



'Think back ... which keys did you press?'



NOT ENABLED – UNPRODUCTIVE – FRUSTRATED :-)



ENABLED – PRODUCTIVE – HAPPY :-)

User Experience (UX)

A person's perceptions and responses that result from the use or anticipated use of a product, system or service. ISO 9241-210 (2010)

Useful (relevant and meaningful)
Usable (easy to understand and use)
Desirable (engaging)



System Complexity



Radio Shack
AMERICA'S TECHNOLOGY STORE

PRESIDENTS' BIRTHDAY SALE!
DON'T DELAY! 3-DAY SPECIALS ABOVE GOOD SATURDAY THRU MONDAY ONLY!

0% INTEREST!
NO PAYMENTS UNTIL MAY!
NO DOWN PAYMENT!
HURRY! OFFER ENDS TUESDAY FEBRUARY 19

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\$1599
Tandy 1000 TL/9 Computer System
• 286-Based PC Compatible
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• 20MB SuperDisk™ Hard Drive
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BONUS PACKAGE
• Lotus Spreadsheet Pro Diskette
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Save \$100
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Features Model 982 includes video, still, 10 frames per second, 2 inch video, 3000 frames, 4:3 ratio

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Optimize Music! 3-Way speakers and massive 15" woofer. 100 watts, 1000 Hz, 1000 Hz, 1000 Hz

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Look for 2.5 to 3.0 watts, Reg. \$299

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Tiny Dual-Superhet Radar Detector
Save \$60
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Road Patrol 88™ detector lets you drive with confidence. Dependable, X and K band, 1000 Hz, 1000 Hz

Compact 10-Channel Desktop Scanner
Save \$30
\$9995
Reg. \$10295
Features PRO-37 and 1000 Hz, 1000 Hz, 1000 Hz

Mobile CB With Channel Controls on Mike
HALF PRICE!
\$4995
Reg. \$9995
Features 1000-4000 Hz, 1000 Hz, 1000 Hz

20-Memory Speed-Dial Phone
Cut 33%
\$2995
Reg. \$4495
Features 1000-4000 Hz, 1000 Hz, 1000 Hz

Handheld Voice-Activated Cassette Tape Recorder
40% OFF
\$2995
Reg. \$4995
Features 1000-4000 Hz, 1000 Hz, 1000 Hz

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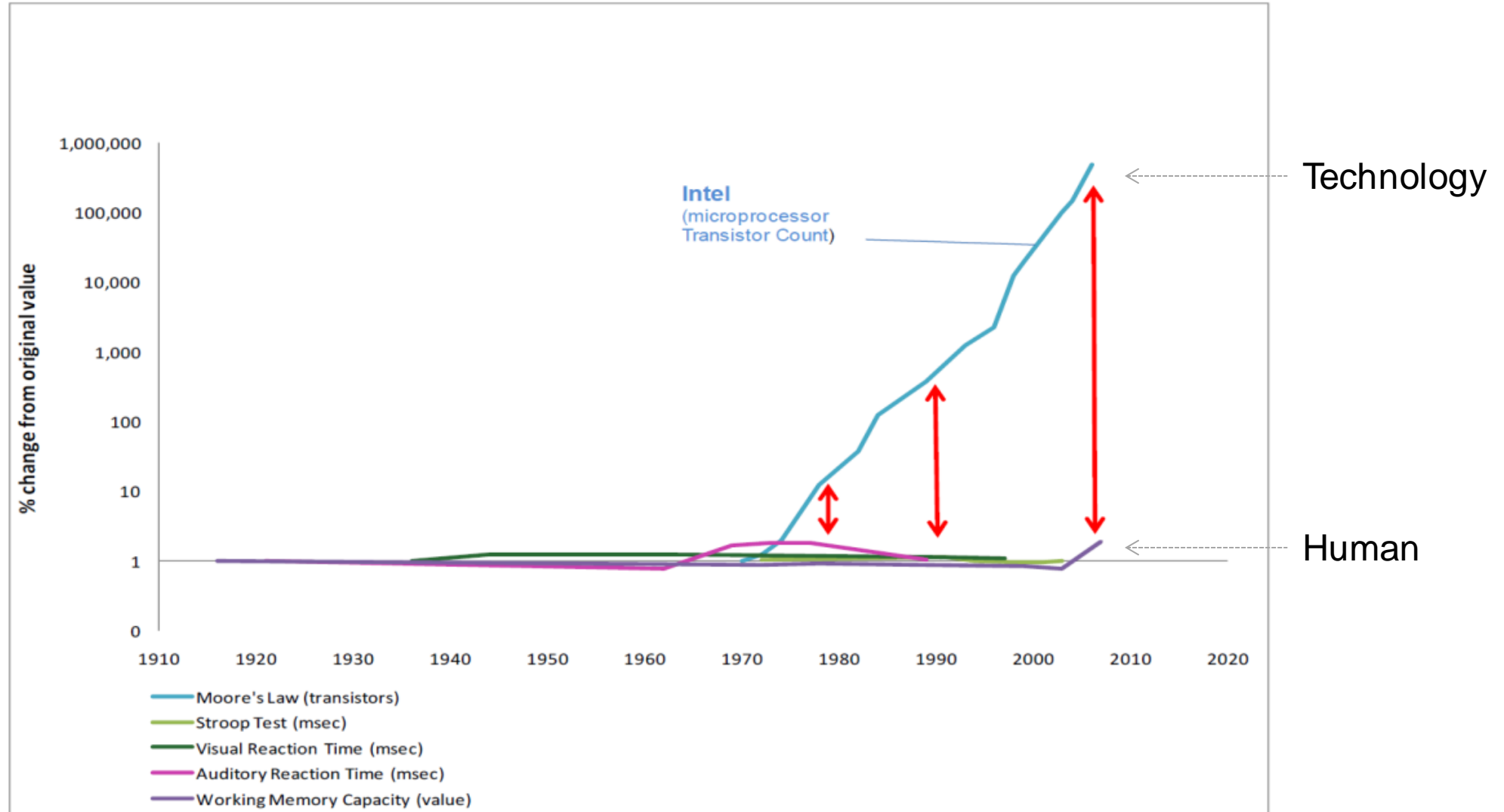
STEVEN SPIELBERG Presents
BACK TO THE FUTURE
A ROBERT ZEMECKIS Film

He was never in time for his classes...
He wasn't in time for his dinner...
Then one day... he wasn't in his time at all.

"BACK TO THE FUTURE" Starring MICHAEL J. FOX
CHRISTOPHER LLOYD · LEA THOMPSON · CRISPIN GLOVER
With ROBERT ZEMECKIS & BOB GALE Music by ALAN SILVESTRI
Executive Producer STEVEN SPIELBERG
Produced by KATHLEEN KENNEDY and FRANK MARSHALL
Directed by ROBERT ZEMECKIS
A UNIVERSAL PICTURE
SEARCHED AND LISTED IN THE RECORD AND LISTENING
READ THE BOOK! READ THE BOOK!
PARENTAL STRONG RECOMMENDATION
SUGGESTED PARENTAL GUIDANCE
SUGGESTED PARENTAL GUIDANCE
SUGGESTED PARENTAL GUIDANCE

Honeywell

System Complexity

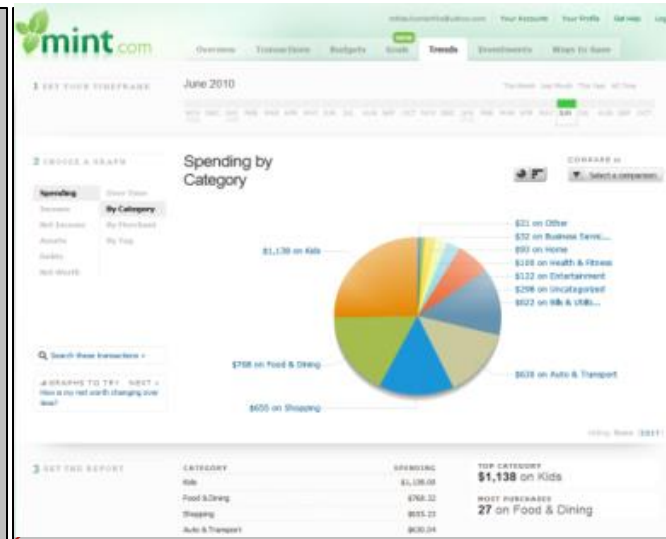
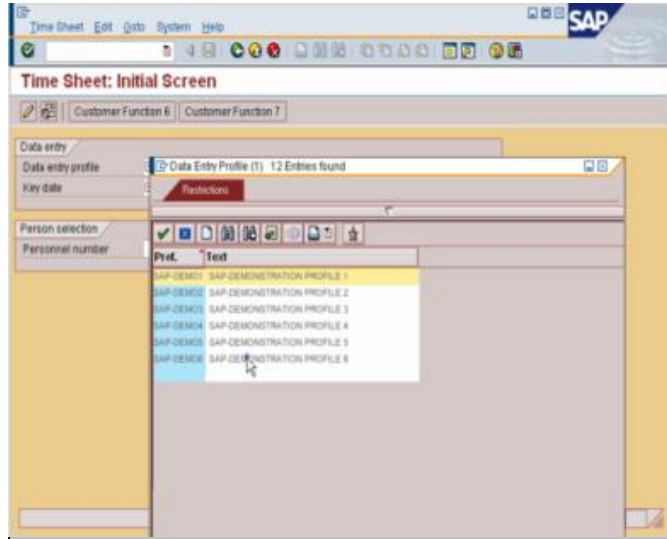


Product Maturity

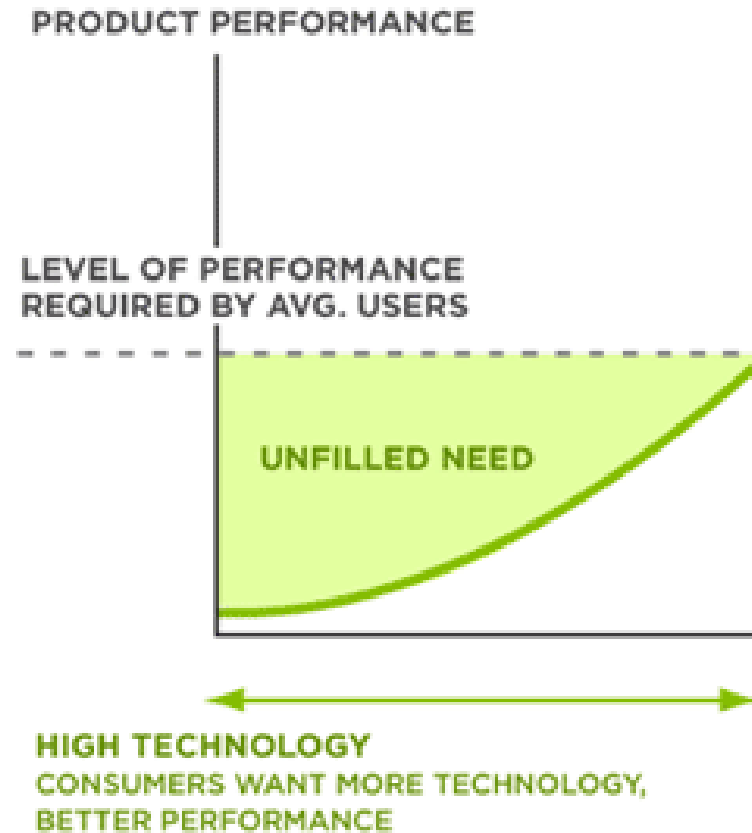


User Experience (UX)

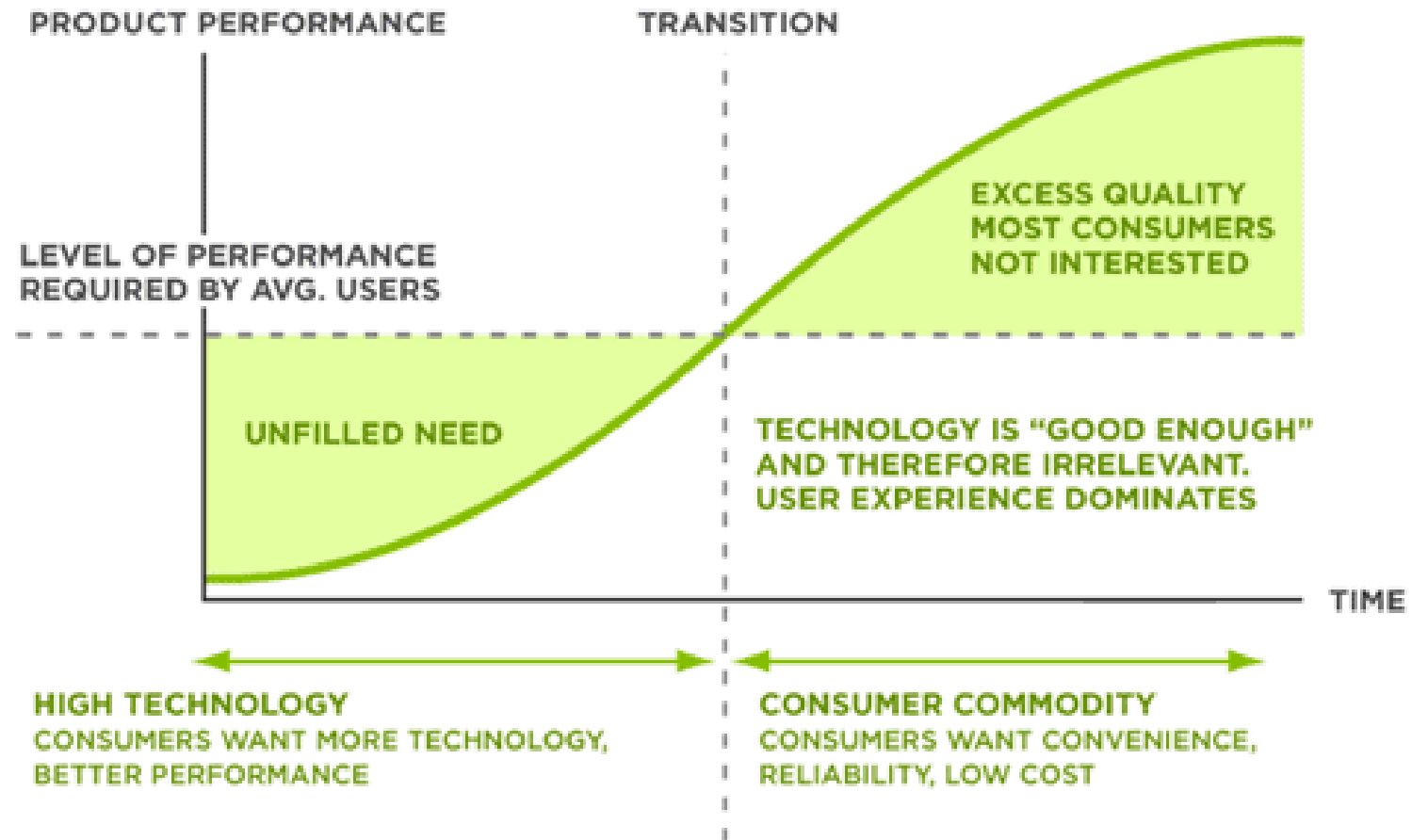
Usability



Product Maturity



Product Maturity



Brand Differentiation



HUE – Honeywell User Experience

System Complexity
+
Product Maturity
+
Brand Differentiation

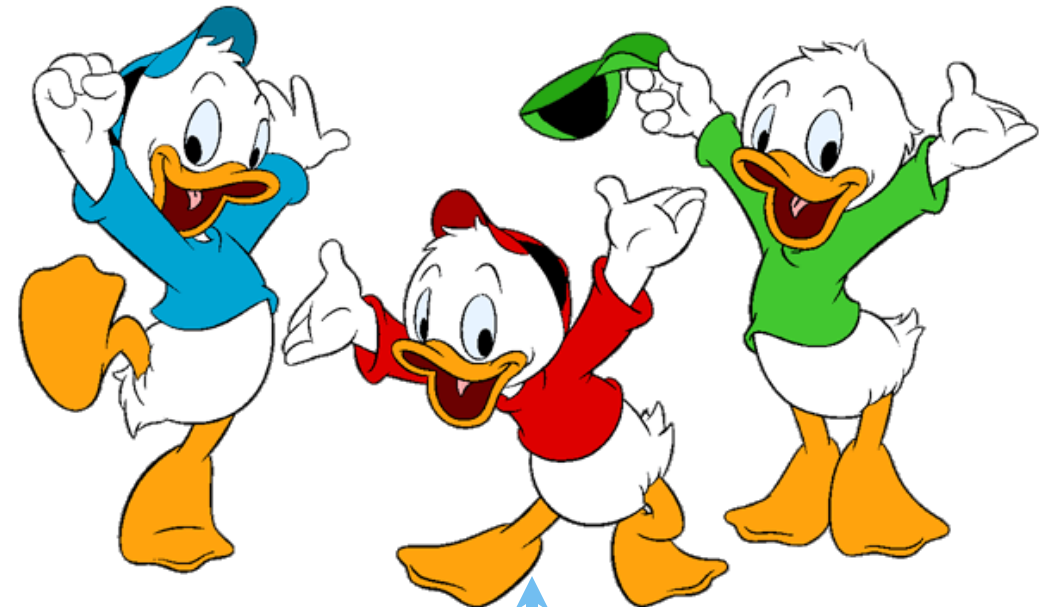
Honeywell User Experience creates value by understanding the needs of our users, customers, installers, maintainers, channel partners and employees to design intuitive, desirable and differentiated end-to-end experiences.

HUE – Honeywell User Experience

/hju:/ - like color



This is Huey
/'hju:/



This is Huey
/'hju:/

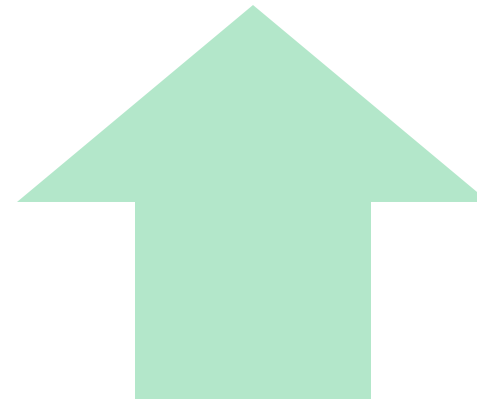
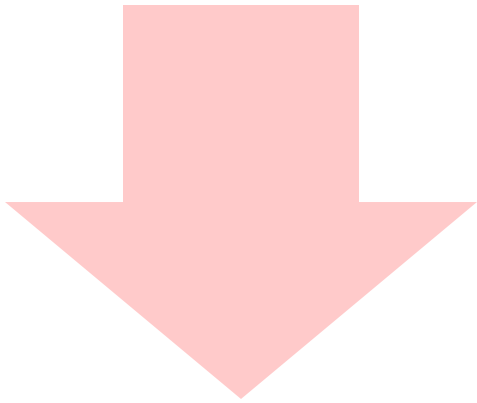
Business Impact

- Over \$2 Trillion yearly spent on hardware, software and services
- 5% to 15% of these projects will be abandoned
 - A higher percentage will be delivered late
- 48% of application code is devoted to the user interface
- 50% of average time on software development is spent on the user interface



Business Benefits

- Decreased development costs
- Decrease time to market
- Decreased training and documentation
- Decreased support costs
- Increased sales
- Increased market penetration
- Increased user satisfaction
- Increased productivity



Decreased Development Costs

By correcting usability problems during their website's design phase, American Airlines reduced the cost of those fixes by 60 – 90%.

Cost of change

Design and architecture	Implementation	Integration test	Customer beta test	Post product release
1X	5X	10X	15X	30X

Note: X is a normalized unit of cost and can be expressed in terms of person-hours, dollars, etc.



Increased User Satisfaction

In 2011, Ford dropped from 5th place to 23rd in J.D. Power & Associates automotive quality survey because of consumer complaints about the non-intuitiveness and complexity of the MyFord Touch system, used to control the entertainment, climate, and navigation systems.

In 2012 Ford dropped further to 27th place.
“...it’s the fundamental design of the system that’s flawed.”

Feature

+ A -

Ford drops Microsoft's Windows Embedded, enabling support for Apple's CarPlay, Android Auto

By Daniel Eran Dilger

Friday, December 12, 2014, 03:14 am PT (06:04 am ET)

Ford has abandoned its troubled Microsoft Sync automotive infotainment system for a QNX-based platform that can support Apple's CarPlay with Hands Free Siri.

2015: place 20th

Decreased Training & Documentation

Mid to large size electric utilities reported cost savings of \$300,000 to \$3 million by reducing training for customer service staff when they implemented a more usable customer information system.

Decreased Support Costs

MacAfee redesigned its ProtectionPilot software in 2004 for better usability and cut tech support calls by 90% after launch.

Increased Sales

Bank of America redesigned their online banking enrollment process and increased enrollment by 45%, exceeding their desired ROI benchmark.

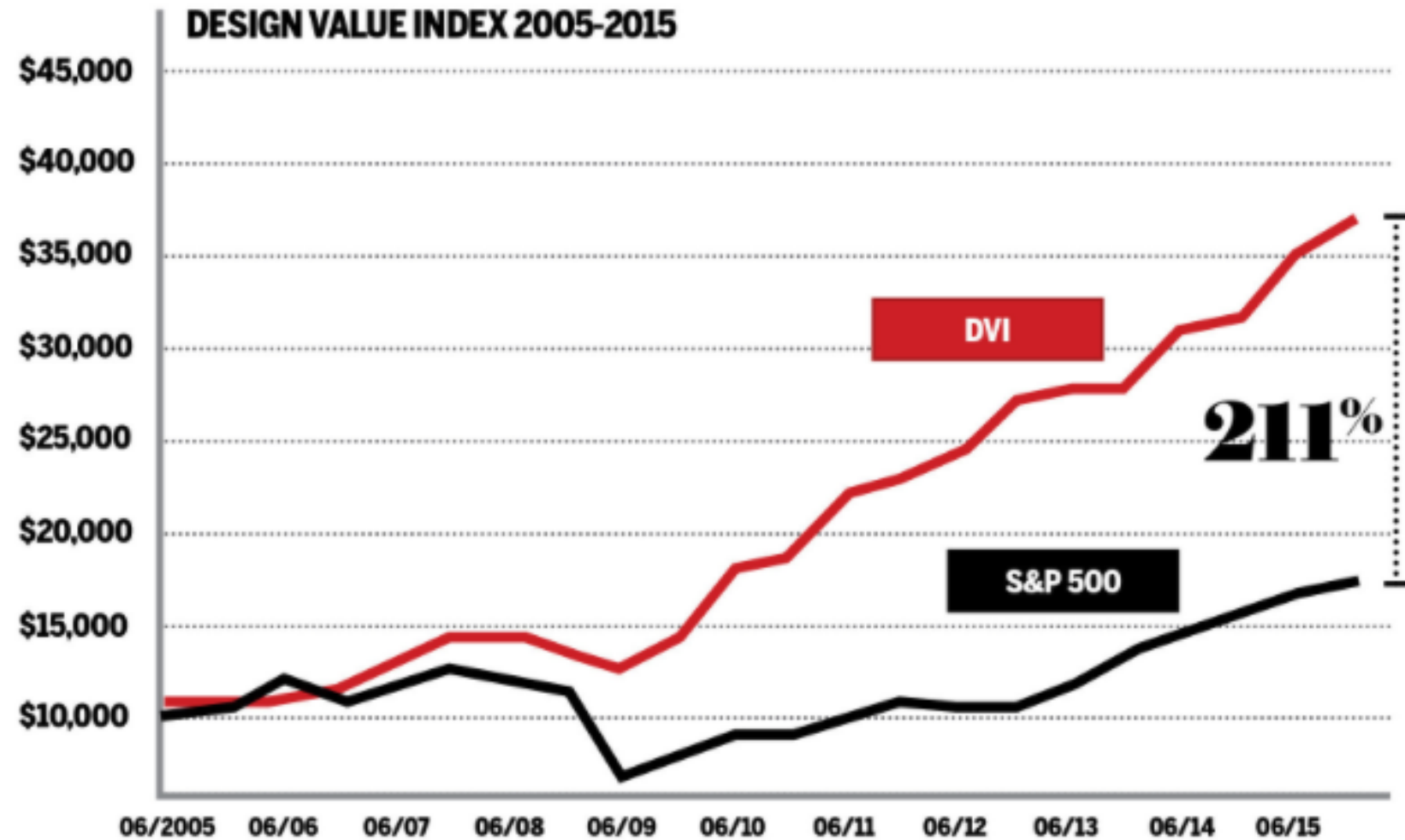
Increased Productivity

After Oracle changed the navigation structure on their database manager application, database administrators were able to perform their tasks 20% faster.

Value

DESIGN-CENTRIC COMPANIES:

APPLE
COCA-COLA
FORD
HERMAN-MILLER
IBM
INTUIT
NIKE
PROCTER & GAMBLE
SAP
STARBUCKS
STARWOOD
STANLEY BLACK & DECKER
STEELCASE
TARGET
WALT DISNEY
WHIRLPOOL



Honeywell User Experience (HUE)

“I want Honeywell
to be seen as the
Apple of the
Industrials... in
everything we
make and do”

Dave M. Cote



Honeywell User Experience (HUE)

After 2nd quarter earnings, Apple CEO Tim Cook says, “I want to become the Honeywell of the consumer electronics sector”



Honeywell Operating System (HOS Gold)

HOS Gold

An end-to-end **business system** institutionalized to enable and sustain exceptional growth along with productivity improvements

1 KEY BUSINESS PROCESSES

Order to Cash

New Product Introduction

Commercial Management

Product & Customer Support

Supply Base Management

2 PRINCIPLES

-  Customer/Market Centric
-  Leading with Ownership Mindset
-  Breakthrough Strategy Driven
-  Total Cross-Functional Alignment & Deployment Through X-Matrix & MOS
-  People Capability & Culture Focused
-  Continuous Improvement of Critical Processes

3 FOUNDATIONAL EXCELLENCE

HOS

VPD

HUE

FT

Software

SIOP/CT

Six Sigma/Lean



STRAP/AOP/MRR

12 Behaviors

5 Initiatives

Feedback From 2015 Investor Day

“Acronyms contribute to next leg of growth and margins: The company highlighted HUE (Honeywell User Experience) as a key new process that they expect to contribute 0.5% to its organic growth CAGR 2014-18. HUE is aimed at creating more user-friendly, Apple-like products that serve customers’ known and unknown wants and needs, driving growth, margins, and customer loyalty.” Nomura (O’Callaghan)

“There were several positive takeaways from HON’s investor day: [...] margin opportunities abound via traditional HON enablers (HOS, OEF, FT) and new tools/processes (HOS Gold, HUE, CMMI)” Goldman Sachs (Ritchie)

“As HON looks to improve the user experience via HUE (Honeywell User Experience, a focus of yesterday’s investor day) product interfaces are being rethought and developed to meet a level of ease now expected by customers. HUE reaches beyond the product interface, too. More broadly, HUE betters the user experience from start to finish to drive results: pricing (up 5-10% expected) and volume (up 5-10% expected) and reduced cost-to-serve (down 10-20% expected).” Barclays (Davis)

Learning from Apple

- Designing from the outside in
- Designing for the end to end experience



Designing from the outside in

- Consistently successful companies start with an external market orientation and vigilantly study customer trends and user needs in order to design their strategy.
 - Conversely, an “inside-out” strategy is one that relies upon an internal orientation. It starts by asking what a company can do with existing resources, ideas, or technologies. This limits a company’s ability to notice and adapt to market changes.
- We need to know our customers and users

Forbes

Designing from the outside in

“You’ve got to start with the customer experience and work backwards to the technology...I’ve made this mistake probably more than anybody else in this room...

As we have tried to come up with a strategy and a vision for Apple, it started with ‘What incredible benefits can we give to the customer? Where can we take the customer?’...I think that’s the right path to take.”

Steve Jobs, 1997,
Worldwide Developers Conference

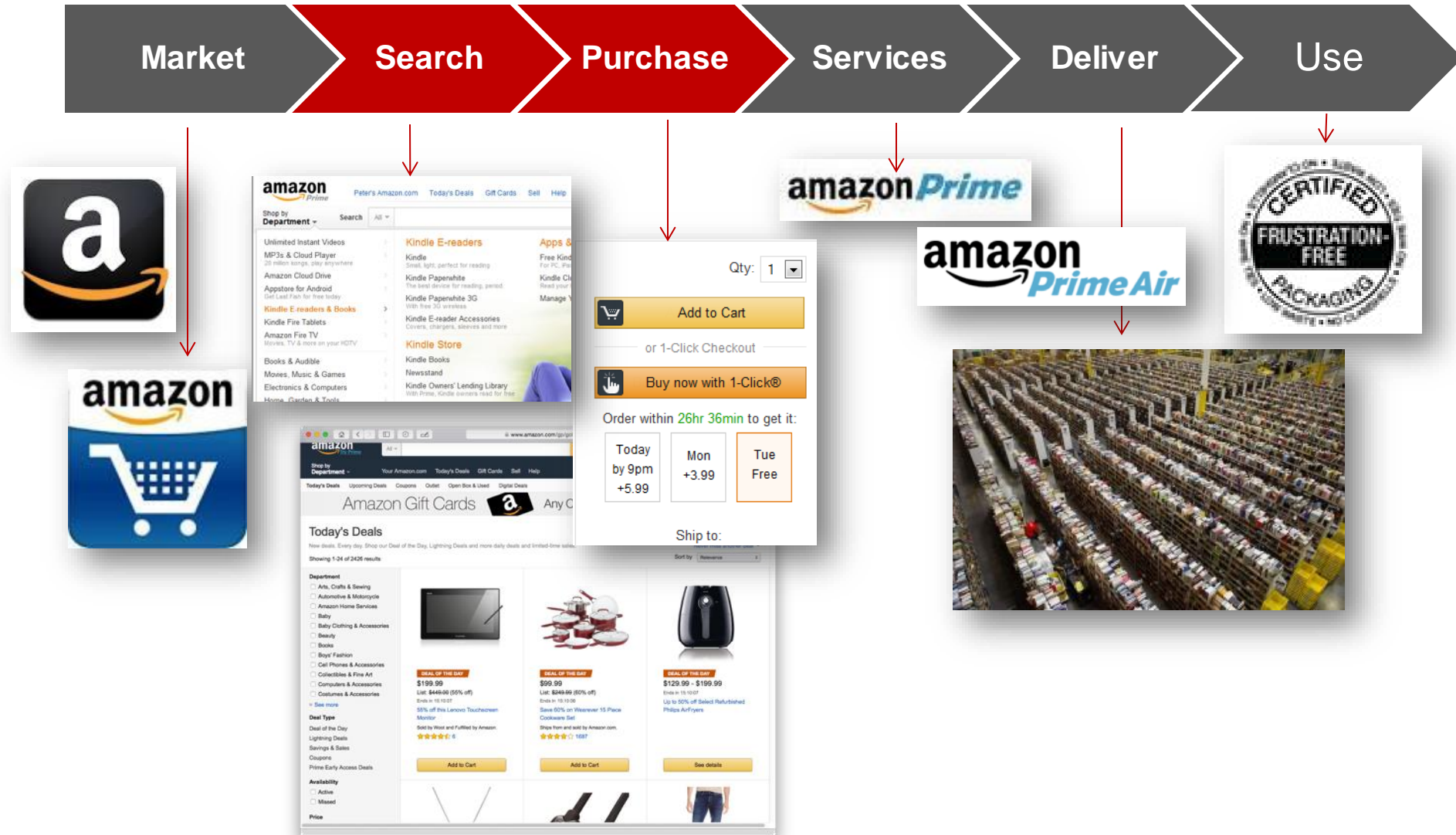


Designing for the end to end experience: Apple



Ecosystem instead of individual products

Designing for the end to end experience: Amazon

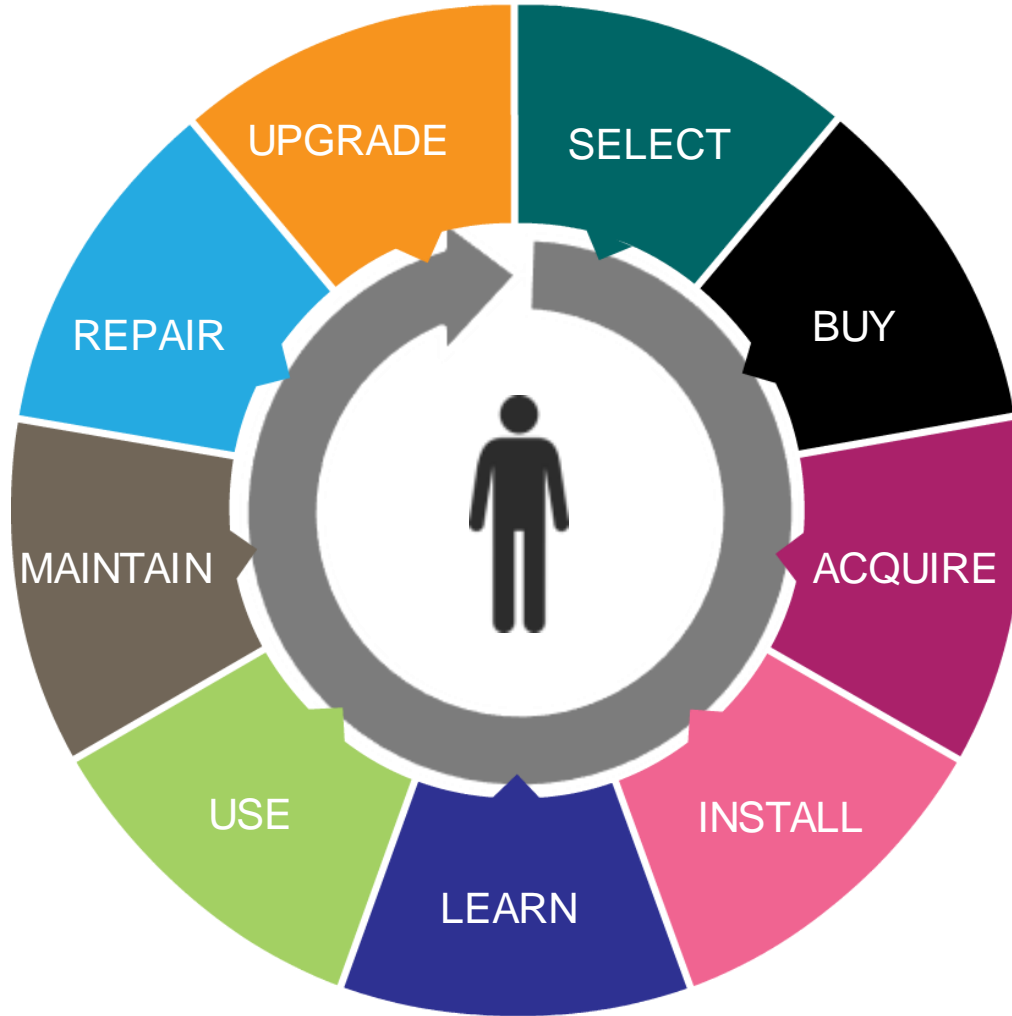


Designing for the end to end experience: Aero



Do you know where your customer's journey starts & stops? What are the experiences?

End-to-End Experience



- The end-to-end experience is composed of all touch points between a user and Honeywell
- Those touch points need to be identified, analyzed, designed for and validated
- Note that for every phases shown on the left, support may be needed!

User Centered Design Approach

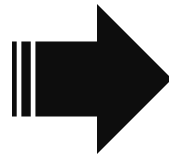
Balance of Business, Technical AND User Needs

FROM

Mostly Technology-Centered Innovation

- Pragmatic Products
- Performance Focused
- Serial Development
- Narrow View of Customer
- Product Specific Design

Little User-Centered Innovation



TO

User-Centered Innovation

- Empathic Solutions
- Experience Focused
- Broader View Of Personas
- Brand Design Language

AND

Technology-Centered Innovation

- Iterative Development
- Platforms & Reuse
- Considering Diverse Users

User-centered Design Approach



Creating Solutions That Are...

More Intuitive
Easier To Use
More Productive

More Desirable
More Efficient



Improving...

User Experience
Customer Experience
Brand Experience

Customer Loyalty



Tangible Business Outcomes...

Differentiated Offerings
Faster Growth
Expanded Market Share

Premium Pricing
Value Creation

Who are UX Professionals?

Embrace diversity and multi-disciplinarity!

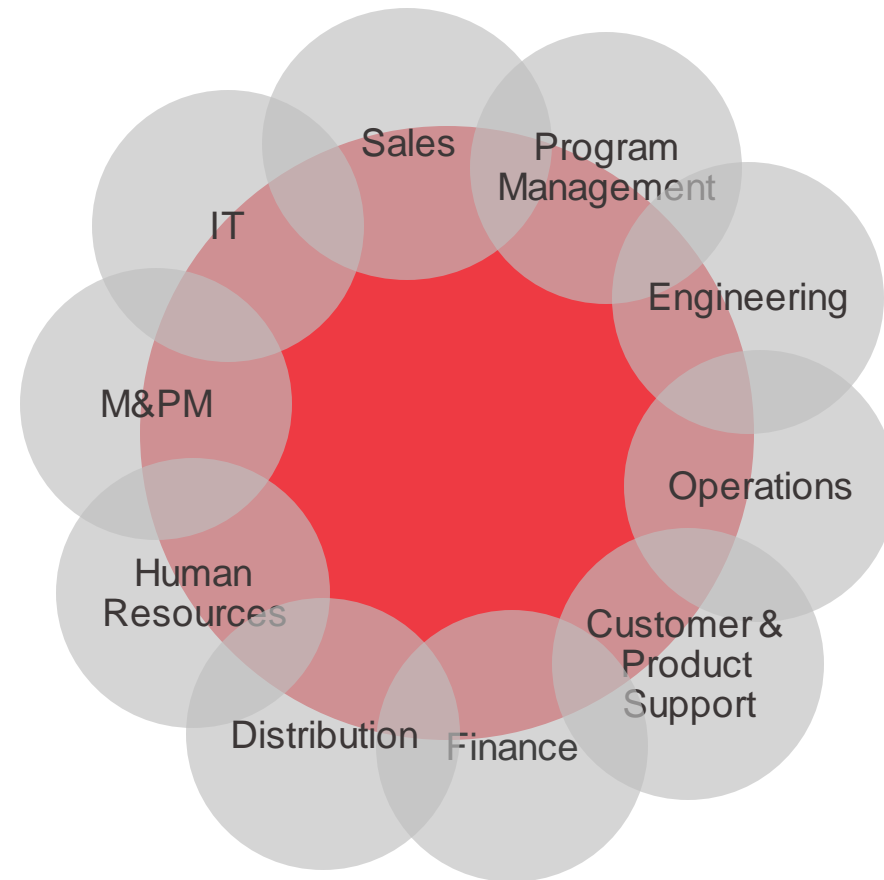


- **COGNITIVE SCIENCE**
- **ERGONOMICS**
- **ETHNOGRAPHY**
- **GRAPHIC DESIGN**
- **HUMAN FACTORS**
- **INDUSTRIAL DESIGN**
- **INTERACTION DESIGN**
- **PSYCHOLOGY**
- **USABILITY ENGINEERING**

Honeywell User Experience

HUE is not done exclusively by Honeywell User Experience experts.

We all must lead the way by embedding a Honeywell User Experience mindset.

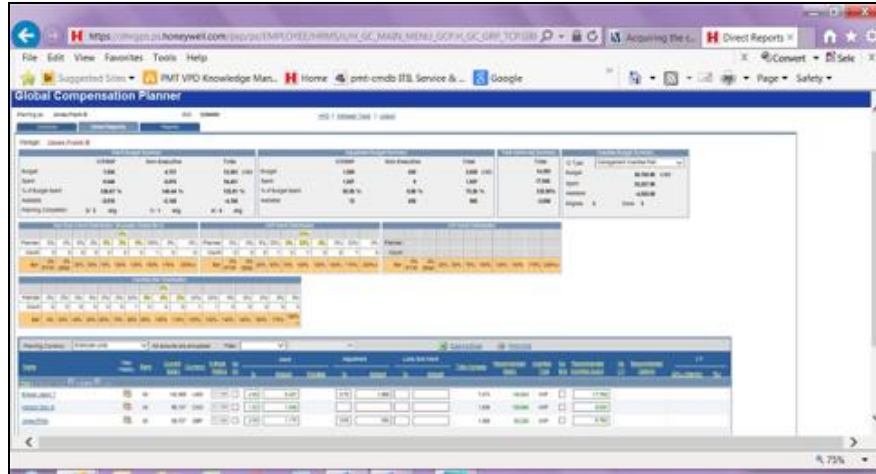


Driving a Culture of HUE

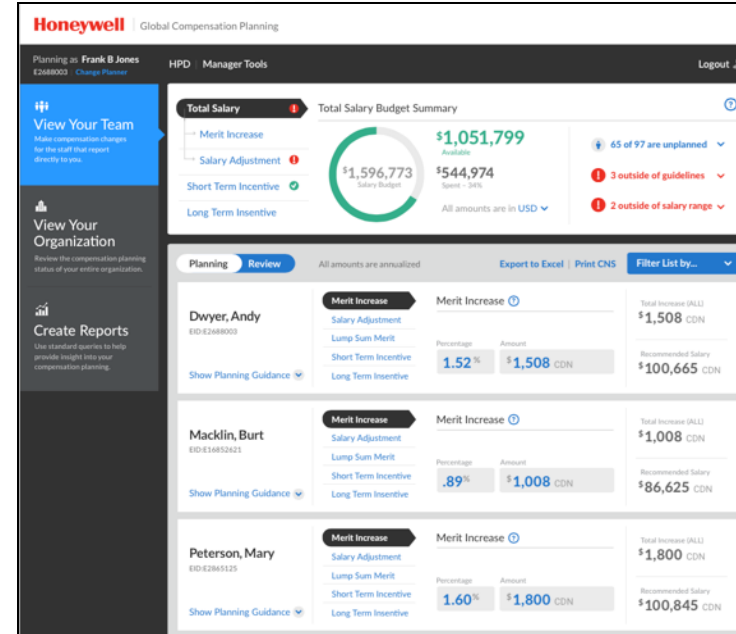


Project Example: Global Compensation Planner

Before



After



Charter: Revise and enhance the perception and usefulness of the Compensation Planning process

Benefits

Re-architected interaction models, experience taxonomy and interface

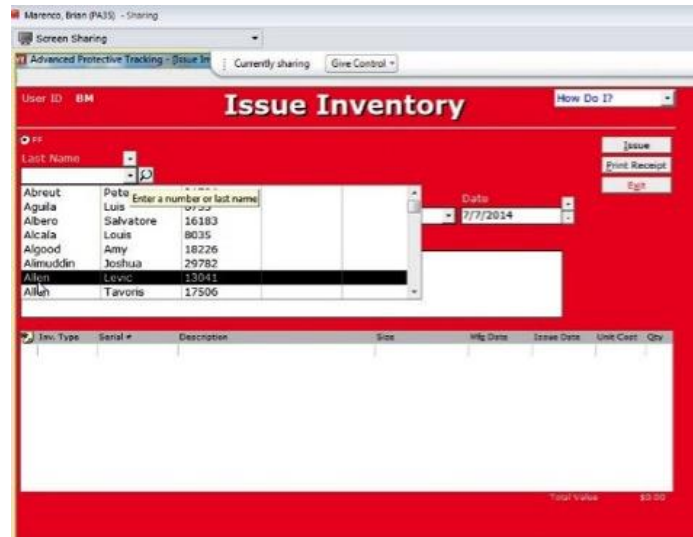
HUE Tools Used

OVOC, Sketches, Prototypes, A/B Testing

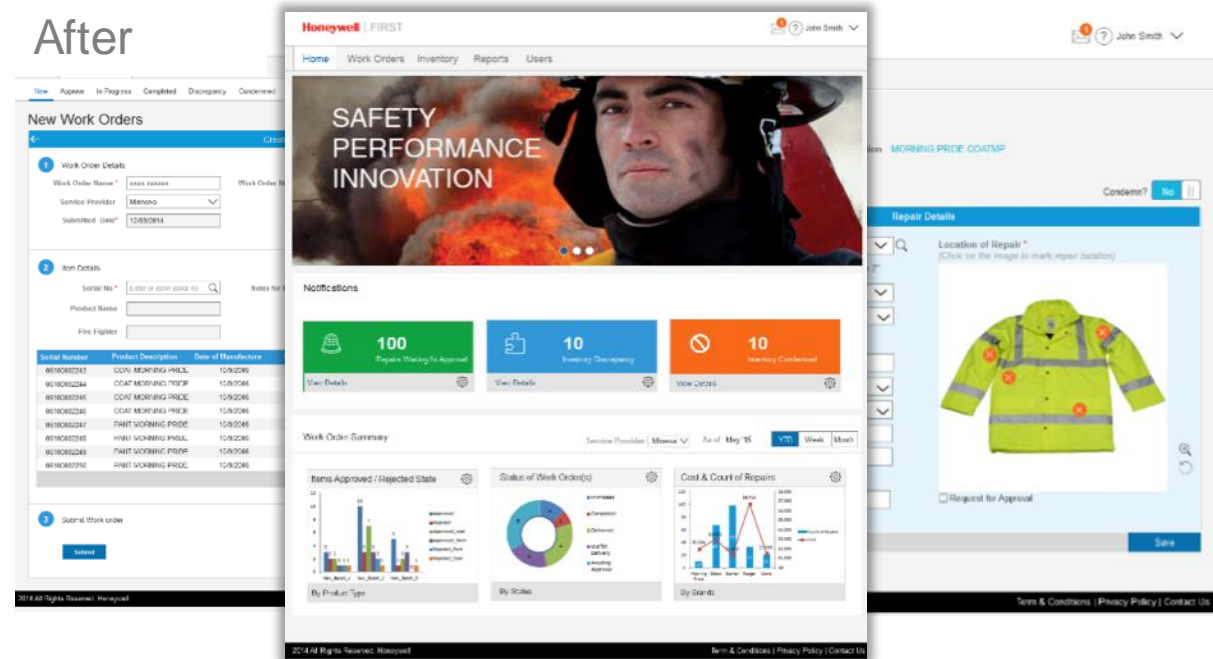


Project Example: FIRST - Fire Inventory & Responder Support Tools

Before



After



Charter: Increase the software product sales and personal protective equipment (PPE) revenue by helping the fire department through efficient inventory management

Benefits

- Real time asset tracking
- Maintenance & Cleaning Management Solution
- Predictive Analytics

HUE Tools Used

OVOC, Journey Mapping, Task flow Analysis, Wireframing, Prototyping

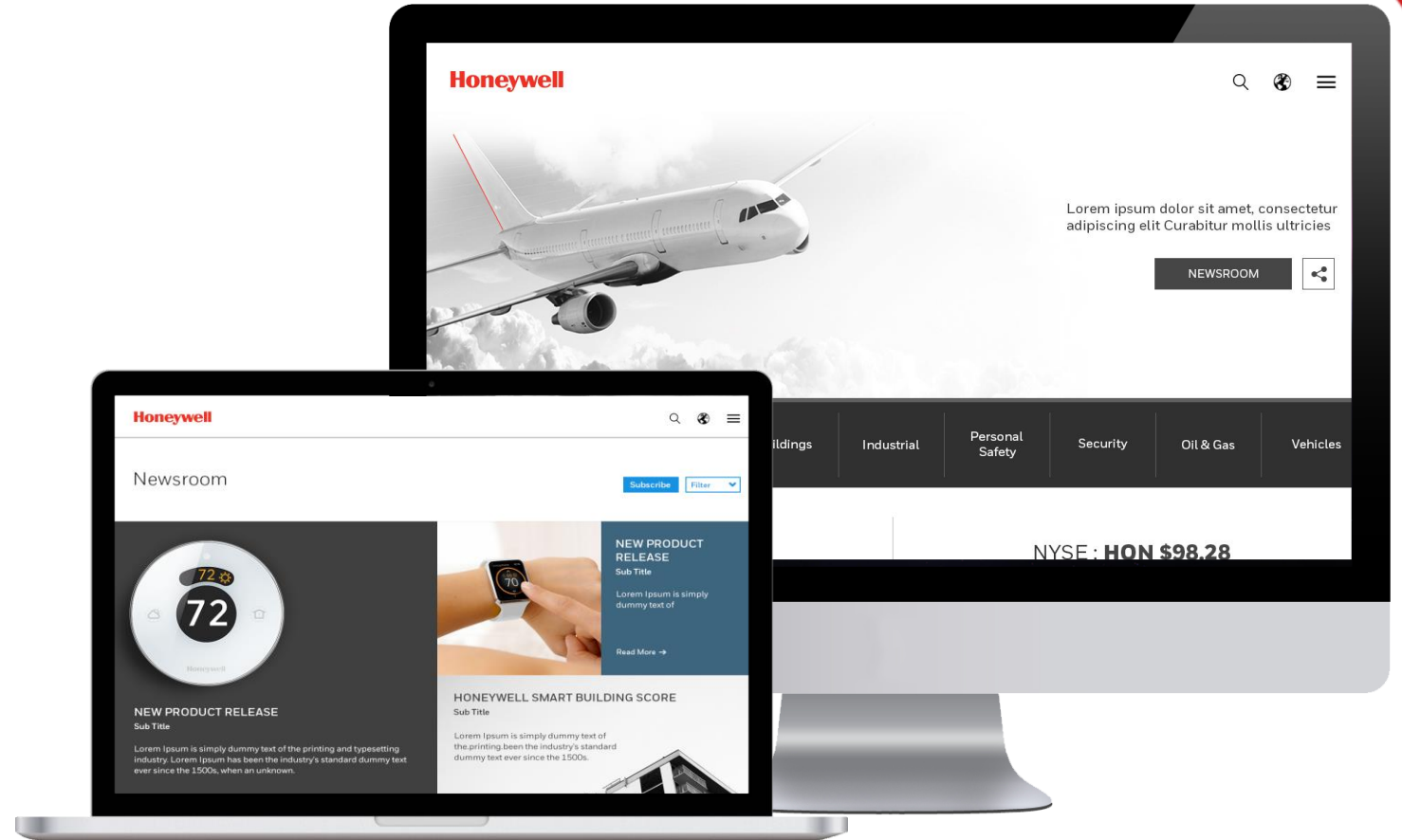
ROI

Projected Revenue ~ \$2-2.5M

Project Example: Honeywell.com

Corporate

- Nature of the project –
 - Re-envisioned Honeywell.com based on user-centered design process
 - Adopt HDLS, within the constraints of the Connected Homes Templates
- What we did –
 - Stakeholder Interviews & Analysis
 - Competitor & User Task Analysis
 - Information Architecture
 - Wireframes
 - Visual Design
 - User Testing
 - Collaboration across functions & locations



Benefits we created and impact we had –

The new design provides better visibility into Honeywell's Industries, Products, News and Directs the user to the right external site with a simplified search functionality. It also has a strong focus on improved Media Consumption.

Driving a Culture of HUE

What to do...

Behaviors to drive...

Questions to ask...

Demand Great Experiences

- Be engaged – Great experience happen by design NOT by accident
- “Best in Class” benchmarking

- “Who have we benchmarked?”
- “Who does this well?”
- “Are we settling for “good enough?”

Engage the Users

- Deep understanding of user needs – stated & unstated
- Observe, interview, survey
- Engagement is continuous

- “Have we talked to the end users?”
- “Who and how many?”
- “What is the user need we are trying to solve?”
- “What did we learn?”

End-to-end Experiences

- Connected & Consistent End-to-End experiences
- Design to key touchpoints
- Know your personas and user journey

- “How does this solution fit into the end users’ overall journey?”
- “What other key touchpoints do we need to consider?”
- “Do we know who the personas are that we are targeting?”

Iterate Early & Often

- Encourage early, low-fi concept designs
- Prototype to communicate, learn and get user feedback

- “Did we build a storyboard or concept design?”
- “Who reviewed it?”
- “What did we learn?”

Integrated in Key Processes

- Plan (budget & resource) for HUE activities
- Early integration to impact Design

- “Did we plan for HUE activities in the project schedule?”
- “Have we planned budget for HUE activities?”
- “Do we have HUE expertise available?”

Quiz

Which of the below describes a USABLE product?

- A. Plenty of features
- B. Very few features
- C. Built on the latest development platform
- D. Pretty expensive
- E. Pretty cheap
- F. All of the above
- ★ G. None of the above



Quiz

What of the below functions are doing UX?

- A. HR
- B. User Researcher
- C. Business Analyst
- D. Legal
- ★ E. All of the above
- F. None of the above



Quiz

Which of the below are typical UX roles?

- A. Controller
- ★ B. User Researcher
- C. Business Analyst
- D. Developer
- E. All of the above
- F. None of the above



Then again,
what's the worst
that can happen...

Feedback

- Have your expectations been satisfied?
- What did you like?
- What can we do better?



The End