EFFECTIVE DASHBOARD DESIGN: STRATEGIES & TACTICS

Brent Dykes | Director, Data Strategy
ARE YOUR USERS FEELING OVERLOADED?
HOW DOES THIS HAPPEN?

DATA → VISUALS → AUDIENCE → DATA

AUDIENCE → VISUALS → DATA → AUDIENCE
WHAT INFORMS DATA VISUALISATION?

AUDIENCE

BUSINESS OBJECTIVES

METRICS & TARGETS

QUESTIONS

VISUALISATIONS
HAVING A CLEAR SIGNAL IS IMPORTANT
AUDIENCE: HOW TO GET A CLEAR SIGNAL

AUDIENCE

DIVERGENT AREAS OF FOCUS

Marketing

HR
AUDIENCE: HOW TO GET A CLEAR SIGNAL

NOISE (IRRELEVANT)

IRRELEVANT

MARKETING

HR

CFO

ACCOUNTS PAYABLE

CLERK

NOISE (LESS ACTIONABLE)

NOISE (MINUTIAE)

AUDIENCE

DIVERGENT AREAS OF FOCUS

AUDIENCE

DIFFERENT LEVELS
AUDIENCE: HOW TO GET A CLEAR SIGNAL

AUDIENCE

DIVERGENT AREAS OF FOCUS

MARKETING

HR

AUDIENCE

DIFFERENT LEVELS

CFO

ACCOUNTS PAYABLE CLERK

AUDIENCE

SHARED FOCUS + SIMILAR LEVEL

SIGNAL

SALES PEOPLE
DEFINE YOUR AUDIENCE & THEIR SHARED NEEDS

**Level**
- Strategic or operational?

**Audience**
- Executives
- Managers
- Individual Contributors

**Preferences**
- Desktop vs. mobile
- Real-time vs. scheduled
- Experts vs. novices

**Data Literacy**
- Marketing
- Sales
- Finance

**Focus**
- Key priorities & metrics
WHAT ARE THEIR BURNING QUESTIONS?
Twelve-year-old Will Byers was reported missing on Nov. 3, and it was falsely reported that his body was recovered at Sattler Quarry.

The former missing child Will Byers has been found after a week of searching. He is presently in stable condition in Hawkins General Hospital. Byers' mother, Joyce Byers, alleges that Will was the subject of a secret government program run by the Hawkins National Laboratory. The allegation comes amidst a massive investigation into the hidden organization and its elaborate experimentation in perusal of mind control.

The abuse detailed in the first report includes prolonged physical duress and psychological interrogation. This government-sanctioned torture has provoked outrage amongst the American people. In a statement issued yesterday morning, Ives mentioned her "disgust" with the organization saying "our own American people are being treated like the enemy... we should be directing our attention to the real target, the Soviets, not our own daughters and sons." Under legal advice, Brenner has issued no comment on...
INVERTED APPROACH TO DASHBOARD DESIGN

INVERTED PYRAMID

MOST IMPORTANT INFORMATION
SUPPORTING INFORMATION
OTHER DETAILS

DASHBOARD DESIGN

OVERVIEW
BREAKDOWN
EXPLORE

HOW ARE WE DOING?
WHAT'S HAPPENING?
HOW CAN I LEARN MORE?
OVERVIEW: HOW ARE WE DOING?

702 leads
March 2017

1,000 leads
Monthly Target

892 leads
March 2018

KEY METRICS
+ CONTEXT

YOU ARE HERE
EXPLORE: HOW CAN I LEARN MORE?

OTHER RELEVANT DIMENSIONS + METRICS
HOW TO DESIGN YOUR DASHBOARD

FOCUS AREA DASHBOARD

COLLECTION – FOCUS AREA #1
- KPI #1
- CARD
- CARD
- CARD
- CARD

COLLECTION – FOCUS AREA #2
- KPI #2
- CARD
- CARD
- CARD
- CARD

COLLECTION – FOCUS AREA #3
- KPI #3
- CARD
- CARD
- CARD
- CARD

COLLECTION – FOCUS AREA #4
- KPI #4
- CARD
- CARD
- CARD
- CARD

INVERTED PYRAMID DASHBOARD

COLLECTION – OVERVIEW
- KPI #1
- CARD
- CARD
- CARD
- CARD
- KPI #2
- CARD
- CARD
- CARD
- CARD
- KPI #3
- CARD
- CARD
- CARD
- CARD

COLLECTION – BREAKDOWN #1
- KPI #1
- CARD
- CARD
- CARD
- CARD

COLLECTION – BREAKDOWN #2
- KPI #2
- CARD
- CARD
- CARD
- CARD

COLLECTION – BREAKDOWN #3
- KPI #3
- CARD
- CARD
- CARD
- CARD
VISUALISING DATA EFFECTIVELY
VISUALISATION STRATEGY BY DASHBOARD SECTION

- **STATIC**
  - **RICH & BROAD**
    - EXPLORE
      - HOW CAN I LEARN MORE?
  - **SIMPLE & SPECIFIC**
    - BREAKDOWN
      - WHAT'S HAPPENING?

- **INTERACTIVE**
  - **OVERVIEW**
    - HOW ARE WE DOING?
THE RIGHT CHART TYPE FOR YOUR DATA

Comparison:
- Bar
- Lollipop
- Table

Trend:
- Line
- Bar
- Stacked Area

Composition:
- Bar
- Pie & Donut
- Treemap

Relationship:
- Scatterplot
- Bubble
- Heatmap

Distribution:
- Histogram
- Box plot
- Choropleth
NOT ALL CHARTS ARE CREATED EQUAL

Comparison
- Bar

Trend
- Line

Composition
- Donut

Relationship
- Scatterplot

Distribution
- Choropleth

OVERVIEW
- HOW ARE WE DOING?

BREAKDOWN
- WHAT'S HAPPENING?

EXPLORE
- HOW CAN I LEARN MORE?
OVERVIEW: WHAT CAN YOU SEE AT A GLANCE?

RULE #1
Understood in 3 seconds or less

RULE #2
No clicking or hovering is required
WHAT’S ESSENTIAL FOR THE OVERVIEW CARDS?

**KEY RESULTS**
- Count
- Sum
- Ratio

**CONTEXT**
- Historical performance (P-o-P)
- Statistical benchmarks
- Targets
- Pace (to target)
- Peer / industry benchmarks

**POLARITY**
- Positive
- Negative
- Neutral

**VARIANCE**
- No change
- Slight change
- Significant change

**ANOMALIES**
- Potential alerts
- Actionable reminders
THREE KEY TYPES OF OVERVIEW CARDS

BAR CHARTS

LINE CHARTS

GAUGES

USA Region

FOR THE GOOD OF THE COMPANY
OVERVIEW: BAR CHARTS

1. Bar

Weekly Revenue 2018

$460K

Current
OVERVIEW: BAR CHARTS

1. Bar
OVERVIEW: BAR CHARTS

1. Bar

Weekly Revenue 2018 - H
$460K
Current

- 2017-12-31: $240K
- 2018-01-07: $250K
- 2018-01-14: $300K
- 2018-01-21: $280K
- 2018-01-28: $420K
- 2018-02-04: $460K

Brent Dyles

KEY RESULTS
CONTEXT
POLARITY
VARIANCE
OVERVIEW: BAR CHARTS

1. Bar

- Title: 2018
- Show Label: Default
- Date Output Format: MMM-DD
- Label Interval:

Bar Settings:
- Grid Lines: 1
- Data Label Settings: 3
- Value Scale (Y)
- Category Scale (X): 3
OVERVIEW: BAR CHARTS

1. Bar

Weekly Revenue
$460K
Acceptable Range $300K - $500K

Acceptable Range $300K - $500K

Acceptable Range $300K - $500K

Value
Lower Standard Deviations
Fill Color
Fill Transparency Percent
Border Color
Border Style

Variance

KEY RESULTS

CONTEXT

POLARITY

VARIANCE
OVERVIEW: BAR CHARTS

1. Bar

GOOD

BAD

$300K
OVERVIEW: BAR CHARTS

1. Bar

GOOD

BAD

$300K
1. Bar
OVERVIEW: BAR CHARTS

1. Bar
OVERVIEW: BAR CHARTS

1. Bar

Weekly Revenue - Y-o-Y Comparison

- Variance
- Past Y-o-Y Week

KEY RESULTS: ✔️
CONTEXT: ✔️
POLARITY: 🔍
VARIANCE: ✔️

$460K

FOR THE GOOD OF THE COMPANY™
OVERVIEW: BAR CHARTS

1. Bar

- Scale Marker: 6
- Regression Line
- Last Value Projection: 1
- Colors: 1
- Full Size Settings
- Reset All Chart Properties

Options for Projection Value:
- Average Previous Values
- Default
- No Projection
- Forecast Value
- Specified Value
- Linear Regression

Graph: Monthly Support Tickets by Month
- Oct-2017
- Nov-2017
- Dec-2017
- Jan-2018
- Feb-2018
- Mar-2018

Values:
- Current: 1,29K
- 1K to 5K

5/5 Utility
3/5 Novelty

Context:

Key Results:

Polarity:

Variance:
OVERVIEW: BAR CHARTS

1. Bar

2. Progress bar

% Registration Target Reached
1,350
# of Registered Guests

Registration
54%
OVERVIEW: BAR CHARTS

1. Bar

2. Progress bar
OVERVIEW: BAR CHARTS

1. Bar

2. Progress bar

% Registration Target Reached
1,350
# of Registered Guests

Registration
54%
OVERVIEW: BAR CHARTS

1. Bar
2. Progress bar
3. Lollipop
OVERVIEW: BAR CHARTS

1. Bar
2. Progress bar
3. Lollipop
OVERVIEW: BAR CHARTS

1. Bar
2. Progress bar
3. Lollipop
OVERVIEW: BAR CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
OVERVIEW: BAR CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
OVERVIEW: BAR CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
OVERVIEW: BAR CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet

Target OR P-o-P
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line

225 page views
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line

Weekly Ad Spend Trend - Actual vs Budget
by Week
$58K
Current Actual Spend

$250K
$200K
$150K
$100K
$50K

$0
Oct-05
Oct-22
Nov-19
Dec-2
Dec-3
Dec-17
Jan-14
Jan-28
Feb-11

- Actual
- Budget
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line

KEY RESULTS

CONTEXT

POLARITY

VARIANCE
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line

Key Results
Context
Polarity
Variance
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
6. Period-over-period
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
6. Period-over-period
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
6. Period-over-period

KEY RESULTS
- Bar: ✓
- Progress bar: ✓
- Lollipop: ✓
- Bullet: ✓
- Line: ✓
- Period-over-period: ✓

CONTEXT
- Bar: ✓
- Progress bar: ✓
- Lollipop: ✓
- Bullet: ✓
- Line: ✓
- Period-over-period: ✓

POLARITY
- Bar: ✓
- Progress bar: ✓
- Lollipop: ✓
- Bullet: ✓
- Line: ✓
- Period-over-period: ✓

VARIANCE
- Bar: ✓
- Progress bar: ✓
- Lollipop: ✓
- Bullet: ✓
- Line: ✓
- Period-over-period: ✓
OVERVIEW: LINE CHARTS

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
6. Period-over-period
OVERVIEW: GAUGES

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
6. Period-over-period
7. Single value
OVERVIEW: GAUGES

Quarter Countdown

16
Days Until EOQ

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
6. Period-over-period
7. Single value
OVERVIEW: GAUGES

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
6. Period-over-period
7. Single value
8. Face
OVERVIEW: GAUGES

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
6. Period-over-period
7. Single value
8. Face
OVERVIEW: GAUGES

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
6. Period-over-period
7. Single value
8. Face
9. Comparative
OVERVIEW: GAUGES

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
6. Period-over-period
7. Single value
8. Face
9. Comparative
10. Comparative filled

Marking Event Attendees

- Current Value
- Previous Value
- Target

% Change + Direction

△19.1%
OVERVIEW: GAUGES

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
6. Period-over-period
7. Single value
8. Face
9. Comparative
10. Comparative filled

Marketing Event Attendees
56
Current # of Attendees

Current 19.1%
OVERVIEW: GAUGES

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
6. Period-over-period
7. Single value
8. Face
9. Comparative
10. Comparative filled
11. Filled
OVERVIEW: GAUGES

1. Bar
2. Progress bar
3. Lollipop
4. Bullet
5. Line
6. Period-over-period
7. Single value
8. Face
9. Comparative
10. Comparative filled
11. Filled
12. Radial
OVERVIEW: OPTIMISING YOUR SUMMARY NUMBERS

1. Descriptive labels

2. Goals & scale markers
OVERVIEW: OPTIMISING YOUR SUMMARY NUMBERS

HOW ARE WE DOING vs TARGET
by Quarter
$2,228 Closed Revenue (current period)
Goal $4K Historical Avg $3K
OVERVIEW: OPTIMISING YOUR SUMMARY NUMBERS

1. Descriptive labels
2. Goals & scale markers
3. Customized
OVERVIEW: OPTIMISING YOUR SUMMARY NUMBERS

HOW ARE WE DOING vs HISTORY
by Quarter
Historical Avg: $3000
Revenue: $2228

CONCATENATE
+ HTML
+ CASE Statement
OVERVIEW: FOUR KEY TAKEAWAYS

#1 - Keep the cards simple

Clean, intuitive visuals
OVERVIEW: FOUR KEY TAKEAWAYS

#2 - Build the cards to inspire action

- P-o-P
- Indicators

Context, polarity, & variance
OVERVIEW: FOUR KEY TAKEAWAYS

#3 - Ensure every card pulls its weight

Either show results or provide context
#4 - Signal can come from a single card or a combination of cards
LET'S DIG A LITTLE DEEPER WITH BREAKDOWNS
BREAKDOWN OPTIONS IN DOMO

Filters
- Manager
  - Select All
  - Manager A
  - Manager B
  - Manager C
  - Manager D
- Region
  - Select All
  - Domestic
  - International

Drill paths

Collections
- Quarterly Revenue
- Revenue by Manager
- Revenue by Quarter
- Contributing Factors
- Average Deal Cycle
- Average by Quarter

Related cards
- Revenue ($)
  - 2016-Q1: $2,202
  - 2016-Q2: $3,416
  - 2016-Q3: $2,665
  - 2016-Q4: $2,566

Hover text

FOR THE GOOD OF THE COMPANY™
BREAKDOWN: EVERYTHING IS CONNECTED
BREAKDOWN: ANTICIPATING THE NEXT QUESTION(S)

OVERVIEW

HOW ARE WE DOING?

MARKETING DASHBOARD

How many leads were generated?

BREAKDOWN

WHAT'S HAPPENING?

How many leads by channel?

How many leads by campaign?

How many leads per region?

How many leads per week?
4 COMMON TYPES OF DIMENSIONAL BREAKDOWNS

TIME
- Hourly
- Daily
- Weekly
- Monthly
- Annually

PEOPLE
- Customer types
- Segments
- Roles / positions
- Groups / teams
- Demographics

PLACES
- Countries
- Regions
- States
- Cities
- Stores

THINGS
- Products
- Categories
- Services
- Process stages
- Industries
BREAKDOWN: SUBTLE CONTEXT TECHNIQUE
METRICS: LEADING VS. LAGGING INDICATORS

LEADING

Measure the **inputs** of your key business processes

Help predict **future** performance

**Easier to influence** but harder to measure

LAGGING

Measure the **outputs** of your key business processes

Show **past** results

**Easier to measure** but difficult to influence
## LEADING AND LAGGING INDICATOR EXAMPLES

<table>
<thead>
<tr>
<th>Focus Area</th>
<th>Leading Indicator</th>
<th>Lagging Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>Qualified opportunities →</td>
<td>Closed deals</td>
</tr>
<tr>
<td>Marketing</td>
<td>Click-throughs →</td>
<td>Leads</td>
</tr>
<tr>
<td>Human Resources</td>
<td>Employee sentiment →</td>
<td>Employee turnover</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>On-time delivery →</td>
<td>Customer satisfaction</td>
</tr>
<tr>
<td>Customer Service</td>
<td>Customer satisfaction →</td>
<td>Customer churn</td>
</tr>
</tbody>
</table>
BREAKDOWN: LEADING AND LAGGING INDICATOR CARDS

**Quarterly Revenue**
- **Closed Revenue (current period): $675**
- **Goal: $2k**
- **Historical Avg: $2k**

**Average Deal Size**
- **by Quarter**

**Average Deal Cycle**
- **by Quarter**
GOOD DASHBOARD DESIGN IS IMPACTFUL

DASHBOARD DESIGN

OVERVIEW

HOW ARE WE DOING?

BREAKDOWN

WHAT’S HAPPENING?

EXPLORE

HOW CAN I LEARN MORE?
QUESTIONS?