

Memo

To: Readers of the Transitions in Construction blog <http://change.mickla.se>
Date: December 25, 2011
From: Dan Engström

The step-change in implementing construction R&D

Background

Arguably, in the construction sector, doing structured research and development is not a priority. We seem to be able to make money by solving problems ad hoc in projects, as they turn up. Implementation of new knowledge and knowledge management suffer because of this.

What happens if we deliberately set out to develop a breakthrough?

Could the implementation of R&D in construction make such a radical improvement?

Companies that work with a Lean outlook usually do not have this problem because they have created a market pull system. In those systems, all the results produced are pulled by the needs of the business, as opposed to introducing ideas to be implemented in business, so-called technology push.

But making the transition from a traditional company to a lean company is a big task, which is not in the hands of the researchers. If we as industry researchers want to do good for our company, we will have to take this task on. Technology push works for Apple. Can it be made to work for a traditional contractor? We've had the problem of our sector not making new knowledge a priority for a very long time. The time is ripe for a step-change.

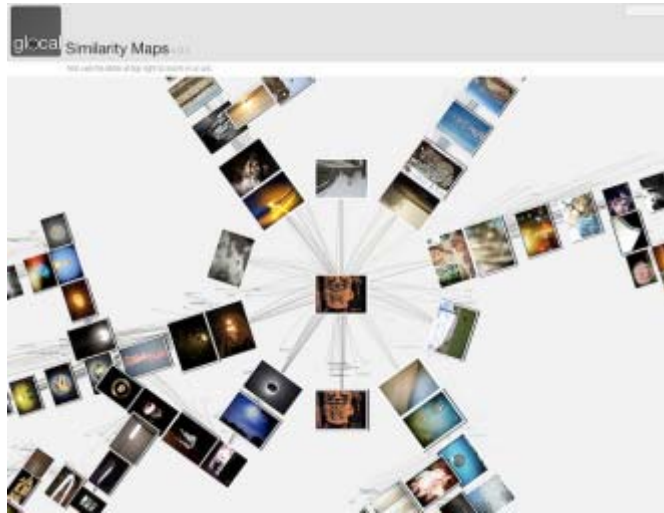
This memo briefly describes a handful of methods possible for getting started:

- 1) Map your challenges
- 2) Reengineer your revenue stream
- 3) Challenge-driven innovation
- 4) See the need, fill the need
- 5) Name the product and decode it
- 6) Mindmapping
- 7) Crowdsourcing
- 8) Benchmark mechanisms
- 9) What if
- 10) Introduce a new element
- 11) Scrap the report, work with images
- 12) Key predictive indicators for research
- 13) Benchmark local business



1) Map your challenges

Map what your challenges are and identify what sectors likely have that ability. Describe the business idea and try to team up. Even use people like Co-society, Jump Associates, Kreo.

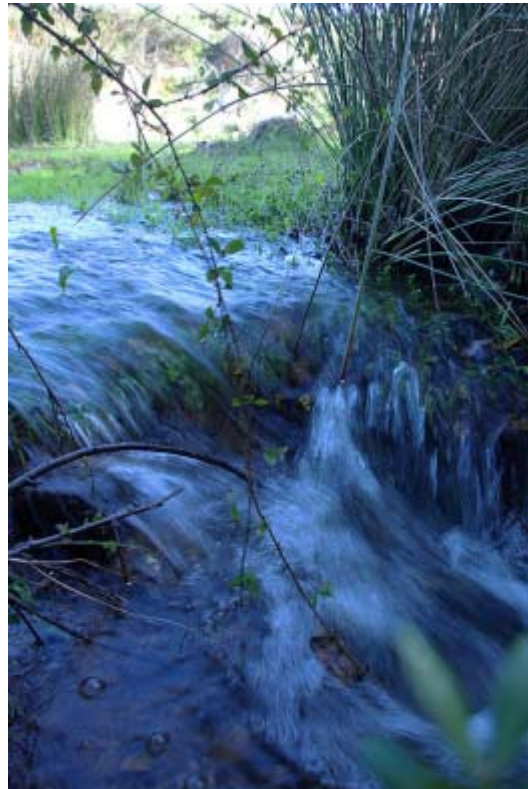


2) Reengineer your revenue stream

(<http://www.fastcodesign.com/1665228/want-to-upend-an-entire-industry-change-its-revenue-stream>)

Redefining the revenue stream will redefine the very core of your company.

1. *Unit sales*: Sell a product or service to customers. General Electric.
2. *Advertising fees*: Sell others the opportunities to distribute their message on your space. Google.
3. *Franchise fees*: Sell the right for someone else to invest in, grow, and manage a version of your business. McDonald's.
4. *Utility fees*: Sell goods and services on a per-use or as-consumed basis. Electric utility companies.
5. *Subscription fees*: Charge a fixed price for access to services for a set period of time. Gyms.'
6. *Transaction fees*: Charge a fee for referring, enabling, or executing a transaction between parties. Visa.
7. *Professional fees*: Provide professional services on a time-and-materials contract. Any consultant.
8. *License fees*: Sell the rights to use intellectual property.



- Alexander Osterwalder and Yves Pigneur: Business model generation. Wiley & Sone, 2010, ISBN 978-0470-87641-1

3) Challenge-driven innovation

Requirements management. Write a brief for the step-change – what is the goal that we want to reach that requires a step-change? What is your main goal and what is the main challenge you face in reaching it?

Define that and then ask what it would take for you to reach the goal and overcome the challenge. You might just find out that articulating that was all you needed to do to identify the change needed.

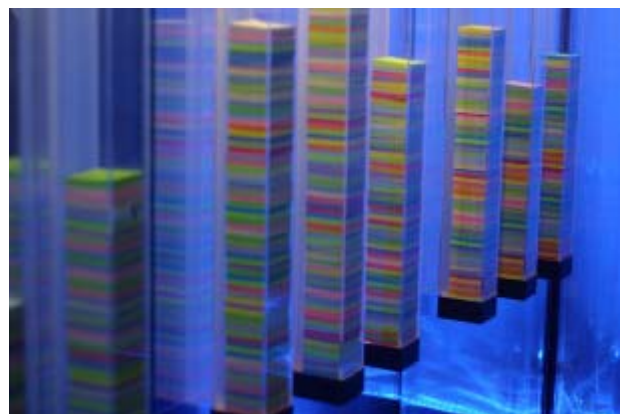


4) See the need, fill the need

Like Rodney Copperbottom did in the Pixar film *Robots*, look to your own experience of working with your clients and see where there is a need. Then fill it. Like Rodney, fail fast, fail often, fail inexpensively.

5) Name the product and decode it

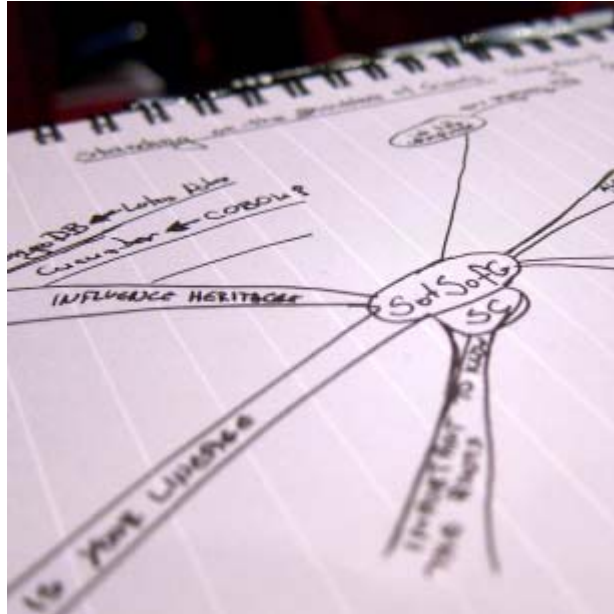
A product needs a challenging, inspiring, intuitive name. But a catchy name can unleash a creative urge to decode what that product is. Have a beer or two with some colleagues and come up with a name for a product. Then let that name be the catalyst of development.



6) Mindmapping

Technology brokering: use colleagues or companies dedicated to identifying useful knowledge in other sectors and form alliances.

- Hargadon, A. B. (2003) *How Breakthroughs Happen: The Surprising Truth About How Companies Innovate*. Harvard Business School Press, ISBN 1-57851-904-7.



A sociologist, an engineer and a marketing manager walk into a bar. See an example of what they came out with here: <http://change.mickla.se/#post20>



7) Crowdsourcing

Writing the perfect brief for a crowdsourcing task and use the creativity of others to come up with a radical concept. You need to build on four basic concepts: Openness, Peering, Sharing, and Acting Globally.

- Don Tapscott and Anthony D. Williams (2006): *Wikinomics: How Mass Collaboration Changes Everything*. ISBN 1591841380.
- Clay Shirky (2008). *Here Comes Everybody: The Power of Organizing Without Organizations*, Penguin Press.

Let people make their mark.

8) Benchmark mechanisms

Identify traits in other breakthroughs and use these breakthroughs as templates for the mechanisms involved in a breakthrough.



9) What if

Turning established truths on their heads in order to see what can be done with comes out.



10) Introduce a new element

The presence of a new, interested person in a situation without pressure makes you want to show and discuss your material. The act of putting down work in progress for a while and then actively sharing and describing it makes you notice its structure and traits. It can give you impulses to improvements that suddenly seem obvious. The ideas that you can come up with in this way need to be remembered/documented so that they are available when it's time to do the work to make them tangible.

You need:

- Time for hard work on the subject matter.
- Time for earlier work to mature.
- Recurrent introduction of different new elements, in a low pressure setting.



11) Scrap the report, work with images

Get people's attention by not presenting them with results as written reports. Design your projects working with images and video clips as the main carriers of the information. Why not use the Lego Digital Designer for showing the essence of a new process or a new product? Blog post on this here: <http://change.mickla.se/#post21>

12) Key predictive indicators for research

Using metrics for doing business can be compared to taking the pie out of the stove when the fire alarm goes off. When you realize you have a problem, the process you're measuring is already in trouble. Useful metrics should have the same function as the canary in a coal mine; when it starts to cough, you know you're in trouble and can do something about it in time. A set of such business-related metrics for industry research would make it easy to show the use research is doing for the business.



If the audience is dancing, the band is doing OK.

- Ronald J. Baker: Measure What Matters to Customers: Using Key Predictive Indicators, Wiley & Sons, 2006, ISBN-13: 978-0471752943



13) Benchmark local business

Normally, construction is organised to reflect that business is made locally. This builds independence and fosters initiative, but effectively prevents horizontal transfer of knowledge. This can be dealt with. Give each region the task of being the company's benchmark in one particular key development

issue (BIM, sustainability, systems building and so on). Then give each manager their bonus after how much they've achieved in their area and implemented in the other areas.

Find your use of your colleague's local colour.

Images, from top to bottom:

1. <http://www.flickr.com/photos/kkoshy/4334413228/sizes/z/in/photostream/>
2. <http://www.flickr.com/photos/blprnt/3177616769/sizes/z/in/photostream/>
3. <http://www.flickr.com/photos/consul78/3319298281/sizes/z/in/photostream/>
4. <http://www.flickr.com/photos/30291646@N03/6150517434/sizes/z/in/photostream/>
5. <http://www.flickr.com/photos/mklingo/717372511/sizes/z/in/photostream/>
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7. <http://www.flickr.com/photos/peterhellberg/4633276808/sizes/z/in/photostream/>
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14. <http://www.flickr.com/photos/ithacascottishgames/4796470610/sizes/z/in/photostream/>