incidents (- €5 Bn)

4.7 BILLION EUROS SAVED

Source: Own analysis
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**RATIO OF JOBS GENERATED**

- Nº NEW JOBS DIRECTLY GENERATED PER MILLION EUROS INVESTED IN CONSTRUCTION OR ENGINEERING IN SPAIN

![Bar chart showing the ratio of jobs generated per million euros invested in different sectors.](chart.png)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Jobs/year/M€</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>4</td>
</tr>
<tr>
<td>Railways</td>
<td>4</td>
</tr>
<tr>
<td>Site</td>
<td>4</td>
</tr>
<tr>
<td>Devpmnt</td>
<td>4</td>
</tr>
<tr>
<td>Roads</td>
<td>4</td>
</tr>
<tr>
<td>Building</td>
<td>8</td>
</tr>
<tr>
<td>Engineering</td>
<td>12</td>
</tr>
</tbody>
</table>

*Source: Own analysis*
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- TO SUM UP:
  - INVESTMENT IN ENGINEERING CREATES BETWEEN 2 AND 4 TIMES MORE DIRECT EMPLOYMENT IN COMPARISON TO INVESTMENT IN CONSTRUCTION
  - 10 M INVESTED IN CONSTRUCTION OF PUBLIC WORKS GENERATES 40 DIRECT JOBS
  - 10 M IN CONSTRUCTION + 1 M IN ENGINEERING GENERATES 52 DIRECT JOBS AND CREATES 50% MORE INFRASTRUCTURE.
  - INVESTING 10% IN ENGINEERING PRODUCES 30% MORE DIRECT JOBS AND GENERATES 50% MORE INFRASTRUCTURE
This crisis is our opportunity to design tomorrow’s sustainable world today, making full use of our active role and added value.

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