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Florida Polytechnic University

What the new Board of Trustees was asked to do...........

Understand

- Adopt a previous plan
- Modify a previous plan
- Design a new plan
After closing the transfer in October............we have been doing the following

- Agreeing on a definitive mission statement
- Creating a business plan that includes programmatic focus, an operating model, and organizational infrastructure
- Accumulating the requisite research and testing the veracity of the model assumptions and timelines against demand, Access & Attainment, peers
- Designing the execution of the academic, operations, facilities, marketing, and foundation objectives
- Costing and funding the model assumptions
- Defining and measuring success
- Making the final decisions and preparing for execution
Trends affecting industries and workforces are creating products, services, and careers that did not exist a decade ago.....
In order for Florida to compete in a globally connected market we must “future proof” our economy.

Florida needs more industries focused in the growth sectors.....

High growth industries are innovative
- Clean Tech
- Life Sciences
- Info Tech
- Aerospace
- Global Logistics
- Defense
- Professional Services
- Emerging Tech
- Advanced Manufacturing
- Cyber Security
- Control Systems
- Alternative Energy

...and they need labor, capital, and infrastructure to stay, come, or start in Florida.
So Why does a Polytechnic focused in applied STEM meet the challenge

Uses cognitive thinking to develop new principles and recognize new relationships

Uses STEM theories and techniques (modeling and computational) to form and solve practical problems

Understanding STEM principles of math, life and physical sciences, engineering, and technologies.
STEM can’t be just a program........ it must be a philosophy in order to produce innovation
STEM Models – Introduction

Globally, STEM-focused institutions fall into three broad groupings based on their mission and focus.

| 1 | Global Research Institution |
|   | **Primary Customer** | Faculty / Academia |
|   | **Description** | Known for high research funding and high quality faculty |
|   |                    | Receive high rankings on research dimensions |
|   |                    | Typically focused on Doctoral degrees |

| 2 | Elite Undergraduate Institution |
|   | **Primary Customer** | Students |
|   | **Description** | Very selective (high admission requirements) |
|   |                    | Produce graduates who are hired into top firms |
|   |                    | Typically focused on Bachelor’s and Master’s degrees |

| 3 | Industry-Engaged Institution |
|   | **Primary Customer** | Employers and Economy |
|   | **Description** | Closely aligned to industry |
|   |                    | Higher proportion of faculty come from industry |
|   |                    | Emphasis on applied, hands-on learning and co-ops / apprenticeships for students |
STEM Models – Methodology

We used the following criteria to determine the primary focus of STEM institutions:

**Initial Filter: Degree of STEM Focus**
- “STEM-Focused Schools”: 50% or more of graduates complete degrees in STEM
- “STEM Production Schools”: Have more than 2,500 students complete STEM field degrees each year

**Inputs**

1. **Global Research Institution**
   - **US**: Lombardi rankings (top 25)
   - **International**: Times Higher Education rankings (top 100 under 50)

2. **Elite Undergraduate Institution**
   - Median SAT scores (in the top 25 on the Lombardi measure)
   - US News & World Report rankings (in the top 25)

3. **Industry-Engaged Institution**
   - Qualitative assessment of ties to industry (mission of institution, student experience, faculty background and focus)

**National Examples**

- **Caltech**
  - MIT, Stanford, Georgia Institute of Technology, University of Michigan

- **Olin College**
  - Harvey Mudd, Carnegie Mellon, Rensselaer Polytechnic Institute

- **Polytechnic (Canada)**
  - Virginia Tech, Colorado School of Mines, Univ. of Maryland – Baltimore County

**International Examples**

- **POSTECH**
  - ETH Zurich (Switzerland), Korea Advanced Institute of Science & Technology (Korea), Cranfield University (UK)

- **IIT (India)**
  - Bandung Institute of Technology (Indonesia). Model not typically found in Western Europe

- **TTI (Japan)**
  - Polytechnics Canada, Duale Hochschule Baden-Wurtemberg (German), Aston Univ. & Derby/ Rolls Royce (UK)
We used the following criteria / metrics to identify STEM-focused institutions:

**Initial Filter: Degree of STEM Focus**

- **“STEM-Focused Schools”**: 50% or more of graduates complete degrees in STEM
- **“STEM Production Schools”**: More than 2,500 students complete STEM field degrees each year

### 35 Institutions - At least 50% Completions in STEM

- Rensselaer Polytechnic Institute
- Stevens Institute of Technology
- Polytechnic Institute of NYU
- Missouri U. of Science and Tech.
- Rensselaer Polytechnic Institute
- Stevens Institute of Technology
- New Jersey Institute of Technology
- Carnegie Mellon University
- Georgia Institute of Technology
- California Institute of Technology
- United States Naval Academy
- Colorado School of Mines
- Michigan Technological University
- Polytechnic Institute of NYU
- Kansas State University
- Colorado Polytechnic Institute
- Stevens Institute of Technology
- New Jersey Institute of Technology
- Carnegie Mellon University
- Massachusetts Institute of Technology
- Georgia Institute of Technology

### 17 Institutions - At least 2,500+ STEM Completions

- Arizona State University
- Virginia Tech
- University of Minnesota
- Ohio State University-Main
- University of Washington-Seattle
- UCLA
- University of Wisconsin-Madison
- University of California-San Diego
- University of California-Berkeley
- North Carolina State University
- U of Illinois at Urbana-Champaign
- Purdue University
- The University of Texas at Austin
- University of Michigan-Ann Arbor
- University of Florida
- Texas A & M
- Pennsylvania State University
University-Industry Partnership Continuum
Levels of involvement can vary significantly from employer to employer, and range from “transactional relationships” to “strategic alliances”

<table>
<thead>
<tr>
<th>LEVEL OF ENGAGEMENT</th>
<th>LOW (“Transactional”)</th>
<th>MEDIUM (“Collaboration”)</th>
<th>HIGH (“Alliance”)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Recruitment/Job Placement</td>
<td>Career Fairs</td>
<td>Company Seminars</td>
<td>Internships</td>
</tr>
<tr>
<td></td>
<td>Job Interviews</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 Experiential Teaching &amp; Learning</td>
<td>Employers in Advisory Capacity</td>
<td>Curriculum Development Assistance</td>
<td>“Executive in Residence” Programs</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Course Teaching</td>
<td></td>
</tr>
<tr>
<td>3 Lifelong Learning</td>
<td>Employee Tuition Reimbursement</td>
<td>Access to University Resources (e.g., library)</td>
<td>Employers as Significant Pipeline of Students (B2B Recruitment)</td>
</tr>
<tr>
<td>4 Advancement of Research</td>
<td>Material Transfer Agreements</td>
<td>Faculty Consulting</td>
<td>Sponsored Research</td>
</tr>
<tr>
<td></td>
<td>Access to Industry Equipment &amp; Space</td>
<td>Sponsored Clinical Trials</td>
<td>Joint Applications for Funding</td>
</tr>
<tr>
<td>5 Economic Development/Tech Transfer &amp; Commercialization</td>
<td>Business Seminars &amp; Conferences</td>
<td>Start-up Assistance (Facilities, Advice)</td>
<td>Start-up Assistance (Capital)</td>
</tr>
<tr>
<td></td>
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<td>Tech Transfer/Patent Licensing</td>
<td>Joint Econ. Dev. Initiatives</td>
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</tbody>
</table>
## Florida Polytechnic University

### Program Decision Matrix – Interdisciplinary and Other Programs

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Statewide</td>
<td>None offered</td>
<td>None offered</td>
<td>None offered</td>
<td>None offered</td>
<td>None offered</td>
<td>None offered</td>
<td>None offered</td>
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<td>None offered</td>
<td>None offered</td>
<td>None offered</td>
<td>None offered</td>
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<tr>
<td>National</td>
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<tr>
<td>Employer Demand</td>
<td>Statewide</td>
<td></td>
<td>Enterprise Florida Industry Cluster; Strategic Area of Interest</td>
<td>National</td>
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<tr>
<td>Costs</td>
<td>Operating</td>
<td></td>
<td>Capital / Start-Up</td>
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<tr>
<td>Competition</td>
<td>Polytechnics Outside of Florida</td>
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<tr>
<td>Potential for Online Instruction</td>
<td>Green = High Potential Yellow = Need for Hybrid (labs)</td>
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<tr>
<td>Consultant Comments</td>
<td></td>
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<tr>
<td>Availability to Recruit</td>
<td>Green = Achievable Red = More Challenging</td>
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<tr>
<td>Board of Governors</td>
<td>Access &amp; Attainment Commission</td>
<td></td>
<td>BS</td>
<td>BS</td>
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<tr>
<td>Program Recommendation Memo</td>
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</tr>
</tbody>
</table>

*FDOE Crit for Shortage

*Assumes assistance core
Florida Polytechnic University

We believe, that with a little more work, our plan.....

- Provides an educational response to the challenges Florida industries are facing in the globally competitive marketplace...with a substantially applied STEM focus in an industry engaged model.

- Can be executed, funded, and monitored in phases, in order to assure all stakeholders that a justifiable result on investment is being achieved before commencing the subsequent phases.

- Makes a definable statement that Florida intends to be competitive in designing, facilitating, and managing innovation as derived from STEM.
Funding Sources For New Lakeland Campus and IST Building Construction (In Millions)

- State E&G Appropriations $42
- State General Revenues $4
- Donations and Pledges $21
- State Public Education Capital Outlay $67
Florida Polytechnic University
Lakeland FL New Campus - View Looking South

Innovation, Science & Technology Building

Main Entrance

February 28, 2013
## Funding The Polytechnic University Through Start Up

(In Millions)

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Activity</th>
<th>Annual</th>
<th>Cum.</th>
<th>What This Money Bought / Will Buy</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>Closing costs were funded from General Revenues when private firm donated land</td>
<td>$4</td>
<td>$4</td>
<td>3 tracts of land, comprising a total of 531 acres. Tract for main campus is 171 acres.</td>
</tr>
<tr>
<td>2007</td>
<td>PECO funding</td>
<td>2</td>
<td>6</td>
<td>Started engineering and design</td>
</tr>
<tr>
<td>2007</td>
<td>Campus’ main road funds pledged</td>
<td>10</td>
<td>16</td>
<td>Perimeter road cost reimbursements will arrive from Polk County in 3 annual installments, starting in the future once the road construction begins</td>
</tr>
<tr>
<td>2009</td>
<td>PECO funding</td>
<td>15</td>
<td>31</td>
<td>Land clearing, almost all of the engineering and design of the IST building and campus infrastructure funded</td>
</tr>
<tr>
<td>2009</td>
<td>County agencies donated funds for future construction of IST building and campus</td>
<td>11</td>
<td>42</td>
<td>Contribution for IST building and campus infrastructure</td>
</tr>
<tr>
<td>2010</td>
<td>Excess E&amp;G funds reserved by USFP</td>
<td>3</td>
<td>45</td>
<td>Final engineering/design costs now funded for IST building</td>
</tr>
<tr>
<td>2011</td>
<td>PECO funding</td>
<td>11</td>
<td>56</td>
<td>Continue funding for construction of IST building</td>
</tr>
<tr>
<td>2011</td>
<td>Excess E&amp;G funds reserved by USFP</td>
<td>8</td>
<td>64</td>
<td>Continue funding for construction of IST building</td>
</tr>
<tr>
<td>2012</td>
<td>PECO funding put in place for final funding and IST building and utility plant construction</td>
<td>35</td>
<td>99</td>
<td>IST building construction, parking lot; chilled water system, communications hub; buildings to be completed by May 2014</td>
</tr>
<tr>
<td>2012</td>
<td>Excess E&amp;G funds reserved by USFP</td>
<td>10</td>
<td>109</td>
<td>Stormwater control system, utilities in ground, begin perimeter road construction</td>
</tr>
</tbody>
</table>

### WE ARE HERE NOW in March 2013

- **2014**: Future E&G funds need to be pledged as construction funds NOW in order to outfit and the IST building and complete the campus infrastructure construction as mandated by Legislature
  - **$25**
  - **$134**
  - Purchase for the IST building the laboratory and classroom technology, plus F&R&E
  - Complete the perimeter road, infrastructure, student pathways, install landscaping and add parking lots
  - Fund the construction contingency

- **May 2014**: IST building construction complete and August 2014 Campus infrastructure construction complete

- **2014**: E&G funds needed to establish and build and the curriculum, hire permanent staff and faculty, prepare for first enrollment
  - Permanent staff, interim staff, and start up consultants and operating costs

- **2014 and 2013**: Source of funds needed to develop student center / dining hall on campus and Source of funds needed to develop residential housing on campus
  - Place for students, faculty and staff to eat
  - Place for students to live on campus
SACS Accreditation

Timeline

February 2013: Florida Polytechnic University representatives initiated the accreditation process by attending the required Pre-Applicant workshop. The University and SACS established proper contacts.

March 2013: Commence preparation of the initial application to SACS.

August 2014: Enroll first class of students.

September 2014: Submit application to SACS.

December 2014: Achieve SACS candidacy status.

Spring 2016: Graduate first class of students.

December 2016: Achieve initial grant of accreditation.