SME IP Management and Development with Globally Distributed Innovation Teams – Challenges and Opportunities

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SME IP Development is Challenged In Many Ways

- Ever increasing/aggressive IP activity by major private and public entities
- SME’s limited knowledge and experience in IP development
- Lack of clarity on value of IP with early/evolving SME business development and competitiveness strategies
- Tantalizing low cost “stealth” and “trade secret” strategies that require little effort and expenditure – but provide limited protection
- Frequently complex, costly and “user unfriendly” systems to establish IP
- Long gestation time from filing to issuance of granted patents
- Complex and costly legal procedures to prosecute and advance IP globally
- Widely varying/jurisdiction specific patent enforcement mechanisms

Accelergy’s Experience and Other SME “Best Practice” Studies Helping to Develop Successful Strategies to Insure SME Competitiveness in Global IP Development
Global IP Activity Continues to Grow

In Ever Increasing Numbers This IP Originates from Globally Distributed Teams Including Those from Small-Medium Sized Enterprises
China’s Importance to Global IP Development Is Clear – Providing Many Challenges to SME’s Operating There

**Patent applications of the top five offices**
(2012)

<table>
<thead>
<tr>
<th>Country</th>
<th>Applications</th>
<th>Growth (%) 2011-12</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>652,777</td>
<td>24.0</td>
</tr>
<tr>
<td>US</td>
<td>542,815</td>
<td>7.8</td>
</tr>
<tr>
<td>Japan</td>
<td>342,796</td>
<td>0.1</td>
</tr>
<tr>
<td>Korea</td>
<td>188,915</td>
<td>5.6</td>
</tr>
<tr>
<td>European Patent Office</td>
<td>148,560</td>
<td>4.0</td>
</tr>
</tbody>
</table>

Source: WIPO Statistics Database
SME Intellectual Property Strategies Come in Many Forms

<table>
<thead>
<tr>
<th>Patents</th>
<th>Publications</th>
<th>Know-how/Trade Secrets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legally Protected Intellectual Property</td>
<td>Prior Art that Precludes Others from Patenting</td>
<td>Undisclosed IP Protected Only by “Secrecy”</td>
</tr>
</tbody>
</table>

- **Overall SME IP Strategy Must be Focused While Addressing Overall Corporate Objectives, Organizational, Legal and Business/Competitiveness Related Issues**
  - IP Developed from Multiple Jurisdictions/Cultures/Business Practices
  - Requires Special Attention to Secure Full/Sustainable Value

- **There Are No Simple “One Size Fits All” Answers – Requiring General Learnings and Approaches to be Tailored to Individual Needs**

- **Recent Studies in China, Europe, South Africa and US Provide Helpful Basic Insights and Guidance for SME Operated Programs with Globally Distributed Teams**
Successful IP Protection Requires Assortment of Externally and Internally Focused Practices

Particularly When Operating with Globally Distributed IP Teams

Key Elements of External and Internal Practices for Successful IP Protection

Focused Practices Essential for Success of Global Teams

External Practices

- **Develop Strategic Clarity** That Defines Detailed Operational, Management, and Work Process Related Objectives and Approaches

- **Insure Overall Programmatic Alignment** Across Borders – Organizations – Working Groups
  - For China Insure Relations are Based Upon the Principle of “Guanxi” and the Importance of Reciprocity, Social Capital and Sustained Personal Relations

- **Establish Alliances with Strategic Partners** to Enhance Competitiveness
  - Selective Partnering with Industry Leading Companies and Government Labs

Internal Practices

- **Disaggregate Processes and Work Systems** to Insure Compartmentalization and Information Sharing on a “Need to Know” Basis – e.g. Bayer China Innovation Model

- **Manage Human Resources/Local Teams** to Insure Planned Collaborations and Information Sharing (or Insulation) Across Organizational Boundaries

- **Insure Dynamism /Flexibility is Operative** in Pursuit of Solutions – IP Development – Market Responsiveness to Allow All Operating Units to Keep Pace with Competing IP Developments
Government Initiatives to Improve SME IP Office Effectiveness

- **AU Patent Office** – Marketing/Training/SME Development Programs
- **CH Patent Office** – Extended Search Tools and IP Assessment Modules
- **EU Patent Office** – Patent Information Centers and Workshops
- **US Patent Office** – Provisional Application Filing Option; Bayh-Dole 1980 To Privatize Government Sponsored Research Output
- **Mexican Government** – Decentralization of National IP Office to More Proactive Regional Offices
- **Korean Government** – SME Partnership Initiatives for All Phases of IP Development
- **Enterprise Ireland** – Enterprise Development Systems
- **Spanish Center for Industrial Technology Development** – Low Interest Loans and Subsidies for Foreign Patent Filing Programs
Proprietary Integrated Process and Products Protected by Patents and “Exclusive” Alliance Agreements

Integration of Best In Class Technologies - Provides Innovative Combinations of Lowest Cost, Highest Value Technologies
Accelergy Chongming/Elion TerraSync™ Demonstration – BioFertilizer for Food Crops and Soil Reclamation

Climate Controlled Greenhouse On Chongming Island

Elion Kubuqi Desert Field Station
An IBTL system having a low GHG footprint for converting biomass to liquid fuels in which a biomass feed is converted to liquids by direct liquefaction and the liquids are upgraded to produce premium fuels. Biomass residues from the direct liquefaction, and optionally additional biomass is pyrolyzed to produce structured biochar, hydrogen for the liquefaction and upgrading, and CO₂ for conversion to algae, including blue green algae (cyanobacteria) in a photobioreactor (PBR). Produced algae and diazotrophic microorganisms are used to produce a biofertilizer that also contains structured biochar. The structured biochar acts as a nucleation agent for the algae in the PBR, as an absorption agent to absorb inorganics from the biomass feed to direct liquefaction or from the liquids produced thereby, and as a water retention agent in the biofertilizer. The ratio of cyanobacteria to diazotrophic microorganisms in the biofertilizer can be selected to optimize the so as to achieve desired total chemically active carbon and nitrogen contents in the soil for a given crop.
TerraSync™ BioFertilizer for Organic Rice Production in China Now in Full Scale Field Tests

Increased Yields of 15+% Per Acre

High Quality Organic Rice for Premium Market

Now Evaluating New Farming Practices To Maximize Long Term Benefits