



**The Burning Arrow of Time:**  
*A model for delivering profitable  
technology in spite of market chaos*

May 19, 2009

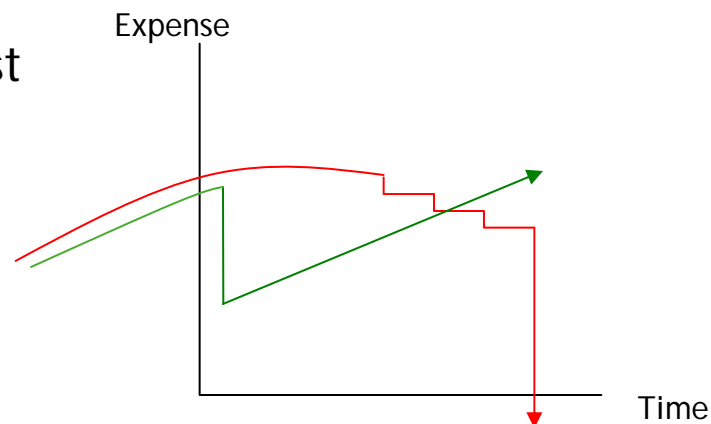
energy ventures 

Gary Jones, Chairman, ARKeX, Ingrain & NovaDrill

# Managing in a Downturn

## Sequoia's Survival of the Quickest - "Must-Do" List

1. Raise funds AMAP, ASAP
2. Pursue M&A
3. Be real on valuation



For start up companies, expenses are not an output - they're an input

## What can companies do?

### According to Sequoia

- Adapt fast
- Cuts/salary Reductions
- Heavy commissions sales
- Reduce frills
- Get cash flow fast
- Measure results: sales and dividends
- Pipeline: is it real?

### According to Qittitut

- Sales, sales, sales
- For execs: 40% sales, 20% marketing
- Review cash flow - yours and your customers'
- Sell higher, sell wider
- Change value proposition
- Ask customers to fund validation

# Conventional Tactics

## 1. Manage Cash Flow

- Slash capital expenditure
- Postpone major projects

## 2. Secure Backlog

- Bundle services - weak with strong
- **Leverage new tech for bundling**
- Focus on NOCs

## 3. Price vs. Market Share

- Defend price ALAP
- Stack idle assets
- Aggressive sales and marketing
- Lead prices down to protect share

# Last But Not Least

## 4. Roll Out New Technology

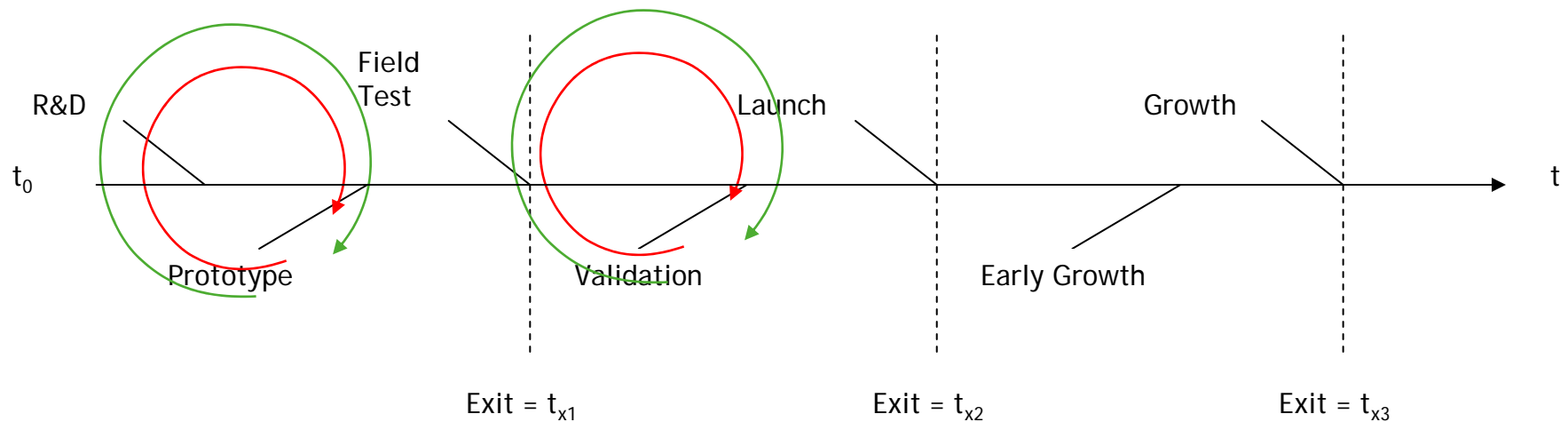
- Maintain R, D & E, but shift to r, d & E
- Recruit new talent

### How can we apply this advice?

1. Rolling out new technology is the only option for most early and validation stage companies.
2. All companies are different. Assess then treat.

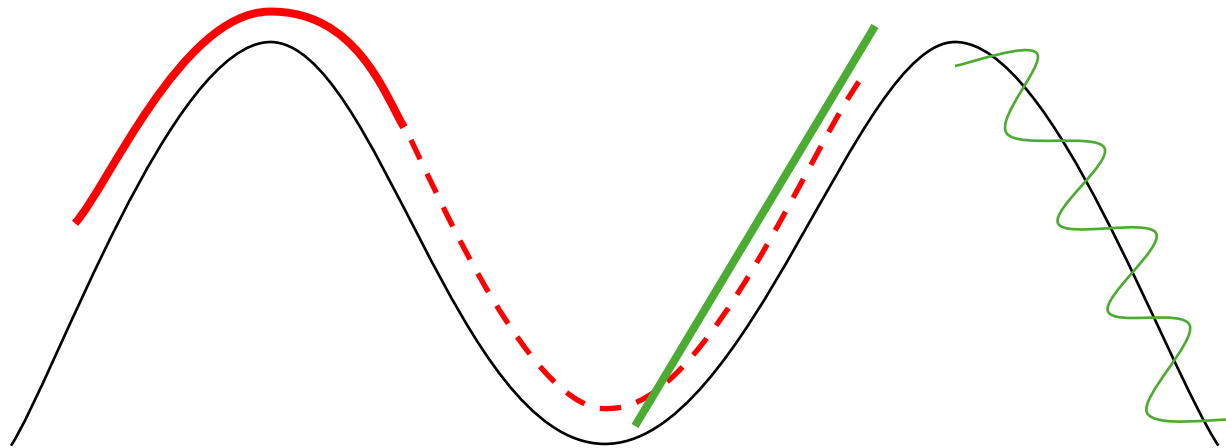
# The Burning Arrow of Time

Managing linearity in the real world



However, the real world is not linear!

# The Real World Has Cycles



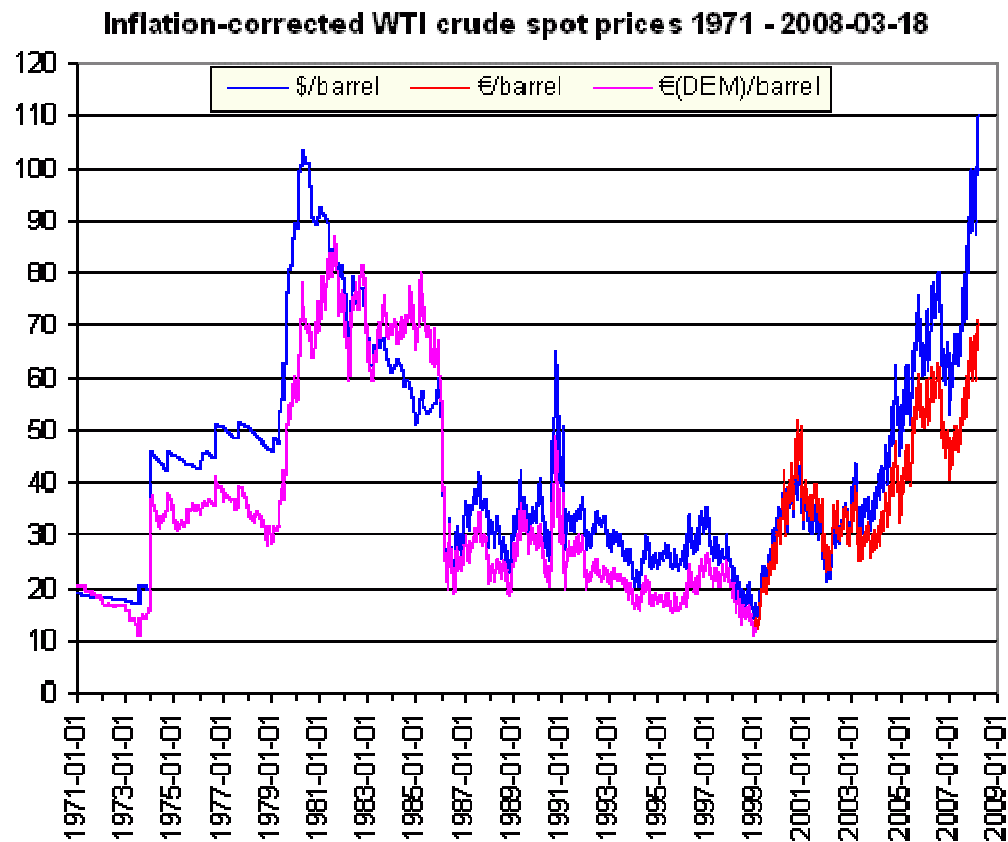
Can we time the market?

Case 1: Market timing clock works!! 😊

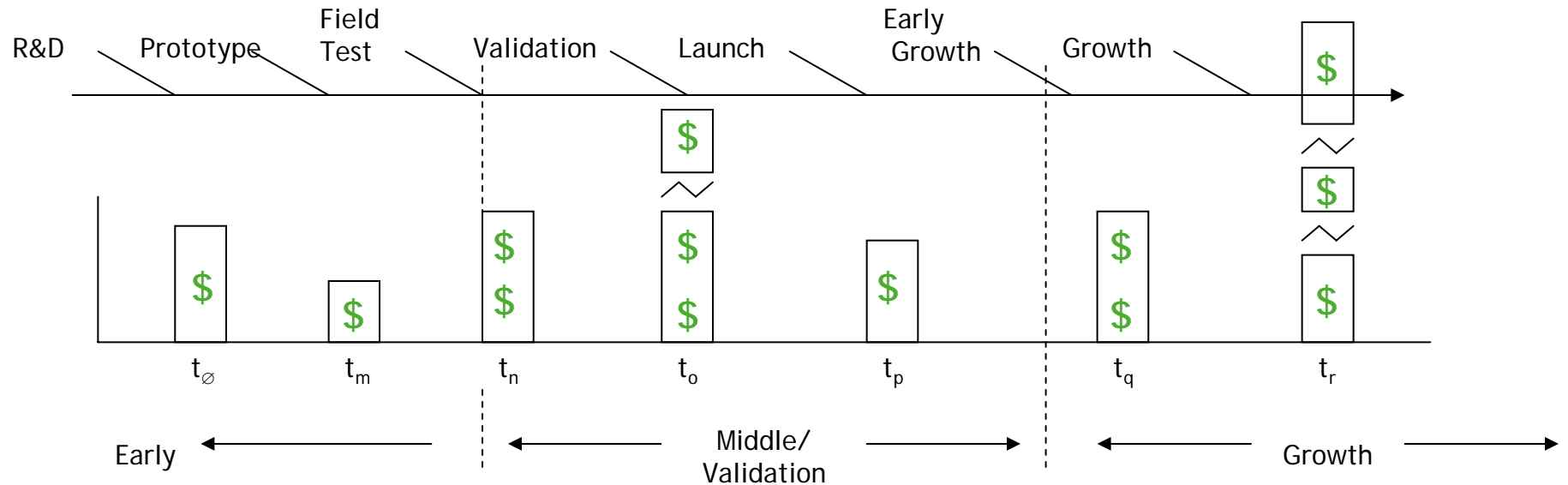
Case 2: Market timing clock off. 😞

# Mountains Beyond Mountains

## The Price of Crude Oil from 1950-2009



# Time is Money



Validation Cost:  $f$  {
 

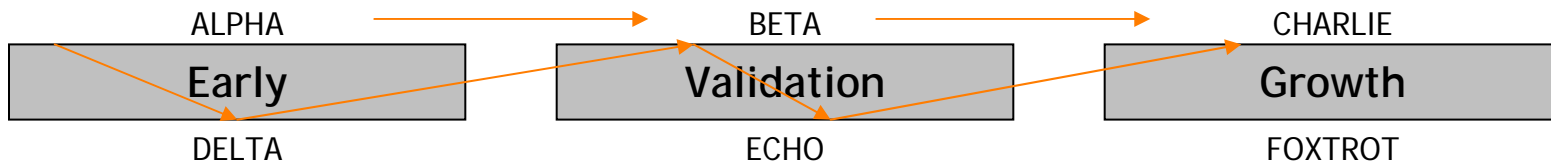
- Criticality of product
- Need for service/product
- Average invoice/contract size

Value at Exit:  $f$  {
 

- Total market penetration, timing and perception
- Gross margins
- Team
- Execution
- Plan
- Need

# Lessons We Need to Learn

- We are good at technical milestones
- We are good at financial milestones
- We can and MUST improve at validation milestones



Ideal Progression:       $A \rightarrow B \rightarrow C$   
Very Rare

All Companies:              ALPHA @  $t_0$

**NO TWO ARE ALIKE**

World  $\neq$  Ideal: Expect loops, zigs and zags

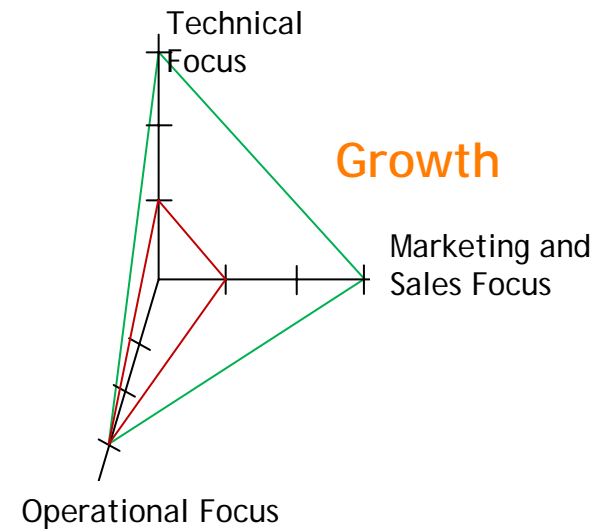
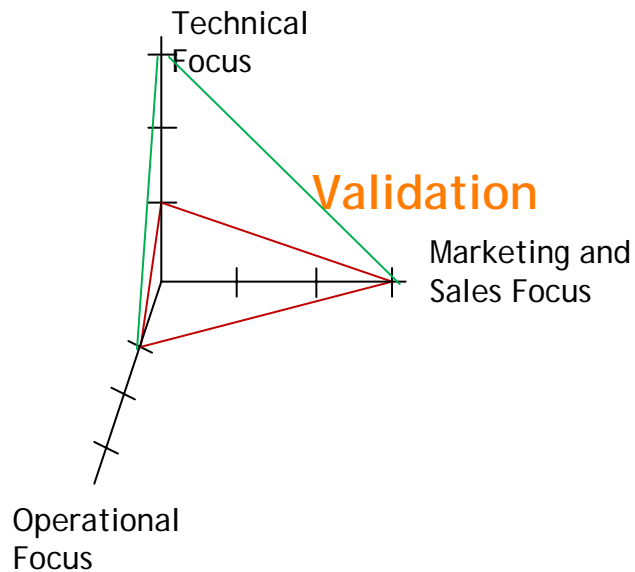
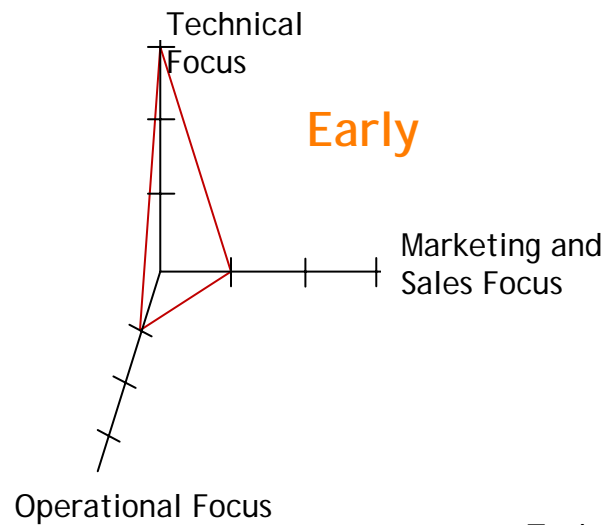
# Moving Forward

- Linear progression in equilibrium state is rare
- Validation has two parts:
  1. External - market, value, need, speed
  2. Internal - margin, complexity, range, speed
- Where do we go from here?
  - Framework for thinking
  - Control System
    - Reduce excursions
    - Train teams at start-ups
- In a portfolio of companies, there will be a distribution of As, Bs and Cs, as well as Ds, Es and Fs

# The Framework: A Thought Experiment

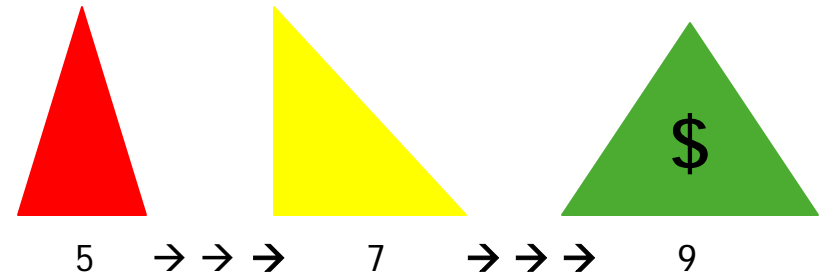
Red

- Direction of focus
- Shape of triangle with limited resources



# The Framework

- At t=0, all companies = ALPHA
- To move from A → B, B → C requires

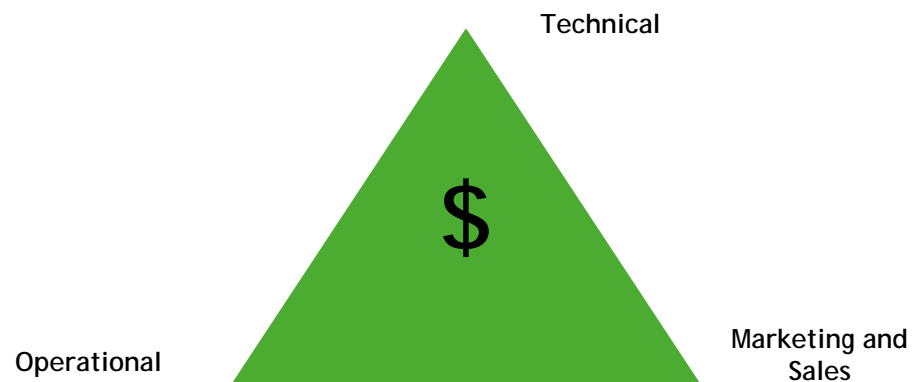


1. Top management ability to manage validation with rigor, OR
2. Willingness to hire it in

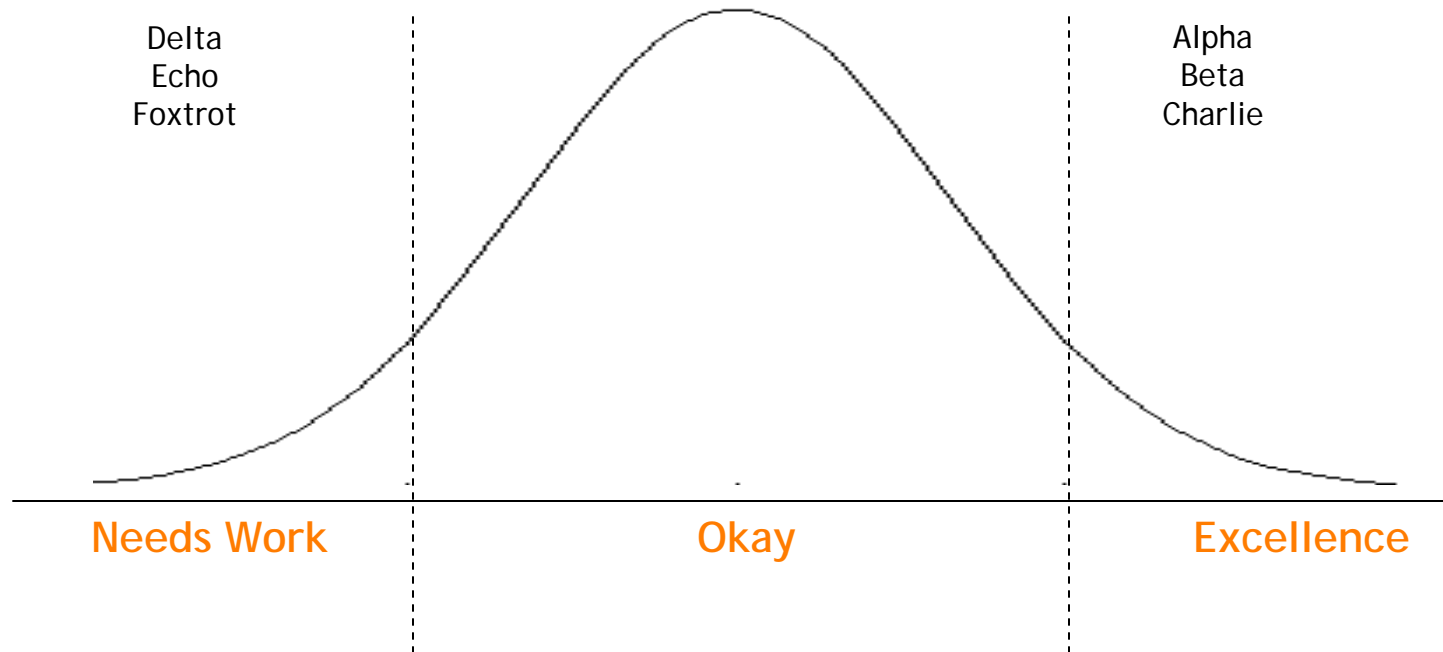
**This cannot be outsourced**

- Without cash - or with restricted cash - the area of the triangle cannot be increased

- Max value =

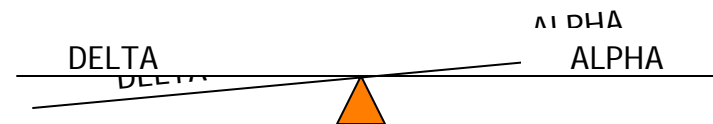


# Reducing the Loops



Choices: Formula for allocation capital  
Market voice  
Subjectivity

How to determine? Are we Alpha or Delta?  
Beta or Echo?  
Charlie or Foxtrot?



# Early Stage

DELTA

ALPHA

No	Technical milestones on target	Yes!
No	Management assessment and skill set positive	Yes!
No	Early market validation positive	Yes!
No	Cash management on target	Yes!
No	Products still has medium to high market potential	Yes!
No	Cost vs. price balance looks good	Yes!
No	Thought/technical leadership on team	Yes!

# Validation

ECHO

BETA

No	External validation metrics agree with customers	Yes!
No	M&S talent on team with positive assessment	Yes!
No	External validation chosen in important geographical markets	Yes!
No	Value proposition still holds - cost/price on track	Yes!
No	Validation work on budget both time and cost	Yes!
No	Customer Pull >> zero	Yes!
No	Product still "must have"	Yes!
No	Technical milestones on track, time and money	Yes!

# Growth

FOXTROT

CHARLIE

No	Service or product is field ready. Will it work, really?	Yes!
No	Manufacturing lead time known	Yes!
No	Cost of repair - on budget	Yes!
No	Sales force trained	Yes!
No	Customer Pull >>> zero	Yes!
No	Working capital in place	Yes!
No	Customers prioritized and geographical roll-out ready	Yes!
No	Management team in place	Yes!
No	Product still has game changer potential	Yes!

# Actions Speak Louder Than Words

In a portfolio of companies, talent exists:

Partners and limited partners ♦ Chair and board members  
CEO, CTO, CFO, CMO, COO

Who carries the yardstick?

	<u>Frequency</u>
Level 1: Self Audit	Every Q
Level 2: Self + Consultant	Every 6 months
Level 3: x Portfolio Team	Every Year

Level 3 Team: Partner as leader plus mix of 3 from other companies

# Faster Exit, Greater Value

- Leadership Development
- Cross-company synergy
- More rigorous assessment

Better results = FASTER EXIT!

# Technology in a Downturn - Trends

SHALES  
CARBONATES  
SUBSALTS  
HEAVY OIL

## Discovery

ARKeX

- Seismic dominant
- EM gaining width
- Integration of multiple measurements

## Drilling

NovaDrill

- Higher telemetry
  - Wired pipe applications
- Geosteering - see better, faster
- RSS - "lead the bit"
- Technologies to reduce cost, size
- K + Rock Physics

Ingrain

# Technology in a Downturn - Trends, cont.

## Evaluation

### Ingrain

- K
- Interwell space [Scale]
  - x well seismic/acoustic
  - x well EM
- Deep EM WD

## Completion

### Ingrain

- Frac design, execution, measure
- x well
- Proppants

## Production

### Ingrain

- Perforation
- Sand control
- Stimulation
- Monitoring systems/Decision flow

Thanks for your attention!

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