



Transferable Competence Frameworks for Automotive Industry

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Agenda

- Brief introduction to DRIVES project & project goals
- Future perspectives for the automotive domain
- Teaching concepts & distinctions
- European regulation frameworks & guidelines for learning
- Competence mapping framework



DRIVES Project – Key Objectives

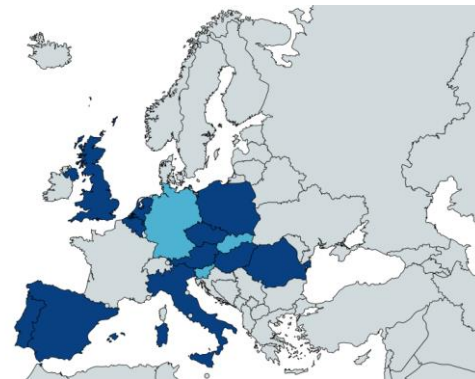


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DRIVES Project – GEAR2030

- Blueprint for sectoral cooperation on skills in the automotive domain
- Establishment of an automotive sector skills alliance covering all levels of the value chain
 - vehicle production, automotive suppliers and automotive sales and aftermarket services.
- Started in January 2018
- End of the project - December 2021
- 24 partners from 11 EU countries



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DRIVES Project – Key Objectives

- Map and assess the **skills gap and future skills needed** in the automotive sector in coming decade
- Improve existing and proven skills framework across the EU
- **Enable mutual recognition of awards between formal and informal education schemes**
- Implement a common European automotive skills umbrella **through integrating of existing skills framework**
- Create EU-wide apprenticeship marketplace



The Automotive Domain and its prospects



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Everybody knows the Automotive Domain!

- **90%** of interviewed men **know how much fuel their car is consuming**
 - Analysis done in US state of New York by University of Buffalo
 - **58%** of them know their **own blood type**
 - **43%** of them know their **own cholesterol level**
- **2.6 Mil jobs in EU** are directly related to automotive domain
- **13.8 Mil indirectly related jobs in EU** (6.1% of employed population)
- **19.6 Mil vehicles** are produces in EU (20%)

Some know about the Automotive Domain

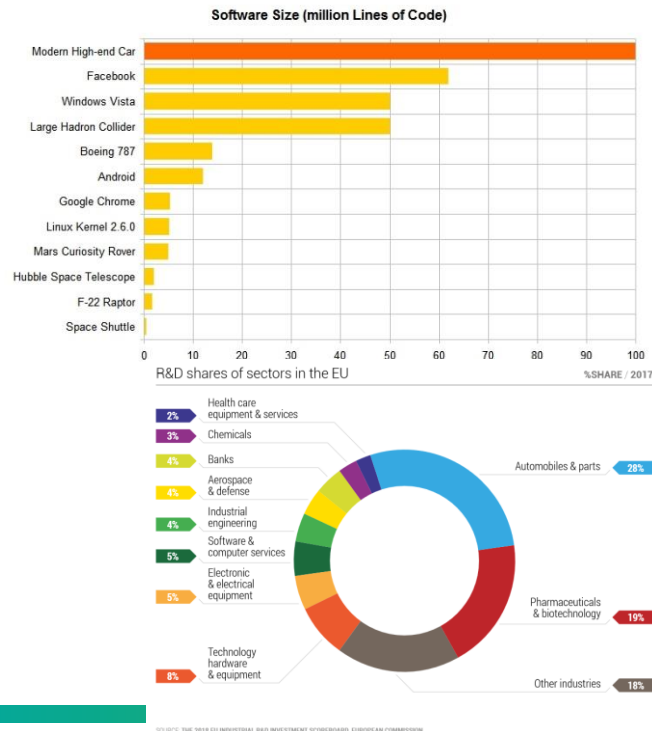
High Complexity:

- Supply chain
- Number of parts
- Complexity of software



High Innovativeness:

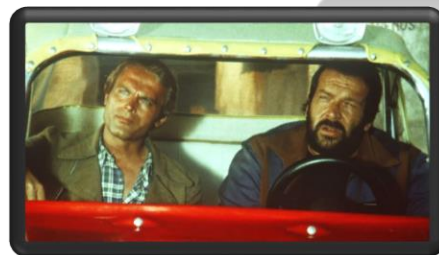
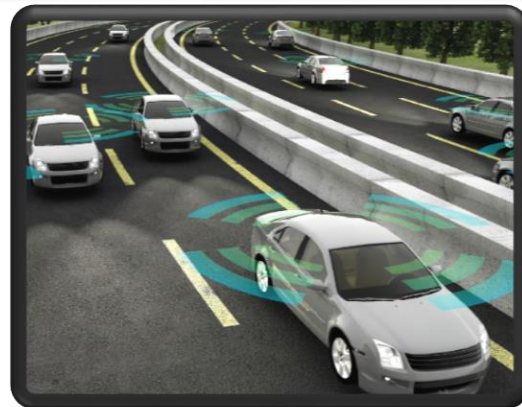
- EU automakers and suppliers R&D investments of €57.4 billion per year
- **Automotive sector is Europe's number one investor in innovation**, responsible for 28% of total EU spending on R&D
- 53% of all automotive patents are granted to EU industry
- **80% of product innovation are based on embedded systems**



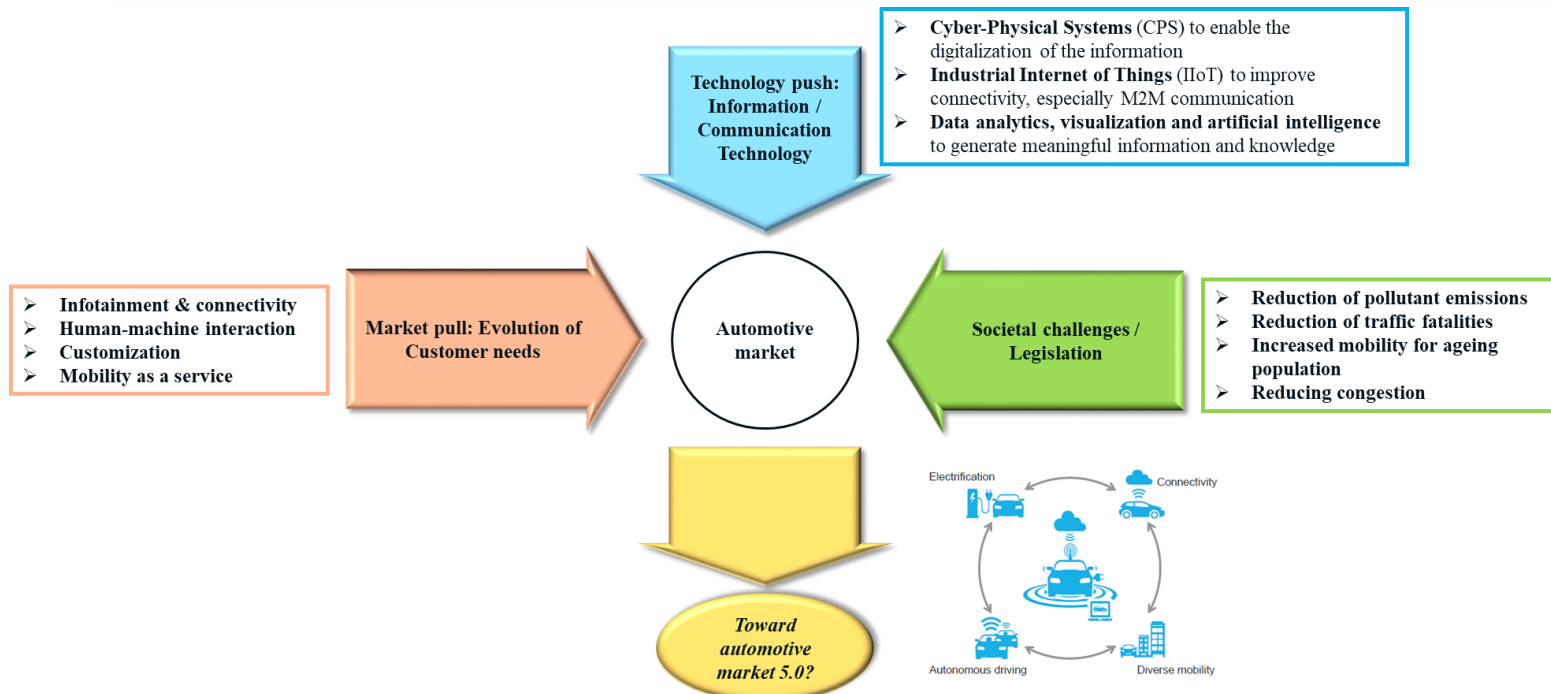
Few know about the Automotive Domain

Domain changes:

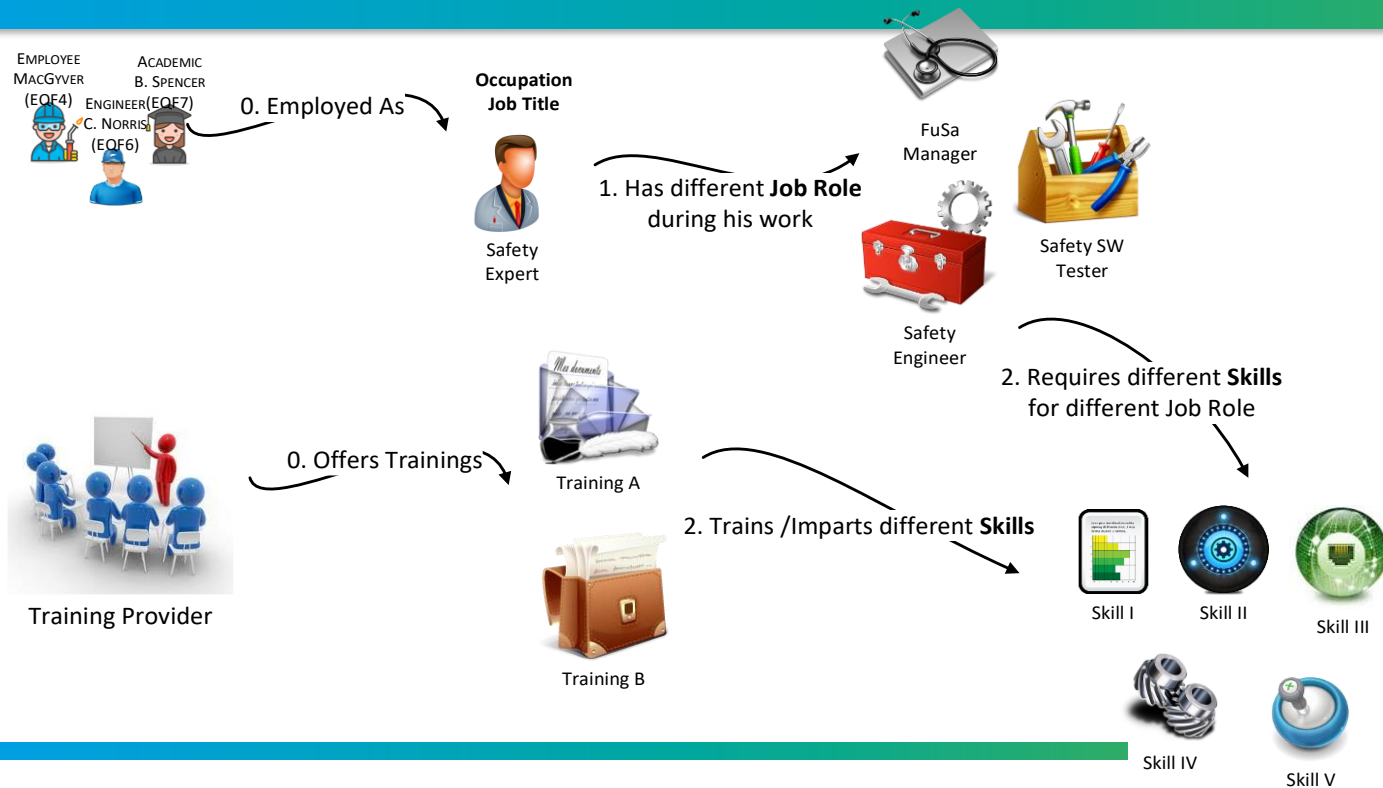
- Revolutionary approaches
- Disruptive influences
- Drivers of change
- Transforming megatrends
- Societal challenges



Market Transformation – A Viewpoint



DRIVES Framework Vision



Teaching Concepts & Distinctions



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Learning Models

Learning Model	Structure	Learning Institution	Focus	Learning Outcomes	Standardisation
Formal	Institutions, education organisations	Educational establishment	curricula	Learning outcomes of modules, descriptors of qualification schemata	Bologna processes (ECTS)
Non- formal		Training centers, workplace	Customer oriented		European qualification scheme (EQF)
Informal	Unplanned	Anywhere / everywhere	individual		



Competence Matrix

Knowledge and understanding								
Applying knowledge and understanding								
Making judgments								
Handle complexity; interdisciplinarity								
Self-directed learning skills								
Communication skills								
Social and ethical aspects								
Teamwork								
International context								
	L, LP (Lecture)	SE, SP (Seminar)	DE (Design Exercises)	PE, LP (Practical Exercises)	LE (laboratory Exercises)	PR (Project)	Immanent	Master's Thesis

Curricula based on “Learning Outcomes”

- Start: required qualifications profile of the study program
- Determination of the necessary knowledge, competences and skills
- Definition of the required entry-level
- Allocation to modules (courses, subjects etc.)
- Acquired competences depend on teaching and learning methods and therefore on course types
- Examination method has to be defined (partly contained in course-types)
- Aspects and methods (course types) have to be balanced
- Rethink and discuss with all stake holders



European Regulation Frameworks & Guidelines



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ECTS (European Credit Transfer and Accumulation System)

- Introduced in 1989
- objective: recognition of academic achievements completed in other European countries
- today: any form of recognition of academic achievements within and between higher education institutions
- 1 credit point (CP) = 25-30 working hours (workload) of an average learner
- Awarding of CP only in connection with the achievement of Learning Outcomes
 - Knowledge, understanding and skills
 - (subject-)specific and generic (interdisciplinary) competences

Copenhagen Processes – ECVET / EQF

- Initiated in 2002
- Investigating ... transparency, comparability, transferability and recognition of competences and/or qualifications, between different countries and at different levels, could be promoted by developing reference levels, common principles for certification, and common measures, including a credit transfer system for vocational education and training“
- Outcomes
 - ECVET (European Credit (Transfer) System for Vocational Education and Training)
 - EQF (European Qualifications Framework)



ECVET - European Credit (Transfer) System for Vocational Education and Training

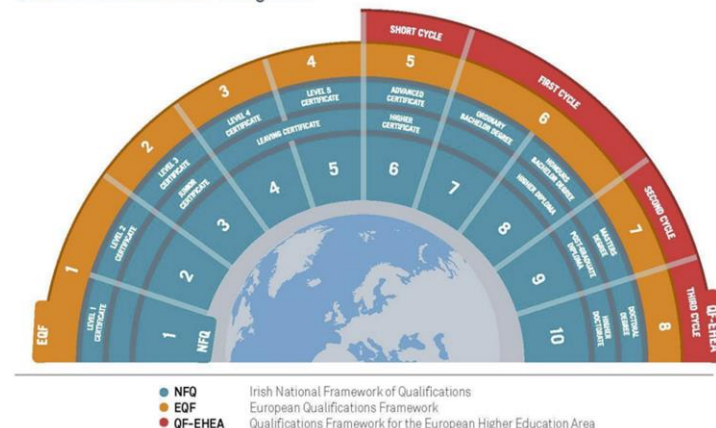
- takes up the approach of the ECTS, but has to take into account the specificities of VET
- Credits are given based on the learning outcomes and competences achieved, not efforts
- Proposal is still in refinement



EQF - European Qualifications Framework

- translation device for national qualifications acknowledgment across Europe
- promoting mobility between countries and facilitating
- EQF to better understand and compare the qualifications levels of different countries and different education and training systems
- since 2012, all new qualifications issued in Europe carry a reference to an appropriate EQF level.

Qualifications Frameworks - Going Global



And the challenges!?!...

- Are there templates available? (level of curricula and courses)
 - Is the vocabulary consistent? (University, faculty, VET programs)
 - It is a process ... it needs to be done
-
- Alignment with ESCO, EQF/NQF, institutional regulations, program goals, curricula, course types and course descriptions



Competence Mapping Framework

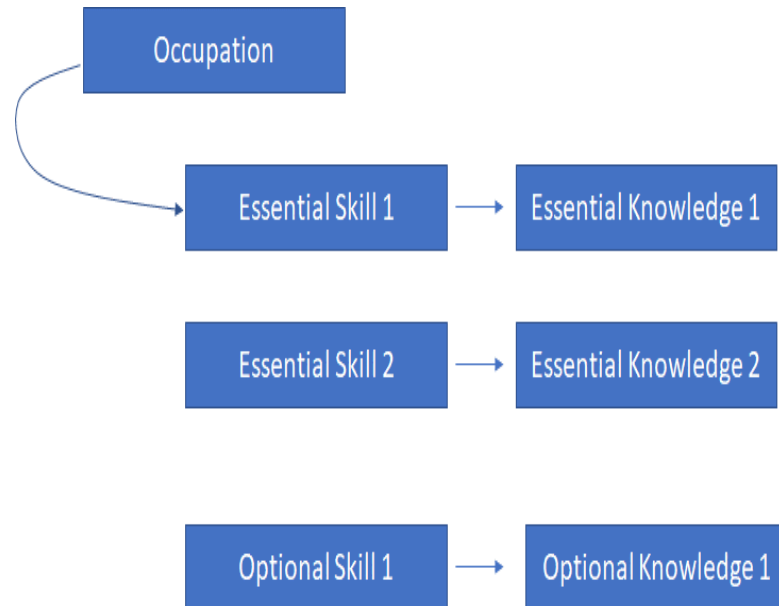


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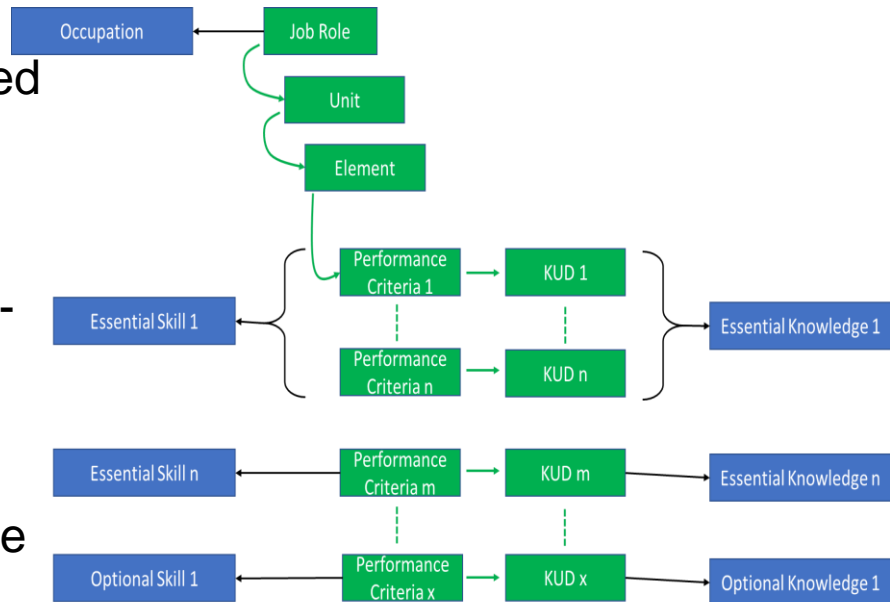
ESCO Definition Model tailored for DRIVES

- Occupation: is a 'set of jobs whose main tasks and duties are characterised by a high degree of similarity'
- Competence refers typically to the ability of a person - facing new situations and unforeseen challenges - to use and apply knowledge and skills in an independent and self-directed way.
- Skills are the ability to apply knowledge and use know-how to complete tasks and solve problems.

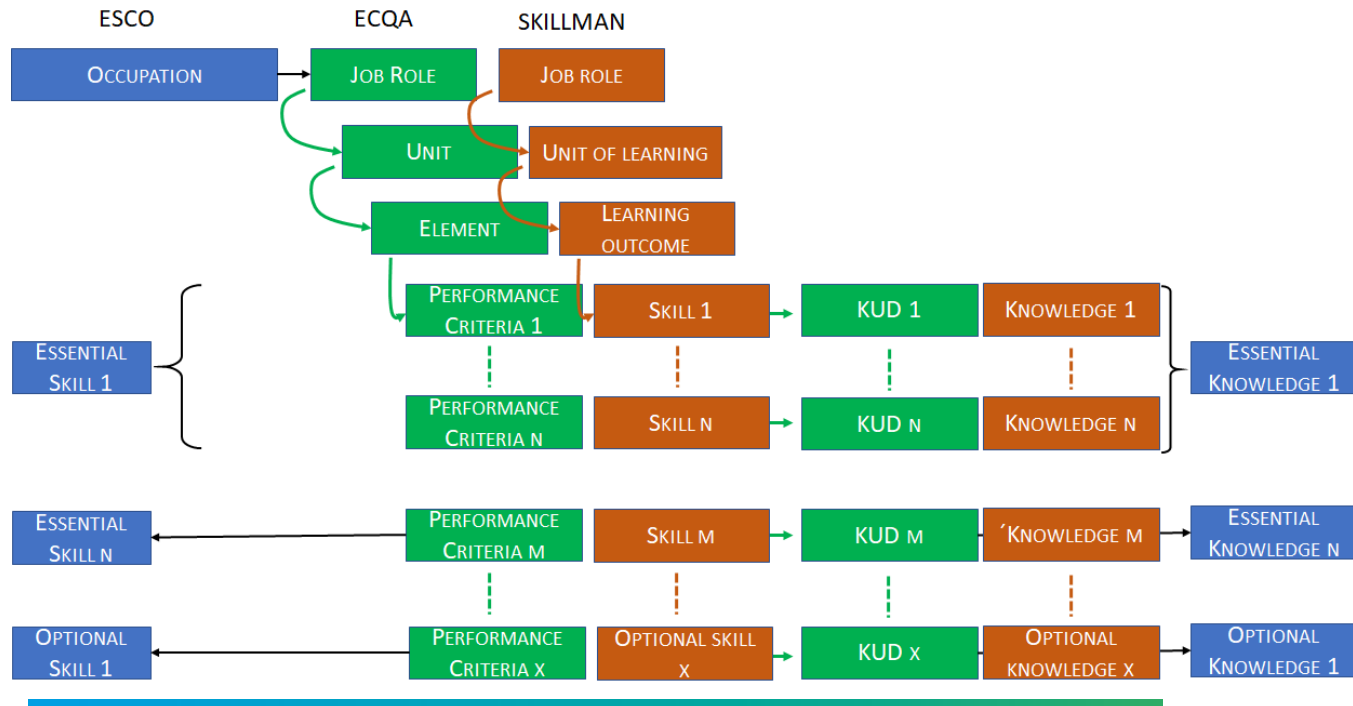


Mapping of ESCO and ECQA Structure

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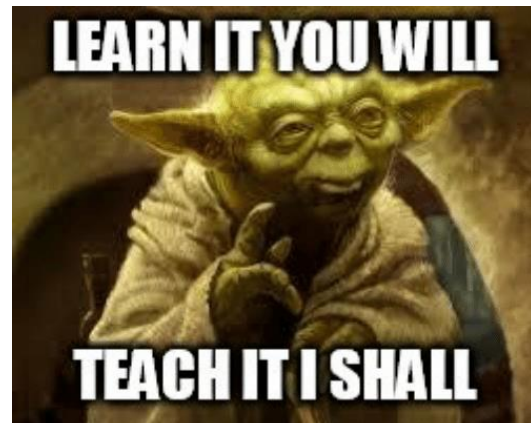


Mapping of ESCO, ECQA and SKILLMAN Structure



Conclusion - Where are we now?

- Mapping and templates are moving forward and (hopefully) developing better understanding
- We do have first demonstration use cases – and get more of them
- We aim at informing people and to take along associations, certification and training providers
- It is not only about knowledge but also understanding and the skills
- „Rom was not built on a single day“



yoda - Imgflip





Thank you for your attention

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