Nokia Global Services
Field Force of the Future

Whitepaper
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1. Introduction

Because of increasing industry-wide pressures and challenges, field operations must change rapidly over the next five years, both tactically and strategically. These changes will put technology at the hub of successful field operations, and thus will require service provider companies to think seriously regarding investment into the new enabling technologies to ensure they remain competitive and relevant within the field operations market environment.

2. The challenge

No longer is there still just the one dimension of pressure placed on field operations service providers, where year on year cost reduction and improve quality pressures have been the constant request from operators, but now there is an added dimension that is compelling Operators to seek a fundamental change in the way their service providers of field operations is being delivered.

This new dimension of how the customer segment market is changing means field operations service providers need to rethink the delivery mechanisms and models of previous times, where delivery was highly reliant on specific peoples’ profiles and availability.

The new customer market segment is driving the need to be 24x7 to cater for the new customer behaviour, the need to have knowledge and support for new devices beyond traditional network element equipment, and the need to scale with the volume expected driven with the number of macro and small cell sites densely populated to allow for the new customer access and IoT needs.

As a result, there is a growing need for dynamic availability of the field operations workforce and a new set of skills required (both specialised and generic).

3. The solution

In order to address the traditional pressure of cost and quality, as well as the new dimension of the need for dynamic availability, new competencies and exponential volume, field operations service providers have to look for the next quantum leap of capability to meet the new operator’s requirements, introduced flexibility for the field operations service provider themselves, and ultimately ensure longevity within the field operations market environment.

Nokia Global Services - Field Force Team have embarked on developing the Field Force of the Future delivery model.

Nokia recognize the need to address all dimensions and have identified a set of capabilities to ensure the requirements of all are addressed.

Nokia sees the following new key enabling capabilities as a way of addressing the future challenges of field operations:
3.1. Nokia Connected Digital Worker – allowing Field Engineers access to knowledge electronically

- Field engineers are equipped with digital wearable devices in order to:
  - Retrieve and download technical procedures from a central repository
  - Conduct video collaboration sessions with back office technical support teams
  - Use augmented reality sessions to support location, identification, and replacement of hardware equipment.
- Field Engineers will have a smart phone and smart glasses in some instances, with voice and video and data document capabilities to carry out the above.

Figure 1. Nokia Connected Digital Worker

3.2. Nokia Digital Enablement Center – Providing content and interactive real time support to Field Engineers

- Centralized center (such as a NOC) where field engineers can request support such as:
  - Download of maintenance procedures for reference
  - Instigation of video collaboration session including AR, with technical expert for support with on site procedure.
Before

Traditional field force

Tasks performed sequential
Supervisor to be on-site for checks and guidance

After

Field force of the future

Real-time guidance and problem solving via AR
Maximizing the time a technician is on-site
Supported by remote digital enablement center

Figure 2. Nokia Remote Digital Enablement Center

3.3. Digital Assistant (Mika) - allowing Field Engineers access to knowledge verbally

- Field engineers having access to a digital assistant for answers to common questions.
  - Built on Nokia Mika digital assistance solution and utilizing Nokia AVA analytics platform for self learning.

Scope: Self-learning AI based Assistant for O&M and field staff

Mika, what are the correct battery voltage readings?

Between 11 and 12 Volts for Flexi-Multi radio RL70.

I am getting 8 Volts. Is there something wrong?

Yes. It is advised to replace the battery. Here is the procedure - [URL].

Figure 3. Nokia Mika Digital Assistant
3.4. Dynamic Dispatch – mathematically calculating the best and nearest field engineer to attend a site

- Field Work Dispatching now efficiently managed by rules based formulas ensuring the right profile Field Engineer is assigned and sent to the right site in the most efficient travelling time.

![Image of Nokia Dynamic Dispatch]

**Scope:** Smart dispatch enhances any MS field service through detailed activity monitoring and better dispatch practices.

- Skill set based dispatch
- Location based dispatch
- Workload based ticket dispatch
- Quality metrics, time stamps measurement
- Concept of available technician

Figure 4. Nokia Dynamic Dispatch

3.5. Next Generation Sourcing / Crowd Sourcing – opening up access to a wider range of suitable freelancing field engineers

- Field engineering work offered to selected free lancing individuals who are vetted and qualified to perform the activities needed.
- Managed through a Nokia crowd sourcing platform to ensure work quality and performance of each freelancer.
- Availability and coverage greatly extended.
- Also allows field operations service providers to consider new service offerings through ability to source required competence not obtainable previously.
- Enabled through the introduction and support of the other digital capabilities introduced by Nokia.

![Image of Nokia Crowd Sourcing Eco System]

Figure 5. Nokia Crowd Sourcing Eco System
Nokia are already performing successful proof of concept trails for all the new capabilities, proving both technically and operationally these capabilities will augment the field operations solution of today for it to meet the almost present needs of tomorrow.

4. Business benefits

The Field Force of the Future delivery model will introduce flexibility and availability into how Field Operations is delivered, driven by the changing profile of Customers and Operators as they move into access expansion, access densification, and more active smart devices connected with IoT.

By nature of introducing the capability to enable this flexibility and availability, (described within this paper), value is also realized with traditional benefits of improved quality, increased speed, and improved efficiency and cost.

As field operations represents up to 70% of an operators running cost, introducing the Field Force of the Future Delivery Model will directly give benefit to an Operator’s TCO opex envelope.

For example, the introduction of the dynamic dispatch functionality will improve efficiencies in field dispatch activity up to 12% and also drive optimization of travelling time up to 17%.

Each of the individual capabilities enabling the Field Force of the Future delivery model contributes to the fundamental quality, cost and speed improvements as identified in the following table.

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Managed Services Value Driver</th>
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<tbody>
<tr>
<td></td>
<td>Cost</td>
</tr>
<tr>
<td>Dynamic Dispatch</td>
<td>✓</td>
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<tr>
<td>Digital Assistant (Mika)</td>
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<td>Connected Digital Worker - Wearable Digital Devices</td>
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<td>Connected Digital Worker - Digitization of Procedures</td>
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<td>Digital Enablement Center - Video Collaboration</td>
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<td>Augmented Reality</td>
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<tr>
<td>Crowd Sourcing</td>
<td>✓</td>
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Additional to these traditional benefits, and with the specific introduction of the crowd sourcing capability, the value of this is the ability to now provide specific field competence for the emerging solution devices, coupled with increased field engineer availability (from crowd sourcing flexibility), as well as wide geographic coverage possibilities.
5. Conclusion

Customer and Operators can expect to leverage the Field Force of the Future delivery model, not only to give them that next quantum leap in efficiency and quality within their field operations solution, but to also allow them to launch and provide a wider range of field support services for their end customers because of the flexibility of this model.

The Field Force of the Future delivery model will need to be considered by many field service providers across multiple markets, and it will become a reality within the Telco services market in the very near future because of the pressures to innovate delivery and the need find the next level of efficiency and competence and accessibility flexibility.

All Service Providers must examine their field operations delivery models, and set strategic direction into how a Field Force of the Future model may support this going forward.

Nokia are on the journey to embrace and embed the enabling capabilities of a Field Force of the Future delivery model, with a number of the implemented capabilities already delivering results within customer projects.

For more information on Nokia Field Force of the Future Delivery model, please contact:
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6. Acronyms

AI       Artificial Intelligence
AR      Augmented Reality
CS     Crowd Sourcing
DA     Digital Assistant
FFoF     Field Force of the Future
FLM     First Line Maintenance
FO     Field Operations
IoT     Internet of Things
NOC    Network Operations Center
Nokia AVA Nokia Analytics, Virtualization, Automation