“The NC State Collaboratories”

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What We Heard From Our Clients

- Many technical experts lack people management skills; need to improve influence, sales, empathy skills
- The “Speed to Commoditization” is a major challenge facing companies
- Companies need practical tools to help solve business challenges
- Management and technical role development paths exist today and are necessary but not the answer

I-Shaped Employees
- Analytics
- EQ
- Change Leader
NC State Executive Education

<table>
<thead>
<tr>
<th>Services</th>
<th>Topics Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC State Collaboratory</td>
<td>BioPharma, Chemical/Energy, Healthcare, Hi-tech, Military/Gov’t</td>
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<tr>
<td>Virtual Programs</td>
<td>Management, Leadership, Business Plan Development</td>
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<tr>
<td>Custom Programs</td>
<td>Disruptive Innovation, Strategic Leadership, Supply Chain, Finance/Operations</td>
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<tr>
<td>Consortia Programs</td>
<td>Business Growth Innovation, Manufacturing/Operations</td>
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<tr>
<td>Open Programs</td>
<td>Managing Disruptive Innovation, Business Essentials, Big Data</td>
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</table>
## NC State Executive Education

### How Do We Compare To Local Offerings?

<table>
<thead>
<tr>
<th></th>
<th>Open Enrollment Programs</th>
<th>Certificate Programs</th>
<th>Custom Programs</th>
<th>Partnership/Consortia Programs</th>
<th>Virtual Programs</th>
<th>Collaboratory Program</th>
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<tbody>
<tr>
<td>NC State</td>
<td>✓</td>
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<td>University of Virginia</td>
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<tr>
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<tr>
<td>Duke University</td>
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<tr>
<td>Harvard University</td>
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**Note:** The table indicates the availability of programs at each institution.

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*The table above compares the offerings of NC State Executive Education with those of other universities, including the University of Virginia, University of North Carolina, Duke University, and Harvard University.*
NC State Collaboratory Intro

What is its value add?
NC State Collaboratory

What is it?

• A half day dialogue between a diverse group consisting of your organization’s experts and thought leaders from academia, industry, and government.

• A well-defined process model to assist in the management and development of corporate strategy, innovation, leadership, operations and culture.

• A roadmap to the solution to your organizational challenge.
NC State Collaboratory

How is it different?

• Your voice. Our collaboratory process.

• Your internal experts. Our access to a pool of thought leaders.

• Your agenda. Our process and thought leaders.
## NC State Collaboratory

<table>
<thead>
<tr>
<th>Stages</th>
<th>Exec Ed Traditional</th>
<th>Exec Ed Best Practice</th>
<th>Exec Ed Evolved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assess &amp; Design</td>
<td>Company need matches current University offering</td>
<td>Client Needs Assessment and Program Proposal</td>
<td>Collaborative development w/client, faculty and design experts</td>
</tr>
<tr>
<td>Development</td>
<td>Existing Faculty Research/Models</td>
<td>Adaptation/Customization of Successful Past Programs</td>
<td>Built from scratch learning activities based on new research/client initiatives</td>
</tr>
<tr>
<td>Delivery</td>
<td>Face-to-face classroom lectures</td>
<td>Mixture of lecture, case studies, action projects; some distance activities</td>
<td>Learning models based around org and indiv projects; facilitation of project implementation</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Level 1 - participant feedback</td>
<td>Level 1 &amp; 3 - impact on participants and organization</td>
<td>Levels 1-5 - Direct, measureable impact on company</td>
</tr>
<tr>
<td>Post-Program</td>
<td>None</td>
<td>Limited</td>
<td>Workshop is just the beginning of the relationship…</td>
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NC State Collaboratory

How does it help a company?

• Data collection for greater situational awareness

• Define critical areas for investment before hiring a consultant

• Identification of strategic gaps in business model

• Opportunity analysis of market dynamics

• Create a road map for change
What got you here may not get you there.

**Collaboratory Outcomes:**
- Business Model Development
- Disruptive Innovation in the Market
- Global Leadership Development
- Manufacturing Design Innovation
- Multi-location Operations Alignment
- New Product Development Strategy
- Supply Chain Management
NC State Collaboratory Model

What is the established framework?
NC State Collaboratory Model

Corporate Facing Structure

Pre-Event
- Determine need
- Engage with leadership
- Understand current state & organizational goals
- Establish key questions

Collaboratory
- Gather experts and thought leaders
- Engage with key questions using Collaboratory process
- Determine potential solutions and roadmap

Post-Event
- Review Collaboratory outcomes
- Identify action items
- Determine next steps and potential interventions
Role-Play
Collaboratory Challenge #1

Competitive Threat to a Significant Product Line

Organization X’s future revenue stream is seriously at risk after many years of operations. The number one selling product’s technology after 10+ years of industry leadership is being challenged by a new technology that is now available which is less expensive to purchase by your customers.

To resolve will require strategic level changes driven by market changes and technical innovation. Implementation would extend through all levels in the company.

Questions for the group?

- Do you hold the current business strategy with the legacy product or kill it?
- Do you start a new division to allow a separate focus on the new technology?
- Do you split your company to allow a focus on the old and the new technology?
Pre-Event

- Determine need
- Engage with leadership
- Understand current state & organizational goals
- Establish key questions

- MBA Student team conducts a competitive assessment of the industry
  - Disruptive technology changes
  - SWOT and PISTLE analyses
- Customer feedback data on decision-making
- Interviews with internal leaders
Researchers and experts on Product Management

Former product and portfolio management industry leaders

Collaboratory process that provides direction on how to determine Product Management and Organizational strategy

- Gather experts and thought leaders
- Engage with key questions using Collaboratory process
- Determine potential solutions and roadmap
NC State Thought Leaders

Stacy Wood is a Distinguished Professor of Marketing at Poole College and Executive Director of the Consumer Innovation Consortium (CIC). Stacy’s research focuses on how consumers respond and adapt to change or innovation. The CIC delivers state-of-the-art consumer research to corporate leaders in marketing and design innovation.

Jon Bohlmann is an Associate Professor of Marketing at Poole College. Jon’s research examines strategic questions behind successful innovation and new product development, and decision-making processes prevalent in how firms develop new products and make strategic decisions. Before academia, Jon was an engineer in the aerospace industry focused on advanced aircraft design.

Paul Mugge is Executive Director of the Center for Innovation Management Studies. In addition to his work at CIMS, Paul spent 35+ years with IBM, including roles as Partner, Strategy and Change Practice for IBM Global Services; IBM Corporate Director of Development Reengineering, GM and Lab Director, IBM Boca Raton that developed the ThinkPad concept.
Clayton Christensen: companies have “survived disruption, but in every case they set up an independent business unit that let people learn how to play ball in the new game”.

Christensen: these very fortifications become a liability. In the steel industry, which was blindsided by new technology in smaller and cheaper minimills, heavily integrated companies couldn’t move quickly and ended up entombed inside their elaborately constructed defenses.

Michael Porter: all of a company’s activities should be mutually reinforcing. By integrating everything into one, cohesive fortification, “any competitor wishing to imitate a strategy must replicate a whole system”.

Porter: “If Clay and I differ, it’s that Clay sees disruption everywhere, in every business, whereas I see it as something that happens every once in a while,” Professor Porter said. “And what looks like disruption is in fact an incumbent firm not embracing innovation” at all.
Actions Addressing Key Questions

1. Do you hold the current business strategy with the legacy product or kill it?
   - Do we know enough to decide?

2. Do you start a new division to allow a separate focus on the new technology?
   - What best practice insights were there?

3. Do you split your company to allow a focus on the old and the new technology?
   - Can we learn from other companies who have tried this?
Collaboratory Challenge #2

Instilling Innovation in a Manufacturing Culture

Organization Y is a difficult culture for promoting innovation – they don’t have any drive for patent disclosures, innovation process, etc. The PLM process is primarily driven by IEEE/ANSI standards and following the slow zigs and zags of competition.

One idea to start is presenting the portfolio roadmap to major customers for feedback – but this has never been done.

Questions for the group:
1. How to instill Innovation into the organizational culture
2. How to engage customers in the process of innovation investment planning
Pre-Event

- Determine need
- Engage with leadership
- Understand current state & organizational goals
- Establish key questions
Researchers and experts on Innovation Process

Former manufacturing industry leaders

Process that links IMMA outcomes with other corporate data

Collaboratory process that provides direction on how to change a culture to one that values and rewards innovation

Best practices and pitfalls of engaging customers in innovation planning
NC State Thought Leaders

Paul Mugge is Executive Director of the Center for Innovation Management Studies. In addition to his work at CIMS, Paul spent 35+ years with IBM, including roles as Partner, Strategy and Change Practice for IBM Global Services; IBM Corporate Director of Development Reengineering, GM and Lab Director, IBM Boca Raton that developed the ThinkPad concept.

Fred Renk was vice president at MeadWestVaco’s (MWV) Center for Packaging Innovation. Today, Fred Renk works with researchers developing the TEC Algorithm, a new, highly effective method of deciding which promising technologies to commercialize and which to pass on.

Lee Clark-Sellers is an Industrial Fellow at CIMS and Innovation Officer at PlyGem Inc. Lee formerly provided innovation guidance at Nortel as Senior Director of Innovation Services R&D and Director of R&D Investment Strategy.
Define Road Map from ‘Ad hoc’ to ‘Optimized’

1. **Ad hoc** - Initial state; results from having no concerted focus on innovation.

2. **Defined** - Organization makes innovation a strategic imperative; resources are dedicated to improving the firm’s IM proficiency.

3. **Managed** – Manager’s actions reinforce the desired new behavior; their goal is to institutionalize the new innovation business model.

4. **Leveraged** - Synergies occur; company involves people / competencies from outside the boundary of the firm.

5. **Optimized** - New innovation model is fully internalized; business results are repeatable and predictable (This state represents CIMS knowledge of leading IM practice).

Post-Event

- Review Collaboratory outcomes
- Identify action items
- Determine next steps and potential interventions
A Network of Cross-Disciplinary Experts

**NC State Groups:**

- Biomanufacturing Training and Education Center
- Biosciences Initiative
- Center for Innovation Management Studies
- Consumer Innovation Consortium
- Enterprise Risk Management
- NC State Executive Education
- Virtual Computing Lab
- Shelton Leadership Center
- Supply Chain Resource Consortium
- The Energy Solutions Team
- The Entrepreneurship Collaborative
- Textiles Extension Education

**Our Corporate Partners:**

- IBM
- SAS
- Caterpillar
- Cisco
- Biogen Idec
- Nortel
- Red Hat
- i-Cubed
- Blue Cross Blue Shield of North Carolina
Collaboratory Examples
How Impactful is The Collaboratory Process?
## Recent Collaboratory Events

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<th>Client</th>
<th>Collaboratory Description</th>
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<tbody>
<tr>
<td>Fortune 100 Client</td>
<td>• <strong>Request</strong>: address significant decline in the primary business service&lt;br&gt;• <strong>Design</strong>: NC State research center helped re-designed the Product Management structure based on assessment of the current organization and workshops with senior leaders</td>
</tr>
<tr>
<td>Manufacturing Organization</td>
<td>• <strong>Request</strong>: help integrating newly acquired plants, and development of a new network management model&lt;br&gt;• <strong>Design</strong>: Research on the various plant S&amp;OP models and integration seminars at both corporate and plant level (including finance, operations and supply chain sessions)</td>
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| Fortune 50 Client       | **Request**: develop a business service for clients, leveraging new data analytics processes  
|                          | **Design**: NC State researchers assisted in creation of a new consultative solution model that works with clients to develop new business offerings |
| Manufacturing Plant     | **Request**: address significant increase in the diversity of products & need for change in operational processes  
|                          | **Design**: workshop with plant leaders and thought leaders across NC State’s business, engineering, biomedical and industrial operations led to innovation and improvement options |
Thank You

For more information please contact Dan McGurrin:
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