



# ***Data Visualization and Storytelling***

***By Mark Peco***



**Module 0. About the Course (7 min)**

**Module 1. Visual Language (15 min)**

- *About Language*
  - Words, Numbers, and Images
  - Components and Rules
  - Learned Skills
- *The Language of Images*
  - Language Structure
  - Visual Communication Formats
- *Data Visualization Language*
  - Purposeful Communication
  - Visual Dialog
  - Ten Key Concepts

**Module 2. MDM Architecture (33 min)**

- *Charts & Graphs*
  - Format: Static
  - Format: Interactive
  - Format: Animated
  - Format: Narrated
  - Chart Types: Line Graph
  - Chart Types: Column Graph
  - Chart Types: Area Graph
  - Chart Types: Scatter Plot
  - Chart Types: Bubble Chart
  - Chart Types: Choropleth Map
  - Chart Types: Dot Map
  - Patterns and Trends
  - Chart Types, Patterns, and Trends
- *Data*
  - Data Sets
  - Variables
  - Data Sources & Lineage
- *Visual Composition*
  - Axes and Scales - Cartesian Coordinates
  - Axes and Scales – Polar Coordinates
  - Axes and Scales - Geographic Coordinates
  - Axes and Scales - Linear Vs. Logarithmic Scales
  - Axes and Scales – Ratio, Interval, Ordinal, Nominal
  - Legends

**Module 3. Reading Data Visualizations (49 min)**

- *Quick Read Process*
  - Context: First Impression
  - Context: The Title
  - Context: The Axes
  - Context: The Scales
  - Context: The Legend
  - Looking at the Data: Variables and Quantities
  - Looking at the Data: Meaning
  - Quick Read Process: Summary



## BA-08: Data Visualization and Storytelling

- Quick Read Process Exercise
- Quick Read Process: What's in the Graph?
- Quick Read Process: Improving the Graph
- *Critical Read Process*
  - First Glance: Visceral Response
  - Data Sources and Data Analysis
  - You and the Chart: Format and Interaction
  - You and the Chart: Connections
  - Reading the Chart: Title
  - Reading the Chart: Type
  - Reading the Chart: Aspect Ratio
  - Reading the Chart: Legend
  - Reading the Chart: Colors and Patterns
  - Reading the Chart: Annotation
  - Reading the Chart: Data
  - Reading the Chart: Axes and Scales
  - Reading the Chart: Considering Outliers
  - Reading the Chart: Meaning, Patterns, and Trends
  - Reading the Chart: Exercise
  - Reading the Chart: Some Thoughts

### **Module 4. Creating Data Visualizations (53 min)**

- *Visualization for Data Analysis*
  - Data Visualization Step-by-Step
  - Know the Questions
  - Know the Data
  - Know the Message
  - Choose the Chart Type
  - Compose the Chart
  - Add Context
  - Refine the Visual Cues
  - Interactivity and Navigation
- *Visualization for Business Intelligence*
  - Dashboards & Scorecards
  - Sparklines
  - Bullet Graphs
  - Dot Plots
  - Small Multiples
- *Visualization for Data Exploration*
  - Data Exploration Step-by-Step
  - Variable Identification
  - Univariate Analysis – Distribution of Values
  - Univariate Analysis – Central Tendency & Variation
  - Bivariate Analysis
  - Bivariate Analysis – Categorical & Quantitative
  - Bivariate Analysis – Quantitative & Quantitative
  - Bivariate Analysis – Categorical & Categorical
  - Behavior Over Time Analysis Part 1-3



### **Module 5. Data Storytelling (58 min)**

- *Storytelling Basics*
  - Why Data Storytelling?
  - Data Presentations Vs. Data Stories
  - Data Story Examples: Dunkin' vs Starbucks
  - Data Story Example: Hans Rosling
  - The Nature of Stories: Statistics Vs. Stories
- *Data Driven Business Story*
  - Business Problems and Questions
  - Context for Data Analysis
  - Data Sources
  - Learning from the Data
  - Data Patterns
  - Further Analysis: Two Contiguous Patterns
  - Asking Why
  - Recommendations
  - Quantifying and Visualizing
- *Story Crafting*
  - The Dynamics of Stories: Making a Connection
  - The Dynamics of Stories: The Storyteller
  - The Dynamics of Stories: The Audience
  - The Dynamics of Stories: Shapes of Stories
  - The Dynamics of Stories: The Narrative
  - Story Framing: Support Structure of Stories
  - Story Framing: Connecting Data and Narrative
  - Kinds of Stories: Explanatory vs. Exploratory
  - Storytelling Media: Images
  - Storytelling Media: Infographics