A Presentation to the
First Global Leadership Forum for CEM Programs
At Purdue University

The College of Architecture at
Texas A&M University
At-A-Glance

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Dean

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Howdy from Ajman, UAE...!
College of Architecture
Differential Tuition Proposals FY 2012

Vision
Is about a higher quality of life for PEOPLE (individuals, families, communities, & public/private organizations), and a higher quality of PLACE (natural, built, & virtual), where they live, work, serve, learn, heal, play, buy, interact, and more...
Talent +
(Development and Maintenance of Technical, Interpersonal, Communications, Leadership, Management, Thinking, Learning, and Technological Skills, Abilities, & Competencies)

Infrastructure =
(Processes, Mechanisms, and Resource Base for Learning/Teaching, Research/Creative Work/Scholarship, Engagement, Integration in Theory & Practice, Pluridisciplinarity, Discovery/Knowledge Creation, Expanded Scholarship, and Technology)

Capacity for Impact
(Individuals, Families, Communities, Organizations in the Public & Private Sectors, Society, and the World)
... With a focus on five primary thrust areas within our academic mission...
Sustainability
Is about the development of robust tools to assess the effectiveness, efficiency, vulnerability, and resiliency of real-world ecosystems across temporal and spatial scales, from regional/urban to facility scales.

Health
Is about the development of evidence-based design strategies and guidelines to ameliorate the negative impact of the natural and physical environment on health and safety, also across temporal and spatial scales, from regional/urban to facility scales.
Visualization

Is about the creation of a commorancy where art, science, and technology enable visually-mediated understanding of natural, built, and virtual environments.

Integration

Is about pursuing the elusive goal of integration
(a) in Academia;
(b) in Theory; and
(c) in Practice...
Integration
Integration in Academia…

Transdisciplinarity

Integrated
Academic Missions &
Learning Environments

Pluridisciplinarity

Expanded Scholarship

Knowledge Creation
First:

CARC initiatives follow a paradigm of pluridisciplinarity...

Disciplinarity, multidisciplinarity, interdisciplinarity, crossdisciplinarity, and transdisciplinarity are like five arrows shot from but a single bow: unity of knowledge
We pursue…

Questions,

Problems,

Needs,

Opportunities,

Aspirations…

How we do it, varies…

Disciplinarity

Question
Problem
Need
Opportunity
Aspiration in the
Natural, Built,
or Virtual
Environments

Discipline
Boundary

Solid Theoretical
Foundation

Depth
**Pluridisciplinarity** is concerned with the study of a Q/P/N/O/A, not in only one discipline, but in several at the same time.

**Multidisciplinarity**

- Question
- Problem
- Need
- Opportunity
- Aspiration in the
  - Natural, Built, or Virtual Environments

Diagram showing interactions between disciplines A, B, C, D, and E.
**Second:**

**CARC initiatives follow a paradigm of integrated academic missions and integrated learning environments, built upon a foundation of transdisciplinarity...**
Learning/Teaching

Teaching what is researched

Researching what is taught and how

Taking to Practice what is taught

Engagement (Practice, Outreach, and Service)

Teaching what is being practiced

Research/ Creative Work/
Scholarship

Taking to Practice what is researched

Researching what is being practiced

Enhanced Learning Experiences (1)

Through Integrated Learning/Teaching & Research/Creative Work

Enhanced Learning Experiences (2)

Through Integrated Learning/Teaching & Engagement

Enhanced Learning Experiences (3)

Through Integrated Research/Creative Work & Engagement

Transdisciplinarity

Transdisciplinarity
Third:

CARC initiatives follow a paradigm of discovery and knowledge creation to move from the Baseline of what is, to a Vision of what can be, also built upon a foundation of transdisciplinarity...

From what is...

DRIVERS

Questions,
Problems,
Needs,
Opportunities,
Aspirations...

Transdisciplinarity
To what can be...

Answers, Solutions, Satisfaction, Realization, Fulfillment...

Transdisciplinarity

Through...

DRIVERS

OUTCOMES

Current State (Status Quo)

Future State (Vision)

External Context

Internal Context

RD4E

Transdisciplinarity
Fourth:

CARC initiatives follow a paradigm of expanded scholarship, also built upon a foundation of transdisciplinarity...
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Expanded Vision of Scholarship in CARC

Teaching (contextual)

Application (contextual)

Discovery (disciplinary)

Engagement (contextual)

Discovery (disciplinary)

Integration

Disciplinary Depth Within the Knowledge Domains in each College Unit

Departments, Centers & Institutes, and Other Sources of Scholarship within the College (Well Rounded Foundation)

Transdisciplinarity

... At a global scale...

Through strategic alliances and partnerships... ... and...
Integration
Integration in Theory, among disciplinary areas of focus within CARC...

Integrated Regional Planning
Integrated Urban Planning and Design

Integrated Land Development
Integrated Facility Delivery
(Planning, Design, and Construction)

Integrated Facility Management
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Integration
Integration in Practice, among disciplinary areas of focus within CARC...
Integrated Business Practices

Integrated Project Delivery
Integrated High Performance Teams

Integrated Design Processes
Integrated Procurement/Construction Processes

Integrated Technologies
Technology

Is about the development of technologies that support integration in academia, in theory, and in practice, and also, it is about the implementation of interoperability among them.
BIM

Framing BIM...

Building Information MODELING

AEC Industry, Education, & Research

Institutional Context
For the AEC Industry and Academic Programs (Practice, Education, and Research)

Compatibility

Building Information MODELING

BIM Platform

(source: FIATECH; http://www.fiatech.org)

(Inspired by M. Vorster)
BIM - A
To use information modeling/models to **accelerate** the drawing production processes...

BIM - B
To exchange data with partners to **transform** business...
Downstream of Design: Life Span Costs and Benefits of Building Information Modeling

To smooth supply chains for **industry-wide** transformation...

And the future for **CARC**...?
It begins with…

CARC’s Academic Mission:
- Learning/Teaching
- Research, Creative Work, and Scholarship
- Engagement (Practice, Outreach, & Service)

Embedded within…

An Integrated Discovery & Knowledge Generation Continuum:
1. Benchmarks & Baselines
2. Visions & Desired Outcomes
3. Research
4. Development
5. Demonstration
6. Deployment
7. Dissemination
8. Evaluation
An Engagement Continuum with Relevant Sociotechnical Groups:

1. Building science investigators
2. Social science investigators
3. Land & real estate development specialists
4. Planning & AE design specialists
5. General contractors & specialty subcontractors specialists
6. Facility managers specialists
7. Visualization specialists
8. Policy/Code-makers
9. Utilities/Service providers
10. Technology, equipment, products, and materials manufacturers
11. Financial institutions
12. Educational institutions

In turn, within...

Creating over time...
Creating over time...

Benchmarks & Baselines

Time

Visions & Desired Outcomes

Leading to...

(1) Innovative Sustainable Products for the Natural, Built, and Virtual Environments

(2) Innovative Sustainable Processes for the Natural, Built, and Virtual Environments

(3) Innovative Sustainable Business Models for the Delivery of Innovative Products and Processes for the Natural, Built, and Virtual Environments

(4) Innovative Barrier Breakers, Obstacle Removers, and Enablers for the Implementation of Innovative Sustainable Products, Processes, and Business Models for the Natural, Built, and Virtual Environments
... To enable our vision:

A higher quality of life for **PEOPLE** (individuals, families, communities, & public/private organizations), and a higher quality of **PLACE** (natural, built, & virtual), where they live, work, serve, learn, heal, play, buy, interact, and more...

Thank you...
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