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FUNDAMENTAL ATTRACTIONS OF BIOMETRIC PAYMENT CARDS

Drivers of biometric payment card adoption

Convenience

- No cap on value/number of transactions
- No PIN to remember
- Card payments are habituated

Security

- Biometric data stored on card; no external database
- Biometrics increase security level

Commercial

- Card is banks' last physical link to customers
- Works on existing payment infrastructure
- Improved customer confidence in security leads to greater spending
- · Card industry looking for higher growth and margin; need new ways to differentiate





THE USER VALUE PROPOSITION IS CLEAR

- Increased understanding of the role biometrics can play
- Greater confidence in security
- Growing demand for convenience

Consumers are eager to pay with biometrics



86% interested in using **biometrics** to verify **identity** or to make **payments**.



4 out of 5 are interested in being offered biometric payment authentication by their bank.



70% perceive biometric authentication as easier than password authentication.

SOURCE: Research conducted by AYTM Market Research, September 12-19, 2017, among 1,000 U.S. adult consumers who use at least one credit card, debit card, and/or mobile pay.



Biometric Card Test Results





....I like things simple and easy to use & //
absolutely hate remembering PIN #s!1

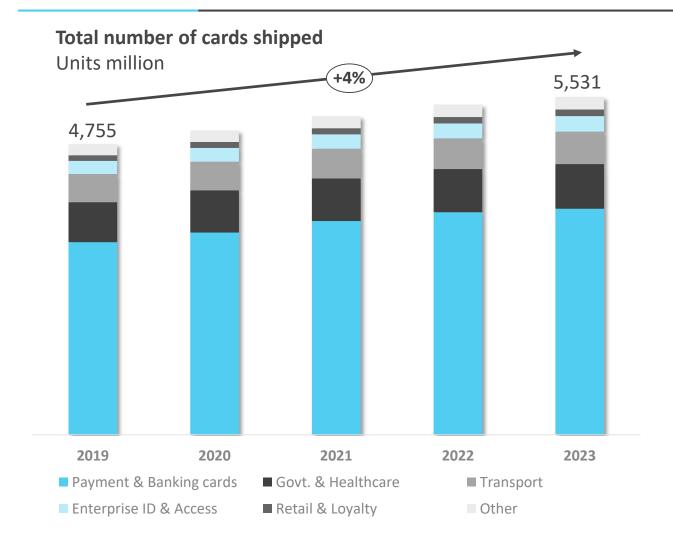
1. MASTERCARD, QUALITATIVE CONSUMER RESEARCH, 2016, 2. MASTERCARD, USABILITY RESEARCH 2017 8. MASTERCARD, PILOT SURVEY, 2017

"..if you said, 'hey, you've used this thing for a month, what do you think?' and 91% of them said it was more secure and 81% said it was more convenient, okay; now you've got something."

Bob Reany, Mastercard EVP Identity Solutions



THE 'TRADITIONAL' CARD MARKET CONTINUES TO GROW



- Underlying growth in multiple card verticals is healthy
- Strong drivers of continued growth
 - Low cost set up and maintenance
 - Fast authentication speeds
 - Well-used and understood technology
 - Convenient for end-user
- Significant opportunity for biometric solutions

Source: ABI Research Smart Card Technologies; Goode Intelligence

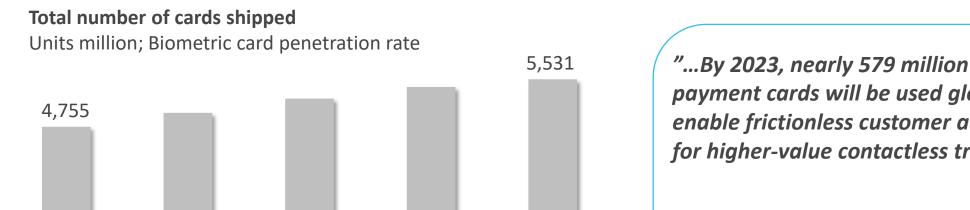


CONSERVATIVE PENETRATION RATES FOR BIOMETRIC CARDS STILL RESULTS IN SIGNIFICANT VOLUMES

9.7%

533

2023



6.3%

340

2022

"...By 2023, nearly 579 million biometric payment cards will be used globally to enable frictionless customer authentication for higher-value contactless transactions..."

Goode Intelligence, 2018

"...866m ... the estimated total addressable market for dual-interface cards by 2023..."

Edgar, Dunn & Company

Primary driver of penetration rate

= COST

"The ones that can get their costs down are the ones that are going to win."

Bob Reany, Mastercard

Source: ABI Research Smart Card Technologies; Goode Intelligence; IDEX estimates

0.9%

2020

Biometric cards

2.7%

2021

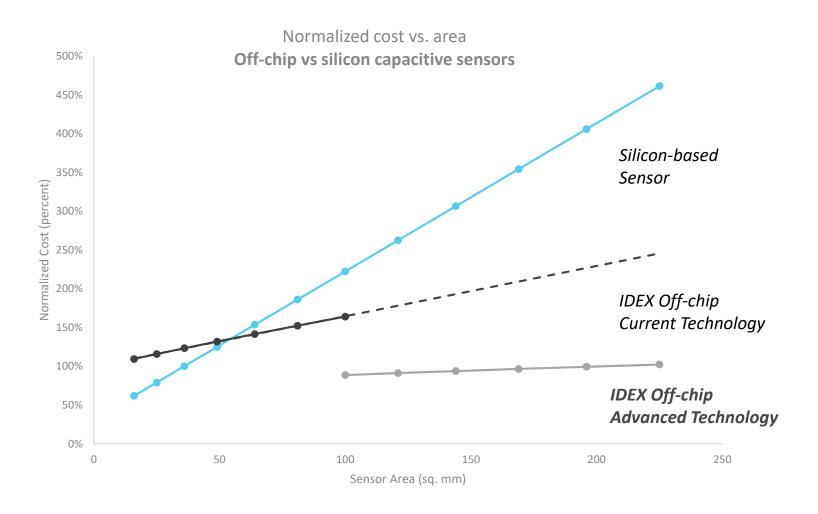
■ Total smart card market

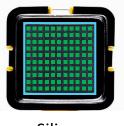


0.1%

2019

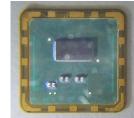
IDEX HAS A MARKET DISRUPTING COST ADVANTAGE





Silicon

- Silicon footprint linear with increase in size
- Silicon most costly component of sensor



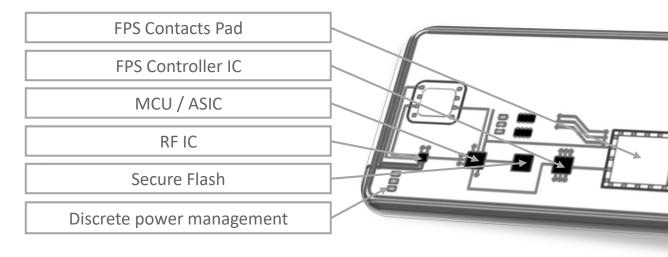
Advanced Offchip Sensor

- Silicon footprint constant, common ASIC for all sensor sizes
- Reduced component count
- Optimized sensor technology enables larger sensors at even lower-cost



IDEX'S OFF-CHIP SENSOR ENABLES A FLEXIBLE, LOW COST SOLUTION

Conventional silicon sensor



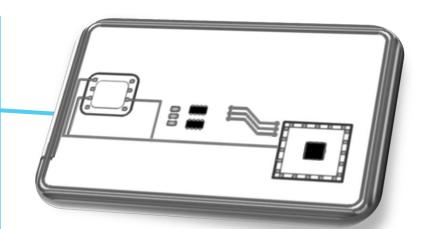
Discrete silicon sensing component

- Large number of supporting components
- Design complexity
- Complicates manufacturing
- Higher total cost

off-chip sensor

FPS Contacts Pad

MCU / ASIC
Integrated power management
FPS Controller IC
Secure Flash
RF IC



Integrated system solution

- Fewer components
- Simplified manufacturing
- Optimized biometric performance
- Optimal power efficiency
- Lower total solution cost by several dollars

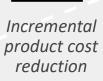


IDEX PRODUCT ROADMAP TO MARKET LEADERSHIP

Objectives

- 1. Significantly reduced cost: architecture and leverage display technology
- 2. Increased value in sensor: consolidate smart card elements into biometric ASIC
- **3. Enhanced security:** encryption, match on secure element





2019



ASIC with improved performance



Sensor with display substrates



Step change physical security enhancement for cards

2020



One-chip biometric cards

2021+



THE EVOLUTION OF AN EXCITING NEW MARKET

MASS ADOPTION
2020+

ECOSYSTEM FORMATION

2018-19

- Initial orders & end-user trials
- Certifications
- Industrialisation of manufacturing
- Defining business models
- Multi-vendor interoperability

EMBRYONIC

2015-17

- Technology development
- Testing & pilots

Biometric products are ready – technology is de-risked

Ecosystem is still developing – sets timing of volume ramp



THE ECOSYSTEM FORMATION







Payment networks







Card components

Biometrics

Card integrators

Issuers

VALUE

- Secure element (SE)
- Other components
- Sensor
- Algorithms
- Biometric system know-how

- Card manufacturing
- Personalization

• End-user relationships

PLAYERS



TSINGHUA TONGFANG













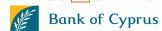












ECOSYSTEM PRIORITIES

INDUSTRIALISATION OF MANUFACTURING PROCESS

BUSINESS MODEL - WHO PAYS FOR WHAT

MULTI-VENDOR INTEROPERABILITY



IDEX IS POSITIONED FOR SUCCESS IN THE BIOMETRIC SMART CARD MARKET

Strategic advantage

Example

Unique sensor technology

- Flexible off-chip sensor
- Ability to leverage innovative industry technologies
- Enables cost leadership

Full systems approach

- Competency to integrate all card components
- Card security design
- Experienced team of innovators

Turnkey biometric solutions

- · Sensors, modules & silicon architecture
- On-card enrollment
- Complete biometric reference design hardware
- Software: secure matcher, power management

Ecosystem partnerships

- Issuers: Mastercard
- Manufacturers: IDEMIA, Hengbao, JINCO, Feitian, Chutian, Excelsecu, Goldpac, XH Smart Tech
- Technology partners: Infineon, HED, Visionox,

Innovation pipeline

- Simplify architecture
- Enhanced security
- Display integration



ACCELERATING COMMERCIAL PIPELINE AS THE MARKET EVOLVES

- Strong interest globally from card integrators, card schemes and issuers
- Broad market interest from multiple verticals, including payment, ID, access control and other
- High confidence in ability to convert leads to orders
- Accelerated number of leads and active opportunities in Asia

Over 30 qualified partners globally in the last 6 months

16 active commercial revenue opportunities

High growth of cards issued in China

"... Year-on-year growth of issued cards in China at 9.3% in 2017..."

Source: China Union Pay – Report on the Development of China's Bank Card Industry



BUILDING SIGNIFICANT OPERATIONAL MOMENTUM INTO 2019

IDEX partnerships



Card components

Biometrics

Card integrators

Issuers



























Multiple pilots ongoing

- Driving ecosystem development
- Diversifying customer risk
- Cornering the Asian market
- Targeting new payment schemes
- Ongoing discussions with strategic equity partners



GROWING COMMERCIAL OPPORTUNITIES IN CHINA

Top card manufacturers in China by volume

1 金邦達Goldpac

Certified by China Union Pay, VISA, JCB, MasterCard, American Express and Diners

2 Giesecke & Devrient

Hengbao International

Supports cards for payment network including Mastercard, China Union Pay, VISA, and JCB

4 VITANYU

5 东信和平 EASTCOMPEACE

楚天龙股份有限公司 CHUTIAN DRAGON CO.,LTD Certified by CUP, MasterCard, VISA, AMEX and JCB and main supplier of China Social ID Cards

7 中钞区块链 Zhong Chao

8 gemalto*

1.16 billion



China Union Pay cards ordered in 2017

IDEX partner (disclosed)

Source: Nilson report, 2017



SUMMARY AND OUTLOOK

Summary - good progress in Q4



• Additional shipments in support of production order



New customers and eco-system partners in multiple verticals



Multiple pilots of dual-interface cards



Commercial launch of remote enroll



Continue to strengthen our intellectual property position

On track • Confident in dual-interface 'certification' and volume delivery by mid-2019

Outlook – confident of significant revenue opportunities in 2019

- Further evolution of the biometric smart card ecosystem; ongoing investments by major players in biometric solutions
- Pilots by several issuers using IDEX's dual-interface sensors
- New customers in multiple verticals
- Develop strategic partners in the smart card ecosystem

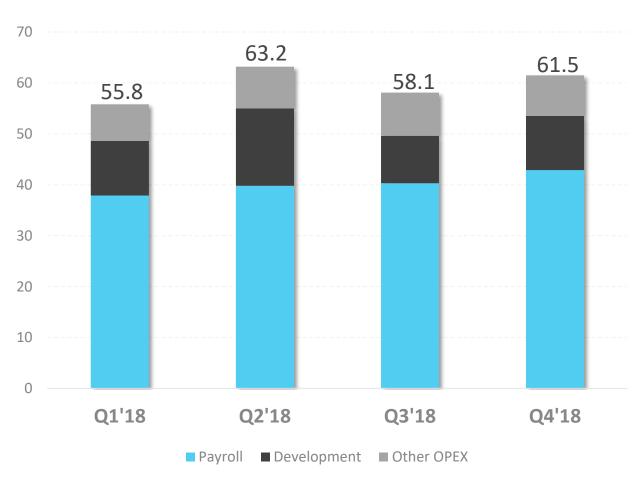






DISCIPLINED COST CONTROL

NOK million

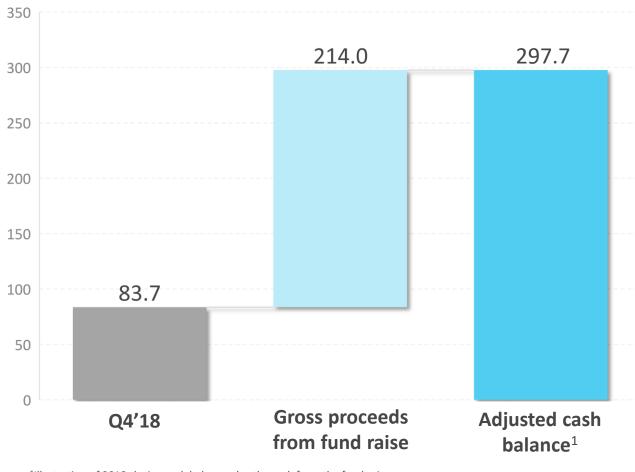


- Significant revenue opportunities anticipated in 2019
- Stable OPEX levels in 2018 expect similar cost base in 2019
- No planned growth in organization size;
 stable Development expenses and Other
 OPEX



CASH FLOW

NOK million



- Cash position expected to take IDEX to profitability
- Estimated break even at low-double-digit million units shipped
- Stable quarterly cost level expected for 2019
- No financial debt

¹Illustration of 2018 closing cash balance plus the cash from the fund raise



