R&I Briefing
on Long Range Plan & Metrics

VASSILIS L. SYRMOS
VP FOR RESEARCH AND INNOVATION
Five-Year Plan

By 2020, achieve $525 million in annual extramural awards
Five-Year Plan

Begin building the foundation for an innovation ecosystem in Hawai‘i by

• Taking a more active role in commercializing and enhancing UH research
  • Hawai‘i Innovation Initiative: Partnership between UH and the business community to build a thriving research enterprise through the growth of new industries fueled by UH research.
  • Research Growth Initiative: Create organized efforts in the areas of excellence and target new opportunities for growth.
  • Training the Science Technology Engineering & Math (STEM) workforce by integrating innovation seamlessly in the curriculum. Examples: PACE, PCATT, XLR8UH, i-Lab, Technology Showcases (OTTED).
Challenges

Identifying and removing administrative and policy barriers that impede research

Achieving financial stability for research under declining state investment

Aligning faculty recruitments to our research growth plan to maintain a world-class institution of higher education

Crafting internal incentives and rewards for growth

Communicating the value of UH research and its critical role in Hawai‘i’s economic development, job creation and addressing issues facing Hawai‘i and the world
Current productivity measures

Total extramural funds received

Number of invention disclosures, patents, and licenses/options issued

Number of start-up companies created

Number of STEM degrees awarded
Invention Disclosures
US Patents Issued
License/Option Agreements Executed
Start-up Companies Created

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>No data</td>
<td>0</td>
</tr>
<tr>
<td>2011</td>
<td>No data</td>
<td>1</td>
</tr>
<tr>
<td>2012</td>
<td>No data</td>
<td>2</td>
</tr>
<tr>
<td>2013</td>
<td>No data</td>
<td>3</td>
</tr>
<tr>
<td>2014</td>
<td>No data</td>
<td>3</td>
</tr>
<tr>
<td>2015</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
## FY 2015 Targets and Actual

<table>
<thead>
<tr>
<th>Metric</th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extramural funds received</td>
<td>$412 million</td>
<td>$425 million</td>
</tr>
<tr>
<td>Invention disclosures made</td>
<td>36</td>
<td>50</td>
</tr>
<tr>
<td>US patents issued</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Licenses/options executed</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Start-up companies created</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>STEM degrees awarded system-wide</td>
<td>1,273</td>
<td>Currently, not available</td>
</tr>
</tbody>
</table>
FY 2016 Targets

<table>
<thead>
<tr>
<th>Metric</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extramural funds received</td>
<td>$432 million</td>
</tr>
<tr>
<td>Invention disclosures made</td>
<td>37</td>
</tr>
<tr>
<td>US patents issued</td>
<td>10</td>
</tr>
<tr>
<td>Licenses/options executed</td>
<td>4</td>
</tr>
<tr>
<td>Start-up companies created</td>
<td>1</td>
</tr>
<tr>
<td>STEM degrees awarded system-wide</td>
<td>1,328</td>
</tr>
</tbody>
</table>
What other universities track as metrics

Commercial/financial

• Royalty revenue received
• Leverage ratio of extramural dollars to appropriated dollars (e.g., $3 for every $1 of appropriated funds)

Faculty productivity/involvement

• Research expenditures per tenured/tenure track faculty
• Number of awards per tenured/tenure track faculty
• Number of Nobel laureates or other prestigious awards/academy memberships
What other universities track as measures

Student involvement/achievement

- Number of graduate degrees awarded
- Number of PhDs awarded

Facilities usage

- Research expenditures per square foot
STAR Metrics

Was a federal and university demonstration pilot to measure impacts of federally funded research; grew out of American Reinvestment & Recovery Act (ARRA) reporting requirements

Phase I looked at measures such as

• Direct jobs paid (incl. % of FTE paid from grants)
• Direct payments to vendors and subawardees
• Estimated jobs paid from F&A recovery
What should we track?

QUESTIONS/CAVEATS

• Is it an appropriate measure for a long-term goal we are trying to achieve?
• Is there a standard or generally accepted methodology?
• Is there an external or internal benchmark?
• Does the data exist in our systems?
• Do we understand what the data means?
• Will the data be used for corrective action?
Suggestions

Royalty revenue

Research expenditures per tenured/tenure track faculty

Expenditures per square foot

Consider little STAR Metrics where local based jobs, vendors and subawardees show direct impact of grant activity in Hawai'i

Research administration metrics (e.g. award setups, contract negotiations, cost transfers, etc.)
Royalty Revenue
Total R&D Expenditures per Tenured/Tenure Track Faculty (UHM)