

R&D | BEYOND FOUR WALLS

2017 IRI ANNUAL MEETING
MAY 8-11, BOSTON WESTIN WATERFRONT
BOSTON, MA

From Emerging Technology to Business Opportunity

Dr. Irene Spitsberg, InnoVentures Consulting

Dr. Anne Berthereau, Owens Corning

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Creating Innovation Leadership Solutions
www.iriweb.org

Together, plan for future growth at Owens Corning



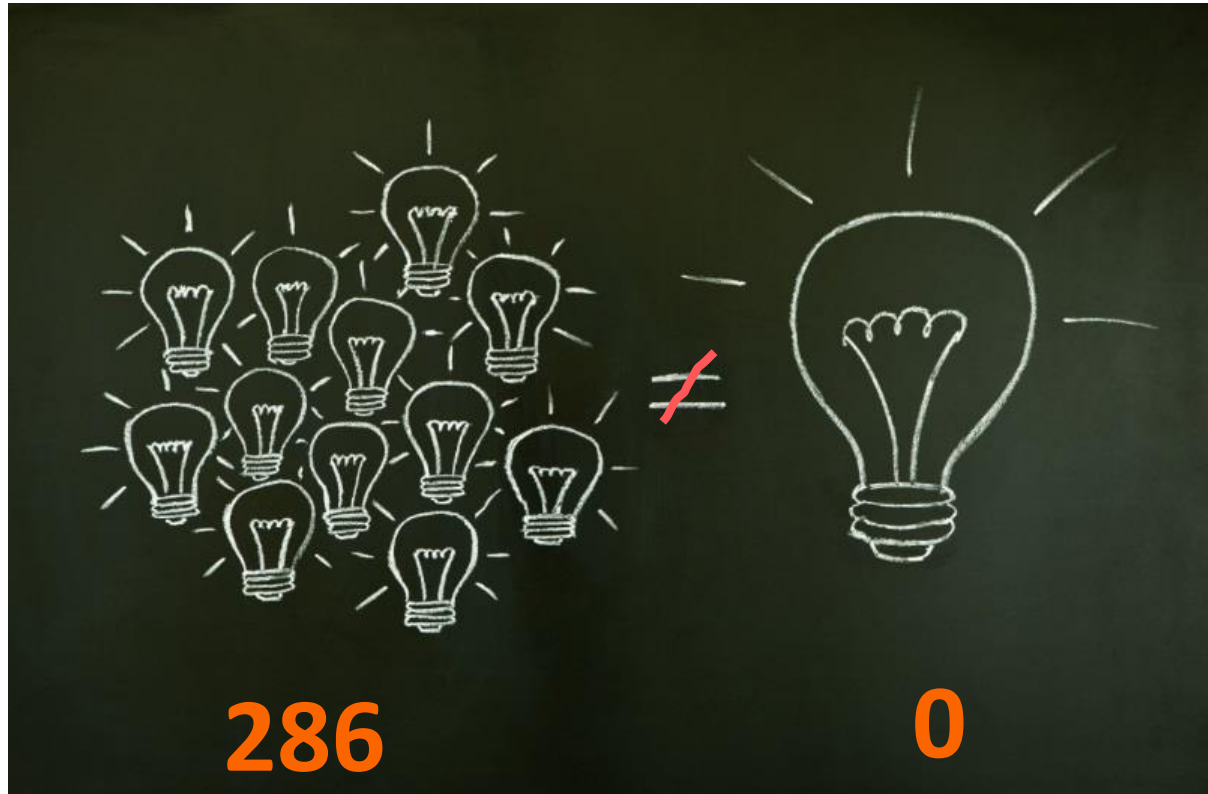
*« Plan for future growth
while maximizing today's impact »*

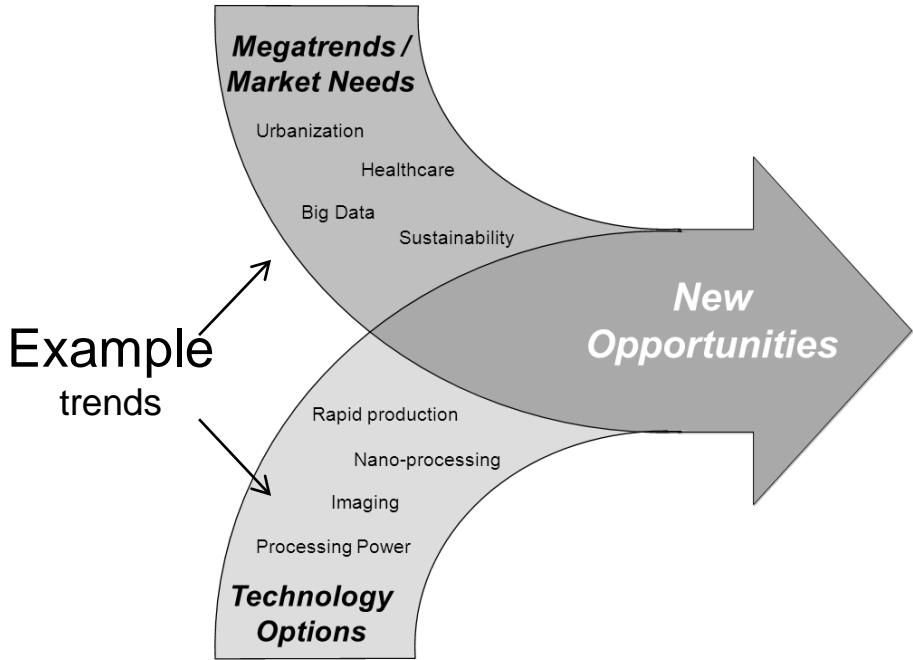
Today's OC presenter: **Raj Nagarajan**, FEI leader



*« Build Innovation Capabilities and
Growth Operations Systems»*

Need **BIG** Ideas Opportunities!

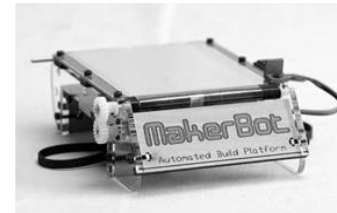




Microsoft Kinect sensing device



Apple iPod



Thing-O-Matic automated build platform by MakerBot

Connecting market opportunities to technology-enabled options

- Balance breadth and focus
Need to look beyond our own industry...
...and at the same time stay relevant



- Many sources, a lot of data -
But still... how do we know we did not miss what matters?



Which Are the Right Opportunities?

- We might have an “idea” but is there a right opportunity?
To “inform” *business decision making*, data/information needs to be framed in the business context
- How do we learn as an R&D organization?
How do we capture what we already know?
Team members have different ideas and assumptions -
how do we share, capture, and... keep track of them?



- Is this Opportunity Real ?
- Can we build a successful business model?
- What capabilities we will need to deliver on it?



Three Central Challenges

SPOT

Establish a robust capability to *spot* new technologies relevant to the company

FRAME

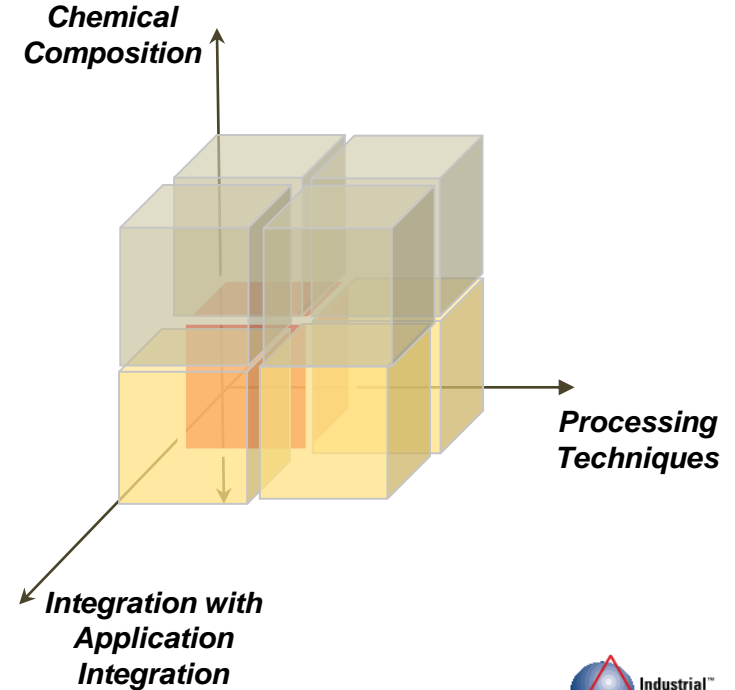
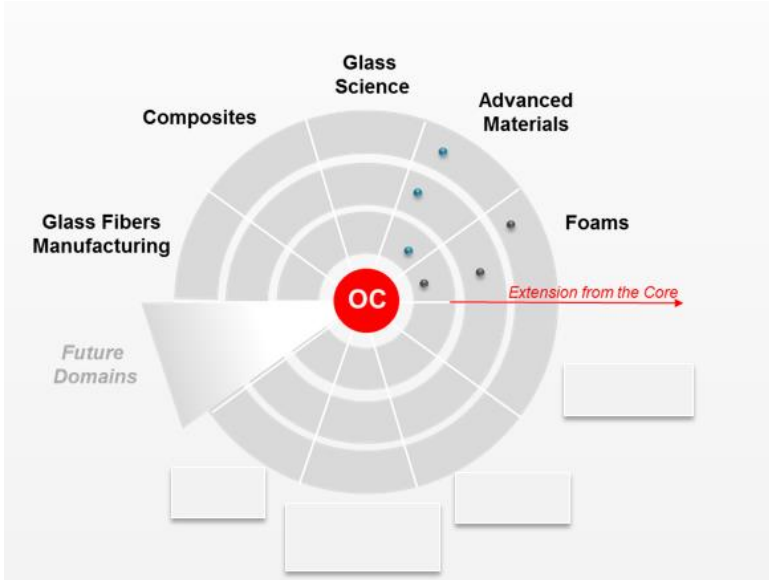
Frame in the strategic business context to generate excitement with the business partners

LEARN

Learn to improve assumptions and build a viable Business Model

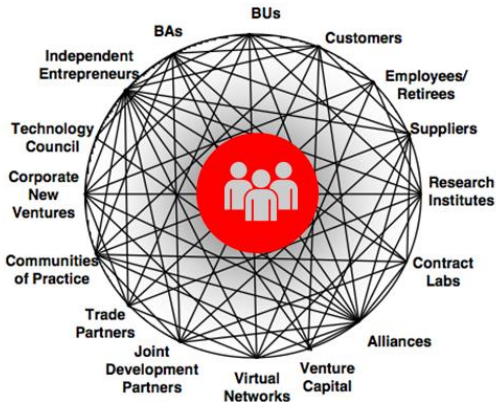
Technology Domain Approach

Company Technology Space is defined in a manner that creates a framework for relating seemingly distant technologies to core competencies



Competency Team of Internal Experts

- Led by Front End of Innovation Group
- Used internal and external sources
- Identified and selected:
 - 11 subdomains outside the core**
 - 24 trending technology areas**

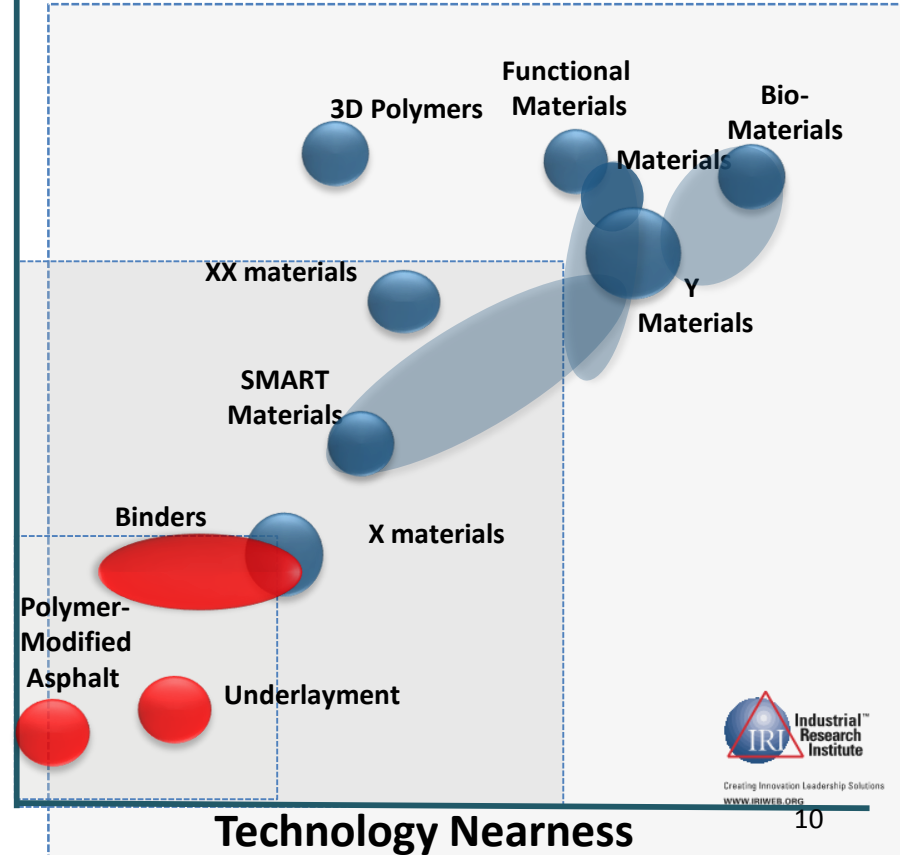


Market Competency

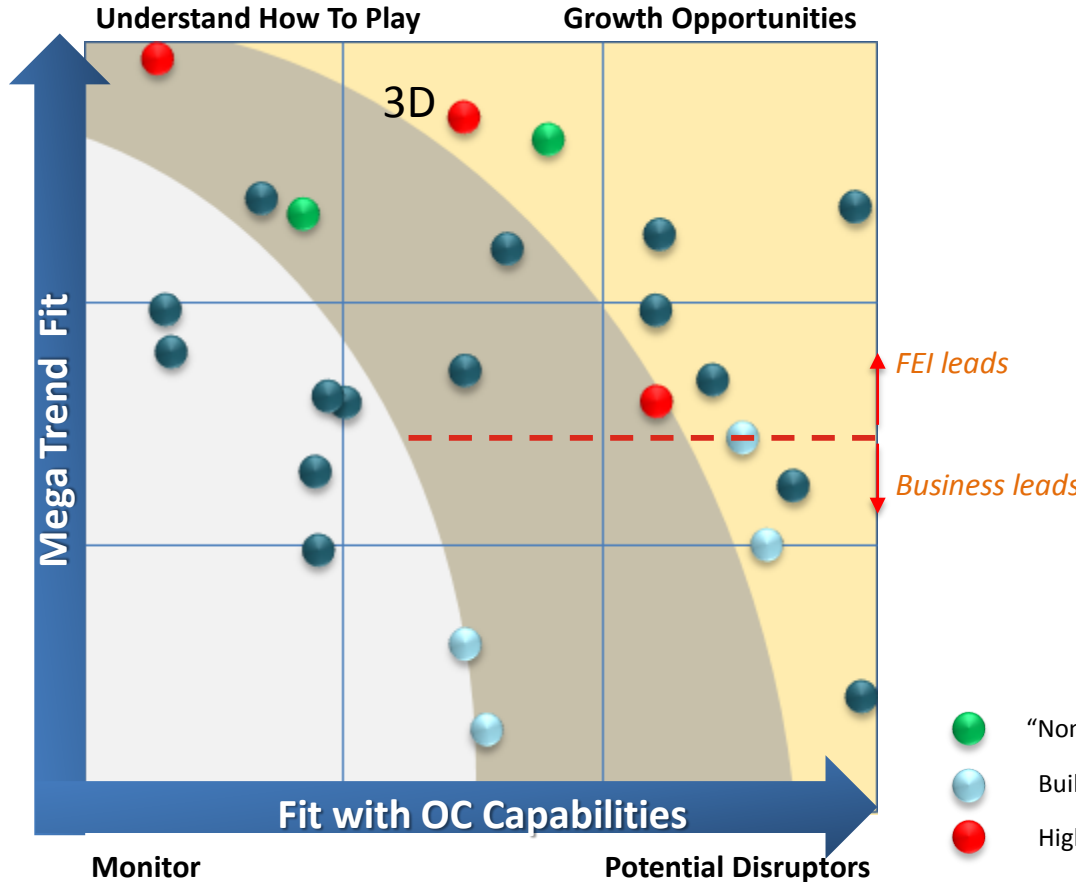
Technology Area	Market Competency	Technology Nearness
3D Polymers	High	High
Functional Materials	High	High
Bio-Materials	High	High
Materials	High	High
Y Materials	High	High
SMART Materials	Medium	Medium
XX materials	Medium	Medium
Binders	Low	Medium
X materials	Low	Medium
Polymer-Modified Asphalt	Low	Low
Underlayment	Low	Low

CORE

ADVANCED MATERIALS



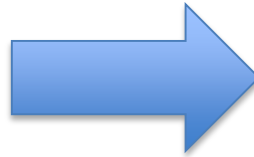
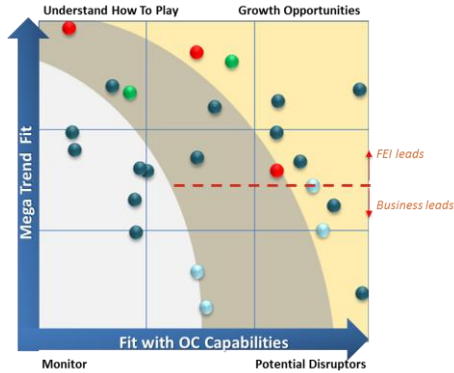
Strategic Fit Map



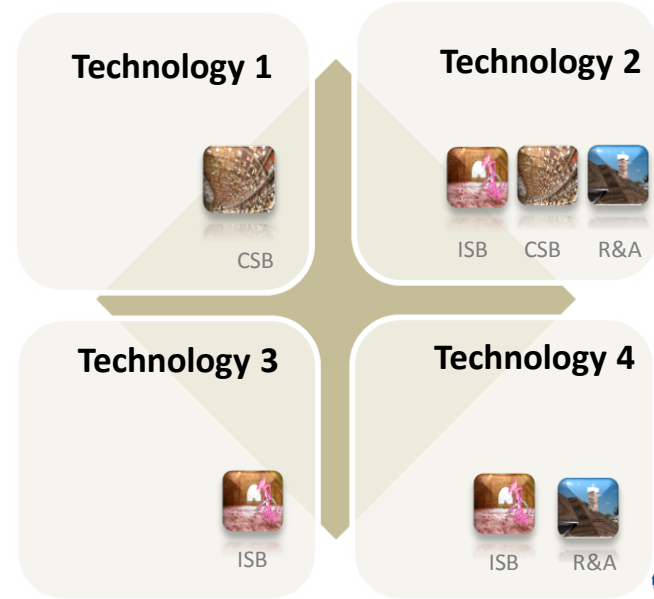
Rational Based on the fit with **4 selected Megatrends** and **OC's ability to exploit Technology**

TECHNOLOGY	MEGATREND FIT				OC FIT
	B	EM	ES	CT	
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Business Decisions with Segments

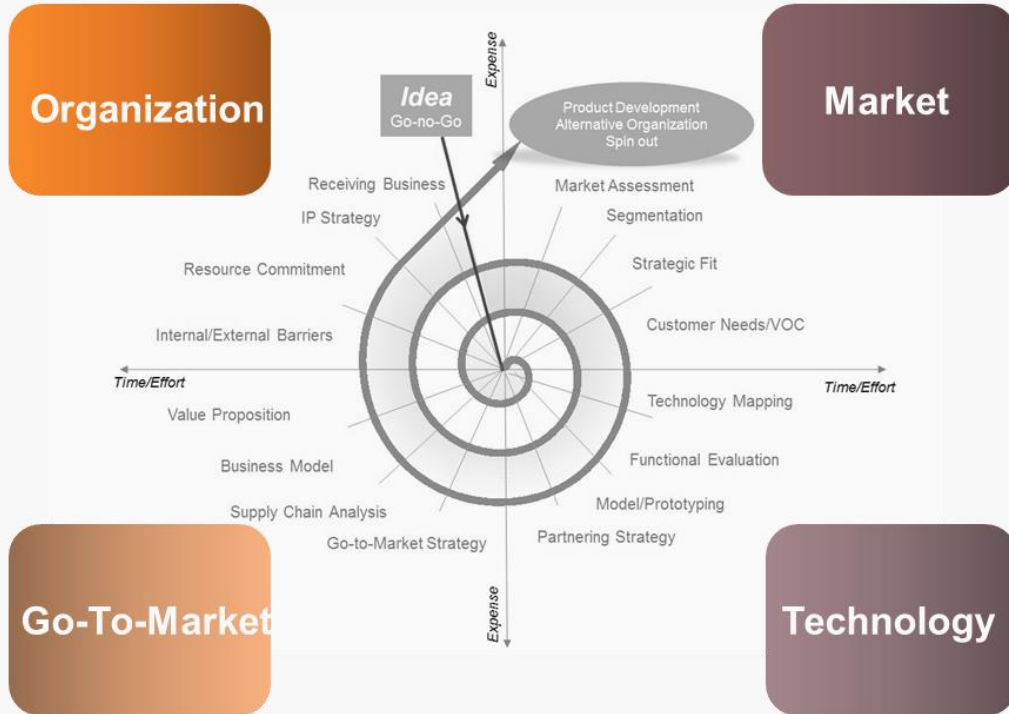


Impact on Segments



Structured Learning Approach

SPIRAL DEVELOPMENT MODEL



Starts with initial business hypothesis

Each Planning Cycle systematically identifies and prioritizes Uncertainties in the four key areas

Provides structure and decision-making framework

From technology scouting.... first, Frame Business Opportunity

Example of 3D -Printing Platform for Owens Corning - back in 2015



Winning aspiration: Create a new Business platform to anticipate composites 3D printing transformation

What do you have to expect when applying “Spiral model” ?

- Requires iterative process to frame hypothesis and improve predictions
- Requires structure and cross-functional teams
- Connecting the dots between learnings and your business strategy is KEY

3D Printable Platform at Owens Corning

Winning aspiration:

Create a new Business platform to anticipate composites 3D printing transformation

Challenges:



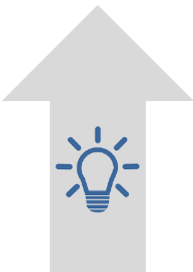
- 1 - Build a team capable of dealing with new Business Models
- 2 - Deal with uncertainties (not easy to do market research on very early emerging market)
- 3 - Be agile, drive light process → “Corporate startup mindset”
- 4 - Communicate learning plans for adoption



Market-Test Development.
To Reduce Uncertainty



Executive Sponsors



Team



Build credibility by presenting an actionable plan and showing the progress

Created short-term action plans to reduce the key uncertainties in the four areas quickly

LEARNING PLAN - example

Dimension	Uncertainty (critical to success)	Action (Specific to reduce uncertainty)	Priority 1,2 and 3
Market / User	What is the Owens Corning addressable market?	Understand the addressable market for automotive (aftermarket), medical and industrial (prototyping)	1
	Are we targeting the right segments?	Refine / complete segmentation exercise. (Big groups of customers with similar needs)	1
	Understanding the specific needs of the segment?	Identify the segment customers and their needs through VOC	1
Technology	How far are we from other solutions with 3D printing? Understand the performance level of the OC technology in 3D printing.	Complete the DOE	1
	Expand the composite offering to include mid range polymers	Codevelop with external company to design/manufacture new printable material	2
Go-to-Market - related to commercialization	What is the optimal business model?	Narrow down the business model depending on the market needs	2
	How would we integrate technology into OC for either making material or part?	Define the technology gap and identify partners to close the gap depending on the business model	3
Organization	Lack of expertise in medical market	Hire a consultant	3
	Lack of resources in marketing	More time needed from XXX chance the marketing side of the work	1



3D Printable Platform at Owens Corning

Outcome: Through the structured approach (spiral model), result in less than 18 months –
made it tangible !

What we did:

- Understood market potential, business and technology ecosystem, value chain
- Developed new printable materials with a partner for “Test & Learn”
- Commercial grades for sale Q2 2017



- Just information won't keep the Business moving!
- For adoption, speak the Business's language
- Structured approach enables building credibility and confidence in the execution
 - talent & leadership

SPOT

FRAME

LEARN

Technology Domain/ Spiral Model approach enables framing & validating new business opportunities with Business Language and focused Learning Plans