

Thoughts for the future

Companies that do research and adapt their production to the general standard of technology will have a future, whilst companies that do not do research will not have a future. It is something we have heard repeated over and over for almost forty years now, but it is still relevant: research and development lay the groundwork for the company's future. Let me give a few examples.

The car of the future

Vehicles today have rear sensors that help when parking cars. Other more up-to-date vehicles also have front sensors that warn the driver when he or she is not respecting the safety distance, and when this distance becomes dangerous, the vehicle brakes even if the driver accelerates. Experts have calculated that these two safety measures, which are only present in 20% of cars on the roads, will reduce the number of accidents to such an extent that they should be made obligatory for all cars and goods vehicles.

We are constantly reading in the press about tests on self-driving cars. The tests have been conducted in city traffic and on major highways with positive results. In a few years' time, perhaps three or four, cars that drive themselves will be built as standard. When we get into the car we will only need to enter the destination on the satellite. Once the car sets off we will be able to read a newspaper or do something else. The car will handle the traffic on its own: it will respect all the rules of the highway code, including those of safe driving.

As far as safety goes, ANIA (the Italian Insurers' Association) has analysed seventy years of mobility on our roads. There is no doubt whatsoever in our minds: the vast majority of road accidents is due to violations of safety regulations. We should conclude that as they cannot break safety regulations, self-driving cars will increase the likelihood of reaching our destination unharmed enormously. To confirm this we can quote Federico Pedrocchi's book, "Words for the Future": following a period of testing, the state of Nevada has given permission for the entirely satellite-driven Toyota Prius to be driven on the roads between Las Vegas and Carson City, .

Things like this don't happen by chance. They are the result of years of studies and scientific research. These days nobody would buy a car without ABS and stability control. By the same token, in the future nobody will be buying cars without satellite navigation.

Transport for people or things doesn't have much to do with dental suction units and compressors, but in this specific case, it has helped us explain what is meant by industrial research today.

Research and progress

Research today means making improvements, increasing performance, heightening safety, making savings, building with environmentally sustainable and energy-saving criteria.

Around seven years ago saw the start of a major downturn which we are still tackling, and which the world's economists could not grasp. At the beginning, the press described it as a global crisis, but it immediately became apparent that that was not the case: in 2011, analysts of the global economy noted that one of the main problems causing the Italian recession was limited productivity and a lack of innovation. This translates into limited productive organisation, and an absence of research.

With the recession, companies that do not do research have been the first to suffer, and they will not manage to pull themselves out if they do not innovate.

Cattani's research has always revolved around improving professional production performance, and has made sure it tackles the unavoidable dictates of our times head-on, such as energy savings and environmental sustainability.

Professional performance

Using modern technologies such as inverters, computers and software has allowed us to build newly conceived suction units. Inverters are electrical and electronic devices that optimise how electric motors work. Computers and software give rise to artificial intelligence, which constantly monitors the suction unit as a whole and its functions in particular. Using the programme, the operator can adjust the head pressure, control how the machines function and intervene remotely. Our programmed suction units with inverters are the world's first to allow

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wireless connection with the studio's computer or the cellphone of the maintenance technician. Turbo-Smart can be transformed remotely from a suction unit for two chairs into a suction unit for four chairs. When there are any critical factors in the environment or usage, programmed suction units enter self-protection mode. They display the anomaly on screen so that staff members can take steps to halt the causes of the anomaly. If the anomaly is caused by overheating, the programme automatically lowers the head pressure, and as the temperature drops to the operating level it automatically restores the programmed head pressure. When the anomaly is caused by a sudden wave of liquid, the suction unit automatically slows the suction system and transfers power to the centrifugal separator. Once the wave has been disposed of, the machine resumes normal operation.

All our suction units with inverters instantly and automatically adapt the rotation speed of the suction system to match the suction requirement, for example: Micro-Smart mounted on two joined units increases the rotation speed of the suction system when the two joined units are in suction mode contemporarily, and decreases it when aspiration is only working on one unit: the drop in the motor speed makes for lower power consumption and consequent energy savings. The saving made is in proportion with the number of chairs in the practice or clinic.

We have mentioned a number of professional services that are made possible by using new technologies, but there are also others that we will outline in subsequent updates.

Comparison between fixed speed suction units and cutting-edge variable speed suction units.

A vacuum system for four chairs made with a fixed-speed motor needs a suction unit such as the Flux-Jet with power consumption of 2.0 kW and weighing 22 kg.

The same system, also for four chairs, made with a variable speed motor calls for a suction unit such as the Uni-Jet 75 with power consumption of 1.1 to 1.7 kW and weighing 10 kg. The amount of raw materials **saved** totals 12 kg and on average 0.69 kW/h of electricity is saved. The working diagrams can be consulted on our website, www.cattani.it

A suction system for 32 chairs, made using a fixed speed motor needs a suction unit such as the Uni-Jet 1.000 with a power consumption of 13.5 kW and weighing 155 kg. **The same system, again for 32 chairs but made with a variable speed motor**, requires a suction unit such as the Uni-Jet 501 with a power consumption of 5.7 to 13.5 kW and weighing 88kg. The amount of raw materials **saved** totals 67 kg and on average 4.45 kW/h of electricity is saved. The working diagrams can be consulted on our website, www.cattani.it

This is our research and our philosophy: giving the utmost to allow professionals to work to the best of their abilities, and helping professionals, our country and the world with our contribution towards saving energy savings.

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