



How to Commercialize Inkjet & Consumables Technology

March 30, 2022



**In 6 Foolproof
Steps**





#inkjetexplainers

Get the most from your time with us!

SEND US YOUR QUESTIONS DURING THE WEBINAR

Question control is in the lower left corner

- There is a Q&A at the end
- We may also answer some during the presentation

Webinar video replay will be uploaded later today.

Upcoming webinars:

Understanding Priming & Coating for Inkjet

Tuesday April 26 at 1 pm

Mary Schilling & Elizabeth Gooding

[Register](#)



Speakers



Dan Adams
President
The AIM Institute



Kelly Lawrence
President
Lawrence Innovation

1963
1964
1965
1966
1967
1968
1969
1970
1971
1972
1973
1974
1975
1976
1977

DuPont invented Kevlar® fiber

DuPont pursued tire cord market
(The wrong market)

DuPont pursued bulletproof vests
(The right market)

Find the *right* market(s) rapidly & efficiently

How to Commercialize Technology in 6 Foolproof Steps

1. Separate your jungle animals & farm animals

2. Select your market segments

Technology Development

You don't fully understand them... and aren't sure what they'll do or where they'll go.

Product Development

You know what they're supposed to do... and who they're supposed to do it for.

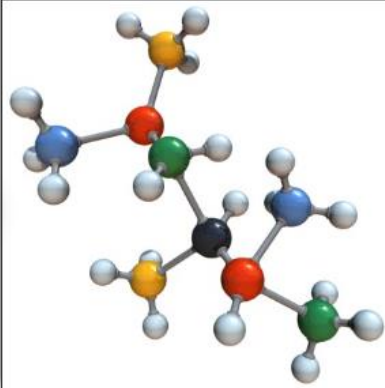
5. Try to kill your project quickly

6. Test the next market segment (maybe)

Would you keep jungle animals and farm animals in the same pen?



**Technology
Development**



**Product
Development**



Science-Facing

Market-Facing

**Global
Pool of
Science**

**Unmet
Market
Needs**

Open Innovation

Brainstorming

Interviews



**Technology
Development**

**Product
Development**

**Scheduling
Breakthroughs?**

**Gantt Chart
Milestones**

Confusion & Inefficiency

**Technology
Development**

**Product
Development**

Inkjet Insight

Technology Examples

- Continuous Inkjet
- Drop On Demand
 - Thermal Inkjet
 - Piezo Inkjet
 - UV
 - Solvent
 - Waterbased
 - Others

Product Examples

- Printhead
- Printer
- Media
- Primer
- Topcoat
- Overprint Varnish



**Unmet
Market
Needs**

Inkjet leverages multiple technologies and products.

Products must work together in a system and deliver on unmet needs in a given application



How to Commercialize Technology in 6 Foolproof Steps

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3. Investigate all assumptions that “must be true.”

4. Explore assumptions about customer needs first

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6. Test the next market segment (maybe)

Why do you segment customers?

Sales territories

Geography
Size

Service levels

Purchases

Innovation

Buying behavior

Needs

Market segment:

Cluster of customers with similar *needs*

**One size
fits all**

1 Product for
ALL
Customers

Efficiency

**Highest
Possible**

**Market
focused**

1 Product for
Each
Segment

**Similar
Needs**

**Custom
shop**

1 Product for
EACH
Customer

Effectiveness

**No
Sacrifice**

Market Segment

	Size of revenue opportunity	Market segment growth	Profitability of suppliers	Unmet customer needs
Assign "A" if:	Larger than average size	Above average growth rate	Above average margins	We know unmet needs exist
Assign "B" if:	Average size	Average growth rate	Average profit margins	We expect unmet needs exist
Assign "C" if:	Less than average size	Below average growth rate	Below average margins	May not know unmet needs exist
Factory-applied wood floor coatings	A	A	B	B
Commercial Flooring	A	A	B	A
Kitchen Cabinets	B	B	A	C
Gym Floors	C	A	B	A
Wood Interior Furniture	A	B	B	C
Wood Exterior Furniture	C	C	B	B
Wood Patio Decking	B	C	A	C

Inkjet Insight

Potential Markets

- Roll-to-roll textile
- Direct-to-garment
- Film-to-fabric
- Narrow web label
- Corrugated
- Folding carton
- Flexible packaging
- Flooring
- Metal
- Others

Inkjet suppliers must select a market to test.



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Welcome to Acme Composites...



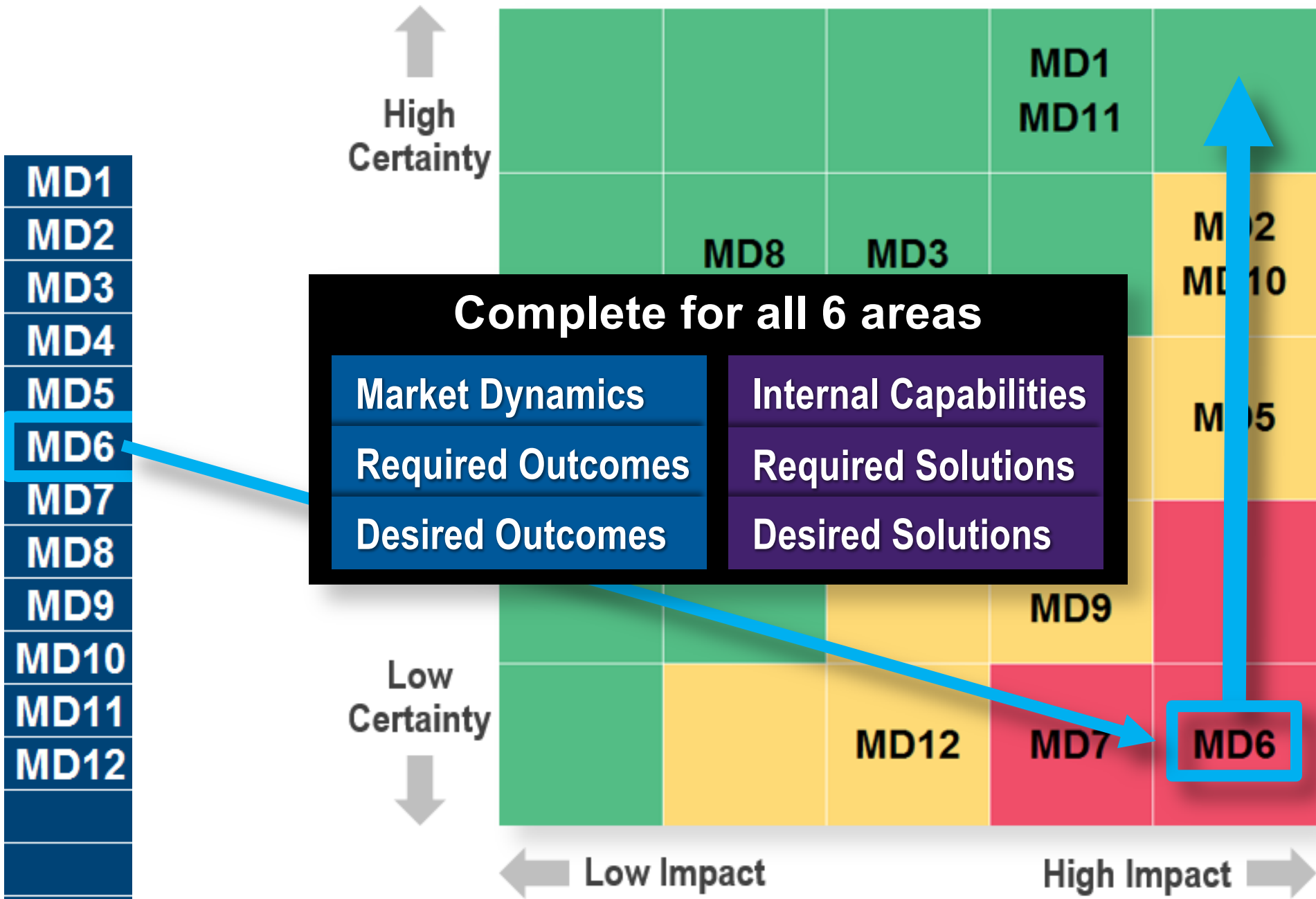
**Recycled Plastic
+
Wood Fibers**



Packaging

**Water Resistance
Stacking Strength
Abrasion Resistance**

The Certainty Matrix

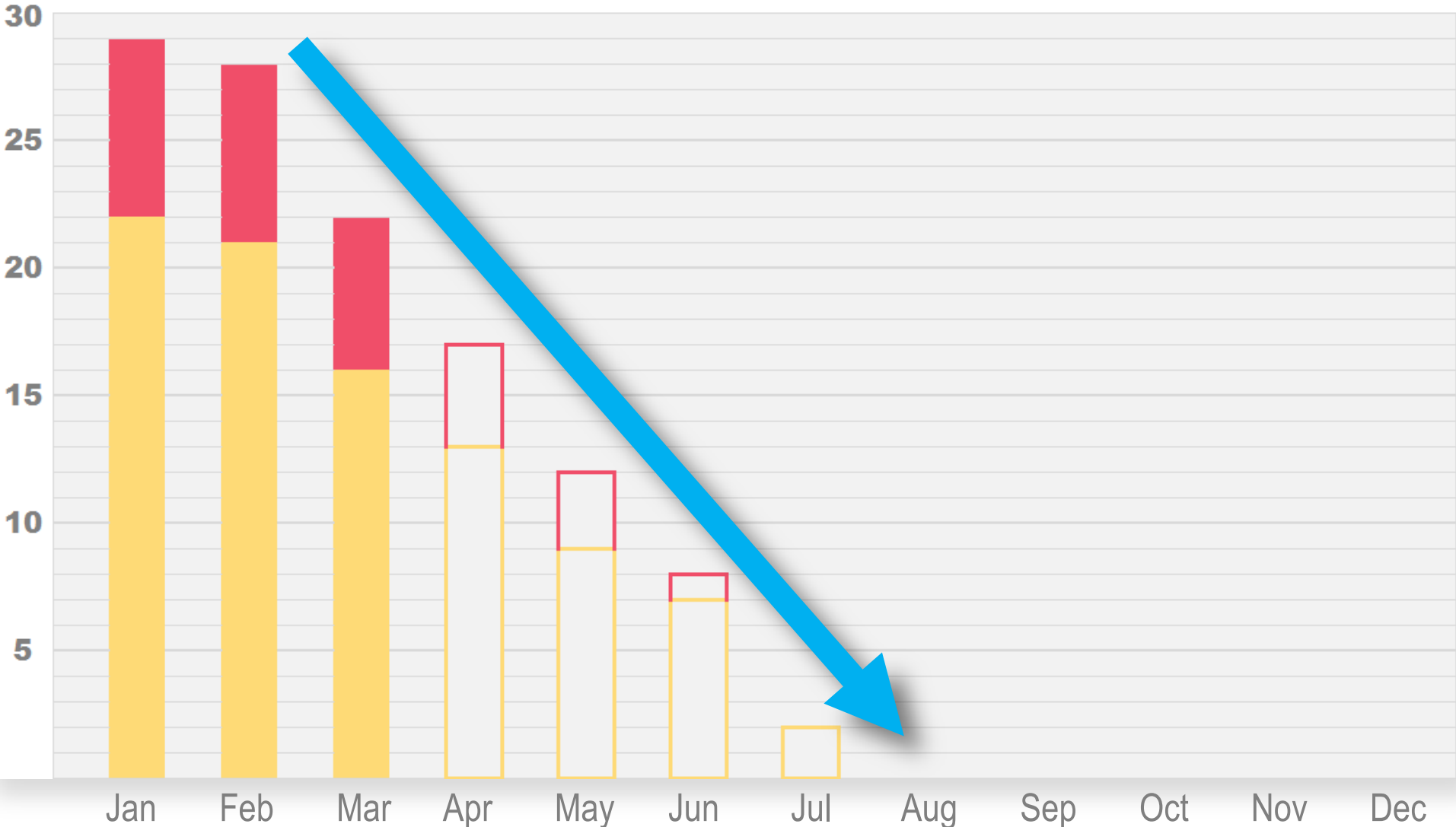


Number of Assumptions by Month

Caution

Danger

Goal



The team builds a **CheckPoint Plan** to systematically drive to certainty.

4 De-risking steps

1. Generate assumptions
2. Rate assumptions
3. Investigate assumptions
4. Report to management

The screenshot displays a Kanban board with three columns representing different stages of a project. The top row contains three purple cards: Card 22 (Produce our offering at acceptable levels of consistency), Card 23 (Provide necessary customer support), and Card 24 (Provide necessary technical support). A modal dialog is open in the center, titled 'We must meet customers' requirement to...', with a 'Required' status and a 'Next » 27' button. The dialog contains a text input field with the text 'Maintain existing rates of box filling'. Below the dialog, the bottom row contains three light blue cards: Card 27 (Maintain existing rates of box filling), Card 28 (Be assured of a backup source of supply for our product), and Card 29 (Maintain existing lead times when ordering our product). Card 30 (Have no increase in box weight) is partially visible on the right. The interface includes navigation icons at the top right and a close button on the modal dialog.

First the team generates all the assumptions that “must be true” for project success... in three “buckets”

4 De-risking steps

1. Generate assumptions
2. Rate assumptions
3. Investigate assumptions
4. Report to management

Minesweeper 3.0

Assumption R03

We **must meet** customers' requirement to...

Maintain existing rates of box filling

CERTAINTY OF OUTCOME: How certain are you that customers would rate impact the way you did? (*Your impact rating is essential*)



< Previous

Next >

Avoid “group think”

Then each assumption is rated for Impact and Certainty. This is done first by each individual... and then together as a team.

4 De-risking steps

1. Generate assumptions
2. Rate assumptions
3. Investigate assumptions
4. Report to management

External Assumptions related to:

Market Dynamics

Required Outcomes

Desired Outcomes

Internal Assumptions related to:

Internal Capabilities

Required Solutions

Desired Solutions

Click note numbers to update assumption ratings...

DS1	■ Increase box-filling rates
DS2	■ Increase box strength for taller stacking of boxes
DS3	■ Reduce slippage of robotic "hand" against box surface
DS4	■ Reduce "washboarding" (rippling) of box surface
DS5	■ Increase water resistance to lower damaged goods
DS6	■ Increase tear resistance of boxes
DS7	■ Increase fade resistance in sunlight
DS8	■ Increase crush-resistance in high-humidity conditions
DS9	■ Increase abrasion resistance of box surface

DESIRED SOLUTIONS

Possible Landmine
 Probable Landmine
 Confirmed Landmine (Project Killer)

After individual ratings, the project team discusses and agrees on Impact and Certainty ratings each assumption.

4 De-risking steps

1. Generate assumptions
2. Rate assumptions
3. Investigate assumptions
4. Report to management



The team then creates a “CheckPoint” action plan to investigate the red (danger) & yellow (caution) assumptions.

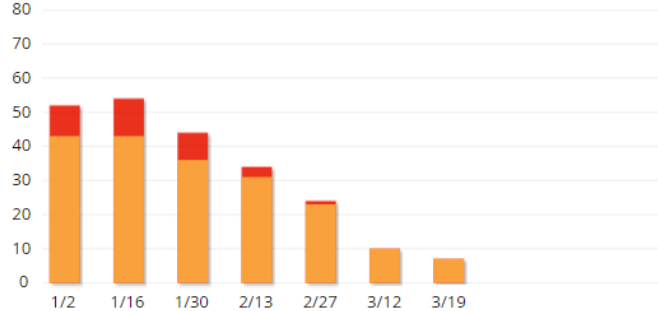
4 De-risking steps

DEMO Acme Composites (after workshop)

Demo project cannot be saved

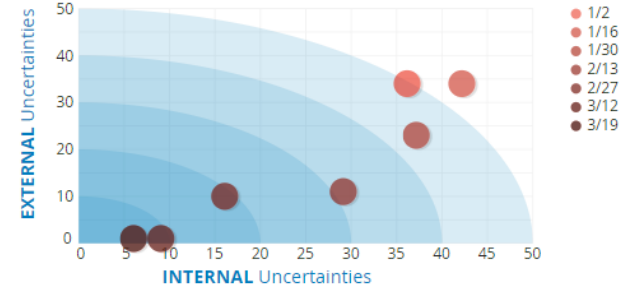
1. Generate assumptions
2. Rate assumptions
3. Investigate assumptions
4. Report to management

UNCERTAINTY TIMELINE

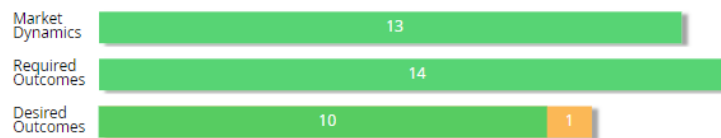


LEARNING PATH

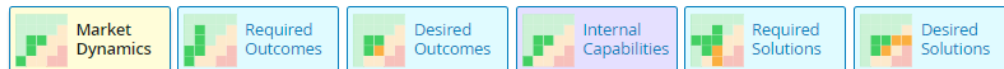
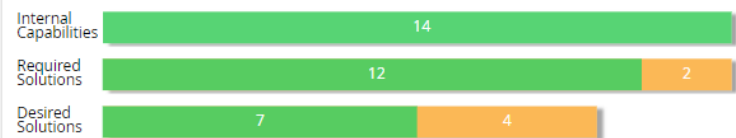
Sum of uncertainties (1 unit for "Caution" assumptions, 3 units for "Danger")



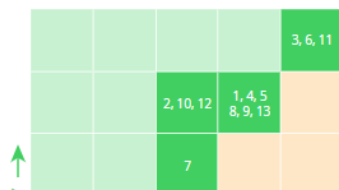
EXTERNAL ASSUMPTIONS



INTERNAL ASSUMPTIONS



MARKET DYNAMICS



- MD1 ■ Customers are willing to pay a fair price premium for value
- MD2 ■ Customers will make buying decisions in a timely fashion
- MD3 ■ The entire value chain can be convinced to change in sync
- MD4 ■ Entrenched competitors cannot block our market entry

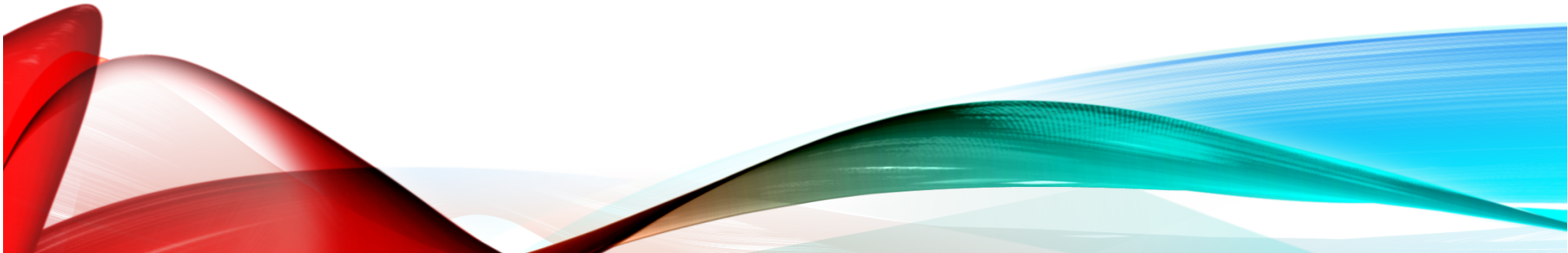
The team reviews its de-risking progress... and provides regular updates to management.

Inkjet Insight

For inkjet to win, it must be true that...

- The consumables meet regulatory requirements.
- The printed item meets regulatory requirements.
- Economics are acceptable.
- The market has unmet needs that inkjet can solve better than the next best alternative.
- Up time is acceptable.
- Print speed is as fast as flexo.
- The right media is available.
- Others

Inkjet suppliers must validate assumptions for each selected market.



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Customer Outcomes

... desired customer end-results

Increased abrasion resistance

Reduced maintenance costs

Faster operating speed

Reduced roller wear

Higher fill levels

Improved grease resistance

Quicker change-over time

Greater weight capacity

Less slippage with wet ore

1. Customer value is only created when an important, unmet **outcome** is improved.

2. Suppliers' only path to profitable, sustainable **growth** is customer value creation.

The Science of B2B Customer Insight (New Product Blueprinting)

1 Uncover all outcomes

2 Understand relevance

3 Define & set direction

4 Prioritize outcomes

5 Learn how to measure

6 Identify satisfaction points

7 Measure next best alternative

8 Quantity value created

9 Quantify value captured

Discovery

Preference

Later Steps

Customer Outcomes

5 parts of Discovery Interviews (with **Blueprinter**® 5.0 Software)

1. Current State

2. Problems

3. Ideal State

4. Triggered Ideas

5. Top Picks

Blueprinter software

Discovery Meeting with AIM Institute and Premium Paint Company

Agenda

- Introduction
- Current State 2
- Problems 8
- Ideal State 8
- Triggered Ideas 3
- Top Picks 8

Next Steps

Views

- Normal view
- 6 per page view
- 12 per page
- 36 per page
- Full Text

Auto-Saved: 0 Minutes Ago

Homeowners can't always clean food stain... **TP** 1 MH Votes 0

Some paints pick up dirt easily & that's... **TP** 3 MH Votes 0

Sometimes newly-painted windows stick ev... **TP** 4 MH Votes 0

Customers want paints that cover anything **TP** 7 MH Votes 0

We'd like to see a paint that has really... **TP** 10 MH Votes 0

If the paint does settle with time, you'... **TP** 12 MH Votes 0

People are getting busy & hiring more co... **TP** 18 MH Votes 0

As populations age, we will see more peo... **TP** 19 MH Votes 0

© The AIM Institute

Blueprinter 5.0

Preference Noteboard

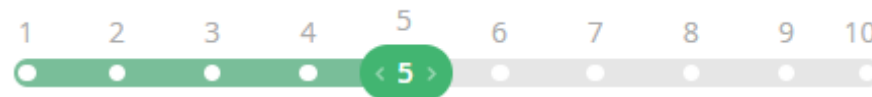
Preference Meeting
with The AIM Institute
and Premium Backup (Ratings done)

Agenda

- 1 **Outcome Rating**
- 2 Measuring Outcomes
- 3 Must-Haves
- 4 Top Outcomes
- 5 Other Information

Next Steps
[Export to PDF](#)

How **Satisfied** are you today with your capability to... **MINIMIZE TIME REQUIRED TO REMOVE FOOD STAINS FROM PAINTED SURFACE**



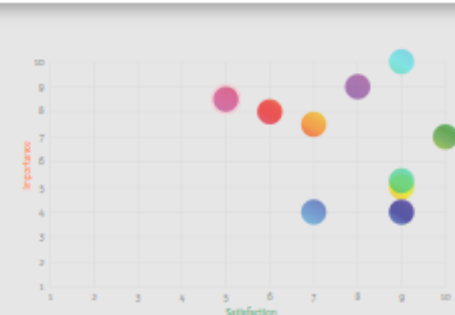
Totally unsatisfied	Unsatisfied	Barely Acceptable	Good	Totally satisfied
Our performance here is seen as a major deficiency	Our performance here is seen as deficient	Barely meeting customer needs or our process needs	Meeting most customer needs or our process needs	If we were any better here, it would not help us at all

Comments

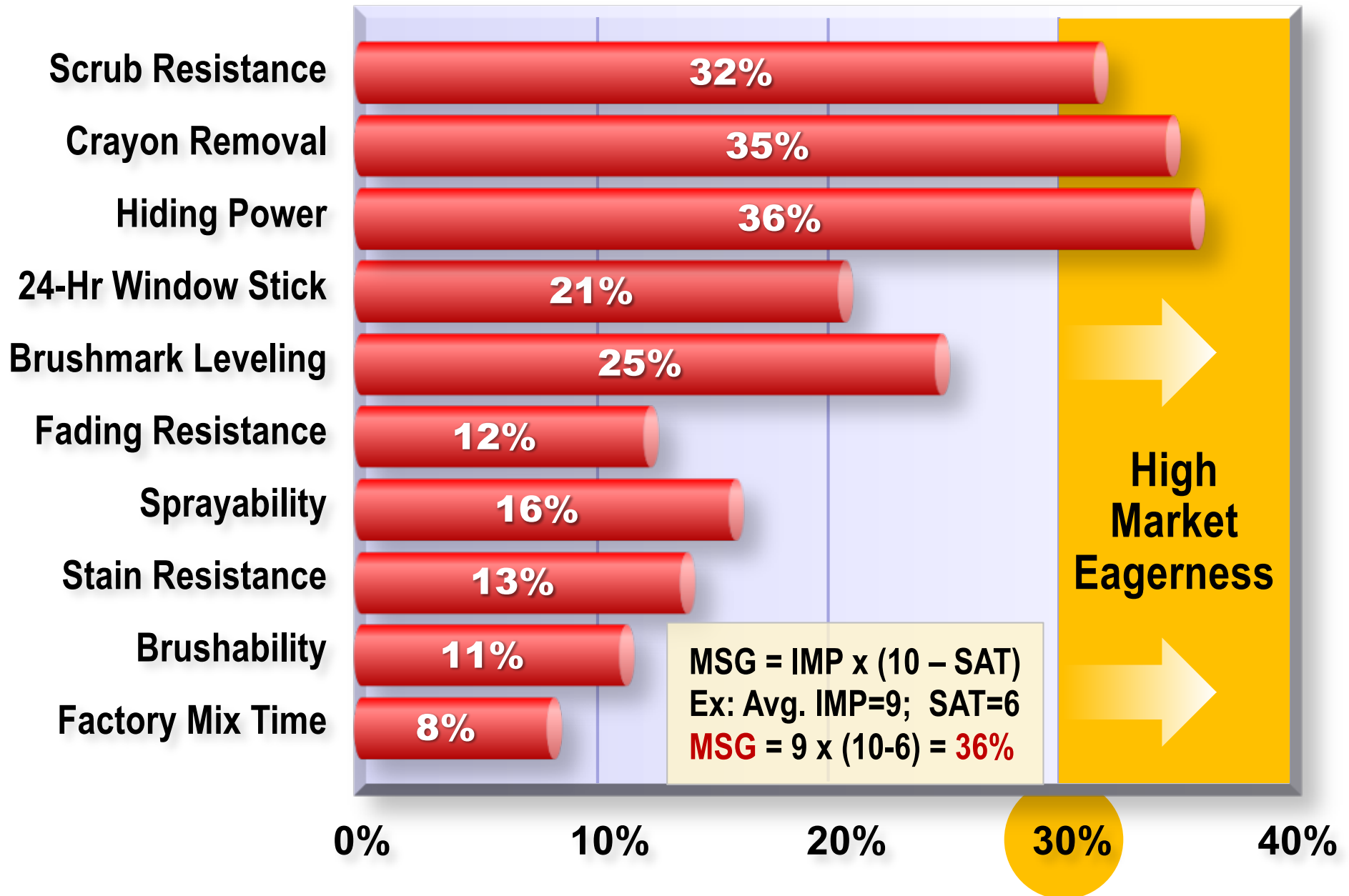
[< Previous](#)

[Done](#)

Outcome Name	Importance	Satisfaction
● Scrub Resistance	8	6
● Hiding Power	7.5	7
● Brushability	5	9
● Fading Resistance	7	10
● Stain Resistance	5	9
● 24-Hour Window Stick	10	9
● Sprayability	4	7



Market Satisfaction Gap



Eliminating innovation errors...

Diverge

to all potential customer outcomes



Qualitative Discovery Interviews

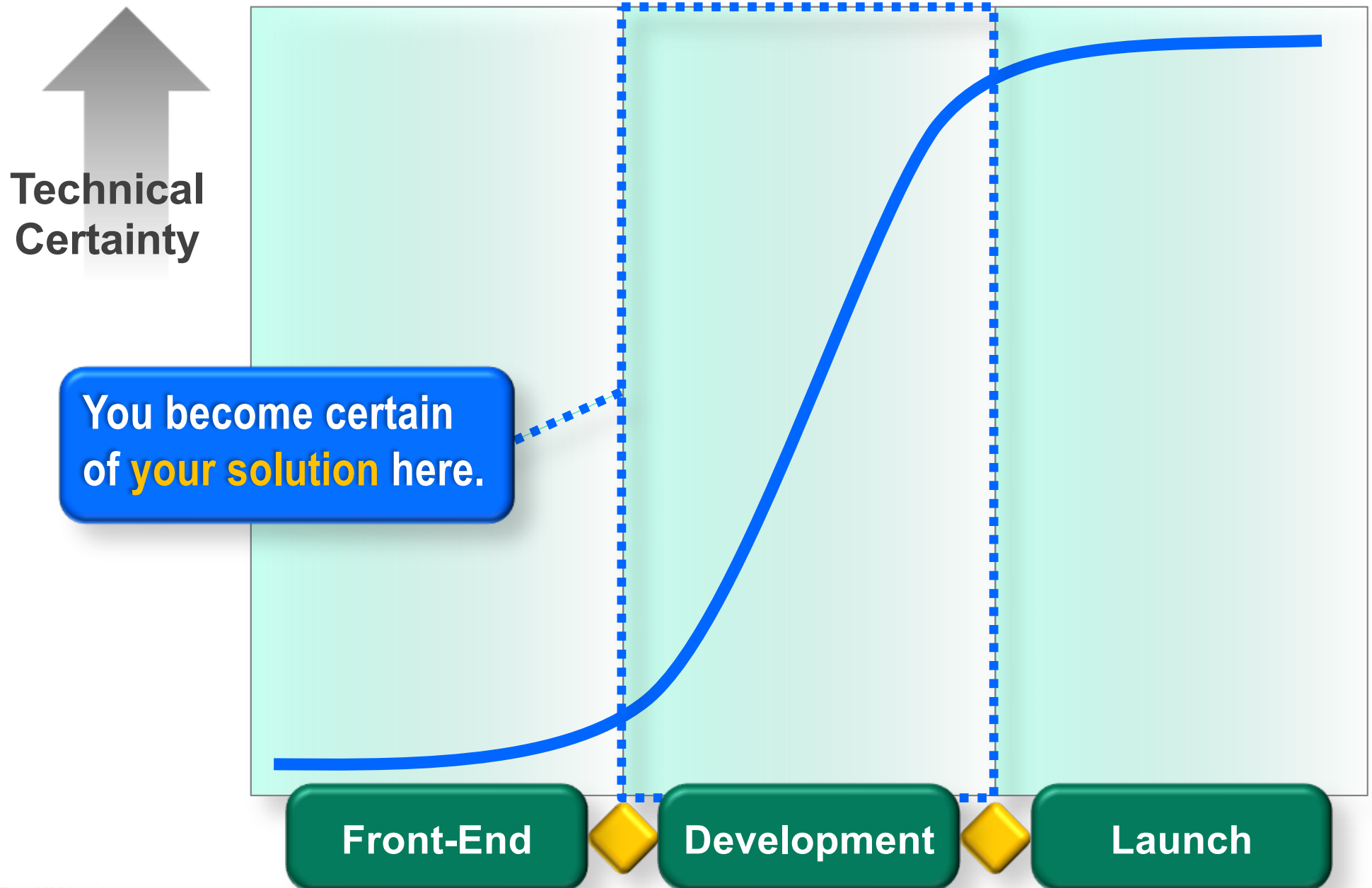
Converge

to important, unsatisfied outcomes



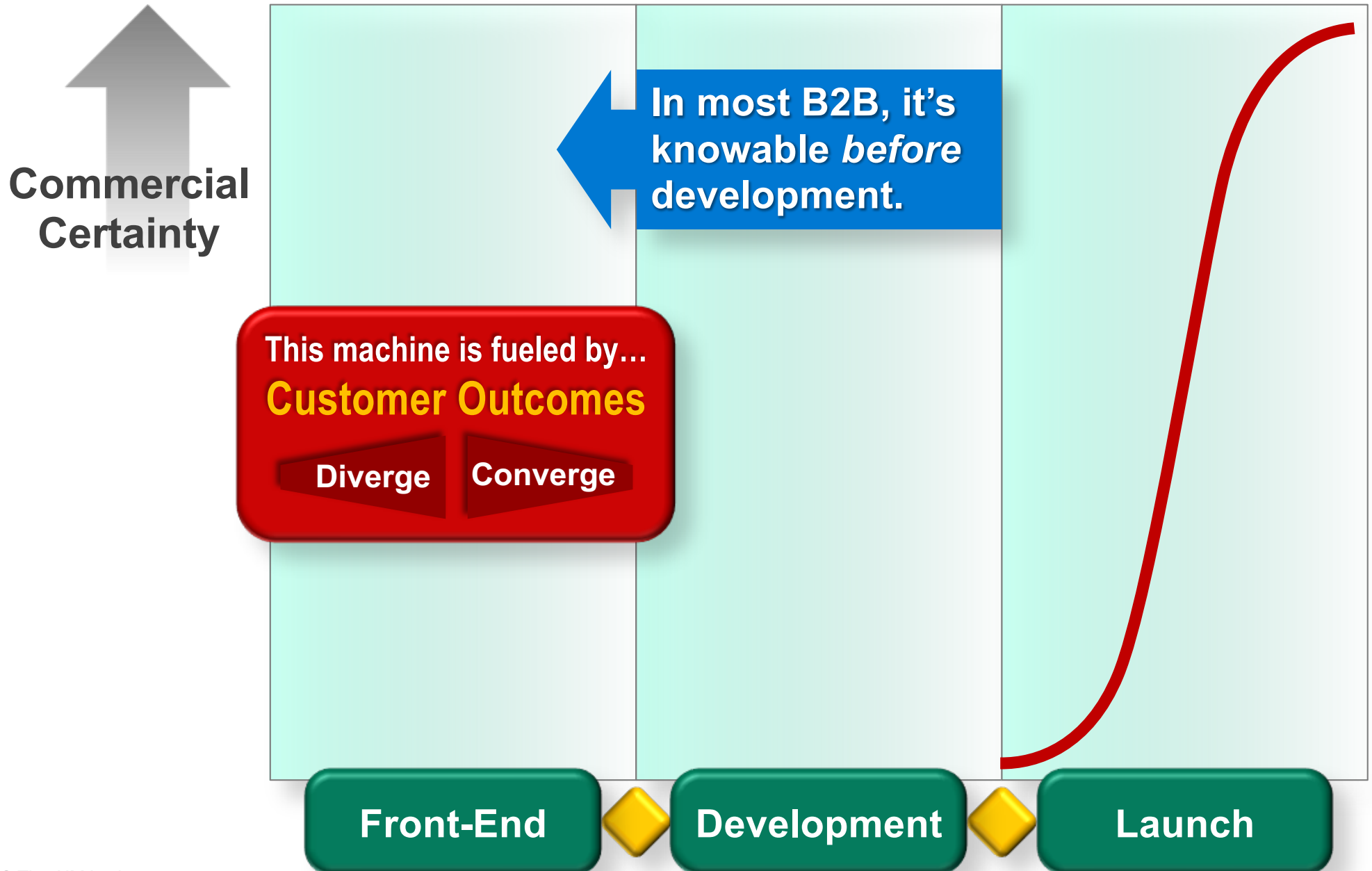
Quantitative Preference Interviews

Q: When do you resolve your **technical** risk?

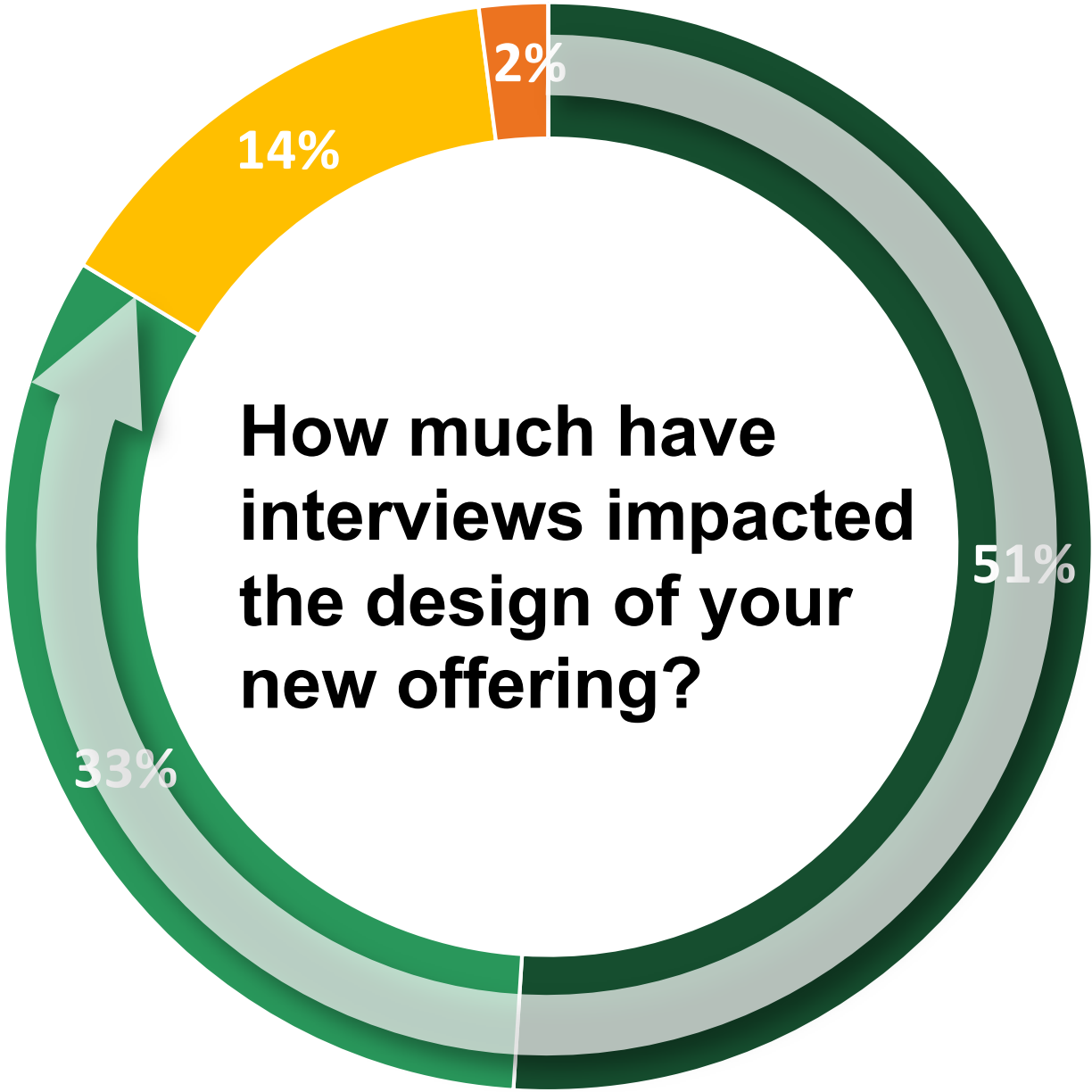


Q1: When do you resolve your **commercial** risk?

Q2: What if you built a **Certainty Time Machine**?



Impact of interviews on product design



5 of 6 teams don't understand needs



1 Yes, 5 No's

- Great Impact
- Significant Impact
- Moderate Impact
- Slight Impact
- No Impact

Inkjet Insight



1. Customer value is only created when an important, unmet outcome is improved.

2. Inkjet suppliers' only path to profitable, sustainable growth is customer value creation.

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“We spend most of our time trying to prove we’re wrong.”

“We run at all the hardest parts of the problem first.”

We cheer... “Hey... how are we going to kill our project today?!”



“The unexpected benefit of celebrating failure” Astro Teller (Head of Google X)
TED talk (May 2016): <https://www.youtube.com/watch?v=2t13Rq4oc7A>

When you look back at failed projects...

- Can you identify any “Landmines”?
 - ... that blew up budgets, schedules or reputations
- Were they detectable before they blew up?
- What would have happened if spotted earlier?

Landmine Principles

- Landmines offer 3 choices... **S**tep on, **S**top, **S**idestep.
- No one steps on a landmine they can **see**.
- Landmines are a greater danger in unfamiliar terrain.
- We avoid unhappy thoughts. Landmines are not happy.
- The sooner we spot a landmine, the greater our **options**.

Risky Projects

Late Projects



2-Page De-risking Report

De-risking Report: Composites for Packaging Update, March 1, 2020

1. Project Overview

What is our intended offering, what technology will we employ, and how will we protect intellectual property?

What market will be served (including geographies), and what value will we provide to customers in this market?

What customer alternatives will we replace?

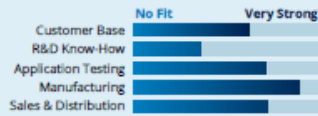
How does this fit with our strategy and existing competencies?

Any other useful background information?

Best-estimate sales range
\$25-50 Mil/yr

Best-estimate launch timing
Early 2022

Fit with current...



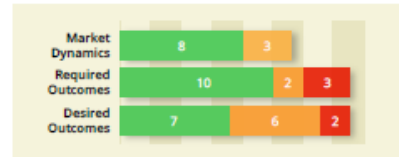
Project Team

★ Team Leader

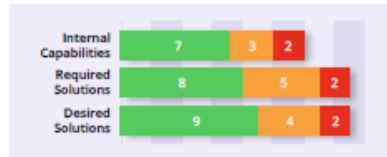
★ John Aaron,
Jeff Ball, Nancy Calloway, Mike Dempsey,
Carol Everhardt, Sue Hampton

2. Uncertainty Profile

Number of EXTERNAL Assumptions

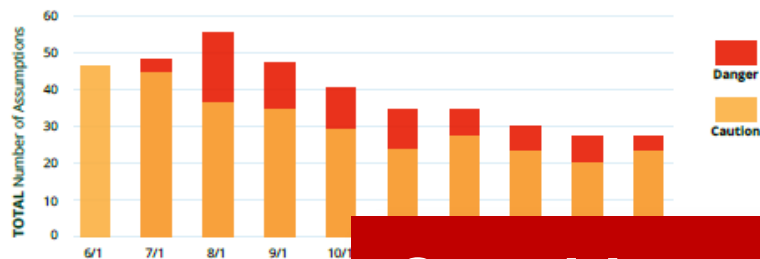


Number of INTERNAL Assumptions



Safe Caution Danger

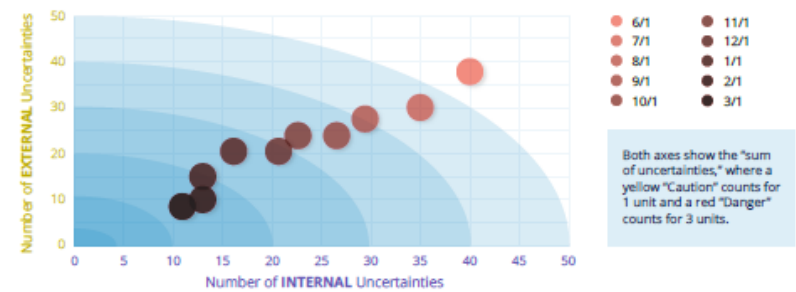
3. Uncertainty Timeline



Consider providing updates to management on a set schedule.

De-risking Report: Composites for Packaging Update, March 1, 2020

4. Learning Path



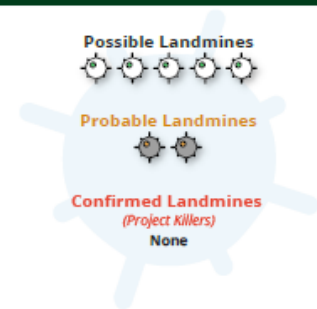
5. Status

What is the most important work we have completed since the last review?
(Consider referring to the Learning Path.)

What remaining untested external and internal assumptions do we think will have the greatest impact on this project?

How are we addressing possible and probable landmines?

What else should management know about our current status?



6. Recommendations

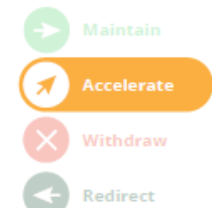
What are the most important activities our team intends to pursue next?

What do we recommend for this project?... Maintain (continue current course), Accelerate (add resources to speed project), Withdraw (shelve project) or Redirect (change course).

Does our team need any other management decision at this time?

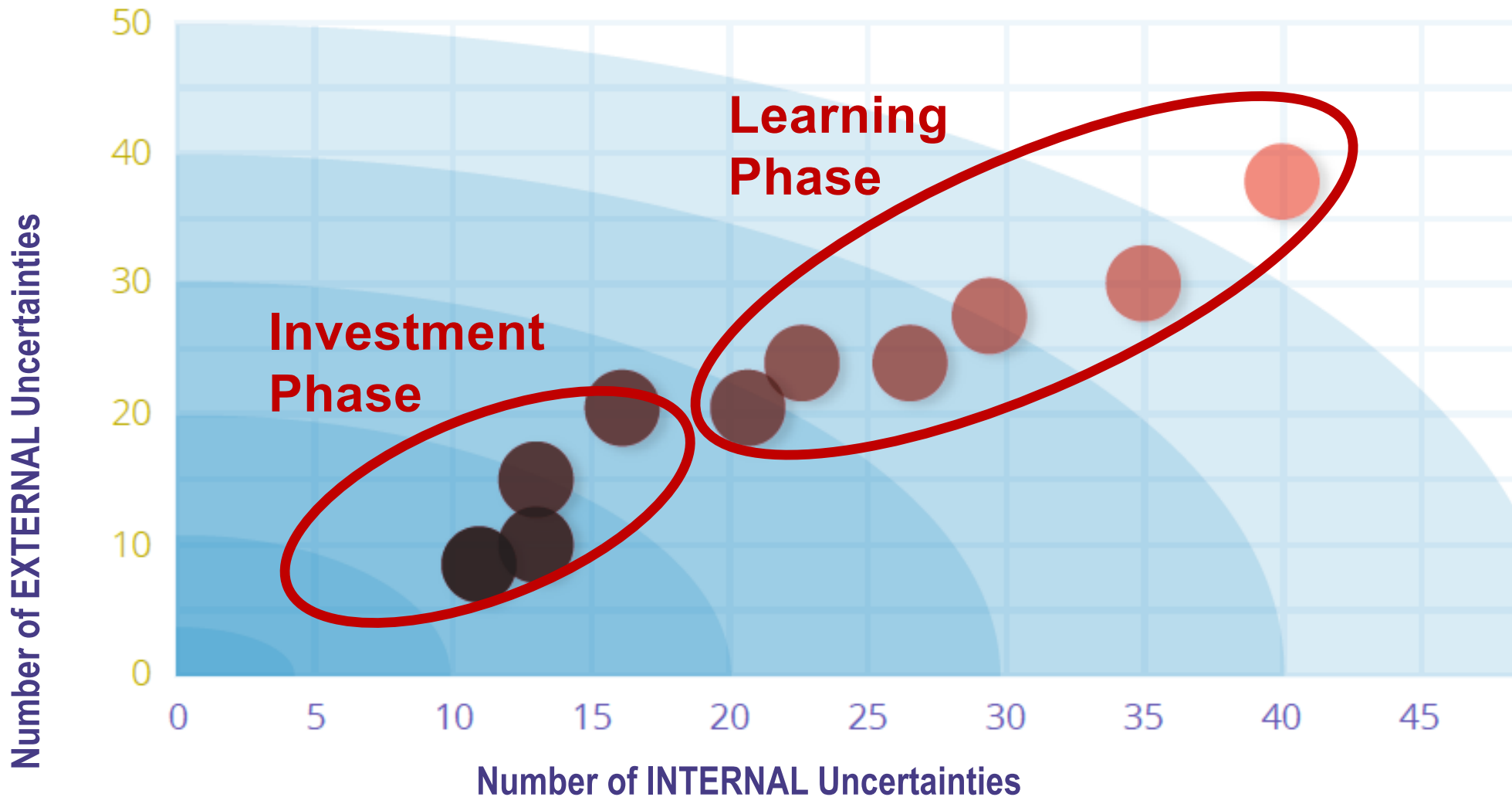
When will we need a decision from management (e.g. for a larger investment)?

Recommended Path



Make it clear what you expect in your reviews...

4. Learning Path

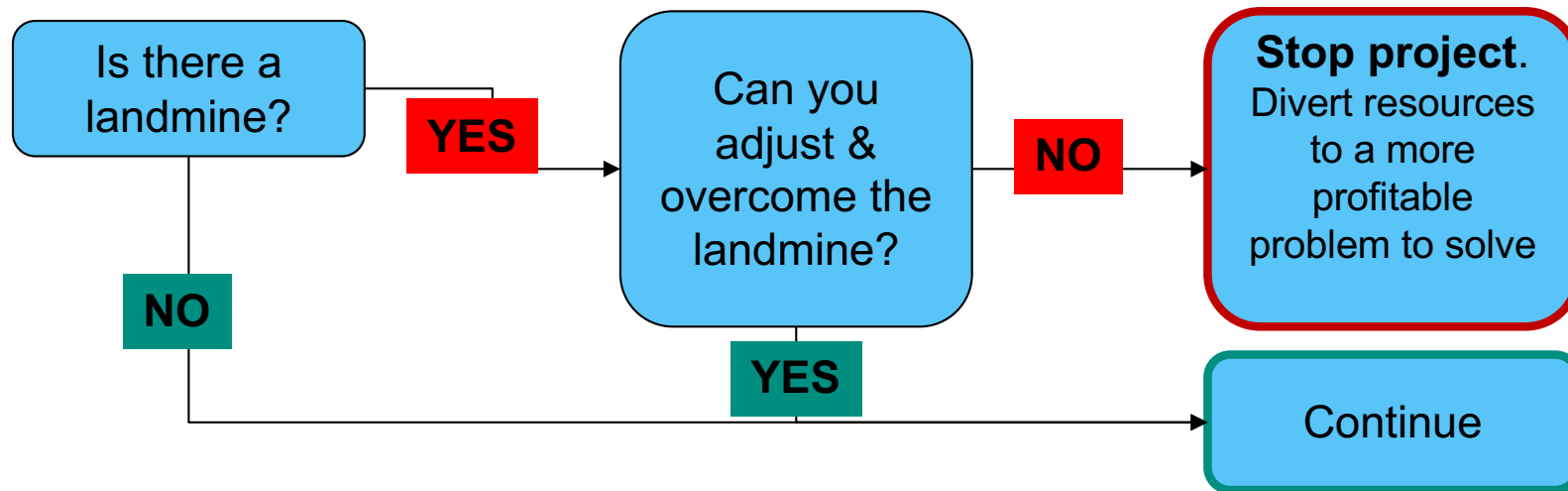


Change the dynamics of your project reviews...

- Don't confuse all but the CTO by slide #3
- Separate *your* success from the project's
 - This project *may* not deserve to continue
 - But we'll tell you as soon as possible
- Differentiate “updates” from “decisions”
- Show you're following an intelligent plan
 - This is like a “Gantt Chart for Risk”
- Let them *join* your team... not *judge* it
- Result: Less micro-managing & second-guessing. More management patience.

Inkjet Insight

How can we kill our project today?



Kill dead-end projects quickly

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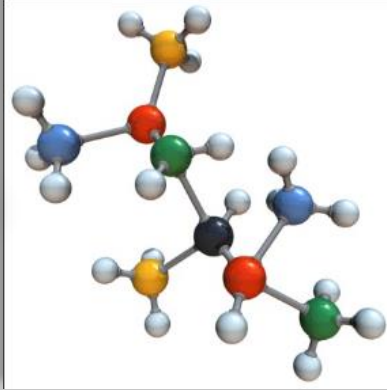
4. Explore assumptions about customer needs first

5. Try to kill your project quickly

6. Test the next market segment (maybe)

Global Pool of Science

Technology Development



Product Development



Unmet Market Needs

Three possible scenarios

Customer Outcomes

Market Dynamics

Internal Capabilities

1. You **succeed** with 1st market segment & then target a 2nd
2. You **fail** with the 1st market segment & then target a 2nd
3. You **fail** with the 1st market segment and stop.

WHY did you fail?

Inkjet Insight

Potential Markets

- Roll-to-roll textile
- Direct-to-garment
- Film-to-fabric
- Narrow web label
- Corrugated
- Folding carton
- Flexible packaging
- Flooring
- Metal
- Others

Identify the next market to test & grow inkjet.



These steps don't guarantee successful technology commercialization. But you will...

- Find the best market(s) for your new technology as quickly as possible.
- Develop a product based on known—not guessed—customer needs.
- Stop work on dead-end projects as rapidly and cost-effectively as possible.



Before we take QUESTIONS...

Top Recommendation

**Follow the AIM Institute
Growth & Innovation Series
on Inkjet Insight**
[New videos each week](#)

**Find more Free tools to
drive your growth:**
www.AimInstitute.com

Chapter 1



Superior
B2B Growth is
Challenging

Dan Adams, Founder AIM Institute



[Register](#)

Upcoming webinars:

Understanding Priming & Coating for Inkjet

Tuesday April 26 at 1 pm

With severe challenges in sourcing substrates to print on, it's never been more important to understand how priming and coatings for inkjet contribute to substrate compatibility, color vitality, print quality, durability, flexibility and cost efficiency. Sponsored by Michelman.

MICHELMAN®



Questions?

Our Message to Printers, OEMs and the Industry at Large
Evaluate. Optimize. Grow.
Repeat

For information on speaking, sponsorship or membership please contact:
Elizabeth Gooding elizabeth@inkjetinsight.com



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