

# Productivity Breakthrough

Replacing Clipboard and Paper With Mobile Apps  
Integrating Mobile Apps into Your Business

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# Presentation Overview

- A. Mobile is the future  
enables huge productivity advantages  
over exiting paper and clipboard systems
- B. What are paper, desktop computing, and mobile  
each good for?
- C. Delivering your first mobile productivity success

Mobile enables productivity  
not previously possible

# Mobile: enables revolutions...

*Tahrir Square a few years ago*





# Mobile enables disaster recovery

## *Katmandu after major earthquake*



# Mobile enables the web

*Every major website is now mobile friendly*



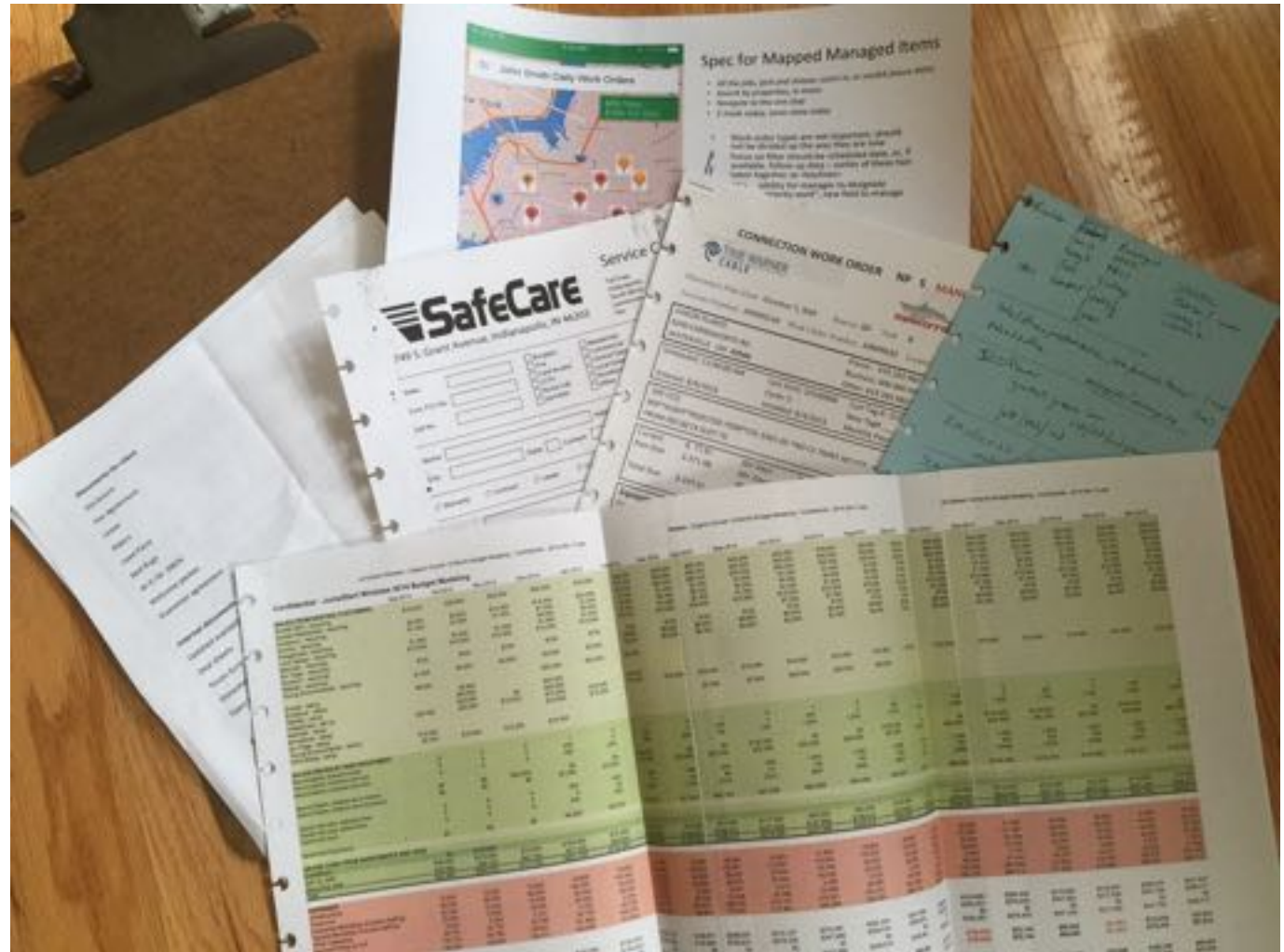
# What are each of

- paper,
- desktop screens, and
- mobile

## good for?

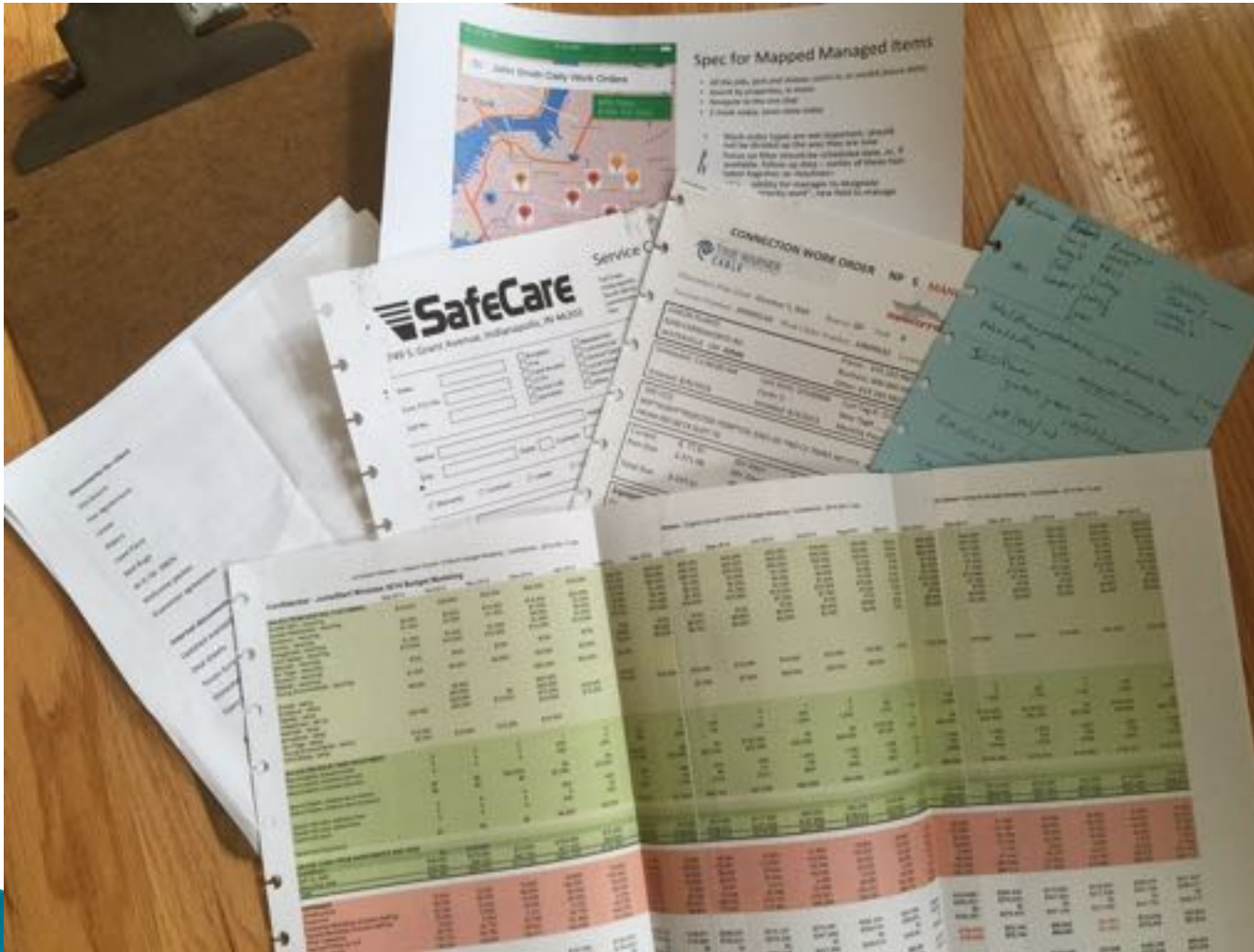
# What is paper good for?

- ▶ Ad hoc
- ▶ One-off
- ▶ Unusual formats
- ▶ Quick reference
- ▶ Very rapid “edit”
- ▶ No power
- ▶ No radiation, spark, or security





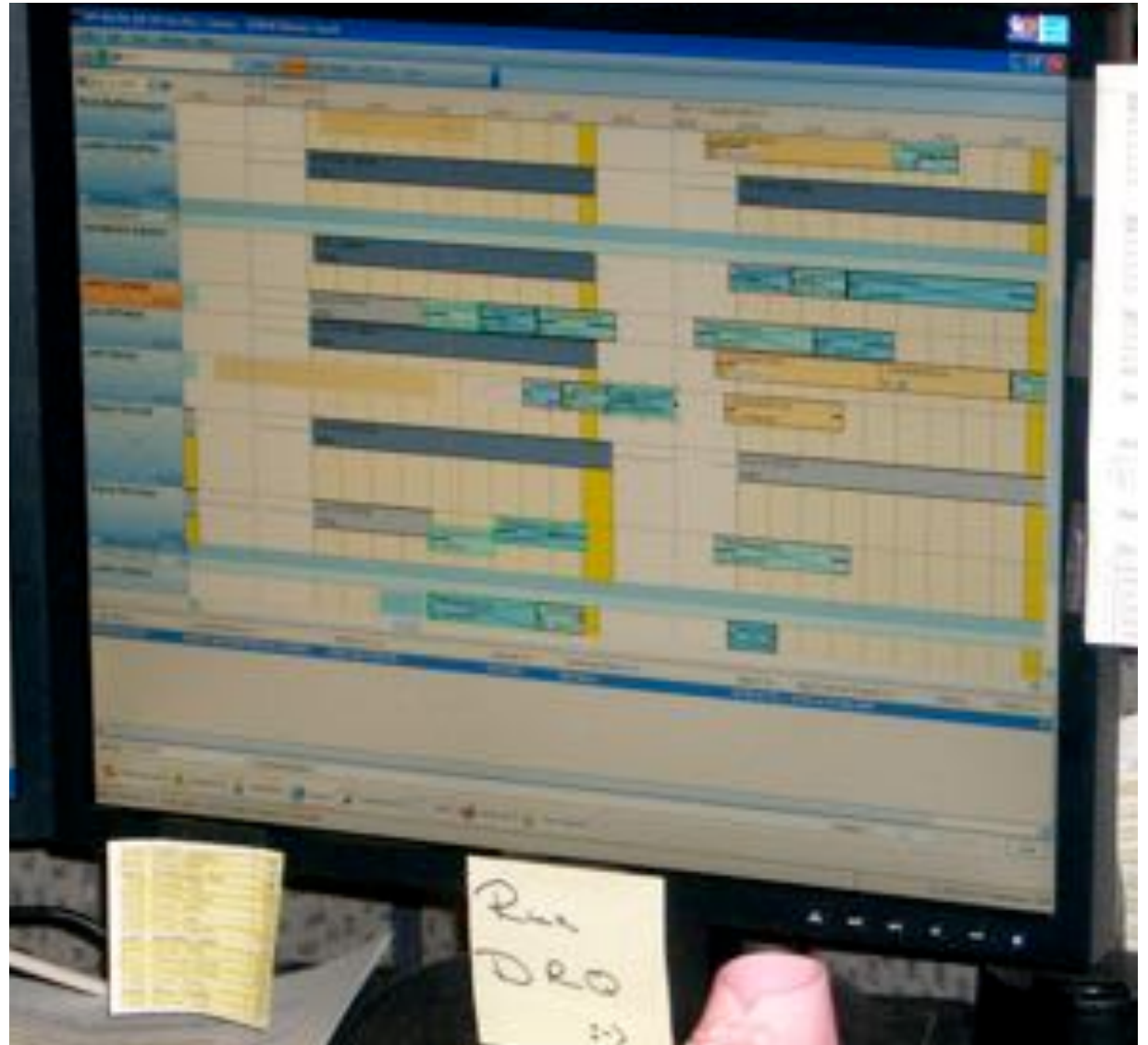
# What is paper bad at?



- ▶ Data entry
- ▶ Repeated processes
- ▶ Supporting compliance & best practices
- ▶ Regularity
- ▶ Repeatability

# What are desktop screens good for?

- ▶ Lots of data
- ▶ Highly dynamic
- ▶ Leverage eye/brain
- ▶ Working in multiple systems
- ▶ Different tasks; same interface
- ▶ One size fits all



# What are desktop screens bad at?



- ▶ Quick in and out data capture
- ▶ Focus
- ▶ Multiple specific views
- ▶ Flexibility with regard to physical and power constraints, requires:
  - High capacity battery
  - Physical space
  - Flat surface
  - Staying in one place



# What is mobile good for?

Many  
kinds  
of players

Critical  
Information



*Engaged  
Consumer*



*Sales  
Supply Chain  
Management*



*Healthcare  
visits*



*Construction,  
Maintenance,  
Foremen  
Inspection*



# What is mobile good for?

All about  
the cycle  
of data

Critical  
Information



*Engaged  
Consumer*



*Sales  
Supply Chain  
Management*



*Healthcare  
visits*



*Construction,  
Maintenance,  
Foremen  
Inspection*



# What is mobile good for?

All about  
the cycle  
of data



# How to do mobile well

# Leverage your existing software

## Start with mobile, not the server upgrades

- ▶ Do mobile first!
- ▶ No need to start by
  - “upgrading the database,”
  - “redoing the CRM,”
  - “putting the servers in the cloud,”
  - etc.
- ▶ In fact, that is probably a mistake!



Leverage  
existing paper  
forms and  
processes

Forms  
have  
lots of  
embedded  
knowledge  
about the  
business  
process

*Customer name withheld*

## Service Call R

Toll Free:  
Indianapolis:  
South Bend:  
Lawrenceburg:  
Fax:

### Office Management

Date:

Cust. P.O. No.

Job No.

☐ Burglary

☐ Fire

☐ Card Access

☐ CCTV

☐ Nurse Call

☐ Sprinkler

☐ Residential

☐ Commercial

☐ Central Station

☐ Local System

☐ Plumbing

☐ Other

Call No.

Tech ID

Invoice No.

Dispatcher

### Billing Information

Name:

Address:

City:

State:

Contact:

Phone:

☐ Warranty

☐ Contract

☐ Lease

☐ Callback

☐ T & M

☐ Billable

☐ No

Trouble:

### Field Work Records

Resolution:

Leverage  
existing paper  
forms and  
processes

Forms  
have  
embedded  
knowledge  
about the  
business  
process

**Field Work Records**

Trouble:

Resolution:

Further Work Required:

**Field Work Billing Information**

Product Code	Description	Qty	Unit Price	Extended Price

Start Time:  Mileage:  Name:

Stop Time:  Technician:

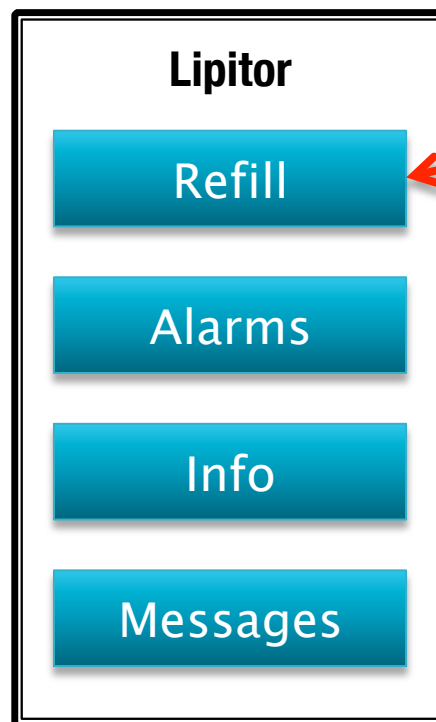
**Field Work Compliance**

Signature: \_\_\_\_\_

Handle  
complexity  
with hierarchy



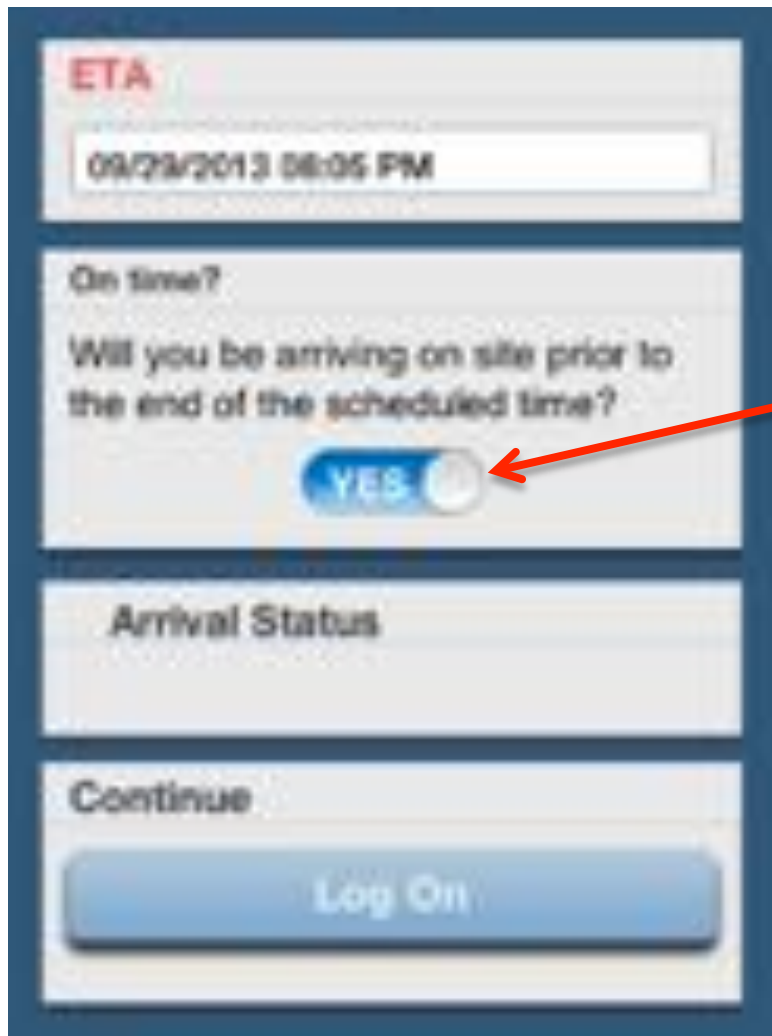
Screen 1



Screen 2



Screen 3



ETA

09/23/2013 06:05 PM

On time?

Will you be arriving on site prior to the end of the scheduled time?

YES ☒

Arrival Status

Continue

Log On

A red arrow points to the 'YES' radio button.

Handle  
complexity  
with  
selective  
visibility



**ETA**

09/29/2013 06:05 PM

On time?  
Will you be arriving on site prior to the end of the scheduled time?

**YES**

Arrival Status

Continue

**Log On**

**ETA**

On time?  
Will you be arriving on site prior to the end of the scheduled time?

**NO**

Arrival Status

Running Late

ETA Reminder

I understand Endeavor's policy: it is very important that you meet the scheduled arrival time for this job as, based on your commitment to Endeavor, Endeavor has committed to Cbeyond and Cbeyond's Customer that you will be onsite at this time.

**NO**

Running late reason

Continue

**Log On**

Handle complexity with selective visibility



**ETA**

09/29/2013 08:05 PM

On time?  
Will you be arriving on site prior to the end of the scheduled time?

**YES**

Arrival Status

Continue

Log On

**ETA**

On time?  
Will you be arriving on site prior to the end of the scheduled time?

Heavy Traffic

Late Start

Got Lost

Previous Job Ran Late (Endeavor job)

Previous Job Ran Late (non-Endeavor job)

Vehicle Issue

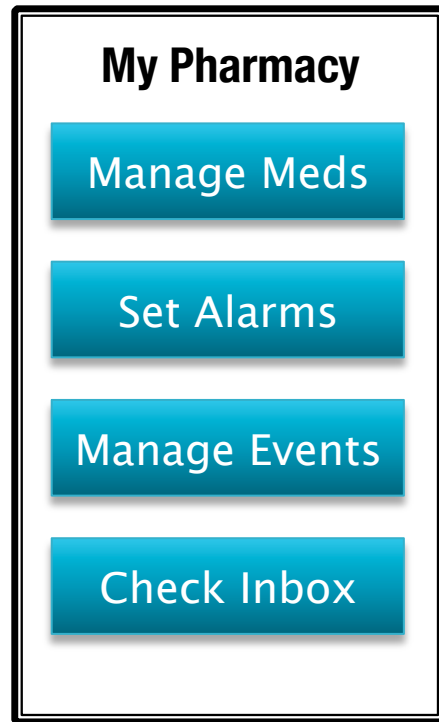
Inconvenient Weather

Running late reason

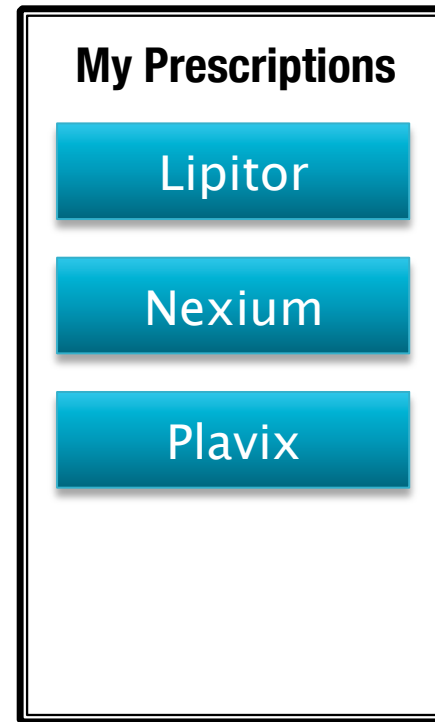
Continue

Log On

Handle complexity with selective visibility



← Actions  
vs  
Objects →



Focus on  
objects the  
users care  
about,  
not the  
actions they  
will perform



**Actions**  
*Then find  
Targets*



**Objects**  
*Then perform  
actions*

# Do *User Experience* Design First

*User Experience* is distinct from  
*User Interface Design* or *Branding*

- ▶ Previous slides said nothing about:
  - **User Interface Design**  
Buttons? Menus? Sliders from the side? Buttons on top or bottom? Swipes? Outlines that open up when touched?
  - **Branding**  
Color, logos, fonts, icons
- ▶ **User Experience**
  - How the user thinks about and flows through the app



# User Experience Design

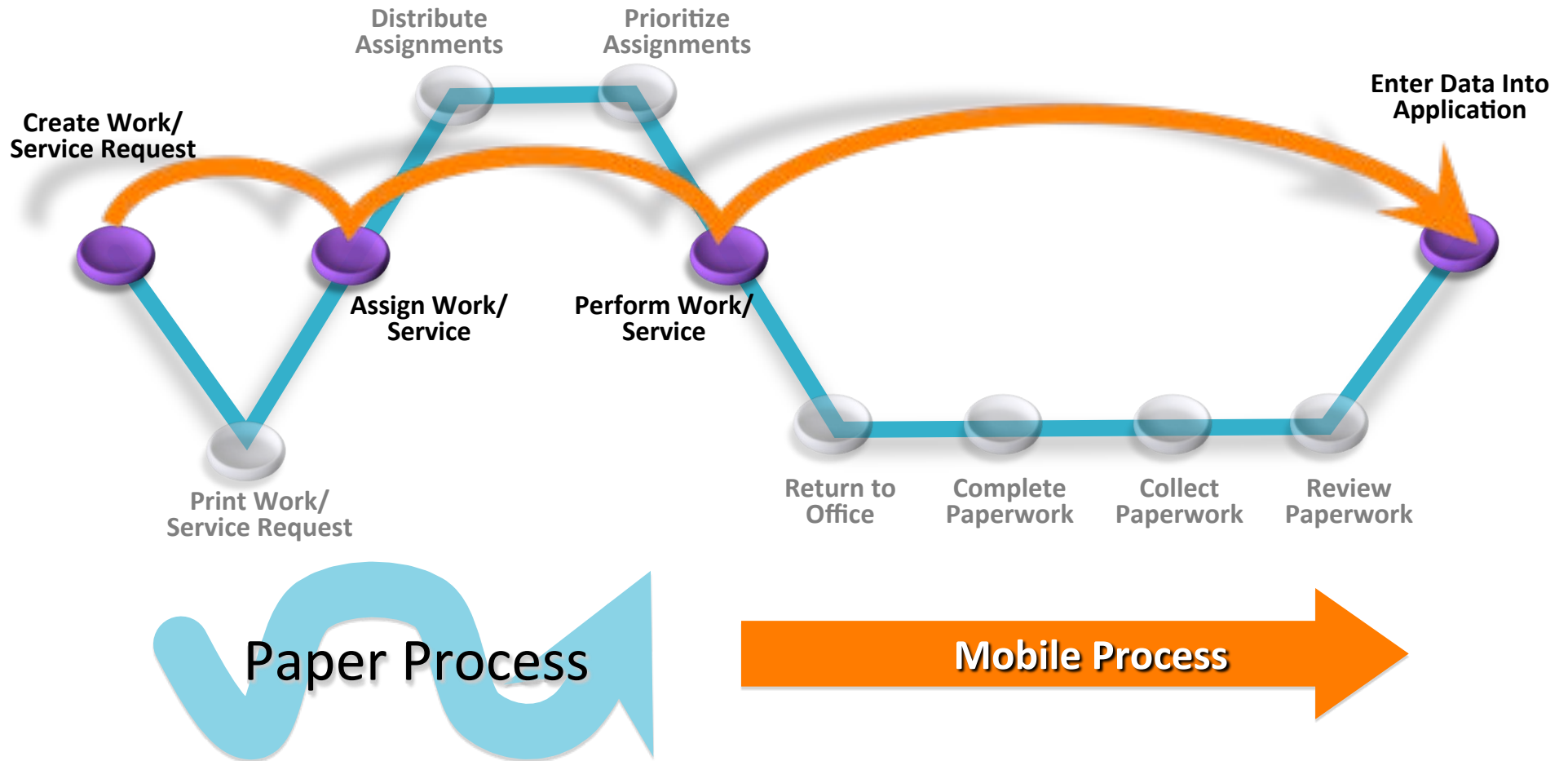
This is where you design version 1

Very low cost to fix design problems

Don't you dare start programming until you are pretty happy with this

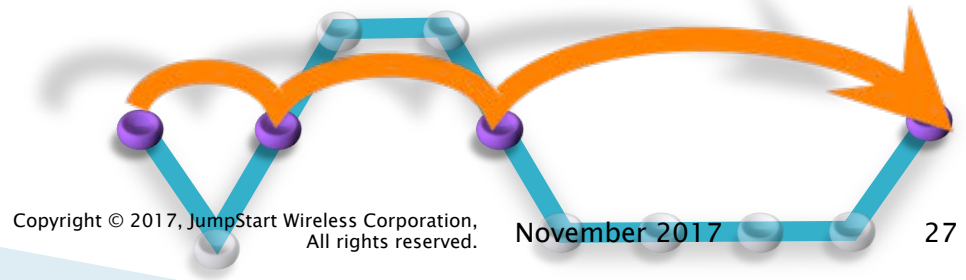


# Focus on Return on Investment



# Focus on Return on Investment

- ▶ Capture billing that currently is lost
- ▶ Capture new business opportunities
- ▶ Get people information they need to make better decisions (e.g. route planning)
- ▶ Reduced staffing to
  - manage field operations
  - enter field results into accounting
- ▶ Speed billing
- ▶ Eliminate paper handling
- ▶ Billing/productivity per employee



# Focus on Return on Investment New Business Opportunities



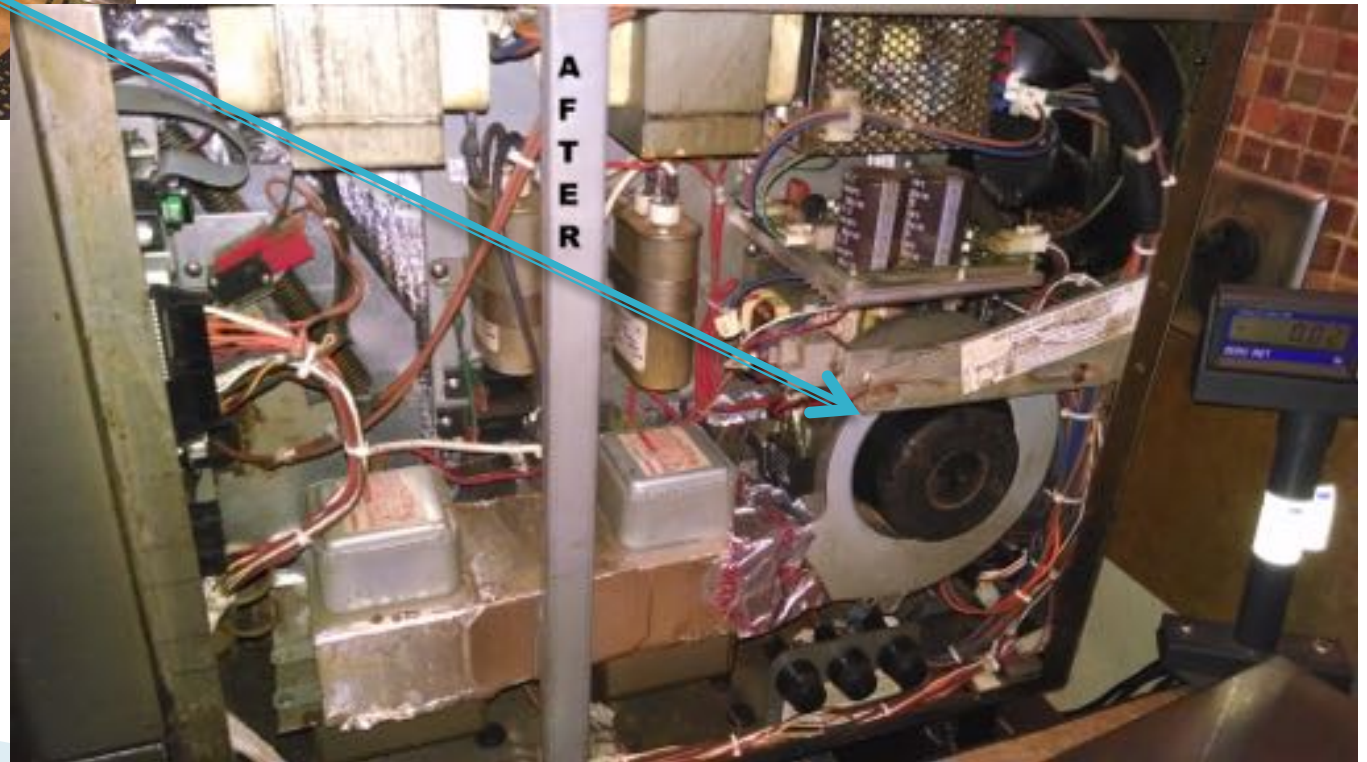


# Focus on Return on Investment New Business Opportunities



*Pictures like this sold a huge new contract to do quarterly preventive maintenance on the ovens*

*Sales team now constantly analyzes before and after photos*





# Iterative Development

*lots of little releases, early and often*

- ▶ Agile is essential
- ▶ Must be iterative with short cycles
- ▶ 2–4 weeks for each release
- ▶ You will NEVER get it right the first time
- ▶ Plan a series of successive upgrades, rather than everything at once; focus on single biggest ROI first
- ▶ Version 1 will not solve every problem (even after you get it right)
- ▶ First test in the field will tell you more than *months* of analysis

# Ignore Hardware – Pay attention to operating systems

- ▶ The rate of change is fierce
- ▶ There is a decade more of active development of the smartphone platform
- ▶ Design for operating systems
- ▶ PC function will largely disappear: some models of phones will allow you to plug in keyboard, screen, and mouse
  - NOTE: Two different operating systems

# Hardware Focus Failure

## Billion-dollar IT failure at Census Bureau

By Michael

**Summary**

replaces  
upcoming

Account

Harris C

a \$600

But the big problem is a single device: the [custom handheld](#) designed to be used by 525,000 "enumerators" temporarily hired to track down the estimated 100 million Americans who won't return their census forms.

The device, made by HTC Corp., is 6 in. long and weighs most of a pound. It contains a GPS locator, maps, Wi-Fi, a cellular device to transmit encrypted census data, an iPhone-size touch screen, a fingerprint sensor for security and an extra-large battery to run it all.

In short, it's big, heavy and stuffed with gadgetry — not exactly what you'd choose for the retirees who will make up the majority of those half-million enumerators.

# Carefully plan for out-of-coverage

- ▶ There is NEVER pervasive coverage:
  - **X never true:** *We have wifi everywhere*
  - **X never true:** *My Verizon plan works wherever I go*
- ▶ Not all data exchange must be “store and forward” (like email), but it that should always be considered
- ▶ All about the synchronization and getting it right
  - Immediate (as soon as back in coverage)
  - Periodically (hourly)
  - Push (notification from server)
  - Nightly
- ▶ The hardest part of programming a mobile app is getting the synchronization right

# Mobile software must edit features, only show what the user really needs

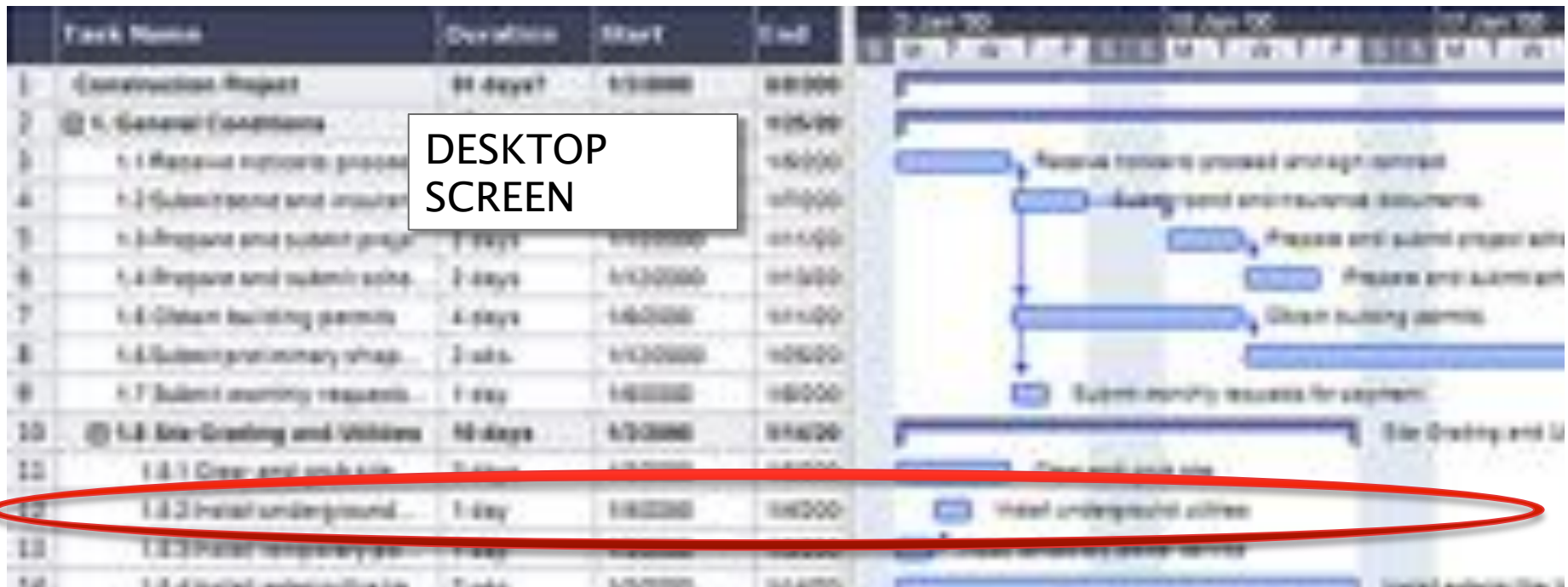
- ▶ Leave out
  - Important to the office, but irrelevant to the field
  - Reference information that is rarely used
  - Things that the experts want, but normal staff do not use
- ▶ 80/20 rule – what is the 20% of that data that provides 80% of the value?
- ▶ ONE app for maintenance staff,  
A SECOND app for inspectors  
A THIRD app for management
  - Mobile apps cannot accommodate “one size fits all”



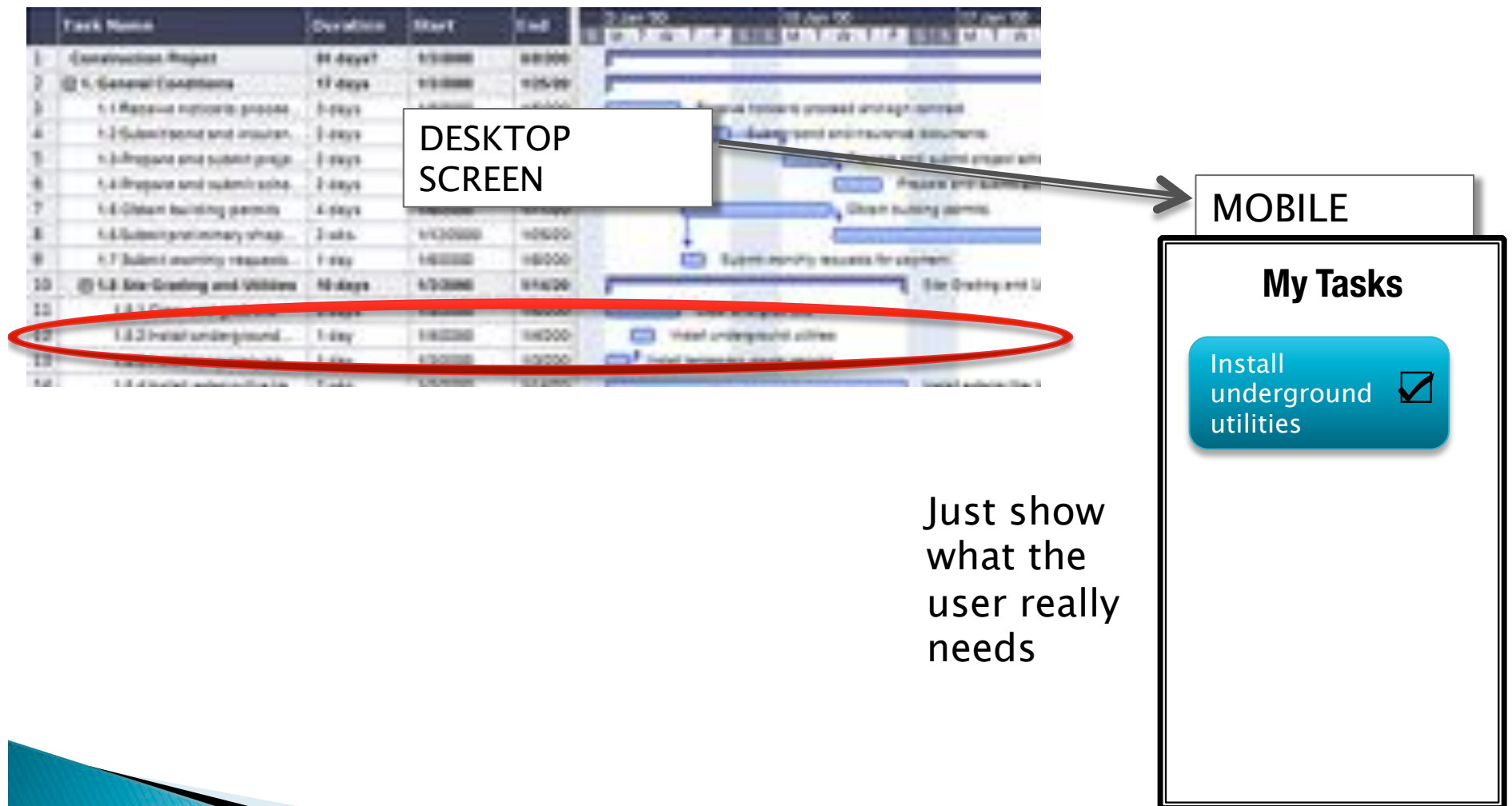
# Mobile software must edit features, only show what the user really needs

Task Name	Duration	Start	End
1 Construction Report	11 days	6/1/2000	6/11/2000
2 1.1 General Conditions			6/15/2000
3 1.1.1 Review existing project			6/15/2000
4 1.1.2 Submit permit and insurance			6/15/2000
5 1.1.3 Prepare and submit project	1 day	6/15/2000	6/16/2000
6 1.1.4 Prepare and submit schedule	1 day	6/15/2000	6/16/2000
7 1.1.4 Obtain building permits	4 days	6/16/2000	6/20/2000
8 1.1.4 Submit preliminary shop	1 day	6/15/2000	6/16/2000
9 1.1.7 Submit existing materials	1 day	6/16/2000	6/17/2000
10 1.1.8 Site Grading and Utilities	11 days	6/20/2000	6/30/2000
11 1.1.8.1 Clear and grub site	3 days	6/20/2000	6/23/2000
12 1.1.8.2 Install underground utilities	1 day	6/23/2000	6/24/2000
13 1.1.8.3 Install temporary site	1 day	6/24/2000	6/25/2000
14 1.1.8.4 Install site	5 days	6/25/2000	6/30/2000

DESKTOP SCREEN



# Mobile software must edit features



# Editing Features

Example from a service that sends photographers to document construction work

Date

Photographer  Office

Mileage Start  Mileage End  TOTAL Miles

#	Start Time	Project ID	Shoot Code	Folder	Area	Parking / Tolls \$	Hotspots	Images	Sectioning Req'd / Done	Hotspotting Req'd / Done	End Time	Notes (i.e. Upcoming Exact-Bulky®)	Hours Travel / Field / Office		
1.	8am	29748 Yale University							<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	9am	72am	1		
2.	9am	29748	29748a	100	Slideshow			51	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	945am			0.75	
3.		29748	29748ad	101	Underground Plumbing			6	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input type="checkbox"/>					
4.	945am	26530 Discovery Academy							<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	1015am	56am	0.5		
5.	1015am	26530	26530e	102	Exterior Progression			127	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	1245pm			2.5	
TOTALS							6	720					3	5.25	2.25

## QC Checklist

1. Checked images for exposure, framing, sequence
2. Successfully uploaded images
3. Verified images from Client-Side MDS
4. Marked "Shot" on Photography Calendar
5. Marked "Done" on Photography Calendar
6. Updated job folders/binders
7. Delivered Daily Report to Operations Manager

# Editing Features

Date: 4/05/15

Photographer: Philip Hamish Office: CT01

Mileage Start: 161,800 Mileage End: 161,999 TOTAL Miles: 199

Best provided to field staff in read only fields  
 Not needed in the field  
 Improved compliance, helpful for field

#	Start Time	Project ID	Shoot Code	Folder	Area	Parking / Tolls \$	Hotspots	Images	Sectioning Req'd / Done	Hotspotting Req'd / Done	End Time	Notes (i.e. Upcoming Exact-Bully®)	Hours Travel / Field / Office		
1.	8am	29748 Yale University							<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	9am	72am	1		
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iPad 7:45 PM 100%

Miguel Salazar-Hernandez Dr. Marc Feingold, MD

Help MEDICAL | MEDICATIONS

✓ PERSONAL Please indicate if you have stopped taking any of the medications listed below.

MEDICAL

FAMILY

LIFESTYLE

SCHEMES

MEDICATIONS I'M TAKING

Zetia 10mg tablet	<input type="radio"/> Stopped taking
bisoprolol 5mg-hydrochlorothiazide 6.25mg tablet	<input type="radio"/> Currently taking <input type="radio"/> Stopped taking
lisinopril 10 mg-hydrochlorothiazide	<input type="radio"/> Currently taking

Mobile software is intimate and immediate, it must adapt to the user's flow



# Rule of thumb for estimating effort

*Assume JumpStart  
Assume delivering v1*

*1 week*

*+*

*1 hour per Post-it*



Get started now

You will learn more in the first day of mobile deployment then you will with one year of research.

# Contact Information

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