



## CONTENT

- A. Our company Onyx
- B. iSeal: A unique invention of anti-counterfeiting
- C. CyLock: unhackable remote lock
- D. eFence: smart electronic fence
- E. TrustFaceID
- F. Cooperation opportunities



## IoT security

A rich land that has not yet explored much



## VISION: THE HARDWARE SECURITY SECTOR

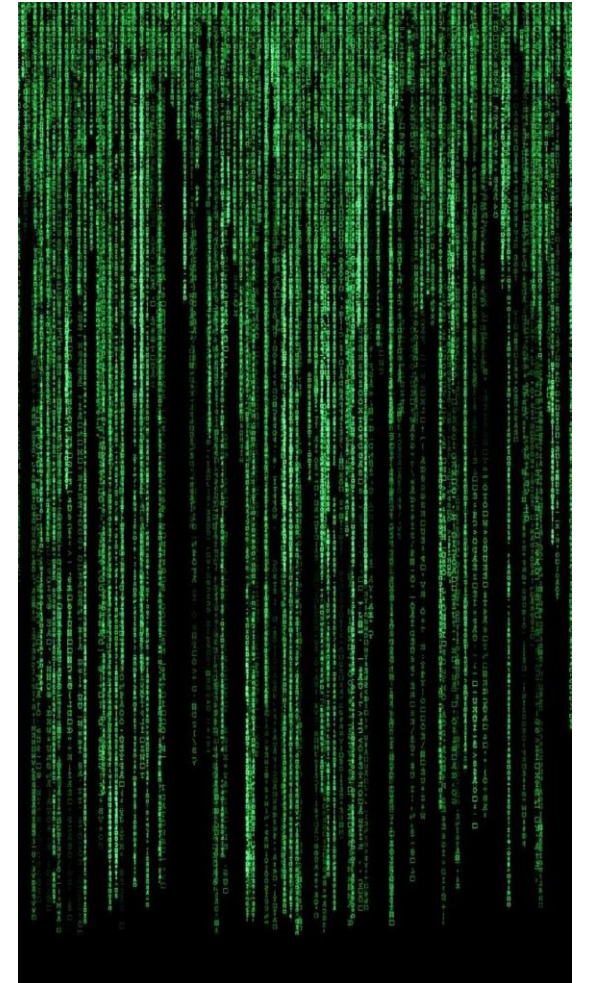
Founded in 2015, Onyx pioneered in the field of hardware security

While computers are protected with firewalls or anti-virus software, other devices are not protected. This is the field of IoT Security that is a new land that few people have explored.

Onyx's mission is to explore this new land.

➡ According to Kaspersky, in the first six months of 2021 there were 1.51 billion attacks on IoT devices globally. That is more than doubled compared to the same period last year

View information at [www.iotworldtoday.com](http://www.iotworldtoday.com)



# + Mission and Achievements



The field of IoT Security is a new land that few people explore. Onyx's mission is to explore this new land. After 5 years of research and innovation, Onyx now has many patents in the field of hardware security. Included:

- **CyLock:** New remote control lock technology, overcome the security holes of old technology, protect assets.  
*[WIPO patent [WO2021174264](#) ⇌ published, ISR/WOSA by KIPO]*
- **eFence:** New electronic e-fence technology, overcome the security holes of old technology, protect assets.  
*[WIPO patent [WO2022043756](#) ⇌ published, ISR/WOSA by EPO]*
- **TrueOrigin:** New technology to identify goods, authenticate origin, use PoA Blockchain, protect the market's trust.  
*[WIPO patent [WO2022094635](#) ⇌ published, ISR/WOSA by EPO]*
- **OnyxCypher:** Random encryption. Content protection.  
*[WIPO patent [WO2022170370](#) ⇌ published, ISR/WOSA by EPO]*
- **TrustFaceID:** Human identity authentication technology uses artificial intelligence, is more effective, protects identity.



In this presentation I introduce the principles used in CyLock, eFence, TrueOrigin

TrustFaceID



## iSeal

### Contents

1. Problem
2. Our solution
3. Product
4. Why now
5. Market

**B**

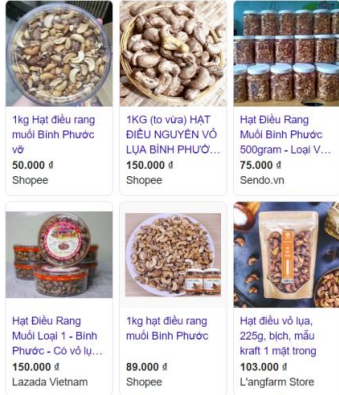
# iSeal technology presentation

A unique invention of anti-counterfeiting, impossible to counterfeit.

**New opportunity for e-commerce**

**Justice for everyone:** Protect consumers, protect the brand name of regional agricultural products. Protect the market's trust.

# + Problem:



## Regional agricultural products on E-commerce Exchange

- There are very few specialties with very limited annual production, but the source cannot be pinpointed.
- Valuable specialties are still rarely found through e-commerce, which is a big disadvantage.
- The price fluctuates in a large range, there is no way to know how the price goes hand in hand with the quality

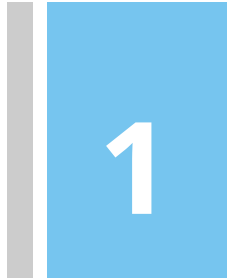


## The problem of counterfeit/counterfeit goods Regional specialties

- Ngoc Linh Ginseng (Panax Ginseng) and bird's nest are both precious medicines, are National treasure, with an economic value of up to hundreds of millions of VND dong/kg, traders defy everything and find ways to fake Ngoc Linh-branded products to gain illicit profits. This has been causing heavy damage to the reputation and brand of Ngoc Linh ginseng. [ [link](#) to article ]
- Bought bird's nests but received ... snow mushrooms. [ [link](#) to article]
- And many articles in recent years have stated this alarming situation without a thoroughly solution to solve the problem.



A brand protection solution for regional specialty production facilities is an existing and urgent need



Pháp luật

### Bảo động tình trạng giả mạo sâm Ngọc Linh

Chủ Nhật, 14-03-2021, 02:05

Facebook Email Bản in A+



Vietnam.net

#AFF2020 #COVID-19 TIN NÔNG

Chính trị Thời sự Kinh doanh Giải trí Thể giới Giáo dục Đời sống Pháp luật Thể thao Công nghệ Sức khỏe Bất động sản

Sự kiện nóng lũng phạm vương vòng lao lý # Đường sắc Cát Linh - Hà Đông chày thương mại

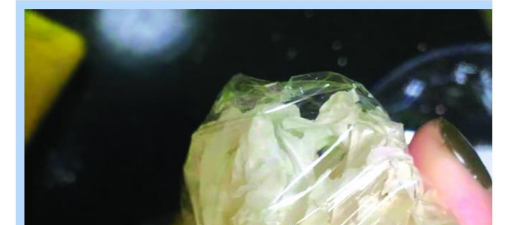
**BẢO VỆ NGƯỜI TIÊU DÙNG** HÀNG THẬT - HÀNG GIẢ

Mua yến sào nhưng nhận... năm tuyết 21/12/2020 10:59 GMT+7

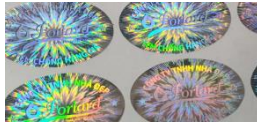
Mua yến sào trên mạng, người mua nhận được... năm tuyết. Mua iPhone 12 nhận được... cục gạch.

Bỏ tiền mua yến sào nhưng sản phẩm mà người mua nhận được chỉ là bịch năm tuyết với giá rẻ hơn rất nhiều. Tình trạng mua hàng qua mạng xã hội Facebook bị lừa đảo như trường hợp này xảy ra khá nhiều.

Tưởng mua được yến sào giá rẻ  
Nạn nhân của trò lừa đảo trắng trợn này là chị V.T.T.H., ngụ tại TPHCM. Phân ánh đến Báo Phụ Nữ TPHCM, chị cho biết, trên fanpage "Tổ Yến - Yến sào Nha Trang thương hạng" rao bán yến sào với giá khá thấp, 100g yến sào ướp Khảnh Hòa - Nha Trang chỉ 680.000 đồng, còn được tặng thêm táo đỏ, đường mật mía, miễn phí giao hàng và cam kết hoàn lại tiền nếu sản phẩm không đúng chất lượng. Do thấy giá rẻ nên chị đã nghĩ lấy loại yến đặc biệt, được niêm yết giá 780.000 đồng/100g.



# + EXISTING SOLUTIONS

| Type                                          | Anti-counterfeiting method                   | Image                                                                               | Safety level                                                                                   |
|-----------------------------------------------|----------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------|
| QR-Code                                       | Printing technology                          |   | Low,<br>Can be printed by another printer                                                      |
| Hologram                                      | Printing technology                          |   | Low,<br>Can be printed by another printer                                                      |
| Scratch stamps                                | OTP code                                     |   | Yes,<br>Hard to use, only used once,<br>Not useful for market managers                         |
| Normal NTAG                                   | Password 32 bits                             |  | Low,<br>Can be copied by smartphone                                                            |
| AI fraud reveal<br>(not available on markets) | Invalid logic in the transaction information | Could be: qr-code, normal ntag                                                      | Can only give questionable results (non-confirmed), run reports periodically (not immediately) |

Spoofing detection by AI is raised because that is one direction to look at. However, it is not yet available on the market because of many technical barriers that we do not analyze in this document.

Our new technology completely overcomes the disadvantages of the above 5 methods

1



Anti-counterfeiting stamps are still counterfeit!



It's opportunity for new tech can solve the problem

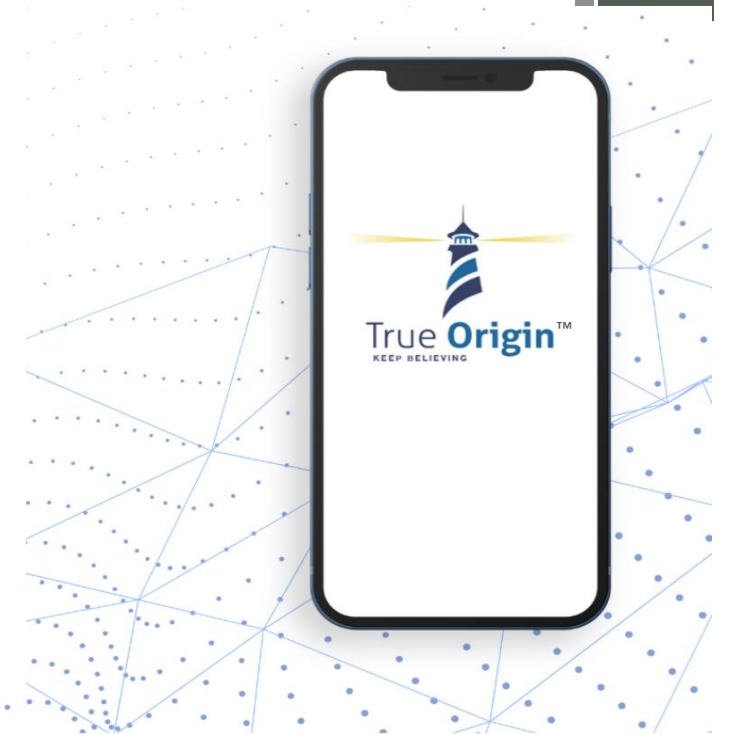
# OUR SOLUTION

## Origin Authentication System

2

### Includes 5 components:

1. iSeal™ core-technology
2. UHF chip stamp
3. PoA BlockChain authentication
4. TrueOrigin™ Portal
5. TrueOrigin™ App (smartphone)



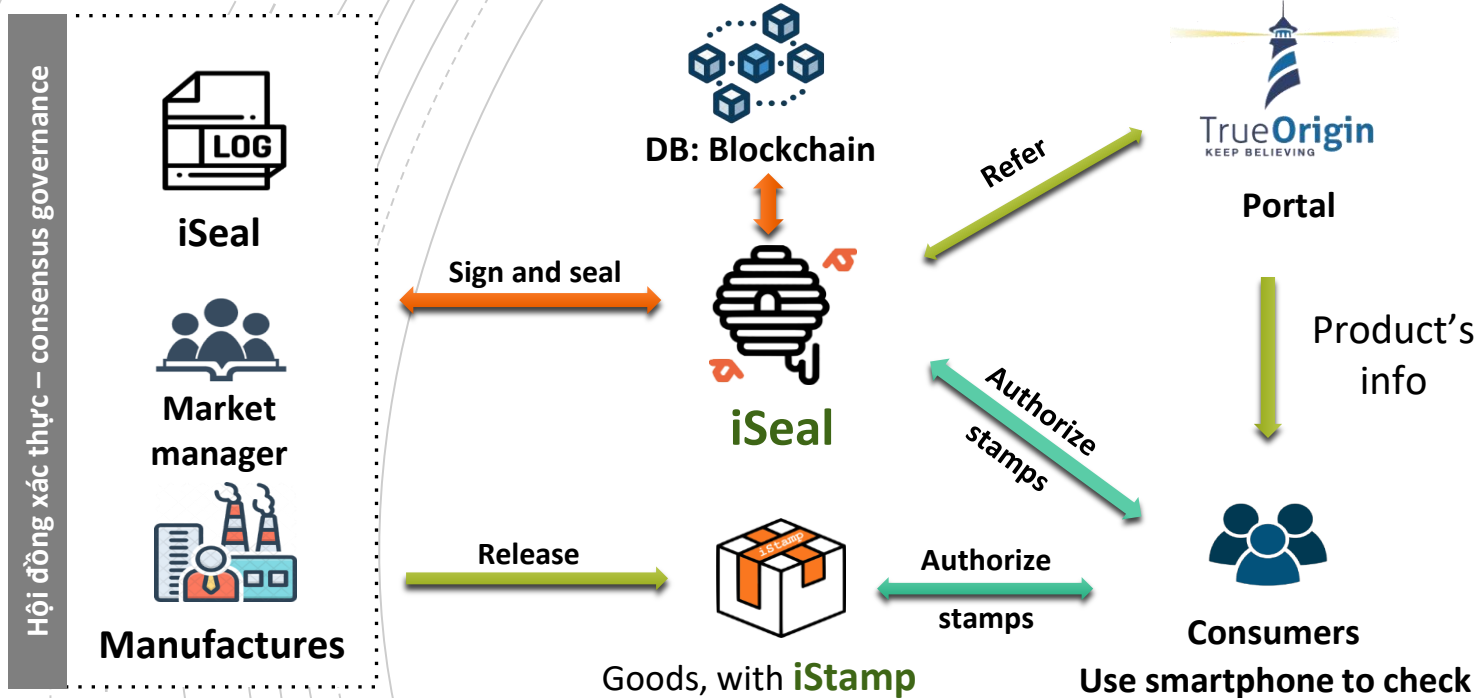
With chip-blockchain stamps **cannot be tampered with**, using iSeal core technology, **completely eliminating the weaknesses** of old technologies

- *The invention with 06 independent claims, No: 1-2020-06329*
- *WIPO no: PCT/VN2021/000020*

# SOLUTION

## Origin Authentication System

2



3 The system ensures that the information received by the consumer is correct, by a Stamp (information carrier) can't be tampered with.

4 Consumers check when buying

5 The system provides a technology platform for manufacturers to post products information, which can be detailed to each stage of care to get quality finished products to supply to the market.

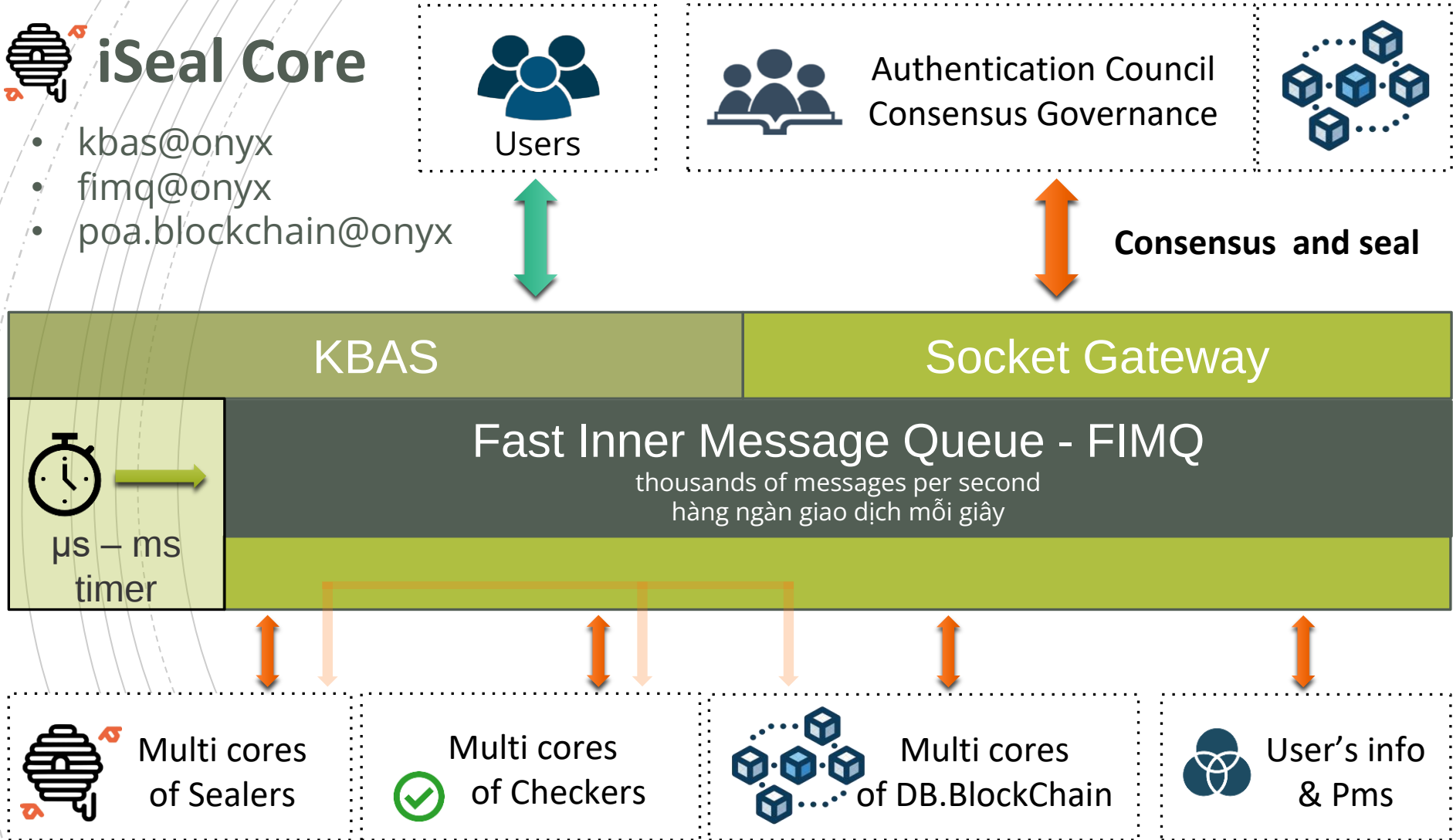
1 Manufactures, farms: Sticking the identification stamp, signal the origin, and carrying information about the product.

2 Consumers check when buying: use TrueOrigin app on smartphone to check

# iSeal™ core-tech

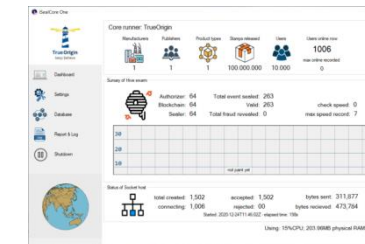
We understand that when the number of users increases, the requirement of fast processing speed with a large amount of information to be processed is a difficult technology request. This core technology structure allows for unrestricted expansion of processing traffic.

iSeal was registered by OnyxVietnam with WIPO. The important components of iSeal core are all developed and mastered by Onyx



# PRODUCTS

- **iStamp:** chip stamp on goods
  - Vari of sizes and shapes
  - Vari of protection levels and prices
- **iSeal:** core technology, stamp authentication
  - Stamp authentication, **Blockchain code tape**
  - Pack of limited license or unlimited license
- **Portal:** TrueOrigin
  - The product's public info on the Web
  - Reports for manufactures
- **App:** End-user
  - Android & iOS
  - Check & Vote & Share
- **Supporting equipment:**
  - Labeling machine
  - Pasting machine



iSeal core dashboard  
demo: [Click to view](#)



# BENEFITS

3



Consumers



- *Verify origin in a reliable way*
- *Get protected benefits when buying*
- *Trust to buy online when knowing the origin*



Manufactures



- *Increase sales*
- *The distribution system becomes more reliable*
- *Trademarks are protected*
- *Almost not change the sale process*
- *Quick reports*  
*(by region, by agent, by time ...)*



Government



- *Has a more powerful market management tool*
- *Get more complete, faster market information*
- *Increase tax revenues*



Protect trust  
for the  
market



Trust make  
value

# ADVANTAGES of iSeal

3



## Transparent

The system is transparent with the manufacturer's release stamp, i.e. iSeal cannot voluntarily issue iStamp to a manufacturer without their knowledge



## Trust protection

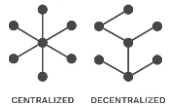
Trust is at the core of running the economy,



## Competitive price

Platforms that support iSeal are entirely owned by Onyx :

- Blockchain, KBAS: lower operating cost than buying foreign blockchain;
- There is no competitive solution with equivalent strength



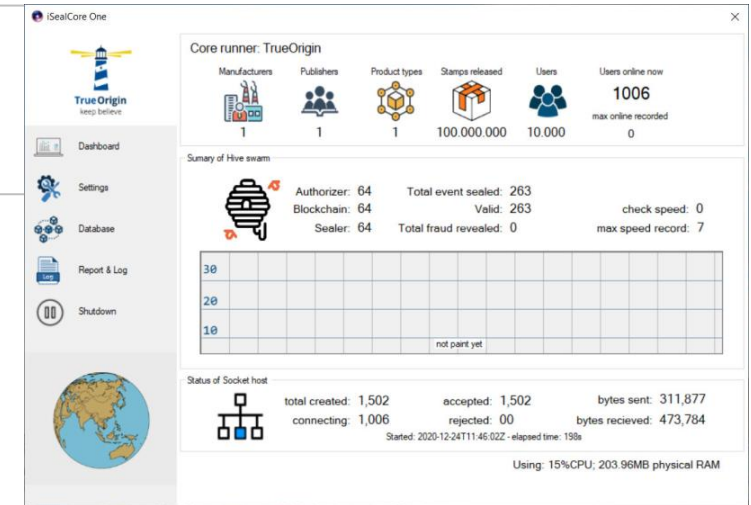
## Distributed or centralized

Distributed, even public, the security feature is a feature of Blockchain cypher. Or centralize data in a large database, security features are still preserved.



## Integration into other systems

Platform designed, API allows connection to other systems, for example: Payment: Kiosk "spot payment" or each supermarket can be equipped with "hand check machine to pay for bank cards" / "payment app via e-wallet"; Customer care before/after sales customer care;



iSeal core dashboard

# ADVANTAGES of iStamp



**Anti-copy, anti-disclaim**  
Anti-counterfeiting with cryptography



**Original source check**  
Determine the origin, route, of the goods



**Accurate**  
valid/invalid/ fraud detected



**Fast**  
Easy to check by smartphone



**Reusable**  
Up to 100k of check times



## 5 levels of protection

**5. iSeal: consensus blockchain anti-clone**  
*Reveal and stop counterfeiting*  
Patent with 6 independent claims

**4. Deep check code**  
Offline quick check

**3. Quick check code**  
Offline quick check

**2. Error correction code**  
Allow working in faultable-environment,  
increased operational reliability

**1. Read/Write protect**  
Anti-disturbances

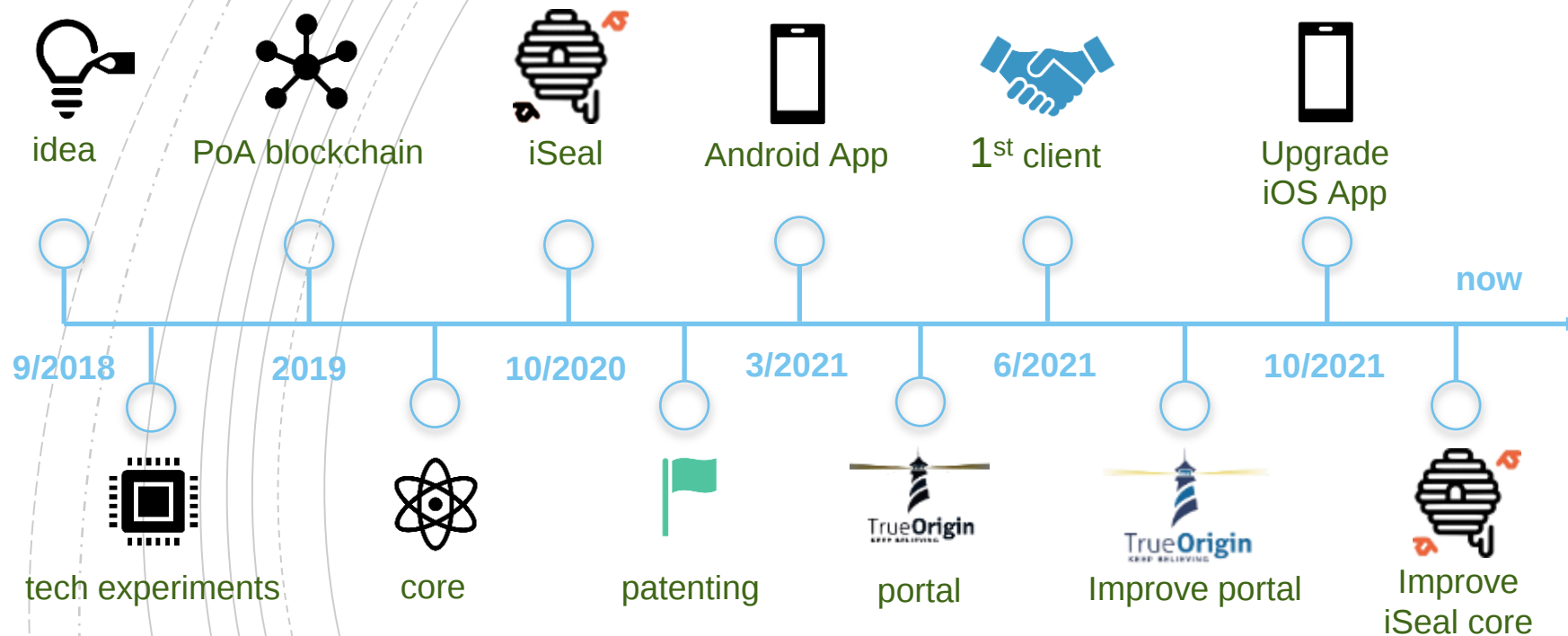


Highest level:  
anti-clone

*The highest barrier is no barrier anymore*

# WHY NOW?

## DEVELOPMENT JOURNEY



- Vietnam patent: 1-2020-06329
- WIPO No: WO2022094635
- TrueOrigin, iSeal are trademark protected



4



Giải thưởng:  
Sao Khuê 2021



Vietnam International  
Innovation Expo 2021

# + BUSINESS MODEL

5

Price level: Estimated selling price, according to annual sales volume

| Parts                   | 10k/year | 100k/year | 500k/year |
|-------------------------|----------|-----------|-----------|
| iStamp                  | 42.5¢    | 30.7¢     | 21¢       |
| iSeal protect & storage | 9¢       | 6.7¢      | 4.5¢      |
| iStamp release license  |          |           | 4¢        |
| iSeal patent license    |          |           | 0.2¢      |

Distribution model:



# + MARKETING STRATEGY



5

## Message: Keep believing!

The message carries the mission: Restore trust, protect trust for the market. Thereby keeping the value of the product, keeping agricultural production become sustainable.

## Main strategy: Go to the market!

### Strategy: 3 steps

1. Appraise



2. Spread



3. Dominate

### Tactics:

Use the right tactics for each step, each channel:

- Appraisal: Trigger technical events (pentest, hackathon), attend security technical forums, organize hack challenge prizes for iSeal and iStamp
- Spread: promotion programs (e.g., giving to clean agricultural establishments, channel owners selling specialty products online, trying products and introducing); providing TrueOrigin website portal platform to introduce detailed products to each production process. Therefore, manufacturers can reveal the quality of their products and increase their trust with customers; through referral KOLs ...

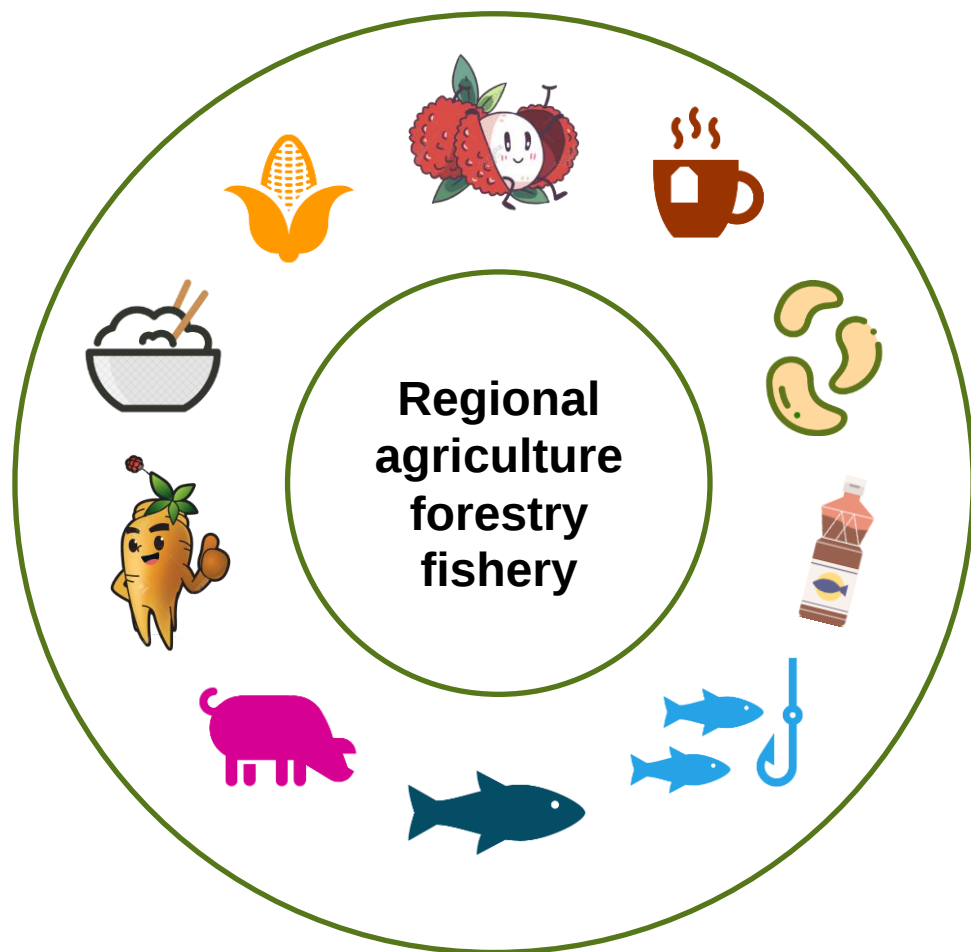
### Media channels:

Use traditional channels such as: Attending agricultural product events, press and television channels; and online media channels such as YouTubers, streamers, inspirational and influential individuals.



# CUSTOMER: Regional specialties

Regional agriculture-forestry-fishery: Pepper, Cashew, Café, Lychee, Longan, Rice, Ginseng ...



- Manufacturers stick the anti-counterfeiting stamp on the product
- Distributors check before stocking
- Consumers check before paying

## Benefits for consumers :

- Determine the origin of goods reliably
- Benefits are protected when buying
- Trust to buy online when knowing the origin

## Benefits for manufacturers:

- Protect and enhance the value of regional agriculture

5

Use your  
mobifone to  
check



# + Protect brand of Household Goods

Books, pharmaceuticals, fashion, electrical appliances, home appliances, jewelry, ...



5

Easy to check Origin by smartphone



- Manufacturers stick the anti-counterfeiting stamp on the product
- Distributors check before stocking
- Consumers check before paying

## Benefits for manufactures:

- *Increase sales*
- *The distribution system becomes more reliable*
- *Trademarks are protected*
- *Almost not change the sale process*
- *Quick reports*  
(by region, by agent, by time ...)

# + Protect Valuable Documents

Degrees, certificates, membership cards, certificates, achievements, contracts, artwork, attachments...



5

iSeal: Anti-copy, anti-counterfeiting with 5-level security technology



- Issuer of papers with iStamp on documents
- People easily check the documents validation
- Quickly check anywhere and anytime

## Benefits for users:

- *Verify origin in a reliable way*
- *Affirmation your information to your partner*
- *Resist denial when mistakes/problems occur*

# + Trace the production process

Store care history for each individual



5

- Manufacturers stick identification stamps on products, right from the start of farming
- At each time of care, care information is kept and updated for each individual
- With each harvest period, information on the quantity and quality of the harvested product is stored to continue the analysis along with the care history.

## **Benefits for manufacturers:**

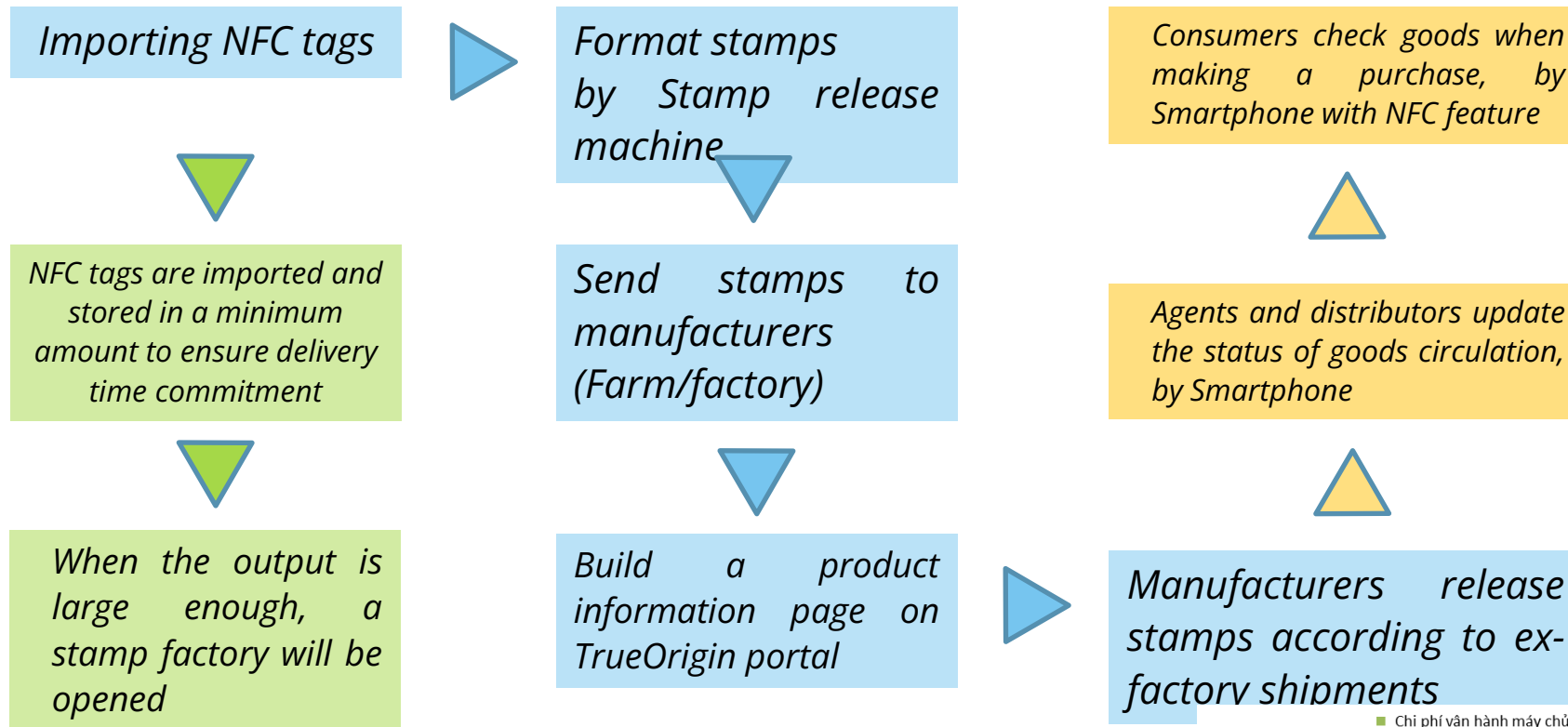
- *Product quality control: to each individual (individualized to each batch or each product)*
- *Analyze and improve care for new quantifiable experiences, from tracked information on care and harvest.*
- *Affirm and strengthen the trust of customers: when customers also understand that the process of creating a product is a great achievement, the quality commensurate with the price is a default that is hard to deny.*

These benefits are long term and point towards a Sustainable Agriculture

# + BUSINESS PRODUCTION PLAN

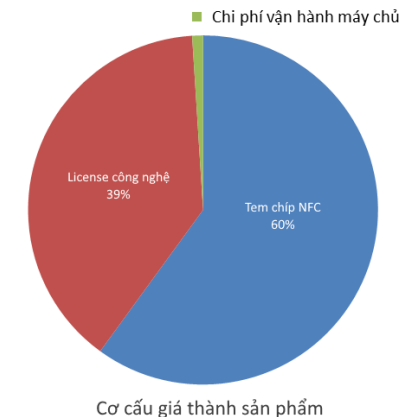
5

## Production:

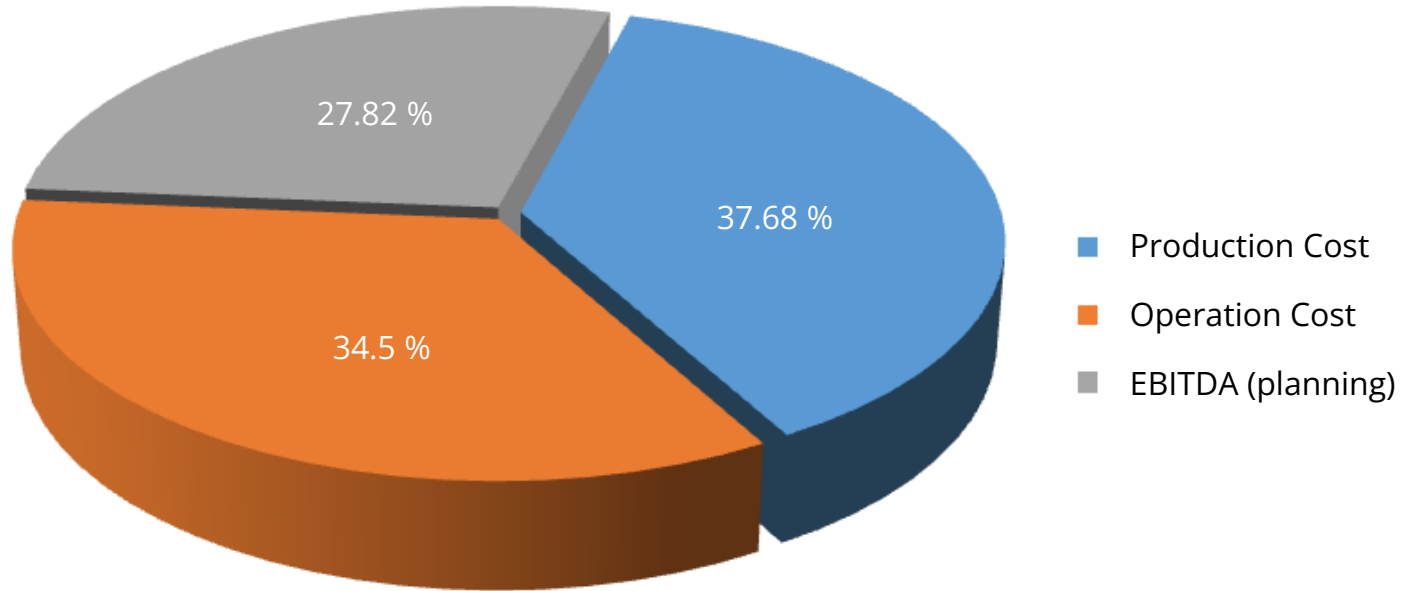


## Costs constituting the product cost :

- *Variable cost: NFC stamps, iSeal-tech license, server overhead cost (very small)*
- *Fixed costs: Technology development costs (included in product development costs and amortization according to technology license costs), office costs and personnel to operate the apparatus.*



# + BUSINESS PRODUCTION PLAN



Cost – profit structure



6

- Unlike the usual anti-counterfeiting QR-code stamps that are only perfunctory without protection, iSeal stamps have protective properties and cannot be forged, each customer is a Subscriber and at the same time is also a point of spreading value when introducing to customers the method checking by Smartphone Apps
- The capital turnover rate is very fast. Profit/Capital flow ratio is much higher than Profit ratio calculated by EBITDA
- In the first 2 years, use cash flow from Gross Profit to promote the first customers to use products/services.

# + POTENTIAL FOR FUTURE DEVELOPMENT:

6

## No borders:



- We have conditions to reach SAM while is protected the invent in 20 years.
- Anywhere in the world, Transparency is the factor that establishes and protects Trust
- The world's first solution to thoroughly solve the complete identification problem with an absolute anti-counterfeiting function.

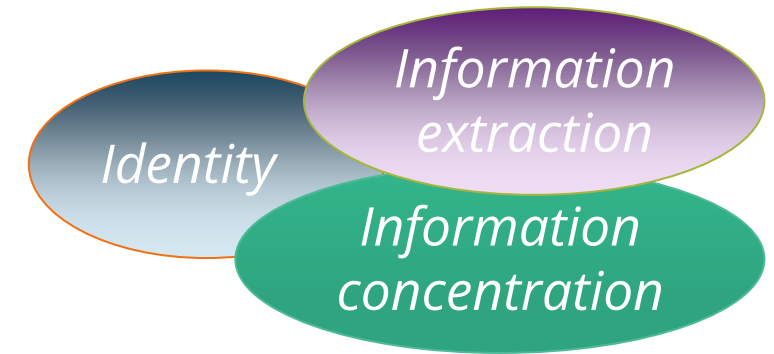
## Market size:

| Estimate                             | Vietnam                | ASEAN                  | Global                |
|--------------------------------------|------------------------|------------------------|-----------------------|
| Total addressable market (TAM)       | \$350<br>millions/year | \$3.1<br>billions/year | \$80<br>billions/year |
| Serviceable addressable market (SAM) | \$70<br>millions/year  | \$620<br>millions/year | \$16<br>billions/year |
| Serviceable obtainable market (SOM)  | \$35<br>millions/year  | \$310<br>millions/year | \$8<br>billions/year  |

# POTENTIAL FOR FUTURE DEVELOPMENT

- **Identity** is one of the three pillars of the future of Information Technology field.
- Attaching chips to identify goods is becoming an inevitable trend globally. This is a great opportunity to join now.
- Building a centralized database for the following industries: Agriculture, Forestry and Fisheries is a prerequisite for applying Information technology for sustainable agriculture.

*Three pillars of the future of IT.*



## Added values in the future :

### **Multiple layers of added value:**

*A reliable identifies of things is the foundation for many layers of value-added which can be thought of, e.g. Pig Forecast Map, when information is centralized, forecasting is one of the aspects edges of Information Mining.*

### **Genuine market:**

*e-commerce platform specializes in selling genuine products*

### **Automatic Logistic:**

*On the basis of a reliable, remote-checkable, fraud-detectable identifier, warehousing and unloading can be done automatically by robots, without the need for human presence.*

### **Market analysis:**

*Information mining, market analysis. Information about product distribution in the market is very important for businesses.*





# CyLock

## Contents

1. Problem
2. Our solution
3. Product
4. Market



# CyLock presentation

A new invention for remote door lock  
**unhackable**



*100% of remote keys in Vietnam contain serious security vulnerabilities.*

*CyLock completely eliminates this risk, providing security, protecting property.*



patent protection, 03 claims  
Wipo patent: **WO2021174264**  
Việt Nam: 1-2020-01076 | Taiwan: X211669TWI



# PROBLEM

Rolling-code security flaw

Defcon23 2015, Samy Kamkar publishes rolling-code security vulnerability



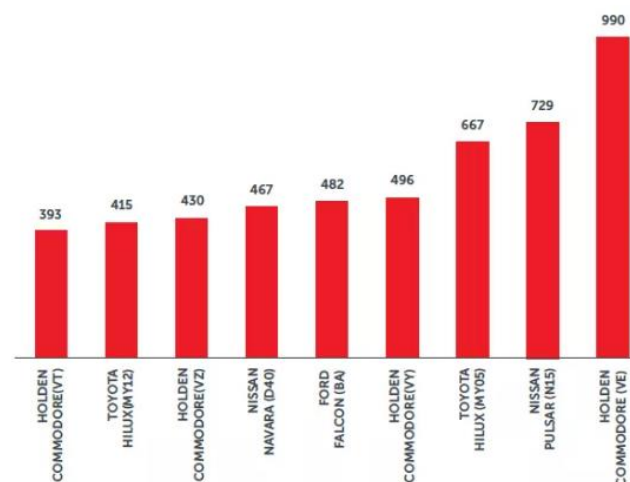
2018, US, **748.841** cases

Top 10 Most Frequently Stolen Vehicles, 2018

| All model years (1) |                              |        | 2018 model year vehicles only |                              |        |
|---------------------|------------------------------|--------|-------------------------------|------------------------------|--------|
| Rank                | Model                        | Thefts | Rank                          | Model                        | Thefts |
| 1                   | Honda Civic                  | 38,426 | 1                             | GMC Pickup (Full size)       | 1,170  |
| 2                   | Honda Accord                 | 36,815 | 2                             | Ford Pickup (Full size)      | 1,017  |
| 3                   | Ford Pickup (Full size)      | 36,355 | 3                             | Toyota Camry                 | 976    |
| 4                   | Chevrolet Pickup (Full size) | 31,566 | 4                             | Nissan Altima                | 912    |
| 5                   | Toyota Camry                 | 16,906 | 5                             | Chevrolet Pickup (Full size) | 790    |
| 6                   | Nissan Altima                | 13,284 | 6                             | Hyundai Elantra              | 775    |
| 7                   | Toyota Corolla               | 12,388 | 7                             | Ford Transit                 | 723    |
| 8                   | GMC Pickup (Full size)       | 11,708 | 8                             | Dodge Charger                | 719    |
| 9                   | Dodge Pickup (Full size)     | 11,226 | 9                             | Toyota Corolla               | 699    |
| 10                  | Jeep Cherokee/Grand Cherokee | 9,818  | 10                            | Chevrolet Malibu             | 698    |

2019, Australia, **58.285** case [2]

Most stolen cars in Australia in 2018



Up 9% compared to 2018

12% of cases due to somehow copying the key (hacker)

2021, **Vietnam**, hundreds of unknown-origin-cars were sold - [here](#)

[1] <https://www.iii.org/fact-statistic/facts-statistics-auto-theft>

[2] <https://www.budgetdirect.com.au/car-insurance/research/car-theft-statistics.html>

!!! This video verify the car lock security vulnerability: <https://youtu.be/SW2nif3QCkA>

Car theft insurance ?!?

# PROBLEM

Rolling-code security flaw

Defcon23 2015, Samy Kamkar publishes rolling-code security vulnerability



- In Vietnam, 100% of rolling door locks have Rolling-code or Fix-code security flaw
- 100% origin: China, Taiwan; There is no domestic lock producer
- 100% of rolling door manufacturers import locks and stretch their brands, they do not own technology, and they themselves do not understand the risks of the technology they are using



*1 small roadside lock shop, Making all:  
SmartKey car / motorbike / rolling door / elevator card*

*This video verify the door remote lock security vulnerability:*

[https://youtu.be/st\\_xSEitji0](https://youtu.be/st_xSEitji0)

*It is also the opportunity for new-tech which solve the problem*

# SOLUTION



**new concept, new protocol**

*Old concept: coding*



*open when right code,  
don't care who uses the code*

*New concept: authentication*



*Open when right code and  
right key*

*With Token 64 bits, CypherKey 256 bits; **can't be hack/crack**  
with nowadays computer science*

*Unhackable*

# PRODUCT



## CyLock: safety cypher lock

### ***The Key:***

- *Water proof IP68*
- *No need to change battery*
- *Enduring: 100k button pushes*

*Video: Stress test CyLock, 100k pushes ~28 years of use:*

<https://youtu.be/hElezSkTrtQ>

### ***The Lock:***

- *Unbrakeable crypto: AES, SHA*
- *Safety protocol: can not capture the code, can not clone the key*
- *Saving money: when lost a key just need pair new one to use*

*Unhackable, reliable, enduring*

# Market

## Property protection



Auto



Bike



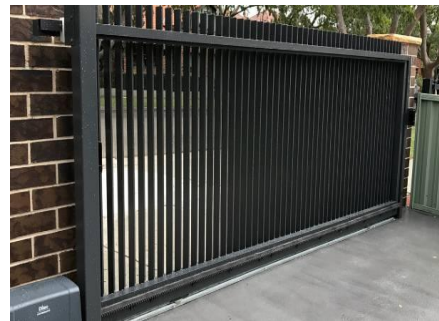
Electrical bike



Rolling door



Slide gate



Sky door

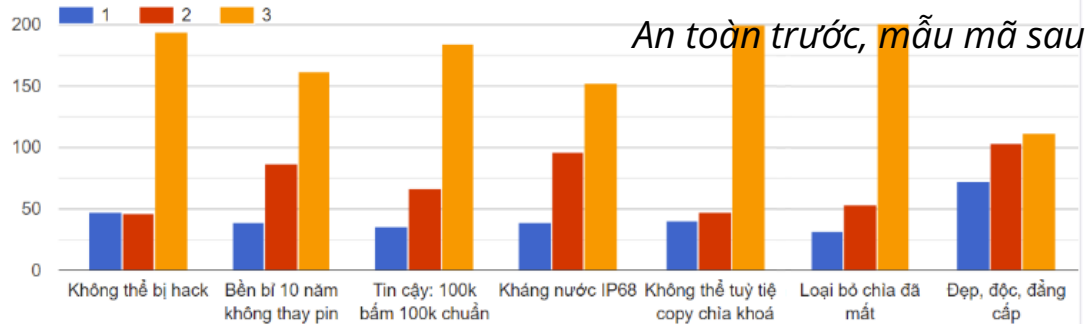


*Info: Việt Nam, more than 40 millions moto, market growth 10%*  
*Global: nearly 100 millions auto vehicles produced annualy*

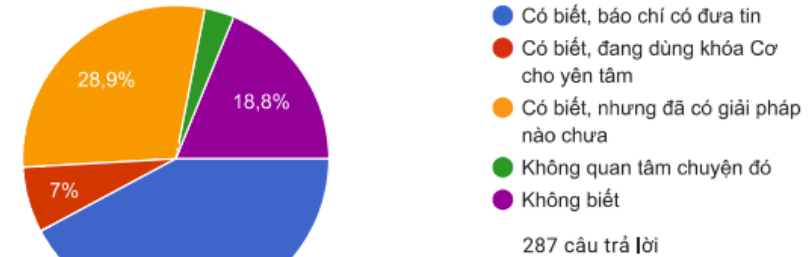
# Market survey



12. Chúng tôi tạo ra CyLock - Khóa mật mã an toàn, bạn quan tâm các tính năng dưới đây ở mức độ nào? (trong thang đo tăng dần từ 1-3)

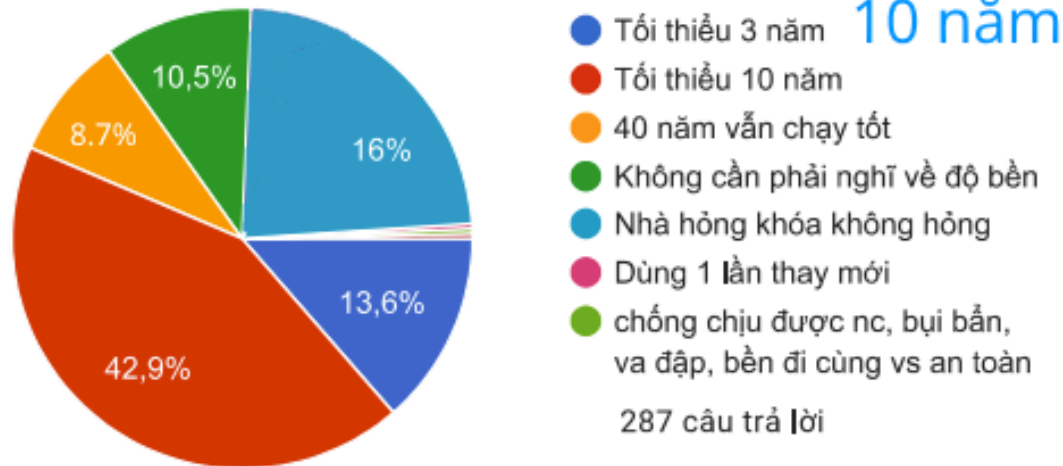


4. Bạn có biết rằng khóa từ xa (ôtô, cửa cuốn) có thể được sao chép dễ dàng, hoặc bị hack và xâm nhập bằng một thiết bị rẻ tiền? mà không để lại dấu vết gì?

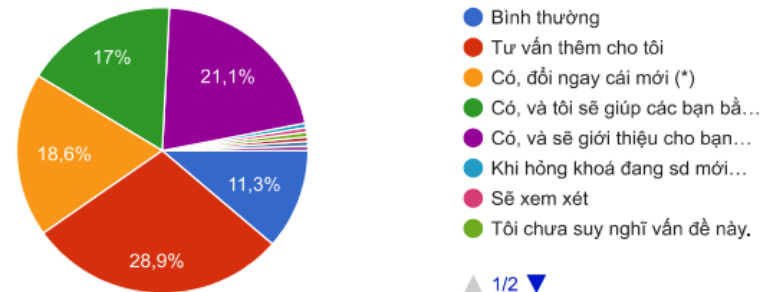


không cần educate thị trường

7. Theo bạn một bộ khóa cần bền đến mức nào?



11. Giả định bạn đã biết bộ khóa remote của bạn rất dễ bị hách cơ / kẻ xấu khai thác đột nhập mà không biết; trong khi đó có loại mới là CyLock - Khóa mật mã an toàn, không bị hách, bạn có sẵn sàng mua mới để thay thế không?



Lực cản nhỏ hơn so với hình dung ban đầu

Go to the market



## Content

1. Problem
2. Our solution
3. Product
4. Market



# eFence presentation

An invention of secured electronic fence  
**uncheatable**

# + Smart electronic fence

The logo for eFence features the word "eFence" in a bold, italicized, blue sans-serif font. A dark blue, curved, triangular shape is positioned above the "e" and "F", resembling a stylized fence or a protective shield.

***Smart electronic fence***

*100% of the anti-theft fences currently on the market are not resistant to targeted attacks.*

*eFence completely eliminates this risk, protects, provides safety.*

# PROBLEM

1



The current types of electronic fences have many disadvantages:

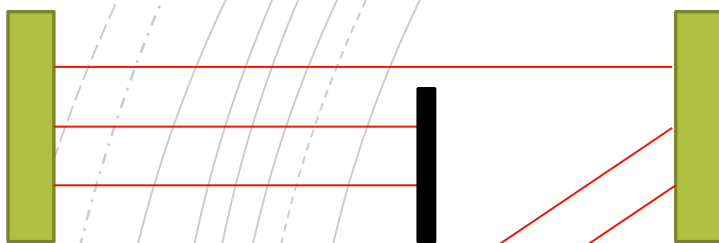
- Easily subject to beam tampering and intrusion
- Limited range of protection
- Use a lot of energy

# SOLUTION

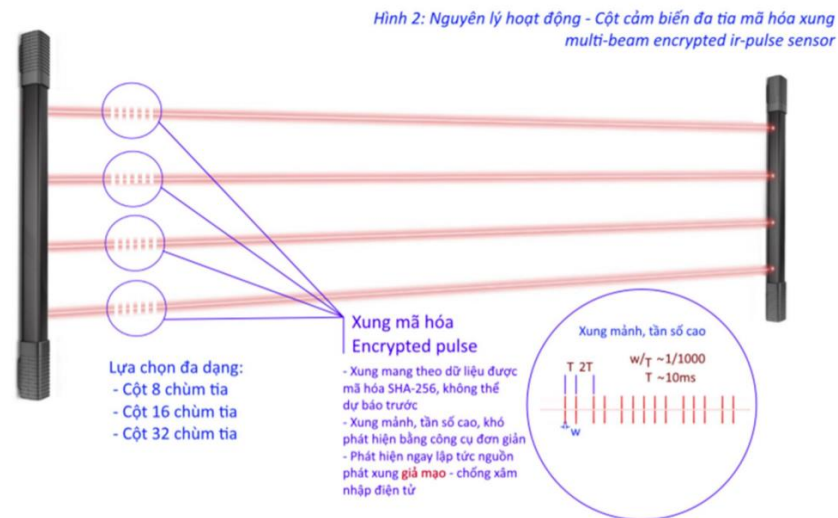


**New concept,  
New protocol**

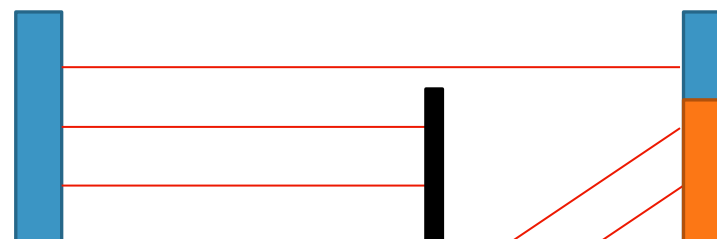
*Old concept:  
Interrupt beam*



*Warn when beam is obscured  
Fake beam could not be detected*



*New concept:  
Encrypt beam*



*Warn when beam is obscured  
Alarm when beam is faked*

With 64 bit Token, 256 bit CypherKey; **can't be hack/crack with current computing technology**



## Sercured BeamTransfer

Lưới hồng ngoại mã hóa

- Anti-white noise: unaffected by hot weather.
- Optimizing power generation to save energy.
- Can use electricity from solar energy.
- Can't see the wall to dodge.
- Disable intrusive hacking devices: eavesdrop and saved codes, emit fake pulses to deceive fences.



## UltraRange

Phạm vi bảo vệ rộng lớn

- Each IR sensor column is equipped with 8/16/32 beams
- Each column is capable of emitting and receiving beams in 2 directions (left, right), each column is 16-bit addressable creates a sequential fence structure, up to a maximum of  $2^{16}$  columns (65536 columns, equivalent to 6500km)
- Infrared pulse emission through optical lens: emission distance up to 100m



## SmartDetect

Nhận diện xâm nhập

- Simultaneous recognition of 4 objects;
- Noise detection and measurement. ex: fluttering leaves, dust, sunlight;
- Small object warning. ex: small animals, small objects flying by;
- Intrusion alarm. ex: large animals, intruders crossing fences;
- Electronic intrusion alarm. ex: Hacker is trying to penetrate electronically;



## CryptoDefense

Tấn công mật mã hầu như bất khả thi với nền tảng điện toán hiện nay

### eFence, an Onyx invention:



WORLD  
INTELLECTUAL PROPERTY  
ORGANIZATION

24 claims protection at WIPO: **WO2022043756**

# MARKET



## BORDERS

*Vietnam, with over 5000km of land border; the current state of intrusion into the open road has seriously affected the epidemic prevention and control work, the prevention of smuggling, the border fence is estimated at 4000km, worth billions USD; Military and civil works that need to be protected such as warehouses, yards, factories, factories, ports, airports, are also major assets of the country that need to be protected, with a market worth billions USD*

## CIVIL APPLICATIONS

*Safe home*

- Anti-theft, anti-intrusion fence creates a safe house*
- In the future, the safe house will continue to be further developed with safe electrical applications in the home*



## Content

1. Problem: eKYC - problem to solve
2. Our solution: TrustFaceID
3. Unique creativity of Technology
4. Market
5. Potential for future development

A dark blue square containing a light blue capital letter 'E' in the center.

E

# TrustFaceID technology presentation

A more accurate and efficient **eKYC** solution  
**New opportunity for Digital Banking and e-Transactions**

# + PROBLEM: Identity Authentication – Who is who?

1

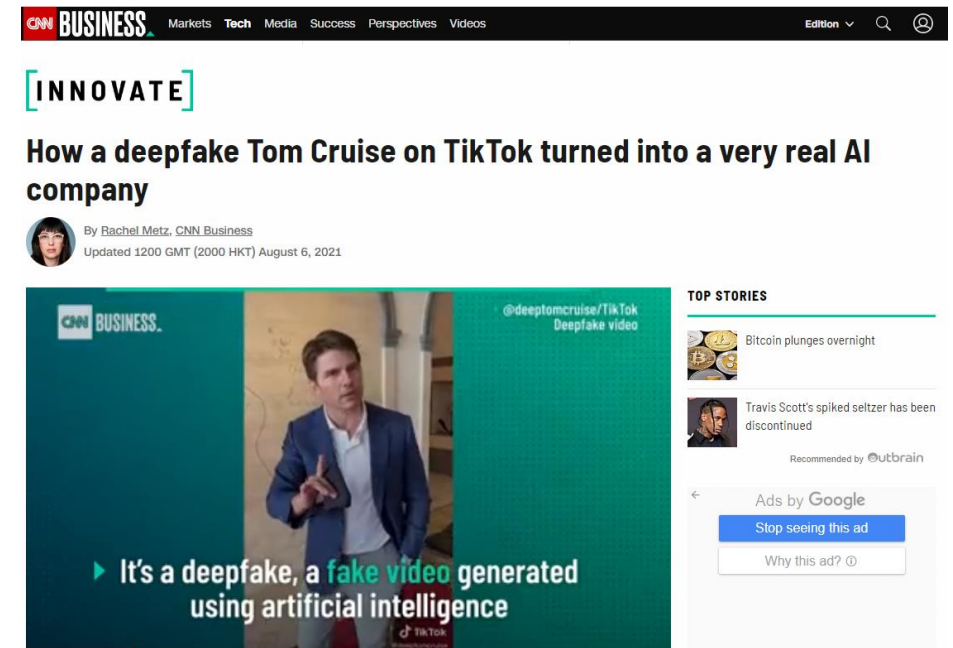


- Deep learning technology opens a new era for image recognition techniques, in which is Face recognition, the solution to the problem of authentic identification of Who is who. AI systems using Deep Learning Technology are rapidly making dramatic advances over previous AI constructs.
- However, with the application is DeepFake, a spoofing technique that uses the same principles of DeepLearning. Makes everything DeepLearning do, DeepFake can also fake it. At the time of writing this document, DeepFake has reached the point where it can by itself create a character with vivid the images and voices that are difficult to distinguish from real life. [ [link fake Tom Cruise](#) from CNN date 6/8/2021]
- According to Circular No. 16/2020/TT-NHNN, guiding the opening of an electronic payment account (eKYC), banks must ensure the identity authentication of the account holder from the time of confirmation of consent to open an account until the transaction.



Just face recognition or 1 biometric factor is not enough for eKYC.

Face to this challenge, a solution that ensures accurate and effective identification is necessary at this time.



# + EXISTING SOLUTIONS

| Solution                                     | Authentication Method | Strength-Weakness Analysis                                                                                                |
|----------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------|
| FaceID combines ID papers recognition by OCR | 1-1                   | Difficult to distinguish fake ID papers<br>FaceID can not resist DeepFake<br>1-1: High speed                              |
| FaceID combines Fingerprint                  | 1-2N                  | FaceID can not resist DeepFake<br>1-2N: Low speed, hard to achieve population size                                        |
| FaceID combines Voice                        | 1-2N <sup>x</sup>     | FaceID can not resist DeepFake<br>1-2N <sup>x</sup> : Low speed, hard to achieve population size                          |
| FaceID combines typical actions              | 1-N <sup>y</sup>      | FaceID and typical actions an not resist DeepFake<br>1-N <sup>x</sup> : Very low speed, hard to achieve population size   |
| FaceID 3D combines another biometric factor  | 1-C*N <sup>z</sup>    | FaceID and typical actions an not resist DeepFake<br>1-C*N <sup>z</sup> : Very low speed, hard to achieve population size |

*Adding a round of protection makes the system doubles the complexity, slows it down and increases the cost*

Our technology overcomes the disadvantages of the above 5 methods

1



Cost growth  
is not  
accompanied  
by increased  
protection yet

# OUR SOLUTION

## TrustFaceID – Identity authentication

2

### Includes 3 components

1. Identity Card with iSeal™ Technology
2. Deep Learning Server: FaceID
3. Smartphone app



iSeal



PiXFace



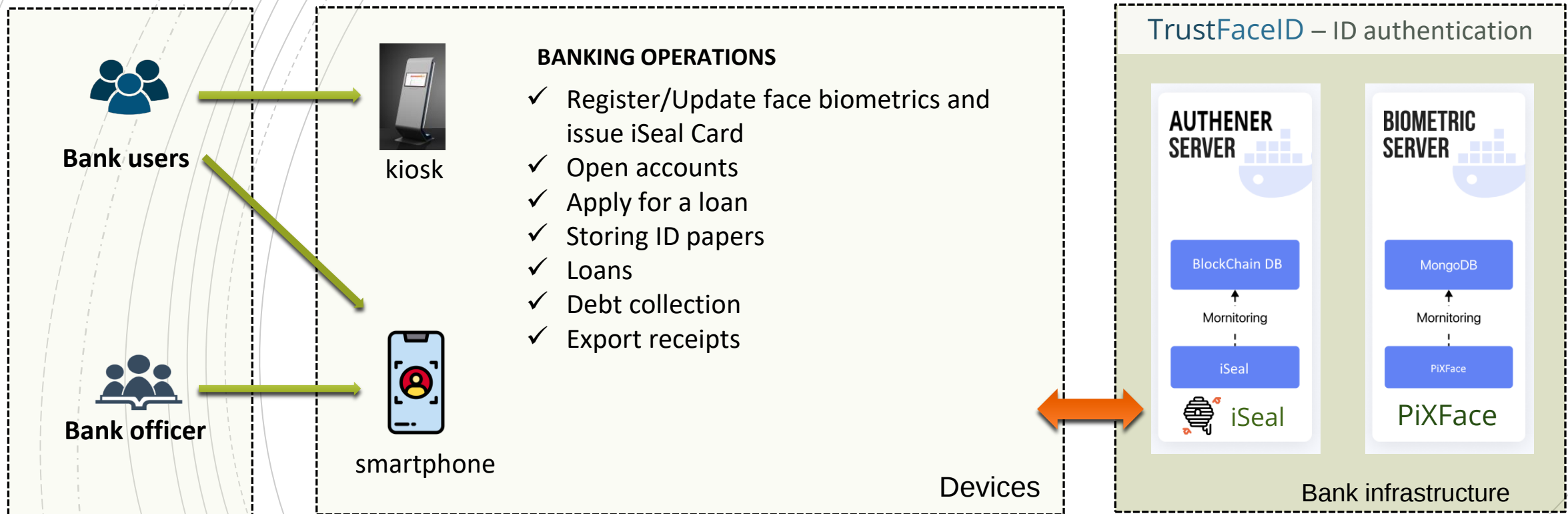
TrustFaceID



# SOLUTION

## TrustFaceID – Identity authentication

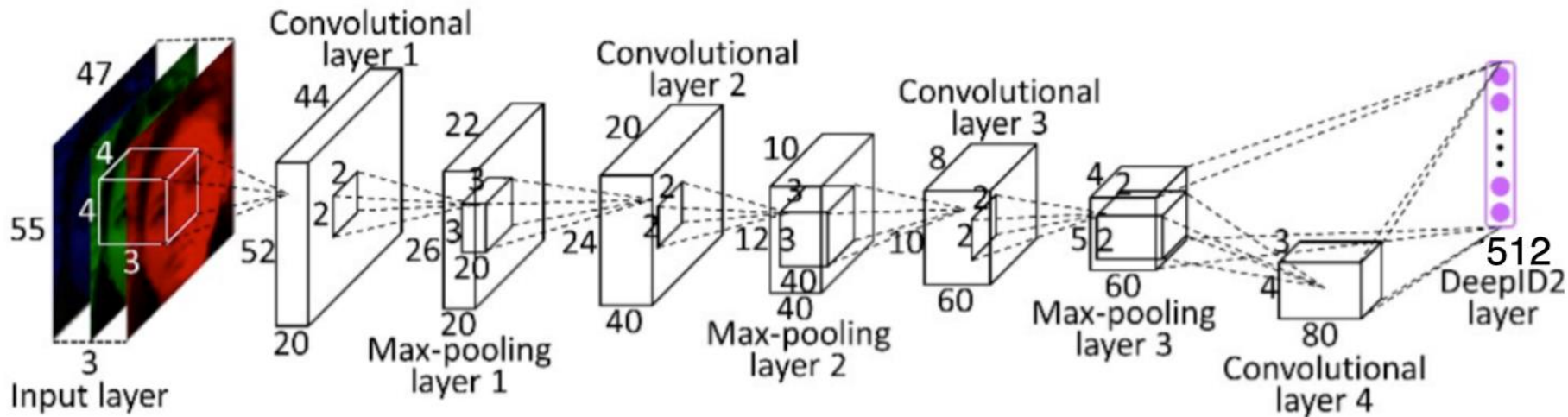
2



- All functional software, hardware, and architecture were developed by Onyx
- Link to the iSeal-core tech section: <https://onyx.vn/pdf/Slide.ADB.TrueOrigin.VI.pdf>

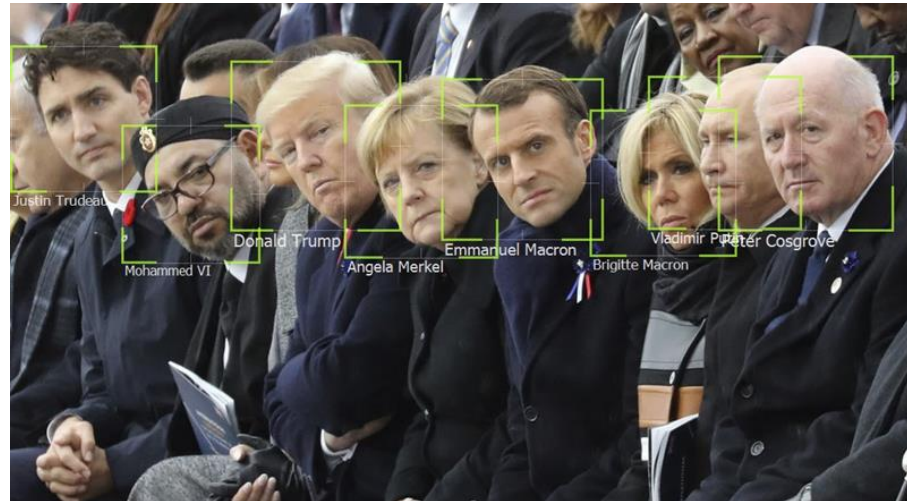
# Core-tech: AI deep learning

## PiXFace: Deep learning neural network



### Face Recognition

- Need only one sample image per ID
- Identify multiple IDs in 1 frame: count the number of people present
- Speed optimization : 30ms / faceID / thread



Though we  
are not  
better,  
but no less  
than the best  
FaceID AI  
currently

# Identity authentication with TrustFaceID

2

## 2 steps to authenticate:



Step 1: scan iSeal card

iSeal card is an NFC tag secured by BlockChain technology. Link to detail:

<https://onyx.vn/pdf/Slide.ADB.TrueOrigin.VI.pdf>



Step 2: Take pictures with smartphone

## 3 steps to issue identification:



Step 1: Check personal information



Step 2: Issue iSeal cards



Step 3: Take pictures with smartphone



Watch a demo video of the 2-step authentication process with TrustFaceID here :

<https://youtu.be/QsulEGZYMGA>

# Uniqueness of TrustFaceID

3



## Authentication 1-1: Highest Speed

Each ID just needs to match its sample set of images



## DeepFake is defeated

Disable DeepFake: the physical barrier is that the iSeal card cannot copy



## Competitive price

- Highest speed, highest safety, with the lowest price
- Meet the population size



## Authentication on Smartphone

Bank digitization, distributed microfinance banking: operations from account opening, lending, to debt collection can all be performed on smartphones.



## Integration into other systems

API connects with other systems, forming an application ecosystem



# PRODUCTION

## Distributed microfinance banking



4

BANK  
OFFICER



- *Verify the borrower and Create an account on the spot, via the mobile app*
- *Reaching out: Bank officer can be anyone, for example: President of the Village Women's Union / village*
- *Accounts are decentralized according to levels: tellers, managers, directors*
- *Transparency: non-repudiation, accountability within the scope of authority*
- *Efficiency: accounting profession is done by smartapp and computer. Tellers only need to follow the right scope and process*

BANK  
USER



- *Quickly sign contracts for small loans (microfinance)*
- *Fast repayment transaction: directly with the Loan Representative*
- *Transparency: non-repudiation, accountability for your loan*

# BENEFITS

## Distributed microfinance banking



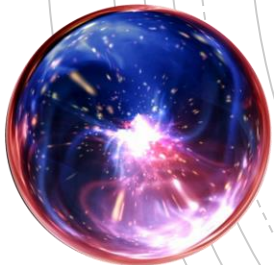
### Further reach

- New technology allows to easily deploy operations on smartphones,
- Bank Officer is no longer required to have a seat at a Bank Branch,
- Bank branches can be extended to each village



### Lower operating costs

- New technology allows easy deployment of operations on Smartphones,
- Bank Officer is no longer required to have a seat at a Bank Branch,
- Bank branches can be extended to each village



### Transparency

- Blockchain authentication technology saves trace of all transactions: internal transactions of the Bank, transactions of users; Blockchain structure creates transparency but still ensures the safety of user information.

## + POTENTIAL FOR FUTURE DEVELOPMENT:

5

### No borders:



- iSeal card is an internationally protected invention
- The software and app system allows deployment to anywhere in the world

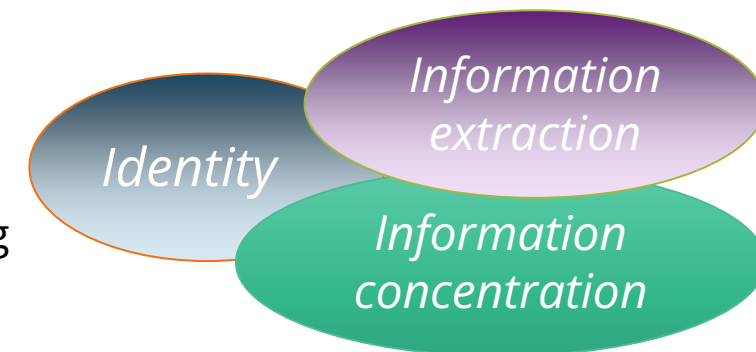
### Other markets:

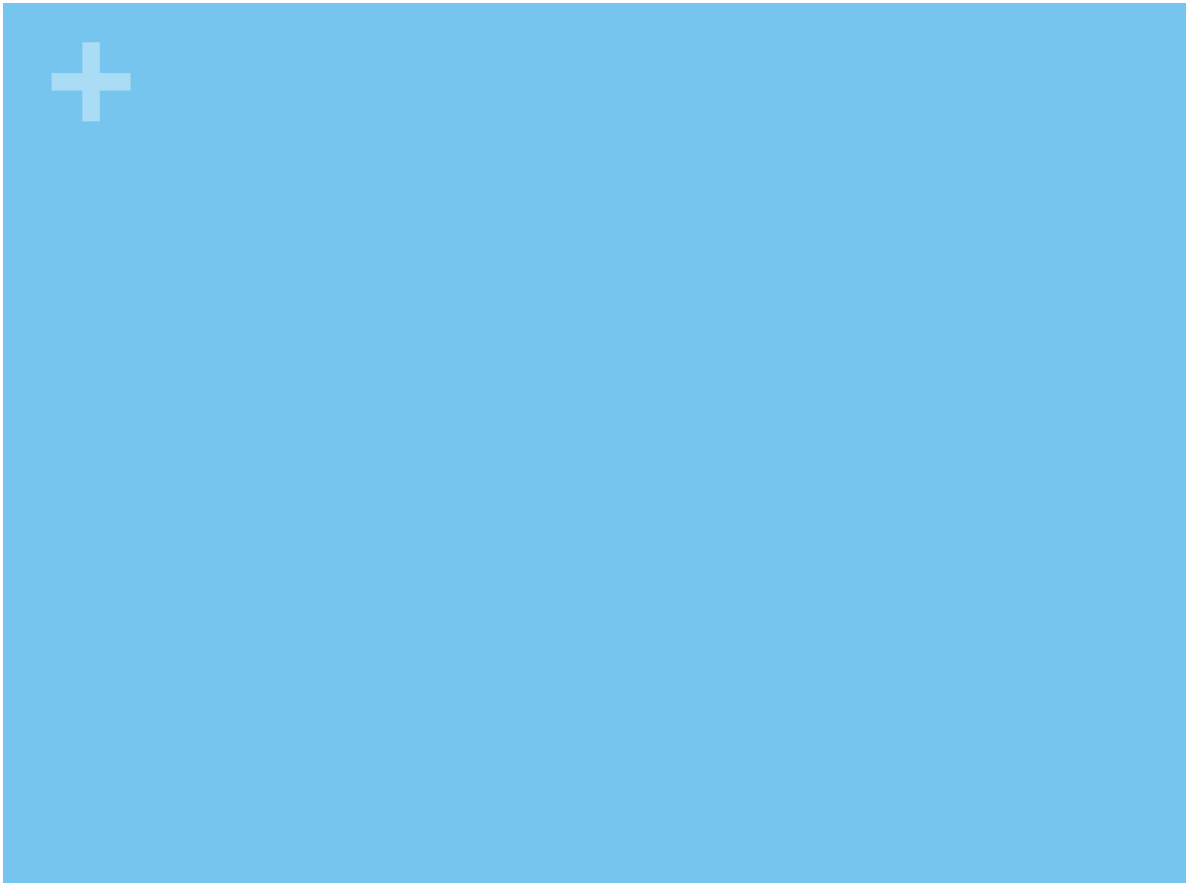
- Not only Policy Banks, Microfinance Institutions but also other traditional banks can use this eKYC technology
- Applications need to authenticate AI is a highly accurate and safe AI: such as access control for important places (agencies, institutions, laboratories, warehouses, technical areas, luxury apartments...)

### Three future pillars of IT:

- **Identity** is one of the three future pillars of the Information Technology field.
- Building a Biometric centralized database for Banking.
- Information extraction: analysis, evaluation, forecast; since then enhancing overall performance.

*Three future pillars of IT.*





Cooperation opportunities

# We are seeking for partners

A



## TRADERS

- Product trading partner in Vietnam
- International product trading partner
- Trade partner for Patent Exploitation



## TECHNOLOGY TRANSMISSION

- Sharing Patent Exploitation
- Share the finished application system
- Working together to exploit patents and core technologies



## NEW APPLICATION DEVELOPMENT

- Automated logistics will be more complete with iSeal identifier
- E-commerce platform Genuine goods
- National Cryptocurrency: PoA Blockchain with Flexible Council and Strongly Secured Information Channel with KBAS

TrustFaceID



**Onyx**  
Cypher

**eFence**  
electronic security fence



# Thank you!

think in simple way, do in detailed way,