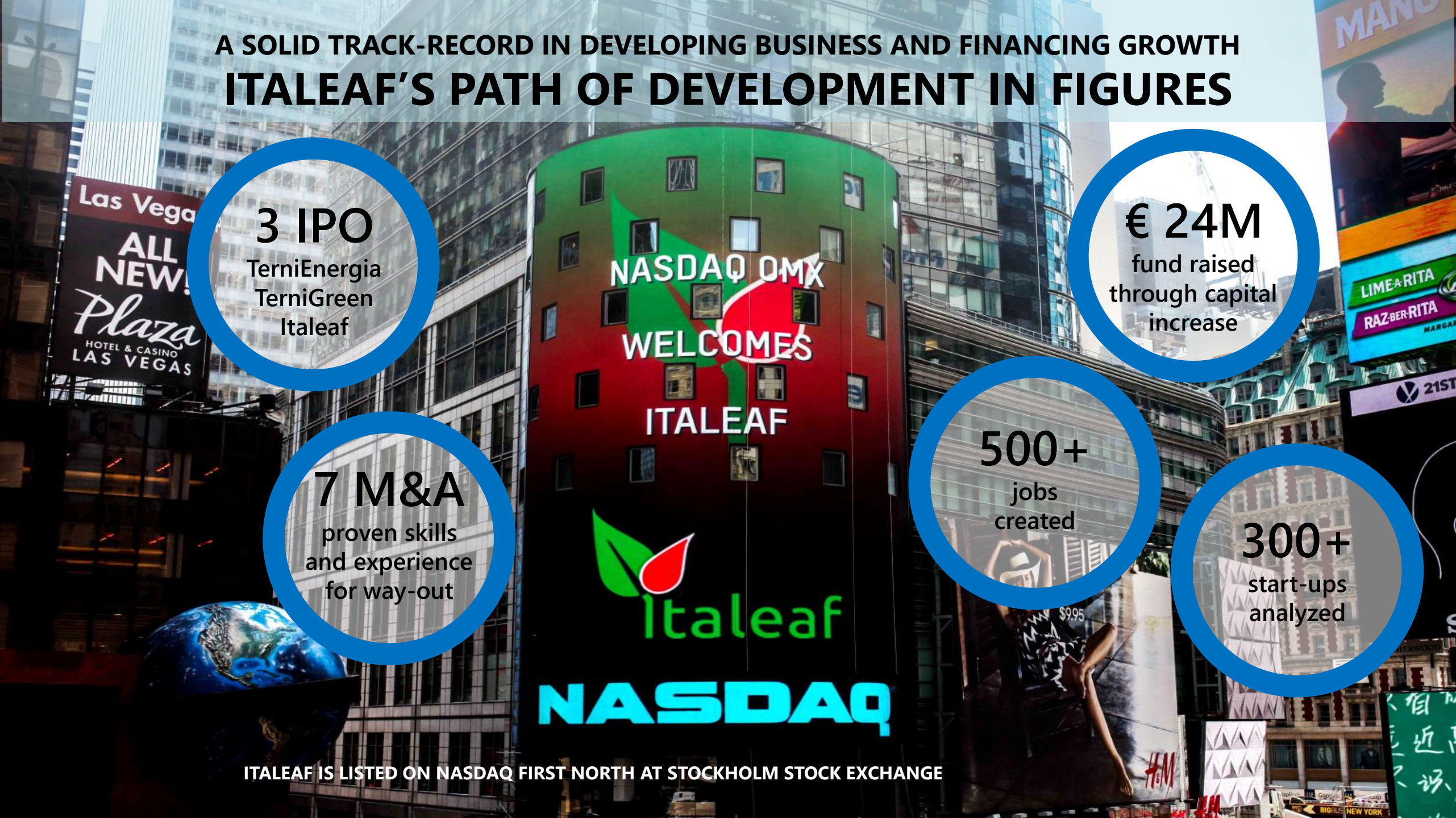
Italeaf

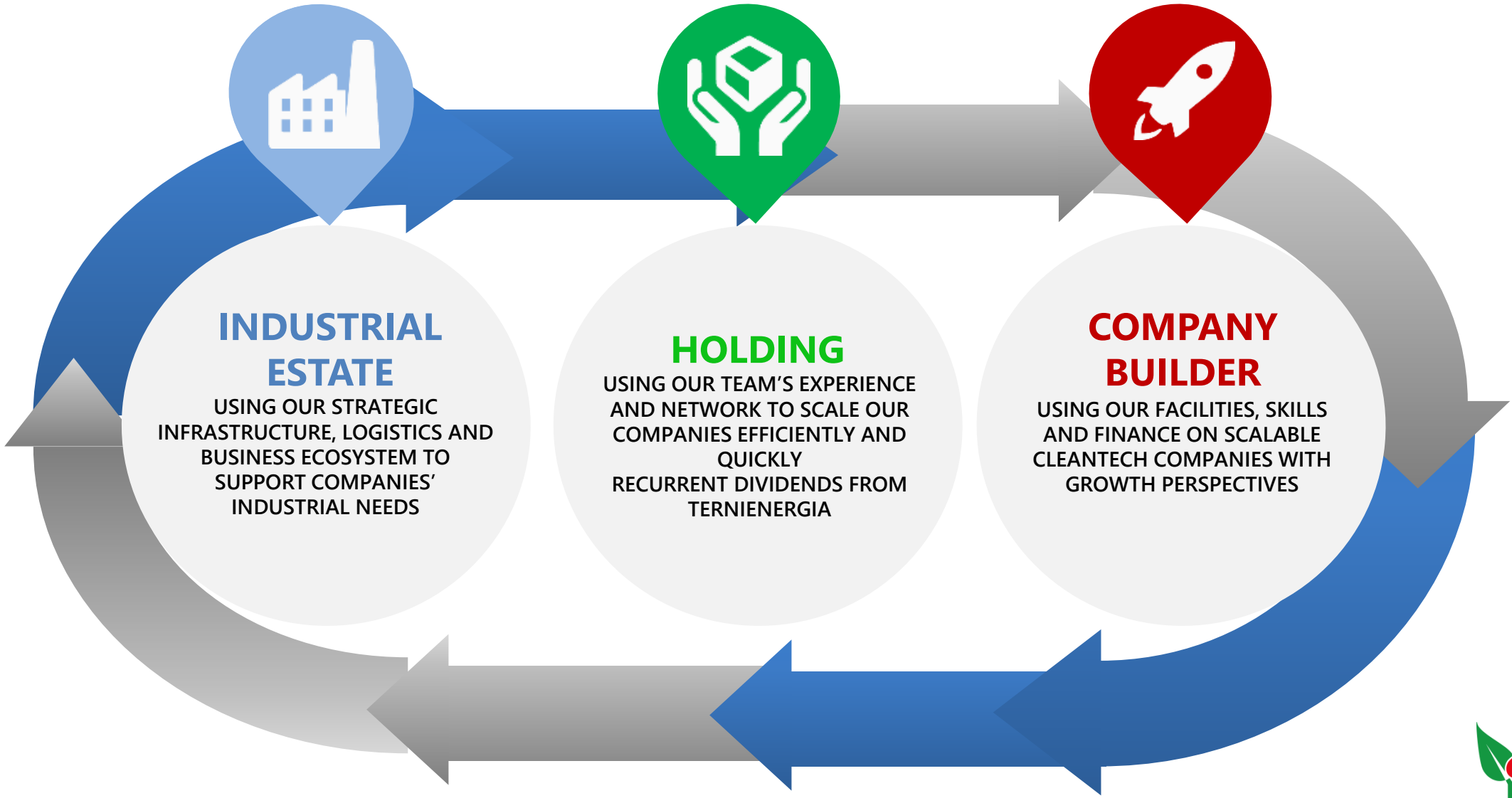
THE FIRST ITALIAN COMPANY BUILDER
COMPANY & STRATEGY PRESENTATION

NEW BUSINESS BUILDING EMERGING MODEL


A SOLID TRACK-RECORD IN DEVELOPING BUSINESS AND FINANCING GROWTH
ITALEAF'S PATH OF DEVELOPMENT IN FIGURES
3 IPO
TerniEnergia
TerniGreen
Italeaf
7 M&A
proven skills
and experience
for way-out
€ 24M
fund raised
through capital
increase
500+
jobs
created
300+
start-ups
analyzed
NASDAQ OMX
WELCOMES
ITALEAF
Italeaf
NASDAQ
ITALEAF IS LISTED ON NASDAQ FIRST NORTH AT STOCKHOLM STOCK EXCHANGE

WE TURN TECHNOLOGICAL STARTUPS INTO SUCCESSFUL GLOBAL COMPANIES

ITALEAF IS THE FACTORY OF FACTORIES



Italeaf

ITALEAF ALLOWS TO INVEST IN INNOVATION THROUGH A LISTED COMPANY

STRUCTURE & DIMENSION TO DE-RISK BUSINESS

SCOUTING SOURCES

- UNIVERSITIES
- RESEARCH INSTITUTES
- BUSINESS COMMUNITY
- CONTESTS AND COMPETITIONS
- ECOSYSTEM

UniCredit Start Lab

AdottUp

START CUP UMBRIA

eban

IBAN

START UP INITIATIVE INTESA SANPAOLO

GLOBALSOCIALVENTURE COMPETITION

SELECTION

- SCREENING OF THE EXECUTIVE SUMMARIES
- TECHNICAL DUE DILIGENCE
- CUSTOMER REFERENCES
- TEAM ASSESSMENT

INCUBATION

- 3-5 COMPANIES ACCEPTED PER YEAR
- VALUE CREATION
- LIVE DUE DILIGENCE

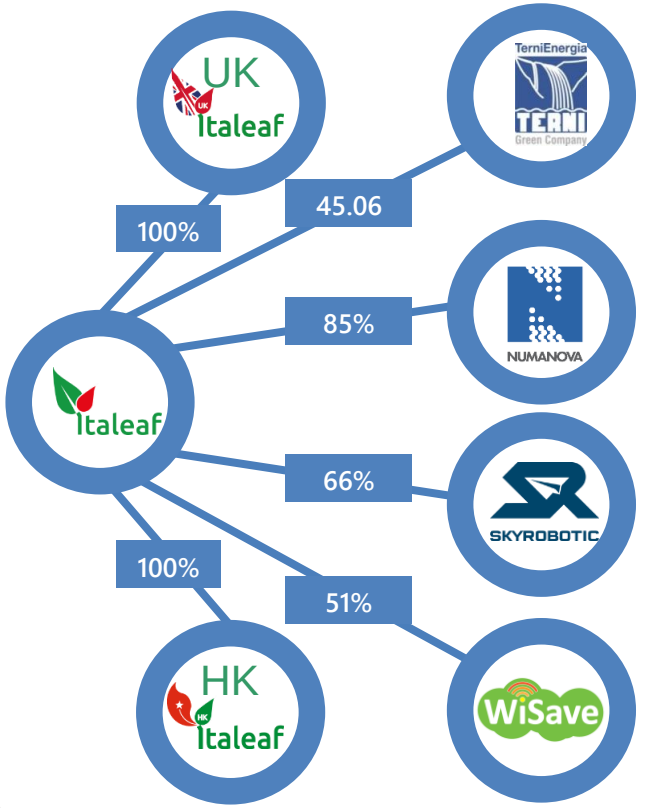
COMPANY BUILDING

- FUELING GROWTH WITH AMPLE CASH, IN-KIND RESOURCES AND FACILITIES
- THIRD PARTY INVESTMENTS
- EXIT PLANNING

NEW STARTUPS

IoT | DRONES | CLEANTECH | GREEN CHEMISTRY | ADDITIVE MANUFACTURING

GROUP STRUCTURE



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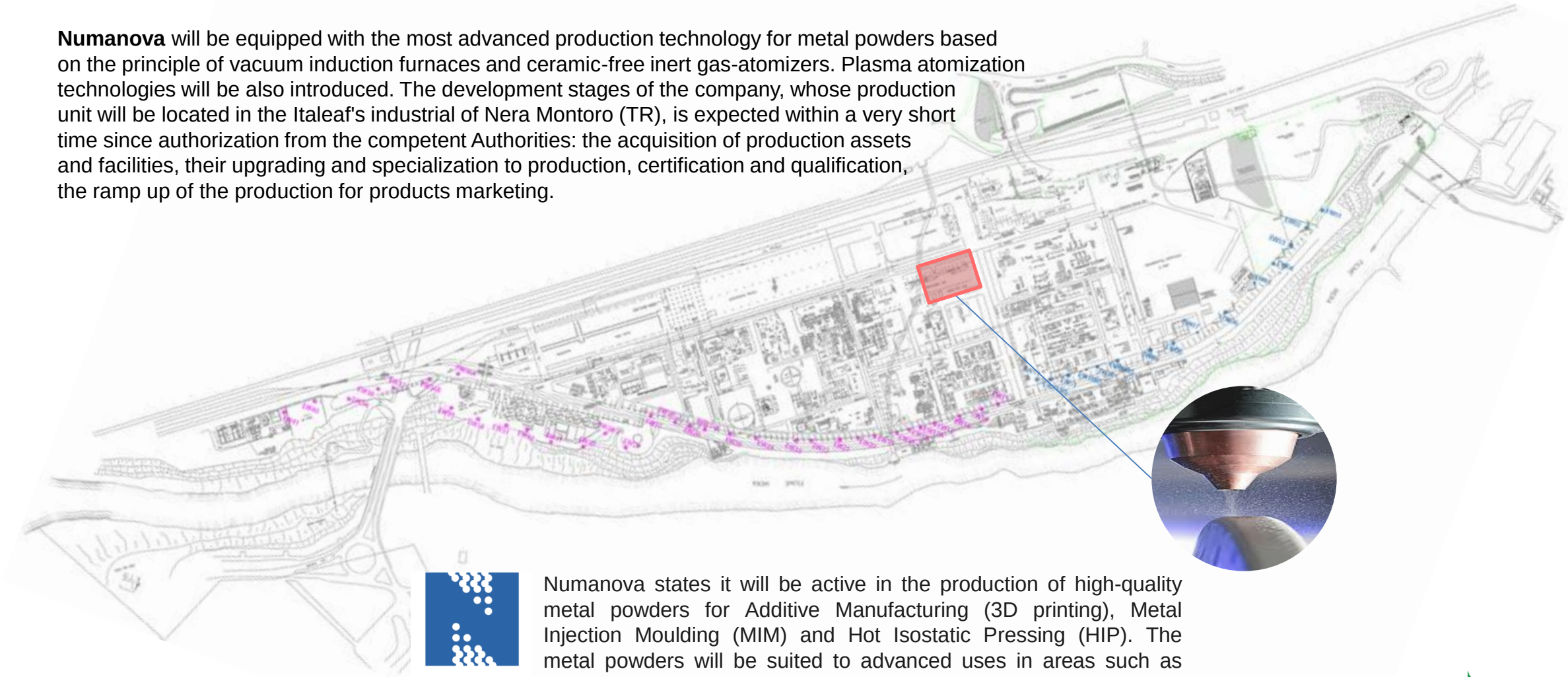
A NEW FACILITY FULLY INTEGRATED IN THE ITALEAF ECO-INDUSTRIAL PARK AT NERA MONTORO (TR)

NUMANOVA: METAL POWDERS FOR AM PRODUCTION

Numanova will be equipped with the most advanced production technology for metal powders based on the principle of vacuum induction furnaces and ceramic-free inert gas-atomizers. Plasma atomization technologies will be also introduced. The development stages of the company, whose production unit will be located in the Italeaf's industrial of Nera Montoro (TR), is expected within a very short time since authorization from the competent Authorities: the acquisition of production assets and facilities, their upgrading and specialization to production, certification and qualification, the ramp up of the production for products marketing.



NUMANOVA

Numanova states it will be active in the production of high-quality metal powders for Additive Manufacturing (3D printing), Metal Injection Moulding (MIM) and Hot Isostatic Pressing (HIP). The metal powders will be suited to advanced uses in areas such as aerospace, energy, mechanical and biomedical.

Italeaf

NUMANOVA

Company Presentation, Numanova S.p.A. | 2017

POWDER MATERIALS FOR THE NEXT INDUSTRIAL REVOLUTION

NUMANOVA BOARD OF DIRECTORS

Stefano Neri
(Chairman)

Entrepeneur
Chairman, Italeaf Group
CEO, TerniEnergia S.p.A.
Chairman, Skyrobotic S.p.A.
Chairman, Wisave S.r.l.

Corrado Giancaspro
(CEO)

CTO, Italeaf Group
CEO, Wisave S.r.l.
Former CEO, Greenled Industry S.p.A.

> 10 Years Experience in R&D

Paolo Folgarait
(Executive Director & General Manager)
CEO, Seamthesys S.r.l.
Owner of several patents in the metallurgical sector

>20 years experience in major production and R&D companies at national and international level

Clelia Zunino
(Independent Director)
General Counsellor at I.O.D.R. (International Organization for Diplomatic Relations)
Diplomatic Correspondent
International Advisor for Middle East (Remza Investment Group) and Far East Holdings (Tanaka Group Co.)

Vittorio Pellegrini
(Independent Director)
Chairman of Pellegrini Costruzioni Srl
Managing director of Fidindustria Umbria, Cassa Edile Terni, F.lli Pellegrini e Piccioni Srl, Fiori Immobiliare Srl
Member of the board of statutory auditors in listed companies

Financial and Industrial Investor

Italeaf

THE FIRST ITALIAN COMPANY BUILDER LISTED ON NASDAQ FIRST NORTH STOCKHOLM STOCK EXCHANGE

USING ITS STRATEGIC INFRASTRUCTURE, LOGISTICS AND BUSINESS ECOSYSTEM TO SUPPORT COMPANIES' INDUSTRIAL NEEDS

USING ITS TEAM'S EXPERIENCE AND NETWORK TO SCALE OUR COMPANIES EFFICIENTLY AND QUICKLY

USING ITS FACILITIES, SKILLS AND FINANCE ON SCALABLE CLEANTECH COMPANIES WITH GROWTH PERSPECTIVES

THE NEW FRONTIER OF METALLURGY

NUMANOVA

Numanova is an Italian company active in the production of high quality metal powders obtained from ferrous metal and non ferrous alloys to be used in Additive Manufacturing (3D printing), Metal Injection Molding (MIM), Hot Isostatic Pressing (HIP), PTA, laser cladding, sintering, for the most advanced industrial sectors such as aerospace, energy, automotive, mechanics, naval, biomedical, and luxury. The company will be equipped with the most advanced production technology of metal powders by atomization gas, vacuum induction casting ceramic-free. Plasma technologies and Electron Beam Melting processes will be also introduced as part of a fully integrated Value Chain based in Italy.

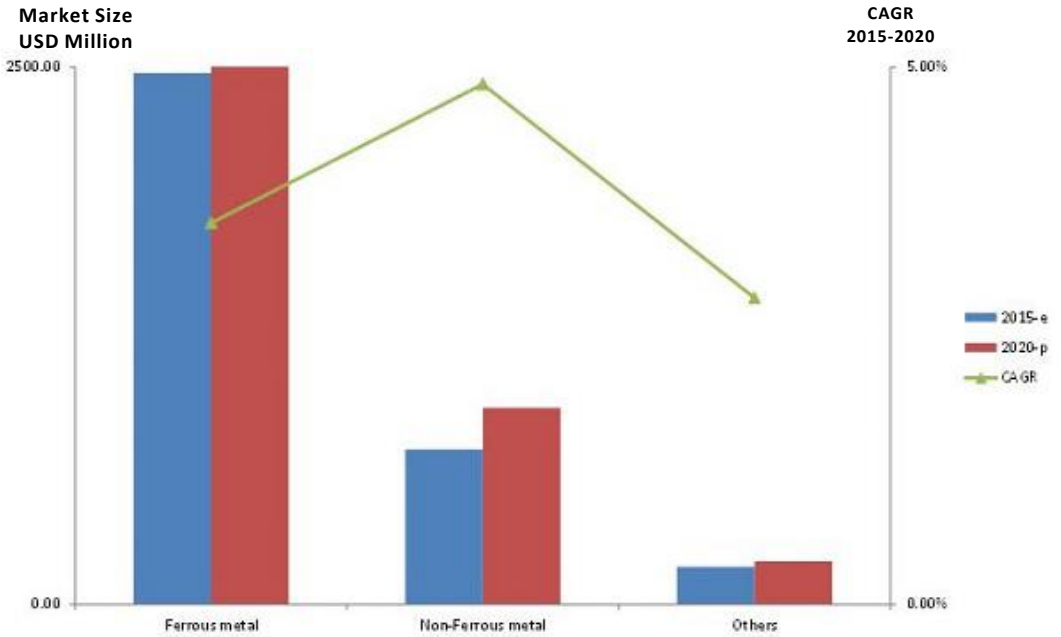
MARKET AND COMPETITIVE SCENARIO

The metal powder market has varied applications in transportation & logistics, industrial, construction, electrical & electronics, and others. The increase in demand for powder metallurgy manufactured components has driven the growth of the metal powder market. Growing demand for sustainable products due to the need for reducing the environmental impact of the metal industry has resulted in the increase in the demand for metal powder. The growing preference of metal powder for sustainable and innovative production and manufacturing technologies will also drive this market. Non-ferrous metal powder is expected to grow due to the demand from existing and emerging end-user industries.

The market for metal powder is observed to be matured in developing economies such as Europe and North America. The reason behind this is the high disposable income. The Asia-Pacific region is projected to be the fastest-growing market with the highest CAGR of 5.01% during the forecast period. North America accounted for the largest market a share of 40.4% in 2014. The global market for metal powder is projected to grow at a CAGR of 3.80% from 2015 to 2020 and is projected to reach USD 4,062.2 Million by 2020.

The metal powder market will be driven by the demand from end-use industries and technological advancements. The development of economies plays an essential role in increasing the demand for metal powder in the global market. The key parameters that determine the growth of metal powder in developing economies are increase in consumption and demand for value-added & sustainable products.

Metal Powder Market Size, by Types 2015-2020 (USD Million)



Note: E- Expected, P - Projected
Others include silver. platinum, and gold

Souce: MarketandMarket Analysis

The global metal powder market is marked with intense competition due to the presence of a large number of both, big and small firms. Mergers and acquisitions, investments, and expansions are the key strategies adopted by market players to ensure their growth in the market. Companies such as **Sandvik AB (Sweden)**, **Carpenter Technology Corporation (U.S.)**, **Hoganas AB (Sweden)**, **GKN Plc.** (U.K.), **Rio Tinto (U.K.)**, and **Allegheny Technologies Incorporated (U.S.)** are some of the prominent companies in the metal powder market.

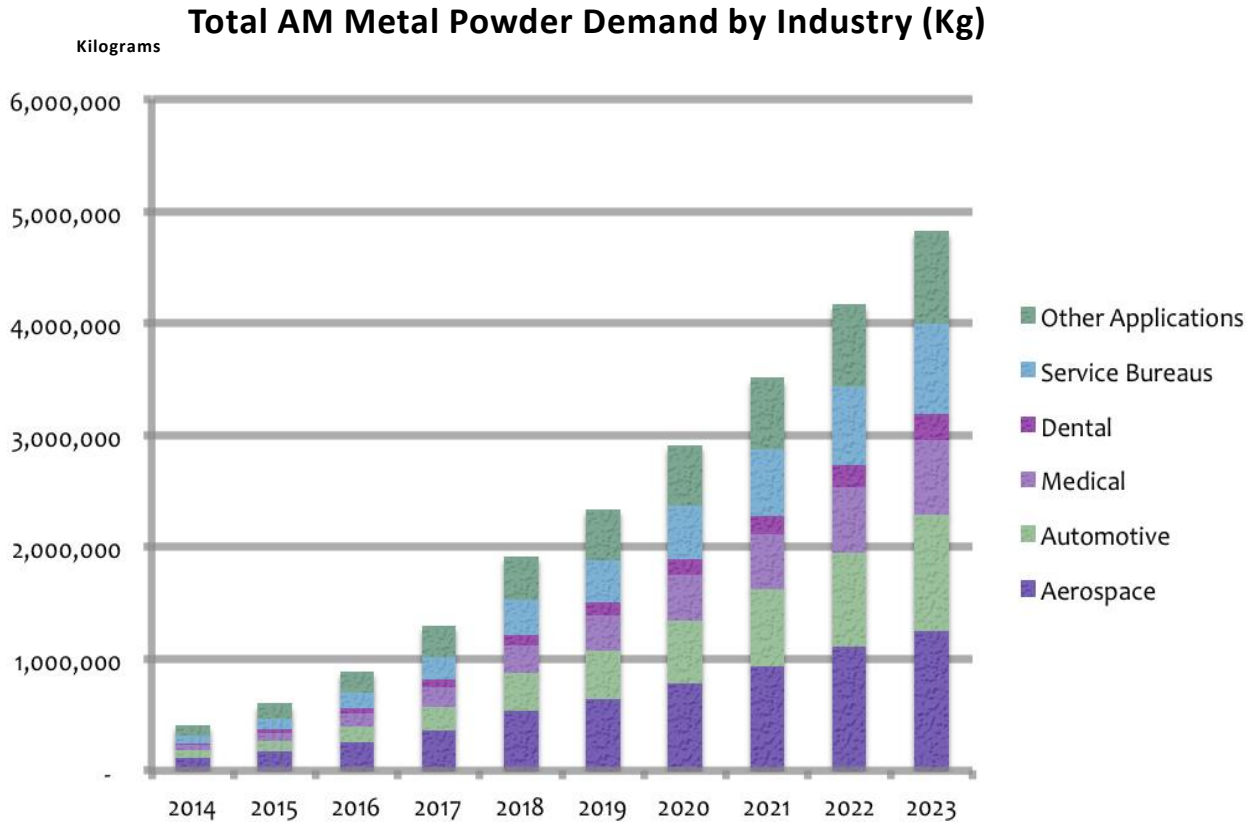
METAL POWDER FOR AM

The boom in AM will drive significant growth in the area of metal powders optimized for use with 3D printers, according to a new industry report and forecast titled “Additive Manufacturing Opportunities in the Metal Powders Industry”.

The metal powder industry, historically serving traditional powder metallurgy production techniques, is embracing additive manufacturing as a growing source of demand over the next ten years, with demand for metal powder used for 3D printers growing to 4.8 ML kilos in 2023.

The expectations are that 3D printing/additive will consume around $520 million in metal powders by 2019 growing to $930 million by 2023. Leading the development of manufacturing metals parts with metal powders has been the aerospace industry, which expects to consume around $150 million in 3D metal powders by 2019. Meanwhile, the use of metal printers in service bureaus are creating more and more demand for metal powder material, as bureaus seek highest possible utilization rates for their printers to control manufacturing costs. By 2019, service bureaus are expected to consume almost $100 million in metal powders for 3D printing.

The supply chain for metal powders for additive manufacturing is potentially robust, as production processes for metal powders have been utilized for decades, with hundreds of thousands of tons of powder being supplied to manufacturers across the globe each year. Despite the perception that 3D printable powders themselves are difficult to produce, powder suppliers actually understand the necessary requirements for powder very well.



Souce: SmarTech Markets report “Additive Manufacturing Opportunities in the Metal Powders Industry

The future is very encouraging for metal powders for use in 3D printing, however, as extensive investment in R&D for self-monitoring and reporting in metal 3D printers is taking place. This will lead to quicker qualification of metal parts printed via additive manufacturing in high value applications.

RISK REDUCTION STRATEGY

- Already operational infrastructure: industrial and office building, power supply, industrial and civil water, technical gases (N_2, Ar), logistics, warehouse.
- Management with high experience in the industrial segment and operating team.
- Partnerships and relationships already existing with well-known international leading players operating in the field of products application and in the R&D of metallurgical industry (e.g. Seamthesis Srl).
- Reference markets is constantly growing.
- Significant prospects for ROI.

ASSET OVERVIEW - EIGA

Electrode Induction-Melting Inert Gas Atomization

- Advanced process for the production of metal powders from Titanium and Aluminum alloys[1], refractory materials, ceramics and precious metal alloys for Additive Manufacturing and special applications (e.g. HIP, MIM, PTA)
- Super clean metal powders thanks to induction-type ceramic-free melting technology (without contact with the crucible) starting from highly refined electrodes
- Metal powder of spherical morphology thanks to high pressure atomization with high density inert gas.
- Typical particle size distribution not exceeding 100 microns.
- Highly replicable process, proven technology.
- Nominal maximum daily capacity: 800 kg
- Plant size: 6m x 12m, H=10m

1) Ti alloys = grade 2, grade 5, grade 23 ELI; Al alloys = AlSi10Mg, AlSi10Mg, Al357 for aeronautics

ASSET OVERVIEW - VIGA

Vacuum Induction-Melting Inert Gas Atomization

- Advanced process for the production of ferrous metal powders (e.g. stainless steel) and super alloys based on Nickel, Cobalt[2] and Zirconium for Additive Manufacturing and special applications (e.g. HIP, MIM, PTA).
- Capacity of alloying and refining of new metal alloys for metallurgical design requirements starting from selected raw materials and by-products.
- Metal powder of spherical morphology thanks to high pressure atomization with high density inert gas.
- Typical particle size distribution not exceeding 100 microns.
- Highly replicable process, proven technology.
- Nominal maximum daily capacity: 1.600 kg
- Plant size: 11m x 10m, H=11m

2) Stainless steel = 316L, SD; Ni alloys = In718, In625, In738; Co alloys = CoCr for dental applications

ASSET OVERVIEW - SIEVING

Inert Gas Shielded Multi-Frequency Sieving

- State-of-the-art sieving technology for metal and non metal powders
- Multi-frequency vibration, ultrasonic deblinding
- Acceleration up to 500G
- Fully inert gas shielded, ATEX certificated
- O_2 control by sensoring and feedforward
- PM granulometry in the range 6÷150 microns
- Highly replicable process, proven technology.
- Nominal maximum flow: up to 250 kg/h (depending on metal powder grade)
- Plant size: ϕ=1200 mm, H=2m

ASSET OVERVIEW - BLENDING

Inert Gas Shielded High-Speed Blending

- State-of-the-art blending technology for metal and non metal powders
- Fast mixing times (from 30 sec to 5 minutes)
- Strict control in temperature
- Fully inert gas shielded, ATEX certificated
- O_2 control by sensoring and feedforward
- PM granulometry in the range 6÷150 microns
- Highly replicable process, proven technology.
- Nominal maximum size: up to 200 liters
- Plant size (various, case by case)

ASSET OVERVIEW – INERT GAS SUPPLYING

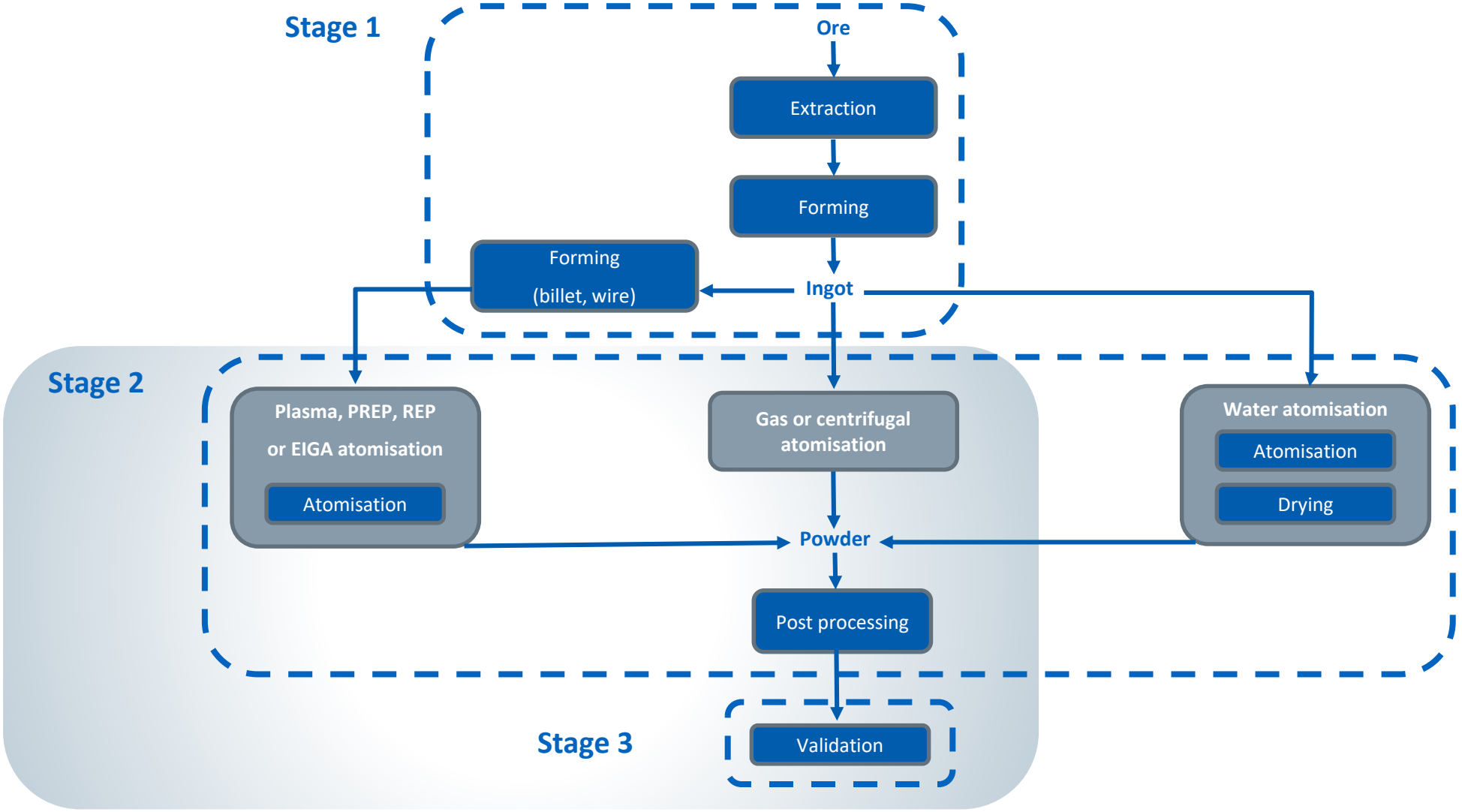
Inert Gas (Ar) Production by liquid and Recycling

- State-of-the-art Ar gasification by liquid storage (I step) and gas recycling (II step)
- Ar purity: 5.0 or higher (also after recycling)
- High and low pressure adduction lines
- Remotized control in liquid level, gas pressure, flow rate and temperature at the intake
- O_2 control by sensoring and feedforward
- Gas heater up to 250°C
- Nominal yearly consumption: up to 6.0 ML Nm^3
- Nominal daily peak consumption: up to 20.000 Nm^3

ASSET OVERVIEW – ANCILLARIES

- Raw material management at VIGA through inertized silos, alloy addition controlled by process PC, automatic basket loading and weighing by load cells, assisted charge adduction to VIM crucible
- Automatic alloying system during melting for secondary metallurgy purposes (e.g. wires) in strict vacuum control, connected to process PCs level I and II
- Antistatic flooring at production plants footprint and laboratories
- *More*

POWDER METALLURGY SUPPLY CHAIN



Numanova positioning

ADDITIVE MANUFACTURING VALUE CHAIN

NUMANOVA

Material	System	Software	Application design	Production
> Mainly: Creation of metal powder > Powder with high purity and a very narrow distribution of the granular size (usually 30µm) > Hard to get from large providers due to small orders	> Usually stand-alone powder bed fusion systems > System providers with low levels of vertical integration, standard components usually made by contract manufacturers > Providers integrate components, opt. system & software	> Differentiation between process control and enhancement software > Process control from system prov. > Add-on software such as automatic support generation, design optimization by specialized companies	> Support for end customers > Can be complex and demanding > Done by system providers, software developers and/or service providers > Not every service provider is able to design applications	> Different production scenarios: Large OEM Contract manufacturer/service provider Specialized part manufacturer > Production is normally not done by AM system providers

Numanova positioning

NUMANOVA AND THE MARKET

NUMANOVA is actively operating in multiple marketing activities and business development initiatives focused to ensure Company's future commercial strategic alliances and a preventive market positioning, able to allocate a significant amount of installed PM production.

This strategy is based on the prior identification of four (4) different main customer categories:

- Technology Providers
- Large Consumers
- Service Centers, Suppliers 2.0, etc. (in Italy and abroad)
- International powder traders

Running specific actions are for all of the above mentioned categories.

NUMANOVA AND THE SUPPLY CHAIN

NUMANOVA is actively operating in developing a highly qualified Supply Chain (upstream). The aim is to create (if not existing, yet) and/or qualifying raw material Suppliers for any of the different product lines to be fabricated and/or developed in its plants, and sell.

This strategy is based on the prior identification of six (6) different product categories:

- Ti alloys (e.g. grade 5, grade 23 ELI, Ti CP) → Ti alloy electrodes to EIGA (*nearly completed*)
- Al alloys (e.g. AlMg12Si, Al357) → Al alloy electrodes to EIGA (*running*)
- Ni-based alloys (e.g. In718, In625, In738) → selected raw materials / by-products to VIGA (*nearly completed*)
- Co-based alloys (e.g. CoCr) → selected raw materials and by-products to VIGA (*running*)
- SS (e.g. 316L, 17-4 PH, SA/SD) → selected raw materials and by-products to VIGA (*nearly completed*)
- “Niche” alloys (e.g. Zr-based alloys) → Electrodes to EIGA (*running*)

Ongoing specific actions for supplying agreement are for all of the above mentioned categories.

NUMANOVA AND THE R&D

Since 2016 **NUMANOVA** and **SEAMTHESIS** have signed a multi-annual R&D and consultancy contract in the PM+AM sector. Major items of this collaboration are:

- Developing proprietary process control systems, related modeling, and operator guide systems at II and III level to be installed and used in the metal shop
- Developing proprietary solutions and know-how in the gas atomizing process and technology, based on complex modeling of the gas-molten fluid interaction system, to improve product quality and yield
- Developing proprietary mother alloys (including intermetallics and ceramics) to be patented and in-house produced
- Developing and qualifying the Supply Chain and Suppliers
- Developing and structuring the Value Chain and Customers
- Supporting Numanova to enter the AM arena
- Applying to national and EU calls and funding schemes for collaborative R&D initiatives
- Performing room and on-the-job training of future Numanova's operators and technologists

to increase Numanova competitiveness in the PM production for AM application

DISCLAIMER

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Forward-looking statements involve inherent risks and uncertainties. We caution you that a number of important factors could cause actual results to differ materially from those contained in any forward-looking statement. Such factors include, but are not limited to: changes in global economic business, changes in the price of certain commodities including electricity, gas and coal, the competitive market and regulatory factors.

Moreover, forward-looking statements are current only at the date they are made.

FOR FURTHER INFORMATION

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