



**GHENT
UNIVERSITY**

SOFTWARE STARTUP

PRODUCT MANAGEMENT

Frédéric Pattyn – 16/06/2026

SOFTWARE STARTUP

PRODUCT MANAGEMENT

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OR FOR THOSE THAT REALLY
WANT TO KNOW, THE FULL TITLE:

Frédéric Pattyn – 16/06/2026

SOFTWARE STARTUP PRODUCT MANAGEMENT

A MULTI-METHOD STUDY LEADING TO THE PRAGMATIC FRAMEWORK FOR

PRODUCT MANAGERS (PFPM) AND VECTR, A STARTUP-APPROPRIATE

REQUIREMENTS PRIORITIZATION METHOD.

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WHY THIS RESEARCH?

MOTIVATION & PROBLEM STATEMENT

MOTIVATION

The logo for 'team blue' is displayed in white text on a dark blue square background. The word 'team' is on the top line and 'blue' is on the bottom line. A small blue dot is positioned to the left of the 'b' in 'blue'.

**Software Engineering
since 2011**

**Working in software engineering,
beginning to understand the
complexities of requirements
management, prioritization, and
managing competing realities.**

MOTIVATION



Entrepreneurial since 2012

**Working side by side with many
founders, some flourishing, others
floundering, I became increasingly
puzzled by how little logic seemed to
explain success or failure...**

MOTIVATION



**Product Manager
since 2015**

**Co-founding NOWJOBS as Product
Manager exposed me to the magnitude
of product decision-making—and its
consequences.**

MOTIVATION

Experience and confidence, both as an entrepreneur and PM pushed me forward to find a way to bridge what's missing: evidence-based guidance on which decisions move a startup forward.

90%

of startups fail within 10 years

#1 reason

No clear product–market fit

Gap

PM research focuses on mature firms

PROBLEM STATEMENT

"Startups lack systematic, evidence-based knowledge and practical tools to guide product managers effectively and their prioritization decision-making, especially under conditions of high uncertainty and resource scarcity."

THE ANSWER



THE ANSWER

Startups die from wrong priorities, not wrong ideas.

The activities are the same as in mature firms **but** the cost of being wrong **is not**.

This dissertation gives pre-product market fit founders the first empirically-derived method to get priorities right, built on the criterion the literature missed:

Time-to-Value.

A stylized illustration of a rocket ship launching. The rocket is white with dark blue fins and a dark blue nose cone. The word "STARTUP" is written in bold, dark blue capital letters along the side of the white body. The rocket is angled upwards from the bottom left towards the top right. At the base of the rocket, there are dark blue, billowing clouds representing smoke or fire from the engines. The background is a light blue gradient with faint, abstract shapes.

KNOWLEDGE GAPS & MISSING INSIGHTS

Where does the research sit?

- Software Engineering (SE) / RE → prioritization methods, no startup focus (ICE, RICE, AHP...)
- Startup research → 15 years descriptive research (ICSOB), but limited startup decision methods
- PM literature → role mapped, but mostly mature context, at certification level

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No single stream intersects them all. That's the gap.

RESEARCH QUESTIONS & OBJECTIVES

1 Understanding

Which product management activities are most critical in software startups?

Objective:
Identify critical PM activities in software startups.

2 Tools & Frameworks

Which criteria are most relevant for prioritizing product decisions in software startups?

Objective:
Uncover relevant criteria: Time to Value, Confidence, ROI.

3 Decision Criteria

How do PM activities in software startups differ from those in mature organizations?

Objective:
Compare startup PM with practices in mature organizations.

4 Empirical Evidence

How can evidence-based insights create actionable frameworks and tools?

Objective:
Develop VECTR — validated, startup-tailored tools.

RESEARCH PROCESS

HOW?

Emergent multi-method design

Following evidence rather than pre-defined assumptions

Exploration →
Empirical investigation →
Method development

RESEARCH PROCESS

Phase 1

Exploration:

What does PM look like?
Does context shape the role?

What did we do?

→ General baseline (PFPM framework)

- Systematic Literature Review
- 26 studies, 107 activities, 30 categories, 6 domains
- Expert validation

→ Startup vs mature comparison (HHI index, role concentration Herfindahl-Hirschman Index)

- Survey of 125 PMs, forced 100-points across PFPM framework

Phase 2

Empirical Deep Dive:
What drives the difference
that matters?

What did we do?

→ Insights on confidence level gating

- 29 interviews, 16 startups

→ Empirical confirmation at scale

- Survey 171 PMs, 37 countries
- Open & closed questions
- Startup vs Mature context
- Context matters (statistical insight)

→ TtV discovered, the missing criterion

- SLR + case studies
- 40 studies, 82 criteria, 19 startups
- Financial criteria (ROI) insight
- SLR triangulation

Phase 3

Synthesis:

Use findings to create a
practical startup focused tool

What did we do?

→ Method informed by previous studies

- Based on input of
 - Chapter 4: confidence gate
 - Chapter 6 (1): ROI
 - Chapter 6 (2): Time to Value
- 17 semi-structured interviews
- Review of proof of concept

This became VECTR

PHASE 1: EXPLORATION

MAPPING & MEASURING THE PM ROLE



This is the Phase for those that already ever had to answer the question:

What does he do for a living?

MAPPING THE PRODUCT MANAGER ROLE

What we did

- Systematic Literature Review (Kitchenham)
- Scope: descriptive mapping – antecedents, outcomes and mechanisms to be considered as future research.
- From 169 → 26 peer-reviewed studies (1983–2022)
- 456 activity mentions consolidated into
- 107 normalized activity concepts
- Startup only context as SLR would result in an under-populated mapping.



MAPPING THE PRODUCT MANAGER ROLE

What we did

- Higher order structuring: 30 categories (expert validation)
- Organizing Scaffold: ISPMA as reference - 6 domains
 - ISPMA tells only what a PM should know.
 - Generic for certification, lack in granularity.
 - Used as scaffold to ground bottom-up study, depth that's ISPMA never intended to provide.

Pragmatic Framework for Product Managers (PFPM)

Key Outcome

General baseline of understanding the fragmented Product Manager role. PFPM gives a precise, literature-grounded meaning, not vague competency domains.

Executive Leadership

- Strategic management & communication
- Supplier, legal & IP management
- Human resource management
- Corporate strategy & vision
- Financial management (incl. funding)
- Monitor & control results
- Portfolio management
- Approve roadmap

Product Strategy & Planning

- Product strategy & vision
- Product lifecycle management
- Business cases
- Roadmapping
- Product value proposition
- Product planning (incl. releases)
- Product backlog management
- Requirements management (incl. prioritization...)
- Resource management

Engineering & Development

- Research & development
- Manage software development
- Quality assurance
- Release management

Marketing

- Market research & communication
- Positioning
- Branding
- Marketing execution
- Advertising

Sales

- Pricing
- Sales execution
- Distribution management

Customer Support & Success

- Customer support



This is the Phase for those that already ever had to answer the question:

What does he do for a living?

→ Answer: too much to remember so we'll keep the original answer: Works in IT.

MEASURING THE PRODUCT MANAGER ROLE

Attention-Based View of the Firm: Where do product managers ACTUALLY focus?

What we did

- **Herfindahl-Hirschman Index (HHI)** is methodological innovation, adapted from measuring market concentration in economics, to a metric for individual-level role concentration.
- 125 PMs (87 startup, 38 mature) from 37 countries
- Forced distribution of 100 points over 6 PFPM domains
- Four robustness checks were conducted: same finding



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$$HHI = \sum (\text{domain share})^2$$

Low HHI (<0,15) = dispersed attention | High HHI (>0,40) = concentrated role

125 PMs Subset of the 171 of Ch 5, but with stricter inclusion criteria.

Robustness checks conducted

1. Geographic subsample exclusion (BE, US, India, other)
2. Experience moderation (PM, founder)
3. Industry subgroups (Saas, tech, non-tech)
4. Full sample including non-matched participants

Scale type argument

Input: forced distribution of 100 points → direct proportions (ratio scale) → $HHI = \sum (\text{proportion})^2$ → ratio-scale output. Equal intervals and true zero hold. Parametric analysis justified.

Attention-Based View of the Firm: Where do product managers ACTUALLY focus?

Boeing & Airbus example

If shares were roughly:

Airbus 55%

Boeing 40%

Others 5%

Then:

$$\begin{aligned} HHI &= 0.55^2 + 0.40^2 + 0.05^2 \\ &= 0.3025 + 0.16 + 0.0025 \\ &= 0.465 \end{aligned}$$

→ **HHI ≈ 0.47**

→ **Highly concentrated**

Google is around 0.80

Hotel sector is around 0.05 globally



Attention-Based View of the Firm: Where do product managers ACTUALLY focus?

Findings

- No significant difference in role concentration between both contexts (substantial finding in its own right)
 - Startups: **M=0,247**
 - Mature: **M=0,255**
 - $P=.662$, $d=0,08$
- 94% having a generalist profile ($HHI < 0,40$), the role is inherently multi-disciplinary.
- 30% of time gets spend on Product Strategy & Planning
- **5 specialists, 4 in startups (because of Product strategy & planning focus)**

Key Outcome

Product managers are generalists in both contexts ...



Attention-Based View of the Firm: Where do product managers ACTUALLY focus?

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No significance difference: against the PhD motivation?

- Door closes on role difference, **opens on decision logic difference.**
- 30% on Product Strategy & Planning — mistakes there are existential for startups, not for mature firms
- 4 of 5 specialists are in startups, all because their Product strategy & planning numbers— the pressure point is real
- Null result **strengthens** the categorical argument: same activities, **asymmetric consequences**
- The categorical **difference is in the cost of being wrong**, not in what PMs do.

→ **Same tasks. Different stakes. That's why VECTR exists.**

Key Outcome

Product managers are generalists in both contexts, but startup specialists concentrate on Product strategy & planning, the domain where there's an asymmetric cost of being wrong.



This is the Phase for those that already ever had to answer the question:

What does he do for a living?

→ Answer: He decides what gets built. HHI: 1.0.

CONTRIBUTIONS

Phase 1: Exploration

Building a common language to understand, structure, and measure product management work

For research:

- a structured PM framework and measurable role concentration metric
- evidence that prioritization consumes a major share of PM attention
- indication that mistakes in startup prioritization have disproportionate consequences

For practice:

- clearer role definition, coaching, and benchmarking



The activities appeared similar across contexts.

The consequences of getting priorities wrong did not.
~30% of attention focused on Product Strategy & Planning.

This naturally raised the next question:

**What actually matters when
prioritizing in software startups?**



PHASE 2:

EMPIRICAL DEEP DIVE

WHAT DRIVES THE DIFFERENCE THAT MATTERS?

THREE STUDIES, THREE DIFFERENT ANGLES

- **Study 1:**
how do top performers validate before they build?
- **Study 2:**
what criteria do practitioners actually use at scale?
- **Study 3:**
what did the literature miss — and what does the deep dive reveal?

Let me show you how they differ and why all three were needed.

What we did

- Qualitative comparative study using semi-structured interviews (not a multiple case study – different design)
- 29 interviews, 16 startups (purposive sampling)
- Thematic analysis (Cohen's kappa)
- Founders as primary informants (direct decision-makers in pre-PMF context)
- Follow-up interviews: to deepen, not to track longitudinally
- Bankrupt companies = lowest category, others ranked on performance criteria.



Gap & contribution

- We knew tools: prototypes, MVPs, landing pages, A/B tests, interviews ... we did not know: **the sequence, nor direction, how top performers differ.**
- The Hierarchy of Validation as a descriptive model is grounded in the data.
- Real contribution: **top performers reach revenue-level validation before MVP – descriptive finding.**
- Directional hypothesis: aim for the top first, stop if it fails – not yet formally validated, flagged as future research.
- Scientific founder method literature: relevant. Hierarchy operationalizes its principles at process level.
- Circular logic accepted — conclusion rewritten around process finding: top performers reached revenue-level validation before MVP, not the other way around.
- Derivation: will be made explicit with quotes per stage before final submission. Validation: indirect through VECTR's Confidence gate in Ch. 7.
- Ch. 3 establishes domain pressure, not the answer. Figure 1 will be revised to show that pressure motivating two streams: Ch. 4 (how to validate) and Ch. 5/6/7 (which criteria to use).

Key Outcome

Confidence is not a score; it's a gate earned through staged validation. We knew the tools. We didn't know the direction.

EXPLORING PRE-MVP EVIDENCE LEVELS

	Stage 1: Problem validation		Stage 2: Problem-solution fit		Stage 3: Product-market fit	
	L1 Informal	L2 Research	L3 Prototype	L4 Sign-ups	L5 Funding	L6 Paying customers
S1	1		1			
S2		2	2		2	2
S4		4	4	4	4	4
S5		5				
S7	7	7				
S8	8					
S9		9	9	9		
S10			10	10	10	10
S11		11				11
S12		12	12	12		12
S13		13	13			
S14	14		14	14	14	14
S15			15			15
S16		16	16	16		
S17	17					17
S18			18			18

Tier 3

Tier 1

Tier 2

Out of business

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EXPLORING PRE-MVP EVIDENCE LEVELS OF TOP PERFORMERS

	Stage 1: Problem validation		Stage 2: Problem-solution fit		Stage 3: Product-market fit	
	L1 Informal	L2 Research	L3 Prototype	L4 Sign-ups	L5 Funding	L6 Paying customers
S2		2	2		2	2
S10			10	10	10	10
S11		11				11

● Tier 1

“We checked with 30 or 40 freelancers ... and conducted a survey with 50 doctors to gauge their interest... The feedback was encouraging, so we decided to move forward.”

S11

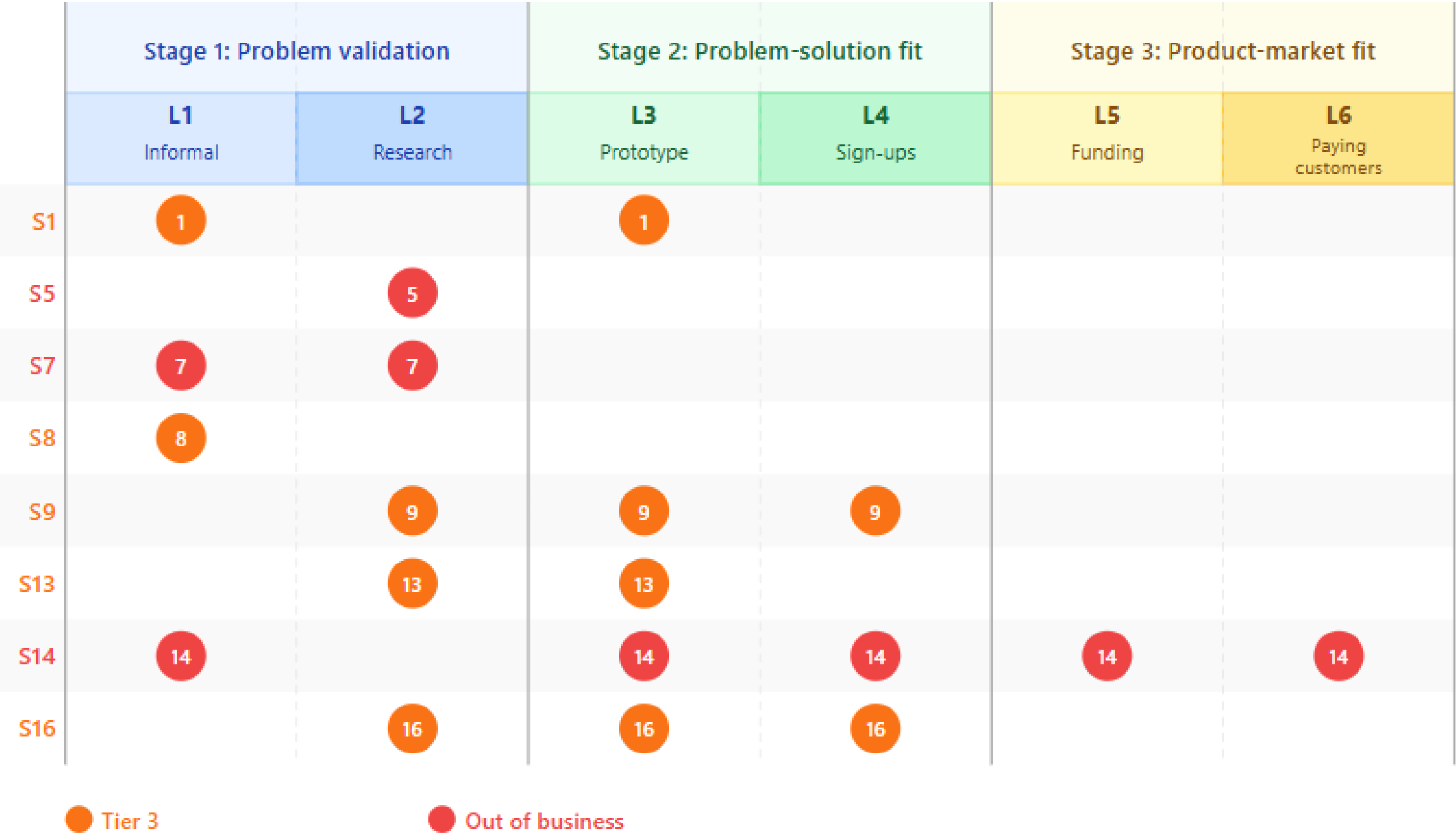
"2M first round: 500k subsidies, 500k founders, 1M angels.
Went to raise again only at 100 paying customers — VC wanted in."

S2

“Talked with potential customers and secured our first customer as well as a pre-seed investor.”

S10

EXPLORING PRE-MVP EVIDENCE LEVELS OF WORST PERFORMERS

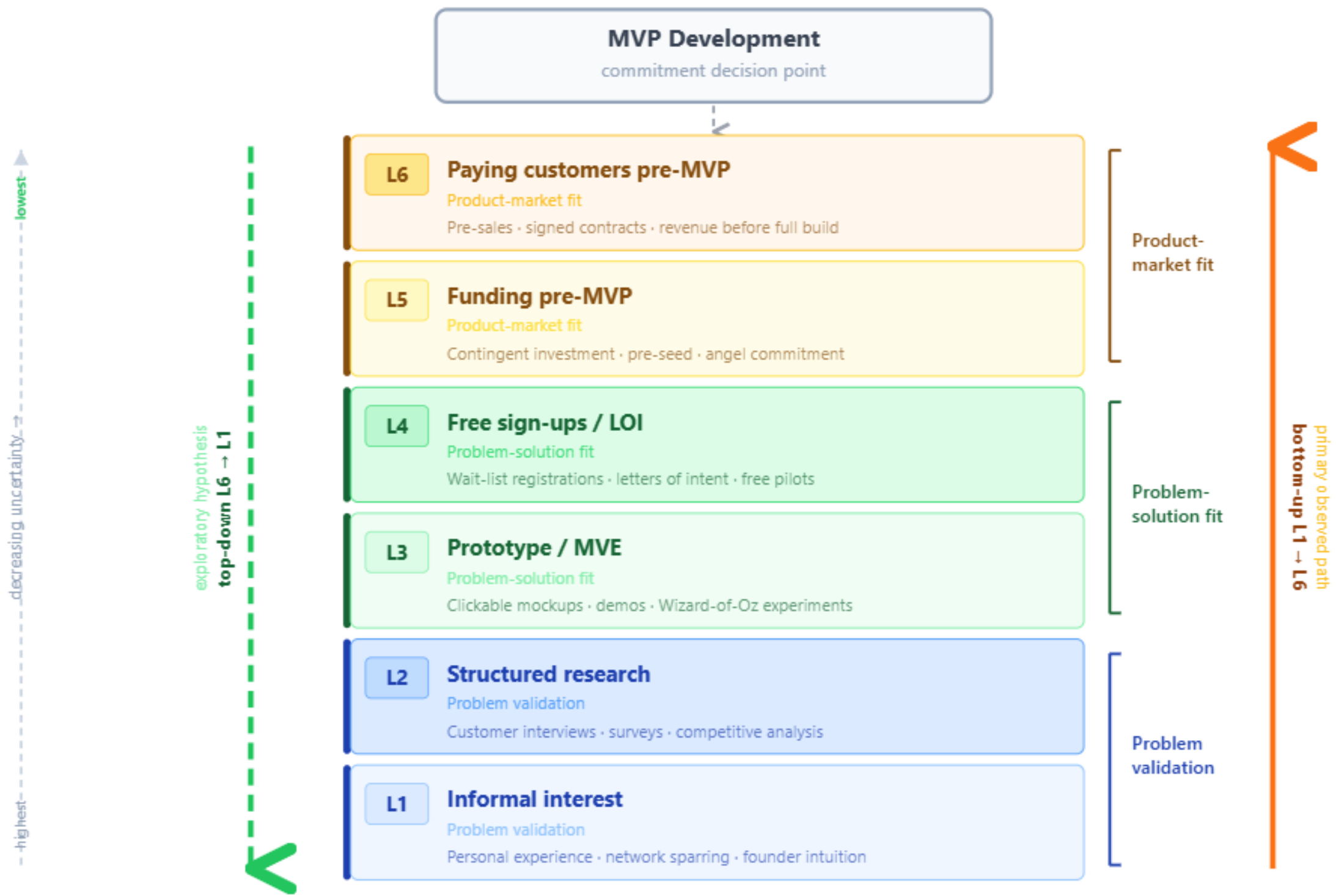


"Before getting started, we conducted a survey with 164 customers. The answers from this survey have been the guiding red line for our product strategy and vision." — S5

"A year before getting officially started they had been sending out multiple surveys and had many interviews: around 350 people in total about the product idea." — S7

"Sell the idea faster, talk to more potential customers to actually sell the product if only with a prototype, so that we would have more clearly defined features and paid commitments at hand."
S9, on what they would do differently

THE HIERARCHY OF VALIDATION AS A BIDIRECTIONAL PROCESS MODEL



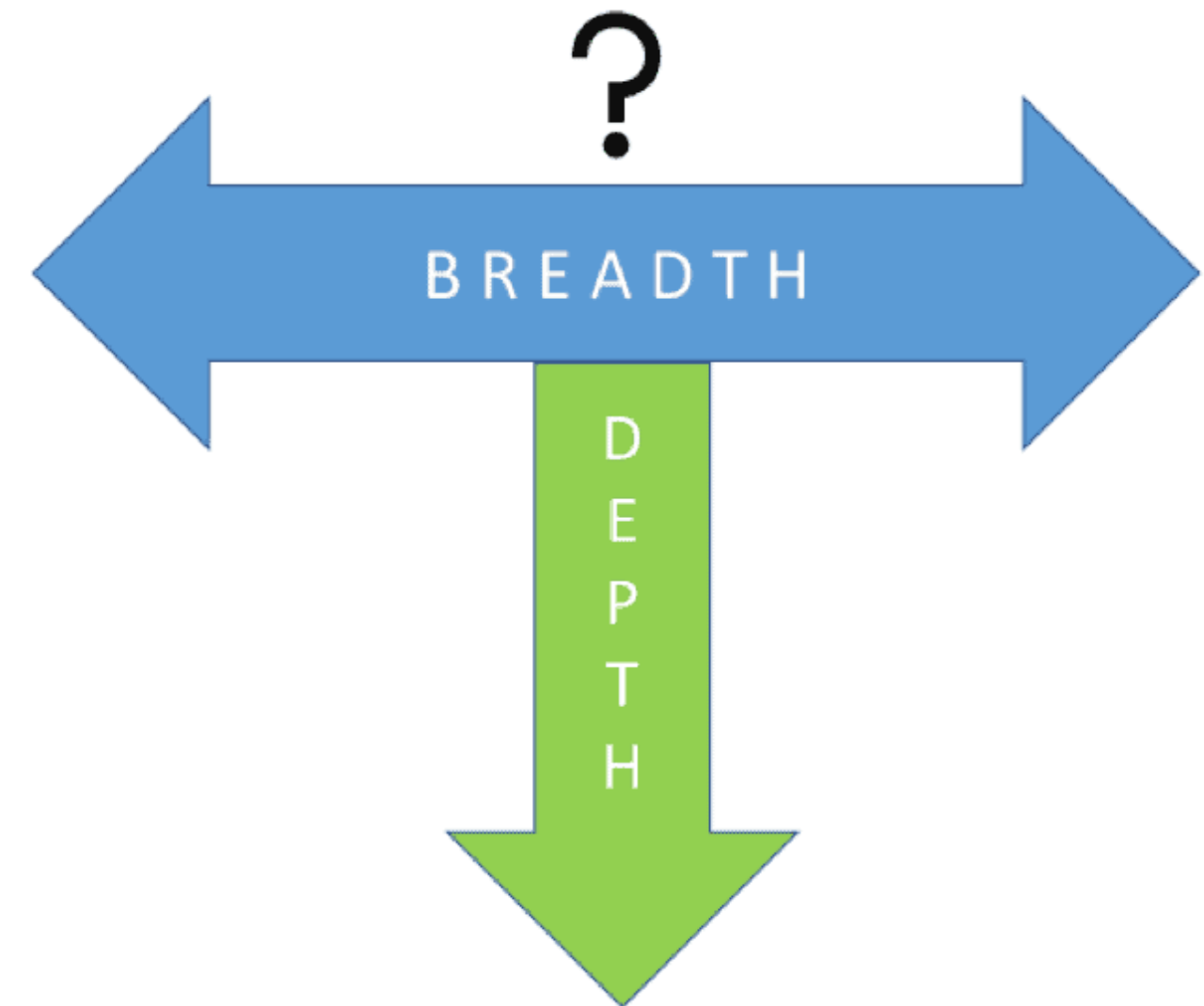
"Don't commit to building until the market has committed to paying."

WHAT REALLY MATTERS IN REQUIREMENTS PRIORITIZATION

What we did

- Survey of 171 practitioners, 37 countries, 51 industries
- November 2023 – January 2024
- 36,8% had founded at least 1 startup
- Assigned a startup or mature context
- Structured and open questions on prioritization criteria
- Hybrid coding process of responses

Ch 5 (HERE): breadth at cat & criteria level (large scale)
vs Ch 6 (NEXT): depth at criterion level





Wake up!
Short summary

Talk is cheap!

Rather have one person that pays then 1.000 that looooooove the idea.

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Methodological details

- **Context matching:** Ch 3 applied a stricter context matching (n=125 subset); Ch 5 retained all 171 because criteria preferences are a different than behavioral time allocation : closer to expert judgement task (therefore less critical).
- **Experience:** sensitivity analysis not run for Ch 5. Ch 3 robustness with non-matched gave same finding; not directly transferable but suggestive. Future research.
- **Startup definition:** there's no consensus definition in literature, researchers' responsibility to define features:
 - Smaller team, founding team, no hard boundary (Mirel)
 - Recently founded, max 5 years (Kajko-Matsson)
 - Pre Product Market Fit is the defining condition
 - Excluding non-profits
- **Ch 5: breadth at cat & criteria level (large scale) vs Ch 6: depth at criterion level**

WHAT REALLY MATTERS IN REQUIREMENTS PRIORITIZATION

Findings

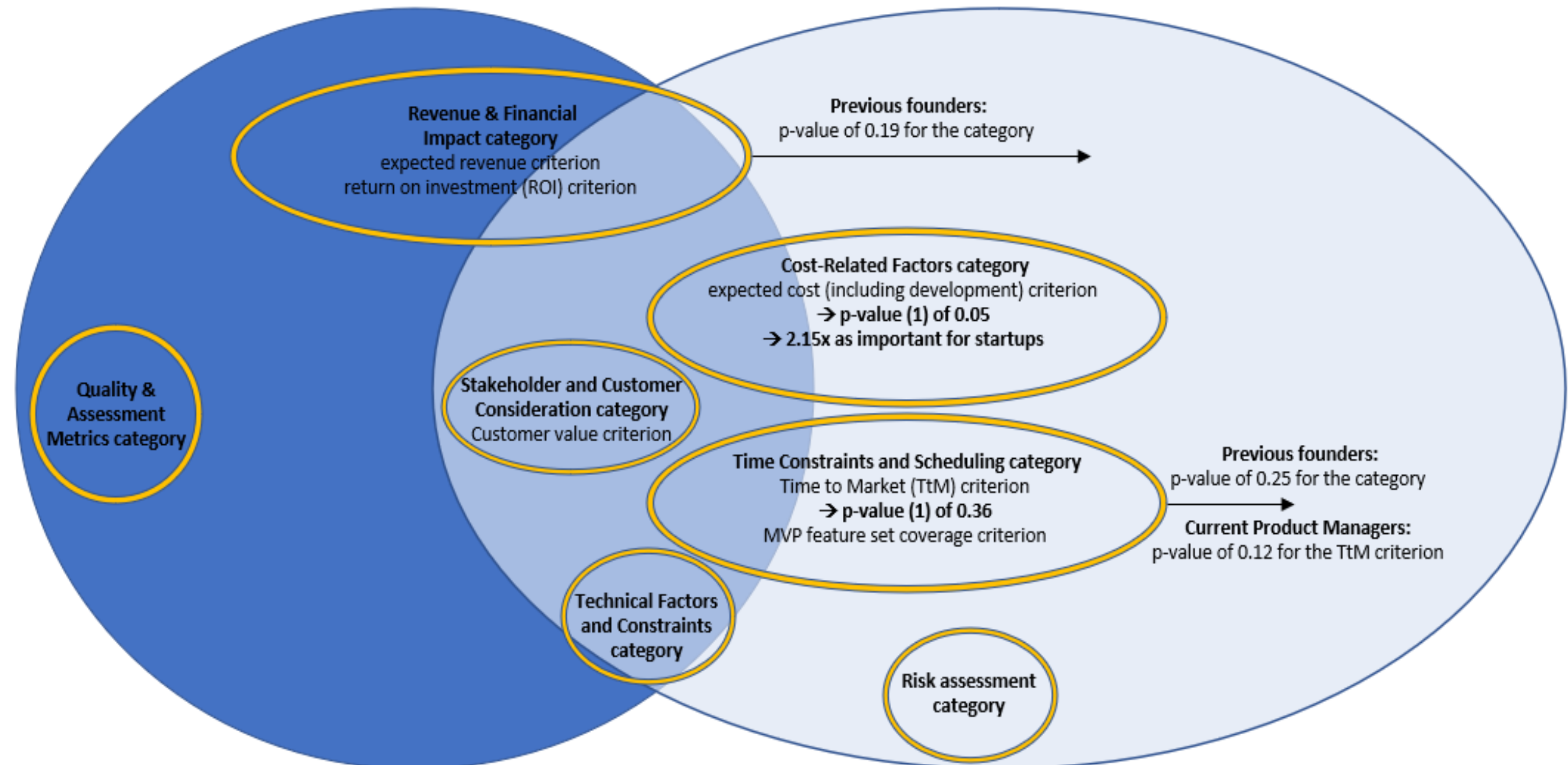
- Customer value: overall high, no differentiator – not measured or defined properly (generic statement).
- Cost-Related Factors: 2.15x more important in startups (p=0.05)
- Serial founders value financial criteria.

Mature context

Startup context

Key Outcome

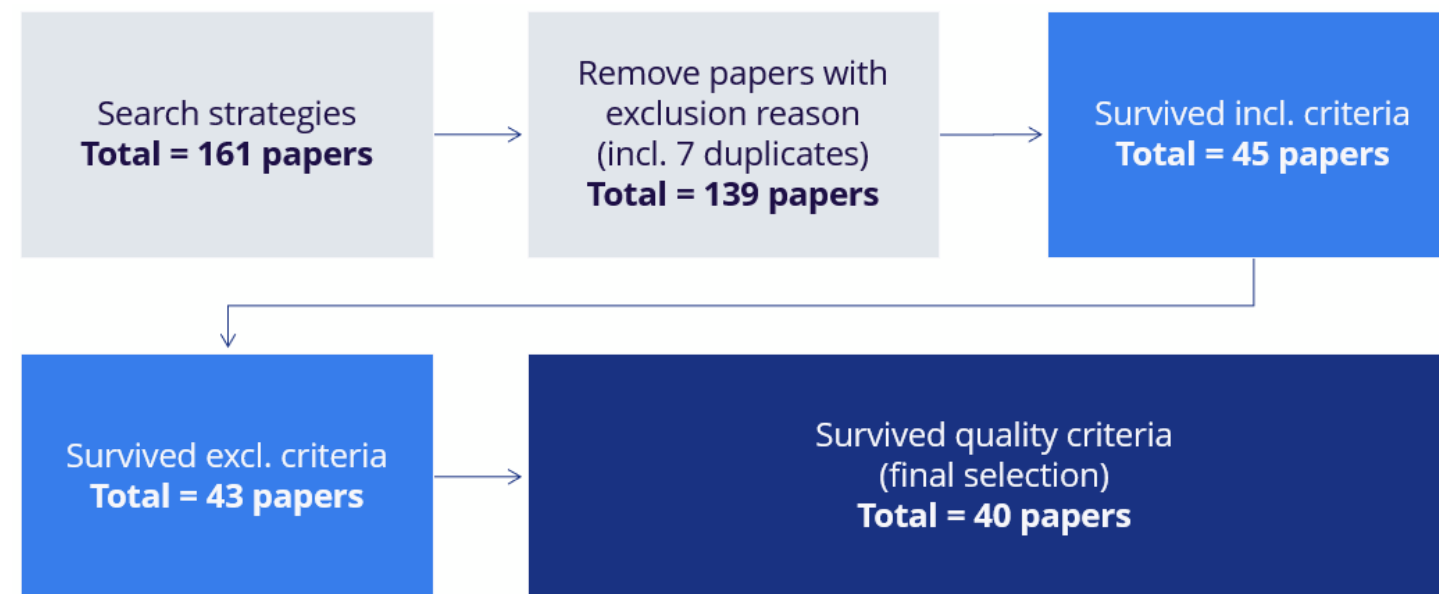
Context shapes criteria where cost-efficiency dominates in startups & time constraints & scheduling emerge as startup-relevant.



FINANCIAL AND TEMPORAL DECISION CRITERIA IN SOFTWARE STARTUP PRIORITIZATION: INTRODUCING TIME TO VALUE (TTV) AND REASSESSING ROI THROUGH FOUNDERS' INSIGHTS VS. SLR

What we did

- Systematic Literature Review: 40 studies, 82 criteria



- Multiple case study: 19 startups · 34 interviews · 34h05 total interview time · over 2 years
- **Triangulation**
 - Literature criteria vs founder-reported criteria



FINANCIAL AND TEMPORAL DECISION CRITERIA IN SOFTWARE STARTUP PRIORITIZATION: INTRODUCING TIME TO VALUE (TTV) AND REASSESSING ROI THROUGH FOUNDERS' INSIGHTS VS. SLR

Results

- Financial criteria, especially ROI are underspecified in startup literature.
- Founders and ROI: runway impact (not just theory)
- Financial criteria rank higher by serial founders

Top performing startups in the sample showing Stronger ROI discipline as a requirements prioritization criterion.

Key Outcome

ROI exists in the literature — but defined for portfolio optimization, not survival. Founders operationalize it as runway impact.



Green = top performers · Orange = bankrupt
Y-axis = financial criteria usage · X-axis = performance ranking



Wake up!
Short summary

**Don't prioritize "user value",
prioritize "cash value"!**

Know what will actually support your runway, not burn through it.

FINANCIAL AND TEMPORAL DECISION CRITERIA IN SOFTWARE STARTUP PRIORITIZATION: INTRODUCING TIME TO VALUE (TTV) AND REASSESSING ROI THROUGH FOUNDERS’ INSIGHTS VS. SLR

Results

- **Time to Value (TtV) discovery**
→ absent from all literature criteria, 1st time formally documented
- Emerged independently from founder interviews across multiple startups.
- TtV
= TtM (Time to Market) + TtBV (Time to Business Value)
= the time between building the feature and achieving its measurable business goal (value).

Top performing startups use TtV as decision criterion.

Key Outcome

TtV — the missing criterion. Financial first: preserve runway. Informational second: accelerate learning. In an AI world where Time-to-Market approaches zero, Time-to-Business-Value is the only differentiator that remains — and the Hierarchy of Validation is where that value lives.

Table 12. Overview of used RPC across categories by software startups vs scholarly investigations.

Requirements Prioritization Categories	Requirements Prioritization Criteria	Startup id	In SLR?
Cost-Related Factors	Expected cost (including development days)	S1, S2, S9, S10, S11, S12, S15, S16 and S17	Yes
Business and Strategic Impact	Strategic alignment	S4, S5, S14, S16 and S17	Yes
Time Constraints and Scheduling	Time to Value (TtV)	S2, S8, S9, S10, S11, S12 and S15	No
Time Constraints and Scheduling	Time to Market (TtM)	S1, S2, S4, S8, S9 and S10	Yes
Revenue and Financial Impact	Business case (including expected revenue and ROI)	S2, S9, S11, S12, S15, and S17	Yes
Stakeholder and Customer Considerations	Stakeholder preferences (informal user discussions)	S8, S9 S12, S14 and S17	Yes
Stakeholder and Customer Considerations	Stakeholder preferences (count of user requests)	S8, S9, S10, S11, S14, S15 and S17	Yes

FINANCIAL AND TEMPORAL DECISION CRITERIA IN SOFTWARE STARTUP PRIORITIZATION: INTRODUCING TIME TO VALUE (TTV) AND REASSESSING ROI THROUGH FOUNDERS' INSIGHTS VS. SLR

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Time to Value (TtV) causal mechanism

- **Financial:** preserve the runway
→ Shorter TtV converts uncertainty into revenue sooner. Every day between building and value realization (TtBV) is runway consumed without return.
- **Informational:** accelerate learning
→ Faster TtV generates market signs sooner, adjusting epistemic uncertainty (confidence) on subsequent decisions. Directly related to the gating of the Hierarchy of Validation. **TtV and Confidence are causally linked.**
- **Social & Psychological**
→ Real but downstream. Impact on investor confidence increases with shorter TtV; sign of traction and execution capabilities. Probably impact on team morale.
- **AI amplification:** faster resource allocation (leverage)
→ Faster TtV means the startup either extends runway through earlier success (rev or funding) or fails faster (shutdown signal) and cheaper (and in times of AI, collapsing TtM, TtBV key), both are better than slow, expensive failures on un-validated assumptions. Pre-PMF constraint startup definition.

This is why VECTR's criteria form a system, not a checklist.



Wake up!
Short summary

Furthermore prioritize quick “cash value”!

Know what will actually support, or even extend your runway.

CONTRIBUTIONS

Phase 2: Empirical Deep Dive

Identifying what actually matters when prioritizing in software startups

For research:

- empirical evidence for startup-specific prioritization criteria
- Time-to-Value (TtV) introduced and validated as a missing criterion
- prioritization shown as a survival-critical activity under uncertainty

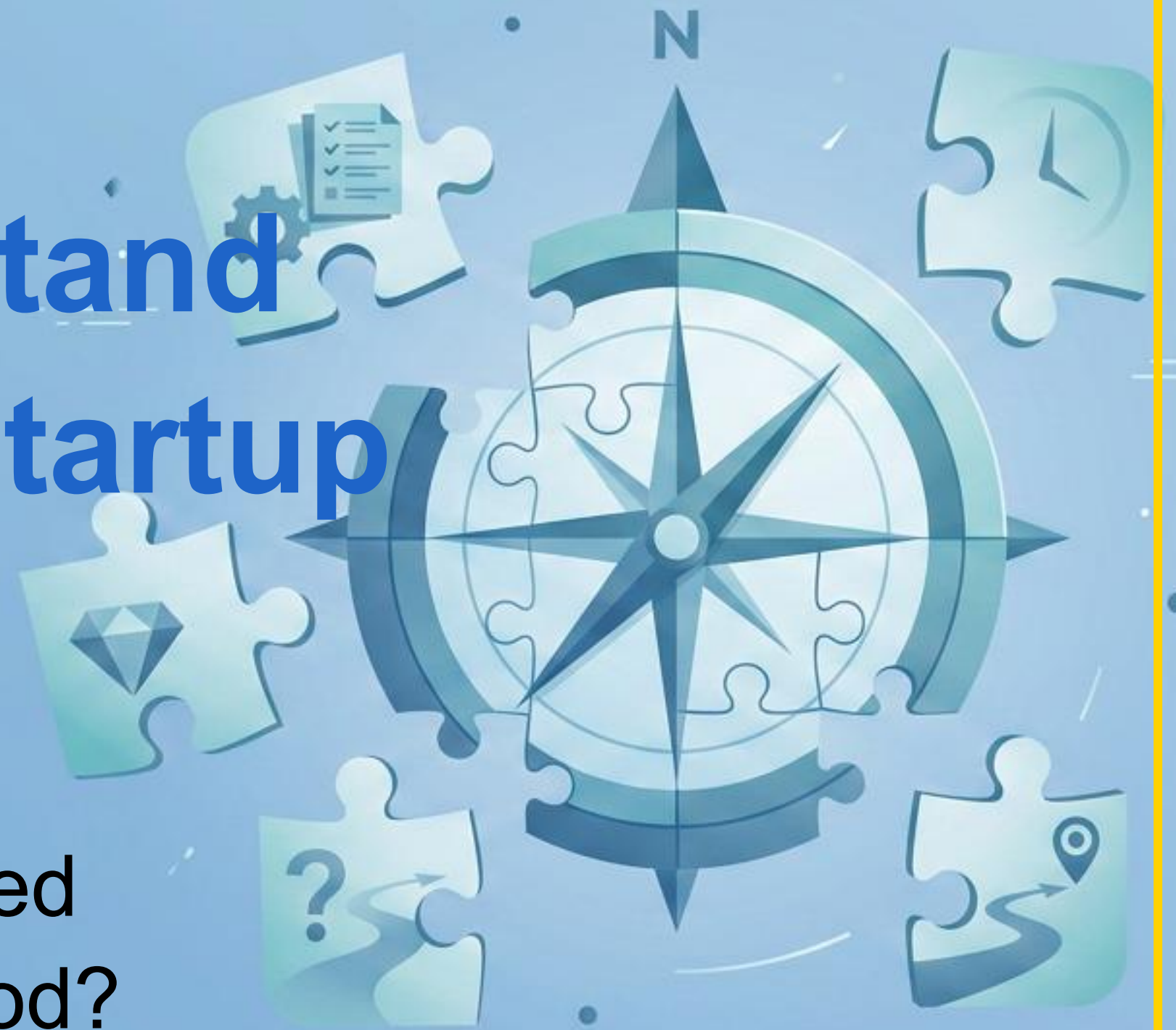
For practice:

- decision support focused on rapid learning and runway preservation
- prioritization tailored to pre-product-market-fit realities



**If we now understand
what matters in startup
prioritization,**

can these insights be translated
into a practical decision method?



PHASE 3: SYNTHESIS

CREATE A PRACTICAL STARTUP FOCUSED TOOL

CREATE A PRACTICAL STARTUP FOCUSED TOOL GROUNDING IN ROI, TIME-TO-VALUE, AND CONFIDENCE

$$\text{VECTR Score} = [\text{Confidence (C)}] \times \text{Time to Value (TtV)} \times \text{Return on Investment (ROI)}$$

Confidence (C)

How validated is the idea?
Derived from Hierarchy of Validation (gated).
Range 0.01–10 based on evidence level.

Time to Value (TtV)

How fast will value be delivered?
Novel criterion identified in Ch. 6.
Fast = high score; slow = low.

Return on Investment (ROI)

Expected financial return (% ROI).
Grounded in startup financial reality.
Tied to cash flow & runway impact.

Validation

17 semi-structured interviews with startup founders on the proof of concept, PMs, and tech leads.

Prioritization matters most when the runway is the shortest!

Key Result

RICE/ICE: inspiration, not blueprint.

Confidence: gate, not just a multiplier — scoped through Hierarchy of Validation.

TtV: added, not renamed — absent from all prior methods.

ROI: reframed around runway, not portfolio return.

Three structural changes. Not reweighted RICE. A startup-native decision logic.

CREATE A PRACTICAL STARTUP FOCUSED TOOL GROUNDED IN ROI, TIME-TO-VALUE, AND CONFIDENCE

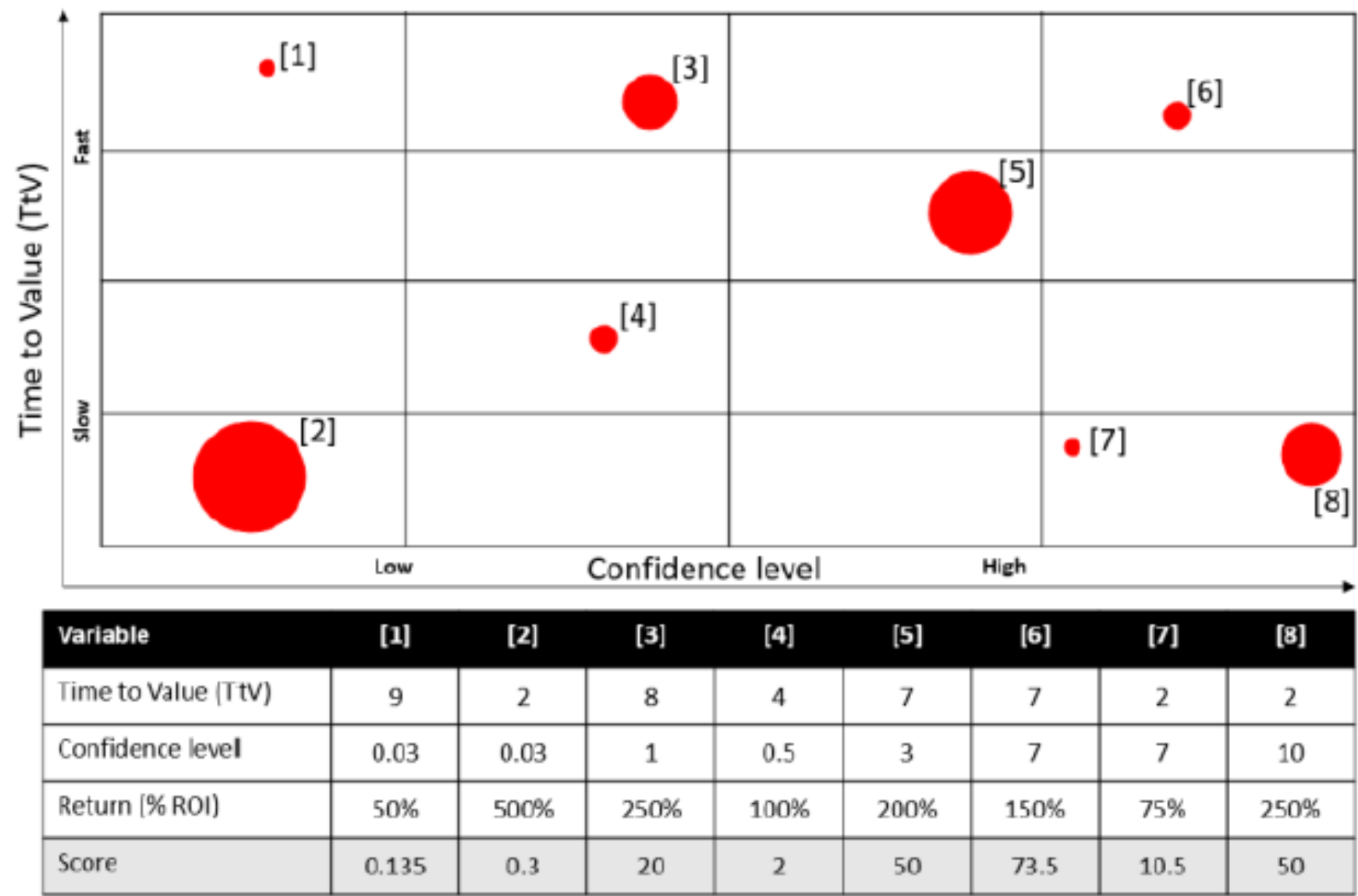


Figure 3: Example VECTR map.

Larger bubbles in the upper-right (high ROI + high confidence + fast TtV) represent highest-priority requirements..

Bubble chart (VECTR map)

- Bubble size = ROI magnitude
- X-axis = Confidence (0-10)
- Y-axis = Time to Value (fast-slow, inverted)
- Top right = highest priority
- Bottom left = deprioritize or kill

Top right = build next.

Bottom left = stop.

Size tells you how much it matters.

Position tells you when.

CREATE A PRACTICAL STARTUP FOCUSED TOOL
GROUNDED IN ROI, TIME-TO-VALUE, AND CONFIDENCE

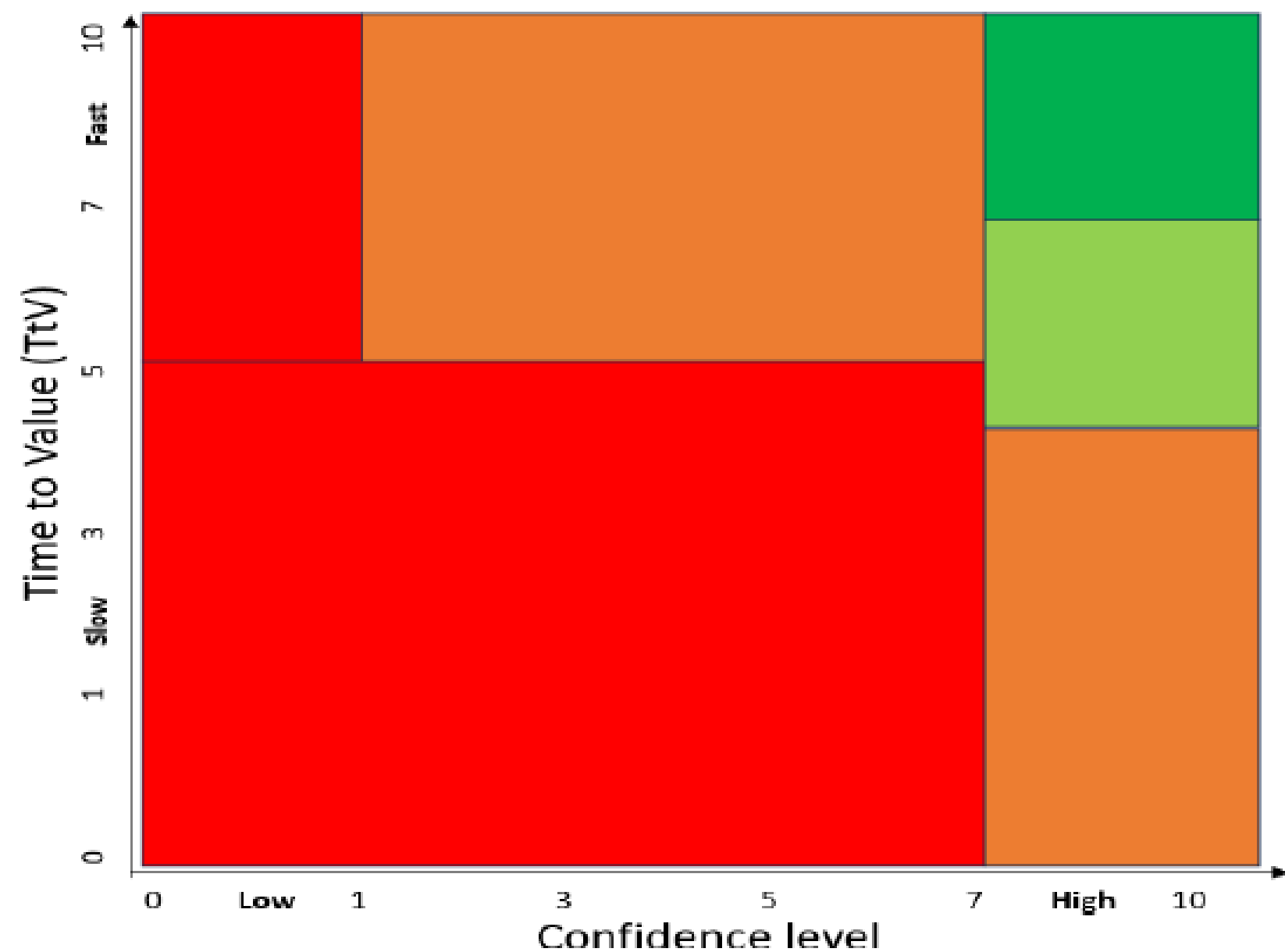


Figure 1: Conceptual view of the VECTR framework.
Color zones indicate strategic priority: green = high confidence + fast TtV (highest priority); red = low confidence + slow TtV (lowest priority).



Priority matrix

- Green = high confidence + fast TtV = go
- Red = low confidence + slow TtV = stop
- Amber = investigate further

When confidence doesn't increase, the backlog dries up fast — that's the self-filtering mechanism. Serial founders aim for the top of the hierarchy immediately. If top-level validation fails, they stop.

The Confidence gate in action.

Red zone items don't get scored; they get refined. No amount of ROI justifies building on unvalidated assumptions. Validate first or remove from consideration.

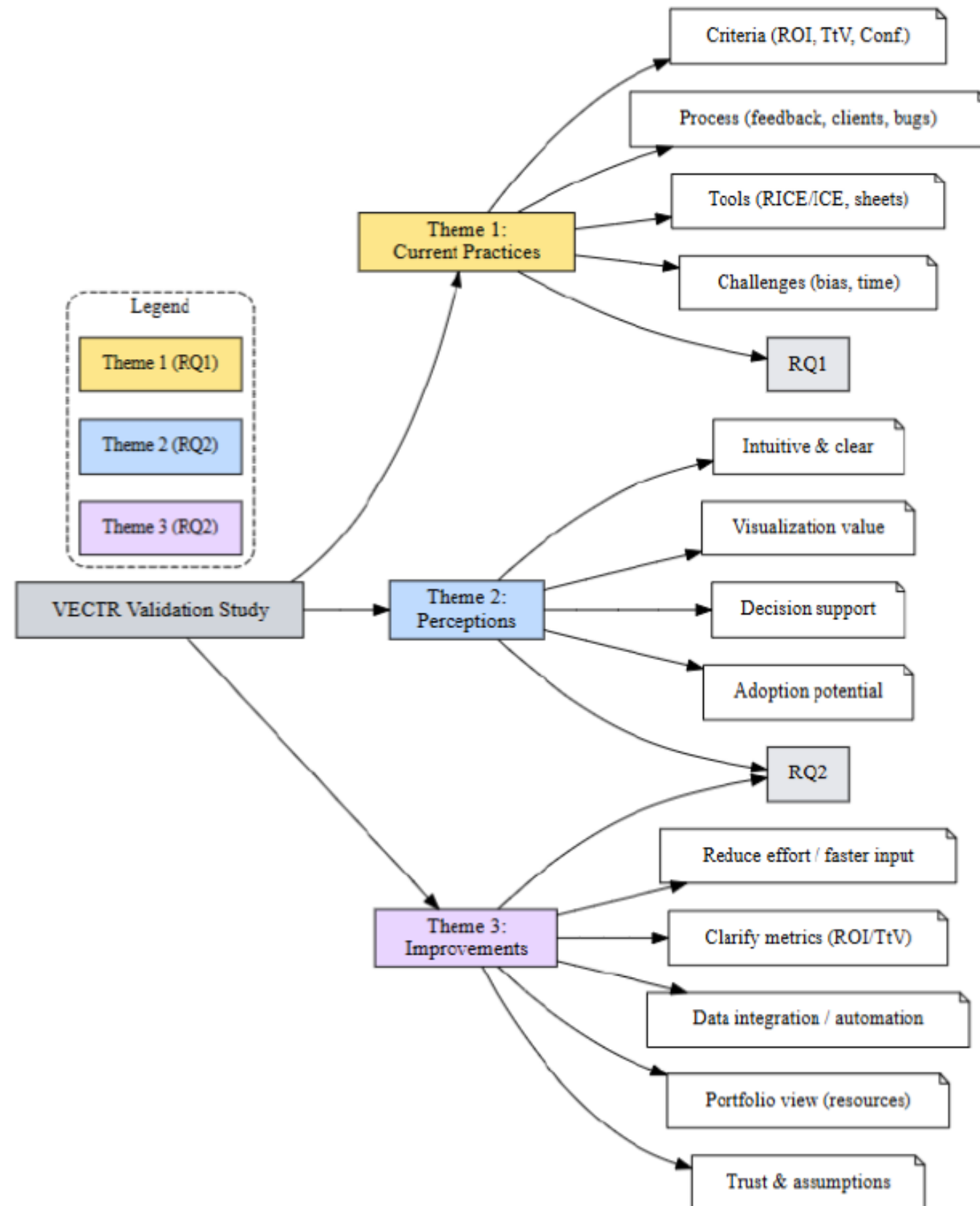


Wake up!
Short summary

**When your idea is red, think again if you
want to burn your resources on it ...**

You can only allocate your resources once ...

CREATE A PRACTICAL STARTUP FOCUSED TOOL GROUNDED IN ROI, TIME-TO-VALUE, AND CONFIDENCE



Validation learnings

- 17 interviews (no overlapping founders with previous studies)
- They think about the 3 variables, but implicitly and inconsistently.
- VECTR offers a more explicit, structured, and intuitive way to align decisions with financial and temporal constraints than existing methods.
- Possible improvements: clarify metrics, reduce import effort, add data integration.

CONTRIBUTIONS

Phase 3: Synthesis

Turning startup prioritization research into actionable founder guidance

For research:

- empirical insights synthesized into the VECTR method
- startup prioritization operationalized into a practical framework
- design-science contribution bridging evidence and action

For practice:

- structured decision support under uncertainty
- helping founders prioritize for learning, survival, and value creation



The background features a stylized illustration of a rocket ship launching upwards and to the right. The rocket is dark blue with a green circular light on its side. It is positioned over a large, glowing compass rose with a grid of lines. The compass rose has a central needle pointing towards the top-left. The entire scene is set against a light blue background with a subtle grid pattern.

**The easier it becomes
to build software,**

the more critical it becomes
to build the right thing at the right time.

CONCLUSIONS

ANSWERING THE RESEARCH QUESTIONS

Criteria are Timeless.

Time to Value is the novelty.

AI accelerates the whole cycle.

Activities are a snapshot; the decision logic is NOT.

VECTR governs it.

RESEARCH QUESTIONS: ANSWERING THE 4RQS

RQ1

Which activities are most critical?

Product strategy & planning dominates in both contexts (30% of time). Activities are largely the same — but specialists are mainly to be found in startups and concentrate heavily on Product Strategy & Planning.

RQ2

How do startups differ from mature firms?

Role concentration (using the Herfindahl-Hirschman Index) is broadly similar across contexts — same activities, different stakes. Startup specialists concentrate on Product strategy & planning, the domain where wrong priorities cost survival.

RQ3

Which prioritization criteria matter?

Time to Value (TtV), Confidence, and ROI are the most critical startup-specific criteria. TtV is a newly identified criterion absent from all prior literature.

RQ4

How to translate insights into tools?

PFPM provides a structured activity framework; VECTR translates TtV, Confidence and ROI into a practical, validated prioritization method for startups.

LIMITATIONS

Research Limitations

- Contextual scope: primarily EU/NA software startups
- Self-reported survey data (perception vs. behavior)
- VECTR real-world validation limited to pilot evaluation
- Construct simplification inevitable given PM breadth
- Ch 5 sensitivity analysis not run for non-matched participants
- Ch 1 and Ch 8 require structural revision before final submission

LIMITATIONS & FUTURE RESEARCH

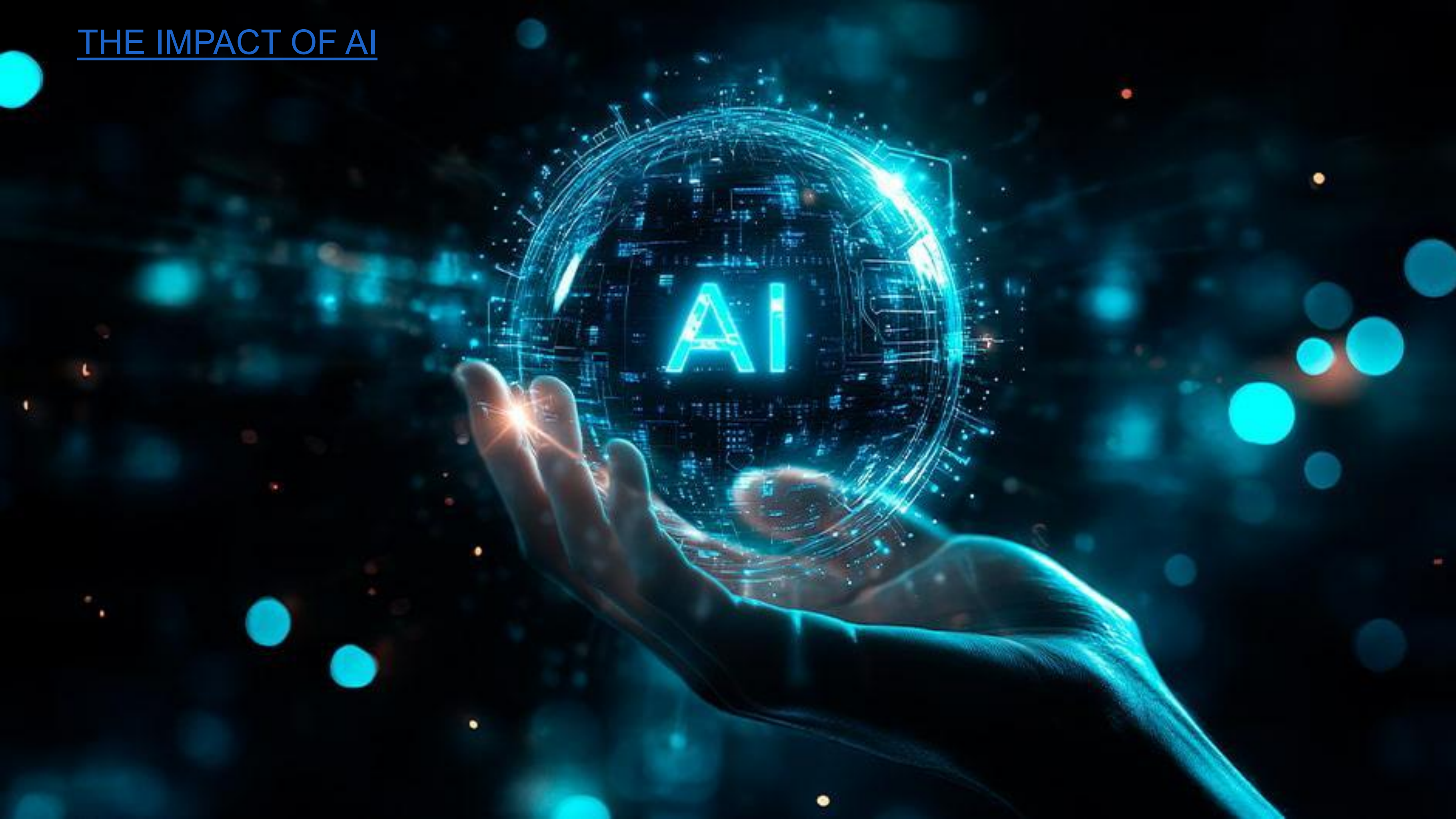
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Future Research

- Hierarchy of Validation: formal standalone validation.
- TtV causal mechanism — publish with mechanism specified within 12 months.
- Does VECTR compliance predict success? Longitudinal test now possible. Including the impact of AI on its criteria.
- Extend to hardware, biotech, emerging markets
- Longitudinal studies: how PM shifts from survival to scale
- Validate VECTR in live accelerator environments
- Integrate with lean startup & entrepreneurship frameworks
- Develop AI-powered VECTR tool at scale

THE IMPACT OF AI



THE IMPACT OF AI

TtV: more critical than ever

AI compresses Time-to-Market towards Zero.

The remaining differentiator becomes
Time-to-Business-Value.

How fast the feature generates measurable impact for the customer. When anyone can ship overnight, building speed is no longer a moat. Validated value delivery is.

VECTR's TtV criterion was designed for exactly this shift. Validate first. Build fast. Capture value before the competition does.

Validate first. Build fast. Capture value before the competition does.

VECTR: AI-ready by design

Building costs collapse. The cost of the wrong build doesn't.

As AI floods markets with features, survival belongs to startups that **prioritize signal over noise.**

VECTR is that filter.

- The Confidence gate stops AI-speed building from becoming AI-speed waste. **No validation, no build.**
- The **ROI lens** keeps runway front and center — exactly when AI makes the burn rate invisible.

VECTR's criteria were grounded in startup reality. They hold as AI accelerates the cycle.

*Startups don't fail because they can't build.
They fail because they build the wrong things.
This dissertation shows them how to stop.*

Q&A

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