LEAN CONSTRUCTION AND MATURITY MODELS:
APPLYING FIVE METHODS

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Introduction

- Main purpose: select the suitable MM to assess LC growth in a small size Brazilian construction company.

Materials and methods

Figure 1 – Paper development

- Literature review
- Definition of MM to be applied: LC embracing and related to IGLC
- Definition of the project: Company do not formally use LC
- MM application: 2018, May to July
- Results analysis
- The suited MM

Source: Own elaboration.
# Lean Construction and Maturity Models: Applying Five Methods

## Table 1 – Sorted Maturity Models

<table>
<thead>
<tr>
<th>MM Name</th>
<th>Author</th>
<th>Year</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LCR - Lean Construction-Quality Rating Model</strong></td>
<td>Hofacker <em>et al.</em></td>
<td>2008</td>
<td>Brazil and Germany</td>
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<tr>
<td><strong>MDCE - Lean Construction Diagnostic Model</strong></td>
<td>Arantes</td>
<td>2010</td>
<td>Brazil</td>
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<tr>
<td><strong>LCMM - Lean Construction Maturity Model</strong></td>
<td>Nesensohn</td>
<td>2014</td>
<td>UK</td>
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<tr>
<td><strong>MMDPLC - Maturity Model for Development of Lean Construction Principles</strong></td>
<td>Soto</td>
<td>2016</td>
<td>Chile</td>
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<tr>
<td><strong>DOLC – Degree Of Lean Construction</strong></td>
<td>Carvalho and Scheer</td>
<td>2017</td>
<td>Brazil</td>
</tr>
</tbody>
</table>

Source: Own elaboration.
Results

Figure 2 – LCR method

Source: Own elaboration.

Answered by:
- Internal evaluator (engineer)
Results

Figure 3 – MDCE original method

Figure 4 – MDCE adapted method

Answered by:
- Internal evaluator (engineer)
RESULTS

Figure 5 – LCMM original method

Figure 6 – LCMM adapted method

Source: Own elaboration.

Answered by:
- External evaluator (researcher)
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Results

Figure 7 – MMDPLC method

Source: Own elaboration.

Answered by:
- Internal evaluator (engineer)
Results

Figure 8 – DOLC method

Answered by:
- Designer (internal);
- Engineer (internal);
- Worker (internal);
- Director (internal);
- Client (external).

Source: Own elaboration.
Discussion

Figure 9 – Comparison between the ranking scale of the five models

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>RC</th>
<th>CATEGORY</th>
<th>MDCE</th>
<th>CATEGORY</th>
<th>LCMM</th>
<th>CATEGORY</th>
<th>MMDPLC</th>
<th>CATEGORY</th>
<th>DOLC</th>
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Source: Own elaboration.
Conclusion

- LCMM were the suited MM for this case study;
- This MM provide guidance to companies at any point in LC journey;
- Has hard ascending levels since use the lowest statement score to evaluate the related attribute;
- We propose use the range of attributes to evaluate the attribute;
- For future work: develop a decision-making process to adjust weights to company principles and apply LCMM in others construction firms.
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THANK YOU!

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