# 📄 Proposal: BEAM 2.0—The Automated Governance Contract for the AI Era

\*\*To:\*\* Lawrence Corr, Co-Creator of the BEAM Methodology

\*\*From:\*\* [Your Organization/Team]

\*\*Date:\*\* October 29, 2025

\*\*Subject:\*\* Operationalizing BEAM as the Direct Automation Input for the Semantic Layer

---

## Executive Summary: BEAM as the Zero-Translation Artifact

The rise of \*\*Agentic Systems\*\* and \*\*Generative AI\*\* is accelerating the demand for consistent, high-governance data. These systems rely entirely on being fed \*\*reliable, version-controlled metrics\*\*—a capability often undermined by traditional, fragmented BI semantic layers.

We propose a strategic evolution of the BEAM methodology that transforms the collaborative \*\*BEAM Table\*\* from a descriptive design tool into an \*\*executable automation contract.\*\* By enhancing the BEAM artifact with the specific technical metadata required by a modern, code-based Semantic Layer (e.g., dbt MetricFlow), we can eliminate three major layers of traditional complexity:

1. \*\*The Data Mart Layer:\*\* Replaced by MetricFlow’s dynamic joins.

2. \*\*The BI Semantic Layer:\*\* Replaced by a centralized, version-controlled MetricFlow YAML.

3. \*\*The Business Analyst Translation Layer:\*\* Replaced by a deterministic automation script.

This enhancement locks \*\*business requirements\*\* directly to \*\*governed code\*\*, providing the necessary confidence and agility for the AI era.

\*\*\*

## 1. The Streamlined Architecture

This approach maintains the integrity of the integrated \*\*Inmon 3NF\*\* core while connecting it directly to consumption layers via metadata, creating a \*\*Zero-Manual-Translation, Zero-Redundancy\*\* model.

### The AI-Era Data Flow

The traditional pipeline is replaced with a streamlined, high-governance process:

1. \*\*Ingestion/EL:\*\* Handled by managed services (eliminating custom Data Engineering code).

2. \*\*Transformation (T):\*\* \*\*Analytics Engineer\*\* builds integrated, clean $\text{dbt}$ models (3NF structure) as the source of truth.

3. \*\*Requirements:\*\* \*\*BA Architect\*\* conducts \*\*Modelstorming\*\* to output the \*\*Enhanced BEAM Table\*\*.

4. \*\*Semantic Generation:\*\* An \*\*Automation Script\*\* consumes the BEAM Table and generates $\text{MetricFlow}$ $\text{YAML}$ files.

5. \*\*Consumption:\*\* \*\*Agentic Systems\*\* and APIs query the Semantic Layer directly.

### The Evolved Roles

This structure redefines core data roles for maximum automation and focus:

\* \*\*Analytics Engineer (AE): The Full-Stack Data Professional.\*\*

\* Focuses solely on data modeling and transformation (the $\text{T}$ in $\text{ELT}$). The \*\*traditional Data Engineer role effectively disappears\*\* as $\text{E}$ and $\text{L}$ are managed.

\* \*\*Business Analyst (BA): The BEAM Architect.\*\*

\* Shifts from a manual \*\*translator\*\* to a \*\*requirements architect\*\*.

\* Their job is to ensure the BEAM output is 100% accurate, including the \*\*technical metadata\*\* required by the automation script.

\*\*\*

## 2. The BEAM 2.0 Specification: A Contract for Automation

The BEAM artifact must be extended to capture the specific metadata that allows the automation script to generate the MetricFlow $\text{YAML}$ without human intervention. This proposal formalizes two linked tables.

### A. The Enhanced Business Event Table (Defining Semantic Models and Simple Measures)

This table defines the \*\*Semantic Model\*\* (dimensions and entities) and all \*\*simple metrics\*\* derived from a single column.

| Role in Event | Enhanced Column Name | Required Value Type | MetricFlow Component Target |

| :--- | :--- | :--- | :--- |

| \*\*How\*\* (Key) | `event\_key\_column` | String (e.g., `order\_key`) | \*\*Primary Entity\*\* |

| \*\*Who, What, Where, Why\*\* | `dimension\_column\_name` | String (e.g., `customer\_region`) | \*\*Dimension\*\* or \*\*Entity\*\* |

| \*\*NEW\*\* | `entity\_role` | `primary`, `foreign`, `unique`, `none` | \*\*Entity Type\*\* (Crucial for Dynamic Joins) |

| \*\*When\*\* | `time\_column\_name` | String (e.g., `order\_date`) | \*\*agg\\_time\\_dimension\*\* |

| \*\*How Many\*\* | `measure\_source\_column` | String (e.g., `sale\_amount`) | \*\*Measure Expression (expr)\*\* |

| \*\*NEW\*\* | `simple\_metric\_name` | String (e.g., `total\_revenue`) | \*\*Simple Metric Name\*\* |

| \*\*NEW\*\* | `aggregation\_type` | `sum`, `count\_distinct`, `avg`, `min` | \*\*Measure Aggregation (agg)\*\* |

---

### B. The Complex Metric Definition Table (Defining Derived Metrics)

This separate table allows the BA Architect to define \*\*Ratios, Cumulative Metrics, and Derived Metrics\*\* by referencing the \*\*simple metrics\*\* defined in Table A.

| MetricFlow Component | Enhanced Column Name | Required Value Type | Notes |

| :--- | :--- | :--- | :--- |

| \*\*Metric Name\*\* | `metric\_name` | String | Must be unique. |

| \*\*Metric Type\*\* | `metric\_type` | `ratio`, `cumulative`, `derived` | Specifies the calculation structure. |

| \*\*Ratio Definition\*\* | `numerator\_metric` | Existing Simple Metric Name | Required if `metric\_type` is $\text{ratio}$. |

| \*\*Ratio Definition\*\* | `denominator\_metric` | Existing Simple Metric Name | Required if `metric\_type` is $\text{ratio}$. |

| \*\*Derived Definition\*\* | `derived\_expression` | String (referencing `[other\_metrics]`) | Required if `metric\_type` is $\text{derived}$. |

| \*\*Cumulative Definition\*\* | `time\_window` | $\text{e.g., P30D, all time}$ | Required if `metric\_type` is $\text{cumulative}$. |

\*\*\*

## 3. Value Proposition

By formalizing the BEAM output in this manner, the methodology evolves from a design guide to a powerful \*\*governance and automation contract\*\* fit for the $\text{AI}$ era:

1. \*\*Governed AI Inputs:\*\* Ensures $\text{Agentic Systems}$ and $\text{LLM}$ interfaces (Text-to-Metric) are fed with a single, governed definition, eliminating metric drift and hallucination.

2. \*\*Model Efficiency:\*\* The $\text{Analytics}$ $\text{Engineer}$ focuses on a lean, integrated $\text{EDW}$, eliminating the need for redundant $\text{Data}$ $\text{Marts}$.

3. \*\*Scalability:\*\* The $\text{BEAM}$ $\text{Table}$ becomes the only human-managed artifact required to scale the semantic layer, drastically reducing maintenance overhead.