

# Is Silicon Valley Still a Hot Bed for Wireless Technology

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**June 2005**

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# Dr. Mehmet Unsoy Background

- **30 yr experience in data & wireless networking**
- **Senior positions at BNR & Nortel in Canada, Asia & USA**
- **CTO / Chief Architect at BT Wireless, mmO2 in the UK & Europe**
- **Board member of wireless technology companies & Advisor to VCs**
- **Partner at Cartagena Capital (global investment banking)**
- **Managing Partner at TIPRA (global innovation placement)**



# Cartagena Capital

- **Independent investment bank for strategic and financial advisory services to clients in the global TMT sector, with major emphasis on wireless**
- **Transactional know-how for international strategic advisory, fundraising and M&A transactions**
- **Offers its services to small and medium-sized companies, venture capital and private equity funds,**



- **Global Network with 12 Partners in 7 countries in 3 continents**
- **Former executives in mobile operators, equipment vendors, technology start-ups, venture capital companies, major investment banks and consulting firms**

# TIPRA | *Creating Value from Innovation*<sup>SM</sup>

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- **Global leader in facilitating commercialization of innovative technology**
- **Deep domain expertise, including**
  - **Wireless,**
  - **IP & Internet,**
  - **Optical & Photonics**
  - **MEMS and Nanotechnology**
- **Working with**
  - **Research Labs**
  - **Innovative start-ups**
  - **Universities**
  - **Venture Capital firms**
- **Offering**
  - **Licensing, OEM'ing and sourcing of IPR**

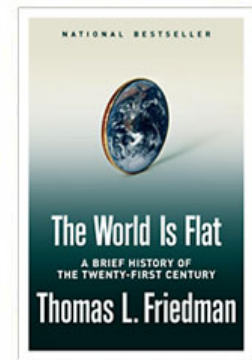


**Global network with over 20 partners in 7 countries, in 3 continents, and growing!**

# Globe is Flattening for Innovation

- **Globalization, universal high-speed Internet access and various other reasons make innovation more widespread around the world**
- **India and China are appearing as major locations for new innovation centers**
  - **Next biggest Silicon Valleys – Bangalore and Beijing**
- **U.S. VCs are opening offices in places like India, China and Russia**
  - **Even though only 11% of U.S. VCs invest abroad today, 42% are planning to invest abroad and 33% planning to open offices abroad**
- **Indian units of IBM, Cisco, TI, Intel have filed more than 1000 patent applications with the U.S. Patent Office**
- **“Globalization of Innovation” is underway**

**“Flat world is about connecting all the knowledge pools together” Thomas Friedman**



# But, there are some Today's Realities

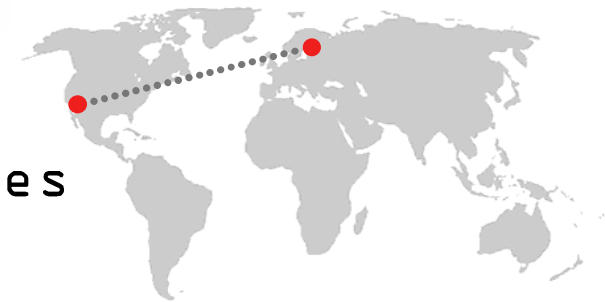
- **Most of the Internet related R&D is centered in the U.S., and Silicon Valley is the largest hot bed for Internet related innovation**
- **Big majority of VC investments are made in the U.S., and Silicon Valley is the largest hot bed for VC funded companies**
- **U.S. remains to be the top target for investors worldwide; 65% of all VCs plan to invest in the U.S.**
- **Majority of “content”, especially multimedia content originate from the U.S., and the U.S. West Coast is the hot bed of multimedia content**
- **Largest global IT and Software companies are headquartered in the U.S. West Coast**

# Wireless Innovation in the U.S.

- **U.S. companies lead on various aspects of cellular and non-cellular wireless research and development, for beyond 3G**
  - **U.S. leadership on Wi-Fi, Wi-Max, UWB and other technologies, e.g. OFDM**
- **Future of wireless is depended very much on content and content delivery**
  - **U.S. leadership on multimedia content and content delivery**
- **Fixed mobile convergence is one of the top telecom trends today**
  - **Several U.S. companies lead the world on convergence front**

# European VC offices in Silicon Valley

- SMAC
- Nokia
- Nexit (Nordic)



# Other Operator Research Labs in Silicon Valley

## DoCoMo USA Labs

Focus on Mobile Internet technologies

Groups:

- Media Lab
- Mobile Software Lab
- Network Architecture Lab
- Network Services & Security Lab



## Vodafone Group R&D USA

Focus on

- Establish technical strategy
- Drive standards
- All-IP program with 54 projects
- Service enabling research program

# U.S. to Europe Innovation Flow - Convergence

- **Several U.S. companies & start-up are innovating**
  - **Wi-Fi and cellular integration**
  - **Dual mode handsets / device convergence**
  - **IMS based architectures and solutions**
  - **VoIP MVNOs**
  - **Triple Play evolving to Quad Play**
- **Bridgeport Networks is one example**
  - **Innovating around IMS architecture, SIP signaling, cross-domain handoff**
- **Trials with European operators**
  - **BT, Vodafone, T-Mobile, etc**

# U.S. to Europe Innovation Flow – Multimedia Content Delivery

- **Mobile TV is a hot topic for innovation**
  - Unicast vs Multicast vs Broadcast
  - Dedicated network solutions such as DVB-H, MediaFLO
  - Cellular network based solutions such as BCMCS, MBMS
- **Roundbox is one example**
  - Innovating around enabling the operator to integrate solution for Mobile TV
  - Supporting various combinations of DVB-H, MediaFLO, BCMCS and MBMS
- **Manystreams is another example**
  - Innovating around enabling the operator to control, manage and process multiple live video streams to create more compelling video services
- **Trials with European operators**
  - Various trials being discussed / planned with European operators
  - Some U.S. trials being monitored by European operators

# U.S. to Europe Innovation Flow – Beyond 3G

- **Innovation at various technologies in the U.S.**
  - **Wi-Fi, Wi-Max, etc**
  - **W-CDMA TDD**
  - **OFDM and Flash OFDM**
- **Large number of U.S. companies involved**
  - **Texas Instruments, Intel, Qualcomm, etc.**
  - **Flarion, IP Wireless, etc**
- **Trials with European operators**
  - **Flarion and IP Wireless trials**

# Conclusions

- **Globe is flattening for innovation**
- **But, U.S. and Silicon Valley in particular, maintain lead on mobile Internet, mobile multimedia content and next generation wireless technologies**
- **Thus it is fair to say that Silicon Valley is still a hot bed for wireless technologies, even though it is not the only one.**