01-WFM

What is Work Force Manager

Work force is the part of employees that do maintenance purposes.
Target: post-sale services
Work force: employees with technical skills who are in charge of maintenance
processes
Maintenance:

- Routine maintenance: it is scheduled by the company and represents a profitable service.

- Emergency maintenance: it is asynchronous and must be scheduled, executed, and billed
  according to the characteristics of each individual maintenance request.
  Both types of maintenance typically involve a physical maintenance activity on the
  product/plant at the customer's site
  The prime example is company that sells elevators, they have set the rules.
  Talks about companies with products installed at the client location and with employees that
  travel around doing maintenance.
  Different types of maintenance, we talk about the ones after the 2005, maintenance become
  more relevant with big data analytics for prediction.
  2 types:

- Routine maintenance: sort of knows that there is something that needs to be
  changed/looked up periodically. It prevents issues but requires a mentality of preventing a
  problem instead of reacting to a problem. It can be scheduled.

- Emergency maintenance: maintenance done when there is a problem that needs to be
  resolved. Asynchronous, very urgent. You don't know what you are going to find and can
  think ahead of time for a solution. Usually you go two times: the first to know what is wrong
  and then the second time to fix the problem(after some time as you need to prepare a plan
  to solve the issues).
  Companies also make money on the routine maintenance planning the failing of
  components and sell/send products to do maintenance ahead of time.
  Usually emergency maintenance is not profitable. Can avoid emergency maintenance by
  outsourcing the maintenance. You can balance the ratio of routine and emergency
  maintenance. There is competition for routine maintenance as it can be done by different
  companies and it is profitable, thing that emergency is not.
  Outsourcing maintenance can be risky:

- Non-effective maintenance has a negative impact on the company's brand equity.

- Legal issues/liability for inefficient emergency management.

- No cross-selling.
- The company you outsource needs to be dependable

Maintenance is a service

Maintenance should be seen as a service that has an impact on customer loyalty.
Maintenance becomes profitable if we account for the positive impact on customer loyalty (reduction of customer turnover).
Customer loyalty is not easy to achieve. Customer loyalty is tied to emergency maintenance more than it is to routine maintenance.
Customers may decide not to buy an ordinary maintenance service, but need an emergency maintenance service anyway.
The time when you have an issue is the best time to make a customer loyal: if you are efficient the costumer will remember you. Also maintenance guys can propose routine maintenance subscriptions instead of relying only on emergency as it spreads risks and costs on the year, but is tricky as the cost need to be balanced to also include the emergency one that could still happens.

The worst maintenance process (no ERP)
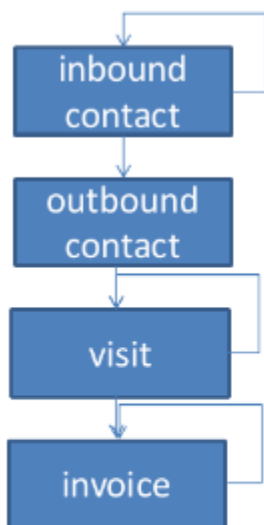
- Reworks: inbound and outbound contacts
- No intelligent Q&A in first call
- Multiple visits (no spare part in truck, team skills are not adequate to customer problem)
- Internal coordination with workforce team members
- Errors in invoice
- No cross selling
- No KM

Takes information about the problems and then ask to wait for the coming up of the solution. Usually there are two calls (Inbound from the client and then Outbound from the call centre to assert the strategy plan to the client). Maybe initially there is a partial solution to the problem as some material needs to be ordered, so it takes more time. The maintenance truck is a small warehouse but can have some material not tracked and this can be a problem as the restocking is going to be imprecise so the customer pays more than they should.

The ideal maintenance process
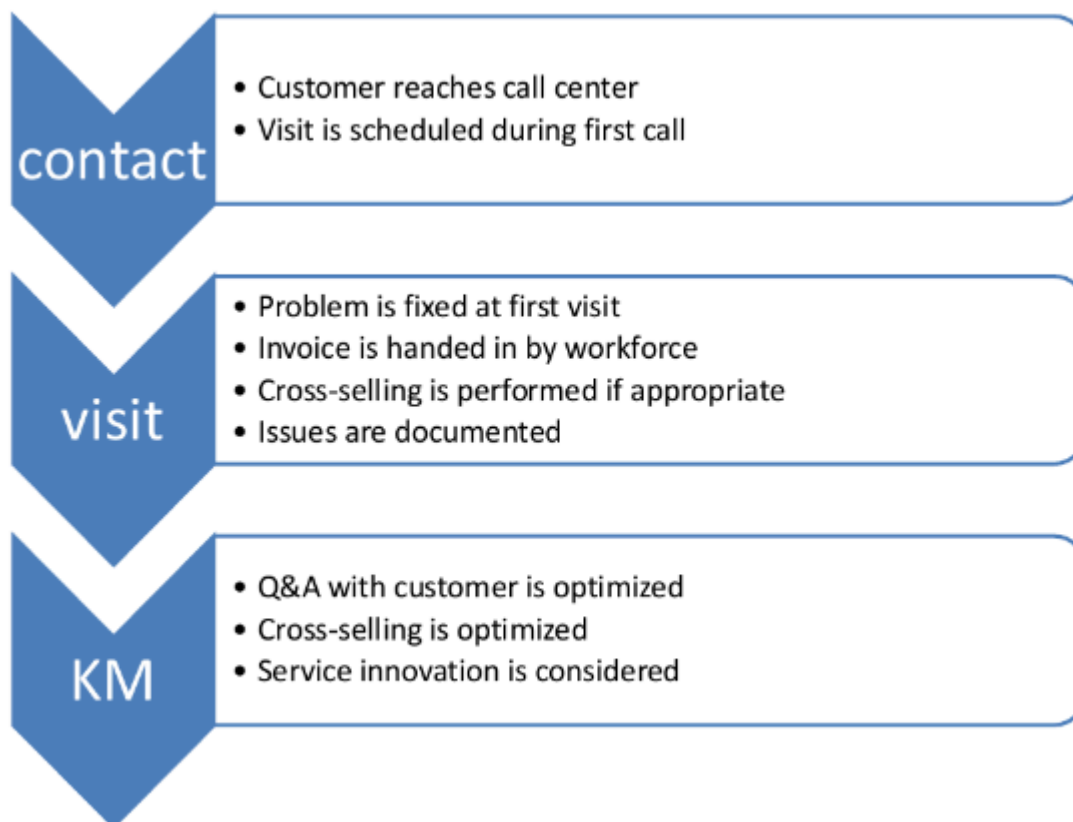
Maintenance is a service not a product and should be treated as such. This is why the manufacturers need to change mentality as they are becoming also a service company. The employees that do maintenance also compile the invoice(with all products used), they become less specialized as need to be equipped with a little of managerial portfolio.

Key actions towards the ideal process

Implement a KM process:

- Ask questions during first contact to describe the nature of the maintenance issue
- Involve workforce in KM process
- Create editors of new knowledge on maintenance processes provided by workforce
- Cluster maintenance issues and relate to skills of workforce
  Implement embedded technologies to help prevent emergency maintenance through targeted routine maintenance
  Redesign maintenance process by considering truck as a warehouse of spare parts replenished with JIT logic
  Generate invoices automatically
  The questions need to be precise on the customer's model.
  Also the call centre needs to manage the workforce agenda(that can be seen by everyone).
  Embedded technologies are a nice thing to have because the product itself can provide you with data that can let you diagnose automatically the issues. It is even better as the company can call the customer before the product breaks to do maintenance. But this

raises some privacy issues as products send a lot of sensible data.

How to make sense of information? Using data science to extract knowledge from the data. There is some logic in the distribution of the products in the warehouse. You also have thresholds for stock levels to never be out of stock. The most common is Just In Time: you can have a product in a time interval that doesn't need stock but it is still available if there is an issue. Kinda like MRP, move the problem away but needs to have the suppliers ready to provide products in JIT period.

You can have entire rooms dedicate to the monitoring of the subscribed clients to the routine maintenance.

Team empowerment

The team is in charge of a number of activities that in other sectors are executed by the call center operators, such as:

- Emergency management: teams are alerted on requests and make a decision on the schedule
- Remote control of plants: team members can access remote control functionalities of plants
- Spare parts: the team is in charge of replenishing their van
- Contract management: the team has sales capabilities and can issue contracts on site to avoid paper exchanges with customers
  Empowerment is a word invented in the 90s for when people need to enhance their work, they need to handle some works that are delegated to them, they need to become sales people.

Enabling technologies

Smartphones:

- Real time access to company information
- Contact management (direct from customers)
  Bar code readers that can be integrated with smartphones or NFC technologies (RFiD) used to manage spare parts
  Portable printers used for customer care and administrative functionalities (contracts, invoices)