Thesis

- One can increase customer loyalty through user-driven design, BUT…
- A user-driven design can only be achieved using a data-driven design process.
What do these two people have in common?

Nostradamus

Absolutely nothing.

VUI designer
The point

“Trust…but verify”.
What is a “positive caller experience”?

According to the business…..

“Hello! Welcome to Robocorp’s new and improved speech-activated Smart Line!”

Point: The data you drive off has to come directly from the targeted users of the system.

According to the developers…. 
“Robocorp dialog system. Please speak in-grammar.”

According to the VUI designer…

“How’s it goin’?! Robocorp here! Okay!”
What does a data-driven design process look like?

This customer (and Nuance) had assumed a female talent would be appropriate, but the “top two” talents were male.

**Step One: Voice Identity Program [“VIP”]**
- VIP is a type of customer engagement in which we help build a persona that best matches a customer’s brand.
- As a part of this process, several hundred potential callers compare voice talents on multiple dimensions. For example, “Which of these two voices is more ‘trustworthy’?”

[Image of a chart showing various dimensions and rankings]
What does a data-driven design process look like?

**Step Two: Wizard of Oz study**

- Recruit around 8* participants who represent your calling population.
- Have them complete several tasks with your application.
- Observe behavioral data (e.g. What they say to it, their pauses, their facial expressions).
- Gather opinion data.
What does a data-driven design process look like?

**Step Three: Usability Testing**
- Recruit around 8* participants who represent your calling population.
- Have them complete several tasks with your application.
- Observe behavioral data (e.g. What they say to it, their pauses, their facial expressions).
- Gather opinion data.

Behavioral data takes precedence over opinion data!
What does a data-driven design process look like?

Step Three (continued): Usability Testing

• Be creative, not just scientific.
• The best social science experiments have an incredibly creative element (e.g. Zimbardo’s infamous prison study, 1971).
What does a data-driven design process look like?

Step Three (continued): Usability Testing

• For an automotive client, we designed an application for mechanics to open and close trouble tickets.
• Client told us that mechanics identify trouble tickets by ticket number. Client was positive of this.
• During usability testing, three of the eight mechanics identified trouble tickets by customer name.
• We added the ability for the mechanics to identify the trouble ticket by customer name or ticket number.
What does a data-driven design process look like?

**Step Four Lite: Tuning**

- Validate your design with real-world data.
- Collect data from several thousand calls.
- Look for places where callers…and the application…are doing what you didn’t expect.
- Make changes and tune again.
What does a data-driven design process look like?

Step Four Pro: (Tuning +) Champion Versus Challenger

- Good for testing important or controversial design ideas.
- Deploy a default version of the application (champion), and...
- ...a test version (challenger).
- Run them simultaneously for similar populations.
- Compare.
Question: Which prompt is better?

Champion

“Hi, this is Amtrak. I’m Julie”

Challenger

“Hi, I’m Julie. Amtrak’s automated agent.”
What does a data-driven design process look like?

Step Five: Cross-project research

• This part is up to the vendor.
• Nuance Deployment Databank – data from millions of calls from hundreds of applications.
• We are not Nostradamus, but are there any caller behaviors that we can predict with confidence?
What does a data-driven design process look like?

Example

• Based on 25 applications including > 1 million calls, we ascertained the optimal strategy for prompting callers with speech versus DTMF versus both.

• This was broken down by question type (yes/no versus date versus menu, etc).

• This was also broken down by try (assuming three tries).

• Generally speaking (with some exceptions), second and third tries work best when you prompt for both.
Conclusion

• VUI designers need to provide their educated opinions, but that is not enough.
• The best designs are forged through constant interactions with customers and potential customers.
• Research does not end at deployment. It is an ongoing process.
• Thank you.
Empowering Your customers and employees with speech technologies

Thank You