ashoka
UNIVERSITY

EDUCATION
CASE STUDY

Cutting Edge Document Security made simple

ABSTRACT

Ashoka University is a pioneer in providing multi-disciplinary liberal education at par with the best in the world, based out of India. This case study explains how Ashoka implemented cutting edge QR code-based document security solutions from Qryptal. The solution delivers highly secure and easily verifiable transcripts and certificates to their students in electronic and printed formats, thus continuing to enhance the reputation of the university protecting themselves against forgeries and frauds.

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About Ashoka University

Ashoka University is a pioneer in its focus on providing a multi-disciplinary liberal education at par with the best in the world. Located near New Delhi, with students drawn from over 18 countries and 98 cities, Ashoka is called "**Ivy League, Indian Style**" by Financial Times. Ashoka aspires to develop critical thinking, well-rounded individuals who can approach issues from multiple perspectives, communicate effectively and become leaders with a commitment to public service. In a short period, Ashoka has become one of the most sought-after and well-known universities in India attracting faculty from elite universities from all over the world. [https://www.ft.com/content/b8fabc8c-1559-11e8-9c33-02f893d608c2]

The Challenge

Being a pioneer in the field of education comes with its own set of challenges. With a visionary governing board, it was expected that they implement the best systems to make their certificates and transcripts tamper-proof and unforgeable in both formats –digital and physical.

Further, they wanted to do this efficiently and provide a valuable service to their students by making their credentials instantly verifiable by third parties like other universities, embassy visa officers and employers.

An Industry Plagued with Problem and No Easy Answers

Educational certificates and transcripts play a critical role in a person's life and career. The ability to create and maintain and trustworthiness of these documents and the information contained in them is essential to establish the student's credentials and by extension the institution's reputation.

Normally for verification of educational credentials, traditionally one or more of the following approaches are used

1. **Clearing house**: Universities tie-up with clearing houses which provide verifiers with access to the information for a fee.
2. **Third party verification service providers**: Background verification companies/employment screening intermediaries approach the educational institution through their established channels and get the details for the specific student(s) verified for a specific client.
3. **Direct approach**: The verifier may directly contact the University through channels such as e-mail or online account to get details which are provided after ascertaining the need for giving the information.
4. **Physical Security Features**: Holograms, RFID tags etc. are sometimes used but these fall short on many fronts:
   a. ease of verification: not easy to verify and may require special hardware

b. Can by their nature only work for originals and not for copies or electronic versions

c. Short shelf-life: A particularly university has to keep changing these physical features over time and it is difficult for third parties to keep track that this institution used a particular hologram from 2010 to 2012 and then another one from 2013 onwards.

All these methods have their challenges and some common issues are time is taken for verification, cost, the possibility of manipulation of low scrutiny databases, connivance of staff to give wrong information and exposes sensitive student information to these "intermediate handlers".

Key Decision Factors

When Qryptal met with Ashoka University, we took them through a detailed study of the issues and available solutions.

There are many different types of solutions – holograms, embossments, digital, RFID and smart chips, QR code – that are available. The pros and cons of each were highlighted. One of the key areas that was important to Ashoka was the seamless security offered across both digital and physical formats. Moreover, the document in either format would need to be easy to generate and yet be tamper proof with a high level of security. As with most educational institutions, they needed it an affordable cost, with a simple implementation methodology.

Seamless Security	Digital and Physical	Tamper Proof
Easy Generation	Affordable Integration and Implementation	Ease of Verification

Technology Choice

Qryptal presented its credentials as world leaders in document security solutions. Qryptal is a pioneer in high secure QR code-based document security solution. Primary reasons for using Qryptal:

- Military grade security for both digital and physical printed certificate formats
- Easy API integration with Ashoka's Student Information System (SIS)
- Integrated support for both secure code and document generation based on Ashoka's template layouts
- Multi-user and audit trails
- Responsive support

Qryptal Solution

Ashoka now uses highly secure Qryptal Secure QR technology to secure their educational documents. They have been using Qryptal since early 2017. Qryptal QR secures and generates all their transcripts and the final degree certificates for the various short and long programs run by them

OFFICIAL TRANSCRIPT

Name: John Demo
Enrolment ID: UG-1111-2222
Admission Year: 2015
Graduation: May 2017

Degree: B.Sc. (Hons) Computer Science & Entrepreneurial Leadership
Degree CGPA: 4.50   **Minor:** Entrepreneurship
Major: Computer Science & Entrepreneurial Leadership   **Concentration:** Physics

Code	Course Title	Credits	Grade
Monsoon 2015			
CT-001	Introduction to Critical Thinking	4	B+
FC-006	Mind and Behaviour	4	C+
FC-009	Trends in History	4	B-
Credits Earned: 12	**GPA: 2.77**	**CGPA: 2.77**	
Spring 2016			
CS-101	Introduction to Computer Programming	4	B-
CT-102	Critical Thinking Seminar-Computer Science (Discrete Math)	4	A
FC-002	Great Books	4	B-
FC-007	Principles of Science	4	B-
Credits Earned: 16	**GPA: 3.03**	**CGPA: 2.91**	
Summer 2016			
ECO-207	Statistics for Economics	4	A
FC-003	Indian Civilizations	4	B+
Credits Earned: 8	**GPA: 3.65**	**CGPA: 3.08**	Dean's List
Monsoon 2016			
CS-102	Human Computer Interaction	4	B+
CS-202	Analysis and Classification of Neurological Signals	4	B-
CT-201	CTS-Computer Science: Logic and Computation	4	A-
ENT-101	Entrepreneurial Mindset	4	B-
FC-004	Introduction to Mathematical Thinking	4	B-
LAN-002	Urdu for Hindi Speakers	2	B+
Credits Earned: 22	**GPA: 3.05**	**CGPA: 3.07**	

Code	Course Title	Credits	Grade
Spring 2017			
CS-203	Probability, Statistics, and Data Science	4	B+
CS-204	Computer Architecture	4	B+
CS-205	Scalable Software Systems	4	B+
ENT-102	Creative Problem Solving	4	B+
FC-001	Foundations of Economic Reasoning	4	C
LAN-004	Urdu II	2	A-
Credits Earned: 22	**GPA: 3.10**	**CGPA: 3.08**	
Summer 2017			
ENT-399-01	Venture Immersion Programme	4	A-
FC-005	Literature and the World	4	B
Credits Earned: 8	**GPA: 3.10**	**CGPA: 3.35**	
Monsoon 2017			
CS-301	Data Structures and Algorithms	4	C
CS-302	Computer Security and Privacy	4	A-
CS-303	Introduction to Machine Learning	4	B-
ENT-201	Political Economy of Entrepreneurship in India	4	B
FC-008	Social and Political Formations	4	B+
Credits Earned: 22	**GPA: 2.94**	**CGPA: 3.07**	
Spring 2018			
CS-206	Programing Language Design and Implementation	4	B+
CS-304	Operating System	4	A-
CS-305	Theory of Computation	4	A
CS-306	Computer Networks	4	A
CS-307	Computer Graphics	2	C
Credits Earned: 18	**GPA: 3.56**	**CGPA: 3.14**	Dean's List

This document should be accepted as an original transcript only when in colour. Scan the secure code on the left using the Validator App to verify as per instructions at verify.ashoka.edu.in

TOTAL INSTITUTION CREDITS: 126
TOTAL TRANSFER CREDITS: 0
OVERALL CREDITS: 128
Print Date: 29/05/2018

Registrar Signature
XXXXXXXXXXX
XXXXXXXXXXX
XXXXXXXXXXX

Electronic Transcript Sample

OFFICIAL TRANSCRIPT

Name: John Demo   **Degree:** B.Sc. (Hons) Computer Science & Entrepreneurial Leadership

Minor: Entrepreneurship

Science & Entrepreneurial Leadership   **Concentration:** Physics

Code	Course Title	Credits	Grade
Monsoon 2015			
CT-001	Introduction to Critical Thinking	4	B+
FC-006	Mind and Behaviour	4	C+
FC-009	Trends in History	4	B-
Credits Earned: 12	**GPA: 2.77**	**CGPA: 2.77**	
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CS-101	Introduction to Computer Programming	4	B-
CT-102	Critical Thinking Seminar-Computer Science (Discrete Math)	4	A
FC-002	Great Books	4	B-
FC-007	Principles of Science	4	B-
Credits Earned: 16	**GPA: 3.03**	**CGPA: 2.91**	
Summer 2016			
ECO-207	Statistics for Economics	4	A
FC-003	Indian Civilizations	4	B+
Credits Earned: 8	**GPA: 3.65**	**CGPA: 3.08**	**Dean's List**
Monsoon 2016			
CS-102	Human Computer Interaction	4	B+
CS-202	Analysis and Classification of Neurological Signals	4	B-
CT-201	CTS-Computer Science: Logic and Computation	4	A-
ENT-101	Entrepreneurial Mindset	4	B-
FC-004	Introduction to Mathematical Thinking	4	B-
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Code	Course Title	Credits	Grade
Spring 2017			
CS-203	Probability, Statistics, and Data Science	4	B+
CS-204	Computer Architecture	4	B+
CS-205	Scalable Software Systems	4	B+
ENT-102	Creative Problem Solving	4	B+
FC-001	Foundations of Economic Reasoning	4	C
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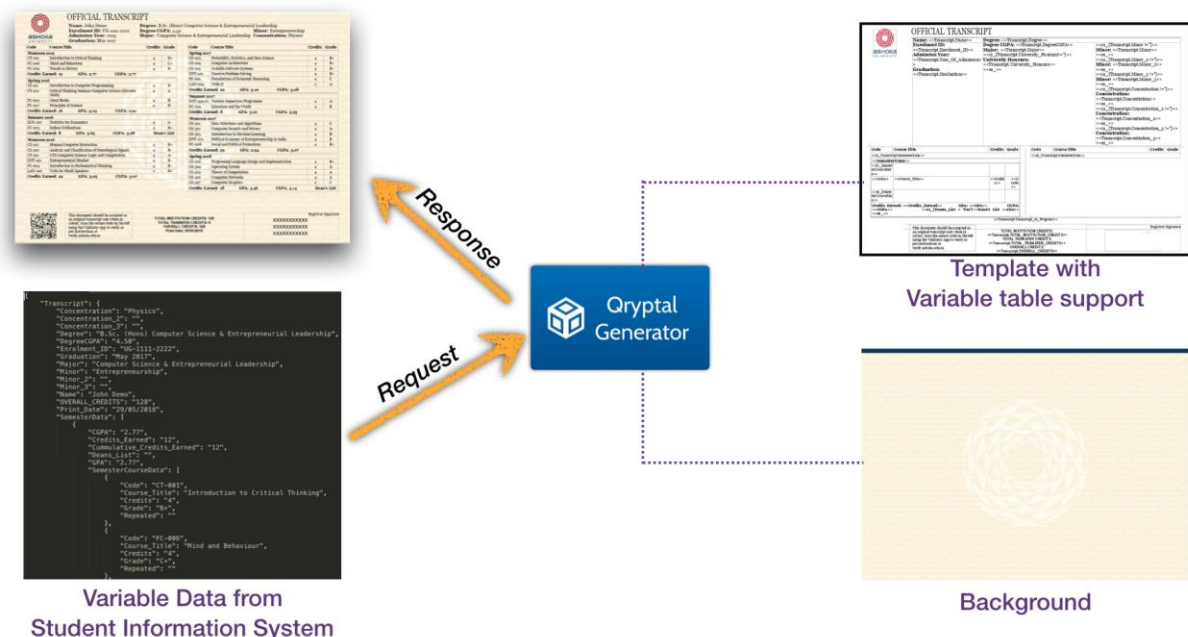
TOTAL INSTITUTION CREDITS: 126
TOTAL TRANSFER CREDITS: 0
OVERALL CREDITS: 128
Print Date: 29/05/2018

Registrar Signature
XXXXXXXXXX
XXXXXXXXXX
XXXXXXXXXX

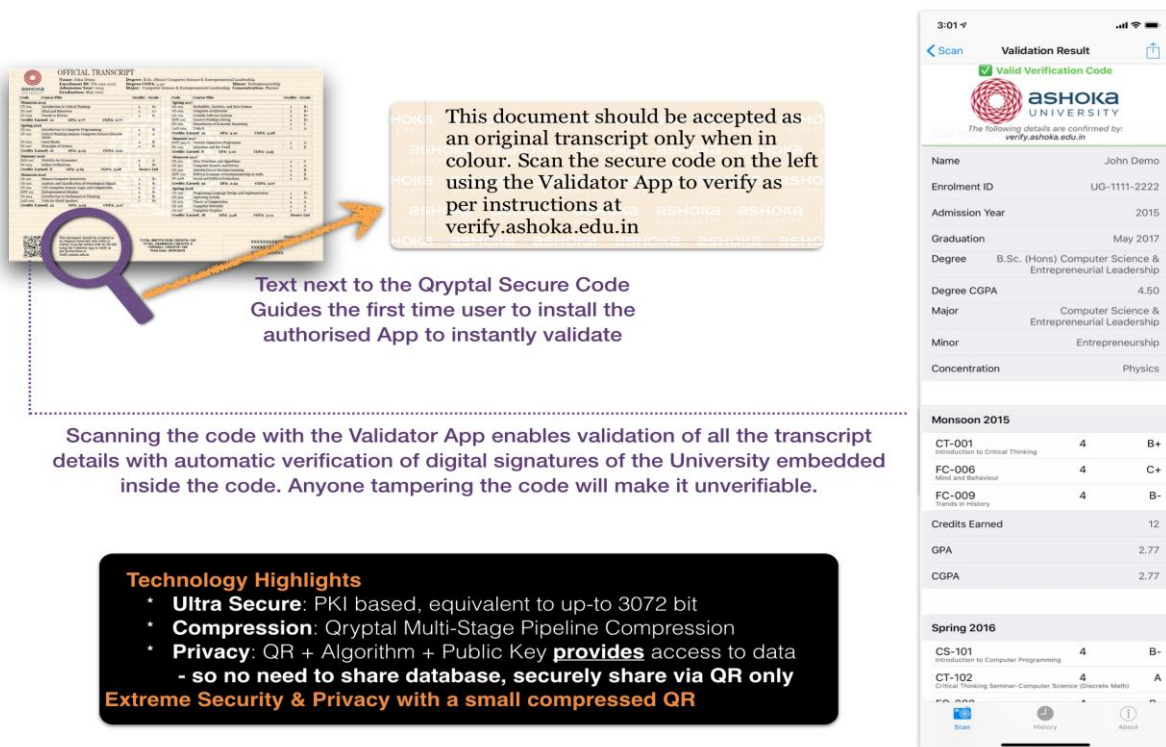**Printed Transcript Sample:** printed on university pre-printed stationery

There is a onetime integration needed to configure the templates, images and another setup. After that - it's a simple case of making an API call with the relevant information from the institution to the Qryptal generator and the PDF is created instantly. The same can then be printed on special paper as required and the student can have the physical as well as the electronic copy of the document.

Variable Data from Student Information System → Request → **Qryptal Generator** → Response → Official Transcript

Template with Variable table support

Background

Verification Experience

There is guidance provided in the form of easy to understand text next to the Qryptal Secure Code which helps the first-time verifier to go to the right domain to download the app for verification.

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Text next to the Qryptal Secure Code Guides the first time user to install the authorised App to instantly validate

Scanning the code with the Validator App enables validation of all the transcript details with automatic verification of digital signatures of the University embedded inside the code. Anyone tampering the code will make it unverifiable.

Technology Highlights
* **Ultra Secure**: PKI based, equivalent to up-to 3072 bit
* **Compression**: Qryptal Multi-Stage Pipeline Compression
* **Privacy**: QR + Algorithm + Public Key **provides** access to data - so no need to share database, securely share via QR only
Extreme Security & Privacy with a small compressed QR

Solution Summary

☑ Qryptal Solution helps them to secure the entire transcript information in the form of a secure QR Code sealed with the University's private key.

☑ This solution is being used for both transcripts and the degree certificates and for both the electronic and printed versions of the certificates.

☑ Qryptal also provides a comprehensive solution to programmatically generate a fully finished PDF (having the Qryptal secure QR code) as per Ashoka's templates with both dynamic variable data and static information.

☑ The solution involved a one-time integration and configuring templates

☑ After integration, an API call with relevant information is sent from the Student Information System and the finished document is returned by Qryptal.

The speedy response and turnaround time in the implementation was amazing. The team paid great attention to details and was very helpful during the process. Our transcripts are now generated and secured with Qryptal Secure codes for all our various degrees and programs. This enables them to be easily verifiable by all prospective employers and other agencies including for graduate programs of universities around the world. It benefits our students and the administrative staff as it improves the efficiency of verifying such documents and saves valuable time and resources.

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Qryptal

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