Value Improvement Initiatives in the Facilities Management Center

Johan Bezuidenhout and Chantel von Saint Ange

4 June 2018
Agenda

• The Pragma and Shell partnership
• Performance target
• DMAIC Methodology
• Completed and Future Projects
• Benefits
Our Partnership with Shell

- Shell is well known as one of the five major national suppliers of petroleum products in South Africa.
- Shell supplies their fuel and convenience products through a vast network of retail and commercial sites across South Africa, with many assets in constant daily operation.
- The network consists of over 400 retail sites and 150 commercial sites which are maintained by Pragma through the Facilities Management Center.
SMARTER approaches in Asset Management

Target is Financial

- Two Focused Improvement Engineers on the project to drive value: identify and address any problems that cause waste and poor performance at the service stations.
- Value Improvement (VI) for Shell is a positive benefit from the implemented initiatives, as there is increased performance, efficiency or effectiveness.
- The target is to reduce the cost of asset maintenance and projects, and provide revenue improvements for Shell.

Types of savings
- Opex
- Capex
- Increased or accelerated revenue generation
DMAIC Process

Define
Define the problem clearly, identify the team members, target improvements and time scales

Measure
Gather information about the problem, such as specifications, historical data and interviews

Analyze
Identify the root cause(s) by analysing and verifying the cause-effect relationship

Improve
Select and implement improvement actions and confirm that the problem has been solved

Control
Make the solution sustainable through procedures and training, with roll-out to other similar areas
A3 Approach Supplied by the Smart People from Japan

- Structured problem solving and improvement approach
- Started at Toyota
- Provides simple yet strict approach to systematically lead towards solving problems
Completed Projects

Items falling into fillers ending up in underground storage tanks

Product swop process needs to be streamlined and more cost effective

**Time taken to do tank swops**

- **Swops**: Time used
- **Cumulative %**: Cumulative percentage

**Sales volume**
- Jan-14
- Feb-14
- Mar-14
- Apr-14
- May-14
- Jun-14
- Jul-14
- Aug-14
- Sep-14
- Oct-14
- Nov-14
- Dec-14

**Average litres sold per day per tank**
- 0%
- 20%
- 40%
- 60%
- 80%
- 100%
- 120%

**Time (Hrs)**
- 0
- 20
- 40
- 60
- 80
- 100
- 120

**SMARTER approaches in Asset Management**
Completed Projects

Bird droppings cause health risk, deterioration of structures and unbearable noise to surrounds

Reduce risk and cycle time of the degassing process
Completed Projects

Service units are expensive, not fit for purpose and don’t last

Network capacity is not effectively utilised, causing downtime and unnecessary deliveries
Future Projects

Analyse equipment remotely to enable first time fix using Condition Monitoring

1. **Start**
   - Equipment on site generates information messages and alarms based on set parameters

2. **2**
   - Information is filtered on site and critical data is sent upwards into the cloud base

3. **3**
   - On Key receives alarms and measures based on pre-set parameters and required Work Orders are generated

4. **4**
   - Normal operational process follows except if remote diagnostics are required

5. **5**
   - If not resolved within normal operations

6. **6**
   - Response to equipment loops back to asset for remote operations and data log (e.g., soft resets, test sequence initiation)

**Reduce working at heights**

SMARTER approaches in Asset Management
Future Projects

Green sites and reducing carbon emissions

- Photovoltaic system that generates electrical energy
- Power LED lighting
- Solar petrol pumps
- Green wall
- Merry-Go-Round generating electricity
- Canopy design
- Wind turbines
- Retrofit current site
- Maintenance in a green way
- Equipment installed is energy efficient
Future Projects

Green sites and reducing carbon emissions

• Water-harvesting facility that collects rainwater
• Floors in the shop are made from recycled material
• Rubbish bins are divided into specific disposal sections for the recycling of paper, cans and glass
• Alternatives for steel
• Station walls insulated with natural wool and recycled fibers
• Hardy grass in parking spaces instead of paving
• Recharging points for electric vehicles
Future Projects

Soluble cameras inspect pipelines and underground storage infrastructure

RFID to track rotable assets
Future Projects

Solar roadways on forecourts

On site meetings joined by remote teams
Improvement challenge

The need to balance supply and demand by working with suppliers to share plans, reduce warehousing and logistics costs and implement a just-in-time methodology without affecting downtime of critical assets.

- Many suppliers to manage
- Thousands of invoices to process per month
- South African economy and the steep exchange rate
- Large portion of reactive maintenance spend from spare material cost
- High tax, transport costs and long lead times for imported goods
- Large geographic area of the country and remote sites leads to high distribution costs
Procurement and Supply Chain Savings

Pragma intervention and value add

- 2017: 5.5% rebate received from the supplier of four new generators for UCs
- Benchmarking of services in the market
- Renegotiation of rates and discount on materials
- Standardise equipment
- Local manufacturing of assets or spare parts
- Refurbishment programs and recycling of components produces less waste
Benefits

In addition to financial

- Client satisfaction
- Reduction in exposure hours (travel and on site)
- Increased fuel sales volumes
- Reduction of resources
- Retailer satisfaction
- Improved safety
- Environmental practices
- Value improvements assist Shell to be competitive and have an edge in the market.
- Various projects have been rolled-out to Shell globally, in different countries.