Between Bergamo and Brescia
a rubber ....world

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Since the beginning of my professional life I felt and was deeply immersed into that “connecting tissue” often nicknamed “rubber valley”. I did not personally witness the dawning of this peculiar network (I am not so old) but I am familiar with its history: for this purpose I gathered some flash backs from several of the true actors trying to describe its evolution till nowadays.

“RUBBER VALLEY”

The beginnings
A highly qualified report (one of the few really focused) on this system is a study from OPES (Observatory of Production Systems) in co-operation with the Chamber of Commerce of Lombardy and University “Bocconi”. This report goes back to 1999: but, collecting data available at that time from official sources, duly describes, also for those not strictly involved, the dynamics of the establishment of the first industries specialized in the production of seals, their growth and increase, the social-economic environment and the development of their target market.

I cannot help starting from that “snapshot” in order to try make an update and comment the subsequent ten years that carried us, with up and downs, till to day. Inside one can read:

“Born in the second after-war period, following the booming of the rubber market, the industrial district of Basso Sebino can be nowadays considered the biggest national and European production site for rubber seals…”

The initial “alternative outlet” to the innate entrepreneurship of the local craftsmen (essentially from Bergamo and some from Brescia) was certainly fed by a pre-existing network of activities highly skilled in mechanical works, processing of metals, engineering of systems mainly intended to serve the textiles and buttons manufacturing at that time flourishing in that area.

The first rubber seals production (Manifattura Colombo) indeed started in the early fifties in Sarnico. Asbestos gaskets were internally produced for their mechanical systems. Very soon some technicians realized the important rapid growth to be expected for seals matching the incoming boom of automotive, household appliances, water control systems: they left Colombo to found Lanza.

Rubber moulding (the generic term “rubber” is intentionally used to indicate any kind of vulcanizable compound) rapidly became an important activity in both companies.
Due to their end-use the finished items were intended not only for the local market but also for several European, mainly German, customers: even at the early stage export was the key word for every new company. The development of suitable moulding machines was certainly made easier by the availability of the already existing offer from producers of presses for resins (we just spoke about buttons) and plastics. Italian companies like Mapelli, BM, Rutil and MIR, were destined to become strong actors of a segment supplying to the market continuous innovation. Also for the moulds no problems were to be considered: several highly specialized craftsmen were ready and trained to utilize numerical control equipments (afterwards CAD/CAM), they were even available to suggest and design moulds exploiting some fair competence about rubber.

**Compounders**

Rubber was made available from a new class of producers: the compounders. These entrepreneurs entered the arena at the early 60’s adding their strong capability to that of the moulders. The original core of the compounders is certainly to be located in Pirelli, the spin-off of a few technicians, brought the mixing technology into Manifattura Bresciana Gomma di Paderno F.C., who produced open milled compounds to be transformed into slabs either for internal use and for some customers like Bridgeport, who in his plant located in Ponte San Pietro used to mould tyre valves. Another new entry was CF who, taking advantage of previous experience from Pirelli, aimed to replicate items and systems such as bushings, shock absorbers, springs for FIAT, OM, Public Railways.
At the end of 60’s Manifattura Bresciana and CF merged into the first real fully integrated company offering full rubber components and metal bonded systems: CF Gomma di Passirano-Ospitaletto. This new entity specialized in the development of recipes/compounds to be sold on the marketplace: an increasing number of small moulders found its reference point for the availability of compounds to be transformed by compression presses, sometimes small size presses, located even in old farmsteads or garages. Compounding rapidly left the open mill to adopt the Banbury mixers (internal mixers) achieving higher productivity, better process control and less environmental impact.

**Raw Material producers**

The interest raised from this bunch of new activities was perceived from some of the major Italian (today things are changed…) chemical players: ENI, Montecatini (after Montedison, now Solvay), Bozzetto. They were able to transfer experience, to comply with expectations and perceptions, to modify their products for processes that gradually switched from manual to automatic. This period saw the development of polymers designed to follow the transition from compression to injection-compression and finally to direct injection. Also the big multinational companies grabbed the opportunity to introduce and improve their specialties. Just to mention some: Bayer, Du Pont, Polysar, 3M. This also thanks to the fact that gaskets, o-rings, technical products made at the sides of lake Iseo were gaining quality and competitiveness under the interested eyes of the German and European giants.

The “Rubber Valley” had its initial location in the Bergamo area south the lake of Iseo (Sebino) defined by the triangle Paratico, Grumello and Adrara, including Sarnico, Villongo and Castelli Calepio: between 1970 and 1990 it saw growth and progress thanks to brilliant entrepreneurs and the emulation spirit of skilled technical–commercial professionals coming from the first pioneer companies.

The low entry barriers (low initial investment, simple and often “open” technology”) allowed the birth of a large number of production units; as a matter of fact in the middle of 90’s they were more than 200 with over 4000 workers so that it was ranked the biggest regional production site and one of the first five on a worldwide basis.

Incidentally we should, with regret, take note that this important reality was not perceived and not considered as such from the local and regional institutions. To day we can say that time did not bring any improvement from this standpoint.

**The last decade**

To conclude the reference to the OPES report: as no data about the total turnover was available, in 1996 it considered the analysis of the turnover of the 6 biggest companies (Gapi, Argomm, Oldrati, Lanza Nuova, Tecnogomma, Ar-tex) at that time estimated to control (including their own third parties) 80% of the local market. In 1997 the turnover of the sealing market of the Sebino–Bergamo area was valued in the range of 125 Million euros. If today we would re-estimate this turnover we would not find any break down from ISTAT or Rubber-Plastic Association.
We can make a guess by assuming as growth rate the trend of the exports “other technical items” in the last 6 years reported in fig. 1 and 2. From these graphs we can see that, in spite of the downsizing in the year 2002, the last decade, on national scale, doubled its value.

From this we can assume that also the turnover should be doubled until a value between 240 and 280 million euros. My personal feeling is that due to the actual differentiation and heterogeneity of the articles, many of them are not accounted under the voice “other technical items” (this is the case of the hydro-thermal market). Looking with the eyes of who daily lives the supply chain of this market I would say that the 2007 turnover exceeded 300 million euros.

The number of companies built or displaced in the neighbourhood of the original area between Bergamo and Brescia did not greatly increase in the last decade. No more that 15 nowadays employ over 50 workers, only two or three are over 200. This, for the biggest companies, can be explained by the need for process
control and compliance with quality standards; at the beginning their structure was quite integrated but later on some activities such as finishing and compounding were outsourced into new external companies. The “blooming” process of moulders extended to other actors of the supply chain: today we can count at least ten compounders aiming to the same territory, more than 20 mould makers well qualified even abroad, plenty of firms offering deflashing and trimming.

Products and technologies
Besides standard and precision o-rings and gaskets that are today injection moulded from all kind of available polymers (from the high-end ultra low temperature peroxide curable FKM, silicones, fluorosilicones down to NBR, EPDM, SBR…) one can find also custom made components for many different applications. Antivibrating, frames, bellows, sparking plugs covers, lip shaft seals, diaphragms, port-holes, isolators, connectors… till baking-pans and cookware; all covering a never-ending list of articles intended for application such automotive, caterpillars, household appliances, sanitary, hydraulic and pneumatic, building, gas and oil handling, alimentary and pharmaceutical, electro-technical and electronic… Just look at the website of some local firms to have an overview of the huge portfolio and capability of this market.Injection moulding is today the widest technology: its evolution brought to diversified design of the mould/press systems: closed/open, capillary, multi nozzles (up to 50), double plates or thermo controlled moulds with the scope of achieving cost reductions and lower scraps to cope with a keen competition moving from Europe to emerging eastern countries.

Sometimes, even in the same plant, you can see also other technologies like compression (necessary for niche products like Aflas, perfluoroelastomers or metal bonded items) extrusion (present only in two or three important firms to make extrudates and profiles) till the most recent, and dedicated, liquid silicone moulding process.

A significant development in the final inspection step has been the recent introduction of computerized optical selection. These systems are able to select and reject scraps, on the basis of pre-set compliance criteria, in order to assure the zero-defect level strongly required from the automotive industries. These new technique certainly reduced the non-quality costs for a process that was before cost intensive also for the need on manpower, indeed mainly female operatives working at home. The unavoidable consequence has been of course a slight decrease of the local level of employment that has to deal with such dynamics. Recently someone felt the necessity to recall in-house some operations previously outsourced: deflashing/trimming. With some small and innovative equipments “by side-of-the-press” some seals will be really produced according to the abused “just in time” concept.

Quality and environment
I consider a worthy effort, confirming a dynamic and mature minded approach, what has been done from many firms to adjust their organization and processes to the more and more demanding quality requirements. The companies more involved in the automotive business, for example, firstly decided to be
certified according to ISO 9000, after according to TS 16949 in order to emerge and consolidate in their competitive arena.

The maintenance of these standards and of the customer relationships associated with them, certainly increases the costs but most of the firms have been able to compensate by continuous optimization of their processes: as a matter of fact, in the presence of the so-called globalization, it is common opinion that the true return on investment is the technological barrier against competitors from emerging countries.

Also, the certification of single products is increasing, often associated with the compound, mainly for alimentary and medical applications. This way practically replaces the concepts of Trade Mark and patent that are not easy applicable to rubber products. Unfortunately the idea to protect the high technological level by a kind of “controlled origin mark” never took place, even for the local market.

In the recent years the environmental care improved: many firms implemented up to date protection systems in order to limit polluting negative impacts (fumes, liquid wastes, noise) and to settle legal issues with public authorities such as ARPA, ASL, municipalities showing bigger and bigger concerns towards these topics and prone to limit the development of new plants: this is the case of selection and warehousing areas that have been classified in the A class of environmental impact.

In a market characterized by strong individualism, we can say that in the early 90’s the only co-operative action from some local industries has been the Association of Seals Producers born with the scope of facilitating the interaction between production and environment in order to demonstrate the attitude to interact positively with the local social-economic ambient for a sustainable impact. Today several firms achieved the ISO 14000 certification and work in the EMAS organization, together with the unions, to improve their internal working conditions.

**New spaces**

In a country where family ties represent a strong value, the outstanding evolution of firms has been certainly fostered by the cohesion of families around the charismatic figure of the entrepreneur. The organization chart often provides a growing route for the new generations: this is certainly a plus for the business but is also one of the reasons for the individualism that does not allow much room for cooperations among different companies. Needless to say that cooperation would surely favour synergies or strengths providing additional forces to face globalization and new challenges.

The figure of the entrepreneur is still “monolithic” and often gathers all decisional powers: consequence is low delegation and push towards a managerial direction capable to handle rapid developments and significant changes. Additional drawback of this approach is the lack of possibility to create a high professional basis interested in consolidating, consisting and growing inside this market.

Till today the original spirit of entrepreneurship, transmitted also to the second generations, has indeed been able to make up for the risks of this peculiar individualism: the major firms opened foreign branch offices in key countries like United States or China or delocalized some productions in emerging East European countries in the effort to follow the continuous moving of the big automotive or appliances manufacturers (in some cases even the compounders have been involved in these delocalizations).
Many firms, not only the big ones, once achieved the right level of quality and competitiveness, expanded and improved their presence in the global market also by attending international expositions. Nevertheless my personal opinion is that public and political institutions have not yet given the appropriate consideration and care to this excellent results and achievements: still too high are the costs from bureaucracy and inadequate infrastructures added to the historical distrust and obstructionism from municipalities.

It is of good omen the presence, in the Directive Council of the Industrial Association of Bergamo, of a young, second generation, entrepreneur from one of the historical families involved in this kind of business: we hope that a deeper participation in the social network, possibly also in politics, will grant resources and opportunities necessary to face evenly the tough competition from emerging countries and some cyclic market drop-downs.

Market drop-downs, i.e.: crisis, like that we are today facing in these last months: suddenly in most of the firms of this sector the production forecast has fallen from six-eight weeks to two, then to one, then to stock building waiting for new orders to replace previous cancellations of October November, December. Someone, also among the most important ones, has already asked for public social countermeasures (never happened in the last 50 years).

This is not one of the usual creeping, even mild, crisis: this is a crushing, world-wide brake affecting industry as well as finance.

In the spirit of an optimistic solidarity we all pretend it is a contingent event, not heavily affecting the real economy; but this is crisis negatively impacting future projects and some necessary investment.

It seems like someone came and switched off the light to people working for finishing the ideal, full automatic moulding plant, intended to work all around the clock, 365 days per year, solving all competitiveness problems.

(English translation by Dr. R. Ferro)