



Opportunity Cost vs. Cost of Opportunity

Webinar

15 May 2018







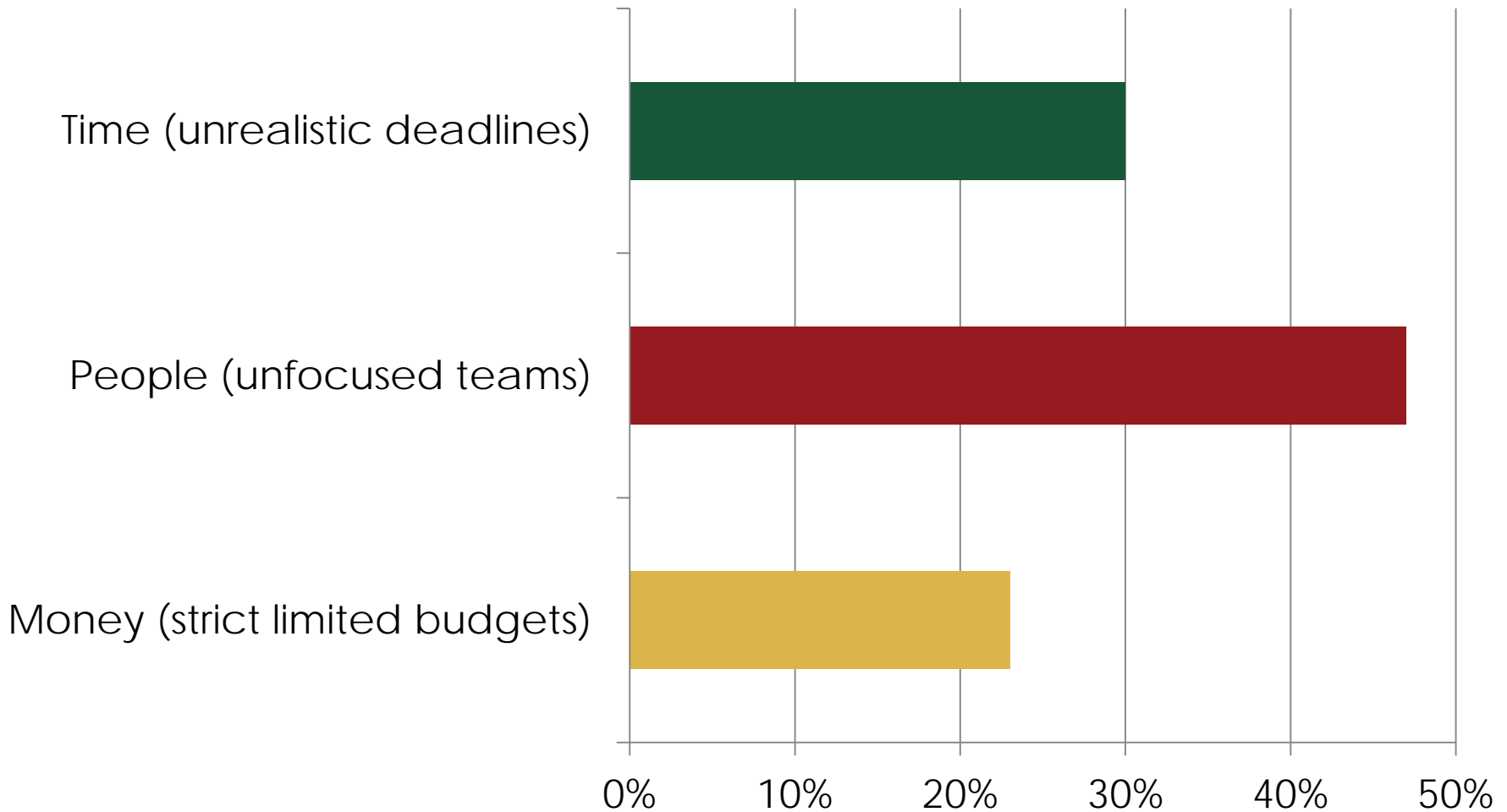
Which is the most constrained resource in your organization?

Money (limited budgets)

People (unfocused teams)

Time (deadline pressure)

Which is the most constrained resource in your organization?







Two levels hidden opportunities

Project Level

Are we aiming for the right objectives?

Do we have the right approach?

Are we working on the most important things?


Portfolio Level

Are we investing in the right projects?

Do we have too much clutter?

Are we driving towards the upside of opportunities?

cost

/kôst/ 


noun

1. an amount that has to be paid or spent to buy or obtain something.

"we are able to **cover the cost** of the event"

synonyms: price, asking price, market price, selling price, unit price, fee, tariff, fare, toll, levy, charge, rental; [More](#)


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in·vest·ment

/in'ves(t)mənt/ 

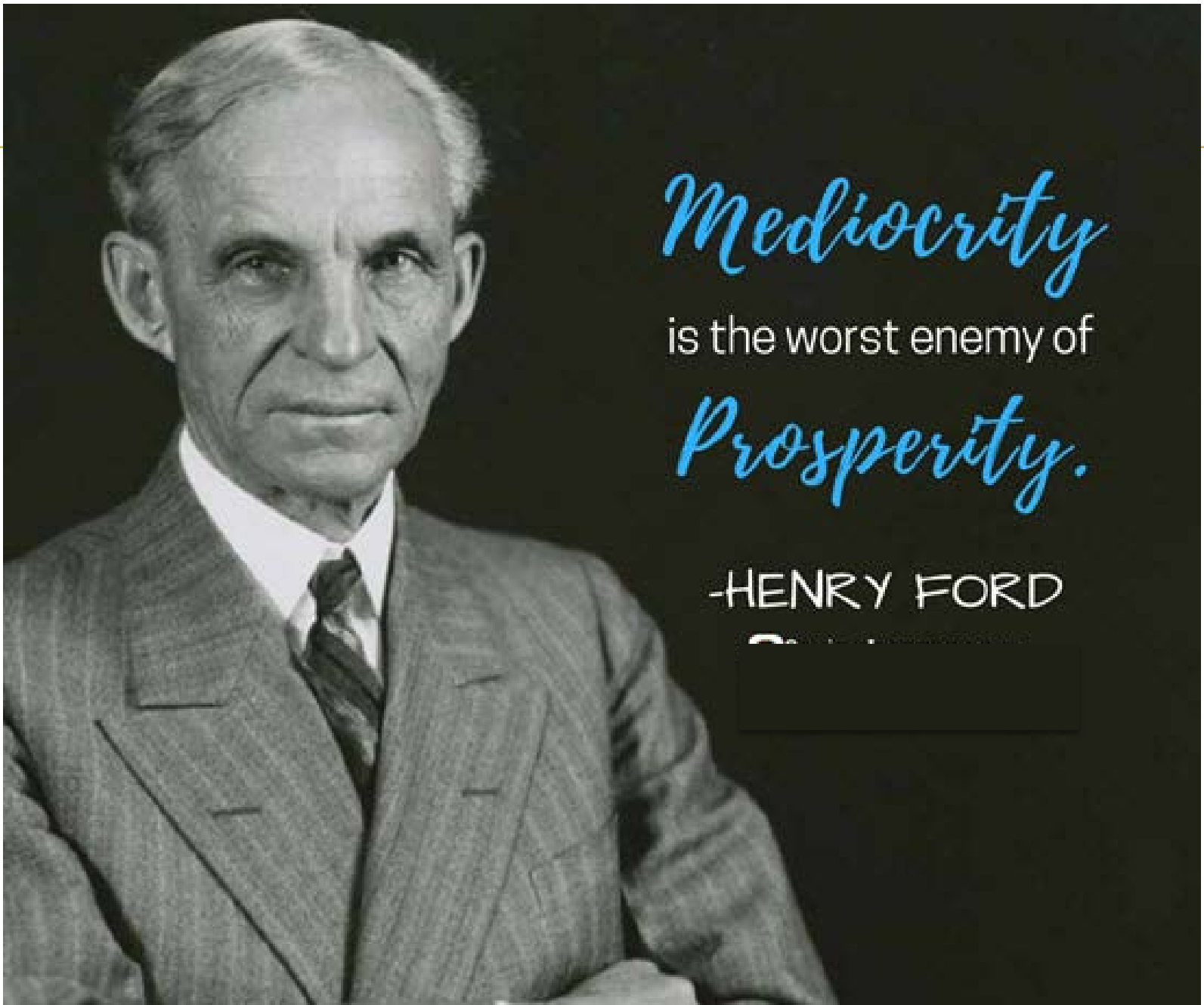
noun

1. the action or process of investing money for profit or material result.
"a debate over private **investment** in road-building"
synonyms: investing, speculation; [More](#)

BEING REALISTIC
IS THE MOST
COMMON PATH
TO MEDIOCRITY.

WILL SMITH





Mediocrity

is the worst enemy of

Prosperity.

-HENRY FORD

op·por·tu·ni·ty cost

noun ECONOMICS

the loss of potential gain from other alternatives when one alternative is chosen.
"idle cash balances represent an opportunity cost in terms of lost interest"

What is the value of the alternative path?



Focus on opportunity creates growth



Opportunity today,
prosperity tomorrow.

Julian Castro

 GuptaFancy



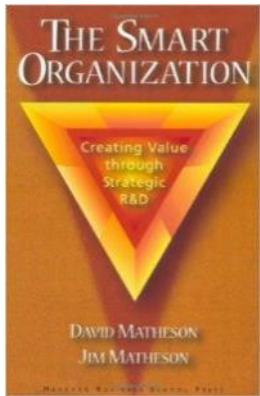
David Matheson

Decades working with companies.

From Nuclear Waste Cleanup to Movie Production.

Founder of SmartOrg, Inc.

President and CEO



Author of The Smart Organization.

Benchmarking hundreds of companies.

Stanford University

Teaches Strategic Portfolio Management in executive education.



SmartOrg: Connecting Innovation and Finance

SmartOrg's portfolio evaluation platform builds your capability to align innovation and finance to overcome conflict and drive breakthrough growth.

Software



Consulting

Shawn Williams



- 23 years of Technology Management, Product Development, & Innovation Leadership
- Focused on Personnel Development
- Experienced Specialty Chemicals/Materials in Diverse Industries such as

- Microwave Communications
- Power Electronics
- Printed Electronics
- Semiconductor Processing
- Aerospace Composites
- Industrial Seals & Gaskets
- Construction Chemicals



Past Experience:



About Udi



I love working with multi- disciplinary groups and running innovation programs from early days through mature product cycles. Learn Fast & Grow Profitably!

- **Born in Israel; grade school in Brookline, MA; 2 degrees in physics in TAU and EMBA from Kelloggs. Around 50 granted patents.**
- **1988: Joined Indigo in start-up phase (acquired by HP in 2001)**
 - ▶ Physicist, team manager, section manager and director of core technology and materials
- **2005: Corporate HP**
 - ▶ Strategist: programs from early stages up to successful internal business, external spin out or slow death. Charter to create new businesses in HP Corporate / Labs.
- **2013-2016 - Biz Dev role on a new HP initiative, “Personalized Education solutions”.**
- **Since 2017 - Business Management for Applied Materials in the Semiconductor business.**
- **Founder and CEO of a Flight Training startup - Flyvie. Private pilot on weekends..**

In all cases - making the best “opportunity decisions” at the right time is crucial to optimize outcomes and that is what we want to share today.



POLL: What is your role in creating growth?

Individual contributor

Project Manager

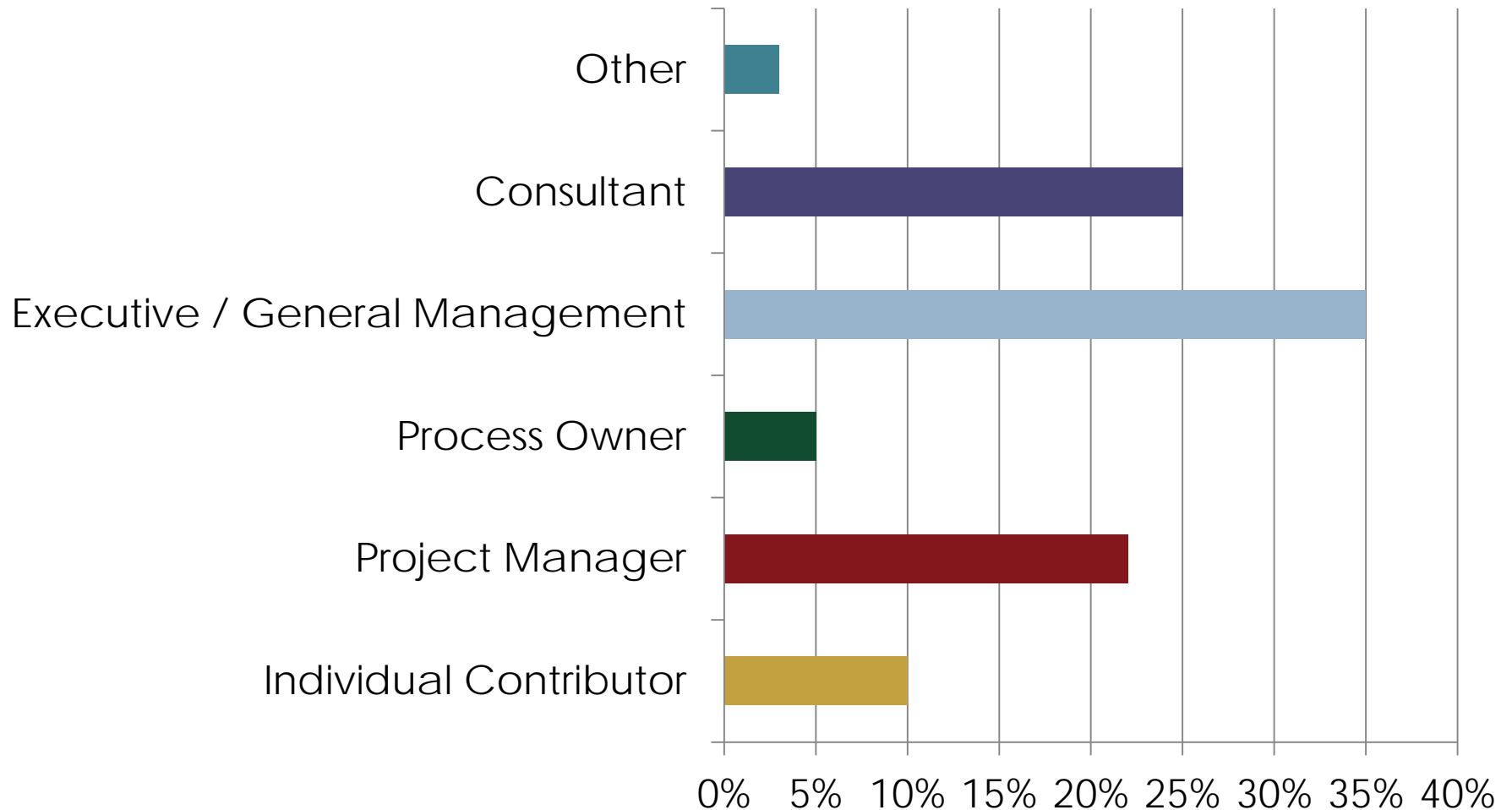
Process Owner

Executive

Consultant

Other

POLL: What is your role in creating growth?





Opportunities at the Portfolio Level

Shawn Williams

VP R&D



Rogers at a Glance

**Global leaders in engineered materials
helping power, protect, connect our world**



Ticker

NYSE ROG

Heritage

Est. 1832; 184 years of operations

2017 Sales

\$821M

Employees

3000 employees worldwide

Global Scale

Headquarters in Chandler, CT

6 Countries

21 Manufacturing facilities

A proud history with a compelling future

3 Strategic Business Segments



Advanced
Connectivity
Solutions (ACS)



Elastomeric
Material Solutions
(EMS)



Power Electronics
Solutions
(PES)

- High performance materials
- Mission-critical applications
- Technology innovation leadership
- Strong, collaborative customer relationships

Focused on unique engineered materials solutions

Expectations

We target opportunities that will be enable transformative change in our market spaces, creating growth opportunities for our Customers & Collaborators

We Seek New:

- Markets
- Technologies
- Perspective

We Search Outside:

- Our Comfort Zone
- Our Experience



Accelerating Speed of Innovation



- Focusing beyond 'traditional' Rogers perspective/boundaries
- Acting quickly to assess & act on opportunities
- Operating outside of Business unit structure
- Accepting of new technical approaches
- Designed for Collaborative Development

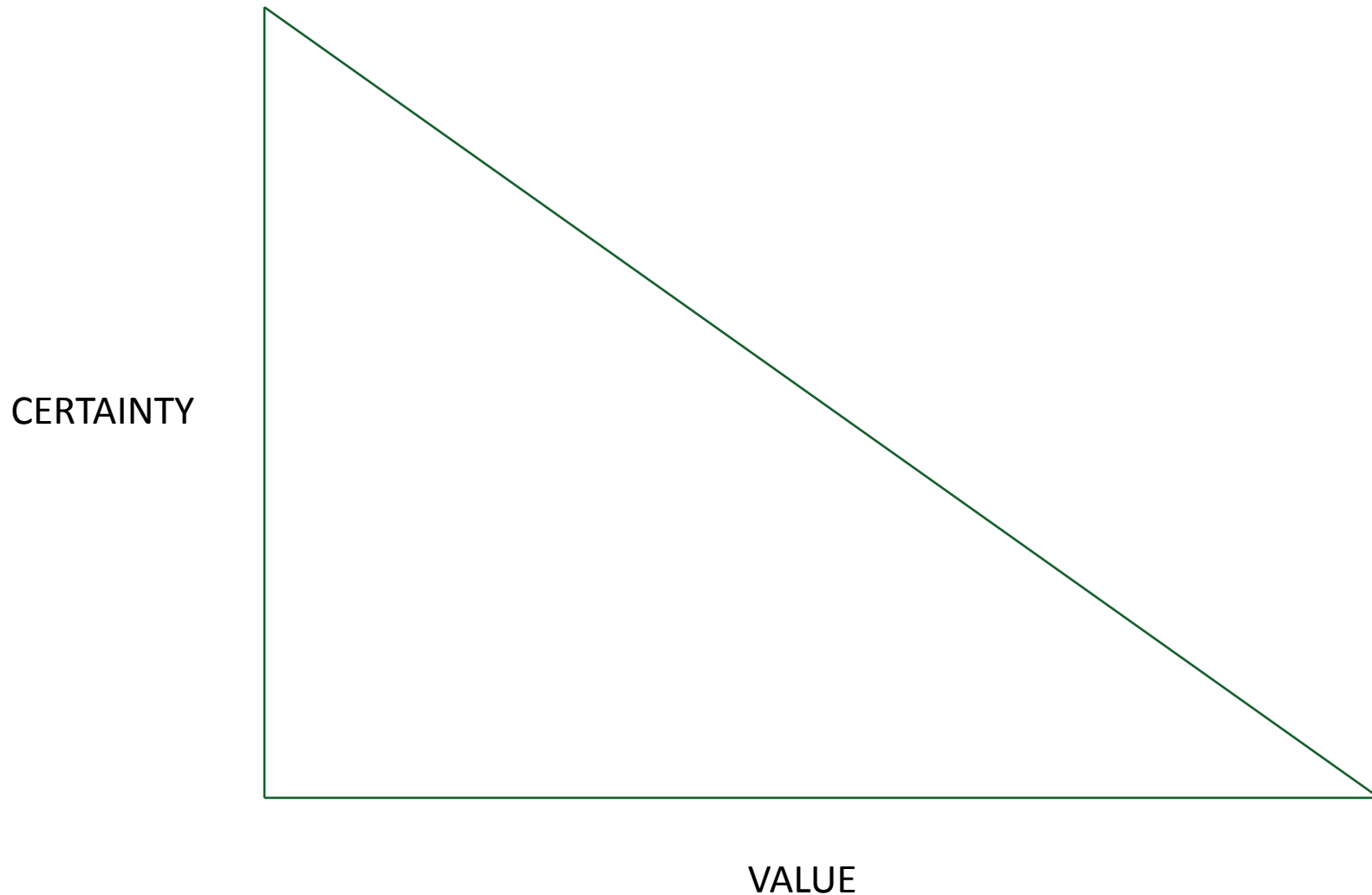
De-risking High Value Opportunities



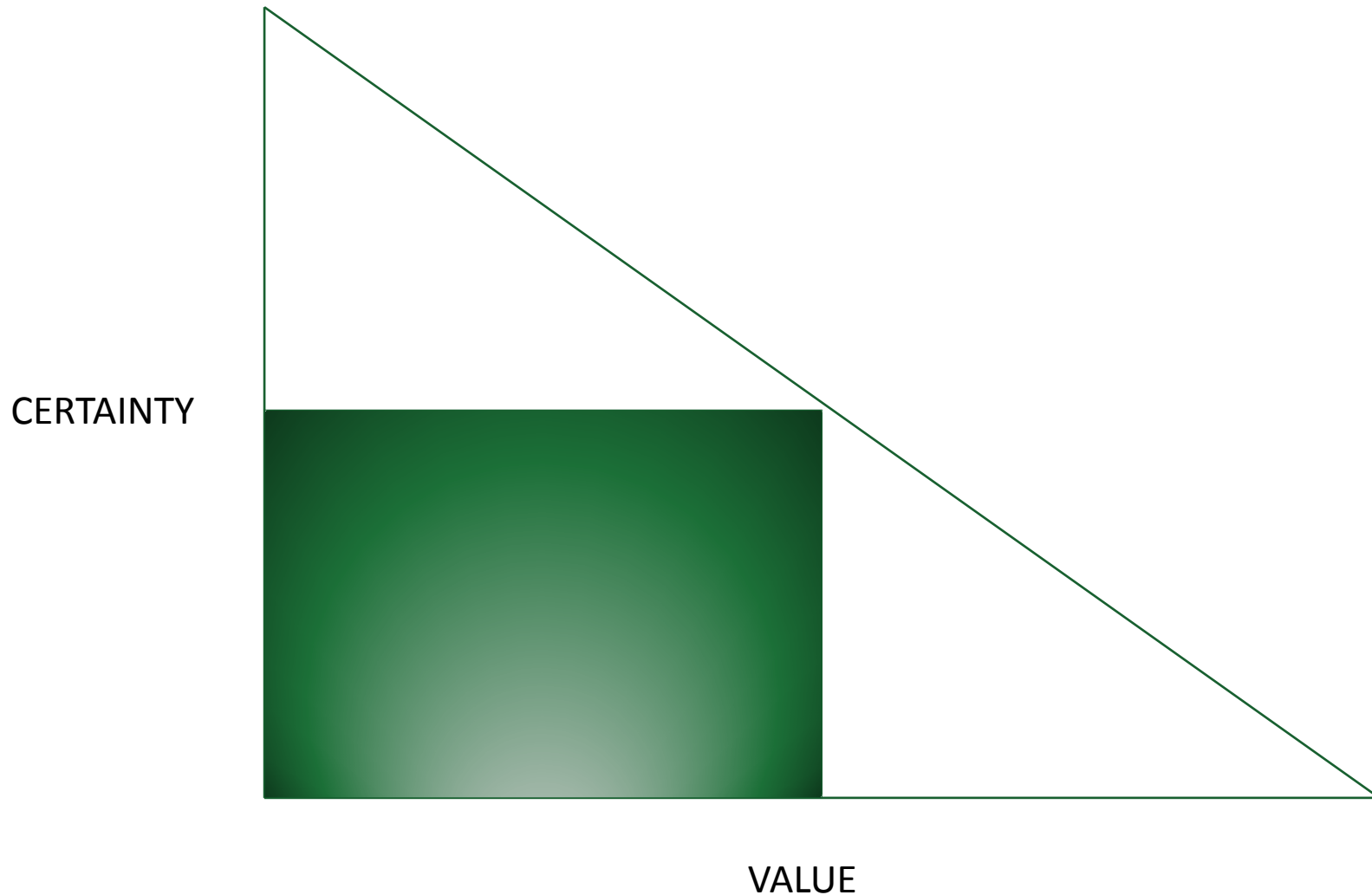
CERTAINTY

VALUE

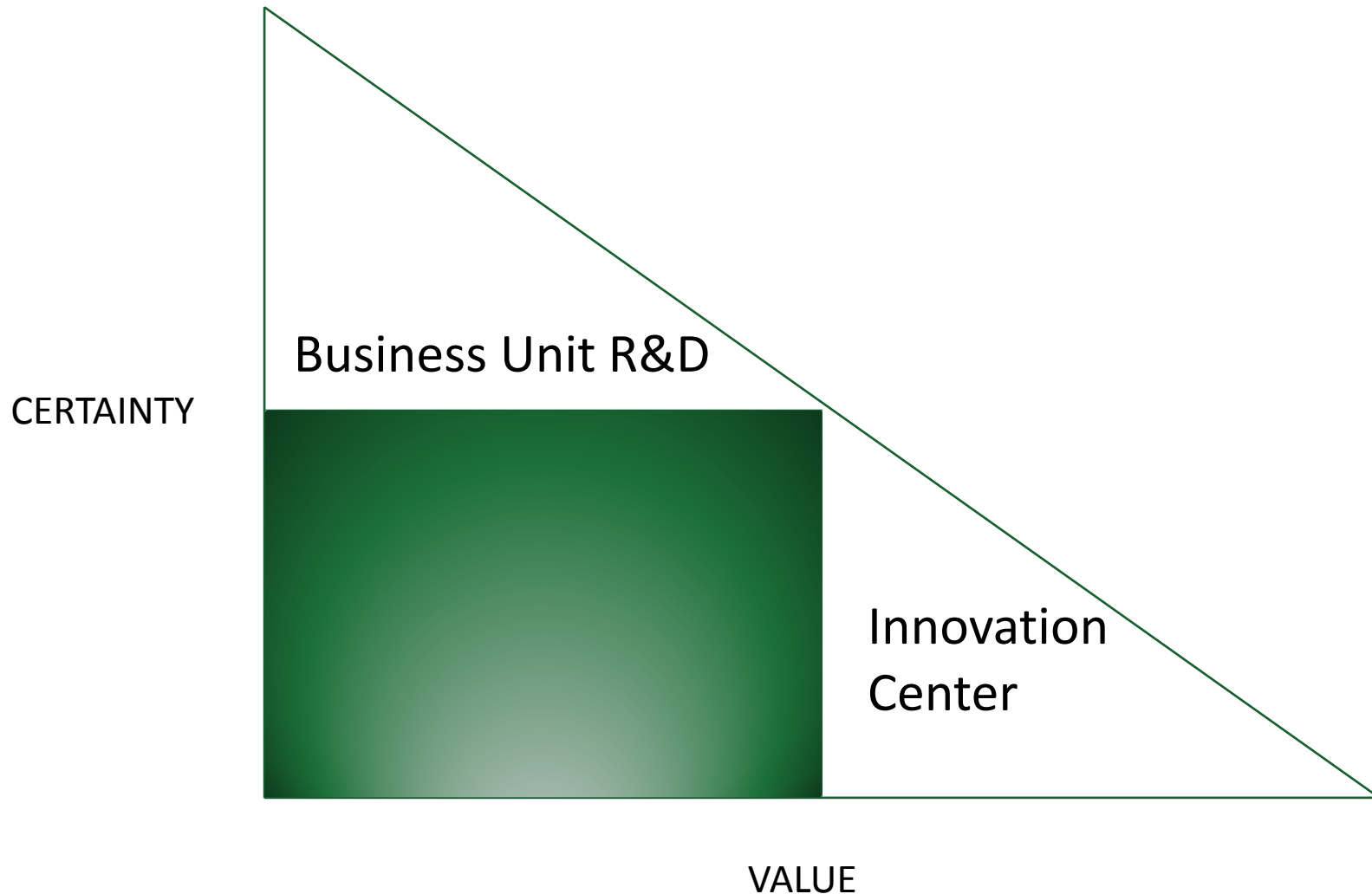
De-risking High Value Opportunities



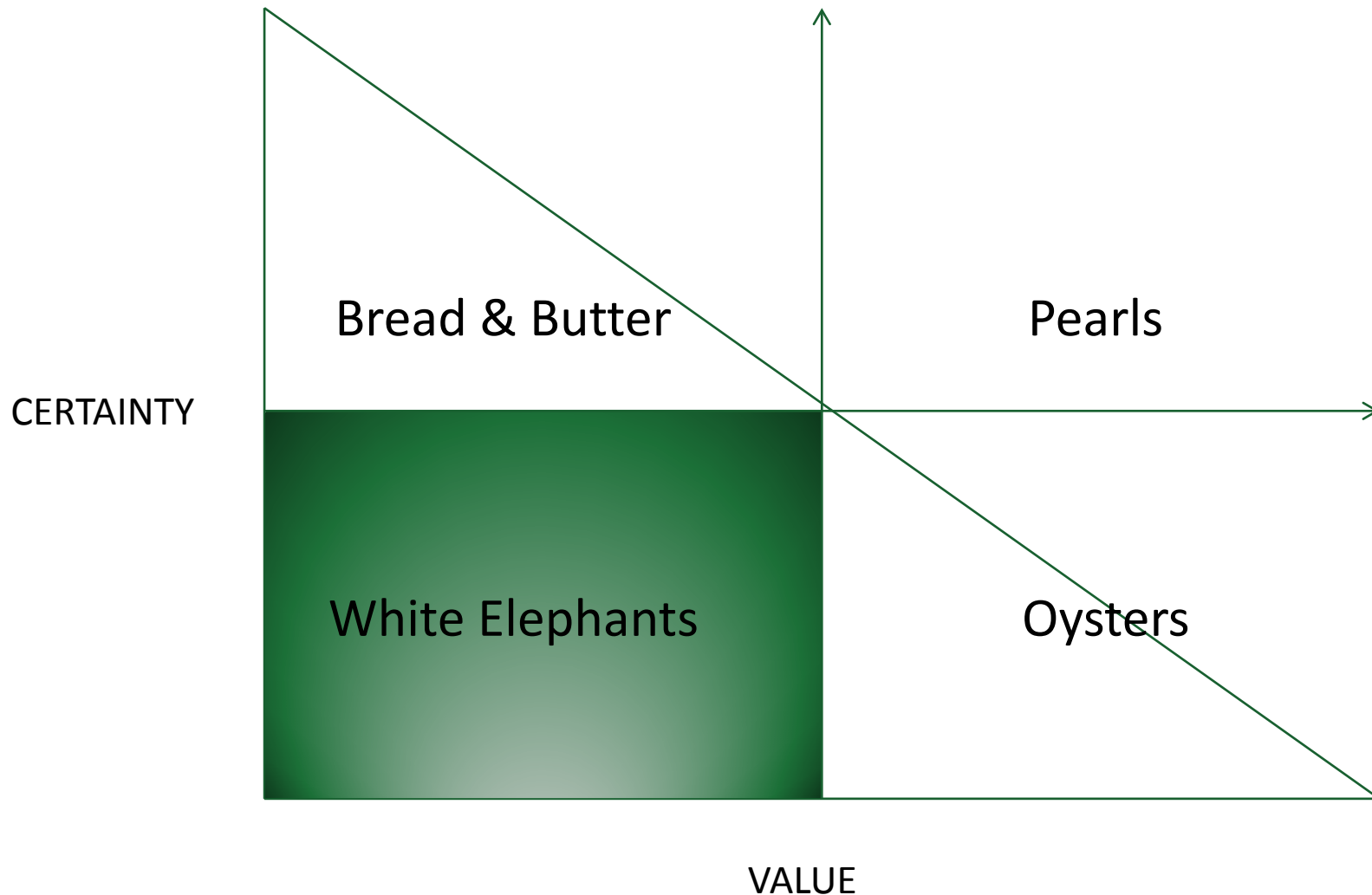
De-risking High Value Opportunities



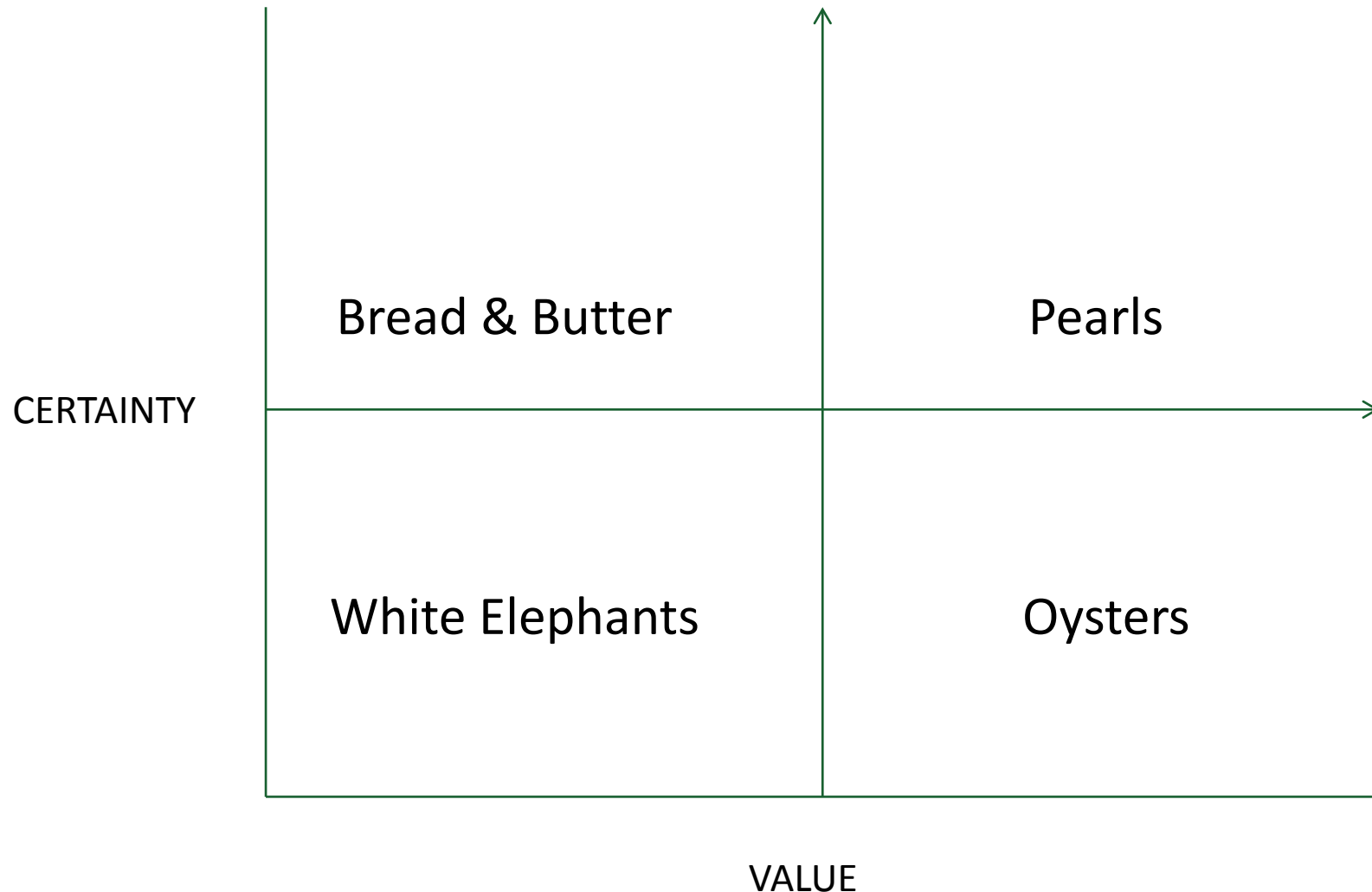
De-risking High Value Opportunities



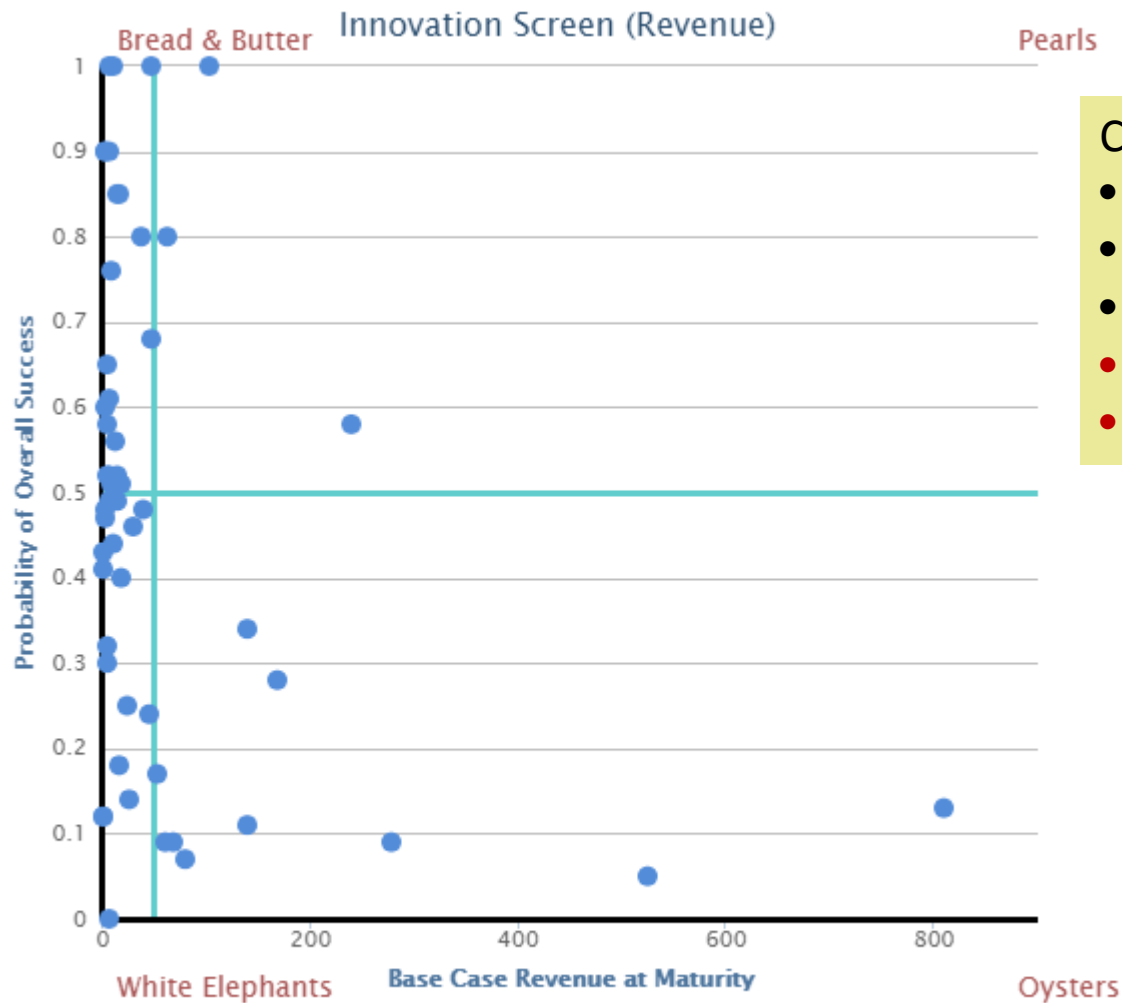
De-risking Opportunities & the Innovation Chart



De-risking Opportunities & the Innovation Chart



The Innovation Chart

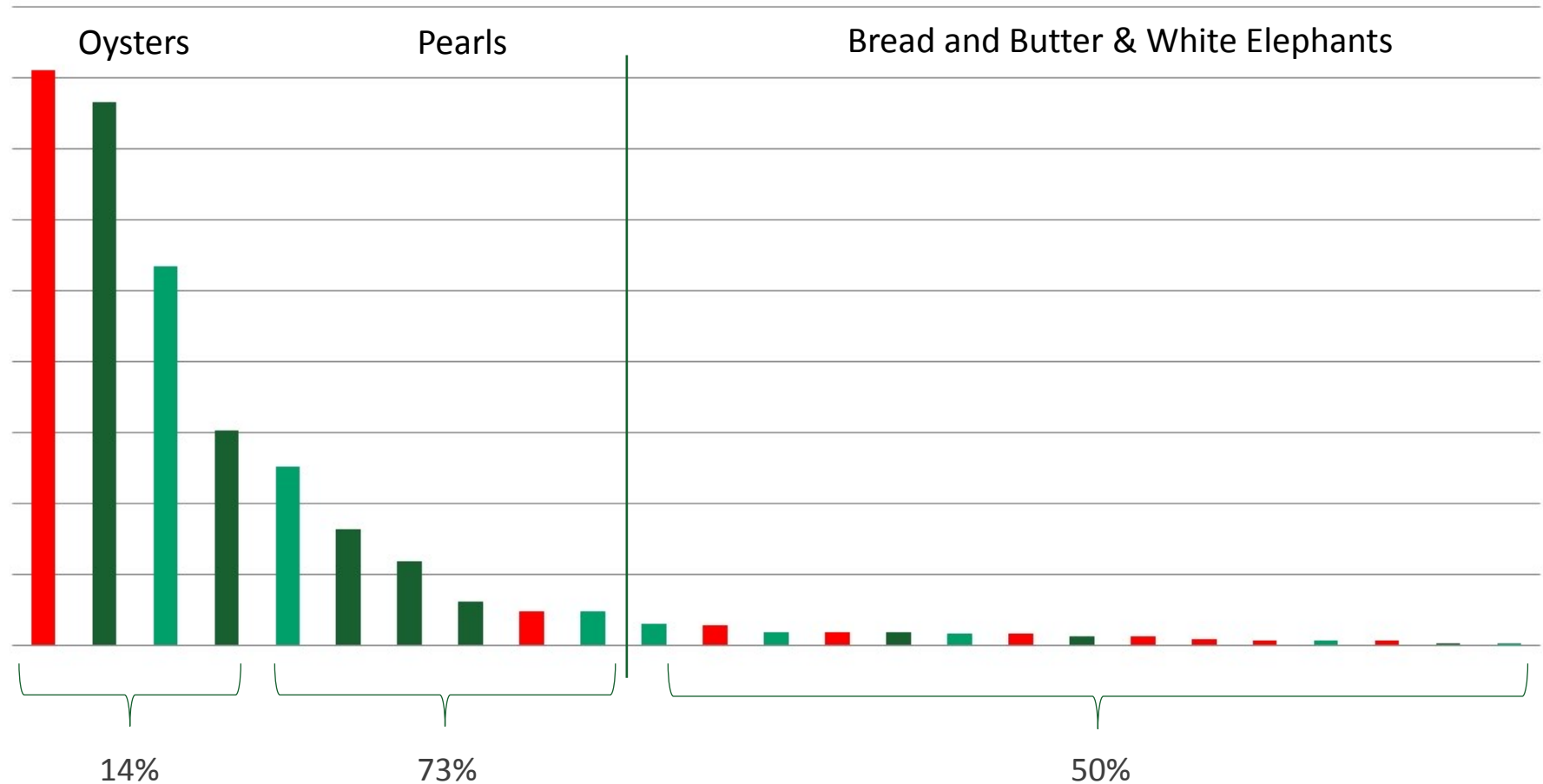


Corporate Portfolio:

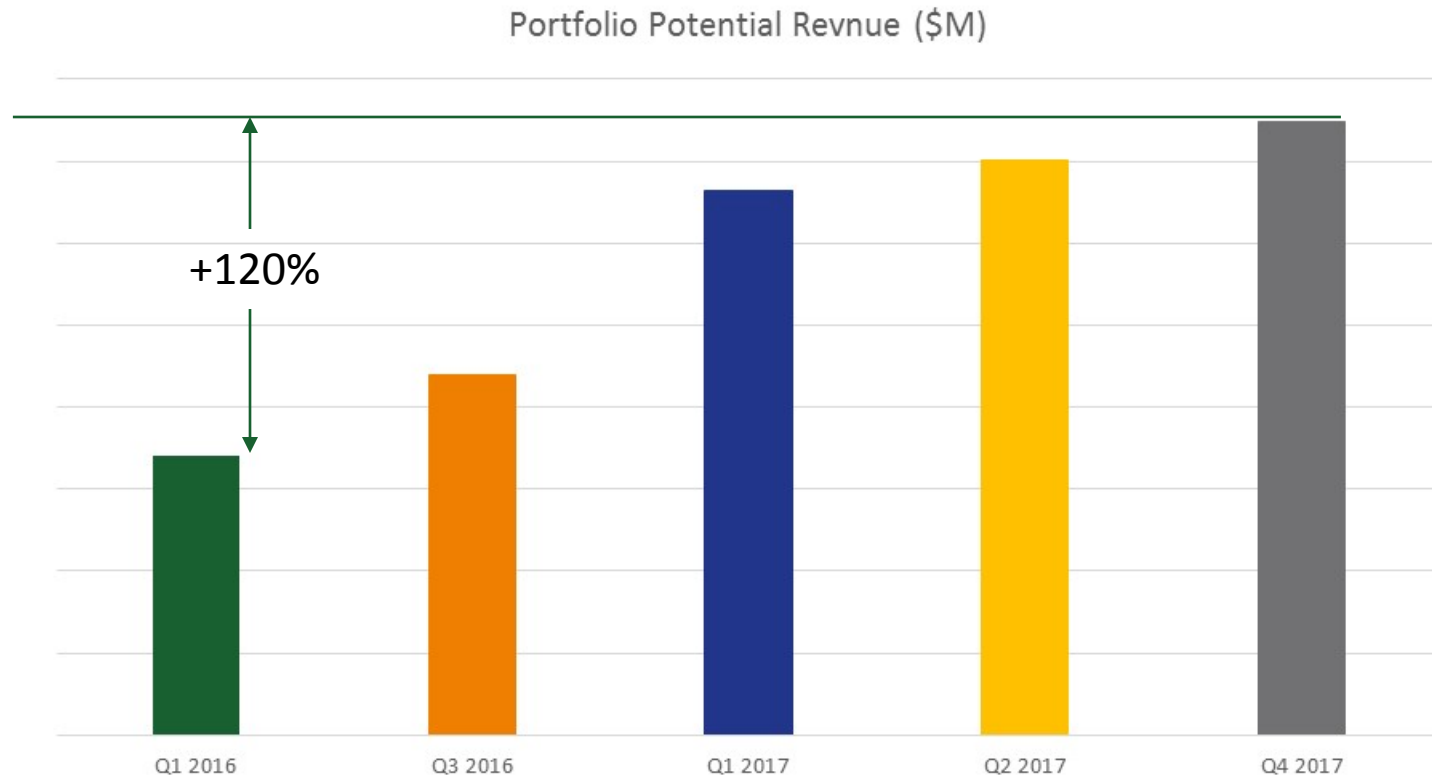
- By Quadrant
- By Business
- By Maturity
- By Platform
- Vs Time

Results: Rogers Portfolio by Platform

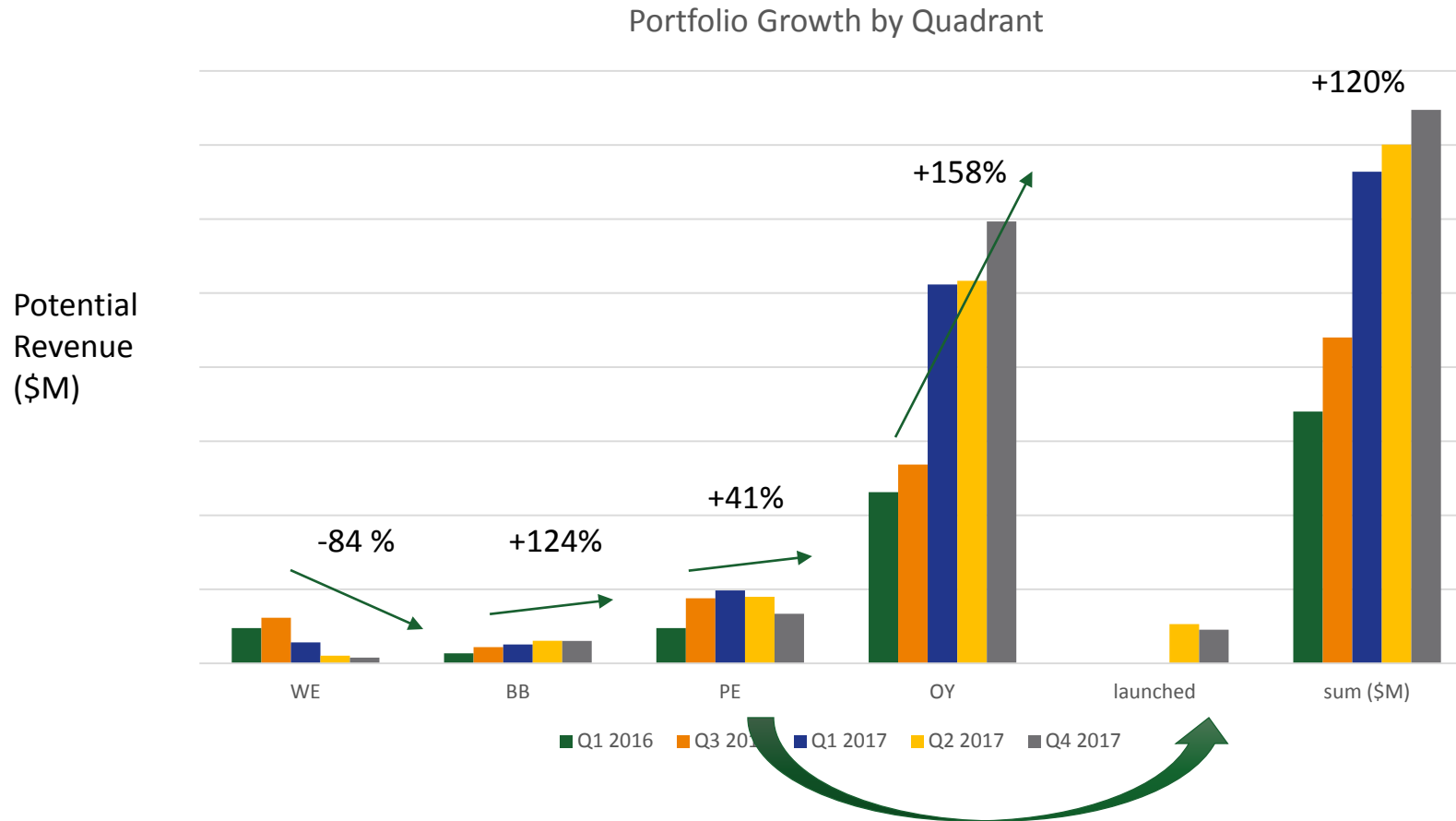
Base Case Mature Revenue Vs. Average Probability/Platform (%)



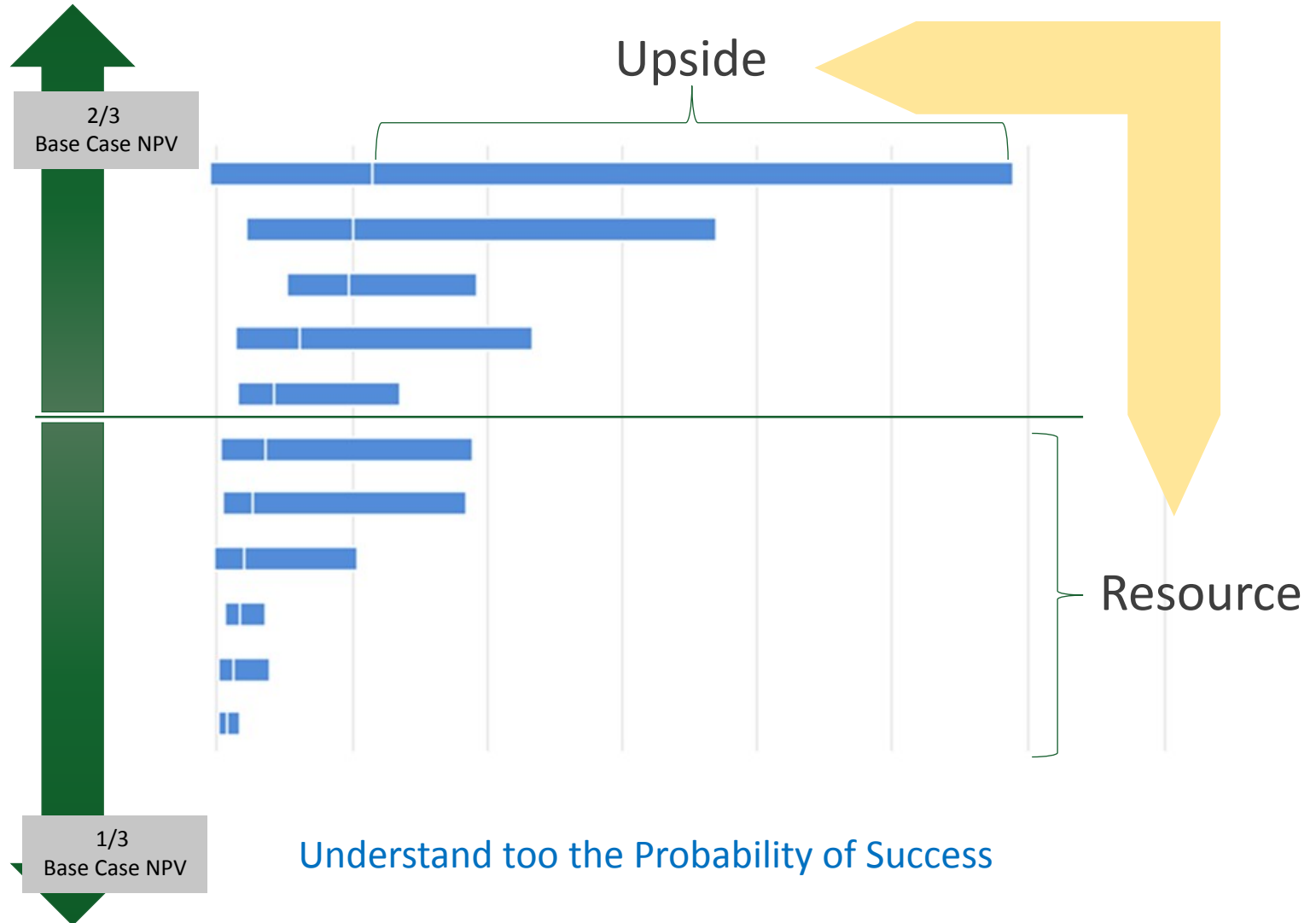
Value of ROG Portfolio over time



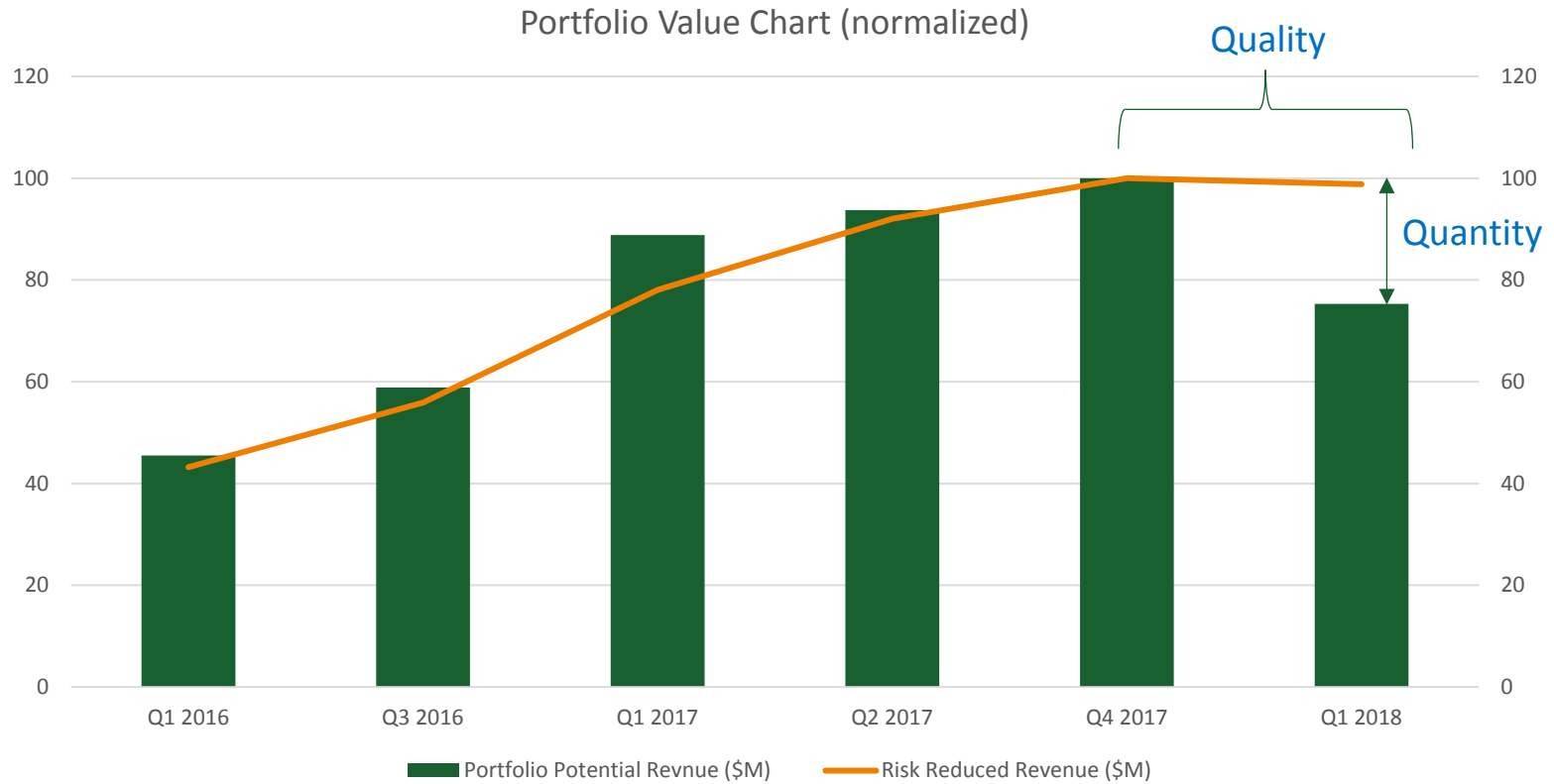
Value of ROG PDP Portfolio in VENTURE



Rogers Portfolio (Selection) NPV (\$M)



Refining the Portfolio (Probability Adjusted)



Take-Aways

- Re-invigorating Technology Development requires chartered resources that are empowered to push beyond current Corporate Horizon
- New opportunities must be validated in terms of both Commercial & Technical Impact
- Early stage Opportunity Assessment is a 'Frog Kissing' contest
 - Understanding of opportunities is dynamic
 - Prioritization is critical
- Key factors in Opportunity Assessment:
 - Upside
 - Follow-on or Derivative Development
- Culling the Portfolio is a necessary component of success

POLL: What is the opportunity cost in your current portfolio?

Focusing on the right projects and decluttering would dramatically improve our growth

7 = Strongly agree

6

5

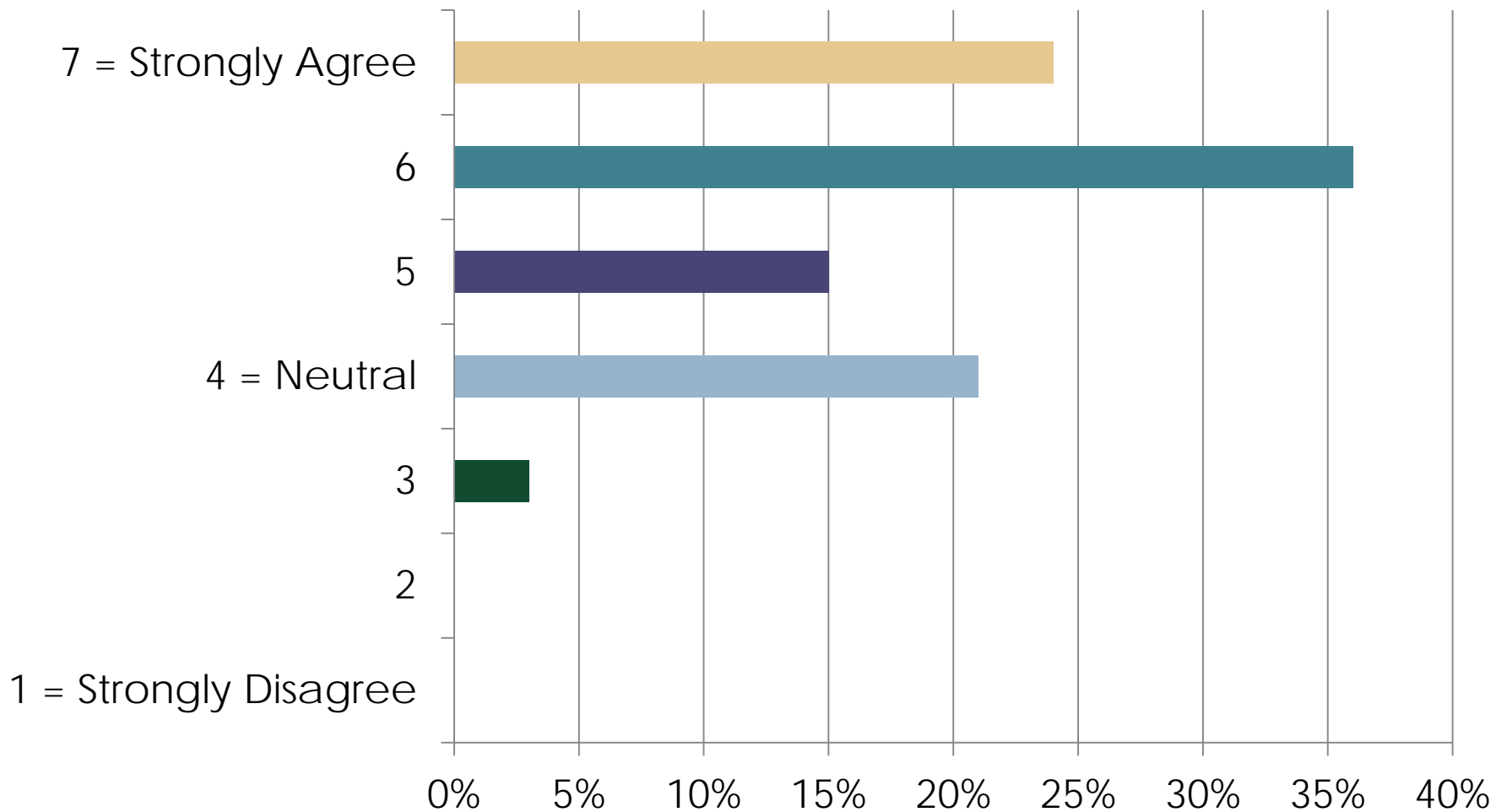
4 = Neutral

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1 = Strongly disagree

POLL: What is the opportunity cost in your current portfolio?



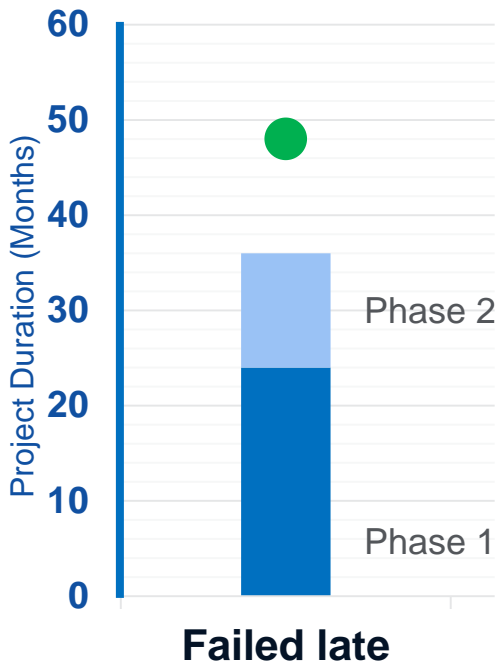
Opportunity Costs Within Programs

Udi Chatow

May 15, 2018

My Innovation Education: 4 expensive projects that failed late

Program Types Distribution



Number of
programs

4

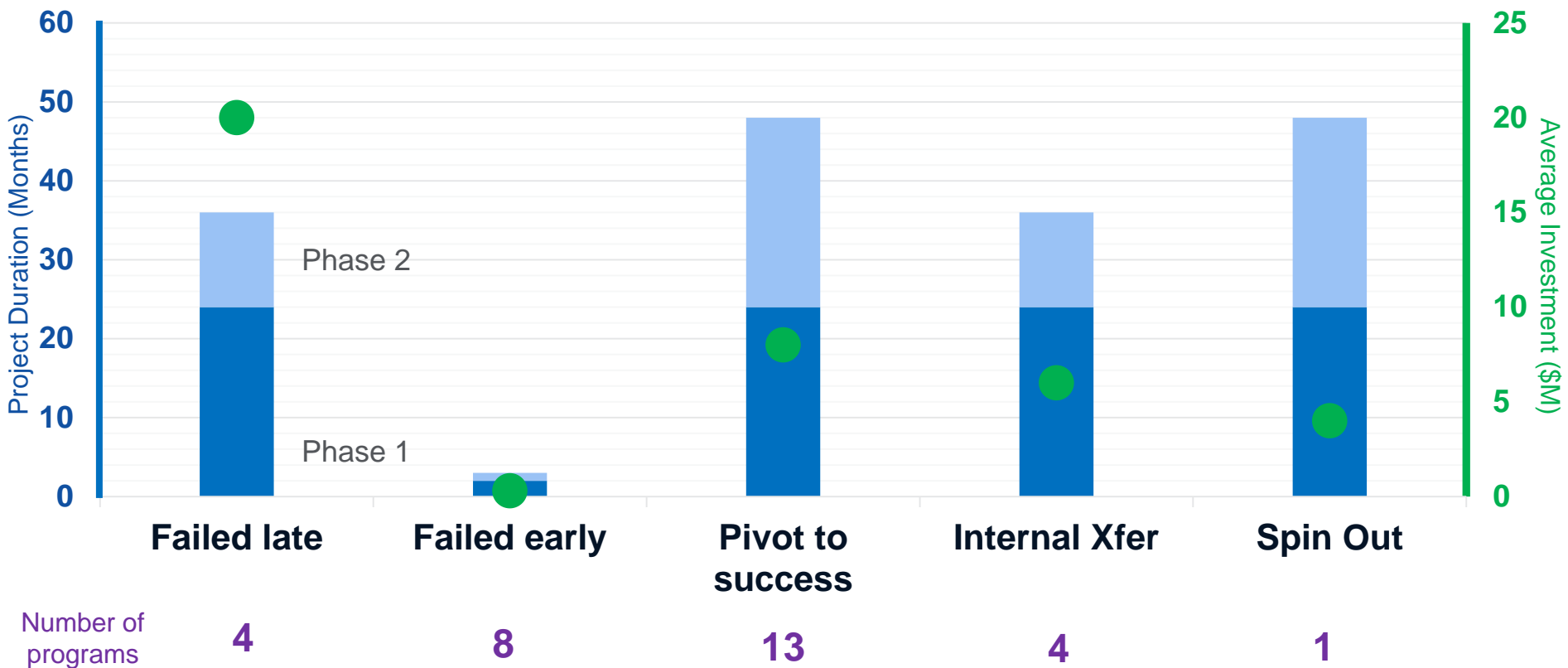
My Innovation Education: Failing early is faster & cheaper!

Program Types Distribution



My Innovation Education: Finding opportunities to pivot for success.

Program Types Distribution



Example 1 – “Failed Too Late”

Question: How can we create synergistic value by combining HP strengths for the Education vertical market?

Background:

- Since 2002 HP Indigo created a leadership position in digital print of books that can be personalized effectively.
- In HP labs, 10 leading scientists worked for several years developing tools for smart documents with image recognition
- HP is a leader in laptops, Chromebooks, Printing / scanning at home and in school
- Education market is ~\$4T worldwide



Print and Electronic formats both offer attractive benefits. A complimentary, hybrid use model delivers the best of both to optimize learning outcomes.



Printed Textbook

- 10 to 30% faster reading
- No distractions
- Preferred by 75% of students



E-content on Smartphone or Tablet

- Allows for more interactive & collaborative learning (e.g., links to other content)



**Print + Electronic =
Best of both worlds!**

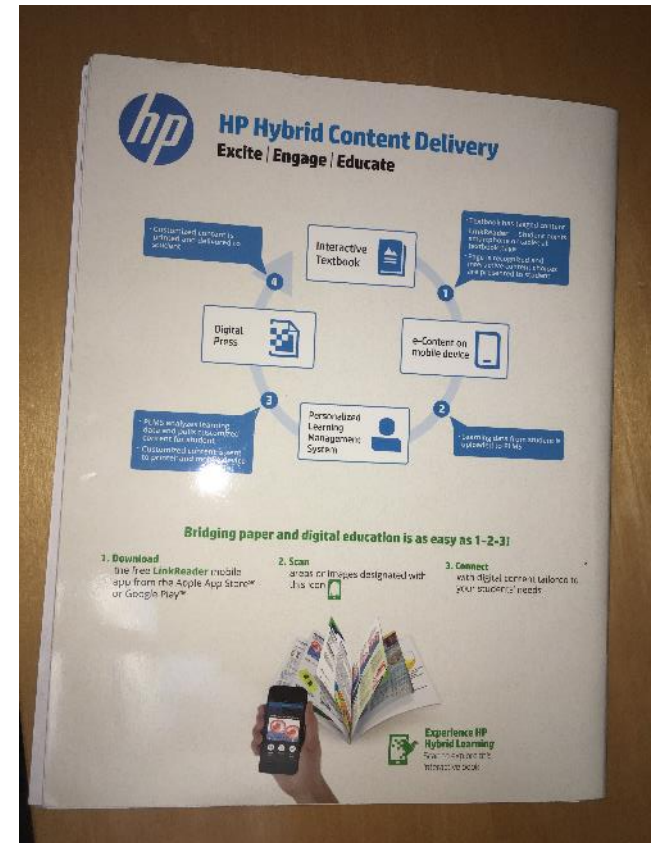
Excitement -> More resources added to program

- Technology was coming together
- Multiple BU now became involved
- Pilots started with universities and schools
- Patents filed
- A HP mobile app was developed to enable interactive print (iOS and Android)
- **Were we on the path for a big HP success story?**

Knewton Pioneers New Personalized Print Learning Solutions in Collaboration with HP

Personalized Print Learning Solutions help close the gap between on-line and print worlds by allowing publishers and teachers to tailor materials for each student's needs.

SCOTTSDALE, Ariz. – April 2, 2015 – Knewton, the leader in adaptive learning, unveiled today Personalized Print Learning Solutions with HP to make adaptive learning materials seamlessly available across print and digital platforms



Failed Too Late - Continued

- **So where did this fail?**

- ▶ The education market is slow-moving - all companies involved need patience.
- ▶ Ours was a 4 year plan with initial significant revenue coming in years 4/5.
- ▶ As time progressed, the pressure was on to deliver faster -“can you pull in by 12 months?”. ROI..
- ▶ Pivoted by reducing HP labs resources and creating external strategic relationships
- ▶ HP Split came: SW & server groups left to HP Enterprise, further headcount reductions within HP Inc.

- **What could we have done better?**

- ▶ Pivoted to an even smaller gain with faster returns?
- ▶ Aligned better across multiple company executives and program sponsors?
- ▶ Chosen a chief sponsor that was willing to take the longer term risk / opportunity?

Looking back: We could have looked at the different opportunities earlier and assessed the risks and returns involved. Maybe run a smaller program within one division or BU, make it successful and profitable and then merge programs from other BU to the grand scheme.

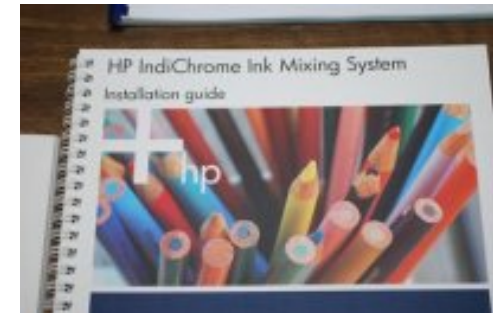
Example 2 – “Failed Good” = Early

The question is - if we are bound to fail - how do we figure this out early, minimize wasted time and money, and (most important) keep employee motivation up?

Example: Can we create a security printing play through an end user facing platform?

Background:

- HP Indigo had already developed an ink mixing system to enable on-site (printers) mixing of 11 base colors to match any pantone or spot color.
- HP developed a series of special invisible inks that could be used for the security printing market and optical measurement devices to validate the results (fingerprints)
- HP Customers were printing Credit Cards, Warranty labels, Pharma labels..
- The security printing market was over \$600B and growing!



Failed Early - Continued

- A new program was proposed to combine these developed capabilities and add the development of a SW platform that would receive a request for a unique code from the brand, deliver this in a formulation of mixed security inks to the printer and the printer would then use this to mix the predefined unique secure ink combination of visible and invisible inks.
 - ▶ The HW and ink technology was either already there or relatively low risk.
 - ▶ the SW could be developed in 6-12 months for beta.
- What could go wrong?

Failed Early - Continued

- **What could go wrong?**

- ▶ We quickly mocked up the SW and architecture design and flew to meet and interview our 3 leading security printing customers.
- ▶ Feedback was very clear from all 3: they loved the technology for mixing unique security inks on site but they couldn't take part in a solution where the platform was managed by HP at the front end. The answer was clear and luckily early enough to stop the program early!

- **Failure and proof point was very early - 2 months in and overall 5 man months spent.**

- ▶ The Learnings from these customer interviews helped accelerate a spin-off from this original program of security ink mixing without the HP SW front-end portion.
- ▶ The HP platform SW mock-up of the front end and job que was used in a different program later.

Example 3 - Successful Pivot

The vast majority of new ideas or innovation programs need to pivot to reach a successful endpoint.

Question – can we create a simple front facing interface and service business that will enable anybody to create, promote and sell their publication at low investment?

Background -

- In 2006, when this program was kicked off, cloud services were new. If you wanted to get your book or magazine printed by a print service provider you had to find a print broker and have a spend of \$1000's if you wanted the highest print quality (unless home or Kinko's printing was good enough)
- Digitally printed full color (think Time magazine or National Geographic) page cost - 2-5 cents
- HP – Indigo had several thousand high end presses at Print Server Provider sites around the world

Successful Pivot - continued

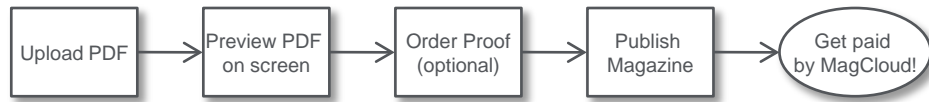
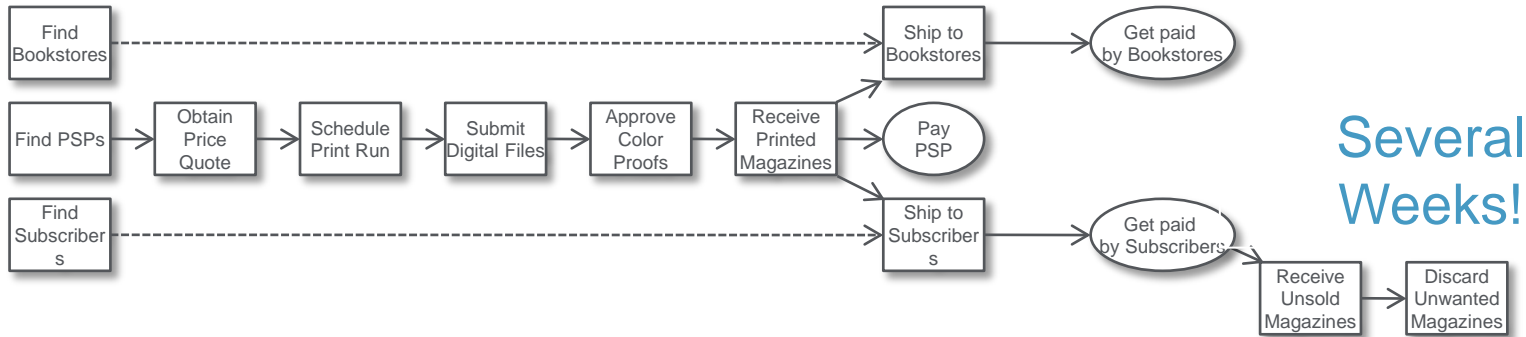
- **Product concept: MagCloud.**

- ▶ Simple, low-risk way for publishers to test / sell content by printing magazines through a HP Cloud service.
- ▶ Use case: Flying club monthly 24 page printed magazine for the 120 members with photos of recommended flying trips
- ▶ At 10 cents per full color page, a 24 page magazine would be priced at \$2.40 for non-profit distribution or if you wanted a margin per magazine – set a price above \$2.40..
- ▶ Everyone wins - we create more demand for digital print, drive more purchases of Indigo digital presses, our customers - the print service providers, get more jobs and easy revenue



Magazine production & fulfillment

Traditional Workflow vs MagCloud



- With MagCloud:
 - Almost no startup costs
 - No Storage or Waste issues

What is MagCloud?

Publishing platform for anybody to publish and distribute content in high-quality POD & digital formats.



MagCloud.com

On demand publishing, printing & fulfillment platform



1. Upload

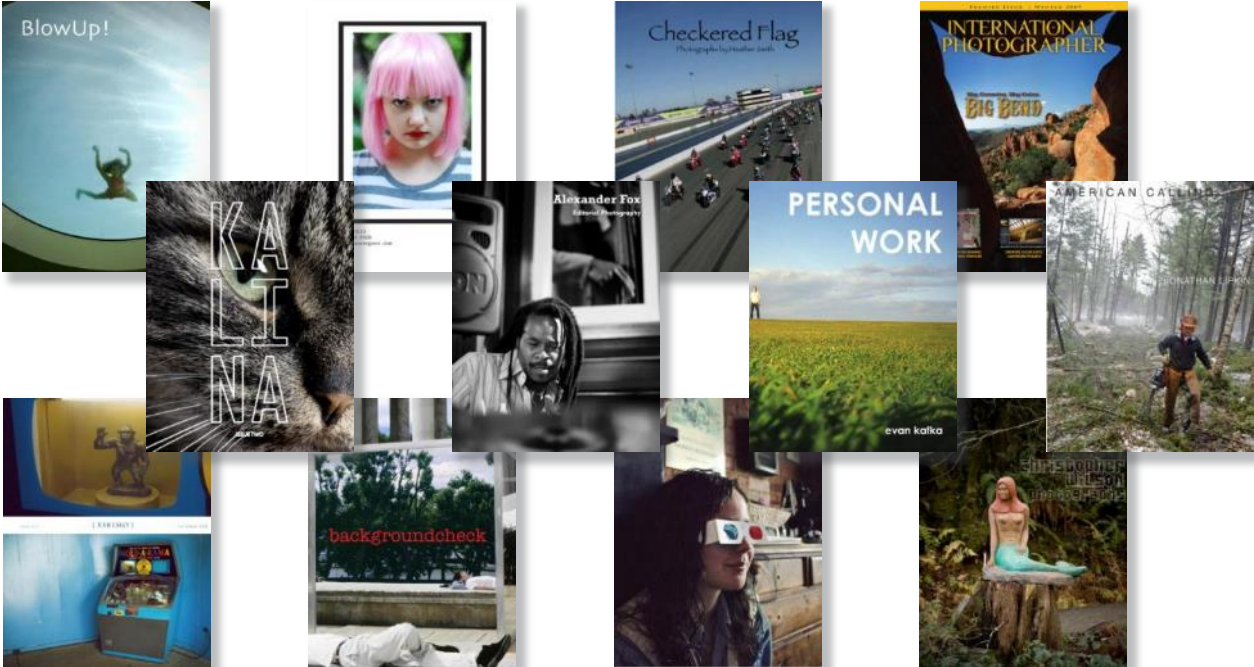


2. Preview & Buy



3. Print

Who is Publishing?



Early Adopters: Artists & Photographers

Who is Publishing?



Non-profit
Organizations



Special Interest Groups



Religious Groups



Businesses



Political Groups



Programmers



Schools

Successful Pivot - Continued

- **Technology was a very low risk - we can do it.**
 - ▶ Early on we noted -> The biggest risk in the program would be an internal organization risk.
 - ▶ Solution: an internal board of directors / sponsors that met on a quarterly basis to review technology development but mainly to guide us to a safe landing (either internal or external).
- **Pivot on this program was to an external spin out:**
 - ▶ MagCloud was acquired by Blurb in early 2014.
 - ▶ Before spinning out MagCloud had attracted over 10,00 publishers, many of whom would have never published a printed magazine otherwise.

Blurb acquires HP's MagCloud, aims to dominate long-tail publishing

By Fortune - [ERIN GRIFFITH](#) May 6, 2014

In Summary

Few programs unfold as originally planned.

- **Ask yourself - what can I do to maximize success of my program?**
 - ▶ Working through the potential strategies
 - ▶ Creating and understanding the proof points – and do this early on!
 - ▶ Creating learning plans to pull in the big risks as early as possible. Don't just accept the momentum play..
 - ▶ Be ready to pivot

POLL: What is the opportunity cost in your current projects?

Our projects would be significantly improved if we developed additional opportunities around project approach and proof points.

7 = Strongly agree

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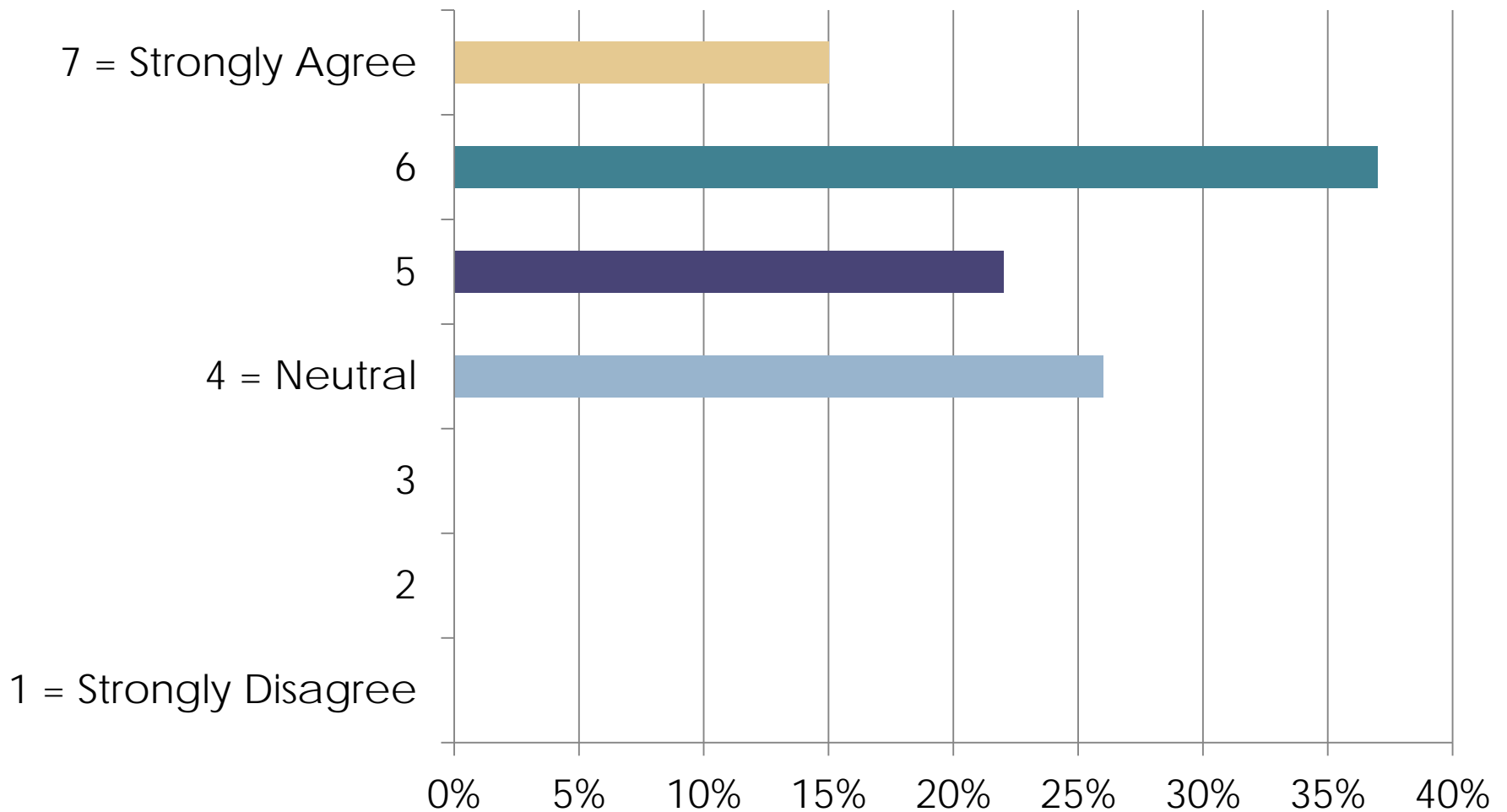
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POLL: What is the opportunity cost in your current projects?





Mediocrity
Next Exit

The cure to mediocrity.

Diagnosis

Mediocre Projects

Mediocre Portfolios

Prescription

Embrace Uncertainty

Formulation Step

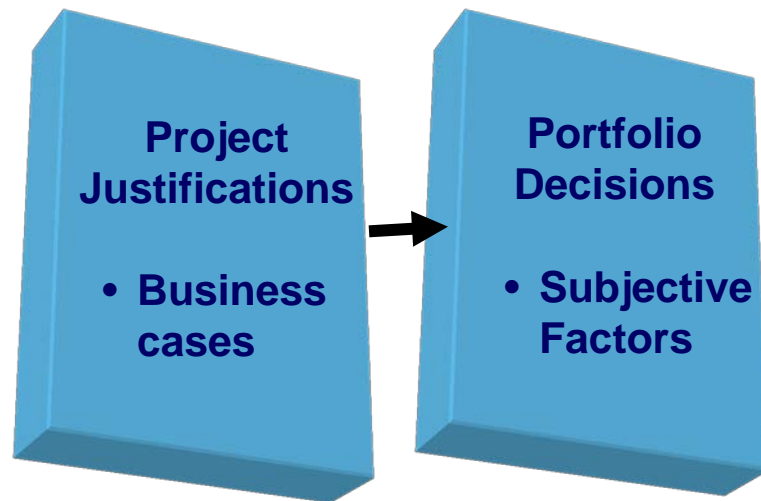
Embrace Uncertainty

Calibration Step

Create and exercise options

The most common portfolio process unintentionally hides opportunity

Regular Portfolio Roll-Up



What is the promise?

Special Cases



Portfolio Management Challenges

GROWTH



Lackluster growth from ineffective investment in innovation.

Portfolio Management finds hidden sources of upside and turns it into breakthrough growth.

CLUTTER



Too many small projects dilutes management attention.

Portfolio Management sharpens focus by diverting resources from trivial projects to the projects that matter.

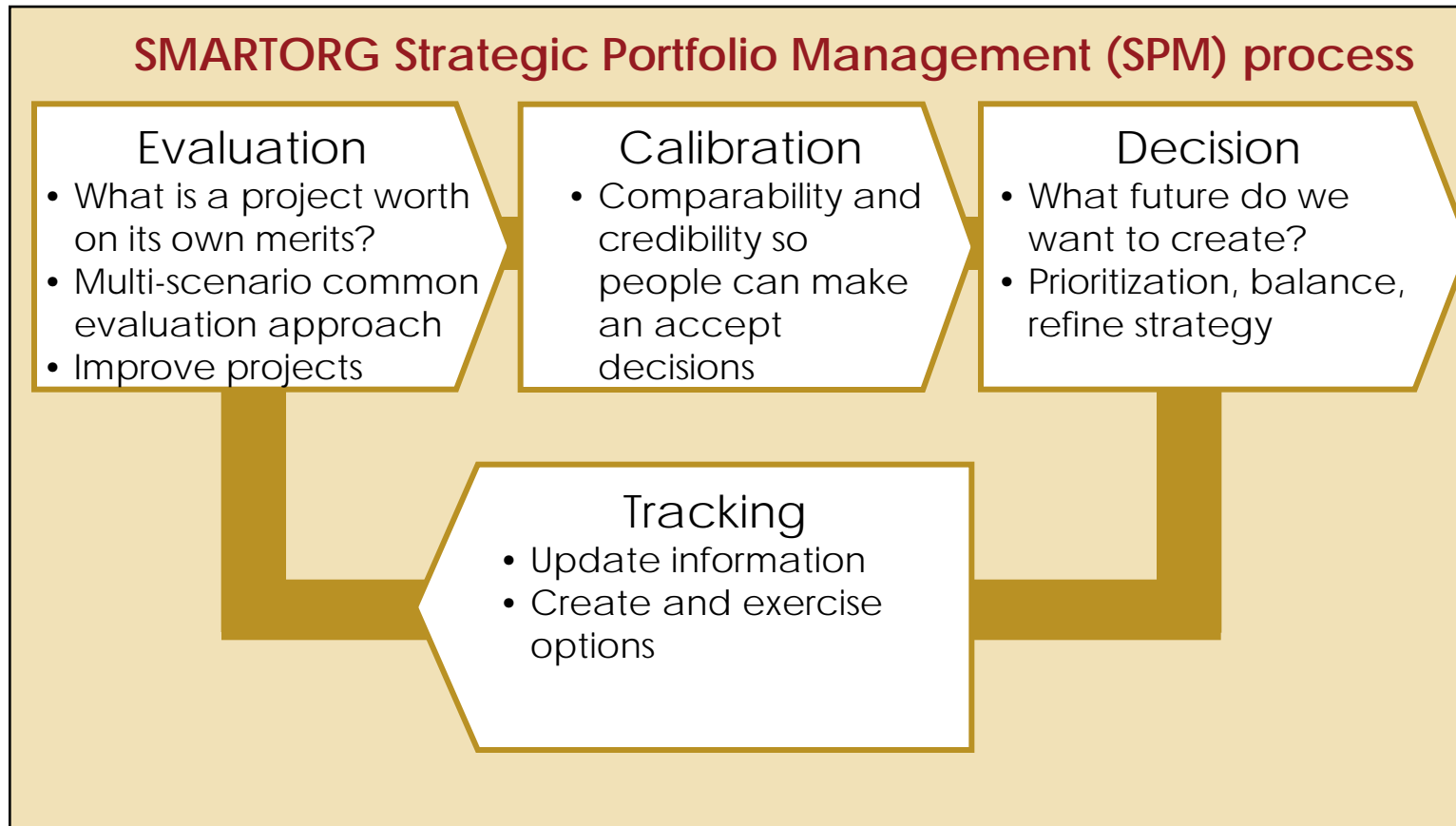
CONFLICT



Financial caution conflicts with innovative vision.

Portfolio Management aligns Innovation and Finance on where and how much to invest.

Finding opportunity in the portfolio: uncertain evaluations and a calibration phase.



The cure to mediocrity.

Diagnosis

Mediocre Projects

Mediocre Portfolios

Prescription

Embrace Uncertainty

Formulation Step

Embrace Uncertainty

Calibration Step

Create and exercise options

Many business processes unintentionally make innovation mediocre.

Project Management /
Finance Wants

Predictability



Efficiency



Unintended Consequences:

- Big dreams trapped in small projects that have no chance of hitting them
- Focus on your feet (what is next) instead of the horizon (where you need to be)
- Safe bets, small steps, clutter
- Playing not to lose vs. playing to win

Innovation Focus: Learning

Uncertainty



Ambiguity



How to make Uncertainty and Ambiguity your friend?

Formulating Innovative Projects to Win.

Content of Innovation

Uncertainty



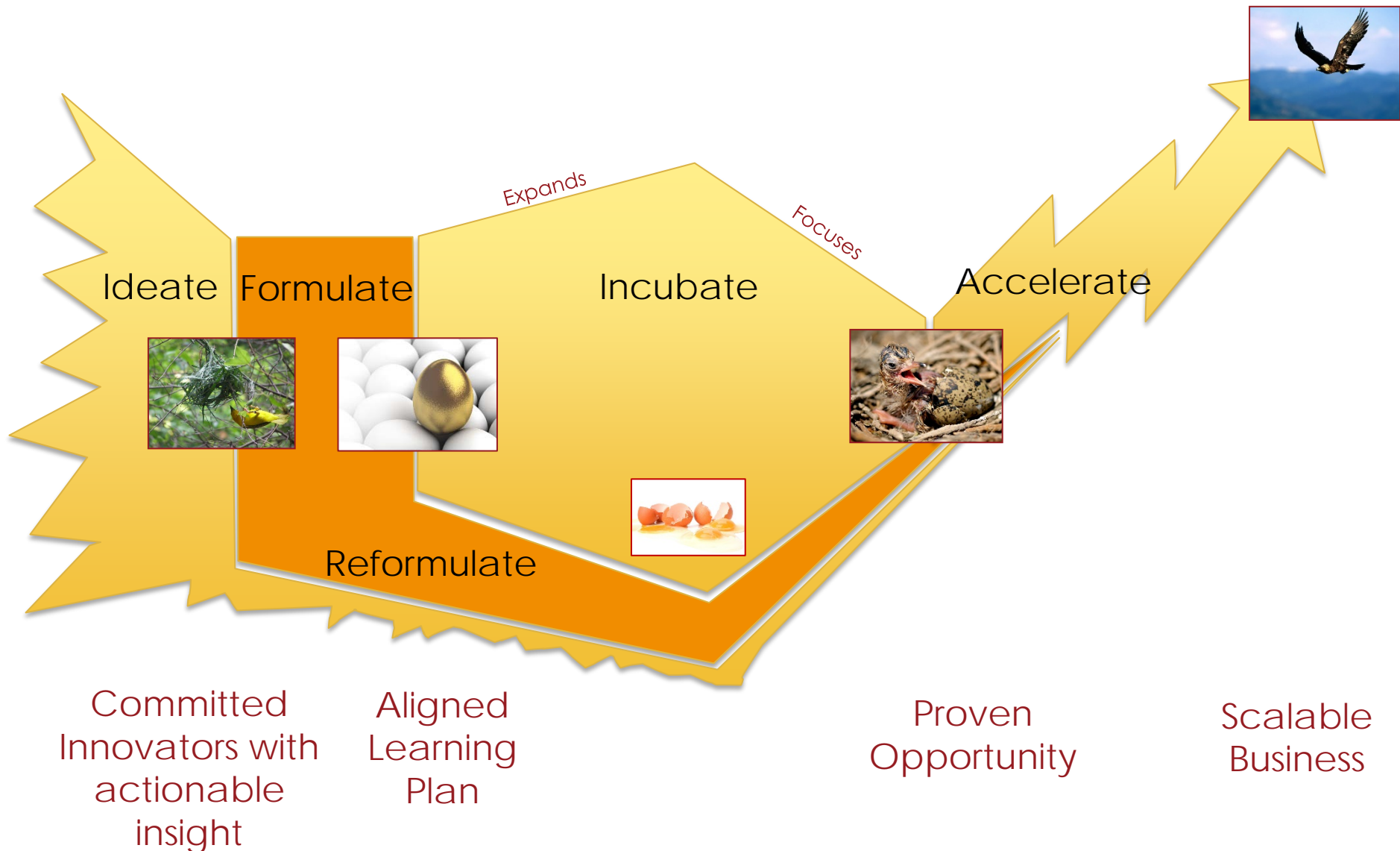
Ambiguity



Formulating Projects to Win:

- Make uncertainty and ambiguity your allies
- Explicitly consider multiple strategies
- Understand uncertainties that create a right to win and that drive financial results
- Create learning plan based on delivering proof; not execution plans based on doing the work

Most companies omit the formulation step.





Open the door to
opportunity

Understand your
opportunity cost

Make decisions
that drive your
prosperity

Discussion / Q&A



David Matheson
SmartOrg, Inc



Shawn Williams
Rogers Corp



Udi Chatow
Applied Materials

THANK YOU

A webinar recording will be available soon on
www.smartorg.com