An empirical analysis of *ex ante* licensing disclosures

Jorge L. Contreras
American University, Washington College of Law
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NIST-Funded 2010-11 Empirical Study of *Ex Ante* Policies

**Goals:**

- To examine quantitative effect of *ex ante* policy implementation at VITA/IEEE 5 years later
- To quantitatively test pro and con predictions regarding effects of *ex ante* policies
- To assess user experience with *ex ante* policies
Study Parameters

- **Sample set**: VITA, IEEE, IETF
- **Time period**: 2003/4-2011
- **Data collection**:
  - Historical
  - Survey
  - Interview
Theories of Interest relating to Ex Ante Policies

Theories that *Ex ante* policies will:

1. *reduce* standardization activity
2. cause standards to take *longer* to develop
3. require *more time* from standards developers
4. cause members to *withdraw*
5. cause standards to decrease in *quality*
6. depress patent *royalty rates*
Historical Data Collection

- From 2003/4-2010:
  - Number of standards started and approved
  - Mean time to approval
  - SDO/WG membership
  - Impact (citation)
- Ex ante royalty disclosures
Survey Instrument - VITA

- Demographics
  - Sector (vendor/customer/regulator)
  - Patent experience
  - SDO experience

- Perceptions and Experience
  - This SDO compared to other SDOs
  - This SDO today compared to pre-ex ante
  - Reactions to royalty disclosures
  - Reactions to policy adoption

- Response: 53% (n=47, N=88)
SDO IPR Disclosures
Comparison of SDO Disclosure Patterns (2007-2010)

<table>
<thead>
<tr>
<th></th>
<th>VITA</th>
<th>IEEE</th>
<th>IETF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standards Approved</td>
<td>18</td>
<td>333</td>
<td>1,243</td>
</tr>
<tr>
<td>Total Patent Disclosures</td>
<td>7</td>
<td>349</td>
<td>481</td>
</tr>
<tr>
<td>Standards Covered by Disclosures</td>
<td>7</td>
<td>103</td>
<td>607</td>
</tr>
<tr>
<td>Ratio of Standards Covered by Patent Disclosures : Approved Standards</td>
<td>1 : 2.6</td>
<td>1 : 3.2</td>
<td>1 : 2.0</td>
</tr>
<tr>
<td>Non-Royalty Licensing Term Disclosures</td>
<td>7</td>
<td>33</td>
<td>276</td>
</tr>
<tr>
<td>Royalty-Free/Non-Assert (RF) Disclosures</td>
<td>1</td>
<td>11</td>
<td>283</td>
</tr>
<tr>
<td>Non-Zero Royalty Disclosures</td>
<td>6</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Total Ex Ante Licensing Disclosures</td>
<td>7</td>
<td>39</td>
<td>366</td>
</tr>
<tr>
<td>Ex Ante Licensing Disclosures as % of All Patent Disclosures</td>
<td>100%</td>
<td>11%</td>
<td>76%</td>
</tr>
<tr>
<td>Standards Covered by Ex Ante Licensing Disclosures</td>
<td>7</td>
<td>35</td>
<td>386</td>
</tr>
<tr>
<td>Ratio of Standards Covered by Ex Ante Licensing Disclosures : Approved Standards</td>
<td>1 : 2.6</td>
<td>1 : 9.5</td>
<td>1 : 3.2</td>
</tr>
</tbody>
</table>
1. Quantity of Standards
Standards Starts by year

2004-07

2007-10

VITA
IETF
IEEE
Standards approved by year

2003-07

2007-10

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Year

VITA
IEEE
IETF
2. Standardization Speed
# Standardization Speed: Perceptions

<table>
<thead>
<tr>
<th>Effect of VITA \textit{ex ante} Policy on Standardization Speed</th>
<th>Compared to VITA \textit{pre-ex ante} (n=43)</th>
<th>Compared to Other SDOs (n=44)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faster</td>
<td>18%</td>
<td>20%</td>
</tr>
<tr>
<td>No effect</td>
<td>33%</td>
<td>36%</td>
</tr>
<tr>
<td>Slower</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>21%</td>
<td>18%</td>
</tr>
<tr>
<td>Lacks Basis for Comparison</td>
<td>26%</td>
<td>23%</td>
</tr>
</tbody>
</table>
## Average Time for Standards Approval (’03-'10)

<table>
<thead>
<tr>
<th></th>
<th>VITA</th>
<th>IEEE</th>
<th>IETF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Range (days)</strong></td>
<td>379-1542</td>
<td>1342-1630</td>
<td>694-966</td>
</tr>
<tr>
<td><strong>Std. deviation (σ)</strong></td>
<td>371</td>
<td>108</td>
<td>100</td>
</tr>
<tr>
<td><strong>Mean&lt;sub&gt;2003-06&lt;/sub&gt;</strong></td>
<td>979</td>
<td>1525</td>
<td>786</td>
</tr>
<tr>
<td><strong>Mean&lt;sub&gt;2007-10&lt;/sub&gt;</strong></td>
<td>1298</td>
<td>1498</td>
<td>935</td>
</tr>
<tr>
<td><strong>Slope (m&lt;sub&gt;2003-07&lt;/sub&gt;)</strong></td>
<td>33</td>
<td>65</td>
<td>54</td>
</tr>
<tr>
<td><strong>Slope (m&lt;sub&gt;2007-10&lt;/sub&gt;)</strong></td>
<td>2</td>
<td>-39</td>
<td>8</td>
</tr>
</tbody>
</table>
3. Personal Time Commitment
# Personal Time Commitment – VITA Perceptions

<table>
<thead>
<tr>
<th>Time that Respondent spent on VITA standards activities</th>
<th>Compared to VITA pre-\textit{ex ante} (n=43)</th>
<th>Compared to Other SDOs (n=44)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less time</td>
<td>12%</td>
<td>7%</td>
</tr>
<tr>
<td>No effect</td>
<td>33%</td>
<td>43%</td>
</tr>
<tr>
<td>More time</td>
<td>7%</td>
<td>9%</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>23%</td>
<td>20%</td>
</tr>
<tr>
<td>Lacks Basis for Comparison</td>
<td>26%</td>
<td>20%</td>
</tr>
</tbody>
</table>
4. Membership
Attendance/Membership Changes
IETF and VITA (2004-2010)

IETF Membership Changes by Year

VITA Membership Changes by Year

2004 baseline = 1460

2004 baseline = 127
5. Standards Quality
Measuring “Quality”

- Difficult, imprecise and subjective

- “Triangulation” approach
  - Impact (search engine hits)
  - External recognition
  - Survey perceptions
Google Hits on VITA Adopted Standards (2003 to 2010)

- Range = 0-88,000

Date of Adoption

- Patent Declaration
VITA Standards Quality – Survey Perceptions

<table>
<thead>
<tr>
<th>VITA’s <em>ex ante</em> makes the quality of VITA standards</th>
<th>Percentage (n=43)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Much Better</td>
<td>53%</td>
</tr>
<tr>
<td>Somewhat Better</td>
<td>26%</td>
</tr>
<tr>
<td>No Difference</td>
<td>2%</td>
</tr>
<tr>
<td>Somewhat Worse</td>
<td>2%</td>
</tr>
<tr>
<td>Much Worse</td>
<td>0%</td>
</tr>
<tr>
<td>Don’t Know</td>
<td>17%</td>
</tr>
</tbody>
</table>

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6. Royalty Depression
Indirect Negative Evidence

- Royalty-Free disclosures
  - VITA: 1 of 7
  - IEEE: 11 of 13
  - IETF: 263 of 263

- VITA Ex Ante amendments
  - Only one (defensive suspension)
  - No royalty rate reductions
VITA Survey Data

- *How important* to you is the royalty rate when considering approval of a proposed standard?
  - Not important: 7%
  - Somewhat important: 26%
  - Very important: 57%

- Have you ever *opposed* adoption of a proposed standard as a result of the royalty rate or other licensing terms disclosed?
  - No: 79%
  - Yes: 21%
VITA Responses to Royalties Deemed “Too High”

<table>
<thead>
<tr>
<th>Response</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raised issue at meeting</td>
<td>3</td>
</tr>
<tr>
<td>Attempted to design around patent</td>
<td>2</td>
</tr>
<tr>
<td>Delayed/stopped development pending resolution</td>
<td>3</td>
</tr>
<tr>
<td>Contacted/negotiated with patent holder</td>
<td>2</td>
</tr>
<tr>
<td>Voted against approval of proposed standard</td>
<td>1</td>
</tr>
</tbody>
</table>
Overall Satisfaction

“In your opinion, VITA’s adoption of an ex ante policy has made standards development at VITA:

- Much more open and transparent: 51%
- Somewhat more open and transparent: 32%
- Neither more nor less open and transparent: 17%
- Less open and transparent: 0%
Conclusions

1. No evidence that mandatory or voluntary ex ante policies have negative effects on SSO processes

2. *Mandatory* ex ante policy at VITA is well-liked by VITA members and seems to be achieving its purpose

3. *Voluntary* ex ante policy at IEEE not having a significant positive or negative impact

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Acknowledgements

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  - Yen-Shyang Tseng (Research Asst.)
  - Melody Goodman, PhD (statistics)
  - James L. Gibson, PhD (survey design consultation)

- Many thanks to NIST for supporting this work!
Thank You!

- Full report available at:
  

  and


- Comments and Questions:
  contreras@wcl.american.edu