The long road towards Mexican research universities of excellence: The case of Monterrey Institute of Technology’s main campus

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The University of Arizona

Why Monterrey Tech?

http://www.conahec.org
http://www.arizona.edu
Mexican Higher Education: A brief historical snapshot

1903: Foundation of the Real and Pontifical University of Mexico

1923: Granting of constitutional autonomy to UASLP

1935: Founding of the first private university (UAG)

1940-50's: Establishing of state universities

1970's: Towards a mature system (Diversification, Planning-Evaluation, Q.A., Internationalization)

1980's: First wave of massification of higher education

2000's: Expansion and diversification

HTTP://WWW.CONAHEC.ORG
HTTP://WWW.ARIZONA.EDU

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11/8/2009

Salmi’s Model of World-Class University

Source: Salmi (2009)

Salmi’s Model of World-Class University

Source: Salmi (2009)
What is first?

for the record, I came first.

www.McSpaceGraphicsandAnimations.com

ecosystem

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### The State of Nuevo Leon

<table>
<thead>
<tr>
<th>INDICATOR</th>
<th>Value</th>
<th>State of Nuevo León</th>
<th>Average or % of national level</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>Million</td>
<td>4.3</td>
<td>4.08</td>
<td>8</td>
</tr>
<tr>
<td>Rural population</td>
<td>%</td>
<td>5.7</td>
<td>23.5</td>
<td>33</td>
</tr>
<tr>
<td>Yearly migration to the U.S. (3)</td>
<td>inhabitants</td>
<td>33 066</td>
<td>1.2</td>
<td>17</td>
</tr>
<tr>
<td>Population with upper secondary education</td>
<td>%</td>
<td>20.9</td>
<td>16.7</td>
<td>3</td>
</tr>
<tr>
<td>Population with tertiary education</td>
<td>%</td>
<td>21.6</td>
<td>16.4</td>
<td>2</td>
</tr>
<tr>
<td>Households with a PC</td>
<td>%</td>
<td>26</td>
<td>19</td>
<td>2</td>
</tr>
<tr>
<td>GDP</td>
<td>USD Million</td>
<td>64 221</td>
<td>7.4</td>
<td>3</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>USD</td>
<td>15 437</td>
<td>8 241</td>
<td>2</td>
</tr>
<tr>
<td>Primary sector</td>
<td>%</td>
<td>1.2</td>
<td>5.5</td>
<td>30</td>
</tr>
<tr>
<td>Industrial sector</td>
<td>%</td>
<td>29.5</td>
<td>27.5</td>
<td>12</td>
</tr>
<tr>
<td>Services sector</td>
<td>%</td>
<td>69.3</td>
<td>67.1</td>
<td>12</td>
</tr>
<tr>
<td>Unemployment rate</td>
<td>%</td>
<td>3.8</td>
<td>3.2</td>
<td>24</td>
</tr>
<tr>
<td>Average yearly FDI 1999-2007</td>
<td>USD Million</td>
<td>2 055</td>
<td>10.2</td>
<td>2</td>
</tr>
<tr>
<td>Marginalization Index</td>
<td>-</td>
<td>-1.3</td>
<td>0.0</td>
<td>31</td>
</tr>
<tr>
<td>Gini Coefficient</td>
<td></td>
<td>0.55</td>
<td>0.616</td>
<td>6</td>
</tr>
<tr>
<td>Human Development Index</td>
<td></td>
<td>0.85</td>
<td>0.803</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: OECD (2009)

### Percentage of labor force with tertiary education (2005)

Source: OECD (2009)
Mission 2005

Mission 2005 outlined six institutional priorities and strategies for 2005-15:

I. Re-engineering of Monterrey Tech’s educational model
II. The Virtual University
III. Research and outreach programs
IV. Internationalization
V. Institutional growth
VI. Continuous improvement
Monterrey Tech: Today’s Landscape

- 33 campi + 25 sites
- 92,317 students
- 8,804 faculty
- 161,000 alumni

Source: Salmi (2009)

Salmi’s Model of World-Class University

Source: Salmi (2009)
Governance

- Private non-for profit entity
- External Board of Trustees
- Flagship campus Rector appointed by Board of Trustees
- Faculty participation:

Organizational Structure

- RECTOR
  - Academic Director
  - Administration and Outreach Director
  - Social and Student Development Director
  - Vice Rector for High School Programs
  - Dean of the School of Engineering
  - Dean of the School of Business
  - Dean of the School of Biotechnology and Health
  - Dean of the School of Government, Social Sciences and Humanities
  - Division of Engineering and Architecture
  - Business Administration and Finances
  - Health Sciences
  - Human and Social Sciences
  - Mechatronics and Information Technology
  - Graduate School of Business
  - Biotechnology and Food Sciences
  - Graduate School of Public Administration
  - Development of Technological-based companies

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The value of Accreditation

- National accreditation

- Foreign accreditation (SACS, AACSB, ABET, etc.):
  - Source of legitimacy
  - Benchmark
  - Establishing a culture of self-evaluation, quality assurance and institutional effectiveness

- Spill-over effect in establishing national private accreditation system.

- New national system: Full compliance

SOUTHERN ASSOCIATION OF COLLEGES AND SCHOOLS (SACS)

SCOPE:
Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, N. Carolina, S. Carolina, Tennessee, Texas, Virginia and universities in Latin America.

ITESM, UDLA (Puebla and Mexico), and University of Monterrey
Taking advantage of low salaries in public universities. Attracting Mexican talent abroad. (122 members of SNI)

Training faculty members domestically and abroad (206 faculty members in 2008).

Providing competitive funding for research. (Seed funding for $150,000 over 5 years). (131 Cátedras in 2009)

Linking research to specific metrics and incentives
Research Priority Areas

- Biotechnology and food
- Health
- Manufacturing and Design
- Information and Communications Technologies
- Sustainable Development
- Business
- Government
- Education

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Allocation of Resources

<table>
<thead>
<tr>
<th>PRIORITY AREA</th>
<th>ITESM-MTY</th>
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<tbody>
<tr>
<td></td>
<td>Research Centers</td>
</tr>
<tr>
<td>Biotechnology and food</td>
<td>1</td>
</tr>
<tr>
<td>Health</td>
<td>1</td>
</tr>
<tr>
<td>Manufacturing and design</td>
<td>2</td>
</tr>
<tr>
<td>Information and Comm. Tech.</td>
<td>4</td>
</tr>
<tr>
<td>Sustainable Development</td>
<td>3</td>
</tr>
<tr>
<td>Business</td>
<td>3</td>
</tr>
<tr>
<td>Government</td>
<td>7</td>
</tr>
<tr>
<td>Education</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>21</td>
</tr>
</tbody>
</table>

No government funding (with a few exceptions). Reliability on student fees for operational expenses.

Strong scholarship program (35% und. / 53% graduate)

Additional support from:
- Contributions from the corporate sector
- Research grants and services
- Lottery

About the Financial Model
Monterrey Tech’s Academic Model

The professor as facilitator of the learning process

Intensive use of technology

Standardized

Competitive on the global stage

Strongly formed in terms of ethical values

Highly committed to social responsibility

Able to work in a multicultural environment

Having an entrepreneurial spirit

Prepared to become leaders in their communities

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International Strategy

- Strong second language requirement
- Curriculum with international dimension
- Wide arrangement of partnerships
- Faculty mobility
- Participation in international networks
- Student mobility
- Emphasis on dual degrees
- Offices and facilities abroad

The International Network

- Vancouver
- Montreal
- Boston
- Beijing
- Shanghai
- Hangzhou
- Madrid
- Barcelona
- Bratislava
- Paris
- Washington
- Dallas
- Bratislava
- Vancouver

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Student and Faculty Mobility

<table>
<thead>
<tr>
<th></th>
<th>UNDERGRADUATE</th>
<th>GRADUATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Monterrey Tech students abroad</td>
<td>11 %</td>
<td>6 %</td>
</tr>
<tr>
<td>% international students on campus</td>
<td>8 %</td>
<td>15 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of Monterrey Tech faculty abroad</td>
<td>24 %</td>
</tr>
<tr>
<td>% of international faculty on campus</td>
<td>12 %</td>
</tr>
</tbody>
</table>

Source: Salmi (2009)
Too good to be true?...Tensions

High flexibility
Selective applied research areas
Priority for flagship campus
More global
Emphasis on research

Erratic behavior
L.T. diminishing of research culture
Internal stratification
Less local
De-emphasis on teaching/outreach

Other unintended consequences and risks

Excessive reliability on technology

"You should check your e-mails more often. I fired you over three weeks ago."
Other unintended consequences and risks

Autocratic hierarchy

The Italian University in 1350

...and the new modern university
The Art of Ambiguity

Continuing doing things the same way, but expecting to have different results
The Internationalization Equation

The degree of internationalization of an institution is inversely proportional to the number of International Agreements that it has signed.

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