

# FREEDOM AND SECURITY

ELECTRONIC  
ENGINEERING  
AND COMPUTER  
SCIENCE MEET  
THE TALENT  
FOR PROJECT  
AND PRODUCTS  
OF EXCELLENCE:  
THE TUSCAN  
REPLY TO  
THE ISSUES  
OF SECURITY AND  
COMMUNICATION  
MANAGEMENT  
IN THE GLOBAL  
SOCIETY



by:  
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# FRONTIER ELECTRONIC INSTRUMENTATION

I HAVE TO DO SOMETHING... I HAVE TO DO SOMETHING... these words kept whirling almost obsessively into my head, together with the dismay and distress of that moment. It was a warm september day of 1980 and, during lunchtime at the INFN (National Institute for Nuclear Physics) of Pisa in S. Piero a Grado, I was walking back and forth, raging because the government had cut funds to Research and therefore, to go ahead with our experiments of Physics at the CERN of Geneva, we were proposed to go on a research mission for two days, with just one of them paid.

This solution indeed let the devices at the CERN work, but took away that small economic resource, supplementing our already poor salary.

It was born this way, not for far-sightedness or for genius, but banally for the necessity of supporting a young family. The occasion arose when a friend, researcher in Rome, asked me to make electronic modules for his new laboratory. This was the case because his economic resources were very tight and if he had bought these modules from an american company, the budget would not have been sufficient.

My instant answer was "YES" and, without having any idea of what "to make up an invoice" meant or of anything necessary to run a private business, I decided to seize the day.

Immediately I spoke about it to my friend and colleague Piero Salvadori and with other two work colleagues.

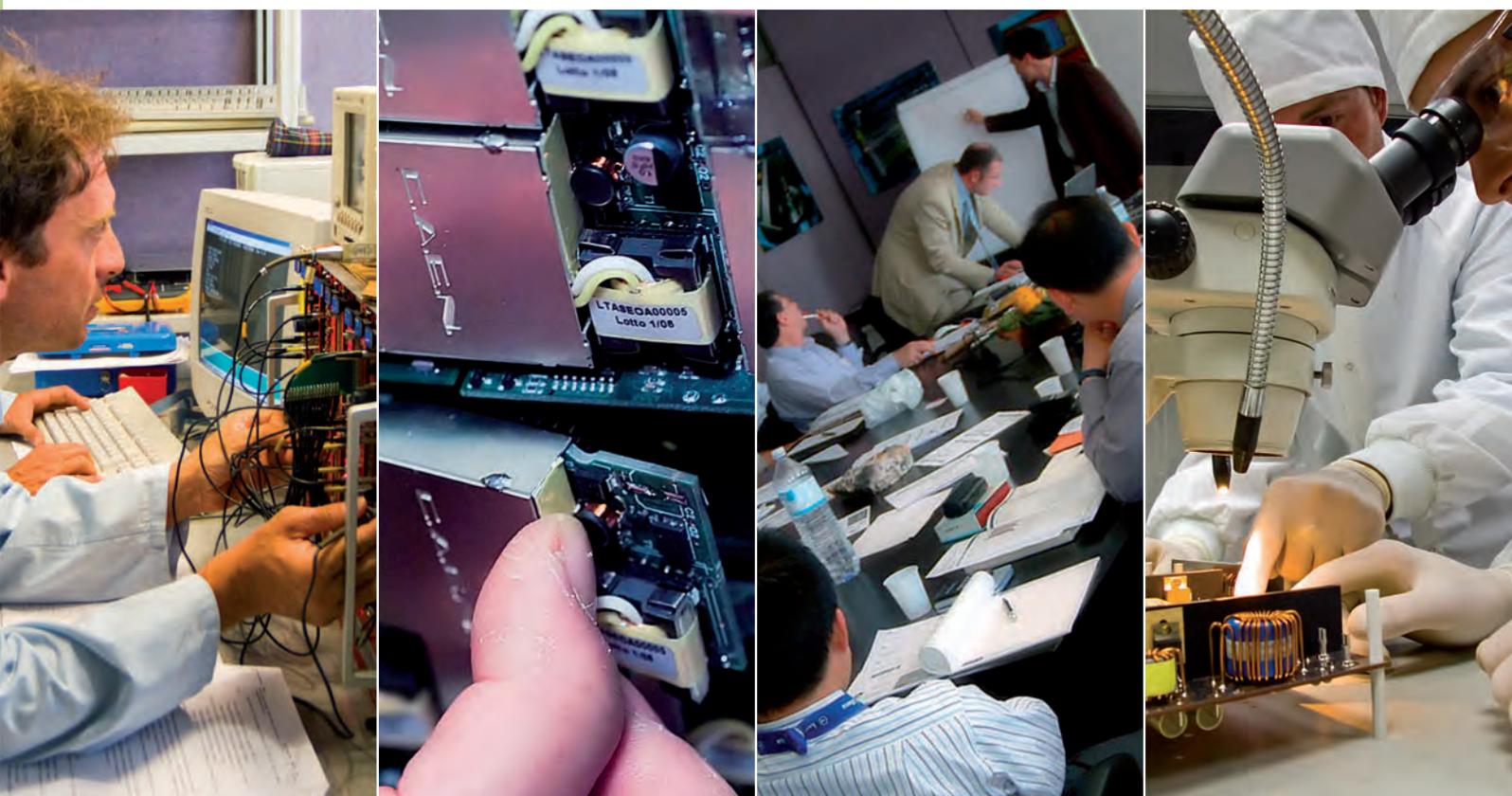
We did not have money, but we were young and had a strong desire for doing something.

In those years, the Research spin-offs were not in fashion, quite the opposite. They were very much opposed because it was stated that Research should stay "pure" and not "polluted" by the outside.

We informed our superiors at INFN of our intention and guaranteed that our external activity would not have affected our work and we committed to bring into the institute everything that would have been achieved outside.

From the beginning, Luigi Pardini joined us, he as well a researcher, not in Physics, but at the Faculty of Medicine and as well up against the same survival problems.

After knocking on many banks' doors, we finally found one (Monte dei Paschi di Siena) that gave us a small credit to cover the required expenses, only giving as a guarantee our



word that we will have returned the money with interests within the following 3 or 4 months.

What a lot of memories and concerns... what a lot of joy and satisfactions... all lived in the recklessness and enthusiasm of the youth.

The path covered was long and not always easy but today CAEN is a world leader in design and manufacturing of electronic devices for the Research in Nuclear Physics, for the Homeland Security, for the UHF-RFID, ecc... (www.caen.it). In these years, CAEN realized a huge quantity of sophisticated electronics, among which the one used in the four major experiments with the new accelerator LHC at the CERN in Geneva, receiving, for this reason, the most prestigious award, assigned by a CERN international commission: the Cristal Award.

Our little spin off, born out of necessity, counts today about 100 employees (excluding manufacturing), half of them

graduated in scientific fields and has branches in the USA, in Germany and soon in China.

It is a reality that grows constantly, drawing its resources on Universities and Tuscan Technical Institutions: engineers, physicists, computer scientists, workers qualified in electronics represent the nourishment required by the needed generational turnover of an High Tech company.

CAEN is visited almost daily by researchers from all over the world who, in addition to get the technical answers they need, have, by their own admission, the opportunity to visit our beautiful Tuscan territory, unfliningly esteemed by everyone.

CAEN is still run by Piero, Luigi and Marcello and looks into the future with the very same faith and determination in the belief that "even the biggest companies were born small"... and we have the ambition and resolution to become much bigger indeed.

## LHC (LARGE HADRON COLLIDER)

One of the most successful projects, at International level, was the production of a huge quantity of electronics for the four experiments at the super particle accelerator LHC at the Geneva's CERN. CAEN designed and produced refined electronics, able to work in particularly adverse conditions (such as intense magnetic fields and systems enduring ionizing radiations). For its commitment, CAEN was awarded, by an international commission, the greatest acknowledgement for industries, the "Crystal Award 2009".

## HOMELAND SECURITY

A different story but worth to be mentioned is the one regarding new activities in the field of safety such as Homeland Security. In the last years, the increase of terroristic activities made the activation of new safety rules necessary and the illicit trade of radioactive substances is a burning issue indeed. CAEN, in the last years, started a series of collaborations with multinational companies, mainly American, thanks to its ability to produce very compact electronics, capable of reading several sensors of radioactivity. CAEN is also working at the making of handheld portable systems and expects to propose soon solutions that will be entirely made in Italy.

## SUPER-KAMIOKANDE (NEUTRINO DETECTOR)

The Super-Kamiokande is the biggest Cerenkov detector in the world for the observation of the Neutrino. It is an experiment built in a gallery in Japan and it is an international collaboration between Japan, USA, Korea, China, Poland and Spain. CAEN made the entire supply system for the 11.200 channels of photomultipliers used for the detection of Neutrinos.

