Global Benchmarking and the Complexity Index

Johan Bergstrom

BencHEIT Task force meeting
Barcelona 13/11 2015
• What is CHEITA
• What is the CHEITA Benchmarking Project
• What is the Complexity Index
Next Steps
# CHEITA Benchmarking Group Members

<table>
<thead>
<tr>
<th>Organization</th>
<th>Name</th>
<th>Title</th>
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<tbody>
<tr>
<td>Council of Australian University Directors of Information Technology (CAUDIT)</td>
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CHEITA Benchmarking Project Goals

• Provide a method or process to identify international peer institutions
  • Explore the Complexity Index as a possible approach to comparing institutions internationally
  • Develop an international Complexity Index for benchmarking
• Develop a small set of metrics which can be used to benchmark internationally (to be confirmed).
NATIONAL AND REGIONAL BENCHMARKING MODELS
THE CHEITA
GLOBAL COMPLEXITY INDEX
ORIGINS

• CAUDIT developed the complexity index approach to benchmarking in 2007
• A tool to find peers other than “traditional” models
• Outliers are easily identified resulting in improved data quality
• Peers are easily identified to guide deeper benchmarking

• Use spread to Canada and South Africa
INPUTS

- CAUDIT CI uses Staff FTE, Student EFTSL, research income and geography (number and size of sites) as inputs
- Largely based on publicly accessible data - not reliant on the CIO to collect the data
- CHEITA CI needed to be modified to exclude geography because this data was not easy to collect across all countries
The CHEITA Global Complexity Index

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<tr>
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<th>Min</th>
<th>Max</th>
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<tbody>
<tr>
<td>Number of students (EFTSL)</td>
<td>0</td>
<td>45,000</td>
</tr>
<tr>
<td>Number of staff (FTE)</td>
<td>0</td>
<td>18,000</td>
</tr>
<tr>
<td>Research income ($)</td>
<td>0</td>
<td>$750,000,000</td>
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\[
\text{eftsl\_ind} = \min(10, 1 + 9 \times (\text{student EFTSL}/45,000))
\]

\[
\text{fte\_ind} = \min(10, 1 + 9 \times (\text{staff FTE}/18,000))
\]

\[
\text{res\_ind} = \min(10, 1 + 9 \times (\text{research income}/750,000,000))
\]

\[
\text{comp\_ind} = \text{eftsl\_ind} \times .35 + \text{fte\_ind} \times .35 + \text{res\_ind} \times .30
\]
1. Obtain the raw measurement
2. Scale the raw measurement (using a linear algorithm) between 1 and 10 based on the max and min values for the “international” higher education sector
3. Apply a weighting to the scaled measurement based on the relative importance of the underlying measure (35% for students, 35% for staff, and 30% for research income).
4. Add up the 3 weighted measurements to get the final result
AN EXAMPLE (University R)

1. Student EFTSL=21,378, Staff FTE = 10,235, Research Income = $450,000 USD
2. Using max = 45,000 and min = 0 University R’s scaled student EFTSL is 5.27.
3. The weighted student EFTSL is 35% of 5.27 = 1.85.
4. Repeat for staff FTE using max = 18,000 and weighting = 35%. Scaled staff FTE = 2.14
5. Repeat for research income using max = $750,000 USD and weighting = 30%. Scaled research income = 1.92
6. Global CI = 1.85 + 2.14 + 1.92 = 5.91
University R & Q

- Research
- Staff
- Student

University R

University Q
CURRENCY CONVERSION

• CAUDIT experience comparing expenditure between Australia and New Zealand showed that a simple currency conversion is not appropriate
• Alternative method needed
• Better to use Purchasing Power Parity (PPP) to normalize the financial data - research income and institutional IT spend
BENEFITS OF THE GLOBAL COMPLEXITY INDEX

• Based on the CAUDIT index, which is already used in Australia and New Zealand, Canada, and South Africa.
• The calculation and use of the index is relatively simple and straightforward.
• Based largely on publicly available data
• Based on stable institutional measures rather than technology measures
• Can readily identify members of peer groups that can undertake deeper benchmarking.
• Can be used in parallel with other classification approaches to further refine large peer groups.
• Can be used to improve data quality - outliers become very obvious
PROOF OF CONCEPT
Total IT spend (USD) v complexity index

R² = 0.73
How to use?

• Running the survey:
  • Outliers – good and bad
  • Find ways to identify data errors

• For insitutions
  – It’s all about the conversation
Possible Next Steps

• Identify a set of comparator institutions and through participation in a virtual workshop investigate data quality, appropriateness of the model, etc.

• Based on the outcome of these discussions possible next steps include
  • refining the methodology and the model
  • encouraging broader participation
  • developing a small set of metrics for additional international benchmarking
Further information

- CHEITA website: [www.cheita.org](http://www.cheita.org)
- Benchmarking IT: A Global approach [http://tinyurl.com/nrz42bk](http://tinyurl.com/nrz42bk)
- Cheita Global Complexity Index Calculator
ERAI – a knowledge platform

ERAI

+ Eunis Research and Analysis Initiative
+ Knowledge Sharing platform
+ Network organisation

Part of EUNIS

+ Well established
+ Growing network
+ Pan European collaboration
+ Channel of contacts
Content creation

- **International comparisons**
  Global comparison, providing the European voice

- **European insights**
  Original work with a European perspective.
  Leverage existing national surveys.
  Broker of surveys and results

- **Additional analysis**
  Comparisons between countries and studies

- **Single studies**
  Market national studies
  Work with a national stance (with a European outlook)