Sources and Effects of Uncertainty in the Management of Construction Projects

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Introduction: Construction Projects

- Earliest construction projects (dwellings at Terra Amata, France) date from the Palaeolithic period (Fletcher, 1996)

Dwellings built to specifications using limited resources and completed within a time frame.
- Time;
- Cost;
- Quality

Uncertainty 

Project Management

Federation Square

Federation Square was chosen as Study Case because it is:
- A contemporary and high profile project;
- An Australian Project; and
- It was delayed

Civil / Structural (Hyder Consulting, Connell Wagner);
Services (AHW Consulting);
Architecture (Lab Architecture, Bates Smart);
Quantity survey (WTP Melbourne);
General Constructor (Multiplex)

Source: http://archrecord.construction.com

Questionnaire

- Questionnaire sent to 31 persons from diverse project groups:
  - Civil / Structural (Hyder Consulting, Connell Wagner);
  - Services (AHW Consulting);
  - Architecture (Lab Architecture, Bates Smart);
  - Quantity survey (WTP Melbourne);
  - General Constructor (Multiplex)

Response

- From 31 sent questionnaires:
  - 6 were answered;
  - 15 were return unanswered (employee does not longer work in the company);
  - 10 (30%) did not reply.

  Amongst those who responded were from the area of:
  - Civil;
  - Architecture; and
  - Quantity surveyor
From the project management point of view, rank how these factors affected the development of Federation Square?

**Complexity of the Project**

**Number of Stakeholders**

**Political pressures**

**Planning**

**Project duration**

**Unforeseen situations**

**Completion date**

**Scale**

1 = The factor had NO impact

2 = The factor had LITTLE impact

3 = The factor had MODERATE impact

4 = The factor had an IMPORTANT impact

5 = The factor had a DECISIVE impact

**QUESTION 1**

**COMMENTS ON Q1**

<table>
<thead>
<tr>
<th>Factor</th>
<th>Scale</th>
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<tbody>
<tr>
<td>Experience (Lack) of Architects</td>
<td></td>
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<tr>
<td>Change of government</td>
<td></td>
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<tr>
<td>Town planning</td>
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<tr>
<td>Delivery of design information</td>
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<td>No commercial imperative to perform to conventional feasibility</td>
<td></td>
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<tr>
<td>Other</td>
<td></td>
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</tbody>
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**QUESTION 2**

How much do you believe that uncertainty affected the development of Federation Square?

- Major factor, 3, 50%
- Did not affect, 1, 17%
- Moderately affected, 2, 33%

**QUESTION 3**

Do you believe that uncertainty in the management of construction projects is:

- A characteristic of the environment under which project are undertaken and therefore embedded to all projects, 3, 33%
- A consequence of poor planning, 4, 45%
- Other, 2, 22%

**QUESTION 4**

Do you believe that projects can be planned to their full extent?

- Yes, 5, 83%
- No, 1, 17%

**CONCLUSION**

It is obvious that mankind has found its way to overcome uncertainty and materialise construction projects long time ago, way back before the words “project” and “management” were put together.

However, whilst projects are under the responsibility of project managers they are exposed to an uncertain environment.

Uncertainty will always shape the fate of a project, but by understanding its sources and effects the project management practice, specially that of the construction industry, will be greatly benefited.