

The FutureList

Koniku

Innovation Memo

Innovation In Words








A note from the Founder, CEO and CTO of Koniku, Osh Agabi:

We are driven by building with biology. That means we already build with the materials around us. We want to help address needs that are real in the real world as we prioritize the needs of the many. Our first goal is to map all the smells that touch human life, from disease and diagnostics to food and security and many more.

Koniku



Executive Summary

- 
Biotechnology
- 
Security, Health
and Safety
- 
koniku.com
- 
Over
\$ 49.2 Million
- 
2015

Koniku is a biotechnology company revolutionizing scent detection and analysis with its innovative Koniku Kore “smell cyborg” technology. Koniku stands at the forefront of biotechnological innovation, poised to redefine how we perceive and utilize scent detection in various industries. By integrating living biological neurons into silicon chips, Koniku has developed touchless, real-time detection devices capable of mimicking the olfactory capabilities of animals. This breakthrough innovation has applications across industries, including aviation security, healthcare diagnostics, manufacturing, and food safety, offering unparalleled accuracy and efficiency in detecting a wide range of compounds in the air.

Despite potential challenges such as market acceptance and the need for more funding, Koniku has implemented robust strategies to address these obstacles, including strategic partnerships, rigorous regulatory compliance measures, and ongoing innovation in biotechnology.

Looking to the future, Koniku is poised for continued growth and success in the biotechnology landscape. With its strong technological expertise, strategic partnerships, and commitment to ethical and sustainable practices, Koniku can capitalize on emerging opportunities and drive meaningful change in industries worldwide. Koniku aims to expand its reach further and solidify its position in scent-based technology.



Osh Agabi

Founder, CEO and CTO

Osh has over 15 years of experience in neuroelectronic interfaces, leading a multidisciplinary team that designs synthetic biological neural circuits, DNA constructs, machine learning models and other cutting-edge technologies.

Before founding Koniku, Osh worked on pioneering brain-machine interface projects at Imperial College London and ETH Zurich, developing novel methods for imaging and interfacing with biological neural networks. His past roles also include program lead at Neuronics AG, where he helped design an implantable neural prosthetic chip.

Innovation Spotlight

a) Core Innovation

Koniku's innovation revolves around developing "smell cyborgs," devices capable of detecting a wide range of air compounds in real-time. These devices utilize living biological neurons integrated into a silicon chip, mimicking the function of a dog's nose. The primary biological components include engineered biological neurons, which serve as sensors, amplifiers, and biological signal processors.

- Koniku's "Smell Cyborgs" combines biological components with technology to detect and analyze environmental scents or odors. The device combines living biological neurons, typically derived from mouse stem cells, with silicon technology to create a sensor system that mimics the olfactory capabilities of animals like dogs.

b) Design and User Experience

The design of Koniku's smell cyborgs focuses on creating a compact form factor, weighing less than 600 grams, with embedded biological neurons. The user experience emphasizes seamless integration into various applications, including airport security, health diagnostics, manufacturing, and food safety. The devices offer touchless operation and stream data to the cloud for analysis, providing users with real-time insights.

c) Performance Metrics

Key performance metrics for Koniku's smell cyborgs include efficacy in detecting volatile organic compounds, stability of biological components over time, and reliability in providing accurate results. The devices undergo rigorous testing to ensure durability and operational efficiency, meeting regulatory requirements for safety and performance.

d) Integration

Koniku's technology integrates with existing security systems, airport operations, and healthcare diagnostics platforms. The smell cyborgs can be seamlessly incorporated into various environments, enhancing the capabilities of other tools and systems for detecting threats, pathogens, and contrabands.

e) Safety and Compliance

Safety features of Koniku's smell cyborgs include adherence to regulatory standards for biological products and rigorous testing to ensure reliability and accuracy. The company is committed to environmental sustainability, with efforts to minimize the environmental impact of its products and operations.

f) Operational Aspects

Operational aspects of Koniku's innovation include the devices' energy efficiency, optimal storage conditions for biological components, and resilience to environmental factors. The smell cyborgs are designed to operate effectively in diverse environments with minimal maintenance requirements.

g) Innovation in Business Model

The company offers a marketplace for its smell cyborgs, targeting various industries and applications, including healthcare, security, and manufacturing. Koniku's business model distinguishes itself through the development of wetware technology. It combines synthetic biology with silicon technology to create innovative solutions for real-world problems.

h) Scalability of the Innovation

Koniku's technology is designed to scale to meet increased demand across multiple industries. The company's partnership with Airbus demonstrates its ability to adapt its technology for aviation security and other applications. With ongoing research and development, Koniku aims to expand its product offerings and continue innovating in the field of biotechnology.

Market Impact & Future Outlook

Koniku's innovative smell cyborg technology has the potential to significantly impact various markets, including aviation security, healthcare diagnostics, manufacturing, and food safety. The company's partnership with Airbus for aviation security demonstrates its market influence, as it provides touchless and seamless detection capabilities for explosives and biological hazards, enhancing passenger safety and operational efficiency in airports.

In the healthcare industry, Koniku's smell cyborgs could revolutionize disease diagnostics by offering real-time detection of illnesses based on scent cues, similar to how other animals can detect cancerous cells. This could lead to earlier detection and treatment of diseases, ultimately improving patient outcomes and reducing healthcare costs.

In manufacturing and food safety, Koniku's technology could detect contaminants and ensure product quality, enhancing consumer trust and regulatory compliance. The ability to detect a wide range of compounds in real-time could streamline quality control processes and prevent costly recalls.

Future advancements in Koniku's technology could further expand its market influence. Continued research and development may improve detection accuracy, sensitivity, and scalability, making the technology more accessible and effective across various industries. Additionally, biotechnology and artificial intelligence advancements could enable Koniku to develop new applications and solutions for emerging market needs.

Overall, Koniku's future outlook appears promising. It has the potential to continue driving innovation and disrupting traditional approaches to scent detection and analysis.

Societal & Environmental Impact

Koniku's work has broad societal and environmental implications, particularly regarding enhancing safety, health, and security.

Safety and Security. Koniku's smell cyborg technology offers advanced detection capabilities for explosives, biological hazards, and other threats, enhancing security measures in environments such as airports, public spaces, and critical infrastructure. By providing real-time, touchless detection, Koniku's technology helps safeguard individuals and communities from potential risks, contributing to overall societal safety and security.

Healthcare and Well-being. In the healthcare sector, Koniku's innovation holds the potential to revolutionize disease diagnostics and monitoring. By detecting illnesses based on scent cues in real-time, the technology could enable earlier detection and intervention, improving patient outcomes and reducing healthcare costs. Additionally, Koniku's solutions may help mitigate the spread of infectious diseases and enhance public health measures, contributing to social empowerment and resilience.

Environmental Impact. Koniku is committed to environmental sustainability and strives to minimize the environmental impact of its products and operations. By developing touchless, sensor-based detection solutions, Koniku reduces the need for invasive and resource-intensive testing methods, lowering its ecological footprint. Additionally, the company's focus on biotechnology and synthetic biology may lead to advancements in sustainable manufacturing practices and biomimetic design principles, contributing to a more environmentally conscious approach to innovation.

Potential Funding & Partnership Opportunities

Koniku has established strategic partnerships with leading companies and organizations across various industries, bolstering its position as a pioneer in scent-based technology. Through collaborations with industry giants like Airbus, Koniku has expanded its reach into aviation security, leveraging its smell cyborg technology to enhance safety measures in airports and aircraft. Koniku has secured investment from prominent venture capital firms and government grants, providing the financial resources to fuel its growth and innovation. These partnerships and funding initiatives underscore Koniku's commitment to revolutionizing scent detection and analysis with applications spanning security and beyond.

Here are recommended funding and partnership opportunities for Koniku:

Venture Capital Investment

Koniku could explore opportunities to raise additional funding through venture capital firms specializing in biotechnology, healthcare, and security technology. Given the traction of previous fundraising, securing investment from reputable VC firms can be a good investment source to support Koniku with the financial resources needed for research and development, market expansion, and scaling operations.

Strategic Partnerships

Collaborating with established aviation, security, and healthcare companies can provide Koniku access to new markets, distribution channels, and resources. Strategic partnerships with industry leaders can also lend credibility to the company's technology and accelerate market adoption.

Collaborations with Academic and Research Organisations

Partnering with academic institutions and organizations can facilitate collaborative research projects, technology validation, and knowledge exchange. Academic collaborations can help Koniku and these institutions mutually leverage cutting-edge research and expertise in neuroscience, synthetic biology, and sensor technology to advance its technology and capabilities.

Potential Roadblocks & Risks

Regulatory Compliance. As Koniku's technology enters new markets, it may face regulatory hurdles and compliance requirements, particularly in the healthcare and aviation security industries.

- The company has implemented quality control measures to meet regulatory bodies' demands. Investing in robust regulatory affairs and compliance teams can help navigate complex regulatory landscapes and obtain necessary market approvals.

Ethical Concerns. The use of living biological neurons in Koniku's technology may raise ethical considerations and concerns about privacy and data security.

- Engaging with stakeholders, industry experts, policymakers, and community members can help address ethical concerns and build trust. Implementing robust data privacy and security measures is essential to safeguard sensitive information.

Market Acceptance. To accelerate fast market adoption and acceptance, Koniku's technology may need more support from potential users and stakeholders.

- The company can focus on educating potential partners and users about the benefits and capabilities of its technology through targeted marketing and communication efforts. Building strategic partnerships with industry leaders and early adopters can help validate the technology and drive market acceptance, such as their partnership with Airbus. Koniku is working on strategies to educate and create awareness of their product. The Foudner Osh debut the Smell Cyborg during Web Summit Qatar 2024.

Capital Intensive Research and Development. Developing innovative technologies like smell cyborgs requires significant investment in research and development (R&D). Securing adequate funding to support these R&D efforts can be challenging, especially for early-stage startups.

- It is worth noting that Koniku has raised significant funding of \$37 million; however, more funding will be needed to support its growth plans in many areas, such as hiring, developing and marketing.

Conclusion

Koniku stands at the forefront of biotechnological innovation, poised to redefine how we perceive and utilize scent detection in various industries. With its groundbreaking smell cyborg technology, Koniku has demonstrated the feasibility of integrating living biological neurons into silicon chips and showcased the immense potential of such innovations in addressing real-world challenges. By seamlessly blending biology and technology, Koniku has unlocked new possibilities in aviation security and is planning to expand into healthcare diagnostics, manufacturing, and beyond, offering touchless, real-time detection solutions that could revolutionize safety, health, and security protocols worldwide.

Through strategic partnerships, robust regulatory compliance measures, and a commitment to ethical and sustainable practices, Koniku has positioned itself as a significant player in the biotechnology landscape. It has the potential to drive meaningful change and create a positive societal impact.

Koniku's future appears promising as it continues to innovate and expand its reach across industries. With ongoing research and development efforts, strategic investments in talent and infrastructure, and a focus on customer-centric solutions, Koniku can capitalize on emerging opportunities and solidify its position as a significant player in the scent detection market. As the company continues to push the boundaries of biotechnological innovation, it has the potential to shape the future of scent-based technology and impact society, industry, and the environment.

Innovation In View

How **Koniku** brings innovation to life



Koniku Kore "Smell Cyborgs"

Koniku is seamlessly blending biology and technology to create groundbreaking scent detection solutions.

- At the heart of Koniku's innovation is its development of "smell cyborgs," devices that integrate living biological neurons into silicon chips, mimicking the olfactory capabilities of animals like dogs.
- This unique approach allows Koniku to offer touchless, real-time detection of a wide range of compounds in the air, revolutionizing industries such as aviation security, healthcare diagnostics, manufacturing, and food safety.
- By harnessing the power of biological neurons and advanced silicon technology, Koniku brings to life a new era of efficient and scalable scent detection.

Revolutionising how threats are detected and diseases are diagnosed.

Koniku's technology enhances security by offering touchless, real-time detection of explosives and biological hazards in airports and aircraft.

- This technology improves the efficiency and effectiveness of security screenings and enhances passenger safety and operational efficiency in airports and aircraft.
- Through partnerships with industry leaders like Airbus, Koniku is driving innovation in aviation security, setting new standards for safety and security in the air transport ecosystem.

In healthcare, Koniku's technology can revolutionize disease diagnostics and monitoring.

- As Koniku continues to innovate in healthcare diagnostics, it has the potential to transform the way diseases are detected and managed, ultimately improving public health outcomes globally.



Contributors

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The FutureList



Notes on our methodology

About The FutureList

The FutureList is dedicated to identifying and linking innovative technology companies with the investors, talent and strategic growth partners they need to rapidly scale their innovation. The FutureList leverages its network of local Innovation Scouts, a comprehensive online platform, and curated events to rapidly spot and match opportunities. The FutureList network has already profiled over 6,000 innovative companies, investors and partners globally.

We scout across a broad range of sectors in tech, aiming to identify the most innovative startups globally. This includes everything from AI to biotech, renewable energy, and more. The 10 categories we currently focus on are: Agriculture (farming, food, beverages, crops, forestry, aquaculture, livestock, irrigation, veterinary, etc.), Climate (electricity, energy, environment, renewables, recycling, circular economy, carbon credits, cleantech, etc.), Education (e-learning, school management, assessments, upskilling, tutors, languages, etc.), Enterprise (legal services, AI, cyber security, market research, recruitment, HR, customer success, consulting, SaaS tools, business analytics, etc.), Finance (banking, capital, trading, lending, personal finance, insurance, crypto, real estate, etc.), Health (medicine, biotech, medical equipment, pharmaceuticals, public health, digital health, hospitals, health records, wellness, fitness, beauty, etc.), Infrastructure (architecture, materials, computer networks, safety, law enforcement, construction, data centers, machinery, telecom, wireless internet, manufacturing, etc.), Media (marketing, influencers, animation, arts, gaming, fashion, content, platforms, music, publishing, translation, editing, etc.), Mobility (delivery, transportation, etc.), and Supply Chain (e-commerce, warehousing, logistics, retail, etc.)

About Our Innovation Scouts

Our Innovation Scouts are experienced professionals from diverse sectors with a keen eye for groundbreaking technologies and business models. They undergo rigorous training to ensure they provide maximum value to the startups they work with. They conduct their research on a volunteer basis. We have strict ethical guidelines in place. Any Scout with a potential conflict of interest is recused from the process to ensure fairness and objectivity.

About Our Innovation Memos

Innovation Memos provide a comprehensive profile of an innovator, whether its a startup, hub, investor or more established corporate, highlighting technological and business model innovations. The Memo is written in direct consultation with a verified representative from that entity, and also outlines suggestions around how to rapidly scale their innovation further through use of The FutureList's network. Once published, the Memo accessible to our network of investors, partners, and the general public for free on our platform. The Memo process is completely free for the companies featured as well. The entire process, from initial contact to publishing the Innovation Memo, typically takes about 4-6 weeks, but this can vary based on the startup's availability and responsiveness. Our goal is to promote and scale innovation globally. The FutureList platform and events are sponsored by partners.

Scaling Innovation

How **The FutureList** identifies and scales innovation globally



Ecosystem and sector mapping

Our Innovation Scouts identify the most innovative early-stage and growth-stage tech companies across key sectors in tech hubs around the globe.



Innovation memos and platform profiles

Our Innovation Scouts interview founders and tech executives to publish innovation memos and create a comprehensive company profile on our public online platform.



Introductions to strategic opportunities

Our Innovation Scouts share company profiles with relevant investors and strategic growth partners across our global ecosystem, and facilitate warm introductions where requested.



Private dinners and fireside chats

Our exclusive evening events bring together founders, tech executives and other special guests for networking and interactive discussions around technology and innovation.



Global summits & learning trips

Featured companies will be invited to larger annual events held at the regional and global stage that connect the most innovative companies with opportunities for further visibility.

Sponsor

The FutureList platform and events are sponsored by partners.



Sand Technologies, a global technology services company with presence across Silicon Valley, France, the UK, Romania, and several emerging markets, is at the forefront of supporting scale-ups worldwide in overcoming the challenges of rapid growth. We're currently aiding businesses in the United States, New Zealand, Denmark, the Netherlands, the UK, the UAE, South Africa, Kenya, and numerous other locations in developing scalable technology products, constructing world-class tech teams, enhancing revenue generation, and elevating customer satisfaction.

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