

Size Matters...

Commercializing New Businesses in Large and Small Companies

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Outline

- ❑ Ludmerer & Associates LLC
- ❑ Factors that impact success of large vs. small companies
- ❑ Several Examples
- ❑ Key Differences
- ❑ Learnings and Takeaways
- ❑ Our Challenge

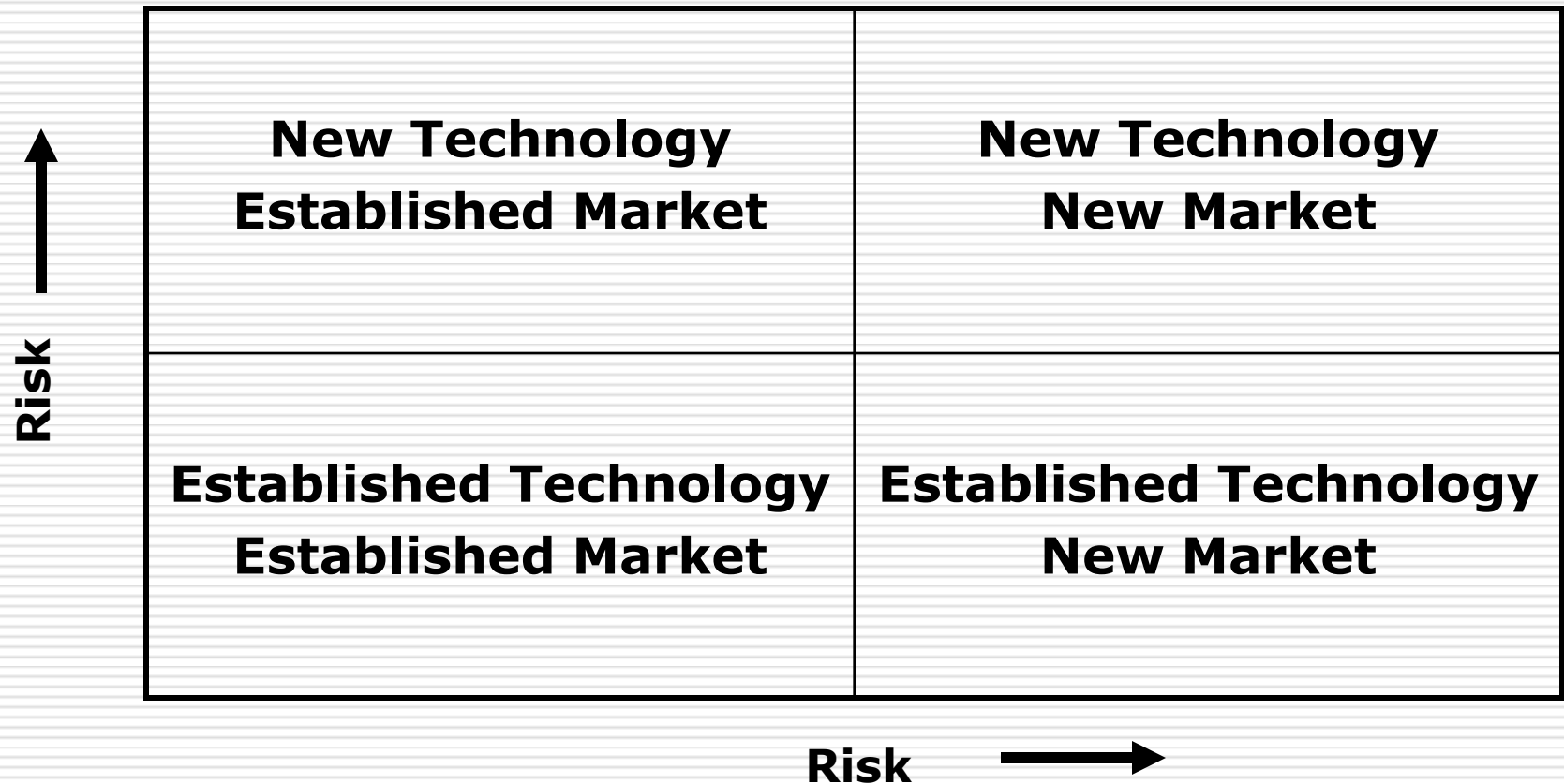
Steve Ludmerer

- 25 years DuPont and Union Carbide –coatings, plastics, consumer products, safety/environmental products and services
- Quantix, subsidiary of smaller public company, immunoassay diagnostics business
- Top Source Petroleum Technologies, division of small public company, instrument and laboratory business in oils analysis
- Parelec, venture capital, electronic materials business
- Consulting to businesses/divisions – small and large.

Factors that drive commercialization success

- Portfolio Management**
- Resource Capabilities**
- Access to Funding**
- Market Size**
- Market Access**
- Financial Projections**
- Time Horizon**
- Value Chain**
- Corporate Politic**
- Team/Corporate Culture**

Are large and small companies equally successful in the four risk quadrants?



DuPont Protective Fabrics

- ❑ **Market for protective apparel used hazardous chemical, corrosive, or unknown environments – then <\$100MM.**
- ❑ **Existing participant with Tyvek®, Viton®, Teflon® films fabricated by others**
- ❑ **Viton® and Teflon® hazmat suits**
 - **cost \$12,000 ; stocked for 95% of male/female**
 - **integrity and hygiene maintenance at \$1500/unit**
- ❑ **Concept: 'Ready-to-use' disposable suit at \$500 each**
- ❑ **Basis in packaging technology; multilayer film, foil constructions, heat sealable, sewable**
- ❑ **Fabrics/film vs. garment marketing – Corporate politic**
- ❑ **\$200+ MM franchise with Tyvek®, Tychem®, Barricade® fabrics**

Reach® toothbrush

- ❑ **DuPont Consumer Products**
- ❑ **Market for manual toothbrushes - \$70 million**
- ❑ **Commodity products dominated by PS, PP, ABS plastic. (DuPont = nylon)**
- ❑ **Not cost competitive – 25 c mfg vs. 25 c selling price**
- ❑ **Focus Groups: Why pay \$1.00 for a toothbrush?**
- ❑ **Ergonomics/Human Factors (Tufts University) – Clinical Data (Forsyth Dental School)**
- ❑ **Supported FTC Claim: Helps reduce plaque**
- ❑ **Test Markets: MN, and Chicago, IL**
- ❑ **Financials solid: advertise, detail dentists, \$9MM**
- ❑ **Corporate Culture – Corporate Politic**
- ❑ **Sold to Johnson & Johnson (Claim: Fights cavities)**

Union Carbide

- ❑ **Portfolio eagerly wanted - Recruited talent.**
- ❑ **Indoor Air Contamination was a known problem from spores, organics (e.g. from carpet), ingress air, recirculating air; Sick Building Syndrome, EPA building.**
- ❑ **Patented process to introduce ozone to oxidize contamination and scrub excess with carbon absorption. Developed by leading corporate and industry scientist.**
- ❑ **How would this fit into worldwide HVAC business?**
- ❑ **Collaboration with Virginia Tech. Demonstration facility.**
- ❑ **Focus on hospitals, schools, commercial buildings. Recruited HVAC specialist. Access to Honeywell, Trane, others.**
- ❑ **No interest in inserting chemical process into HVAC system.**
- ❑ **Time Horizon expired. Praxair divested. Focused company.**

Quantix (small public co subsidiary)

- ❑ Company developed and marketed immunoassay diagnostic kits to assess disease in grass, plants, wheat, bananas, etc.
- ❑ Provided growers results on when to apply fungicides, which fungicides would be best preserving 'greens' and crops...improving efficiency and reducing costs.
- ❑ Risk associated with not using excess fungicides or pesticides on golf course too high to tolerate.....
- ❑ Agrichemical salespeople versus diagnostics results
- ❑ Company refocused same immunoassay platform technology to address environmental contamination from leaking underground storage tanks, PCBs, spills, etc.
- ❑ Successfully divested the technology providing funds to the parent

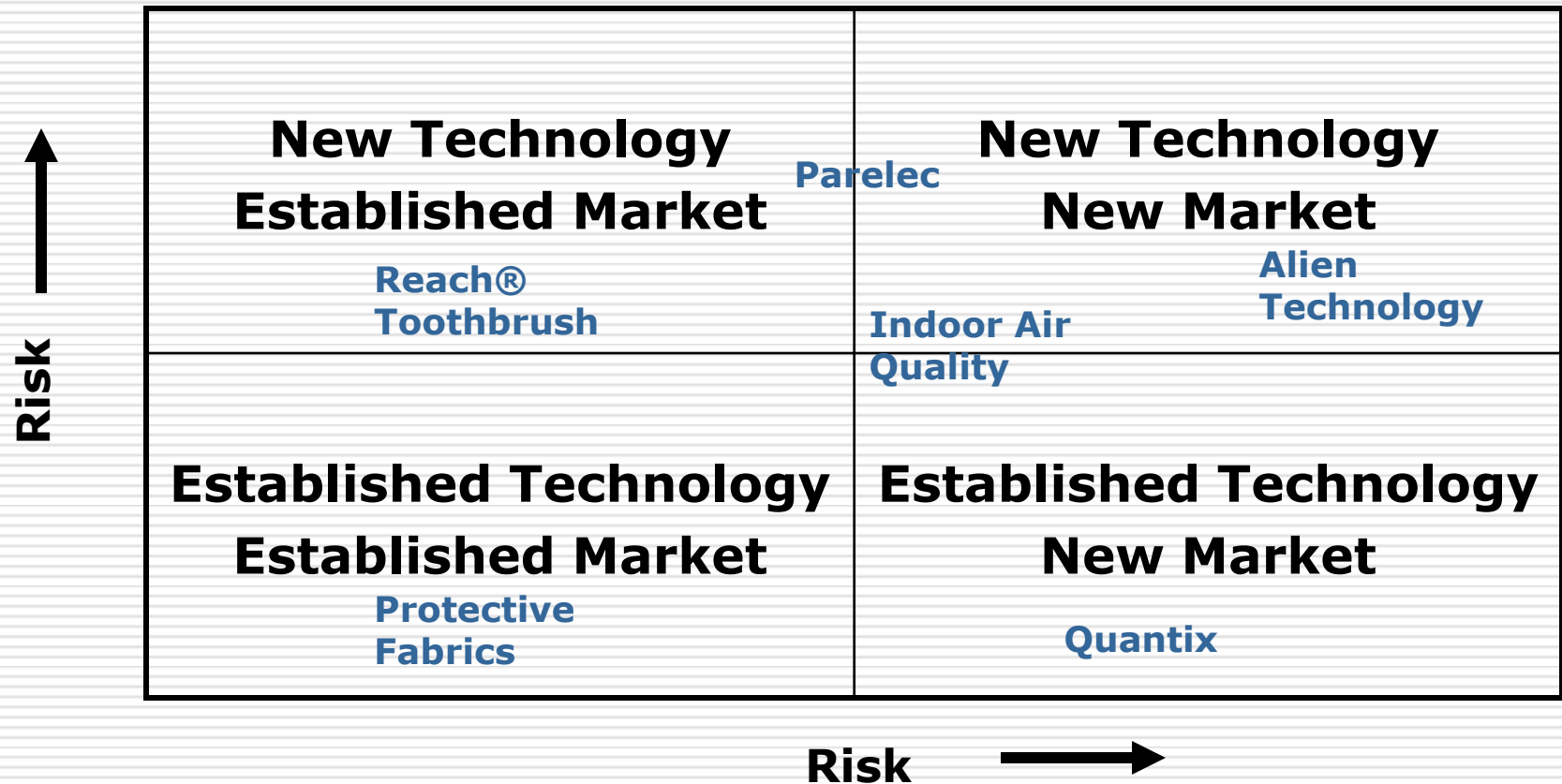
Parelec (Smaller Venture Backed Company)

- ❑ Parelec developed and markets highly conductive inks for printed electronics
- ❑ RFID, touch pads, printed circuit boards, high density packaging represent \$3B potential. Silver at \$5/ tr. oz.
- ❑ Early market entry with technical problems.
- ❑ Ultimately had to overcome though additional invention.
- ❑ Market and external hurdles eroded market advantage.
- ❑ RFID antenna used 40 mg of ink. 1B antenna = \$20MM revenue.
 - Drive to lower cost and volume 6 mg ink = \$3 MM revenue.
 - Silver at \$14/ tr. oz. vs. \$5.
 - Market projected at 7 billion in 2007 now projected at 7 billion in 2011.
- ❑ Company still addressing RFID but segueing to other markets.

Alien Technology (Large VC backed Company)

- ❑ **Acquired process for Fluidic Self Assembly. FSA uses trapezoidal IC in fluidized bed to place in impression in polymer film.**
- ❑ **Started out packaging tiny integrated circuits to create large area displays.**
- ❑ **Handling large numbers of small components and placing them accurately was the development challenge.**
- ❑ **Refocused on single IC for assembly into RFID tags at high rates to achieve low-cost.**
- ❑ **Developed a strap interposer to later attach to antenna. Will extra processing step be offset by ease of strap preparation ?**
- ❑ **Technology challenges to maintain cost --- expensive non resilient film to maintain impression during processing.**
- ❑ **Company still pursuing low-cost printed antenna with strap prepared by FSA vs. IC attachment by pick-and-place.**
- ❑ **Accumulated losses to date of >\$250 million.**

What did we see?



	Large Companies	Smaller Companies
Portfolio Management	Stage Gate Incremental Transformational Process Necessity	Platform Driven Technology Market Prioritize Applications
Commercialization Resource Capabilities	Experts & Influencers Acquire Talent Consultants Demonstration Facilities	More difficult to acquire talent depth Scientific/Market Advisory Boards Secondary Sources
Access to Funding	Generally Available	May or may not be available Timing -- Cash is King
Access to Market	Acquire or Establish Access Size of Market Limiting	Must gain credible visibility Smaller Markets attractive
Financial Projections	Five to Ten Year Projections Sensitivity Analysis Monte Carlo Simulations	Three to 24 months Explicit assumptions Less sophisticated
Time Horizon	Up to 5-10 years; longer? Problem when Development Cycle > Business Cycle	Two weeks to two years Driven by milestones for cash (Stage gate?)
Value Chain	Ally or Alone	Alliance Often Needed Alliance Quality
Corporate Politic/Culture	Must gain and maintain management support; Risk Profile; Inertia	Focus Mandatory; Urgency; Team Development & Management

Our Challenges as CD Professionals Independent of Size

- Success or failure driven by market understanding; It's what you don't know you don't know....**
- Momentum can drive investment and expense beyond tipping point; Can you stop?**
- Neither small nor large companies can escape business cycle, management focus, investor sentiment or environmental influences; Can you manage?**

Thank You

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Catalyst for Positive Change and Profitable Growth

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