Metanational Innovation: A framework to understand Configuration and Coordination decisions in Distributed Innovation

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(Adapted from “Managing Global Innovations”, HBSP, forthcoming 2008)
Building Global Advantage

Home-Country Leadership
- Competence
- Cost
- Competition
- Customers

Learning From the World
- Sensing
- Melding
- Leveraging

The Traditional Multinational

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The New Metanational
Even from Silicon Valley, can you ignore?

- Austin, Texas;
- Bangalore, India;
- Boston, Massachusetts;
- Cambridge, England;
- Helsinki, Finland;
- Salt Lake City, Utah;
- Seattle, Washington State;
- Singapore;
- Sophia-Antipolis, France;
- Tel Aviv/ Haiffa, Israel.

Hyderabad, India
Budapest, Hungary
Hsinchu, Taiwan
Tampere, Finland
St Petersburg, Russia
Ekaterinenburg, Russia
Tsukuba, Japan

Wired Magazine’s 10 “Hotspots” Any IT Company Needs to Track

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A global knowledge jigsaw:
e.g., ST Microelectronics’ HDD controller chips

- Engineering and Design Capability / Close understanding of customer application / Design Center: S. Jose CA
- Lead Customers R&D and Engineering (Seagate, Western Digital): US (namely California, Colorado)
- Competence on R/W technology - JV with EXAR, CA
- Engineering and Design skills in fast micro-processors: Bristol, U.K.
- Process Technology R&D in BICMOS (mixed) and CMOS (digital); Manufacturing (Front End): Grenoble, France
- Engineering and Design skills in digital servo controllers - JV with SSD: Dublin, Ireland
- Design of ‘packaging’, testing and final assembly (Back End) capability: Malaysia, Singapore
- Customers’ Manufacturing Technology: Far East
- Joint Design center with Seagate: Scotts Valley, CA
- JV for new microprocessor development with Siemens, Germany
- Process Technology R&D in Bipolar and BCD; Design competence on analog and mixed chips: Milan, Italy
- Coordination and strategic capability: Geneva, Switzerland
- Engineering and Design skills in digital servo controllers - JV with SSD: Dublin, Ireland
- Engineering and Design skills in digital micro-processors: Bristol, U.K.
- JV for new microprocessor development with Siemens, Germany

Can your organization do this?

Doz, Santos, Williamson, INSEAD, 2004
Moving the Innovation Frontier

- Optimizing Knowledge Mobility
- Optimizing Communication & Co-operation
- Optimizing Absorptive Capacity

- Complex ‘sticky’ knowledge
- Simplified Mobile knowledge
- Co-location
- Dispersion

EASY
IMPOSSIBLE

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Moving the Innovation Frontier

Co-location ← Optimizing the ‘footprint’ → Dispersion

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An innovation footprint needs to deliver value at three levels:

- **Difficult**
  - Non-traditional approaches
  - Standard tools & methodologies

- **Easier**
  - Joint dispersed projects -faster time to market - global products
  - Internal knowledge re-use

- **Measuring value**
  - Better innovation capability
  - Access to differentiated knowledge - increased diversity - skills & capabilities
  - Local linkages - deep customer insights - external partners
  - Quality human resources

- **Combination**
  - Discovery
    - Quality of innovations
    - Differentiated innovation pipeline
    - Greater flexibility (projects)
    - Best practice sharing
    - Quality of innovations
    - Differentiated innovation pipeline
    - Greater flexibility (projects)

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Changing drivers of internationalisation

Up to 1979
- Legacy: 29%
- Skills Capabilities: 16%
- Proximity Production: 18%
- Close to HQ: 14%
- Market Customer: 10%
- Subsidies incentives: 9%

1980 to 1995
- Legacy: 17%
- Skills Capabilities: 16%
- Proximity Production: 17%
- Market & Customer Insight: 19%
- Subsidies incentives: 13%

1996 to 2005
- Legacy: 11%
- Skills Capabilities: 16%
- Proximity Production: 13%
- Close to HQ: 10%
- Market & Customer Insight: 22%
- Subsidies incentives: 14%

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Value of Diversity vs. Cost of Dispersion

\[ \text{D (Degree of Dispersion = “footprint”) \quad \text{Value}} \]

\[ \text{Cost} \]

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Value and Cost of an Innovation as a Function of Dispersion

Knowledge Dispersion for Your Innovations (e.g., high speed drug lead screening vs. flat displays)

The nature and mobility of needed knowledge (e.g., perfumes vs. software code)

Your strategic choices (e.g., Intel vs. STMicroelectronics)

Your heritage and competence trajectory (e.g., Toyota vs. GM)

Distributed entrepreneurship and serendipity (e.g., Intel Israel, HP Singapore, Glaxo-Japan Tobacco)

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Novartis: Balancing cost & value

(simplified chart)

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A Tale of Two Products

Printers (2002)

- U.S
- SGP
- Malaysia
- Thailand

‘Cartridges’ (2002)

- U.S
- 3 M
- Du Pont

Development

Manufacturing

Research, Product creation

SGP suppliers

EQT

Bayer

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Getting the best of both?

So as to minimize ’distance’:

Access to other knowledge pieces:
• Geographic distance
• Cultural/contextual distance
• Knowledge complexity

Maximize Value of....

Minimize Cost of....

‘Rooted’ Co-located Knowledge Sources

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GM’s Global Innovation Network

Global Management Group

Being There?

Linking and Leveraging?

Canada
USA
Mexico
Brazil
China
India
Australia
Sweden
Germany
United Kingdom
Italy (FIAT)
Japan (Suzuki, Isuzu, Fuji)

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Issues to consider in choosing ‘footprint’:

• How diverse and complementary (co-specialized) are potential knowledge contributions from different places?

• Ease and efficiency of being ‘here, together, now ’ vs. Opportunity cost of getting only ‘fair’ expertise in some domains?

• Are some knowledge contributions more mobile than others?

• How difficult/costly is it to discover and access pieces of distant and diverse knowledge?

• In Sum: Value of diversity vs. Difficulty of melding diverse and distant knowledge?
‘Metanational’ dispersed innovation is likely to prevail in the future:

VALUE OF DIVERSITY 
MINUS COST OF 
DISPERSION

FOOTPRINT’s SIZE

V-C ‘CURRENT’

V-C ‘ORIGINAL’

V-C ‘FUTURE’

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The Perils of Open Innovation: Pixtech’s Alliances

- Futaba
- Motorola
- Raytheon
- TI
- F.E.D. Alliances
- US Financial Market
- Capital
- Rhone-Poulenc
- Nichia
- SAES Getters
- Materials Tech.
- PixTech
- LETI
- Research
- Unipac
- Manufacturing
- Sumitomo
- Distribution
- © Yves Doz, INSEAD, 2006
What Were the strategic Issues PixTech was Facing?

• To gain critical mass in R&D quickly

• To manage a migration path from small volume, early, high price applications to mass markets, fast enough

• To set interface and technology standards for F.E.D. screens

• To ramp up manufacturing and marketing fast enough

• To identify and intercept capabilities and know-how of leaders in related fields (e.g., AMLCD)

Speed, size, credibility, learning…
PixTech’s Strategic Development Plan

COMPETENCE ACCESS AND ACCUMULATION

MARKET DEVELOPMENT APPLICATION MIGRATION

Credibility

Emergency Medical monitoring

Military Vehicle & aircraft

On board communications, avionics

Vacuum technologies

Semi-conductor manufacturing process skills

Specialised Application know-how, contracting & bidding

Low cost mass manufacturing

Very high quality reliability design & manufacturing

Hi-speed video games, interactive TV

Computer CRTs

Intelligent Appliances, domotics

Car navigation/ GPS mapping

In-flight entertainment

Laptop

Mitsubishi, Micron

Futaba

Motorola

Raytheon

Texas Instruments

PixTech

United Microelectronics

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New Style Partnering: PixTech’s Open innovation Web

**Strategic benefits**

- Share and reduce risks of unproven technology
- Accelerate joint learning of new technology
- Co-opt major industry players / application developers into early adoption
- Catch up leading alternative technologies (e.g., AMLCD)
- Maintain leadership via network development and benevolent leadership
New Style Partnering: PixTech’s Open innovation Web

Managerial demands

• Strategic skills and vision, sense for sequencing series of alliances
• Social capital and broker roles / skills ("entrepreneur")
• Seeking success via dependence on others
• Network benevolent leadership