Productivity Breakthrough

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

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CEO, JumpStart Wireless Corporation

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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

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Mobile enables productivity not previously possible

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Mobile: enables revolutions…

Tahrir Square a few years ago

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Mobile enables disaster recovery

Katmandu after major earthquake

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Mobile enables search

Every major app is now mobile friendly

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What are each of

- paper,
- desktop screens, and
- mobile

good for?

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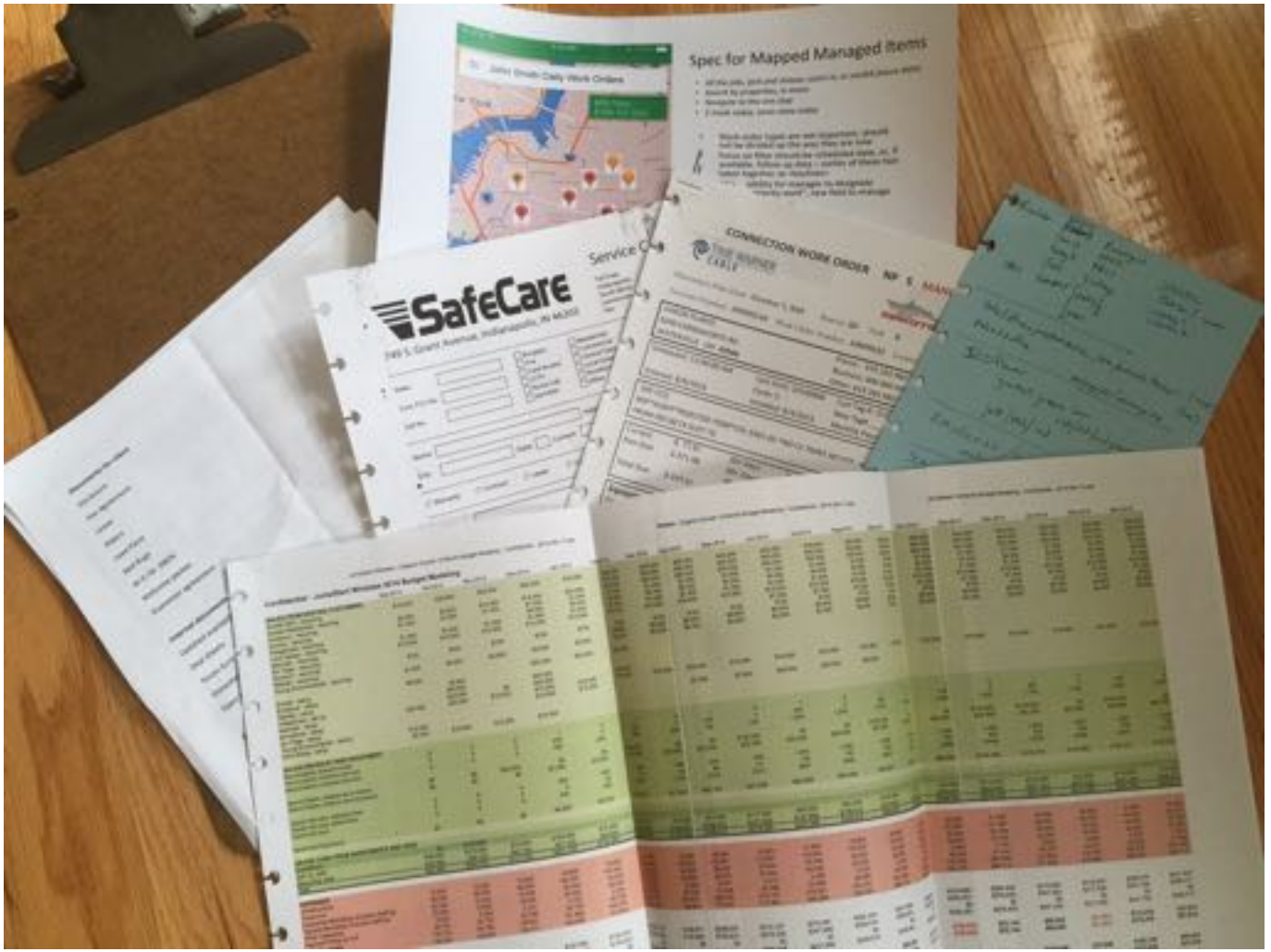
What is paper good for?

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



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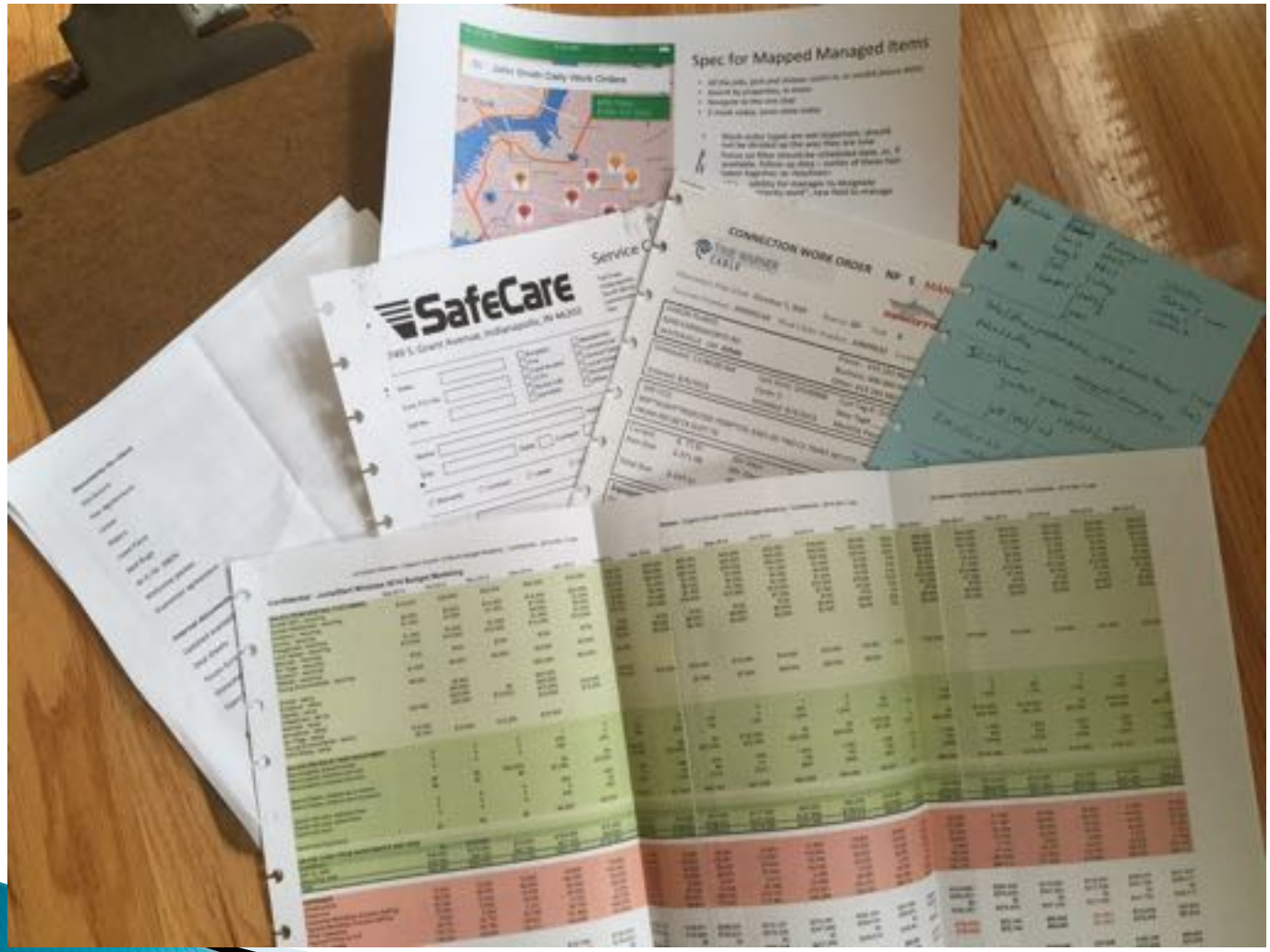
What is paper bad at?



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

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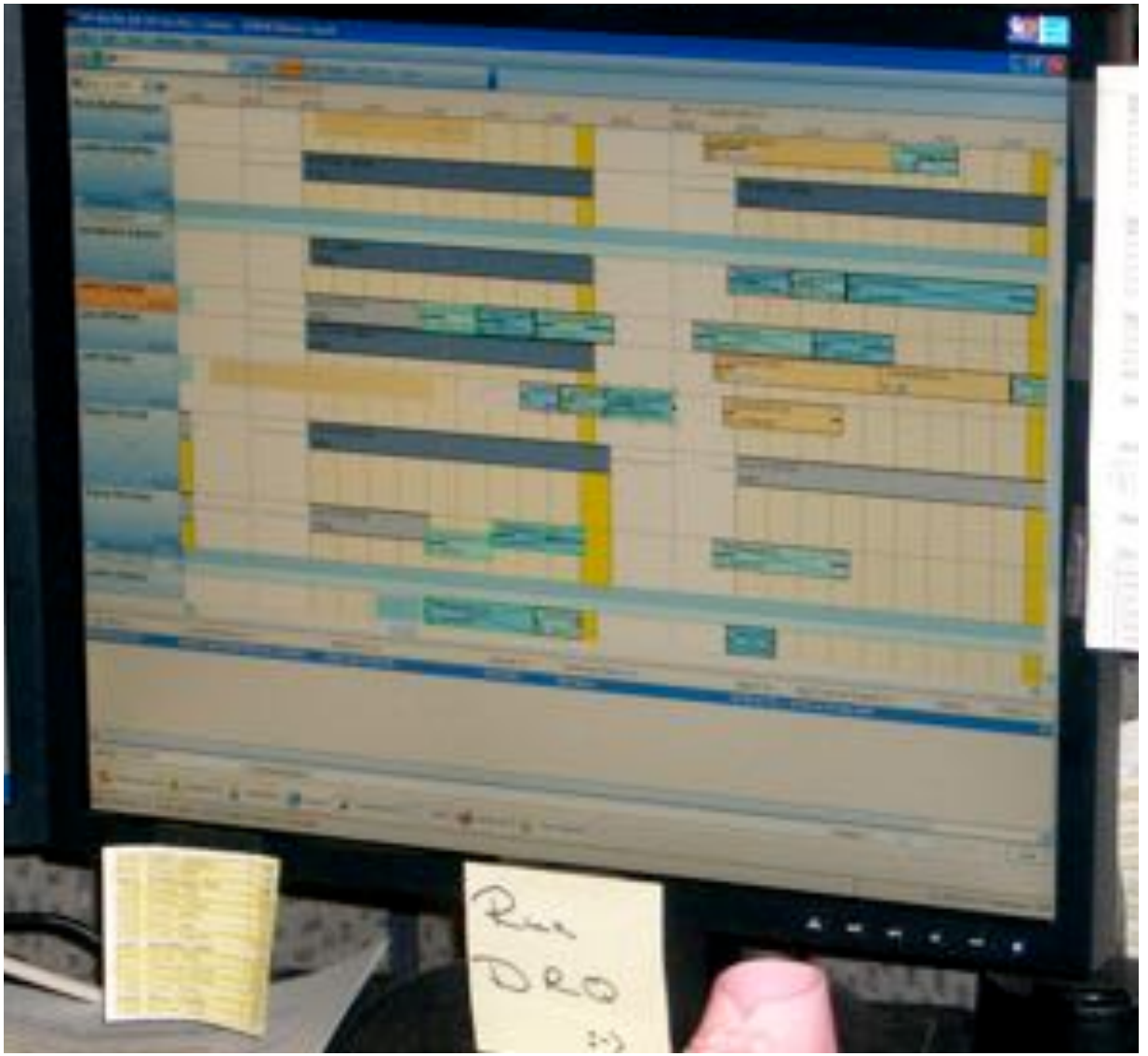
What are desktop screens good for?

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



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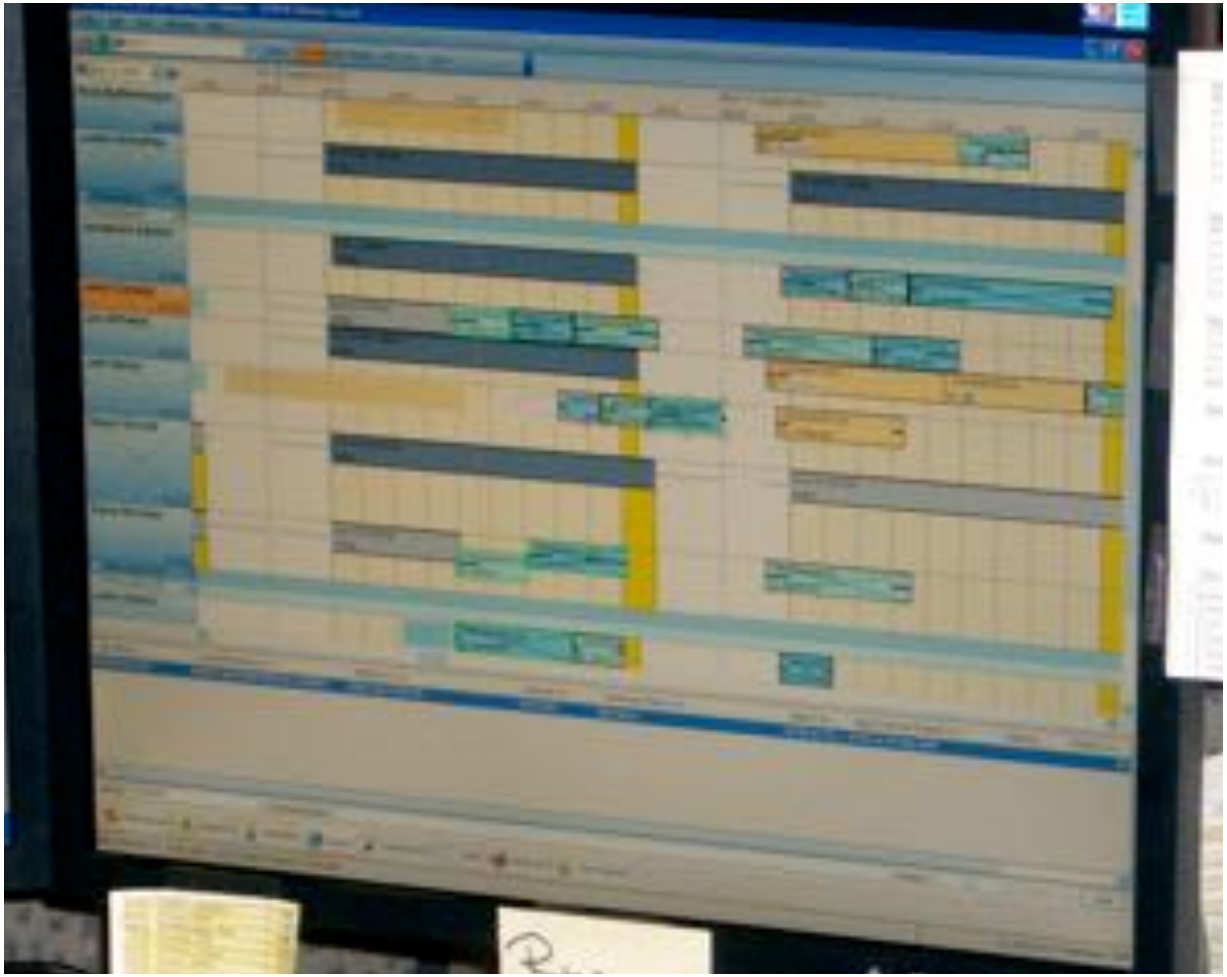
What are desktop screens bad at?



- 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

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What is mobile good for?

Many kinds of players

Critical Information

Engaged Consumer

Sales
Supply Chain Management

Healthcare visits

Construction, Maintenance, Foremen Inspection

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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

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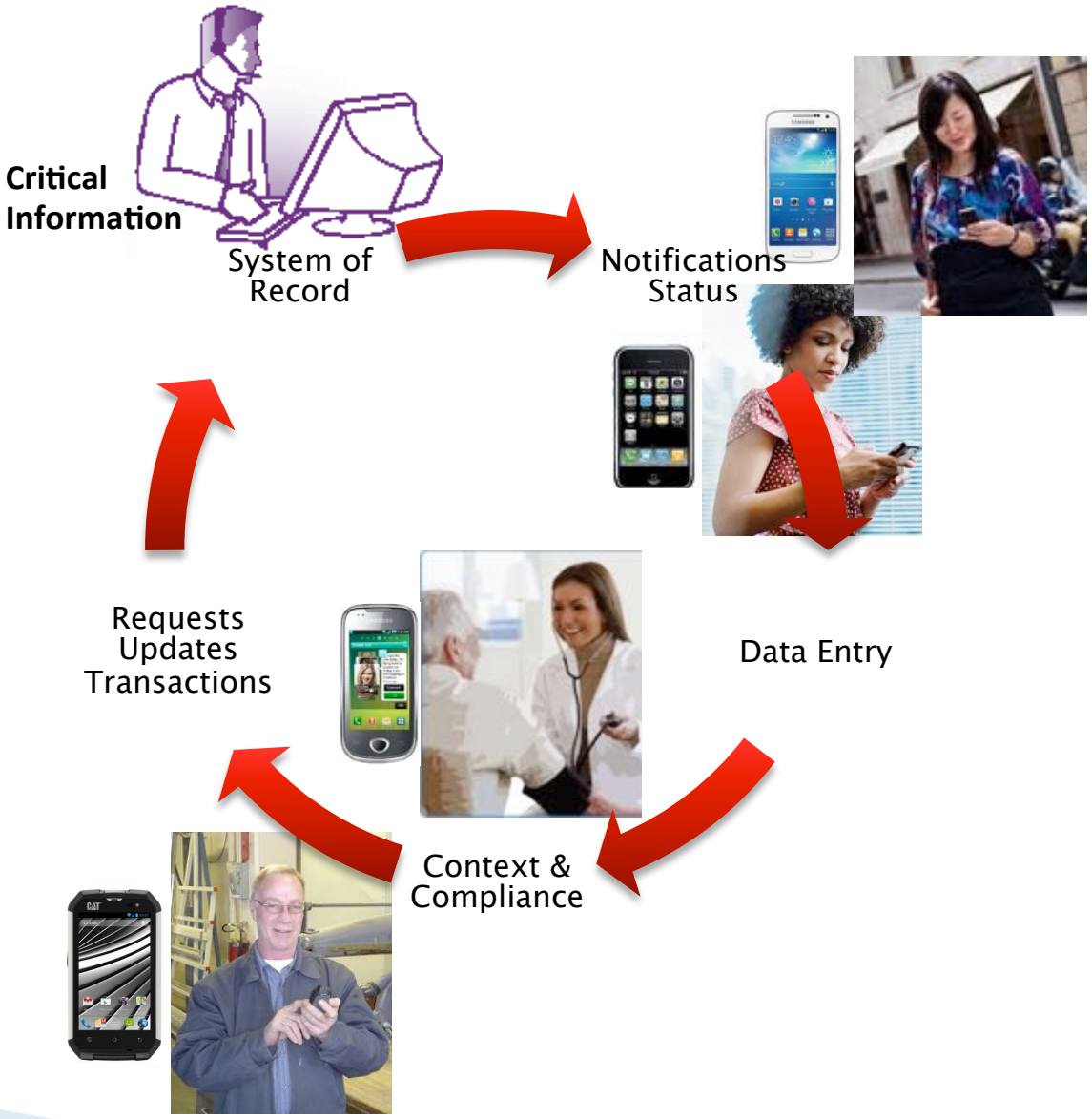
What is mobile good for?

All about the cycle of data



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What are smart watches good for?

Notifications

Rapid reference

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How to do mobile well

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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!

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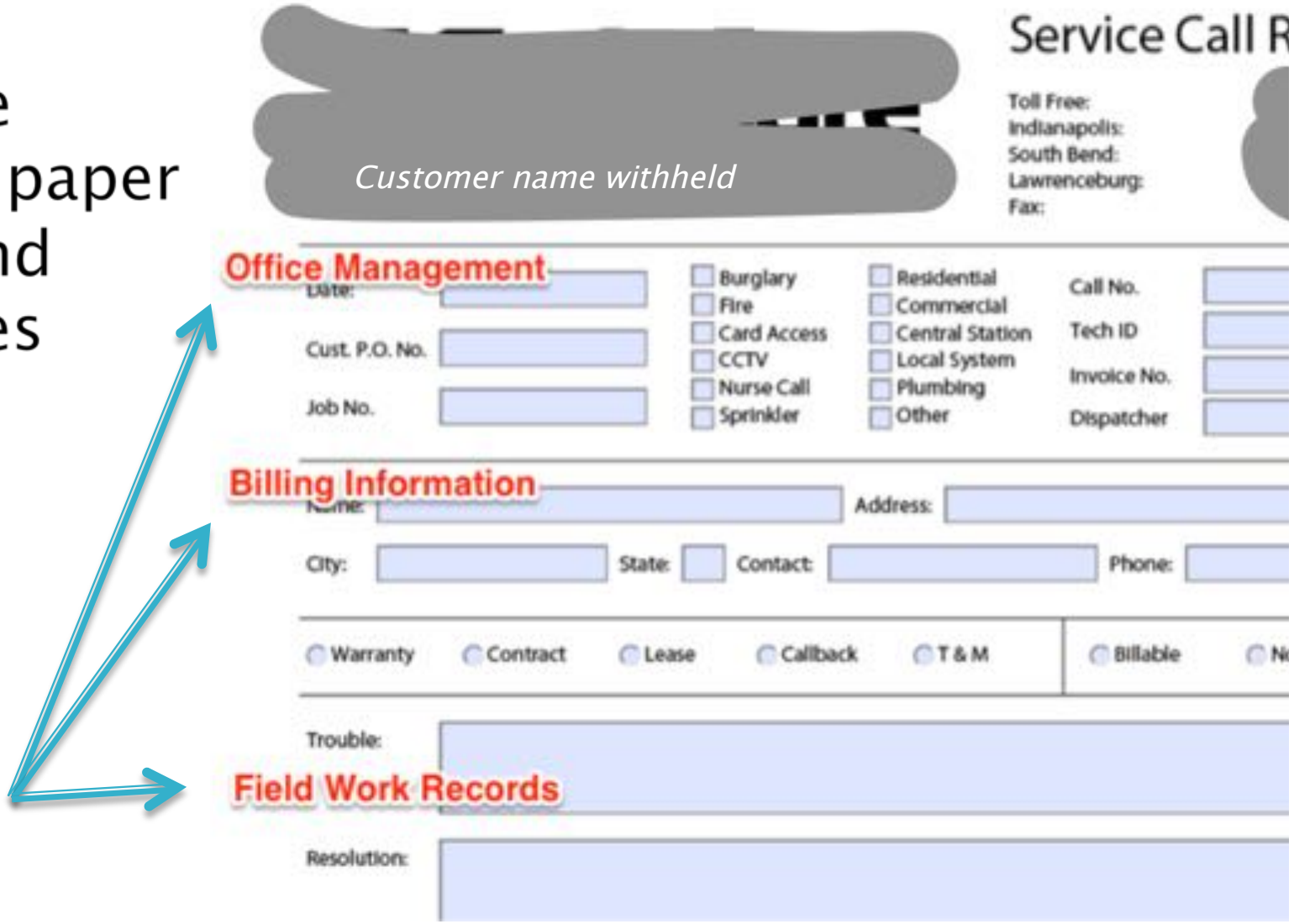
Leverage existing paper forms and processes



Forms have lots of embedded knowledge about the business process

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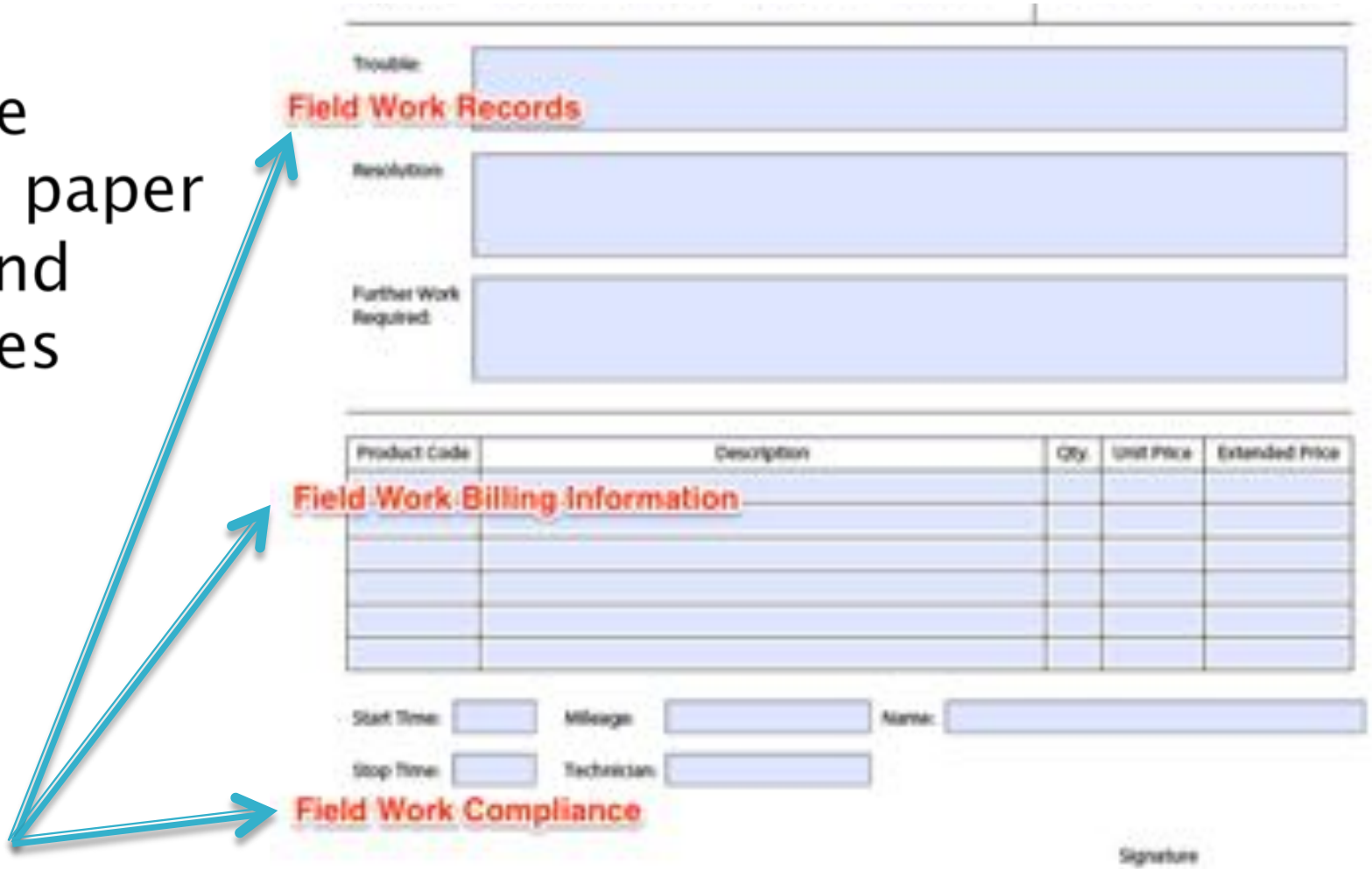
Leverage existing paper forms and processes



Forms have embedded knowledge about the business process

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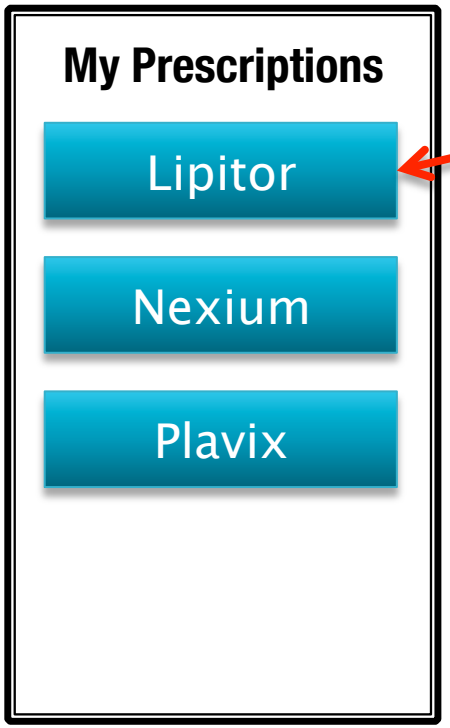

Screen 1

Screen 2

Screen 3

Handle complexity with hierarchy

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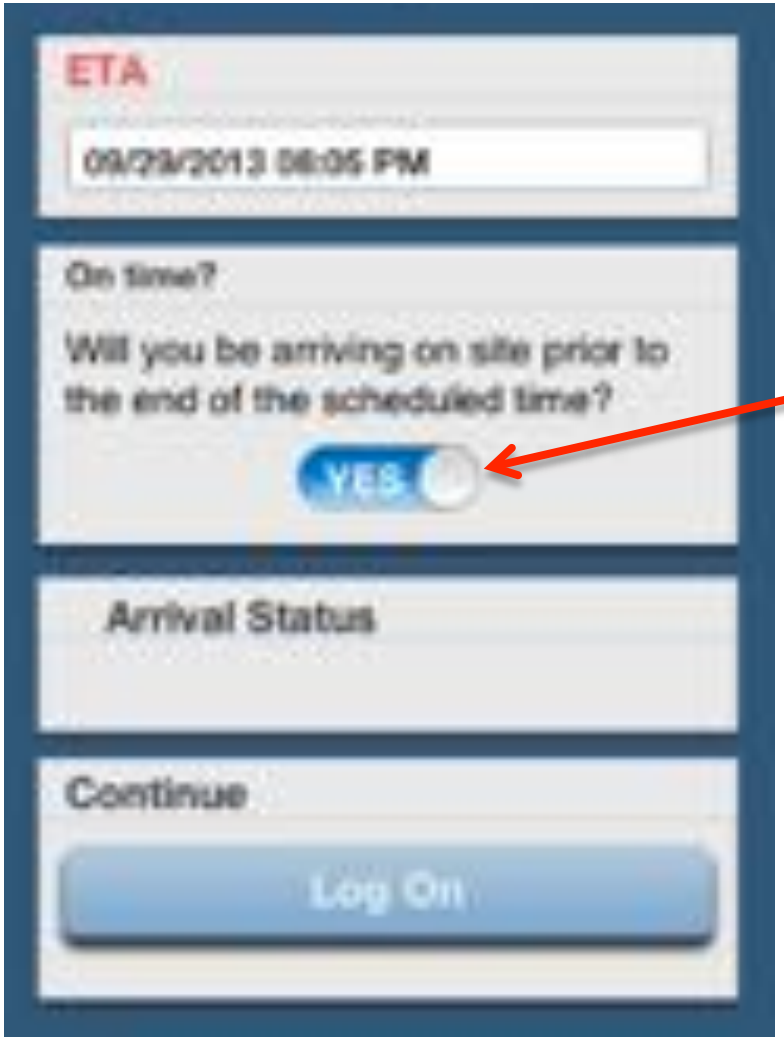

Handle complexity with selective visibility

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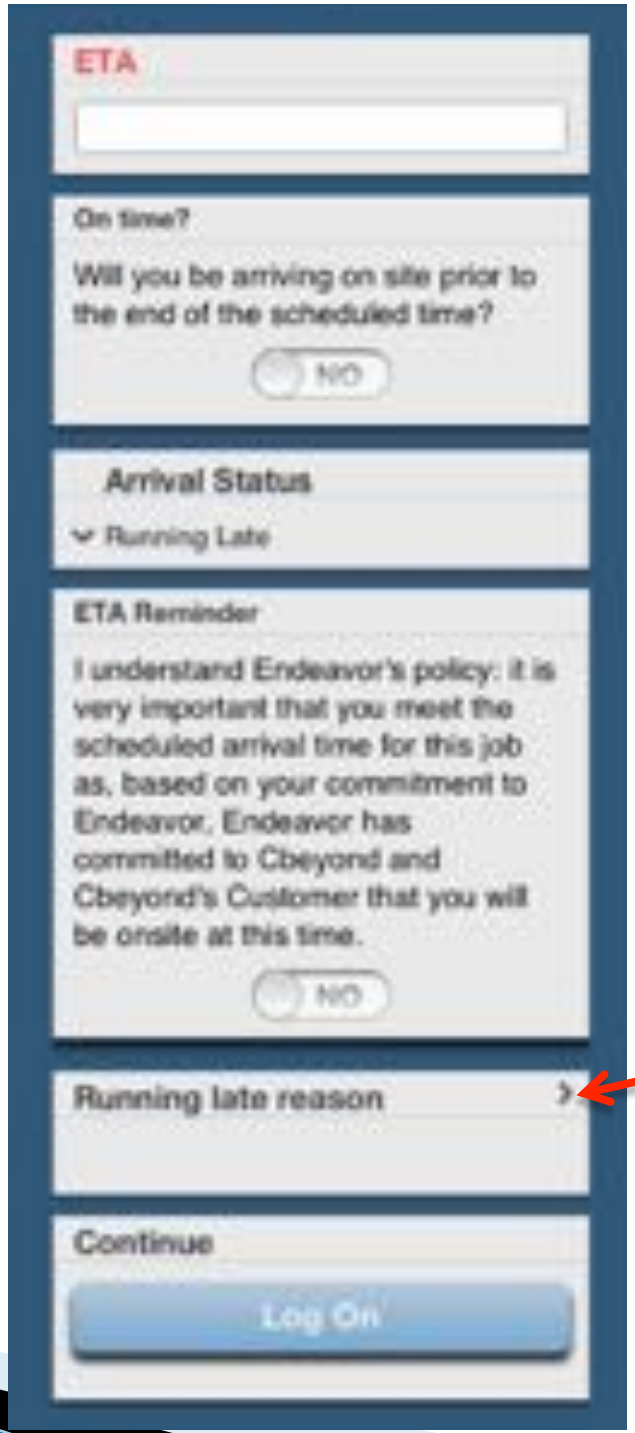

Handle complexity with selective visibility

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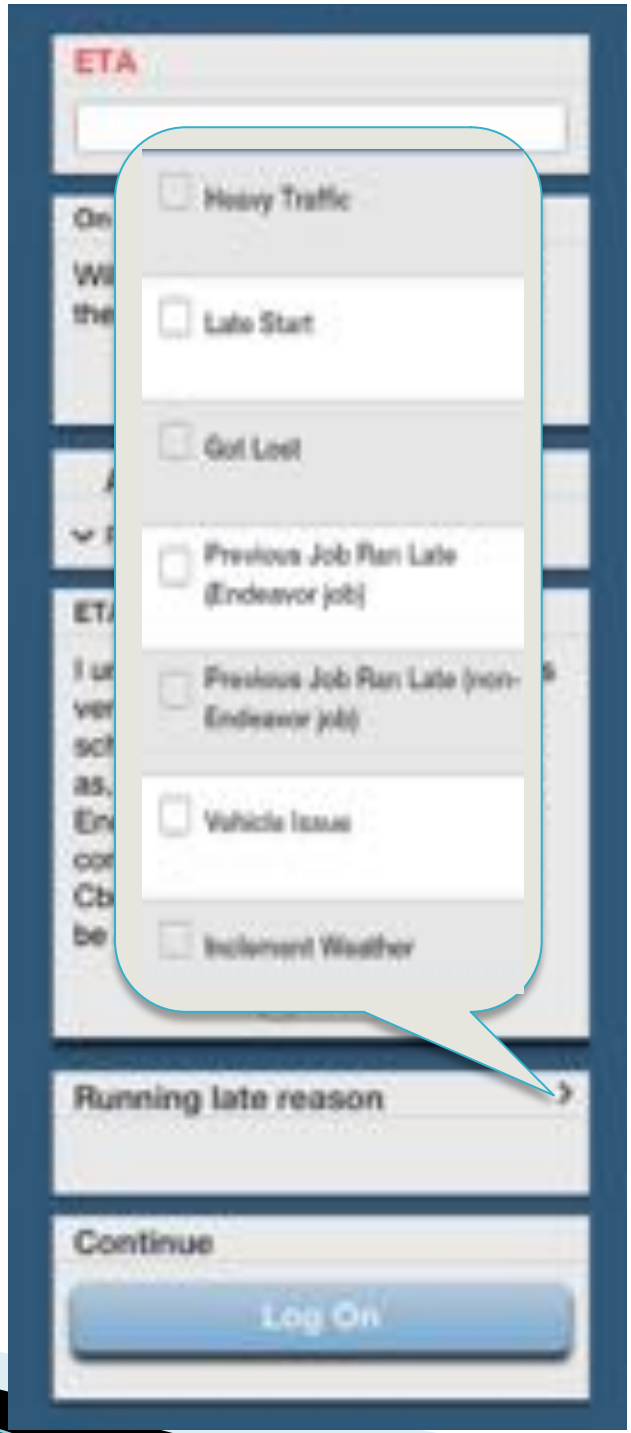

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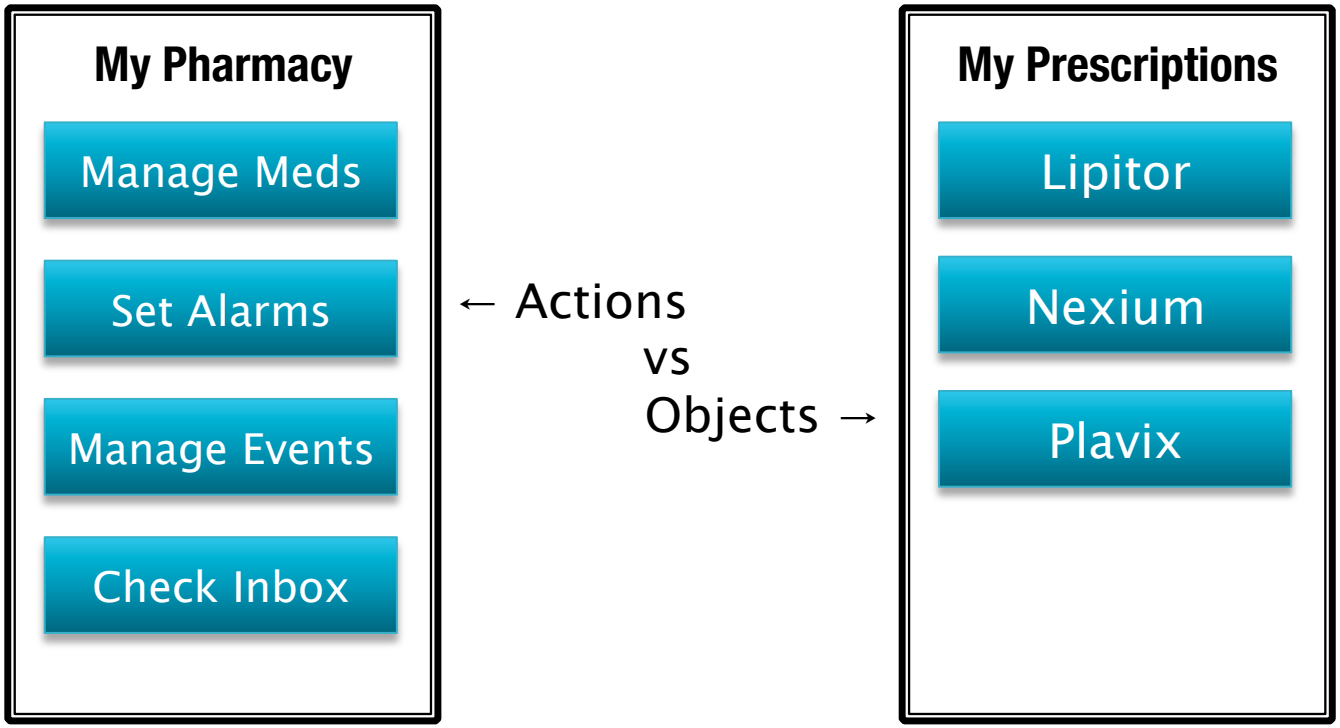

Focus on objects the users care about, not the actions they will perform

✗ Actions
Then find Targets

✓ **Objects**
Then perform actions

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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

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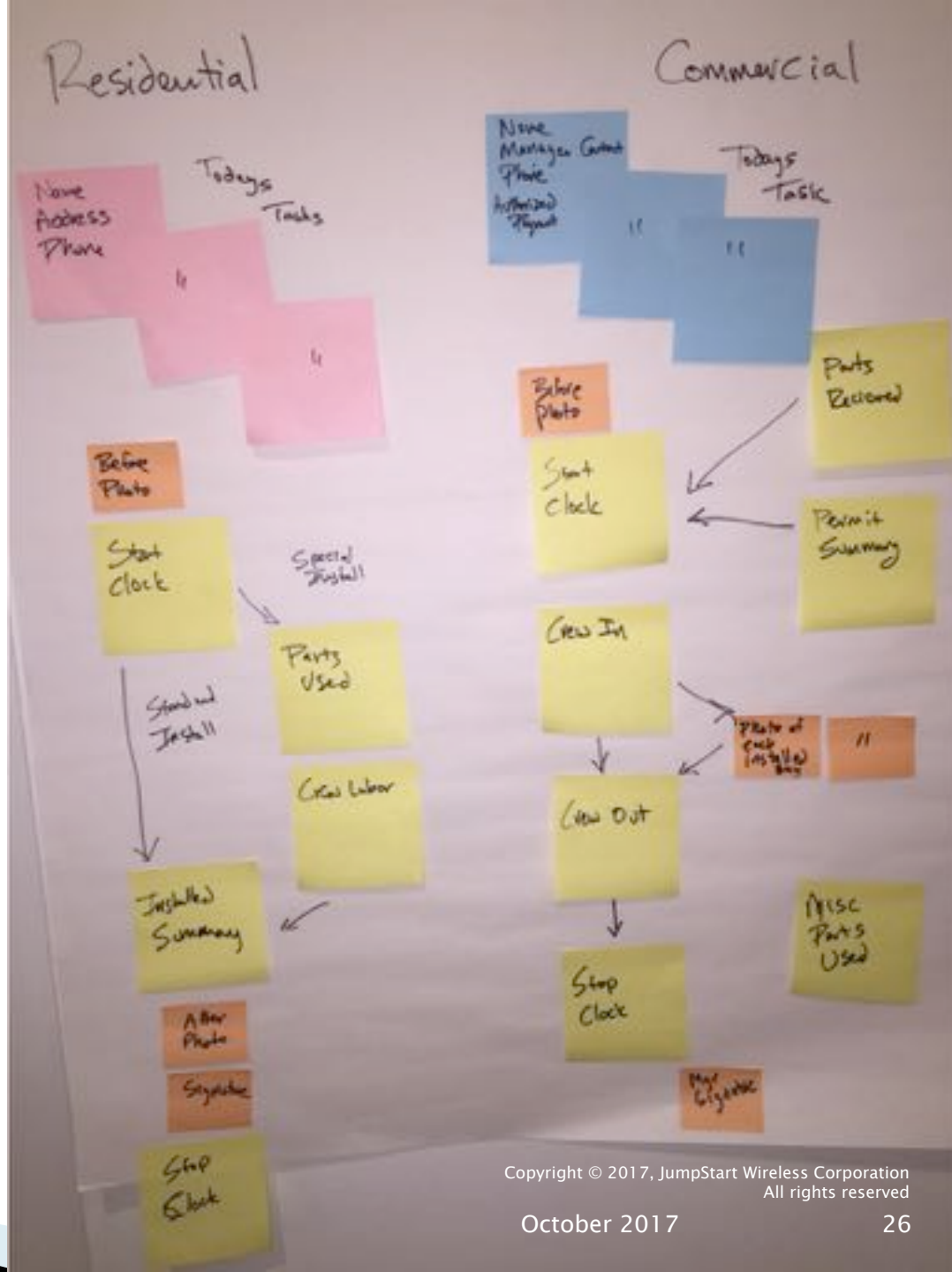
User Experience Design

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



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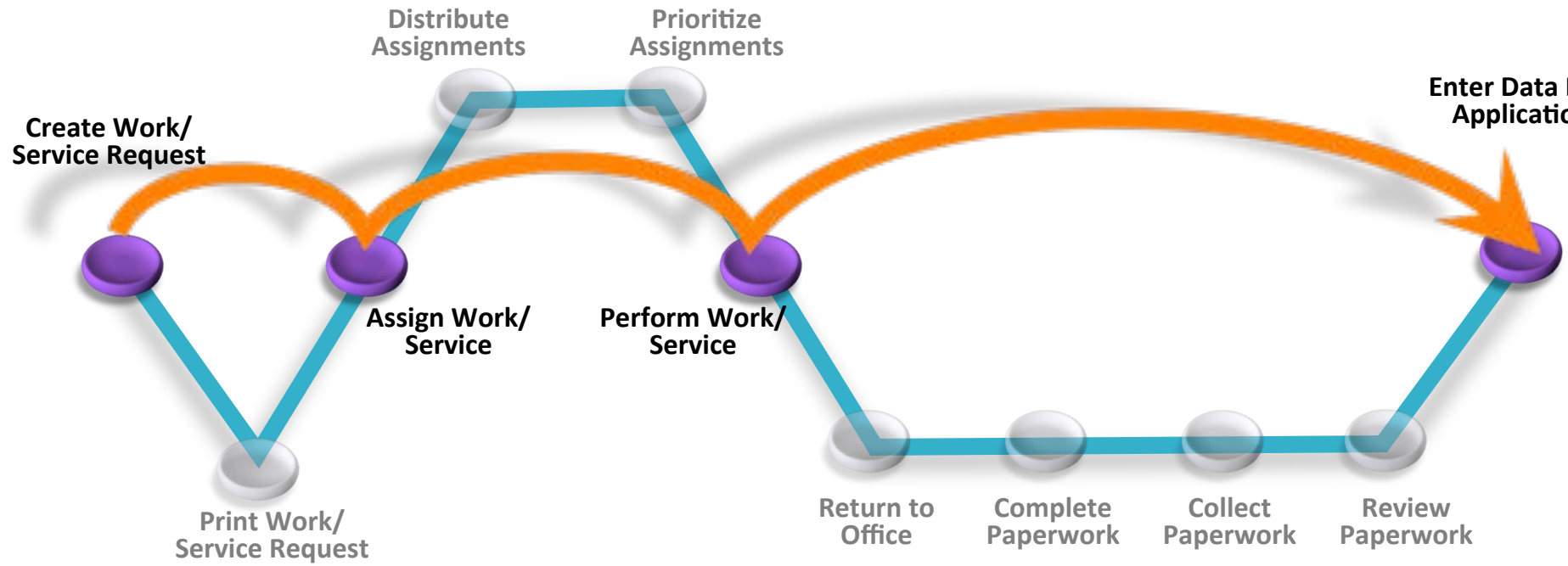
Focus on Return on Investment



Paper Process

Mobile Process

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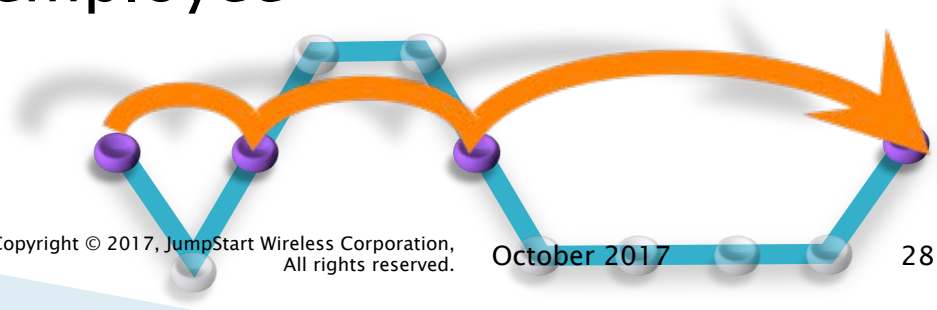
Focus on Return on Investment

- 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



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Focus on Return on Investment
New Business Opportunities

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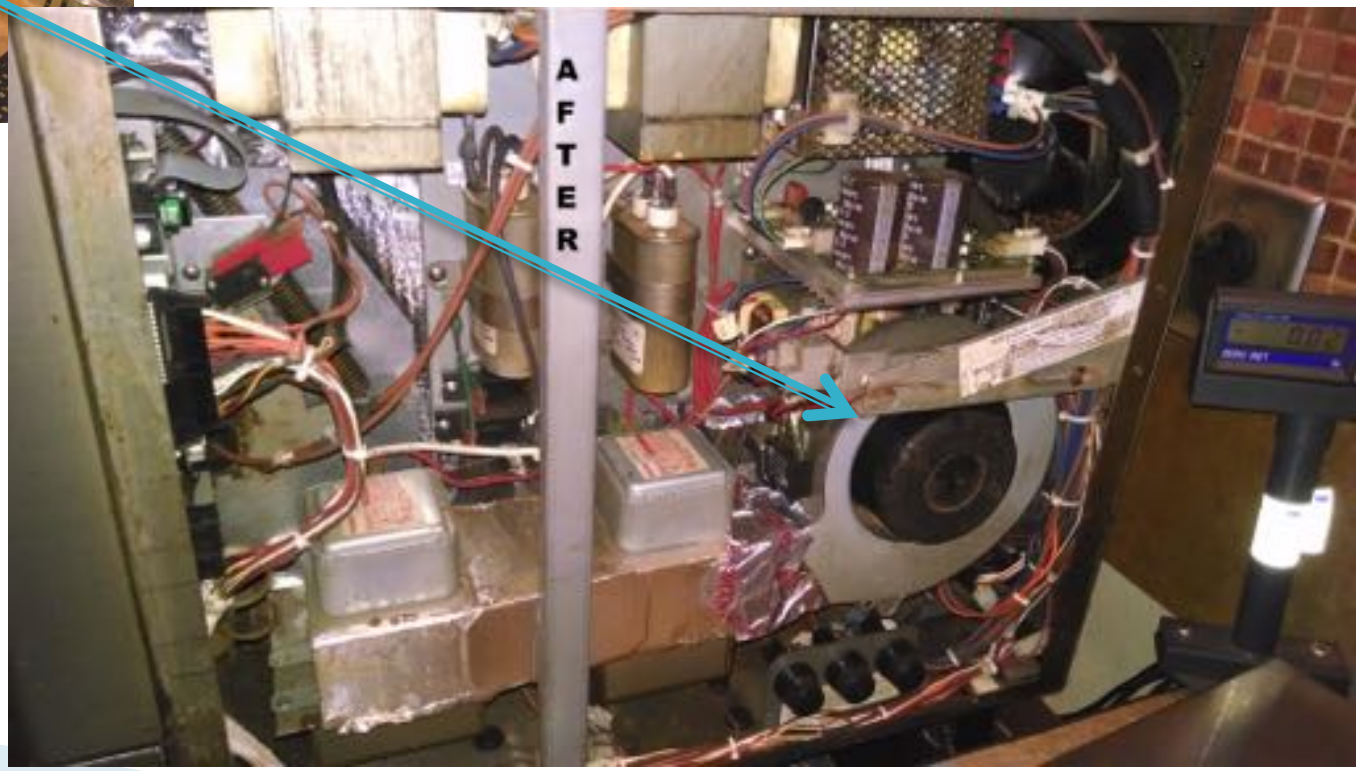
Focus on Return on Investment
New Business Opportunities

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



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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**

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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

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Hardware Focus Failure

Billion-dollar IT failure at Census Bureau

By Michae

Summa
replacin
upcomin
Account
Harris C
a $600 r

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.

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Carefully plan for out-of-coverage

- There is NEVER pervasive coverage:
  - ✗ never true: *We have wifi everywhere*
  - ✗ never true: *My Verizon plan works where ever 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
  - You want a RAD tool that is doing the synchronization heavy lifting for you – you do not want to be writing/maintaining these algorithms

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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”

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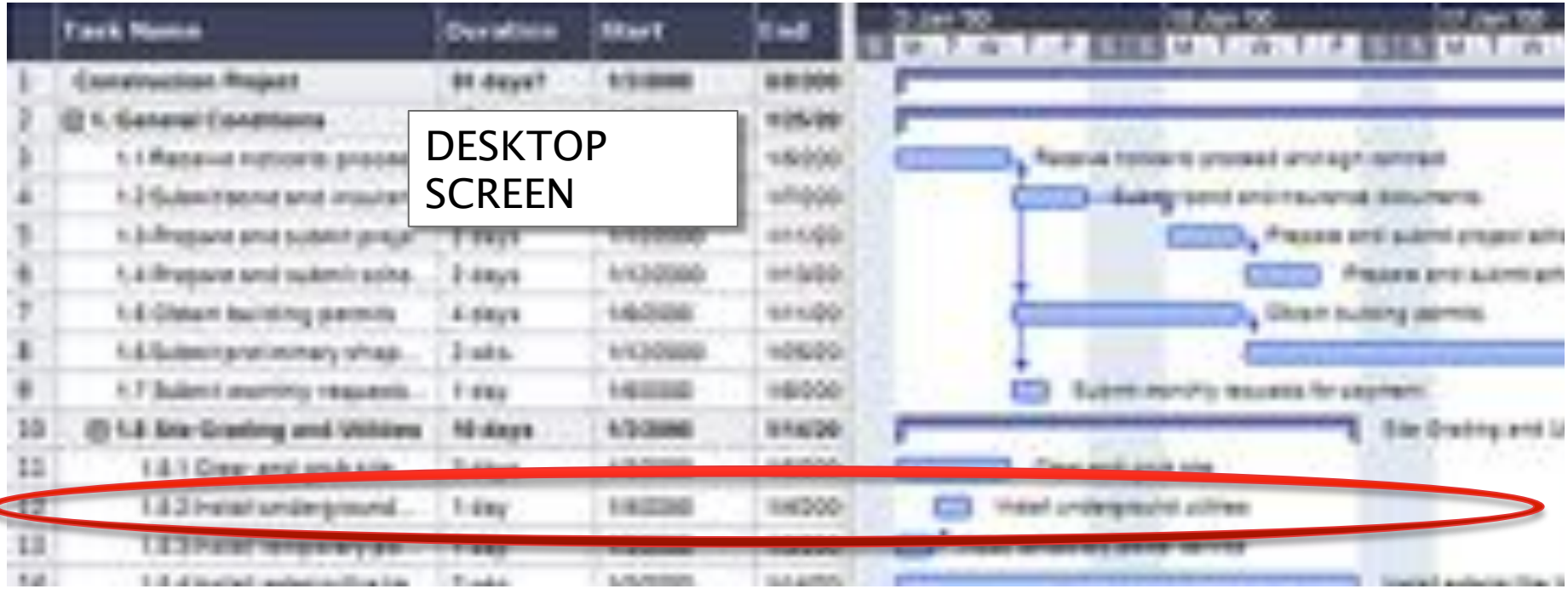
Mobile software must edit features, only show what the user really needs



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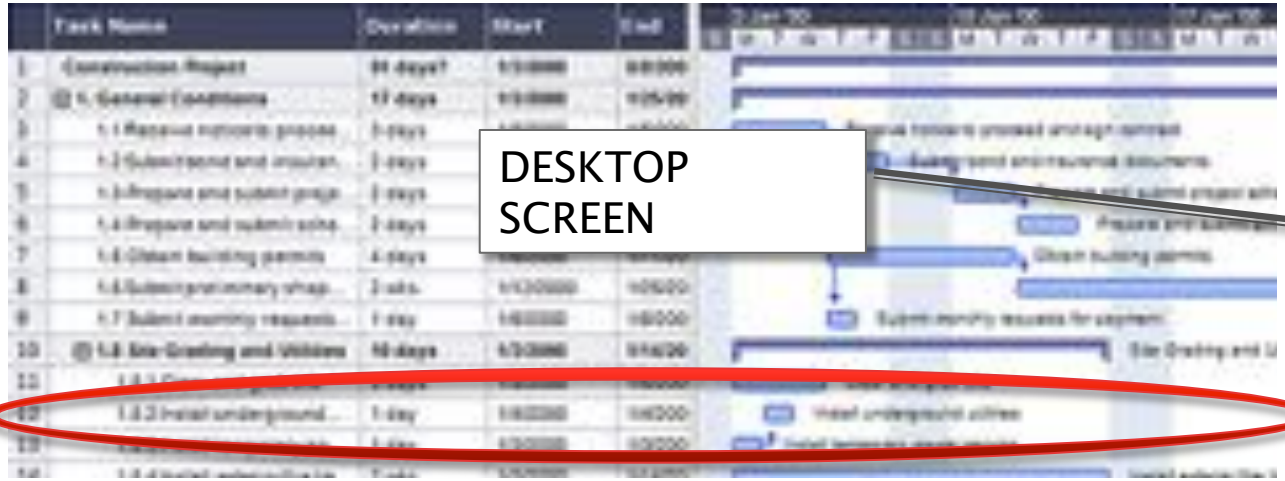
Mobile software must edit features



DESKTOP SCREEN

MOBILE

My Tasks

Install underground utilities ☑

Just show what the user really needs

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Editing Features

Example from a service that sends photographers to document construction work

Date 4/06/15

Photographer Philip Hannah Office CT01

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

#	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-Builts?)	Hours Travel /	Field /	Office
1.	8am	29748 Yale University											9am	72nn	1		
2.	9am	29748	29748s	100	Slidedown			51					945am			0.75	
3.		29748	29748ua5	101	Underground Plumbing			6	☒		☒						
4.	945am	26530 Discovery Academy											1015am	56nn	0.5		
5.	1015am	26530	26530e	102	Exterior Progression			127					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

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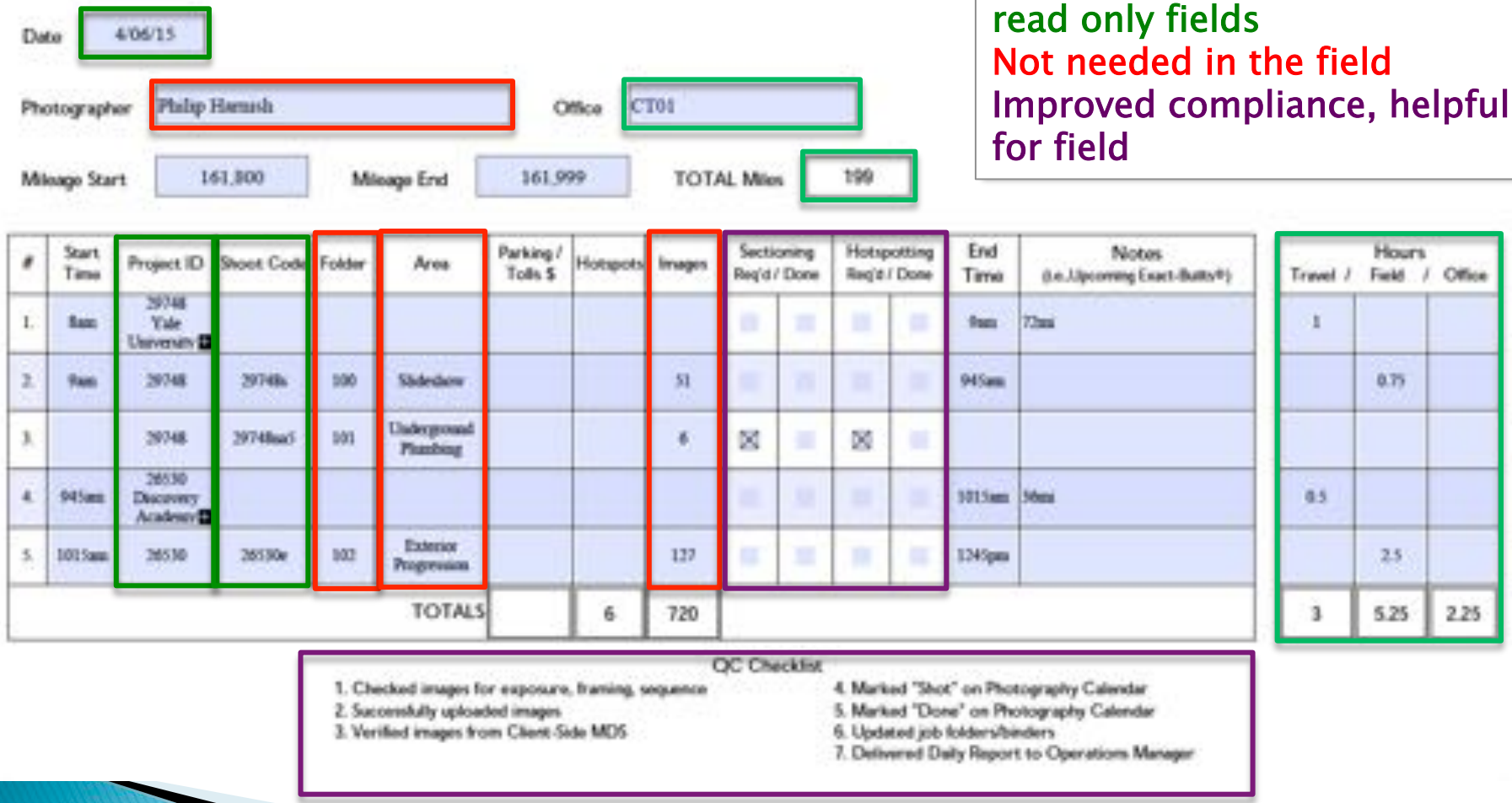
Editing Features

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



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2.	9am	29748	29748s	100	Slidedave			51					945am			0.75	
3.		29748	29748sa5	101	Underground Plumbing			6	☒		☒						
4.	945am	28530 Discovery Academy											1015am	56mi	0.5		
5.	1015am	28530	28530e	102	Exterior Progression			127					1245pm			2.5	
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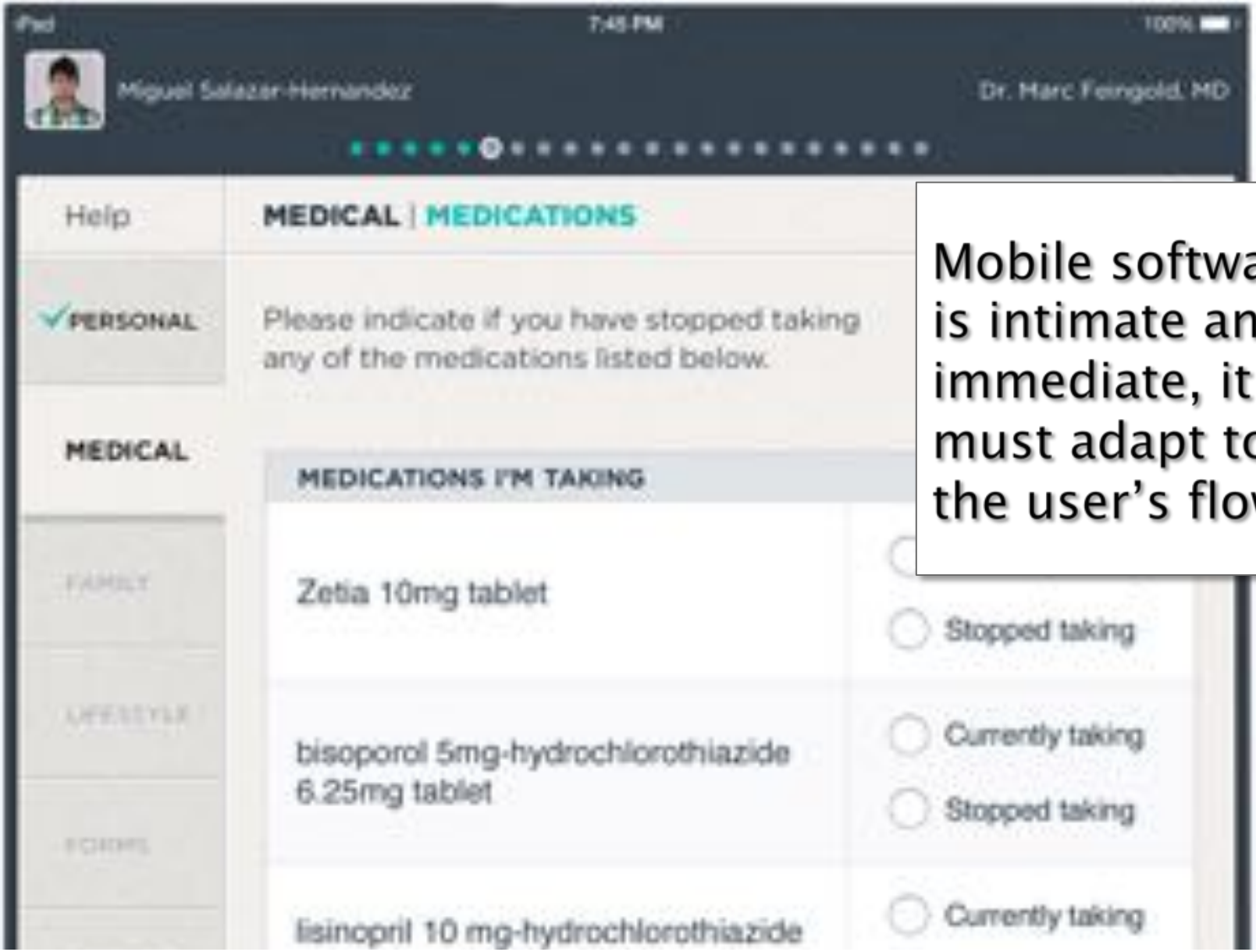

Mobile software is intimate and immediate, it must adapt to the user's flow

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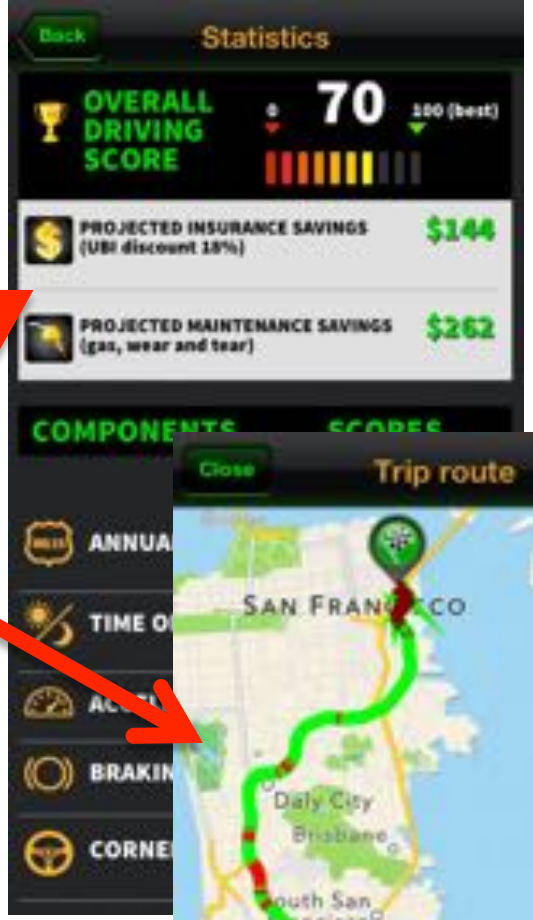

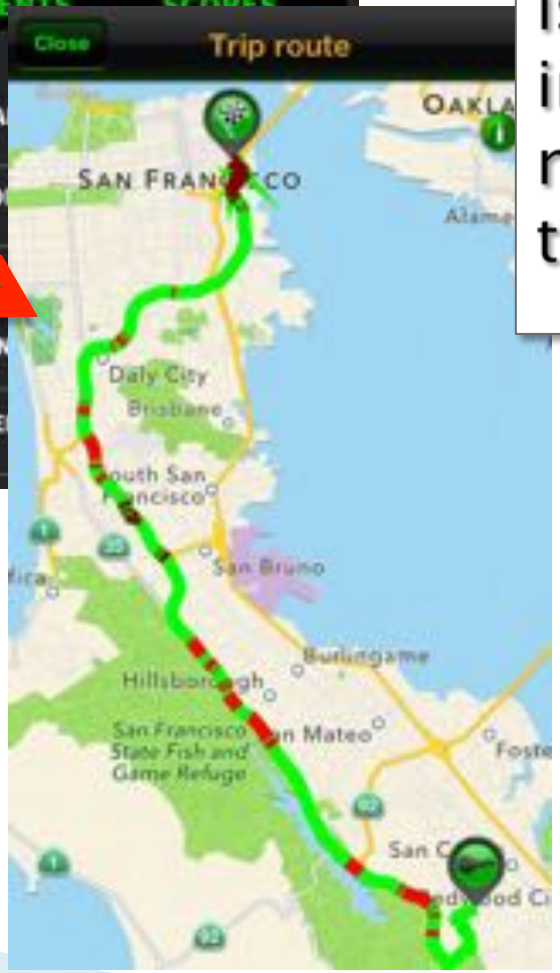

Mobile software is intimate and immediate, it must adapt to the user's flow

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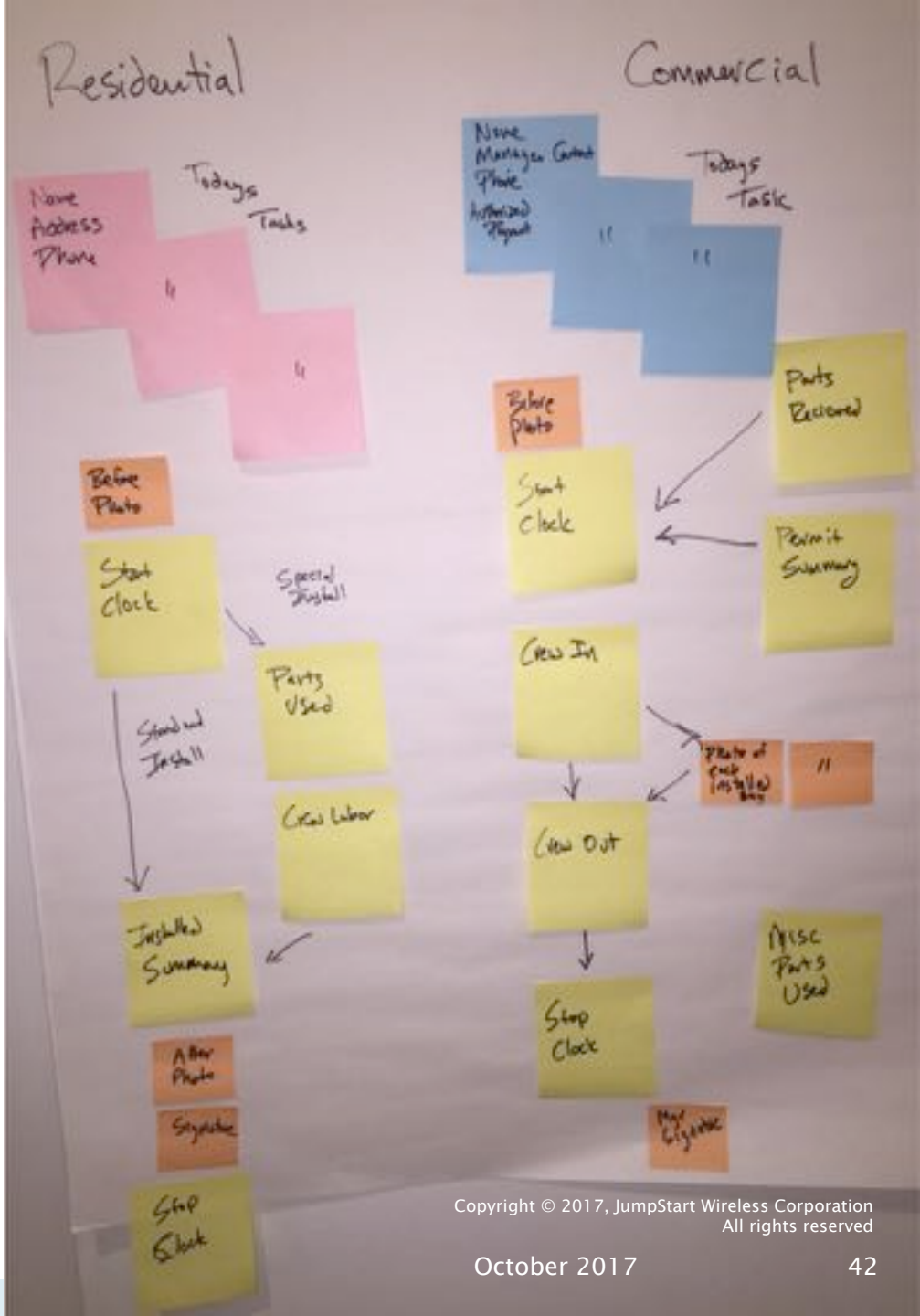
Rule of thumb for estimating effort

Assume JumpStart
Assume delivering v1

1 week

+

1 hour per Post-it



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Get started now

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

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