

We are **UMBRA GROUP**



The voice of the CEO

**After the darkness,
we shall Fly again**

The point of the President

**Recovery Plan
an opportunity
for our Country**

Aerospace+

A new perspective
on the aerospace business

**Leadership to develop
the new Future
of UMBRA GROUP together**

“

Don't fear difficult moments.
The best comes from them.

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After the darkness, we shall *Fly* again



Dott. ANTONIO BALDACCINI
CEO & President UMBRAGROUP

The Covid-19 pandemic has caused dramatic damage that has permeated every aspect of life, aspects that we could never have imagined being turned upside down. It created a complete darkness, where previous experience was of little help.

In all of this, UMBRAGROUP was not unharmed, nor was it helpless. Steep crashes in revenue hit our companies too, triggering an external shock in which illusions disappeared, leaving only what was concrete. Now, that concreteness comes to us in the form of an historic opportunity to turn our diversity into our strength. The power of our shared determination to find solutions to problems and march steadfastly on again brings us together in our aim to create greater value for all our stakeholders.

Through the consolidation of the Umbra Production System [UPS] worldwide, we've adopted a shared language of production. We've given special attention to sharing best practices with affiliates under the coordination of the Corporate office. We're firmly convinced that our unity is stronger than any conflict. "Those who cannot

say 'us' are incapable of solving problems", Pope Francis reminds us. The pages of this magazine have always illustrated our concept of Us. It's a competitive edge that enables us to optimize our energies and resources, cultivating the joy of being part of a team.

I consider the current recession to be a useful resource for directing our Group towards new beginnings.



Cooperation brings about multiplying effects; sharing emphasizes common goals and plans. The management of human capital will play an increasingly crucial role in this. When Beatrice Baldaccini returned to Italy in the role of Corporate EVP HR & Integration, we highlighted the importance of coordinating our talents. The good news doesn't end here, because alongside the new structure we've given the company – meaning Aerospace +, led by Matteo Notarangelo, Group Executive VP Strategy Development & Sales – we have added bold, forward-thinking projects, proposals that emerge as we strive to increase our current market shares and seize upon new ones, serving even more clients.

Turning our gaze to the semester that has just ended, we're satisfied to see that the Avalon project for an electric/hybrid aeronautical

propulsion system was completed with AvioAero, and advantageous long term agreements were renewed with Parker and Moog. One especially significant event was the reopening of the CF6 program, which brought new energy to our long-standing relationship with Lufthansa; and a number of stabilizers were supplied by Foligno to Linear Motion, which boasts such achievements this year as being chosen by the United States Air Force as their sole partner supporting its flap servicing program. This excellent achievement cultivates our company's calling: to be Intelligent Partners in the defense sector, while continuing to innovate by investing in new machinery and restyling. Works were recently completed to refurbish each space, making them more welcoming, practical, and comfortable. Meanwhile, Kyle Smith has been recognized as having the skills to take on the role of Linear Motion General Manager, reporting

directly to Wally Baker, CEO North America, and departmentally to Roberto Giuliotti, Corporate Chief of Operations. In Washington state, the leadership of Umbra Cuscinetti Inc. has been entrusted to Wally Baker; the task of handling negotiations with our most important client, Boeing, has been entrusted to Carlo Mears, Executive Vice President of Sales, Boeing Account; while the UPS team will be led by Jon Del Grande.

Our tour of our company's achievements brings us back to Europe, where Germany is celebrating the recovery of the industrial market to the benefit of KUHN, and that of the bearings market, which has increased revenue to Präzisionskugeln Eltmann thanks to the consolidation of such clients as SKF and Schäffler.



Präzisionskugeln Eltmann is growing in the green sector through manufacturing balls for wind energy use. It's also working hard to produce samples for new clients and projects. In Italy, the Industrial Business Line fits in well with this trend of positivity, reporting a strengthening of interest in our bearings, which has enabled us to come out with a variety of samples. Negotiations that resulted in increasing business have led to agreements that will define the production required by clients of such a caliber as Trumpf, Holz-Her and Weinig. The long term agreement with Sumitomo also offers a good outlook. To end our tour, I'm pleased to bring us to Serms, our center of excellence in environmental testing and mechanical design. Here, I'd like to highlight our design for the new simulator that reproduces sand and dust storms. The system, due to be operative by the end of the year, will be one of the most powerful in Europe, capable of replicating

both terrestrial and Martian storms. Space will have another sign of our presence thanks to the public competition enabling Serms to carry out all mechanical and thermal certification for the satellite CSES-02.

We can proudly say that our excellence knows no bounds. We ought to congratulate ourselves. The hardship of the crisis is making us stronger. Our fruitful ideas will lead us out of this darkness. The vaccine hasn't changed the face of the world's nations, but the seed of fairness gives me great hope. No one knows how long this pandemic will go on, but one thing is certain: one day, we will fly again – TOGETHER.

A happy summer to us all!



Recovery Plan an opportunity for our Country



ANTONELLO MARCUCCI
President of the Board of Directors UMBRAGROUP

The year 2020 will most certainly be remembered throughout the world for the Covid-19 pandemic, a crisis of epochal proportions with social and economic consequences and a human tragedy whose scars we will bear for a long time. The year 2021 is still saddled with the effects of the pandemic, conditioned by the variants and the progress of the mass vaccination efforts in our country and elsewhere in Europe.

The uncertainties we've mentioned in relation to the Covid crisis weigh on the performance of our economy, with risks connected to GDP still high. At the moment, further recession is predicted in 2021, but we believe that the acceleration of the vaccination campaign can free up the resources and energies that are a part of our economy, triggering sustainable growth and development. The psychological impact of getting closer to a solution to the pandemic crisis is gradually generating a marked improvement of expectations, and as a result it will lead families to spend more freely.

One major contribution to boosting the GDP this year and in the years to follow will undoubtedly be the positive effects brought about by European resources allotted to Italy through the Recovery Plan.

The resources deriving from the Next Generation EU are a unique opportunity for our country to bring forth an ambitious, long-term economic plan through which we can reopen and modernize Italy after the tsunami of the pandemic. Above all, they will enable us to repair the economic and social damage of the economic crisis and help tackle the operating shortcomings of the Italian economy, making swift change on gender inequality, inclusion of young people, and geographical divides. The national plan for recovery and resilience (PNRR) is primarily based on six principles:

1. digitization, innovation, competitiveness, and culture;
2. reassessment of sustainability and transition to

- ecological solutions;
3. infrastructures for sustainable mobility;
4. education and research;
5. inclusion and community;
6. health.

The resources available must enable the Italian economy to keep pace with other advanced European countries – from 1999 to 2019 it was much slower – and to correct its social and environmental imbalances while restoring productivity.

The resources available must enable the Italian economy to keep pace with other advanced European countries – from 1999 to 2019 it was much slower – and to correct its social and environmental imbalances while restoring productivity.

Among the causes of its disappointing performance is the inability to seize the many opportunities connected to the digital world caused by the shortage of adequate infrastructures and to bureaucratic aspects, particularly in the public sector, due in part to public servants' lack of familiarity with digital technology. The plan is an important part of an ambitious, broader strategic plan to modernize the country and provide future generations with a more modern country within a stronger, more united Europe.



Leadership to develop the new *future* of UMBRAGROUP together

Beatrice Baldaccini
Corporate EVP HR & Integration UMBRAGROUP

Our CEO Antonio Baldaccini recently met with managers to illustrate the organizational structure of the entire Umbra Group worldwide, and particularly to outline what will be expected of UMBRAGROUP's leaders in a post-pandemic world.

With the world around us profoundly and rapidly transforming, leaders in UMBRAGROUP must:

- » tackle volatility, developing a mid- to long-term vision and sharing it with everyone in the organization;
- » control uncertainty by understanding the problem. To do this, leaders encourage their team not just to think outside the box, but also to act outside the box. Part of understanding the problem is connecting

- with other people in and beyond the company, interacting with them and being open to learning and taking action every day;
- » manage complexity, identifying and reducing the number of basic variables, and inspiring the people on their team as well as providing them with suitable tools so that they can solve problems with confidence. Complexity is manageable if leaders can convey the message that we must learn from our mistakes, being aware of and managing our



*A good leader inspire others by trusting him;
a great leader inspires them with self-confidence.*

Anonymous



strong points and the areas where we can improve;

- » tackle ambiguity, helping their people with the right tools to develop their skills and increase their agility, becoming agile in thought and action, in effecting change, and in seizing every valuable opportunity.

and ethically right changes for the success of the business and leave a better world to future generations.

At UMBRAGROUP, our leaders are undoubtedly motivated by their sense of duty to do what's right, but above all by a **keen passion** for their work, each day working alongside their team and with other teams, **seeking to build value** for the company. They imagine a different world, without forgetting about the present one; they imagine and sketch out new paths. They possess the charisma and authority to lead people, supporting them during and after the transformation process, inspiring confidence in them so that they make necessary



Aerospace+

Matteo Adolfo Notarangelo
Group Executive VP Strategy Development & Sales UMBAGROUP
Chief Operating Officer OEM UMBAGROUP S.p.A.

In a constantly transforming global market filled with sometimes unpredictable challenges, our task is not just to respond to challenges, but sometimes to anticipate the course they will take, so as to increase and protect our competitive edge.

That's what we've done in creating Aerospace+, a side of the aerospace business which we have boosted and aligned with our strategic goals oriented towards growth and seizing a share of future markets.

On a strategic level, we are increasingly balancing our portfolio between the commercial, defense, and space sectors, proposing ourselves to clients in an increasingly global way so that we are seen as a Smart Partner capable of proposing new solutions and influencing the market ourselves. From this viewpoint, there are three main principles underpinning Aerospace+:

- » one brand for all sites;
- » one team bringing greater value;
- » one vision addressing several markets.

In line with these principles and guidelines, in late March we launched the Group's new commercial aerospace organization. Starting with an analysis of market conditions, it will identify and develop new business opportunities so as to build solid, lasting relationships with our clients and expand our network.

To achieve this, we've created a matrix structure that is aligned with the Marketing & Business Development department, Sales (which includes Key Account Management and Strategic Planning),

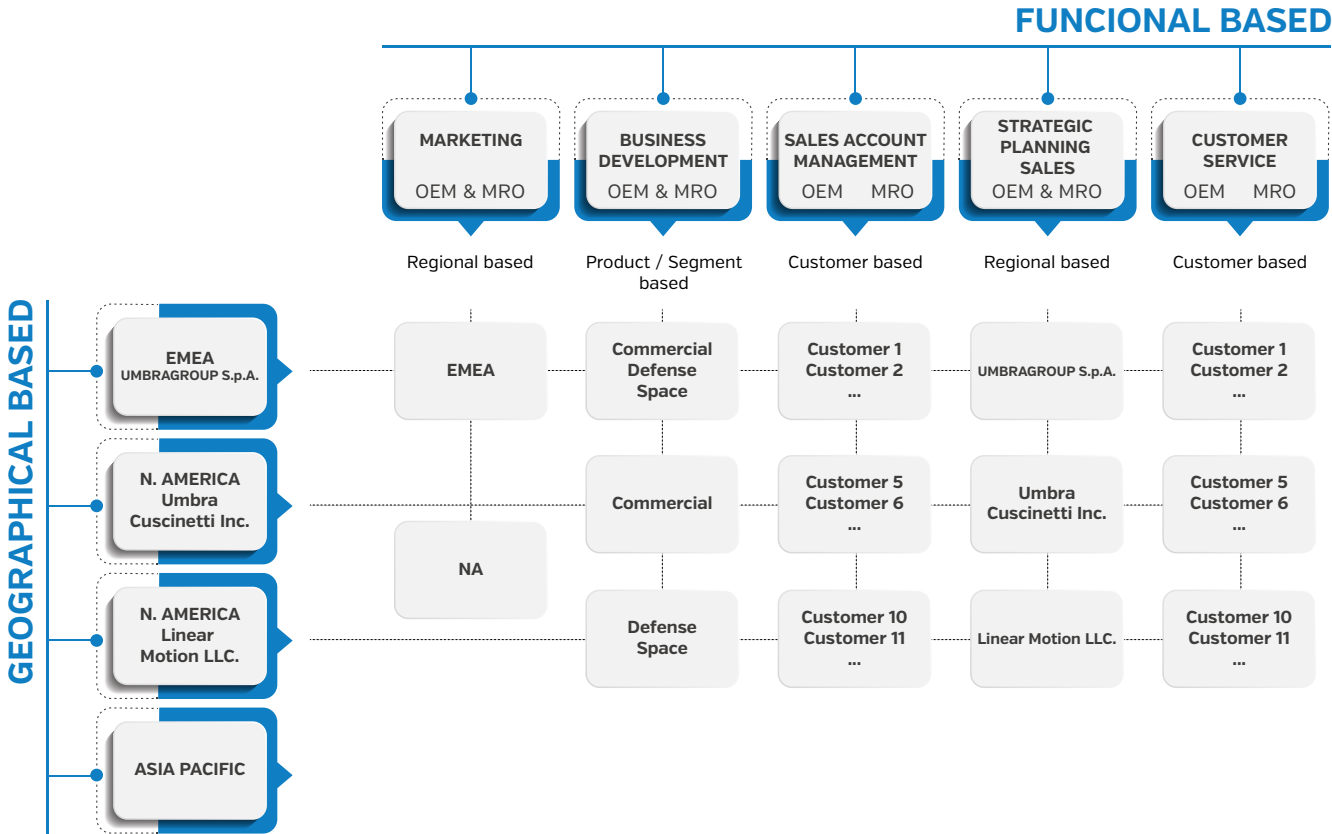
and Customer Service. Lastly, we completed the structure by aligning it geographically by region and pertinent site.

The graphic below goes into further detail on this new organizational matrix and the criteria used to design it.

Following the launch of this new organization, job descriptions were defined as were yearly goals in line with the business plan and incentive plans, all of which were standardized worldwide.

All of this was only made possible through the efforts and determination of the Global Commercial team, which worked together towards this common organizational goal. Our thanks to the global team for the excellent contribution it's made.

Our message, **"a single team and a single brand"**, is ringing out loud and clear.



The Group's *language* and *goals*

Roberto Giuliotti
Global Chief Operations UMBRAGROUP

The first semester of 2021 was marked by the implementation of the UPS [Umbra Production System] tools in Power BI to ensure that all UMBRAGROUP offices can access real-time data using the same Cockpit and KPIs, which are constantly monitored.

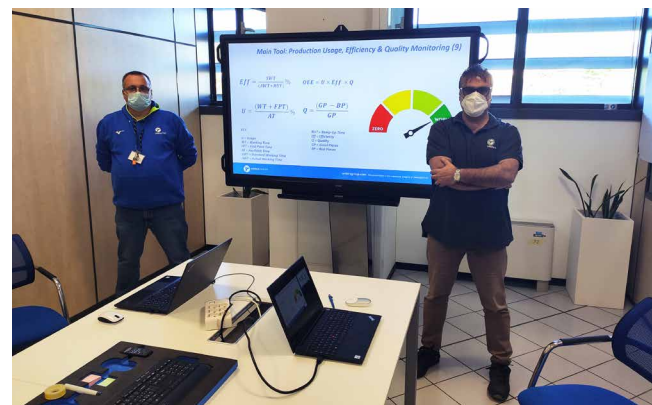
Our affiliates have now become familiar with UPS tools and terminology. Meeting agendas are now standardized for all sites. We've achieved our goal of using a shared "language" at a corporate level for managing and monitoring KPI operations.

For months now, all Group facilities are performing in line with the targets set out in the UPS.

The focus is increasingly on efficiency and constant cost control. In the second trimester, we began a systematic cost analysis within the UPS that involved Industrial Operations as well as Management Control. We're holding systematic meetings in which we analyze the gaps between actual costs and our budget and make action plans to recoup the difference. The analysis also considers products that will be made in future months, so that we can intervene proactively. The interdepartmental Operations and Management Control team is an important organizational innovation within the Industrial Line which aims to combine expertise on processes, products, and finance in a synergistic way. The idea is to extend this activity to the Foligno Aerospace sector, and over time, to all affiliates.

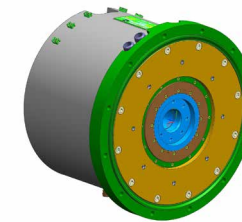
In other news, the strategic Industrial acquisition

area has not only launched a project to centralize procurement activities among towards affiliates; from the start of the year, it has also begun a cost saving project, renegotiating prices of parts and strategic suppliers in close cooperation with the CST [Cost Saving Team]. As early as the first semester, this generated a considerable savings that will enable the company to offset the sharp rise in the cost of raw materials. This activity will carry on throughout 2021, continuing to generate benefits and profits.



From a technical viewpoint and in terms of researching new markets, we are pleased to share that some strategic clients have requested that we send them technical proposals for both linear and rotary actuator systems. The applications we have been involved in concern well-known sectors, such as pressing sheet metal, a market in which UMBRAGROUP is already a primary technical reference point, both for ball screws and for actuators. We're also putting ourselves to the test in industries in which electrification [replacing

hydraulic systems with electromechanical ones] is booming and stirring up increasing interest, such as in the marine industry.



Reactive actuators

The revenue forecast for the Industrial line will be up 5 million Euro compared to the 45 million Euro budgeted at the start of the year thanks to the increase in demand for the Services Line, Bearings, Electromechanical Actuators (EMA) and Electrosplindles. The second half of the year is expected to be interesting for screws as well. All of this will have a positive impact on the direct and indirect use of our personnel.

In addition, the Skill Mapping project coordinated by the Human Resources department has reached its advanced phase. The initial aim of the project was to assess the current status of each employee's skills, compare it to the desired target for their

roles, and plan a knowledge-building program for personal development. With the introduction of the project's newest feature, skills are assessed based on an objective system comprising a database of questions with points assigned for different skill areas [technical/design, processes, quality, management, IT, languages, etc.], some of which are cross-departmental, others specific to the employee's role. The extent of employees' knowledge will be increased through sessions with Umbra's internal trainers [Lean Academy].

In addition to sparking change in people's behavior, 2020-2021 was also a fundamental period for responding to the optimization of all our company processes [UPS]. Given the signs of recovery in the industrial sector, these processes will make the goals in the 2020-2025 Industrial Plan achievable in a much shorter timeframe.

As the famous statistician Deming once said, "Without statistical control, the process [proceeds] in unstable chaos, the noise of which would mask the effect of any attempt to bring improvement"; along these lines, by monitoring all processes daily, UPS is generating ideas for improvement.



Umbra Production System: implementation project status

Creating *value* to be *FIRST*

Sara Bordoni
Marketing & Communication Coordinator UMBRAGROUP

The new year began with a continuation of the course we'd embarked on in the second semester of 2020: towards a new identity for the Group, a new face to present to the world, a new future.

In January we launched the new Company Profile, which encapsulates our essence, our international spirit, and our technological know-how in a completely new image and design! Also available in the new digital version, it offers added value to the experience of getting to know our Group, our values, through our people, and then explores our organization and processes. The document tells the story of our innovative path and our DNA: our cornerstones as Intelligent Partners in creating technological solutions.

The new year was also the ideal time to launch our new corporate video, proof of the fact that we have continued to look to the future with vision and optimism, even in a period when the world has been paralyzed and the economy at a standstill. The new video, UMBRAGROUP: Flying High!, tells of our tireless work of research and innovation, both for our processes and our products, to make a difference in an international context that's prone to great change and challenges. This process of continuous evolution has always focused on people, their forward thinking, their ability to observe and adapt, the diversity of their backgrounds, which is both a treasure and a source of new ideas.

Therefore, in April, the month of our 49th anniversary, we've dedicated an internal campaign to the people of the entire UMBRAGROUP community, the main players in our Group's evolutionary process, and the best representatives of our brand.



And it's the brand itself that plays an important role in creating value for all stakeholders. That's why we've invested in a partnership with qualified professionals who are leaders in their industry to analyze our brand reputation. Reputation is a strategic driver for business on all levels, and an important means for growth and entering into new markets as well as for building trust.

This highly intensive project began in March and will continue over the next three years. It's a great opportunity and a great investment in our people. A moment for reflection and opening up, the project will lead us to work with increasing awareness of our identity, our distinctive features, and our strategies, so as to continue to create solid, quality relationships both within UMBRAGROUP and with our clients.

Our work is to build the future, and build it TOGETHER.



**YOU ARE PART OF OUR EVOLUTION,
BE THE FACE OF OUR CAMPAIGN!**

Take part in our corporate campaign.
UMBAGROUP is its people. **Share your smile!**





Does this swallow make a *summer*?

Daniele Frillici
Sales Manager Industrial UMBAGROUP S.p.A.

After the first signs of a lukewarm recovery appeared in industry-associated sectors at the end of 2020, today the signs are increasingly consistent, and it's safe to say that we can expect to see the spring - and not just from a meteorological standpoint. The dreaded Covid-19 remains a considerable threat, and in this phase it is primarily the central European countries that are bearing the brunt of it. However, the stars seem to be aligning in our favor on a global level and we're sensing a decidedly different atmosphere to the

stagnation of the previous year. Asia, with China at its forefront, is marching at twice the speed of other geographical areas; but compared to a few months ago, the productive machine seems to have sprung to life in other leading countries as well. The United States looks to the future with faith after the results of the first trimester, and with some distinctions between the various sectors, Europe is emerging from a long period of darkness. Italy is also experiencing a moment of brilliance, and of its neighbors it appears to

be one of the most active countries, thanks especially to government incentives encouraging entrepreneurs to invest. When we look more closely and analyze the most robust applications, what immediately catches our eye is the upswing surrounding sheet metal as well as wood and marble processing. Manufacturers of machinery for these industries are reporting record numbers of monthly orders, which can be explained by the boom in investments made in construction and furnishings largely generated by the effects of the pandemic. A positive trend continues for automation, packaging, food, and plastic processing in general. These numbers are also influenced by the use of e-commerce platforms and single-use packaging, which until the start of Covid-19 had been put in a corner, becoming an increasing part of our everyday lives. There are also small signs of recovery in an important sector for Italian manufacturing: transfer machines. Growth in valves, taps, and fittings has brought manufacturers of these multitasking machines in Lombardy and Veneto to report a reversal of the trend, filling us with hope. However, those who have yet to see the light at the end of the tunnel are all the businesses connected to machine tools, with special focus on the automotive and aerospace industries. Processing centers, grinding

units, gantries, and boring machines continue to experience considerable stagnation, along with the electrical discharge machining line. Historic names in the Italian and European mechanical industry have raised the white flag, unable to sustain such a long shortage of orders. But there is a glimmer of hope for additive manufacturing, which continues to develop with a constantly expanding sphere of application. In conclusion, it's too soon to say with conviction whether this swallow makes a summer or not. The only absolutely certain thing in the industrial world is its uncertainty. Even those working in the market segments most in demand are unable to bet on a scenario more than 4-5 months ahead. Increasingly, the determining factors of success are reactivity to clients' demands and flexibility. In this context, UMBAGROUP's industrial line is reaping the benefits from the transformation it underwent in 2020, focusing on competitive and reliable lead times, a high-quality service, and structuring processes, which in the eyes of our partners represent a guarantee of solidity, as reflected in performance indicators.



The *light* at the end of the tunnel

Mirko Canfarini

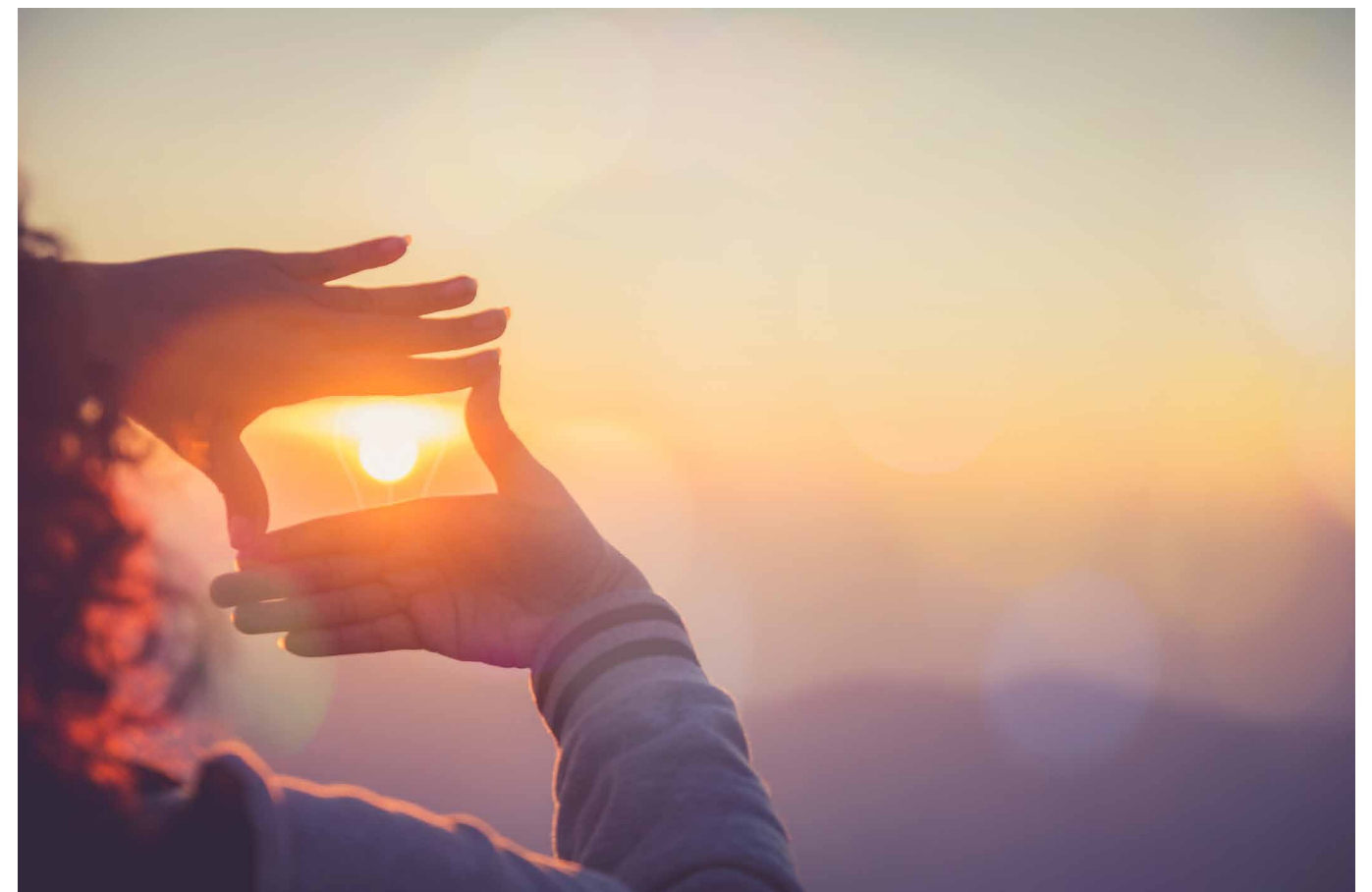
Group Marketing, Business Development,
Sales MRO UMBRAGROUP

Our aftermarket sector is directly linked to airlines and industry operators; it therefore stands to reason that COVID-19, which brought about a complete halt in air traffic at first, and a timid, weak return of flights later, has had a considerable impact on our business. However, our defense contracts, both through UMBRAGROUP S.p.A. and Linear Motion Ltd, have enabled us to mitigate losses and close 2020 with better results than those expected at the start of the year. The sales team worked side by side with the operations team to provide a constant stream of up-to-date information on market trends. What this meant is that UMBRAGROUP made an enormous effort to change its production plans on the fly, and considering that many of our personnel were working primarily from home, this is double the success, and our staff deserve our greatest respect!

Despite its many shadows, 2021 gives us much hope. In China, COVID-19 has all but disappeared with just a few dozen new cases each day, and as a result air traffic has returned to pre-COVID levels. In the United States, thanks to a massive vaccination campaign, air traffic is returning at a

pace: at the time of writing, the level of air traffic reported is at 60% of 2019's numbers. Europe will be next to reopen, while India and South America are still lagging.

Another major sign of recovery is the fact that the most important event in the US aftermarket sector, the MRO Americas conference, took place in Orlando, FL, at the end of last April - finally in person! Only US personnel from UMBRAGROUP took part; for us Europeans, business trips are still prohibited. Reports from our colleagues Anthony Battaglia, Business Development & Sales - MRO Linear Motion, and Justus Breese, Vice President Commercial Programs Linear Motion, are very good. Although it was a smaller conference this year, new business opportunities have emerged which give us great hope for the mid- and long-term outlook.





The road to *Production*

Nick Schmidt
Director of Customer Service Umbra Cuscinetti Inc.

We all travel down many roads to get where we want to arrive, some of these are new & some are more familiar but in this case we are not talking about a trip down Hardeson Road, Freiberg am Neckar or Via Valter Baldaccini. We are highlighting the road from development concepts to delivering production parts.

More specifically, the roadmap that involves many of the UMBRAGROUP family & team members who helped forge the way to grind an opportunity into 'actuation' from a development concept to functional reality, with Rolls-Royce, a customer of Umbra Cuscinetti Inc. for aircraft engines applications.

We start with identifying a new opportunity through Sales & Marketing, we then work with Engineering to understand if we can make ideas a reality within our production capabilities. When we determined we can help the customer, with support from Leadership, we understand our Supply Chain, Quality, Operations, Manufacturing & Finance needs to be able to turn an idea into a sustainable reality. In this case we started our journey in 2018 & in Q1 2021 delivered our first production units.

The success in delivering these production parts was made possible through a large team of contributors across multiple sites including



UMBRAGROUP S.p.A. & Linear Motion team members that were essential in winning & developing the work to help Umbra Cuscinetti Inc. develop further processes to satisfy customer requirements to navigate the pathway to success.

The road from developing to producing is a journey that we all travel together to best utilize the power of the Group & even though the road is not always an easy one to navigate we work together to support each other which allows us arrive at the destination we sought out. In this case we have arrived but have just started the new journey of production deliveries that we will allow us to keep

working together so we can continue to provide additional value for one UMBRAGROUP.



Air of *change* in *Saginaw*

Marylynn McPhail
Executive Assistant Linear Motion LLC.

Over the past year and despite COVID-19 restrictions Linear Motion has been diligently working with our contractors and moving forward with the building transformation project.



The renovations include a complete overhaul of all the office areas, including a beautiful new Conference Room in the upstairs office overlooking the Saginaw River. Among the updates to the office, new kitchens and a coffee area, brand new workstations and that is just the beginning. Three Rivers Construction has been working daily in the plant to complete the new Cafeteria/ Town Hall Meeting Area also to serve as a training area for the employees. New bathrooms, on the first floor of the plant were completed, and this include new showers, and lockers for our employees to use.

We have also been working on completing the new Metrology area. Other updates to the facility are installation of intensity LED lighting above the A&D machining area, and a small climatized modular office for hardness testing.

The MRO in Saginaw Michigan has entered into the next step in the Umbra 5S business standard. Last year the MRO team was working with the continuous improvement team set out to implement tool control in the disassembly area. The process started by removing all old worn out tools and standardizing each workstation as was done in the assembly area in 2019. The new laser etched tools and shadow board layout foam inserts will create a more efficient workspace for the

disassembly and evaluation of incoming customer product. In conjunction to this the MRO has installed and implemented a KARDEX part storage lift system that will streamline the assembly process and reduce wasted time during the parts picking procedure. The parts storage system will also reduce the amount of clutter and enhance the overall 5S strategies.

This past year has been such a challenge with COVID, we are proud to be able to make the much-needed renovations to the plant here at Linear Motion. We are looking forward to the opening of the Cafeteria and holding our Town Hall Meetings again in such a wonderful open setting and with new technology.

We were able to obtain the Going Pro Talent Fund grant through Michigan Works, this year. The grant will cover our training needs for our employees and customers.

We have been very busy in Saginaw Michigan and we are looking forward to finalizing our renovations and moving forward with new technology for the good of our company and our community.

Präzisionskugeln Eltmann celebrates *10 years* in the Group

Wolfgang Werner

Kaufmännischer Leiter CFO Präzisionskugeln Eltmann GmbH

Exactly ten years ago, on the 5th of April 2011, Präzisionskugeln Eltmann GmbH made a breakthrough: we were acquired by the parent company UMBRAGROUP S.p.A. and warmly welcomed into the Group.

Founded in 1943 as FAG Kugelfischer, at the time of acquisition Präzisionskugeln Eltmann GmbH could boast many years of experience and its own expertise as a manufacturing plant. In these ten years we've received considerable training from the Umbra Group which has enabled us to grow constantly and reach major milestones. Part of this training takes place through sharing methods, languages, and tools, and it's constantly evolving, for the very reason that we never stop learning.

The parent company is a model and a guide for all of us.

Since we became part of UMBRAGROUP,

our journey has been an incredibly positive one, a development that has transformed us and led us to reach major milestones, a source of pride to us all.

Without exception, all our employees have contributed to this success through their constant dedication and great motivation, and they deserve my greatest respect, recognition, and personal gratitude.

Looking to the next ten years of success - of which my age will allow me to experience and shape only a part with you - I'd like to thank all of you.

Yours, Wolfgang.





Trust for over 35 years

Barbara Bianconi
Customer Service KUHN Präzisionsspindeln und Gewindetechnik GmbH

To mark the 25th anniversary of UMBRAGROUP's acquisition of Kuhn, we've interviewed one of the pillars of the company, Günter Klopstein, who has worked with us for 35 years.

Günter, what brought you to Kuhn? What was your initial career path at Kuhn?

My father was employed at Alois Kuhn GmbH from its beginning.

In late 1985, one of the bosses, Gerhard Kuhn, asked my father if I wanted to join the company. He'd heard that I was looking for new work. I'd already applied to the city council of Freiberg as an engineer and I would have got the job, but once I'd received the offer from the Kuhn company

[I'd known Gerhard Kuhn personally for a long time - we used to ride motorcycles together], we immediately struck an agreement. The 7th of January 1986 was my first day at work. I started off in nut grinding, and over the years I had the chance to work in different departments: grinding cylindrical and acme screws, milling, straightening, final assembly, and then back to grinding, where I remain today.

You've been working in grinding for a long time. How has nut grinding changed over the years?

Before it was acquired by UMBRAGROUP, Kuhn made the entire product internally.

Today the pieces come from different external suppliers, and only the outside diameter and thread have to be ground. The ceramic grindstones used today have become a lot less problematic in terms of cracks and furrows compared with the ones we used before. In the past, Kuhn only produced double nuts, with end float or four-point contact. Nuts with shifts used to be more or less exotic and rare, but now they're the standard.

What are the pros and cons of this change in method?

Completely producing the nuts externally, except for grinding, has made the pieces very inexpensive. The use of modern grinding units here at Kuhn enables us not only to perform external and internal grinding in a single tooling process, but also to produce and assemble products with much lower tolerance than in the past.

You're a point of reference for nut grinding in the company. What's the secret to being such an efficient grinder?

Years of experience! My several years in final assembly really helped me understand what's important. And of course, one should always work



in a focused, responsible way. A modern machine with numerical control won't forgive an imprudent entry error when the programs are created. And lastly, a little bit of joy in doing your work won't go amiss.

Thank you very much, Günter.

From *Terni* to *Mars*

Antonio Alvino
Technical Director Serms srl

Perseverance is a rover that successfully landed on the surface of Mars on the 18th of February, 2021. It's the heart of Mars 2020, a mission to explore Mars developed by NASA. In addition to the rover, the mission includes a small demonstration helicopter called Ingenuity.

The mission's primary goals are to study the habitability of Mars, investigate its past, and, last but not least, look for traces of any biological life!

The mission will also set aside geological samples to enable a future mission, Mars Sample Return, to bring them back to Earth for thorough analysis.

The rover is carrying various scientific instruments, but one of these went through the Serms laboratories in Terni before it arrived on Mars.

The part in question is called **LaRA** [Laser Retroreflector Array], a microreflector built through a collaboration between Italy's National Institute for Nuclear Physics – National Laboratory of Frascati and the Italian Space Agency. Its purpose is to perform triangulation using lasers for purposes

of navigation and determining locations in the Martian orbit. LaRA fits in the palm of your hand and is made up of a 5-cm wide dome set beneath eight laser retroreflectors, that is, quartz prisms made from the edge of a cube of fused silica, the main characteristic of which is that it reflects light at the same angle of incidence. Essentially it's an indicator of position, and being passive, it has no need for maintenance, ensuring that it will carry on working for decades to come.

LaRA will enable scientists to make measurements using laser telemetry to determine the rover's position on the surface of Mars, test Einstein's theory of General Relativity, and help to make future landings on the Red Planet safer and more precise. These measurements cannot be made by aiming a laser from Earth's stations; we will have to wait for the arrival of a future Martian orbiter equipped with a laser, which will enable these operations to be performed as it rotates around the planet. LaRA's position on the Rover Perseverance is shown in this photo.

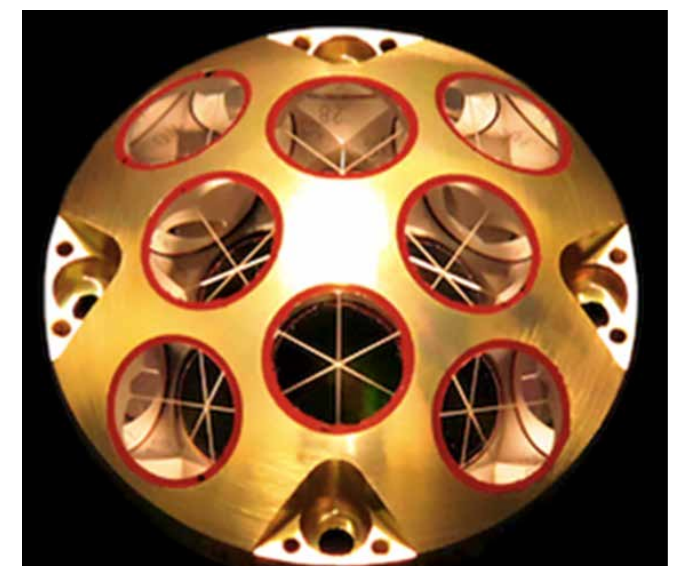
A variety of future **applications** is expected for

this technology, starting with its use in upcoming missions to the Moon or to asteroids, for example the European Space Agency's mission Hera; or for NASA's Sample Retrieval Lander (SRL) and the ESA's Sample Fetch Rover (SFR), two of the vehicles being designed which will be used in the Mars Sample Return program to collect samples of Martian soil and bring them back to Earth.

The **role of Serms** was to certify that this part was reliable enough to resist the vibrations of the launch and above all the extremely high speeds reached during the separation of the rocket from the boosters.

Serms, which has been a part of UMBRAGROUP since 2017, is no stranger to these kinds of scientific collaborations. It has been active in thermomechanical testing of aerospace parts for nearly two decades.

The company also actively contributes to establishing the operational criteria for implementing the strategy aimed at building the group's expertise in the Space Economy market.



Organizational *resilience* and *flexibility* will overcome the crisis

Daniele Bartoli
Administrative and Purchasing department AMCo srl

Enrico Lazzerini
Production Manager AMCo srl

Operational excellence and organizational flexibility have always been our top priorities: only by building a resilient, flexible, and responsive organization of resources and processes can we assimilate changes and respond effectively to the global market.

The COVID-19 pandemic has proved to be an exceptional challenge. Managers and workers must make their **contribution to the company's organizational system** by bolstering the development of better strategies. Innovating, developing greater flexibility, improving our communications network are just some of the aspects to be implemented in order to manage stress effectively and avoid irreparable damage.

Focus solely on the efficiency of internal processes may not be enough, as that often means standardizing. That sort of rigid, fragile approach won't hold up to the unpredictable dynamism of today's markets. Such **rigidity prevents companies from responding to change** and makes them vulnerable. Work has changed forever.



Our methods, relationships, and even our company culture have changed. That's why we need to revise certain fundamental aspects of work, so as to **boost organizational resilience**. And we can do it by:

- » **improving** communication between coworkers;
- » **fostering** cooperation and support;
- » **demonstrating** awareness and understanding.

But we also need to **revise our goals and set new ones** to be achieved together. Innovation and creative problem solving are to be encouraged and rewarded. A dynamic approach and thinking outside the box must be the defining features of this new way of looking at work, where employee involvement and our impetus to produce are no longer what they used to be. **Flexibility** and **agility** are key concepts for recovering. After all, the pandemic has created a paradigm shift: we've gone from the rigid efficiency in which standardization was the norm to an urgent need for resilience.

This is what has overwhelmingly emerged at AMCo: in response to the crisis, many of our employees



got back into the game by returning to previous roles or taking on entirely new ones, adapting to the company's needs. Two examples are Luca Falcinelli and Luca Falcinelli Ottavi, who went back to production after gaining experience in the TE.FA [Manufacturing Technologies] office and the company's Quality Control department.



R&D: integration phase launched

Moreno D'Andrea

Research Center Manager UMBRAGROUP S.p.A.

Despite the current period, the dedication and efforts of all those involved have led to complete actuator systems being assembled for two highly important Research and Development projects.

The names of the programs have become very familiar to us, since we've been working on them for years: ASTIB and REPRISE.

ASTIB and REPRISE are the acronyms of the projects' goals, which from their description give a sense of the ambition and vision involved in these developments.

ASTIB stands for "Advanced System Technologies and Iron Bird for future regional aircraft" - essentially, the program develops new actuators for landing gear and for moving surfaces at the ends of the wings.

REPRISE stands for "Reliable Electromechanical actuator for PRImary Surface" - through this development, actuators were fine-tuned for primary mobile surfaces, which, given how critical they are to safety, require particular design solutions that will guarantee their reliability.

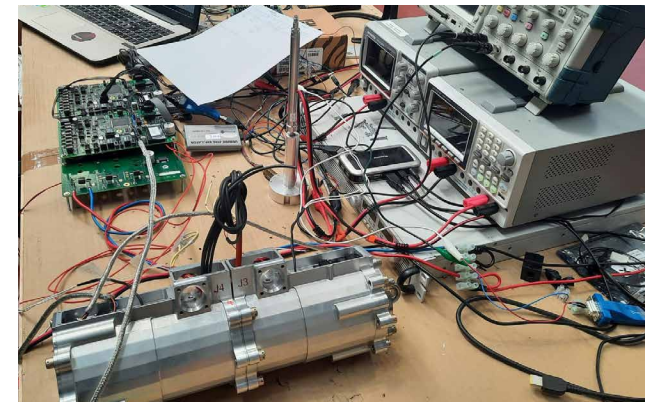
The R&D activity therefore aims to test a broad range of functions and applications on the various actuator architectures.

The ASTIB system will be tested in flight, whereas a test bed will be used for REPRISE.

Both are technology demonstrations with the ambitious goal of confirming that technology can replace current systems, which are generally hydraulic.

In the architectures tested during these research activities, one of the main goals is to improve flight safety. For this reason, solutions are being tested that are activated and are automatically operative in the event of a fault. In this way, the flight can be completed even in the event of a breakdown. These are therefore innovative concepts, even within the context of system reliability: Umbra's project provides the enormous advantage of reducing the mechanical parts between the surface and the actuator, making the system reliable yet simpler on the whole.

To start, a series of tests were performed on the initial activation of the two systems to verify that the circuit boards and the electromechanical actuator were communicating properly. Next, movement tests were performed on both systems at a low performance level, gradually increasing to a full load in accordance with the client's specifications.

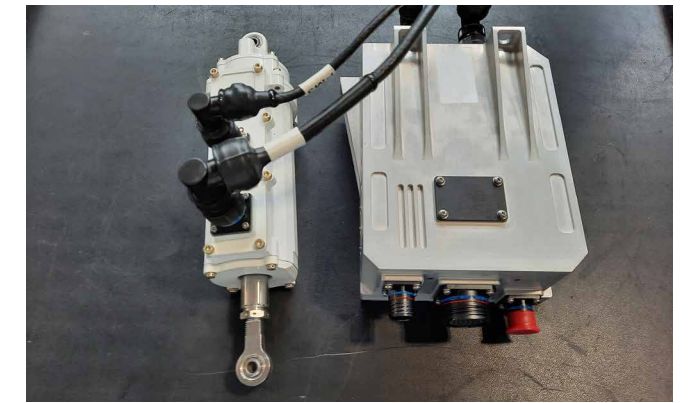


Integration of the REPRISE system

These activities have enabled the crucial and highly delicate phase of system integration to begin.

An especially demanding phase of integration, particularly when the systems that make up the actuation modify the shape of the wing surfaces; before the innovation, they were designed and built in a fixed configuration. By adapting the outline of the wing, the efficiency of the craft can be improved and the loads acting on the wing reduced, which means that weight and fuel consumption can be reduced.

The integration phase will be followed by a certification phase in which the systems will be tested and stressed in the conditions provided for by current regulations and in real working conditions.

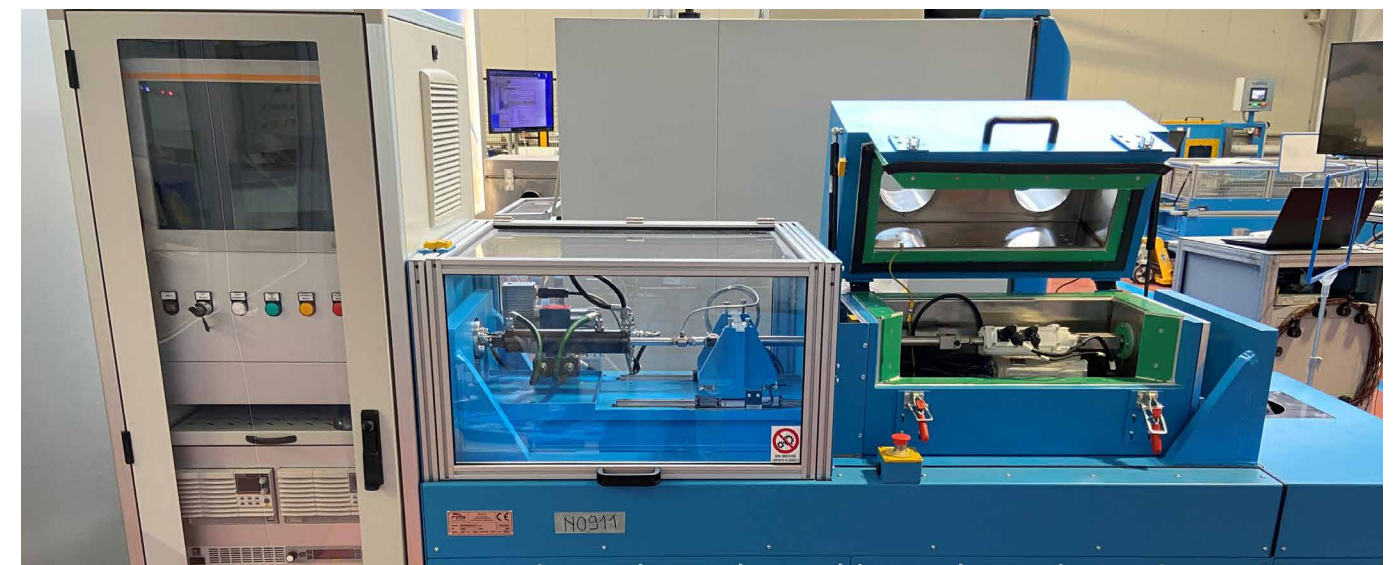


ASTIB Winglet System

It's a thrill to see the materialization and movement of the first systems, which took years to design, and it will be even more of a thrill when the systems are installed on the final craft, where electromechanical parts will function actively and continuously throughout the entire flight.

Thanks to the accelerated research process offered by European research projects, UMBRAGROUP has an unprecedented opportunity. Our company is on the front line when it comes to green technologies in aviation, and will be the reference model for the aircraft of the future.

We'll see you in the next issue.



Test bed



UMBRA GROUP S.p.A. and *“Circularity”*

Gian Pietro Bordoni
HSE Manager
RSPP & Energy Manager UMBRA GROUP S.p.A.

“Unlike the linear system, which starts with materials and ends with waste, in a circular economy, today’s products are tomorrow’s resources, in which the value of materials is maintained as much as possible or recovered, and the amount of scrap and impact on the environment are kept at a minimum.”

When flipping through a newspaper, watching TV or perusing the Internet, we increasingly come across the terms “circular” and “circular economy”.

What exactly does “circular economy” mean?

The transition to a circular economy calls for a structural change, rethinking our strategies and market models to protect both the competitiveness of the industrial sectors and the environment, which is seen as a wealth of natural resources.

To increase the circularity of the manufacturing system, we would need to work according to a list of priorities, which ought to favor:

1. reducing our use of resources [water, energy, raw materials];
2. using materials, products, and services in a circular way;
3. preventing waste production.

On this subject, we’re pleased to note that at UMBRA GROUP the priorities listed above have been guiding our business model for years.

Just one example is the care we take in maximizing the durability of our ball screws, our actuators, and our ball bearings; we also provide the option to have them serviced so as to prolong the life cycle of all these products as much as possible.

When it comes to the use of resources, for some time now UMBRA GROUP has adopted solutions aimed at reducing energy consumption, such as

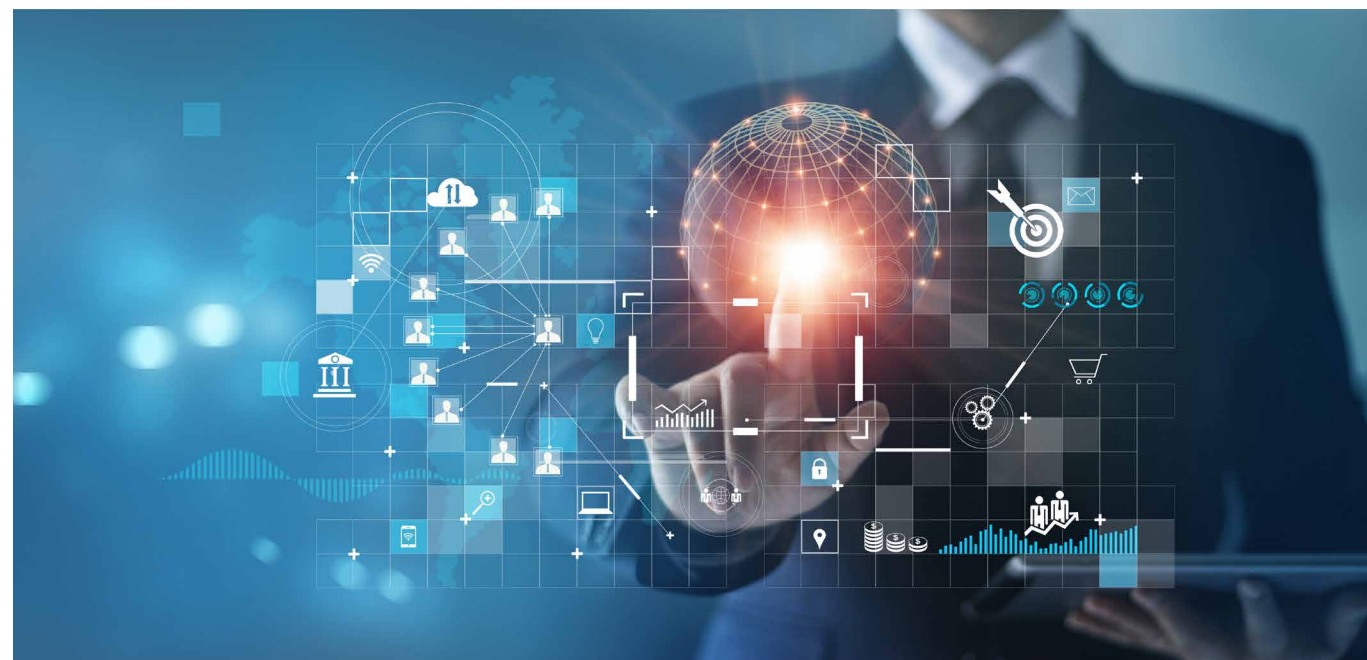
LED lights, energy-efficient refrigeration machines, highly efficient electric motors and variable speed compressors; improving the insulation in our offices; automating the management of complex systems; and integrating energy monitoring systems that can detect wasted energy or inefficiency in real time.

We’ve always taken great care to reduce the waste produced by processing materials, starting with careful planning, purchasing raw materials prudently, and heavily strengthening our manufacturing processes so as to reduce the production of scrap material and maximize product quality.

The water we use in the manufacturing process is recycled, filtered, and reused so that we extract as little as possible from groundwater. Year after year, this water recycling process has undergone constant improvement and implementation, and today the quantity of reused water we use has tripled since the process began.

So when you hear about “Circular Companies”, you can know that UMBRA GROUP SpA is one of them, and intends to increase its circularity, because our management believes that protecting the environment and improving the business can only be pursued together.





SharePoint: a resource waiting to be discovered

Pier Giorgio Fragola Degli Esposti

Team Member Quality Engineering UMBRAGROUP S.p.A.

With a view towards making its own documentation more compliant with regulatory requirements as well as user-friendly, UMBRAGROUP has set up a digital documentation system where users can access manuals, procedures, technical specifications, and other documents needed for company processes to work properly. Its logic is based on a pyramid, enabling users to make targeted searches efficiently and effectively. In layman's terms, what we used to call a "document archive", which had a physical location

in the quality department twenty years ago, is now called a "digital archive" and can be accessed directly from the company Intranet.

The program that UMBRAGROUP has adopted to manage the Quality System documentation is SharePoint, a part of the "Microsoft suite" in use since 2005. Over the years it has had significant updates, including its document management logic.

The shift from paper to a digital format has led to a steady stream of updates to comply with current regulations, which have had a direct impact on the implementation and coding of the operational flows for verifying and approving documentation. One of SharePoint's most important advantages is that it enables users to access Quality System documentation under different user profiles:

- » visitors can access approved documentation for consultation purposes (so as to avoid improper use of documents that require updating, drafts, or old versions) without running the risk of unintentionally making changes to the document;
- » members can access approved documentation, but can also modify documents. This category includes all the "Custodians" (who are in charge of drafting the document) and "Process Owners" (those who own the process to which the document refers). SharePoint has also been used to develop and optimize the "Internal Audit Portal" through which audits can now be planned, reports can be written, and any non-compliances can be managed.

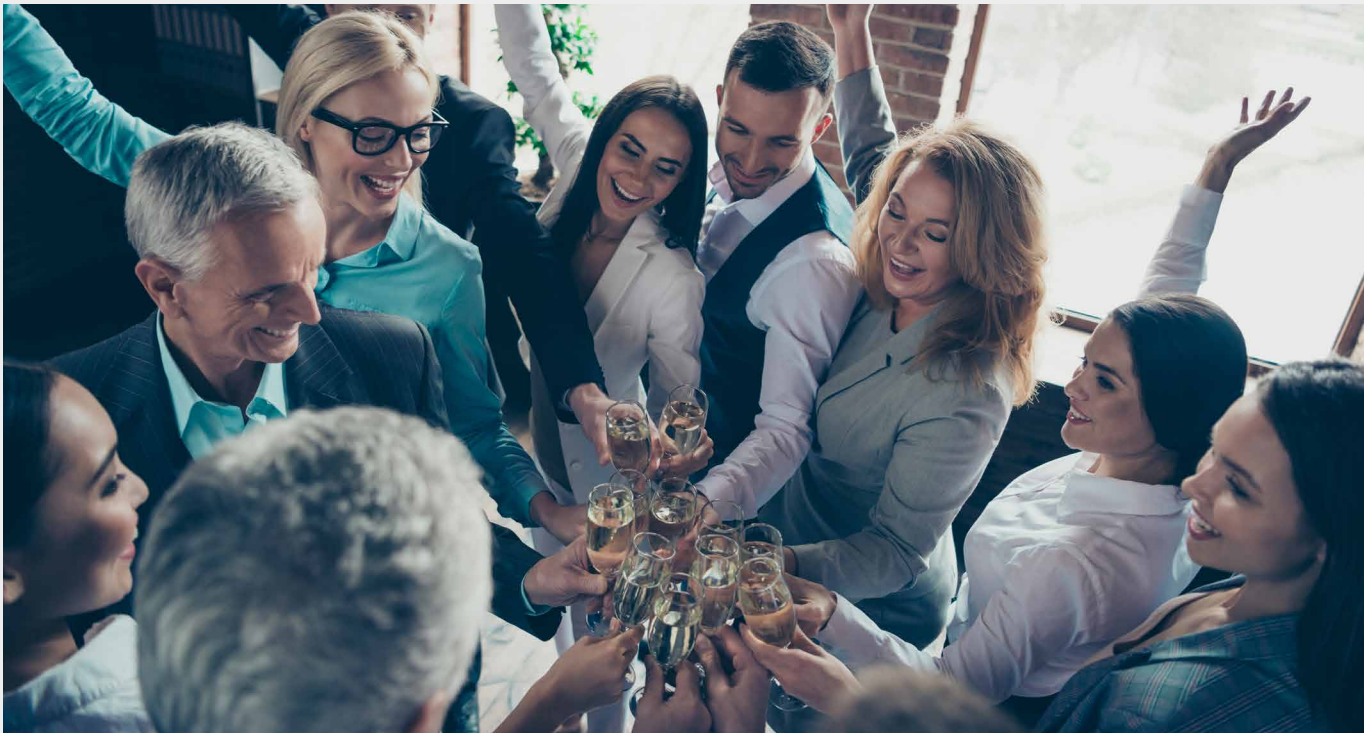
UMBAGROUP thrives on dynamism, as does each of its internal processes. In this sense, the

UMBAGROUP

IT and Quality departments are working together to continue the optimization activities aimed at making the portal "app-ready".

The next goals involve implementing the "Supplier Portal" and restyling the Document System, which will be a single container. With the help of filters, for example production line, document type, process type, process managers, this system will enable users to obtain one-stop access to the desired documentation quickly and easily, even from their smartphones through the dedicated App.





Congratulations

New hires

UMBLAGROUP S.p.A.

Amici Emilio
Bucefari Matteo
Giubila Giulia
Pilli Mattia
Pergolesi Mauro
Vallorini Gianni

LINEAR MOTION LLC.

Boysen Vincent
Davenport-Mitchell Shantina
Howard Robert
Lindauer Leah
Swieciki Randy
Vasquez Robert

Präzisionskugeln Eltmann GmbH

Clow Sarah
Fröhling Christina

Births

UMBLAGROUP S.p.A.

Benigni Mattia
Caponio Patrizio
Caralla Davide
Claudiani Riccardo
Curri Bianca Denise
Favaroni Tommaso
Gallinella Enea
Marsili Miriam
Montori Vittoria
Pambianco Elia
Pelliccia Francesco
Raccichini Diego

KUHN GmbH

Gregori Loris
Paoli Ludovico

UMBRA CUSCINETTI INC.

Somara Conde Princess Maylen

Präzisionskugeln Eltmann GmbH

Stark Selma

Just Married

UMBLAGROUP S.p.A.

Palmini Valeria e Figlioli Gabriele
Tabarrini Arina e Ronchetti Gabriele





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