Leveraging Design Thinking for Field Worker Enablement

APIDX Success Story

3/10/2020
Introduction to ‘Digital Field Service Management’

Digital Field Service Management, or ‘DFSM’ is a mobile application that enables timely confirmation of 3rd party work completed in the field, and produces an accurate estimate of the value of work done.

- Leverages an external facing API utilizing the PIDX industry data standard
- Connects Chevron to electronic information from external partners while meeting a high bar for security
- Informed by the “voice of the supplier” and the “voice of the Chevron field worker”, gathered via user-centered field research and design thinking
- Launched with the first supplier in August 2019, and Site Managers have been digitally approving field tickets daily in the field over the last month
Introduction

User Centered Design Approach p.5

Digital Field Ticketing and PIDX p.10

Q&A p.35
Leveraging Design Thinking for Field Worker Enablement

User-Centered Design Approach

IDENTIFY PROBLEMS WORTH SOLVING
UNDERSTAND ROOT CAUSES BEFORE EMBARKING ON A SOLUTION
LAUNCH PROJECTS WITHIN BUDGET & TIMELINE
SECURE ROI BY HITTING KPIs & ENSURING USER ADOPTION
Leveraging Design Thinking for Field Worker Enablement

**Project Stats**

<table>
<thead>
<tr>
<th>100+ HUMAN INTERACTIONS</th>
<th>3 PhDs</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEVRON DSMs AND WSMs CONSTRUCTION REPS SUPPLIER FIELD WORKERS SUPPLIER BACK OFFICE ADMINS</td>
<td>CHAIONE BEHAVIORAL SCIENTISTS GATHERING DATA</td>
</tr>
<tr>
<td>DESIGN THINKING TO FRAME SOLUTION</td>
<td></td>
</tr>
</tbody>
</table>

User-Centered Design Approach
Chevron Field Ticketing Process Today

- Segmented communications through phone, email etc. impact the ability of users to collaborate efficiently
- Chevron employees manually review and approve field tickets - each containing multiple pages
- Often takes months before field service is approved & paid, due to cumulative field ticket & invoicing issues/delays
- Projects have reconciliation issues due to a lack of real-time visibility into work done in the field.
Voice of the Customer

“The old school way of having a paper ticket is almost archaic. It causes the field reps to review it, scan it and email it when you should be able to do everything off of an iPad.”

– Chevron Facility Engineer

“When we’re missing ticket information from the field, we send out emails, texts, and make phone calls to try to figure it out. This causes major delays and uncertainty.”

– Supplier Supervisor
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>p.2</td>
</tr>
<tr>
<td>User Centered Design Approach</td>
<td>p.5</td>
</tr>
<tr>
<td>Digital Field Ticketing and PIDX</td>
<td>p.10</td>
</tr>
<tr>
<td>Q&amp;A</td>
<td>p.35</td>
</tr>
</tbody>
</table>
Supplier Assessment Findings

50% of suppliers are using digitized field ticket solutions (based on data from 28 suppliers)

- **Paper Based Ticketing**
  - FMS 14%
  - Other Digital Solutions 36%

- **Digitized Field Ticketing**
  - MVP
  - Release 1
  - Release 2
  - DFSM CFR App

- **Alternatives**
  - Kiosk
  - IoT
  - Market Solution
  - eProcurement
  - Chevron Developed Supplier Facing App

Note: Based on data from 28 current suppliers submitting Service Field Tickets to Chevron

Inbound Invoice Presentation
Includes paper-based and digitized field ticket suppliers

- B2B Data Exchange 2 10%
- B2B Data Exchange 1 16%
- XML - Direct 74%

Field worker digitization lacks maturity compared to middle office digitization.
Supplier Field Ticket Presentation Methods

1. **Paper Ticket**
   - Supplier field worker creates a paper ticket for service completed.

2. **Invoice System**
   - Supplier enters field ticket information (manually or electronically) into their invoice system to generate invoice for service completed.

3. **Digital Ticket Application**
   - Supplier field worker creates an electronic ticket for service completed.

---

**Chevron Wet Signature**
- Field ticket approval signature by Chevron Field Rep for confirmation of service work done.

---

**Invoice Printout**
- Supplier generates invoice for wet signature by Chevron field rep (in lieu of field ticket).

**Digital Ticket Printout**
- Supplier prints out output from their digital ticket solution for Chevron approval.

---

**Supplier Field Ticket Data Sources [Existing]**
- API connection via PIDX

**Chevron DFSM- Field RepApp [New MobileApp]**

---

Leveraging Design Thinking for Field Worker Enablement

Digital Field Ticketing and PIDX
Supplier Facing API - Enabled by PIDX

For the backend, we created three Azure functions:

1. for PIDX implementation that service providers will integrate with
2. that the app uses to display and approve/reject the tickets
3. that the app uses to register devices for push notifications

The suppliers will call the “CreateTicket” PIDX endpoint (which we can simulate with Postman)
Thank You!