An experience of Brazilian educational graduate platform

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Contents

• Introduction
• Goal
• Methods
• Phase 1
• Phase 2
• Conclusions
CAPES

• Brazilian Federal Agency for Support and Evaluation of Graduate Education;

• Under responsability of Ministry of Education;

• Responsible for periodical evaluation of graduate programs.
• It is Brazilian evaluation of graduate programs;

• 7-point scale;

• Every 4 years;

• Financing of the graduate programs with scholarships and research aids is based on grades.
Brazilian Program for Graduate Studies (PNPG)

• It was officially organized at the end of 1960s, formalizing existing initiatives on universities and research centers (Guimarães & Humann, 1989);
  • Acceleration of the formation of human resources for teaching and research;
  • Contribution to technological development by meeting the needs of public and private sectors.

• Brazilian graduation has improved in training of university professors, integration of research, evaluation system, etc.
Institutional Programs = 4.074

Multinstitutional Programs = 101

https://goo.gl/hphpP3
Table 1. Evolution of number of graduate degrees in Brazil between evaluations

<table>
<thead>
<tr>
<th>Degrees</th>
<th>2013-2016</th>
<th>% Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master</td>
<td>187,971</td>
<td>59</td>
</tr>
<tr>
<td>Doctoral</td>
<td>72,454</td>
<td>94</td>
</tr>
<tr>
<td>Professional Master</td>
<td>32,513</td>
<td>193</td>
</tr>
<tr>
<td>Total</td>
<td>292,938</td>
<td>76</td>
</tr>
</tbody>
</table>

Table 2. Evolution of graduate scientific production in Brazil between evaluations

<table>
<thead>
<tr>
<th>Publications</th>
<th>2013-2016</th>
<th>% Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Articles</td>
<td>846,981</td>
<td>89</td>
</tr>
<tr>
<td>Books</td>
<td>303,457</td>
<td>80</td>
</tr>
<tr>
<td>Technical</td>
<td>1,601,780</td>
<td>82</td>
</tr>
<tr>
<td>Total</td>
<td>2,752,218</td>
<td>84</td>
</tr>
</tbody>
</table>
1st challenge: develop a **NEW** evaluation system

- Usability
- Integration
- Transparency
- Comparison
- Big data processing

Join several systems (~15) in one to improve evaluation process.
• Present the current stage of Sucupira platform system, which was developed to solve these issues. Also, to introduce planning of new improvements to become a CRIS system.
Methods

• This technical paper used some qualitative methods such as documentary analysis of guides and internal reports related to Sucupira platform.

• Sucupira platform is an online platform developed in Java programming language (version 7), running over a container JBOSS 6.1 EAP. There are 8 machines in the infrastructure park controlled by two internal balancers.

• Among other technologies, it uses EJB 3, JSF 2 and Hibernate for communication with Oracle Database 11g, that saves data having two balancing instances.

• Data extraction and analyses were made with SAS Enterprise Guide 7.1.
Phase 1 – Implementation (2013-2016)

• Hierarchy

- University of São Paulo
  - Program 1
    - Business
      - Master Course
      - PhD Course
    - Discipline x
  - Program 2
    - Medical Sciences
      - Master Course
      - PhD Course
    - Education and Health
      - Immune and Infectious Process
        - Discipline z
        - Discipline w
  - Program 180
    - Teaching of Mathematics
      - Professional Master Course
        - Mathematics
        - Discipline i

Areas of concentration
Phase 1 – Implementation (2013-2016)

• Schemes and standards
• Hierarchy
• Interoperability
Sucupira Platform

• Graduate education monitoring and evaluation

Information about the process of evaluation
List of all recommended graduation courses
Data Collected annually from all programs
Information of Quadrennial Evaluation (2013-2016)

New Courses proposals
Interinstitutional MSc and PhD
Classification of Journals
Statistics and Open data

https://sucupira.capes.gov.br
Graduation Programs

PLATAFORMA Sucupira

Catálogo de Teses e Dissertações
Phase 2 – CRIS Model (2017-2020)

• Enlarge Sucupira’s model to become a CRIS system;
• A CRIS is intended to ensure a single and accurate source of research information for effective planning, monitoring, reporting and communication (Bevan & Harrington, 2011);
• Good data management is not a goal in itself, but leading to: knowledge discovery, innovation, integration and reuse by the community (Wilkinson et al., 2016).
Conclusion

• In summary, it is possible to separate two stages of Sucupira’s development: first from 2013 to 2016 and second from 2017 onwards, both coinciding with four-early evaluation period. First phase was completed successfully, incorporating business models of several other systems and presenting new challenges, such as expansion of interoperability and management of big data.

• In current phase 2, apart from new model, it will be necessary to adapt CERIF theoretical model to consider graduation programs as an unit. Also, there are some Brazilian scientific projects that don’t receive external funding, so coding will have to consider these cases.

• In doing so, the current effort to evolve/adapt Sucupira’s model as a CRIS system will provide public view and transparency of data as an accountability of Brazilian public investments and a better way to help finding a course for graduation studies and/or improving research.
Thank you!

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