chaise

blockchain skills for Europe

D6.2.1.:

Statement of Support

04/2023

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PROJECT DETAILS

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CHAISE Consortium			
Partner Number	**Participant organisation name**	**Short name**	**Country**
1	Université Claude Bernard Lyon 1	UCBL	FR
2	International Association of Trusted Blockchain Applications	INATBA	BE
3	Fujitsu Technology Solutions NV	FUJITSU	BE
4	Ministry of Education and Religious Affairs	YPEPTH	GR
5	ECQA GmbH	ECQA	AT
6	DIGITALEUROPE AISBL	DIGITALEUROPE	BE
7	IOTA STIFTUNG	IOTA	DE
8	Universitat Politècnica de Catalunya	UPC	ES
9	DUALE HOCHSCHULE BADEN - WURTTEMBERG	DHBW	DE
10	ASSOCIAZIONE CIMEA	CIMEA	IT
11	INTRASOFT International S.A.	INTRASOFT	LU
12	INSTITUTE OF THE REPUBLIC OF SLOVENIA FOR VOCATIONAL EDUCATION AND TRAINING	CPI	SI
13	European DIGITAL SME Alliance	DIGITAL SME	BE
14	University of Tartu	UT	EE
15	UNIVERZA V LJUBLJANI	UL	SI
16	BerChain e.V.	BERCHAIN	DE
17	ITALIA4BLOCKCHAIN	ITALIA4BLOCKCHAIN	IT
18	AUTORITATEA NAȚIONALĂ PENTRU CALIFICĂRI	ANC	RO
19	AKKREDITIERUNGS, CERTIFIZIERUNGS- UND QUALITATS- SICHERUNGS- INSTITUT EV	ACQUIN	DE
20	EXELIA	EXELIA	GR
21	Industria Technology Ltd	INDUSTRIA	BG
22	C4A	C4A	FR
23	Economic and Social Research Institute	ESRI	IE

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Abbreviations

AF	Application Form
D	Deliverable
DG	Directorate General
EACEA	Education, Audiovisual and Culture Executive Agency
EQF	European Qualification Framework
EC	European Commission
EU	European Union
D	Deliverable
ICT	Information and Communications Technology
KPI	Key Performance Indicator
M	Month
MOOC	Massive Open Online Course
OER	Open Educational Resources
PM	Project Management
PMT	Project Management Team
PT	Points
QA	Quality Assurance
SC	Steering Committee
SME	Small and Medium-sized Enterprise
SSA	Sector Skill Alliance
T	Task
TL	Task Leader
VET	Vocational Education and Training
WP	Work Package
WPL	Work Package Leader

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PURPOSE OF THE STATEMENT OF SUPPORT

The current Statement of Support calls on Blockchain stakeholders from across Europe, such as IT companies, sector representatives, policy actors, social partners, standardization organisations, national qualification agencies, VET and HE institutions, trainers/mentors, and field experts to:

- acknowledge the emerging occupational profiles in the Blockchain field and the defined skills and knowledge requirements, and
- contribute to the advancement of the project's objectives to reinforce education in digital competences, based on the principles of common interest, reciprocity, and complementarity.

THE CHAISE PROJECT

The Statement of Support has been created in the context of the CHAISE Sector Skills Alliance "A Blueprint for Sectoral Cooperation on Blockchain Skill Development", funded by the Erasmus+ Programme. CHAISE brings together 23 organisations (from academia, industry, E&T provision, and policy) from 13 EU countries to formulate and deliver a European strategy to address skill mismatches and shortages in the blockchain sector (BC) and deliver appropriate and future focused training, qualifications, and mobility solutions, geared to sectoral realities and needs. The Alliance's objectives are to:

- Improve BC skills intelligence and document prevailing skills mismatches at EU level.
- Set up a collaborative approach to monitoring the evolution of workplace requirements and anticipating future BC skill needs, to act as an early warning information mechanism for skill mismatches.
- Design a learning outcome oriented modular VET programme and educational resources on BC, applicable across the EU member states, to address technical, non-technical and cross-discipline (horizontal) skill requirements.
- Define EU-wide occupational requirements for the BC workforce to address labour market fragmentation.
- Establish a sectoral qualification linked to the emerging BC occupational profiles, to set common educational requirements for BC skills across the EU.
- Connect jobseekers and blockchain companies to support professional transnational mobility and increase the attractiveness of BC sector.
- Set up a post-project permanent cooperation network to systematically monitor labour market and skill developments and keep the European BC skills strategy up-to-date and relevant.

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The results of the project encompass:

- A 5 semester VET Programme and qualification on BC in 11 EU languages.
- A Massive Open Online Course (MOOC) to act as a wide access delivery method for the CHAISE VET Programme.
- An online examination portal, to support the assessment and validation of BC related learning outcomes, leading to the award of an industry recognised certificate.
- EU-wide occupational requirements for the three identified BC occupational roles.
- A BC career guidance and alumni platform.
- Blueprint for the creation of an EU-wide BC scholarship and traineeship programme.
- National BC skills partnerships to roll out project results at national/regional level
- A permanent European BC skills cooperation network.

CONTEXT

Blockchain is at the core of the EU strategy to advance digital transformation, benefitting society and businesses and stimulating sustainable growth. the European Blockchain Sector is well placed to acquire global leadership; still, its competitiveness largely relies on the availability of a competent and versatile workforce. Whereas the demand for blockchain skills is steadily increasing, employers are facing a shortfall of skilled professionals. **The sector is challenged by a talent shortage, global competitive pressures, and limited connection between education & the market.** The aim of CHAISE is to **set forward an open, inclusive blockchain skills governance system**, to address skills mismatches and deliver appropriate training, intelligence gathering & mobility solutions tailored to sectoral needs and challenges. This objective is in line with the priorities of the Digital Europe EU Program and the Digital Education Action Plan, to a) enhance digital competences for the digital transformation, b) support the upskilling of the ICT workforce and c) update the European Digital Competence Framework with Blockchain related skills requirements.

BLOCKCHAIN OCCUPATIONAL PROFILES

The Alliance implemented a comprehensive needs analysis, first time employed for the European Blockchain Sector to demarcate the Blockchain sector, and define Blockchain skills requirements, supply, and mismatches. This analysis showed the emergence of three new roles (profiles) in the European Blockchain field: **a) Blockchain Developer, b) Blockchain Architect, and c) Blockchain Manager.**

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The role of the Blockchain Architect is to **design and integrate the multi-level architecture of a large Blockchain system** and software landscape, ensuring technical quality and coherence across all aspects of the project. This job requires a strong perspective on both micro and macro levels and involves developing creative products and use case designs for Blockchain solutions. Similar to a solution architect, a Blockchain Architect specializes in ICT system architecture for Blockchain-based solutions.

As for the Blockchain Developer, their main responsibility is to **code and solve problems at a micro level**, requiring general software development skills with a particular emphasis on Blockchain technology and applications, as well as operational business skills and the ability to work independently.

On the other hand, the Blockchain Manager is responsible for **leading groups of developers and architects**, tracking implementation progress, and cooperating closely with business managers and marketing professionals to identify market requirements for new Blockchain systems and applications. This role involves monitoring process quality to ensure that products meet their technical and business objectives while considering ethical implications. The Blockchain Manager must also communicate effectively with various stakeholders, including department managers and marketing professionals.

With the updates to the occupational profiles, individuals who are interested in pursuing a career in blockchain can better understand the different roles available and the skills required for each role. This can help them make informed decisions about their career paths and identify areas where they may need to develop their skills.

Employers can also use an occupational profile, to help them identify the skills and experience required for specific blockchain roles. This can help them create more targeted job descriptions and recruitment strategies to attract the right candidates. The profiles can also be used to develop training programs for individuals who want to enter the blockchain industry or for existing employees who want to develop their skills in this area. This can help ensure that employees have the skills required to perform their roles effectively.

The table below provides a summarised description of the three occupational profiles, essential skills and knowledge required for each of them. More information about the profiles may be found in the annex at the end of the document.

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Concept name	Description	Essential skills	Essential knowledge
Blockchain Architect	The Blockchain Architect designs the multi-levelled architecture of a large Blockchain system and software landscape and ensures the coherence of all aspects of a project as an integrated system. Furthermore, the BC Architect assures the overall technical quality of the BC application. The job role requires a strong micro and macro perspective. It has a strong focus on developing creative projects in product and use case design, including the conception and design of Blockchain solutions.The Blockchain Architect is comparable to the role of the solution architect. They are ICT system architects who are specialized in blockchain-based solutions. They design the multi-levelled architecture of a large Blockchain system and software landscape and ensures the coherence of all aspects of a project as an integrated system. Furthermore, the BC Architect assures the overall technical quality of the BC application.	recognize blockchain application areas recognize blockchain and cryptocurrency risks explain implications of blockchain technology and governance identify innovation opportunities enabled by blockchain technology explain blockchain-based identity managment and access control Explain principles of DLT system architecture evaluate blockchain architectures innovate blockchain architectures Implement cryptographic constructs analyse blockchain use cases introduce blockchain in an application	blockchain concepts and components blockchain applications blockchain history legal environment of blockchain-based products and services blockchain terminology blockchain application security principles blockchain-based business models blockchain application areas. Information and data security principles vulnerabilities in distributed ledger technologies digital identity management decentralized identifiers (DiD) Design process for blockchain-based systems blockchain design patterns DLT consensus protocols blockchain signature schemes blockchain concept application
Blockchain Developer	The Blockchain Developer codes the Blockchain applications and takes care of problem solving at the micro level. The job role demands general software development skills with great emphasis on the development skills of Blockchain technology and applications, operational business skills, and all transversal future skills, particularly self-managed work.	recognize blockchain application areas recognize blockchain and cryptocurrency risks explain implications of blockchain technology and governance identify innovation opportunities enabled by blockchain technology explain blockchain-based identity management and access control explain principles of DLT system architecture evaluate blockchain architectures innovate blockchain architectures analyze decentralized applications	blockchain concepts and components blockchain applications blockchain history legal environment of blockchain-based products and services blockchain terminology blockchain application security principles blockchain-based business models blockchain application areas Information and data security principles vulnerabilities in distributed ledger technologies digital identity management

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		implement smart contracts implement smart contracts	decentralized identifiers (DiD) design process for blockchain-based systems blockchain design patterns DLT consensus protocols smart contract programming language game theory game theory for blockchain
Blockchain Manager	The Blockchain Manager leads groups of developers and architects. The Blockchain Manager tracks the implementation progress and maintains close cooperation with business managers or marketing professionals to identify the market requirements for new Blockchain systems and applications. This role monitors process quality to ensure that products meet their technical and business objectives, including the ethical reflection of possible areas of application of the technology. It features communicating with other stakeholders, such as department managers and marketing professionals.Furthermore, this role must monitor the process quality to ensure that products meet their technical and business objectives and communicate with other stakeholders, such as department managers and marketing professionals.	recognize blockchain application areas recognize blockchain and cryptocurrency risks explain implications of blockchain technology and governance identify innovation opportunities enabled by blockchain technology integrate blockchain technology analyse blockchain use cases introduce blockchain in an application	blockchain concepts and components blockchain applications blockchain history legal environment of blockchain-based products and services blockchain terminology blockchain application security principles blockchain-based business models blockchain application areas blockchain mining principles blockchain concept application game theory game theory for blockchain

VET PROGRAMME ON BLOCKCHAIN AND DISTRIBUTED LEDGER TECHNOLOGIES

The CHAISE partnership has designed a joint VET curriculum to fill in the gap in the supply and quality of existing formal and non-formal training provision for the emerging BC roles, and address the evolving labour market needs and skills requirements, resulting from the increasing adoption of BC use cases across all economic sectors. CHAISE has employed a learning outcomes approach in the curriculum design, with clear references to the appropriate EQF level(s), to improve the matching between skills needs & VET provision and facilitate the recognition of skills. The CHAISE VET curriculum comprises modules that are common for all the BC roles (BC Developer, BC Architect and BC Manager) in the first year of education, and specialization learning pathways for each of them after the second year of education. The programme corresponds to EQF 5 and has a 5-semester duration. The entire curriculum consists of 12 modules that are further broken down into 48 lectures, providing 120 credit points in total and leading to the award of a professional qualification (based on the chosen specialisation). It features

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1200 hours of theoretical and 480 hours of practical (work-based) learning and its modular structure facilitates deployment in both formal and informal C-VET environments.

<table>
<tr><td colspan="4">Transversal Skills (M, A, D)</td></tr>
<tr><td colspan="4">1. Regulation and Legal Aspects
2. Governance of Blockchain Systems</td></tr>
<tr><td colspan="2">Technical Basics (D, A, M)</td><td colspan="2">Business Basics (M, A, D)</td></tr>
<tr><td colspan="2">3. Fundamentals of Blockchain and Distributed Ledger Technologies</td><td colspan="2">4. Blockchain Business Management and Planning</td></tr>
<tr><td colspan="2">Technical Blockchain Specialisation (D, A)</td><td colspan="2">Business Blockchain Specialisation (M)</td></tr>
<tr><td colspan="2">5. Blockchain Security and Digital Identity
6. Blockchain System Architecture & Consensus Protocols</td><td colspan="2">7. Blockchain Platforms
8. Marketing and Customer Support</td></tr>
<tr><td>BC Conception & Use Case Development (A)</td><td>BC Engineering & Development (D)</td><td>Strategic Business Management (A, M)</td><td>Operational Business Management (D, M)</td></tr>
<tr><td>9. Applied Cryptography</td><td>10. Smart Contracts and Digital Currency Programming</td><td>11. Developing use cases: From ideas to services</td><td>12. Game Theory in Blockchain</td></tr>
</table>

Table 1 CHAISE modules matching occupational profiles

Finally, the curriculum, grounded on up-to-date market intelligence covers the entire spectrum of technical, non-technical and cross-discipline skills needed for each occupational role (BC Developer, BC Architect, BC Manager).

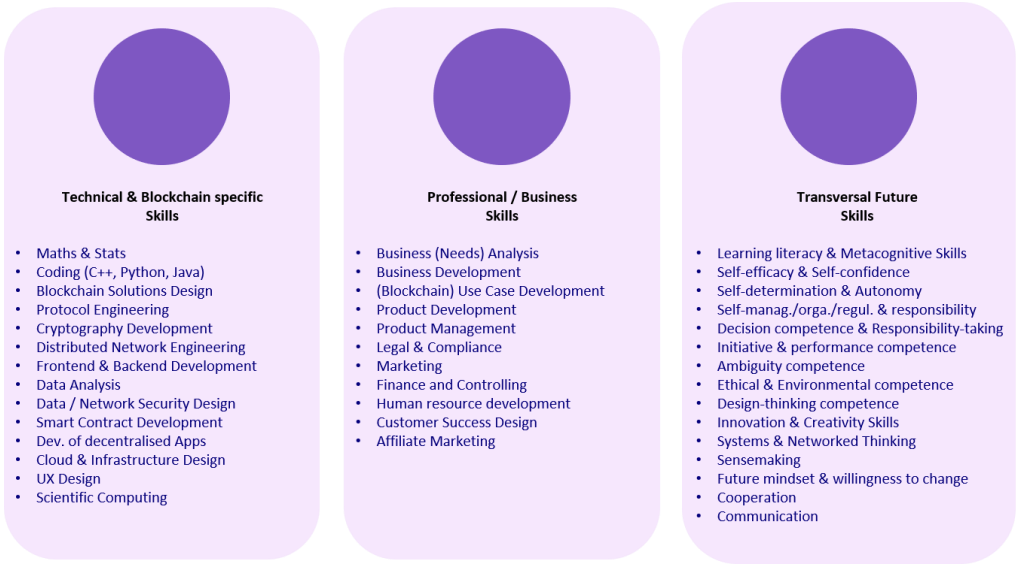

Table 2 Breakdown of required skills

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SCOPE

I hereby declare to support the efforts of the CHAISE Alliance to achieve its described project purpose.

I also recognise the added value of the following project results:

- Blockchain Labour Market Analysis
- Blockchain occupational profiles and skills requirements
- CHAISE VET program on Blockchain and Distributed Ledger technologies
- Forecasting mechanism for the anticipation of future blockchain skill needs
- European Blockchain Skills Strategy

By recognizing the results, you are contributing to providing a clearer description of the roles and possible educational approach which will be transferable among various countries and markets, thus providing additional stimulus for fulfilling the growing needs of the blockchain sector. Your contribution will support the partnership in tackling the problem of skill mismatches and shortages in the blockchain sector. This will enable a provision of relevant and forward-looking training, qualifications, and mobility solutions that are aligned with the specific needs and realities of the blockchain industry at the European level.

The support for the listed project results will also reinforce the described purpose of the project. The inclusion of labor market analysis and the skills strategy may be an additional form of validation for the project results by providing supplementary means to assess it.

LEGAL NATURE

This document is a statement of support/intent and does not create any enforceable rights or obligations by the Signatory Parties. This statement does not modify or supersede any EU law or any national laws, nor does it affect any provisions under other multilateral or bilateral agreements in force and applicable to the Parties.

Name _____

Organization _____

Email _____

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Annex – description of occupational profiles and their characteristics

Concept name	Description (existing)	Description (new)	Scope (existing)	Scope (new)	Essential skills (existing)	Essential skills (new)	Essential knowledge (existing)	Essential knowledge (new)
Insert the name of the new occupation	Describe the tasks associated to this occupation in max 2000 characters	Describe the tasks associated to this occupation in max 2000 characters	Clarify the boundaries of this occupation and what distinguish it from existing profiles	Clarify the boundaries of this occupation and what distinguish it from existing profiles	Provide a list of essential skills/competences that are needed to perform this occupation	Provide a list of essential skills/competences that are needed to perform this occupation	Provide a list of essential knowledge/know-how needed to perform this occupation	Provide a list essential knowledge/kno how needed t perform this occupation

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Blockchain Architect	Blockchain architects are ICT system architects that are specialized in blockchain-based solutions. They design architecture, components, modules, interfaces, and data for a decentralized system to meet specified requirements.Architect assures the overall technical quality of the BC application.	The Blockchain Architect designs the multi-levelled architecture of a large Blockchain system and software landscape and ensures the coherence of all aspects of a project as an integrated system. Furthermore, the BC Architect assures the overall technical quality of the BC application. The job role requires a strong micro and macro perspective. It has a strong focus on developing creative projects in product and use case design, including the conception and design of Blockchain solutions.The Blockchain Architect is comparable to	Excludes the development of decentralized systems.	Includes: - Making design decisions - Being creative - Interacting with experts from different fields Excludes: - implementing/developing a blockchain - selling blockchain concepts	design information system, define software architecture, create business process models, define technical requirements, analyse ICT system, interpret technical requirements	recognize blockchain application areas recognize blockchain and cryptocurrency risks explain implications of blockchain technology and governance identify innovation opportunities enabled by blockchain technology explain blockchain-based identity management and access control Explain principles	blockchain consensus mechanisms blockchain openness blockchain platforms business processes design thinking principles of distributed ledger technology smart contract systems development life-cycle	blockchain concepts and components blockchain applications blockchain history legal environment c blockchain-based product and services blockchain terminology application security principles blockchain-based busines models blockchain application are Information an data security

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		the role of the solution architect. They are ICT system architects who are specialized in blockchain-based solutions. They design the multi-levelled architecture of a large Blockchain system and software landscape and ensures the coherence of all aspects of a project as an integrated system. Furthermore, the BC Architect assures the overall technical quality of the BC application.				of DLT system architecture evaluate blockchain architectures innovate blockchain architectures Implement cryptographic constructs analyse blockchain use cases introduce blockchain in an application		principles vulnerabilities distributed ledg technologies digital identity management decentralized identifiers (DiD Design proces for blockchain based system blockchain design pattern DLT consensu protocols blockchain signature schemes blockchain concept application

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Blockchain Developer	Blockchain developers implement or program blockchain-based software systems based on specifications and designs by using programming languages, tools, and blockchain platforms.technical quality of the BC application.	The Blockchain Developer codes the Blockchain applications and takes care of problem solving at the micro level. The job role demands general software development skills with great emphasis on the development skills of Blockchain technology and applications, operational business skills, and all transversal future skills, particularly self-managed work.	Excludes the development of decentralized systems.	Includes: - Making design decisions - Being creative - Interacting with experts from different fields Excludes: - implementing/developing a blockchain - selling blockchain concepts	design information system, define software architecture, create business process models, define technical requirements, analyse ICT system, interpret technical requirements	recognize blockchain application areas recognize blockchain and cryptocurrency risks explain implications of blockchain technology and governance identify innovation opportunities enabled by blockchain technology explain blockchain-based identity management and access control explain principles		blockchain concepts and components blockchain applications blockchain history legal environment o blockchain-based product and services blockchain terminology blockchain application security principles blockchain-based busines models blockchain application are

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						of DLT system architecture evaluate blockchain architectures innovate blockchain architectures analyze decentralized applications implement smart contracts implement smart contracts		Information an data security principles vulnerabilities distributed ledg technologies digital identity management decentralized identifiers (DiD design proces for blockchain based system blockchain design pattern DLT consensu protocols smart contrac programming language game theory

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Blockchain Manager		The Blockchain Manager leads groups of developers and architects. The Blockchain Manager tracks the implementation progress and maintains close cooperation with business managers or marketing professionals to identify the market requirements for new Blockchain systems and applications. This role monitors process quality to ensure that products meet their technical and business objectives, including the ethical reflection of possible areas of application of the technology. It features communicating with other stakeholders, such as	Manages the development and/or deployment of decentralized systems.	Manages the development and/or deployment of decentralized systems. Includes: - Managing DLT development teams - Managing DLT-based products and applications - Interacting with experts from different fields Excludes: - implementing/developing a blockchain - implementing/developing decentralized systems - selling blockchain concepts		recognize blockchain application areas recognize blockchain and cryptocurrency risks explain implications of blockchain technology and governance identify innovation opportunities enabled by blockchain technology integrate blockchain technology analyse blockchain use cases		blockchain concepts and components blockchain applications blockchain history legal environment of blockchain-based product and services blockchain terminology blockchain application security principles blockchain-based busines models blockchain application are

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		department managers and marketing professionals.Furthermore, this role must monitor the process quality to ensure that products meet their technical and business objectives and communicate with other stakeholders, such as department managers and marketing professionals.				introduce blockchain in an application		blockchain mining principl blockchain concept application game theory game theory f blockchain

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