



## Using Blockchain, Semantics and Data Analytics to Optimise Qualification Certification, Recruitment and Competency Management: a Landscape Review

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# Scope



- Slow digitisation of Higher Education
- Certifications are produced in paper-form and require manual and time-consuming processes
- Growing need for automatic and trustworthy systems than can handle qualification certification

## Scope:

- Perform a landscape analysis on commercial tools and frameworks that operate in the domains of Higher Education and the labour market

# Current Challenges



- Education certificates are held in diverse formats in siloed databases involving paper documentation and extremely time-consuming manual processes for their verification
- Higher Education Institutions operate in isolated environments with no connection to the respective labour market
- No tools that can ease the transition of a person from being a student to a job seeker
- Lack of trustworthy and automatic solutions when it comes to archiving, managing and verifying educational qualifications
- Holders of educational titles are dependent from issuing/accrediting authorities every time they want to verify their degrees

# Projected Solutions and QualiChain



- Solutions to these difficulties require fundamental changes in work practices and processes
  - Disrupt the way education and employment credentials and qualifications themselves are archived, managed and used
  - Disrupt the way the educational and other accrediting organisations operate
- Leverage innovative technologies
- QualiChain is a project that aspires to investigate the impact of disruptive technologies, such as blockchain, semantics, data analytics and gamification in the domain of public education and the labour market

# Related Tools and Frameworks – Comparison Criteria



The criteria for the analysis largely represent the high-level technical capabilities of the QualiChain platform and are the following:

1. Target users
2. Blockchain usage/data security
3. Personalisation approach
4. Use of semantics/data interoperability
5. Gamification approach
6. Qualification certification and multilinguality
7. Recruitment and competency management
8. Open source/APIs

# Related Indicators

• 19 tools with



<b>Tool/method name</b>	Recognition Finder <sup>95</sup>		
<b>Category (tool, ready product, theoretical framework etc.)</b>	Tool and framework	<b>Current Version (alpha, beta, pre-release etc.)</b>	Released
<b>Description</b>			
Recognition Finder is a tool for the recognition of foreign professional qualifications in Germany. Moreover, those seeking advice only need a few clicks and this online tool will name the competent authority for their application. In addition, it presents important information about the legal foundations, the recognition procedures for individual occupations and available counselling services in a concise form. It should be noted that the Recognition Finder does not automatically verify the user's qualifications, but rather finds the competent authority that the user needs to contact for the respective occupation.			
<b>Implemented Technologies &amp; Functionalities</b>			
<ul style="list-style-type: none"> <li>• Recognition check allows users to see whether their professional qualifications can be recognised in Germany</li> <li>• The portal is available in German and English, as well as Arabic, French, Greek, Italian, Polish, Romanian, Russian, Spanish and Turkish.</li> <li>• For mobile use, there is also the "Recognition in Germany" app, which offers the information in seven languages: German, English, Arabic, Dari, Farsi, Pashto, and Tigrinya.</li> <li>• The database currently contains more than 1,500 different contact addresses for the recognition procedures of occupations within the remit of the states and the federal government.</li> </ul>			
<b>Added Value</b>			
<ul style="list-style-type: none"> <li>• In the "Recognition Finder", the user can enter his or her profession and use the occupational profile displayed to determine the German vocational certificate that matches the qualifications acquired abroad.</li> <li>• Just a few clicks are <u>sufficient</u> to get the address where an application for an assessment of equivalence can be submitted.</li> <li>• All the information that is important for <u>submitting an application</u> is summarised – for example the documents required for an application.</li> </ul>			

Recruitment/Competency Management	Open Source/ APIs
No	QCheck API allows queries from integrated systems
No	No

Name	Version	Target
Qualification Check	Released	Business, regulatory, education, professional, body, recruitment, HR
Recognition Finder	Released	Students seeking

# Discussion of Results(1/2)



- Identified target users include students, job seekers, employers, private and public organisations, government agencies, education providers, regulators, HR teams and recruitment firms among others
- Blockchain and semantics are heavily underutilised
- Almost half of the approaches studied provide some degree of personalisation
- No gamification approaches were found
- Most solutions are non automatic



# Discussion of Results(2/2)



- Recruitment/ Competency Management
  - No end-to-end holistic solutions in a pan-European level
  - Some tools can be applied only to specific countries
  - Other tools are tailored only for ICT positions and organisations
- Qualification Certification
  - Several holistic solutions that handle every step of the process automatically
  - A few country specific tools
  - Only 5 approaches offer multilinguality
- APIs: 8 tools have APIs that allow them to connect with other systems

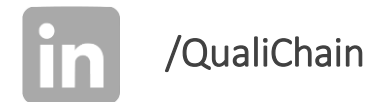
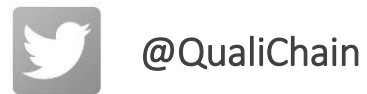
# Conclusions



- The market is dominated by commercial applications
- Most applications do not support several steps of the respective procedures
- Several country-specific tools
- Market vacuum for solutions such as QualiChain
- Can the QualiChain fill the void in the market?



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