Transonic Systems Inc.

Organic Growth from the Cornell R&D
Ithaca Farmers’ Market

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Flow Measurement Specialist?

What kind of “Gorges” Flow are we talking about?

Measurement of Blood Flow
Presentation Outline

1. Pre-Transonic History:
   Cornell University

2. Transonic Systems
   -- When the grant money ran out

3. Experiences: Growing Organically

1. Cornell Period

1973 - 1983

• Cornell University – Vet School, Dept of Physiology

• Develop chronically implantable Flowsensors for animal studies

• On NIH Grant Money
Sample Application

1. Cornell Period

By 1983

- We had developed a well-validated chronically implantable system for 5kg and larger animals,
- We had several Cornell Patents
- NIH Grant money was drying up – NIH grants only funds the innovative concept demonstration, not the hard work of really getting it to work
- During the last year we received a $50k NYS commercialization grant
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2. Transonic Operations


- We started with 5 employees
- Operated off an SBA-backed bank loan
- Used stock to keep salaries low and pay for overtime
- Finished our first commercial flowmeter during year 1
- Started to go to meetings to locate our potential customers
Early Period: – Define our Mission:

“Enable Meaningful Measurements”

• Provide Superior apparatus that made possible the measurements that no one could do before,

• and, provide the engineering services that our customers wished they had freely available

• and we did not worry about profitability when servicing our customers…
2. Transonic Operations

Transonic Product Groups:

– Research Flowmeters
  Perivascular flow, Sterile tubing flow & Tissue Perfusion
  from Mice to Horse, Birds, Fish

– Surgical Bloodflow Meters
  Perivascular Probes (Cardiovascular & Neuro Surgery);
  Sterile Tubing Probes (Bypass Pumps, Temporary Shunts)
  Tissue surface Probes (Plastic Surgery)

– Hemodialysis Monitors
  Patient bloodflow parameters, measured during Hemodialysis

– Angioplasty Flowmeters (NEW)

– Cardiac Output Monitor for the ICU (NEW)

– OEM Flowmeter Sub-systems

2. Transonic Operations

1988: Move to our own 9600 sq.ft. facility on Dutch Mill Road
  – We developed the Warren Road Business Park and Dutch Mill Road to give us a cheap building lot; our equity in the building lot then helped to convince the bank to lend us money for our own building

1993: Quadruple our Ithaca Building Size

2007 and on: Acquire Sister Companies with synergetic measurement technologies

2009 Plans: Double our Ithaca Building Size
2. Transonic Operations

Our Growth Funding:

- Organic: from the revenues of our sales
- Acquire synergetic sister companies
- SBIR Projects: very, very important

SBIR Grant # R44 DK50499 (1995-1998)
“Measurement of Hemodialysis Access Flow & Recirculation”

- Patient Monitor for use in hemodialysis clinics
- offering novel diagnostic measurement capabilities to the nephrologist
- which were, during Phase II, incorporated in the National Kidney Foundation Guidelines for Patient Care

Hemodialysis

SBIR Grant # R44 DK50499 (1995-1998)
SBIR Grant # 5 R44 HL55082 (1995-2001)
“Tools & Techniques to measure Flow and Pressure in Mice”

In Production:
• Flow Measurement capability for acute and chronic Transgenic Mouse studies:
  – New model flowmeter
  – implantable miniature flow sensors
• Research protocols and training aids to teach the researchers to anesthetize and instrument the mouse

In Production (via OEM, and Transonic-direct):
• HVT 100 Angioplasty Flowmeter And Reo-Cath Catheter for use during A-V Shunt repairs

SBIR Grant # R44 DK54556 (1998 - present),
“Flow Measurement at Dialysis Access Salvage Intervention”

Features:
• Thermodilution-based flow measurement catheters to measure blood flow during Angioplasty Procedures aiming to restore blood flow
• Current main use: hemodialysis A-V shunt repair

In Production
(via OEM, and Transonic-direct):
• HVT 100 Angioplasty Flowmeter And Reo-Cath Catheter for use during A-V Shunt repairs
SBIR Grant # R43 HL62079 (1998 - present)
“A Flowmeter with Telemetry for Chronic Animal Studies”

Target-Product:
• Totally-Implantable Flowmeter system for use during animal studies (rats and larger)
• Main use: Safety Pharmacology and Physiology studies

First Product:
PhysioGear Backpack Telemetry Flowmeter,
Blue-Tooth based

SBIR Grant # R44 HL061994 (1996 - 2006)
“Cardiac Output for Children’s ICU”

COstatus Monitor:
• Indicator-dilution-based monitor for measuring cardiac output, blood volumes and septal defects in newborns and toddlers

FDA Clearance is pending
Introduced in Europe; Collaboration with the Innovators and Early Adaptors is underway
“Fiber Bundle Volume and Clearance during Hemodialysis”

Features:
• Allows monitoring of clotting of Hemodialysis Filter during dialysis
• Can be integrated with other indicator dilution patient parameter measurements

Status:
• Target Product, an R&D-style Monitor (Meter Hardware + Laptop PC + Software) is being finalized
• May become an integrated measurement feature of hemodialysis machines

Recently started SBIR Grants:

• “A Flow Monitor for Pediatric Hydrocephalic Shunts” (# 1R43 NS 049680, 2005-2009)
• “A New Device for Monitoring Diabetic Microcirculation” (# 1R43 DK 065428, 2003-2005)
• “Pediatric Cardiac Monitor for Extracorporeal Life Support” (# 1R43 HL 082022, 2005-2006)
2. Transonic Operations

Outlook for Growth

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3. Organic Growth versus Funded Growth

Integrity Aspect

• To interest the larger funding sources you have to project a large future return on investment. Whenever your crystal ball is off, one tends to sell the make-believe story a lot longer than is good for the company’s future. It is very easy to continue in the wrong direction just because that’s the direction that is funded.

• Our private status allows us to be extremely demanding of the scientific integrity of our technologies.

“Going Public”

• To me, this only makes sense if you have to tap into public funding, over and over. If you just need a one-time infusion of capital, you will be paying through the nose for the rest of your life in terms of public scrutiny and loss of long-term focus on your core business.
3. **Organic Growth versus Funded Growth**

Staying Private ("not floating your stock")

We have adopted a model that gives our shareholders similar flexibility as they would have in a public company:

When profitability permits:
-- we will pay around 2% dividend per annum,
--we repurchase shares
--an annual independent outside evaluation tells the shareholders how well their investment is doing

While we don’t have the need for funding right now, we may need funding in the future if we were to acquire synergetic companies where larger shareholders want to cash out.

Our track record:

6-8% per annum growth, 2% dividend per annum is such that we can likely attract sizeable private investors should we need more cash.
3. Organic Growth versus Funded Growth

Staying Private:

Allows us to focus on “Orphan Products” (Products that target too small a market to interest the billion$$ companies.)

Interestingly:
• Because these are Orphan Products, SBIR is more interested to fund their development,
• Orphan products are an excellent way to establish a gold-standard reputation in the mainstream market!

Thank you for your attention
Any Questions?

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