



CHANGE MANAGEMENT MADE EASY, COST EFFICIENT AND SAFE

LIMA MAINTENANCE & PERMIT MANAGEMENT

ARCHITECTS
IN SAFETY AND
INTELLIGENCE

Easy. Removes the need for in-depth knowledge. Automatic compliance and validation of changes.

Cost Efficient. Reduce the effort of all the stakeholders in the change management process.

Safe. Ensure the safety of the field engineer and MNO against human error, misuse or even attacks.

INTRODUCTION

LIMA Maintenance and Permit Management is Group 2000's answer to challenges the mobile operators are facing with regards to the change management process and maintenance of cell towers. The mobile operator market has evolved into a very competitive, cost competitive market. Driven by technological evolution and increasing customer demands the market requires large investments to remain competitive.

Group 2000 has researched the change management and maintenance process and created a solution called LIMA Maintenance and Permit Management. A solution that focusses on improved efficiency, compliance, and safety of personnel and the network.

LIMA Maintenance and Permit Management (MPM) is beneficial for operators who are interested to reduce the cost of their change management and maintenance process, increase efficiency, reduce the number of operational mistakes, and gain control of their network. Control in a sense of less human error, misuse or even attacks impacting the availability of the network. Staff and/or subcontractors (offshore) outsourcing have better tooling in hand with LIMA MPM.

Improve efficiency & uphold SLA's

LIMA Maintenance and Permit Management (MPM) is designed to reduce the effort of all the stakeholders in the change management and maintenance process. The ease of use and enhanced automation make it possible for stakeholders to uphold and optimize SLA's and KPI's. For example, the automatic compliance check validates operational issues and/or network changes against the authorized permits. The user will be notified if an operational issue and/or a network change causes an already authorized permit to become non-compliant.

Reduce costs

Change management is a comprehensive, delicate, complicated and costly process. LIMA Maintenance and Permit Management helps the telecom operator to reduce costs, increase the gross margin, and to stay (more) competitive. For example, optimized processes, more efficient internal staff and a reduction in third-party involvement will result in interesting cost reductions.

Security vulnerabilities

Change Management requires the cells on a site to stop transmitting a signal, to guarantee the safety of the field engineer. Many mobile network operators have outsourced parts of the change management and maintenance process to 3rd parties (offshore) outsourcing. Besides a direct entry point for attackers of cell sites, this makes the mobile operator also more vulnerable to indirect attacks via bribery or extortion of the 3rd party. LIMA Maintenance and Permit Management enforces a multilevel security layer which not only reduces the chance of an attack but it also drastically limits the severity of an attack to a point where a (direct or indirect) attack is not rewarding anymore.

Safety

LIMA Maintenance and Permit Management ensures that a field engineer can commence with its job safely whilst maintaining a cell tower or cell site. During the change, the site is constantly monitored by LIMA MPM to ensure the safety of the field engineer. Safety checks prevent a site from becoming operational while the engineer is executing the change.

Unsuccessful changes

Unsuccessful changes need to be performed again at a later stage. Repeating activities like reauthorization of the change reduce the efficiency. The automatic validation and compliance check in LIMA Maintenance and Permit Management will identify invalid and non-compliant changes (now or in the future). The operational part of the change management process only allows authorized permits, which reduce the unsuccessful changes due to operational issues or due to unauthorized changes.

Mobile Network Operator in Control

In large and complicated processes, which involves subcontractors, (offshore) outsourcing the mobile operator is faced with undesired sometime even non-complaint activities that are performed without their consent.

With LIMA Maintenance and Permit Management the mobile operator regains control, ensuring that every stakeholder needs to follow the compliancy rules and the activities are according to the quality standards of the MNO.

Network expansion (5G)

Technological evolutions and increasing customer demands have pushed the mobile network operators to improve and expand their network.

For example, the network expansion with 5G will force the mobile network operators to either improve their efficiency and/or they need to expand their organization in order to cope with the workload increase, due to the high density of cells. LIMA Maintenance and Permit Management improves the efficiency of all the stakeholders and due to its advanced automation, the operator is not forced to expand their organization.

Operational errors

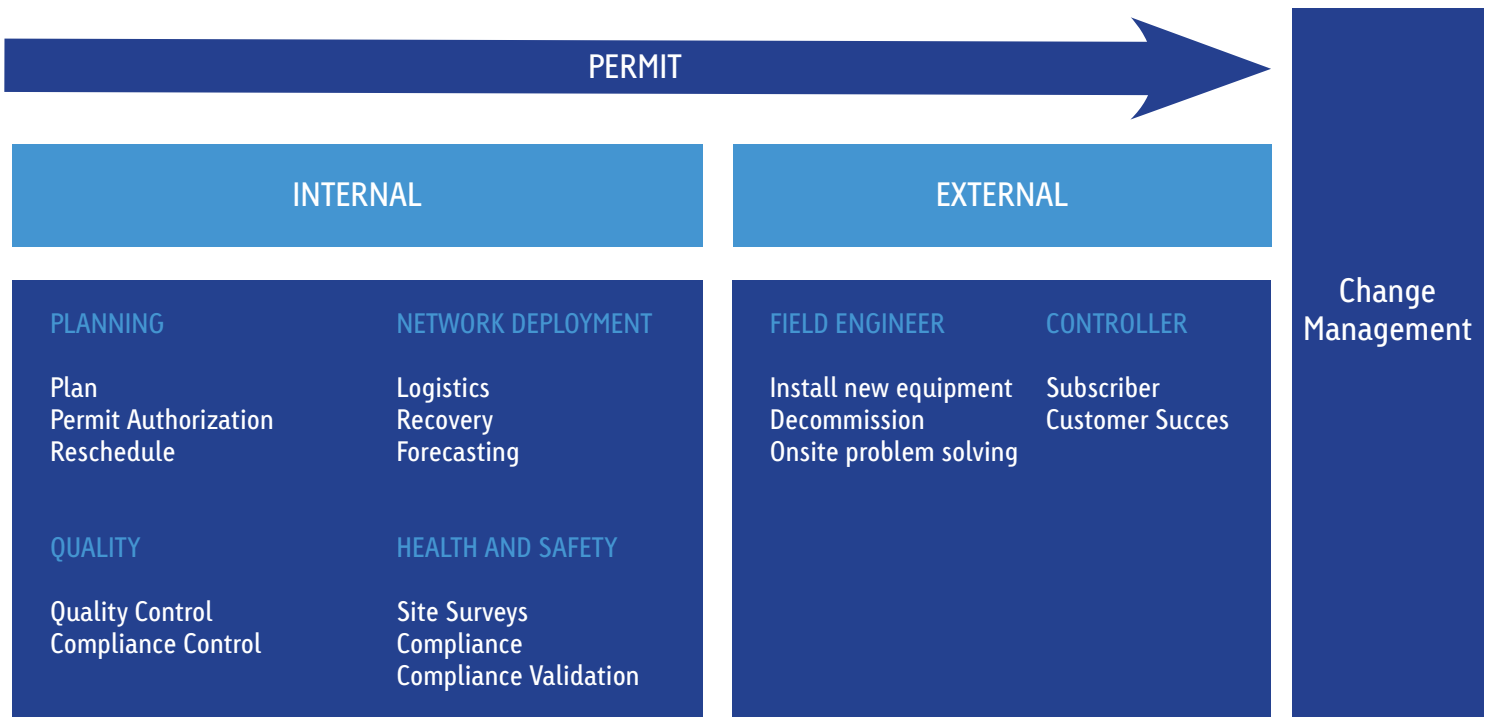
Operational errors are unpredictable by nature. Determining and orchestrating the impact is almost always on short notice and stressful. Operational errors have led to many unsuccessful changes, which in effect result in the rescheduling of these changes which increases costs and effort. With LIMA Maintenance and Permit Management the solution determines the impact of a

[resolved] operational error and makes the information available to all the stakeholders.

Brand reputation protection

In the past brand reputation damage has been caused by cells that were not restored properly, which have led to customer complaints to the mobile network operator. Also, mobile network operators who are noncompliant to government regulations receive reprimands or even in some cases a fine. LIMA Maintenance and Permit Management validation rules enforce that the changes are not only compliant to government regulations and internal quality standards. But also reduces the impact of maintenance on cells to a minimum resulting in a better availability of the services to the customers.

LIMA Maintenance and Permit Management Stakeholders



FIELD ENGINEER

- Install new equipment
- Decommission
- Onsite problem solving

CONTROLLER

- Subscriber
- Customer Success

Planning department

This department is responsible for the planning of the changes that need to be performed in the radio network. This also involves that changes have to be authorized according to the processes of the MNO. The planning department is also responsible for the re-scheduling of tasks in case a change can't be performed at the appropriate time.

Network Deployment department

This department is responsible for the delivery of network site infrastructure. This involves forecasting materials and personnel for upcoming changes as well as the logistics for the recovery of a site in case of a major failure.

Quality department

Responsible for the compliance and the quality of all the work undertaken on the radio access network. Maintaining compliance rules is also the responsibility of the quality department. This includes embedding of the compliance rules from the government in the organizational processes.

Health Safety

Responsible for the validation of compliance with regards to company and personal safety. The health and safety department performs onsite surveys to check the subcontractors as well as checking the site itself preventing all stakeholders for unsafe situations.

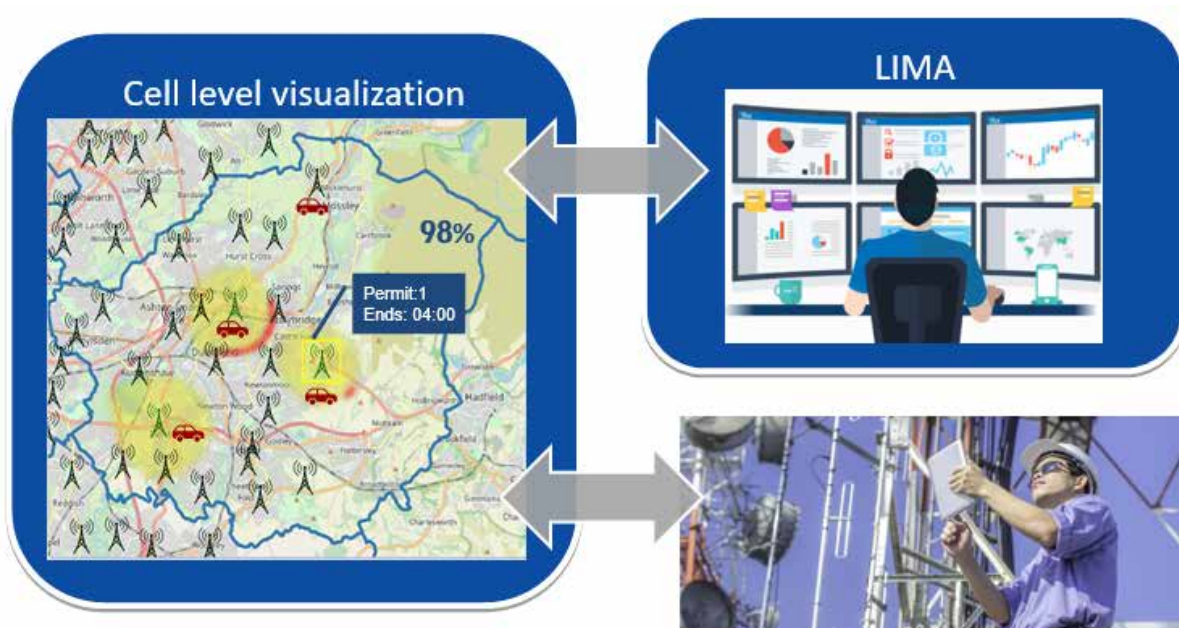
Controller

Responsible for disabling and enabling parts of the mobile network to ensure field engineers can safely perform their job. These activities are often outsourced to subcontractors (offshore) outsourcing.

Field Engineer

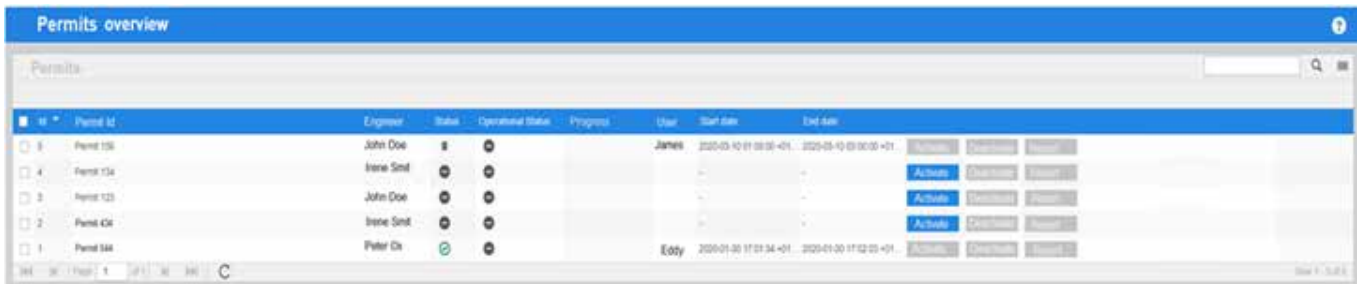
Multiple subcontractors who are responsible for performing changes onsite.

LIMA Network Protect in action



Control Centre: user interface

- Inbox with relevant permits in chronological order.
- Feedback on progress, potential issues and permits that are about to expire.
- Functionality to Activate/View/Deactivate permits.



Permit Id	Engineer	Status	Operational Status	Progress	User	Start date	End date	Buttons
Permit 156	John Doe	⊘	⊘		James	2020-03-10 01:00:00+01	2020-03-10 03:00:00+01	Activate Deactivate View
Permit 134	Irene Smit	⊘	⊘					Activate Deactivate View
Permit 123	John Doe	⊘	⊘					Activate Deactivate View
Permit 104	Irene Smit	⊘	⊘					Activate Deactivate View
Permit 884	Peter De	⊘	⊘		Eddy	2020-01-30 17:03:34+01	2020-01-30 17:02:03+01	Activate Deactivate View

YOUR BENEFITS

LIMA Maintenance and Permit Management has a strong positive return on investment;

LIMA Maintenance and Permit Management does not require any major changes in the network or the network equipment;

LIMA Maintenance and Permit Management is a user-friendly management platform automating change management;

LIMA Maintenance and Permit Management provides [visual] feedback on the impact of the change in the operators network. Hence direct actionable;

LIMA Maintenance and Permit Management eliminates the need for in-depth network or vendor specific knowledge. Hence simple to regain control;

LIMA Maintenance and Permit Management is installed in a virtual environment or on standard servers;

LIMA Maintenance and Permit Management support proactive detection through integration with existing customer deployed solutions or through information obtained from the customer's mobile network;

LIMA Maintenance and Permit Management can analyze, identify issues and determine appropriate countermeasures in near real time.

OUR COMPLIANCE SOLUTIONS



LIMA COMPLIANCE PORTFOLIO

Comprehensive solutions for service providers, enterprises, law enforcement, and intelligence agencies.

- LIMA Lawful Intercept
 - Warrant Management
 - Provisioning and Mediation
 - Location enrichment
 - Passive and active IP interception
 - E-mail monitors
 - VoIP monitors
 - Mobile data monitors
 - Workflow support
- LIMA Data Retention
 - LIMA Disclosure Management
 - LIMA Data Retention store
 - Workflow support
- LIMA Élite
 - Lawful Interception End 2 End validation
 - Test LEMF functionality

LIMA NETWORK MANAGEMENT AND SENSING PORTFOLIO

- LIMA Network Protect
 - Health and Safety
 - Capacity
 - Energy
- LIMA Cell Monitor
- LIMA Maintenance and Permit Management

ARCHITECTS IN SAFETY AND INTELLIGENCE

WHY GROUP 2000?

- Group 2000 is an independent global solutions provider of interception, intelligence, network management, resilience and sensing solutions
- Group 2000 delivers and preserves essential and reliable interception knowledge
- Group 2000 has global experience in the public and telecommunication domain
- Group 2000 minimizes complexity, delivering end to end solutions
- Group 2000 has technology partnerships with leading suppliers
- Group 2000 is an active member of ETSI
- Group 2000 LIMA solutions are modular and scalable to support the largest networks

■ Group 2000 Nederland B.V.

■ Van der Hoopweg 1
P.O. Box 333
7600 AH Almelo
The Netherlands

■ Tel: +31 (0)546 482 400
info@group2000.com
www.group2000.com

■ Group 2000 also has affiliate offices in Norway, Switzerland, and the USA.