



EMIS – ENGIE Mobile Inspection Solution

How can an app save millions on pipe inspections?

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ENGIE E&P Norge AS – About us

Established in Norway in 2001- part of the ENGIE Group

Operator of the Gjøa field

Among the top ten producers and reserve owners on the NCS

Number of employees: 284

Head Office in Sandnes and Base and Logistics Office in Florø

Turnover of 11 890 MNOK in 2015

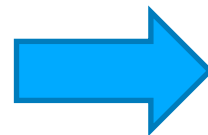
Holds 40% of the ENGIE Group's proven and probable reserves and 58% of its production



The piping inspection challenge



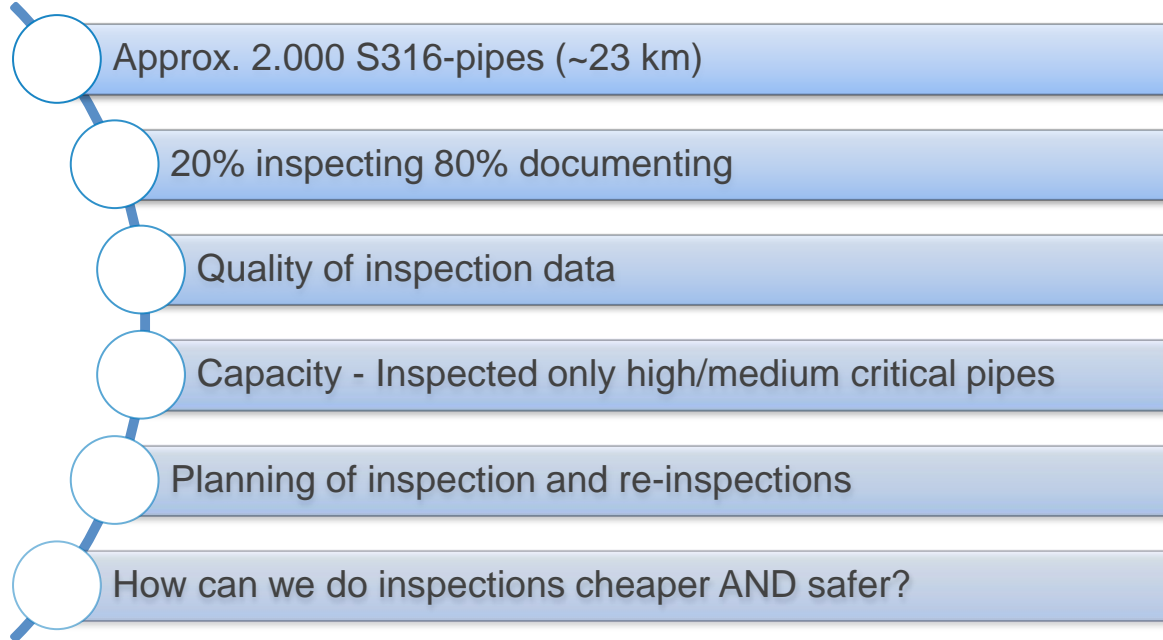
Inspection out in the field



Documentation

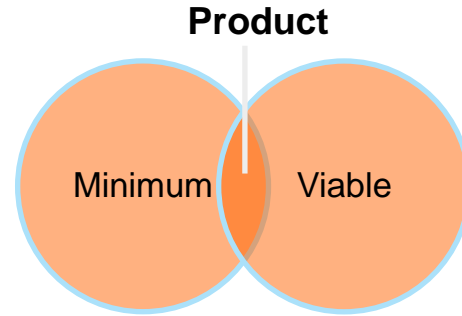
Documentation at the office desk

The piping inspection challenge



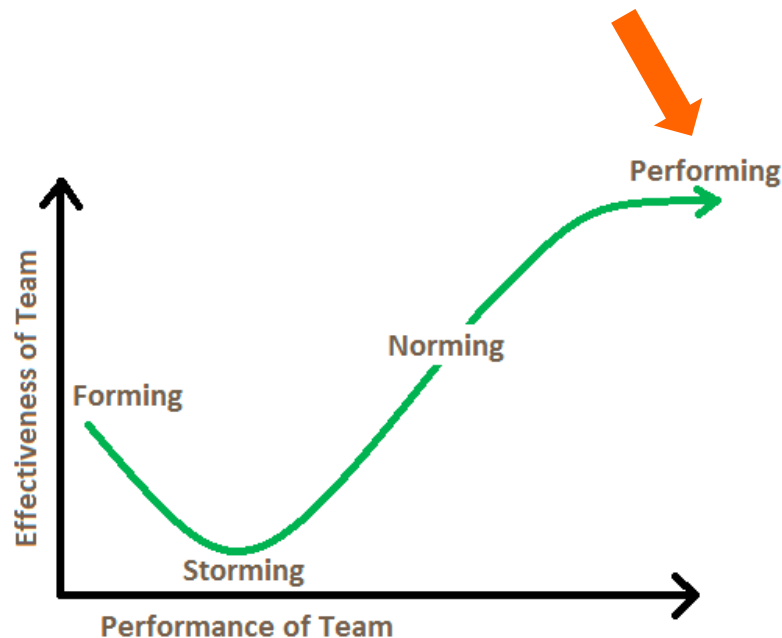
From idea to business case

- Customer challenge
 - Link photos to equipment
 - Domain knowledge
 - Connect photos to inspection events
- Prototype developed
 - Prove ability
 - Challenge understood!
- Deliver complete pipe inspection solution in 16 weeks
 - On budget, schedule & agreed scope



Key success factors

- Well established delivery model
 - Incremental iterative process
 - Ongoing dialogue
- Well established development team
 - Proven track record
 - Tuckman's Development Model
 - Performing stage - Productive
- Oracle Application Express (APEX)
 - Low cost of change
 - Short time to market
- Domain knowledge – Inspection
 - Inspection solutions developed for other customers



Summary and most important

- Great collaboration
 - Cooperative and open dialogue
 - Collaborating and problem solving atmosphere
 - Focus on business value
 - Bi-weekly meetings
- On budget, schedule & agreed scope



Idea!

Prototype
2 weeks

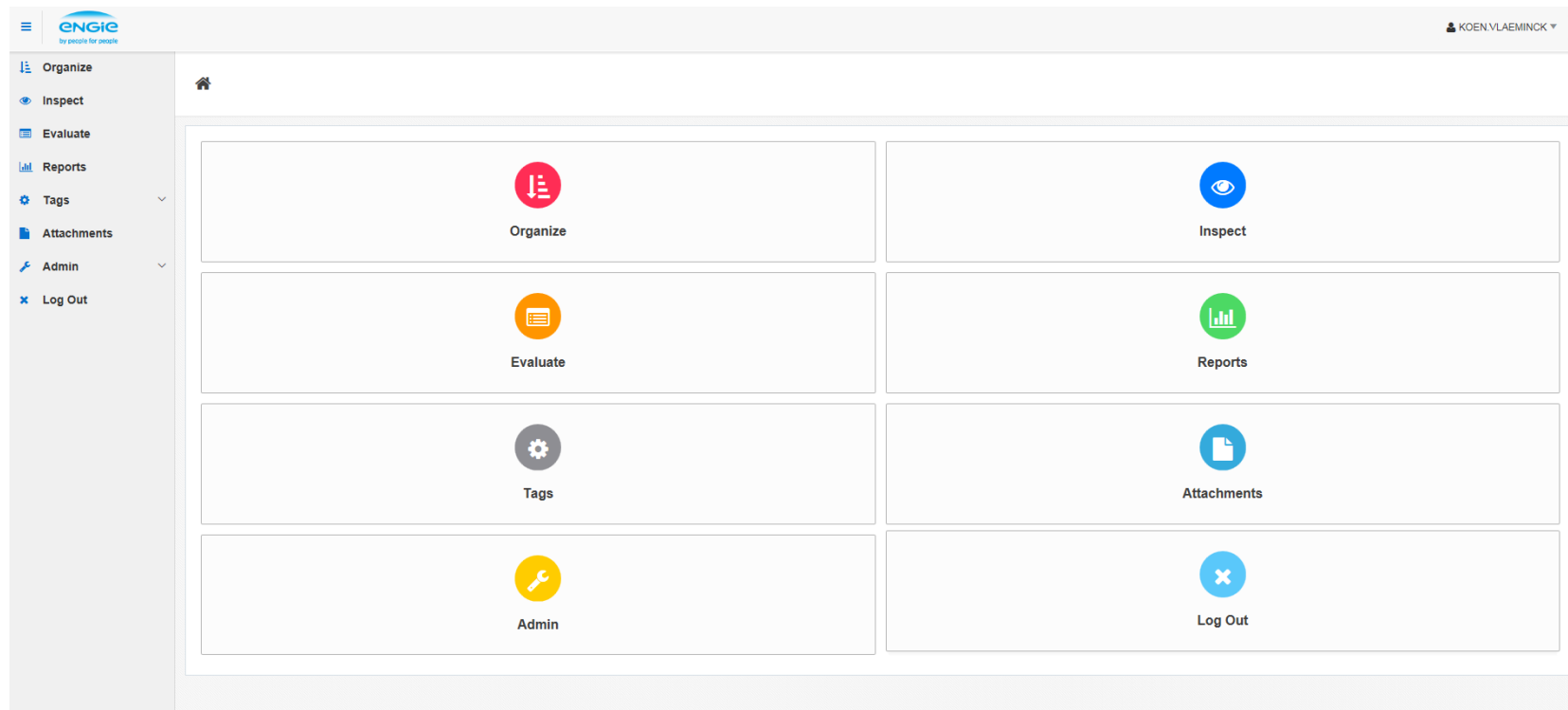
Development
16 weeks

Production

EMIS – Keep It Simple Stupid (KISS)



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EMIS – Keep It Simple Stupid (KISS)

The screenshot displays the ENGIE mobile application interface on a smartphone. At the top, the status bar shows the time as 13:47 and battery at 83%. The app header features the ENGIE logo and the tagline 'by people for people'. Below the header, a navigation bar shows 'Work List'. A sidebar on the left contains icons for home, list, settings, and other functions. The main content area is titled 'Tags' and includes filter dropdowns for 'Package' (set to '- All -'), 'Status' (set to 'In Progress'), and 'Inspector' (set to 'EIVIND MIKKELSEN'). A 'Filter' input field is also present. Below the filters, there are four work order cards, each labeled 'In Progress'. Each card displays a tag ID, a work order number, and progress bars for 'TAG SECTIONS'. The first card (38L4161A-0200VA-AS200) shows 1 section done (blue) and 1 section pending (yellow). The second card (21L1122A-0039VA-TS210...) shows 2 sections done (blue) and 2 sections pending (yellow). The third card (43L1216A-0300VF-AS2F1) shows 1 section done (blue) and 1 section pending (yellow). The fourth card (21L4328A-01500L-AS200) shows 1 section done (blue) and 0 sections pending (yellow). Each card has a 'Set to Inspected' button at the bottom.

Tag ID	Work order	Tag Sections	Done	Pending
38L4161A-0200VA-AS200	WO1000012345	1 / DONE: 1	1	1
21L1122A-0039VA-TS210...	WO0000271895	2 / DONE: 2	2	2
43L1216A-0300VF-AS2F1	WO0000230965	1 / DONE: 1	1	1
21L4328A-01500L-AS200	WO0000230592	1 / DONE: 0	1	0

EMIS – Keep It Simple Stupid (KISS)

The screenshot displays the ENGIE EMIS mobile application interface. At the top, the status bar shows the time as 13:57 and battery level at 83%. The app header includes the ENGIE logo and a user profile icon. A left sidebar contains navigation icons. The main content area shows a record for '38L4161A-TS001-IP001' with a yellow warning icon. Below this is a photo of a metal pipe with a label 'Corrosion developed'. The photo is flanked by vertical blue bars containing IDs: 'WO1000012345 (07.03.2016)' on the left and 'WO00000230630 (07.12.2015)' on the right. Below the photo, the 'Date' is set to '07.03.2016'. The 'Status' is a dropdown menu currently showing 'Degraded'. The 'Last Insp.' date is '10.03.2015'. A table of measurements follows: Width (000.20 mm, Last: .1 mm), Length (000.25 mm, Last: .2 mm), and Dmax (000.10 mm, Last: .05 mm). Below the table are two green buttons labeled 'B (0.1-0.5)' and 'A (<0.1)'. The 'Damage Type' is a dropdown menu showing 'Crevice'. The 'Remarks' field contains the text 'Denser corrosion material'.

ENGIE
by people for people

38L4161A-TS001-IP001
38L4161A-TS001-IP002

Corrosion developed

WO1000012345 (07.03.2016)

WO00000230630 (07.12.2015)

Date
07.03.2016

Status
Degraded

Last Insp.
10.03.2015

Width 000.20 mm Last: .1 mm
Length 000.25 mm Last: .2 mm
Dmax 000.10 mm Last: .05 mm

B (0.1-0.5) A (<0.1)

Damage Type
Crevice

Remarks
Denser corrosion material

EMIS – Keep It Simple Stupid (KISS)

The screenshot shows the ENGIE EMIS mobile application interface. At the top, there's a status bar with battery level (83%) and time (13:52). The app header includes the ENGIE logo and a user profile icon. A search bar is present with the label 'Search Location'. Below this, there's a large blue circular button with a white plus sign and the text 'NEW SECTION'. To the right of this button is a box titled 'Not started - C40' containing the text '38L4161A-TS001', 'C40 area', '2 inspection points', and 'STB: 1 / DGR: 1 / SKP: 0 / LFT: 0' with a yellow and red progress bar. Below these elements is a 'Tag Assessment' section featuring a table with columns for 'Length', 'Local', 'Value', and 'Cat'. The table has five rows of data. At the bottom of the 'Tag Assessment' section, there's a 'Recorded findings' row with colored boxes for A.0 (green), B.2 (blue), C.0 (yellow), D.0 (orange), E.0 (red), and F.0 (dark red). A green 'Apply Changes' button is located at the bottom right of the form.

	Length	Local	Value	Cat
F(>1.4)	1 - < 10cm length of pip ▼	▼	-	-
D(1-1.4)	▼	▼	-	-
C(0.5-1)	▼	▼	-	-
B(0.1-0.5)	1 - < 10cm length of pip ▼	1 - < 2x2 cm (1) ▼	2	1
A(<0.1)	1 - < 10cm length of pip ▼	1 - < 2x2 cm (1) ▼	1	1

Recorded findings
A.0 B.2 C.0 D.0 E.0 F.0

✓ Apply Changes

EMIS – It's the future

Contribution to ENGIE's digitalization

80% on inspections and 20% documenting, double the amount of inspected TAG's

Data immediately available in database via mobile ATEX devices (Paperless)

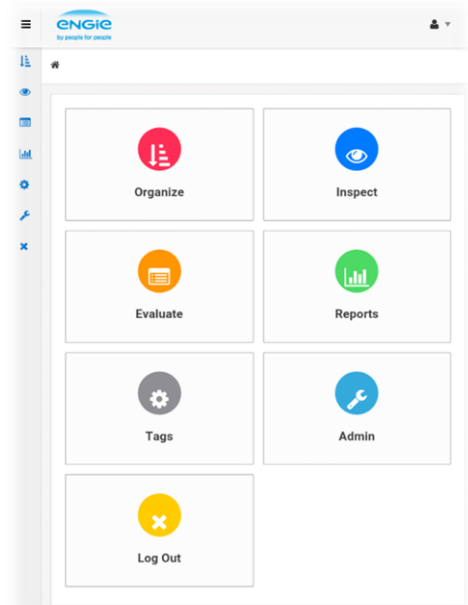
Trending and analysis reduce unnecessary pipe replacements

Inspection quality increases installation safety

Scalable and will in the future be extended to new inspection types

5 - 10 MNOK annual savings on pipe inspections

EMIS delivered on time and cost



EMIS – ENGIE Mobile Inspection Solution - Video

Link to video on Vimeo:

[EMIS by ENGIE on Vimeo](#)