

# Crunchfish AB

## Broadening of scope to all offline credentials

Johan Widmark | 2024-05-03 12:00

Following the app-integrated offline payments with Digital Cash, and recent expansion with App-Integratad Card Emulation (ACE) for tokenized card payment, Crunchfish has now announced a further expansion of its scope to App-integrated Offline Credentials (AOC). This opens up opportunities for offline services within generative AI, media services, gaming, identification, etc.

While the ideal customers for ACE are global payment companies, like MasterCard, Visa, Android/Google Pay or national payment systems, banks, and mobile operators, the ideal customers for AOC are application developers or tech platform companies and ecosystems, like facebook, Google, gaming platforms and companies etc. that want to introduce trust into the application also offline.

As a consequence of the further expansion of potential customer and counterparty base, we see an improved chance for one or more agreements in the coming year. However, we continue to expect that all such will be preceded by some form of pilot, which is why the impact on revenues will come gradually. Following today's announcement, we maintain our expectation for initial revenues up to SEK 5 million in 2024E, although we also see a chance for considerably larger deals soon. With confirmed dialogues with MasterCard and Google, we look forward to see the first signs of traction with the expanded offerings, ACE and AOC, soon.

As for the operational side of Crunchfish, the company's cash reserves will need to be replenished before the end of the year. We continue to find support for a fair value of SEK 15-18 per share, but also note that the share has more than doubled since February, now up 32% year-to-date, which is why we would not be surprised to see some sort of raise over the summer. Also, the structural process with EY Corporate Finance, which includes the divestment of Gesture Interaction, adds a potential catalyst to the case.

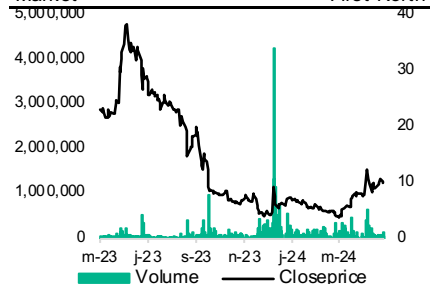
For our interview with CEO Joachim Samuelsson where he elaborates on today's announcement (in SWE), please see <https://youtu.be/6ZtgOuw3xG4>

MSEK	2022	2023	2024E	2025E	2026E
Revenue	6	1	5	12	30
EBITDA	-18	-27	-39	-34	-16
EBIT	-24	-49	-61	-53	-34
EPS Adjusted	-0.73	-1.24	-1.53	-1.37	-0.90
Sales Growth, %	56%	-84%	406%	140%	150%
EBITDA Margin, %	-293%	-2687%	-778%	-279%	-53%
EBIT Margin, %	-392%	-5000%	-1212%	-443%	-115%
EV/Sales	102.1	639.7	126.4	34.9	14.6
EV/EBITDA	-34.9	-23.8	-16.2	-12.5	-27.6
EV/EBIT	-26.1	-12.8	-10.4	-7.9	-12.7
P/E	-27.5	-5.6	-6.2	-6.9	-10.5

Source: Emergers

### Crunchfish

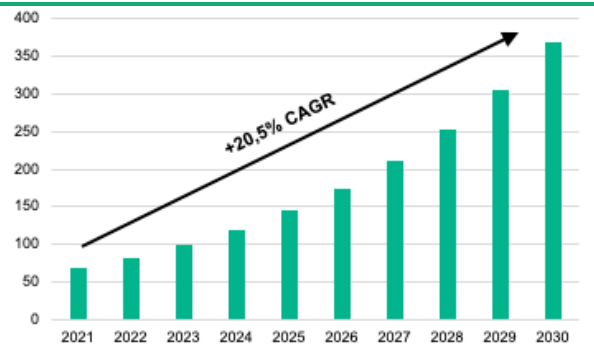
Fair Value, SEK	15 - 18
Current Price, SEK	9.27
Shares (M)	39.6
Market Capitalisation (MSEK)	368
Net Cash (MSEK)	-29.3
Enterprise Value (MSEK)	338
Market	First North



## Crunchfish in brief

Crunchfish is a deep tech company founded in 2010. With an initial focus on developing applications for smartphones, and a soon realized expertise in gesture recognition, the journey towards commercializing the technology began. Today Crunchfish has two business verticals, Digital Cash (DC) and Gesture Interactions (GI), of which the latter is now up for sale.

### Digital Payments Market Growth (USDbn)



Source: Grandviewresearch, Emergers

## Addressing growing problems on a global scale

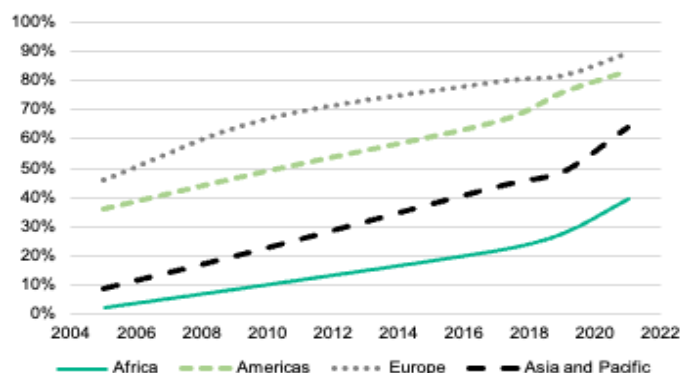
### Offline digital payments

Even though internet connectivity is good throughout the developed world, it doesn't work everywhere, all the time. Payment rails, built on circuit-switched systems, only works if everything else supporting it works, making modern societies vulnerable to IT-attacks, system failures or even just downtime maintenance.

Connectivity in general is a major concern in other parts of the world. In India for example, only about 50% of the 1,4 billion citizens enjoy a stable connection. The same goes for a country like Nigeria, where 70% of the population lives without solid internet connection.

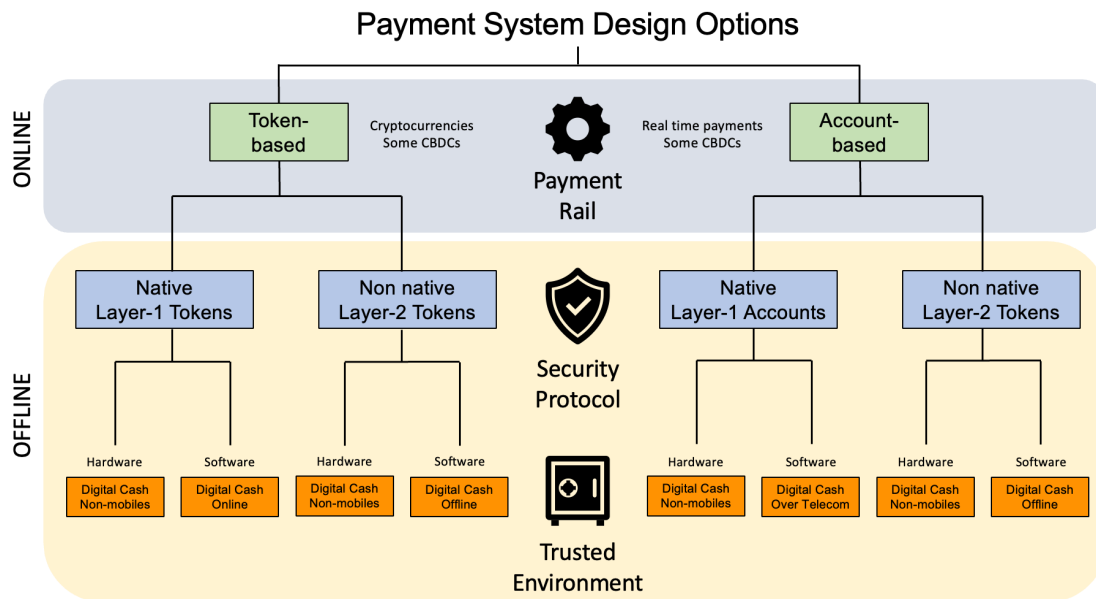
As internet connectivity varies a lot between regions, systems are prone to downtime, and internet connection has become a vital part of existing payment infrastructure, this adds up to a problem in urgent need of a solution. Despite the poor connectivity, India is the supreme leader in real-time payments, where over 74 billion transactions were made through UPI (India's version of Swish) in 2022 alone. This compares to the 4 billion transactions that has been made on Swedish Swish since the service launched in 2012.

### Internet penetration by region (% of population)



Source: International Telecommunication Union, Emergers

## Payment System Design Options



Source: Lipis Advisors, Emergers

## Implementation architectures of HCE

	Current HCE payments	Secure HCE payments
<b>Software-based Security</b>	<p>HCE payment application REE on a smartphone</p> <p>HCE is implemented in scalable but unsecure REE.</p>	<p>Crunchfish HCE Trusted Application App-integrated TRE on a smartphone</p> <p>Executes in an app-specific, virtual TRE, providing isolated runtime and secure storage for EMV tokens, credentials etc. on the smartphone. Scalable, secure and maintainable without OS, OEM or MNO dependencies.</p>
<b>Hardware-based Security</b>	<p>EMV payment applet TRE on a smartphone</p> <p>ICCs are not used for HCE payments.</p>	<p>HCE payment applet Hardware-based TRE on a smartphone</p> <p>HCE may be secured on a smartphone using a hardware-based TRE. Hard to scale as they are controlled by OEMs or MNOs</p>

### Definitions of Acronyms

OEM = Original Equipment Manufacturer  
MNO = Mobile Network Operator  
REE = Rich Execution Environment

ICC = Integrated Circuit Cards  
HCE = Host-based Card Emulation  
TRE = Tamper Resistant Secure Element

Source: Emergers, Crunchfish

### IDFC First Bank Commercial Agreement

On the 29<sup>th</sup> of June 2023 Crunchfish signed their first commercial agreement for its Digital Cash Offline-solution with IDCF First Bank. The first release to the bank's customers is planned for late Q3, and the initial use case will be to enable offline UPI payments over the telecom network.

The 3-year license includes a first trench of users, out of a maximum of seven. Should IDFC Bank decide they want to offer the service to more of its customers, additional licenses will have to be purchased.

### SaaS business model with high scalability

As both of Crunchfish's verticals are fully based on software, the business is highly scalable by nature with high margins. With an annual OPEX currently at about SEK 40m per year (which the company expects to keep intact going forward), future profitability will be high should high volume deals be signed.

## Valuation

In our DCF-model we use a discount factor (WACC) of 25% to take into account the high uncertainty regarding all future cash flows. With estimated sales of SEK 12m in 2025E, to reach SEK 83m in 2027E, our DCF and target multiple valuation approach support a fair value of SEK 15 per share.

## Risks

**Unproven business model:** Even though one Digital Cash commercial deal has been signed, the business model, earning capacity and rollout-pace are still highly uncertain.

**Addressing a slow-moving market:** Crunchfish's business is focused on critical financial infrastructure, such as payment systems. We believe that even though the technology works, an investor needs to keep in mind that these institutions are slow to change and that a rollout might take longer than expected.

## Corporate Governance

**CEO of Crunchfish AB** Joachim Samuelsson has a Master of Science in industrial Engineering and Management from Linköping University. As a serial entrepreneur since 1996, Samuelsson has had successful engagements in ComOpt Ab, Actix Ltd and Biomain AB. Before that Samuelsson worked several years for Ericsson in international technical and marketing roles.

**Chairman of the board** Göran Linder has a Master of Science in Engineering from KTH Royal Institute of Technology in Stockholm. Linder also serves as CEO of Corespring New Technology AB and serves on the board in Powercell AB, Promore Pharma AB, Minesto AB and QCG Sweden AB.

**CEO of Crunchfish Digital Cash AB** Patrik Lindeberg has a Master of Science in Electrical Engineering from Lund University and National University of Singapore, bringing experience in commercial and technical areas of responsibility.

**Founder and CTO** Paul Cronholm has a master's degree in theoretical physics from Lund University within the field of complex computer simulations. Cronholm has more than 15 years of experience as a senior software designer and project manager in various projects to implement mobile internet around WAP, 3G and DVB-H.

## Crunchfish

### Income Statement

MSEK	2021	2022	2023	2024E	2025E	2026E
Sales	4.0	6.2	1.0	5.0	12.0	30.0
Operating Costs	-49.3	-39.8	-46.1	-45.5	-45.7	-45.8
EBITDA	-29.2	-18.1	-26.5	-38.9	-33.5	-15.8
Depreciation	-7.7	-6.1	-22.8	-21.7	-20.6	-19.6
Amortisation of Goodwill	0.0	0.0	0.0	0.0	1.0	1.0
EBIT	-36.9	-24.3	-49.4	-60.6	-53.1	-34.4
Non-recurring Items	0.0	0.0	0.0	0.0	0.0	0.0
Associated Companies	0.0	0.0	0.0	0.0	0.0	0.0
Net Financial Items	-1.6	0.2	0.1	-0.3	-0.3	-0.3
<b>Pre-tax Result</b>	<b>-38.5</b>	<b>-24.0</b>	<b>-49.3</b>	<b>-60.8</b>	<b>-53.4</b>	<b>-34.7</b>
Tax	0.0	0.0	0.0	0.0	0.0	0.0
Minority Interest	0.0	0.0	0.0	0.0	1.0	1.0
<b>Net Result</b>	<b>-38.5</b>	<b>-24.0</b>	<b>-49.3</b>	<b>-60.8</b>	<b>-52.4</b>	<b>-33.7</b>

### Capital Expenditure

	2021	2022	2023	2024E	2025E	2026E
Capital Expenditure, Absolute	15.8	13.6	1.2	0.3	-0.6	-1.5
As a Pct of Sales	400%	220%	125%	5%	-5%	-5%
Depreciation Multiple	2.1	2.2	0.1	0.0	0.0	-0.1

### Key Ratios

Share Price: SEK 9.27

	2021	2022	2023	2024E	2025E	2026E
Share Price at 31 Dec	25.00	20.00	7.00	9.27	9.27	9.27
Number of Shares (Millions)	30.93	33.04	39.65	39.65	39.65	39.65
Market Cap	773.1	660.8	277.5	367.5	367.5	367.5
Enterprise Value	740.9	631.9	248.2	376.7	411.0	428.6
EPS (Reported)	-1.24	-0.73	-1.24	-1.53	-1.37	-0.90
EPS (Adjusted)	-1.24	-0.73	-1.24	-1.53	-1.37	-0.90
CEPS	-1.24	-0.73	-1.24	-1.53	-1.37	-0.90
P/CEPS	n.a.	n.a.	n.a.	n.a.	-6.8	-10.3
Book Value/Share	1.8	1.8	1.3	-0.2	-1.6	-2.5
P/BV	13.8	11.2	5.3	-42.8	-5.8	-3.7
Dividend	0.00	0.00	0.00	0.00	0.00	0.00
Dividend Yield (%)	0.0	0.0	0.0	0.0	0.0	0.0
Dividend Payout Ratio (%)	0.0	0.0	0.0	0.0	0.0	0.0
EV/Sales	187.3	102.1	639.7	126.4	34.3	14.3
EV/EBITDA	-25.4	-34.9	-23.8	-16.2	-12.3	-27.1
EV/EBIT	-20.1	-26.1	-12.8	-10.4	-7.7	-12.5
P/E (Adjusted)	-20.1	-27.5	-5.6	-6.0	-6.8	-10.3
Sales Growth, Y/Y (%)	-63.6	56.4	-84.0	406.2	140.0	150.0
EBIT Growth, Y/Y (%)	46.2	-34.2	103.6	22.7	-12.3	-35.2
EPS Growth (Adjusted), Y/Y (%)	39.2	-41.5	71.0	23.4	-10.6	-34.4
EBITDA Margin (%)	-738.2	-292.8	-2687.2	-777.8	-279.3	-52.8
EBIT Margin (%)	-931.8	-392.0	-5000.1	-1211.9	-442.8	-114.7
Return on Equity (%)	-84.8	-41.9	-88.8	-278.6	152.0	44.1
Tax Rate (%)	0.0	0.0	0.0	0.0	0.0	0.0

### Financial Position

	2021	2022	2023	2024E	2025E	2026E
Interest-Bearing Net Debt	-32	-29	-29	9	43	61
Net Debt/Equity	-0.6	-0.5	-0.6	-1.1	-0.7	-0.6
Equity Ratio	0.9	0.9	0.8	-5.2	1.6	2.5
Net Debt/EBITDA	1.1	1.6	1.1	-0.2	0.0	0.0

Source: Emergers, Company reports

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