

Cognitively Enriched Reports

Alexandra Jovicic

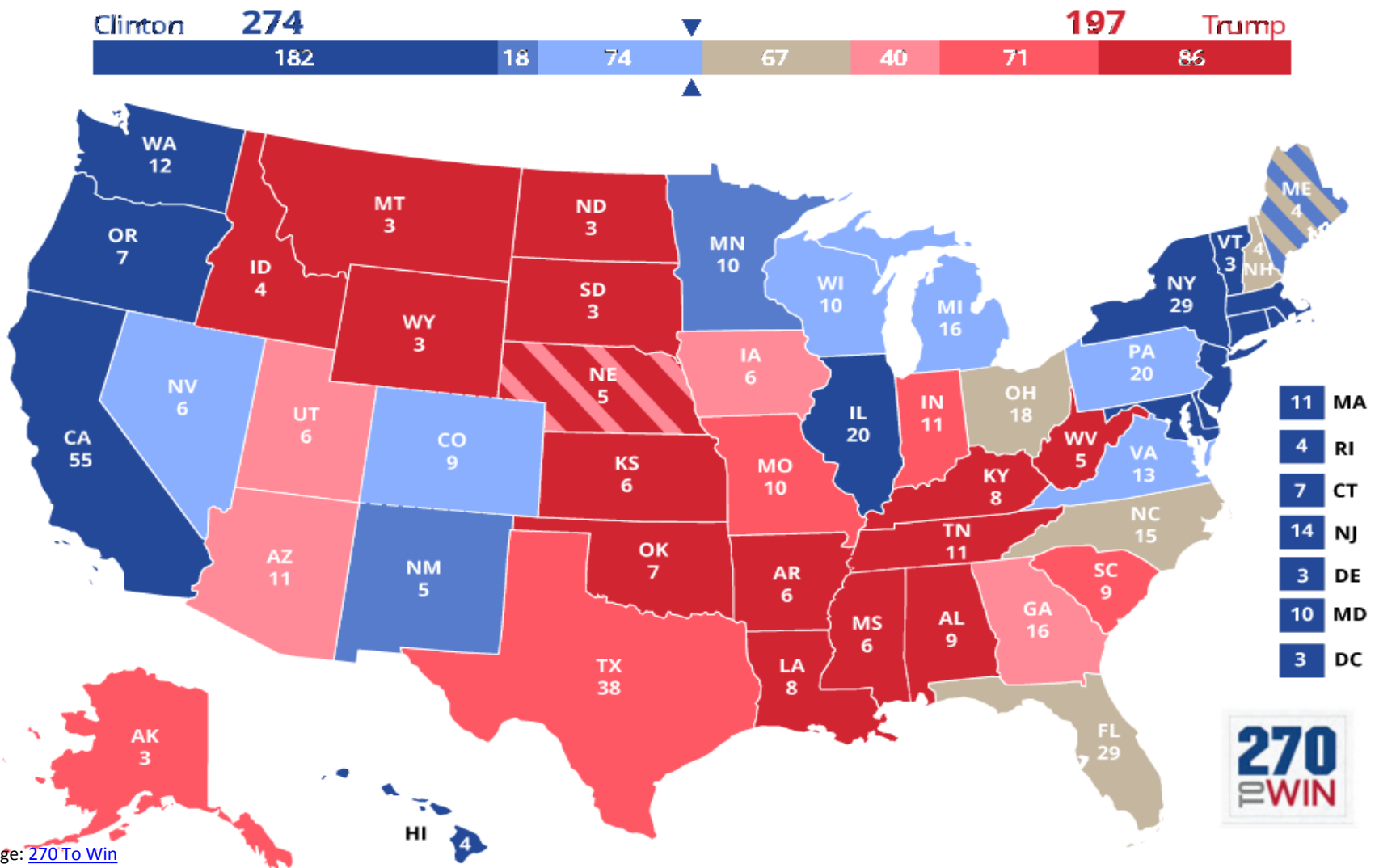
Zoran Jovicic

Yozoki Computer Services Ltd.

- In a world driven by data it is easy to become overwhelmed



- Expectations tend to bias our perceptions



When reading a report, how can we
get to relevant information as
quickly and *effectively* as possible?

Cognitively Enriched Reports

- Provides a computer generated plain language text explaining the report
- Uses the real values from the report itself, allowing the data to be quickly and easily understood by the end user

Reality of Business

- Multiple interconnected IT systems of high complexity
- Time constrained technical and business users
- High rate of change

- Regardless of the industry, there is always a challenge to quickly and correctly interpret the available data



Case Study

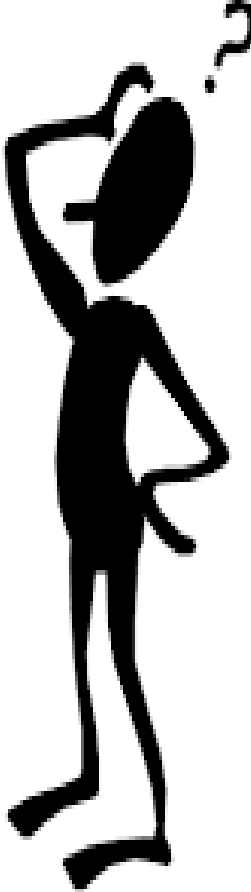
- Weekly report numbers were being under-reported due to missing data
- The first task: identify the missing records and explain why they were missing
- The second task: close the data-gaps, establish the links between available data, and by doing so, solve the problem

Sample Report

ROLE	Percent of Role	Role Total	Action A	Action B	Action C	Action D	Action E	Action F	Action G	Total With Problem
	Total									
Role_1	0.79	2542	0	18	0	1	0	1	0	20
Role_2	0.41	975	0	0	4	0	0	0	0	4
Role_3	1.41	6808	10	0	25	2	19	2	38	96
Role_4	0.63	953	0	0	3	1	2	0	0	6
Role_5	0.45	1564	0	7	0	0	0	0	0	7

Reaction of the Business Users

ROLE	Percent of Role	Role Total	Action F	Action G	Total With Problem
	Total				
Role_1	0.79	2542	1	0	20
Role_2	0.41	975	0	0	4
Role_3	1.41	6808	2	38	96
Role_4	0.63	953	0	0	6
Role_5	0.45	1564	0	0	7



Solution

- After producing the report, an additional step of processing was added
- This parses the real values from the first line

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- These values are used to produce the explanation of the report

Cognitively Enriched Reports

- During the week ending on 2016-12-09 there was total of 2,542 employees in Role_1 and 20 of them (0.79%) were affected with the problem X
- The most efficient approach is to first apply Action B (solves problem X for 18), then action D (solves problem for 1), and Action F (solves problem for 1 employee).

Full details available here:

FULL INFO Run on 20161209 08:13:55 for 2016-12-09.xls

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Benefits

- Complexity is hidden from users
- Vital information appears as a single report (or, part of the report)
- Challenge of interpreting complex data relationships among multiple IT systems is minimized

High-Level Technical Overview

- An alternative title for this paper could be 'double and triple-brewed reports'
- Several steps of processing/interconnecting the data take place before actionable linguistic interpretation can be produced
- The case study example was done using Base SAS and UNIX shell script

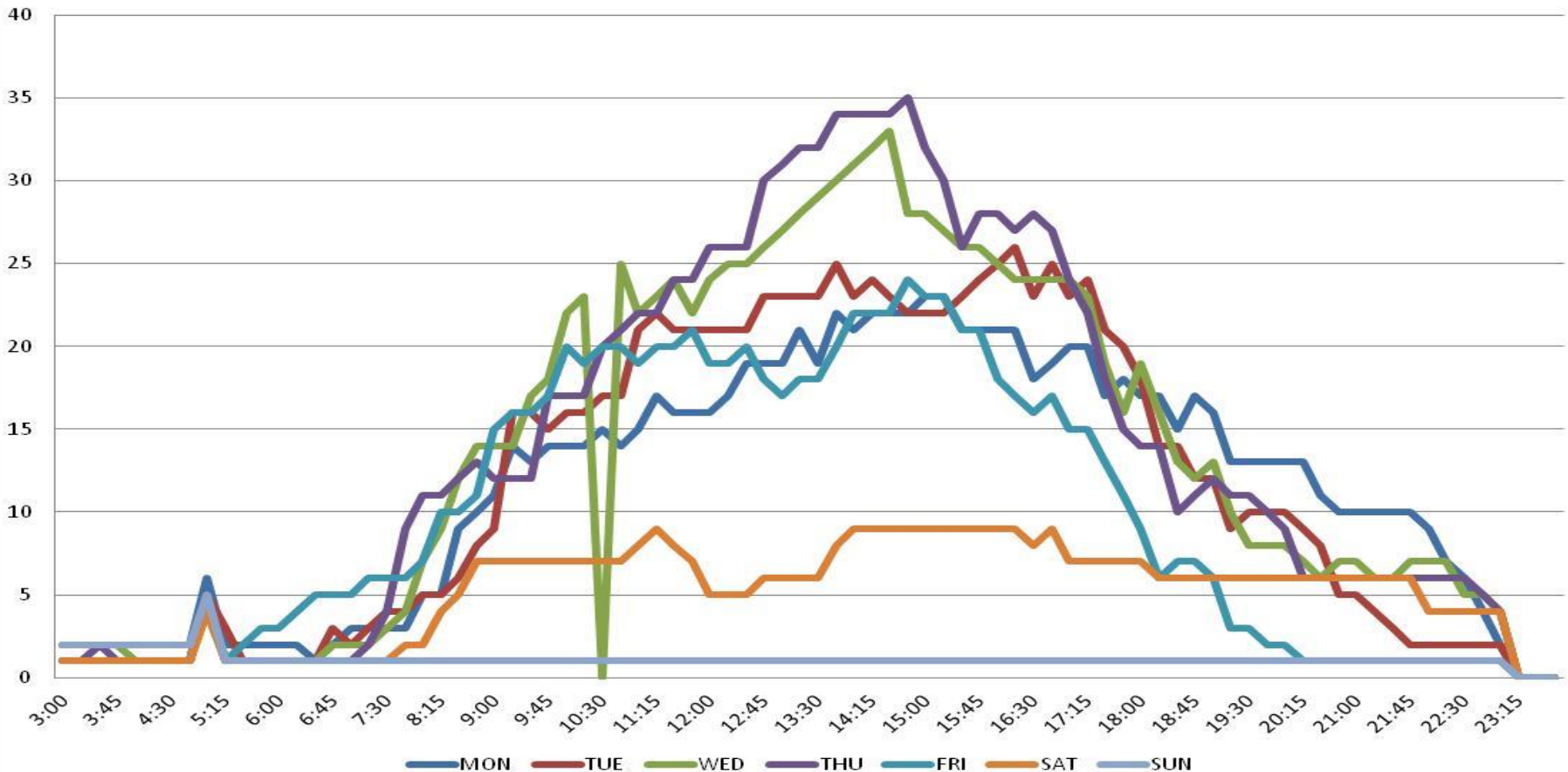
Why SAS for Cognitively Enriched Reports?

- SAS advantages
 - native connectivity
 - availability of complex statistical functions
 - a powerful programming language
- Output from variety of other SAS products like Data Integration Studio can also be summarized using Cognitively Enriched Reports

Example 2: ERP system usage

- Based on the pace of growth we can expect to reach the license count limit in 98 days.

Weekly number of ERP system users from 2016/11/28 to 2016/12/04



Example 3: Data Conversion

Data conversion status as of 2016-12-09: At current pace the estimated readiness for the rollout will start in 105 days. The 78% of data converted to the target system.

Full details available here:

FULL Data Conversion INFO as of 20161209 8AM.xls

Source System

78%

Target System

Advantages

- Minimizes the need for training
- Easy for first time users to understand and facilitate further analysis of data
- Quickly and effectively conveys the gist of the report to any end user
- Development investment offers returns through more meaningful, relevant and actionable reports leading to enhanced decision-making

Closing and Q&A

- I would appreciate to hear your ideas on where the application of Cognitively Enriched Reports, and linguistic interpretations of complex data can improve effectiveness in your organization

Zoran@yozoki.com

Alexandra@yozoki.com