CO-OPETITION

Research at the nexus of Cooperation and Competition

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Co-opetition,/(kō-,ä-pə-'ti-shən)

- Companies in the same market **collaborate** in research and the exploration of knowledge, at the same time that they **compete** for market-share exploiting the knowledge created.
- Based on Game Theory (a branch of applied mathematics codified by Von Neumann) providing a systematic way of developing business strategies when **one entities fate is tied to what others do**.
- Co-opetition is the tool by which **cooperative research serves the strategic goals** of companies that routinely compete.
Degrees of research engagement

- **Evaluative**: working with individual entities in perfecting a technology or concept.
- **Collaborative**: aggregating interest groups/users for the purpose of gaining consensus and informing the research (industry panels, steering committees, etc.).
- **Co-opetative**: creating a research environment in which the end users are broadly representative of a market segment, financially and otherwise vested in the research and share ownership of the process.
Co-opetition in action:
Bringing lean to factory building

- Vet/create buzz—travel to Japan (home of lean) with several home building company CEOs to look at lean in practice and within a homebuilding context.
Bringing lean to factory building

- **Aggregate interest**—enlisted the participation of ~120 factory building operations across the nation.
- **Demonstrate**—conducted a comparative analysis of factory builders comparing the efficiency of their operations with their competitors and against an objective standard.

![Graph showing Total labor cost per sq. ft. floor area produced with a median value of 4.92 and range of 2.18 to 5.38.](image-url)
Bringing lean to factory building

- **Educate/evaluate**—deployed lean practices in eight plants.
- **Disseminate/celebrate**—reported back the results in a public forum.
Co-opetition basics
Envisioning the business environment through the lens of the “Value Net”
Co-opetition basics

Customers
Homebuyers, renters, students, lenders

Competitors
Other builders, real estate agents, homeowners, preservationists

Suppliers
Material and product producers, lenders, real estate agents, appraisers, land developers/owners, DOE/NREL

Complementors
Other builders, trade associations, moving companies, DOE/NREL

Value Net
Co-opetition basics

- The relationships among parties in a Value Net are fluid. Depending on the setting, competitors can be complementors working together to grow the pie.
- Building companies, for example, are already cooperators in many settings (code development, policy making, etc.). Research is not normally considered fertile ground for cooperation.
- Goal of co-opetition is to create situations where otherwise competing business see research as a Complementor relationship.

Value Net
Key elements co-opetative research

- Critical mass of stakeholders that inform the research while actively planning for its eventual market applications.
- Research goals are aligned with business goals.
- End users are vested early and often.
- Development costs are shared reducing costs and spreading risk.
- Co-opetition makes investments by suppliers more attractive by growing the size of the market early on.
When to consider Co-opetition

- Several companies are operating in the same or similar space but for any single company the fruits of research would provide little or no competitive advantage.

- Companies have common cause, common issues, common challenges but individually have limited resources or expertise to address them. Most building companies are ill-equipped to formulate and lead research.

- Instances where attaining critical market share depends on joint commercialization.

- Suppliers are deeply vested complementors.
How Co-opetition adds value

- Buy-in translates into financial investment/cost-sharing.
- Deep involvement by industry leaders “legitimizes” research, creates positive perceptions.
- Synergy of ideas from those closest to its application—(e.g., builders have unique knowledge about their products business that informs the research).
- Solutions are more likely to have universal application.
- Critical mass of support increases the likelihood of rapid commercialization and market transformation.
Building America research: developing advanced envelope designs

- **Create buzz**—impending standard changes (aka “never let a crisis go to waste”).
- **Organize**—developed a core group of companies that readily recognized the need, challenges industry faced.
Building America research: developing advanced envelope designs

- **Demonstrate**—identified seven envelope changes “innovations.”

<table>
<thead>
<tr>
<th>Option</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>Man.</th>
<th>Code</th>
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<tbody>
<tr>
<td>Structural insulated panels or SIPS for ceilings</td>
<td>33 (7)</td>
<td>26 (3)</td>
<td>31 (5)</td>
<td>24 (4)</td>
<td>(6)</td>
<td>23 (5)</td>
<td>(4)</td>
<td>32 (6)</td>
<td>5</td>
<td>5</td>
<td>5</td>
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<tr>
<td>Structural insulated panels or SIPS for walls</td>
<td><strong>23 (2)</strong></td>
<td><strong>25 (2)</strong></td>
<td><strong>34 (6)</strong></td>
<td><strong>20 (1)</strong></td>
<td><strong>(5)</strong></td>
<td><strong>23 (5)</strong></td>
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<td><strong>23 (4)</strong></td>
<td><strong>2</strong></td>
<td><strong>4</strong></td>
<td><strong>4</strong></td>
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<tr>
<td>Stud wall with insulating sheathing board</td>
<td><strong>23 (2)</strong></td>
<td><strong>24 (1)</strong></td>
<td><strong>20 (1)</strong></td>
<td><strong>20 (1)</strong></td>
<td><strong>(2)</strong></td>
<td><strong>10 (1)</strong></td>
<td><strong>(2)</strong></td>
<td><strong>17 (1)</strong></td>
<td><strong>1</strong></td>
<td><strong>2</strong></td>
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<tr>
<td>Un-vented attic with insulating sheathing board</td>
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<td><strong>(3)</strong></td>
<td><strong>11 (2)</strong></td>
<td><strong>27 (5)</strong></td>
<td><strong>2</strong></td>
<td><strong>6</strong></td>
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<td>Flash and batt wall construction</td>
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<td><strong>1</strong></td>
<td><strong>1</strong></td>
<td><strong>6</strong></td>
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<tr>
<td>Poured closed cell foam</td>
<td>25 (5)</td>
<td>29 (5)</td>
<td>22 (2)</td>
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<td><strong>(4)</strong></td>
<td><strong>19 (3)</strong></td>
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<td>Innovative new floor</td>
<td>28 (6)</td>
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Building America research: developing advanced envelope designs

- **Initial design**—compared and contrasted options, pared the list to a single measure.

- **Design/development**—design refinement, mock up and prototype; invited all manufacturing facilities to participate.

<table>
<thead>
<tr>
<th>Factory builders</th>
<th>Insulation companies</th>
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</thead>
<tbody>
<tr>
<td>All American Homes</td>
<td>Owens Corning</td>
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<tr>
<td>American Homestar</td>
<td>Johns Manville</td>
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<tr>
<td>Cavco/Palm Harbor/Fleetwood Homes</td>
<td>BASF</td>
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<td>CertainTeed/Saint-Gobain</td>
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<tr>
<td>Muncy Homes</td>
<td>Haven Homes</td>
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<tr>
<td>Champion Homes</td>
<td>Forest River Housing</td>
</tr>
</tbody>
</table>
Building America research: developing advanced envelope designs

- Going forward—collaborative design/analysis process, mock up, prototyping, evaluation, testing, reporting, dissemination...
Co-opetition Pros

- Research is thoroughly vetted and market potential established before significant resources are committed.
- With the broad market established and impacts well-defined, risk is lowered.
- Critical mass of industry partners raises the profile of the work and the willingness of other stakeholders to invest.
- For a new product or technology, geared toward creating, in the short term, sufficient demand to justify volume production and competitive pricing.
- Market uptake is often immediate and embedded in the process. Market acceptance is “wired in.”
Co-opetition Cons

- Makes sense mainly when the research has broad appeal, widely applicable and has ambitious goals.
- Requires resolving competing visions of what needs to be accomplished. Consensus building can be protracted, controversial.
- Challenge to balance competing interests, involve main stakeholders, achieve often disparate visions of success.
- Investing in research that also benefits competitors may be a hard sell.
- Longer process by virtue of the continual consensus building.
Co-opetition increases the odds that research will impact not just one company, one building, one community, but scales up those ambitions and in the process results in better research.