

# CO-OPETITION

## Research at the nexus of Cooperation and Competition

Emanuel Levy  
ARIES Team/The Levy Partnership

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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.

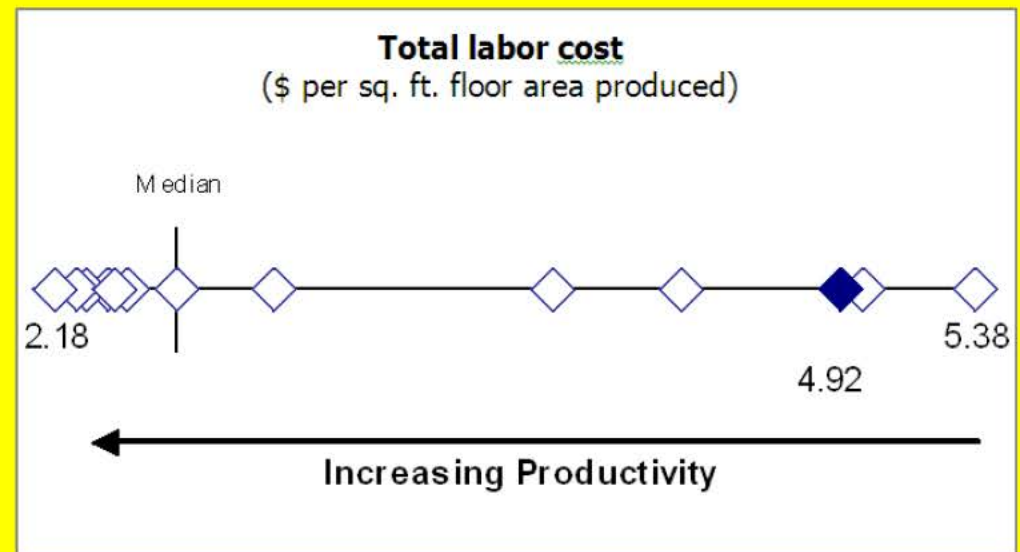
# Co-opetition in action: Bringing lean to factory building

- ♦ **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.





# Bringing lean to factory building

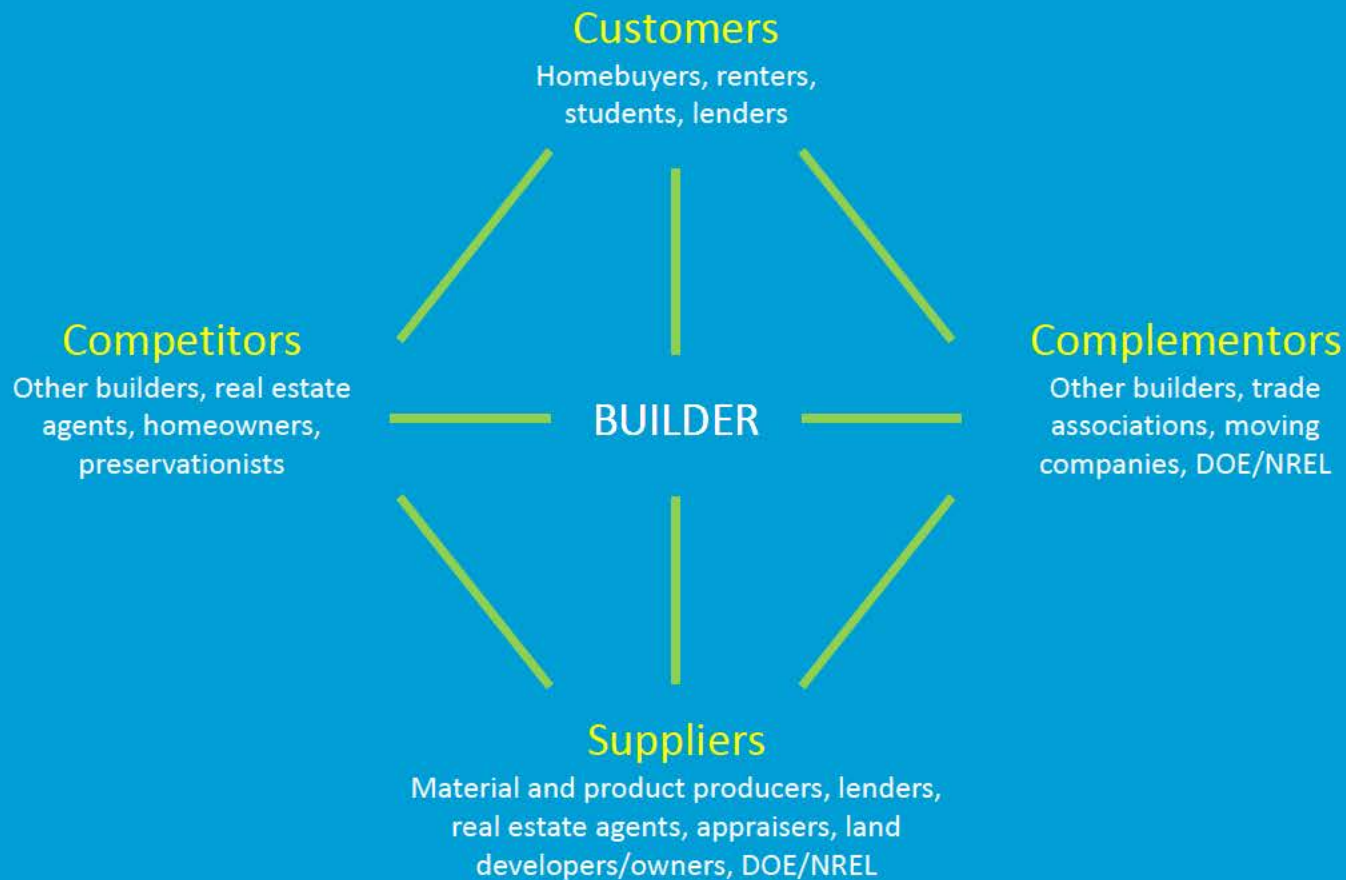
- ♦ **Educate/evaluate**—deployed lean practices in eight plants.
- ♦ **Disseminate/celebrate**—reported back the results in a public forum.



# Co-opetition basics

Envisioning the business environment  
through the lens of the “Value Net”

# Co-opetition basics



## 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.

## Customers

Homebuyers, renters,  
graduate students

## Competitors

Other builders, real estate  
agents, homeowners,  
preservationists

## BUILDER

## Complementors

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

## Suppliers

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

## 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.”

Option	1	2	3	4	5	6	7	8	Man.	Code	Thermal
Structural insulated panels or SIPs for ceilings	33 (7)	26 (3)	31 (5)	24 (4)	(6)	23 (5)	(4)	32 (6)	5	5	5
Structural insulated panels or SIPs for walls	23 (2)	25 (2)	34 (6)	20 (1)	(5)	23 (5)	(3)	23 (4)	2	4	4
Stud wall with insulating sheathing board	23 (2)	24 (1)	20 (1)	20 (1)	(2)	10 (1)	(2)	17 (1)	1	2	1
Un-vented attic with insulating sheathing board	24 (4)	31 (7)	26 (4)	25 (5)	(3)	11 (2)		27 (5)	2	6	3
Flash and batt wall construction	11 (1)	29 (5)	25 (3)	23 (3)	(1)	20 (4)	(1)	20 (3)	1	1	6
Poured closed cell foam	25 (5)	29 (5)	22 (2)	27 (6)	(4)	19 (3)		19 (2)	4	3	2
Innovative new floor	28 (6)	28 (4)	31 (5)	---	---	---			---	---	---



# 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.

Factory builders		Insulation companies
<ul style="list-style-type: none"><li>• All American Homes</li><li>• American Homestar</li><li>• Cavco/Palm Harbor/ Fleetwood Homes</li><li>• Clayton Homes</li><li>• Beracah Homes</li><li>• Eagle River Homes</li><li>• Preferred Building Systems</li></ul>	<ul style="list-style-type: none"><li>• Hallmark Homes</li><li>• Nationwide Homes</li><li>• Commodore Corporation</li><li>• Muncy Homes</li><li>• Excel Homes</li><li>• Haven Homes</li><li>• Champion Homes</li><li>• Forest River Housing</li></ul>	<ul style="list-style-type: none"><li>• Owens Corning</li><li>• Johns Manville</li><li>• BASF</li><li>• Bayer MaterialScience</li><li>• DOW</li><li>• CertainTeed/Saint-Gobain</li><li>• AFM Corporation</li></ul>

# 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.

# References

*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.*

