The importance of the Construction industry

- Construction is critical to the economy
  - employment and contribution to GDP
- Advance in construction efficiency affects performance of other industries
- A net importer of technology
  - primarily from mining, materials handling, motor vehicles and equipment sectors

Size of the Industry

<table>
<thead>
<tr>
<th></th>
<th>Number of firms ('000)</th>
<th>Number employed ('000)</th>
<th>Contribution to GDP (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply Network</td>
<td>165.3</td>
<td>452.9</td>
<td>8.8</td>
</tr>
<tr>
<td>Project-based firms</td>
<td>46.6</td>
<td>182.4</td>
<td>3.6</td>
</tr>
<tr>
<td>Property</td>
<td>16.5</td>
<td>94.1</td>
<td>4</td>
</tr>
<tr>
<td>TOTAL</td>
<td>228.4</td>
<td>729.4</td>
<td>14.4</td>
</tr>
</tbody>
</table>

Industry Challenges

- Roles set by hard dollar, strictly conforming tenders
- Creativity in the design at the expense of life cycle costs
- Builders intellectual contribution limited to construction methods
- Innovation in process hoarded by a few universities seen as educators only and research an extra cost

Industry Response - 1

- Inflationary pressures for faster delivery
- Team approach for optimisation of design, construction, life cycle costs
- Research into materials and technology
- Fast tracking and incentives for early completion
- On site based and dedicated design & construct teams
Industry Response - 2

- Use of advanced IT in construction process and buildings themselves
- Mechanisation of construction activities
- Prefabrication and increased off-site fabrication
- New advanced materials
- More demanding owners
- Global markets for manufactured goods and engineering and construction services, foreign competition
- New project delivery forms, eg. finance, design, build, own, operate, transfer
- Resource constraints, eg. construction professionals, skilled trades, permanent equipment and materials of construction

The Link Through Research

Industry Needs

Industry Challenges

Industry Research

Industry Responses

Annual Conference 2001

Construction Innovation
the Future

CIIA – Research Programmes
and Collaborations

Mr Terry Bulmer
Manager Technical Services, Thiess
Board of Advisors CIIA

CIIA MISSION

To generate creative ideas and undertake leading edge research that results in major breakthroughs, adding significant value to members and Australian industry...

CIIA Methodologies

- Collaborative research - gearing of funds
- Industry driven - owners & contractors
- Direct executive link to research
- Emphasis on deliverables - benefits to both owners and contractors
- Research by task forces
- CIIA participation in the CRC – dissemination and publication
- Skills transfer
- Staff development

CIIA Current Projects

- Re-Engineering the Project Delivery Process
- The Tendering Contract
- Business innovation
- Sustainable Built Asset Management
- Innovative Construction Materials
- Improving Uptake of IT in Construction
- Benchmarking Asset Management
- Family Friendly Employment Practices
UK Research Funding Trends

Changing Culture....
- The “two-edged sword” - managing the technology and the culture together.
- Need mechanisms to foster leadership & drive education in new and emerging technologies.

Change strategies
- Action Agenda - Partnership with industry
- Pre-qualification - performance and quality
- Collaborative engineering environments: NSTP Sydney, Woodman Point WWTP, Acton Peninsula, Awoonga and PBM - finding solutions, together!

Future challenges
- Sustainable development
- Waste reduction and renewable energies
- Transparency in business arrangements
- Addressing innovation / process improvement across the total business system

CIIA Collaborations
- CRC support and information dissemination
- Alignment with IAI-AC
- Linkages with CII (USA) & ECI (UK)
- Construct IT (UK) network?

The Link Through Research
- Industry Needs
- Industry Challenges
- Industry Research
- Industry Responses
Looking to the Future

Changing Cultures

New Processes

Emerging Technology

Three essential elements for success