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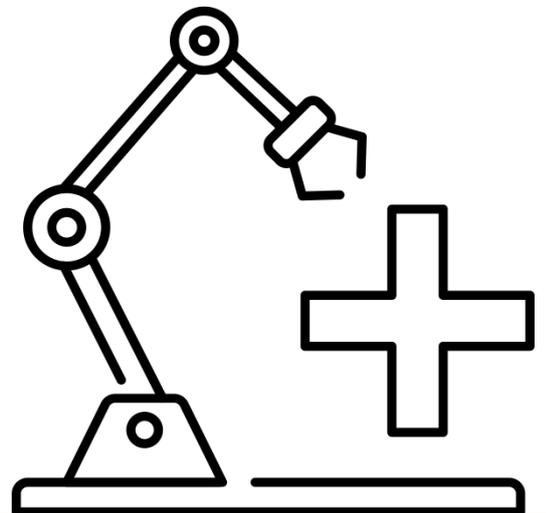




Created in 2017 in Montpellier, Quantum Surgical is a French company that puts innovation at the service of health.

Co-founded by Bertin Nahum, it develops, thanks to its state-of-the-art know-how, a unique solution capable of meeting the medical challenges affecting many patients.

Quantum Surgical, a startup of French Medtech, has set itself the ambition, since its creation, to develop the first integrated robotics platform dedicated to the minimally invasive treatment of liver cancer.



AN INNOVATIVE SOLUTION FOR THE TREATMENT OF LIVER CANCER

Today, liver cancer affects more than 8,000 new cases per year in France and more than 800,000 worldwide. It is the sixth most common cancer and the second most fatal cancer.

This disease, which mainly affects men, will affect a growing number of patients in the coming years, due to the increase in alcohol-related cirrhosis, obesity and diabetes.

The liver, a key organ in the body

The liver is an important organ of the digestive system. It allows humans to store glucose, vitamins and minerals from digestion and releases them into the blood when the body needs them. It also serves as a filter for toxic elements that can be absorbed through eating or drinking. Among its many functions, the liver also produces bile, which helps digest fat.

It is the only organ in the human body capable of repelling or regenerating itself. After removal, provided that at least a quarter of the liver is left, new cells are quickly produced, allowing the remaining liver to grow and regain the size of an entire liver.

Liver cancer, an aggressive disease

Liver cancer is one of the most aggressive digestive cancers. There are two types of them:

- o **Primary cancers**, which develop from a hepatic tumor, especially when the liver is already damaged by disease.

The prevention of this type of cancer thus requires a better lifestyle, alcohol being the main cause of primary liver cancer.

- o **Metastatic cancers**, which result from a tumour located on another organ, and which develops in the liver because of its filtering role. Indeed, cancer cells can detach and pass through the lymphatic and blood vessels. As these vessels pass through the liver, cancer cells are likely to grow and develop there. This type of cancer is 20 to 50 times higher than the number of primary cancers.

Thinking differently about liver cancer treatments

Liver cancer treatments are the most advanced in recent years. Both types of cancer can now be treated by the entire therapeutic arsenal against cancer (surgery, chemotherapy, radiotherapy and interventional radiology), but these treatments would benefit from taking advantage of the latest innovations in new technologies to ensure the comfort of patients and practitioners.

Quantum Surgical was created with the desire to develop an innovative platform for the treatment of liver cancer, particularly for patients at an early stage, by offering assistance in minimally invasive interventional radiology techniques.

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A SOLUTION FOR THE HEALTH OF TOMORROW

Quantum Surgical is committed to contributing to the development of **tomorrow's health care**, with the ambition of setting new standards in cancer treatment by allowing more patients to access innovative, targeted and less invasive treatments.

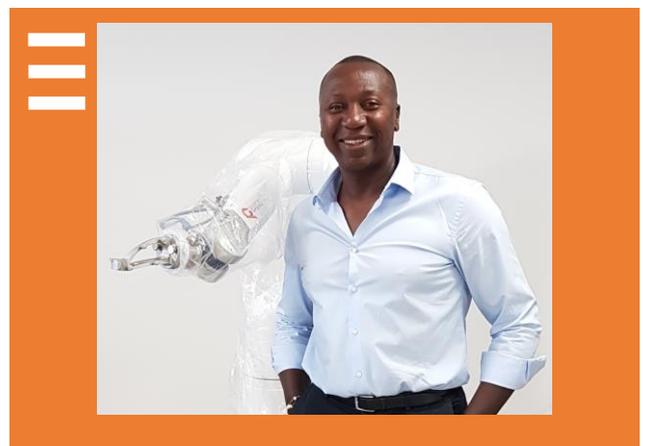
The development of minimally invasive treatments:

Minimally invasive surgery is a rapidly developing technique, particularly in digestive surgery, that benefits patients and practitioners alike.

Thanks to incisions of the order of a millimetre, this technique limits surgical trauma, and results in a significant reduction in infectious and post-operative risks, as well as a reduction in pain and scarring in patients.

On the surgeon's side, this technique provides greater precision and comfort in the movement and handling of the instruments. It also significantly limits hospitalization times, a challenge for our health systems today.

Thus, by combining innovation and health, **Quantum Surgical aims to promote access to quality care, organized around the needs of each individual and at the right cost.**



A complete solution to meet the promise of better care by tackling early cancer!

It is that Quantum Surgical has decided to use its creativity and the experience of its team to **improve and democratize the percutaneous treatment method**. Thus, by 2022 years, Quantum Surgical has set itself the objective of developing a **new generation solution** that helps in **minimally invasive interventional radiology techniques**. Indeed, it will be able to directly target the tumor thanks to its powerful software linked to the imaging system. The practitioner can precisely target the tumor with the robot arm and a needle that delivers energy to destroy it. This solution is not just a robot but also offers a digital platform with **decision support and virtual reality software**.

Quantum Surgical's solution can thus be used in the context of minimally invasive treatments for early cancers. A tool that will in short increase the comfort of patients and surgeons.

In 2018, Quantum Surgical developed a solution demonstrator that convinced the **first industrial, clinical and financial partners**. In 2019, Quantum Surgical announced the **creation of a three-way China joint venture** with Ally Bridge and LifeTech Scientific. The year 2020 is dedicated to accelerating the development of the solution with **prototyping and the first pre-clinical tests**. The main objective is to bring the solution to its **commercialization phase by 2021**.

«The surgery was almost homemade, with instruments that were still quite rudimentary, and therefore required a certain dexterity on the part of the practitioner. There was a real hazard that depended on his experience and even his form of the day! Technologies are now reducing this hazard, as in industry for example. This technique is the tool that accompanies it, considerably limiting the risk of errors during surgical operations. »

Bertin Nahum

A SPECIALIST IN ROBOTICS FOR MEDICAL INNOVATION

Quantum Surgical was founded by Bertin Nahum, an entrepreneur who has been working in the territory of Hérault since 2002. This engineer by training is at the origin of several intelligent robotic tools that assist practitioners and thus support the movement of minimally invasive surgery.

Bertin Nahum has been involved in health innovation for many years. A graduate of the Institut National des Sciences Appliquées de Lyon and a Master of Science in Robotics from the University of Coventry, he began his career in a Grenoble start-up in the mid-1990s.



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Afterwards, he multiplied his experience in the operating room, working with the most eminent surgeons, and held various management positions in major French and American companies specializing in surgical robotics.

In 2002, after winning the national competition for the creation of innovative technology companies from the Ministry of National Education, Higher Education and Research, Bertin Nahum founded Medtech S.A., a company dedicated to the design, development and marketing of robots for assistance in minimally invasive surgery of the central nervous system. Within Medtech S.A., he developed the BRIGIT robot for knee surgery and ROSA™ for neurosurgery, which is used in cases of epilepsy, Parkinson's disease, hydrocephaly, degenerative diseases of the spine, etc.

From the Hérault, Medtech S.A. exports its advanced solutions all over the world. Bertin Nahum also has growing **international visibility**, supported by a ranking from the Canadian magazine Discovery Series, which in 2012 recognized him as the 4th most revolutionary high-tech entrepreneur in the world, behind Steve Jobs, Mark Zuckerberg and James Cameron. The engineer then accelerated, invested, increased his team, and listed Medtech S.A. on the stock exchange in 2013, until the Zimmer Biomet group, already crossed earlier, took a close interest in this gem. For Bertin Nahum, the two conditions for considering a sale were the existence of an interesting industrial project for Medtech S.A. but also for Montpellier. In July, the leader bought Medtech S.A. for 164 million euros. The Zimmer Biomet group has since invested heavily, almost doubling its workforce and investing in the region, building 9,000 m² of offices in Montpellier.

In February 2017, Bertin Nahum announced the launch of Quantum Surgical, accompanied by former employees of Medtech S.A. who became partners, based in Montpellier and dedicated to the minimally invasive treatment of liver cancer.

« After the sale of Medtech, we decided to reinvest our creativity in a new entrepreneurial adventure. It's a very motivating adventure. We will try to offer practitioners a solution to treat liver cancer more effectively. For this we work with surgical robotics, but also with artificial intelligence, image processing and decision support. We are doing everything we can to implement an innovative solution that will support the development of tools that will serve the medicine of tomorrow.

We have a strong sense of usefulness, and we want to contribute to something great, something that is beyond us, and this is possible with surgical robotics and medtech in general. These innovations will revolutionize the way we treat patients, and we want to contribute to them.

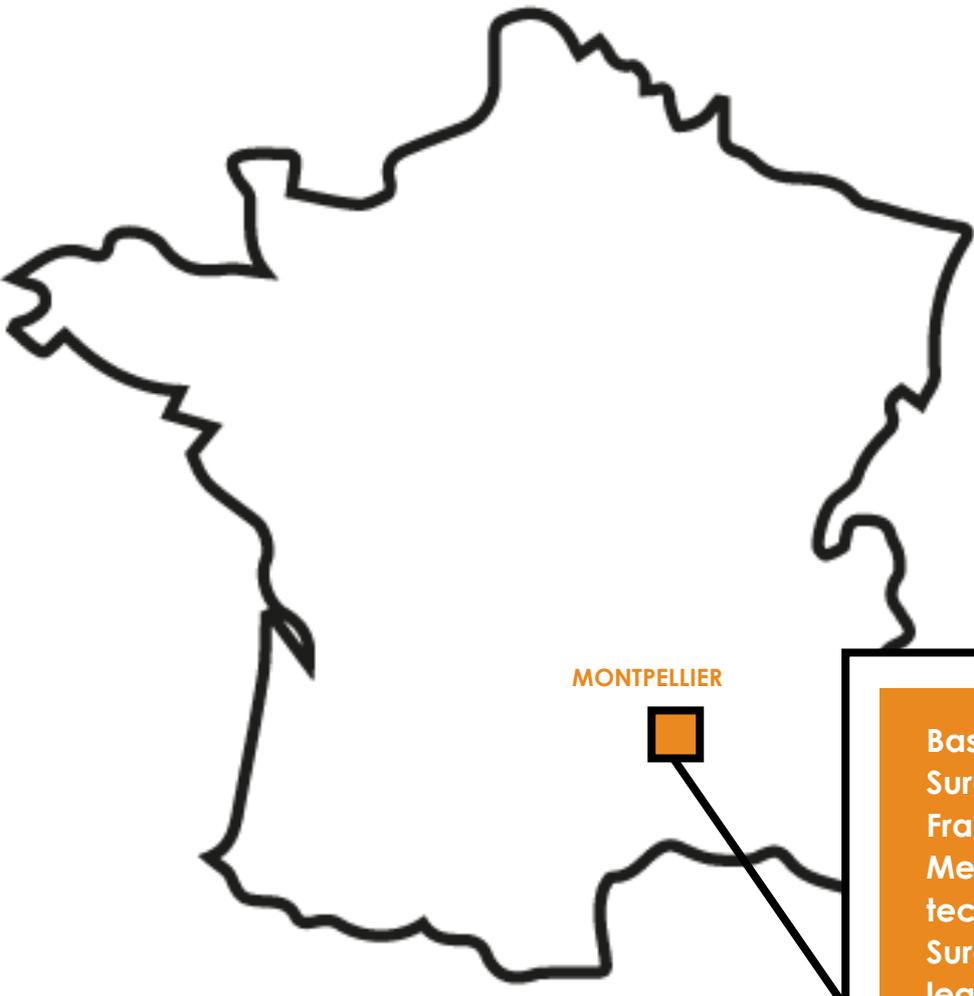
This field should be a sector of excellence for France, it is at the crossroads of two fields that we master particularly well in France: medicine and engineering sciences.

We must participate in the development of this sector, and I hope, with Quantum Surgical, to create a French leader in this field.»

Bertin Nahum,
CEO and co-founder of Quantum Surgical



A COMPANY IN OCCITANIA TO PROMOTE FRENCH INNOVATION



MONTPELLIER

Based in Montpellier, Quantum Surgical contributes strongly to France's influence in the field of Medtech. Thanks to its technical know-how, Quantum Surgical is establishing itself as a leading player in this fast-growing field.

With its 62 employees, Quantum Surgical is also a great entrepreneurial adventure that contributes daily to the richness of the region.

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