

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 search

Every major app is now mobile friendly



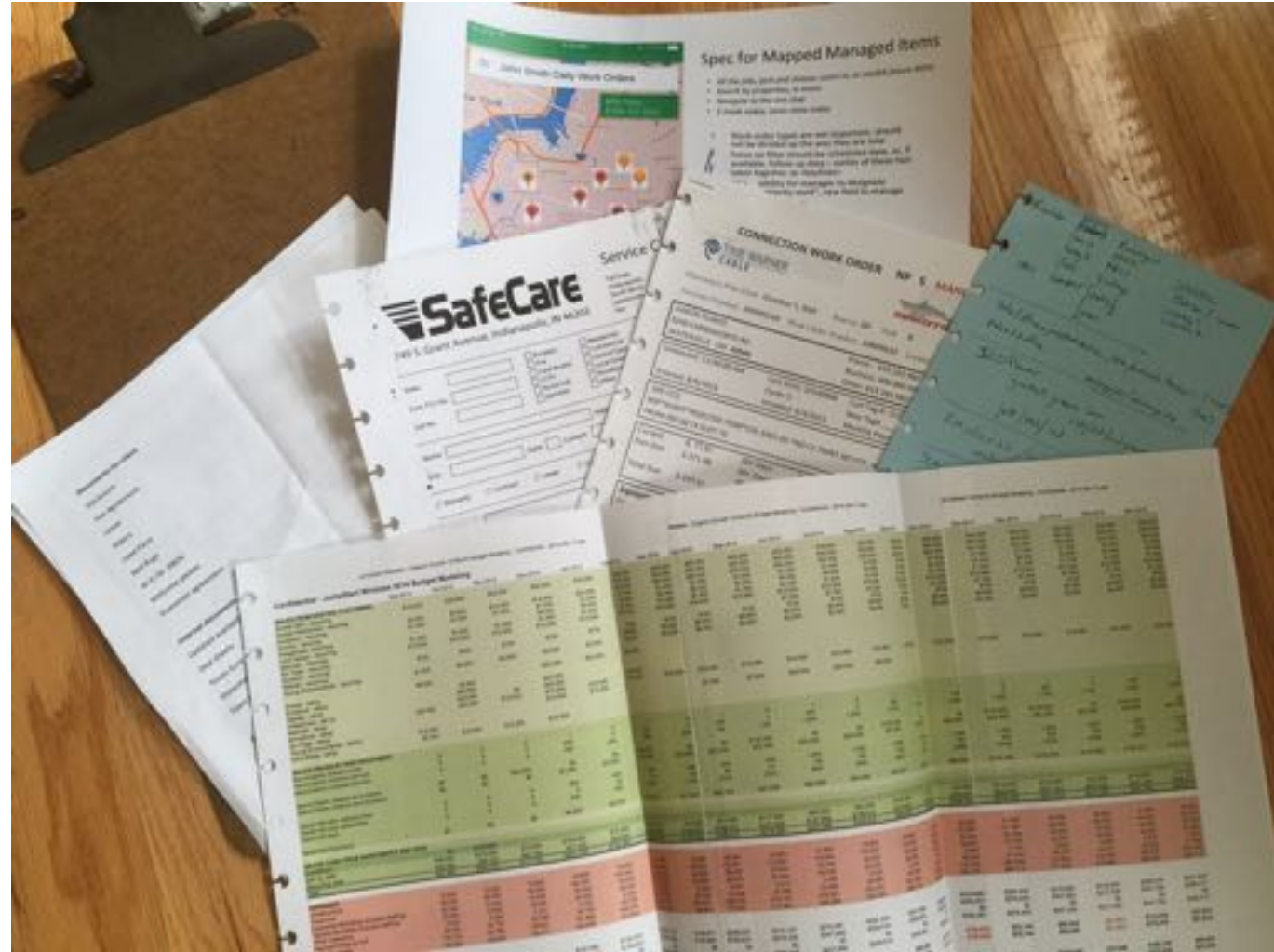
What are each of

- paper,
- desktop screens, and
- mobile

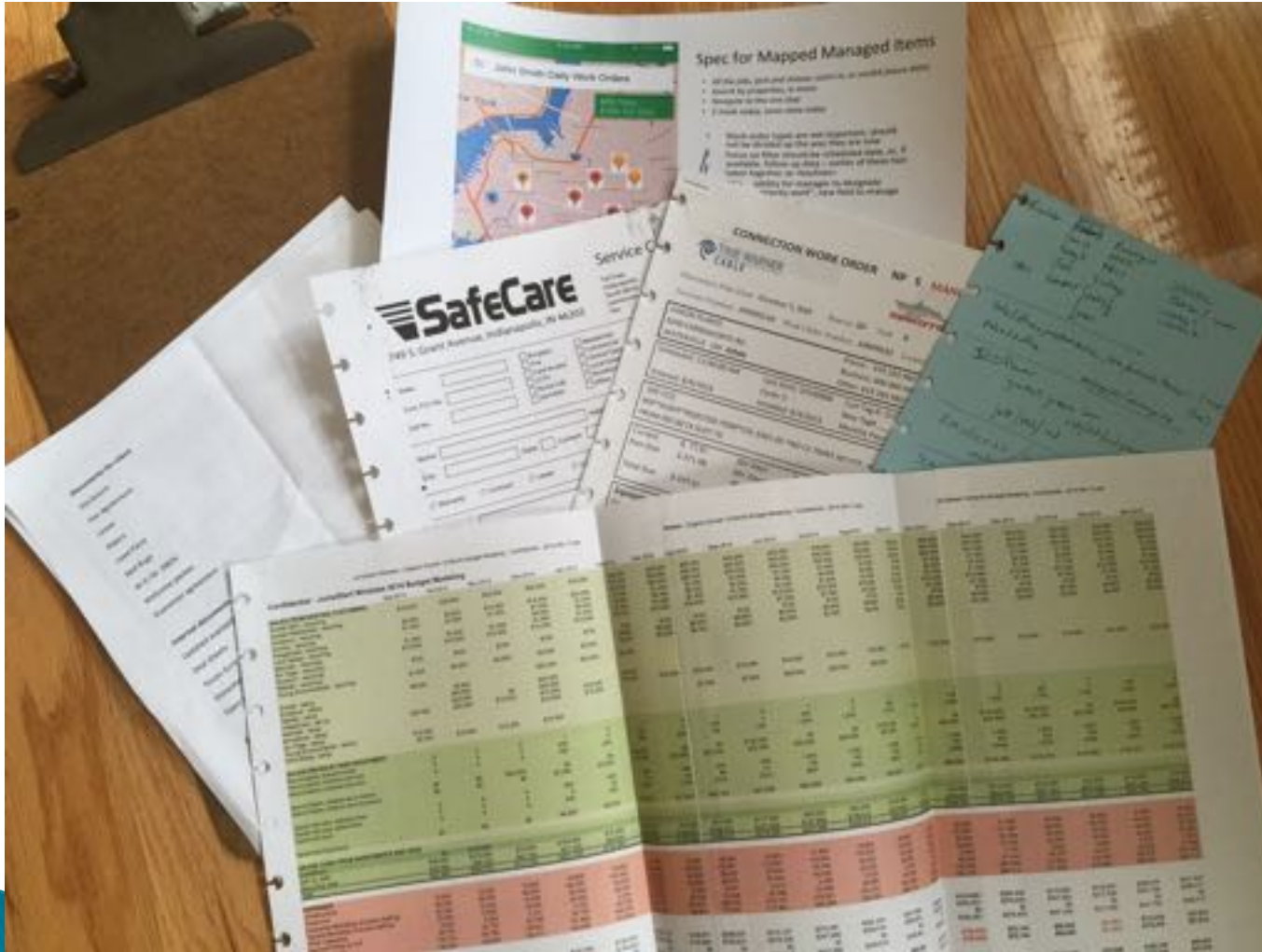
good for?

What is paper good for?

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



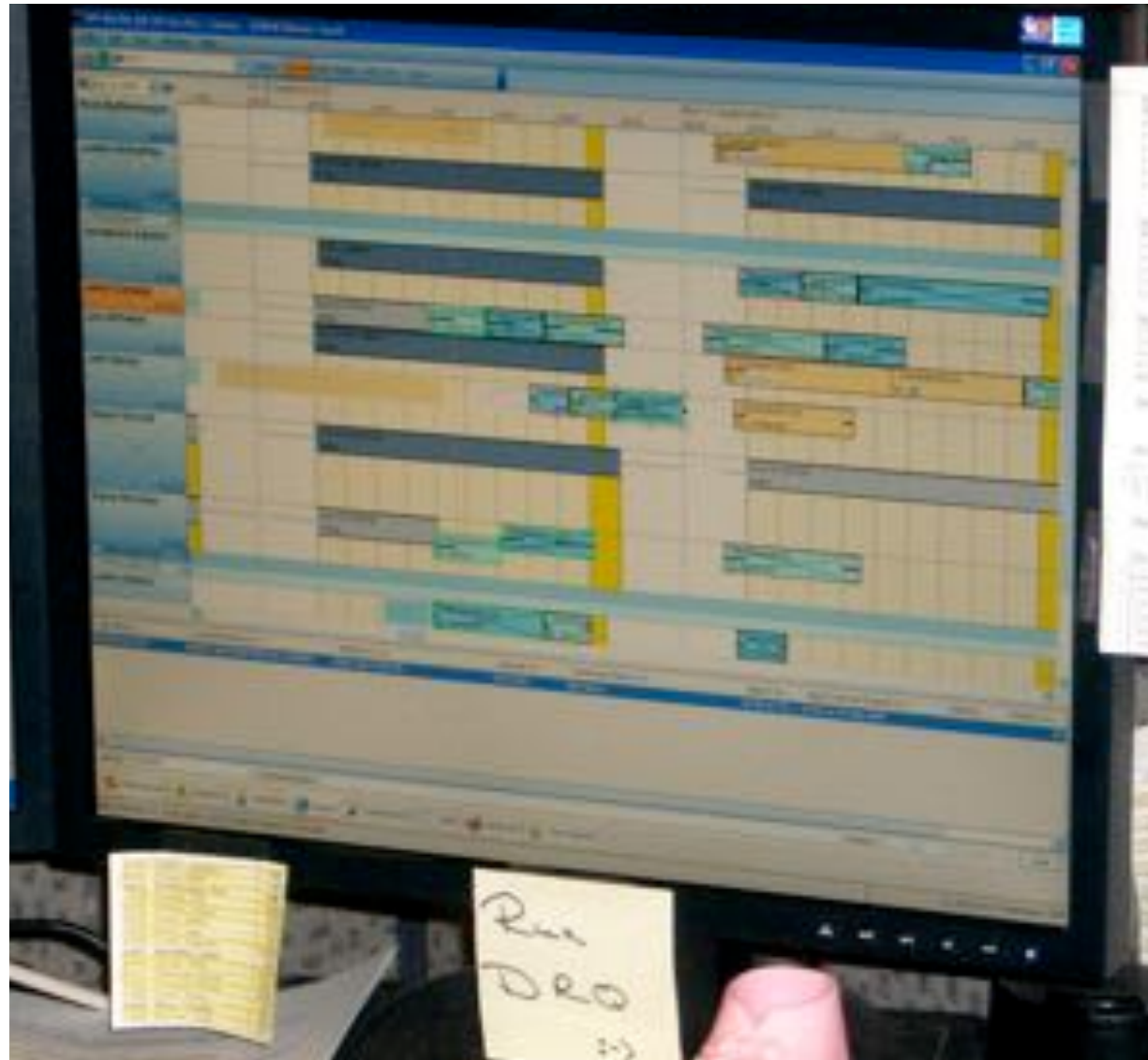
What is paper bad at?



- ▶ 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



What are smart watches good for?

Notifications
Rapid
reference



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



Service Call Request Form

Customer name withheld

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

Office Management

Date:

Cust. P.O. No.

Job No.

☐ Burglary ☐ Residential
☐ Fire ☐ Commercial
☐ Card Access ☐ Central Station
☐ CCTV ☐ Local System
☐ Nurse Call ☐ Plumbing
☐ Sprinkler ☐ Other

Call No.

Tech ID

Invoice No.

Dispatcher

Billing Information

Name: Address:

City: State: Contact: Phone:

☐ Warranty ☐ Contract ☐ Lease ☐ Callback ☐ T & M ☐ Billable ☐ Non-Billable

Trouble:

Field Work Records

Resolution:

Leverage
existing paper
forms and
processes

Forms
have
embedded
knowledge
about the
business
process

The diagram illustrates three paper forms used in a business process, with arrows pointing to them from the text on the left. The forms are:

- Field Work Records**: A form with three sections: "Trouble:" (a large text area), "Resolution:" (a large text area), and "Further Work Required:" (a large text area).
- Field Work Billing Information**: A table with columns: "Product Code", "Description", "Qty", "Unit Price", and "Extended Price". It contains five rows of data.
- Field Work Compliance**: A form with fields for "Start Time", "Stop Time", "Mileage", "Technician", and "Name". It also includes a "Signature" field at the bottom right.

My Prescriptions

Lipitor

Nexium

Plavix

Screen 1

Lipitor

Refill

Alarms

Info

Messages

Screen 2

Handle
complexity
with hierarchy

Refill Lipitor

Refill Prescription
from Dr. Jane Smith
(4 of 6 refills used)

Message to
Dr Smith about
Lipitor Prescription

Message to
CVS on Court St
about Lipitor
Prescription

Screen 3

ETA

09/23/2013 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

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 ☐ NO

Arrival Status

Continue

Log On

ETA

On time?

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

☐ YES ☒ 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.

☐ YES ☒ 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

☐ Heavy Traffic

☐ Late Start

☐ Got Lost

☐ Previous Job Ran Late (Endeavor job)

☐ Previous Job Ran Late (non-Endeavor job)

☐ Vehicle Issue

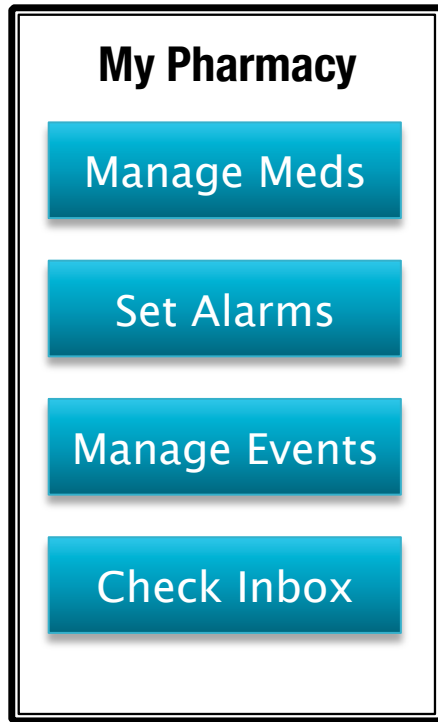
☐ Inclement Weather

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*

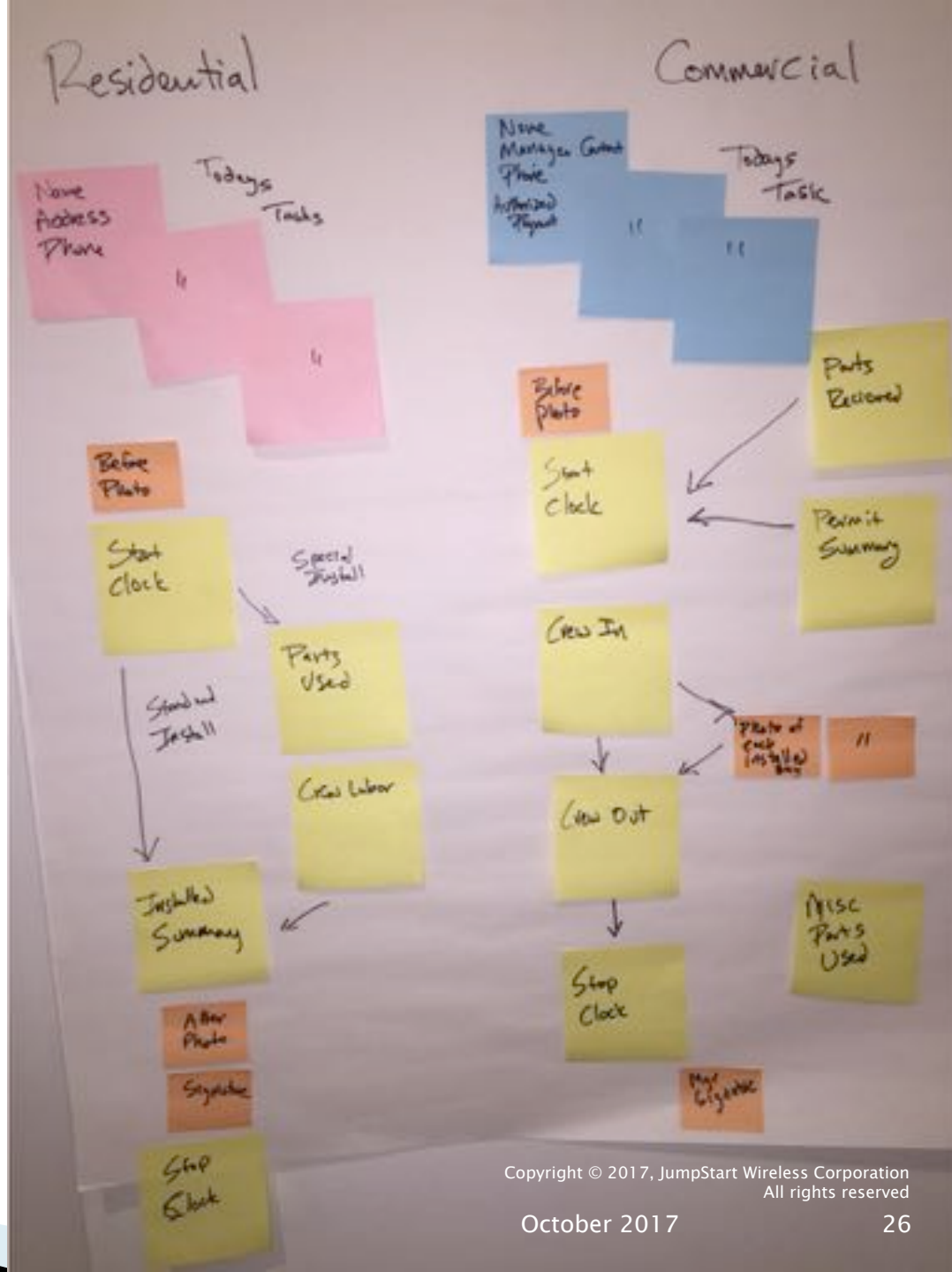
- ▶ Previous slides said nothing about:
 - **User Interface Design**
Buttons? Menus? Sliders from the side? Buttons on top or bottom? Swipes? Outlines that open up when touched?
 - **Branding**
Color, logos, fonts, icons
- ▶ **User Experience**
 - How the user thinks about and flows through the app

User Experience Design

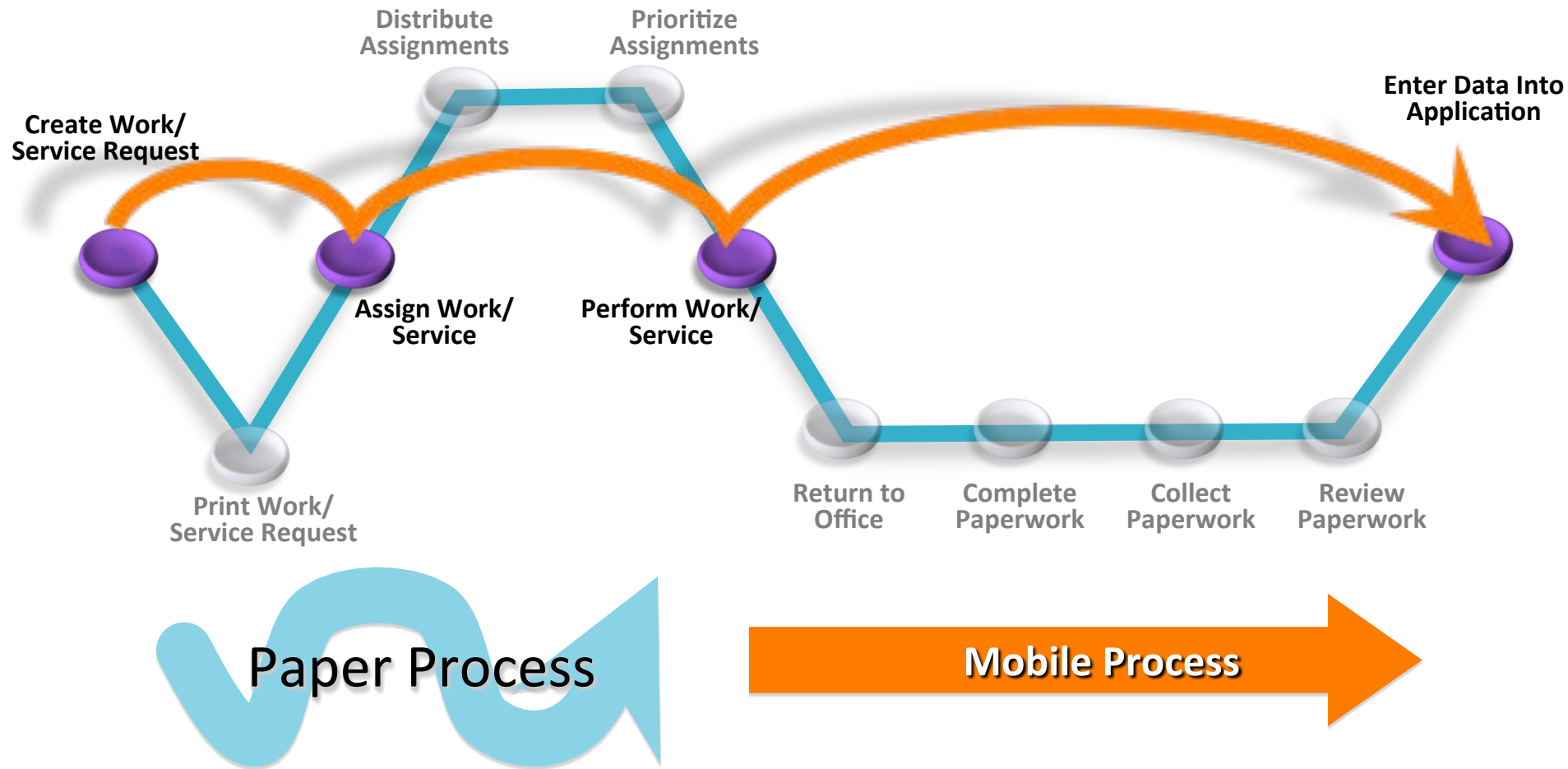
This is where you design version 1

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

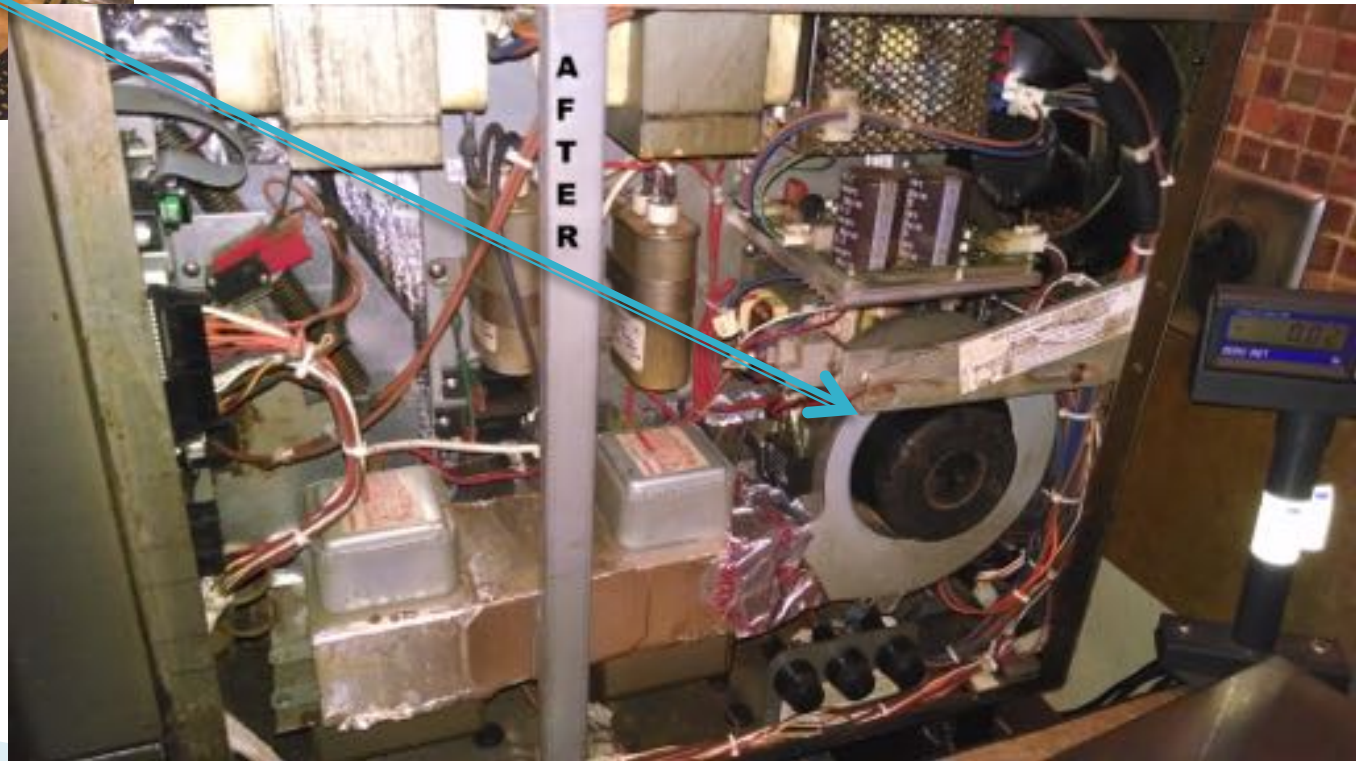


Focus on Return on Investment New Business Opportunities



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 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

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 Project	11 days	1/1/2000	1/11/2000
2 1.1 General Conditions			1/1/2000
3 1.1.1 Review project proposal			1/1/2000
4 1.1.2 Submit proposal and insurance			1/1/2000
5 1.1.3 Prepare and submit proposal	1 day	1/1/2000	1/2/2000
6 1.1.4 Prepare and submit schedule	1 day	1/1/2000	1/2/2000
7 1.1.5 Obtain building permits	4 days	1/2/2000	1/6/2000
8 1.1.6 Submit preliminary report	1 day	1/1/2000	1/2/2000
9 1.1.7 Submit working requests	1 day	1/2/2000	1/3/2000
10 1.2 Site Grading and Utilities	10 days	1/3/2000	1/13/2000
11 1.2.1 Clear and grub site	3 days	1/3/2000	1/6/2000
12 1.2.2 Install underground utilities	1 day	1/6/2000	1/7/2000
13 1.2.3 Install temporary site	1 day	1/7/2000	1/8/2000
14 1.2.4 Install site office	1 day	1/8/2000	1/9/2000

DESKTOP SCREEN

```
graph TD; A[Review project proposal and get approval] --> B[Submit proposal and insurance documents]; B --> C[Prepare and submit project schedule]; C --> D[Prepare and submit schedule]; D --> E[Obtain building permits]; E --> F[Submit preliminary report for approval]; F --> G[Submit working requests for approval];
```

Mobile software must edit features

Task Name	Duration	Start	End	3-Jan-20	10-Jan-20	17-Jan-20
1 Construction Report	81 days	1/1/2000	8/1/2000			
2 1.1 General Conditions	17 days	1/1/2000	1/15/2000			
3 1.1.1 Request requests process	1 days	1/1/2000	1/1/2000			
4 1.1.2 Subcontract and insurance	1 days	1/1/2000	1/1/2000			
5 1.1.3 Prepare and submit propo	1 days	1/1/2000	1/1/2000			
6 1.1.4 Prepare and submit sche	1 days	1/1/2000	1/1/2000			
7 1.1.5 Obtain building permits	4 days	1/1/2000	1/4/2000			
8 1.1.6 Submit preliminary shap	2 wks	1/1/2000	1/15/2000			
9 1.1.7 Submit zoning requests	1 day	1/1/2000	1/1/2000			
10 1.1.8 Site Grading and Utilities	18 days	1/1/2000	1/18/2000			
11 1.1.9	1 days	1/1/2000	1/1/2000			
12 1.1.2 Install underground...	1 day	1/1/2000	1/1/2000			
13 1.1.3	1 days	1/1/2000	1/1/2000			
14 1.1.4	1 days	1/1/2000	1/1/2000			

DESKTOP
SCREEN

MOBILE

My Tasks

Install
underground
utilities



Just show
what the
user really
needs

Editing Features

Date 4/06/15

Photographer Philip Hamish

Office CT01

Mileage Start 161,800

Mileage End 161,999

TOTAL Miles 199

Example from a service that sends photographers to document construction work

#	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	72mi	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	56mi	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

Photographer Office

Mileage Start Mileage End TOTAL Miles

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		
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		
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iPad 7:45 PM 100%

Miguel Salazar-Hernandez Dr. Marc Feingold, MD

Help MEDICAL | MEDICATIONS

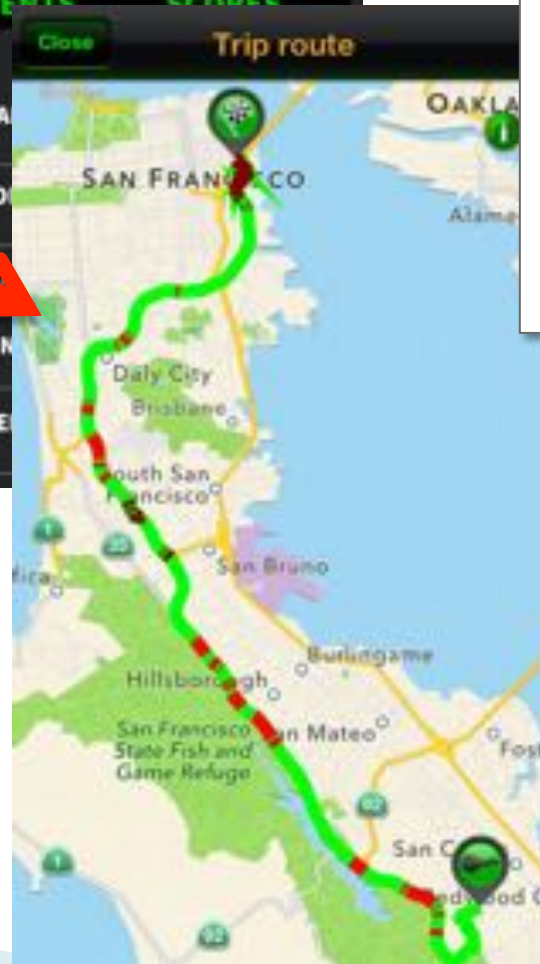
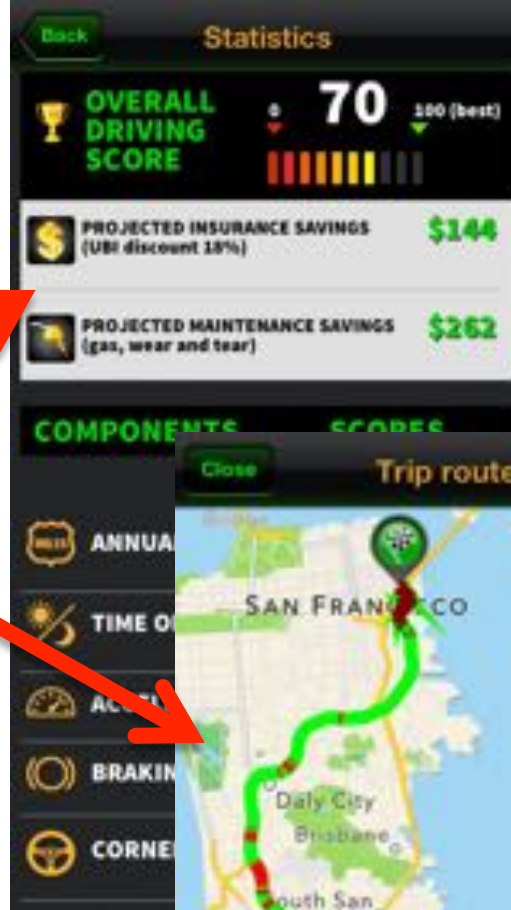
✓ PERSONAL Please indicate if you have stopped taking any of the medications listed below.

MEDICAL

MEDICATIONS I'M TAKING

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

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



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

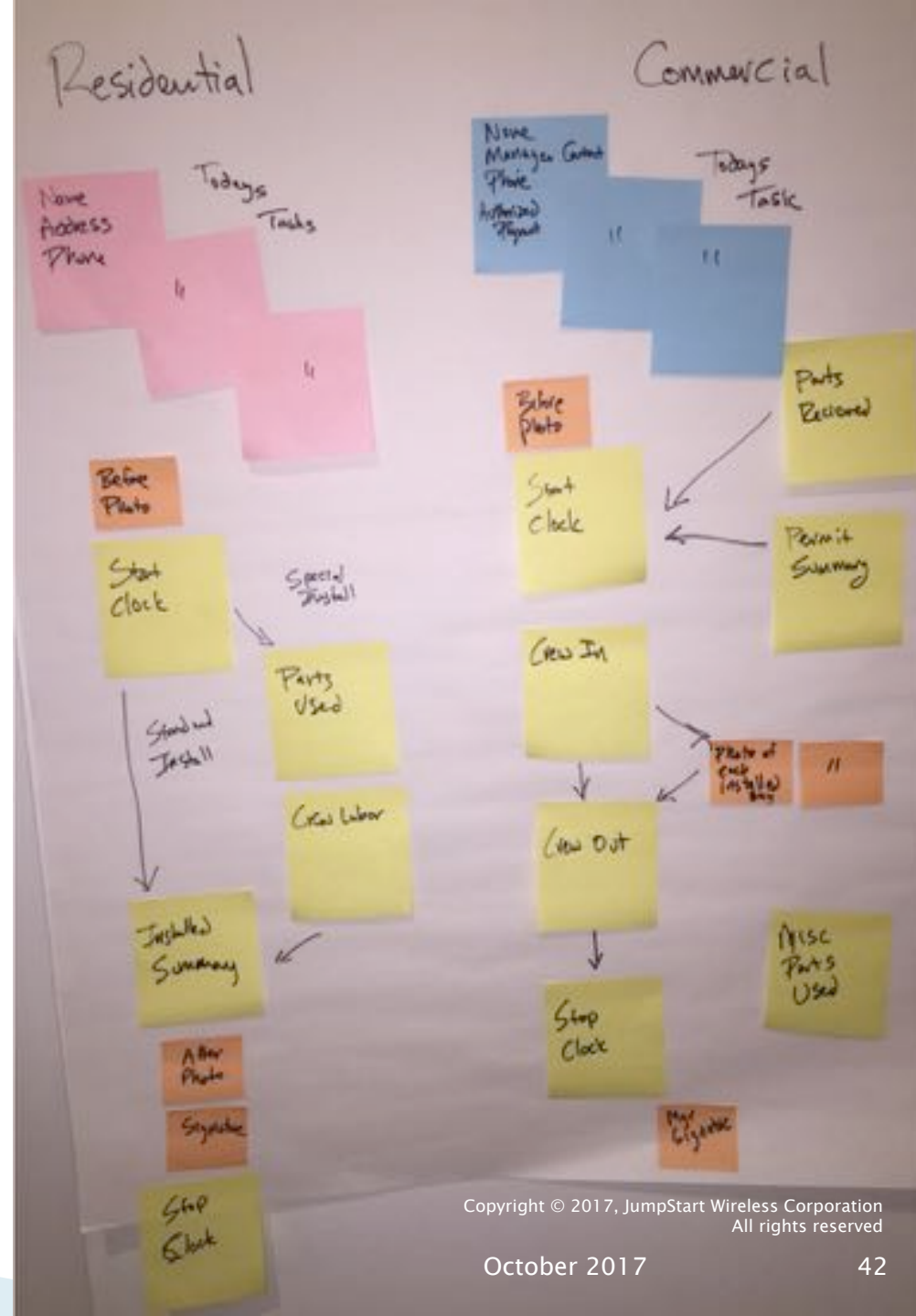
Rule of thumb for estimating effort

*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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