Technical Debt Reading List. 
Results from a Systematic mapping study 
(Documento de trabajo)

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ABSTRACT

This document presents the complete list of references that have been short listed during the systematic review process carried out during the months of April-September 2012. The objective of the systematic review was to identify current research trends in technical debt and to explore the relationship between technical debt measures and agile software development. This document includes 352 references that are categorized according to their relevance to technical debt research.
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**TECHNICAL DEBT READING LIST: RESULTS FROM A SYSTEMATIC MAPPING STUDY**

This document is intended as a reading list for technical debt research. It details the 352 articles that have been reviewed during the systematic review performed by Alberto Villar from April 2012 until July 2012.

The review was commissioned in order to explore the relationship between agile software development and the state of the art of technical debt measures.

Results of this systematic review have been sent to publication outlet and are being considered.

The references are organized according to a classification criteria driven by their application on the subject of technical debt.

The following exclusion criteria were defined:

- The topic did not relate to software development (D_NET)
- The article is not accessible with the authors subscription level (NA)
- The article was filtered by authors after reading the abstract (D_PA)
- The article was filtered by author after reading the full paper (D_PL).
- Filtered because the registry did not represent a full paper (D_ITOC).
- Repeated papers were also filtered (REP).

The following table summarizes the filtering process.

<table>
<thead>
<tr>
<th>D_NET</th>
<th>NA</th>
<th>D_PA</th>
<th>D_PL</th>
<th>D_ITOC</th>
<th>REP</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
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<td>2</td>
<td>0</td>
<td>9</td>
<td>20</td>
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<td>8</td>
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<td>0</td>
<td>0</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>12</td>
<td>1</td>
<td>24</td>
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<td>8</td>
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<tr>
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<td>3</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>53</td>
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<td>8</td>
<td>8</td>
<td>31</td>
<td>27</td>
<td>164</td>
</tr>
</tbody>
</table>

Furthermore, 188 other references have been reviewed in connection with the reflection activities in agile software processes and their connection to technical debt research.

- **AG_OT**: Though agile concepts appeared in the title and abstract, the research was not relevant to the context of reflection.
- **AG_NI**: The articles mentioned agile reflection but do not dive into specific reflections activities.
- **AG_Ref**: The papers in this category explicitly reference SRQ3.
- **AG_CT**: These articles were determined to be marginally relevant, since they mention improvement and learning in an agile context without necessarily referencing reflection activities.
- **AG_RNC**: This research mentions reflection or retrospective activities but applies them as control mechanisms for the process and not as learning opportunities. In our opinion, misunderstanding the agile values.
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Table 3 Summary of references related to agile reflection

<table>
<thead>
<tr>
<th>AG_OT</th>
<th>AG_NI</th>
<th>AG_Ref</th>
<th>AG_CT</th>
<th>AG_RNC</th>
</tr>
</thead>
<tbody>
<tr>
<td>123</td>
<td>38</td>
<td>8</td>
<td>18</td>
<td>1</td>
</tr>
</tbody>
</table>

The following sections present the filtered references;

Papers regarding Technical debt research

- **N_Nom**: Are those papers that only mention technical debt.


- **N_TD_C**: Are those papers whose scope on the Technical debt subject is limited to code.


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- N_TD_A: Are those papers with a broader scope on technical debt (encompassing concepts like poor architecture (Hunter and Spann 2008), poor requirements(Ivanović, America, and Snijders 2012), etc).


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- N_TD_I: Are those papers with an integral view on the development process when talking into account technical debt. For instance, (Klinger et al. 2011) take into account project stakeholders when analyzing technical debt decisions.


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http://ieeexplore.ieee.org/xpl/articleDetails.jsp?tp=&arnumber=5602107&contentType=ConferencePublications&sortType=desc_p_Publication_Year&matchBoolean=true&pageNumber=2&searchField=Search_All_Text&queryText=((.QT.technical+debt.QT.)+OR+.QT.design+debt.QT.)


Papers regarding agile reflection adoption

- AG_OT: Though agile concepts appeared in the title and abstract, the research was not relevant to the context of reflection.


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• AG_Ni: The articles mentioned agile reflection but do not dive into specific reflections activities.


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M. Toleman, A. Almeida, F. Darroch, and M. Ally, “. Aligning Adoption Theory with Agile System Development Methodologies.”.


• AG_Ref: The papers in this category explicitly reference the topic of reflection adoption in agile contexts.


M. Lamoreux, “Improving agile team learning by improving team reflections [agile software development],” in Agile Development Conference (ADC’05), 2005, pp. 139–144.


• AG_CT: These articles were determined to be marginally relevant, since they mention improvement and learning in an agile context without necessarily referencing reflection activities.

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• AG_RNC. This research mentions reflection or retrospective activities but applies them as control mechanisms for the process and not as learning opportunities. In our opinion, misunderstanding the agile values.