



NSF-ERC Annual Meeting

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Nov 28-30 2007

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Gen 3 NSF- ERC



- Supporting transformational, research from fundamentals through to innovation in collaboration with small firms
- International partnership in research and education
- Developing engineering education programs designed to create innovative, entrepreneurial engineers not process-focused “commodity engineers”
- Technology development aimed at swift market introduction



Observations



- Chinese ERCs emphasize in technology transfer and economic development
- Korea ERC is more focus on technology development.
- NSF-ERC is far more balanced and comprehensive.
- NSF-ERC is still blazing the trail and with far broader missions encompassing research, education, outreach, industry collaboration and technology transfer.



US competitiveness in Global Marketplace



With the concern of US industries losing its leadership position under the increasing global competition,

I believe the third generation of ERC should be more engaged in the technology transfer activities by working more closely with industries.



“Image” Problem



“ US is perceived as arrogant and uncooperative by many institutions we visited”



Globalization



- **“Globalization is not a choice”**

The U.S. National Academy of Engineering (NAE)

- So what is the proper “Mind Set” in this increasing flat world where people can compete in real time from every corner in this planet and on a more equal footing?

Food for Thought



- Most US firms are global corporations, with strong presence in oversea in many respects whether it is manufacturing facilities, marketing, engineering, or other human resources.
- To better serve our industries, do we need to actively engaged in some form of collaboration to their local institutions who are currently serving our industries?

If so, how?



An Asian Alliance



in the area of Nano Modeling Initiatives

- Funded by Japanese Government
 - NSI/NCRC (Korea): Platform technology, & Mixed-mode modeling
 - Tsinghua (China) : Device simulation
 - Hiroshima (Japan): Compact modeling
 - HKUST (Hong Kong): Circuit simulation
- Each university only received about \$50K. The total budget is about \$300K US dollars annually.
- The group meets 2-3 times a year to discuss their joint effort toward developing the modeling and simulation platform.
- The outcome of this collaboration is the modeling and simulation software.



Recommendation



- The Gen 3 ERCs should seek for synergistic partners for global collaboration.
- NSF should take the leadership role in funding, coordinating and integrating the global research result.
- NSF should earmark a portion of the ERC funding (say, approximately \$500K) for the purpose of global collaboration and “good will”.



Finally, A Question



- All Gen 3 ERCs are expected to establish multi-university team
- All ERCs are expected to address
 - Basic research,
 - Technology development,
 - Industry collaboration and Tech transfer,
 - Education/Outreach,
 - Curriculum development and integration' (for multiple institutions ERCs),
 - Globalization
- All ERCs are expected to do well in all aspects

It is realistic?