

The Cure for Bad User Interface Design and Feature Creep

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Disclosure of conflict of interest

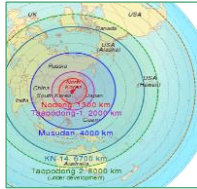
1. I receive compensation from Varian Medical Systems for educational training
2. The views expressed in this presentation are my own and do not reflect the official position or policy of the Department of Radiation Oncology at the University of Michigan

Outline

1. The Hawaii false missile alert
2. Designing better user interactions
3. Best practices for interaction design

The Hawaii false missile alert

The political context for the alert system



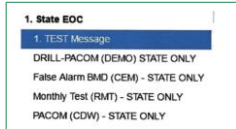
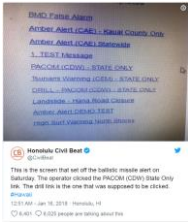
"The entire United States is within range of our nuclear weapons, a nuclear button is always on my desk."
Kim Jong-un



After 38 minutes, a false alarm was announced



The missile alert system's user interface



Any critical system, whether it's in a hospital or a critical alert system for public safety, should be specifically designed to prevent errors like this.

If a system is designed appropriately, errors should be very hard to do.

Kim Flaherty
User Experience Specialist
Nielsen Norman Group

The aftermath and investigation report

6. Employee 1 has been a source of concern for the same SWP staff for over 10 years. Employee 1's poor performance has been counseled and documented and the SWP members have stated that they are "not comfortable with Employee 1 as a supervisor, team member, or as a part of the SWP as a whole."

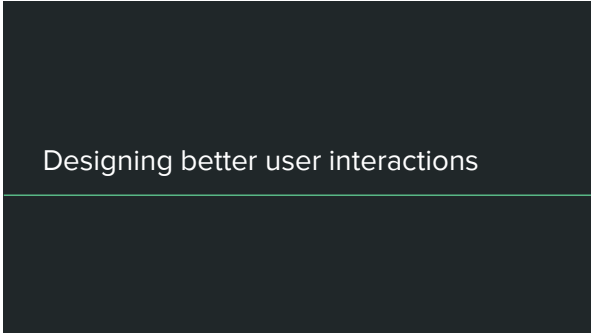
SYNOPSIS:

At approximately 8:06 am, the SWP mistakenly issued a BMA. As the investigating officer and carefully considering the facts, I find a preponderance of evidence exists that insufficient management controls, poor computer software design, and human factors contributed to the real-world BMA and the delayed


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Employee 1 was terminated. The investigation report also noted that it was just a drill. Employees 2 were on the phone with Employee 3 leading them on the situation. Employee 5 was starting the command staff. Employee 1 was sitting and assumed control. Employee 3 took control of Employee 1's mouse and sent the cancel message. At no point did Employee 1 assist in the process of correcting the false alert.

1. Employee 1 has been terminated.

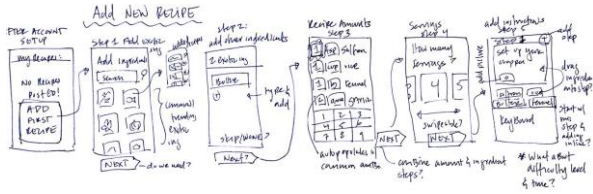


Developers “are given incomplete, myopic, confusing, and sometimes contradictory instructions and are forced to make significant decisions about the user experience with little time or knowledge of how people will actually use their creations.”

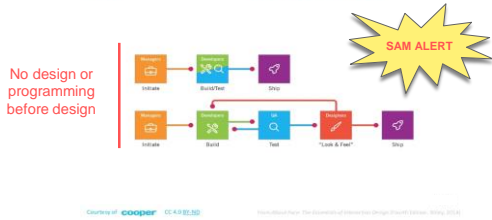


Alan Cooper in "About Face" (2014)

Interaction design



Interaction design should come before programming

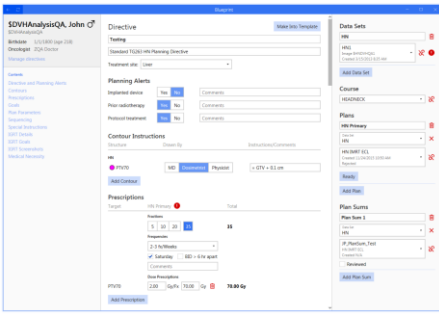
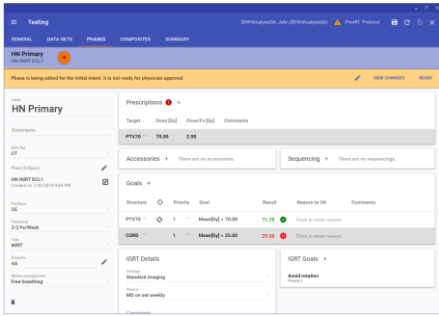


H&N Planning Directive

Primary Mission:

Targets I check off to be:

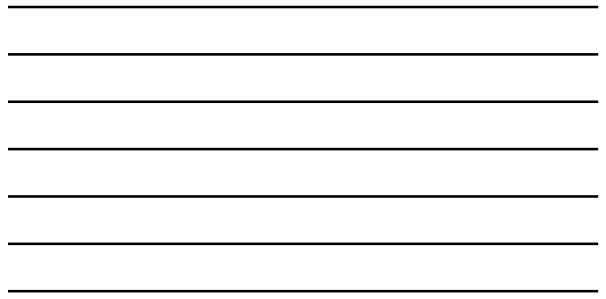
Structure	Priority	Prescription	Coverage Goal
PF12	2-w	100% (100%)	100% (100%)
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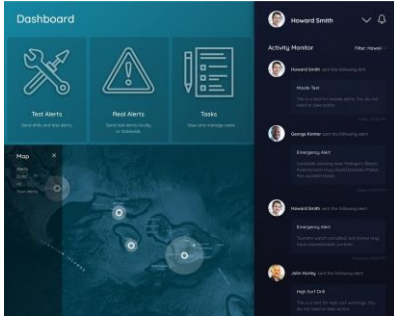


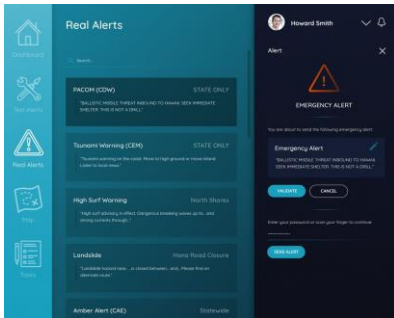
Interaction design should be done by designers

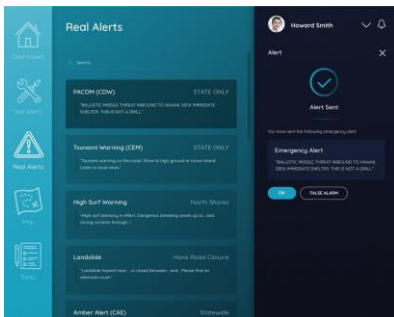


Interaction designer



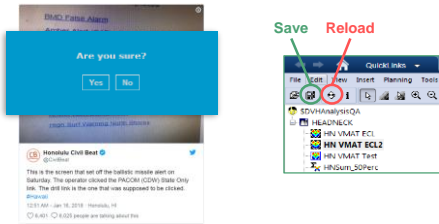






Best practices for interaction design

Don't mix harmless functions with deadly ones



Allow users to undo their actions



Prefer data immunity to data integrity



Data integrity
User must clean the data

Data immunity
Software is resilient to bad data

Don't blindly add features the user asks for



Thank You

Acknowledgements

Xiaoping Chen
 Jim Irler
 Marc Kessler
 Markus Varsta
 Grant Weyburne
 John Yao

Recommended reading

The image shows two book covers. The left one is 'The Impending' by John Yao, featuring a dark, abstract image. The right one is 'Abolition' by John Yao, with a green and white cover and the title in large letters.
