Biotechnology Innovation Organization

# Biotechnology Entrepreneurship Boot Camp

Presented by:

James Jordan

June 1-2, 2024

#BIO2024 #StandUpForScience

HealthcareData.Center

# A startup must tell a compelling story

Presentation Content from the book:

Innovation, Commercialization and Startups in Life Sciences, James F. Jordan, CRC Press

CRC Press
Taylor & Francis Group

# Innovation, Commercialization, and Start-Ups in Life Sciences

James F. Jordan

# Table of Contents

# Uncovering your Exit Triggers

## Part 1 – Innovation is a Process of Connected Steps

Chapter 1: Investment Uses a Translation Process to Deliver Innovation

Chapter 2: Investment is Critical to a Nation's Prosperity

Chapter 3: The Journey of Innovation Begins With Investment

Chapter 4: The U.S. Helps Small Companies Develop Technology

Chapter 5: Commercialization is Primarily Executed Through Two Organizational Types

## Part 2 – Investment Must Be Connected to Exit

Chapter 6: Angels and Venture Capitalists Invest in Commercialization

Chapter 7: Create Liquidity For Your Investors

Chapter 8: A Liquidity Event is Not Consummated Without Due Diligence

Chapter 9: Due Diligence Reputation is a Critical Business Process

## Part 3 – Align With the Industry Norms

Chapter 10: Find the Industry Norms

Chapter 11: Solve an Important Customer Problem

Chapter 12: Demonstrate the Ability to Access the Sales Channel

Chapter 13: Gather Domain-Experienced Personnel to Reduce Risk

Chapter 14: Determine Acquirers' Strategic Future and Purchase Triggers

Chapter 15: Align Investor's Fundable Milestones and Acquirer's Exit Points

Chapter 16: Create an IP Pyramid for Impervious Positioning

## Part 4 – A Startup Must Tell a Compelling Story

Chapter 17: Address Your Story to the Needs of All Constituencies

Chapter 18: Deliver to Your Plan

Chapter 19: Tell a Compelling Story With the Investor Pitch

Chapter 20: Continuously Improve Your Message With the Plan-Do-Check-Act Cycle

# Aligning Objectives & Concerns
# Customer = Investor = Acquirer

# A poorly planned and ill-provisioned journey ↑ probability of failure

# Navigational instruments ascertain position & direction to a destination

# Waypoints are planned milestones to re-provision ($) & capture value

# Planning & provisioning are aided through the use of tools

# Objective: Provide Tools for Accurate Valuation & Strong Exit

1. Find **BENCHMARK**
   - Evaluate by comparison

2. To uncover the **STANDARD**
   - A measure, norm, or model in comparative evaluation

3. Through use of **TOOLS**
   - An implement to carry out a particular function

4. To obtain **KNOWLEDGE**
   - Acquired understanding through facts, information, or experience

# Objective: Provide Tools for Accurate Valuation & Strong Exit

1. Find **BENCHMARK**
   - Evaluate by comparison
2. To uncover the **STANDARD**
   - A measure, norm, or model in comparative evaluation
3. Through use of **TOOLS**
   - An implement to carry out a particular function
4. To obtain **KNOWLEDGE**
   - Acquired understanding through facts, information, or experience

# Objective: Provide Tools for Accurate Valuation & Strong Exit

1. Find **BENCHMARK**
   - Evaluate by comparison

2. To uncover the **STANDARD**
   - A measure, norm, or model in comparative evaluation

3. Through use of **TOOLS**
   - An implement to carry out a particular function

4. To obtain **KNOWLEDGE**
   - Acquired understanding through facts, information, or experience

# Objective: Provide Tools for Accurate Valuation & Strong Exit

1. Find **BENCHMARK**
   - Evaluate by comparison
2. To uncover the **STANDARD**
   - A measure, norm, or model in comparative evaluation
3. Through use of **TOOLS**
   - An implement to carry out a particular function
4. To obtain **KNOWLEDGE**
   - Acquired understanding through facts, information, or experience

# Objective: Provide Tools for Accurate Valuation & Strong Exit

1. Find **BENCHMARK**
   - Evaluate by comparison

2. To uncover the **STANDARD**
   - A measure, norm, or model in comparative evaluation

3. Through use of **TOOLS**
   - An implement to carry out a particular function

4. To obtain **KNOWLEDGE**
   - Acquired understanding through facts, information, or experience

# Uncover the standards by addressing constituency objectives & concerns

| | Customer | Investor | Acquirer |
|---|---|---|---|
| **Objectives** | • Outcomes + ↑Access + ↑Quality + ↓Cost | • IRR, ROI, Multiples<br>• Placement amount | • Price/Earning Ratio<br>• Revenue/margin accretion<br>• Market Share |
| **Concerns** | • Produce multi-year, accretive revenue stream<br>– Clinical trial participation<br>– New procedures (aka robotics)<br>• Attain top-tier operating margins<br>– Multi-year agreements (formulary)<br>– Reimbursement category PPV<br>– Predictable horizontal/longitudinal costs<br>– Sustainability of NewCo<br>• Capture regional market-share<br>– Technology guarantee<br>– Clinical trial access | • Portfolio balance & timing<br>• Validation of business model<br>• Validation of product category<br>• Venture capital requirements<br>• Inability to participate in later rounds<br>• Implications of public financing | • Aligned business models<br>• Defend/expand existing categories<br>• Enter new categories/markets<br>• Formulary competitiveness<br>• Maintain/improve financial ratios<br>• Salesforce leverage |

# Uncover the standards by addressing constituency objectives & concerns

| | Customer | Investor | Acquirer |
|---|---|---|---|
| **Objectives** | Outcomes ↑ Access ↑ Quality ↓ Cost | IRR, ROI, Multiples<br>Placement amount | Price/Earning Ratio<br>Revenue/margin accretion<br>Market share |
| **Concerns** | Produce multi-year, accretive revenue stream<br>Clinical trial participation<br>New procedures (aka robotics)<br>Attain top-tier operating margins<br>Multi-year agreements (formulary)<br>Reimbursement category PPV<br>Predictable horizontal/longitudinal costs<br>Sustainability of NewCo<br>Capture regional market-share<br>Technology guarantee<br>Clinical trial access | Portfolio balance & timing<br>Validation of business model<br>Validation of product category<br>Venture capital requirements<br>Inability to participate in later rounds<br>Implications of public financing | Aligned business models<br>Defend/expand existing categories<br>Enter new categories/markets<br>Formulary competitiveness<br>Maintain/improve financial ratios<br>Salesforce leverage |

# Uncover the standards by addressing constituency objectives & concerns

| | Customer | Investor | Acquirer |
|---|---|---|---|
| **Objectives** | • Outcomes → ↑Access → ↑Quality → ↓Cost | • IRR, ROI, Multiples<br>• Placement amount | • Price/Earning Ratio<br>• Revenue/margin accretion<br>• Market share |
| **Concerns** | • Produce multi-year, accretive revenue stream<br>– Clinical trial participation<br>– New procedures (aka robotics)<br>• Attain top-tier operating margins<br>– Multi-year agreements (formulary)<br>– Reimbursement category PPV<br>– Predictable horizontal/longitudinal costs<br>– Sustainability of NewCo<br>• Capture regional market-share<br>– Technology guarantee<br>– Clinical trial access | • Portfolio balance & timing<br>• Validation of business model<br>• Validation of product category<br>• Venture capital requirements<br>• Inability to participate in later rounds<br>• Implications of public financing | • Aligned business models<br>• Defend/expand existing categories<br>• Enter new categories/markets<br>• Formulary competitiveness<br>• Maintain/improve financial ratios<br>• Salesforce leverage |

# Uncover the standards by addressing constituency objectives & concerns

| | Customer | Investor | Acquirer |
|---|---|---|---|
| **Objectives** | • Outcomes ↑ Access ↑ Quality ↓ Cost | • IRR, ROI, Multiples<br>• Placement amount | • Price/Earning Ratio<br>• Revenue/margin accretion<br>• Market Share |
| **Concerns** | • Produce multi-year, accretive revenue stream<br>– Clinical trial participation<br>– New procedures (aka robotics)<br>• Attain top-tier operating margins<br>– Multi-year agreements (formulary)<br>– Reimbursement category PPV<br>– Predictable horizontal/longitudinal costs<br>– Sustainability of NewCo<br>• Capture regional market-share<br>– Technology guarantee<br>– Clinical trial access | • Portfolio balance & timing<br>• Validation of business model<br>• Validation of product category<br>• Venture capital requirements<br>• Inability to participate in later rounds<br>• Implications of public financing | • Aligned business models<br>• Defend/expand existing categories<br>• Enter new categories/markets<br>• Formulary competitiveness<br>• Maintain/improve financial ratios<br>• Salesforce leverage |

# The healthcare payer/provider

## Objectives

Outcomes + ↑ Access + ↑ Quality + ↓ Cost

## Concerns

- Produce multi-year, accretive revenue stream
  - Clinical trial participation
  - New procedures (aka robotics)
- Attain top-tier operating margins
  - Multi-year agreements (formulary)
  - Reimbursement category PPV
  - Predictable horizontal/longitudial costs
  - Sustainability of NewCo
- Capture regional market-share
  - Technology guarantee
  - Clinical trial access

# The healthcare payer/provider

## Objectives

Outcomes + ↑ Access + ↑ Quality + ↓ Cost

## Concerns

- Produce multi-year, accretive revenue stream
  - Clinical trial participation
  - New procedures (aka robotics)
- Attain top-tier operating margins
  - Multi-year agreements (formulary)
  - Reimbursement category PPV
  - Predictable horizontal/longitudial costs
  - Sustainability of NewCo
- Capture regional market-share
  - Technology guarantee
  - Clinical trial access

# The healthcare payer/provider

## Objectives

Outcomes ↑ Access ↑ Quality ↓ Cost

## Concerns

- Produce multi-year, accretive revenue stream
  - Clinical trial participation
  - New procedures (aka robotics)
- Attain top-tier operating margins
  - Multi-year agreements (formulary)
  - Reimbursement category PPV
  - Predictable horizontal/longitudial costs
  - Sustainability of NewCo
- Capture regional market-share
  - Technology guarantee
  - Clinical trial access

# The healthcare payer/provider

## Objectives

Outcomes ↑ Access ↑ Quality ↓ Cost

## Concerns

- Produce multi-year, accretive revenue stream
  - Clinical trial participation
  - New procedures (aka robotics)
- Attain top-tier operating margins
  - Multi-year agreements (formulary)
  - Reimbursement category PPV
  - Predictable horizontal/longitudial costs
  - Sustainability of NewCo
- Capture regional market-share
  - Technology guarantee
  - Clinical trial access

# The healthcare payer/provider

## Objectives

Outcomes ↑ Access ↑ Quality ↓ Cost

## Concerns

- Produce multi-year, accretive revenue stream
  - Clinical trial participation
  - New procedures (aka robotics)
- Attain top-tier operating margins
  - Multi-year agreements (formulary)
  - Reimbursement category PPV
  - Predictable horizontal/longitudial costs
  - Sustainability of NewCo
- Capture regional market-share
  - Technology guarantee
  - Clinical trial access

# The investor

## Objectives

- IRR, ROI, Multiples
- Placement amount

## Concerns

- Portfolio balance & timing
- Validation of business model
- Validation of product category
- Venture capital requirements
- Inability to participate in later rounds
- Implications of public financing

# The investor

## Objectives

- IRR, ROI, Multiples
- Placement amount

## Concerns

- Portfolio balance & timing
- Validation of business model
- Validation of product category
- Venture capital requirements
- Inability to participate in later rounds
- Implications of public financing

# The investor

## Objectives

- IRR, ROI, Multiples
- Placement amount

## Concerns

- Portfolio balance & timing
- Validation of business model
- Validation of product category
- Venture capital requirements
- Inability to participate in later rounds
- Implications of public financing

# The investor

## Objectives

- IRR, ROI, Multiples
- Placement amount

## Concerns

- Portfolio balance & timing
- Validation of business model
- Validation of product category
- Venture capital requirements
- Inability to participate in later rounds
- Implications of public financing

# The investor

## Objectives

- IRR, ROI, Multiples
- Placement amount

## Concerns

- Portfolio balance & timing
- Validation of business model
- Validation of product category
- Venture capital requirements
- Inability to participate in later rounds
- Implications of public financing

# The acquirer

## Objectives

- Price/Earning Ratio
- Revenue/margin accretion
- Market share

## Concerns

- Aligned business models
- Defend/expand existing categories
- Enter new categories/markets
- Formulary competitiveness
- Maintain/improve financial ratios
- Salesforce leverage

# The acquirer

## Objectives

- Price/Earning Ratio
- Revenue/margin accretion
- Market share

## Concerns

- Aligned business models
- Defend/expand existing categories
- Enter new categories/markets
- Formulary competitiveness
- Maintain/improve financial ratios
- Salesforce leverage

# The acquirer

## Objectives

- Price/Earning Ratio
- Revenue/margin accretion
- Market share

## Concerns

- Aligned business models
- Defend/expand existing categories
- Enter new categories/markets
- Formulary competitiveness
- Maintain/improve financial ratios
- Salesforce leverage

# The acquirer

## Objectives

- Price/Earning Ratio
- Revenue/margin accretion
- Market share

## Concerns

- Aligned business models
- Defend/expand existing categories
- Enter new categories/markets
- Formulary competitiveness
- Maintain/improve financial ratios
- Salesforce leverage

# The acquirer

## Objectives

- Price/Earning Ratio
- Revenue/margin accretion
- Market share

## Concerns

- Aligned business models
- Defend/expand existing categories
- Enter new categories/markets
- Formulary competitiveness
- Maintain/improve financial ratios
- Salesforce leverage

# The acquirer

## Objectives

- Price/Earning Ratio
- Revenue/margin accretion
- Market share

## Concerns

- Aligned business models
- Defend/expand existing categories
- Enter new categories/markets
- Formulary competitiveness
- Maintain/improve financial ratios
- Salesforce leverage

# Objective: Provide Tools for Accurate Valuation & Strong Exit

1. Find **BENCHMARK**
   - Evaluate by comparison

2. To uncover the **STANDARD**
   - A measure, norm, or model in comparative evaluation

3. Through use of **TOOLS**
   - An implement to carry out a particular function

4. To obtain **KNOWLEDGE**
   - Acquired understanding through facts, information, or experience

# Objective: Provide Tools for Accurate Valuation & Strong Exit

1. Find **BENCHMARK**
   - Evaluate by comparison

2. To uncover the **STANDARD**
   - A measure, norm, or model in comparative evaluation

3. Through use of **TOOLS**
   - An implement to carry out a particular function

4. To obtain **KNOWLEDGE**
   - Acquired understanding through facts, information, or experience

# Tools reveal standards so you can plot a winning strategy

- Valuation Milestones: A review of standard, not comparatives, avails and aligns valuation and fundable milestones with those of investors and acquirers
- Disease State Fact Book: Distinguish the difference between an incremental market improvement and a monumental innovation
- Industry Life Cycle: Incumbent's resist acquiring until their existing investment is threatened or expiring
- Purchase Trigger Database: Reliance on an early exit is misplaced if uninformed, know your acquirer's habits

# Tools reveal standards so you can plot a winning strategy

- Valuation Milestones: A review of standard, not comparatives, avails and aligns valuation and fundable milestones with those of investors and acquirers
- Disease State Fact Book: Distinguish the difference between an incremental market improvement and a monumental innovation
- Industry Life Cycle: Incumbent's resist acquiring until their existing investment is threatened or expiring
- Purchase Trigger Database: Reliance on an early exit is misplaced if uninformed, know your acquirer's habits

# Valua
# your

# Let's look at an example

- V = Value milestone – company value increases

- Each life sciences vertical differs
  - Pharmaceutical
  - Diagnostics
  - Medical Devices
  - Healthcare IT
- Each product category may differ
  - Cardiovascular
  - Cancer
- Each regulatory category may differ
  - 510k
  - PMA

# Data points from Venture Source & Pitchbook

Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases

# Valuation standards define your waypoints

| Series A - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 2.7 | 1.3 +/- 1 | 4 +/-2 |

|---------- 11 months +/- 2.4 ----------|

- Create proof of concept (F/V)
- Commercialization plan viability (F/V)
- Buildout technical team (V)

| Series B - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 8.0 | 4 +/- 1.9 | 12 +/- 4.3 |

|---------- 14 months +/- 2.5 ----------|

- Attain regulatory pathway (V)
- 1st in-human data/start clinical trial (F/V)
- Design System Audit (V)

| Series C - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 15.9 | 8.9 +/- 3.5 | 24.8 +/- 7.6 |

|---------- 15 months +/- 3.4 ----------|

- Commercial approval OUS (V)
- Regulatory trial approval US (F/V)
- Launch US trial (V)
- Hire sales & marketing team (V)

| Series D - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 32.1 | 11.6+/- 5.9 | 43.7 +/- 15 |

|---------- 20 months +/- 8.7 ----------|

- Regulatory approval US (F/V)
- Launch US product (V)
- US Revenue in excess of $xxM run-rate (F/V)
- Demonstrate viability of 2nd product (V)

| Series E - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 62.0 | 16. +/- 5.9 | 78.3 +/- 24 |

- Demonstrate hockey-stick revenue growth (F/V)
- Pass cash-flow BE Point (F/V)
- Regulatory trial path 2nd product US (V)

| Exit Details | | |
|---|---|---|
| Capital Raise | Exit Value | Months |
| 54 +/- 15 | 107 +/- 43 | 72 +/-21.6 |
| Multiples | CAGR % | |
| 2.2 +/- 0.7 | 14.8 +/- 7.6 | |

Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases

# Valuation standards define your waypoints

| Series A - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 2.7 | 1.3 +/- 1 | 4 +/-2 |

|---------- 11 months +/- 2.4 ----------|

- Create proof of concept (F/V)
- Commercialization plan viability (F/V)
- Buildout technical team (V)

| Series B - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 8.0 | 4 +/- 1.9 | 12 +/- 4.3 |

|---------- 14 months +/- 2.5 ----------|

- Attain regulatory pathway (V)
- 1st in-human data/start clinical trial (F/V)
- Design System Audit (V)

| Series C - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 15.9 | 8.9 +/- 3.5 | 24.8 +/- 7.6 |

|---------- 15 months +/- 3.4 ----------|

- Commercial approval OUS (V)
- Regulatory trial approval US (F/V)
- Launch US trial (V)
- Hire sales & marketing team (V)

| Series D - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 32.1 | 11.6+/- 5.9 | 43.7 +/- 15 |

|---------- 20 months +/- 8.7 ----------|

- Regulatory approval US (F/V)
- Launch US product (V)
- US Revenue in excess of $xxM run-rate (F/V)
- Demonstrate viability of 2nd product (V)

| Series E - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 62.0 | 16. +/- 5.9 | 78.3 +/- 24 |

- Demonstrate hockey-stick revenue growth (F/V)
- Pass cash-flow BE Point (F/V)
- Regulatory trial path 2nd product US (V)

| Exit Details | | |
|---|---|---|
| Capital Raise | Exit Value | Months |
| 54 +/- 15 | 107 +/- 43 | 72 +/-21.6 |
| Multiples | CAGR % | |
| 2.2 +/- 0.7 | 14.8 +/- 7.6 | |

Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases

# Valuation standards define your waypoints

| Series A - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 2.7 | 1.3 +/- 1 | 4 +/-2 |

|---------- 11 months +/- 2.4 ----------|

- Create proof of concept (F/V)
- Commercialization plan viability (F/V)
- Buildout technical team (V)

| Series B - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 8.0 | 4 +/- 1.9 | 12 +/- 4.3 |

|---------- 14 months +/- 2.5 ----------|

- Attain regulatory pathway (V)
- 1st in-human data/start clinical trial (F/V)
- Design System Audit (V)

| Series C - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 15.9 | 8.9 +/- 3.5 | 24.8 +/- 7.6 |

|---------- 15 months +/- 3.4 ----------|

- Commercial approval OUS (V)
- Regulatory trial approval US (F/V)
- Launch US trial (V)
- Hire sales & marketing team (V)

| Series D - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 32.1 | 11.6+/- 5.9 | 43.7 +/- 15 |

|---------- 20 months +/- 8.7 ----------|

- Regulatory approval US (F/V)
- Launch US product (V)
- US Revenue in excess of $xxM run-rate (F/V)
- Demonstrate viability of 2nd product (V)

| Series E - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 62.0 | 16. +/- 5.9 | 78.3 +/- 24 |

- Demonstrate hockey-stick revenue growth (F/V)
- Pass cash-flow BE Point (F/V)
- Regulatory trial path 2nd product US (V)

| Exit Details | | |
|---|---|---|
| Capital Raise | Exit Value | Months |
| 54 +/- 15 | 107 +/- 43 | 72 +/-21.6 |
| Multiples | CAGR % | |
| 2.2 +/- 0.7 | 14.8 +/- 7.6 | |

Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases

# Valuation standards define your waypoints

| Series A - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 2.7 | 1.3 +/- 1 | 4 +/-2 |

|---------- 11 months +/- 2.4 ----------|

- Create proof of concept (F/V)
- Commercialization plan viability (F/V)
- Buildout technical team (V)

| Series B - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 8.0 | 4 +/- 1.9 | 12 +/- 4.3 |

|---------- 14 months +/- 2.5 ----------|

- Attain regulatory pathway (V)
- 1st in-human data/start clinical trial (F/V)
- Design System Audit (V)

| Series C - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 15.9 | 8.9 +/- 3.5 | 24.8 +/- 7.6 |

|---------- 15 months +/- 3.4 ----------|

- Commercial approval OUS (V)
- Regulatory trial approval US (F/V)
- Launch US trial (V)
- Hire sales & marketing team (V)

| Series D - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 32.1 | 11.6+/- 5.9 | 43.7 +/- 15 |

|---------- 20 months +/- 8.7 ----------|

- Regulatory approval US (F/V)
- Launch US product (V)
- US Revenue in excess of $xxM run-rate (F/V)
- Demonstrate viability of 2nd product (V)

| Series E - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 62.0 | 16. +/- 5.9 | 78.3 +/- 24 |

- Demonstrate hockey-stick revenue growth (F/V)
- Pass cash-flow BE Point (F/V)
- Regulatory trial path 2nd product US (V)

| Exit Details | | |
|---|---|---|
| Capital Raise | Exit Value | Months |
| 54 +/- 15 | 107 +/- 43 | 72 +/-21.6 |
| Multiples | CAGR % | |
| 2.2 +/- 0.7 | 14.8 +/- 7.6 | |

Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases

# Valuation standards define your waypoints

| Series A - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 2.7 | 1.3 +/- 1 | 4 +/-2 |

|---------- 11 months +/- 2.4 ----------|

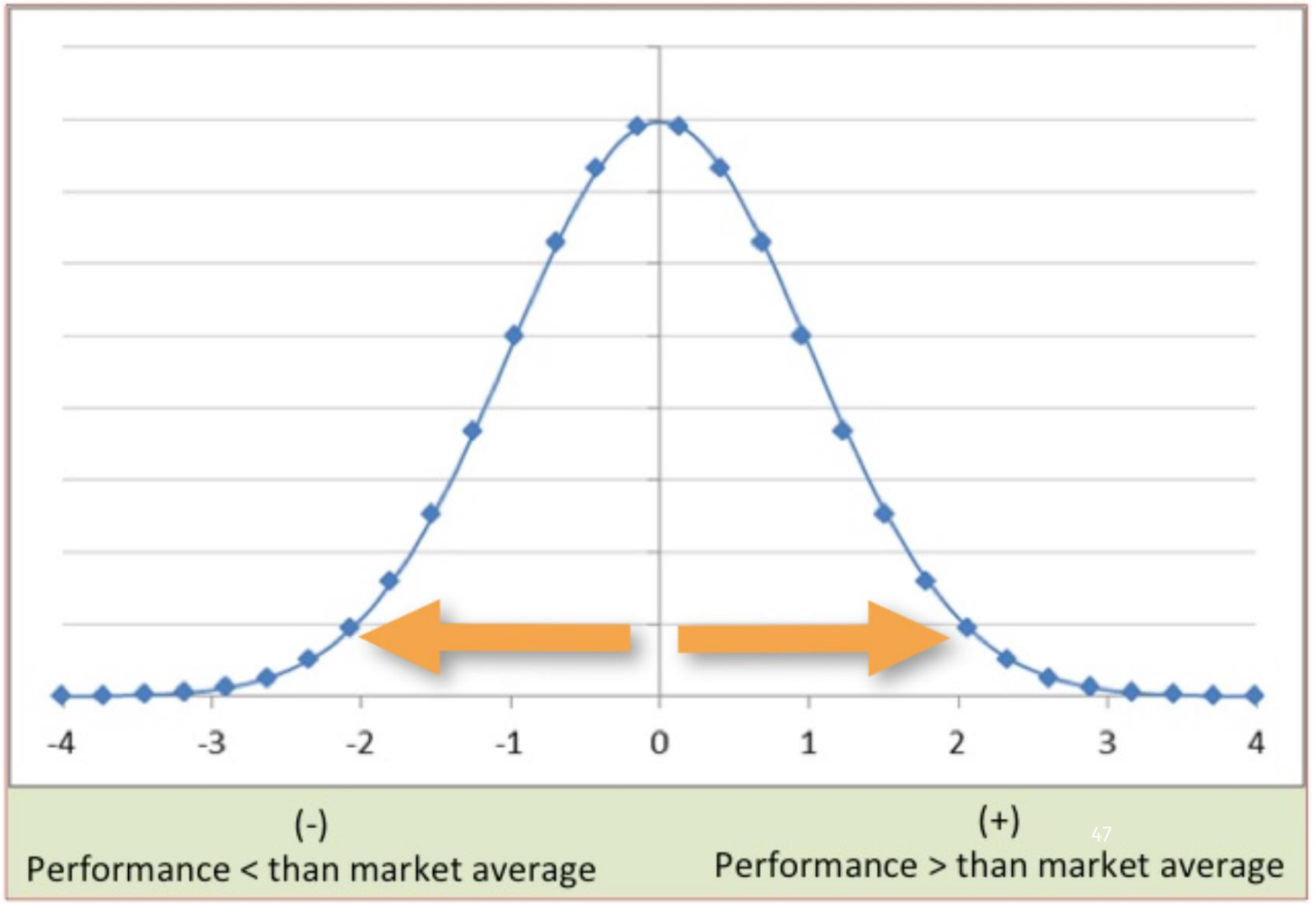
- Create proof of concept (F/V)
- Commercialization plan viability (F/V)
- Buildout technical team (V)

| Series B - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 8.0 | 4 +/- 1.9 | 12 +/- 4.3 |

|---------- 14 months +/- 2.5 ----------|

- Attain regulatory pathway (V)
- 1st in-human data/start clinical trial (F/V)
- Design System Audit (V)

Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases




Standard deviation is a measure used to quantify dispersion

# Valuation standards define your waypoints

| Series A - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 2.7 | 1.3 +/- 1 | 4 +/-2 |

|---------- 11 months +/- 2.4 ----------|

- Create proof of concept (F/V)
- Commercialization plan viability (F/V)
- Buildout technical team (V)

| Series B - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 8.0 | 4 +/- 1.9 | 12 +/- 4.3 |

|---------- 14 months +/- 2.5 ----------|

- Attain regulatory pathway (V)
- 1st in-human data/start clinical trial (F/V)
- Design System Audit (V)

Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases

# Valuation standards define your waypoints

A value milestone increases company value

A fundable milestone allows movement to next investor class

|---------- 11 months +/- 2.4 ----------|

|---------- 14 months +/- 2.5 ----------|

- Create proof of concept (F/V)
- Commercialization plan viability (F/V)
- Buildout technical team (V)

- Attain regulatory pathway (V)
- 1st in-human data/start clinical trial (F/V)
- Design System Audit (V)

Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases


VENTURE FUNDS
FAMILY AND FRIENDS
BANKS
INVESTMENT SOURCES
INSTITUTIONAL INVESTORS
ANGELS
GOVERNMENT GRANTS

# Valuation standards define your waypoints
## (Medical Device)

| Series C - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 15.9 | 8.9 +/- 3.5 | 24.8 +/- 7.6 |

|---------- 15 months +/- 3.4 ----------|

- Commercial approval OUS (V)
- Regulatory trial approval US (F/V)
- Launch US trial (V)
- Hire sales & marketing team (V)

| Series D - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 32.1 | 11.6+/- 5.9 | 43.7 +/- 15 |

|---------- 20 months +/- 8.7 ----------|

- Regulatory approval US (F/V)
- Launch US product (V)
- US Revenue in excess of $xxM run-rate (F/V)
- Demonstrate viability of 2nd product (V)

Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases

# Early exits are not always practical

| Series E - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 62.0 | 16. +/- 5.9 | 78.3 +/- 24 |

| Exit Details | | |
|---|---|---|
| Capital Raise | Exit Value | Months |
| 54 +/- 15 | 107 +/- 43 | 72 +/-21.6 |
| Multiples | CAGR % | |
| 2.2 +/- 0.7 | 14.8 +/- 7.6 | |

- Demonstrate hockey-stick revenue growth (F/V)
- Pass cash-flow BE Point (F/V)
- Regulatory trial path 2nd product US (V)

Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases

# Valuation standards define your waypoints

| Series E - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 62.0 | 16. +/- 5.9 | 78.3 +/- 24 |

| Exit Details | | |
|---|---|---|
| Capital Raise | Exit Value | Months |
| 54 +/- 15 | 107 +/- 43 | 72 +/-21.6 |
| Multiples | CAGR % | |
| 2.2 +/- 0.7 | 14.8 +/- 7.6 | |


Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases

# Valuation standards define your waypoints

| Series E - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 62.0 | 16. +/- 5.9 | 78.3 +/- 24 |

| Exit Details | | |
|---|---|---|
| Capital Raise | Exit Value | Months |
| 54 +/- 15 | 107 +/- 43 | 72 +/-21.6 |
| Multiples | CAGR % | |
| 2.2 +/- 0.7 | 14.8 +/- 7.6 | |


Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases

# Valuation standards define your waypoints

| Series E - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 62.0 | 16. +/- 5.9 | 78.3 +/- 24 |

| Exit Details | | |
|---|---|---|
| Capital Raise | Exit Value | Months |
| 54 +/- 15 | 107 +/- 43 | 72 +/-21.6 |
| Multiples | CAGR % | |
| 2.2 +/- 0.7 | 14.8 +/- 7.6 | |


Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases

# Valuation standards define your waypoints

| Series E - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 62.0 | 16. +/- 5.9 | 78.3 +/- 24 |

| Exit Details | | |
|---|---|---|
| Capital Raise | Exit Value | Months |
| 54 +/- 15 | 107 +/- 43 | 72 +/-21.6 |
| Multiples | CAGR % | |
| 2.2 +/- 0.7 | 14.8 +/- 7.6 | |


Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases

# Valuation standards define your waypoints

| Series E - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 62.0 | 16. +/- 5.9 | 78.3 +/- 24 |

| Exit Details | | |
|---|---|---|
| Capital Raise | Exit Value | Months |
| 54 +/- 15 | 107 +/- 43 | 72 +/-21.6 |
| Multiples | CAGR % | |
| 2.2 +/- 0.7 | 14.8 +/- 7.6 | |


Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases

# Valuation standards for a Therapeutic segment

| Seed Round - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 6.5 +/- 2.3 | 0.9 +/- 0.8 | 7.4 +/- 3.1 |

|---------- ~15 months ----------

- Proof of concept with IND candidates
- Selection of clinically relevant animal model(s)

| 1st Round - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 9.6 +/- 7 | 6.9 +/- 7.7 | 16.5 +/- 14.7 |

|---------- ~19 months ----------

- Rodent and non-rodent tox da
- Selection of IND enabling compound

| 2nd Round - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 35.7 | 13.2 +/- 13.9 | 48.9 +/- 13.9 |

|---------- ~17 months ----------

- Human safety (Phase I)

| 3rd Round - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 50.0 | 17.3 +/- 17 | 67.3 +/- 17 |

|---------- ~13 months ----------

- Efficacy studies in patients
- Patient dose range studies (Phase IIb)

| 4th Round - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 148.3 | 29.8 | 178.1 |

- Phase III

| Exit Details | | |
|---|---|---|
| Capital Raise | Exit Value | Months |
| ~70 | ~226.7 | ~60 - 84 months |

Note:
- 2011 Venture Data Set for regional companies
- F = Fundable milestone – move to next class
- V = Value milestone – company value increases

# Tools reveal industry standards so you can plot a winning strategy

- Valuation Milestones: A review of standard, not comparatives, avails and aligns valuation and fundable milestones with those of investors and acquirers
- Disease State Fact Book: Distinguish the difference between an incremental market improvement and a monumental innovation
- Industry Life Cycle: Incumbent's resist acquiring until their existing investment is threatened or expiring
- Purchase Trigger Database: Reliance on an early exit is misplaced if uninformed, know your acquirer's habits

# Determine if a technology is an innovation or a modification

**DISEASE STATE FACT BOOK**

| Row # | | | Base Year | Year 2 | | | |
|---|---|---|---|---|---|---|---|
| 1 | Disease Prevalence | Portion of the population found to have the condition (1 in 1000) | 24,652,555 | 25,268,869 | | | |
| 2 | Incidence % | Percentage of new cases (generally a year) | | 20% | | | |
| 3 | Incidence | Occurrence of new cases since last time period later (year or in a period of time (generally a year) | | 5,053,774 | | | |
| 4 | Percentage Recurring | Percentage of population with a reoccurring event in a given year | | 20% | | | |
| 5 | Prevelance Population | [Disease prevalence less incidence] x percentage recurring | | 4,043,019 | | | |
| 6 | Number Diagnosed | Number diagnosed patients (the act of identifying treateable disease) | | 9,096,793 | | | |
| 7 | Diagnosis Rate % | Number diagnosed/disease prevalence (this included incident patients) | | 36.0% | | | |
| 8 | Procedural Approaches | Diagnostic, Medical Devices, Pharmaceutical, Long-term Care, Rehabilitation, etc. | | Medical Therapy | CABG | | Inteventional Procedure |
| 9 | Procedure/Service Approach % | The percent of diagnosed cases that would use this product/service | | 84.5% | 3.5% | | 12.3% |
| 10 | Number of Procedures/Services | Number of diagnosed x procedure/service approach % | | 7,687,700 | 318,388 | | 1,119,815 |
| 11 | Type of Products/Sub-services | List the individual products or services performed | | | | Stent | Guide Catheter | Guide Wire |
| 12 | Units per Procedure/Service | Example: 2.5 Stents per Procedure, 30 pills per cycle, 30 days in long-term care | | | | 2.2 | 1.75 | 1.1 |
| 13 | Market Units/Services | Number of Procedures x Units per Procedure/Service | | | | 2,463,593 | 1,959,677 | 1,231,797 |
| 14 | Average Revenue per Event | Revenue value per event or service - note revenue by manufacturer would be different than at the hospital level | | | | $ 550.00 | $ 9.87 | $ 6.93 |
| 15 | Market Dollars or Cost | Maket Units x Average Price | | | | $1,354,976,390 | $ 19,342,008 | $ 8,536,351 |

# Factors that increase market value

| | | |
|---|---|---|
| 1. | Disease Prevalence | Portion of the population found to have the condition (1 in 1000) |
| 2. | Incidence % | Percentage of new cases (generally a year) |
| 3. | Incidence | Occurrence of new cases since last time period — later year or in a period of time (generally a year) |
| 4. | Percentage Recurring | Percentage of population with a recurring event in a given year. |
| 5. | Prevalence Population | [Disease prevalence less incidence] x percentage recurring |
| 6. | Number Diagnosed | Number diagnosed patients (the act of identifying treatable disease) |
| 7. | Diagnosis Rate % | Number diagnosed/disease prevalence (includes incident patients) |
| 8. | Procedural Approaches | Diagnostic, Medical Devices, Pharmaceutical, Long-Term Care, Rehabilitation, etc. |
| 9. | Procedure/Service Approach % | The percentage of diagnosed cases that would use this product/service |
| 10. | Number of Procedures/Services | Number of diagnosed x procedure/service approach % |
| 11. | Type of products/Sub-services | List the individual products or services performed |
| 12. | Units per Procedure/Service | Example: 2 stents per procedure, 30 pills per cycle, 30 days in long-term care |
| 13. | Market Units/Services | Number of Procedures x Units per Procedure/Service |
| 14. | Average Revenue per Event | Revenue value per event or service – note revenue by manufacturer would be different than at the hospital level |
| 15. | Market Dollars or Cost | Market Units x Average Price |

# The factors that increase market value

**DISEASE STATE FACT BOOK**

| Row # | | | Base Year | Year 2 |
|---|---|---|---|---|
| 1 | Disease Prevalence | Portion of the population found to have the condition (1 in 1000) | 24,652,555 | 25,268,869 |
| 2 | Incidence % | Percentage of new cases (generally a year) | | 20% |
| 3 | Incidence | Occurrence of new cases since last time period later (year or in a period of time (generally a year) | | 5,053,774 |
| 4 | Percentage Recurring | Percentage of population with a reoccurring event in a given year | | 20% |
| 5 | Prevelance Population | [Disease prevalence less incidence] x percentage recurring | | 4,043,019 |
| 6 | Number Diagnosed | Number diagnosed patients (the act of identifying treateable disease) | | 9,096,793 |
| 7 | Diagnosis Rate % | Number diagnosed/disease prevalence (this included incident patients) | | 36.0% |

| Row # | | | Medical Therapy | CABG | Inteventional Procedure |
|---|---|---|---|---|---|
| 8 | Procedural Approaches | Diagnostic, Medical Devices, Pharmaceutical, Long-term Care, Rehabilitation, etc. | | | |
| 9 | Procedure/Service Approach % | The percent of diagnosed cases that would use this product/service | 84.5% | 3.5% | 12.3% |
| 10 | Number of Procedures/Services | Number of diagnosed x procedure/service approach % | [illegible]7,687,700 | [illegible]318,388 | [illegible]1,119,815 |

| Row # | | | Stent | Guide Catheter | Guide Wire |
|---|---|---|---|---|---|
| 11 | Type of Products/Sub-services | List the individual products or services performed | | | |
| 12 | Units per Procedure/Service | Example: 2.5 stents per Procedure, 30 pills per cycle, 30 days in long-term care | 2.2 | 1.75 | 1.1 |
| 13 | Market Units/Services | Number of Procedures x Units per Procedure/Service | [illegible]2,463,593 | [illegible]1,959,677 | [illegible]1,231,797 |
| 14 | Average Revenue per Event | Revenue value per event or service - note revenue by manufacturer would be different than at the hospital level | $[illegible]550.00 | $[illegible]9.87 | $[illegible]6.93 |
| 15 | Market Dollars or Cost | Maket Units x Average Price | $1,354,976,390 | $[illegible]9,342,008 | $[illegible]8,536,351 |

# A 4% change in diagnosis rate can increase the market by 11%

**DISEASE STATE FACT BOOK**

| Row # | | Year 2 | | | | Year 2 | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Disease Prevalence | 25,268,869 | | | | 25,268,869 | | | |
| 2 | Incidence % | 20% | | | | 20% | | | |
| 3 | Incidence | 5,053,774 | | | | 5,053,774 | | | |
| 4 | Percentage Recurring | 20% | | 5% | | 25% | | | |
| 5 | Prevelance Population | 4,043,019 | | | | 5,053,774 | | | |
| 6 | Number Diagnosed | 9,096,793 | | | | 10,107,548 | | | |
| 7 | Diagnosis Rate % | 36.0% | | 4% | | 40.0% | | | |
| 8 | Procedural Approaches | Medical Therapy | CABG | Inteventional Procedure | | Medical Therapy | CABG | Inteventional Procedure | |
| 9 | Procedure/Service Approach % | 84.5% | 3.5% | 12.3% | | 84.5% | 3.5% | 12.3% | |
| 10 | Number of Procedures/Services | 7,687,700 | 318,388 | 1,119,815 | | 8,541,888 | 353,764 | 1,244,239 | |
| 11 | Types of Products/Sub-services | | | Stent | Guide Catheter | Guide Wire | | Stent | Guide Catheter | Guide Wire |
| 12 | Units per Procedure/Service | | | 2.2 | 1.75 | 1.1 | | 2.2 | 1.75 | 1.1 |
| 13 | Market Units/Services | | | 2,463,593 | 1,959,677 | 1,231,797 | | 2,737,326 | 2,177,418 | 1,368,663 |
| 14 | Average Revenue per Event | | | $550.00 | $9.87 | $6.93 | | $550.00 | $9.87 | $6.93 |
| 15 | Market Dollars or Cost | | | $1,354,976,390 | $19,342,008 | $8,536,351 | | $1,505,529,323 | $21,491,120 | $9,484,835 |
| | | | | | 1,382,854,750 | | | | 1,536,505,277 | |
| | | | | | | 153,650,528 | | | | |

# A 1.2% procedural shift can change the market dollars by 10%

**DISEASE STATE FACT BOOK**

| Row # | | Year 2 | Year 2 |
|---|---|---|---|
| 1 | Disease Prevalence | 25,268,869 | 25,268,869 |
| 2 | Incidence % | 20% | 20% |
| 3 | Incidence | 5,053,774 | 5,053,774 |
| 4 | Percentage Recurring | 20% | 20% |
| 5 | Prevelance Population | 4,043,019 | 4,043,019 |
| 6 | Number Diagnosed | 9,096,793 | 9,096,793 |
| 7 | Diagnosis Rate % | 36.0% | 36.0% |
| 8 | Procedural Approaches | Medical Therapy / CABG / Inteventional Procedure | Medical Therapy / CABG / Inteventional Procedure |
| 9 | Procedure/Service Approach % | 84.5% / 3.5% / 12.3% | 84.5% / 2.0% / 13.5% |
| 10 | Number of Procedures/Services | 7,687,700 / 318,388 / 1,119,815 | 7,687,700 / 181,936 / 1,227,157 |
| 11 | Type of Products/Sub-services | Stent / Guide Catheter / Guide Wire | Stent / Guide Catheter / Guide Wire |
| 12 | Units per Procedure/Service | 2.2 / 1.75 / 1.1 | 2.2 / 1.75 / 1.1 |
| 13 | Market Units/Services | 2,463,593 / 1,959,677 / 1,231,797 | 2,699,746 / 2,147,525 / 1,349,873 |
| 14 | Average Revenue per Event | $550.00 / $9.87 / $6.93 | $550.00 / $9.87 / $6.93 |
| 15 | Market Dollars or Cost | $1,354,976,390 / $19,342,008 / $8,536,351 | $1,484,860,398 / $21,196,075 / $9,354,621 |
| | | 1,382,854,750 | 1,515,411,094 |
| | | 132,556,345 | |

# Market factors that attract acquirers

Factors that increase market value: (all tides rise boats)

- Diagnosis rate
- Procedure rate
- Units p/ procedure

Factors that require taking share: (fighting incumbents)

- Type of products
  - Category transitions
- Market units
- Average selling price
- Market dollars

# Tools reveal industry standards so you can plot a winning strategy

- Valuation Milestones: A review of standard, not comparatives, avails and aligns valuation and fundable milestones with those of investors and acquirers
- Disease State Fact Book: Distinguish the difference between an incremental market improvement and a monumental innovation
- Industry Life Cycle: Incumbents resist acquiring until their existing investment is threatened or expiring
- Purchase Trigger Database: Reliance on an early exit is misplaced if uninformed, know your acquirer's habits

# Determine an industry's readiness

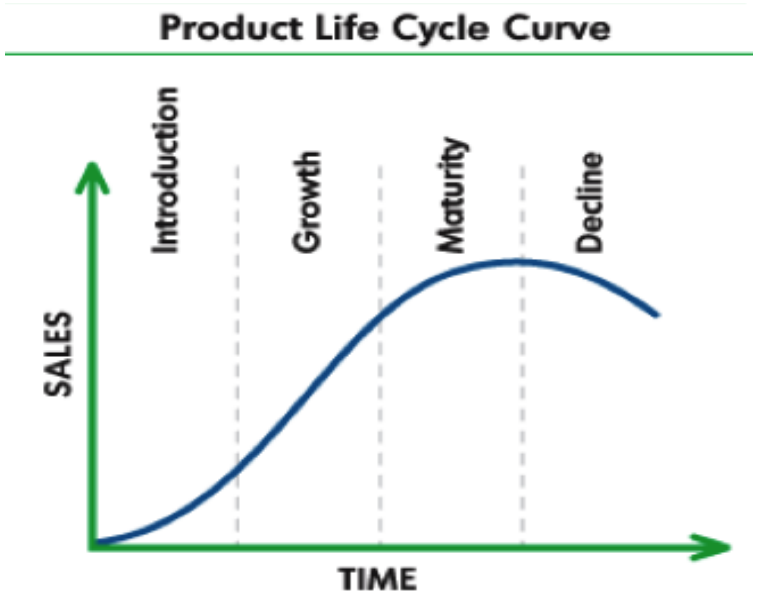
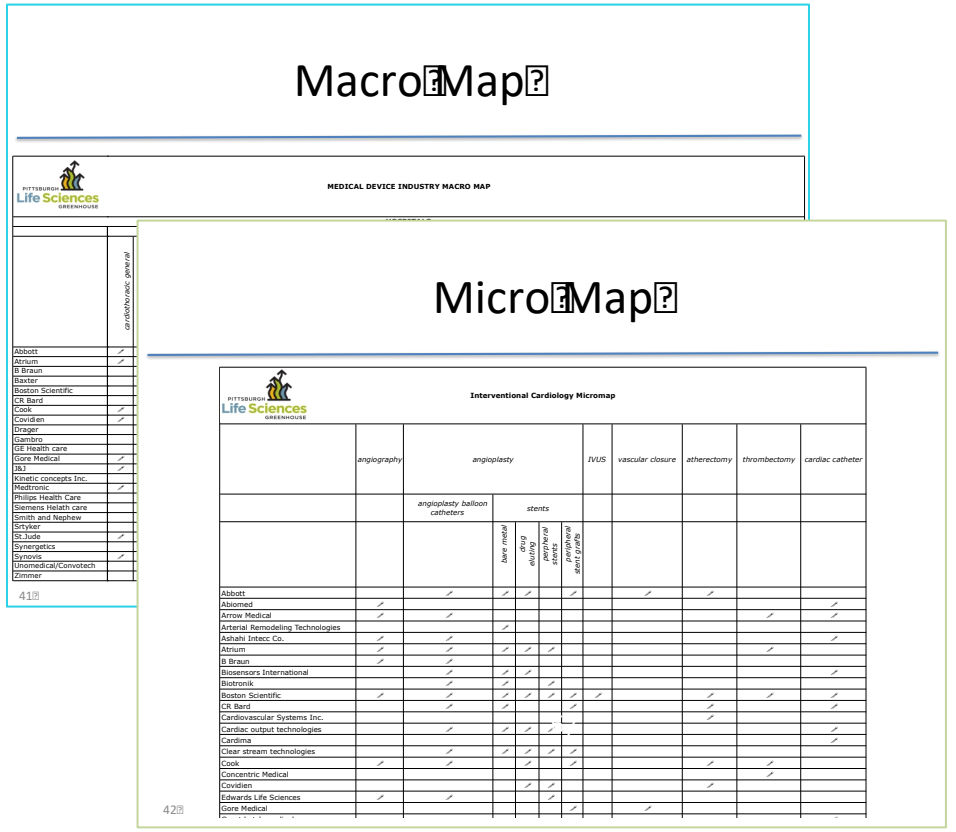



Figure 5.2 Product Life Cycle Management



# Determine an industry's readiness

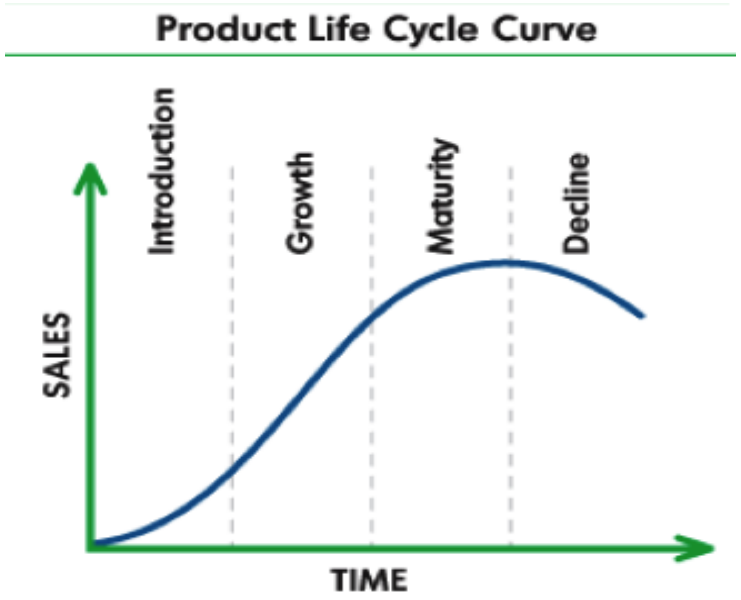



Figure 5.2 Product Life Cycle Management


- Wang developed the CRT Word Processor
- 61% CAGR between 1979-1984

# Industry & companies in a growth phase will fight a category shift

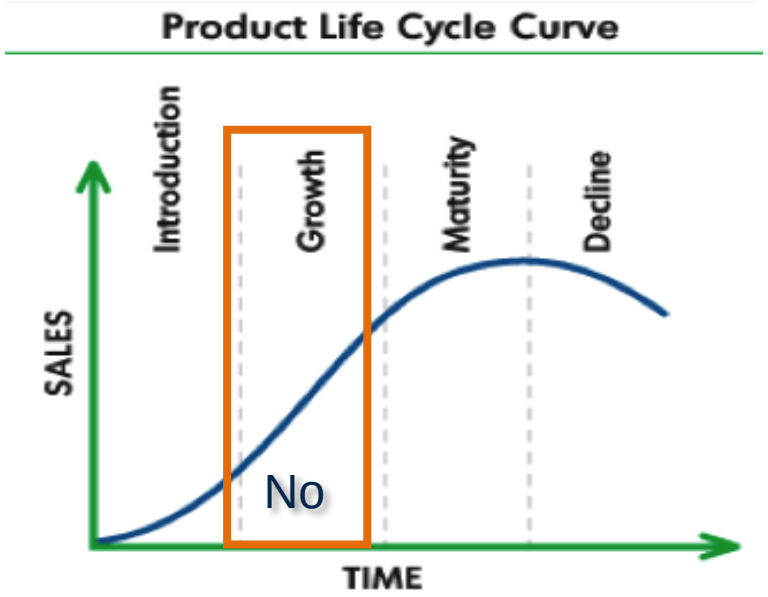



Figure 5.2 Product Life Cycle Management


- Wang developed the CRT Word Processor
- 61% CAGR between 1979-1984

# Industry & companies in a growth phase will fight a category shift

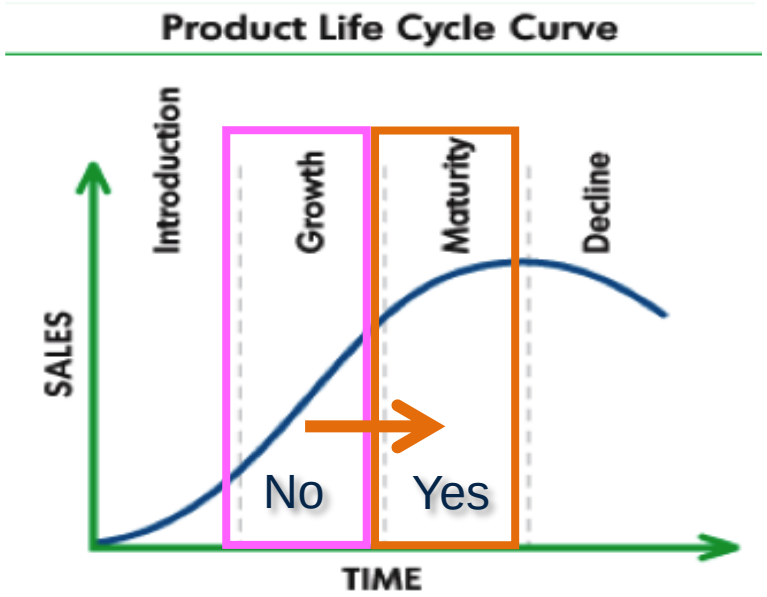



Figure 5.2 Product Life Cycle Management


- Wang developed the CRT Word Processor
- 61% CAGR between 1979-1984

# Macro/Micro maps help uncover industry readiness

## Zimmer-Biomet: The Deal That Shook Warsaw, Ind.

Merger, Valued at $13.35 Billion, Combines Two Medical-Device Makers

## Abbott Labs to Buy Private Medical Device Company Topera

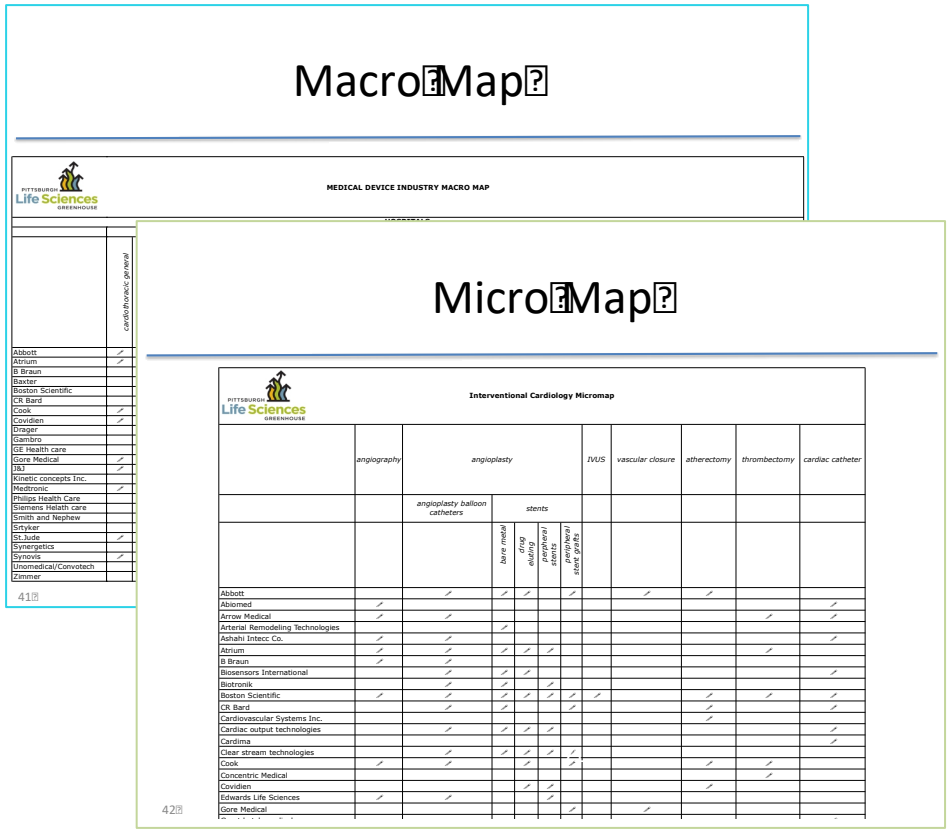
Health-Care Company Also Secures Right to Acquire Advanced Cardiac Therapeutics

## Johnson & Johnson to Seek Buyer for Cordis Medical-Device Unit

Division Could Fetch as Much as $2 Billion in a Sale

## Medtronic, Covidien Shareholders Approve Deal

Deal Is On Track To Close By The End Of January Or Early February



# Macro Map

PITTSBURGH Life Sciences GREENHOUSE

**MEDICAL DEVICE INDUSTRY MACRO MAP**

| | HOSPITALS | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Operating Room | | | | | | | | | | | | | | Multi speciality | | | | | | ICU/CCU | Laboratory based | | | | Specialty | | | | | |
| | *cardiothoracic general* | *colon rectal* | *otolaryngiology* | *orthopedic* | *plastic surgery* | *ophthalmology* | *ob-gyn* | *general laproscopy* | *general-other* | *Vascular* | *urology* | *endoscopy* | *neurology* | *Robot assisted/image guided* | *anaesthetics* | *respiratory devices* | *hemostats* | *tissue sealants* | *adhesion prevention* | *monitoring systems* | | *Interventional cardiology* | *Interventional radiology* | *Electrophysiology* | *Interventional neurology* | *CRM* | *Radiology(imaging)* | *Renal* | *Neurology* | *Infusion systems* | *wound care and management* |
| Abbott | ✓ | | | | | ✓ | | | | ✓ | | | | | | | ✓ | | | | | ✓ | ✓ | | | | | | | | ✓ |
| Atrium | ✓ | | | | | | | | ✓ | ✓ | | | | | | | | | | | | ✓ | | | | | | | | | |
| B Braun | | | | | | | | | | ✓ | | | | | ✓ | | | | | | | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ |
| Baxter | | | | | | | | | | | | | | | ✓ | | ✓ | ✓ | ✓ | | | | | | | | ✓ | | ✓ | ✓ |
| Boston Scientific | | ✓ | | | | | ✓ | | ✓ | | ✓ | ✓ | ✓ | | | | | | | | | ✓ | ✓ | | ✓ | ✓ | | | | |
| CR Bard | | | ✓ | ✓ | | | | | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | | | | | ✓ | ✓ | ✓ | | ✓ | | ✓ | | ✓ |
| Cook | ✓ | ✓ | | | | | ✓ | | ✓ | ✓ | ✓ | ✓ | | | | | | | | | | ✓ | ✓ | | | | | | ✓ | |
| Covidien | ✓ | ✓ | ✓ | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Drager | | | | | | | | | | | | | | | ✓ | ✓ | | | | ✓ | | | | | | | | | | |
| Gambro | | | | | | | | | | | | | | | | | | | | | | | | | | | ✓ | | | |
| GE Health care | | | ✓ | | | | ✓ | | ✓ | | ✓ | | | ✓ | ✓ | ✓ | | | | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | | | | |
| Gore Medical | ✓ | ✓ | | ✓ | | | | | ✓ | ✓ | | | ✓ | | | | | | | | | ✓ | ✓ | | | | | | | ✓ |
| J&J | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | ✓ | | | | | | | | | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ |
| Kinetic concepts Inc. | | | | | | | ✓ | | | | ✓ | | | | | | | | | | | | | | | | | | | ✓ |
| Medtronic | ✓ | | ✓ | ✓ | | | | | | | ✓ | | | | | | | | | | ✓ | ✓ | | | | ✓ | | | ✓ | |
| Philips Health Care | | | | | | | | | | | | | | | ✓ | | | | | ✓ | | | | | | ✓ | | | | |
| Siemens Helath care | | | | | | | | | | | | | | | ✓ | ✓ | | | | ✓ | | ✓ | | ✓ | | ✓ | | | | |
| Smith and Nephew | | | | ✓ | | | | | | | | ✓ | | | | | | | | | | | | | | | | | | ✓ |
| Srtyker | | | | ✓ | | | | | | | | ✓ | ✓ | ✓ | | | | | | ✓ | ✓ | | | | | ✓ | | | ✓ | |
| St.Jude | ✓ | ✓ | | | | | | | | | | | | ✓ | | | | | | | | ✓ | | ✓ | | ✓ | | ✓ | | |
| Synergetics | | | | | | | | | | | | | ✓ | | | | | | | | | | | | | | | | | |
| Synovis | ✓ | | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | | | | | | | | | | | | | | | | | |
| Unomedical/Convotech | | | | | | | | | | | | | | | | ✓ | | | | | ✓ | | ✓ | | | | | | ✓ | ✓ |
| Zimmer | | | | ✓ | | | | | | | | | | | | | | | | | | | | | | ✓ | | | | |

# Micro Map

**Interventional Cardiology Micromap**

| | *angiography* | *angioplasty* | | | | | *IVUS* | *vascular closure* | *atherectomy* | *thrombectomy* | *cardiac catheter* |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | *angioplasty balloon catheters* | *stents* | | | | | | | | |
| | | | *bare metal* | *drug eluting* | *perpheral stents* | *peripheral stent grafts* | | | | | |
| Abbott | | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | | |
| Abiomed | ✓ | | | | | | | | | | ✓ |
| Arrow Medical | ✓ | ✓ | | | | | | | | ✓ | ✓ |
| Arterial Remodeling Technologies | | | ✓ | | | | | | | | |
| Ashahi Intecc Co. | ✓ | ✓ | | | | | | | | | ✓ |
| Atrium | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | |
| B Braun | ✓ | ✓ | | | | | | | | | |
| Biosensors International | | ✓ | ✓ | ✓ | | | | | | | ✓ |
| Biotronik | | ✓ | ✓ | | ✓ | | | | | | |
| Boston Scientific | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| CR Bard | | ✓ | ✓ | | | ✓ | | | ✓ | | ✓ |
| Cardiovascular Systems Inc. | | | | | | | | | ✓ | | |
| Cardiac output technologies | | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ |
| Cardima | | | | | | | | | | | ✓ |
| Clear stream technologies | | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | |
| Cook | ✓ | ✓ | | ✓ | | ✓ | | | ✓ | ✓ | |
| Concentric Medical | | | | | | | | | | ✓ | |
| Covidien | | | | ✓ | ✓ | | | | ✓ | | |
| Edwards Life Sciences | ✓ | ✓ | | | ✓ | | | | | | |
| Gore Medical | | | | | | ✓ | | ✓ | | | |

# Determine an industry's readiness

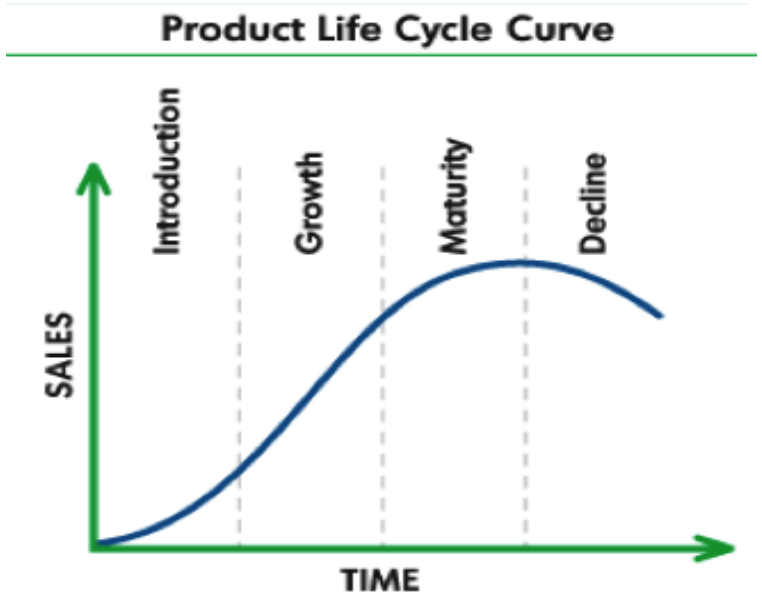



Figure 5.2 Product Life Cycle Management

## Macro Map

MEDICAL DEVICE INDUSTRY MACRO MAP

| | cardiothoracic general |
|---|---|
| Abbott | ✓ |
| Atrium | ✓ |
| B Braun | |
| Baxter | |
| Boston Scientific | |
| CR Bard | |
| Cook | ✓ |
| Covidien | ✓ |
| Drager | |
| Gambro | |
| GE Health care | |
| Gore Medical | ✓ |
| J&J | ✓ |
| Kinetic concepts Inc. | |
| Medtronic | ✓ |
| Philips Health Care | |
| Siemens Helath care | |
| Smith and Nephew | |
| Srtyker | |
| St.Jude | ✓ |
| Synergetics | |
| Synovis | ✓ |
| Unomedical/Convotech | |
| Zimmer | |

41

## Micro Map

Interventional Cardiology Micromap

| | angiography | angioplasty | | | | IVUS | vascular closure | atherectomy | thrombectomy | cardiac catheter |
|---|---|---|---|---|---|---|---|---|---|---|
| | | angioplasty balloon catheters | stents | | | | | | | |
| | | | bare metal | drug eluting | peripheral stents | peripheral stent grafts | | | | |
| Abbott | | ✓ | ✓ | ✓ | | ✓ | | ✓ | ✓ | | |
| Abiomed | ✓ | | | | | | | | | | ✓ |
| Arrow Medical | ✓ | ✓ | | | | | | | | ✓ | ✓ |
| Arterial Remodeling Technologies | | | ✓ | | | | | | | | |
| Ashahi Intecc Co. | ✓ | ✓ | | | | | | | | | ✓ |
| Atrium | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | ✓ | |
| B Braun | ✓ | ✓ | | | | | | | | | |
| Biosensors International | | ✓ | ✓ | ✓ | | | | | | | ✓ |
| Biotronik | | ✓ | ✓ | | ✓ | | | | | | |
| Boston Scientific | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ |
| CR Bard | | ✓ | ✓ | | ✓ | | | ✓ | | | ✓ |
| Cardiovascular Systems Inc. | | | | | | | | ✓ | | | |
| Cardiac output technologies | | ✓ | ✓ | ✓ | ✓ | | | | | | ✓ |
| Cardima | | | | | | | | | | | ✓ |
| Clear stream technologies | | ✓ | ✓ | ✓ | ✓ | | | | | | |
| Cook | ✓ | ✓ | | ✓ | | ✓ | | ✓ | ✓ | | |
| Concentric Medical | | | | | | | | | ✓ | | |
| Covidien | | | | ✓ | ✓ | | | ✓ | | | |
| Edwards Life Sciences | ✓ | ✓ | | | ✓ | | | | | | |
| Gore Medical | | | | | | ✓ | | | | | |

42

# Tools reveal industry standards so you can plot a winning strategy

- Valuation Milestones: A review of standard, not comparatives, avails and aligns valuation and fundable milestones with those of investors and acquirers
- Disease State Fact Book: Distinguish the difference between an incremental market improvement and a monumental innovation
- Industry Life Cycle: Incumbent's resist acquiring until their existing investment is threatened or expiring
- Purchase Trigger Database: Reliance on an early exit is misplaced if uninformed, know your acquirer's habits

# 62% of PMA's are acquired after FDA approval

Note:
- 2011 Venture Data Set
- Sample size = 18
- Most likely less today before PMA

| Series A - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 2.7 | 1.3 +/- 1 | 4 +/-2 |

|---------- 11 months +/- 2.4 ----------|

| Series B - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 8.0 | 4 +/- 1.9 | 12 +/- 4.3 |

|---------- 14 months +/- 2.5 ----------|

| Series C - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 15.9 | 8.9 +/- 3.5 | 24.8 +/- 7.6 |

|---------- 15 months +/- 3.4 ----------|

7 (38%) acquired before regulatory approval

| Series D - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 32.1 | 11.6+/- 5.9 | 43.7 +/- 15 |

|---------- 20 months +/- 8.7 ----------|

| Series E - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 62.0 | 16. +/- 5.9 | 78.3 +/- 24 |

| Exit Details | | |
|---|---|---|
| Capital Raise | Exit Value | Months |
| 54 +/- 15 | 107 +/- 43 | 72 +/-21.6 |
| Multiples | CAGR % | |
| 2.2 +/- 0.7 | 14.8 +/- 7.6 | |

Regulatory approval US (F/V)

11 (62%) acquired after regulatory approval

# 62% of PMA's are acquired after FDA approval

Note:
- 2011 Venture Data Set
- Sample size = 18
- Most likely less today before PMA

| Series A - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 2.7 | 1.3 +/- 1 | 4 +/-2 |

|---------- 11 months +/- 2.4 ----------|

| Series B - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 8.0 | 4 +/- 1.9 | 12 +/- 4.3 |

|---------- 14 months +/- 2.5 ----------|

| Series C - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 15.9 | 8.9 +/- 3.5 | 24.8 +/- 7.6 |

|---------- 15 months +/- 3.4 ----------|

7 (38%) acquired before regulatory approval

| Series D - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 32.1 | 11.6+/- 5.9 | 43.7 +/- 15 |

|---------- 20 months +/- 8.7 ----------|

| Series E - in millions | | |
|---|---|---|
| Pre-Money | Capital Raise | Post-Money |
| 62.0 | 16. +/- 5.9 | 78.3 +/- 24 |

| Exit Details | | |
|---|---|---|
| Capital Raise | Exit Value | Months |
| 54 +/- 15 | 107 +/- 43 | 72 +/-21.6 |
| Multiples | CAGR % | |
| 2.2 +/- 0.7 | 14.8 +/- 7.6 | |

Regulatory approval US (F/V)

11 (62%) acquired after regulatory approval

# A value proposition must address constituency objectives & concerns

- Identify constituency measures of success
- Valuation standards define your waypoints
- Distinguish innovation from improvement
- Determine an industry’s readiness to change
- M&A history defines triggers (timing)