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THE PREVUELO™ METHOD

Measure, Rebuild, Resist: a financial systems architecture and AI-governed decision framework for small and mid-sized enterprises.

Formerly published as The MR³ Framework (versions 1.0 and 1.1)

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Abstract

Most small and mid-sized enterprises do not fail for lack of effort or customers. They fail because large decisions are made without a structure that shows, in time, what is happening to their money.

The Prevuelo™ Method (Measure, Rebuild, Resist), formerly published as The MR³ Framework, is a standardized financial systems architecture that replaces experience-based financial management with documented diagnostics, forward-looking scenario models, rule-based decision gates and early-warning monitoring. It adapts the discipline of commercial aviation, where decisions are calculated before they are needed and alarms sound before emergencies, to the finances of organizations that cannot afford a full corporate finance department.

The framework integrates artificial intelligence as a decision-support instrument under explicit governance: defined uses, mandatory human validation and full traceability. AI accelerates analysis; accountability stays with leadership.

This document sets out the framework as a formal methodology: its components, its measurement index, its decision rules, its AI governance protocol (Annex A) and the documented implementations on which it is based. Version 1.3 completes the change of name: the Prevuelo™ Method (prevuelo is Spanish for “preflight”) and its 0–100 index, now the Prevuelo™ Index (formerly the MR³ Index). The content is unchanged from version 1.1 (see Section 11). It is published to fix the method's definition, authorship and version, and to make it teachable and replicable by other practitioners.

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1 The problem: decisions without instruments

There are more than 36 million small businesses in the United States. They represent 99.9% of all businesses and employ 45.9% of private-sector workers. Yet only about half of new establishments are still operating five years after opening. In the most recent Federal Reserve survey of employer firms, 77% reported financial challenges from rising costs of goods, services or wages, or from tariffs.

In practice, the same structural gaps appear again and again:

1. **No standard diagnostic.** Each analysis is done differently, so no one can say whether the company is better or worse than six months ago.
2. **No scenarios.** Expansions, hires and loans are decided without knowing what happens if sales fall 10% or 20%.
3. **Expected revenue treated as confirmed.** Irreversible costs are committed against income that has not yet been contracted or received.
4. **Late signals.** Cash is reviewed when there is already a problem, not before.
5. **Ungoverned AI.** Analytical tools are adopted with no rules on what they are asked, who validates the answer or where it is recorded.

None of these gaps is closed by better advice. They are closed by architecture: processes, models and indicators that keep working when people change.

2 Origin: aviation-grade discipline

The author spent several years leading finance, planning and operations in commercial airlines. Commercial aviation offers a mature model of how to manage high-stakes decisions under uncertainty. Several of its principles translate directly to enterprise finance:

Aviation principle	Prevuelo equivalent
Pre-flight checklist	Standardized diagnostic (Prevuelo Index) before any major decision
Takeoff decision speed (V1), calculated on the ground	Execution gate: the condition that must be met before an irreversible commitment
Flight plan with alternate airports	12–24 month scenarios with a defined fallback for each major initiative
Sold versus flown revenue (air traffic liability)	Cash collected in advance is an obligation to the customer, not revenue, until the service is delivered; it stays outside free cash
Point of no return in flight	The date from which a commitment can no longer be recovered, and the alternate plan beyond it
Cockpit instruments and master caution	Dashboards and early-warning thresholds that trigger before an emergency
Safety Management Systems (proactive risk identification, continuous monitoring, documented procedures)	Documented governance: committees, approval thresholds, audit trails

The common thread is that critical decisions are calculated in advance, under calm conditions, and written down, so that no one has to improvise them under pressure.

3 The framework: Measure, Rebuild, Resist

PHASE 1

Measure

A standardized financial diagnostic producing the Prevuelo Index: liquidity, capital structure, governance, operational efficiency and adaptive capacity, always measured with the same yardstick.

PHASE 2

Rebuild

A rule-based plan: budget formulation, cost architecture, debt renegotiation, 12–24 month scenario models and explicit decision thresholds for investment and commitment.

PHASE 3

Resist

Durable infrastructure: KPIs, self-updating dashboards, documented processes, governance bodies and early-warning alarms with concrete thresholds.

Each phase produces documented outputs that remain with the organization. Success is defined as the point at which the organization makes sound financial decisions without depending on the consultant.

4 The Prevuelo™ Index

The Prevuelo™ Index is a 0–100 measurement of an organization's financial risk at a point in time. It gives a common baseline, shows which dimension drives the risk and makes progress comparable over time. It weights five dimensions:

Dimension	Weight	What it assesses
Liquidity stability	30%	Months of essential outflows covered by free cash; stability of operating cash flow; resilience to a drop in collections
Capital structure	25%	Net financial debt relative to adjusted EBITDA; debt-service coverage
Governance discipline	20%	Budget use, closing speed, indicator tracking, documented controls, owner pay and withdrawals
Operational efficiency	15%	Gross margin against the same period of the prior year; expense growth relative to sales; margin of safety
Adaptive capacity	10%	Scenario horizon and depth; sales concentration

The score is read as a level of risk, with rules that prevent a good average from hiding a serious weakness:

Score	Reading	Typical priority
80–100	Low risk	Keep alarms active; evaluate growth with execution gates
65–79	Moderate risk	Strengthen scenarios and early warnings before a shock turns weak points critical
50–64	Elevated risk	Close the gaps that limit decisions before investing
0–49	Critical risk	Stabilize cash and regain visibility first

If liquidity or capital structure scores below 40, the classification cannot be better than Elevated risk. A red alarm rules out Low risk, and so do three or more amber alarms unless a documented sectoral reason applies.

The calculated score, the calculated band and the risk-adjusted classification are always reported together (Annex B).

The Index is applied through two instruments. The Prevuelo Self-assessment (15 range-based questions, publicly available at consultingmm.net/indice-mr3) gives a first, declarative reading. The Prevuelo Financial Diagnostic applies formulas to financial statements and documentary evidence and is reviewed by a practitioner. The two are not interchangeable: a self-assessment score is not a diagnostic result.

5 Decision architecture

The central idea of the Prevuelo Method is that the conditions for a decision are defined before the decision is needed. Four elements make this operational:

5.1 Three scenarios with explicit break-even

Every major initiative is modeled under conservative, base and expansion cases, each with its own break-even point. The question shifts from "is this profitable?" to "how much must be sold, and confirmed, to avoid a loss in each case?"

5.2 Collected is not earned, and four classes of revenue

Airlines record a ticket sold as a liability until the passenger flies, when it becomes revenue; the liability covers refunds, changes and credits that may apply to the fare. The Prevuelo Method applies the same principle to any business that collects before it delivers (events, education, subscriptions, construction advances, professional retainers): money received for work not yet delivered is excluded from free cash and is not used to fund new fixed costs. In legal services, for example, rules of professional conduct in the United States generally require that fees paid in advance and not yet earned be refunded if the client terminates the engagement.

Revenue is classified as **collected** (cash already received), **contracted** (a signed right to be paid, with amount and date), **probable** (advanced negotiation, not signed) or **expected**. A signed contract is sufficient evidence for budgeting but not for committing cash. Irreversible spending is released only against collected cash and dated projected collections adjusted by a collection factor: typically 90–100% for active contracts with punctual clients, 50–80% for clients with a history of delays, and 0% for amounts more than 60 days overdue until they are collected. The probability that revenue materializes and the date on which it is collected are assessed separately.

5.3 Execution gates and the point of no return

For each commitment, the framework records the amount and the date from which it can no longer be recovered. Spending is released in blocks, each one only when collected cash or risk-adjusted dated collections cover it. Each initiative has a defined decision date, condition and owner. If the condition is not met by that date, the format is reduced or the initiative is postponed, as decided in advance.

5.4 Alternates after crossing

Once an irreversible threshold is crossed, the relevant question is no longer whether to go back but where to go if conditions change. Each initiative defines its alternate (scale down, postpone a phase, renegotiate) and the cash required to reach it.

6 Early-warning system

In the Resist phase, four primary alarms are installed, each with an amber level (watch) and a red level (act). An alarm is not a crisis; it is time to decide.

Alarm	How it is calculated	Amber	Red
Cash	Free cash ÷ one month of essential outflows	2 to 3 months	Less than 2 months
Debt	Net financial debt ÷ 12-month adjusted EBITDA	3 to 4.5 times	More than 4.5 times, or EBITDA zero or negative with debt
Payroll	Operating cash flow before payroll ÷ total payroll cost (three-month moving average)	100% to 110%	Less than 100%
Margin	Gross margin of each of the last two quarters vs. the same quarter a year earlier (relative change)	Either quarter falls more than 4%	Both quarters fall more than 8%

Definitions used by the alarms and the Index	
Free cash	Available cash minus overdue payments, restricted funds or collateral, third-party funds (such as taxes collected or withheld) and customer advances that fund work not yet performed
Essential outflows	Payments needed to operate for one month (necessary fixed and variable costs) plus debt installments
Adjusted EBITDA	Earnings before interest, taxes, depreciation and amortization over the last 12 months, normalized for the owner's market-rate pay and excluding non-recurring items. It is not operating income, which deducts depreciation
Unearned revenue	Cash collected for products or services not yet delivered (customer advances). It is an obligation to the customer until delivery and is excluded from free cash
Net financial debt	Loans, credit lines, business credit cards and finance leases, minus cash

The payroll alarm measures coverage, not insolvency: an organization below 100% may have reserves, but it is consuming cash to pay salaries. Three amber alarms at once are treated as accumulated vulnerability. Thresholds are starting references calibrated by sector during the Rebuild phase, written down before they are needed. Each alarm has a documented response, an owner and a corrective-action log.

Organizations that do not yet generate positive EBITDA (early-stage or rapid-expansion operations without net debt) cannot be read through the debt ratio. For them the method measures cash autonomy against a verifiable horizon to sustainable break-even or committed financing, and adds an autonomy alarm: red when autonomy is shorter than that horizon, amber when it covers less than 1.5 times the horizon.

7 AI governance

The method uses AI to analyze scenarios, review variances and simulate decisions faster. It does so under five non-negotiable rules:

1. **Defined uses.** AI is applied only to documented, approved tasks.
2. **Human validation.** Every material output is reviewed and approved by a named person before it informs a decision.

3. **No autonomous execution.** AI never executes payments, restructurings or capital allocations.
4. **Traceability.** Inputs, outputs, reviewer and decision are logged.
5. **Data minimization and confidentiality.** Only the data needed for the task is used, under access controls.

The full protocol, mapped to the four functions of the NIST AI Risk Management Framework (Govern, Map, Measure, Manage), is set out in Annex A.

8 Documented implementations

The framework was developed and refined through implementations in aviation, media and education, nonprofit, professional services and event organizations. The outcomes below are those attested in writing by leaders of each organization. Organizations are not named here to protect confidentiality; documentation is available on request.

Context	What was implemented	Attested outcome
Commercial airline, new branch in Argentina (2018–2022)	Branch built from no local presence; weekly forward-looking cash-flow control; fuel and supplier payment monitoring	On-time performance from 68% to 95%; full commercial route certification; systems still operating after the author's departure
Regional airline group, planning and budget (2015–2017)	Capital-allocation and route-evaluation models with demand, fuel and leasing sensitivity	Forward-looking evaluation of new international routes before committing resources
Media and education company, United States (2022)	Finance committee; diagnostic protocols; Power BI dashboards; 12–24 month scenario models	More than $400,000 in vendor liabilities restructured; fixed costs down 23% in six months; three digital units with over $1.5 million in revenue in one year; supported the $1.9 million acquisition and later refinancing of the company headquarters; models still in use years later
International events, budgets above $500,000 per edition	Multi-scenario models, explicit break-even, execution gates tied to confirmed revenue, point of no return per initiative, BI dashboards	Events executed within defined financial limits; margins protected; no cost overruns; model reused in later initiatives
International foundation, programs in more than 15 countries	Three-year forecasting model; BI dashboards for capital allocation; threshold-based budgeting	Budget accuracy above 90%; models still used by the finance team
Certified B Corporation consultancy, United States	First formal budget process; financial review committee; approval thresholds; governed use of analytical tools	Operational efficiency improved by approximately 15%; models remain the basis of strategic planning
Professional services firm, Florida (2023–present)	Integrated digital workflow across 11 case stages; Power BI management dashboards	Standardized, traceable process from intake to filing

> **Common pattern.** In every case, the result that mattered most was not the first-year figure but that the systems kept running after the author's involvement ended. Four of the attesting organizations state explicitly that the models, dashboards or procedures remained in use after the engagement.

9 Dissemination and replication

The Prevuelo Method is designed to be taught, not only applied. Since 2022 the author has presented the framework as a guest facilitator in four editions of the MBA International Week at San Ignacio University in Miami, where graduate students work through a structured case: diagnostic baseline, multi-scenario modeling, liquidity thresholds and execution gates, before committing hypothetical capital.

The replication path has three components:

- **Public tools:** the Prevuelo Index self-assessment, bilingual articles and infographics.
- **Documented methodology:** this white paper and its annexes, with versioned updates.
- **Practitioner training:** workshops for business owners, accountants and consultants, with a planned practitioner certification so that the method can be applied without the author's direct involvement.

10 Scope and limitations

- The Prevuelo Method is a management and governance methodology. It does not replace accounting, tax, audit or legal advice.
- Thresholds are reference values and must be calibrated by sector, size and business model.
- Outcomes reported in Section 8 depend on each organization's context and execution, and are not guarantees of future results.
- The Prevuelo Index is a structured measurement of current risk, not a predictive model of failure. Its weights and thresholds are set by expert judgment drawn from the documented implementations; calibration against outcome data is part of the method's ongoing development and will be reported in later versions.
- The Self-assessment is a declarative, orientative reading. A Financial Diagnostic result requires financial statements, documentary evidence and practitioner review, and states its information coverage.
- AI outputs are inputs to human judgment, never substitutes for it.

11 Authorship, version and citation

Author	Mario Rodríguez Aguilera
Organization	Consulting M&M LLC, Florida, USA (founded 2022)
Method name	The Prevuelo™ Method (Measure, Rebuild, Resist). Published as The MR³ Framework, also referred to as the MR³ Financial Recovery Framework, in versions 1.0 and 1.1. Its 0–100 score, the MR³ Index, was renamed the Prevuelo™ Index in version 1.3.
Development history	Principles developed in airline finance (2015–2022); first integrated application as a financial systems architecture in 2022; formalized as the MR³ Framework; renamed the Prevuelo Method in October 2026; index renamed Prevuelo Index, November 2026
This document	Methodology version 1.3, November 2026. Supersedes version 1.2 (October 2026, 10.5281/zenodo.23717228). Versions 1.0 and 1.1 were published as The MR³ Framework
Changes in v1.2–1.3	Method renamed from The MR³ Framework to the Prevuelo™ Method. No changes to the method's components, index, weights, decision rules, alarm formulas or documented implementations. In v1.3 the MR³ Index is renamed the Prevuelo™ Index.
Changes in v1.1	Index classification expressed as levels of risk, with blocking rules; four revenue classes and collection factors; alarm formulas with amber and red levels; definitions of free cash, essential outflows, adjusted EBITDA, unearned revenue and net financial debt; the sold-versus-flown revenue principle; treatment of operations without positive EBITDA; distinction between Self-assessment and Financial Diagnostic
Preparation	The method, cases and professional judgments are the author's. Drafting and editing of this document were assisted by AI tools under the protocol in Annex A, with review and approval by the author
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Annex A. Prevuelo AI Governance Protocol

How artificial intelligence is used inside Prevuelo engagements: what it may do, what it may never do, who validates it and how it is recorded.

> **Principle.** AI is a decision-support instrument, never a decision-maker. Every material financial recommendation is validated by a named person, and no AI system executes financial transactions.

A.1 Scope of permitted uses

Permitted (with human validation)	Not permitted
Drafting scenario models and sensitivity tables	Approving or executing payments, transfers or restructurings
Variance analysis between budget and actuals	Making credit, hiring or capital-allocation decisions
Summarizing financial statements and trends	Processing personal or client data beyond what the task requires
Flagging threshold breaches and anomalies	Producing figures that enter official reports without review
Preparing first drafts of reports for review	Using tools not approved for the engagement

A.2 Validation workflow

1. **Request.** The task, data used and approved tool are recorded.
2. **Output.** The AI output is saved with date and version.
3. **Review.** A named reviewer checks figures against source data and assumptions.
4. **Decision.** The reviewer approves, corrects or rejects; the decision-maker is a person.
5. **Log.** Request, output, reviewer, changes and final decision remain in the engagement record.

A.3 Alignment with the NIST AI Risk Management Framework

NIST function	Prevuelo controls
Govern	Written AI-use policy per engagement; named owner and reviewers; approved-tools list; staff guidance on confidentiality; non-autonomous execution policy
Map	Each AI use is linked to a specific decision and its financial impact; data sources and limits are documented; high-impact decisions (debt, capital, payroll) are identified in advance
Measure	Outputs are reconciled with source figures; error and correction rates are tracked; periodic review of outputs for bias or systematic error
Manage	Threshold-based escalation to leadership; ability to suspend a tool or use; incident log and corrective actions; annual protocol review

A.4 Data protection

- Data minimization: only the data required for the task is shared with an AI tool.
- Client-identifying information is removed or masked whenever the analysis allows it.
- Access is role-based and protected with multi-factor authentication.
- Engagement records are retained for audit and traceability.

A.5 Roles

Role	Responsibility
Engagement lead	Approves AI uses for the engagement and owns the protocol
Reviewer	Validates each material output against source data before use
Decision-maker (client leadership)	Makes the final decision; never delegated to an AI system

A.6 Review triggers

The protocol is reviewed at least once a year and whenever a new tool is introduced, an output error reaches a decision, or applicable regulation or guidance changes.

A.7 Evidence of practice

Structured protocols for the governed use of analytical tools, preserving human accountability, have been implemented in prior engagements and attested in writing by client leadership (see Section 8 of this white paper).

Reference: National Institute of Standards and Technology, *Artificial Intelligence Risk Management Framework (AI RMF 1.0)*, NIST AI 100-1, January 2023. This protocol is aligned with the framework's functions; it is not a certification by NIST.

Annex B. Prevuelo Index classification rules

Each dimension is scored from 0 to 100. In the Self-assessment, each answer range carries a fixed score; in the Financial Diagnostic, indicators are calculated from financial statements and converted to scores by linear interpolation between defined anchors. The weighted sum gives the composite Index.

> Prevuelo Index = 0.30 × Liquidity + 0.25 × Capital structure + 0.20 × Governance + 0.15 × Operational efficiency + 0.10 × Adaptive capacity

Level	Characteristics	Recommended focus
80–100 Low risk	Free cash covers three months or more of essential outflows; debt within capacity; formal budget and approval thresholds; scenarios updated regularly	Keep alarms active; evaluate growth with execution gates
65–79 Moderate risk	Healthy operation with gaps in forecasting or reaction speed; partial documentation	Scenario models, early-warning thresholds, dashboard
50–64 Elevated risk	Decisions rely on individuals; budget not used to decide; limited traceability; or a weak liquidity or capital position	Budget rules, committee, approval thresholds, controls
0–49 Critical risk	Short cash runway, high leverage or sustained margin erosion	Liquidity protection, debt renegotiation, cost architecture

Risk adjustment

1. Liquidity or capital structure below 40: the classification is at most Elevated risk.
2. Any red alarm: the classification cannot be Low risk.
3. Three or more amber alarms: the classification cannot be Low risk, unless a documented sectoral exception applies.
4. The report shows the calculated Index, the calculated band and the risk-adjusted classification, so that the adjustment is always visible.

Information sufficiency (Financial Diagnostic)

Missing data is recorded as "no data" and is never scored as zero; indicators that do not apply to the business are excluded. A result is **definitive** when information coverage reaches 85%, the critical indicators (cash coverage, operating cash flow stability and debt ratio) are present and each dimension has at least two indicators. Between 60% and 85% the result is **provisional** and carries the legend "Result conditioned by incomplete information". Below 60%, or with an empty dimension, no result is issued.

Level descriptions are indicative. Thresholds are calibrated by sector, and the final classification includes the practitioner's review.