

DNB TMT CONFERENCE 2019

August 28, 2019



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IDEX BIOMETRICS: THE INVESTMENT CASE

- **Biometrics are the next generation of security validation**
 - Unique, personalized, increasing consumer acceptance
- **The market for biometric smart cards is considerable and demand is building**
 - By 2021, over 5 billion smart cards estimated to ship globally, and growing
 - Significant investments being made by key players; Mastercard, VISA, CUP, banks, card makers, suppliers
- **IDEX is the leader in biometric sensor technology**
 - Unique off-chip technology roadmap
 - More than just a component supplier; full systems approach
 - Industry leading expertise
 - Breadth of innovation and IP



BACKGROUND



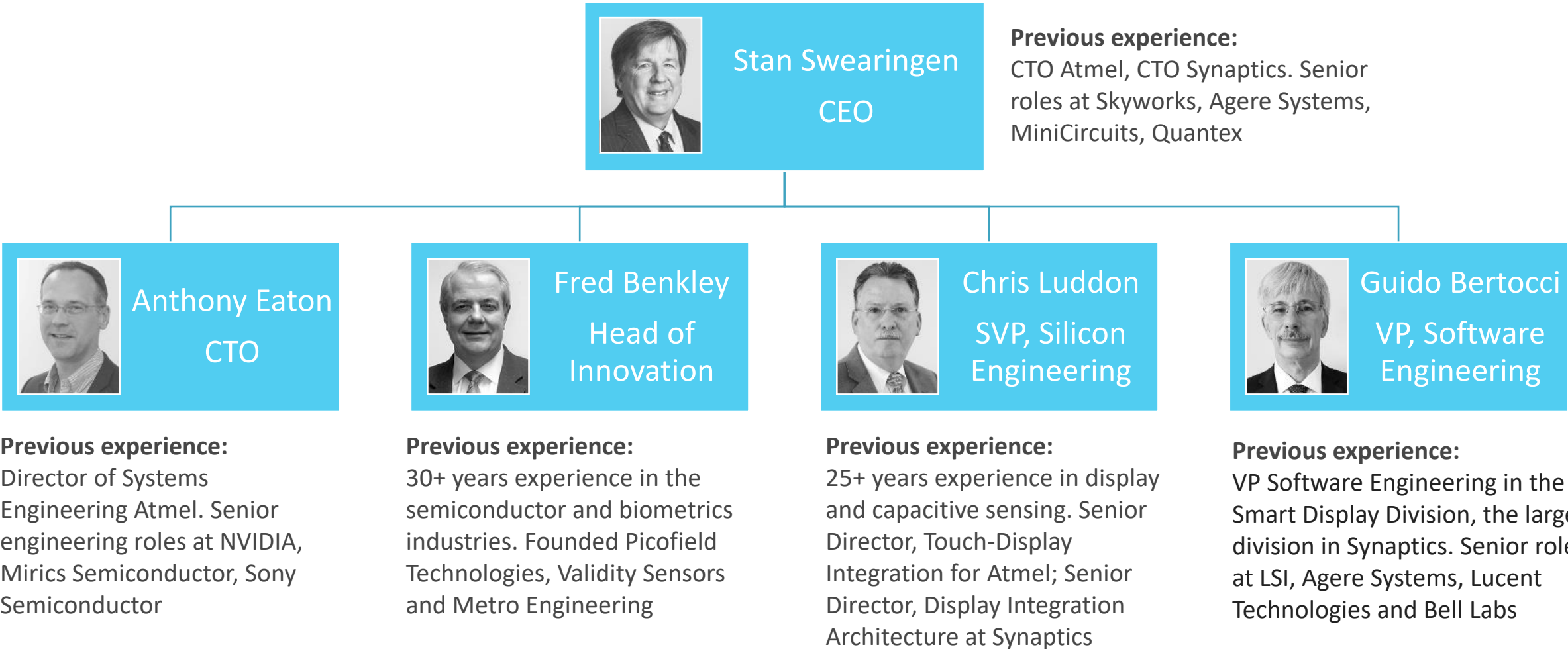
IDEX AT A GLANCE

A leading provider of fingerprint identification technologies and systems offering simple, secure and personal authentication for all

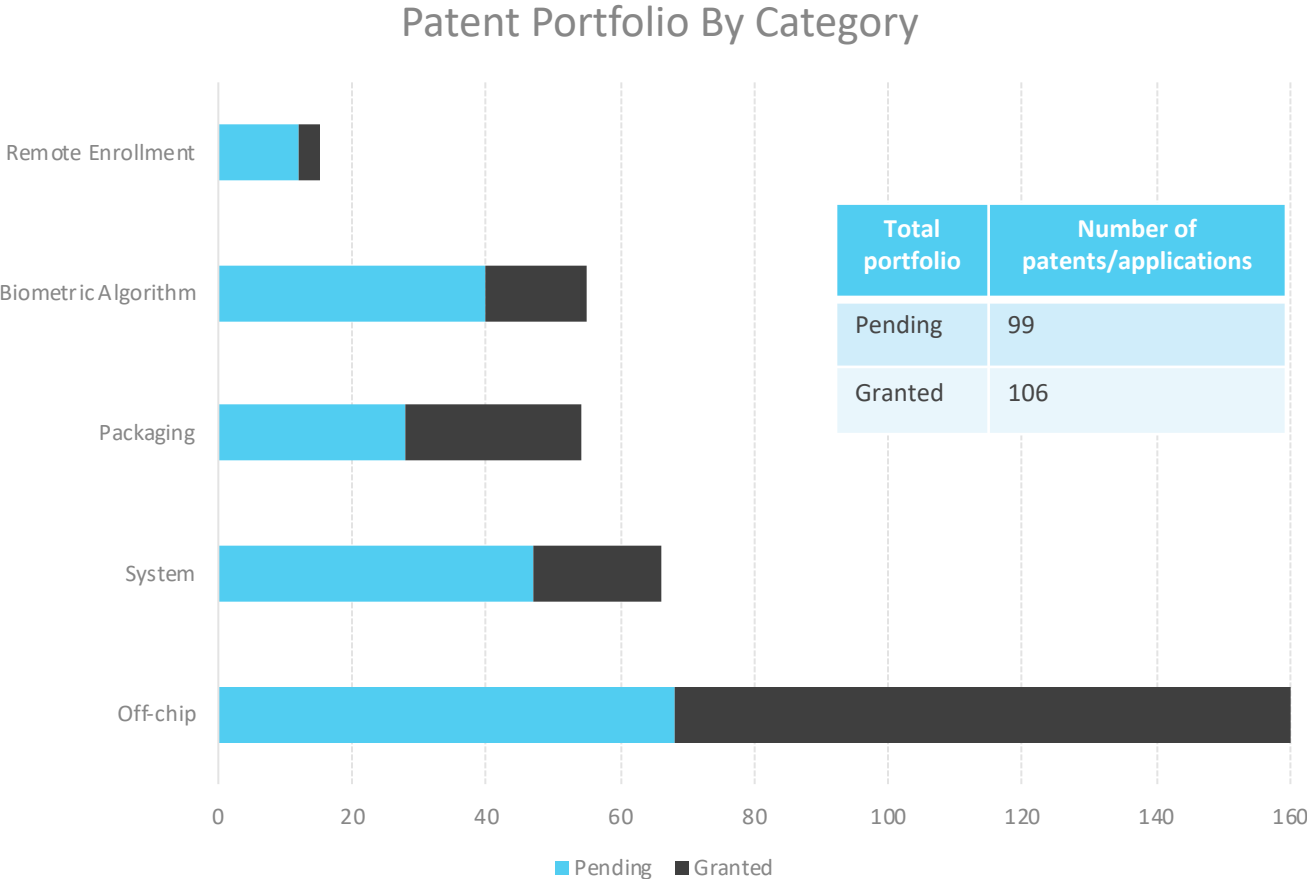
- Unique, flexible and cost efficient off-chip sensor technology
- Vast industry experience and system level innovation, supported by quality IP
- ~145 staff with deep biometric expertise located in key territories
- Supply chain and channels to market established
- Listed on Oslo Stock Exchange (OSE:IDEX)



INDUSTRY-LEADING TECHNOLOGY EXPERTS



GROWING BREADTH OF INNOVATION



- Patent portfolio reflects increasing innovation capability at IDEX
- Quality of patents over quantity
- Patents beyond simple biometric sensors
- Increasing systems, packaging, algorithms and remote enroll expertise to help overcome complex problems
- Working in collaboration with multiple customers allows IDEX to refine and innovate
- **Patents that will help the evolution of the biometric smart card market**

IDEX IS THE LEADER IN FLEXIBLE FINGERPRINT SENSORS FOR SMART CARDS

- MasterCard announced first Biometric Card – powered by IDEX (April 2017)



- A flexible ISO 10373 complaint fingerprint sensor is integrated into the body of a standard ISO ID-1 credit card
- Provides a complete biometric match module to store templates and authenticate transactions
- Mass production-ready, durable flexible fingerprint solution

IDEX PROVIDES A MARKET LEADING SOLUTION

SECURITY

- CAST compliant security using advanced algorithm
- Encrypted sensor communication channels
- Low false accept rates (FAR)



USABILITY/PERFORMANCE

- On card remote enroll
- Large sensors enable fewer touches to enroll and low false reject rates (FRR)
- Improved power consumption and latency



COST

- Low-cost manufacturing with advanced packaging and low component count
- Small silicon ASIC size with large sensors



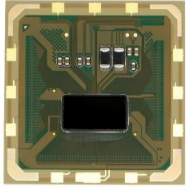
MANUFACTURABILITY

- Flexible ISO compliant substrate
- Hot and cold lamination compatible
- Simplified inlay and footprint



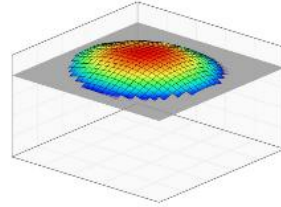
IDEX: MORE THAN JUST A COMPONENT SUPPLIER

Innovative architecture



- Off-chip
- Intelligent sensor
- Sophisticated power management

System Level Approach



- Full system support
- Reference design for quick go-to market

Designed For Manufacture



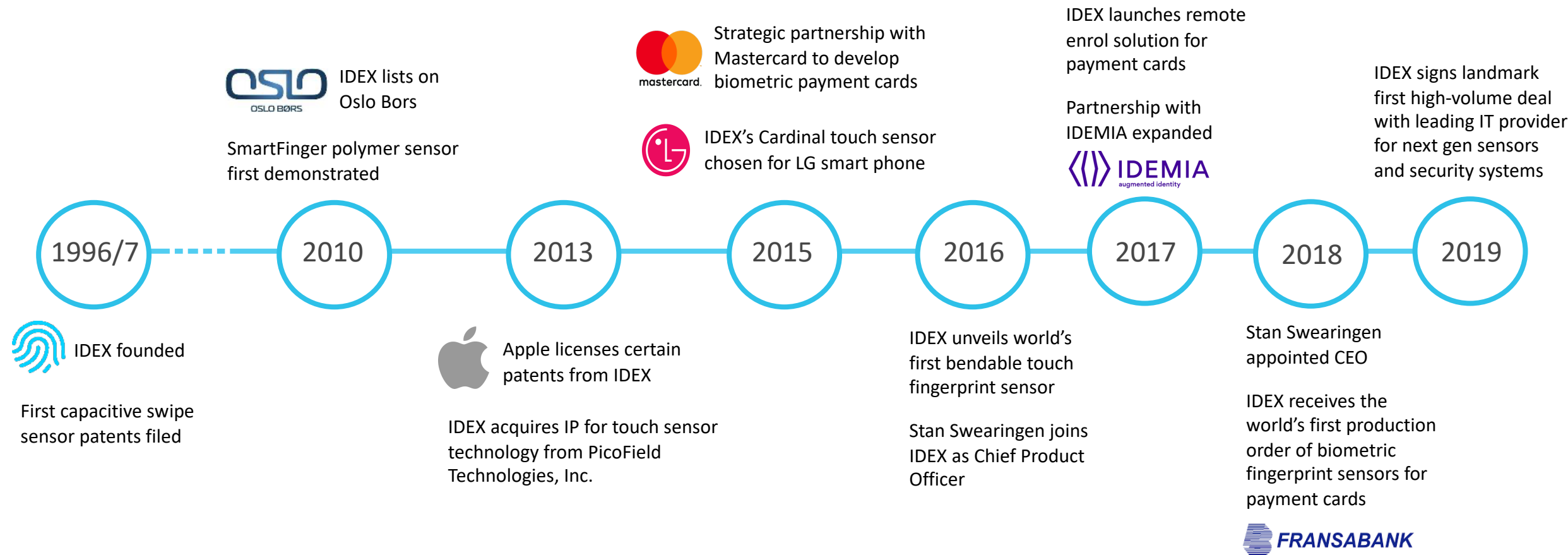
- Fully qualified bendable sensor
- Fab-less manufacturing supply chain

Compelling roadmap



- Advance process node
- Simplified architecture
- State of the art packaging

IDEX HISTORY



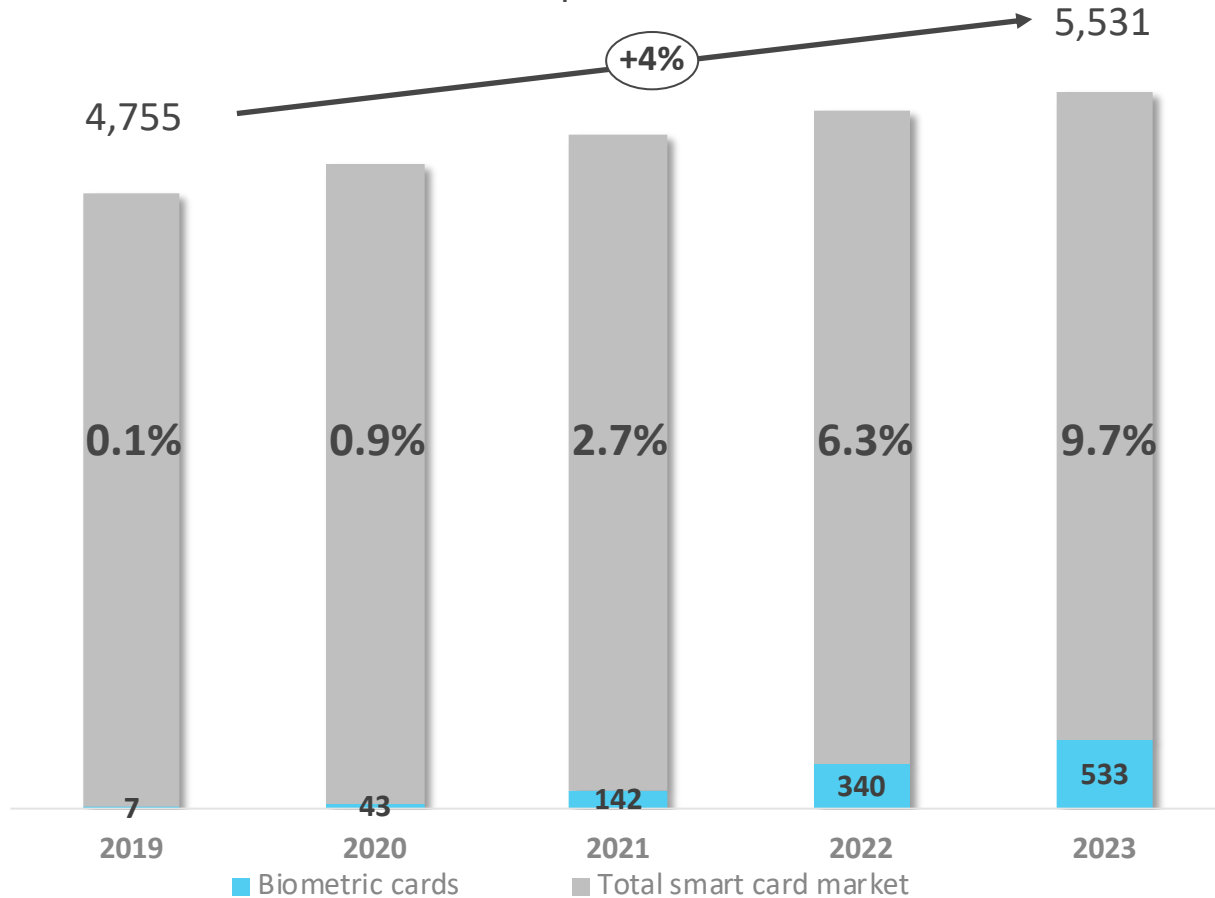
SIGNIFICANT GLOBAL OPPORTUNITY FOR BIOMETRIC TECHNOLOGY



HUGE MARKET POTENTIAL

Total number of smart cards shipped

Units million; Biometric card penetration rate

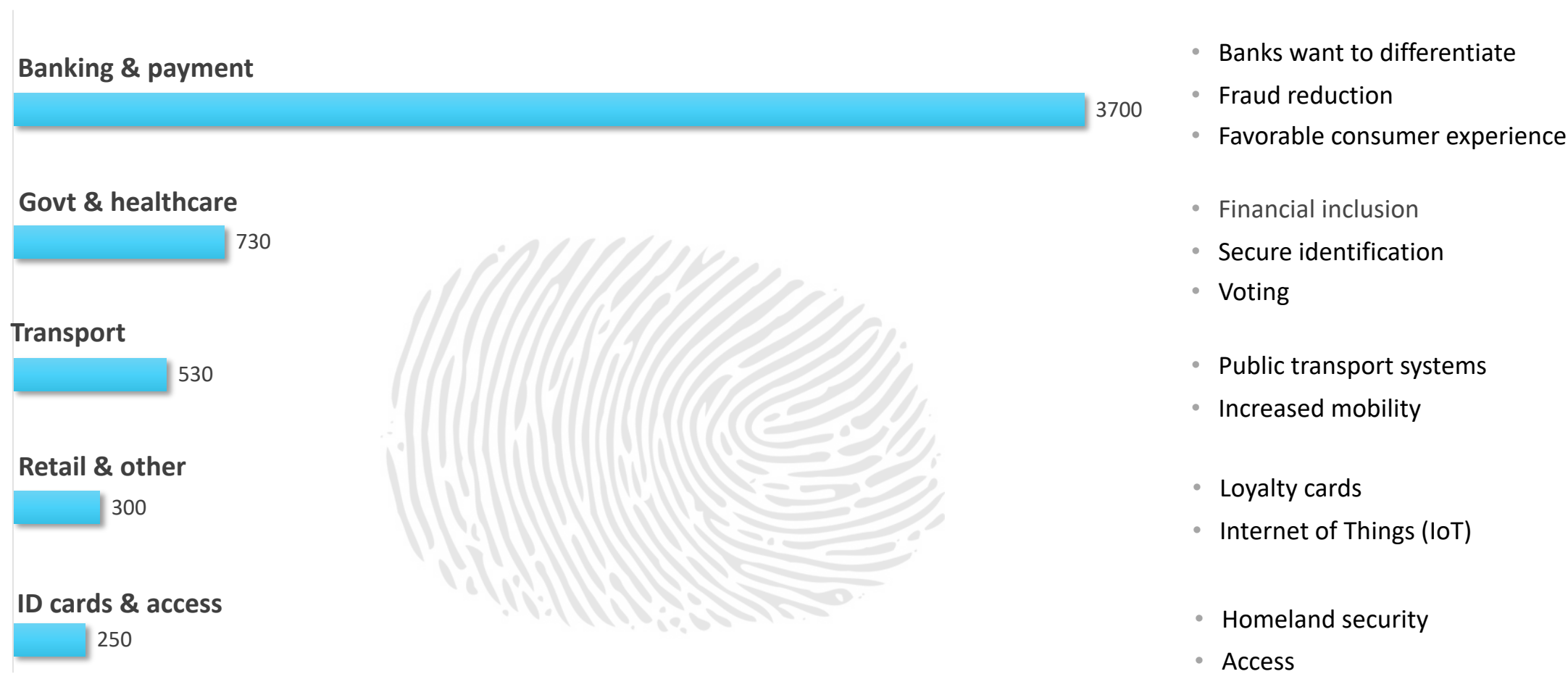


- Underlying growth in multiple card verticals is healthy
- Drivers of growth:
 - Security
 - Well-used and understood technology
 - Convenient for end-users
 - Infrastructure already in place
 - Fast authentication speeds

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

COMPELLING VALUE PROPOSITION FOR BIOMETRICS IN MULTIPLE SMART CARD VERTICALS

Expected # of smart cards shipped in 2023 by vertical (millions)



Source: ABI Research Smart Card Technologies

STRONG PULL FROM BANKS TO INTRODUCE BIOMETRIC CARDS

Banking & Payment

- Credit cards
- Debit cards
- Pre-paid cards



Pay with your FINGERPRINT: NatWest launches its biometric bank card to allow people to buy things over £30 without their PIN

- Customers will use their fingerprint to confirm payments over £30
- Is Britain's first fingerprint debit card and is designed to thwart fraudsters
- It is hoped the new system will provide more security and greater convenience

By JOE PINKSTONE FOR MAILONLINE 

PUBLISHED: 18:41 BST, 24 April 2019 | UPDATED: 10:38 BST, 25 April 2019

Recent UK example of pilot deployment



Bank of Cyprus



BIOMETRIC TECHNOLOGY ENABLING FINANCIAL INCLUSION

Government & healthcare

- Financial inclusion
- Homeland security
- Patient records



“By simplifying a typical purchase transaction, we can demonstrate that this technology works for the benefit of the people who need it the most and ensure that their disbursements are received securely”

Jorge Noguera, president, Mexico and Central America, Mastercard

IDEX sensors enabling greater financial inclusion in Mexico

- Mastercard and Edenred announce the first test of biometric card technology for state benefits programs in Mexico
- Edenred payment cards, featuring an IDEX sensor, provides an additional layer of security to conveniently verify the cardholder’s identity for in-store purchases
- Allows issuers to leverage the biometric match data in order to increase their approval rates and help reduce the potential of card-present fraud
- Benefits program providers by getting greater insight into user spending



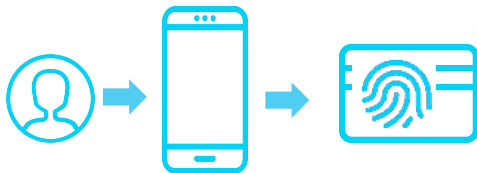
ENABLING THE MARKET WITH PATENTED ENROLLMENT SOLUTION

Traditional card enrollment a complex process...

Visit to physical branch



User device with sensor and special software



...IDEX with a revolutionary improvement



"...the requirement of in-person enrollment creates a barrier to adoption..."

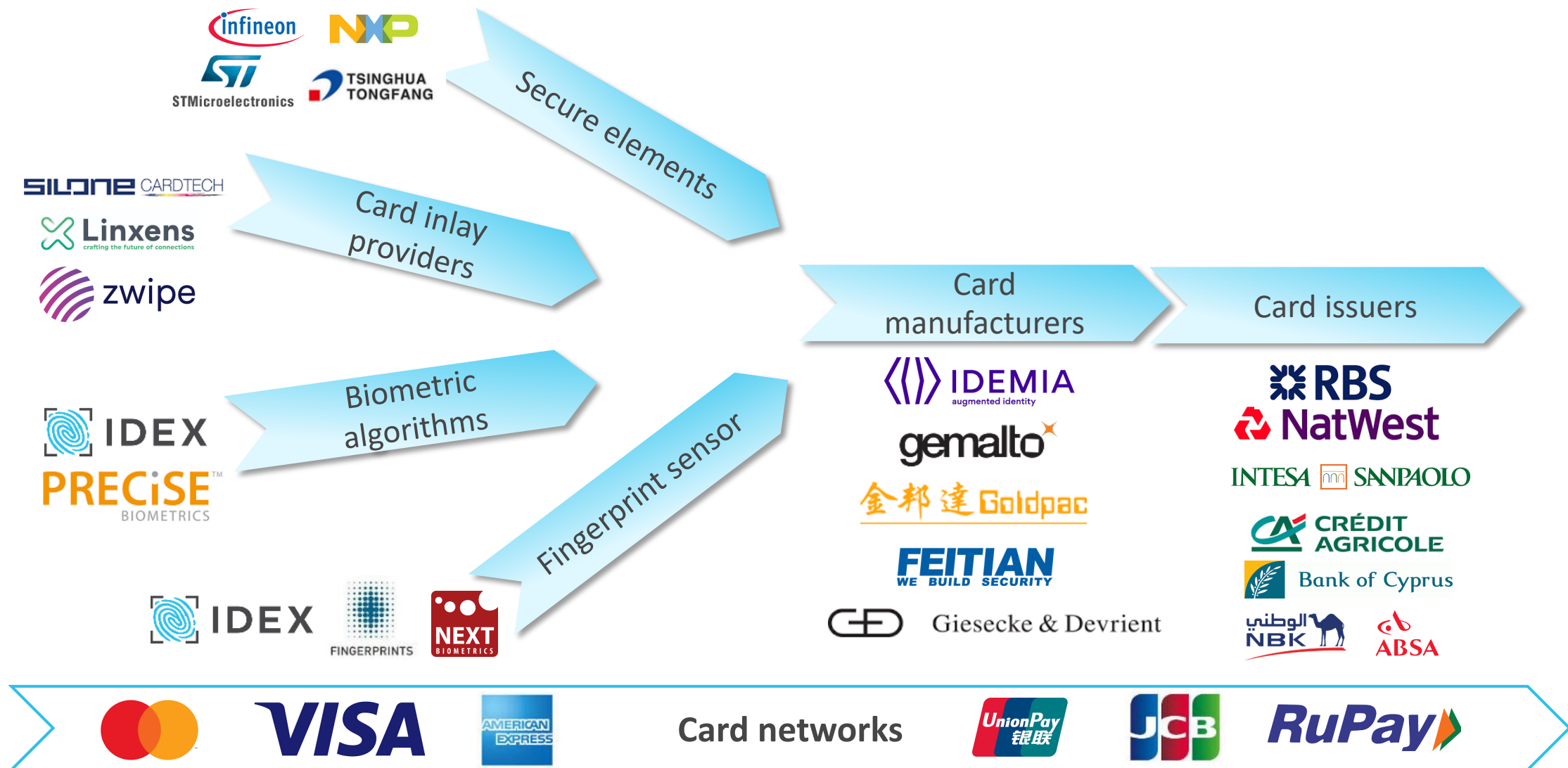
VISA

"...Simplifying the registration process will help speed adoption of biometrics by issuers and consumers alike ..."



- Simple and user-friendly on-card enrollment
- No applications or equipment needed from user
- Cost-effective suitable for high volume deployment
- Enrollment is "off-grid", so highly secure

THE BIOMETRIC SMART CARD VALUE CHAIN



LOGIC ACCESS CONTROL IS ANOTHER GROWING VERTICAL FOR BIOMETRICS

ID cards & access

- Secure identification
- Fraud prevention
- Physical & logical access



“People ranked security as the highest priority, over convenience and privacy, for logging in to the majority of applications, particularly when it comes to money-related apps.”

IBM Security; “Future of Identity Study” 2017

IDEX wins landmark customer order in logical access (Apr 2019)

- Major contract win with a leading global provider of IT hardware to the financial services industry
- Multi-million dollar, multi-year commitment for IDEX sensors
- Joint collaboration with a security thought-leader to drive next generation solutions

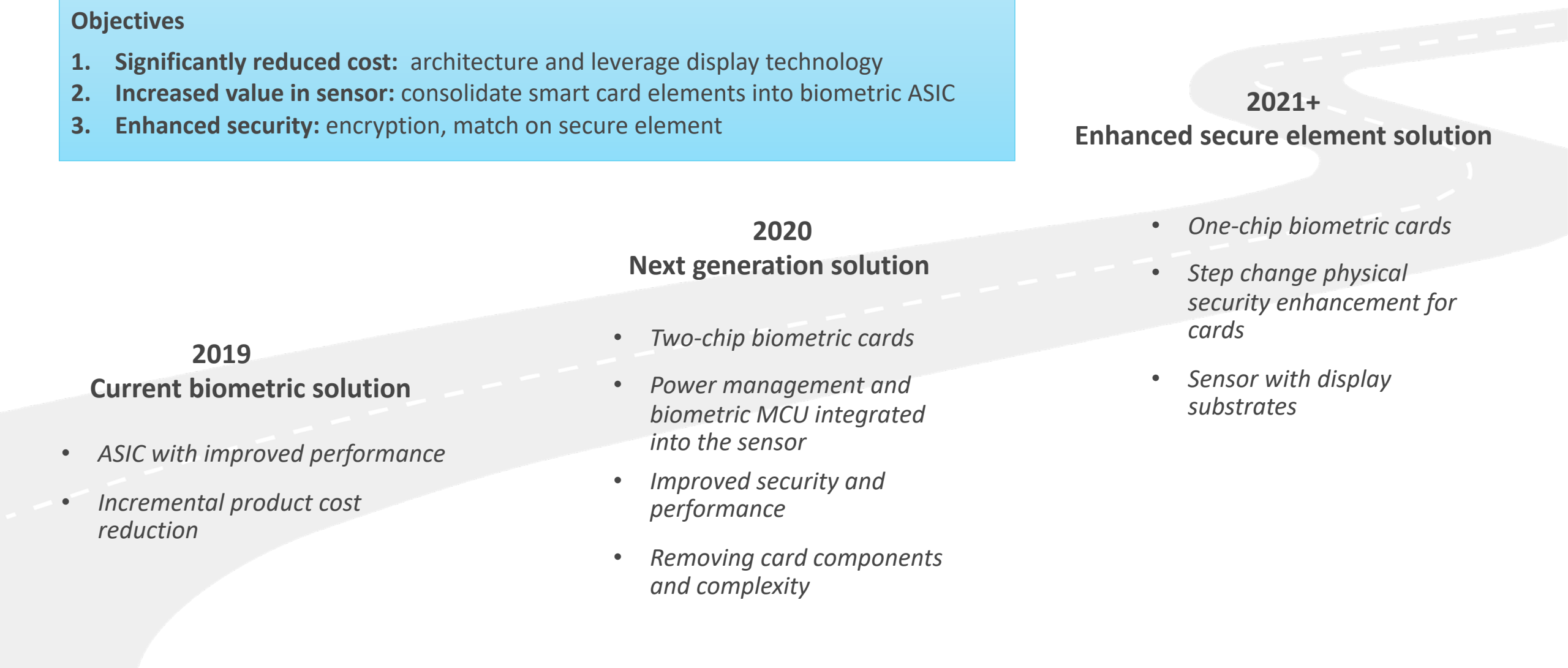
IDEX is working in partnership with card integrators to develop other secure access solutions

- Pilots are underway using IDEX sensors

A 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



SUMMARY

- **Biometrics are the next generation of security validation**
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APPENDIX



PROGRESS IN MASS MANUFACTURING AND CERTIFICATION

Mass manufacturing

- Biometric smart cards are complex; require embedded circuitry and specialist expertise to mass manufacture

IDEX is uniquely positioned to accelerate card integrators' ramp to high volume

- Off-the-shelf reference design
- Full solution know-how to ensure compatibility between components
- Manufacturing and advanced materials expertise
- Pre-lam supply agreement with Feitian offering cost-effective go-to-market solution for biometric smart card manufacturers

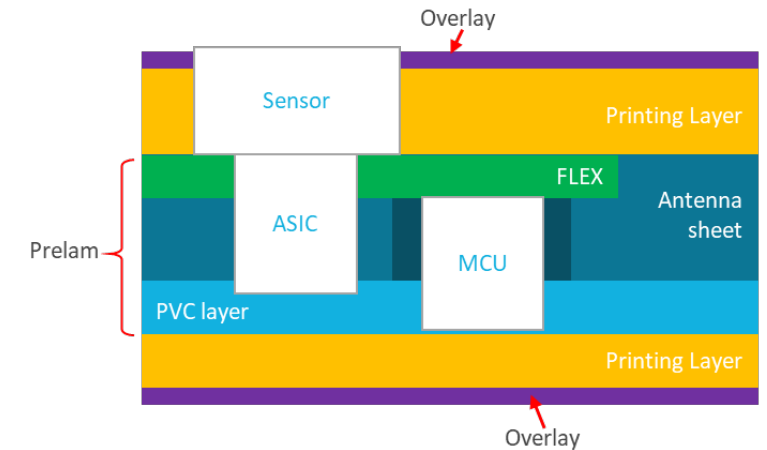
Certification

- Process for certifying biometric smart cards is relatively new

IDEX has a long standing and close relationship with Mastercard

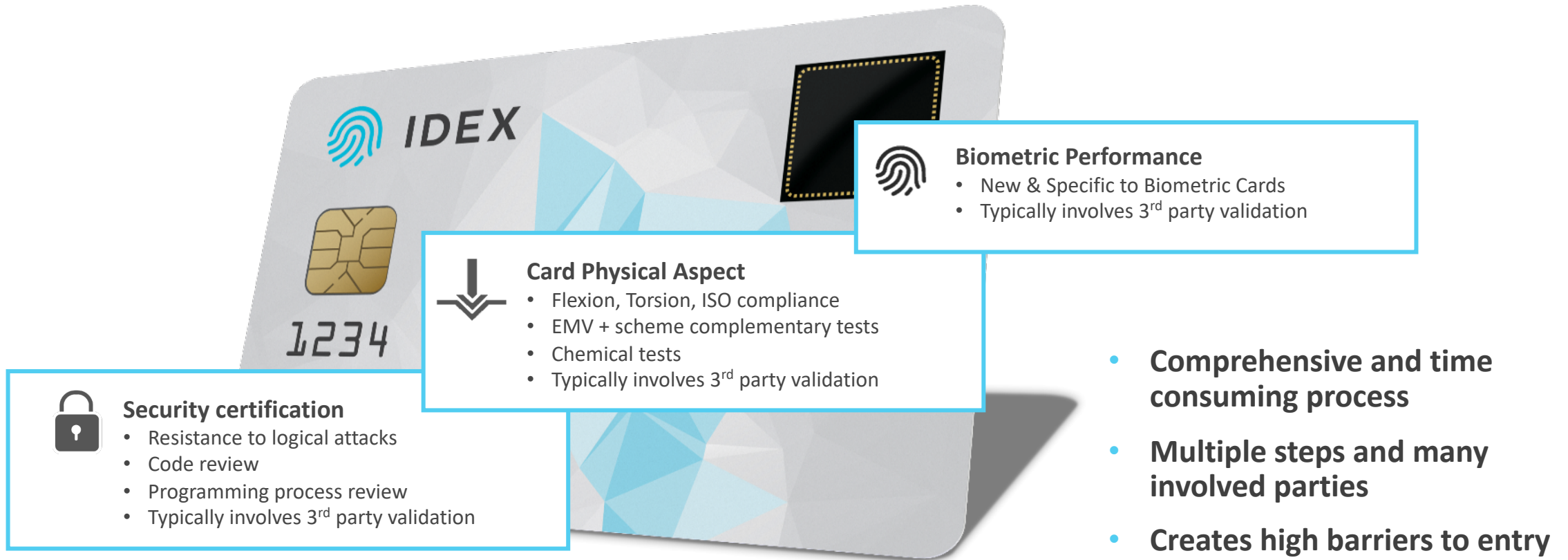
- IDEX's contact-based card has been certified
- IDEX's dual-interface technology has been validated by independent labs to meet multiple global payment schemes' certification requirements

A typical biometric card stack



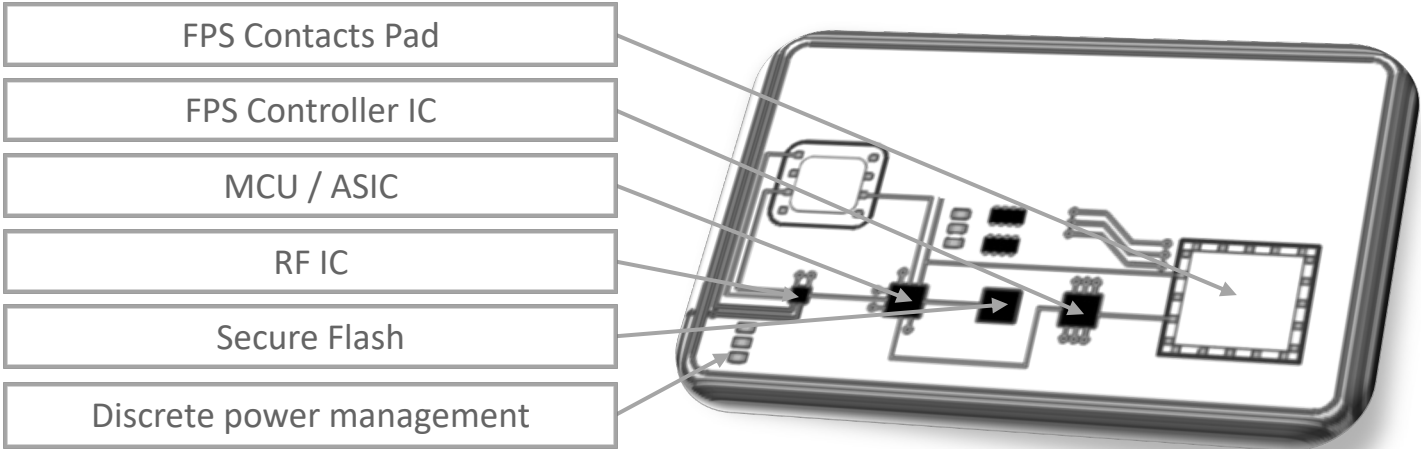
BIOMETRIC SMART CARD CERTIFICATION

- Multiple elements to biometric smart card certification
- Certification process 'managed' by the payment scheme (Mastercard, China UnionPay etc.)



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

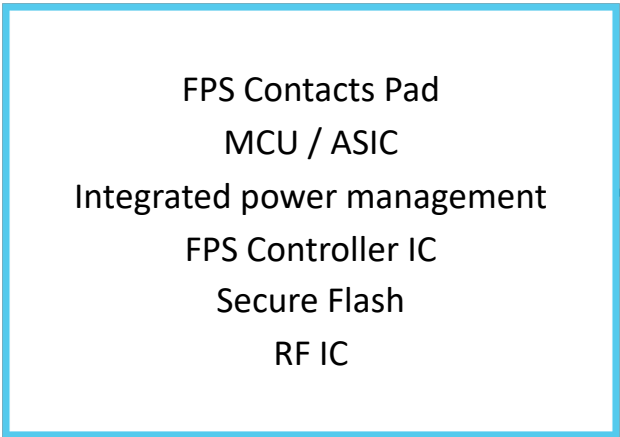
Conventional
silicon sensor



Discrete silicon sensing component

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

IDEX
off-chip
sensor



Integrated system solution

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

SHOWCASED DUAL-INTERFACE BIOMETRIC CARDS WITH IDEX SENSORS



Feitian card showcased at the Secure Technology Alliance Payments Summit



Feitian card showcased at RSA Conference



XH Smart Tech demoing IDEX dual-interface card at The Mobile World Congress in Barcelona

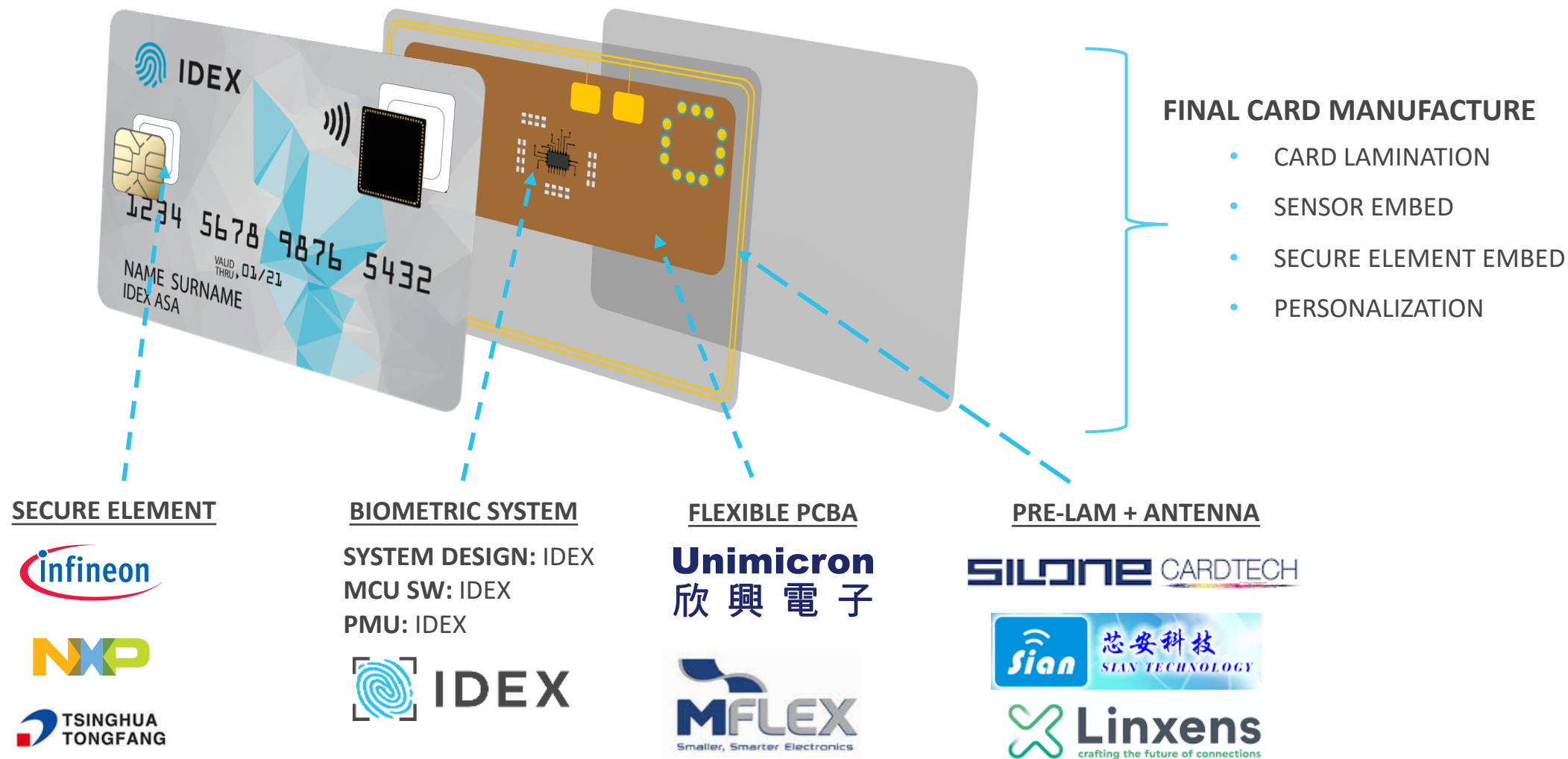


Exelsecu biometric card

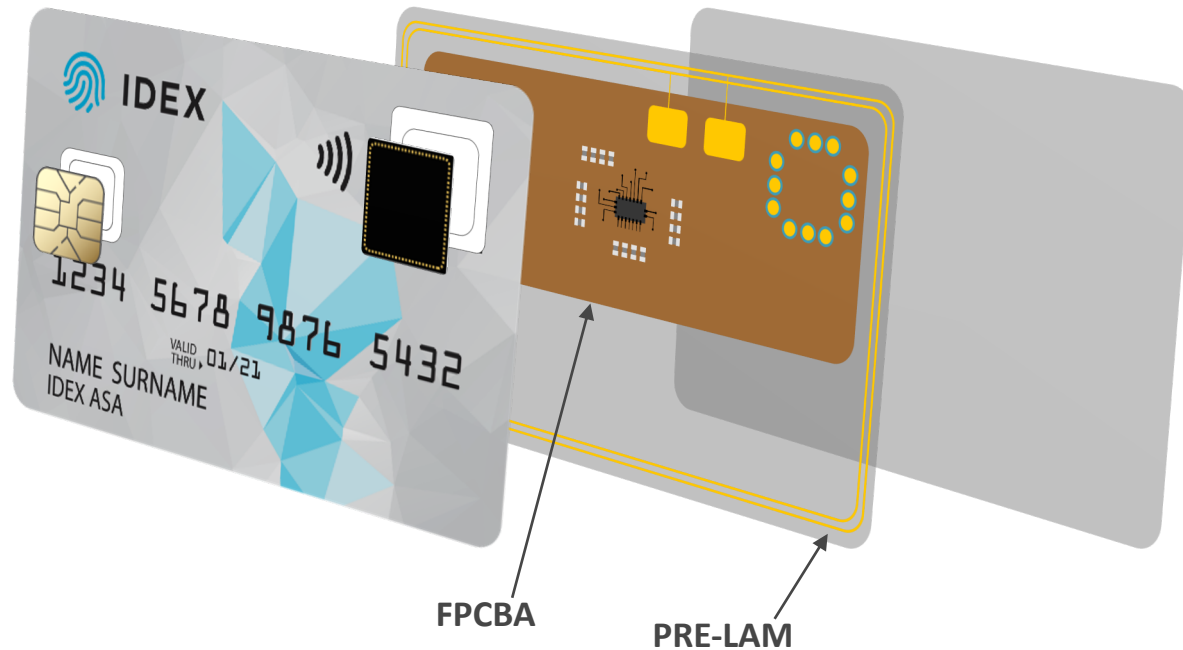


Hengbao dual-interface card demonstrated at the 2nd Digital China Summit

ANATOMY OF A BIOMETRIC CARD: IDEX DRIVING KEY PARTNERSHIPS



IDEX HAS MULTIPLE GO-TO-MARKET OPTIONS



Card manufacturers choose different options depending on:

- existing capability
- current partnerships
- timing of capex needed to achieve biometric card capability

Full ownership – Tier 1



- Design and manufacture FPCBA inlay using IDEX reference design or own design
- Manufacturer builds card

Inlay outsourced – Tier 2



- Purchase tested FPCBA inlay
- Manufacture pre-lam and full card

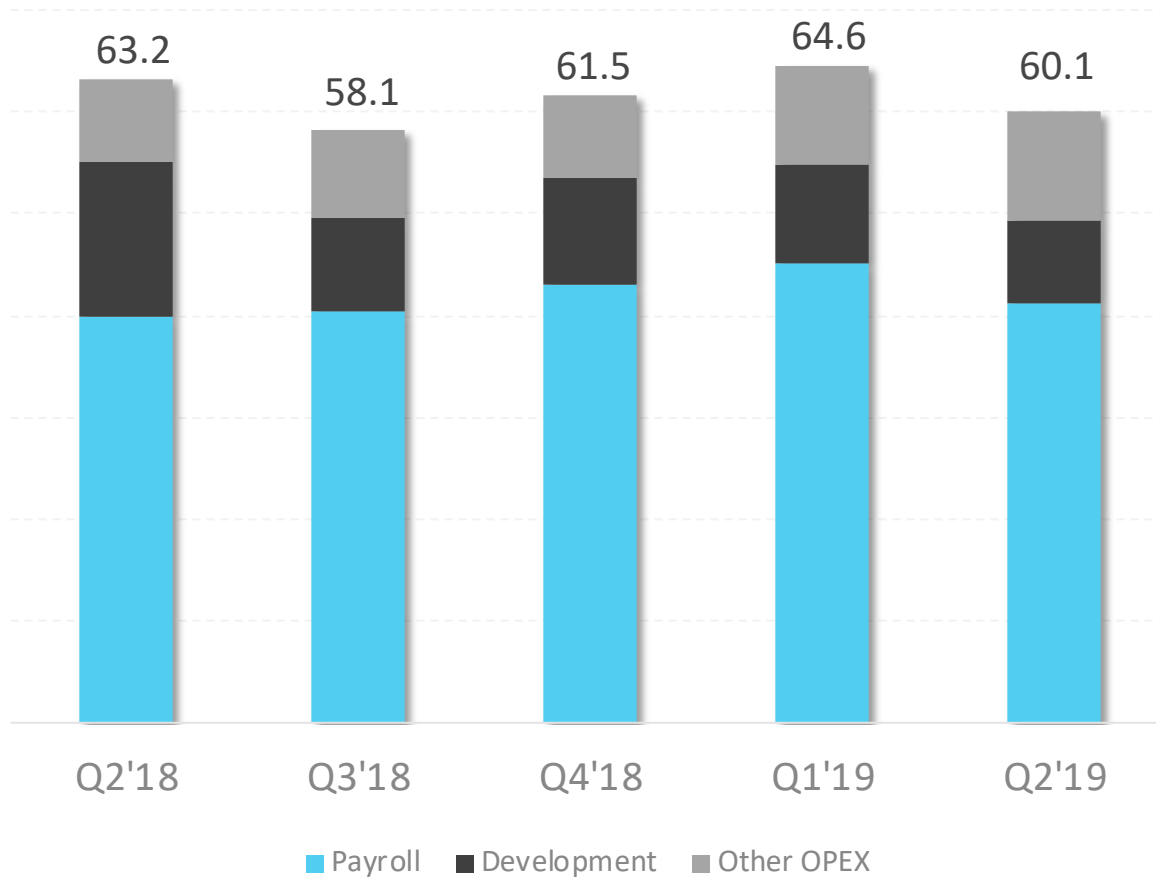
Pre-lam outsourced – Tier 2/3



- Purchases pre-lam with antenna
- Laminate and embed sensor to create card

OPEX OVERVIEW

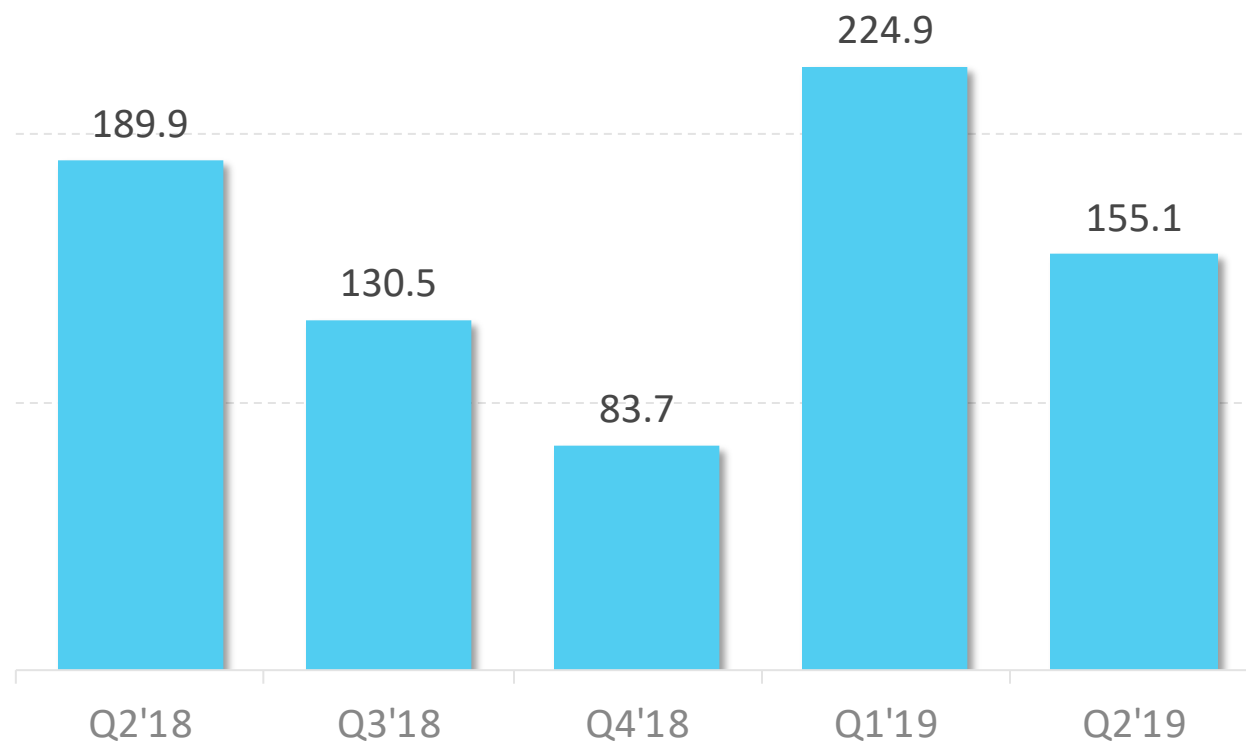
OPEX
NOK million



- Continue to ship thousands of engineering and customer test units in Q2 at high gross margins
- Q2'19 OPEX excl. share based remuneration of NOKm 54.8; lower than previous quarter
- OPEX levels expected to be stable for remainder of 2019
 - Stable organization size expected

CASH BALANCE

Cash balance
NOK million



- Estimated break even at low-double-digit million units shipped
- Stable quarterly cost level expected for 2019
- No financial debt

Statements of comprehensive income

1 January-31 December		IDEX group		IDEX ASA	
Amounts in NOK 1,000	Note	2018	2017	2018	2017
Operating revenue					
Product sales	2	2 181	16 036	2 181	16 036
Other operating income		1 404	1 434	1 393	1 569
Total revenue		3 585	17 470	3 573	17 605
Cost of goods sold		1 502	13 691	1 502	13 690
Gross margin		2 082	3 779	2 071	3 915
Operating expenses					
Payroll expenses	3	160 983	149 285	35 598	38 070
Development expenses	4, 5, 7	45 850	56 256	159 212	182 371
Other operating expenses	6, 7	31 908	39 779	54 902	29 519
Profit (loss) before interest, tax, depreciatio and amortisation (EBITDA)		(238 740)	(241 541)	(247 641)	(246 045)
Amortisation and depreciation	10, 11	6 854	7 501	4 003	5 160
Profit (loss) before interest and tax (EBIT)		(243 512)	(249 042)	(251 644)	(251 205)
Financial income and expenses					
Interest income	13	1 095	2 285	1 082	2 283
Interest income from group companies	7			908	482
Agio		13 201	2 429	12 940	2 560
Interest expenses		(14)	(64)	0	(26)
Disagio		(15 173)	(5 970)	(14 804)	(6 028)
Net other financial items		(1 363)	(973)	(828)	(1 189)
Net financial items		(2 254)	(2 294)	(702)	(1 917)
Net result before tax (EBT)		(245 766)	(251 336)	(252 346)	(253 122)
Income taxes	8	332	4 150	0	0
Net loss for the year		(246 097)	(255 486)	(252 346)	(253 122)
<i>Other comprehensive income that may be reclassified to profit or loss in subsequent periods (net of tax):</i>					
Exchange differences on foreign operations		946	(386)		
Total comprehensive income (loss) for the year, net of tax, attributable to the equity holders of IDEX ASA		(245 151)	(255 872)	(252 346)	(253 122)
Profit (loss) per share, basic and diluted (NOK)	9	(0.45)	(0.47)		

Source: IDEX Biometrics Annual Report 2019

IDEX CASH FLOW STATEMENT

1 January-31 December Amounts in NOK 1,000	Note	IDEX group 2018	2017	IDEX ASA 2018	2017
Cash flows from operating activities					
Profit (loss) before taxes		(245 766)	(251 336)	(252 346)	(253 122)
Share-based remuneration (equity part)	3	24 170	17 263	24 170	17 263
Amortisation and depreciation	10, 11	6 854	7 501	4 003	5 160
Interest income	13	(1 095)	(2 285)	(1 991)	(2 765)
Change in receivables, inventory	17, 19	(2 202)	9 070	95	8 814
Change in payables, accruals	18	5 549	(9 916)	12 017	(5 302)
Income tax paid		(1 593)	(2 453)	0	0
Net other items		(295)	(3 018)	(3)	1 052
Net cash flow from operational activities		(214 377)	(235 174)	(214 054)	(228 900)
Cash flows from investing activities					
Investments in tangible assets	11	(8 991)	(6 857)	25	(69)
Investments in acquired intangible assets and capitalised development cost	4, 10		(294)		(294)
Investment in subsidiaries (shares)	1, 12				(5 489)
Loans to subsidiaries	1, 12			(8 235)	(10 295)
Changes in long-term receivables	17	(3)	41	(3)	633
Interest received	13	1 095	2 285	1 991	2 765
Net cash flow from investing activities		(7 899)	(4 825)	(6 222)	(12 749)
Cash flows from financing activities					
Share issues, net of expenses	15	7 157	13 303	7 157	13 303
Paid-in, not registered share capital	15		(811)		(811)
Change in long-term payables	18	(3 271)	(3 007)	(3 270)	(3 234)
Net cash flow from financing activities		3 886	9 485	3 887	9 258
Net change in cash and bank deposits		(218 391)	(230 514)	(216 389)	(232 391)
Cash and bank deposits at 1 January		302 105	532 619	288 594	520 985
Net change in cash and bank deposits		(218 391)	(230 514)	(216 389)	(232 391)
Cash and bank deposits at 31 December	13	83 714	302 105	72 205	288 594

Source: IDEX Biometrics Annual Report 2019