

Implementation of Blockchain Digital Credentials at University of Lille - France

Co-funded by



What makes this new form of blockchain-based digital certificates, called [Blockchain Digital Credentials](#), so interesting?

As demonstrated by the Dem-Attest-ULille project, a blockchain project for digital transformation within a university can:

- Offer [100% digital, multilingual, tamper-proof diploma](#) certificates to students, which are recognized worldwide;
- Automate the process of producing and verifying academic credentials, [increase their reliability, and reduce their costs](#);
- By providing employers with tamper-proof documents, employers will have [more confidence in institutions](#) and the documents they issue.

As of the start of 2023, over 32,000 blockchain credentials have been issued to the university's graduates, confirming the project's success.

Does it respect personal data and the environment, and is it easy to use?

Yes, that's the simple answer. Throughout this White Paper, you will find many testimonies and all the documentation concerning the Dem-Attest-ULille project.

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The objectives of Dem-Attest-ULille



**Perrine de
Coëtlogon**

University of Lille,
Board Member of
Open Education
Global,
representative of
France in the
European
Blockchain
Partnership,
European
Blockchain Service
Infrastructure - EBSI

**Dem-Attest-ULille
project manager**

Here are the objectives of the project presented by Perrine de Coëtlogon, Director of the Dem-Attest-ULille project:

- To provide the student with a "verifiable" digital diploma certificate instead of a PDF, i.e., in a 100% digital format, tamper-proof, and containing all the necessary proofs of authenticity and in the shortest possible time.
- To enhance the attractiveness of the "diploma", which can be shared in a click, available to graduates.
- To prevent fraud.
- The registrar's office modernization:
 - a quality procedure for the production of data;
 - reduction in the time required to issue and verify credentials;
 - translation of the list of all the university's degrees;
 - low cost, especially compared to paper.
- To facilitate student mobility and access to employment.
- To use the strengths of blockchain technology:
 - in the event that the technical partner disappears, the certificates remain in the blockchain;
 - encryption and distribution of student data are in compliance with GDPR.
- Work with European registrars' offices, starting with the Belgian ARES (scholarships).
- Working on the interoperability of these "verifiable credentials" at the European and international levels.

We aim to implement a dematerialization process for the "diploma certificate" PDF document, which was previously produced by the APOGEE - Student Information System (SIS) software.

Key figures

+80k

There are nearly 8,000 employees and 80,000 students at the University of Lille – France

2021

Dem-Attest-ULille Project began in 2021

+32k

More than 32,000 blockchain credentials have been issued

+130

Over 130 countries across five continents have consulted the university's blockchain credentials

25

The project has been carried out by up to 25 University employees since launch and is supervised by a six-member steering committee

+700

Over 700 degree variants were supported and translated into English

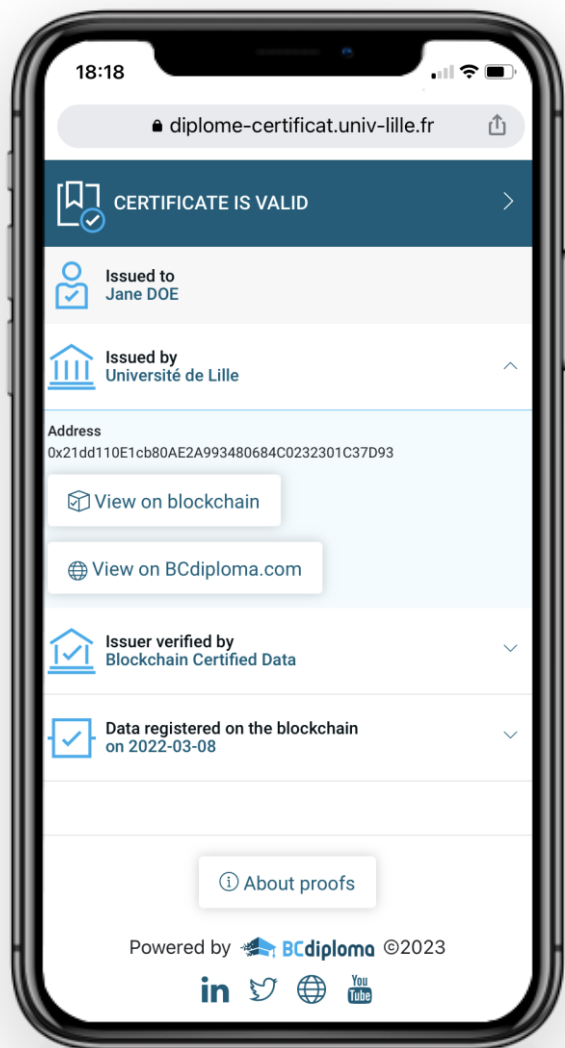
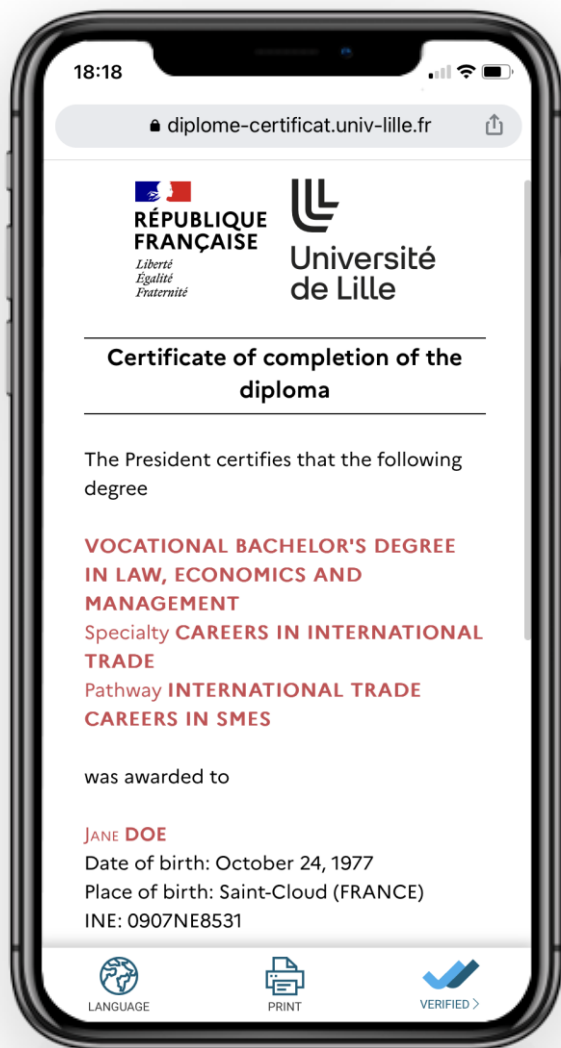
1

All of these variants were automated using a single data model

+650

Over 650 transactions were performed from the official University of Lille blockchain address

Blockchain Digital Credential sample



[Scan or click here to
view the online
certificate](#)

Why blockchain technology?



Pierre Boulet

Vice President
for Digital
Infrastructure,
University of Lille

October 22, 2021
**The digital
transformation of
the University of
Lille's registrar's
office** webinar

Pierre Boulet answers the question "[Why use blockchain technology for diploma dematerialization projects within the University?](#)"

"Regarding the technology to be used, we started investigating and observing the market in 2018. It turns out that blockchain technologies fully meet our needs, particularly in terms of [security](#), [non-forgery](#) of diplomas, and their [durability](#) over time.

There was also the question of whether diploma validity could be [verified by anyone](#).

Decentralized technologies make it easy to validate these diplomas issued by a large number of stakeholders, in standard formats. Therefore, the European Blockchain Partnership identified this as the first use case to be implemented. Our diplomas will be published tomorrow on the EBSI European blockchain, which is not yet in production. We are working on it, within the framework of the fr.EBSI project.

Using BCdiploma technology, we have been issuing our credentials on the Avalanche blockchain since 2021, and students appreciated the sharing method."

Refer to the chapter "A French and European vision of blockchain" of the White Paper "[Blockchain technologies for the public sector](#)" published by the University of Lille to get a more general perspective on the blockchain.

For more general considerations on the use of blockchain in the context of academic certificates, please refer to the article by Vincent Langard, CTO of BCdiploma: "[Digital Credentials: why blockchain is the new standard](#)".

What about energy consumption?



Compliance with the highest standards in terms of energy footprint is one of the prerequisites of the Dem-Attest-ULille project. The solution used for the issuance of digital certificates, namely BCdiploma, can work with several blockchains... the question was which one?

An overview of the framework can be found in Pierre Boulet's article, [Energy consumption of blockchain technologies \(fr\)](#):

Some public blockchain technologies, such as Bitcoin and Ethereum PoW (proof of work) historical version, consume excessive amounts of energy. This energy consumption is due to the consensus algorithm used: proof of work (PoW).

New consensus algorithms have appeared, offering a different compromise between security, decentralization, and energy consumption. Ethereum's planned migration to proof-of-stake (PoS) will be an important step towards less energy-intensive blockchain technologies.

This migration was successful in 2022, with [energy gains of over 99%](#).

Lille University has chosen to deploy its diploma certificates on the Avalanche blockchain, which operates on a proof-of-stake (PoS) protocol.

We can estimate, based on [the latest work](#) on the consumption of public PoS blockchains, that the carbon footprint of the emission of a certificate by the University of Lille is about 0.025g of CO2... compared with an average of 4g for an email without attachment.

Digital Credentials design

Bilingual certificates

To provide immediate added value to students wishing to work abroad, the working group decided very early on to issue the digital certificates in a bilingual French and English version.

This resulted in a comprehensive translation of the University's entire training program, which is presented in appendix.

Texts, titles, and visuals of the certificates

In conjunction with the University's departments, the working group has validated all the wording and terms of the certificates. The communication service of the university was involved in designing the new "visual" for the digital diploma certificates.

Below is the final work:



Sending Digital Credentials to students

This mailing is done automatically after the digital certificates are issued. Here is the message and documentation sent to students:



Hello,

I am pleased to send you
your digital certificate of completion for the 2020/2021 diploma.

It is tamper-proof, can be viewed online and can be sent to a recruiter or added to
Your profile on your professional social network.

This certificate is personal, so make sure to keep your URL link.

[VIEW AND SAVE MY CERTIFICATE](#)

For more information on how you can use your certificate, please follow [this link](#).

Remember to activate your account on www.lilagora.fr, the professional network of the
University of Lille with more than 35,000 members and 20,000 job offers.

Once again, congrats on your graduation!

Régis BORDET

President of the University of Lille

Any question about your digital credentials? Please contact the University by [clicking here](#).
This certificate has been issued in compliance with the General Data Protection Regulation.

If you have any questions about this, please [visit this page](#).

Change management 1/2



Tony Delettrez

Faculty of Legal,
Political and Social
Sciences

Assistant Director
of Support Services

October 22, 2021
**The digital
transformation of
the University of
Lille's registrar
office** webinar

The registrar of the Law department at the University of Lille (Faculty of Legal, Political and Social Sciences) is the pilot department that participates in all working groups.

This department is responsible for testing all deployments before they are implemented across the university. Thus, they are responsible for disseminating information and training all other university departments.

"We were indeed quickly associated with this project about a year ago, and the Faculty of Legal, Political and Social Sciences wished to participate, cooperating closely with the registrar's office.

The Faculty has approximately 8,500 students. Every year, we have about 1,300 graduates from bachelor's programs, approximately 1,000 graduates from master's programs, and a few hundred graduates from university programs. There are 3 Bachelor's degrees and 12 Master's degrees, with 40 academic career options.

With our expertise on APOGEE, the university's SIS software, we are able to participate in this blockchain project reliably and accurately.

The wide variety of academic career options affects our daily work as well as the management of the numerous paper files in our departments.

Archiving these documents presents a major challenge.

As a result, it is essential to begin digitizing their records. Blockchain technology allows us to digitally store certificates indefinitely without the need to physically store them."

Change management 2/2



Tony Delettrez

Faculty of Legal,
Political and Social
Sciences

Assistant Director
of Support Services

October 22, 2021
**The digital
transformation of
the University of
Lille's registrar's
office** webinar

"As with the registrar's office, the teams are frequently asked to respond to a variety of requests. Responding to these requests represents a significant workload.

The digitalization of certificates will help to reduce this number of requests, as students will now have access to their certificates online.

As a result of digitalization, we are able to make documents available to students in their own digital workspaces, and our archive management has been simplified.

Support for the registrar's office teams will be provided in the first half of 2022. I represent a department that will be required to work with data beginning in 2020/2021.

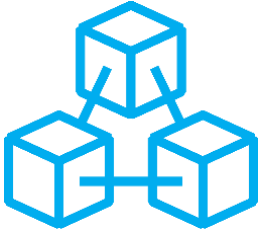
As a result, I will have to train my colleagues in order to establish a procedure to identify which certificates can be generated and when. The objective is to reduce time as much as possible when issuing certificates. Ideally, the certificates should be created as soon as the decision of the exam board is made.

The student would then benefit greatly, as they would be able to use their certification as soon as the exam board decision is made. We will need to assist the teams in issuing certificates and revoking them if necessary.

Our continuous improvement process must involve all departments, as we have been doing for several months, in order to optimize it.

It is with much optimism that we look forward to this necessary progress."

Data law and GDPR compliance



With the first release of blockchain credentials in 2019, the project group conducted an in-depth study of the impacts of using blockchain and BCdiploma technology with the University of Lille's Data Protection Officer (DPO) team.

A very positive review of the service was given by the University's DPO team, which highlighted the benefits provided by the overall architecture of BCdiploma.

The service is provided without storing any historical data on BCdiploma's servers.

The result of this work is twofold:

- A subcontracting agreement has been signed for the processing of personal data. In the appendix, we have attached this agreement.
- The following information page has been published for students receiving the digital certificates: <https://www.univ-lille.fr/donnees-personnelles/etudiants/diplome-et-certificat>

Please refer to the following articles for general information regarding blockchain and GDPR:

- [Blockchain certificates, probative value and GDPR](#)
- [Is blockchain compliant with the GDPR?](#)

Integration and data flow



The following is an overview of the data flow:

1. The data of the certificates is ready to be issued and exported from APOGEE (University SIS) and stored in a dedicated database of the university, which also hosts the business application available in the E.N.T. (University Digital Workspace).

This procedure is described in the appendix.

2. When the registrar manager sets it in their E.N.T. business interface, they are sent via API to BCdiploma, which:

- Encrypt the data;
- Deposit them on the blockchain;
- Generate a unique link for each certificate;
- Returns the generated certificates via API.

This processing is done overnight.

3. When the return flow is received, the University automatically sends an email to each student, and keeps a record of the issues for the registrar's office.

In addition, the university has the ability to retrieve the entire issuance history and permanently deleting it from BCdiploma servers:

this history is not required for the proper functioning of the digital certificates, since they read the data directly from the blockchain.

[Click here](#) to learn more about BCdiploma's blockchain solution.

Student satisfaction survey



Please find the complete survey of the first students to receive a degree certificate in the appendices.

We will note at the end of this survey that the students are extremely satisfied with the final digital certificate. As a matter of fact, 76% of them anticipate using this digital certificate in the future.

Digital certificates have been designed with several features available to students. Following is a list of these features:

- **Presentation on smartphones:** certificates are designed to fit the screen of the phone and are easily readable.
- **Sharing on social networks:** certificates can be shared on social networks such as LinkedIn, Twitter and others.
- **Sharing a link:** it is possible to share certificates quickly by sending a link, whether through email, an application platform, or other means.
- **Proof of authenticity:** the certificate has a native proof of authentication via its link, which is verified using blockchain technology.
- **PDF with QR Code:** the certificate has a QR Code directly integrated in the PDF version that allows the verification of its authenticity by scanning or clicking on it.
- **Multilingual certificate:** the certificate has a directly integrated French or English-language diploma presentation feature.

Favorite features for students are, in order:

1. Multilingual certification
2. Proof of authenticity
3. PDF with a QR Code
4. Presentation on Smartphone
5. Sharing a link
6. Sharing on social networks

The Dem-Attest-ULille project

Working Groups (WG)

In total, since January 2021, this cross-functional project has been involving more than 25 people from 5 different departments of the university. In the following section of the White Paper, you will find the results and deliverables of the different working groups (WG).

Project monitoring

Perrine de Coëtlogon, University of Lille

Luc Jarry-Lacombe, co-founder of Blockchain Certified Data and CEO of BCdiploma

With the support of Pierre Boulet, Vice-President of Digital Transformation at the University of Lille

IT developments

Teddy Bourgois, Head of FTLV Office - research Integration and operation department General Management of the Digital Department

"Process and Quality" WG Working group

Bénédicte Gautier, Director of the Registrar's Office

Imane Chaabi, Assistant Director of Registrar's Office

Julien Watteuw, Quality, Communication & Career Development Officer, Registrar's Office Department

Tony Delettrez, Faculty of Legal, Political and Social Sciences, Assistant Director of Support Services

"Models & Data" WG working group

Members of the previous "Process and Quality" group, and :

Eric Fouré, Assistant to the Data Protection Officer, Personal Data and Archiving Department

Niniane Beauchamp, Project Manager - Apogee Functional Correspondent of the Registrar's Office Department

"Business interface within the University of Lille" WG working group

The members of the "Process and Quality" working group and the IT team of David Darras, Head of the Digital Applications Development Office, Information System Studies and Development Department of the Digital Department: Philippe Laporte and Sophie Quenton.

Results of the "Process and quality" WG



The objective of this working group is to [think globally about the introduction of a new process for issuing certificates](#) of completion within the University, and to ensure the quality of the service provided to students as well as the improvements made to the registrar's office.

The work began with the drafting of an inventory of the current process for managing certificates of completion within the APOGEE software, and then defined a target process to be implemented with the new blockchain technology used.

Particular attention was paid to quality, for issues of:

- Data law and GDPR compliance,
- "Design" of the certificates,
- Quality of service and communication with students,
- Internal and external communication,
- Change management within the University of Lille.

State of play: how the PDF certificates of completion were issued since APOGEE (university's management software) 1/2



The central registrar's office is responsible for framing the procedure. Implementation is the responsibility of each registrar's office in each department.

A manager of the registrar's office (from a department registrar's office) carries out the following actions once the jury's grades and results are known and recorded in APOGEE (at the latest on the "jury closing date" - a date communicated in the University's general calendar, approved by the CFVU):

1. The manager launches the "Issue calculation" (verification of external administrative conditions) for a given set of graduates (defined by a diploma code/version). Note: there are exceptions, in fact, within the PONT de BOIS campus, the launching of the issue calculation and the completion of the decisions are ensured by the registrar's office (and not by the department).
2. Then the decision is "completed" ($A > T$, $E > T$), for a given set of graduates (defined by a session, a diploma code/version of diploma - see "APOGEE Training" document (IP Training results VER 4-4.pdf).
3. The department informs the students of their results and grades in view of a possible dispute. The file is provided by APOGEE (searchable and cancellable extraction) and transmitted to the student mainly via the E.N.T. (digital workspace) - See document "Publication of results on E.N.T. based on an Apogée extraction" (publication_ENT_V7_official.pdf). The posting dates are set on the ENT (there is a global regulatory deadline including the jury's answers).
4. The manager sometimes has to add data or make corrections: to do this, he repeats steps 1. and 2. after having "declassified the decisions" ($T > A$) and modified/added results. These modifications are not currently traced in the information system, and can lead to modifications in the admissions.

State of play: how the PDF certificates of completion were issued since APOGEE (university's management software) 2/2



5. The manager is then able to edit the "certificates of completion" in APOGEE and send them to the students. This action is not currently traced in the information system.

6. In exceptional cases, the manager may have to make new corrections, and will then repeat steps 4 and 5 for the affected certificates.

Compliance with the legal requirement to send certificates of completion 3 weeks after the exam board meeting is not measurable: these dates are not in APOGEE and the issuing of certificates is not tracked.

The actors in the process can be described as follows: A. Central registrar's office; B. Registrar's office of the departments, including a head of the registrar's office, assistants, an administration office editing the minutes of the decisions validated by the exam board, and managers of the registrar's office. They are responsible for one or more years of study or one or more diplomas.

Today, the manager of the registrar's office publishes and sends the certificates of completion, under the responsibility of the person in charge of the registrar's office in the department.

Target process for managing digital credentials



The working group agreed on a set of business rules for the new paperless process:

The process will allow the academic services manager of a department to initiate the issue and automatic sending of certificates of completion (for each stage and diploma version) and, if necessary, to proceed to the revocation of these certificates.

The process will allow the central registrar's office to monitor all the actions of the departments, and, if necessary, to be able to launch actions directly.

A digital certificate of completion can be issued when a set of parameters are verified in APOGEE. Here are the main ones:

- The student has passed and there is no administrative hold on their situation;
- The decision is made;
- The parameters of the titles, mentions and details of the diploma are well set up in APOGEE;
- The mention "average" being treated inconsistently within the University (sometimes present, sometimes hidden on the certificates), it will not be displayed on the digital certificates.

To give you access to all the parameters, the extraction request from APOGEE is published in the appendix.

The course of the issue will be as follows:

1. A manager sets that the issuance of certificates for a diploma and stage version can begin.
2. Every night, diploma certificates are automatically issued in digital format and sent by email to students.

All of the issues are tracked and made available to the managers and the central registrar's office. The latter may, if necessary, proceed with the temporary or permanent revocation of the digital certificate.

Results of the "Models and Data" WG



The goal of this workgroup is to **complete the definition of the digital credential and its data model**, and to implement it in the BCdiploma blockchain environment.

The work began with a census of all the models of certificates of completion issued by the various departments from APOGEE, with the objective of achieving unified management of the data model.

Here is an example of a PDF document edited from APOGEE:

UNIVERSITE DE LILLE

ATTESTATION DE REUSSITE AU DIPLOME

Le Président atteste que
la LICENCE PROFESSIONNELLE DROIT, ECONOMIE, GESTION
MENTION MANAGEMENT ET GESTION DES ORGANISATIONS
Parcours type MANAGEMENT ET CONDUITE DE PROJETS EN PME-PMI,
a été décernée à
Madame [REDACTED]
née le 14 août [REDACTED] à [REDACTED]
au titre de l'année universitaire 2019/2020 avec la mention Assez Bien,
ce qui lui confère 180 crédits européens

Fait à LILLE, le 28 mai 2021

[Signature]

Jean-Christophe CAMART

N° étudiant : [REDACTED]
Avis important: Il ne peut être délivré qu'un seul exemplaire de cette attestation. Aucun duplicata ne sera fourni.

The unified data model

The following is the data model selected by the working group to cover all of the University's graduation certificates, regardless of the degree under consideration. Two attribute types are identified:

- **Technical:** This is the metadata of the certificate allowing the proper functioning of the management rules and APIs.
- **Certified on the blockchain:** These are certified data and displayed on the digital certificate. They are stored on the blockchain.

Attribute	Type	Content
ID	technical	Unique identifier of the certificate
Email	technical	Email Univ. Lille
Email_contact	technical	Contact email
COD_CMP	technical	Department Code
LIB_CMP	technical	Department title
COD_DIP	technical	Diploma code
COD_VRS_VDI	technical	Diploma version code
COD_ETP	technical	Diploma Stage Code
COD_VRS_VET	technical	Diploma Stage version code
CODE_INT	technical	Type of degree (Bachelor, Master...)
COD_SIS_VDI	technical	Sise code
TEM_SANTE	technical	Control to identify the "health" careers
COD_ETU	technical	Student's APOGEE number
NUM_EUR_ETU	technical	Student's European ESI number
INTITULE_DIP	certified on the blockchain	Title of the degree
DOMAINE_DIP	certified on the blockchain	Field of the degree
MENTION_DIP	certified on the blockchain	Mention in the diploma
PARCOURS_DIP	certified on the blockchain	Course of the degree
FIRSTNAME	certified on the blockchain	First name
LASTNAME	certified on the blockchain	Last name
BIRTHDATE	certified on the blockchain	Date of birth
BIRTHPLACE	certified on the blockchain	City of birth
ZONE	certified on the blockchain	Country of birth
INE	certified on the blockchain	INE number
ACADEMICYEAR	certified on the blockchain	Academic year
BEGINDATE	certified on the blockchain	Start date of validity
MENTIONSTUDENT	certified on the blockchain	Honors of the degree
CREDITSSTUDENT	certified on the blockchain	European credits obtained
CERTIFDATE	certified on the blockchain	Date of issue of certificate number

The certificate models 1/3



A reference model and variants

Based on the unified data model, the working group defined 5 digital certificate models or matrices to cover all of the University's degrees.

Reference model

This model is used to issue the vast majority of certificates, such as Bachelor's degrees, Master's degrees, University degrees, etc.

Here is the modeling of it, including the variable data, for example, the student's name `^LASTNAMEx`:



Certificate of completion of the diploma

The President certifies that the following degree


`^INTITULE_DIPx ^DOMAINE_DIPx`
(`MENTION_DIP==?`|Specialty) `^MENTION_DIPx`
(`PARCOURS_DIP==?`|Pathway) `^PARCOURS_DIPx`

was awarded to

`^FIRSTNAMEx ^LASTNAMEx`
Date of birth: `^BIRTHDATEx`
Place of birth: `^BIRTHPLACEx (^ZONEx)`
INE: `^INEx`

for the academic year `^ACADEMICYEARx`
(`MENTIONSTUDENT==?`|with) `^MENTIONSTUDENTx`
(`CREDITSSTUDENT==?`|with) `^CREDITSSTUDENTx` (`CREDITSSTUDENT==?`|European credits ECTS)

Issued in LILLE (France), on `^CERTIFDATEx`



Régis BORDET
President of the University of Lille - France

Certificate translated by the University of Lille. Official version issued in French.

The certificate models 2/3

Secondary models

For some specific degrees, variants allow to display :

- Option or Specialty instead of Honors ;
- Option instead of Course.

Specific model for the CLES (HIGHER EDUCATION LANGUAGE SKILLS CERTIFICATION)

For this diploma, we have worked specifically to allow direct consultation of the Common European Framework of Reference for Languages (CEFR) from the online certificate:



Certificate of completion of the diploma

The President certifies that the following degree

^INTITULE_DIP^ ^DOMAINE_DIP^
(MENTION_DIP==?|Specialty) ^MENTION_DIP^
(PARCOURS_DIP==?|Pathway) ^PARCOURS_DIP^

was awarded to

^FIRSTNAME^ ^LASTNAME^
Date of birth: ^BIRTHDATE^
Place of birth: ^BIRTHPLACE^ (^ZONE^)
INE: ^INE^

for the academic year ^ACADEMICYEAR^
(MENTIONSTUDENT==?|with) ^MENTIONSTUDENT^
(CREDITSSTUDENT==?|with) ^CREDITSSTUDENT^ (CREDITSSTUDENT==?|European credits ECTS)

Issued in LILLE (France), on ^CERTIFDATE^



Régis BORDET
President of the University of Lille - France

Certificate translated by the University of Lille. Official version issued in French.



Common European Framework of Reference for Languages (CEFR)

PROFICIENT USER	C2	Can understand with ease virtually everything heard or read. Can summarise information from different spoken and written sources, reconstructing arguments and accounts in a coherent presentation. Can express him/herself spontaneously, very fluently and precisely, differentiating finer shades of meaning even in more complex situations.
	C1	Can understand a wide range of demanding, longer texts, and recognise implicit meaning. Can express him/herself fluently and spontaneously without much obvious searching for expressions. Can use language flexibly and effectively for social, academic and professional purposes. Can produce clear, well-structured, detailed text on complex subjects, showing controlled use of organisational patterns, connectors and cohesive devices.
INDEPENDENT USER	B2	Can understand the main ideas of complex text on both concrete and abstract topics, including technical discussions in his/her field of specialisation. Can interact with a degree of fluency and spontaneity that makes regular interaction with native speakers quite possible without strain for either party. Can produce clear, detailed text on a wide range of subjects and explain a viewpoint on a topical issue giving the advantages and disadvantages of various options.
	B1	Can understand the main points of clear standard input on familiar matters regularly encountered in work, school, leisure, etc. Can deal with most situations likely to arise whilst travelling in an area where the language is spoken. Can produce simple connected text on topics which are familiar or of personal interest. Can describe experiences and events, dreams, hopes & ambitions and briefly give reasons and explanations for opinions and plans.
BASIC USER	A2	Can understand sentences and frequently used expressions related to areas of most immediate relevance (e.g. very basic personal and family information, shopping, local geography, employment). Can communicate in simple and routine tasks requiring a simple and direct exchange of information on familiar and routine matters. Can describe in simple terms aspects of his/her background, immediate environment and matters in areas of immediate need.
	A1	Can understand and use familiar everyday expressions and very basic phrases aimed at the satisfaction of needs of a concrete type. Can introduce him/herself and others and can ask and answer questions about personal details such as where he/she lives, people he/she knows and things he/she has. Can interact in a simple way provided the other person talks slowly and clearly and is prepared

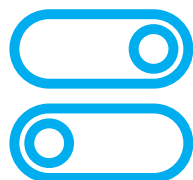
The certificate models 3/3

A lookup table is run by the University to allow for referral to the correct certificate model upon issuance, managed by API.

Here is an excerpt:

Type of degree	Certificate model identifier
A.U.E.C	0X03 - Primary model
C.C.O.P.	0X03 - Primary model
C.C.O.T.	0X03 - Primary model
C.E.S.C.D.	0X03 - Primary model
CERTIFICAT2	0X03 - Primary model
D.E.D.C.D	0X03 - Primary model
D.U.E.C	0X03 - Primary model
D.U.F.L.	0X03 - Primary model
D.S.N.	0X03 - Primary model
D.U.	0X03 - Primary model
D.U.E.C	0X03 - Primary model
LICENCE	0X03 - Primary model
LICENCE-PRO	0X03 - Primary model
MASTER	0X03 - Primary model
C2I	0X03 - Primary model
CAPACITE	0X03 - Primary model
D.E.U.S.T.	0X03 - Primary model
LICENCE-PRO	0X03 - Primary model
D.E.D.P.	0X04 - Variant of the primary model
D.E.S.	0X04 - Variant of the primary model
D.E.S.F.	0X04 - Variant of the primary model
D.F.A.S.M	0X04 - Variant of the primary model
D.F.A.S.P	0X04 - Variant of the primary model
D.F.G.S.M	0X04 - Variant of the primary model
D.F.G.S.P	0X04 - Variant of the primary model
TITRE_ING_CMP	0X05 - Variant of the primary model
D.U.T.	0X05 - Variant of the primary model
D.A.E.U.	0X06 - Variant of the primary model
CLES	0X07 - Specific model for the CLES

Results of the WG "Business interface within of the digital workspace of the University"



The objective of this working group is to carry out the [development of a business interface in the E.N.T of the University](#) (Digital Workspace), in order to delegate the task of issuing digital certificates of completion to each department according to the exam board schedule.

This interface completes the back-office provided by BCdiploma by allowing the integration of all the rules of the registrar's office, and to ensure internal traceability of the actions of the various departments. It is worth remembering that the University of Lille has more than 80,000 students.

This interface also allows the consultation of issued certificates and their revocation.

A University IT team specialized in the development of internal applications participates in this group and carries out the developments.

This application will be deployed in production for the University's Law department in the first half of 2022, and then extended to all departments.

The source code of this application, as well as the tables and treatments implemented by the University of Lille, will be published on the University's GitHub with an open-source license, thus allowing its reuse by other universities.

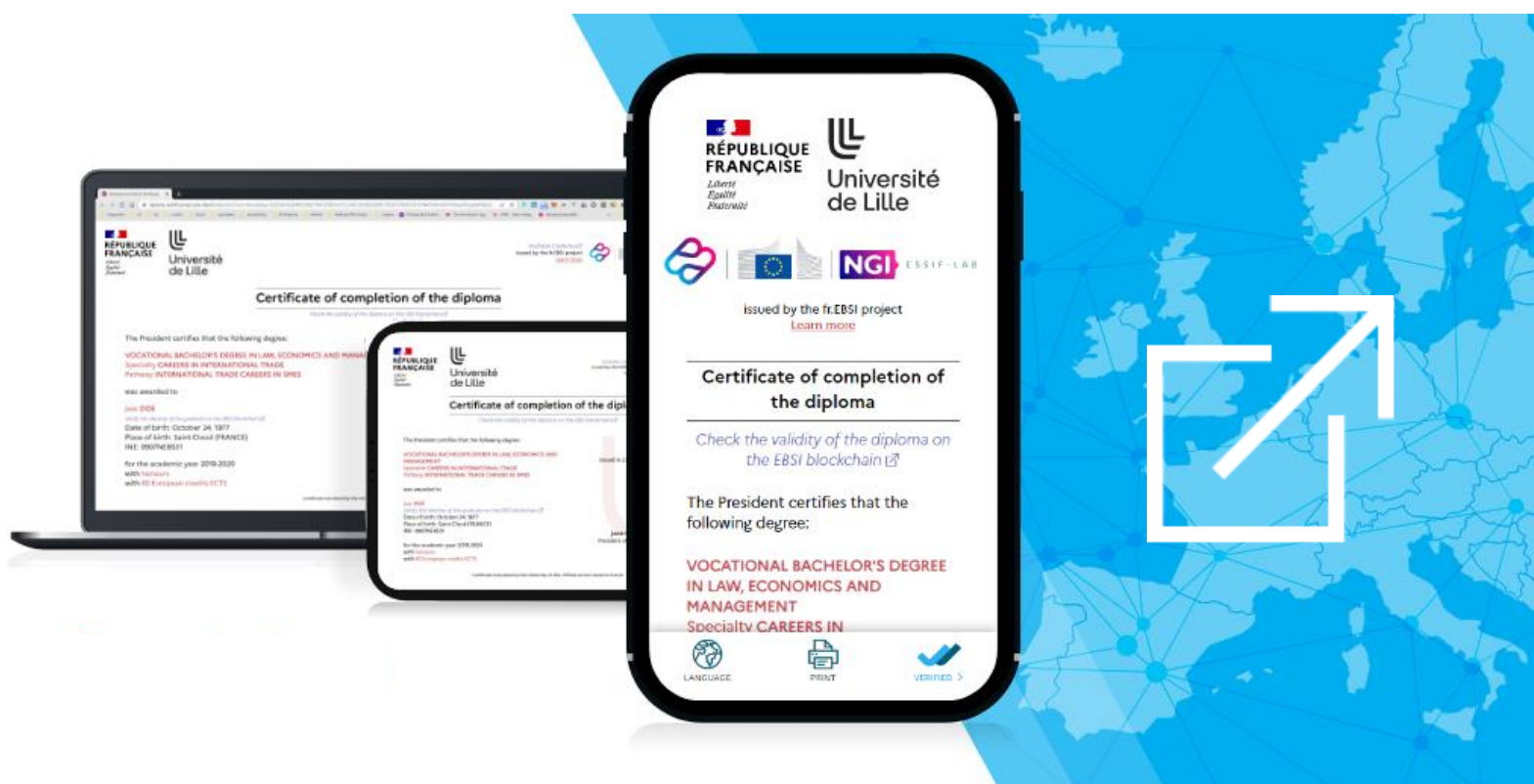
Appendices - Dem-Attest-ULille and the European project EBSI 1/2

The University of Lille is leading the French [project fr.EBSI](#), which aims at issuing [diplomas in the EBSI](#) - European Blockchain Service Infrastructure - blockchain ecosystem, and Blockchain Certified Data - BCdiploma is the technical operator.

The work presented above is a preliminary step to the large-scale deployment of the University of Lille's diplomas on the EBSI blockchain. More broadly, it allows setting the basis of a generic solution for issuing digital certificates respecting the new European standards, called "Verifiable Credentials", embedding decentralized student identifiers.

Within fr.EBSI, BCdiploma has deployed interfaces to store the certificates produced on the EBSI blockchain, with the support of decentralized student identities and the University of Lille.

You will find [here](#) the complete report of the French project fr.EBSI 2021/2022: "[Verifiable credentials on the EBSI blockchain: everything you need to know about fr.EBSI project](#)".



Appendices - Dem-Attest-Ulille and the European project EBSI 2/2

This online verification service will check whether a certificate complies with the expected format and whether all signatures are valid concerning the European Commission's trust registries (EBSI blockchain).

The second deliverable, produced by Blockchain Certified Data - BCdiploma and co-funded by NGI-ESSIF Lab and the i-Nov program, will be [an open-source student wallet of self-sovereign identity allowing to keep and present the obtained diplomas](#). This wallet will be deployed at the University of Lille. It paves the way for many projects focused on student identity.

[Here](#) you will find a description of the NGI program deliverable, the student wallet.

The screenshot displays the 'mywallet.cloud' interface. At the top, there are links for 'My wallet' and 'Preferences', and a 'Profile' icon. The main section is titled 'My wallet > Credentials' and 'Select credentials to share'. It shows three credential cards: 'Leaston university Master' (dated 15/11/2021), 'Leaston university Bachelor' (dated 15/11/2020), and 'Cool bank BANK ID' (dated 15/05/2021). Each card has a 'View' button and a checkbox. A green button at the bottom says 'Share 2 selected credentials'. Callout boxes provide additional information: 'Web wallet (can be exported on any other wallet)', 'Claim credential from any EBSI issuer', '2FA access with any email or smartphone', 'Ensure validity with the included verification service', and 'Share EBSI Verifiable Presentation'.

Web wallet
(can be exported on any other wallet)

Claim credential from any EBSI issuer

2FA access with any email or smartphone

mywallet.cloud My wallet Preferences Profile

My wallet > Credentials

Select credentials to share

Leaston university Master 15/11/2021 View ☒

Leaston university Bachelor 15/11/2020 View ☐

Cool bank BANK ID 15/05/2021 View ☒

Share 2 selected credentials

Ensure validity with the included verification service

Share EBSI Verifiable Presentation

Appendices - History of the project 1/2



The Dem-Attest-ULille project, launched in early 2021 by the University of Lille, is part of a threefold process:

- The work initiated by the [GTNum 8 Blockchain Education France \(fr\)](#) Working Group, funded by the Ministry of National Education, Youth and Sports, Directorate of Digital Education;
- The digital transformation projects of the [University of Lille's](#) registrar's office;
- [The French governmental project fr.EBSI](#), funded by the European Blockchain Partnership & EBSI - European Blockchain Service Infrastructure. This project aims at deploying digital credentials according to the new standards enacted by the W3C "Verifiable Credentials", based on the blockchain trust architecture deployed by the European Commission.

During its research, the Blockchain Education France working group has identified that the project most supported internationally involves work on digital certificates or credentials to reinvent the way (i) institutions issue learning outcomes (diplomas and other credentials), (ii) students and then citizens retrieve them, and (iii) employers and other training organizations verify them, throughout the lifecycle.

Blockchain Education France is therefore launching during 2019, with the company Blockchain Certified Data, publisher of the BCdiploma solution, a first pilot project aimed at experimenting these "blockchain digital credentials" for a small population of students.

At the University of Lille, the CLES team, the Certificate of Competence in Higher Education Languages, supported by the University's registrar's office, succeeded in issuing a first batch of 248 blockchain certificates in a few months.

Appendices - History of the project 2/2



Feedback from students, recruiters and business teams is [promising](#): they all sense a high value-added service, both in terms of the service provided and the potential for the digital transformation of administrative processes.

The project to extend the system to all of the University's diplomas is taking shape, and was signed by the Executive Committee in September 2020, followed by an innovative public contract with Blockchain Certified Data - [BCdiploma](#) in January 2021.

Time line

[2019/2020](#): pilot project funded by Blockchain Education France - GTNum 8 Blockchain Education France Working Group, resulting in the issuance of 248 digital certificates for the CLES diploma - CERTIFICATE OF COMPETENCE IN HIGHER EDUCATION LANGUAGES of the University of Lille.

[2021](#): Launch of the Dem-Attest-ULille project in January

[2022](#): The first semester of 2022 is dedicated to the operational deployment of the business interface allowing the University's registrar's office to be autonomous in managing the issuance of certificates.

[2023 & 2024](#): Participation in the European project VECTOR - EBSI for the integration of decentralized identity functionalities.

Appendices – University Press Release



February 10, 2022,

20 000 digital diploma certificates issued by the University of Lille.

More than three-quarter of the diplomas and certificates issued by the university in 2020 were issued as digital certificates with «probative value».

As announced in May 2021, the University of Lille is the first to achieve a real digital transformation of its academic department on this scale by issuing its students a digital certificate of completion of their degree or certificate anchored in a low-energy blockchain.

The student receives a permanent link to a tamper-proof and verifiable web document, translated into English, which they can present to an employer, an association or for further study, in France and abroad, allowing the authenticity of the diploma to be verified.

Carried out in collaboration with BCdiploma and the GIP Renater, this digital transformation project was implemented as part of the European Blockchain Partnership (EBP). The objective is to allow all national and European higher education institutions to issue these certificates by relying in particular on the experience acquired by the University of Lille as part of the European government project fr.EBSI.

Since January 2022, before the implementation in all the university's components, the Faculty of Legal, Political and Social Sciences is the pilot for the launch of digital certificates « on the spot », as the juries deliberate.

Find the approach followed and the results in the white paper.

WHITE PAPER ON BLOCKCHAIN TECHNOLOGIES FOR THE PUBLIC SECTOR :

<https://blockchain.univ-lille.fr/>

MAY 2021 PRESS RELEASE :

[Digital certificates for all
graduates of the University of
Lille](#)

PRESS CONTACT

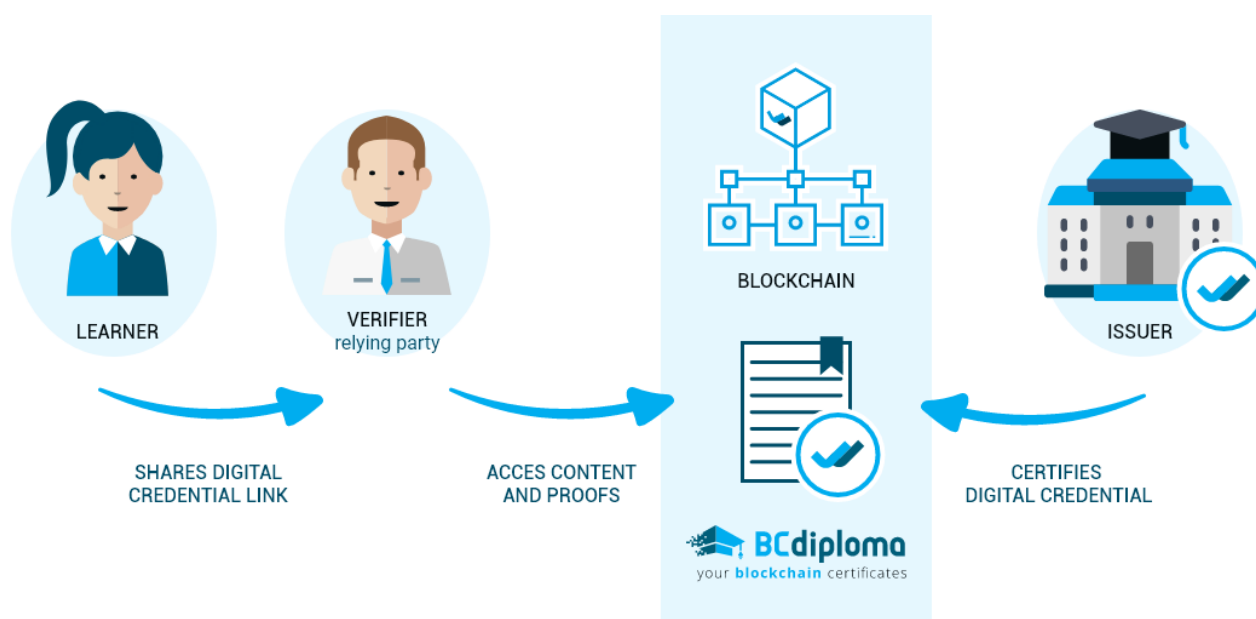
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Appendices - Complementary links

1. Student satisfaction survey [↗](#)
2. Outline of the PERSONAL DATA PROCESSING SUBCONTRACT AGREEMENT signed between the University of Lille and BCdiploma [↗](#)
3. APOGEE data extraction request [↗](#)
4. Table of translations of the training offer (excerpt) [↗](#)

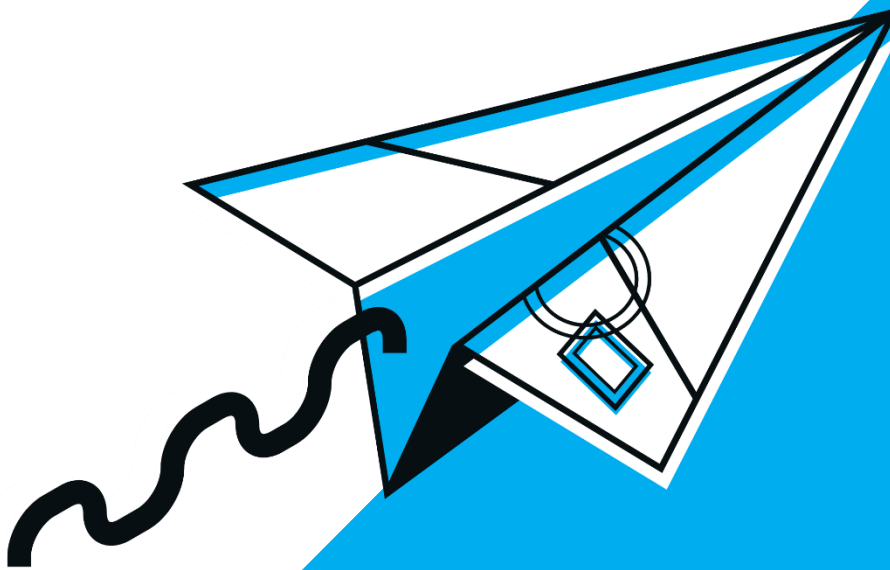
About BCdiploma

BCdiploma is a blockchain application for issuing 100% digital and tamper-proof certificates and is already used by more than +170 institutions in +21 countries.



[Learn more about BCdiploma](#)

Dem-Attest-ULille



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