

FIELD FORCE MANAGEMENT TURKEY

Life Cycle Assessment of ICT enablement potential

STAKEHOLDERS

Avea Mobile and its business customers, governments in Turkey

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ENABLING EFFECT

Travel substitution and dematerialization (substance elimination)

AREA

Field Force Management



SOLUTION

Smart logistics is technologies that enable fuel reductions and energy efficiency through better route and load planning. For example, operations management software can reduce inventory storage, fuel consumption, kilometers driven and number of vehicles traveling empty or partially loaded. Location-based services is an enabler for smart logistics, bringing information on the location of a user's mobile device to existing mobile applications. This creates a raft of enriched, personalized services designed to meet user and enterprise demand for increased safety, efficiency and convenience (Figure 1).

Avea Mobile is a mobile operator in Turkey with a nationwide customer base of 11.6 million as of third quarter of 2010 offering services to 96.61% of Turkey's population through its next generation network. The use case for the assessment is to pinpoint employees on the map and choose the nearest one to the location of the task. The case is based on that Avea Mobile has around 140 active business customers with around 1400 subscribed employees. The Ericsson solution includes the Mobile Positioning System, a

POTENTIAL REDUCTION RATIO

1:100

depending on system boundary.

Potential reduction ratio is direct ICT emissions (kg CO₂e/subscriber/year)

5 kg +

in relation to the enabling effects (kg CO₂e/subscriber/year)

510 kg -

Geographic Information System (GIS) and content and application middleware.

OBJECTIVE

The purpose of this study is to understand the potential of Field Force Management enabled by Location Based Services in the mobile network. The results demonstrate the enabling

effects of solutions implemented by our industry for the intended audience - policy makers and the general public.

For more information about Ericsson's work with enabling ICT solutions, please visit:

www.ericsson.com/sustainability



Figure 1: Sub optimized workforce traveling vs. Optimized workforce traveling

	Primary	Secondary
+ Direct ICT emissions	<ul style="list-style-type: none"> • Servers • Mobile phone • Mobile network • Back office PC • Back office building* 	
- Enabling effects	<ul style="list-style-type: none"> • Reduced fuel usage • Reduced paper consumption* 	<ul style="list-style-type: none"> • Reduced number of vehicles • Reduced fuel use due to improved driving.*

Figure 2: Potential effects of implementing field force management
(Source: GeSI) *not considered in this case study

SCOPE

In this case study, the ICT system includes the usage of the mobile network and mobile phones to transmit information to the positioning systems, Geographical Information System, monitoring PCs and application servers required. The application software is assumed to be deployed in a data centre including power, cooling, building infrastructure etc.

In the original Business As Usual (BAU) system service units are sent out to perform service tasks at various locations. Service units in this case considered to utilize individual service vehicles (personal cars). Depending on the time it takes to complete a task, units become ready for new assignments. In a typical case a service unit could be scheduled for a task on the priority list, implying perhaps a distant travel, as the service centre is not aware of the location of the address or location of the service units. Potentially, other service units may in this case be located closer to the new task, and be able to respond within a shorter time than the more distant service unit.

The Figure 2 summarizes all potential effects that were identified. The primary

effect of the workforce management service is the reduced need for traveling with the service vehicles. In reality this means less time spent for transportation, and more time for solving customer service requests. Additional enabling effects include potential reduction of service vehicles as the number of trips (traveled distance) is reduced.

Back office buildings are considered negligible for this scale of operation. Paper consumption will decrease but based on previous study results the impact reduction is negligible. The reduced fuel usage due to improved driving has not been investigated enough to be included.

However, not all the potential secondary effects have been included in the case, as we in this case consider an implementation in one operator network. In a larger scale and with a longer term perspective these would certainly be relevant to consider.

RESULT

It is assumed that based on Telstra "Using ICT to drive your sustainability strategy", 2009 Location Based Services implemented at Avea will enable

the following reductions:

- Fuel: 8% (with a total distance of 23 000 km per subyear)
- Vehicles: 17%

The following assumptions were used for the calculations:

- The mobile network required was calculated per mobile phone or subscriber, and allocated the same way as the mobile phone with 3% to the service. The life time of the network varies for different components.
- The back office PC has a life time of 4 years.
- Server life time is 5 years.

Field Force Management enabled by Location Based Services has the potential to reduce CO₂e emissions by up to 510 kg CO₂e/subscriber/year while only adding 5 kg of CO₂e/subscriber/year for the service system (Figure 3).

The potential reduction ratio over a 20 year period could be 1:100, depending on whether the infrastructure is included and, if so, to what extent.

The absolute reduction is about 710 tonnes CO₂e per year if applied to Avea Mobile customers with a total of around 1400 subscribed employees.

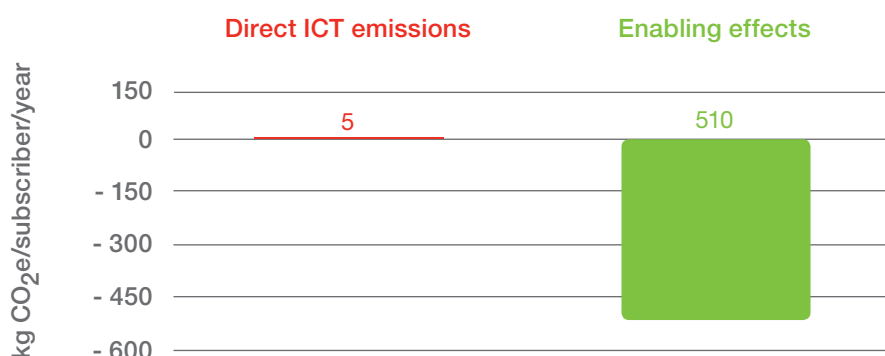


Figure 3: The impact of field force management