



How to Create Composite Measures using Data Reduction Techniques

Community Event | April 20th, 2023

Data Science Professional Services Team



DATA SCIENCE PROFESSIONAL SERVICES

WHO WE ARE

Our team is led by PhDs and Masters with over 25 years of experience in using data to impact business development and drive value

The team has experience working with all industries, with all data types, and with all sizes of businesses and data-specific projects





DATA SCIENCE PROFESSIONAL SERVICES

WHAT WE DO

Provide professional services to Domo customers on data science/machine learning/AI projects

- ❖ Production DS/ML/AI solutions
- ❖ Data strategy
- ❖ DS/ML/AI teaching & training

Support data science initiatives at Domo

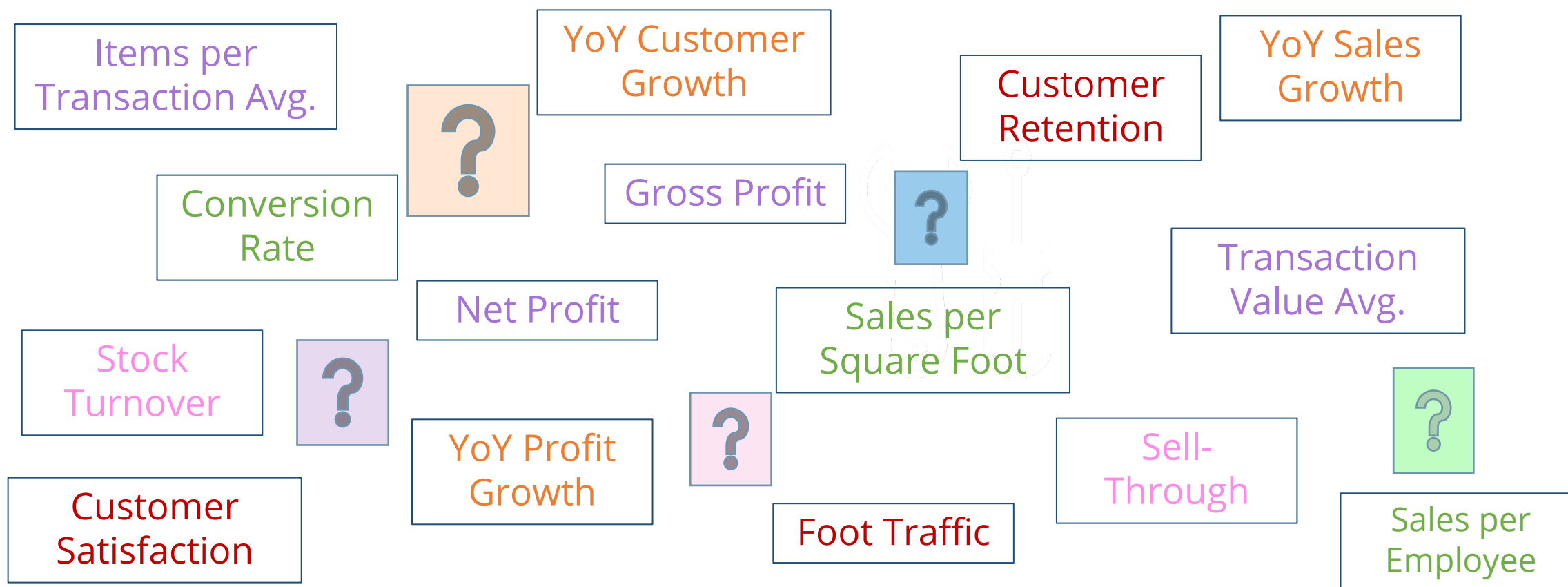
- ❖ Office hours, by appointment
- ❖ Sponsor Lunch & Learns
 - ❖ First Thursday of every month
 - ❖ Topics you'd like us to cover? Mention in the chat





DATA SCIENCE SOLUTION TO A COMMON DATA PROBLEM

STORE PERFORMANCE EXAMPLE:



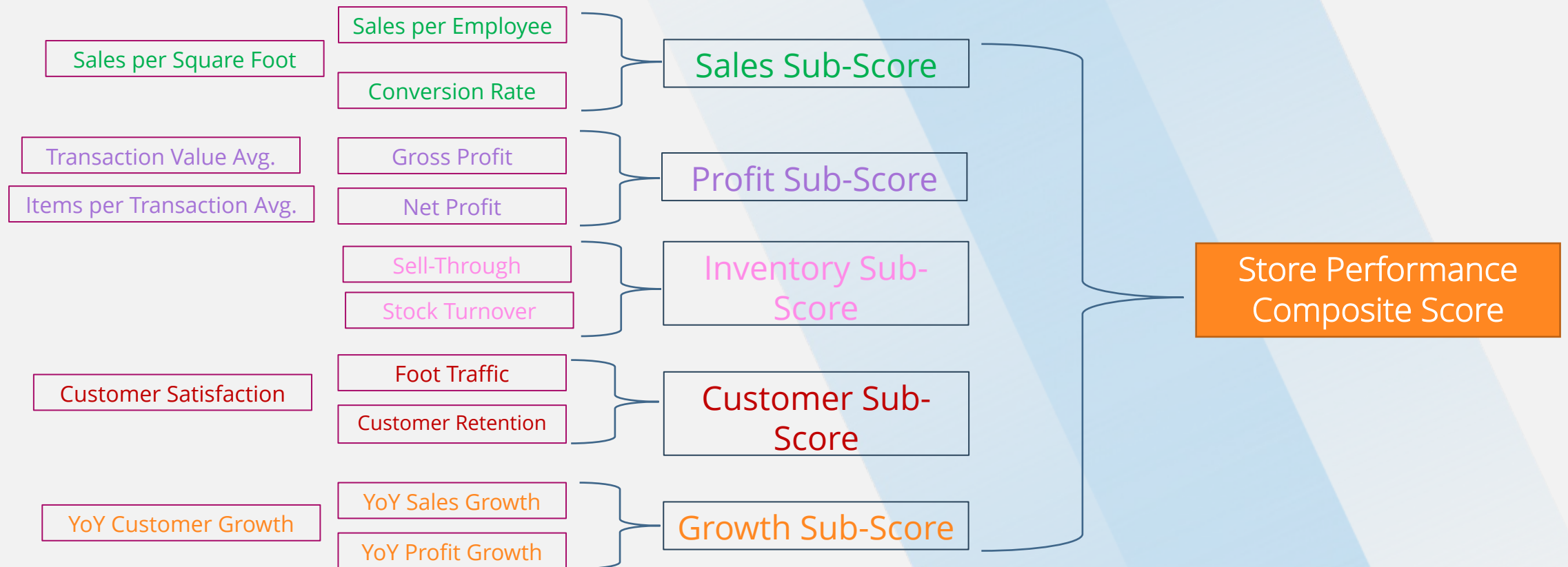


SOLUTION: COMPOSITE SCORES

A COMPOSITE SCORE
is a **single indicator**
that represents a **combination** of information
from **multiple variables or sub-scores**



SOLUTION: COMPOSITE SCORES





COMPOSITE SCORES = DATA REDUCTION

Receipt ID	Drink Options	Menu Variety	Food Restriction Accom.	Food Quality	Service Quality	Speed	Order Correct	Cleanliness	Ambiance
235235	4	5	5	5	3	1	4	5	4
234093	1	2	1	2	2	4	5	5	5
134801	5	5	5	5	5	5	5	5	5
345081	5	4	4	4	4	4	2	5	5

Receipt ID	Customer Satisfaction Composite Score
235235	4
234093	2
134801	5
345081	3



- Reduces the number of variables/measures necessary for subsequent analyses
- Measures can be weighted to align with business logic and/or goals



ADVANTAGES OF COMPOSITE SCORES

Easier to analyze than multiple variables



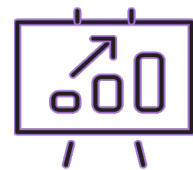
Enables finding insights & patterns in your data



Interpretable by a wide audience of stakeholders



Streamlines dashboards, figures, & tables



Fully customizable to your use case & end goals



Simplifies data storage & management



Faster data processing & improves computational efficiency



Can be used in machine learning/data science models





COMMON COMPOSITE SCORE USE CASES

Company or
Employee
Performance

Customer
Engagement

Marketing or
Fundraising
Campaign Success

Customer
Satisfaction

Job Candidate
Ratings

Risk Assessment

... And More!

The Process of Creating a Composite Score

Customer Interview with Yifan Qi, Director of Revenue Analytics,
Michael J. Fox Foundation



HOW TO CREATE COMPOSITE SCORES

1. Brainstorm & identify what variables are relevant to a composite score
 - Create a conceptual model & metric map
2. Review available data for each variable; eliminate or fix variables with missing data or measurement issues
3. Decide whether should create sub-composite scores; if so, determine which variables will be included in which sub-composite score
4. Develop rules for how you will combine variables into sub-composite & composite scores
 - Rules could be created by you based on your business knowledge, by an outside source or industry expert, or determined by a statistical method
 - Consider assigning weights to more important variables or sub-scores
5. Create scores by applying logic-based rules to data using Magic ETL dataflows, SQL dataflows, or Jupyter Workspaces

Get feedback
throughout
this process
from
stakeholders!

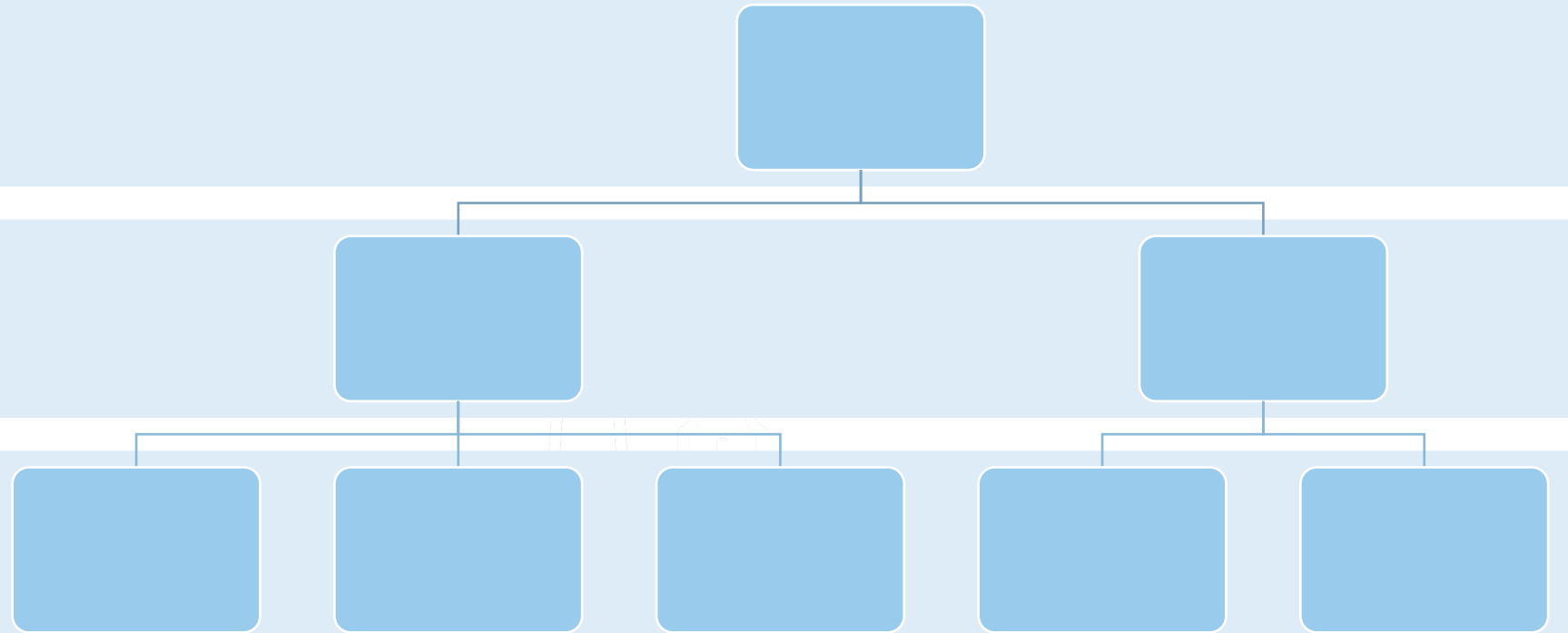


Example Conceptual Model

Composite Score

Sub-Composite Scores

Individual Components



- This is a brainstorming exercise. Don't limit by the data you currently have available.
- Think: "Ideally, what do we want this score to capture?"



Example Metric Map

Individual Component	Do you have a measure in your data of this variable?	Variable Name in Dataset	Description of Variable	Unit of Analysis/ Granularity	Variable Type	Range or Categories	Category Labels of Integer Variables	Rank/Ordering of Text Variables (from lowest to highest)	Name of Dataset in Domo where Variable is Saved	Link to Dataset in Domo	Notes

- Link individual components brainstormed in the conceptual model to data you have

Live Demo

Marketing Campaign Success Composite Score Dashboard



Q&A

Contact our team at datascienceSME@domo.com