

MI AUTOMATION CASE STUDY



CASE STUDY CLIENT

GAS PIPELINE SERVICES

Pipe-End Remediation

Project ran Mar 2017 - Aug 2017

PROJECT OVERVIEW

OBJECTIVE	Daily automated reporting of rusted pipe-ends remediated by engineers in the field as part of a project to restore them to a suitable condition prior to welding on the ship before being laid on the seabed (Russia – Turkey).
SOLUTION FORMAT	MS Excel driven by VBA (Macros) using Dropbox to remotely sync .jpeg images and pipe barcode inputs into an Excel front-end. User navigation via main Dashboard interface to input barcodes and instantiate tablet camera so as to capture before and after .jpeg images in order to prove that each individual pipe had been cleaned.
MAIN PROCESSES	<ol style="list-style-type: none">1. Capture barcode inputs and before & after cleaning images using the in-built tablet camera2. Synchronise all images & pipe barcodes to shared Dropbox folders for real-time remote access for reporting purposes3. Reports by individual barcode and associated tablet number generated programmatically on a daily basis and emailed to stakeholders
SUCCESSES	<ol style="list-style-type: none">1. Extremely agile build – 14 days to produce a ‘cradle-to-grave’ robust solution2. Provided a solution where the client’s in-house IT department was unable to move quickly enough to create working software, hence the reason for outsourcing to FD4Cast3. Flexibility of the solution allowed rapid modifications to the front-end & overall process as the project grew and changed in scope.
PROJECT TIMESCALES	<ol style="list-style-type: none">1. March 2017 – 21 days to deliver working system2. Modifications made Mar 2017 – Jun 2017 due to scope creep3. August 2014 – Project concluded, 120k pipes cleaned & logged

PIPE-END REMEDIATION - User Navigation

1. Customised User Dashboard to drive all input functionality

TABLET 1 SST PEP Data Management System v4.0

Clear Search Lookup Barcode

Enter Barcode:

Enter Location:

Date Worked:

Pipe Identification Position for Barcode Entry

Pipe Barcode SP000000 **Inspector Name** Admin

Pipe End Identification EAST WEST **Date / Time Start** 2018-02-12 20:32:01

Capture Pipe End Image **Date / Time Finish**

Save Clean Pipe (Release from Quarantine) **Save Data** **Exit Database**

Inspector Names **Technical Support:**

James Power Email: james.power@clientemail.com

Tel: +44 7967 883568 Email: james@fd4cast.com

Restart Dropbox

2. Barcode Image captured before Pipe Cleaning / Rust Grinding

TABLET 1 SST PEP Data Management System v4.0

Clear Search Image Preview

Enter Barcode:

Enter Location:

Date Worked:

Pipe Identification

Pipe Barcode SP000000 **Inspector Name** Admin

Pipe End Identification EAST WEST **Date / Time Start** 2018-02-12 20:32:01

Capture Pipe End Image **Date / Time Finish**

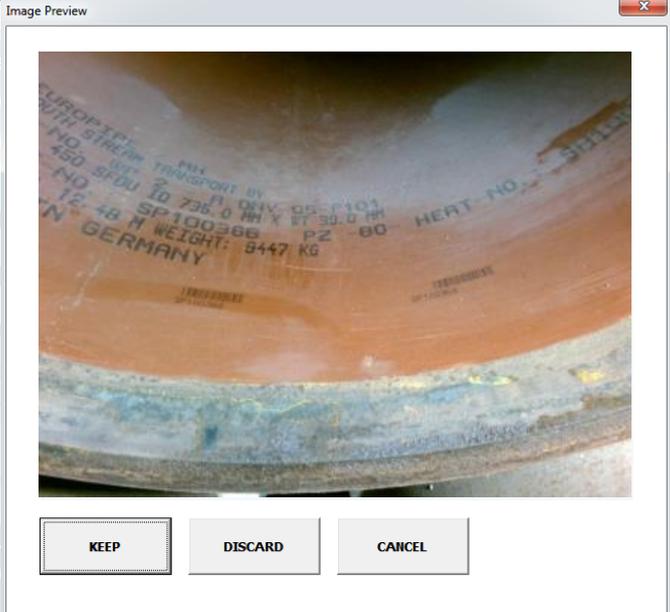
Save Clean Pipe (Release from Quarantine) **Save Data** **Exit Database**

Inspector Names **Technical Support:**

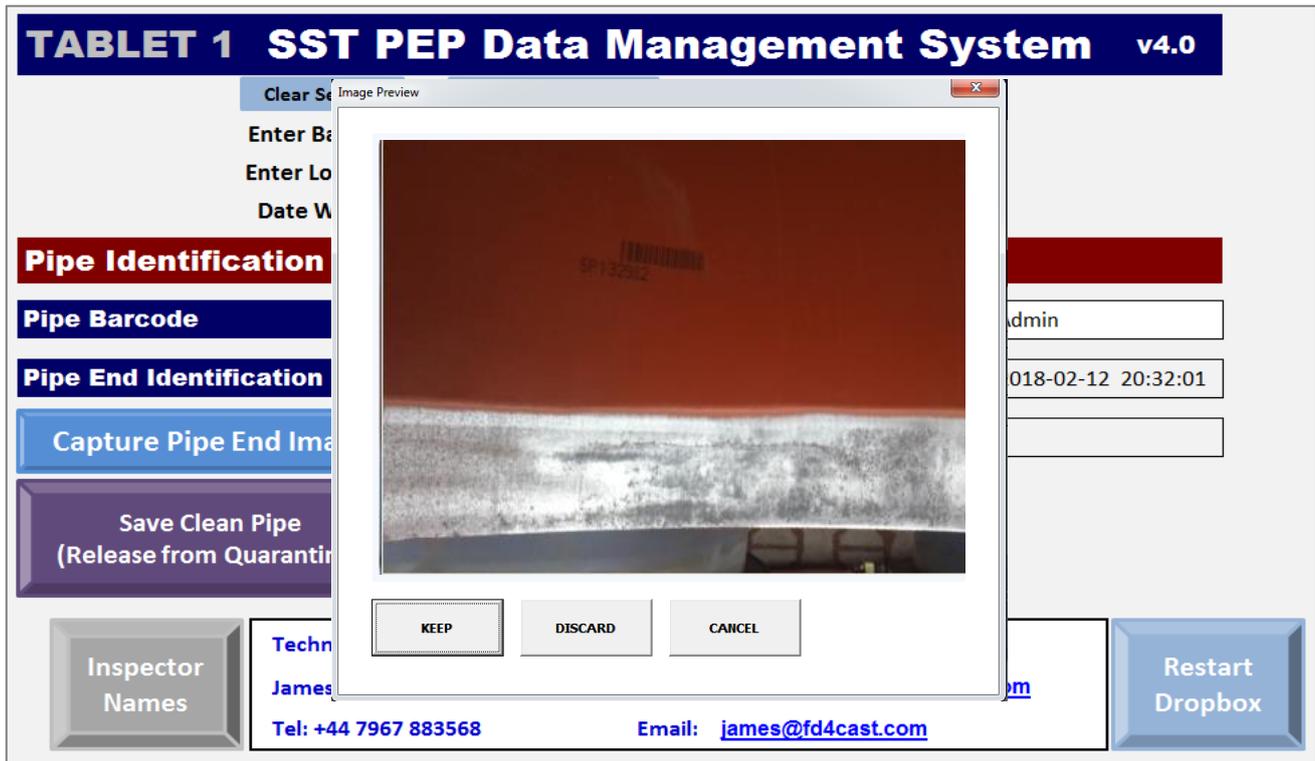
James Power Email: james.power@clientemail.com

Tel: +44 7967 883568 Email: james@fd4cast.com

Restart Dropbox



3. Barcode Image captured after Pipe Cleaning / Rust Grinding to prove work completed



4. Project Synopsis

In March 2017, the client landed a contract to remediate 120,000 pipes which had been sat in various dockyards on the Bulgarian Black Sea coast (Varna & Bourgas) for over 2 years since the original project was put on hold.

A combination of the sea air and the general elements had caused the pipe ends to rust during the 2-year pause for the project, meaning that the pipes could not be welded securely on the ship during the pipe-laying process. Therefore the outer rust needed to be removed using a grinding process, and any debris removed from inside the pipes before loading to the ship. A 'before' and 'after' image of each pipe needed to be taken and logged, in order to prove in subsequent random audits that the work had actually been done.

The in-house client IT Department had previously been engaged to provide a solution, but proved to be unable to deliver a timely and working prototype before the project was due to start. As the deadline for project go-live loomed and with no workable solution in sight from the IT Department, the main stakeholders reached out to FD4Cast and commissioned an agile build.

A working version was developed, tested, and implemented within 21 days of initial requirements being discussed, and the software designed by FD4Cast went live on the day that the remediation work was due to commence. No logged data was lost throughout the whole project, proving the robustness of the solution, which was also designed to allow remote updates to the front end over the life of the project as stakeholders requested additional functionality.

Daily reporting was conducted through a separate Excel VBA tool which collated into a single file all real-time updates to the individual Dropbox folders linked to each tablet (images & metadata). Information was copied across and sorted by date, reports produced for the day in question, and a cumulative running total was kept in order to predict a project end date from the current run-rate.

ABOUT FD4CAST

Founder owner James Power is a BA/MI Analyst who specializes in the design and delivery of MI solutions built in MS Excel, Access & SQL for organisations requiring streamlining and automation of their administrative and financial processes.

As organisations seek to embrace the much-heralded ‘brave new world of automation’, FD4Cast operates in a specialist niche which seeks to sit between the end-user and the in-house organisational IT department.

‘Agile’ solutions are typically required in order to ‘oil the cogs’ of the process interaction between ERP systems and the MI Analyst (who often may not be a VBA specialist) in order to enable faster and error-free production of MI Reporting to therefore leave more time for actual business analysis.

Where appropriate, existing business processes are analysed & redesigned, and VBA code is used in order to automate previously manual copy/paste exercises. In addition, data cleansing, automated matching, duplicate detection, and general spreadsheet manipulation techniques will be incorporated in any given delivered project.

Data can be imported from base data source files or email attachments. In some instances where required, web-scraping exercises can be performed.

WORKING METHODOLOGY

1. Typically a first stage scoping exercise is undertaken with client input - i.e. requirements / objectives.
2. If ‘Automation’ opportunities exist, then these are identified and presented to the client.
3. A ‘Proof-of-Concept’ deliverable is agreed and produced for UAT (User Acceptance Testing).
4. End-to-End project scope agreed and then coded.
5. Error handling implemented in the base code to alert the user in the event of new future data formats which could cause the overall process to deter from the original agreed ‘Happy Path’.
6. Continual support & maintenance agreed as an ongoing requirement, or on an ad-hoc basis.