

Getting Started with Design Thinking: A Guide for Developers and Managers

Billy Hollis

Agent Provocateur

Next Version Systems

billy –at– nextver.com

Level: Beginner, Intermediate

Some background

2008



StaffLynx - accessed by Billy Hollis

StaffLynx
TEMPORARY STAFFING

Customers

Search

6 search results for 'ny'
Sort by: **Name**

Albany Branch
Branch | 0 active orders | 0 employees assigned

Cruger Company
Main | 0 active orders | 0 employees assigned

Green Lake Company
Main | 2 active orders | 0 employees assigned | last order on 5/15/2008

Greenwood Athletic Company
Main | 0 active orders | 0 employees assigned

NY Accounting
Work Site | 0 active orders | 0 employees assigned

NY Marketing
Work Site | 0 active orders | 0 employees assigned

Open Customers

Green Lake Company

NY Marketing

Recent Customers

NY Marketing

Green Lake Company

Dunder Mifflin Old

New York Branch

NY Accounting

Active Customers

139

Customers with Active Orders

4

Expiring Orders

1

Home

Orders

Employees

Customers

Timesheets

Payroll

Billing

Reports

Settings

StaffLynx - accessed by David Garcia

STAFF LYNX

Accessed by David Garcia Logout

Ansel Audio Labs

QUICK LINKS

Profile

CRM
P.O. Tracking
Payroll Information
Job Templates
Sub Items
Exclusions
Notes

Profile

Branch Name: Ansel Audio Labs
Business Type: Manufacturing
Status: Active
Active Date: 9/4/2008
Main Phone: 615-333-0666
Dress Code: No ties

Address

Main
101 Creekside Crossing
Suite 200
Brentwood, TN 37027
Add Edit Delete

Contacts

No items
Add Edit Delete

Other Contacts

Ansel Hollis (Chief editor)
Anson Video Production
Cell 615-444-5555
Email ansel@somedomain.com

Sep 10
This is a sticky note

Sep 5
Make sticky

Sep 5

Save Close

Home

Orders

Employees

Customers

Timesheets

Payroll

Billing

Reports

Settings



5

Monday
August 2013
09:51Welcome,
Cynthia Hilliard

Search for reports



WORK LIST



0 Suspended Reports

Reports that have been started, but not completed.



1 Reports Pending Review

1 overdue

Reports that have been assigned to you for review.



0 Reports Sent To Transcription

Reports that have been sent out for transcription.



0 Reports Returned From Transcription

Reports that have been returned from transcription.



0 Reports Recently Completed

Reports that have been signed recently. Signing can be undone for cases sitting in the outbox.

MESSAGING



MESSAGING (0)

MANAGEMENT ACTIONS



Text Inserts



User Preferences

Smith Sally

MRN: 600388

Female, 31Y

DOB: 05/15/1982

Job Number: 002066

CHEST 1 VIEW

RD - Basic Radiology Document type

Main Accession: 1048

INDICATION: cough

PROCEDURE: Chest radiograph single view.

COMPARISON: None

FINDINGS: The heart is normal in size. There is no hilar or mediastinal adenopathy. The lungs are clear. The pleura is normal. Bones and soft tissues are normal. The subdiaphragmatic area is unremarkable.

CONCLUSION: Normal single view chest radiograph.

MIC
OFFSIGN
REPORT

B

I

U



CP













































































































































































































































































































Design is an investment.

Like any other investment, we expect a return. And that return can be huge.

But most decision makers don't anticipate that return. So they don't facilitate UX design.



Why don't they expect a return?

- Vague understanding, or misunderstanding, of what “design” even means
 - The term is overloaded, and the vagueness is sometimes leveraged by hucksters
- No exposure to examples of ROI for design
 - Those who leverage design well don't like to advertise their success to competitors
- Don't know what the starting point should be

To clarify what “design” means, we need a starting point

- I’m going to use desktop apps (in native or web technologies)
 - Many, many companies run on these
- Mobile and tablet also important, and there are parallel lessons for designing those types of apps

orders

		Order No.	Order Date	Shipped Date	status	comments	Customer No.
<input type="checkbox"/>	+	10100	2003-01-06 00:00:00	2003-01-10 00:00:00	Shipped	foo	363
<input type="checkbox"/>	-	10101	2003-01-18 00 00 00	2003-01-22 00 00 00	Shipped	Check on availability	128

Item No.	Product Code	Quantity	Unit Price
1	<u>S18_2795</u>	26	\$167.06
2	<u>S24_2022</u>	46	\$44.35
3	<u>S24_1937</u>	45	\$32.53
4	<u>S18_2325</u>	25	\$108.06
Page 1 of 1 20 View 1 - 4 of 4			

<input type="checkbox"/>	+	10102	2003-01-10 00:00:00	1946-04-10 00:00:00	Shipped		181
<input type="checkbox"/>	-	10103	2003-01-29 00 00 00	2003-02-02 00 00 00	Shipped	fasdfasdfa asdfa	141

Item No.	Product Code	Quantity	Unit Price
1	<u>S24_2300</u>	36	\$107.34
2	<u>S18_2432</u>	22	\$58.34
3	<u>S32_1268</u>	31	\$92.46
4 3	<u>S10_4962</u>	42	\$119.67
5	<u>S18_4600</u>	36	\$98.07
6	<u>S700_2824</u>	42	\$94.07
7	<u>S32_3522</u>	45	\$63.35
8	<u>S12_1666</u>	27	\$121.64

Name	Sherlock Holmes	Master Header	1B-2B-3
Street	221B Baker St.	Override Auth	1-1A-2B
City, State, Zip	New London, CT 13161	Diff Splint	Stage 9
Region	Northeast	Fustamont	Bucksnot
Discount	7%	Oblate Diad	108.291702
Master Code	NCC-1701	Frenulum	Keep Left
Credit Limit	\$100,000	Chiro Fistula	Thiotimiline
Debit Limit	\$50,000	Overt Crang	Foramen Magnum
Account Type	Annual	Blastokink	Mitochondria
Overage Fee	\$39.50	Parody Fee	\$17.50
Sales Rep	Watson, J	Chaotic Orb	Hanal Nathrac
Prof Category	Charlatan	They Just	M41/M46
Route Output	Max donuts	Keep Cramming	Energy Sword
Histoform	Patella 2	More Data	Incineration Projector
Frengle Type	PinkFrengle	Into This	Spiker
Rampancy Slot	Sloane	Dense Form	BR85

Demographics	Fissure Table	Dingleplops	Raster possums	
StopType	Arrived	StopETA	ArrivalTime	StopDesc
Warehouse	<input checked="" type="checkbox"/>	8/22/2018 3:25:00 PM	8/22/2018 3:25:00 PM	Nashville
Office	<input checked="" type="checkbox"/>	8/22/2018 5:40:00 PM	8/22/2018 5:40:00 PM	Tulsa ware
Residence	<input type="checkbox"/>	8/23/2018 3:25:00 PM	8/22/2018 3:25:00 PM	Houston D
Office	<input checked="" type="checkbox"/>	8/25/2018 3:25:00 PM	8/23/2018 3:25:00 PM	Los Angel
	<input type="checkbox"/>			
Indicators				
Oh My Goodness	Scorpion			
They're Still	Warthog			
Cramming More	Hornet			
Stuff in Here	Mongoose			
Nobody needs	Pelican			
Any of This	Wasp			

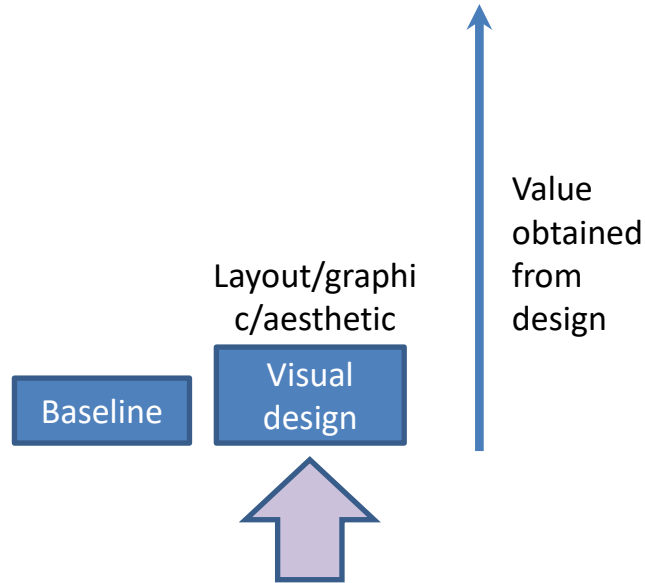
Route #	Customer	Shipper	Stops	ETA	Cond	G/L Ref	Issues	Condition	
Z47202905	Giant Goofy Gadgets	Crazy Chris Trucking	4	7/27/2019 5:37:22 PM	5	QX-307181	0	5	
Z47200284	Last Mile Fuel	Last Mile Trucking	5	7/28/2019 5:37:22 PM	8	QX-306740	0	8	
Z47204830	Krazy Krafts	Federal Worldwide	5	7/25/2019 5:37:22 PM	5	QX-308392	0	5	
Z47202306	Instant Teleportation, Inc.	Hollis Worldwide	4	7/25/2019 5:37:22 PM	8	QX-306312	3	8	
Z47202337	Instant Teleportation, Inc.	Hill Valley Transportation	5	7/23/2019 5:37:22 PM	2	QX-305717	0	2	
Z47206046	Yosemite Sam Liquors	Across the Ocean Blue	4	7/24/2019 5:37:22 PM	4	QX-305860	0	4	
Z47207193	Everywhere Transportation	Speedy Transit	5	7/28/2019 5:37:22 PM	4	QX-308276	0	4	
Z47203833	Mistrel Auditorium	Instant Teleportation, Inc.	5	7/25/2019 5:37:22 PM	5	QX-306117	0	5	
Z47201217	Instant Teleportation, Inc.	Speedy Transit	5	7/27/2019 5:37:22 PM	4	QX-307292	2	4	
Z47202415	Hollis Enterprises	Last Mile Trucking	4	7/26/2019 5:37:22 PM	4	QX-309330	0	4	
Z47205391	Hollywood Hotels	Bugs Bunny Expeditors	5	7/28/2019 5:37:22 PM	3	QX-302140	0	3	
Z47205847	Marvelous Marv	Everywhere Transportation	5	7/28/2019 5:37:22 PM	5	QX-307329	0	5	
Z47202335	Yosemite Sam Liquors	Hollis Worldwide	4	7/27/2019 5:37:22 PM	4	QX-304621	0	4	
Z47201380	Hollywood Hotels	Federal Worldwide	5	7/25/2019 5:37:22 PM	8	QX-306657	0	8	

This is the last few square centimeters of open space, so we have to jam something in there. Screen real estate is valuable! Or something. Anyway, let's fill this right up to the bottom. Let no space go unused!

Save
Cancel
Defer
Reject
Procrastinate
Blastoff

For many decision makers, “design” means visual/aesthetic design

It's often the first type of design a software development team incorporates into their apps



Aesthetics are important, but have a value ceiling

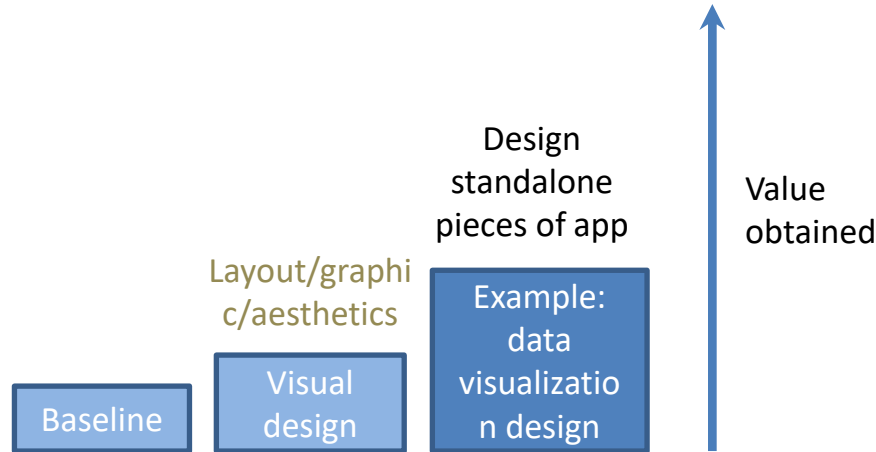


“Get me a designer!”



Incremental design – redesign part(s) of an existing app

Commonly used view that is considered inadequate, data visualization to help consume information, etc.



Incremental design on existing app

- Find a view/page (or a small group of related ones) that need improvement
- Go through lightweight design process
 - Observe users at work to see where the flaws are, discuss inadequacies with them
 - Sketch out ideas for improvement, hopefully several of them
 - Get feedback on sketches from users
 - Repeat until design is good enough to start implementation
- Generally informal

Typical candidates for incremental design

- Inadequate or confusing search
- Data visualization for important data
- Streamlining a heavily used workflow

All of these can add value far in excess of the investment made

Preparation for incremental design

- Developers need some basic grounding in design principles
- This helps generate ideas, and provides guidance on good and bad designs
- Video courses can get them started
 - I have one on Pluralsight, one on LinkedIn
- Or bring in some design instruction

You'll always be my valentine! 

**YOU'LL ALWAYS BE MY
VALENTINE!** 

A test to show how the visual system works

- I will show three slides for a few seconds each
- Each slide will have drawings of common tools you might find around your house or workshop
- Your task: how many slides contain a hammer?









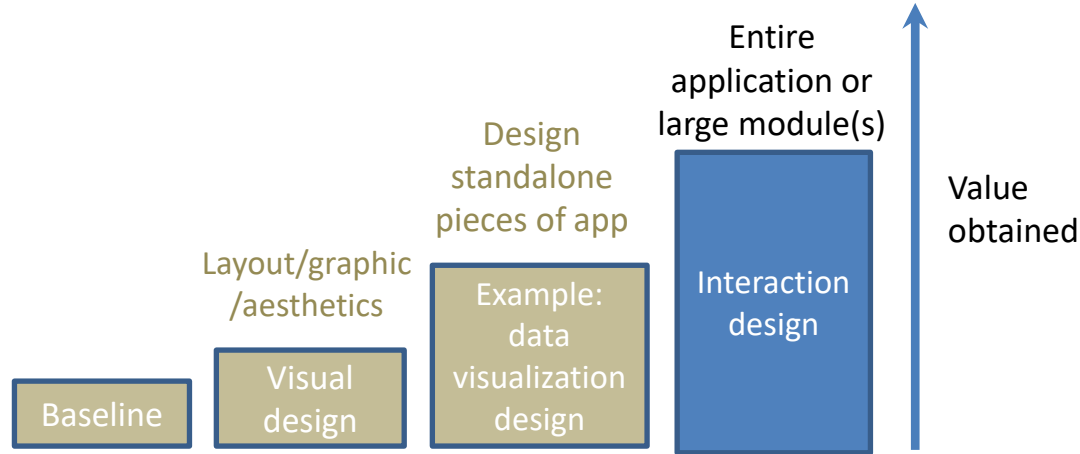
Next step up: application or module replacement

- Often because of platform change
- Replacing entire app, or at least a major module or two
- If the back end is adequate, the project is focused on replacing the front end

If you're re-creating anyway, applying UX design can make the replacement app far more valuable. (Why rewrite on a new platform and keep the same old, obsolete designs?)

Interaction design covers a larger app footprint, often an entire app

Designing navigation in the app is one major new design concern



This type of design is usually called Interaction Design

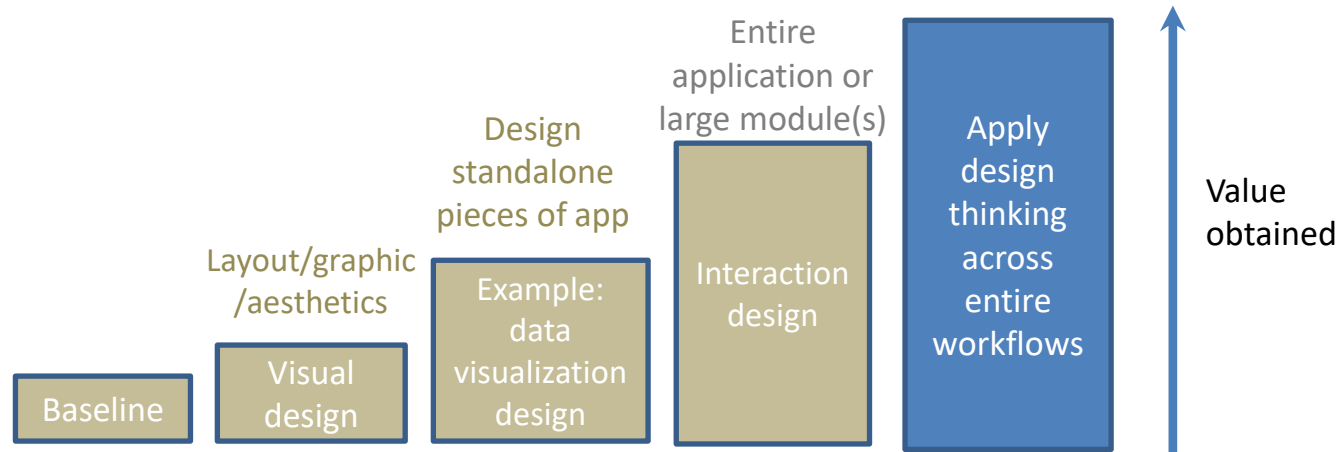
- Term coined by Alan Cooper, “The Father of Visual Basic”
- It focuses on interactions rather than layout
 - Interactions within a view
 - Interactions among views
 - Navigation throughout the app
 - Dynamic UI (expansion, overlays, changing out panes)
- Most of my projects are in this territory

Potential for very large payback

- I have a spreadsheet to calculate returns on this kind of design
- It's for business apps in general
- It's at <http://bit.ly/UXROIEstimator>
 - Google Sheets version at <https://bit.ly/UXROIGoogleSheets>
- Let's do a couple of examples

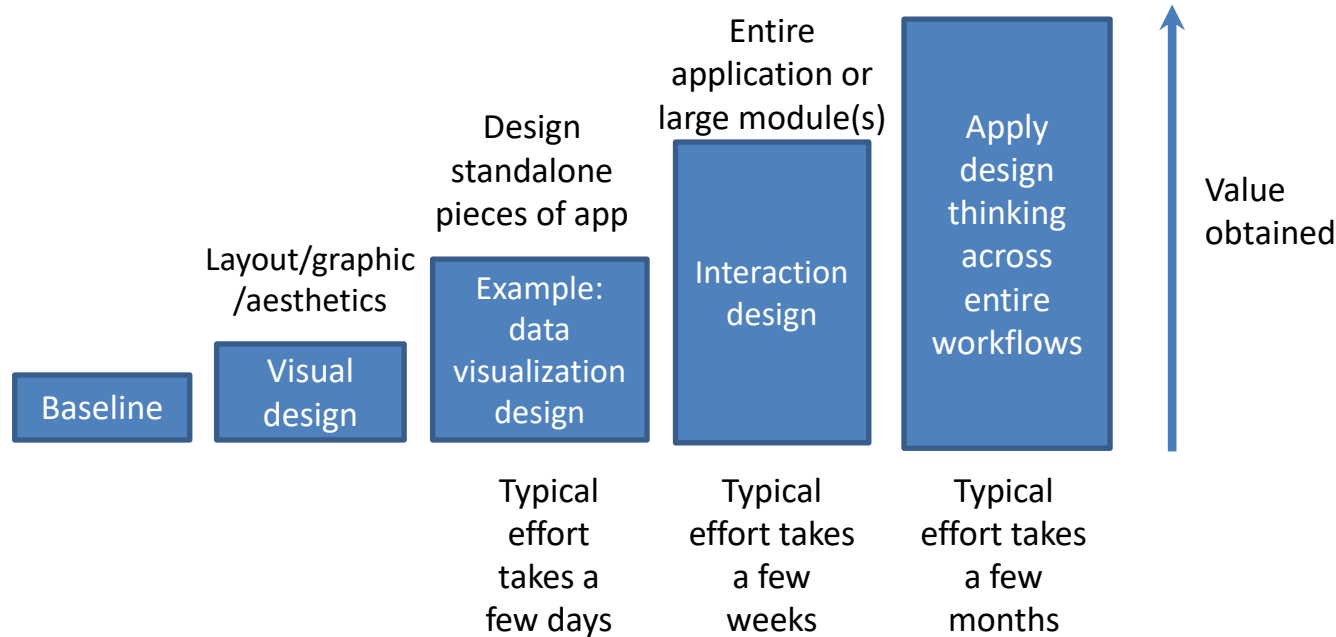
Design Thinking across entire workflows

Typically involves multiple apps, and business process reengineering



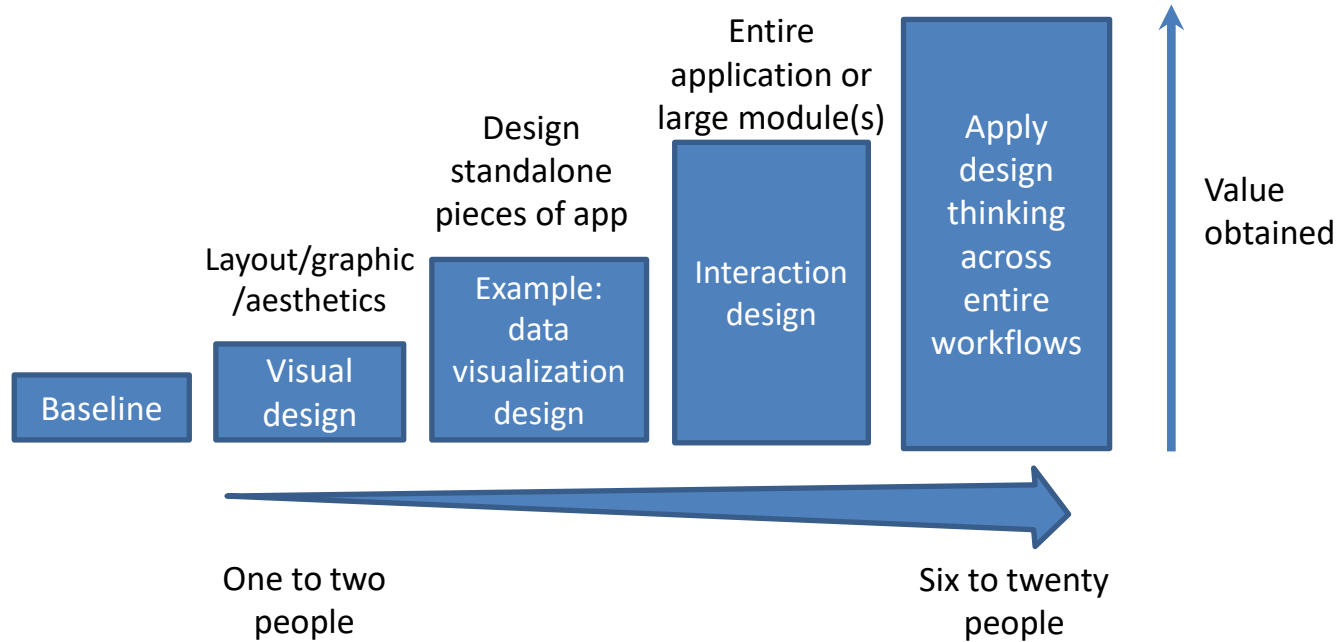
Time and investment vary with design ambition

More value as you go to the right, but more investment too



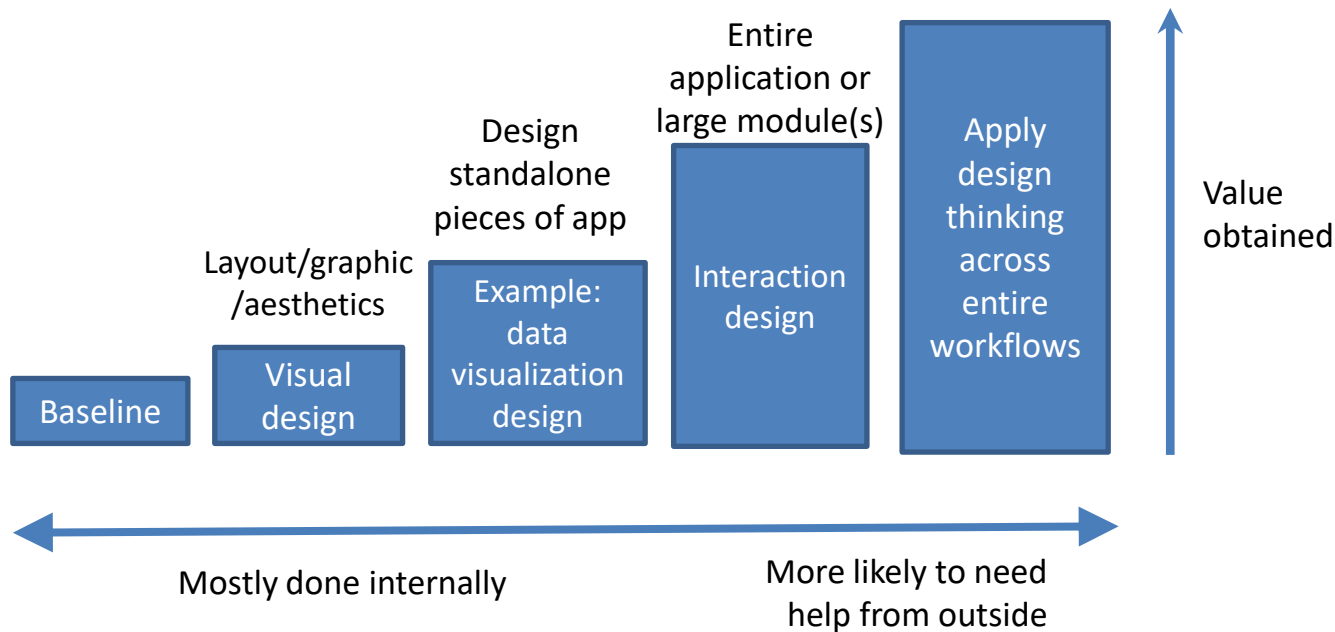
More people involved for higher value design

Active design teams are bigger for interaction design and workflow design



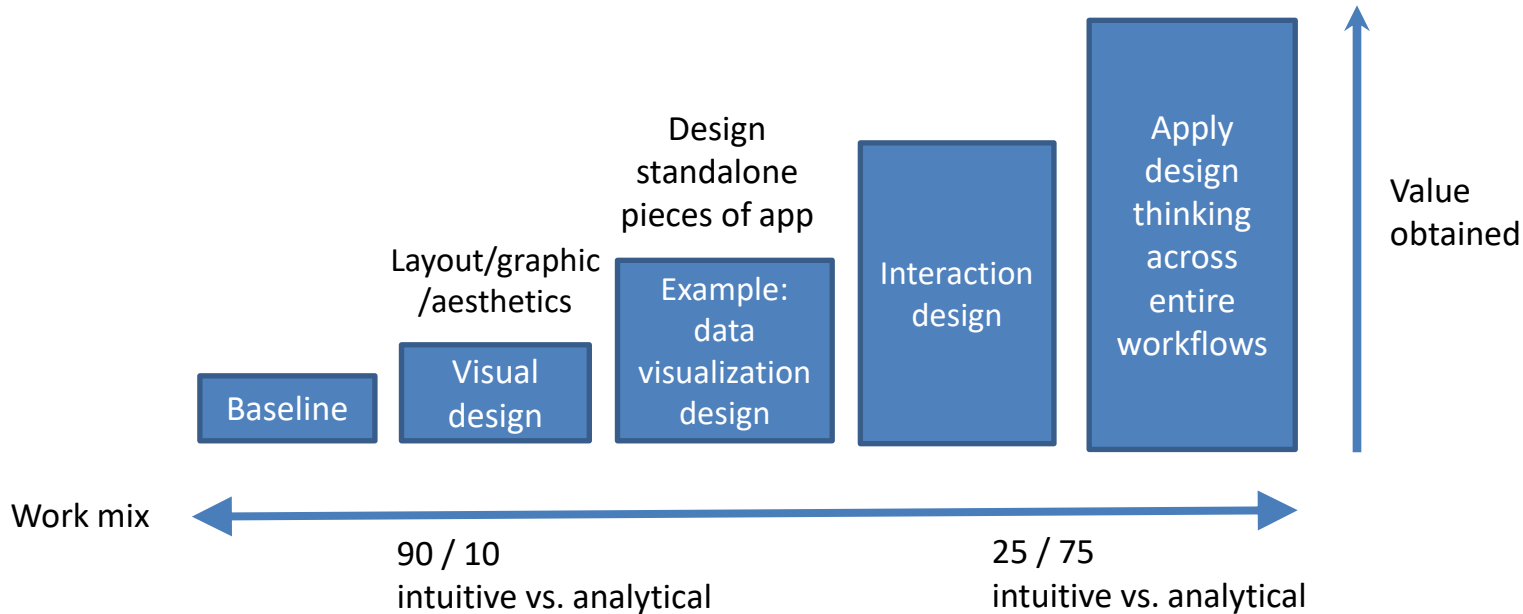
Internal only vs. external involvement

The further right you go, the more likely you are to need help from outside your organization



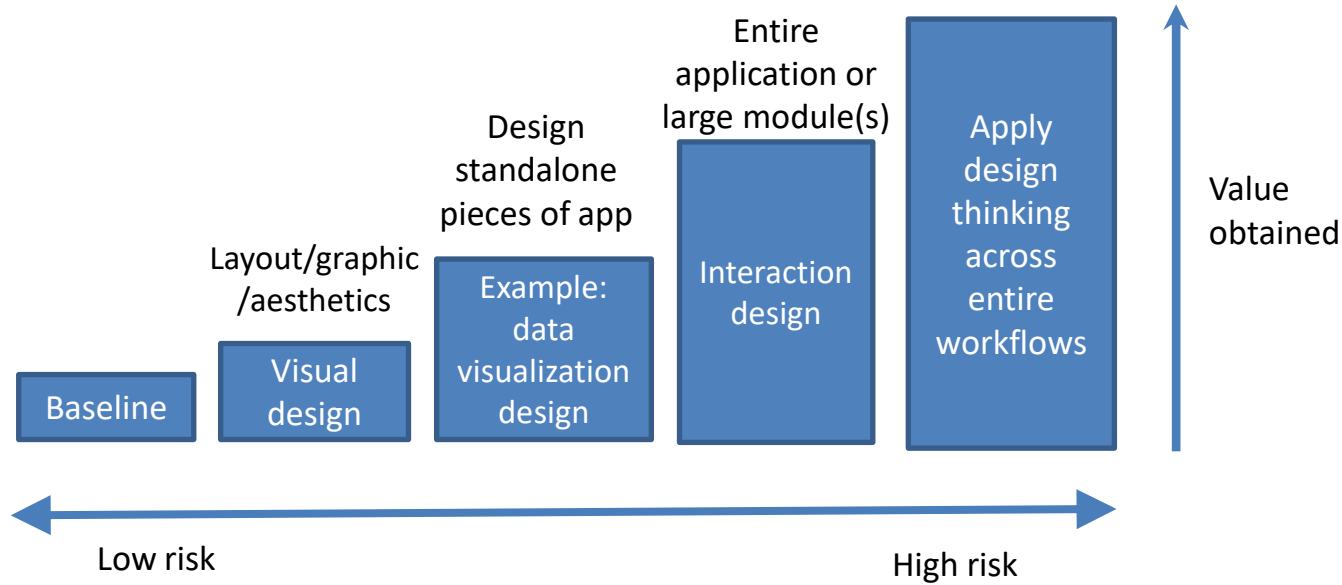
Sophisticated design is more analytical

Gathering data, measuring things, assessing design priorities more needed for interaction design and design thinking in workflows



Sophisticated design is higher risk

The more you change, the more pitfalls you will encounter. But sometimes inaction is even riskier....



Innovation easier and risk lower with external help

- Expertise in the design process
- Pool of design ideas from study and previous projects
- Facilitation and conflict resolution easier for someone from outside
- Most important – they help break the internal members of the design team loose from the past and embrace new thinking about old problems

Review: Where does design make or save money?

- For corporate applications, tangible, measurable savings from innovative interaction design
 - User productivity
 - Fewer errors
 - Less training
- Intangible benefits
 - Customer satisfaction
 - Employee satisfaction
- Advanced cases of design thinking: game changing innovation, leading to new revenues

An advanced case

- American Healthways (now just called Healthways), from 2003-2004
 - Grew 10X in revenue in 5 years, added \$2 billion to stock value
 - Key innovation – new, innovative, highly configurable call center app for managing disease and gathering healthcare information
 - Cut time to customize for new client from months to hours



HEALTHWAYS

Different analysis for commercial software packages and SaaS

- Impact areas
 - Improved sales
 - Retention of customer base
 - Lower customer support costs
- In this realm, excellent, innovative design can save the company
 - <http://bit.ly/RCCCIDemo>
 - This is the president of the company explaining how design transformed their software development efforts



Search menu

HOME

CUSTOMER HUB

SALES-CASH RECEIPTS

DELIVERY & SERVICE

FUEL

ACCOUNTS PAYABLE

GENERAL LEDGER

INVENTORY

FIXED ASSETS

PAYROLL

UTILITIES

SETTINGS

MESSAGES

OPEN ITEMS

USER
SystemAdmin

CUSTOMER SEARCH / CUSTOMER HUB

ABC Company · ABCCOM · 40

C.O.D.

Edit Details

More options...

Billing Address
79429 370th St
Olivia, MN 56277

Contacts
(320)231-3846 · Paul Johnson
Marge Peterson

11
active locations

17 days
since last delivery

47
open orders

\$510.08
balance due
\$9,353.99
actual balance w/disc



SUMMARY

Locations

+ Add a Location

LOCATIONS

ORDERS

FINANCIALS

CONTRACTS

FUEL ASSISTANCE

HISTORY

CUSTOM

EQUIPMENT

REMINDERS

1 active

CHECKLIST

0 of 11 completed

IMAGING

1 Home (DD)
LBR1

71%

500 gal

(Jack's House)
Sec 27 Bird Island Townshi...

No Deliveries Scheduled
Runs out in 68 days

No SWO's Scheduled
Last SWO was 19 days ago

2 Shop (DD)
LBC1

74%

1000 gal

(Shop Acct)
Sec 15 BI Township

No Deliveries Scheduled
Runs out in 97 days

No SWO's Scheduled
Last SWO was 61 days ago

3 Cdry (DD)
LBC1

WC

250 gal

Recent History (last 10 transactions)

Note Options Include Notes

Reference 91082	Note Reference D0005026	Note Reference D0005024	Note Reference D0005024	Note Reference W0010
<p>Location 2</p> <p>Status C</p> <p>Inventory#</p> <p>Description</p> <p>Bad debt</p> <p>Fuel Quantity 0.00</p> <p>Unit Price \$0.00000</p> <p>Amount (\$179.80)</p>	<p>Contact: test Route: 911</p> <p>Driver: 1 User: KJE</p> <p>Date Taken: 11/29/2018 Time Taken: 1:41 PM</p>	<p>need asap</p>	<p>Contact: bob Route: 911</p> <p>Driver: 1 User: BES</p> <p>Date Taken: 11/28/2018 Time Taken: 9:43 AM</p>	<p>Line runs from SW corner of house to tank</p>
Thursday, November 29, 2018	Thursday, November 29, 2018	Wednesday, November 28, 2018	Wednesday, November 28, 2018	Wednesday, November 28, 2018



Why isn't everybody doing this?

- Some apps don't have enough usage to get that kind of returns and results
- The industry has a shortage of “high design” expertise
- The inspiration to do great design is missing from our ecosystem
- Decision maker lack of understanding of design and its possibilities (including large potential paybacks) is a major factor

You probably don't know many of the best examples

- Organizations who come up with innovative design are not eager to share it with their competitors
 - Example: 3M Chartscript we saw earlier
- But you might be aware of the disasters...

Poor design can cause catastrophic failure

InformationWeek CONNECTING THE BUSINESS TECHNOLOGY COMMUNITY

Home News & Commentary Authors Video Reports White Papers Events University InformationWeek ELITE

STRATEGIC CIO IoT DEVOPS SOFTWARE SECURITY CLOUD MOBILE BIG D

SOFTWARE // ENTERPRISE APPLICATIONS

NEWS
12/12/2013
03:10 PM



Avon Pulls Plug On \$125 Million SAP Project

Avon halts its global rollout of an SAP order management system after a Canadian pilot project prompts reps to quit in frustration.

Avon has halted the global rollout of an SAP-based order management system after a failed deployment in Canada, [The Wall Street Journal reported](#) late Wednesday.



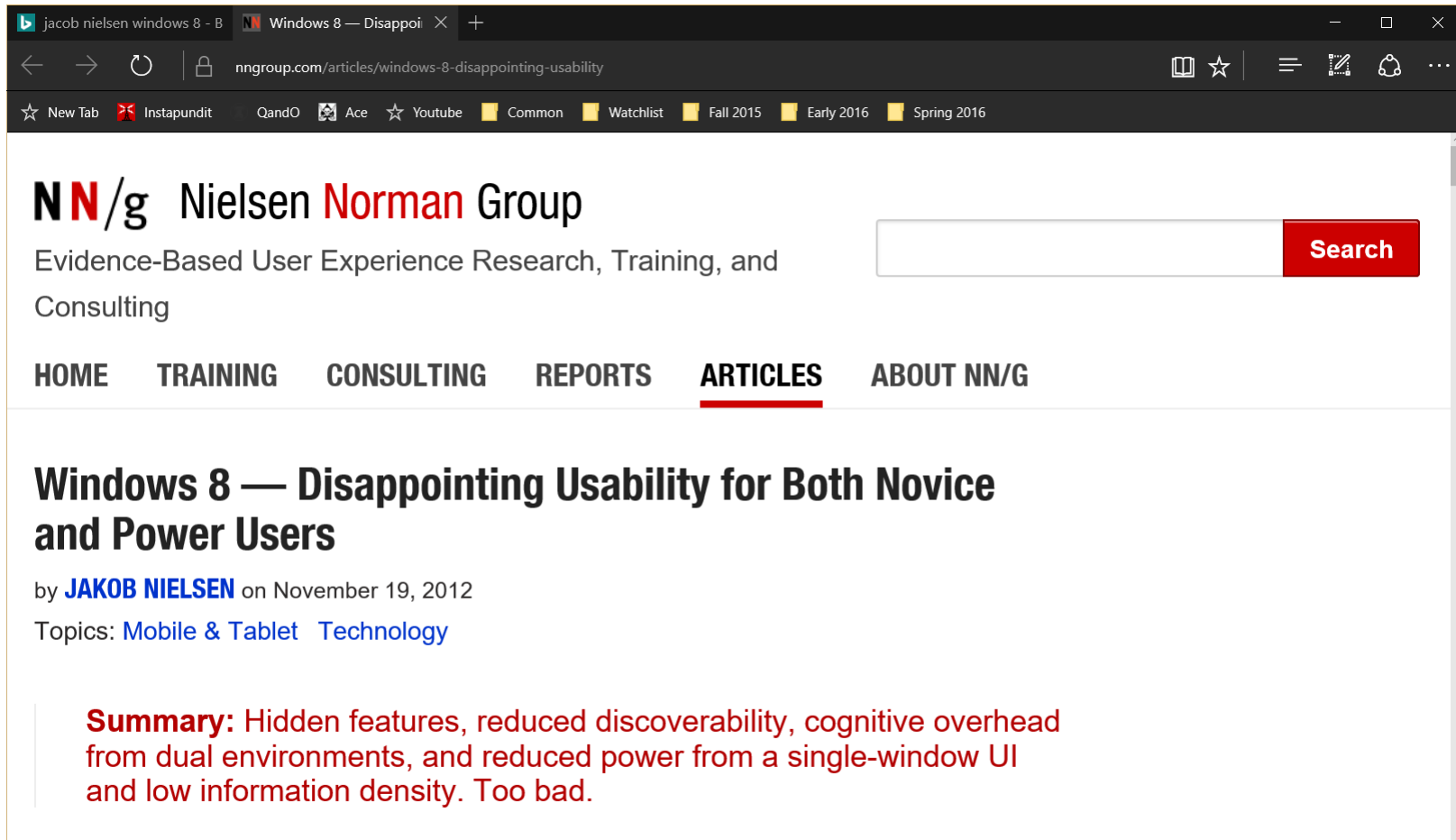
Doug Henschen
News

Connect Directly



“Avon halts its global rollout... after a Canadian pilot project prompts reps to quit in frustration.”

A really expensive design catastrophe: Windows 8



The screenshot shows a web browser window with the address bar displaying 'nngroup.com/articles/windows-8-disappointing-usability'. The browser's address bar and tabs are visible at the top. The Nielsen Norman Group (NN/g) logo is prominently displayed, followed by the tagline 'Evidence-Based User Experience Research, Training, and Consulting'. A navigation menu includes links for HOME, TRAINING, CONSULTING, REPORTS, ARTICLES (which is underlined), and ABOUT NN/G. The main heading of the article is 'Windows 8 — Disappointing Usability for Both Novice and Power Users', written by Jakob Nielsen on November 19, 2012. The article is categorized under 'Mobile & Tablet' and 'Technology'. A summary box highlights the key points: 'Hidden features, reduced discoverability, cognitive overhead from dual environments, and reduced power from a single-window UI and low information density. Too bad.'

jacob nielsen windows 8 - B Windows 8 — Disappoi X +

nngroup.com/articles/windows-8-disappointing-usability

☆ New Tab 📖 Instapundit QandO 📄 Ace ☆ Youtube 📅 Common 📅 Watchlist 📅 Fall 2015 📅 Early 2016 📅 Spring 2016

NN/g Nielsen Norman Group

Evidence-Based User Experience Research, Training, and Consulting

HOME TRAINING CONSULTING REPORTS ARTICLES ABOUT NN/G

Windows 8 — Disappointing Usability for Both Novice and Power Users

by **JAKOB NIELSEN** on November 19, 2012

Topics: [Mobile & Tablet](#) [Technology](#)

Summary: Hidden features, reduced discoverability, cognitive overhead from dual environments, and reduced power from a single-window UI and low information density. Too bad.

radio LIVE!
DEVELOPERS

Another blocking factor to leveraging design

- Developers and business analysts have the domain knowledge for design efforts, but...
- Developers often focused on code and technology
 - Design gets them out of their comfort zone
 - Talking to users, sketching designs, etc. not in their wheelhouse
 - Their “agile” focus on incremental development does not help
- Analysts think design isn’t hard, and that they don’t need professional design help to do it
 - They’re usually wrong about that



imgflip.com

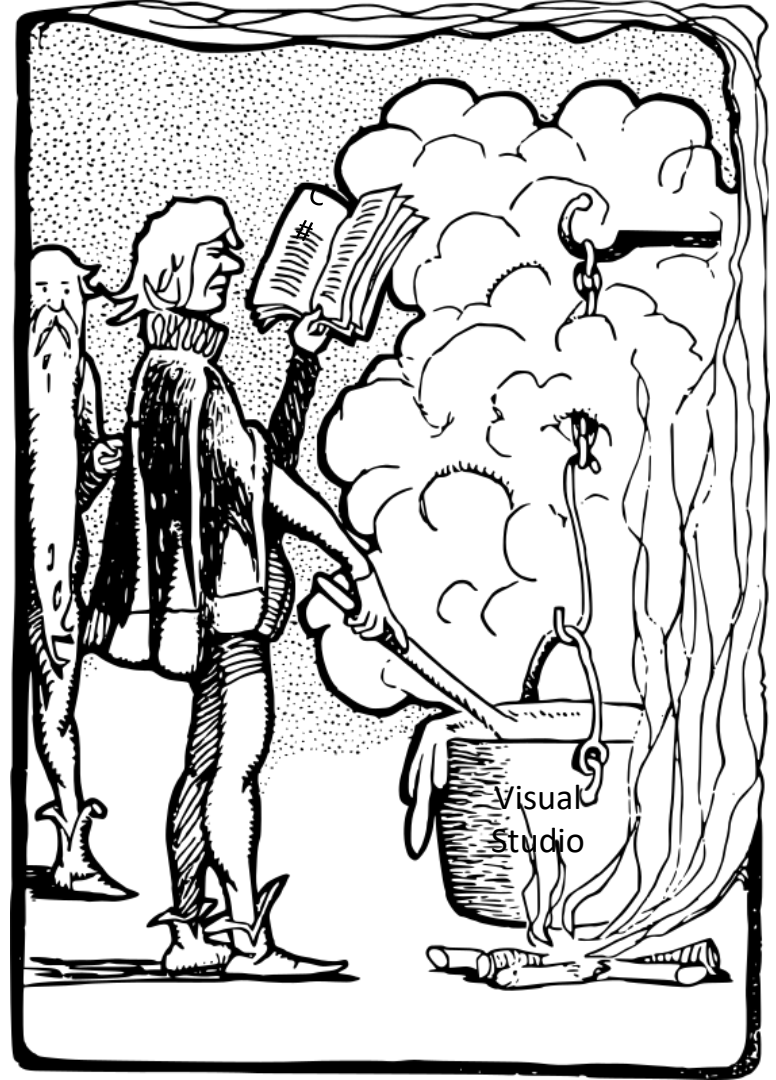
Different analysis for software package and SaaS

- Impact areas
 - Improved sales
 - Retention of customer base
 - Lower customer support costs
- In this realm, excellent, innovative design can save the company

First level of disconnect:
decision makers don't
understand what you do

You might as well be stirring
a cauldron and saying magic
spells.

Second level of
disconnect: decision
makers understand
even less about what
designers do



A photograph of a group of pink flamingos and two black birds in a grassy field. The flamingos are in the background, and the black birds are in the foreground. The text 'Designers' is overlaid on the top left, and 'Non-designers (Developers, managers, executives)' is overlaid on the bottom right.

Designers

Non-designers
(Developers,
managers,
executives)

They think development is already too expensive.

The last thing they want is to spend more money on it.

Common side effect: they discourage talking to users

- “It will just bother them”
- “We already know what the system needs to do”
- “We have this binder that discusses the requirements – just design from that”
- “The users are not accessible to developers” (for security or logistical reasons)
- A decision maker who does not want you to talk to users is showing an almost total lack of understanding of what design encompasses

Gradual approach

- Don't worry much about the aesthetic level – get visual design assistance as needed
 - Don't lean on them past what they can do
 - They usually have intuitive process with limited investigation
- Take an isolated piece and do a simple design process
 - <http://bit.ly/DesignProcV5> - my design process notes from my design class
 - Data visualization is a good example to try
- Larger design efforts for app replacement, major renovation, or platform change

Or jump to complex design if decision makers are onboard

- Structured design training
 - From interaction designer, not visual designer
- Ideally jump immediately into a real design effort
- You must have a design facilitator/lead
 - The more experience they have in deep design, the better
- Twin goals – get some good designs for the immediate project, plus learn design methods and principles for later projects

Typical steps in a UX design process

Understanding

- Business needs
- User observation in the field
- Analyzing user observations
- Creating work models
- Listing and prioritizing design tasks

Design

- Visioning
- Storyboarding
- Wireframing / Illustration / paper mock-up
- Interaction prototyping
- Design evaluation

Smaller design efforts => some steps optional

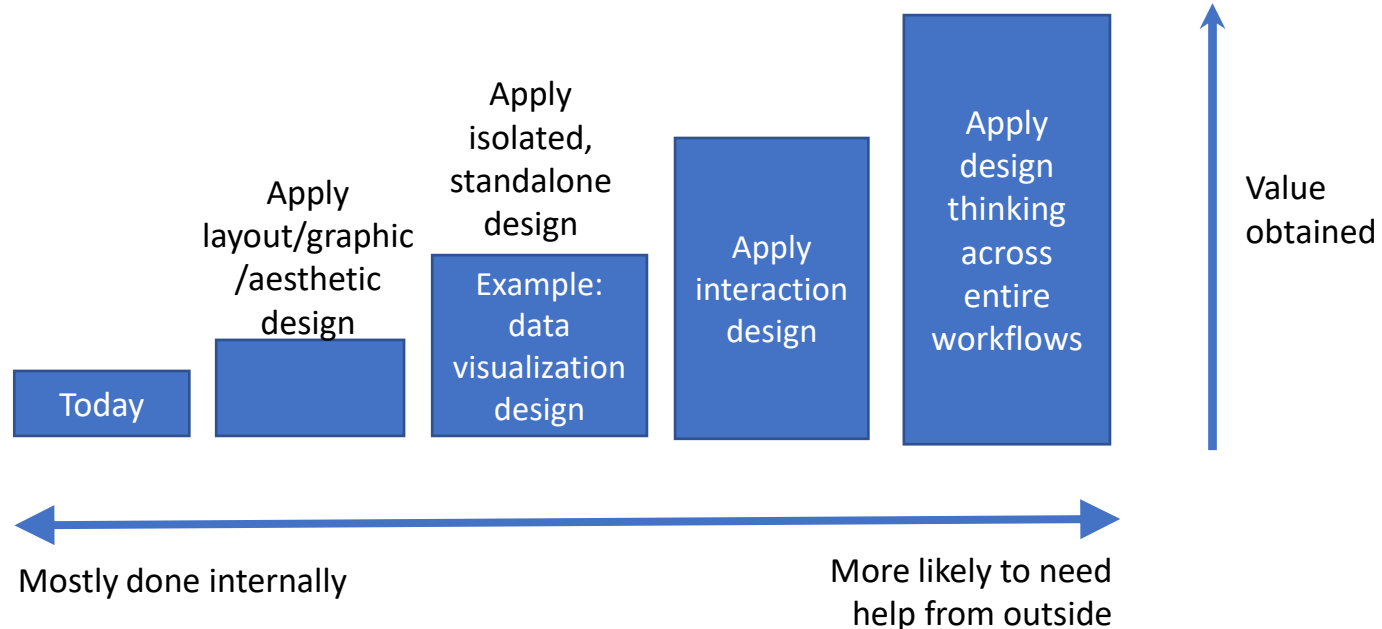
- Visioning, for example, not typical for standalone design efforts
 - But could be if a new graphics/charting package offered new avenues for the designs needed

Platform change

- Opportunity for total rethink of the application
- Start with firm understanding of the users and their workflows
- Interaction design for sure
 - First interaction design task often to figure out navigation in the new version
- Possibly re-engineer some work flows to dramatically speed up users or offer major innovations for the business

The rightmost efforts benefit most from an outsider's viewpoint

It's hard to imagine new ways of doing things when you have years of experience with the old ways

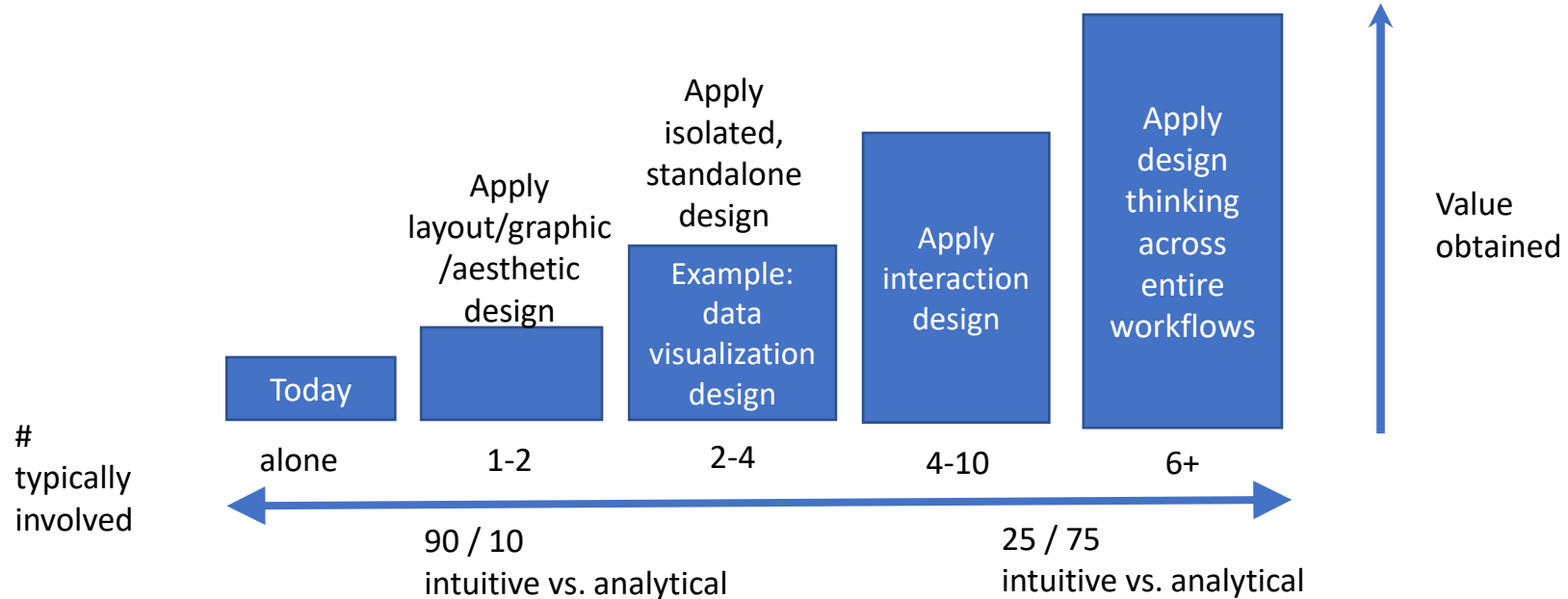


Design teams can involve many roles

- The more complex the design challenge, the more multi-disciplinary the design team needs to be
 - Leader/facilitator
 - Project manager
 - Business analyst
 - Users or user proxies
 - Domain experts
 - Developers who will be implementing the designs
 - Other stakeholders

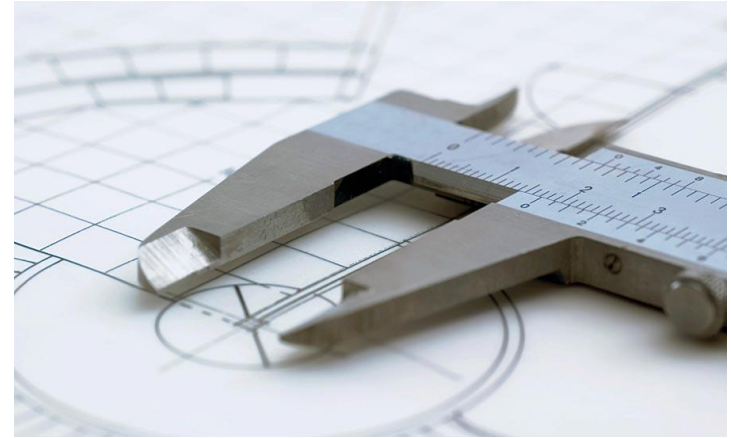
Size of team, balance of intuitive vs. analytical

Design efforts on the right side need larger teams and more analytical approaches



Measurement

- Early in the design effort, get your metric and the current value of it
 - Order per hour
 - Trouble tickets serviced per day
 - Revenue per week
- After implementation, measure again
 - Limited improvement -> suboptimal design
 - Major improvement -> haul out those spreadsheets



Blow your horn

- If tangible measurements show success, don't be shy about sharing that
- Otherwise, someone who did nothing but get in your way will jump in and take all the credit
- You don't have to share credit with outsiders unless you want to
 - We get our thrills from just doing the work... and making lots of money

Success is not assured

- Design is hard, and getting harder as things get more complex
- Not all teams make the transition to design thinking
- Even when they do, some individual design efforts fail

Resources: The role of creativity

- Out of our Minds: Learning to be Creative
(Sir Kenneth Robinson)
- The Creative Habit
(Twyla Tharp)
- Curious: The Desire to Know and Why Your Future Depends On It
(Ian Leslie)

Most books have links on the page
<http://billyhollis.com/designbooks/>

Resources: the design process

- Sketching User Experiences: the Workbook
(Bill Buxton, et. al.)
- 101 Design Methods
(Vijay Kumar)

Resources: design principles

- Universal Principles of Design
(Lidwell, et. al.)
- Designing with the Mind in Mind
(Dr. Jeff Johnson)

Resources: design thinking for organizations

- How Design Makes the World
(Scott Berkun)
- The Design Thinking Toolbox
(Michael Lewrick, et. al.)
- Most important resource - commitment

Resources: more from me

- What do Users Really See? (NDC London, January 2020)
Youtube - <https://bit.ly/WhatUsersSeeLondon>
- Pluralsight Course on design principles: <http://bit.ly/CUXPluralsight>
- LinkedIn course, UX Design for Developers: <http://bit.ly/UXforDevsLiL>
- Design process notes from my design class:
<http://bit.ly/DesignProcV5>
-

- User interface design, prototyping, and construction
- Design facilitation for task flow re-engineering
- Training on user experience design

- Set up a web meeting to discuss
 - Getting started with user experience design
 - Understanding return on investment of UX design
 - Evaluation of your current app: opportunities for UX improvement

billy-at-nextver.com

Billy Hollis



