



Activity Automation

Digital Solution for Non-Operated Daily Production Reports

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Activity Automation - Introduction

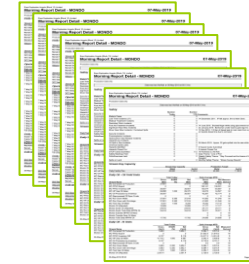
- There are multiple activities across oil industry that could be simplified by implementing automated workflows, consequently releasing significant amount of time and efforts from work force, helping to access information more efficiently to support strategic decisions.
- Oil company activities tend to generate too much data
- Teams aim to spend more time analyzing the data rather than searching for it from different sources



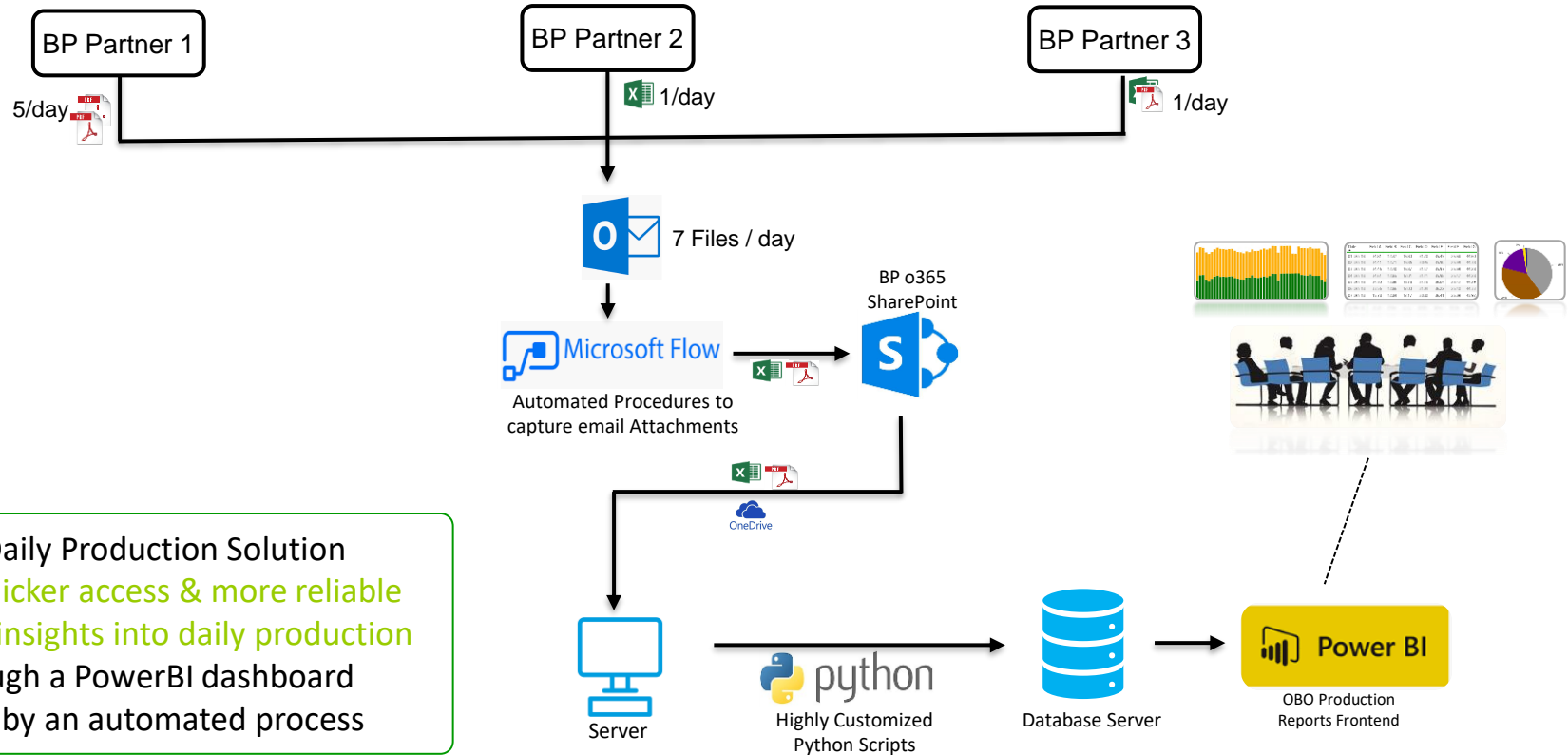
Activity Automation - BP Angola Use Case



- Multiple Daily Production Reports
 - Every day we receive 7 production reports from our Partners by email in pdf and excel formats
- Data cumbersome to analyse and time consuming to manipulate no consistent format between operators, not always possible to read every report in detail each day.



The Solution – Logical Diagram



The Solution – Transfer Email Attachments to SharePoint Using MS Power Automate



The diagram illustrates the five steps to create a Power Automate flow for transferring email attachments to SharePoint:

- Step 1:** Access the Power Automate portal at emea.flow.microsoft.com/en-us/. The 'Templates' button in the left sidebar is highlighted with a red box and an arrow.
- Step 2:** Search for 'email attachments' in the template gallery.
- Step 3:** Select the 'Save my email attachments to a SharePoint document library' template by Microsoft. A hand icon indicates clicking on the template.
- Step 4:** Configure the 'On new email with attachment' trigger. The 'Folder' is set to 'Inbox'.
- Step 5:** Configure the 'Create file' action. The 'Site Address' is set to 'Example: <https://contoso.sharepoint.com/sites/sitename>'. The 'Folder Path' is set to 'Must start with an existing library. Add folders if needed.' The 'File Name' is set to 'Name of the file.' and the 'File Content' is set to 'Content of the file.' Hand icons indicate clicking on these fields.

- Automated process, negating the need for manual checking of the mailbox
- SharePoint document library acts as permanent document repository which is always up to date as soon as the data is received

The Solution – Extracting Outlined Dataset Using Python Scripts



Safety

Details	Total	Comments
Safety Details 1	0	Comment1
Safety Details 1	0	Comment2
Safety Details 1	1	Comment3
Safety Details 1	0	Comment4
Safety Details 1	0	Comment5
Safety Details 1	0	Comment6

Oil Production

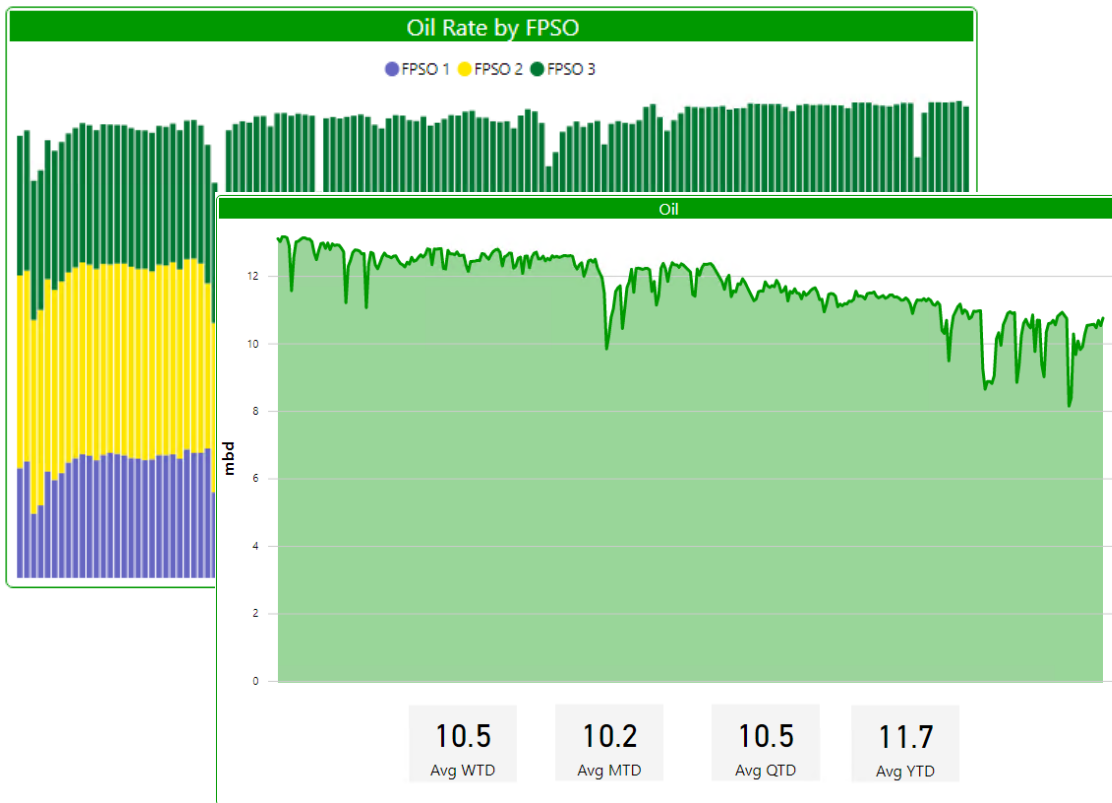
Fields	Column A	Column B	Column C	Column D
Field A (bbls)	5,322	4,788	973	813
Field B (bbls)	11,839	8,392	817	316
KB	30	30	583	398
Details 2	0	0	3	1
Additional Info Field 3	41	32	55	763
Field C (bbls)	17,823	16,354	251	611
Field D (bbls)	14,032	13,396	671	192
Field E (bbls)	53,800	52,913	880	455

```
df = tabula.read_pdf(file, pages='1', multiple_tables=True)
df = df[df.iloc[:,0].str.contains('Field', case=False) == True]
df.columns = df.iloc[0, :]
df = df[df.iloc[:,0].str.contains('bbls', case=False) == True]
df = df[['Fields', 'Column B']]
df
```

Highly customized Python scripts **extracts outlined dataset automatically** from pdf/excel files and store it in a structured database

Fields	Column B
Field A (bbls)	4,788
Field B (bbls)	8,392
Field C (bbls)	16,354
Field D (bbls)	13,396
Field E (bbls)	52,913

The Solution – PowerBI Frontend



Monthly Rates (mbd)			
Month	Target 1	Target 2	Actual
January	13.0	13.0	12.8
February	12.9	12.9	12.5
March	12.8	12.8	12.6
April	12.8	12.8	12.5
May	12.7	12.7	12.1
June	12.6	12.6	12.0
July	11.8	11.8	11.9
August	12.0	12.0	11.5
September	12.1	12.1	11.4
October	12.0	12.0	11.0
November	11.8	11.8	10.2
December	11.6	11.6	10.2

Quarterly Rates (mbd)			
Quarter	Target 1	Target 2	Actual
Q1	12.9	12.9	12.6
Q2	12.7	12.7	12.2
Q3	12.0	12.0	11.6
Q4	11.8	11.8	10.5

Year Rates (mbd)			
Year	Target 1	Target 2	Actual
Year 1	12.3	12.3	11.7

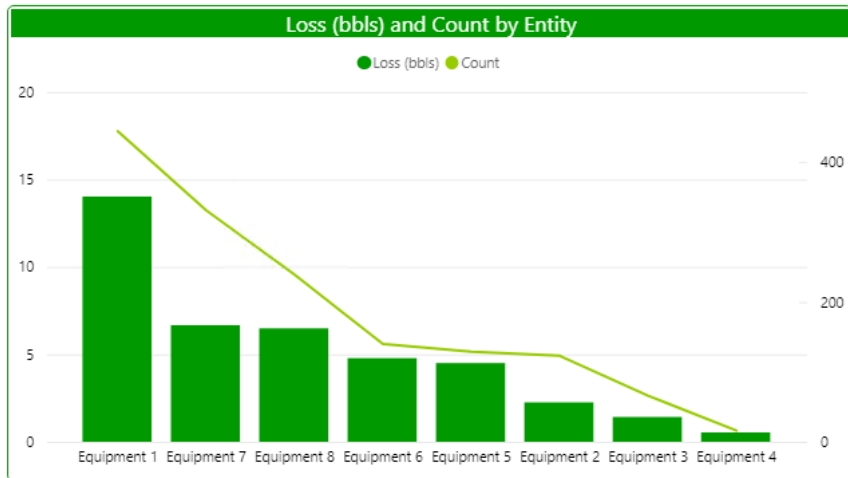
Purpose

- Production performance data available by Block, FPSO & Development Area
- Monthly, Quarterly & Yearly rates are all viewable

Benefits

- Ability to access data in real time when received
- Easily identify trends in production

The Solution – PowerBI Frontend



The developed Machine Learning Model has enabled the OBO team to get a wider view on the reported data from the Operators, **identifying reoccurring issues from a particular cause** e.g. specific equipment failure



Date	Event	FPSO	Planned / Unplanned	Loss (kbbbls)
01-Feb-18	Equipment 5 failed due to issue 11	FPSO 1	S1P	0.02
15-Feb-18	Equipment 8 failed due to issue 304	FPSO 1	S1U	0.02
19-Feb-18	Equipment 2 failed due to issue 84	FPSO 1	S1U	0.01
21-Feb-18	Equipment 8 failed due to issue 322	FPSO 1	S1U	0.01
22-Feb-18	Equipment 2 failed due to issue 20	FPSO 1	S1U	0.01
23-Feb-18	Equipment 8 failed due to issue 312	FPSO 1	S1U	0.01
24-Feb-18	Equipment 1 failed due to issue 3	FPSO 1	S1U	0.04
24-Feb-18	Equipment 5 failed due to issue 46	FPSO 2	S1P	0.04
25-Feb-18	Equipment 1 failed due to issue 881	FPSO 2	S1P	0.03
25-Feb-18	Equipment 2 failed due to issue 42	FPSO 1	S1U	0.03
26-Feb-18	Equipment 1 failed due to issue 7	FPSO 1	S1U	0.03
26-Feb-18	Equipment 1 failed due to issue 885	FPSO 2	S1P	0.03
Total				9.43

Q&A

