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Connecting National Nanotech Clusters to Global Networks

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Starting points

- Innovation is NOT invention => commercialization strategies
- Nanotech as Generic Technologies
 - Technological complexity and multidisciplinary
technology uncertainty
 - Enabler for further innovation with potential for major economic impact across industries and applications
market uncertainty
 - Patents Gold-Rush and fragmented IPRs landscape
strategic uncertainty

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To market generic technologies: entrepreneurial options

- **Sell-Out:** sell the current patent in the *markets for technology* and go back to potentially innovate again
 - **Compete:** develop the final products and compete vis-à-vis with incumbents
 - **Collaborate:** R&D contracts + licensing agreements to develop and market the product
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Bridging Research and Market ...

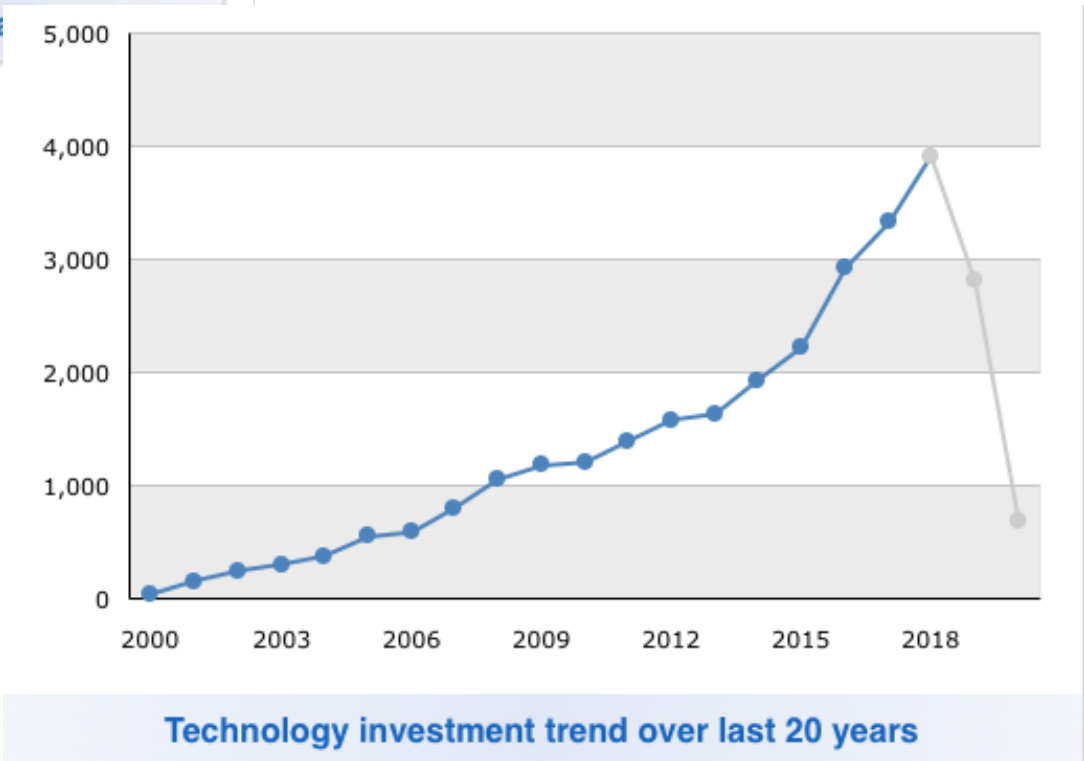
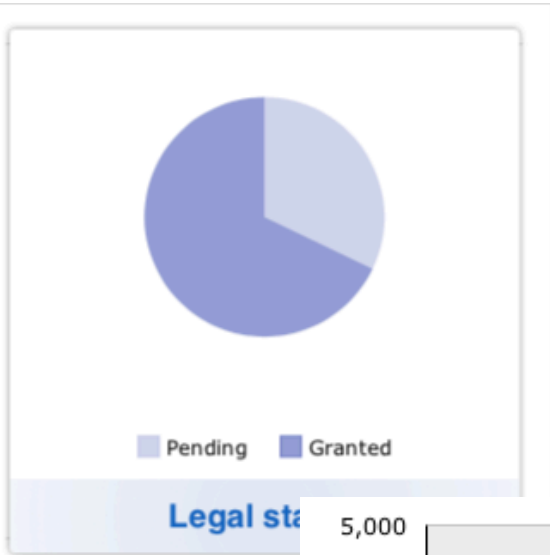


Trend in nanotubes patents' applications (2000-2018)

28895 patented inventions
11% owned by top 10 players

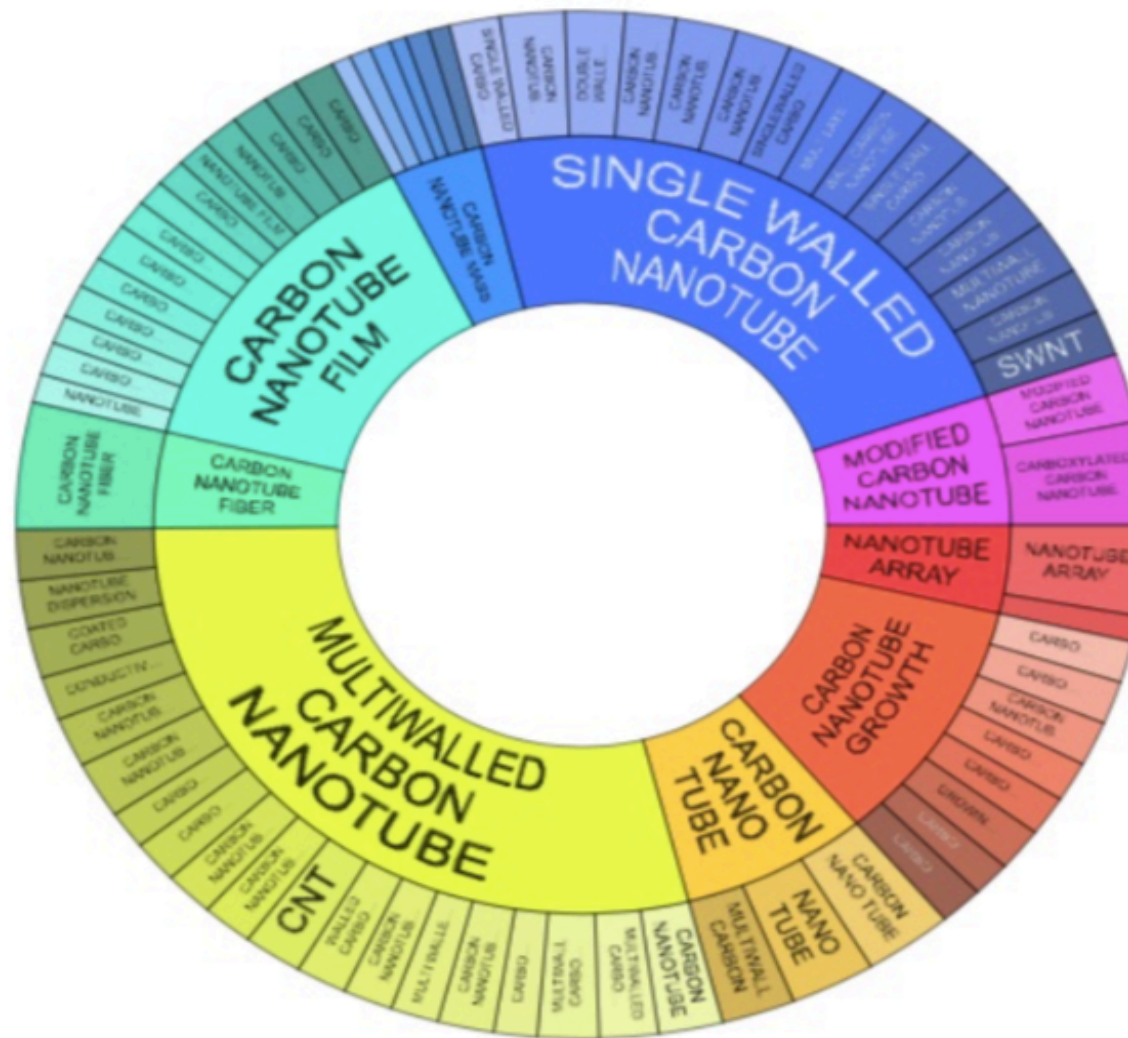
19 Litigated 596 Opposed
17 Licensed 2 SEPs

Key inventions



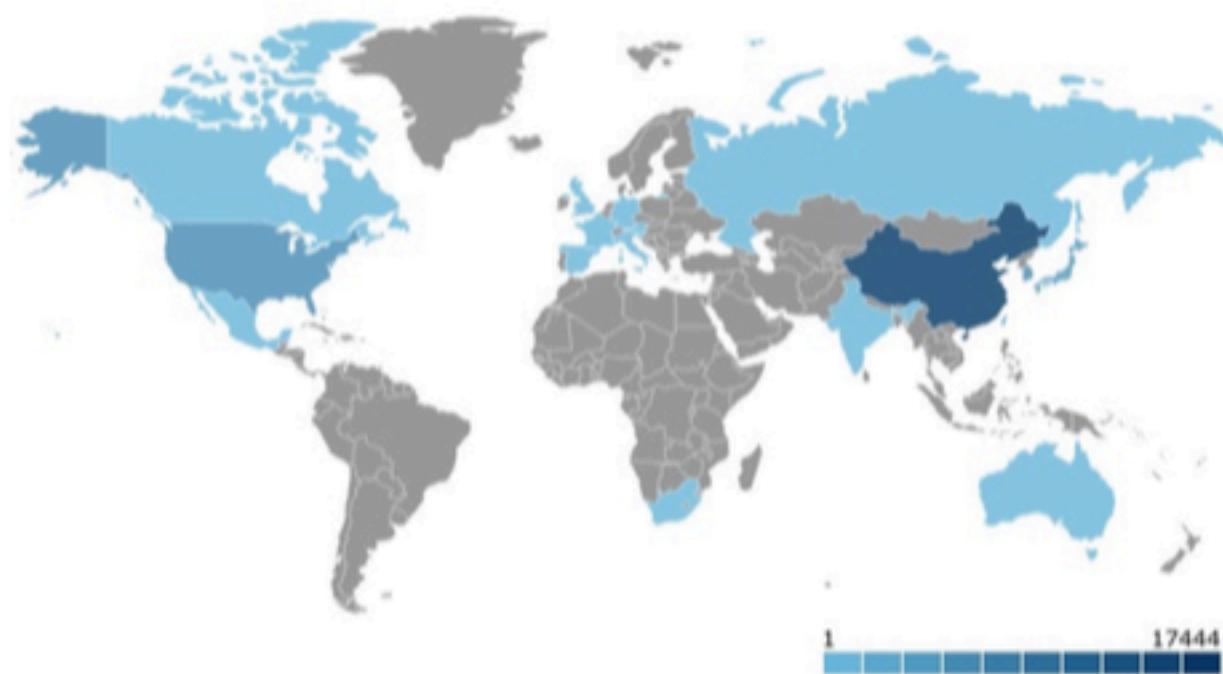
Nanotubes patents & technology & market uncertainty

Technologies & applications



The geography Nanotubes patents' applications & country coverage (2000-2018)

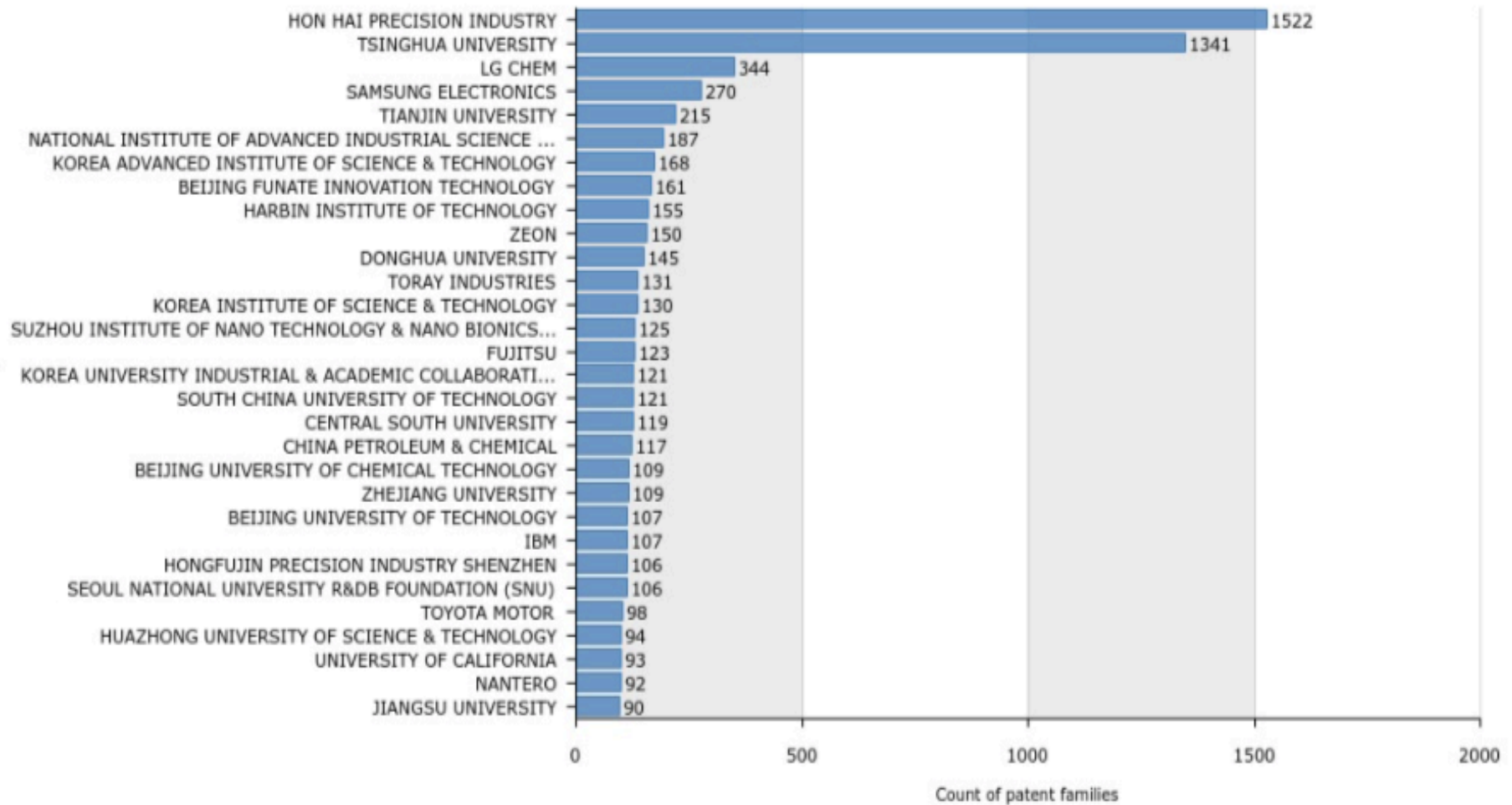
Patent families by Protection country



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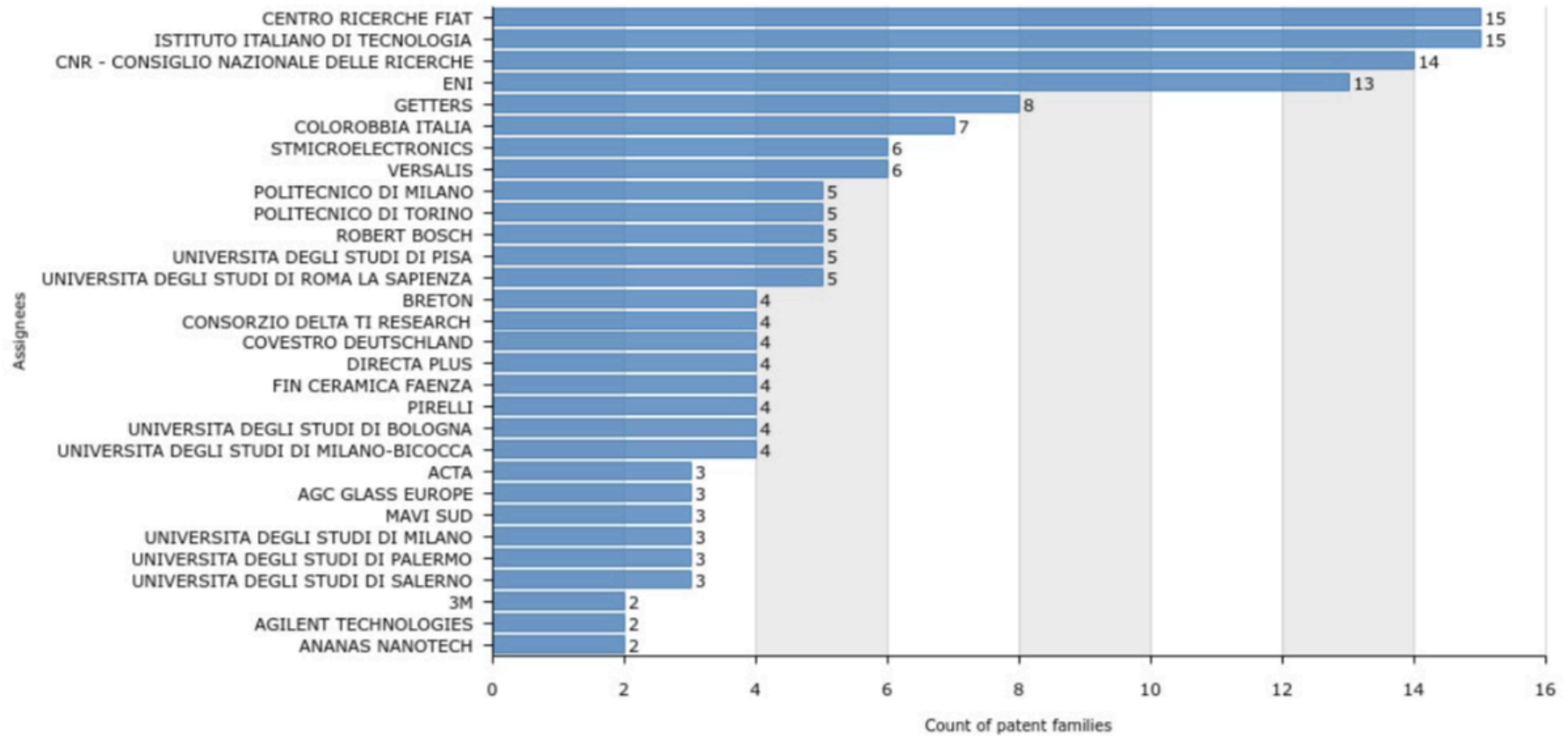
Key players CNT – Global Perspective

Patent families by Assignees

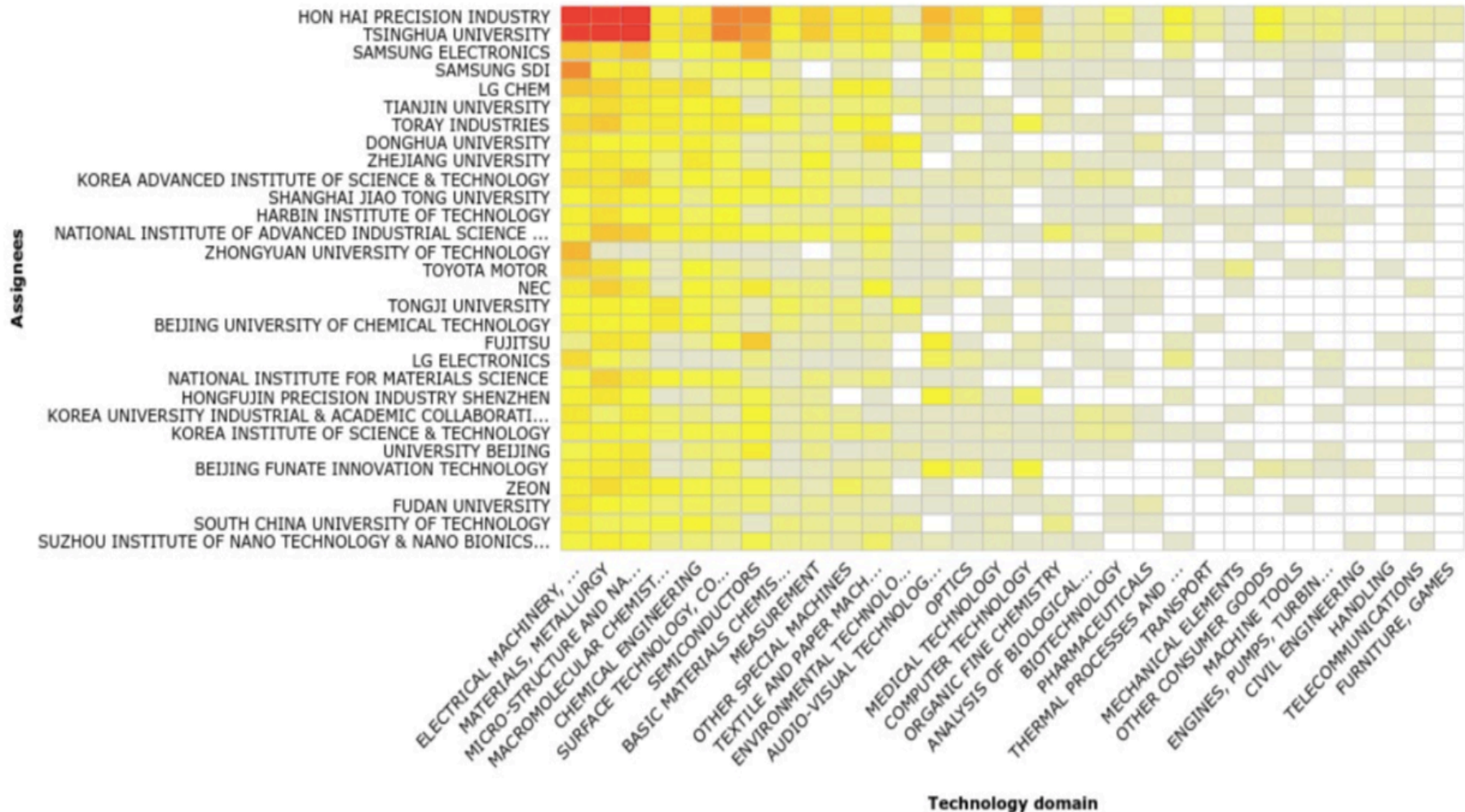


Key players CNT – National Perspective

Key players



Key players CNT & Technology domain



Implications for Research and Practice

- New ‘food for thoughts’ for integrating IPR management in Ph.D programs
- Universities & Research Centers can and do pay attention to the patent portfolio analysis and develop organizational capabilities => Third Mission & Impact
- Boosting entrepreneurial mindsets in students & junior researchers => spinoff & start-ups

Thank you for comments!

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