FINGERPRINT CARDS AB

INTRODUCTION TO THE COMPANY
1. Fingerprints in brief
2. Mobile
3. Payments
4. Access
5. Links to further information
FINGERPRINTS IN BRIEF
Fingerprints – leading biometrics since 1997

- Founded in 1997
- Develops biometric systems consisting of sensors, software, algorithms and tools
- Pioneer and market leader in fingerprint sensors for mobile phones
- Expanding to new application areas, e.g. biometric smart cards

WE BELIEVE IN A SECURE AND SEAMLESS UNIVERSE, WHERE YOU ARE THE KEY TO EVERYTHING
Fingerprints in numbers

- SEK 1.5 billion in revenue 2019
- >10 billion touches daily
- 7 sensors sold every second throughout the year
- 420+ mobile devices launched with our solutions
- 8 out of the top 10 mobile OEMs as customers
- 21 out of the 21 announced dual interface biometric payment card market trials use Biometrics by Fingerprints, in addition to the first commercial launch by Cornèrbank.
- 1 billion sensors delivered (May 2019)
Fingerprints offers a complete solution
Software + hardware

- Biometric algorithms
- Software development
- ASIC/silicon chip development
- Optical and packaging expertise
- Range of tools
- Personal support
Differentiators

- Trusted brand
- Market leader with recognized high level of quality, performance and security
- Strong sales channels and deep access to our target customers and their eco-systems
- Proven high-volume partner
- Full system competence
- Strong IP portfolio
- Independent security provider, proud of our Scandinavian heritage
Annual market potential

1.5bn units

1.7bn units

6-8bn units

1 Payment devices = Payment cards, wearables, USB dongles/tokens. Potential addressable market in a few years.

2 Personal access devices for physical and logical access = smart doorlocks, tap locks, access cards/fobs, remote controls, game controls, USB dongles/tokens/crypto wallets for logical access, smart suitcases, connected cars, printers, routers, smart homes /alarm panels
Fingerprints as an investment

- **Biometrics is an expanding global industry**
  - Digitalization drives need for secure and user-friendly authentication
  - Biometrics for smartphones is a growth industry again
  - Increasing interest in adopting biometric solutions in other industries

- **Fingerprints has a leading market position**
  - Market leader in capacitive fingerprint sensors for smartphones
  - Very well positioned to capture a significant share of new, emerging global markets for biometric solutions

- **Strong innovation capabilities**
  - Recognized as an innovative, high-tech and entrepreneurial company that delivers solutions with a very high level of security

- **Cost-effective and cash-generative business model**
  - Hardware production takes place with the help of a network of external suppliers
  - Working capital as a proportion of revenue improved significantly during the year, with a positive impact on cash flow
Biometrics has achieved huge success in mobile

>80% of smartphones shipped have biometrics

Fingerprint has replaced PINs and passwords as the most popular way to authenticate on mobile

82% of consumers that have access to biometrics on their smartphone use it

USED FOR

- Unlock phone
- Mobile payments
- Access & protect apps

SOURCE Fingerprint™ in collaboration with Gartner. TMI-Bees. 4,000 online consumers in China, India, UK, USA.
Fingerprints’ technology is in 430+ smartphone & tablet models
OEM Customer Overview

Global Smartphone Vendor Market Share %, Q1 2020

- Samsung
- Huawei
- Apple (incl. Realme)
- Xiaomi
- Vivo
- Transsion
- Lenovo-Motorola
- LG
- HMD (Nokia)
- Other

- Launched phones with competitor or inhouse
- Has not launched phone with fingerprint sensor
- Launched phone with FPC sensor

Source: Strategy Analytics data, FPC estimates
Mobile: capitalize on our strong position

Activities and progress

- Market leader in capacitive fingerprint sensors
- FPC1511 in Samsung Galaxy A10s and A20s. Our technology is now used by 8 out of the top 10 smartphone manufacturers
- Product cost out programs continue as planned – FPC1520 sensor launched in Q3 2019
- FPC1540, an ultra-slim capacitive sensor for side-mounting, enables latest borderless and foldable smartphone designs
- Ambition to enter the growing in-display market
- Touchless 2.0 platform launched
Expanding fingerprint sensing portfolio

Fingerprints is the leader in this segment, the dominant biometric technology for smartphones.

Fingerprints is diversifying its product portfolio into new areas.
Fingerprints Touchless 2.0

- The world's first solution that combines iris and face recognition technology designed for mass-market consumer devices.
- It strikes an optimal balance between security, convenience, and cost.
- Beneficial for multiple use cases including mobile devices, payments, automotive and access control.

Demo video
Touchless 2.0 performance comparison

30% better FRR than Touchless 1.0 and 3 x better FRR when wearing glasses!

- Average unlock rate at indoor testing (%)
  - 25cm to 50cm distance
  - Sitting, standing and walking
  - With and without glasses

- Average unlock rate at outdoor testing (%)
  - 25cm to 50cm distance
  - Sitting, standing and walking
  - With and without glasses

<table>
<thead>
<tr>
<th></th>
<th>Indoor</th>
<th>Outdoor</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D Face Competitor*</td>
<td>99,5%</td>
<td>98,4%</td>
</tr>
<tr>
<td>Gen 1.0</td>
<td>82,7%</td>
<td>71,5%</td>
</tr>
<tr>
<td>Gen 2.0</td>
<td>95,8%</td>
<td>94,8%</td>
</tr>
</tbody>
</table>

* Leading competitor, three times higher cost than Fingerprints’ solution
PAYMENTS
Market potential for personal payment devices

Fingerprints™ estimates on shipments based on various industry sources

* Some of these tokens can be used for cryptocurrency, as well as authentication of online payment but more logical access.
Biometric authentication is an area of increasing focus for banks

<table>
<thead>
<tr>
<th>Area</th>
<th>Today</th>
<th>In two years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online/Internet banking</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Mobile banking</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Mobile physical payments, NFC</td>
<td>88%</td>
<td>96%</td>
</tr>
<tr>
<td>IoT (e.g. wearables, smart homes)</td>
<td>92%</td>
<td>44%</td>
</tr>
<tr>
<td>Biometric authentication</td>
<td>52%</td>
<td>56%</td>
</tr>
<tr>
<td>Biometric authentication technologies</td>
<td>88%</td>
<td>84%</td>
</tr>
<tr>
<td>Artificial intelligence</td>
<td>84%</td>
<td>40%</td>
</tr>
<tr>
<td>Mobile direct account payments, ACH</td>
<td>64%</td>
<td>76%</td>
</tr>
<tr>
<td>Blockchain</td>
<td>8%</td>
<td>56%</td>
</tr>
<tr>
<td>Cryptocurrency</td>
<td>12%</td>
<td>44%</td>
</tr>
<tr>
<td>Data monetisation</td>
<td>0%</td>
<td>8%</td>
</tr>
</tbody>
</table>

Source: Research by Fingerprints in cooperation with PayTech (2019), covering 26 banks across seven countries on four continents
High consumer preference for biometric payment cards

Consumers in China want biometric cards! Despite 56% using mobile payments

Source: Fingerprints in collaboration with Kantar, Dec 2019. Base: 1,200 online population in UK, France, China
BENEFITS FOR ALL

**BANKS**
- Increased card usage
- Less card present fraud
- Increase consumer trust
- Innovation to address new customers and retain old
- ISO compliant solution
- Reduced false chargebacks

**RETAILERS**
- Increased revenues
- More customer throughput
- No payment cap with contactless
- Less waiting in line = happier customers & less dropouts

**CONSUMERS**
- Secure contactless payments, no more skimming
- Speed
- Contactless for all purchases, no more cap
- No need to remember PIN code
- Cool new technology
Payments: Secure position as leading supplier of biometric solutions for smartcards

**Activities and progress**

- Our technology used in all contactless market pilots to date
- First commercial card launched with Corner Bank in Switzerland November 2019
- Unique T-Shape sensor module
- Biometric software platform launched 2019
- Cooperating with all top 3 card manufacturers
- Secured world’s first volume order in 2019
- Supports partner MeReal in their latest order of biometric cards
- In contactless payment device being piloted by JCB, set to launch 2020
Biometric Smartcards – Fingerprints’ strengths

- Strong experience in high-volume production
- Robust hardware and stable software
- Offering biometric performance in a low computing power environment
- Ultra-low power consumption
- Strong collaboration with smartcard industry leaders
21 of 21
CONTACTLESS
BIOMETRIC
PAYMENT CARD
PILOTS
+
1 out of 1
COMMERCIAL
LAUNCHES
Positive feedback from market trials

- High customer engagement and interest
- High user satisfaction: Easy to use, fast, secure, look & feel, “wow”
- Willingness to pay
- Home enrollment preferred - various ways to enroll exist, e.g. Thales sleeve)
- Limited number of POS terminals have old software releases, requiring upgrade that will be fixed by schemes.
- Payment cap can be removed

84% of Areeba pilot participants were enthusiastic or interested in biometric
87%: More convenient than PIN (Do need to remember)
71%: Transaction time perception same as for CVV cards
79%: Biometric CVV felt safer than PIN verification

50% of consumers are willing to pay extra for biometric card
Fingerprints engagement model

- Direct engagement with Tier 1 and Manufacturers with full capabilities
- Addressed through card enablers (SE and/or Inlay/Prelam partners) for Tier 2 or those lacking full capabilities
- Engaging with most top players, who are performing/planning pilots with top banks
- Also engaging with new, innovative FinTech payment companies

**PAYMENT SMART CARD MARKET SHARES BY VENDOR 2018**

- Thales (Gemalto); 32%
- IDEMIA; 24%
- G+D; 18%
- Gold Pac; 7%
- Austria Card; 1%
- CPI Card Group; 2%
- Valid; 3%
- Watchdata; 1%
- KONA; 1%
- Others; 12%

SOURCE: ABI Research
The biometrics payment card eco-system

SOLUTION PROVIDERS
- Secure Elements
- Inlay manufacturers

CARD MANUFACTURERS
- Card makers

CARD ISSUERS
- Banks
- Retailers

PAYMENT NETWORKS
- Card networks (Visa, Mastercard, American Express, China UnionPay etc.)

STANDARDIZATION BODIES
- Specifications, certifications, industry development (EMVco, Eurosmart, FIDO)

CARD HOLDERS
- End users like you and me
# Biometric Payment Card Ecosystem

## Secure Elements
- HED
- Infineon
- NXP
- STMicroelectronics

## Inlay Manufacturers
- Advanlde
- CardLab
- InterActive Cards
- Jinco
- Linxens
- TOPPAN
- YesItls
- YMJ / CET
- Xcore

## Payment Networks
- American Express
- Carte Bancaire
- China Unionpay
- Discover
- JCB
- Mastercard
- PayPal
- RuPay
- VISA

## Standardization & Certification
- CUP (BCTC)
- Mastercard, Visa & EMVCo (incl 3rd party labs)
- Eurosmart

## Card Manufacturers
- ABCorp
- AustriaCard
- BioSmart
- CompuSecure
- CPI
- DNP
- Feitian
- Futurecard
- G+D
- GoldPac
- Hengbao
- Jinco
- Linxens
- TOPPAN
- YesItls
- YMJ / CET
- Xcore

## Banks / Card Issuers
- Airplus
- AMEX
- Areeba
- Bank of Cyprus
- Barclays
- BNP
- China Construction Bank
- Cornér bank
- Crédit Agricole
- Credit Mutuel
- ICBC

## Card Issuers
- Idemia
- ISRA
- Kona-l
- M-Tech
- SELP
- TOPPAN
- Thales
- Tianyu
- Toshiba
- Valid

## Standardization & Certification
- CUP (BCTC)
- Mastercard, Visa & EMVCo (incl 3rd party labs)
- Eurosmart
Smart payment card technology adoption

- EMV smartcard (chip & pin) introduced in Europe. New POS needed.
- EMV smartcard (chip & pin) introduced in USA 2015
- Contactless to be rolled out at scale in USA
- By 2020 all POS in most regions must be contactless

WHERE ARE WE NOW?

- CARD HOLDERS
  Want biometric payment card

- PRODUCT
  Optimized sensor and system

- CARD INTEGRATION
  Solution providers and card manufacturers integrate and test

- SCHEMES – TRIALS, STANDARDIZATION & CERTIFICATIONS
  Payment systems and standardization bodies test, qualify and certify

- ISSUER PILOTS
  End user market trials with banks

HIGH VOLUME DEPLOYMENT
ACCESS
Market potential for personal Access devices

Fingerprints™ estimates on shipments based on various industry sources

* Used for logical access and access to e.g. cryptocurrency
IN 100+ DIFFERENT ACCESS APPLICATIONS AND DEVICES
Access: Grow in prioritized segments in fragmented market

Activities and progress

- Agreement with Gentex for Touchless authentication in rearview mirrors
- Launched fingerprint sensor for automotive sector
- Fingerprints’ Touchless platform used in Indian Aadhaar payment terminals
- Strategic cooperation in biometric door locks with China Synodata and Jianfeng
- Order for 100,000 T-Shape sensors, to be integrated in a product used for safe online access and secure offline data storage
- Launched FPC BM-Lite, plug & play module for access control market
CONSUMERS WANT BIOMETRICS TO ACCESS THEIR THINGS!

CONVENIENT - NO NEED TO BRING KEY OR REMEMBER PIN OR PASSWORD HIGHER SECURITY MODERN

Unlocking PC: 34%
Access car: 33%
Access the home: 32%
Register work time: 32%
Access the office: 29%
Verify payments in car: 29%
Personalize car settings: 28%
Making payments from PC: 28%
#1 BIOMETRICS
Links to further information

- Financial reports and presentations: [https://www.fingerprints.com/investors/reports-presentations/](https://www.fingerprints.com/investors/reports-presentations/)
- Blog: [https://www.fingerprints.com/blog/](https://www.fingerprints.com/blog/)
- Download center (eBooks, whitepapers, product information, etc.): [https://www.fingerprints.com/downloads-resources/](https://www.fingerprints.com/downloads-resources/)
Get in touch!

Learn more
http://www.fingerprints.com

Questions
investrel@fingerprints.com