



< FROM PROTOTYPE TO MARKET >

FreeO2 Medical innovation transforms oxygen therapy for respiratory patients.



Strategy. Experience. Innovation.

The Story

Medical innovation transforms oxygen therapy for respiratory patients



Typically, administering oxygen requires frequent manual monitoring and resetting to comply with recommendations and clinical oxygenation targets. The process that the founders of OxyNov created for automating oxygen therapy provides a more efficient, safe and comfortable treatment option for patients, including people with COPD (chronic obstructive pulmonary disease).

The founders of OxyNov developed the algorithm for the automation, but needed assistance moving their innovation beyond a prototype used for research. Our Novo team provided strategic consulting, UX, UI, mechanical and industrial design along with electronics, mechanical, and software engineering and embedded software development to optimize the full potential of the invention.

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The Novo approach



Strategy.

Use a strategic design approach to optimize the full potential of OxyNov's invention. Identify the needs and human factor requirements of the primary users for FreeO₂[™].

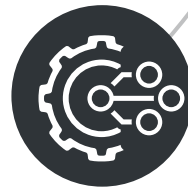


COMPANY: OxyNov
PRODUCT: FreeO₂[™]



Experience.

Streamline the hardware, mechanical, and industrial design with digital components including embedded and application software.



Innovation.

Develop, test, validate and verify the working prototype. Incorporate critical safety functions. Prepare a proof of concept cloud interface with dashboard monitoring.

The Novo solution

Product strategy

Industrial design

UX design

Electronic and
mechanical
engineering

Firmware
and software
development

IoT solutions and
cloud platforms



Strategy.

To ensure that the features, technology and experience of the final product would truly meet the needs of all kinds of actual users, our industrial and user experience designers and business strategists collaborated with OxyNov to streamline their vision.

Using our strategic design approach, we conducted extensive research to identify target personas, interviewing all types of users in different countries who were likely to use FreeO₂, including doctors, nurses, aides, and maintenance personnel. We used feedback from a rough wireframe we developed to define expectations, usability requirements, and key features, including introducing a wireless oxygen therapy device.

Also, in the early stages, we worked with OxyNov to define a vision for FreeO₂ that includes cloud connectivity and remote monitoring with a dashboard. Cloud capability won't be implemented until a later release, but with the vision in mind from the beginning we developed the platform and technology base needed to support the later cloud version.

“ Working with Novo allowed us to quickly show investors a certified, effective, well-designed and attractive ready-to-market medical device that addresses critical human factors in a hospital environment. We’re moving forward with additional certification and collaborating with our Novo team on the next phase of development. ”

François Lellouche MD, PhD, OxyNov Co-Founder

Strategy. Experience. Innovation.



Experience.

Where our approach makes a huge difference is the way our engineers work with the usability designers. To ensure that the features, technology and experience of the final FreeO₂ product would function as envisioned, we started industrial design early in the process to consider factors such as the overall size of the product, and where external connections should be made.

We took all the human factors into consideration in the early design stages to create the best user experience. For FreeO₂, we needed to make sure that the size of the screen would allow it to be read from a distance, such as from a hallway in a hospital environment. Using our integrated approach, the concept was defined in parallel with the engineering team working on the internal architecture for overall design synergy. Integrating these teams early avoids unnecessary rework later in the process when moving to manufacturing.



Innovation.

The aligned FreeO₂ product concept developed with input from engineering allowed us to easily move on to product development. We managed all the physical aspects of development including hardware, mechanical, and industrial design, as well as the digital components. The embedded software we developed provides critical safety functions in a programmable chip to supervise other functions and ensure that the device is working properly.

The first prototype was used for testing, validation, and verification. After modifying the second prototype for certification, the third prototype received CE approval in Europe, and is undergoing the FDA approval process.

With the first version of FreeO₂ released, we've started working on a telemedicine pilot project and proof of concept for a consumer version that allows a doctor to supervise data remotely by accessing data in the cloud.



Meet the human needs of all types of users.

The impact

In 18 months, FreeO₂[™] was ready to launch with a user-friendly design and CE compliance.

With FreeO₂[™], hospitals have a safer, more efficient method to administer oxygen therapy to respiratory patients, including people with COPD (chronic obstructive pulmonary disease).

We transformed the original research prototype into a market-ready product that's much easier to implement and use. By involving end users and relevant stakeholders in the earliest stages for their input and feedback, we ensured an extremely high level of quality and usability. Our innovative strategic design approach optimized the features included to meet the human needs of all types of users.

CE certification allowed OxyNov to secure strategic investment to bring FreeO₂[™] to market. The release of this innovative medical device generated significant interest from hospitals.

**Ready to launch
in 18 months**

CE certified

**Significant
interest from
hospitals**



Humanize technology, not the other way around.

For our global clients in the **medical industry**, we deliver best-in-class product design and development strategy.

We've supported a range of medical products including cardiovascular devices, digital health systems, ophthalmology tools, optics, respiratory and patient-monitoring systems.

Our Health Canada and FDA/compliance support, all driven by our solid engineering processes, help companies achieve higher product quality and accelerate time to market.





**Together,
we co-create
in small units with
one clear purpose:
accelerate time
to value.**

Let's co—create.

We partner with **high-potential startups** that can benefit from our expertise to **bring breakthrough technology to life**. For **established organizations**, we offer expert resources to **accelerate innovation, growth and change**.



**Digital+Physical
Product Design**

Serving worldwide customers
from our offices in Canada

Laval

4080 Le Corbusier Boulevard
Suite 201, Laval (Québec)
H7L 5R2
+1 (514) 231-9460

Trois-Rivières

1505 Royale Street
Trois-Rivières (Québec)
G9A 4J9
+1 (866) 727-4139

fromnovo.com