

SWIM European State of Play



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Aviation Information World - Forecasting the Future





Global Framework

Doc 10039
AN/511



MANUAL ON SYSTEM WIDE
INFORMATION MANAGEMENT
(SWIM) CONCEPT

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Advanced edition (unedited)

Definition : SWIM consists of standards, infrastructure & governance enabling the management of ATM information and its exchange between qualified parties via interoperable services.

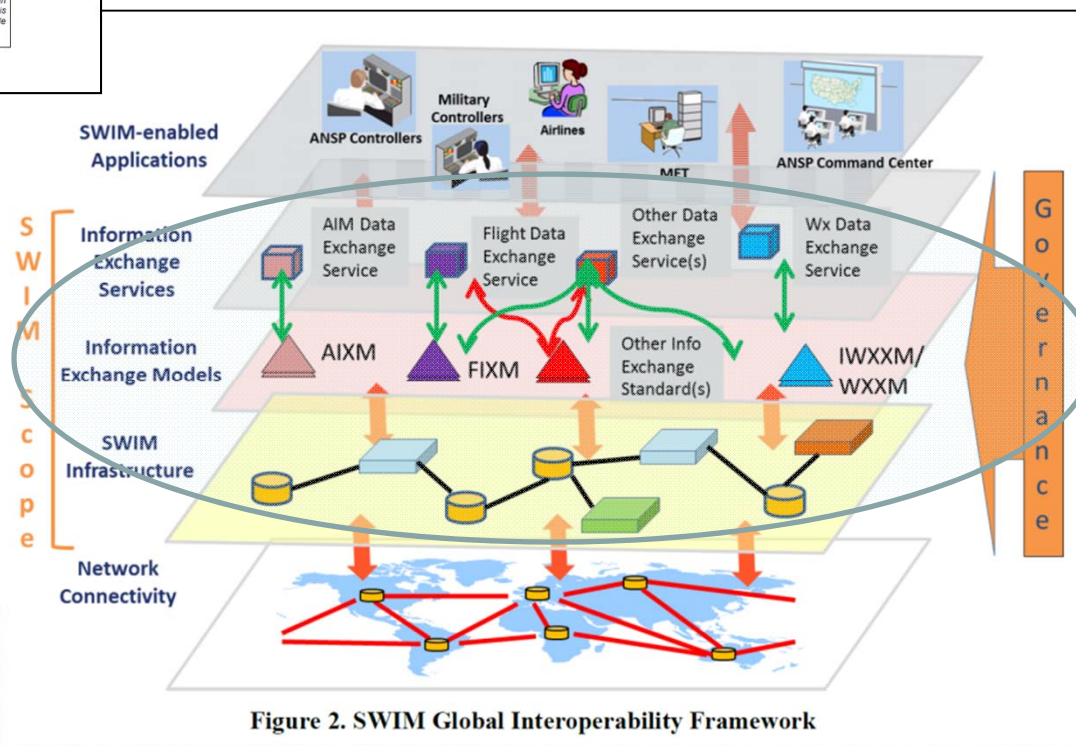



Figure 2. SWIM Global Interoperability Framework



European Progress in a nutshell

Information



AIXM

- ICAO & Increasing implementations
- Digital NOTAM
- Lessons learned (Business rules, CCBs, ...)

WXXM

- I(CAO)WXXM
- Data coming (really ... ?)
- CCB ?

FIXM

- Ops drive FF-ICE/1
- ICAO/ISO/AIXM alignment
- Towards implementation – V4


What about me ?

- AIDX, AMDB, Asterix, ED133, Env XM, ...

ICAO Pick-up !

AIRM

Services




eur-registry.swim.aero


1000 Users

150 Organizations

70 Service Implementations



Technical Infrastructure



- IT is found to be mature
- Mostly an issue of agreeing on used (open) standards
- Through so called Technical Profiles (Yellow / Blue / ...)

E.g. Yellow = SOAP1.1/1.2, WSDL1.1/2.0, WSH1.2/2.0, WS-Security1.1, TLS1.0/1.1/1.2, PKI x.509v3, XML-Encryption, XML-Signature, ECRYPT II, XML 1.0/1.1, XML-Schema, WFS/WMS/..., HTTP1.1, HTTP-GET/POST, MTOM (Red is core, rest is optional for Provider)

+ now Pub/Sub : AMQP1.0 incl JMS bridging !

Governance



Initial SWIM (iSWIM)
EU initiative to move towards **SESAR** Deployment
Carrot/Stick approach



Planned SWIM Specifications & Guidance

- SWIM Services
- SWIM Information
- SWIM Technical Infrastructure Yellow Profile
- Compliance criteria

Performance Based Approach

SESAR SWIM Global Demos

- 8-9 June 2016

- Participants

- SESAR partners, Air Services Australia, Brazil DECEA, FAA, Mongolia CAA, UAE
- 200 persons & 1000+ online

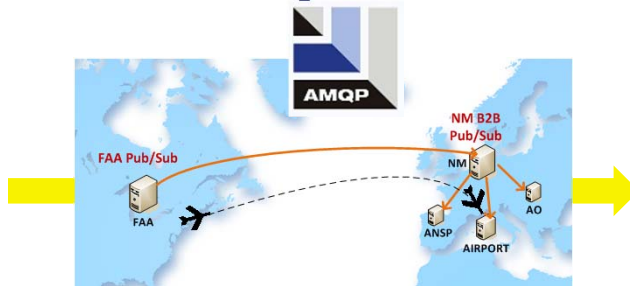


- Results

- SWIM is a reality and no technical barriers for global exchange found
- Becoming major enabler for current & future ATM concepts & operations
- Standards like AIXM, WXXM, FIXM successfully used by all
- Lessons learned feed back (incl ICAO\ATMRPP & IMP)

From demo to Operations – April 2016 !

USA – Europe SWIM Flight Exchange



1. Publish Flight Data



2. ATFM recalculation

3. Publish Flight Data

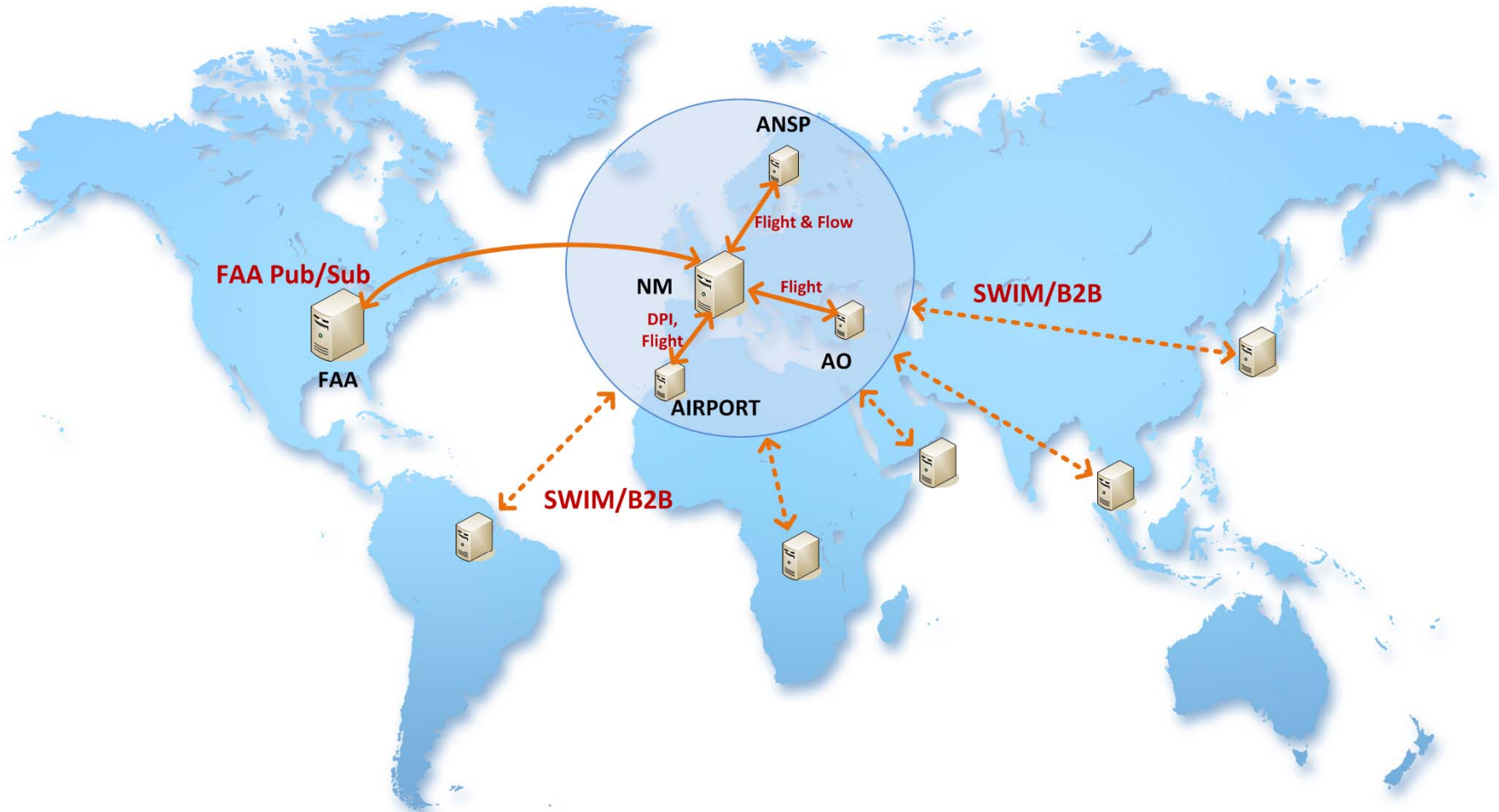


3. Query Flight Data



Using open standards !
(AMQP1.0)

Global Flight data exchange really accelerated through SWIM



The future is bright ... or ?

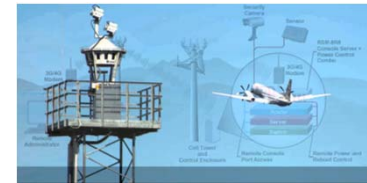
Let's congratulate ourselves on a job well done!



Automation



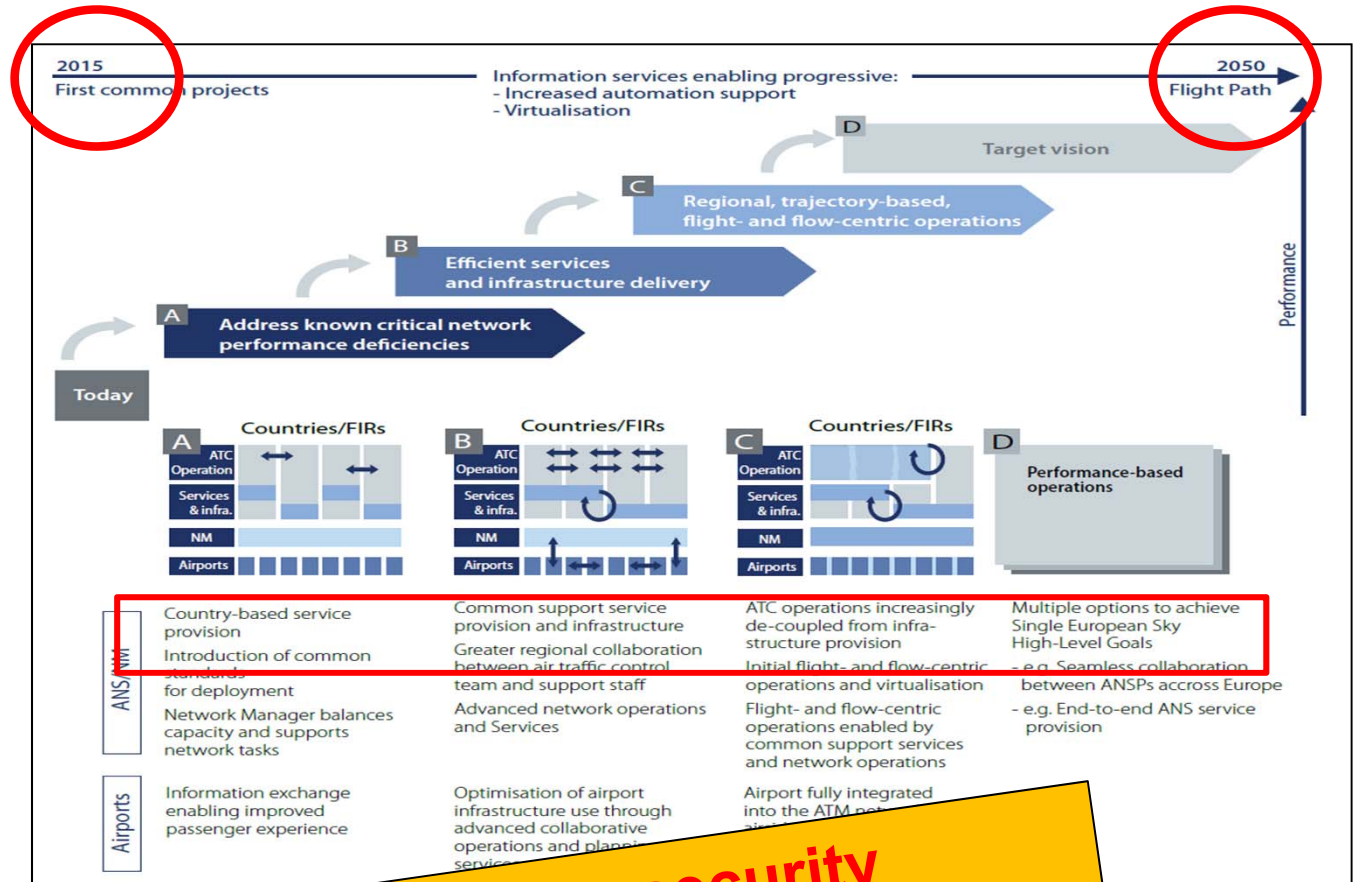
Virtualisation



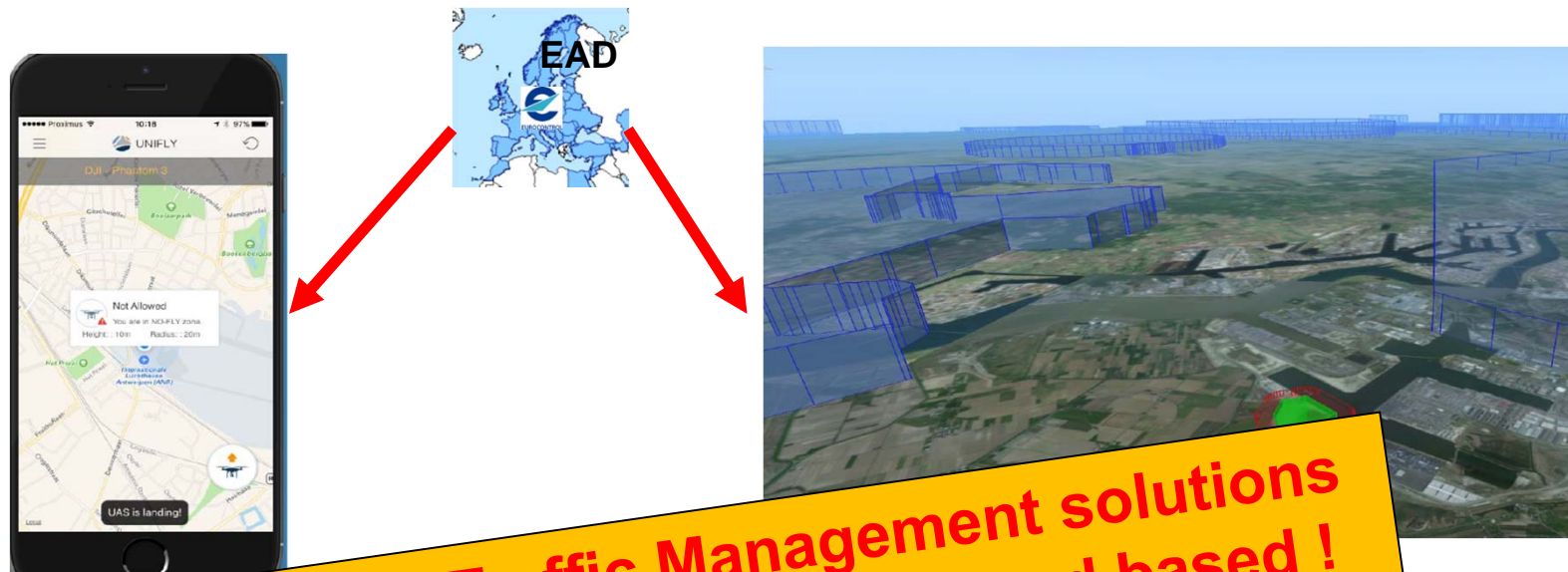
Climate change



Virtualisation - ATM Cloud Services

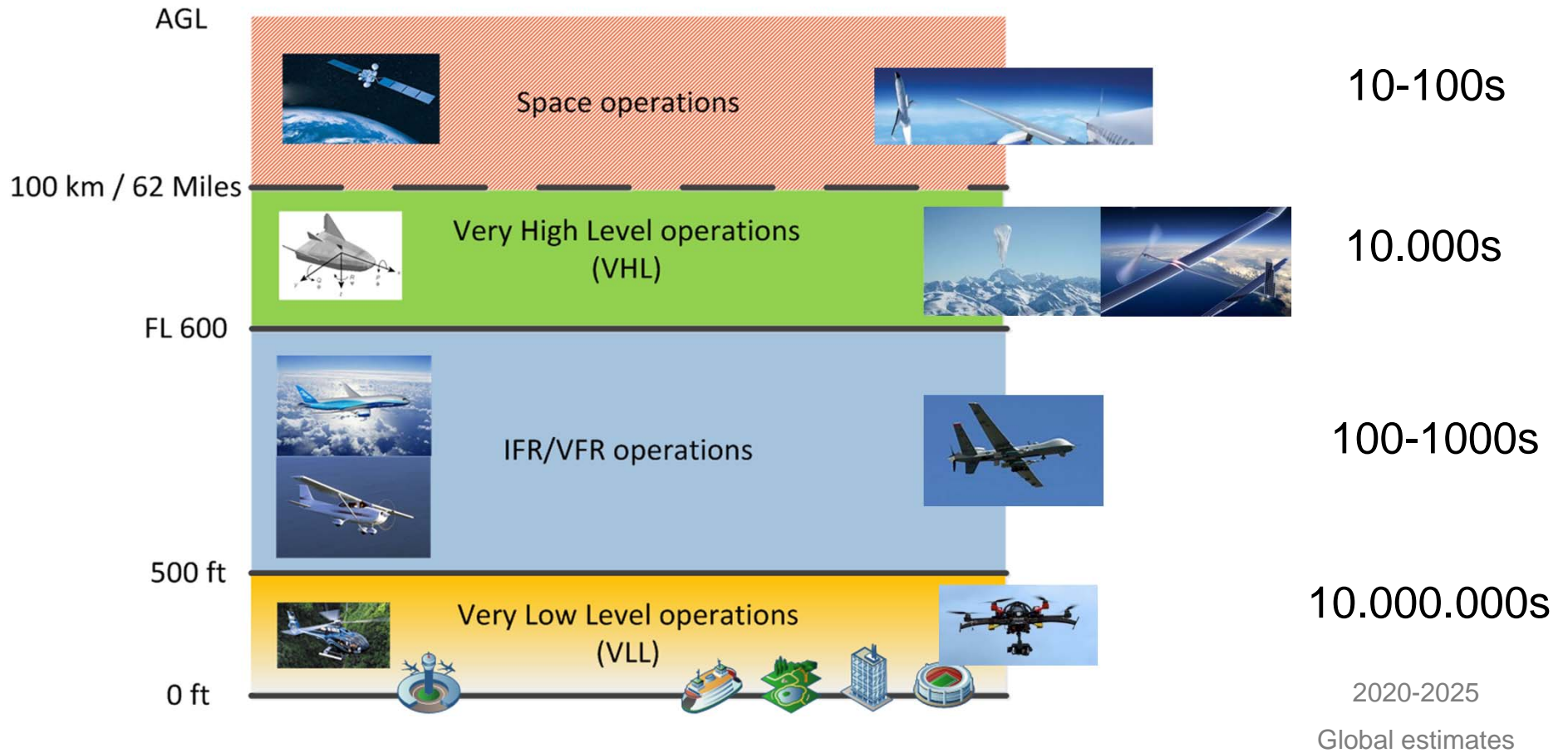


Drones – A European discovery path



**Drone/UAS Traffic Management solutions
SWIM enabled from day 1 / Cloud based !**

Drones – From toys to a total ATM overhaul ?



Is ATM Ready for the future ?

The world out there

- Millions of APIs available on the Web
- Google, Amazon, Salesforce, Twitter are all API companies
- Internet of things - 30 billion connected objects by 2020

ATM

- FIXM 5 years
- (i)WXXM 8 years
- SWIM 18 years
- AIXM 20 years
- 4D 40 years



Conclusions

- **Significant SWIM progress**
 - Technology is not the blocking factor anymore
 - Global implementation a real challenge !
 - Acceleration through Regulations or Market-set standards ?
- **Automation & Virtualisation**
 - Next wave of Opportunities & Challenges
- **Surely many ATIECs still required ☺**

