UNIVERSITY *of* NICOSIA

Blockchain in Academia:
The Case of the University of Nicosia

Prof. Marinos Themistocleous

Director Institute For the Future (IFF)

Associate Dean, School of Business

Department of Digital Systems

University of Nicosia

Blockchain in Academia: The case of the University of Nicosia

Case Outline

Episode 1: Program conception and launch

Episode 2: From small wins to success

Episode 3: Continued improvements maintain success and protect competitive advantage

Episode 4: Building self-verifiable blockchain based diplomas

Episode 5: Introduce NFTs and SBT NFTs in certificates issuance and validation

Episode 6: Moving ahead – The UNIC Metaverse Experiment

Blockchain in Academia: The case of the University of Nicosia

Episode 1: Program conception and launch

- 2012: UNIC council members located in NY and Cyprus exchanged Bitcoins

- Lack of academic programs on Blockchain

- November 2013 announcements: (a) Offer an MSc program on digital currencies and (b) Accept Bitcoins as payment for tuition fees.

- April 2014: MOOC announcement

- May 15, 2014: MSc in Digital Currency launched

Blockchain in Academia: The case of the University of Nicosia

Episode 2: From small wins to success
MSc in Digital Currency

Type	Course	Semester	ECTS
Core	Introduction to digital currencies	1	10
Core	Money and Banking	1	10
Core	Regulation and Digital Currencies	1	10
Core	Principals of Disruptive Innovation	2	10
Core	Blockchain Technology and Applications	2	10
Core	Open Financial Systems	2	10
Elective	Emerging Topics and Practical Considerations in Blockchain	3	10
Elective	Cryptographic Systems Security	3	10
Elective	Digital Currency Programming	3	10
Elective	International Currency Markets	3	10
Elective	Digital Currencies in the Developing World	3	10
Elective	Financial Markets and Alternative Investments	3	10
Elective	Master Thesis	3	20
Elective	Master Project	3	20

Blockchain in Academia: The case of the University of Nicosia

Episode 2: From small wins to success
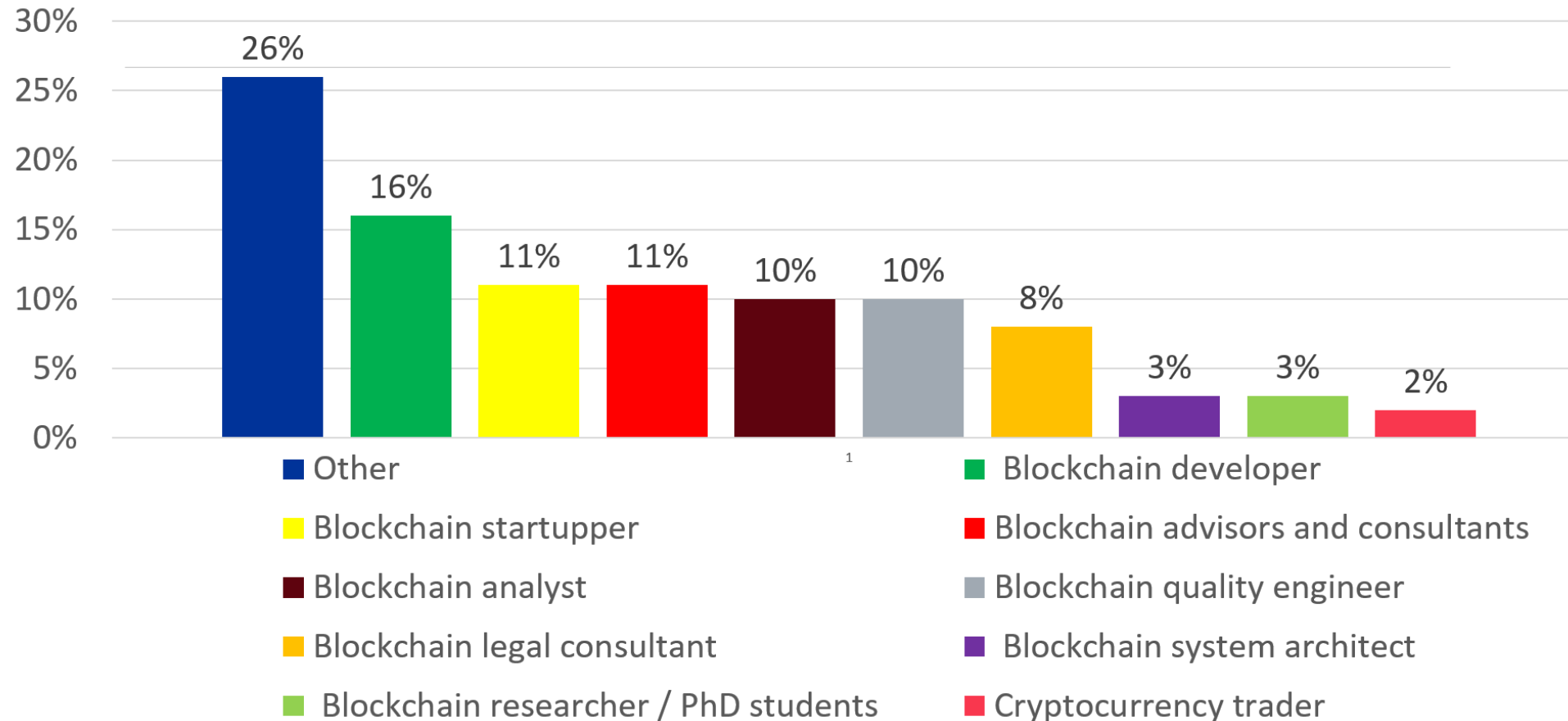
MSc in Digital Currency

- Mode of delivery – e-learning

- Moodle LMS

- Evaluation: interactive activities, assignments/exercises, final exam

- eProctorio – online invigilated exams

- Live sessions

Blockchain in Academia: The case of the University of Nicosia
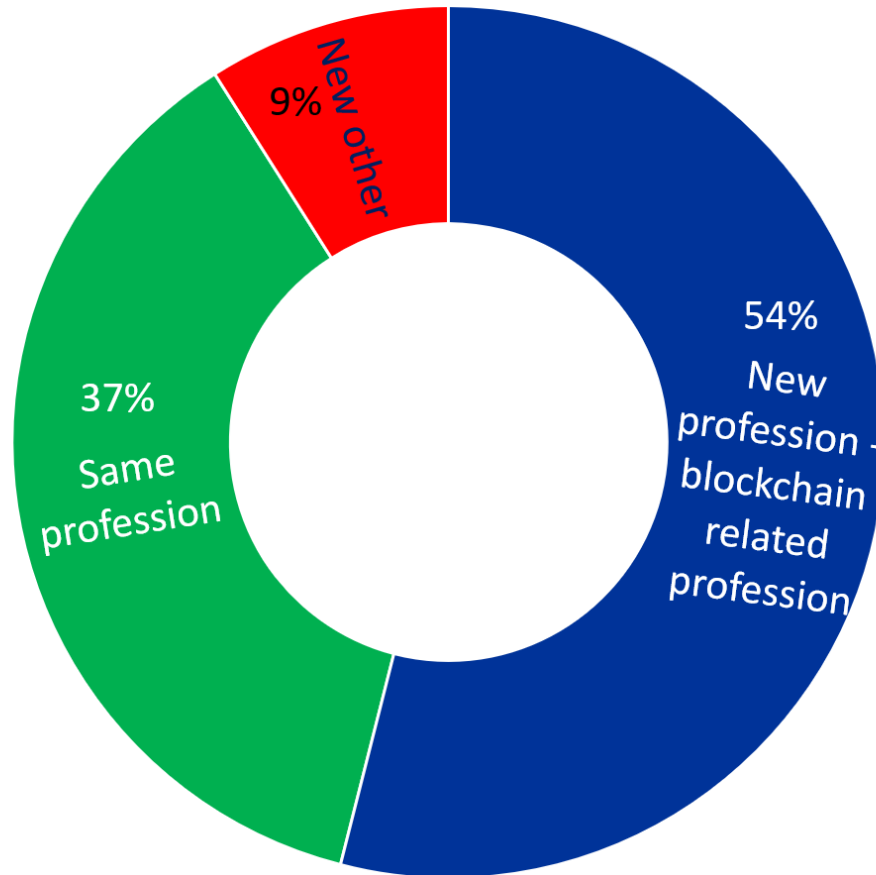
Episode 2: From small wins to success

Students Employability

Blockchain in Academia: The case of the University of Nicosia

Episode 2: From small wins to success

Changes in the Profession since the Beginning of the MSc

54%
New profession – blockchain related profession

37%
Same profession

9%
New other

UNIVERSITY of NICOSIA | DEPARTMENT OF DIGITAL INNOVATION

Blockchain in Academia: The case of the University of Nicosia

Episode 2: From small wins to success

A UNIC Story – Tey El-Rjula (EN)

Blockchain in Academia: The case of the University of Nicosia

Episode 3: Continued improvements maintain success and protect competitive advantage

● Blockchain 1.0	● Blockchain 2.0	● Blockchain 3.0	● Blockchain 4.0	● Blockchain 5.0

2009

Cryptocurrencies

2015

Smart contracts

2017

Decentralized
Applications

2019

&

Interoperability
and Scalability

2020

CBDCs

NFTs
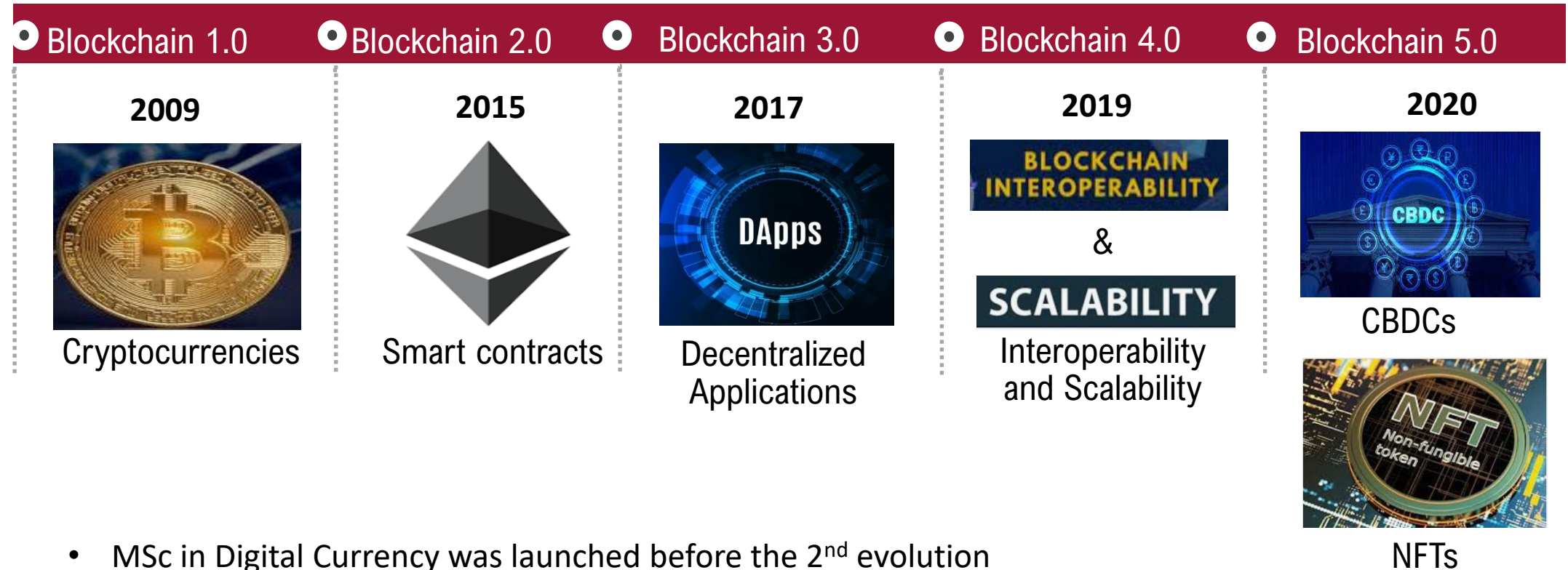
- MSc in Digital Currency was launched before the 2nd evolution
- Need to move ahead

Blockchain in Academia: The case of the University of Nicosia

Episode 3: Continued improvements maintain success and protect competitive advantage

- MSc program restructured

- Goal: Revise the program in a way that is aligned with the latest technological developments

- New courses were introduced eg:
  - Tokenomics
  - Fintech
  - DeFi
  - Smart contracts programming,
  - Permissioned blockchain programming, and
  - Permissionless blockchain programming were
  - Blockchain entrepreneurship management
  - Emerging topics in blockchain law and regulations

- Other were removed from the program

- Program was renamed to Blockchain and Digital Currency

- Offered in both e-learning and on-campus modes of delivery

Blockchain in Academia: The case of the University of Nicosia

Episode 3: Continued improvements maintain success and protect competitive advantage

- School restructuring / Department of Digital Innovation (DDI) was established

- DDI hosts the MSc in Blockchain and Digital Currency

- The 2 MSc programs and DDI were accredited by CYQAA (National body) in 2019

- The new program was launched in Fall 2021 with huge success

- 342 new students joined in 2021-2022 (328 e-learning and 14 on campus) (all time high for e-learning program)

- 16.000+ students joined the MOOC

- Fall 222: 165 e-learning and 19 on-campus students – 12.000 students for MOOC in Blockchain and Digital Currency and another 6.500 for the DeFi MOOC

- Overall

- 100.000+ participants have attended the MOOC in Blockchain and Digital Currency since 2014

- 1300+ students joined the program

- 850+ graduated

- 12.000+ participants have attended the MOOC in DeFi (launched in 2021)

- Engageli elearning software

Blockchain in Academia: The case of the University of Nicosia

Episode 3: Continued improvements maintain success and protect competitive advantage

Type	Course	Semester	ECTS
Core	Blockchain and Digital Currency	1	10
Core	Blockchain Systems and Architectures	1	10
Core	Law and Regulation in Blockchain	1	10
Core	Emerging Topics in Blockchain and Digital Currency	2	10
Core	Blockchain and Entrepreneurship Management	2	10
Core	Principles of Money, Banking and Finance	2	10
Elective	Digital Currency Programming	3	10
Elective	Smart contract programming	3	10
Elective	Permissioned Blockchain Programming	3	10
Elective	Cryptographic Systems Security	3	10
Elective	Emerging Topics in Fintech	3	10
Elective	Emerging Topics in Law and Regulation	3	10
Elective	Token Economics	3	10
Elective	Open and Decentralized Financial Systems	3	10
Elective	Master Thesis	3	30

Blockchain in Academia: The case of the University of Nicosia

Episode 4: Building self-verifiable blockchain based diplomas

Motivation

- *"For us it was like being in the early 90s where we started researching and teaching Internet but we had not built a solution to demonstrate its usage. At that time, we had a theoretical understanding but not a good practical experience. It was like talking about e-business and the things we can do with Internet but without having deployed a web server or developed a web application. We wanted to enhance our practical knowledge as it is one thing to teach a topic that you read in a book and another thing to combine your practical, theoretical and research experience and share it with your students. So, our goal was to get a better understanding of the blockchain technology and how it works. For us it was important to understand how to build a blockchain solution on Bitcoin protocol and explore how to integrate it into a web application that will allow others to use it. We also wanted to implement a solution* that is *relevant to our core business; a solution that can be used by our students. And of course, the result was to build a blockchain application for the issuance of UNIC certificates on Bitcoin blockchain."*

Blockchain in Academia: The case of the University of Nicosia

Episode 4: Building self-verifiable blockchain based diplomas

Three stages: Issue, Validate, Revoke

Blockchain in Academia: The case of the University of Nicosia

Episode 4: Building self-verifiable blockchain based diplomas

- Why is this solution important?

- It is estimated that 2,262,217,440 records are lost/stolen per annum as below:

- Every day: 6,197,856

- Every hour: 258,244

- Every minute: 4,304

Blockchain in Academia: The case of the University of Nicosia

Episode 4: Building self-verifiable blockchain based diplomas

- In 2019, UNIC established Block.co, its spin-off to commercialize this solution

- 1st version was designed for Bitcoin blockchain

- Then moved to Litecoin to monitor transaction cost

- Block.co serves multiple sectors of the economy

- Legal certificates, degrees, shipping certificates (19 different types) etc

- Block.co USP: "Issuing revokable certificates on blockchain"

Blockchain in Academia: The case of the University of Nicosia

Episode 5: Introduce NFTs and SBT NFTs in certificates issuance and validation

- Issuance of certificates in the form of NFTs

- September 2022 – Issuing certificates as Soul Bound Token (SBT) NFTs

- SBT = Non transferable, non bought, non sold and with no monetary value

- SBT are issued upon the completion of and achievement (e.g. graduate from University)

Blockchain in Academia: The case of the University of Nicosia

Episode 6: Moving ahead – The UNIC Metaverse Experiment

- First **NFT** (Non-Fungible Token) Gated course.

- Students had to **claim** an NFT in order to access the course

  - More than 24.5 thousand NFTs were minted

  - More than 19 thousand individual students

- This NFT was the access **key** to the entire course, from accessing the **OM** (more on that in the next slide) to all the material **air drops** and **claims**.

Blockchain in Academia: The case of the University of Nicosia

Episode 6: Moving ahead – The UNIC Metaverse Experiment

Course Delivery

- A purely on-chain platform was used to host all the lectured and campus of the university.

- It is called **Sector0** in the OnCyber platform

- There students have an distinct avatar and can move around the space (like in a Game) interact with each other and attend the lectures in a virtual environment

- They are also able to create their own spaces and galleries and **display** all their NFT artwork so everyone can see them

Content and standards of program of study

UNIC open metaverse experiment

Screen 1: UNIC meta-campus

Screen 2: UNIC meta-campus

Screen 3: UNIC meta-campus – outdoor lecture theatre

Screen 4: UNIC meta-campus – NFT exhibition room

Blockchain in Academia: The case of the University of Nicosia

Episode 6: Moving ahead – The UNIC Metaverse Experiment
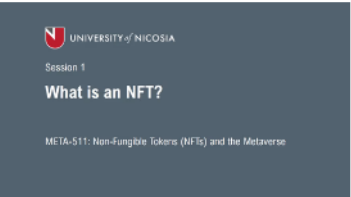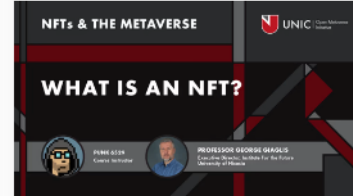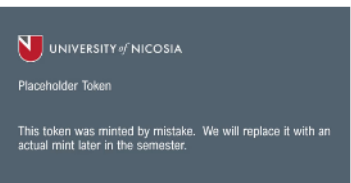
Post Course Delivery

- All the material, session recordings and transcripts are then posted using decentralized storage methods

- The instructors used Ardrive, where all the large files (Videos) are uploaded in a decentralized way, and Github were all the links and small file are collected : https://github.com/UniversityOfNicosia/META511MC-Course-Materials

- Then all the the material becomes available in the form of an NFT and students can claim it to their wallet.

Blockchain in Academia: The case of the University of Nicosia

Episode 6: Moving ahead – The UNIC Metaverse Experiment

Blockchain in Academia: The case of the University of Nicosia

Episode 6: Moving ahead – The UNIC Metaverse Experiment

- UNIC MSc in Metaverse has been accredited by CYQAA

- It will be launched in September 2023 and it will be the 1st MSc in Metaverse in the world

Blockchain in Academia: The case of the University of Nicosia

Conclusions

- Think Big

- Be there, be on time, and be good

- Focus on growth

- Develop open, scalable, and interoperable products

- Keep innovating and pay attention to quality and continuous improvement

- Be generous

UNIVERSITY of NICOSIA

Questions?

Contact Us:

Prof. Marinos Themistocleous
Email: themistocleous.m@unic.ac.cy
Twitter: @Themistocleous6