The following represents excerpts from emails from the various digital student data services that responded to my emails in April and May in preparation for this webinar. These were intended as internal speaker notes in the presentation, but there was such a wonderful outlay of information that I was unable to do them justice, so I am sharing their responses below.

Slide 9 – Types of DSD: Repositories

This first type of Digital Student Data is those databases or digital repositories that allow the student to electronically submit their full academic record via a secure platform. While students and graduates have access to view documents, only the issuing education provider can upload or modify them.

Slide 19 – CHESICC

(Internal note: Does not work properly in Firefox; works better in Chrome)

Slide 30 – NAD

Indian Universities and approved Educational Institutes upload the Students academic records on CVL NAD. These records can be accessed by any individual or organization (we call them Verifiers) through CVL NAD, provided they have concerned Student's consent for the same. Its an online, real-time consent through CVL NAD system.

One can register as Verifier on CVL NAD here -_ https://cvl.nad.co.in/NAD/employerInit.action?activePage=regactemployerInit Is it something that only learners can request, or can third party organizations (like evaluation companies or US universities) request verification of student records with a signed release form from the student?

CVL NAD Response: Online consent.

Are official transcripts shared via NAD, or is it set up to be a verification system instead?

CVL NAD Response: Official digitally signed academic awards are shared.

Does it verify only graduation diplomas or are we able to verify the academic records as well?

CVL NAD Response: All types of academic awards uploaded by the Institution can be verified.

Does NAD include all levels of education or only some?

CVL NAD Response: All levels of academic awards are uploaded on CVL NAD. Are there any fees involved, and who pays them?

CVL NAD Response: Verification fees are beared either by the Student or the Verifier. You may also refer our FAQ section for more details. -_ https://cvl.nad.co.in/NAD/nadfaq.action?activePage=aboutnadfaq

Slide 31 – TrueCopy

Truecopy Credentials is a leading provider of the credentials management system to educational institutions in India.

Over 400 universities/colleges have partnered with us for their student's official transcripts in India and over 3000 overseas universities, as well as credentials evaluation agencies, receive academic credentials processed through Truecopy. We have processed hundreds of thousands of requests since 2012.

Several US Universities have listed us on their websites too. Please find a few links below for your reference-

https://gradadm.usc.edu/lightboxes/international-students-transcript-requirements/ https://www.sva.edu/admissions/graduate/graduate-application-requirements https://gradadmiss.gatech.edu/supporting-documents https://www.uta.edu/admissions/apply/submitting-transcripts#inter-under

Many evaluation agencies who are NACES members from the US like ECE, Educational Perspectives, IERF, IEE, One Earth International Credential Evaluations

and from Canada like CES at the University of Toronto, accept verified education credentials of Indian students via Truecopy, electronically.

Some links from US Evaluation Agencies for your reference:

https://accounts.ece.org/DocumentRequirement/91

https://www.edperspective.org/pdf/country/EP-India-Requirements.pdf

https://myiee.org/document-requirement-for-country/?country=India

https://oneearthevaluations.org/required-documentation/india/

Link from Evaluation agency from Canada-

https://learn.utoronto.ca/comparative-education-service/apply-now/document-requirements/india

Our system allows you to receive authentic and verified credentials of students in a secure portal created especially for you. You can log in to this portal at any time and view/manage/download the documents. E-transcripts delivery is also beneficial for students as it speeds up the whole process and is very convenient to use. Truecopy has endeavored to make it affordable for students. They trust us to deliver their transcripts in quick time and reliably every single time.

We would like to add your company to our receiver network so that Indian students can request their official and verified credentials to be sent to them via our system.

We can help socialize your services among students in India so that they can apply to your members for evaluation. If this sounds interesting, we can discuss it further.

Please let us know the email id on which we can send verified transcripts/education credentials of Indian students. We receive transcripts and the education credentials of the students directly from their university. In this way, you will receive pre-verified academic transcripts.

TRUECOPY will give a dedicated portal to your institution with login Id & passwords where you can Log in and check the verified education credentials of students. Where you can view, accept or reject the requests from Indian Students.

Your institution just needs to mention on their website about TRUECOPY that they accept verified education credentials of Indian students sent via TRUECOPY, Electronically, and you can put the link (www.electronictranscripts.com) of our page.

Slide 32 – Ladok

Lokalt adb-baserat dokumentationssystem" ("Local Edp based documentation system")

Ladok is the national system used for administration of higher education and documentation of academic information. The system is jointly owned by Swedish higher education institutions. Almost all institutions, 37 today, are part of the consortium together with the Swedish National Board of Student Aid. Ladok is also used for the institutions' reporting to external recipients of information, among others the Swedish National Board of Student Aid, Statistics Sweden, the Ministry of Education and Research and the Swedish National Agency for Higher Education.

The system is mainly used for matriculation and registration of students and their academic results and degrees. Students log in to the Ladok system and request that their documents be sent digitally to an email address they specify.

33 – Types of DSD

Some national services allow you to electronically verify a limited amount of information (such as graduation). These types of services might or might not require a fee.

Slide 47 – e-Titulo

eTítulo® is a service provided by <u>SIGNE</u>, which is a Spanish Security Printing Private Company, operating since 1982. We began our labor linked to the academic and public documents, producing the Official Diplomas for Universities, and Regionals Government Educational Services, but we also produce Security Seals and Official Paper for the Spanish Notaries, checks and savings books for the spanish Banks and other financial institutions. We also manage ID cards, driving licences and Passports for other countries, since the production of national ID documents in Spain is reserved for the National Security Printing House, which is a Public Company, owned by the State. eTítulo service is running in Spain since 2011 and in some Latam countries since 2018 (Colombia, Perú, Dominican Republic, Chile, etc).

Thanks to the eTítulo service, the Universities and Academic Institutions automatically load their files, containing the data of the Diplomas ready to be printed, and select those over which they will generate an electronic copy of the official diploma. On their side, students receive a notification at the email address they had provided. In that email they get the access code to the eTitulo platform. On the platform, they are able to download the electronic diplomas, and also digital certificates, if the University grants that functionality.

The electronic diploma is signed with the electronic seal of the University that issues the document. It is signed automatically by the University every time it is downloaded, to avoid incidents with the expiration date of the certificate used to sign the Diploma. Furthermore, we add a Timestamp over the document to assure the exact moment it was generated.

One of its best features is the easy way to verify the Diplomas, through the QR capture that leads to the eDiploma validator service, which allows to verify very easily the Electronic Credentials used to sign the Diploma by the University, guaranteeing its authenticity. It can also be validated by clicking on the electronic signature stamped on the PDF document.

Slides 48-50 – sample credential by e-Titulo

Slide 51 - Vitnemalsportalen

The Diploma registry is a Norwegian service developed by Unit – The Norwegian Directorate for ICT and Joint Services in Higher Education and Research, commissioned by the Norwegian Ministry of education and Research. The use of the Diploma Registry is free of charge.

The essence of the Diploma Registry is that only the person who has achieved the educational results can see his/her results. A recipient can only see a person's results if access has been given to him/her. This means that the owner of the results has full control over her/his results. This is in line with the new General Data Protection Regulation (GDPR) from the European Parliament, the Council of the European Union and the European Commission.

The main goal of the Diploma Registry is to ensure that the shared information is valid. This is done in several steps. Every time a person logs in, their data (results, not PDFs of diplomas) will be retrieved from Norwegian universities and colleges. This means that the person gets all his/her results gathered in one portal. When a person chooses to share her/his results, the data is digitally signed. Shared results can be downloaded as a PDF file. This PDF is also digitally signed. This means that if someone tries to change the content of the PDF, the digital signature will immediately become invalid. To check if the signature is valid, the recipient can open the PDF in Adobe Acrobat Reader, or similar services. A blue "ribbon" with information about the signature's validity will then appear at the top of the screen.

The Diploma Registry gives anybody who has achieved educational results the opportunity to collect their own results themselves on demand. Thus, they will no longer need to contact the university/college to get documentation of their studies. This simplifies the processes both for the educational institutions and the former students, and saves both time and money.

Sharing data rather than documents is more and more common. As a natural benefit of the digitalisation of the sharing process, the need for paper is reduced.

How to share results? There are two ways of sharing results:

- 1. raw transfer of data
- 2. access by link

The primary way to share results is to transfer them to a system connected to the Diploma Registry. This happens as a raw transfer of data. Typically, many employers use recruitment systems when hiring. In this case, the process of sharing starts in the recruitment system. When registering a CV and/or an application, the applicant gets the option to follow a link to the Diploma Registry. By following the link, the applicant is sent to the Diploma Registry. After logging on, he/she can retrieve all their results directly from the educational institution databases. Before sending the results to the recruitment system, the applicant can choose which results to transfer. The transfer will be digitally signed, and by confirming the transfer the applicant and the results will be brought back to the recruitment system. The company hiring will have access to both structured data and a PDF of the results.

As an alternative to transferring data, access to view the results in the Diploma Registry can be given. The process starts in the Diploma Registry. After logging on (with a student ID or by a Norwegian ID) one can choose which results to share and easily type the email address of the desired recipient. The Diploma Registry then generates a link which automatically is being sent. A unique code is sent along with the link. The recipient must enter the code to access the results. The sender can choose the validity period of the link and can at any time disable the link. Results can be sent both in Norwegian and in English.

We assume that you know about the EMREX-network. The Diploma Registry is the Norwegian service used in EMREX. If you do not know the network, please visit https://emrex.eu/

Slide 52 – SAQA

The SAQA Verifications Service is available for the verification of qualifications achieved at South African providers as recorded on SAQA's National Learners' Records Database (NLRD).

Current verification requests that are not completed and dispatched by 26 March will only be processed after the lock-down has ended and our offices re-open.

Please note that we only verify the achievement of NQF registered qualifications achieved in a South African Education Institutions. We do not issue certificates or academic transcripts, we also do not verify academic transcripts.

For more information or If you need to become a SAQA client and start verifying with us, please send your email to verifications@saqa.org.za.

Slide 53 – DUO

We do not send a verification by email. The General Data Protection Regulation (GDPR) prohibits us from providing personal information to anyone other than the holder of the diploma.

Anyone whose diplomas have been included in the Diploma Register may download a free digital extract of their diploma data.

The extract is a PDF document that has a security certificate. The certificate functions as an authenticity feature and guarantees that the document originates from DUO. The digital extract may then be sent to you by the holder of the diploma by email.

You can check the security certificate by opening the extract with Adobe Acrobat Reader.

The certificate can be seen as a blue bar with the following message: "Certified by Dienst Uitvoering Onderwijs, Dienst Uitvoering Onderwijs".

If you open the extract with a different pdf-program then the security certificate is not visible.

Slide 54 – Types of DSD

We will begin seeing more countries incorporate Blockchain into their digital student data, either by offering verification portals or websites for their products or offering students a digital wallet at the national level.

Slide 55 – OpenCerts

OpenCerts is an open-sourced framework used for issuance of verifiable credentials. Upon graduation from a course, the OpenCerts document which is issued can be verified on https://opencerts.io. In this website, you will find a sample OpenCerts file which comes with a transcript.

The OpenCerts website does not store any of the OpenCerts documents. Upon issuance, the graduates hold on to their documents, and have to choice share to another party eg. institute of higher education or prospective employer.

Anyone or organisation can use our verification service. All you need is a valid OpenCerts document. For your use case, you may consider a mode where the

prospective students send you a copy of their OpenCerts certifications, which you may then verify via our website, or via an API call.

OpenCerts has been rolled out to secondary and tertiary institutions (complete listing available at our website) in Singapore.

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(from an email provided by one of our customers that had the .opencert file) Please find the attached, an e-copy of your transcript (.opencert file). Below is some information on how to use the e-documents:

How do I view the document?

Drag and drop the attached OpenCerts file into the Viewer on the OpenCerts website.

Can I save a copy?

Yes, you may download the attached OpenCerts file to your computer.

How do I share the document?

Email the OpenCerts file and the OpenCerts website link to your intended recipient. Inform the recipient to drop the OpenCerts file into the viewer at the OpenCerts website to view the document.

Slide 60 – BC Diploma

BCdiploma is a turnkey web-application based on blockchain technology, dedicated to institutions who deliver credentials.

- The institution can create and administrate as many credential templates. Each credential template is 100% customizable in terms of content and design. You can create a transcript, a degree, an attestation of completion, any attestation template, corresponding to any education level.
- The institution can use these templates to issue digital credentials. For each one, data is encrypted and stored on blockchain and a unique URL link is generated and send to the credential's owner, allowing to access the digital credential in a single click.
- The credential's owner if free to share her/his link on her/his CV, or to send it to any person who wants to check the credential's authenticity

 Each BCdiploma digital credential contains all proofs allowing to check the Issuer identity, and data's authenticity.

Regarding our business model, the institution who issues digital credentials supports the cost of the solution, making it free of use for the credential's owner and for the third party (employer, evaluation companies, etc) who needs to check authenticity.

The only fees to be considered are the licence of use, and the per-unit certification cost

- Our Youtube videos are public, of course feel free to use it for your personal work & for your webinar.
- Indeed, BCdiploma solution can certify transcripts. We are currently deploying this feature in some North American institutions, I'll let you know as soon as some projects are live and when we could communicate.
- An institution using our services can certify newly awarded qualifications, but can
 also certify any credential delivered in the past years. When they adopt our
 solution, part of our clients generate digital credentials for the whole promotions,
 since the institution has been created. The institution can decide to generate digital
 credentials for all the graduates, or only on student's request, and to sell or to offer
 the service.

Slides 67 – Diplome

The service «diplome», aims to create a world-wide ecosystem where the qualifications and certifications of an individual are safely and securely managed, reducing risks of falsifications and facilitating the portability process of such qualifications. In few words, within Diplome, individuals get assigned a secure wallet where they can store their qualifications using the blockchain technology, therefore creating a decentralized, transparent, certified and tamper-proof ecosystem with the goal to simplify the procedure for a student, a graduate or a professional to enroll in a university or to apply for a job in the labor market of another country. Diplome's Blockchain-based service is primarily focused on INDIVIDUALS.

here are thus, 6 main key pillars on which Diplome is build on:

- 1. Diplome is citizen-oriented
- 2. Diplome is free of charge
- 3. Diplome is based on open technologies

- 4.Diplome does not force organizations to a specific technology but adapts to the existing
- 5.Diplome does not control user identity but is open to any external identity system 6.Diplome is fully compliant with all metadata included in already existing Bologna and EU instruments (Europass documents, Diploma Supplement, etc.)

from TAICEP Talk Newsletter:

CIMEA is glad to share the Diplome system for free with other credential evaluation services, ENIC-NARIC centers, and Higher Education Institutions that need to deploy smart working during this period. It is time to share our tools, to be cooperative and inclusive, and not interrupt our services

Slide 68 – Type of DSD

This next type of digital student data mechanism involves downloading a proprietary program to verify the code embedded in the student's transcript

Slide 69 – Timbro Digitale 2D-Plus

Approximately a dozen Italian universities utilize this solution.

I'm the Sales Manger of GT50, a small company in ITALY, our solutions "Timbro Digitale" 2D-Plus and Lambda are used by over 100 Municipalities (Roma , Milano , Napoli , Bologna etc.) some Pension Fund and Universities , Universities references are : University of Rome "La Sapienza" , University Roma TRE , University of Modena e Reggio Emilia , University "Bocconi" in Milano ; eCampus (largest online University in Italy) , University of Cassino , Link University in Roma.

Our solutions are used to convert eSignature on Paper, we have 2 solution: 2D-Plus that is the solution you have saw, the second solution is based on QRCode secure that could be read by a SmartPhone both are compliant with GDPR and have the highest level of Security.