

16th December 2022

Dear [REDACTED],

## **Private and Confidential**

**NVISO SA**

**Business Update and Outlook**

### **‘2023 - Stabilisation and Getting Back on Track’**



I hope this email finds you well.

I am writing to provide you with an update on NVISO's business and outlook in 2023 as we enter into the holiday season.

#### **Business Update**

As we come towards the end of 2022 one thing is for certain the year hasn't been without its challenges. The initial restructuring and audit took a lot longer (and cost more) than expected and subsequent market conditions prevented us from embarking on the IPO process. As we started to see our customers see business recovery from COVID, some were hit with semiconductor supply chain disruption that has meant 2022 has been a very challenging year for technology companies.

Although revenue recovery from COVID has been modest, we have now invoiced Panasonic for the first payment towards licensing of the companion robot which is entering mass production. It is part of a key strategy on Panasonic's part to [move away from appliances to intelligent devices](#). Additionally, we have invoiced a large premium German automotive manufacturer for a pilot project regarding our advancements on a holistic platform for complex emotions including successfully passing a data security audit to process their internal data for AI development purposes.

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Further, our partnership with BrainChip on neuromorphic computing is starting to bear fruit as potential customers are now positively evaluating NVISO software running on next generation AI hardware which is expected to translate into a growing blue-chip customer base in 2023. Additionally a Japan OEM will begin a POC early 2023 as part of a larger project to adopt AI strategy and a second German Premium OEM will likely begin in 2023 after positive evaluations of our current AI solutions for interior sensing and driver monitoring.

While our focus in 2022 has been securing large blue-chip customers, we will shortly announcing collaborations with a digital communication platforms targeting new applications for the Japanese market with a stronger focus on consumer markets with shorter sales cycle. Our management team is excited around the (long awaited) Panasonic release and is certain this will springboard the company with multiple consumer robot opportunities in 2023. Evidence of this was confirmed at Robot World Japan on 7-8 December when we were able to clearly identify a number of new sales leads to target with similar solutions to those that we have supplied to Panasonic.

### Near Term Industry Catalysts and Commercial Achievements (Recap Past 12-Months)

While the macro-environment is offering challenges in the short-term, NVISO believes that there are strong near-term catalysts which will provide significant tailwinds for its Human Behaviour AI offering in the including:

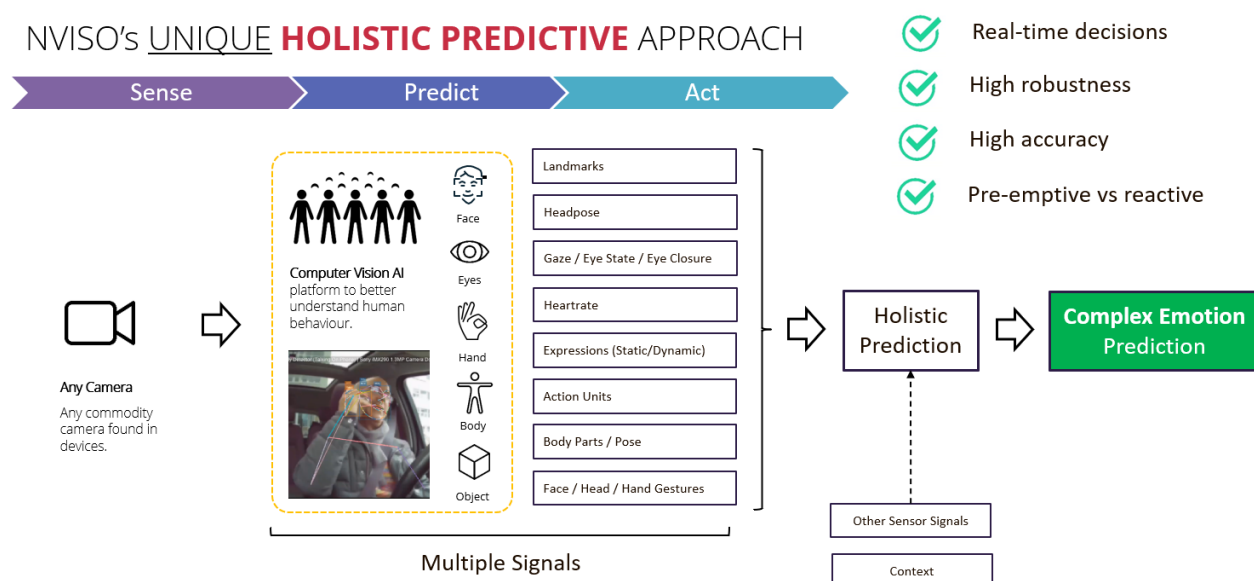
- 6th July 2022 the new Regulation (EU) 2019/2144 of the European Parliament and of the Council has mandated driver drowsiness and attention warning (DDAW) systems for all new type-approved motor vehicles of categories M and N from 6 July 2022 and from 7 July 2024 for all new vehicle registrations. This regulation is expected to accelerate the adoption of AI within interior monitoring systems of drivers and occupants especially in premium segments. A complete outline of the safety regulations and adoption of interior cameras can be found in the [NCAP roadmap vision 2030](#) published in November 2022.
- On July 27, 2022, Congress passed the [CHIPS and Science Act](#) to spend \$280 billion focused on boosting the United States' scientific research and advanced semiconductor manufacturing capacity to boost U.S. competitiveness against China. The bill's spending is broadly split into two categories— allocating \$52 billion in subsidies and tax credits for chip manufacturing companies, and \$200 billion for research into AI, quantum computing, and robotics, among other areas. Much of this investment impacts AI—such as investments in developing semiconductors, which companies use to power research and development (R&D) for machine learning and AI—and some of the investment is focused on AI specifically.
- Neuromorphic hardware commercial availability to accelerate Edge AI software uptake is expected to accelerate in the next 12-months. A coming #neuromorphic hardware revolution is brewing with first-to-market [BrainChip](#) neuromorphic processor, soon to followed by [GrAI Matter Labs](#), and [Axelera AI](#) who have announced the availability of silicon with neuromorphic computing. These new AI hardware platforms offer NVISO customers additional price/power/performance points which can accelerate the adoption of its AI App and Solution offerings to major global manufacturers. NVISO has started discussions and evaluation with Semiconductor partners looking to accelerate the adoption of neuromorphic computing through combined software / hardware offerings.
- Panasonic “Nicobo” companion robot production ramp-up is expected over the next 6-months targeting the Japan market. First customers samples shipped in [June 2022](#) with mass production expected to be launched in 2023. Part of a [broader Panasonic strategy](#) to orientate its product lines to younger consumers with intelligent smart devices, this robot will be the first mass production consumer edge product using NVISO's Human Behaviour AI SDK and is expected to trigger a range of other customers in Japan in development and evaluation to move towards production in 2023 and onwards.

Patent	US Patent Awarded granted a US Patent for Human Behavioural Profiling from image processing using Artificial Intelligence.
Tobii	NVISO and Tobii to collaborate to accelerate innovation in Interior Monitoring Systems for Smart Mobility.
Panasonic	NVISO and Panasonic sign license agreement to embed Human Behaviour AI in companion robots for Smart Living.
BrainChip	NVISO and BrainChip partner on Human Behavioral Analytics in automotive and edge AI devices. NVISO releases first Neuromorphic AI App and Neuromorphic AI Solution using BrainChip Akida platform. NVISO announces interoperability with BrainChip neuromorphic processors.
Siemens Healthineers	NVISO and Siemens Healthineers collaborate to apply Human Behaviour AI in medical imaging applications for Smart Health.
German Automotive Tier1	NVISO and German Automotive Tier1 sign paid licensing agreement for pilot of Human Behaviour AI for in-cabin monitoring and sensing.
German Automotive OEM	NVISO and German Automotive Tier1 sign paid agreement for proof-of-concept for in-cabin sensing and driver monitoring.
Japan Automotive OEM	Japanese Automotive Manufacturer positively complete evaluation of NVISO Human Behaviour AI SDK for advanced driver monitoring.
Japan Semiconductor	Japanese Semiconductor Manufacturer starts evaluation of NVISO Human Behaviour AI SDK for Neuromorphic Computing.

## Product Development

Following on from our [announcement of successful neuromorphic interoperability](#) last summer, we will now be announcing support for two new high performance AI Apps from its Human Behavior AI App catalogue, Gaze and Action Unit Detection. We are making available a full SDK release for manufacturers looking to mission critical human-interaction features meeting the most demanding performance, cost, and power budgets. NVISO's Neuro SDK running on the BrainChip platform will be demonstrated on the Socionext stand at CES2023.

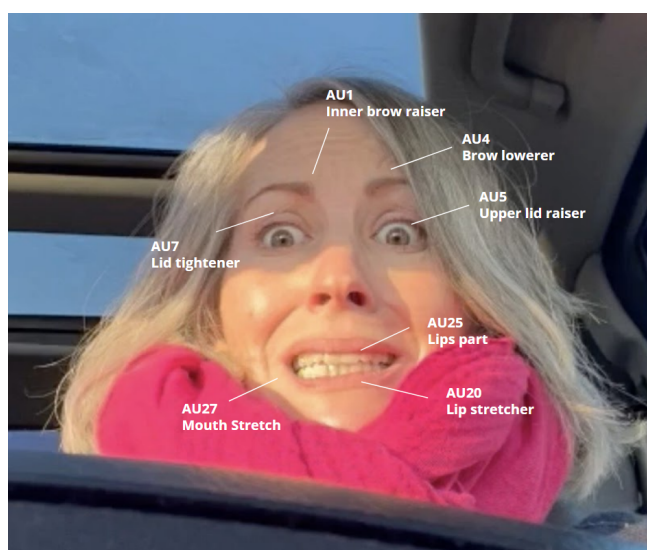
## NVISO's UNIQUE **HOLISTIC PREDICTIVE** APPROACH





## Technology Development

A key technology development which supports the product development is the implementation of complex emotion analysis using state-of-the-art graph-based facial analysis: As one of the most important affective signals, facial affect analysis (FAA) is essential for developing human-computer interaction systems. Early methods focussed on extracting appearance and geometry features associated with human affects while ignoring the latent semantic information among individual facial changes, leading to limited performance and generalization. Recent work attempts to establish a graph-based representation to model these semantic relationships and develop frameworks to leverage them for various FAA tasks.



### Upper Face Action Units

Inner brow raiser | AU1: 0.46  
Outer brow raiser | AU2: 0.32  
Brow lowerer | AU4: 0.40  
Upper lid raiser | AU5: 0.60  
Cheek raiser | AU6: 0.54  
Lid tightener | AU7: 0.56

### Lower Face Action Units

Nose wrinkler | AU9: 0.44  
Upper lip raiser | AU10: 0.65  
Nasolabial deepener | AU11: 0.17  
Lip corner puller | AU12: 0.31  
Sharp lip puller | AU13: 0.11  
Dimpler | AU14: 0.19  
Lip corner depressor | AU15: 0.10  
Lower lip depressor | AU16: 0.34  
Chin raiser | AU17: 0.33  
Lip pucker | AU18: 0.03  
Tongue show | AU19: 0.11  
Lip stretcher | AU20: 0.43  
Lip funneler | AU22: 0.16  
Lip tightener | AU23: 0.06  
Lip pressor | AU24: 0.02  
Lips part | AU25: 0.86  
Jaw drop | AU26: 0.24  
Mouth stretch | AU27: 0.85  
Lip bite | AU32: 0.03  
Nostril dilator | AU38: 0.05  
Nostril compressor | AU39: 0.08

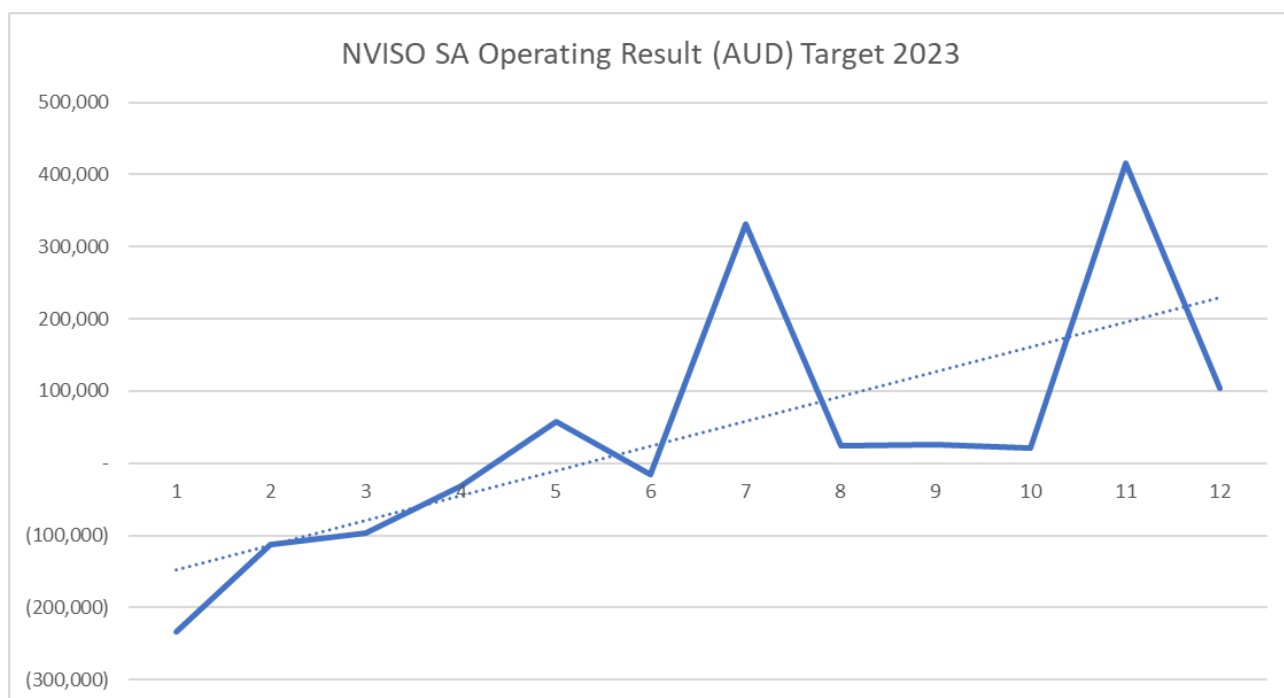
### Symmetrical Face Action Units

Left Inner brow raiser | AUL1: 0.07  
Left Outer brow raiser | AUL2: 0.06  
Left Brow lowerer | AUL4: 0.04  
Left Cheek raiser | AUL6: 0.03  
Left Upper lip raiser | AUL10: 0.09  
Left Nasolabial deepener | AUL12: 0.04  
Left Dimpler | AUL14: 0.00  
Right Inner brow raiser | AUR1: 0.07  
Right Outer brow raiser | AUR2: 0.08  
Right Brow lowerer | AUR4: 0.03  
Right Cheek raiser | AUR6: 0.01  
Right Upper lip raiser | AUR10: 0.04  
Right Nasolabial deepener | AUR12: 0.00  
Right Dimpler | AUR14: 0.02



## Operating Result Outlook and Target

In 2022, numerous measures to reduce burn rate were executed and the team has done a good job to reduce burn rate from \$A260K to A\$130K over the next months. With production licensing revenues starting to hit early 2023 from the Panasonic robot contract, the target is that a positive operating result and a break-even point will be reached before the end of 2023 based on the current pipeline of clients and engagements.



## Shareholder and Fundraising Update

A separate shareholder and fundraising update will be provided through the holding company.

Please don't hesitate to contact me directly with any questions.

Kind regards,

Tim