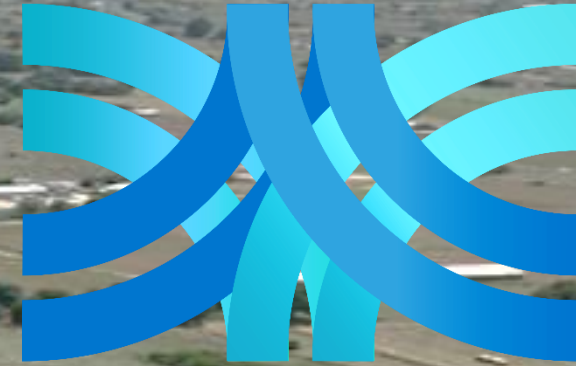


ASECAP DAYS



COSTA NAVARINO 2019



***Continuous maintenance improvement & cost efficiency practices:
Adoption of an integrated routine maintenance management system (i-Maint)***
Christos Karadimas, COO, Olympia Odos Operation S.A

*Costa Navarino, Messinia, Greece
29-31 May 2019*

www.asecapdays.com



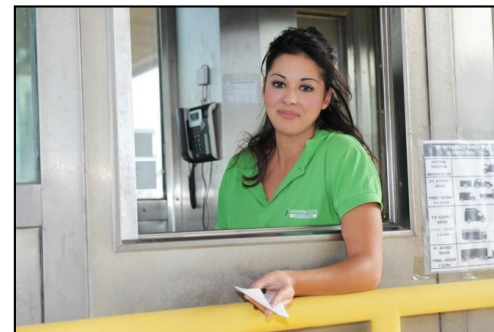
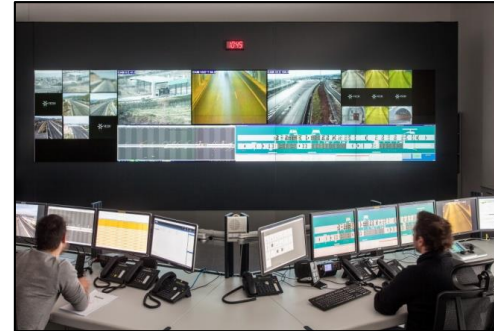
Organized by



Project & Operator



- ✓ **Main activities (24/7)**
 - ✓ Traffic Management and Safety
 - ✓ Incident Detection / Intervention / Management in cooperation with Emergency Agencies
 - ✓ **Routine Maintenance (preventive/corrective)**
 - ✓ Toll Collection & Customer Service
 - ✓ Technical and other Supportive services
- ✓ **Personnel ~500 employees, plus ~150 additional from S/Cs**



Importance of Road Maintenance

Road maintenance comprises "activities to keep pavement, shoulders, slopes, drainage facilities and all other structures and property within the road margins as near as possible to their as-constructed or renewed condition" (PIARC 1994)



Routine Maintenance → Operator

- ✓ works executed on regular basis and aim at ensuring the unobstructed and safe operation of the motorway
- ✓ restoration works, in respect of wear and minor damages due to normal use or extraordinary reasons, i.e. accidents or natural disasters

Heavy Maintenance → Concessionaire

- ✓ replacements, modernization and improvement of road elements, which cannot be further maintained due to normal wear
- ✓ as well as extraordinary works for the restoration of damages due to natural disasters or defects

Previous situation

- ✓ **Fragmented in-house electronic databases**
 - I&M daily activities (Excel files)
 - Damages & its restoration (Access database)
 - Daily work-zones & lane availability diagram (SQL database)

- ✓ **Standardized paper forms**
 - Describing all Inspection & Maintenance daily activities according to Manual

- ✓ **Reports combining all above information**
 - Regular (i.e. monthly reports)
 - Ad hoc reporting



The decision to change

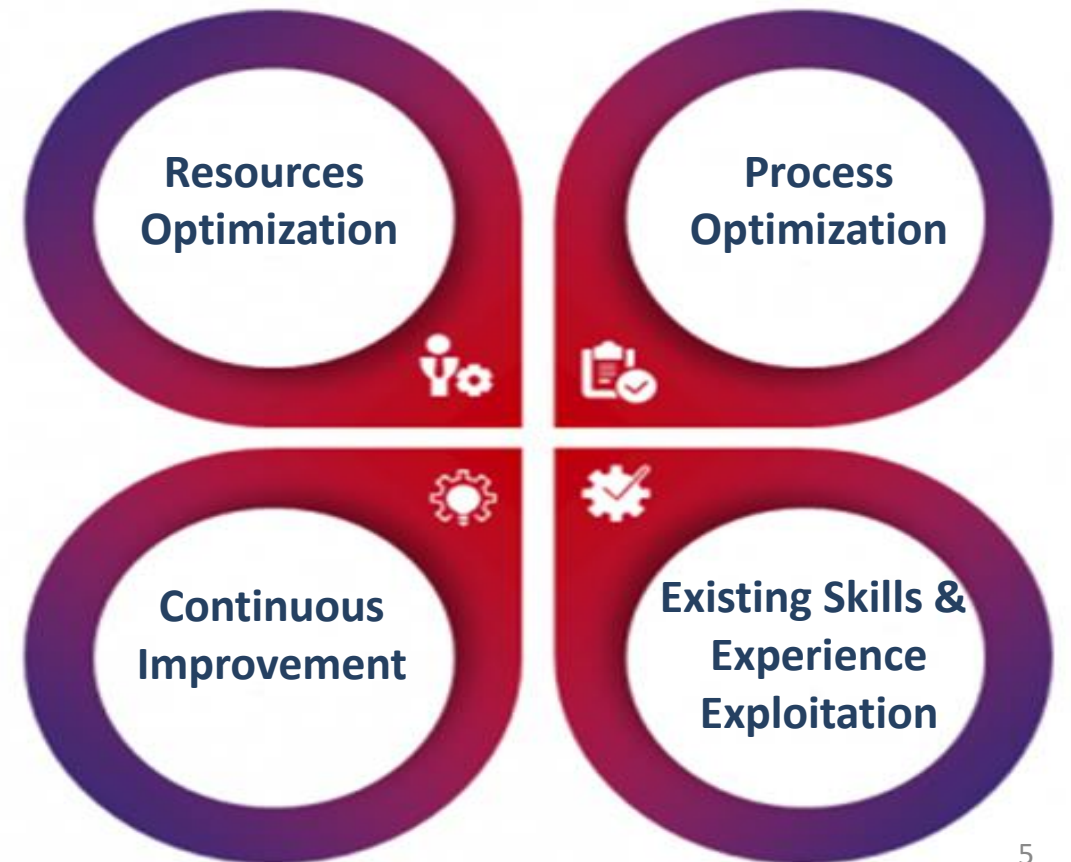
**Asset
Management
Concept**



**Simple
Routine
Maintenance
Concept**



**Need for adoption of an integrated
Routine Maintenance Management System**



Selection Criteria

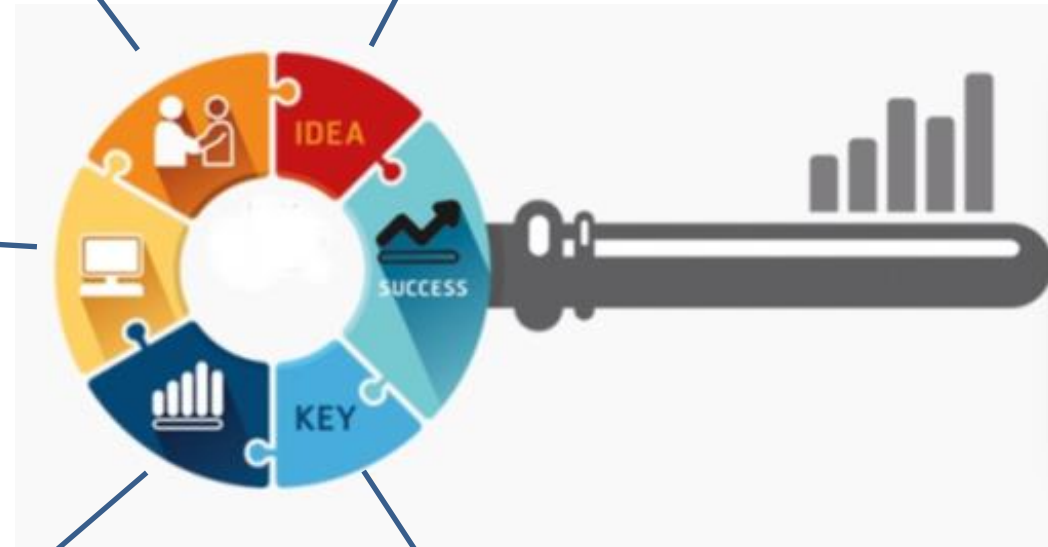
A Partner that ensures the continuity of the project (Company not Persons)

A System designed for Motorways

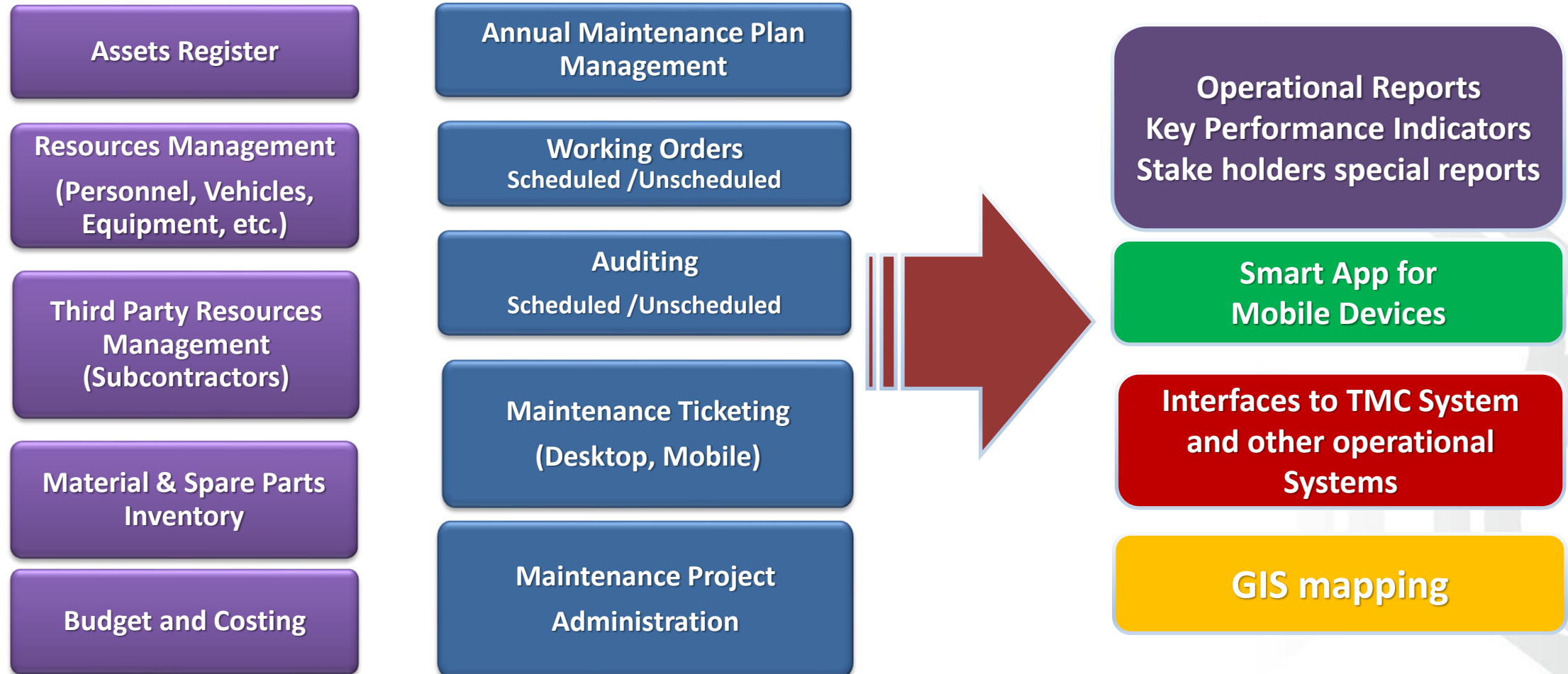
Ability to adapt state of the art technologies like Smart Devices, etc.

Applied to another Motorway concession project in Greece (Knowledge of Country specific needs)

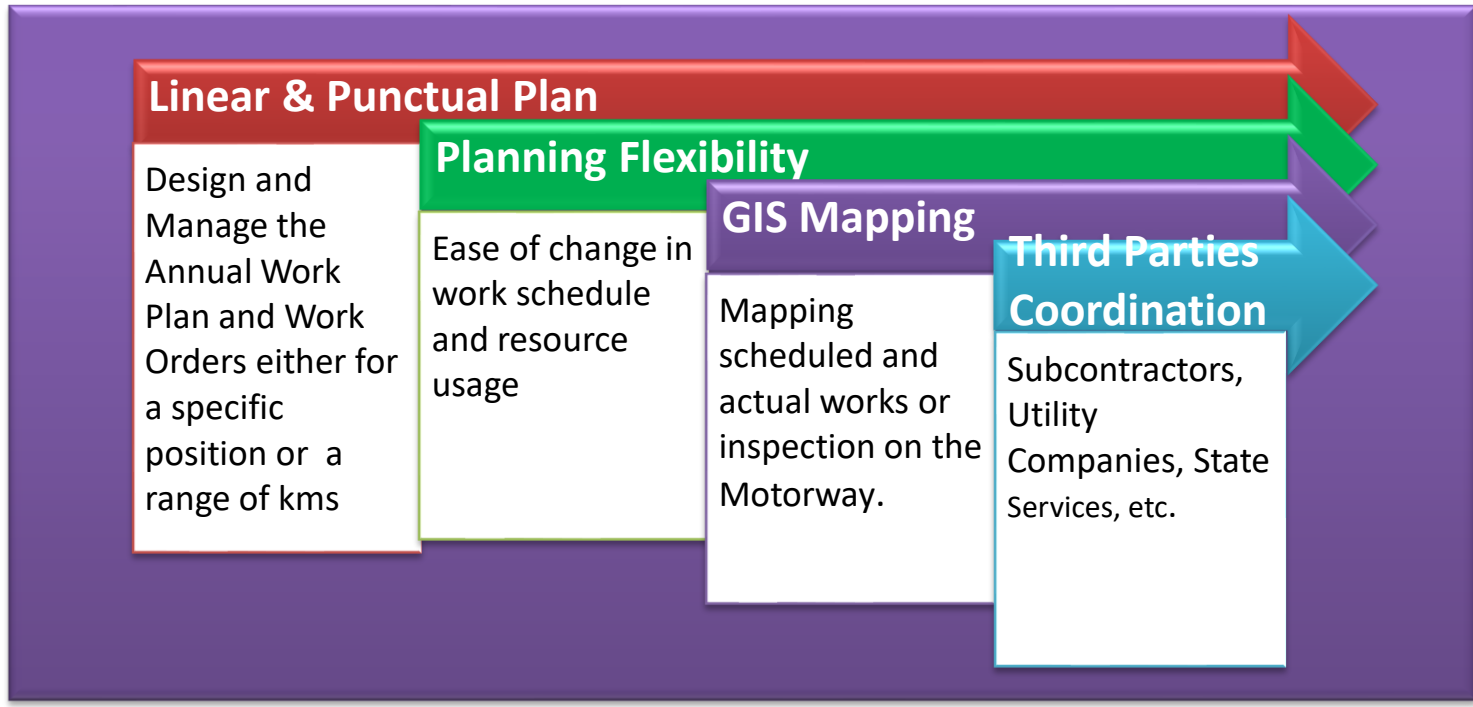
High Customization level & availability



Basic Modules of the new System



The appropriate functionality for efficient maintenance



Desktop interface

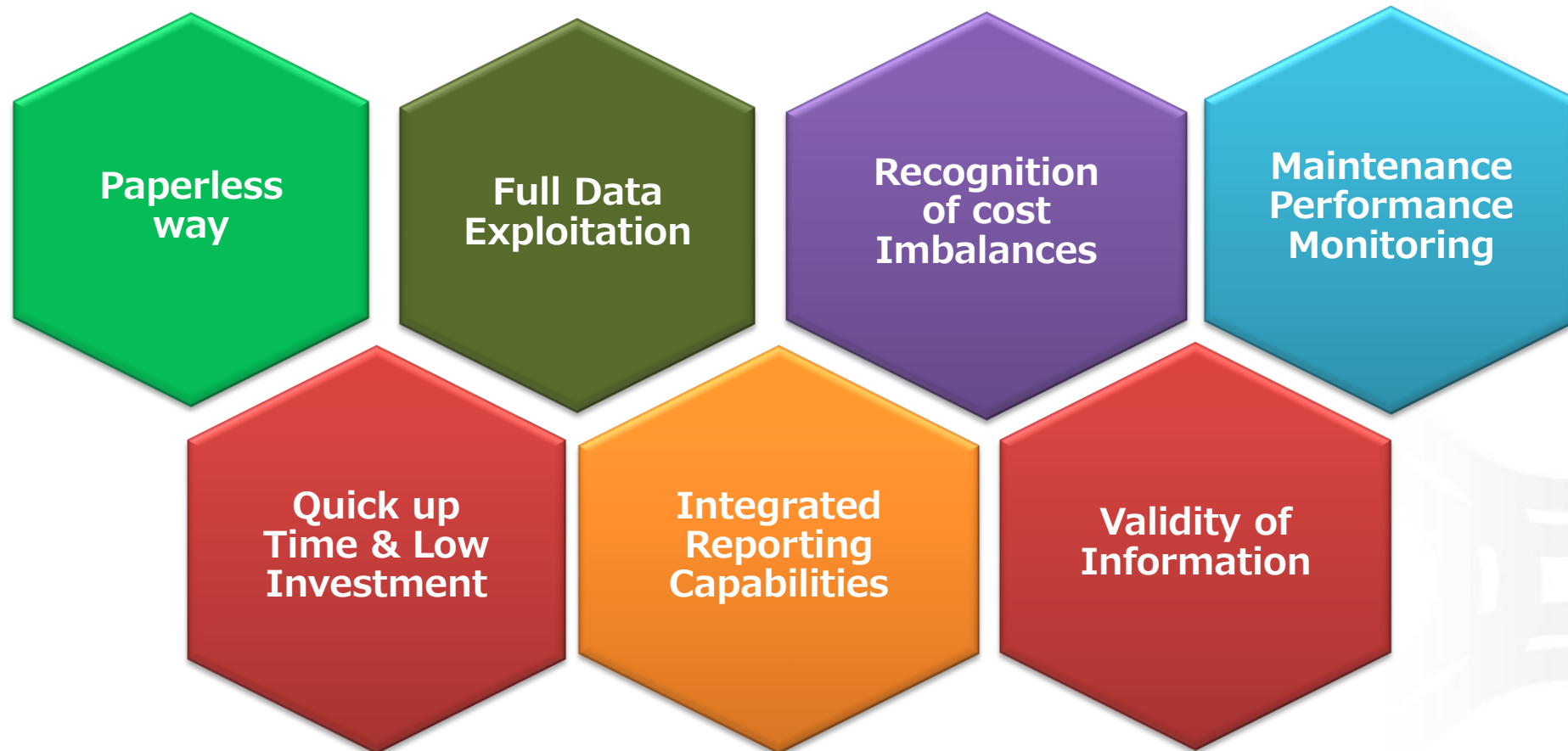
Αριθμ. Έργου	Είδος Έργου	Μητρώο	Περιγραφή Έργου	Προγραμματισμός	Αντικείμενο (1)	Αντικείμενο (2)	Κατάσταση
342894	Έργο 555210	Τμήμα Συντηρ.	02. Στρατηγική ασφάλεια	(100 - 100) (MMS) - RMA A.04.01 - Απομάκρυνση Απορρυπαντικού Καθαρτικού, βύσινι απορρυπαντικό, και καθαρισμός οδοστρώματος	13/10/15	13/10/15	23/10/15
342895	Μεταβολή εργασιών	Επισκευή Βλάβης	03. Ασφαλεία ασφάλεια	(15.17 - 21) (MMS) - RMA A.07.01 - Επισκευή κερκίδας και βιομηχανικών Απορρυπαντικών Έλαιου, καθαρισμός από αμύδια	13/10/15	13/10/15	31/10/15
342891	Έργο 558418	Τμήμα Συντηρ.	03. Ασφαλεία ασφάλεια	(131 - 150) (MMS) - RMA A.04.01 - Απομάκρυνση Απορρυπαντικού Καθαριστικού, βύσινι απορρυπαντικό, και καθαρισμός οδοστρώματος	16/10/15	16/10/15	31/10/15
342893	Έργο 558410	Τμήμα Συντηρ.	03. Ασφαλεία ασφάλεια	(84 - 89.89) (MMS) - RMA A.05.01 - Στάσεις, Cut and Cover, Επισκευή και Οδοστρώμα Υποστυλίων καθαρισμού τροχών (Επισκευή & Οδοστρώμα)	8/10/15	8/10/15	31/10/15
342896	Έργο 555224	Τμήμα Συντηρ.	02. Στρατηγική ασφάλεια	(17.17 - 20) (MMS) - RMA A.03.01 - Επισκευή κερκίδας, κερκίδες/οδοστρώμα και ταβάνια/οδοστρώμα, οδοστρώμα και ταβάνια οδοστρώμα	13/10/15	13/10/15	31/10/15
342897	Μεταβολή εργασιών	Τμήμα Συντηρ.	02. Στρατηγική ασφάλεια	(100 - 100) - G&S 01.03 - Κίνηση Κινητήρα, κερκίδες/οδοστρώμα και ταβάνια/οδοστρώμα, οδοστρώμα και ταβάνια οδοστρώμα	31/10/15	31/10/15	31/10/15
342898	Έργο 554822	Τμήμα Συντηρ.	03. Ασφαλεία ασφάλεια	(15.17 - 99.99) (MMS) - RMA A.05.01 - Στάσεις, Cut and Cover, Επισκευή και Οδοστρώμα Υποστυλίων καθαρισμού τροχών (Επισκευή & Οδοστρώμα)	14/10/15	14/10/15	31/10/15
283248	Μεταβολή εργασιών	Επισκευή Βλάβης	02. Στρατηγική ασφάλεια	(135 - 140) (MMS) - RMA A.07.02 - Motorway Safety and Protection Equipment Repair of safety barriers due to accidents	7/11/14	7/11/14	31/10/15
283198	Έργο 555224	Τμήμα Συντηρ.	02. Στρατηγική ασφάλεια	(15.17 - 25.49) (MMS) - RMA A.03.01 - Shoulder traffic islands, kerbs, gutters and sidewalks (Shoulder and ditches of shoulder clearing)	13/10/15	13/10/15	31/10/15
283220	Έργο 555224	Τμήμα Συντηρ.	02. Στρατηγική ασφάλεια	(20.01 - 99.99) (MMS) - RMA A.03.01 - Shoulder traffic islands, kerbs, gutters and sidewalks (Shoulder and ditches of shoulder clearing)	13/10/15	13/10/15	31/10/15
283164	Έργο 555888	Τμήμα Συντηρ.	03. Ασφαλεία ασφάλεια	(100 - 100.12) (MMS) - RMA A.05.01 - Στάσεις, Cut and Cover, Επισκευή και Οδοστρώμα Υποστυλίων καθαρισμού τροχών (Επισκευή & Οδοστρώμα)	23/10/15	23/10/15	31/10/15
283160	Έργο 554822	Τμήμα Συντηρ.	03. Ασφαλεία ασφάλεια	(15.17 - 22) (MMS) - RMA A.05.01 - Τμήματα, Cut and Cover, Landfills and Trenches (Slope cleaning (Embankment or excavations))	44/10/15	44/10/15	31/10/15
283805	Έργο 554822	Τμήμα Συντηρ.	03. Ασφαλεία ασφάλεια	(32 - 54) (MMS) - RMA A.05.01 - Τμήματα, Cut and Cover, Landfills and Trenches (Slope cleaning (Embankment or excavations))	14/10/15	14/10/15	31/10/15
325405	Έργο 555224	Τμήμα Συντηρ.	02. Στρατηγική ασφάλεια	(25.5 - 30) (MMS) - RMA A.03.01 - Επισκευή κερκίδας, κερκίδες/οδοστρώμα και ταβάνια/οδοστρώμα, οδοστρώμα και ταβάνια οδοστρώμα	13/10/15	13/10/15	31/10/15

Tablet Smart application



- Works & Projects Documentation (Photos, other attachments, etc.)
- Inspection & Auditing Documentation (Photos, Reports, etc.)
- Real Time Works Progress Monitoring
- Data, Photos, etc. automated Uploaded/Downloaded to the Central System
- Live Work Order creation & update

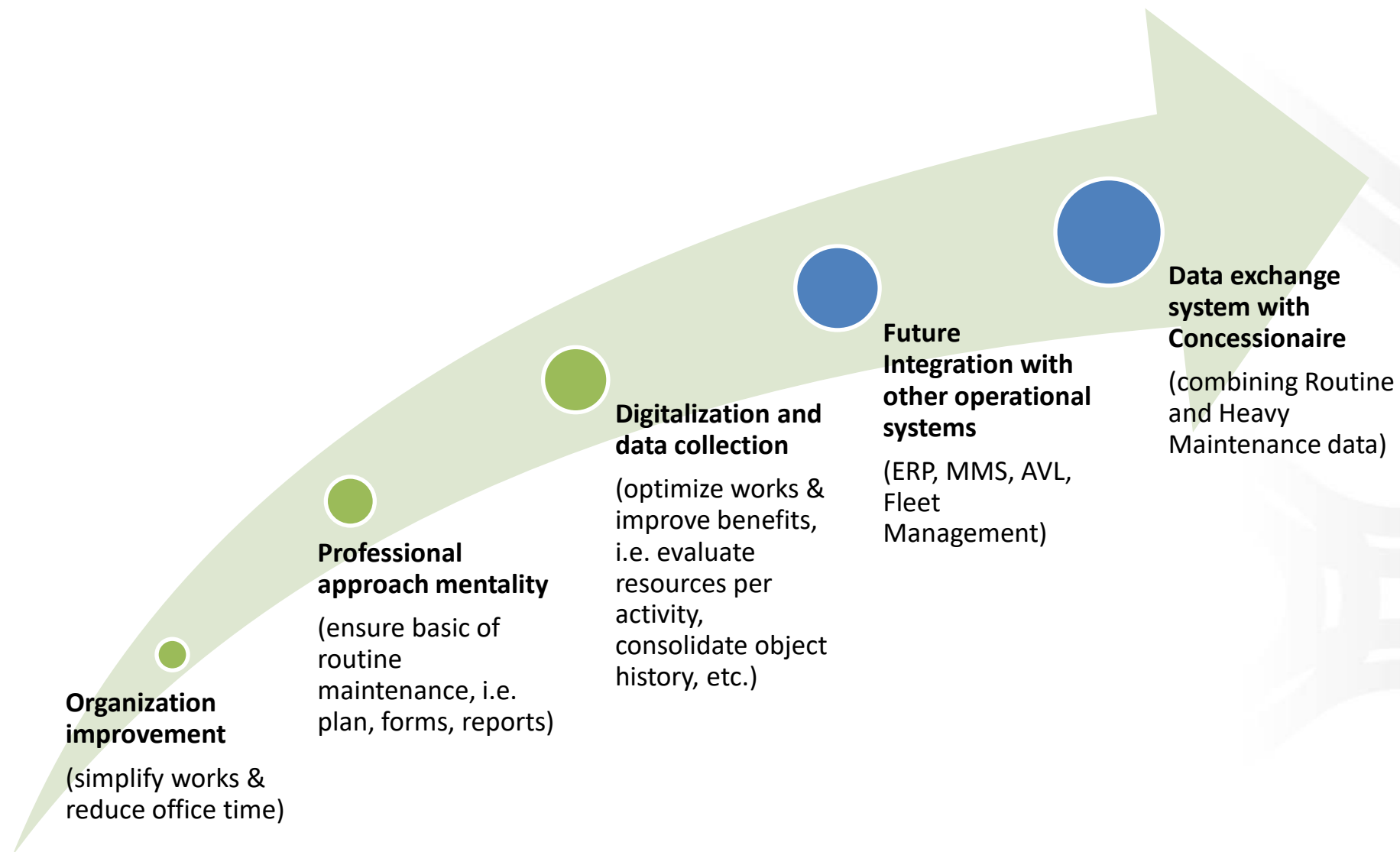
Aiming at



Implementation Challenges



First visible results - Next steps



Conclusions

- ✓ **There is an international consensus on the need for adopting an asset management approach**
- ✓ **Moving gradually from simple Routine Maintenance to the Asset management concept requires**
 - ❑ systematic and coordinated activities and practices
 - ❑ resources and processes optimization and sustainability
 - ❑ adequate information and knowledge of asset condition, performance, risks and costs over their life cycles and the interrelationships between these
- ✓ **Within this concept the need for digitalization and accurate data collection through an integrated routine maintenance management system is vital and actually there is no other way**
- ✓ **Selection criteria and the implementation methodology can differ from project to project**
- ✓ **Implementation requires time, patience, persistence and teamwork**
 - ❑ definition of functional requirements, creation of inventories/plans, procedures update if needed, extended pilot use, further improvements according to user needs, next steps...
- ✓ **The key to success is to make the right choices and finally create a system that “Really suits to the User”**
 - ❑ by covering company’s operational and administrative needs and
 - ❑ is at the exact size and magnitude that operates successfully without overloading company’s procedures and activities
- ✓ **Olympia Odos Operation is working exactly on the above path with the selected system**

Thank you for your attention

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