OASIS PKI Action Plan – Overcoming Obstacles to PKI Deployment and Usage

Steve Hanna, Co-Chair, OASIS PKI Technical Committee
Internet 2 Members Meeting
April 19, 2004

Agenda

- OASIS PKI Technical Committee
- PKI Obstacles Survey
- PKI Action Plan
- How You Can Help

OASIS PKI Technical Committee

- Objective
  - Address issues related to successful deployment of digital certificates
- Membership
  - Open to any OASIS Member (minimal cost)
  - Currently 21 Voting Members
  - Mix of PKI vendors, customers, consultants, and others with PKI interest
- Activities
  - PKI Obstacles Survey
  - PKI Action Plan
- http://www.oasis-open.org/committees/pki

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PKI Obstacles Survey

- Objective
  - Identify primary obstacles to PKI deployment and usage
- Target Audience
  - Anyone with an opinion, but most interested in those with significant PKI expertise or experience
  - Invitations sent to email lists related to PKI: standards bodies, industry associations, vendors, and user associations
- Two surveys run in Summer 2003
  - Initial Survey in June
  - Follow-up Survey in August

Sample Size & Demographics

- Responses
  - 217 answered with 216 considered valid
  - No duplicates or frivolous answers detected
  - Most reflected careful consideration and included textual answers
  - 80% provided email addresses for any follow-up surveys
  - Over 25% provided detailed descriptions of obstacles
- Profiles
  - 44% worked in IT
  - Others included 20 Consultants and 6 Architects
  - Over ½ had a strong technical component in their jobs
  - Over 75% had 5 or more years experience in InfoSec/Privacy
  - 90% have either helped deploy PKI or developed PKI-related software

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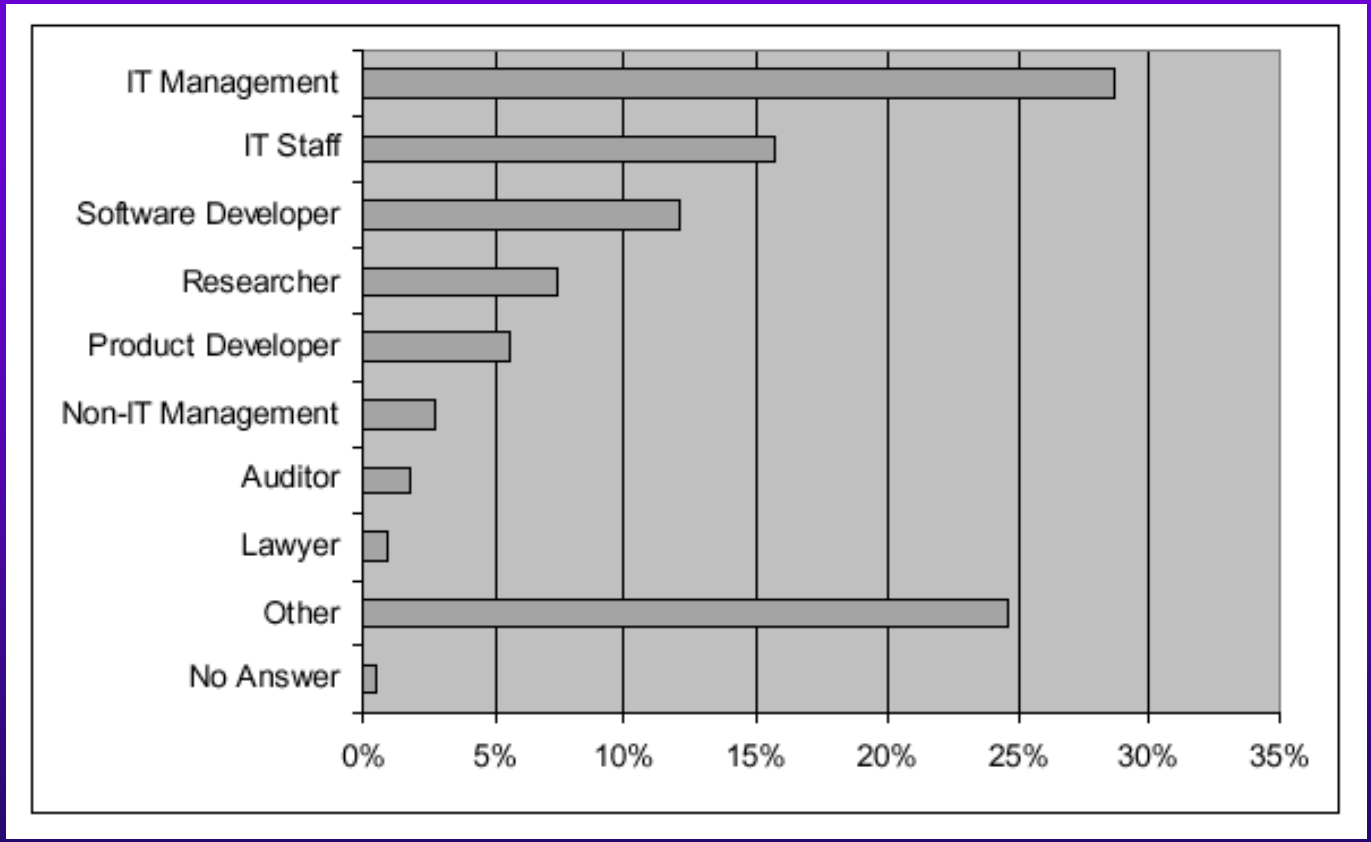
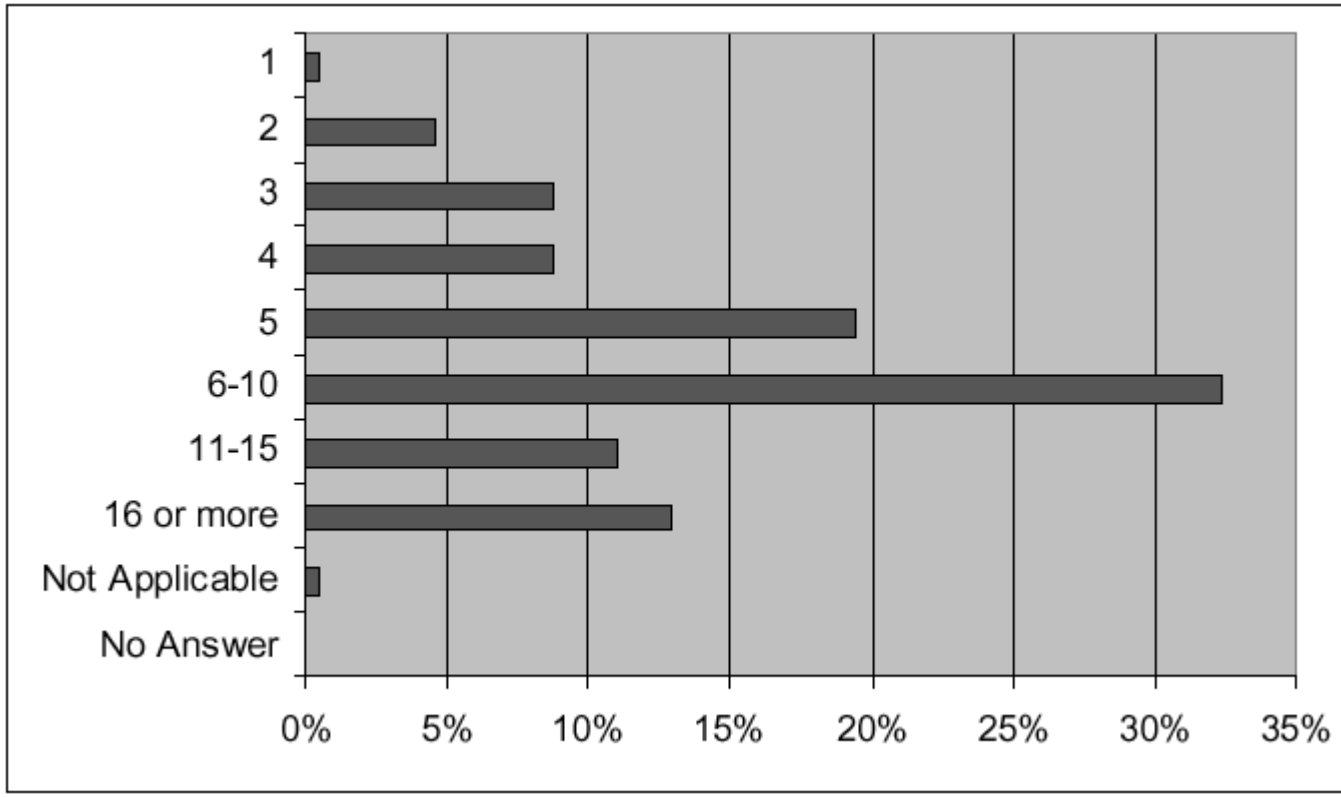
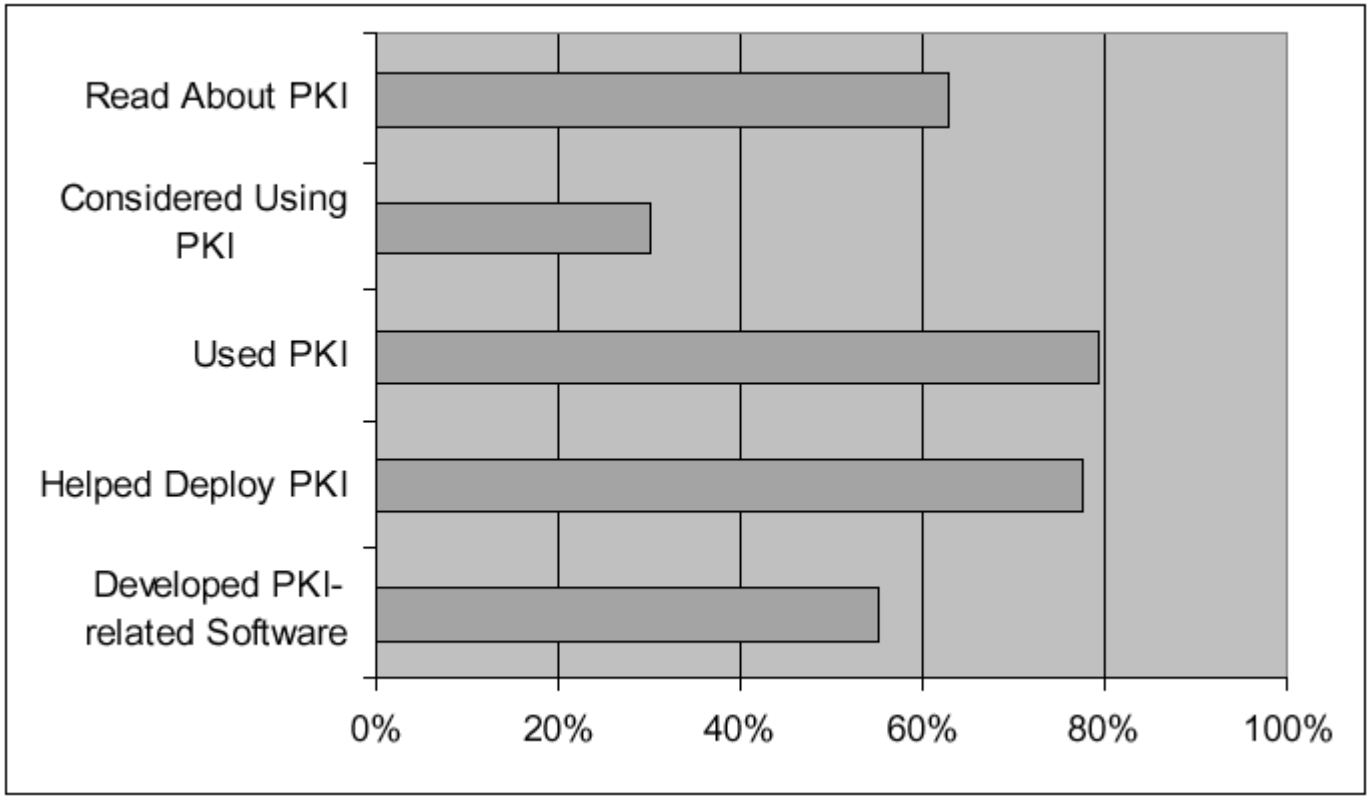
Primary Job Function



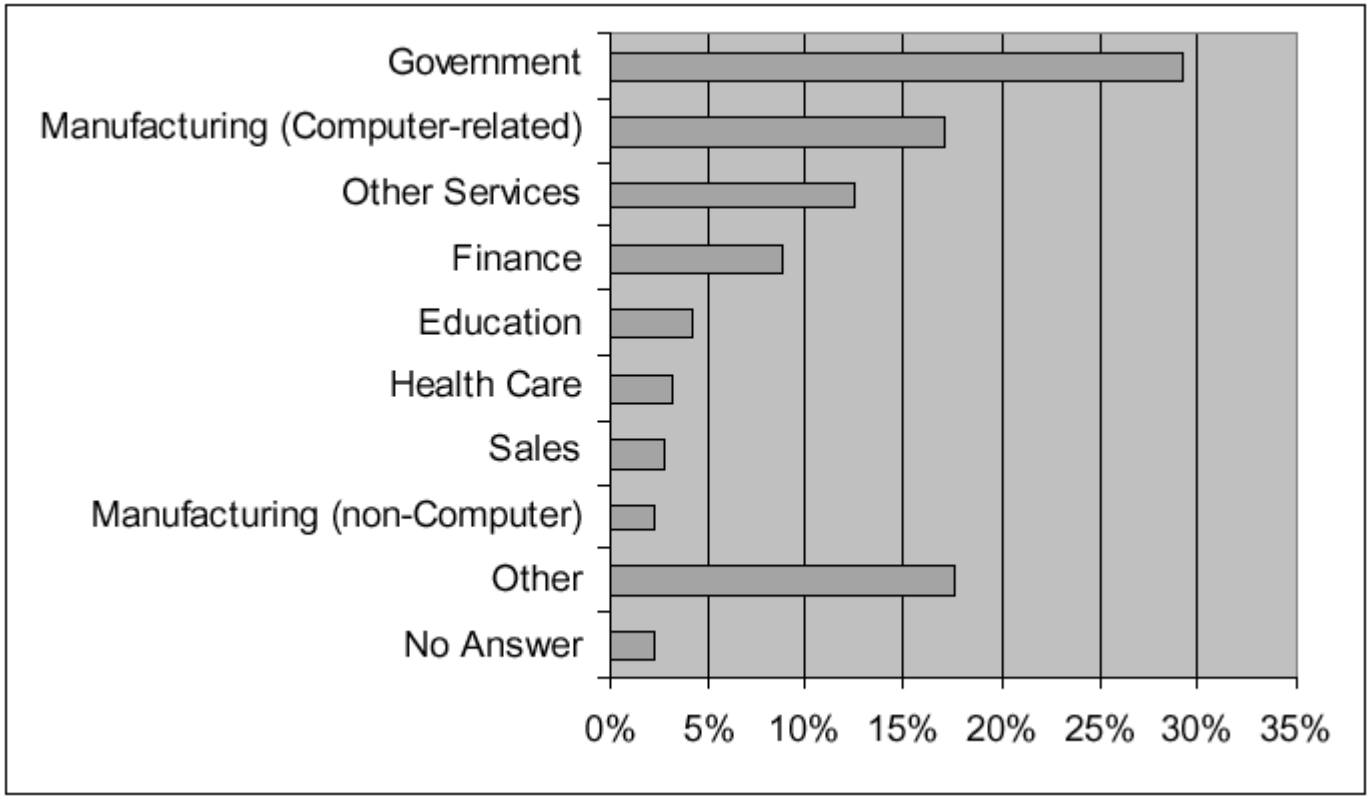
Years Experience with Information Security/Privacy



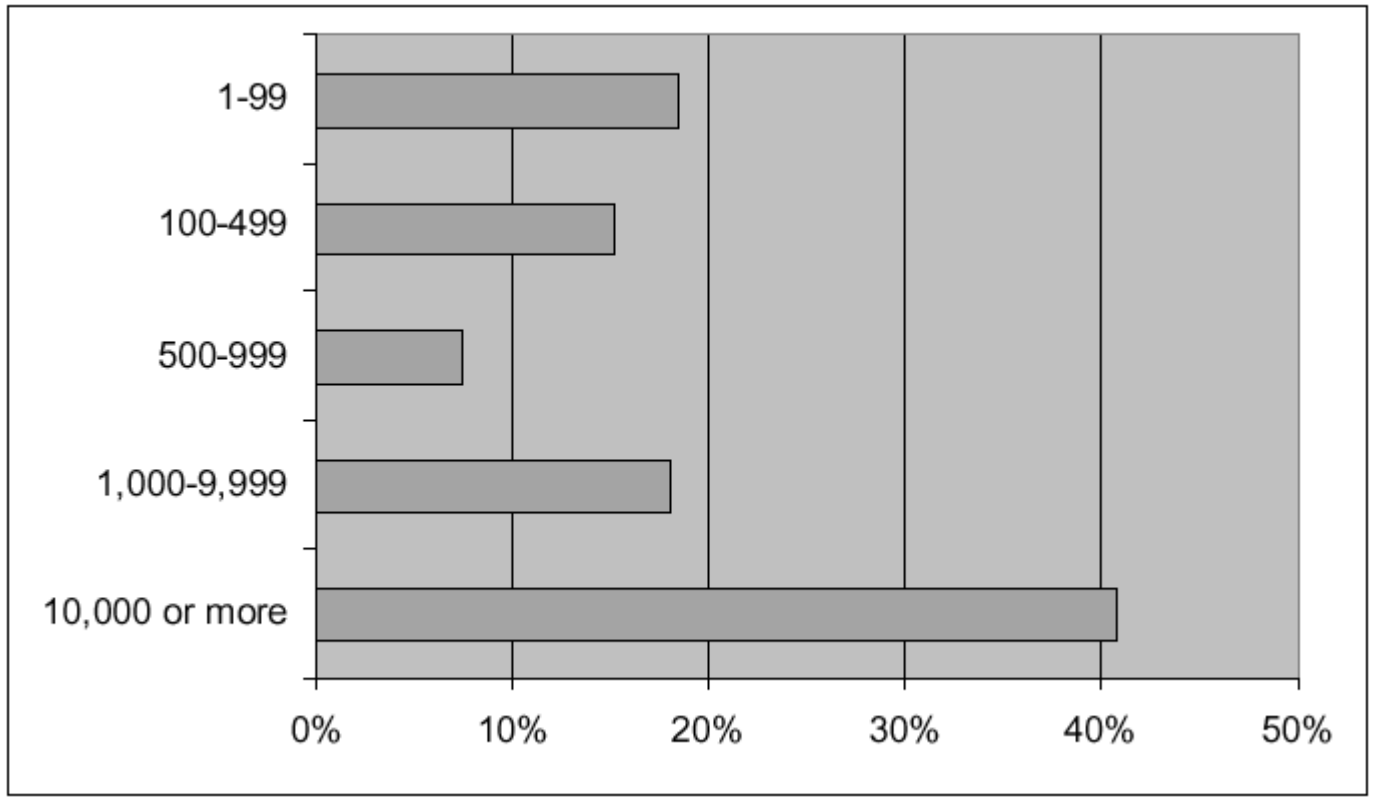
PKI Experience



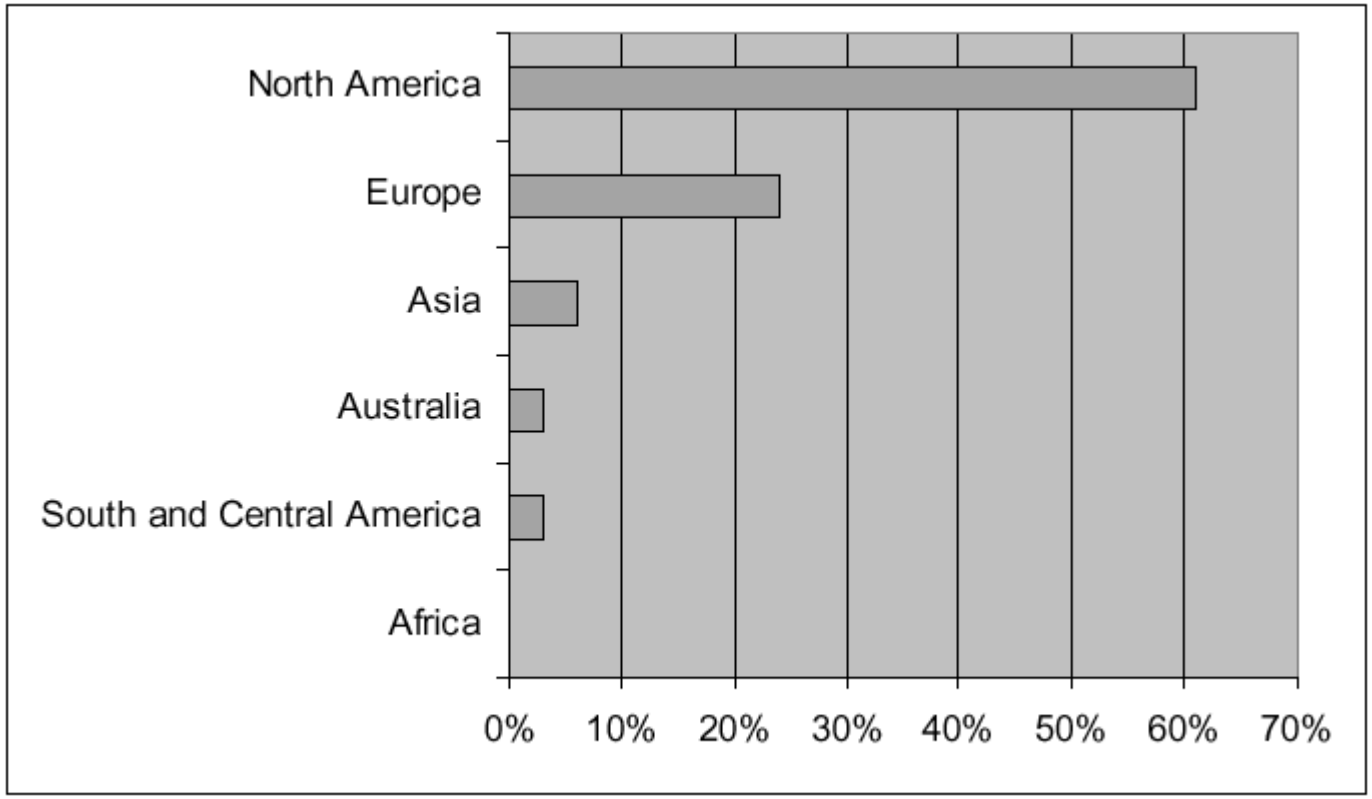
Employer Sector or Industry



Employer Size (number of employees)



Primary Work Location



Applications

- Participants asked to rate various PKI supported applications as:
  - Most Important
  - Important
  - Not Important
- Weight Ranking
  - Responses were allotted 2 points for Most Important and 1 point for Important
  - Weight ranking computed by dividing the total score by the number of answers
  - For “Other” applications, participants entered applications not in selection list and rated them.
- All applications except Secure RPC considered at least “Important” by over 50%
- No application considered “Most Important” by a majority
- Indicates PKI is truly a horizontal, enabling technology with many applications

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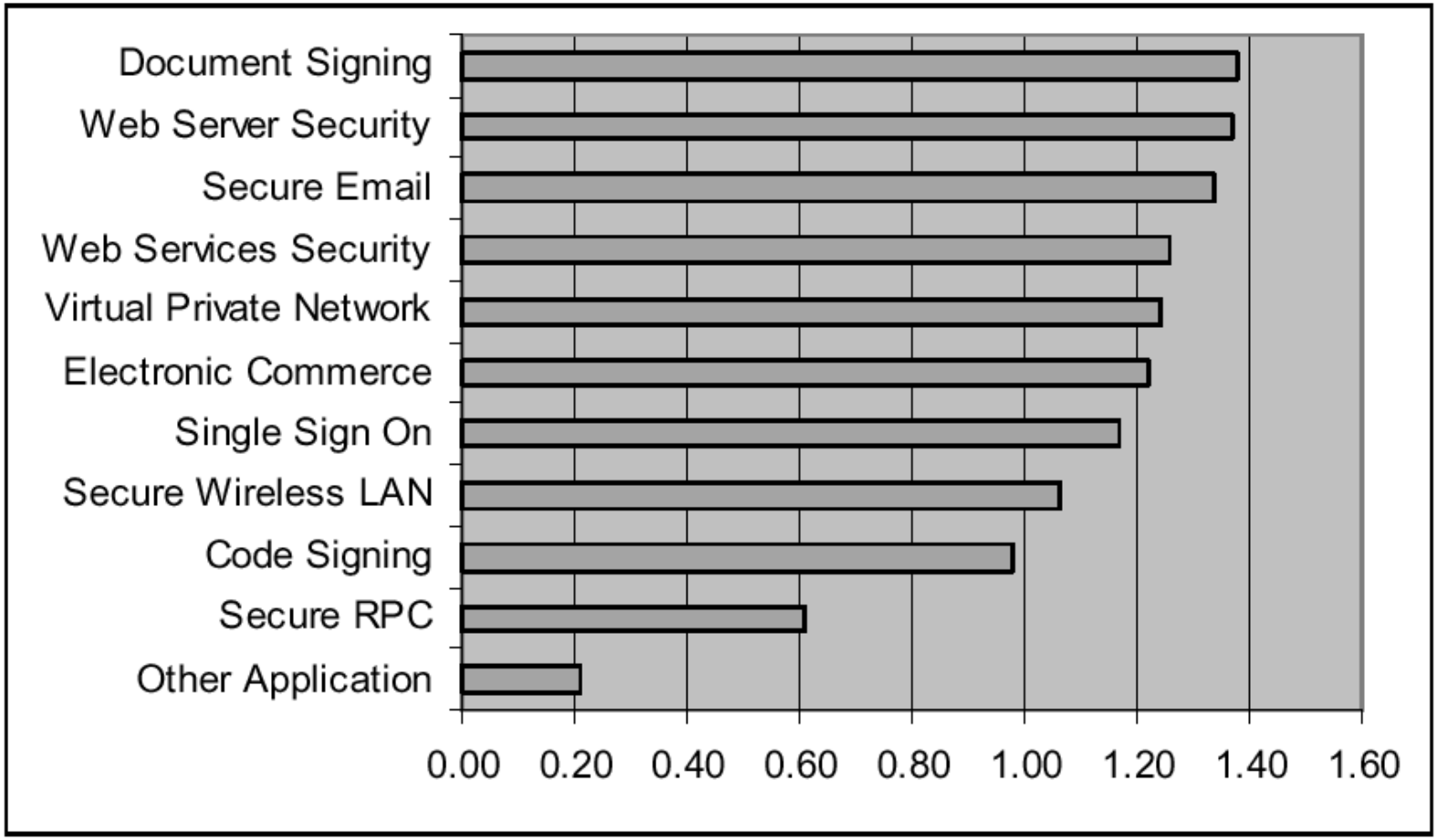
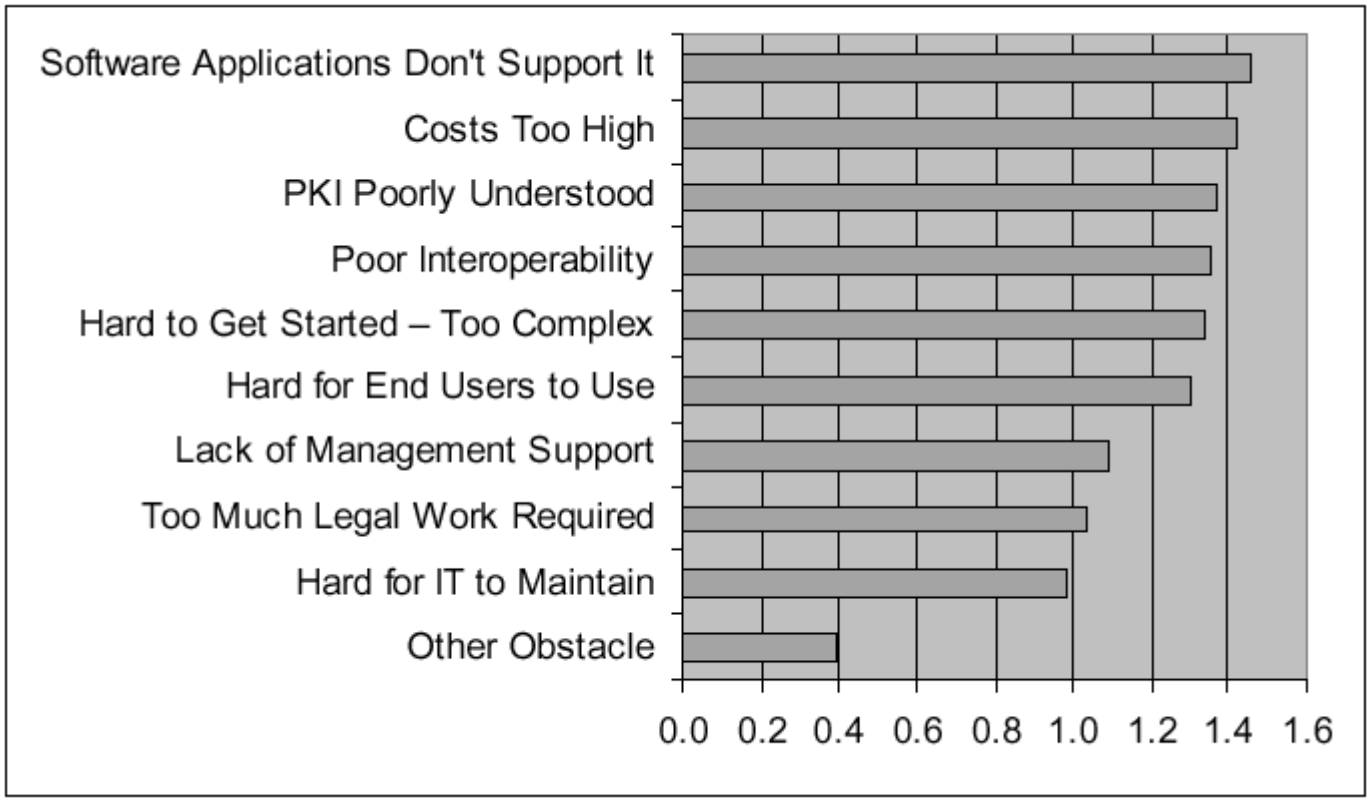
PKI Application Weights



Obstacles

- Participants presented a list of obstacles and requested to rank each as:
  - Major Obstacle
  - Minor Obstacle
  - Not an Obstacle
- Write-in responses (“Other”) were solicited and ranked the same way
- Ranking
  - Responses were weight ranked using the same technique as applied for Application Weights
  - No obstacle was ranked “Not an Obstacle” by the majority, indicating all were relevant
  - Top two obstacles rated as “Major” by the majority, top six rated “Major” by a substantial number
- 92% indicated they would use PKI more if obstacles were removed.

PKI Obstacles – Weighted Ranking



Additional PKI Obstacles

Summary	Responses
Insufficient ROI/business justification/need	9
Enrollment too complicated	5
Smart card problems (cost, driver and OS problems, readers rare)	5
Revocation hard	5
Standards (too many, incompatible, changing, poorly coordinated)	4
Too much focus on PKI technology, not enough on business need	4
No universal CA	2
Too complex	2
Insufficient skilled personnel	2
Poor implementations	2

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Follow-up Survey

- Motivation
  - Original survey results indicated more detailed information needed in order to build an action plan
- Response
  - Mixed success: 89% respondents participated in the initial survey but overall response was low (74 vs. 216 for the original survey)
  - Many demographic measures unchanged but some differences noted:
    - IT Management down to 26% from 29%
    - S/W Developers down to 9% from 12%
    - Consultants up to 20% from 10%
  - Few differences noted in Application Importance
- Concluded the follow-up survey may be useful in developing the Action Plan

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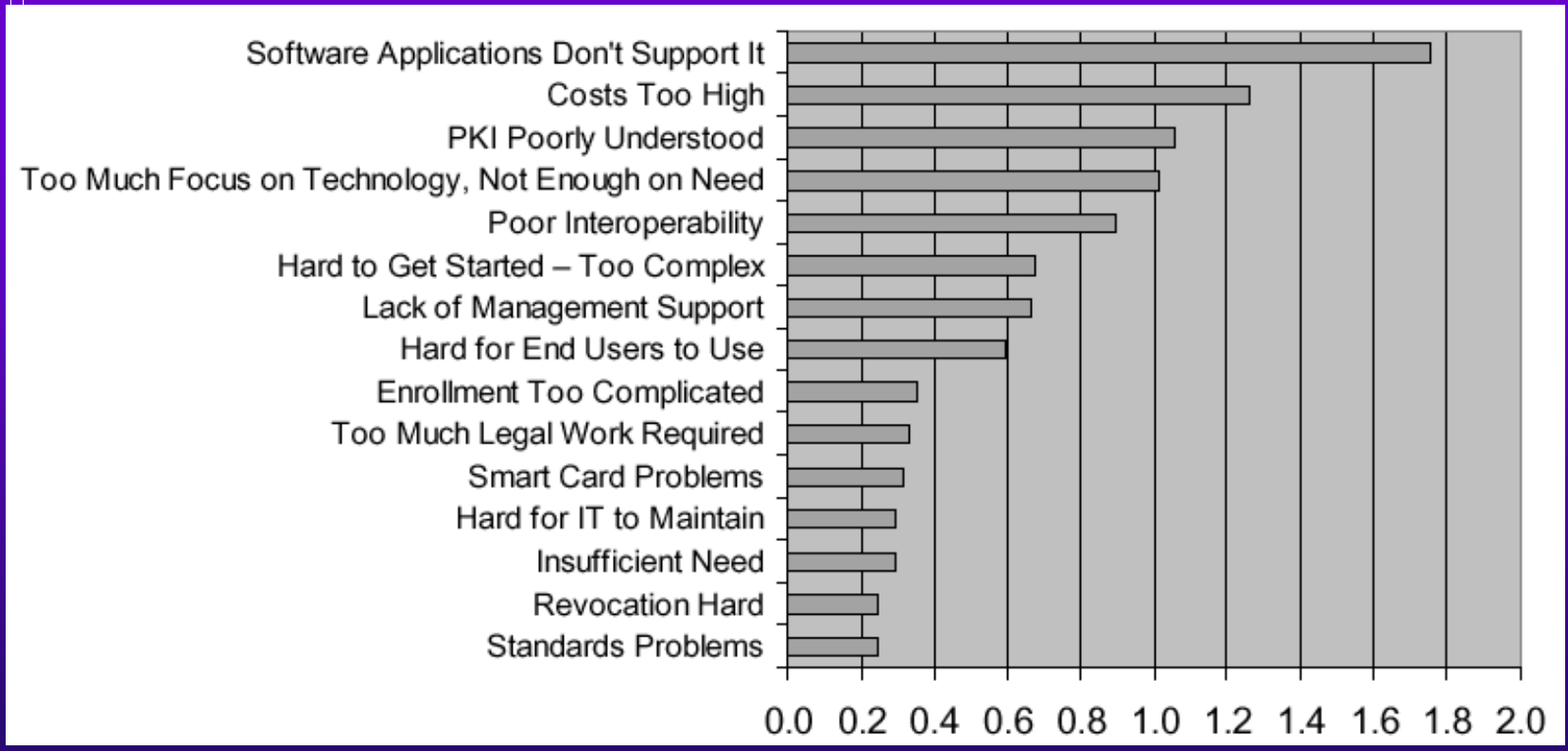
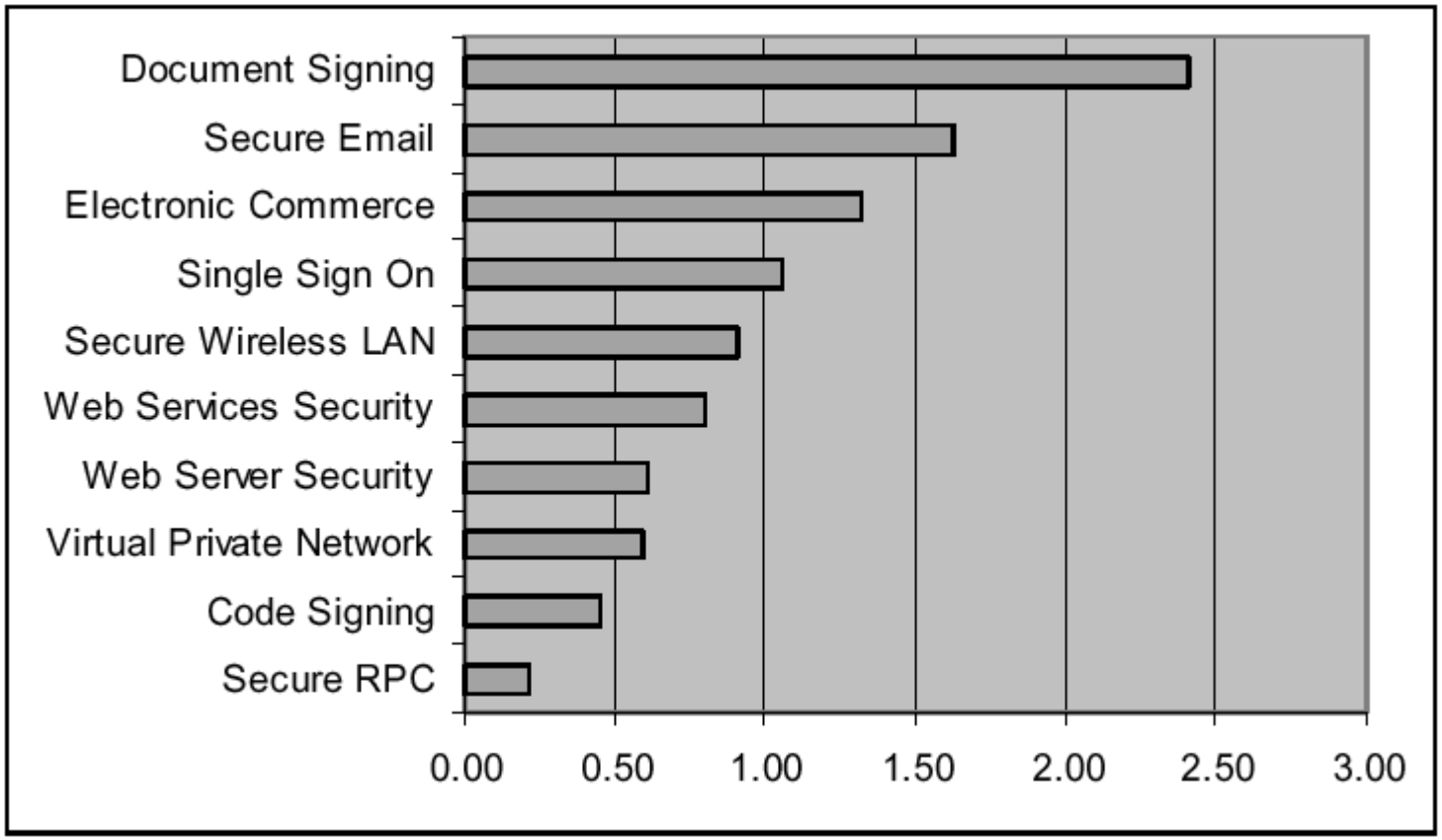
Better Understanding of Obstacles

- Method
  - Participants asked to rank obstacles by relative importance by allocating 10 points among the obstacles
  - Added clarifying questions regarding the obstacles
  - Asked for suggestions on how to address the obstacles
  - Added six additional obstacles identified by respondents in the original survey

Obstacles Ranked by Importance



Applications Ranked by Need for Improvements in PKI Support



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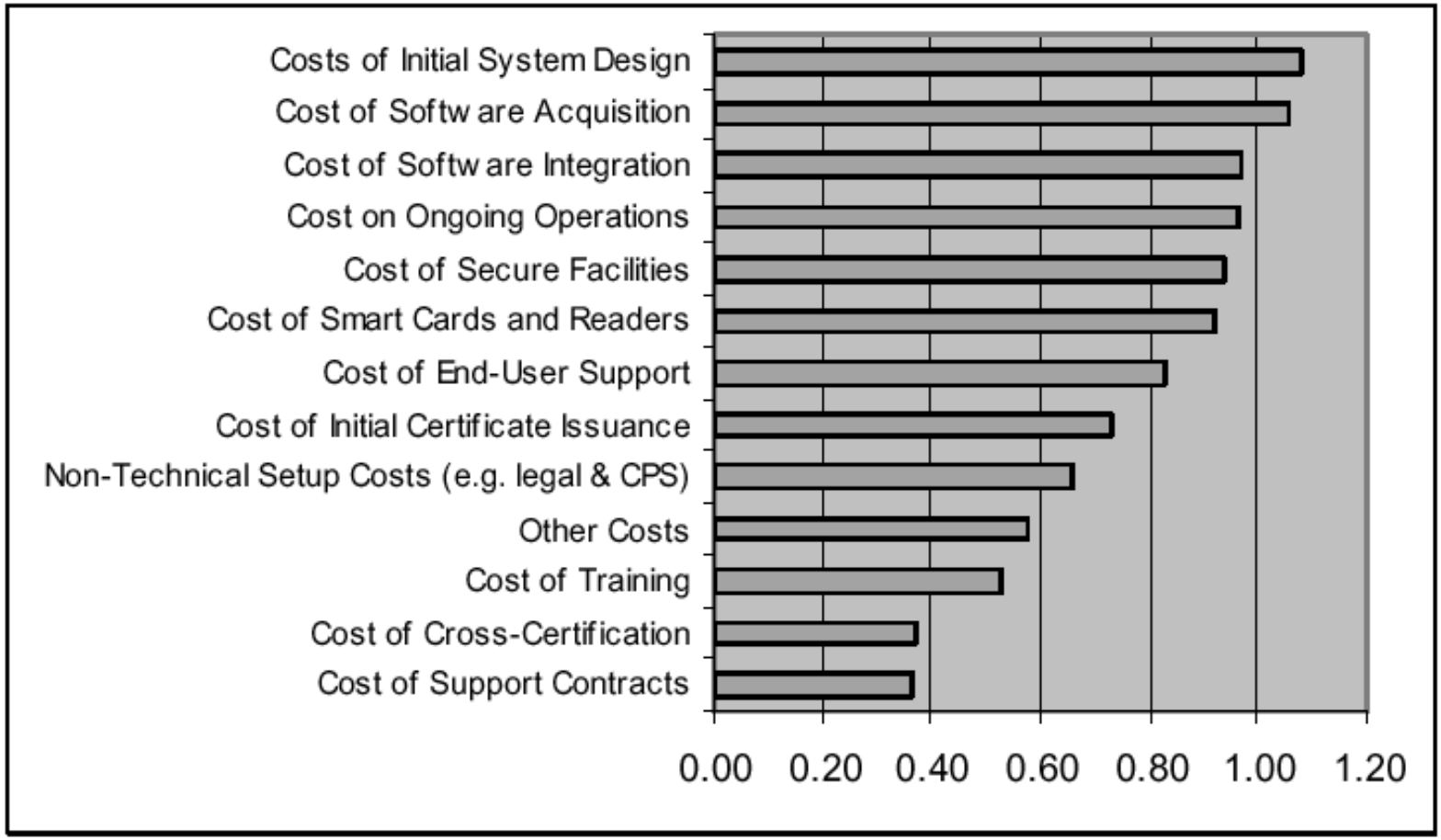
How Application Support for PKI is Insufficient

- Application support is inconsistent
  - Many applications have no support at all
  - Applications with support vary widely in what services are supported making it difficult to deploy PKI
  - Interoperation is nearly impossible prompting respondents to call for detailed standards to ensure interoperability
- Suggestions for improvement
  - Create guidelines for each type of application on how PKI support should be implemented
  - Encourage vendors to include PKI features in OS's (e.g. smart card support)

Costs Ranked by Most Problematic



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Other Cost Questions

- "Would you say that these cost problems are largely eliminated if the number of users involved is large (amortizing large fixed costs)?"
  - Yes: 31% No: 45% No Response: 24%
- "Do your comments about costs pertain primarily to outsourced PKI services, in-house PKI, or both?"
  - Outsourced: 9% In-house: 23% Both: 24% No Response: 24%
- Comments on what to do to help reduce costs include:
  - Promote specific standards that avoid the need for customization
  - Outsource
  - Encourage free PKI S/W and free CAs for low-assurance applications

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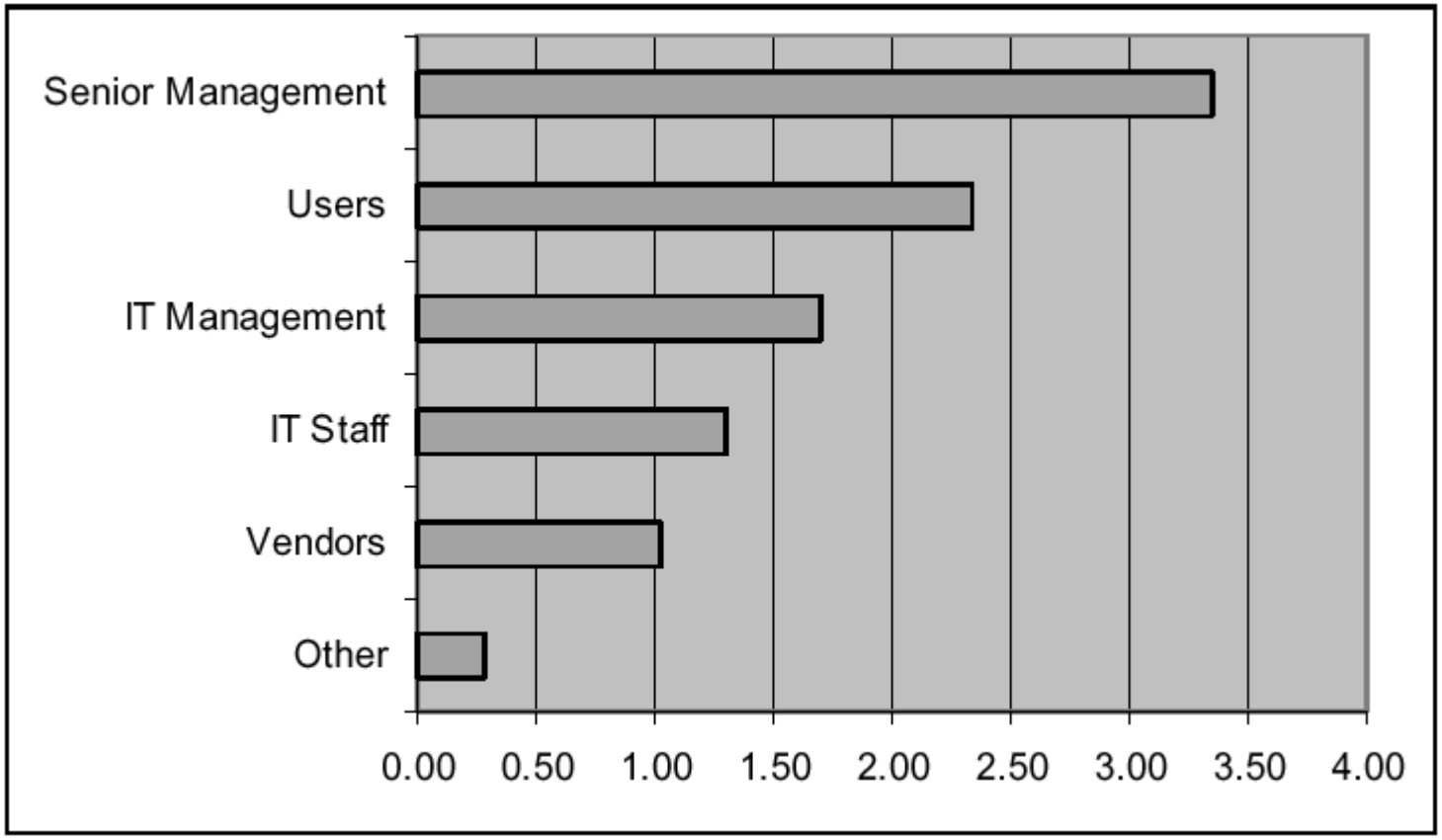
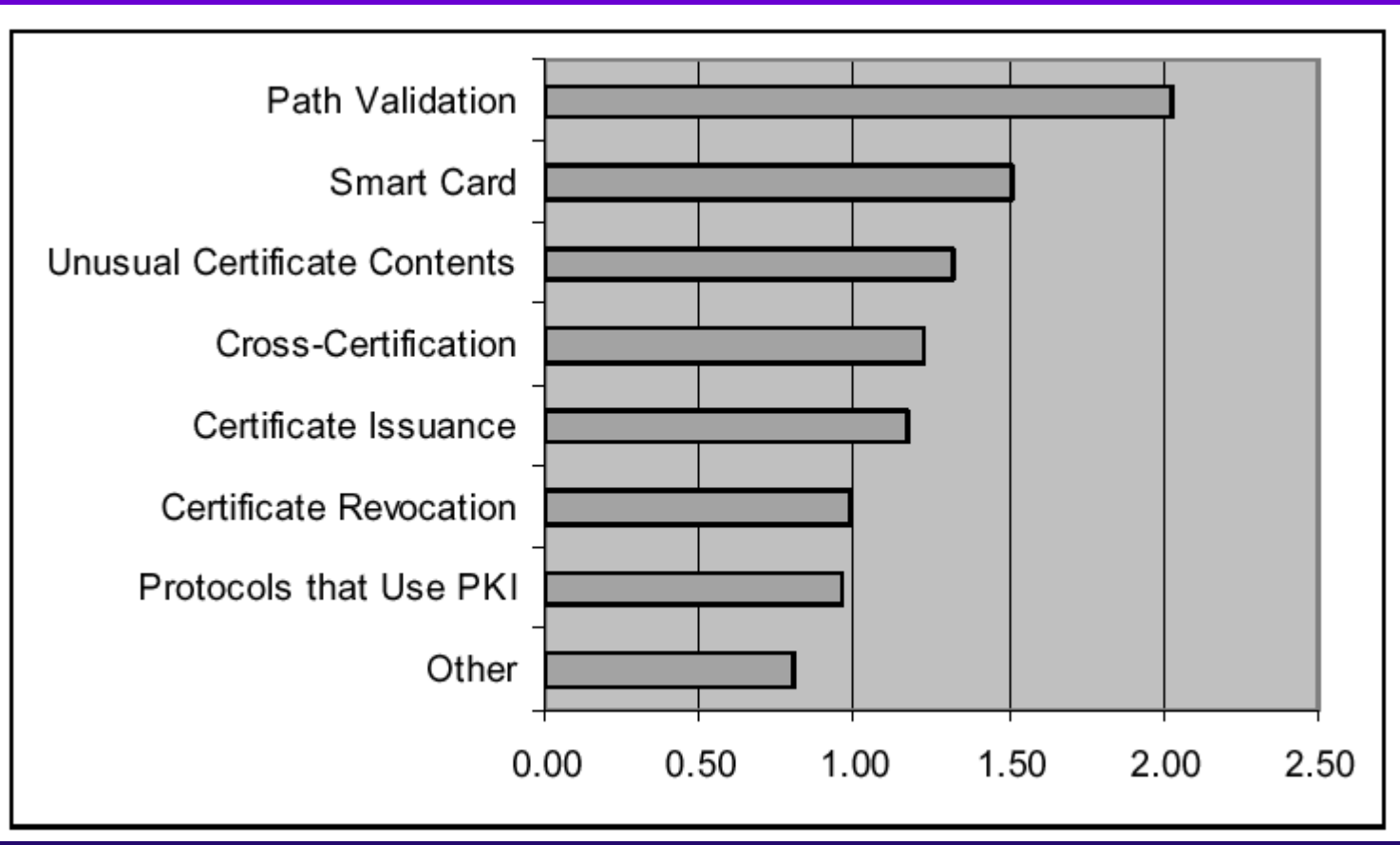
Parties Ranked by Greatest Need for PKI Understanding



Where the Most Serious Interoperability Problems Arise



Interoperability Comments

- Standards are inadequate
- In some cases (e.g. certificate management) there are too many standards
- In others (as with smart cards) there are too few
- When present, standards are frequently too flexible and too complex
- Overly flexible and complex standards create an environment where implementation from different vendors rarely interoperate

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OASIS PKI Action Plan

- Status
  - Drafted by OASIS PKI TC based on survey responses
  - Circulated widely for review and revised in response
  - Announced at RSA Conference, February 2004 with 24 Individual Supporters and 8 Organizational Supporters
  - Implementation starting

Action Items

- Develop Application Guidelines for PKI Use
- Increase Testing to Improve Interoperability
- Ask Application Vendors What They Need to Add PKI Support
- Gather and Supplement Educational Materials on PKI
- Explore Ways to Lower Costs

Action Plan for the Industry

- The OASIS PKI TC recognizes it cannot act independently in developing and implementing this Action Plan
- The PKI TC will consult with as many parties as possible to gather feedback and support
- The PKI TC recognizes that many of the actions should be undertaken by others
- In a sense, this serves as a Call to Action for the industry
  - It may seem presumptuous for the PKI TC to issue such a call, but the TC is only passing on the requests made by hundreds of PKI users and customers expressed through the survey
- The PKI TC will work with relevant parties before announcing this plan so the document can become a consensus plan with buy-in from all concerned

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How You Can Help

- Read the PKI Action Plan
  - http://www.oasis-open.org/committees/pki/pkiactionplan.pdf
- Sign On as an Individual or Organizational Supporter
- Join the OASIS PKI TC
  - http://www.oasis-open.org/join
- Help Implement the PKI Action Plan
- To follow up, contact pki-tc-chairs@lists.oasis-open.org

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Discussion