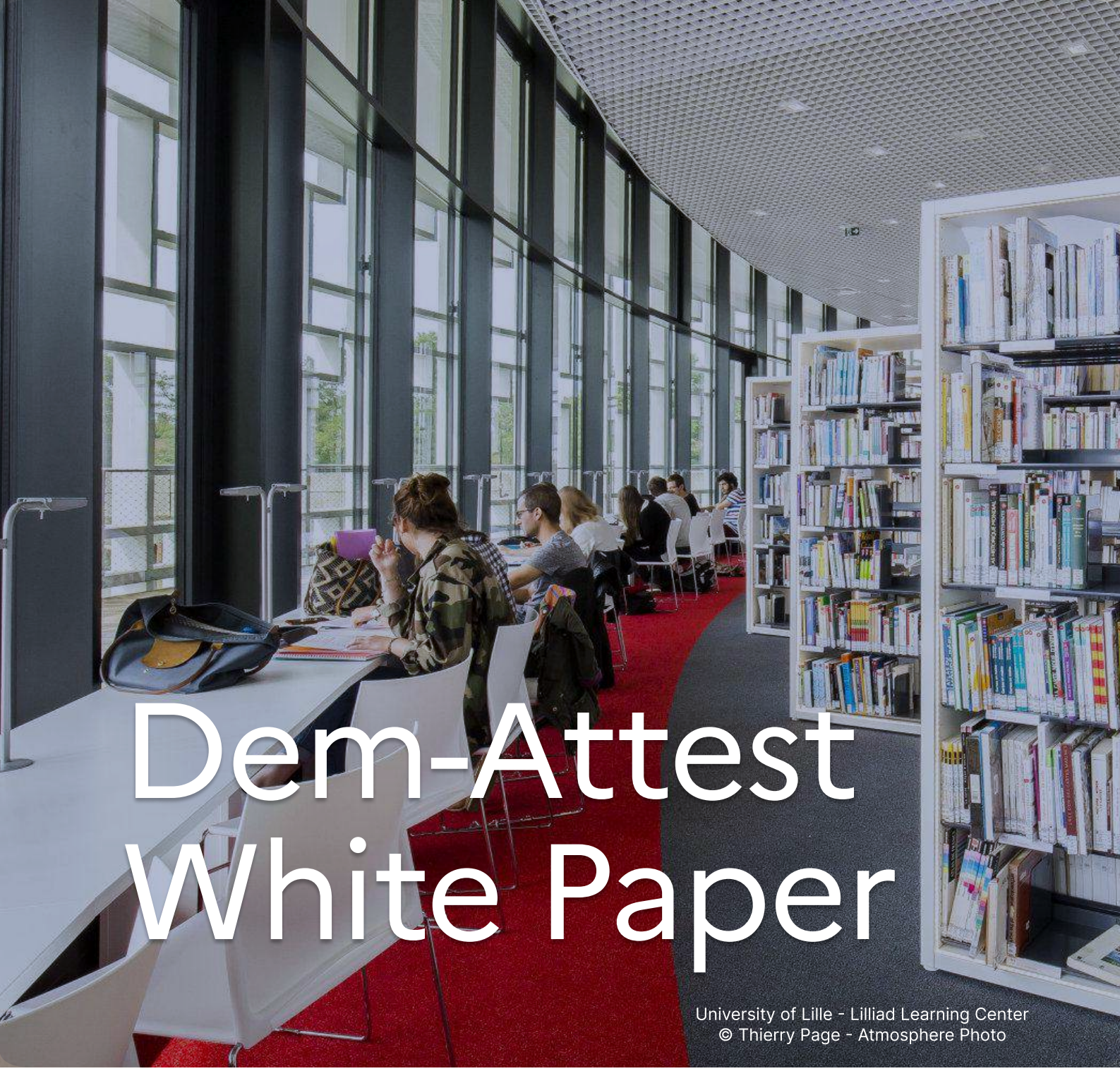

Dem-Attest White Paper

University of Lille - Lilliad Learning Center
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Digital Diploma Credentials at University of Lille - France

MARCH 2025

BCdiploma
blockchain digital credentials

Université de Lille

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Authors & Contributors

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A Global First

in academic credentialing empowering 80,000 students

The University of Lille is the first public university in the world to automatically issue digital diploma credentials to all its graduates. These digital certificates are bilingual, verifiable, and secured through decentralized technology. This ambitious project, called "Dem-Attest," was developed in collaboration with BCdiploma, enabling the university to redefine diplomas to meet the needs of an increasingly digital, connected, and mobile professional world, in France, Europe, and beyond.

Providing every student with their official certification as quickly as possible, in a shareable format that can be sent to recruiters and social networks in just one click, is not only an innovation but a necessity! Student feedback has been overwhelmingly positive: 81% find the credential useful or highly useful for further studies and employability.

Exploring Verifiable Credentials and Decentralized Identity is a priority for leading global institutions, including the W3C, the Digital Credentials Consortium, the European Commission, and UNESCO.

As a result, the University of Lille is a pioneer in large-scale implementation of verifiable digital documents. The institution aims to leverage this advantage to expand into skills recognition via open badges, joint degree certifications, and the issuance of European digital credentials such as EDCI* and EBSI*, thereby anticipating the evolution of European learning standards such as ELM*. Therefore, the University of Lille has published another White Paper titled "Digital transformation of university certificates for European competitiveness".

Perrine de Coëtlogon

University of Lille | Open Education Global - President of the Board of Directors | National Contact Point for EBSI - European Blockchain Services Infrastructure

*EBSI: European Blockchain Service Infrastructure; EDCI: Europass Digital Credentials Infrastructure; ELM: European Learning Model

A Digital Transformation Led by the Registrar’s Office

Anne Launay

Director of Academic Services, University of Lille

The Dem-Attest project aims to streamline the diploma issuance process through innovation while involving all relevant stakeholders.

The registrar’s offices of faculties and institutes, with over 600 staff members, have been trained in using the application, and students now automatically receive their digital certificates after examination boards.

The project, which has received strong support, allows registrar’s offices to automate the tedious task of printing and mailing certificates while providing students with an innovative, high-quality service.

The bilingual certificate, delivered quickly, serves as a passport for employment and mobility, enhancing the University’s international outreach.

The Registrar’s Office, at the forefront of this modernization effort, has gained new management and support tools for faculties while offering an immediate verification service for recruiters and professionals, who can confirm a certificate’s validity in one click.

The use of blockchain technology has opened new perspectives by providing an "off-campus" service, available worldwide, with no time limitations and full compliance with data protection regulations.

This project, based on traditional diploma issuance processes, can be successfully replicated by other institutions. Moreover, regulations officially recognized the value of dematerialized certificates in 2023 (Ministry of Higher Education and Research circular dated May 7, 2023), further reinforcing the importance of such a project for public higher education institutions.

DEM-ATTEST AT A GLANCE

With 80,000 students, including 10,000 international students from 150 different nationalities, the University of Lille is one of the largest French-speaking universities in the world

THE CHALLENGE The diploma completion certificate was a PDF document generated from the Student Information System by all faculties and institutes of the university, spread across six campuses, and then sent by postal mail.

THE SOLUTION A fully automated issuance and email delivery process for the digital version, with a management interface accessible to each faculty.

The University of Lille has already issued more than **80,000** digital diploma credentials, starting with the 2020 graduates. These digital certificates have been accessed and verified over **206,000** times from more than **160** countries worldwide.

72%

of students are proud of this University of Lille initiative*

81%

of students find the certificate useful or very useful for their mobility*

-7 days

of administrative workload saved per faculty issuing 2,000 diplomas**

* 2024 Quality Survey – 1,381 responses

** FSJPS Faculty – see page 12

More Than A Certificate:

a digital passport for employment and mobility

- Received by email after examination board decisions
- Accessible for life
- Bilingual (French/English)
- Printable, with an integrated QR code
- Compatible with LinkedIn profiles & Lilagora, the ULille alumni network
- Verifiable in one click on the University of Lille website
- Shareable on social media

A Redesigned Diploma

for the digital age & online use

With a responsive display, designed for full-page web viewing, and a modernized layout developed by the University, this bilingual French/English certificate includes all mandatory details while remaining easily verifiable with a single click.

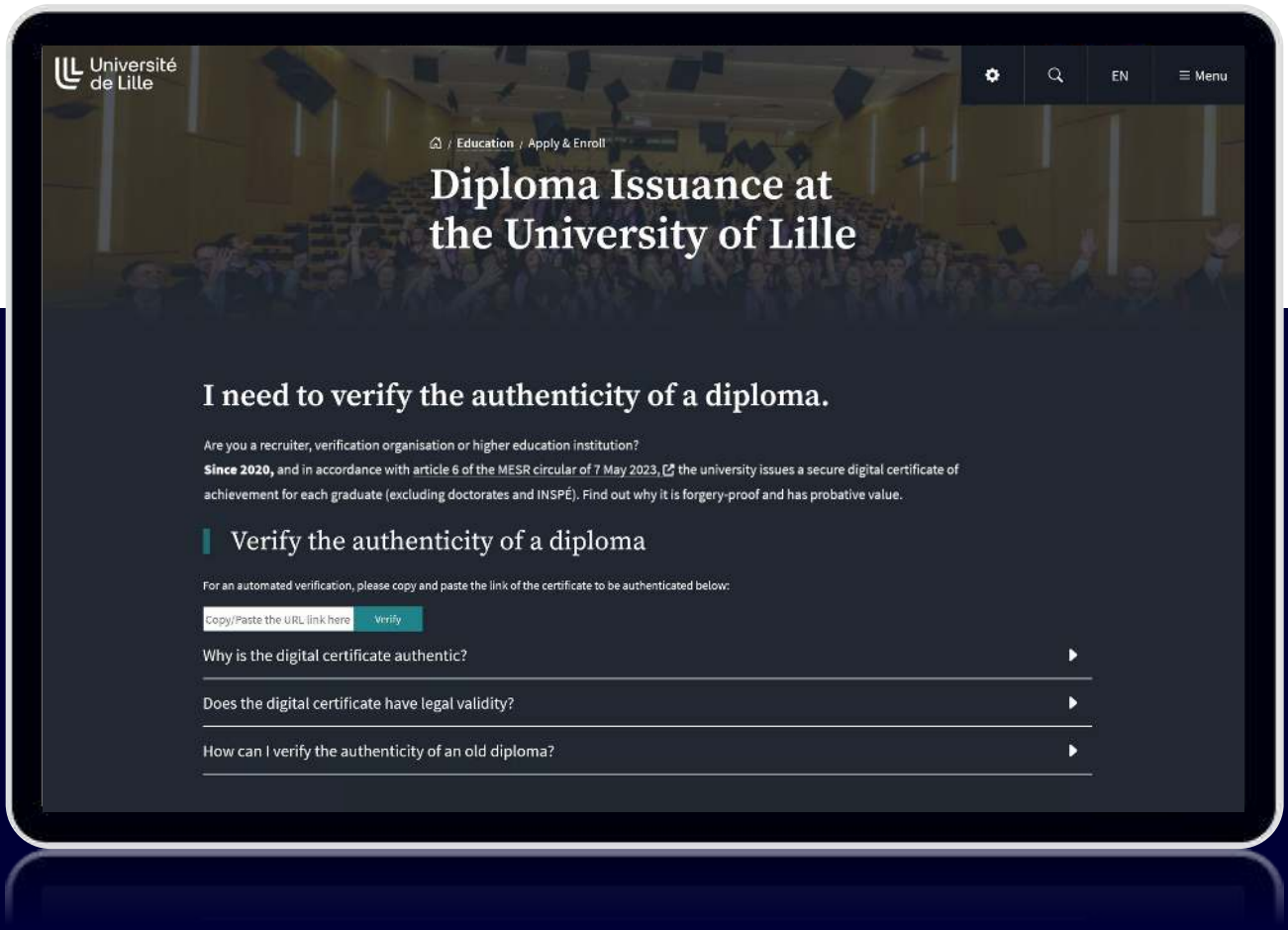
A single template accommodates the unique features of all diploma types, including distinctions, tracks, specializations, credits, and issuance dates.

Built For Recruiters

to verify authenticity

An official University webpage is available for recruiters and diploma verification organizations: by simply copying and pasting the certificate link, they can verify its authenticity.

It also provides essential details explaining why this certificate, when accessed through the University's official domain, is secure and valid for life.



Compliant With Data

protection regulations - GDPR

Special attention was given to GDPR compliance at every stage of the project, in close collaboration with the University's Data Protection Officer team. This included a prior impact assessment, a data processing subcontracting agreement, and student notification.

A dedicated webpage has been published on the University's website outlining the data processing purposes:

(a) The issuance of digital certificates serving as official attestations of academic achievement for diplomas and certificates issued by the University of Lille;

(b) Their distribution via a personal internet link;

(c) The management, authentication, recording, and storage of a trace of these digital certificates within a blockchain infrastructure.

The legal basis for this processing is also specified: the public interest missions carried out by the University of Lille (GDPR, Article 6, § 1, point e.).

The principles of long-term durability and data sovereignty were also prioritized. In this regard, the University highlights the advantages of BCdiploma's blockchain architecture. Notably, no personal or academic data is stored on BCdiploma's servers to provide this service, and it can be maintained indefinitely.

As a result, the University retains full control over student data and ensures the long-term administration of digital certificates within its own digital environment.

BLOCKCHAIN TECHNOLOGY

Why choose this technology for academic digital certificates?

Pierre Boulet

Vice President for Digital Affairs, University of Lille

When deciding on the technology to use, we began exploring and analyzing the market in 2018. It turned out that blockchain technologies perfectly met our needs, particularly in terms of security and long-term reliability.

Another key concern was ensuring that anyone could easily verify the authenticity of diplomas. Decentralized technologies allow for seamless verification of credentials issued by multiple institutions in standardized formats. This is why the European Blockchain Partnership identified this as the first use case to be implemented. Our diplomas will eventually be published on the European EBSI blockchain, which is not yet in full production. We are actively working on this through the EBSI-VECTOR project.

Since 2021, we have been issuing our academic credentials on the Avalanche blockchain via the BCdiploma service, and we have confirmed that students greatly appreciate this method of credential sharing.

For more general insights on blockchain technology, we refer you to the chapter "A French and European Vision of Blockchain" in the White Paper Blockchain Technologies in Public Services, published by the University of Lille.

BLOCKCHAIN TECHNOLOGY

What about energy consumption in the Dem-Attest project?

Meeting the strictest standards in terms of energy efficiency was a fundamental requirement for the Dem-Attest project.

The excessive energy consumption of certain public blockchain technologies, such as Bitcoin or Ethereum in their early versions, is not inevitable! This high energy usage stems from the consensus algorithm employed: Proof of Work (PoW).

Since 2008, new consensus algorithms have been introduced, offering alternative trade-offs between security, decentralization, and energy efficiency.

With Ethereum's migration to the "Proof of Stake" (PoS) consensus algorithm, a significant step was taken towards more energy-efficient blockchain technologies. This transition was successfully completed in 2022, achieving energy savings of over 99%.

As a result, the University of Lille has chosen to use, through the BCdiploma solution, a next-generation blockchain operating with an efficient Proof of Stake (PoS) protocol.

Based on research into the energy consumption of PoS public blockchains, it is estimated that the carbon footprint of issuing a certificate on the blockchain for the University of Lille is approximately 0.025g of CO2*.

"Source: PoS Benchmark Study 2023 - CCRI "Energy Efficiency and Carbon Footprint of PoS Blockchain Networks and Platforms" - Reference Blockchain: Avalanche"

BENEFITS FOR REGISTRAR'S OFFICES

Since 2023, we have been issuing certificates to students within 10 days after examination board deliberations, something that was hardly possible with the paper version

Faculty of Law, Political and Social Sciences (FSJPS)

8,500 students, over 2,000 graduates, 4 Bachelor's degree programs, 13 Master's degree programs (40 specializations), and around 30 academic administrators and program managers.

In 2021 and 2022, the FSJPS served as the pilot faculty, where all implementations were tested and validated.

"Initially, I was unsure whether academic administration teams would adopt the tool… but the opposite happened: they fully embraced it and now issue certificates autonomously in real-time. **The time saved exceeds 7 days per year** for the entire team. The Dem-Attest application has eliminated a low-value administrative task, allowing us to focus on enhancing student services and making staff work more meaningful.

With the support of the May 7, 2023, decree from the French Ministry of Higher Education and Research (MESR) recognizing the validity of digital certificates, we are saving significant time by directing all external diploma verification requests to the University's official page explaining the legal authenticity of our certificates.

Tony Delettrez

Faculty of Law, Political and Social Sciences
Director of Support Services

BENEFITS FOR REGISTRAR'S OFFICES

IAE Lille University School of Management

IAE in numbers: 6 departments, 3,800 students, over 2,100 graduates per year, and around 30 academic administrators.

> "Dem-Attest has personally saved me time, especially during the extremely busy July period. Using our Student Information System, we had to manually select each student to generate their Diploma Completion Certificate in PDF format. With Dem-Attest, a single click is enough to mass-generate certificates that are 100% digital and verifiable. It's a simple and efficient application for everyone: program directors, academic administrators, students, and future employers.

Academic Administrator, IAE Lille University School of Management

BENEFITS FOR GRADUATES

The digital and bilingual format, delivered in a short timeframe, is easy to use for job applications, professional networks, and international mobility

> If we want to look for jobs abroad, having a diploma written in English or another language is very useful.

> It's a quick and efficient way to send our documents to recruiters without having to scan them.

> It's also a big plus that it's free for students and remains valid for life. It's an advantage and a great addition to the resume.

> The verifiable and bilingual format allows me to prove the authenticity of my diploma, avoiding any issues with forgery. As a result, my diploma holds more value in the eyes of recruiters—and for me personally. Not to mention, it also helps protect the planet by eliminating the need to print and mail a paper document.

> I love it because I can provide proof with a certified document, and anyone who wants to see it can just scan my QR code. It's so much simpler and faster.

> I'm highly satisfied because it fulfills all my key criteria: speed, authentication, durability, and security.

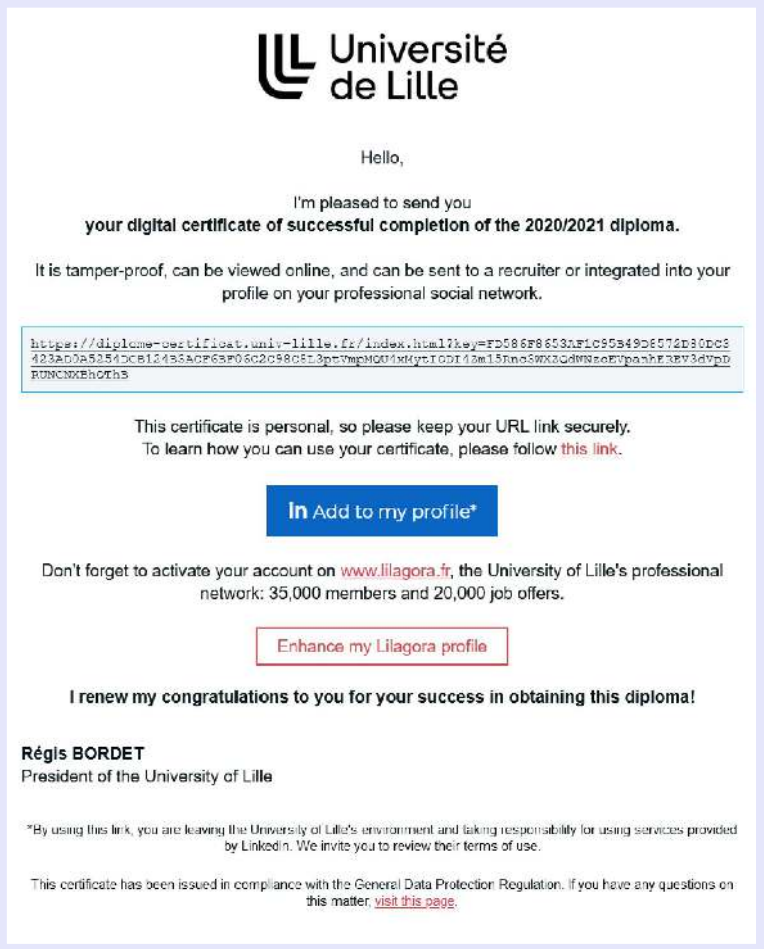
Key Success Factors

A “Quality-Driven” Approach

The success of the Dem-Attest project is due to the dedication and coordination of the University teams, under the leadership of Pierre Boulet, Vice President for Digital Affairs, and the oversight of the Registrar’s Office, which has managed the project since its launch.

The focus was on ensuring high-quality data extraction, compliance with diploma issuance processes, the design and bilingual labeling of certificates, and the validation of tests under real-world conditions.

Graduates were placed at the center of the system, with special attention given to the relevance of the email used to deliver the certificate and the availability of online information. For continuous improvement, a quality survey is systematically sent out, with no fewer than 4,000 responses collected to date.



Université de Lille

Hello,

I'm pleased to send you
your digital certificate of successful completion of the 2020/2021 diploma.

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

https://diplome-certificat.univ-lille.fr/index.html?key=FD586F8653AF1C95549D6572D80DC8423AD0A5254DCB12453ACF6BF06C2C98C8I3ptYmpMQU4xMytIODI4m15RnoSWX3QdWNzoEWpanhFREV3dVpDRUNCNXEhOTh3

This certificate is personal, so please keep your URL link securely.
To learn how you can use your certificate, please follow this link.

In Add to my profile*

Don't forget to activate your account on www.lilagora.fr, the University of Lille's professional network: 35,000 members and 20,000 job offers.

Enhance my Lilagora profile

I renew my congratulations to you for your success in obtaining this diploma!

Régis BORDET
President of the University of Lille

*By using this link, you are leaving the University of Lille's environment and taking responsibility for using services provided by LinkedIn. We invite you to review their terms of use.

This certificate has been issued in compliance with the General Data Protection Regulation. If you have any questions on this matter, visit this page.

KEY SUCCESS FACTORS

A successful adoption across all university faculties and their registrar teams

THE CHALLENGE Each of the university's faculties and institutes, spread across six campuses, has its own registrar team and manages its own diploma issuance process.

THE SOLUTION The Dem-Attest management application, built on data from the Student Information System and integrated via API with BCdiploma, was deployed within the Digital Workspace for academic administrators. It enables each administrator to automate the processing of their graduates.

The University's Registrar's Office has implemented a training program for academic administrators. User documentation and video tutorials are available within the application. Within the Registrar's Office, a dedicated Dem-Attest coordinator is responsible for training and supporting users.

> **At IAE Lille University School of Management, we are delighted with the application!** The process is easy to follow, well-documented, and supported by a responsive point of contact from the Registrar's Office whenever needed.

“

As the Dem-Attest coordinator in the Registrar’s Office, I serve as the point of contact for all faculties. This year, I have trained over 240 academic administrators, and feedback on the system’s simplicity, time savings, and the quality of tutorials has been unanimously positive. The project is gaining recognition across the entire university—we have even received requests from alumni from 1985 who want to obtain their digital certificate!

Marie Berteloot-Bounab

Dem-Attest Coordinator
Registrar’s Office, University of Lille

Dem-Attest Tomorrow

Empowering Alumni and Adapting to European (R)evolutions

Dem-Attest reinforces the University of Lille's commitment to providing its graduates with the best tools for career development and international mobility. In the coming years, the links and interactions between Dem-Attest and the University's alumni network, Lilagora, will continue to grow.

Dem-Attest also positions the University of Lille on the European and international stage. As a longstanding participant in Verifiable Credentials projects on the EBSI blockchain, the University now benefits from an automated, high-quality data flow. This will facilitate the transition to European digital diploma formats. As part of the EBSI-VECTOR project, these formats are being tested in 2024-2025 with a cohort of students, with technical support from BCdiploma.

Additionally, in 2024, the University joined the Digital Credentials Consortium, which works on standardized diploma and competency data, collaborating with networks such as the Groningen Declaration, Europass, and ENIC-NARIC.

Finally, Dem-Attest aligns naturally with the University's broader digital transformation strategy, supporting competency-based learning, the development of open badges, the potential digitalization of transcripts, and the adoption of EDCI digital certificates.

Will this project pave the way for the full digital transformation of diplomas? Students and recruiters receiving a traditional "parchment" diploma likely already have an opinion on the future direction...

About BCdiploma

The digital diploma credentials are issued using the BCdiploma solution, the project's technical partner since its inception.

BCdiploma enables institutions to issue diplomas, certificates, micro-credentials, and badges in a fully digital format, secured by blockchain technology and verifiable in one click without intermediaries.

Developed after years of R&D and protected by international patent US20200099511A1, BCdiploma leverages blockchain technology to provide security, durability, and transparency to institutions, while ensuring data sovereignty and full GDPR compliance. As a result, certificates remain accessible for life, with no data retention or storage by BCdiploma.

With more than 250 institutions in over 25 countries using its services, BCdiploma is internationally recognized as a leading provider of Digital Credentials, ensuring interoperability with formats such as Open Badges, EBSI, ELM, EDCI, and W3C Verifiable Credentials.

> Dem-Attest is, above all, a human success story—a project team that has masterfully brought an innovative vision to life: harnessing cutting-edge technology to deliver a concrete, sustainable, and sovereign service for alumni and academic administration teams. What a source of pride to see the Student Information System of public universities seamlessly integrated with a solution that automatically issues verifiable digital certificates every day, valid for life!

Luc Jarry-Lacombe

CEO & Co-founder of BCdiploma
Agrégé in Mathematics, Speaker, and
Co-author of BCdiploma Patents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blockchain digital credentials