CREATING A HEALTH CARE BUSINESS FROM UNIVERSITY RESEARCH

BY

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&
MO-SCI CORP.
Consortium for Bone and Tissue Repair and Regeneration (CBTRR)

Joint MS&T/UMKC center to research and develop advanced biomaterials, biosensors, and biointerfaces for the repair and regeneration of traumatized bone and tissues
Uses of Bioinert, Bioactive & Biocompatible Glasses

**Dental Implants/Repair**
(caps, crowns, veneers)

**Destroying Malignant Tumors**
(liver, kidney, brain, other)

**Joint Repair/replacement**
(hip, knee)

**Drug Delivery**
(liver, kidney, brain, other)

**Soft Tissue Repair**
(wounds, clotting)

**Bone Repair**
(trauma, disease)
The Magic of Bioactive Glass

Bioactive glass reacts in the body and bonds strongly to hard and soft tissue

Powders  Scaffolds  Fibers  Microspheres/beads
University of Missouri
Four Missions

- Teaching --- transfer of knowledge
- Research --- discovery of new knowledge
- Service --- helping others
- Economic development --- creating wealth from knowledge
A Case Study

Factors and events that were important to creating a successful business from life science technology that was spun off from university research--

MO-SCI Corp----founded in 1984, Rolla MO
Created to manufacture products for the health care industry---

glass microspheres for treating liver cancer

TheraSphere™
Factors important to the formation and early survival of MO-SCI Corp.

- State funded incubator program—shared facilities reduces start up expense

- University (MS&T)—receptive to aiding industry, fosters economic development by encouraging spin offs, labs & needed equipment available

- Available personnel & surroundings receptive to entrepreneurs

- Small Business Innovative Research (SBIR) program—important source of income
Profiles of Entrepreneurs in Incubators*

<table>
<thead>
<tr>
<th>Personal traits</th>
<th>Male, 35-40 yrs old, 17 yr of formal education</th>
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<tbody>
<tr>
<td>Location of business</td>
<td>Near personal and family ties: lived in area for 17 yr</td>
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<tr>
<td>Source of financing</td>
<td>&gt;75% from personal funds, mortgage, borrowed from friends &amp; family; &lt;25% from banks or venture capital</td>
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<tr>
<td>Business Experience</td>
<td>No formal training or experience; no written business plan</td>
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<tr>
<td>Marketing</td>
<td>Done by owner, “seat of pants” analysis</td>
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<tr>
<td>Government assistance</td>
<td>Wary; too much paper work</td>
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INGREDIENTS FOR A SUCCESSFUL START UP

Supportive environment for entrepreneurs
Private Sector---Government---University

Everyone has a financial stake
Founders---University---Others

Plan for generating income

Dedication
hard work---long hours---luck
Being an entrepreneur can be a lot of fun

• A new company
• 35 new jobs
• More than 950 customers in 40 countries
• Direct economic benefit to MO
  >>> royalties paid to UM
  >>> irradiation fees paid to UM
  >>> new research dollars to MO
  >>> new healthcare products produced in MO

Health care products made by MO-SCI

--- TheraSphere™
--- microspheres for blood typing
--- glass fillers for dental composites
--- bioactive glasses for bone repair
--- antimicrobial glasses for catheters

Hq's of MO-SCI Corp in Rolla MO
The Federal SBIR Program

• Established to help small businesses compete for government research funds
• Federal agencies must set aside a part of their research budget for small business
• Agencies request proposals from small businesses---competitive awards
• Phase I, 6 to 9 months, $60K to $100K
• Phase II, up to 2 yrs, $200K to $300K/yr
• Phase III, commercialization
Benefits of SBIR Program to MO-SCI

Provided a important source of income during initial start up (financially difficult period).

Enabled MO-SCI to perform important research/acquire equipment that otherwise couldn’t be afforded.

Research performed under the SBIR Program has/is leading to new products.

Kept research an important business interest.
Small Business Innovation Research (SBIR) Awards in Missouri—1983-2002

 Courtesy of Mike Nichols