Lessons learnt: Digital transformation of processes led to a rethinking of how certificates of completion are issued

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Abstract   Digital transformation of processes and services is affecting business and everyday life. This paper describes a small training centre in Iceland that has in recent years been involved in this transformation following discussions and actions in connection with Industry 4.0. As a result of the urgency for digital transformation of services due to the global COVID-19 pandemic, a disruption in services emerged. Collecting information about the digital transformation of educational services led to new knowledge on the phenomenon of issuing credentials/certificates for learners. Issues of security and accessibility as well as potential ways for learners to share verifiable credentials resulted in the investigation, creation, testing and issuing of digital credentials to learners upon the completion of courses at IDAN Education Centre. This journey has highlighted the potential of digital credentials, but at the same time revealed weaknesses that have compelled the authors to face up to challenges, address problems and act. The human factor has been, and continues to be, the most challenging factor in issuing digital credentials. Our organisation stalled in their implementation due to lack of resources, clarity and commitment. Looking ahead, management still believes that digital credentials are of immense value for learners, companies and educators. IDAN is regrouping and reorganising for the next phase of digital transformation of services.

KEYWORDS: digital transformation, digital credentials, culture, security and the human factor

WHAT HAPPENED IN 2020? DISRUPTION!

Digital transformation is affecting our everyday lives and is one of the biggest disruptions of our time.[1] This transformation is affecting our culture, customer experiences and changing market requirements.[2]

An edCircut article by Charles Sosnik[3] titled 'Out-of-the-Box Thinking Is So Five Minutes Ago' describes in a thought-provoking way how disruption can affect education in a very broad sense. Disruption can encourage us all to think out of the so-called 'box', but humans are creatures of habit and can easily go back into the box as soon as the disruptor effects cease. Sosnik points out that maybe the box is the problem and asks: Without the construct of the box and everything that goes with it, how could technology be used to accomplish our newly minted purpose of education?

Discussions and actions emerge as a result of disruption, but it is up to us to act. And that is what our organisation is doing. Going through our services and looking for ways to adjust to a new reality due to the influence of digital change pushed by the COVID-19 pandemic has led to the examination of how certificates of learning are issued. This is our story.

THE DISCOURSE OF DIGITAL TRANSFORMATION OF 'EVERYTHING' ACCELERATED IN ICELAND DURING THE PANDEMIC

To give our story some additional context, we need to point out that Iceland is a small nation with a population of approximately 380,000 people. This case study is about a small education centre called IDAN with 25 employees. IDAN is supported by social partners in the labour market in Iceland and offers continuing professional training courses for the labour market within various trades and industries as well as a range of other services. IDAN issues approximately 3,000 certificates for course completion each year. The following describes how the centre transitioned from the traditional issuing of pdf-based certificates (credentials) to digital credentials.

It sounds simple enough but, believe us, it has not been simple. Why even think about moving from the traditional way of registering a learner's course achievements and issuing learner credentials? To be honest, the topic was not really on our agenda until late 2020. Even though digital transformation of services had been on our organisation's agenda, it was 'the big disruption' — the global pandemic — that really pushed our organisation to ask critical questions, such as whether digital transformation of services could improve the security and the methodology of capturing and communicating learning for educators, learners and companies. This led to the issuing of digital learners' certificates/credentials for the completion of training courses.

All our courses are registered in our content management system of choice, which also powers our website. It has a built-in booking engine with various functions, some of which we have added in collaboration with the software provider. The learner registers and attends a course and upon completion receives a pdf certificate, which is stored in the learner's 'space'. The first step in our mission was to improve our knowledge on digital transformation of educational services. This led to new knowledge concerning the issuing of credentials for learners. Questions on security and accessibility as well as potential ways for learners to share verifiable credentials became interesting. In addition, the desk research also underlined that training and education services are not necessarily a national concern. Education is international and can, and should, be addressed as such.

UNDERSTANDING THE VALUE OF DIGITAL CREDENTIALS

During the first wave of COVID-19, our training centre went from traditional teaching in a classroom setting to online teaching almost overnight, with all the ensuing growing pains. As stated above, rethinking and examination processes were created by urgency. This examination led to the rethinking of best practices on how certificates of completion are issued and directed us to a phenomenon called digital credentials. Many questions emerged, such as:

- Will the issuing of digital credentials be the next big disruptive innovation in how learning records are compiled and stored securely?;
- Will digital credentials transform the way we interact, attain and share credentials?;
- Is there a difference between badges and digital credentials?;
- What about micro-credentials?;
- Will the issuing of digital credentials 'belong' to all learning?;
- Will implementing digital credentials affect process and how?;
- Will it affect recruitment and training?;
- Will it increase security and reliability of credentials?;
- Can a relatively small educational institution like IDAN implement such a thing?;
- Do digital credentials have the potential to create ecosystems of recognition in education and training as suggested by UNESCO´s report on digital credentialing?[4]

IDAN started issuing digital credentials in March 2021, but this is a learning curve that is still very much ongoing. Our lessons learnt during our first year could be of value and contribute to opening discussions on the potential, challenges and opportunities that digital credentials offer. What are the technical challenges, and what is in it for the learner? Will digital credentials encourage mobility in the global labour market? We do not have the answers, but the questions are worth asking.

It is important to admit to and realise that issuing digital credentials is new and innovative. We do not fully understand what technology is behind the digitalisation of credentials. Will we even need a formal school system in a world of digital credentials? A bit radical? As can be seen in this brief introduction, there are more questions than answers.

ISSUING CERTIFICATES: THE JOURNEY

How did it start? In 2019 several IDAN employees attended Online Educa Berlin (OEB), a cross-sector conference and exhibition on digital learning and training. There the group was introduced to the potential of digital credentials, but it was not until late 2020 after a few employees attended a masterclass on digital transformation that IDAN revised internal service processes through digital transformation 'glasses'.

Since the foundation of IDAN Education Centre in 2006 until 2017, all certificates were printed documents. In 2017 with the introduction of the new content management system (CMS) system, it was possible to issue certificates in pdf form. This practice does not promote visibility or sharing on social media and no means to protect credentials from being tampered with. In other words, our issuing process of credentials was practically invisible and digitally intangible and unsecure.

What did we do? The in-house team set out to tackle the development and implementation of digital credentials. The team consisted of the marketing manager and the development manager. The team conducted a desk analysis and introduced the idea to the managing director in October 2020. This was followed by

finding a company that was available to work with a small organisation like IDAN and help us develop our ideas. There were no domestic companies (in Iceland) ready with the technology needed. Therefore, the Nordic countries was the logical place to look. Thinking back to OEB, we revisited contacts and found a small innovative Danish company that was ready to work with our organisation to issue digital credentials and create a seamless integration with our web-based content management system, possibly the smallest in the world. The go-ahead from the board of directors followed.

This led to several meetings with department managers within the training organisation where goals and timeline for the transformation were established. It was decided that the testing phase would be conducted in six months' time. In retrospect it was not enough time reserved for the development phase and additional six months for implementation. The Danish service provider held two onboarding sessions with IDAN's department managers. In addition, IDAN was assigned a customer success manager.

During the implementation the group continued discussing and deliberating on the following: Why digital credentials and what is the foreseeable impact? All agreed that this could be a way to better capture, secure and communicate learning:

- For the learner — educator — company;
- Shareable credentials;
- Enhance 'your' brand (the learner);
- Secure, accessible, verifiable certificates;
- Marketing value.

HOW DID WE PROCEED?
IDAN had to be verified by the Danish company in question that provided the platform for storing and issuing credentials, which was then followed by an onboarding programme and support, as mentioned earlier. It was clear from the start that the credentials would need to be in Icelandic, so translation was necessary. One-stop delivery of credentials was required, so IDAN needed to buy additional programming from our vendor (our content-based management system provider). This meant IDAN's system needed to communicate seamlessly with the system of the provider of digital credentials through the provider application planner interface (API). This process was not complicated; it took some time and money, but the technical side of things proved to be a very surmountable task. We accredit this primarily to competent programmers on both sides and a very thorough analysis on our behalf regarding the details and processes. By this we mean that we mapped concisely every function our users would have to complete in order to issue digital credentials within the system. This roadmap, in addition to detailed documentation of the platform that issues the digital credentials, proved to be an invaluable tool for enabling cooperation between all parties. Communication between parties in the programming development was effortless due to clearly defined instructions and objectives by all parties.

In March 2021, the first 'real' digital credentials were issued using the newly integrated functions, making issuing of credentials more secure and simple. Seamless integration — a web-based content management system (as stated, probably the smallest in the world) — is now issuing digitally secure encrypted credentials and nobody knows the difference. This shows that things can be done better, but everything said and done, our organisation is still mainly issuing certificates/credentials the 'old' way. Figure 1 is an example of a digitally issued credential validating attendance — a certificate that is both credible and secure.

CHALLENGES AND CONCERNS
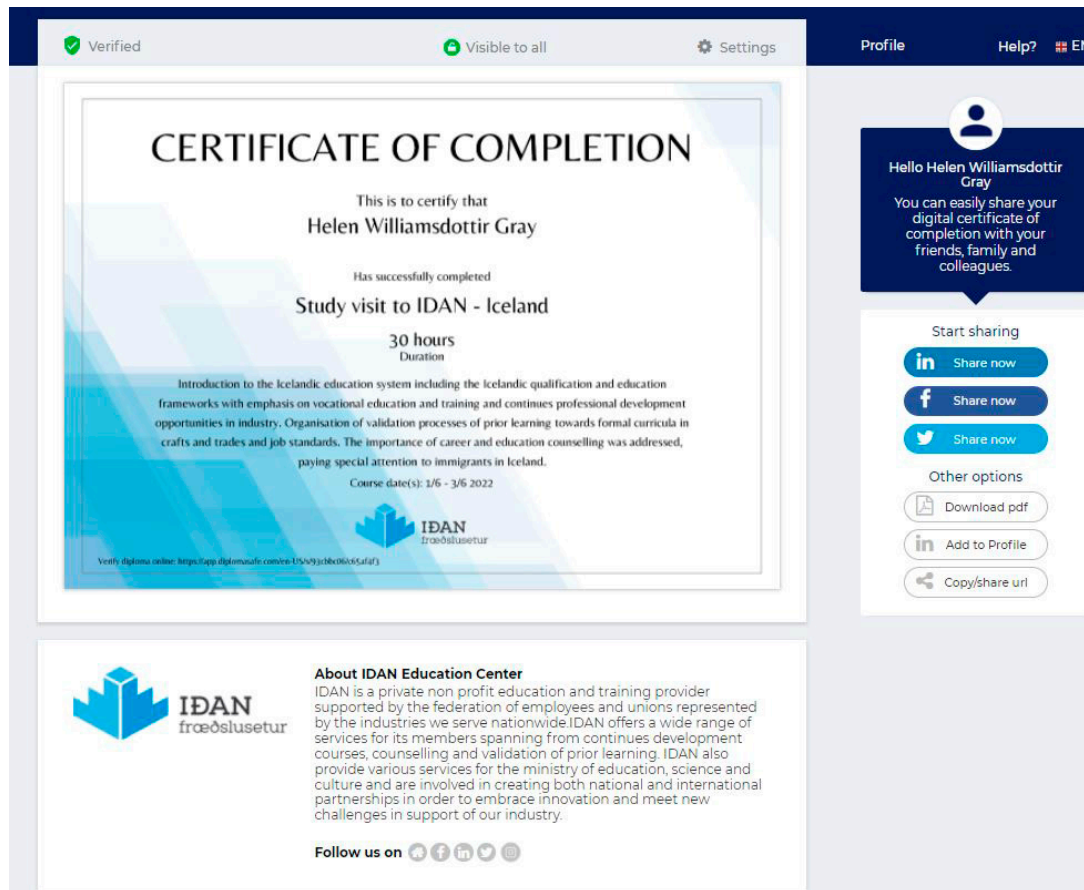It is our belief that the challenges of 'true' integration are many and only some of

Figure 1: Example of shareable digital credentials by IDAN

them are digital. (human versus digital). As already stated, the technical aspect was less challenging than anticipated. The cost, however, was more than expected. The reason is simple. A small organisation like IDAN is very reliant on outside services as there is no programming expertise in place within the company. Integrating digital credentials to a small proprietary CMS system is not a plug-and-play scenario by any means, and programming is a costly enterprise in Iceland.

The human factor has been, and continues to be, the most challenging factor in the implementation of issuing digital credentials. We expected this, but even so, some of the challenges that arose were quite unexpected. For example, the translation of the system was not only time-consuming, but even the smallest of errors proved to discourage our department managers from issuing credentials. This simple matter required constant correction of grammatical errors in various system messages, such as reminder e-mails for learners to collect their credentials, and created friction, delay and loss of momentum.

Department managers needed also to revisit course descriptions and update them in accordance with texts displayed on new credentials. All this diversion from regular procedures caused unforeseen additional friction. Not being able to store digital credentials in IDAN's learner 'space' was also of concern. The need for learners to log into two different learner spaces became an obstacle. Our big concern is the matter of our learners; they do not know what digital

credentials are and are not aware of their value nor how to use them.

THIS IS ABOUT CHANGING CULTURE

The main lesson learnt from our experience over the past 18 months is that the task was not only about introducing digital credentials, but also about changing culture and processes. It is said that humans are creatures of habit — work processes get fixed and it is hard to change them. In the beginning, the staff were interested when they saw the potential of issuing digital credentials and were onboard. When the project started to have an impact on the department managers' daily routine, however, the implementation slowed down and almost came to a complete halt. At this time all sorts of minor issues occurred, such as typing or translation errors that were easily fixed but became a major hurdle in the process. In addition, it became evident that internal processes and delegated assignments had not been executed in accordance with the plan.

Multiple meetings with department managers were held and training sessions on how to issue digital credentials through our learning management system were organised and lots of nudging took place.

The aim was to issue 1,500 credentials a year. In reality, only 160 credentials were issued during the first year. What went wrong? It is certain that the pandemic played a role, as fewer courses were held. The main reason, however, has to do with organisational structure and culture. It is our conclusion that the main characteristics of our problems entailed:

- Lack of support from key persons, which resulted in implementation falling through and thus causing friction and stalling;
- Hesitations over things that were easily fixed;
- Disarray in the prioritising of projects, resulting in timeline failure;

- Barrier created by inconsistency of practices and general organisation;
- Organisational structure of the training centre defined by silos which caused restrictions, such as the sharing of information and improving processes.;
- Limited budget clarity;
- Limited knowledge of our users' point of view (IDAN's employees, learners and others that could benefit);
- General disruption due to COVID-19 underestimated.

Simply put, IDAN stalled in the implementation of issuing digital credentials. It turns out our organisation is not alone; as highlighted by a survey conducted by McKinsey Global Survey on the problem of digital transformation stalling in organisations, more than seven out of ten organisations slowed down or stalled at some point in their transformation. More than 60 per cent of the McKinsey survey respondents point out that most problems are within their own control, such as resourcing issues, lack of clarity and commitment. Furthermore, around 12 per cent of the 1,265 companies in the survey stalled during the pilot phase and 38 per cent during the scaling process.[5]

IDAN had piloted the issuing of digital credentials and the leaders felt confident that it would be uncomplicated to move into the scaling process. This has not been the case, as described above. The issuing of digital credentials in only one element of our digital transformation process.

The digital transformation journey so far has pushed IDAN to:

- Reorganise the company structure;
- Remove physical and mental silos;
- Be creative and curious;
- Recruit relevant talent or outsource to bridge skills gaps when needed;
- Find our users and their needs and expectations (still to be properly defined).
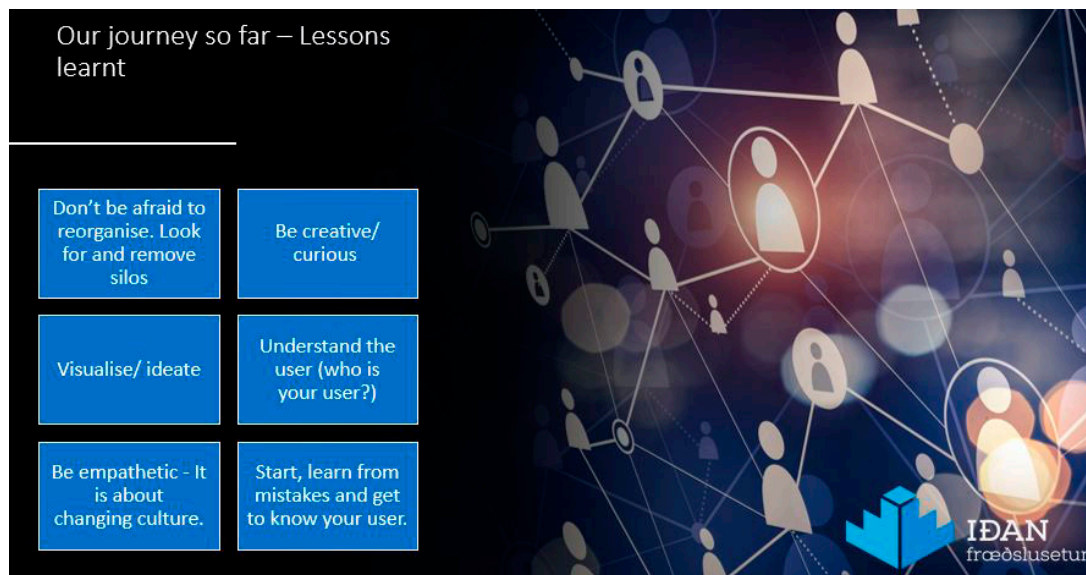
Figure 2: Our journey so far

Looking ahead, management still believes that digital credentials are of immense value for learners, companies and educators. IDAN is regrouping and reorganising for the next phase of digital transformation of services. Figure 2 shows our journey so far and lessons learnt.

CONCLUDING THOUGHTS

IDAN's digital transformation journey started some years ago. This paper has highlighted, from a practical standpoint, the challenges brought about by increasing demands for digital processes and services. IDAN has invested in technology and equipment, but transformation is about so much more that technology — it is about how technology affects people and society. This unclarity and often lack of commitment has created a sense of urgency in our organisation and demands action.

Our main internal challenges included employee pushback that stalls the issuing of digital credentials, a disarray of project priorities and lack of agile competences. The company is addressing these challenges head-on, investing more time and allocating more resources to organisational and culture changes. Looking ahead, our organisation sees numerous opportunities in the technology of issuing secure and valid credentials and we believe this is the first step in our transformational journey.

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