

# **Partnering With Change Agents in Your Organization:**

**A Story About Collaborating With Six Sigma Practitioners To  
Make a Better UI**

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# What's This Presentation About?

- Business problem
    - Callers to tech support choosing wrong option, transferred back into queue
    - Frustrating for users, costly for company
  - Approach
    - Heuristic evaluation of the support line's prompts & structure
    - Redesign, taking human limitations and best practices into account
  - Outcome
  - ROI analysis
  - Lessons learned
- 
- “Hey, this is costing us money!” “What can we do to fix this?”
  - “OK, you’ve convinced us, go do it.”
  - “Hey, you did it! And it was cheap!”

# The Problem

- Professional tax preparation application
  - Accountants, CPA's, tax preparers
- Tech Support received about 25,000 “wrong queue transfer” calls per year
  - 13% of all calls
- Example:
  - Caller chooses business tax queue, but really needed individual tax
  - Annoying to customers
  - Lengthens call handle time
  - **Costs money**

# Why Was It Happening?

- Some possible explanations:
  - Callers trying to find the shortest queue
  - It's just structural, nothing can be done
- Hypothesis: callers misrouting because the system is difficult to use
  - System-centric design
  - Prompts designed around skill areas, not user needs
- Example of poor usability:
  - “For the status of previously filed electronic returns and for program installation questions, press 5”
  - What were they thinking?
  - “Install and eFile are handled by same skill area...let's put 'em together!”
  - Bad idea...

# Sponsor, Goal and Approach

- Project sponsor: process improvement specialist - “Six Sigma Blackbelt”
- Why process improvement specialist?
  - It’s their job!
  - Problem identification and solution definition using resources in the organization
  - Data-driven
  - “Natural partners” with UCD
- Goal: Reduce wrong queue transfer calls
- Approach: Heuristic evaluation of the support line, propose a redesign
- Why not other methods?
  - Time and resource constraints
  - Couldn’t test a redesign without affecting service

# Analysis

- Adapted appropriate heuristics
  - Nielsen's GUI design heuristics
  - Hura's VUI heuristics
- Also hit the books
  - Reviewed auditory memory capacity, speed of memory decay research
  - Translation...
  - “How much you can remember when you hear it”
  - “How quickly you forget stuff you hear (as opposed to see)”

## A Word About Heuristics...

- Nielsen's are good, but meant for GUI's
  - *System should keep user apprised of its status*
  - *Use words, concepts and phrases that are familiar to the user*
  - *Provide users with the ability to undo actions & recover from undesired states*
  - *Use terms and actions consistently*
  - *Design the system so that users are prevented from committing errors*
  - *Design so that users do not have to remember information*
  - *Provide accelerators and shortcuts to aid the more experienced user*
  - *Help users recognize, diagnose, and recover from errors*

## A Word About Heuristics (cont.)...

- Hura's are specific to VUI's
  - *Match the caller's expectations and understanding of the domain – ensure that the system reflects the caller's understanding of and terminology used in the domain*
  - *Minimize the limitations of the medium – auditory memory is severely limited and quite transient, so system navigation and the design of prompts should be simple and easily retained*
  - *Help the caller avoid errors and recover from errors gracefully – provide ways for callers to obtain advice when they are likely to need it, and allow callers to change their minds or make corrections to input*
  - *Make the caller comfortable using the technology – ensure that the caller is comfortable enough to use the system instead of attempting to bypass it and speak to a live representative*

# What We Found

Issue	Heuristics Violated
Inadequate key-over - no opportunity for callers to navigate back to a previous menu level (e.g., “To go back to the previous menu, press 9”)	User control and freedom; Error recognition, diagnosis and recovery; Help the caller avoid and recover from errors
No support for pre-emptive caller input during prompts (i.e., “barge in”)	User control and freedom; Flexibility and efficiency of use
No repeat - callers were not able to repeat prompts (e.g., “To hear this menu again, press star”)	User control and freedom; Error recognition, diagnosis and recovery; Help the caller avoid and recover from errors
Some prompts were too long, or combined multiple options into a single, difficult-to-understand prompt	Recognition rather than recall; Minimize the limitations of the medium
Several adjacent prompts contained too-similar terms	Minimize the limitations of the medium

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Adapted from Sherman, P.J. & Hura, S.L. (in press). Collaborating With Change Agents to Make a Better User Interface. In P.J. Sherman (Ed.), *Usability Success Stories: How Organizations Improve By Making Easier-To-Use Software and Websites*. Hampshire, UK: Gower Publishing.

</shameless self-promotion>

## What We Found

- Inadequate key-over
  - “Press 9 to go back”
- Too little support for barge-in
  - Caller locked out till prompt ends
- No repeat feature
  - “To hear this menu again, press star”
- Some messages too long - increased cognitive load, error rate
  - “For system related questions, including modem communications, program installation, networks, printers and error messages, press 3”
  - Ahhhhhhrrrrgggggh!!!



## What We Found (cont.)

- Some messages combined multiple unrelated options
  - “For questions regarding modem communications or e-file acknowledgement information, press 1”
- Some adjacent messages contained too-similar terms
  - “For the status of previously filed electronic returns and for program installation questions, press 5”
  - “For product technical support and all other electronic filing questions, press 6”

# The Redesign

- Added barge-in, keyover, repeat
- Shortened messages
- Used user-centered instead of system-centered terms
- Disentangled and split multiple option messages:

“For the status of previously filed electronic returns and for program installation questions, press 5”



“For product technical support and all other electronic filing questions, press 6”

“To check the status of previously filed electronic returns, press 1”

“For all other electronic filing questions, press 2”

“For assistance with installing the program, press 3”

“For all other technical support questions, press 4”

# Results

- Stakeholders met, reviewed design, revised
- System went live on June 3 2002
- 65% reduction in transfers: 13.5% → 4.5%



Redesign  
deployed Jun 3

## Cost/Benefit Analysis

- Costs (based on fully-loaded headcount rate of \$160,000 per year / 1,920 hours = \$83.33 dollars per hour)

Two usability professionals	= \$2500
<u>Stakeholders, voice talent</u>	<u>= \$3333 - \$3750</u>
Total cost	= \$5833 - \$6250

- Benefits:
  - About 58K...*per year*
- ROI:
  - First year cost-to-benefit ratio: 1 : 9.5
  - 9.5 to 1 return on investment
  - Year-over-year benefit, provided transfer rate remains low

# Lessons Learned

- Collaboration is the key
  - Identify natural partners in the organization
  - Leverage each other's strengths
  - Present a united front to the stakeholders
- Build the business case
  - Others do it, so should we!
- Manage the project well
  - Charter, responsibility matrix, escalation path, statement of work
  - Schedule, deliverables

## Collaboration Is Key

- As my mom says...“get over yourself!”
- Very few of us can *implement* as well as we can research, evaluate, and redesign
- Without “them”, we’d have nothing to work on in the first place
- Learn to influence
- Find collaborators...they don’t *have* to be “Black Belts”
- Be humble, respectful...and tenaciously persistent

## **Build The Business Case**

- Yes, better designs are nice, but...
- If the business case isn't there, why redesign?
- If you do, it's a waste of resources

# Manage The Project

- Your turn: what does project management mean to *you*?

# Questions, Comments?

# Contacts

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