



The Forum for Resilient, Scalable, and Secure Manufacturing

VITRUV

2023

JUNE 14, 2023 • CHICAGO, ILLINOIS

WWW.ITALTRADEUSA.COM/VITRUV-2023



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VITRUV

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Welcome Remarks



Paul Heney
Editorial Director
WTWH Media



Thomas Botzios
Consul General
*Consulate General of
Italy in Chicago*



Marco Verna
Trade Commissioner
Italian Trade Agency
Chicago



Barbara Colombo
President
UCIMU



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Peter Eelman
**CXO - Chief Experience
Officer**
*The Association For
Manufacturing Technology*



ECONOMIC OUTLOOK & TRENDS FOR U.S. MANUFACTURING TECHNOLOGY

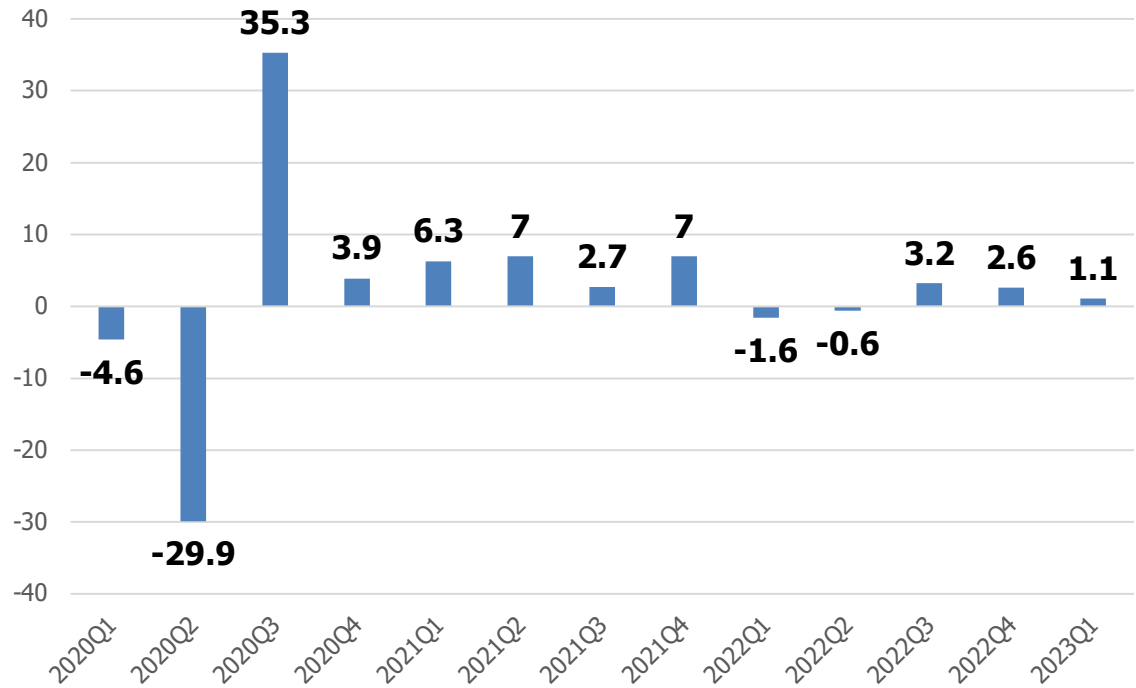
WHERE IS THE RECESSION?

There have been mixed economic signals for some time and many economists have been predicting a coming recession, but it isn't showing in the data yet.



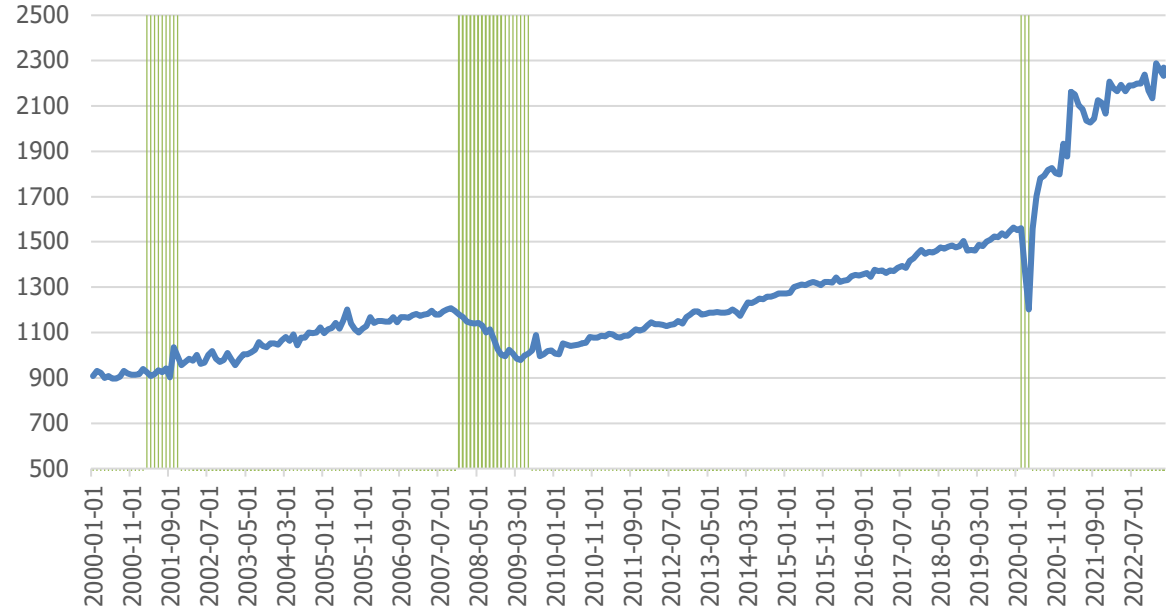
**BELOW
TREND BUT
STILL
POSITIVE**

Real GDP Percent Change (Annualized)



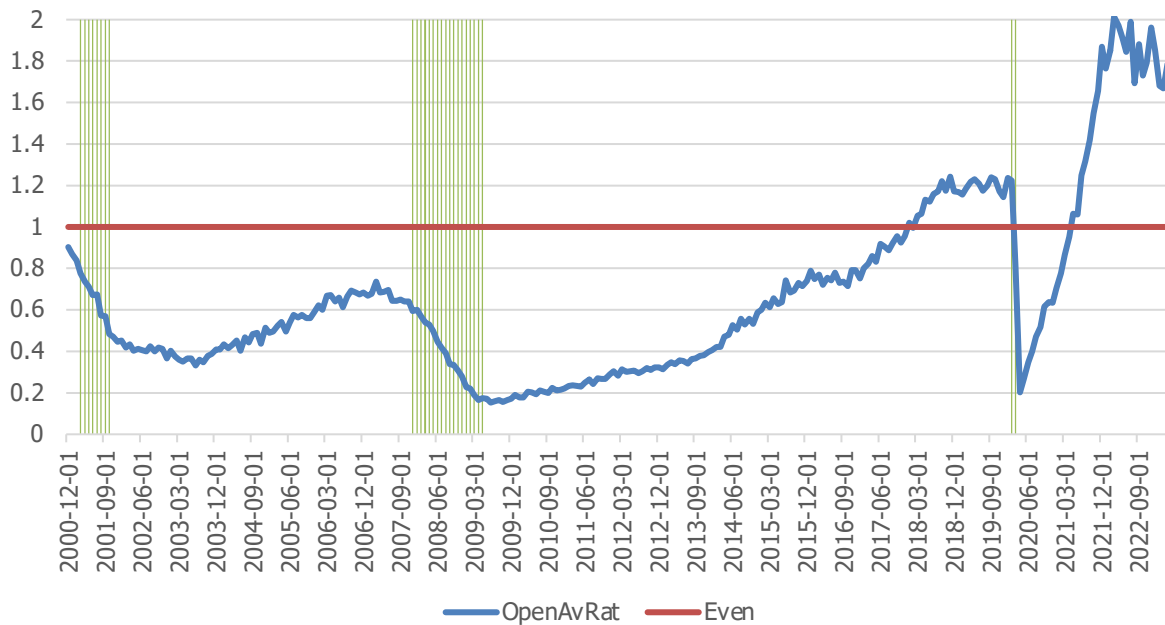
SPENDING

Personal Consumption Expenditure: Durable Goods

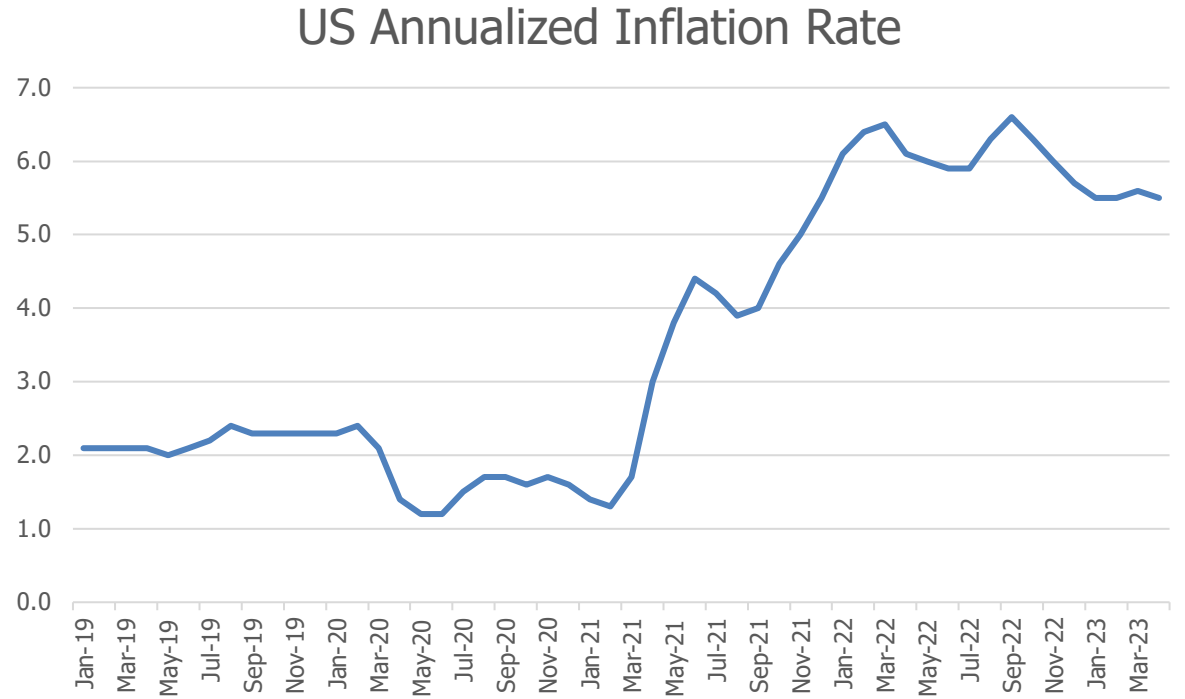


SUPER TIGHT LABOR MARKET

Ratio of Job Openings to Unemployed Workers

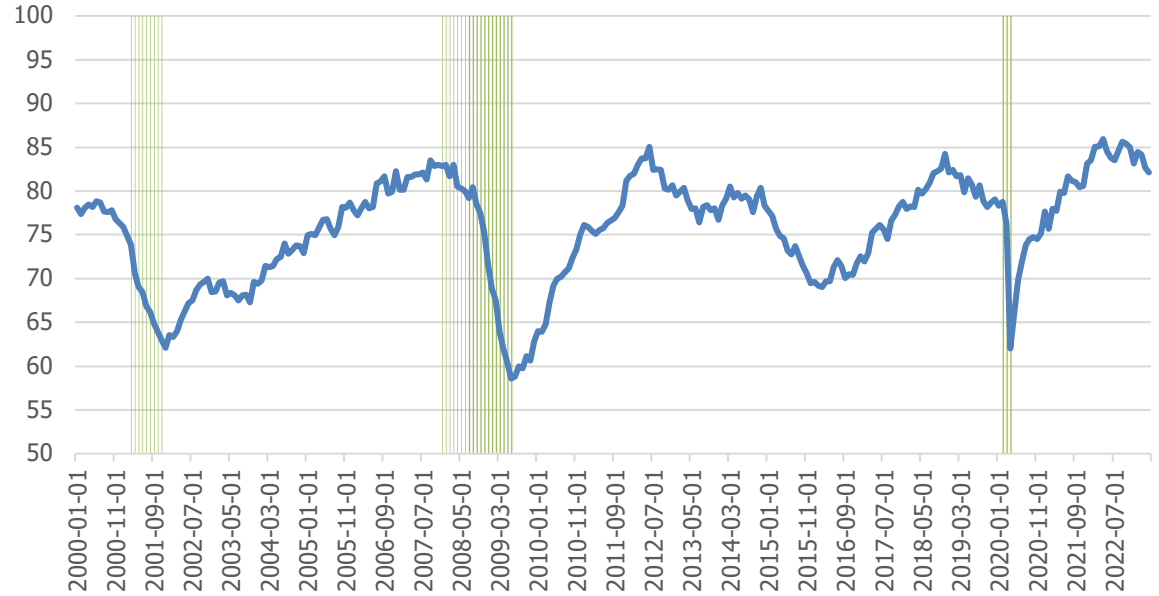


LABOR AND SUPPLY ISSUES



UTILIZATION

Capacity Utilization for Machinery Manufacturers

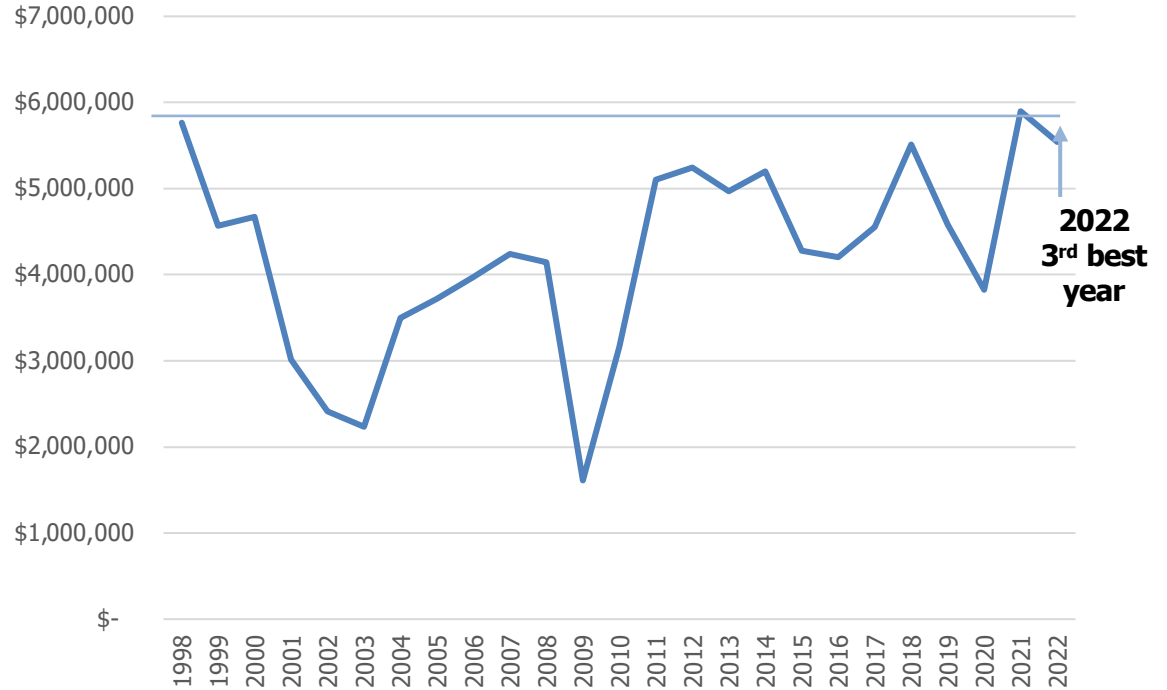


RECENT TRENDS IN MANUFACTURING TECHNOLOGY



ORDERS

USMTO Order Value (in Thousands)



KEY TAKEAWAYS





"Perfection is not attainable, but if we chase perfection, we can catch excellence."

– NFL Coaching Legend
Vince Lombardi



IMTS2024

INSPIRING THE EXTRAORDINARY
SEPTEMBER 9 - 14, 2024 • MCCORMICK PLACE, CHICAGO

POWERED BY **&AMT**

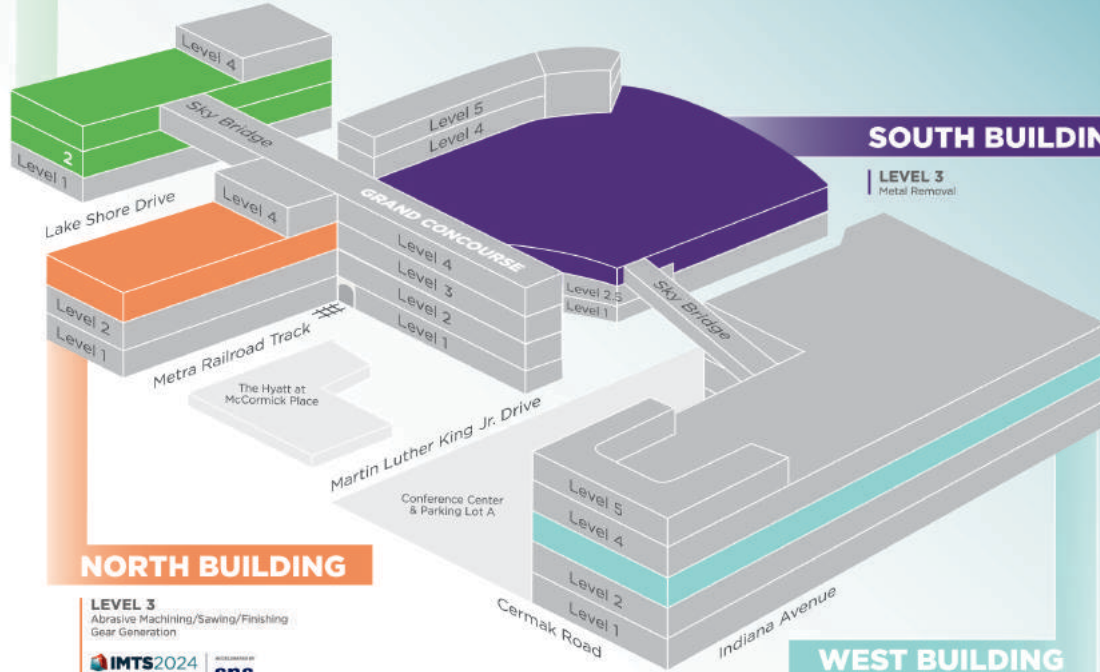
EAST BUILDING

LEVEL 3

Fabricating & Lasers
Machine Components/Cleaning/Environmental
Quality Assurance
Software

LEVEL 2 SMARTFORCE

**STUDENT
SUMMIT**



SOUTH BUILDING

LEVEL 3

Metal Removal

NORTH BUILDING

LEVEL 3

Abrasive Machining/Sawing/Finishing
Gear Generation

IMTS2024
AUTOMATION
SECTOR

sps
smart production solutions

ETC

EMERGING
TECHNOLOGY
CENTER

WEST BUILDING

LEVEL 3

Tooling & Workholding Systems

IMTS2024
ADDITIVE
MANUFACTURING
SECTOR

ACCREDITED BY
formnext

IMTS UPDATE

EVENTS

formnext
forum **AUSTIN**

August 28-30, 2023
Palmer Event Center | Austin, TX

MTFORECAST

OCTOBER 4-6, 2023 • MGM GRAND • DETROIT, MI

MFG2024

MANUFACTURING FOR GROWTH
APRIL 24-26, 2024 • ORLANDO, FLORIDA



IMTS2024

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SEPTEMBER 9 - 14, 2024 • MCCORMICK PLACE, CHICAGO



peelman@amtonline.org
c- 703-898-4705

Thank You!



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Meet the Innovators



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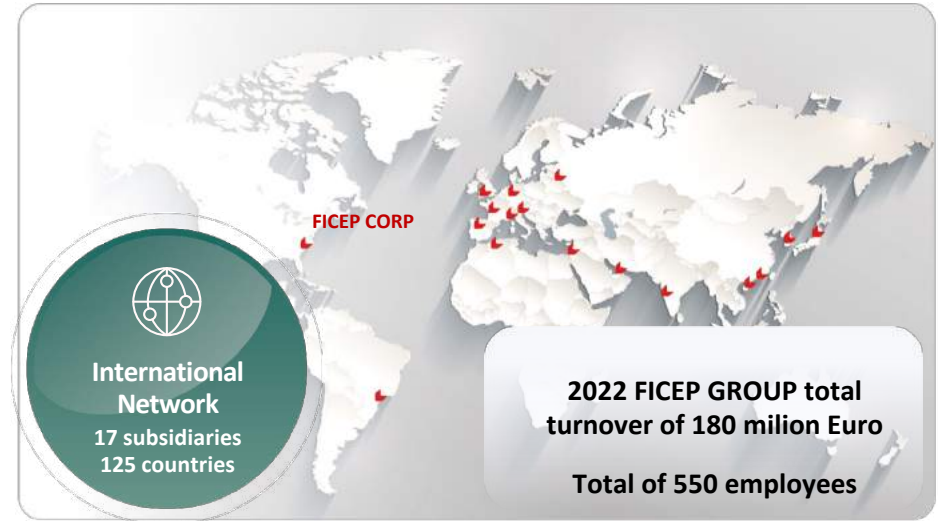


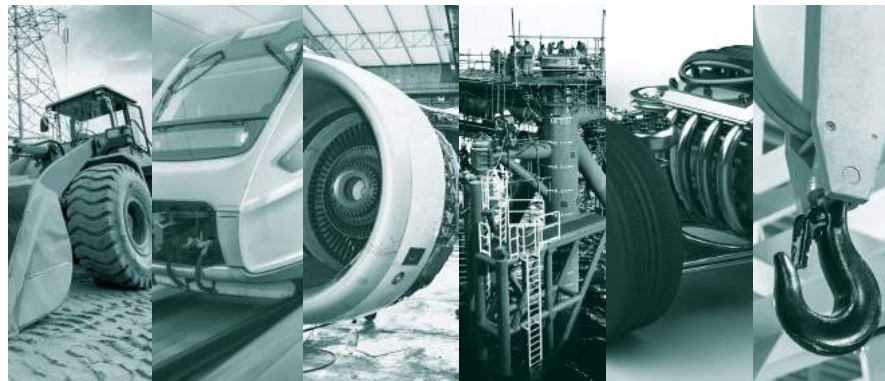
AUTOMATIC SOLUTIONS FOR THE STEEL CONSTRUCTION AND FORGING INDUSTRY



Mrs. Barbara Colombo
CEO FICEP SPA

Founded in 1930, Ficep Headquarters are located in Gazzada Schianno (Varese) Italy





Agricultural Industry

Trains and Railways

Aerospace

Petrochemical Industry

Automotive

Tools & Mechanics

Buildings Transmissions towers Bridges Offshore Wind sector Agricultural Machinery



Our Success Key Factors



**International
Network**
17 subsidiaries
125 countries



**Technological
Innovation**
7% of the revenue
dedicated to R&D



**Automatic
Systems**



**Network
business**



**Academy of
Technology**

More than **800 machines** installed in NA.
Several recent successful case history of **fully automated system**,
both in the US and in Canada.



- ✓ Since 2002, we are involved with the installation of our machines, after-sales assistance and support of machines installed also thanks to the spare parts & consumable sale directly on site.
- ✓ Currently finalizing several apprenticeship programs with local Technical High School and Community Colleges to attract talents and develop technicians and engineers, thanks to our internal training programs.

Example of automated system installed in the US, composed by 3 machines (Drill, Saw & Shotblaster) plus transfer tables



FICEP Forging Division introduced in US the concept of Efficiency and Repeatability in the process of hot forging

Thanks to the Direct Drive Screw Press and complete automatization with robots, FICEP installed several high performance Automatic Hot Forging Line in US:

- Medical implant (titanium prothesis)
- Oil and Gas components (tool joints)
- Pneumatic and hydraulic fittings



CAMPBELL

Located in Lansing, MI, Campbell Press Repair is our official partner for Sales & After Sales of our machines for the Forging Industry

www.campbellpress.com





www.ficepcorp.com

Our US presence & our future steps

Founded in 2002, Ficep Corporation is our US subsidiary based in Baltimore, MD, following Sales & After Sales of our machines for the Steel Construction Industry.



Between end of 2023 and beginning of 2024 we will move our facility to [North Carolina](#) in order to have better chance to recruiting specialized labor and young engineers and technicians. The new plant will have:

- Total area of approx. 5,000 sqm
- Academy for continuous training
- Showroom for live machines demo
- Manufacturing area
- Spare parts warehouse
- Commercial and after-sales offices

Thank You!



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Ministry of Foreign Affairs
and International Cooperation



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Growing together. Combining the best of two cultures

Camozzi Group in numbers

11

Companies

Consolidated in
5 divisions

3,023

Employees

Average number
in 2022

26

Production Sites

In Europe, China, India,
and USA

38

Subsidiaries
and services centers

In over 80 countries

Revenues

2022

534
mln €

Sales

2022

EXPO
R 77%

ITALY
23%

Turnover

invested in R&D

R&D, technology partnerships
and technology assets

3%

Over 130 years of experience in the machine tools sector

1887

Innse



1892

Ingersoll



1926

Berardi



Unique offers in:

- Milling & Boring Machines
- Turning Machines
- Composites & Additive Manufacturing





**INNSE
BERARDI**

Machine Tools

Think globally and ACT locally



Our expert team is dedicated to **servng** our customers worldwide



Digitalization and **sustainability** are in our **DNA** and drive our business



Think globally and ACT locally



Digital & Mechatronics

Camozzi Digital



Machine Tools

Ingersoll Machine Tools



Our US journey

- 2003 – Ingersoll Machine Tools acquired by Camozzi Group
- 2022 – Expansion of existing workshop facilities in Rockford
- Supply of complex and turnkey solutions to the defense sector
- Sales and service cooperation with US partners in DLA projects
- What we learn in the US markets can be summarized with the acronym **FHC**:

- Flexibility
- Honesty
- Challenge

Our future goals



- Extend local partnerships to enhance customer service and increase sales
- Increase cooperation with Universities to develop new technologies and acquire the best talent
- Develop Camozzi Machine Tools as a Data Center Digital Twin and create a fully digitalized workshop
- Become the **reference company in the US** for new, high-end technologies in the Additive and Carbon Fiber Placement fields

Thank You!



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Gabriele Celli

**NORTH AMERICA
E-MOBILITY
BUSINESS DEVELOPMENT MANAGER**

Marposs was
established
in **1952** by
Mr. Mario
Possati

Marposs Group
world
headquarters
are in
Bentivoglio
(BO), Italy

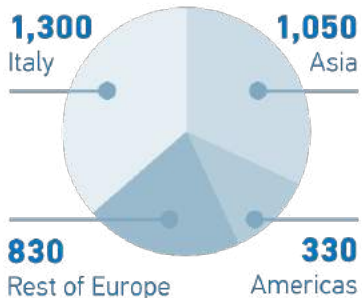


worldwide present in

34
countries

offices worldwide

80



exports

94%

approx.

3,500

employees

30

key acquisitions since 2000

8%

resources invested in R&D

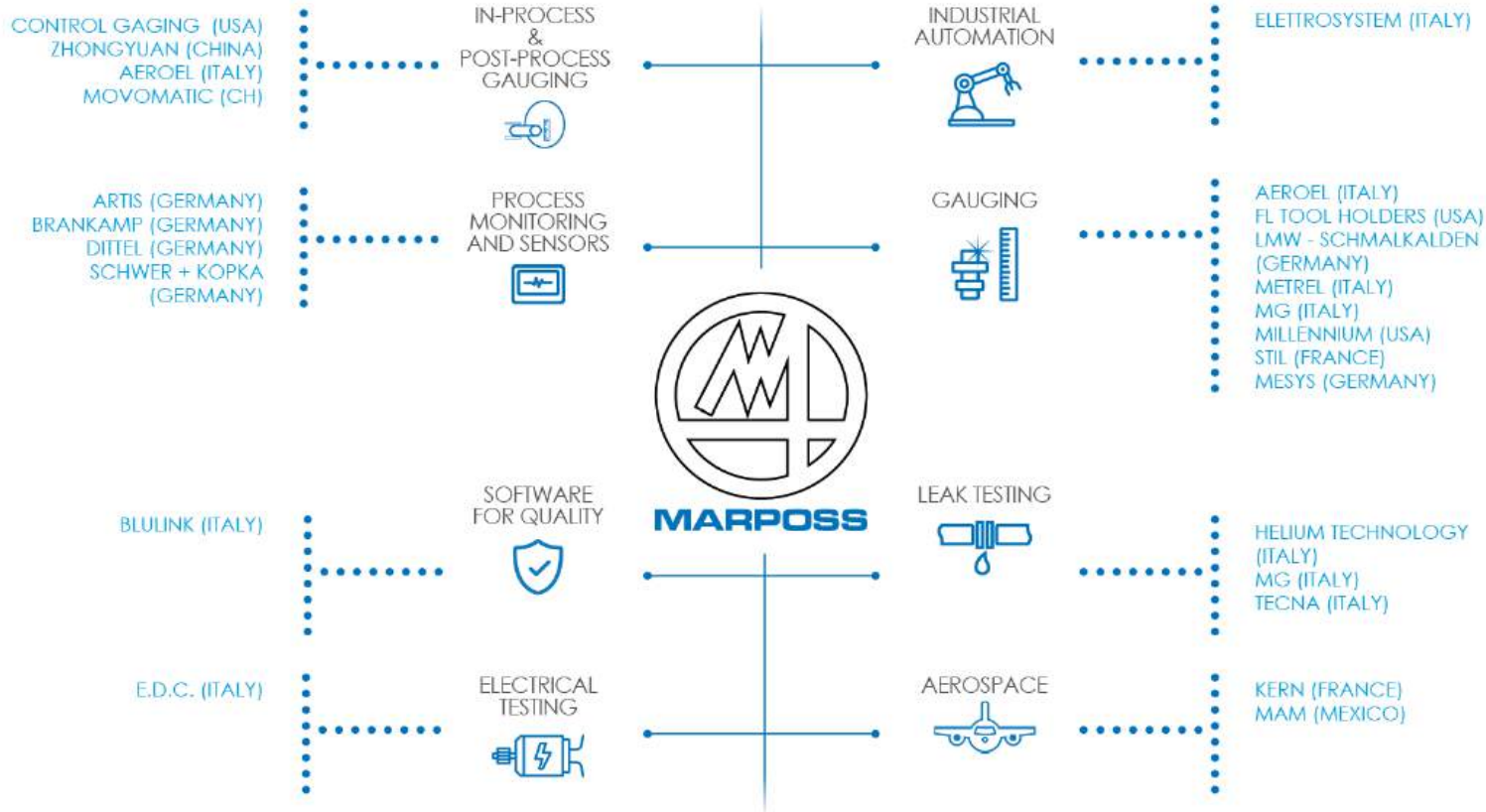
MARPOSS GROUP IN FIGURES



2022 TURNOVER 485M€

2023 PROJECTION > 500M€

MARPOSS GROUP OF COMPANIES BY SECTOR



MARPOSS CREDITS



Certifications:
ISO 9001 – ISO 14001
OHSAS 18001
ISO/IEC 17025 accreditation of the
Metrology Lab by ACCREDIA
Customer certifications

Customer Awards



Environment Protection
interventions on a voluntary
basis since 1991: eco-system
for factory wastewater
purification

MARPOSS North America



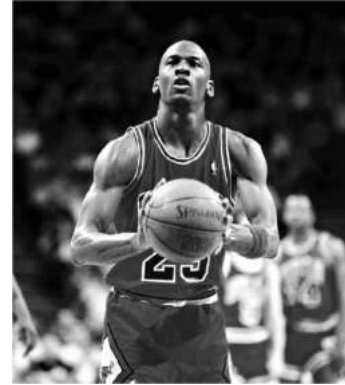
Marposs Corporation
AUBURN HILLS, MI

FL Toolholders
Livonia, MI

Control Gaging Inc.
ANN ARBOR, MI

Advanced Process Lab
FREMONT, CA

Marposs Canada Corp.
TORONTO, Canada



1963

Marposs opened its first office in the USA

1963

Michael Jordan, the GOAT, was born in Brooklyn



HQ – Mexico City

Saltillo

Queretaro

MARPOSS Mexico






1981

Marposs opened its first office in MEXICO

1981

IBM presented its first personal computer :
it was the beginning of the PC era

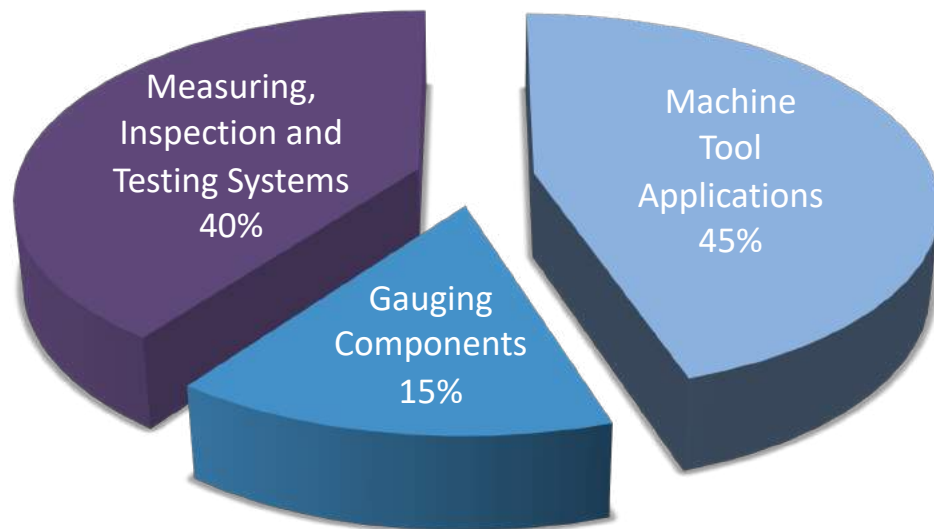
INTEGRATORS

-  Machine tool makers
-  System Integrators
-  Fixture makers



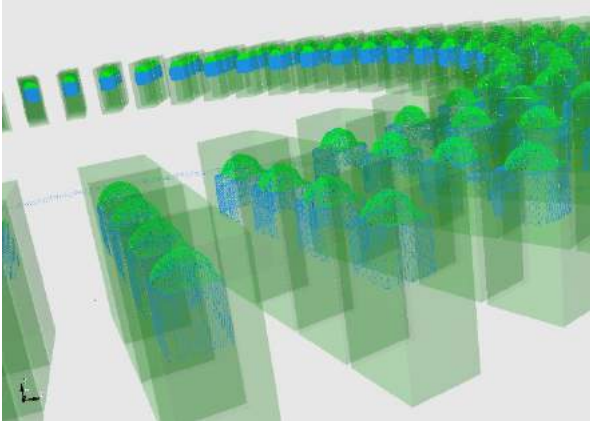
END USERS

-  Automotive (EV & ICE)
-  Aerospace
-  Biomedical
-  Glass Packaging
-  Energy (Batteries & Fuel Cells)
-  Semiconductors & 3C
-  White Goods & HVAC



- **Applications for Machine Tools**
OEMs (45%)
- **Gauging components**
End Users, System Integrators and
Fixture Makers (15%)
- **Measuring, inspection and testing
Systems**
End Users (40%)

US APPLICATIONS for EV Components

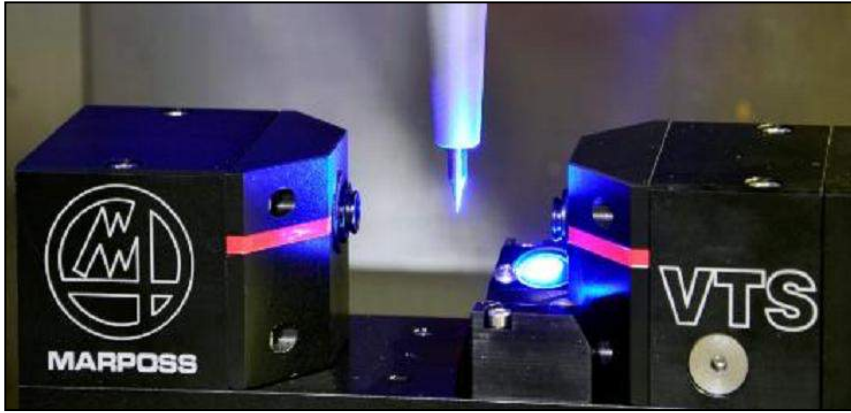


ELECTRIC MOTOR INSPECTION

ROTOR ASSEMBLY >	OPTOQUICK OPTICAL
STATOR ASSEMBLY >	OPTOCLOUD EDU LASER
HAIRPINS >	HAIRPIN FLASH MACHINE VISION
ELECTRICAL TEST >	EDC LT400 PDIV CAPACITIVE COUPLING

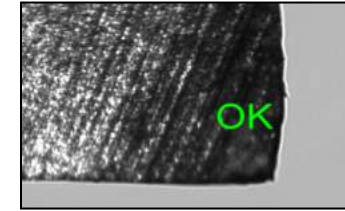


US APPLICATIONS for Machine Tools

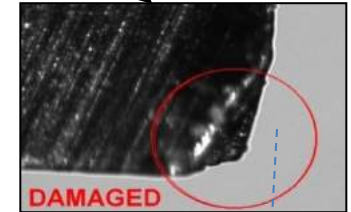


VTS: Frontal light shows tool profile and surface for a detailed tool inspection.

Reference Acquisition

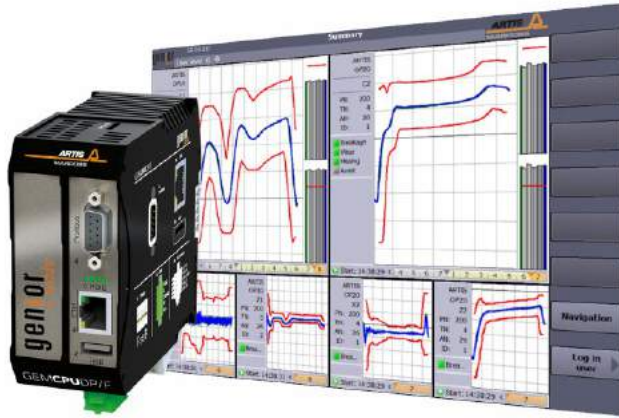


Profile integrity

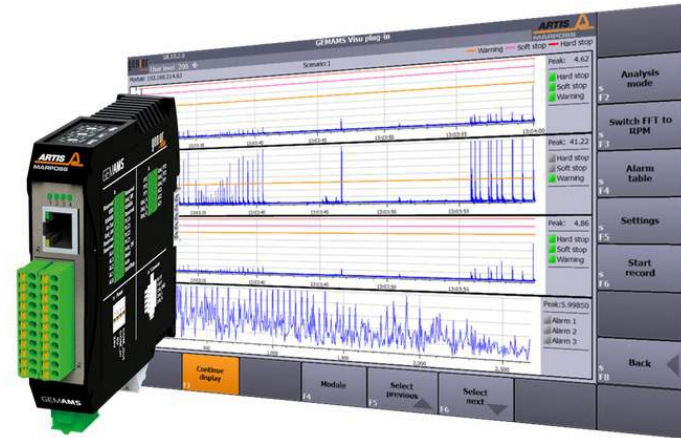


Surface integrity

US APPLICATIONS for Machine Tools



Tool and Process Monitoring System



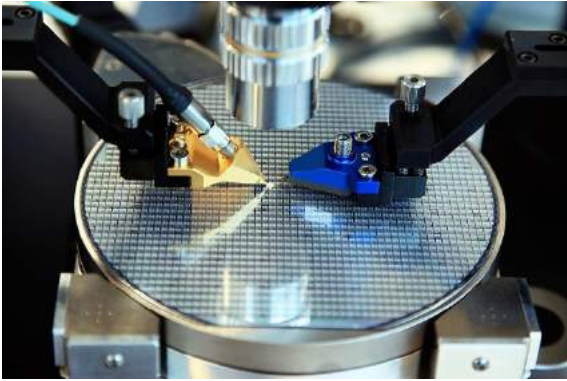
Dynamic Collision & Crash Detection System

US APPLICATIONS for ASSEMBLY, INSPECTION & TESTING



MARPOSS GAUGE AND TEST ELEMENTS ARE INTEGRATED INTO EVERY KIND OF AUTOMATION AND ROBOT CELLS TO AUTOMATE INSPECTIONS

NEW OPPORTUNITIES in US



SILICON WAFER INSPECTION WITH
CHROMATIC CONFOCAL TECHNOLOGY



SILICON WAFER BACKGRINDING WITH
IN-PROCESS SIZE CONTROL

Thank You!



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Smart stock detection for automated production line

PIETRO CARNAGHI
Machine Tools

Pietro Carnaghi

Pietro Carnaghi
Spa

Pietro Carnaghi
Inc.

Pietro Carnaghi
GMBH

Pietro Carnaghi
Co., Ltd.

Founded in 1922

Turnover 92 ML€ (2022) – 250 employee

Capacity up to 35/40 system per year

*Production of vertical lathes, gantry milling
machines, vertical grinding, FMS automation*

Dr. Giuliano Radice – CEO

Eng. Davide Lavazza – Sales Director



Pietro Carnaghi USA – Rockford, IL

Customized multitasking machine for different purpose



Aerospace



Bearing industry



Energy



Mining



Oil and Gas



Defence



Jet Engines

Smart stock detection

Challenge:



Raw forged part (uneven condition and stock)

*FMS – automated
unmanned production line*



Finished component

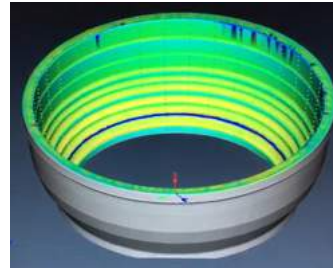
Step to productivity



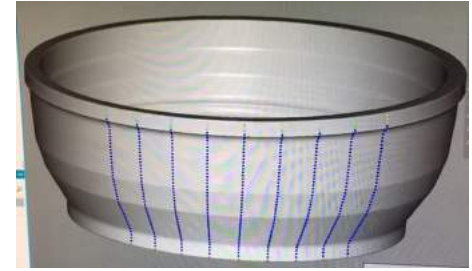
Forged part



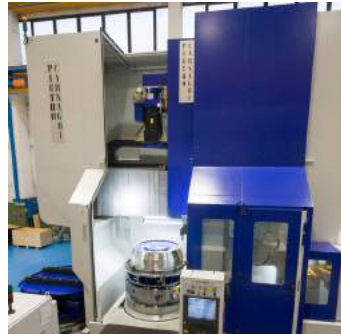
3d part scanning



3d comparison



Point selection



*Part machining
no air cutting!*



Part program optimization



```
#(SCN01_7) (POINT) (SCN01_7) (POINT)
T 383.5183 389.3860 -5.8700 1.0000 -1.0000 -4.8700
#(SCN01_8) (POINT) (SCN01_8) (POINT)
T 383.5011 389.3861 -5.8850 1.0000 -1.0000 -4.8850
#(SCN01_9) (POINT) (SCN01_9) (POINT)
T 383.5682 389.3863 -6.0200 1.0000 -1.0000 -5.0200
#(SCN01_10) (POINT) (SCN01_10) (POINT)
T 383.5893 389.3864 -5.9870 1.0000 -1.0000 -4.9870
#(SCN01_11) (POINT) (SCN01_11) (POINT)
T 383.5295 389.3865 -6.0570 1.0000 -1.0000 -5.0570
#(SCN01_12) (POINT) (SCN01_12) (POINT)
T 383.3707 389.3868 -6.0150 1.0000 -1.0000 -5.0150
#(SCN01_13) (POINT) (SCN01_13) (POINT)
T 383.3078 389.3869 -6.0790 1.0000 -1.0000 -5.0790
#(SCN01_14) (POINT) (SCN01_14) (POINT)
T 383.3102 389.3860 -6.0750 1.0000 -1.0000 -5.0750
#(SCN01_15) (POINT) (SCN01_15) (POINT)
T 383.3874 389.3861 -6.0180 1.0000 -1.0000 -5.0180
#(SCN01_18) (POINT) (SCN01_18) (POINT)
T 383.4275 389.3862 -5.9580 1.0000 -1.0000 -4.9580
```

Data acquisition



Final result:



- 3 machine FMS
- Loading and unloading in masked time
- Part scanning in masked time
- Proprietary FMS management software
- Automatic part program recalibration and automatic connecton with each machine

What done in US



- More than 100 installations in US since 1984
- Presence with local team and organization in Rockford (ILL).
- Local US Customer support for installations, service
- Preventive maintenance programs
- Training
- Machining support
- Project management for on-site support:
- Coordination and management of local contractors for foundation erection, rigging activities, retrofitting and relocations of machines

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Gunar Gossard
Director of Sales

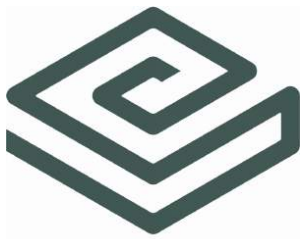


BLM GROUP

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Design World



BLM GROUP

BLM GROUP

ADIGE
ADIGE - SYS



BLM GROUP HEADQUARTERS Cantù, Italy

BLM specializes in the design and production of CNC tube and wire bending and tube end-forming equipment.



ADIGE CAMPUS Levico, Italy

ADIGE manufactures tube laser-cutting systems and cold sawing machines for tube and bars. The product range also includes wire brushing, measuring, washing and collection systems.



ADIGE-SYS produces combination Tube and sheet laser systems, large diameter capacity Lasertube And end-machining tubes and bars equipment.

BLM GROUP USA



75,000

Facility
(sq ft.1)

30,000

Solutions Center
(sq ft.)

40%

Dedicated to Spare
Parts & After-
Market Services

BLM GROUP USA



BLM GROUP
Deutschland
GmbH

BLM GROUP
USA Corp.

BLM GROUP
Mexico SA
de CV

BLM GROUP
UK Ltd.



BLM GROUP
Benelux B.V.

BLM GROUP
POLSKA Sp.
zo.o

BLM GROUP
do Brasil
Ltda

BLM GROUP
China Co.,
Ltd.

INDUSTRIES WE SERVE

- Aerospace
- Automotive
- Architecture
- Shipbuilding
- Climate Control
- Railway Equipment
- Indoor & Outdoor Furniture
- Industrial & Agriculture vehicles & products
- Mechanical Applications
- Cycles & Motorcycles
- Household Appliances

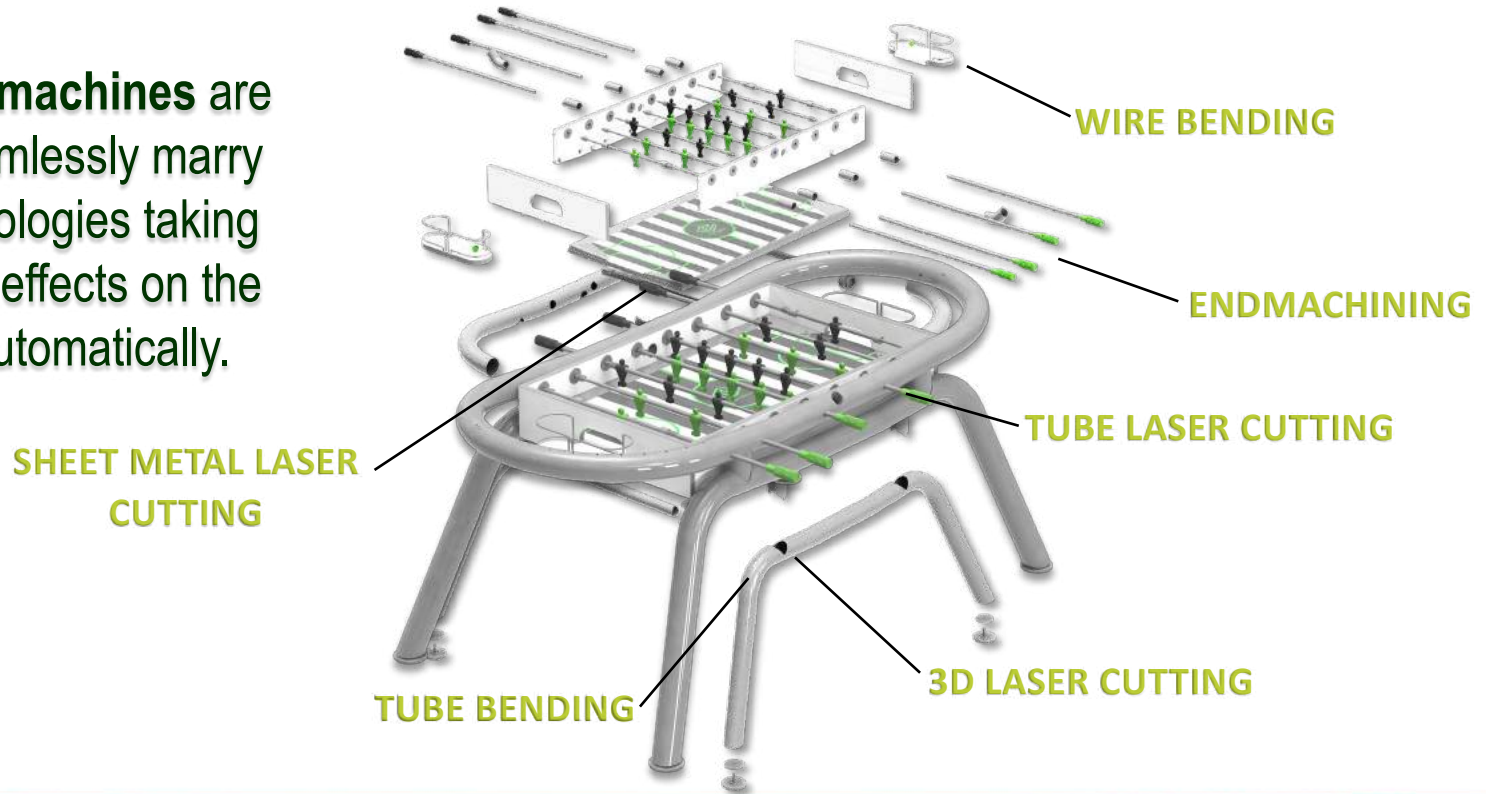


PRODUCT RANGE

- Lasertube
- Bending & End-Forming
- Sawing
- Sheet Laser Cutting
- Press Brakes
- Service

Different technologies made for each other

BLM GROUP machines are created to seamlessly marry different technologies taking in account the effects on the final product automatically.



+

Lowest cost per part

+

Just in time production

SAWING



LASERTUBE



ENDFORMING



ALL-IN-ONE PROCESS

WIRE BENDING



TUBE BENDING



TUBE & SHEET LASER



+

Right-First-Time

+

Free design reach



COMING 2024

BLM GROUP USA breaking ground, August 2023

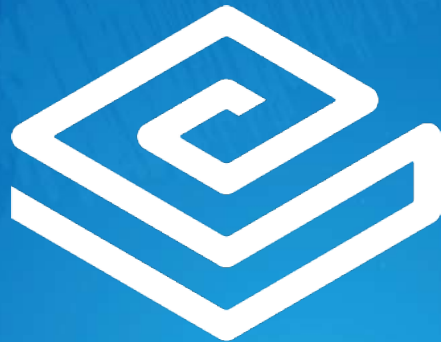
75,000

**Current Facility
(sq ft.)**

63,000

**Additional
(sq ft.)**





BLM GROUP

THANKS FOR YOUR ATTENTION



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ITA[®]
ITALIAN TRADE AGENCY



UCIMU-SISTEMI PER PRODURRE

Design World



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JOBS S.P.A. – *Keen on Innovation*

JOBS



- Speaker: Marco Colombi, *Sales Director*
- Advanced and innovative Italian machine tool brand
- Part of FFG Group - Europe & Americas Division
- Founded in 1978
- Headquartered in Piacenza
- Branch Offices in USA, France, Germany, China
- 200 employees
- Turnover EUR 60 millions
- Portfolio: 5X milling machines gantry, horizontal, automation



Aerospace



Automotive



General Mechanics

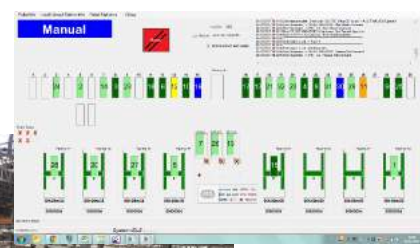


Customization



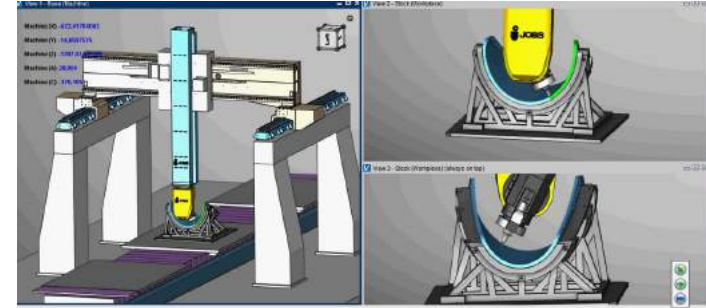
Quality System

Digitalization



Green Vision

Technological Support



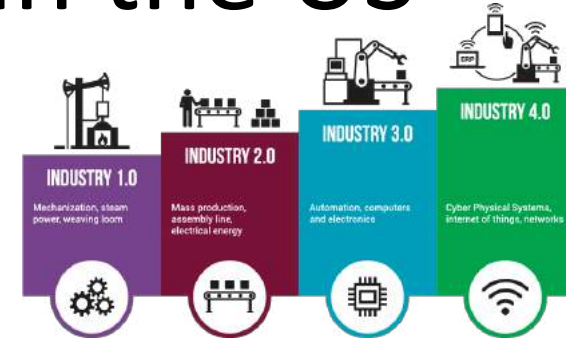


AMRO
DIVISION OF KARMAN SPACE & DEFENSE

- Since 2018, multiple machine installations at AMRO (CA) for the manufacture of large components of multiple spacecrafts.
- Key supplier for the NASA Artemis program, Lockheed Martin Space, JPL, Blue Origin and Northrop Grumman.
- The collaboration with AMRO shows how advanced manufacturing technologies made in Italy are not limited to OEMs and Tier One companies, but can bring competitive advantages and growth to small businesses.

What I would like to do in the US

- Contribute to the modernization of machining environment
- Finding Partners for technology integration
- Increase Service Footprint



Thank You!



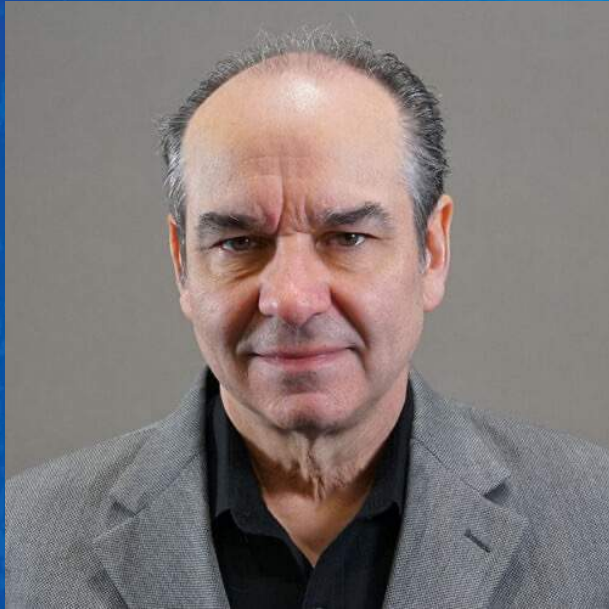
The Forum for Resilient, Scalable, and Secure Manufacturing

VITRUV

2023

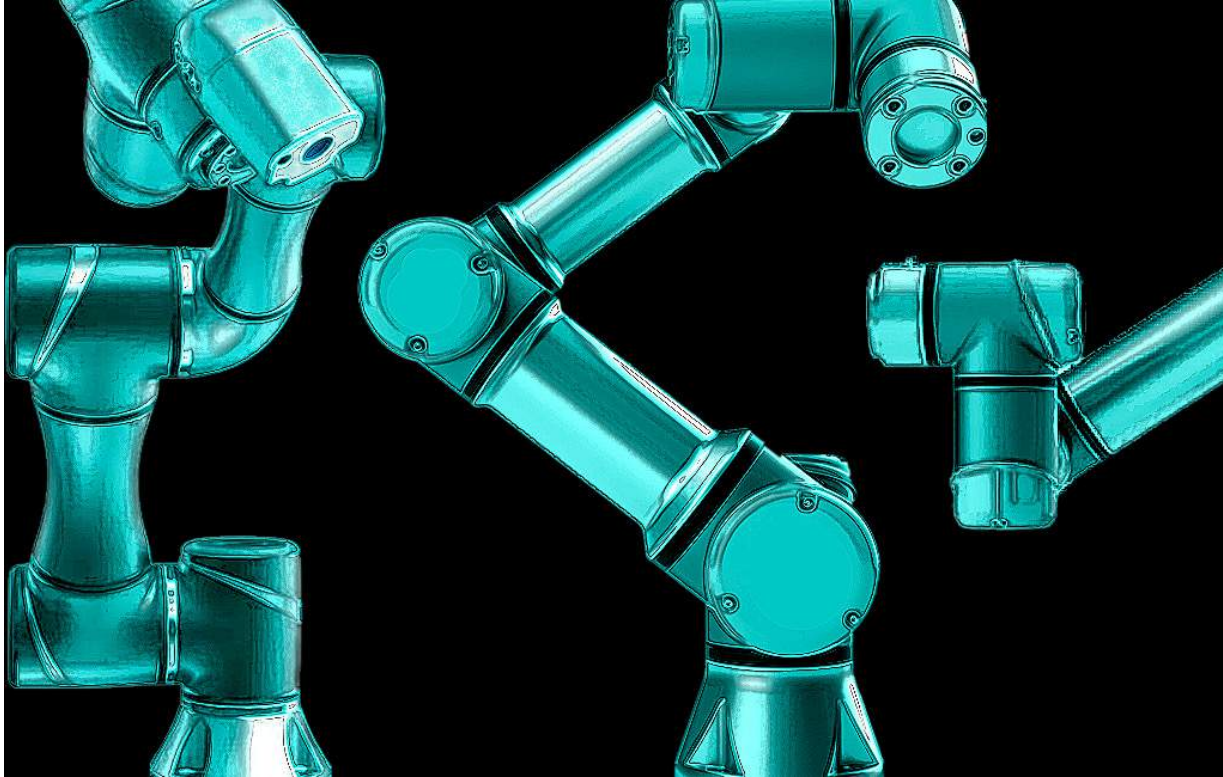
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Dan Kara
Vice President, Robotics &
Intelligent Systems
WTWH Media

Robotics Solutions for Manufacturers: Where Are We Now, Where Are We Going?



Mandates often at odds with resources, capabilities...

The Robotics Automation Imperative

Increase Productivity

Improve Quality

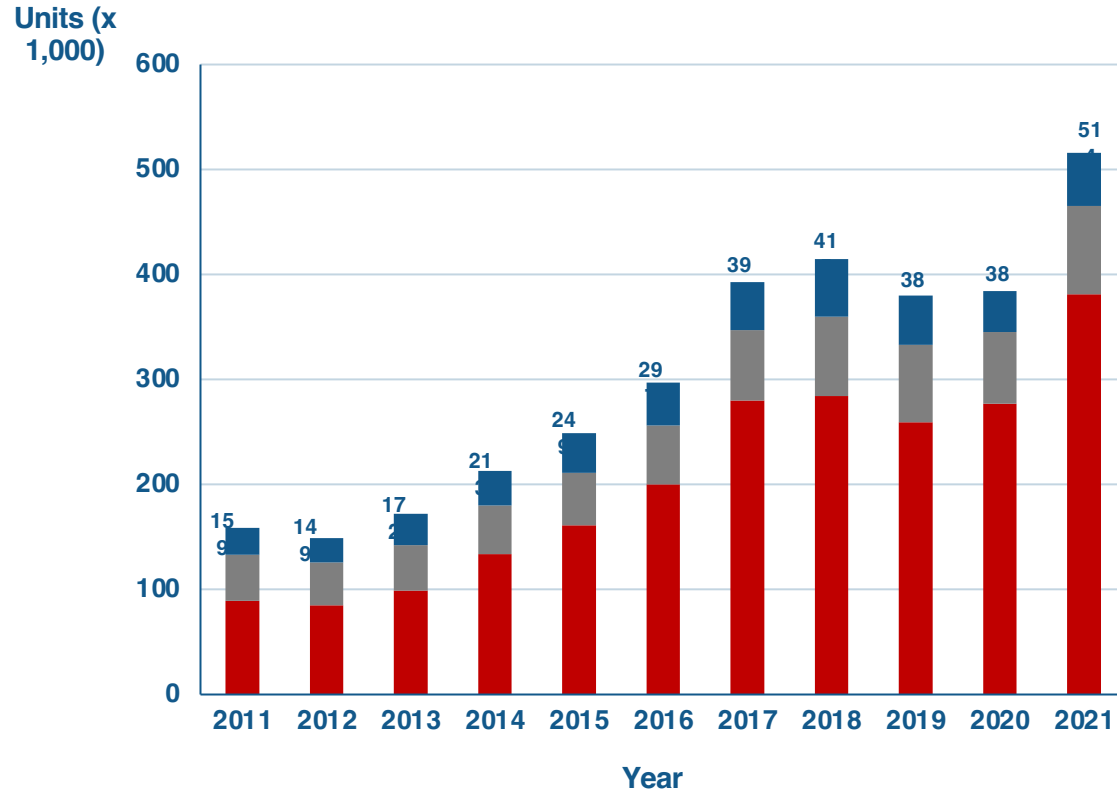
Address Labor Variability

Reduce Costs

Enhance Agility

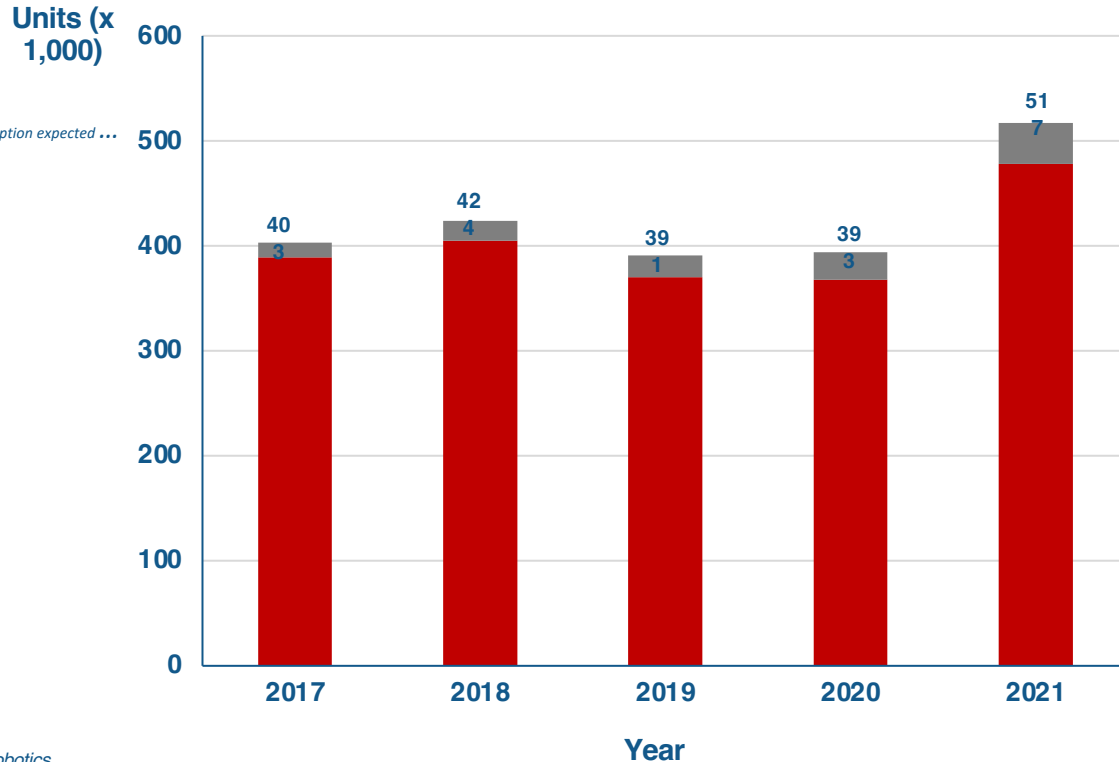
Installations of Industrial Robotics - Worldwide

Annual Installations of Industrial Robots



Installations of Industrial & Collaborative Robots - Worldwide

Annual Installations of Industrial & Collaborative Robots



Strong growth for collaborative robotics adoption expected ...

VC and Private Sector Robotics

Robotics investments substantial (startups and acquisitions, too), with no sign of diminishment...

246 Investments

VB
Why John Deere Just Spent \$305 Million on a Lettuce-Farming Robot

THE WALL STREET JOURNAL
Robots Get a Makeover in Factories
Next-Generation Robots May Work Closely With Humans, Perform Delicate Tasks and Even Resemble WALL-E

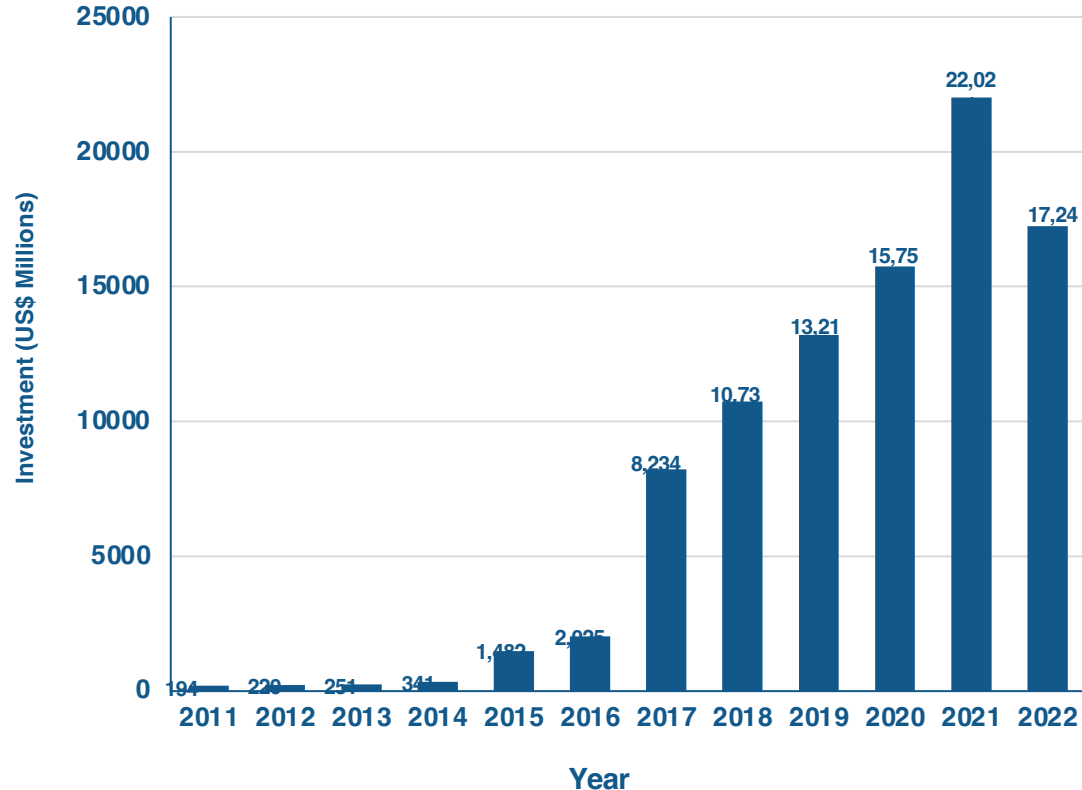
F Robots Are Preparing to Fill 200,000 Vacant Construction Jobs
The revolution is well underway.

BloombergBusinessweek
Global Economics
Robots: The Future of the Oil Industry

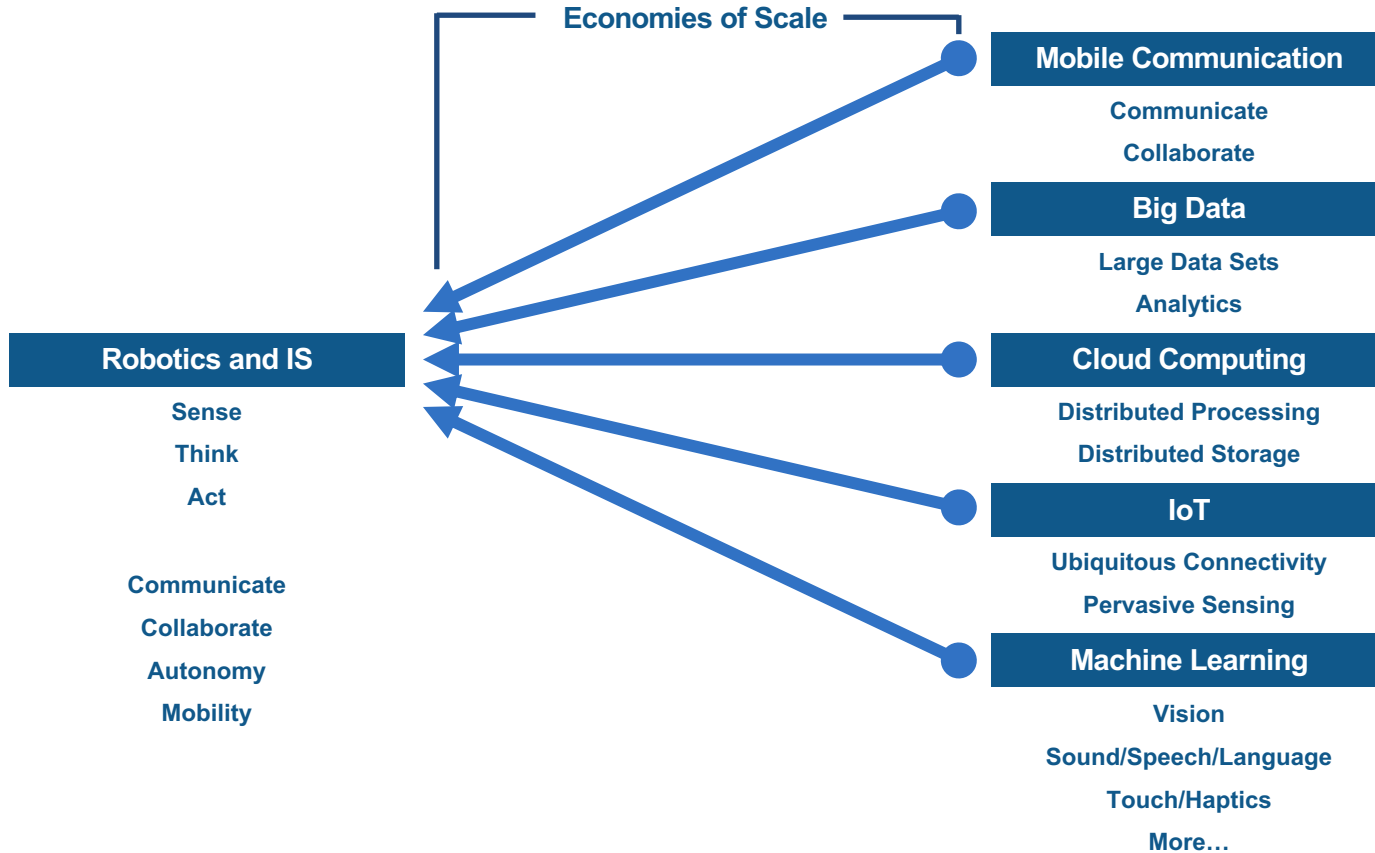
THE ROBOTREPORT
CloudMinds files for \$500M IPO for cloud-based service robots

Forbes
A New Series: The Future of Robotics, The Next 20 Years

Investment Amounts

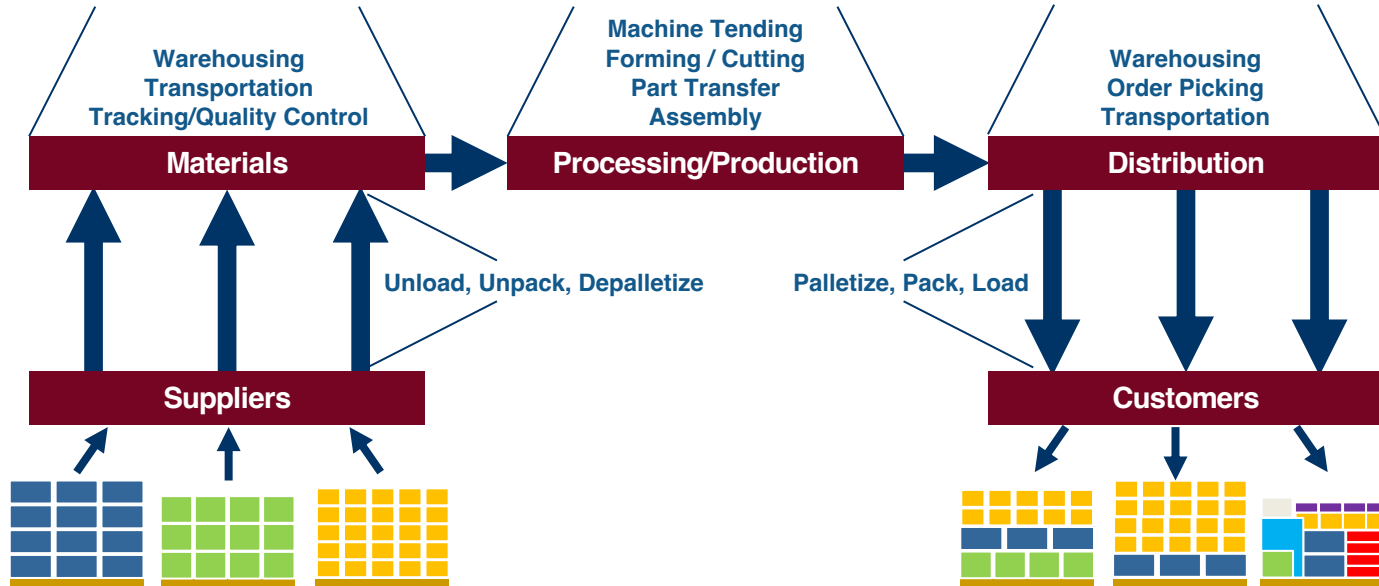


Confluence of Factors



Robotic automation for all manufacturing processes...

Robotic Manufacturing Automation



The Usual Suspects...

↑ Productivity

↑ Safety

↑ Reliability

↑ Accuracy

↑ Flexibility

↑ Speed

↑ Quality

↑ Floor Space

↓ Costs

↓ Damage

↓ Injury

Supporting Flexible Automation

"Flexibility is the new productivity..."



**Task
Flexibility**



**End-user
Flexibility**



**Application
Flexibility**



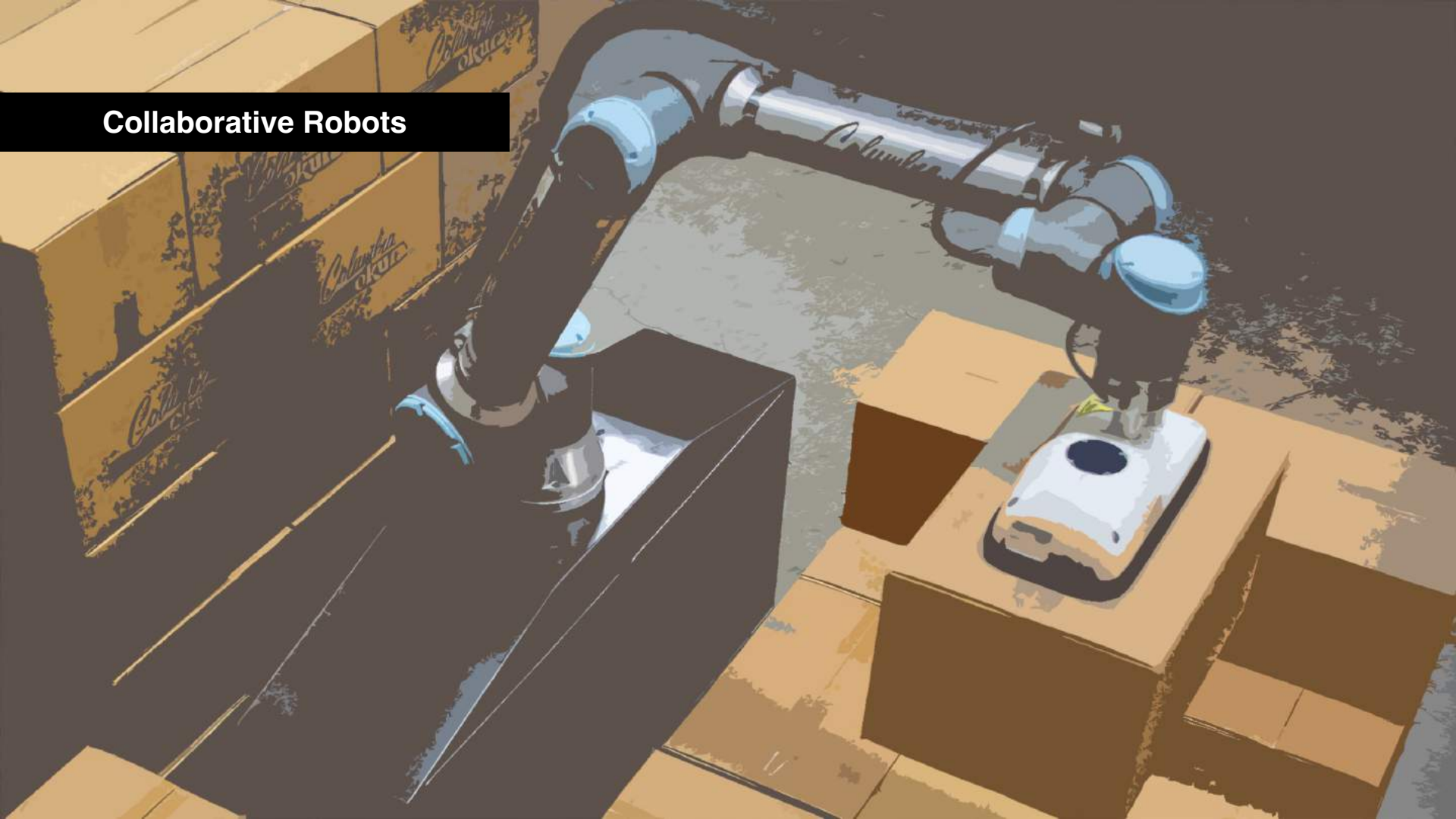
**Location
Flexibility**



**Programming
Flexibility**



Collaborative Robots



Collaborative robotics have 'evolved' over time...

Collaborative Robots (Continued)

Key Markets / Capabilities

Key Tasks

Supporting Small-to-Medium Manufacturers



Supporting Flexible / "Agile" Manufacturing



Specialization



Expansion of Capabilities



Enablers / Platforms / Ecosystems

Time

Material Handling

Machine Tending

Light Assembly

Dispensing

Welding and Soldering

Cutting, Forming, Bending

Finishing and Inspection

Palletizing / Depalletizing

Bin Picking, More...

Additional Vertical Markets

- Food
- Healthcare
- Agriculture
- Retail
- More...

More Collaborative Robot Options, New Models

Variations on a common theme...



Kinova Link 6



Hanwha Techwin's HCR-12A



Comau Racer-5 COBOT



Applied Robotics Elfin 5



NEURA Robotics MAIRA

Key Trend - Heavier Payloads

Also higher precision and more...



Doosan Robotics' H2515



Yaskawa Motoman HC20XP



Fanuc CRX-25iA



Universal Robots' UR20



OMRON (Techman) TM20

Key Trend - New Application Classes

Beyond pick-and-place and machine tending...



Ergonit Palletizer



Rocketfarm's Palletizer



Gray Matter Robotics' Sander



Migatronic CoWelder



Assembly at CSWV

Autonomous Mobile Robots



Autonomous Mobile Robots – Heavy Payloads



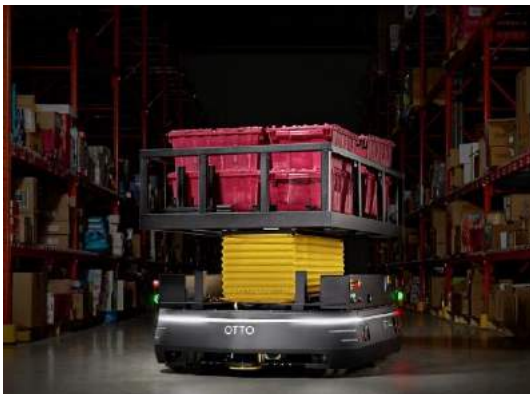
Comau Agile 1500



Gideon Brothers' Logistics Robot



Mobile Industrial Robots' MiR1350



Otto Motors Otto 1500



Fetch Robotics PalletTransport1500

Autonomous Mobile Robots – Lift Trucks

Lift truck provide heavy lifting and autonomous transportation...



Seegrid Palion Lift AMR



Vecna Robotics VRSB 3000



Agilox OCF



Linde / Balyo T-MATIC



Yale Material Handling / Balyo MPE080-VG

Autonomous Mobile Robots –Tugs

Traditional, long haul 'tuggers' now autonomous...



Seegrid Palion Tow Tractor Series 8



Toyota Core Tow Tractor Automated Forklift



Mobile Industrial Robots MiR100 w/ MiRHook



AutoGuide MAX N10

Key Trend - Mobile Manipulation

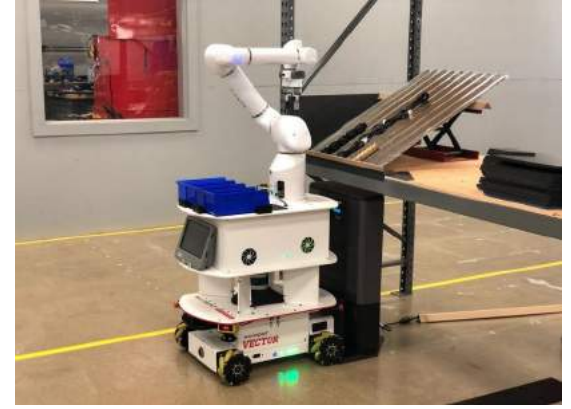
Goal is location and task flexibility...



Comau Mobile Robotic Arm



Neura Robotics



Waypoint Robotics / Productive Robotics

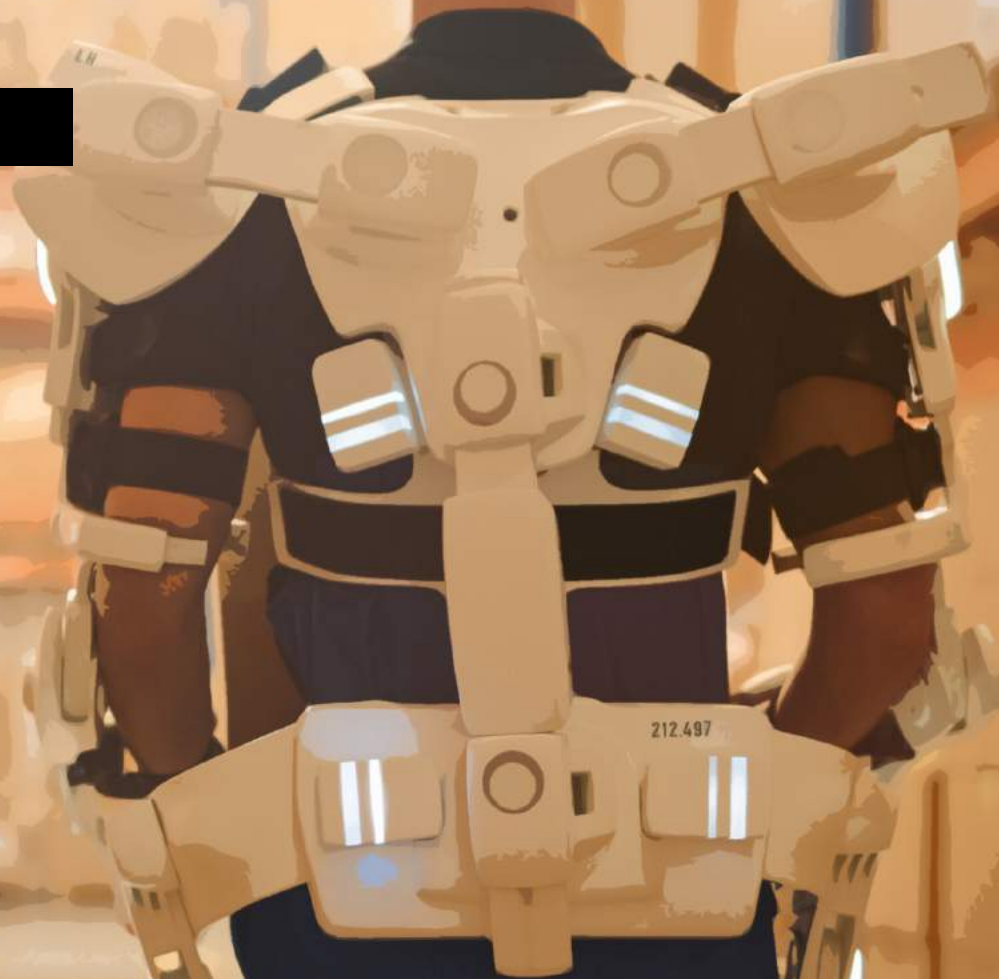


Clearpath Robotics / Franka Emika



Desmasa MCR

Exoskeletons



Key Trend - Industrial Exoskeletons

Exploiting the intelligence and flexibility of human operators, and the strength and endurance of robots...



Italian Institute of Technology's XoTrunk



Cyberdyne's HAL for Labor Support



Atoun's Model Y



Comau's MATE

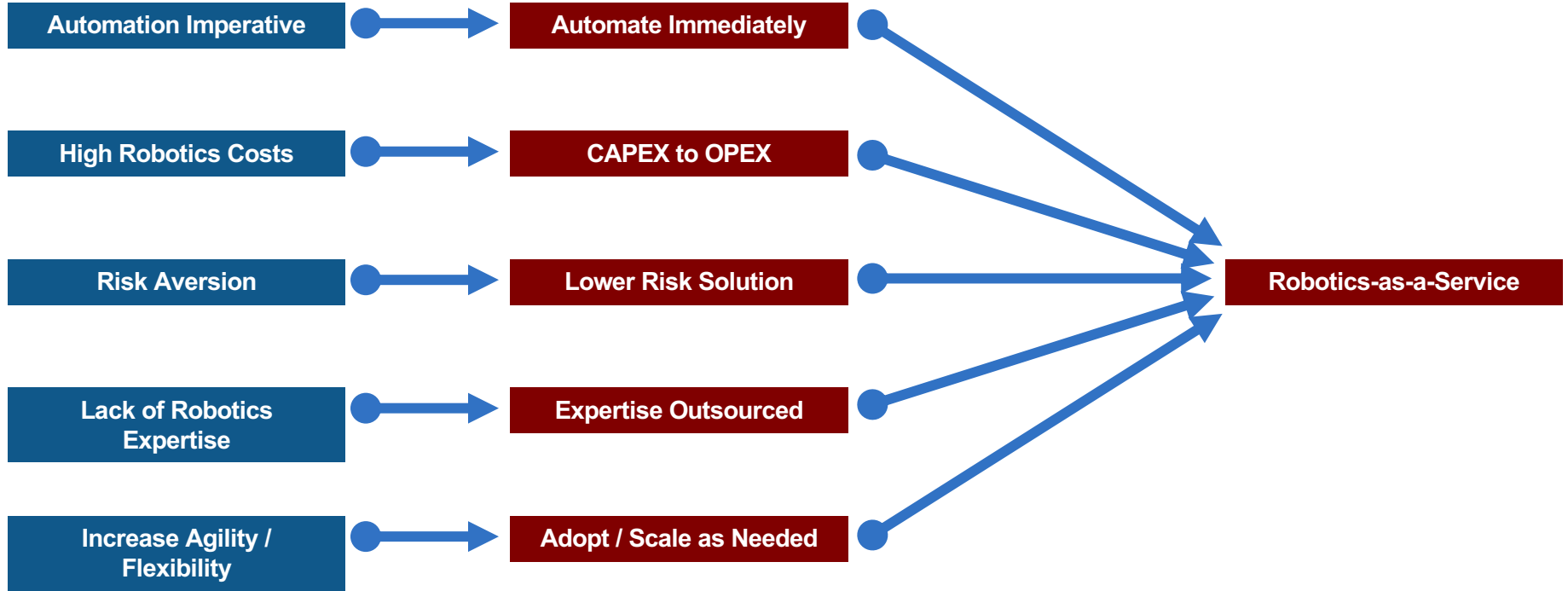


Esko Bionics' EksoVest

Robotics-as-a-Service



RaaS Benefits for End-user Companies



RaaS Solutions



York Exponential



Hirebotics



Mobile Industrial Robots' MiR200

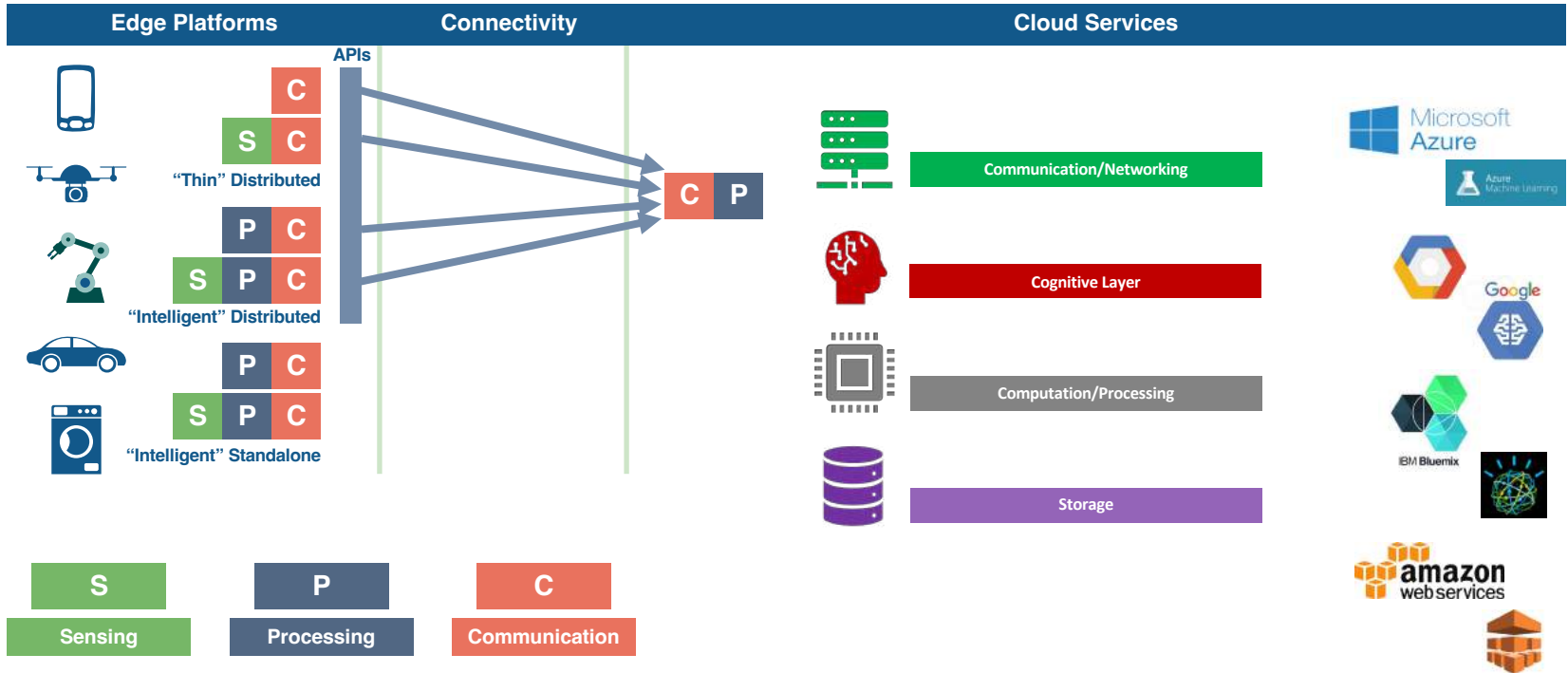


Fetch Robotics Freight500



Ready Robotics' Forge Station R5

Platform and Cognition Services



Perception, Grasping, Manipulation

Vision, ML, and robots typically for grasping and manipulation...



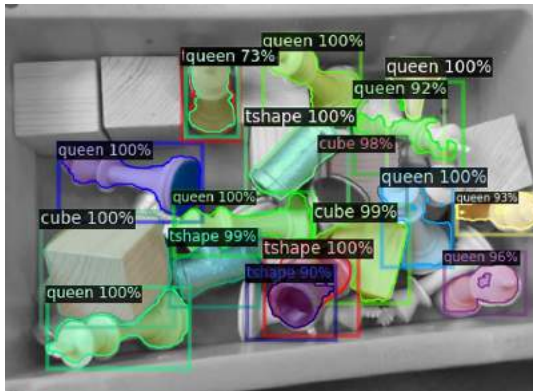
Ambi Robotics



Right Hand Robotics



Osaro Robotics



CMES Robotics

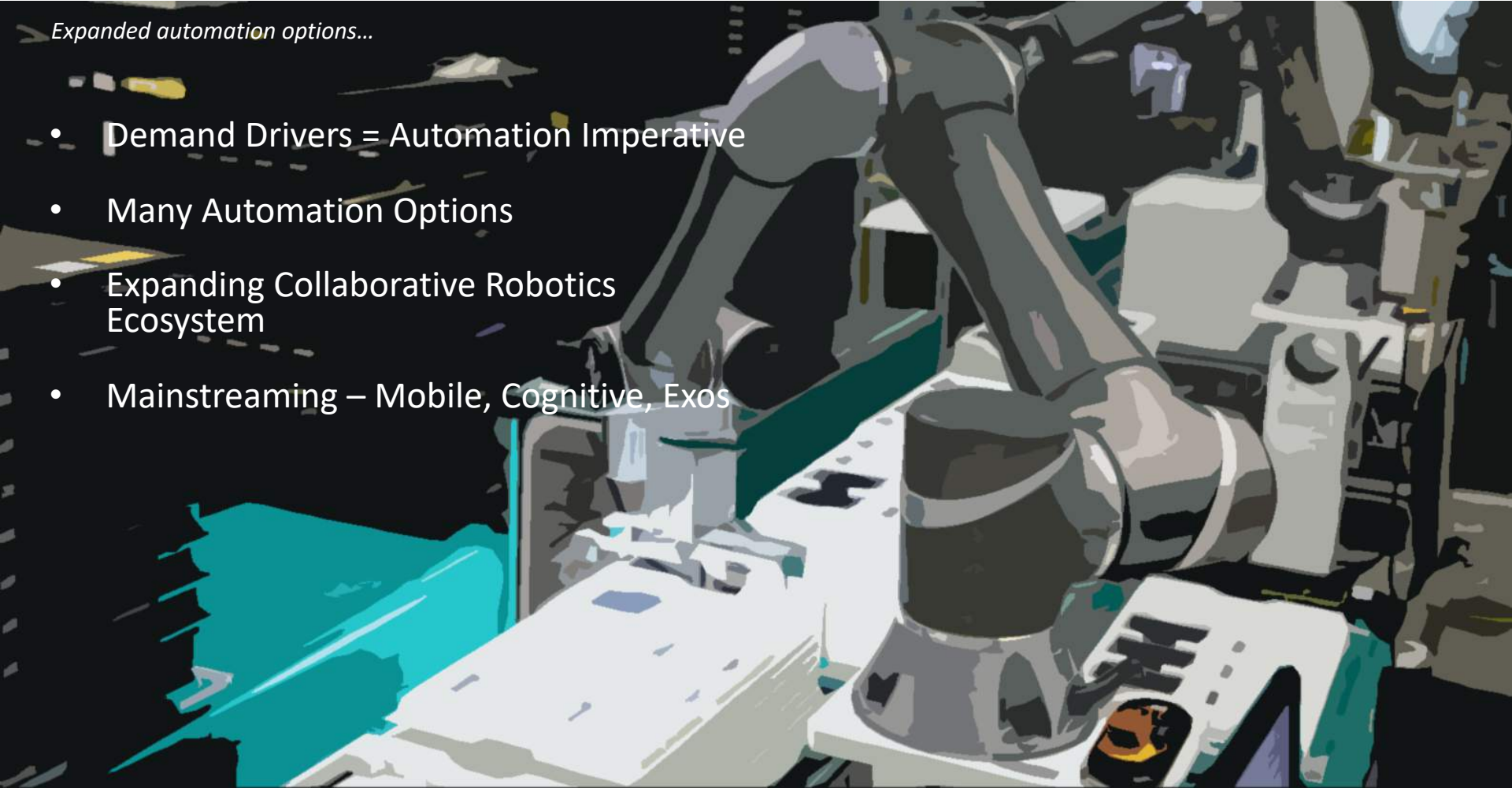


Kindred

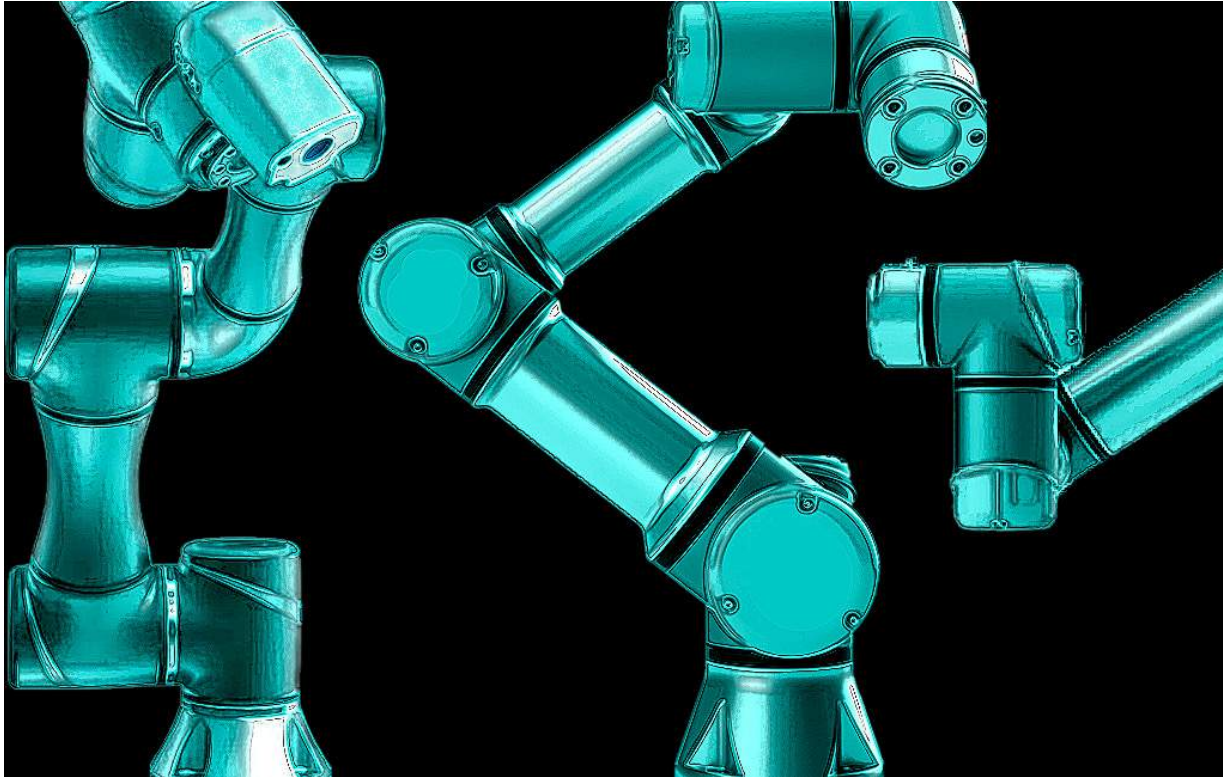
Observations

Expanded automation options...

- Demand Drivers = Automation Imperative
- Many Automation Options
- Expanding Collaborative Robotics Ecosystem
- Mainstreaming – Mobile, Cognitive, Exos



Robotics Solutions for Manufacturers: Where Are We Now, Where Are We Going?



Thank You!



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Ministry of Foreign Affairs
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Design World

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Karla Ruth Orozco Toledano
Director of Foreign Direct
Investment
World Business Chicago

WORLD
BUSINESS
CHICAGO 



WORLD BUSINESS CHICAGO

Our mission is to drive inclusive economic growth and job creation, support businesses, and promote Chicago as the leading global city to help existing Chicago companies expand and attract new companies.

Our vision is to make Chicago the most business-friendly city in the world by becoming a role model

- **Thriving for 25 years**
- **Public-Private, Non-Profit Organization**
- **Economic arm of the City of Chicago**
- **100+ Board members- Chaired by the Mayor**



WORLD BUSINESS CHICAGO'S SERVICES

★ Site Selection

Identify suitable sites for your business expansion and/or relocation using key market indicators

★ Financial Incentives

Identify applicable local, state, and federal financial incentives, tax abatement and rebate programs

★ Workforce & Talent

Connect to the talent pool and the robust network of higher education institutions and workforce development agencies

★ Press & Public Relations

Craft messages consistent with brand identity, developing relationships with media outlets, and planning and executing announcements

★ Data & Market Analytics

Provide personalized data and market analysis to present valuable insights using key indicator for your specific project

★ Government Relations

Navigate permitting, connecting you with elected officials and other government-related processes



WE ARE A PLATFORM FOR GROWTH:

Since 1837, Chicago has been built on reinvention and ceaseless innovation.

Today, the city's scale, diversity, and connectivity let founders and startups thrive.

#1



Most-diversified economy among the largest U.S. metros based on employment



Top U.S. city for corporate relocations and expansions for the past 10 years



Most-connected airport in the world



Top U.S. neighborhood that “has it all”: good schools, affordable, safe, accessible



Top destination for Midwest talent in engineering, business, and computer science

The Greater Chicagoland Economic Partnership

GREATER CHICAGOLAND ECONOMIC PARTNERSHIP



- An alliance of the seven counties and city of **Chicago**, plus a private sector representative, coming together to promote Chicagoland's many economies.
- **World Business Chicago has agreed to an expansion of our core services** including Business Development, Research, Innovation +Venture, and Public Sector
- **Programs and Partnership Areas**
 1. Research and RFI Response
 2. Regional Sector Asset Mapping
 3. Global Engagement
 4. Entrepreneurship and Innovation



THE CHICAGO
COMMUNITY TRUST



CHICAGO
HISTORY
MUSEUM



Chicago Metropolitan
Agency for Planning



comed

AN EDELSON COMPANY



Nicor Gas

With special thanks:

Partnership Launch Supporters



Opportunity for Chicago and Clean Energy

- The *Bipartisan Infrastructure Law* devoted more than \$65 billion investment for clean energy transmission and electric grid
- Governor Pritzker signed the *Climate and Equitable Jobs Act* that puts the state on path toward 100% clean energy, and invests in training a diverse workforce for the jobs
- The Biden-Harris Administration signed the *Inflation Reduction Act* committing \$370 billion in investments in clean energy including accelerate private investments in clean energy solutions



Chicagoland Clean Energy Alliance

The *Chicagoland Clean Energy Alliance (CCEA)* would be a focused organization on the connection, attraction and securing of clean energy opportunities for Chicagoland and Illinois.

The CCEA would a four key priority goals of:

Convening the clean energy ecosystem to enhance cohesion

Support startups that develop future innovations

Attract clean energy investment and jobs

Secure federal and state funding opportunities



WE WERE THE 1ST BIG U.S. CITY WITH A DETAILED COVID RECOVERY PLAN & THE FIRST TO FULLY REOPEN

Advisory Report Goals

- Accelerate investments; eliminate inequities
- Address new and old traumas
- Expand economic opportunity, quality employment and financial security
- Build on region's strengths
- Capture opportunities created by COVID-19
- Share Chicago's story

Chicago's Priority Opportunities

- Healthcare and Life Sciences
- Food & AgTech
- Manufacturing
- TD&L
- FinTech, Crypto, and Financial Services
- Creative Economies

Recovery Task Force Advisory Report

Forward Together

Building a Stronger Chicago

July 9, 2020



WE PIONEER THE FUTURE OF LIFE SCIENCES & HEALTHCARE

- Over **2,200 life sciences firms** regionally
- In 2021 Chicago was the **top US city for growth in VC investments in life science companies** - with 556% increase in VC investments.
- Chicago has up to **5 million square feet in the pipeline**, delivering lab space at lower rents than other major markets

Recent Wins in Life Sciences & Healthcare

TEMPUS



evozyne



Cardio
Diagnostics



VANQUA BIO



WE ARE THE NATION'S FOOD INNOVATION CAPITAL

- Chicago is **the largest food** manufacturing sector in the country.
- Chicago has the most **Fortune 500 food & beverage** HQs in the nation
- Chicago **employs** the nation's largest workforce in the food sector than any other metro in the U.S. with over 65K individuals

Recent Wins in Food & AgTech



MARS WRIGLEY



Kellogg's

WE ARE A GLOBAL MANUFACTURING POWERHOUSE

- Chicago's manufacturing **output is \$74.5B**; the **third highest in the nation**
- Chicago has **the largest industrial market in the US by square feet**, 1.2 billion square feet
- Among top metros for this occupation, **Chicago has the second lowest cost of labor**

Recent Wins in Manufacturing



WE ARE THE LEADER IN ALL THINGS TRANSPORTATION

- Chicago's Logistics Tech companies saw a **802% increase in growth capital** investment 2019 - 2021
- As of 2022, there are **over 100 logistics tech companies** with HQs in Chicago employing over **34,000** individuals
- Chicago's TD&L industry is one of the nation's largest, generating **\$30B annually** and **employing over 265K individuals**

Recent Wins in Transportation & Supply Chain

 Flock Freight

 ShipBob

Uber Freight

 BRINGG

 loadsmart

 U.S. Xpress

 FarEye

 FOURKITES

WE DEVELOP THE MOMENTUM FOR FINANCIAL TECHNOLOGIES

- Over **300 companies** are part of Chicago's **FinTech ecosystem**, representing 41,000+ employees
- In 2021, Chicago's FinTech ecosystem produced **3 unicorns, 3 initial public offerings** (IPO & SPAC), and **5 mega rounds** (\$100MM+)
- Investment in Fintech in Chicago increased **410%** between 2019 and 2021, compared to **247%** nationwide

Recent Wins in FinTech

COINFLIP

DISCOVER®


NINJATRADER®



BANK OF AMERICA

HALO

 FINIX

WE ARE THE FUTURE OF CONTENT CREATION

- Over **250 live music venues**, and **74 annual music festivals**, including Pitchfork, Sueños, and Lollapalooza
- Home to **40 film festivals**, **20 film and filmmaker organizations**, and 12 art houses and independent cinemas

Notable Companies in Chicago's Creative Industries

Film • Entertainment • Music

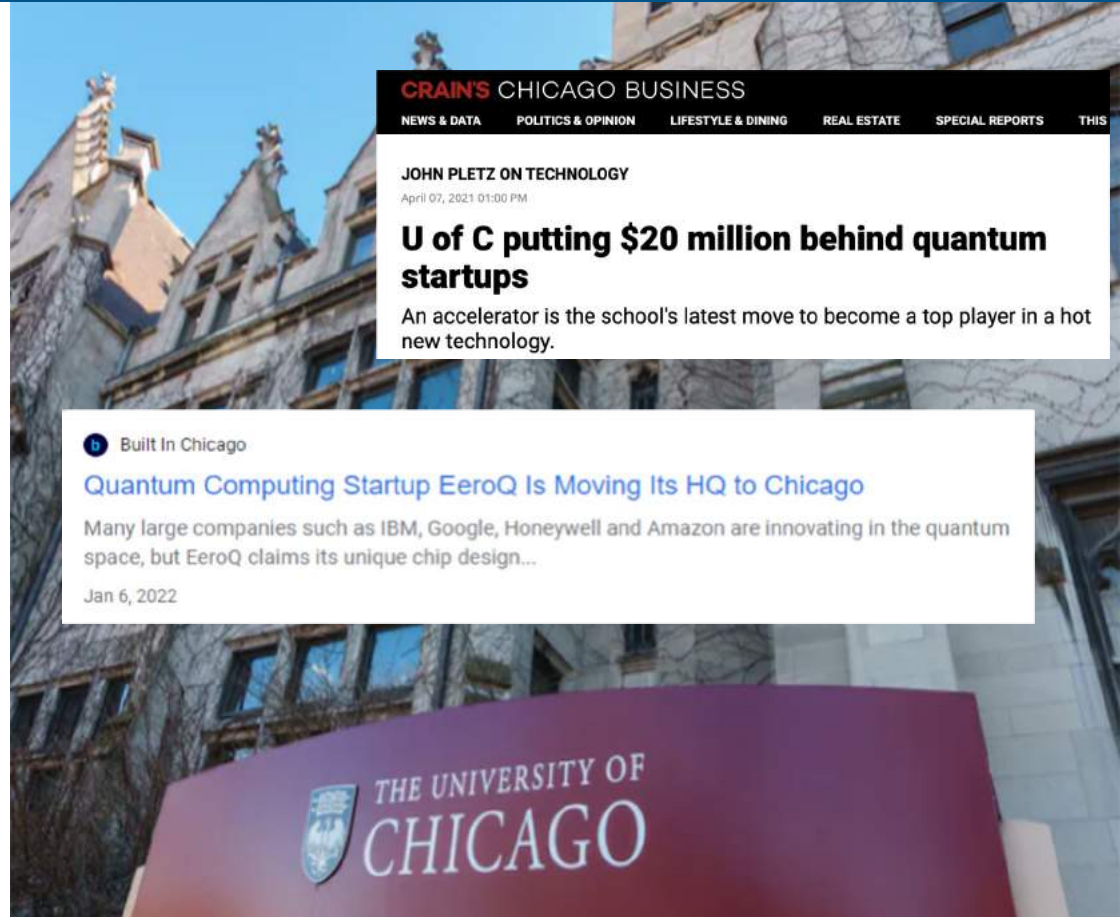
ROKU

REGAL MILE STUDIOS



CHICAGO IS DRIVING THE QUANTUM TECHNOLOGY REVOLUTION

- Chicagoland received 2 of the 5 federal grants to advance our work in quantum information science.
- We're building the workforce for our region to thrive in this transformative technology.
- The University of Chicago, the Chicago Quantum Exchange, the University of Illinois at Urbana Champaign, P33 and Argonne National Laboratories launched **Duality**, the US's first accelerator for QIS startups.



PRO CHICAGO DECISIONS SINCE 2021

A Pro-Chicago Decision is defined as the relocation,
expansion or new market entrance.*

404 companies have made pro-Chicago choices

135 new corporate locations and openings

259 corporate expansions

Google

vividseats

BMO

chime®

adyen

MARS
WRIGLEY



As of April 24, 2023 *Click here to learn more about Pro Chicago decisions.



GATEWAY TO THE MIDWEST:

ACCESS TO
40 M PEOPLE
WITHIN A
5-HOUR DRIVE



200 km
2 hrs

THE ECONOMIC CENTER OF THE MIDWEST

Representing 24% of
U.S. GDP in Billions

CHICAGO, IL **\$693.0**

MINNEAPOLIS, MN \$270.3

DETROIT, MI \$254.5

ST. LOUIS, MO \$171.5

CINCINNATI, OH \$152.6

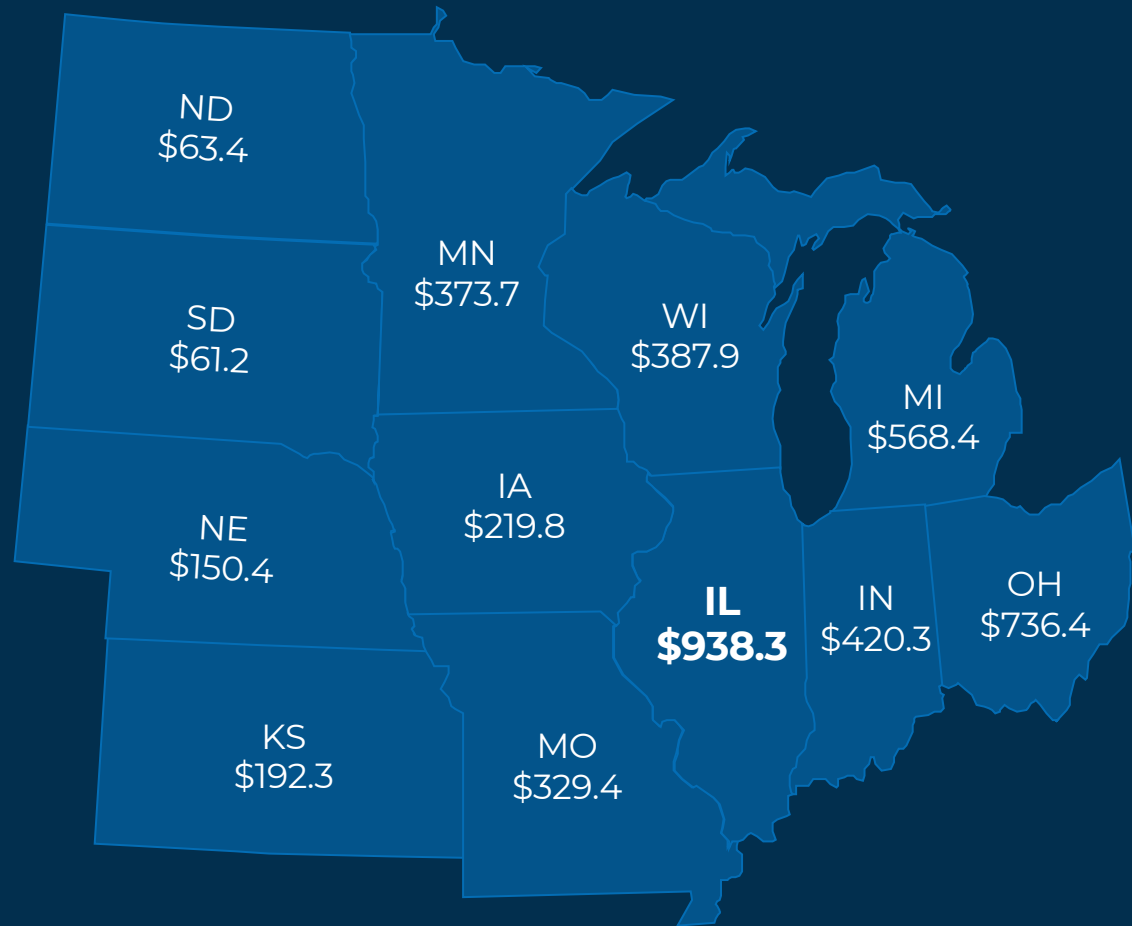
INDIANAPOLIS, IN \$146.9

KANSAS CITY, MO \$142.5

COLUMBUS, OH \$137.3

CLEVELAND, OH \$133.6

MILWAUKEE, WI \$102.4





10

INTERSTATE HIGHWAYS GO THROUGH CHICAGO, REACHING 25% OF THE U.S.'S POPULATION WITHIN 500 MILES

WE HAVE THE MOST INNOVATION HUBS GLOBALLY

- A robust ecosystem of **100+ incubators, accelerators, VCs, and research institutions**
- Ranked as **Top 10 Global Tech City**
- Recent momentum with **multiple \$100+ million rounds**
- Home to **two federally funded** quantum computing centers

Some of Chicago's Innovation Hubs



LET'S DISCUSS OPPORTUNITIES FOR PARTNERSHIPS IN CHICAGO



Mayor Lori E. Lightfoot

Thank You!



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Meet the Innovators



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Mr. Eric Martin

National Sales Manager Gasparini USA
GASPARINI S.p.A.



COMPANY INFO

CASPARINI S.p.A.



THE NUMBERS

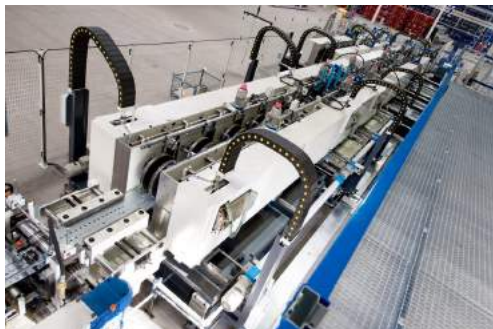
- Integrated Industrial Processes

- 1952 YEAR OF FOUNDATION
- 123 EMPLOYEES
- 40 ENGINEERING AND MECHANICAL DESIGN
- 15 ELECTRONIC AND SOFTWARE DESIGN
- 29 MARKET COUNTRIES LAST 5 YEARS
- 50M € ANNUAL TURNOVER
- 80% EXPORT TURNOVER
- 52% TURNOVER FROM NEW CUSTOMERS
- 29 SECTORS
- 72 DIFFERENT APPLICATIONS



ROLL FORMING SYSTEMS & INTEGRATED TECHNOLOGIES

ROLL FORMING IS THE **HEART** OF OUR MACHINES



FROM SINGLE MACHINE TO A TURNKEY FACTORY

NOT ONLY ROLL FORMING

all the technologies useful to obtain the complete product are integrated





APPLICATION'S FIELDS

Gasparini S.p.A. is leader in the field of highly flexible roll forming and bending lines with fully integrated systems for the transformation of sheet metal, enabling the production of customized profiles with applications in various different fields:



LOGISTIC

- INDUSTRIAL SHELVING
- SUPERMARKET SHELVING
- SILOS
- COLD ROOMS
- LOCKERS



CONSTRUCTION

- ROOFING and CLADDING
- STRUCTURAL PROFILES
- DOORS
- LIFTS
- ROADS



ENERGY

- SOLAR INDUSTRY
- ELECTRIC CABINETS
- CABLE TRUNKS
- CABLE LADDERS
- LIGHTING



AUTOMOTIVE

- ANTI-INTRUSION BARS
- BUMPER
- STRUCTURAL ELEMENTS CHASSIS
- SIDES FOR INDUSTRIAL VEHICLES
- BODY FRAME INDUSTRIAL VEHICLES



GASPARINI US MARKET

PRESENCE ON THE US MARKET

2008 YEAR OF FIRST MACHINE INSTALLED

2010 COMMERCIAL PRESENCE

16 LINES INSTALLED

8 SECTORS

18 DIFFERENT APPLICATIONS



TOPICAL TARGETS US CASE STUDIES

- INCREASE PRODUCTIVITY
- INCREASE PROFITABILITY
- INCREASE RANGE OF PRODUCTS



- REDUCE LEAD TIME
- REDUCE COSTS OF PRODUCTION
- REDUCE COSTS OF DIVERSIFICATION
- REDUCE MANUAL REPRISSES AND OPERATIONS





PROSPECTS AND OBJECTIVES FOR THE US MARKET

- STRENGTHEN THE COMMERCIAL NETWORK
- INCREASE MARKET PRESENCE
- IMPROVE THE ASSISTANCE SERVICE PRESENT ON TERRITORY



Thank You!



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Lance M. Feeley

V.P. Sales & Business Development



Monzesi North America

Providing high precision turn-key grinding systems
tailor-made to customer requirements.

Our company at a glance



A global footprint & structure to support our customers in well established and emerging markets:

Italy (Main HQ and Manufacturing)

Austria (Sales/Marketing Office)

USA (NAFTA HQ and Manufacturing)

China (East Sales/Marketing Office and Service)

Turkey (Sales/Marketing Office)

Egypt (Sales/Marketing Office)

- 54 employees worldwide
- 5.000+ installed machines
- \$12.1M in sales in 2022
- Activity in 50+ markets



What we do



Monzesi designs, engineers, and builds (2) main product lines for super precision grinding & finishing of various components & materials:

Monza Line

CNC Centerless grinding machines
Fixed & Moveable center designs



Viotto Line

CNC Disc type Surface grinding machines
Vertical & Horizontal configurations



Our industries



Automotive



Racing



Aerospace



Defence



Bearings



Hydraulics



Carbide & Ceramics



Nuclear



Oil & Gas



Industrial



Cutting Tools

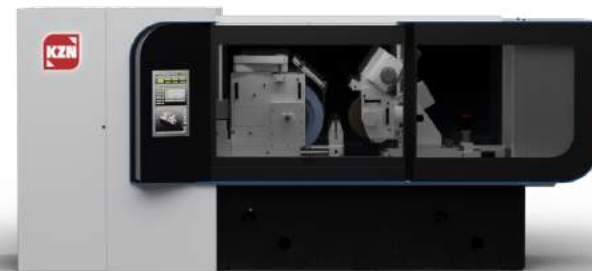


Medical

Monza Line: Technical Features



Full “Turn-key” automated grinding line with customized automation, laser gauging, Demagnetization station, & integral **Industry 4.0 connectivity** hardware and software.



KZN Line. Highest technology, hybrid polymer mineral base, up to 11 axes CNC, embedded sensors, integral **A.I. software for machine learning**, adaptive grinding, & fully customizable solutions.

Viotto Line: Technical Features



Direct drive Electro-spindle technology, unique in the industry. Superior tolerance capability advantages, environmentally friendly using no hydraulics & lower power requirements.



Best-in-class DUAL SLIDE design/process allowing Load/Unload completely in hidden time, for ultimate productivity.

How we do it

- Series Production. Capacity for (40-50) machines/year.
- Kaizen Philosophy.
- ISO 9001 certified.
- Constant internal training programs.
- A robust Quality Management System (QMS).
- Highly developed Supply Chain partners.
- Highly skilled internal Purchasing team.
- Dedicated Project Managers (PM's).
- Professional development offered to all employees.
- A belief in work-life balance.



Our motto is “**Foster the Growth.**” This applies to everything we do, and most importantly to our people. This philosophy allows us to simultaneously merge over 100 years of experience, an unwavering commitment to Research & Development, and the constant pursuit of innovative improvements from a technological, quality, social, and environmental perspective.

Recent case study: Viotto RV2 610 MR

We recently installed (2) fully automated double disc surface grinding cells at a global manufacturing leader of industrial circular saw blades based in North Carolina. Our system offers the optimal combination of quality, productivity, efficiency & stability, guaranteeing the customer requirements are met consistently in a high volume environment utilizing a fully automated process.



What's next



Our NEW U.S.A. facility in Apopka, Florida

Situated in the Orlando - FL area, Monzesi, Inc. will serve as our new consolidated North American HQ. The new company is structured to support all new machine sales, installations, training, service and spare parts, and will also be equipped to handle the complete remanufacturing of both our MONZA Centerless and VIOTTO Double Disc grinding machine lines.

What's next:



Soon introducing (2) new centerless grinding machine models:

- **Monza KZN 150.** Designed to hold sub-micron tolerances on very small, complex components primarily for the **MedTech Industry**.
- **Monza KZN DR 610.** A new concept for the **Aerospace Fastener Industry** which we expect to become the next industry standard for centerless grinding systems in this market segment.

monzesa

Thank you!



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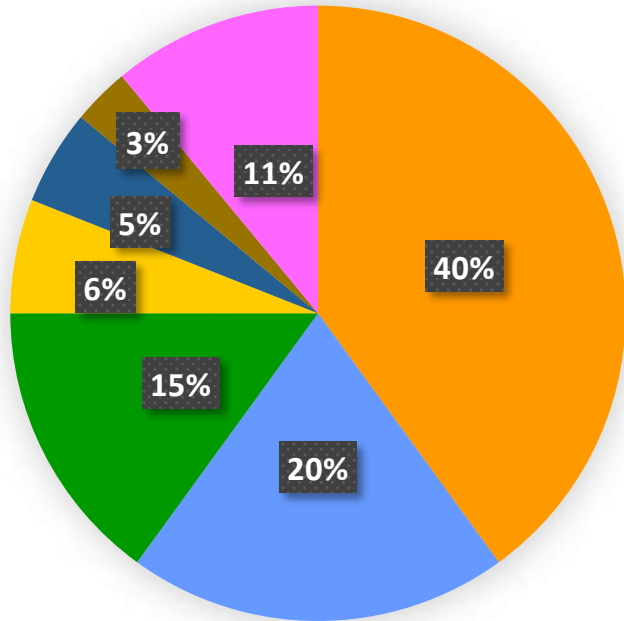
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 Regginspection

REGG INSPECTION SRL

HIGH PRECISION INSPECTION SYSTEMS

Where do we sell



- USA
- Germany
- Italy
- Europe
- Japan
- UK
- Others



Headquarter in Italy



Justin Jacobs
National Sales Manager

Our service network



REGG INSPECTION
CORPORATION, CERRITOS, CA:
- **Showroom**



REGG INSPECTION
CORPORATION, WIXOM, MI:
- **Technical center**
- 3 full time service engineers
- Customer support 24/7
- Showroom and spare parts stock



What we do

REGG Inspection designs and manufactures high-speed and high precision inspection machines.

We serve the automotive, aerospace, medical, oil & gas and industrial sectors.

AUTOMATIC INSPECTION MACHINES



i600 and i300 Series

With rotatory table for 100% vision, laser gaging and NDT inspection of fasteners and mechanical components



CF1000 and CF2000 Series

With linear transfer system for 100% gaging, NDT and laser marking of mechanical components

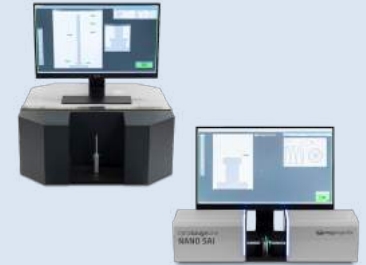
POST-PROCESS INSPECTION STATIONS



ContactGageLine

MB series

ID & OD gauging stations for mechanical components



OptiGageLine

NANO & CUBE

Vision first article inspection systems

What we do

Regg Rolling, a division of Regg Inspection, designs and manufactures high precision two and three dies thread rolling machines.

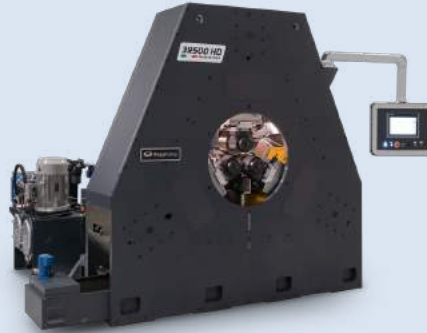
We serve the automotive, aerospace, medical, oil & gas, and industrial sectors.

CYLINDRICAL TWO AND THREE DIES ROLLING MACHINES



2-Dies one and two slide

Heavy duty and high precision thread rolling



3-Dies three slides

Heavy duty and high precision thread rolling

CORRUGATION AND FIN TUBE ROLLING MACHINES



Tube forming

High fin tube & corrugated tube

What I Have Done in the US

In the automotive sector, **Regg Inspection Corporation** has been chosen as the preferred supplier to MacLean Fogg Component Solution based in Livonia, MI.



Engineered Solutions | MacLean Master
40485 Schoolcraft, Plymouth, MI 48170
macleanfoggcs.com

We delivered our first full turn-key inspection machine system to MacLean Fogg in 2017. Our **i600M** rotary dial inspection machine consisted of three (3) camera stations with 360° rotation, three (3) laser gauges, three (3) tunnel gauges, and two (2) CNC gantries for automatic load/unloading. As of May 2023, MacLean currently has ten (10) full turn-key inspection machines. Both the i600M and CF2000 models. The bottleneck in the past was manual inspection. Our machines have taken human error out of inspection!

What I would like to do in the US

Thanks to our positive experiences with US partners, our future programs and aspirations are the following:

- Expand our presence also in the East Coast and in the South West
- Strengthen our cooperation with US distributors and manufacturers
- Grow our Regg Corp Team with additional engineering capabilities

Thank You!



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here

ANDREA SCARPARI
President of Salvagnini America, Inc.





Dependability, Proximity and Forward thinking

everywhere

**Solutions for sheet metal
manufacturing in 170 industries.**

The Salvagnini's DNA

flexible automation



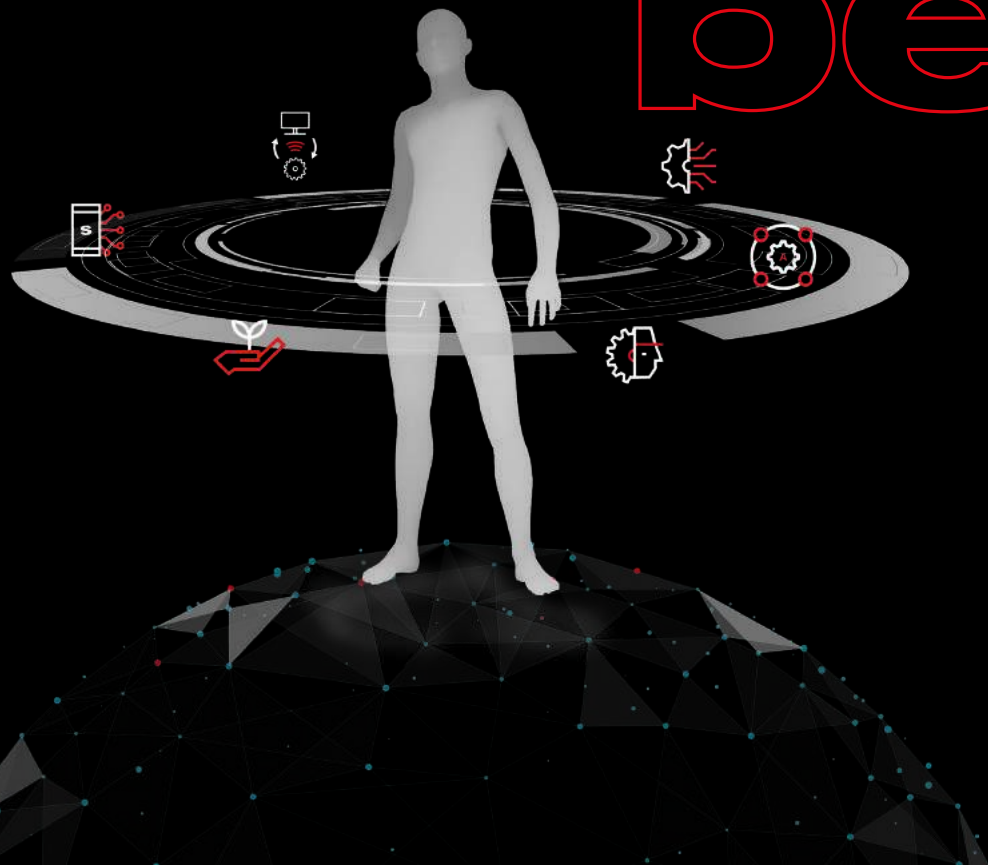
Automation, Intelligence, Sustainability

now

Competencies and expertise.
AJS/ IMAS
Rethinks



beyond



**Circularity.
Holistic approach.
Partnership.**

Thank You



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#OneSourceSupplier



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www.mcmspa.it

MCM USA inc.



Service, Training & Spare Parts
Chardon – OH – United States
www.mcmspa.it

Andrea Bergaglio

CCO - Chief Commercial Officer
Global Sales & Marketing Director

MCM Group



MCM SPA



MCE SRL



COLGAR ENGINEERING



MCM France



MCM Deutschland



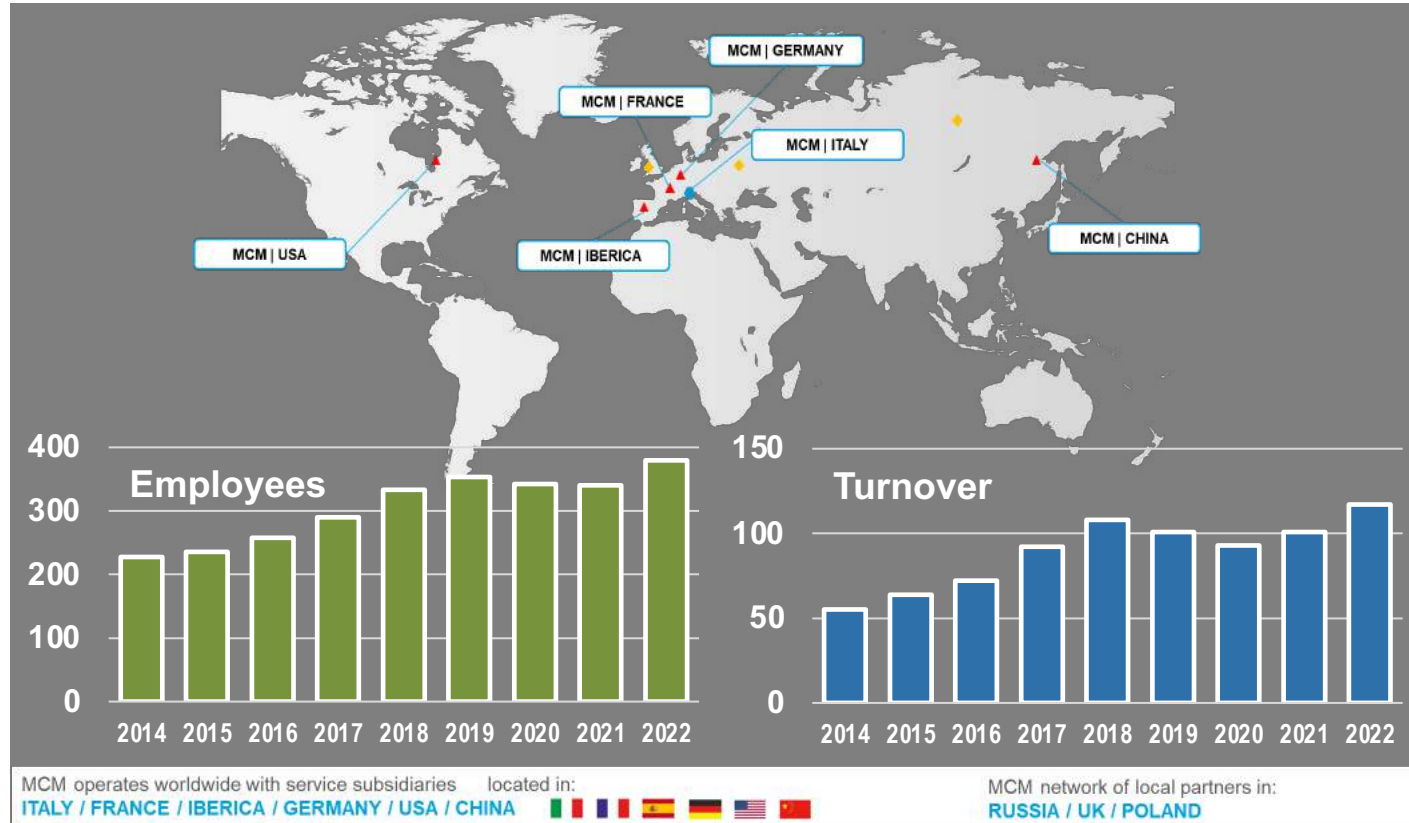
MCM Iberica

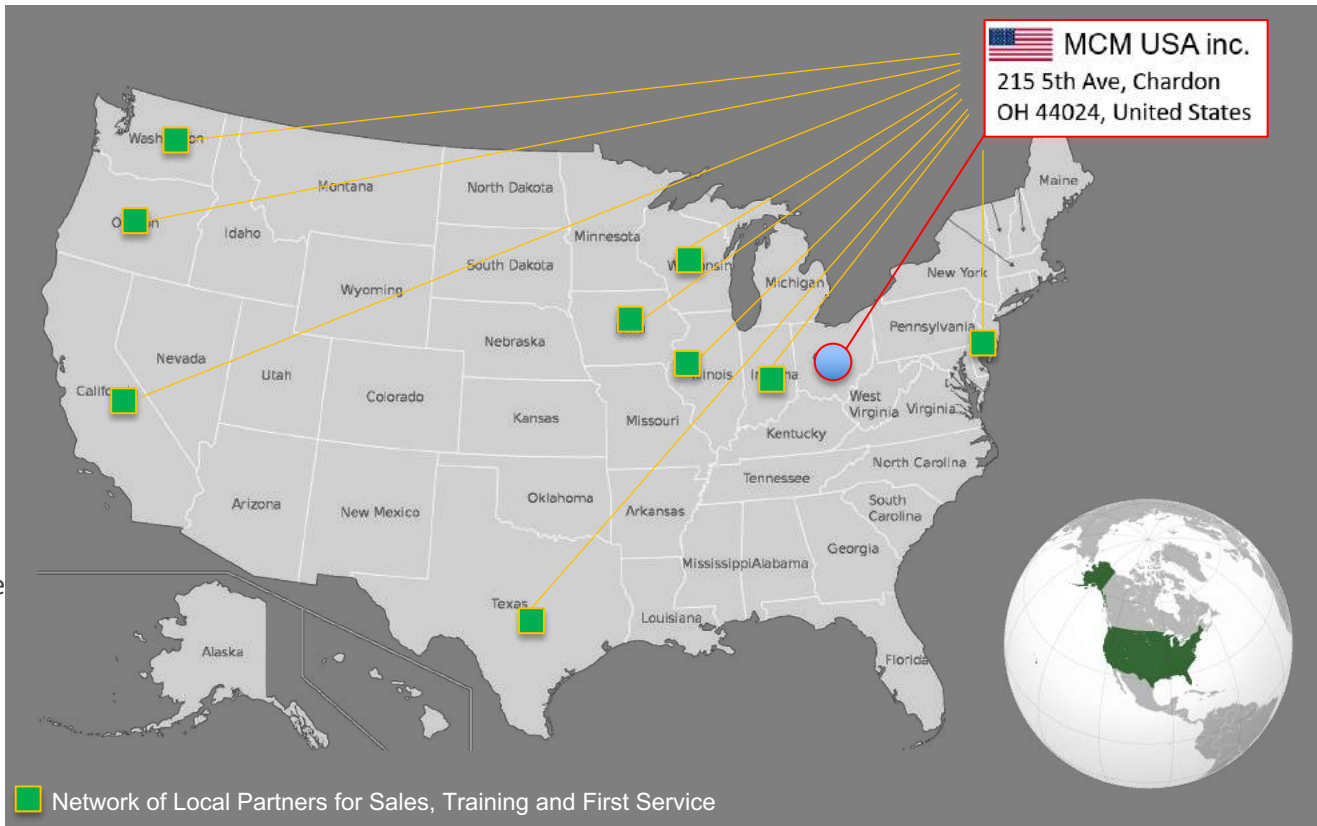
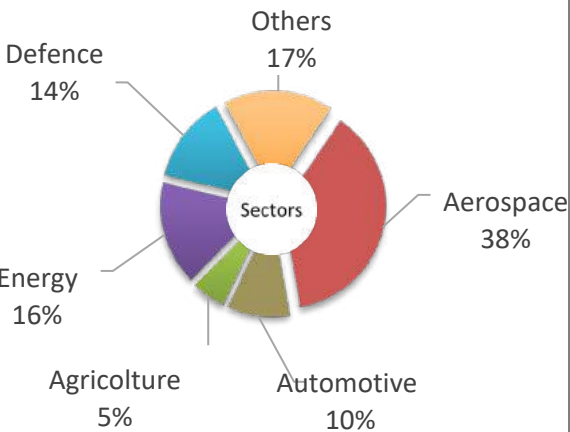
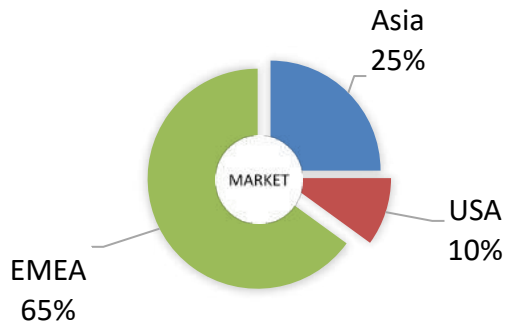


MCM USA



MCM China



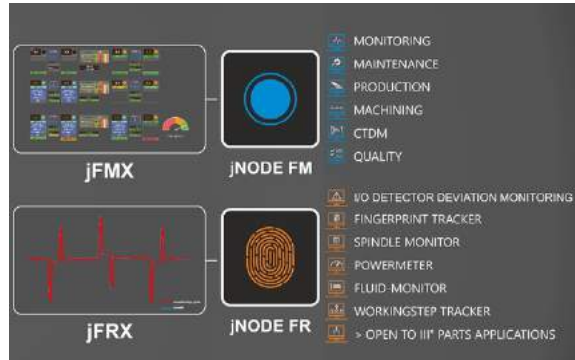




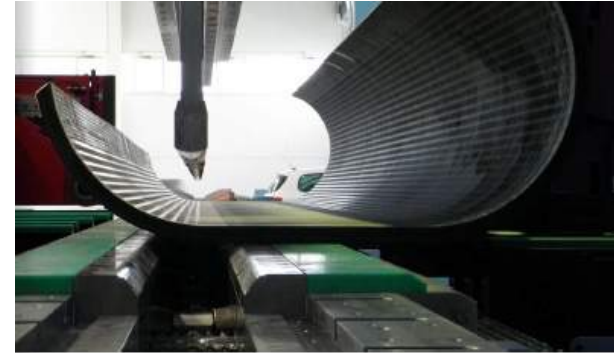
4 & 5 AXES MACHINING CENTERS
Milling, Turning, Drilling and Grinding
FLEXIBLE MANUFACTURING SYSTEMS
integrated in FMS with complementary
processes



SUPERVISION and ANALYSIS SOFTWARE
Smart production Industry 4.0
Production data & statistics
Cloud and Web access



BENDING SYSTEMS
starting from 1.000 ton. with lengths
from 5 to 15 mt
AUTOMATIC CUTTING CENTERS
Mechanically / hydraulically controlled
complete with all interlocking systems



4 & 5 Axes Milling



Drilling



Turning



Grinding



Power Skiving



MCM | MACHINING CENTERS



Workpiece Size

+

-

JET-FIVE

FAMILY

TANK.G

FAMILY

TANK EVO

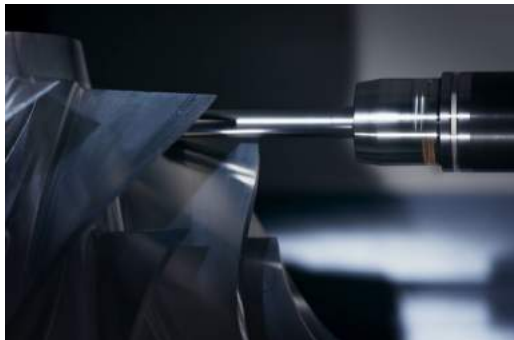
FAMILY

CLOCK EVO

FAMILY

- 4 and 5 axes Machining Centers with exclusive design and technologies
- X axis stroke from **800mm** (31,49") to **1.200mm** (47,24")
- High dynamics, rigidity and accuracy

- Bi-Pallet, Multi-Pallet, Flexible Manufacturing System
- Pallet sizes from 500x500mm (19,68"x19,68") to 630x800mm (24,80"x31,49")
- Multitasking versions available



MCM | MACHINING CENTERS



+

Workpiece Size

JET-FIVE

FAMILY

TANK.G

FAMILY

TANK EVO

FAMILY

CLOCK EVO

FAMILY

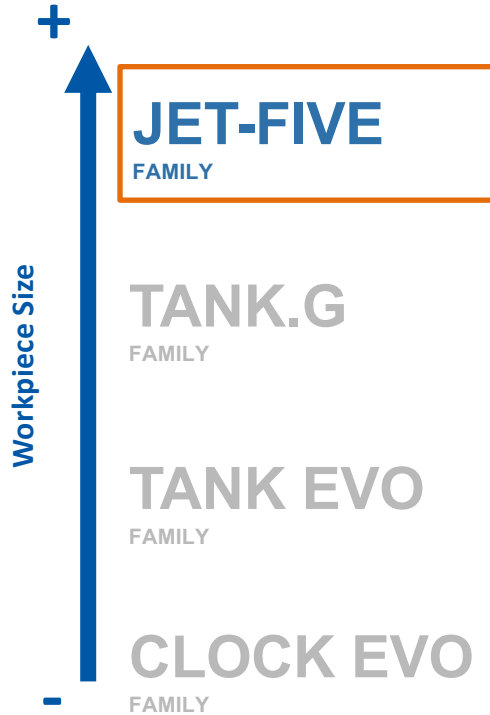
- 4-5 axes available
- Highly Customizable
- Designed for multitasking
- X axis Strokes from **1.000mm** (39,37") **to 3.000mm** (118,11")

NEW

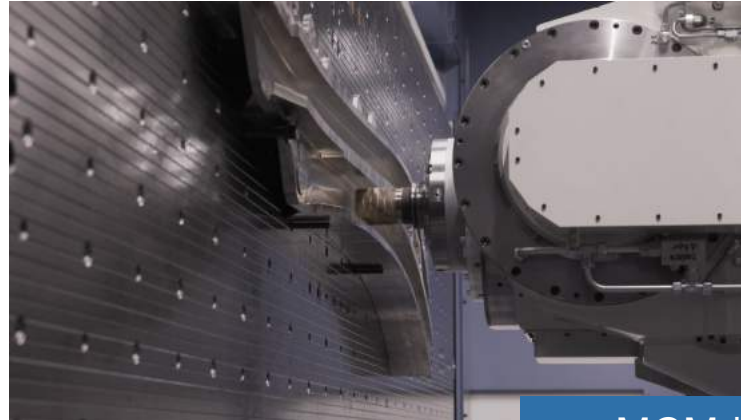
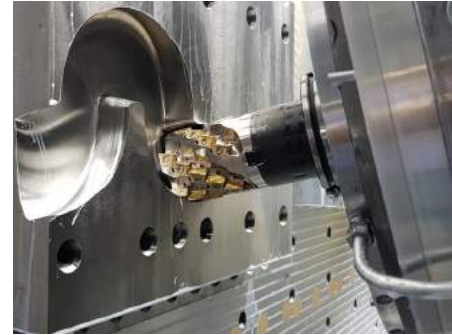
- Pallet sizes from 800x800 (31,49"x31,49") to 1250x1250mm (49,21"x49,21"), Φ 1400mm (55,11")
- Bi-Pallet, Multi-Pallet or Flexible Manufacturing System



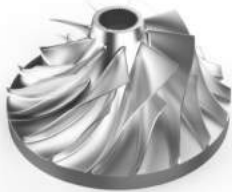
MCM | MACHINING CENTERS



- Highly customized machine for high removal rates
- Versatility and excellence dynamics
- Cross-Sectoral application
- Configurable in FMS or Multi-Pallet operations
- Big Sizes (X axis > 3 meters/9,84ft)



MCM | MACHINING CENTERS



AEROSPACE



AUTOMOTIVE



ENERGY
OIL & GAS



MACHINERY,



HEAVY EQUIPMENT
AGRICULTURAL
MACHINERY



INDUSTRIAL
COMPONENTS

MCM advantages:

- References by International Players
- Dedicated software solutions
- Hi-Torque spindles
- Flexible Solutions to manage production variation
- One source supplier for all aspects
(machining, automation and supervision technology)

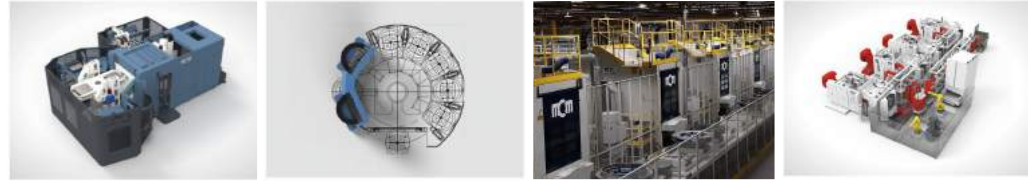
Main Application Fields

- + Specialists for highly automated machining centers
- + Fast reconfigurability // Hi-Flexibility in production
- + Improved Autonomy // reduced human activities
- + Enhanced ergonomics // more safety more productivity

MIA MP > Multipallet handling configuration
up to 20 pallets capacity, with multi-level round pallet storage

MIA LP > Linear Pallet Handling configuration
with > 100 pallets capacity, multi-level storage

MIA ROBOT > Pallet or Part Handling configuration
the perfect solution for Integrated Productive System



MCM 'Mirror' Tool magazine



MCM centralized Tools Sharing

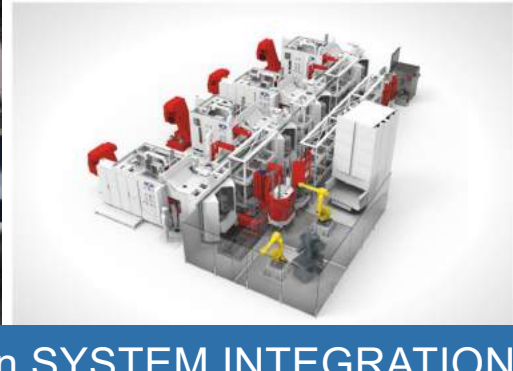


NEW ADVANCED AUTOMATION SYSTEM

MIA | MCM INTELLIGENT AUTOMATION

FMS Flexible manufacturing systems //

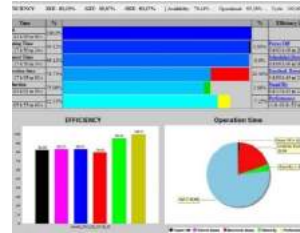
- + Optimization of the ratio "productivity / production surface" [$\$/m^2$]
- + Improvement of the throughput ratio [components / hour]
- + reduction of W.I.P. (= Work in Process) Warehouses



MIA | ROBOT in SYSTEM INTEGRATION



Line	Integrità	Caratteristico	Desc
1		ESD	1° Filare DSI lato bascula (La.2)stato perso
2		ESD	2° Filare DSI lato bascula (La.2) stato di 307stato perso
3		ESD	3° Filare DSI lato bascula (La.2)stato perso
4		ESD	3° Filare DSI lato bascula (La.2)stato perso (avviso di SP)



single-pallet



twin-pallet



multi-pallet



FMS



jNODE FM

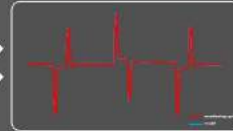


jNODE FR

jFMX
MANUFACTURING SUPERVISION PLATFORM



jFRX
MACHINE DATA COLLECTION AND ANALYSIS

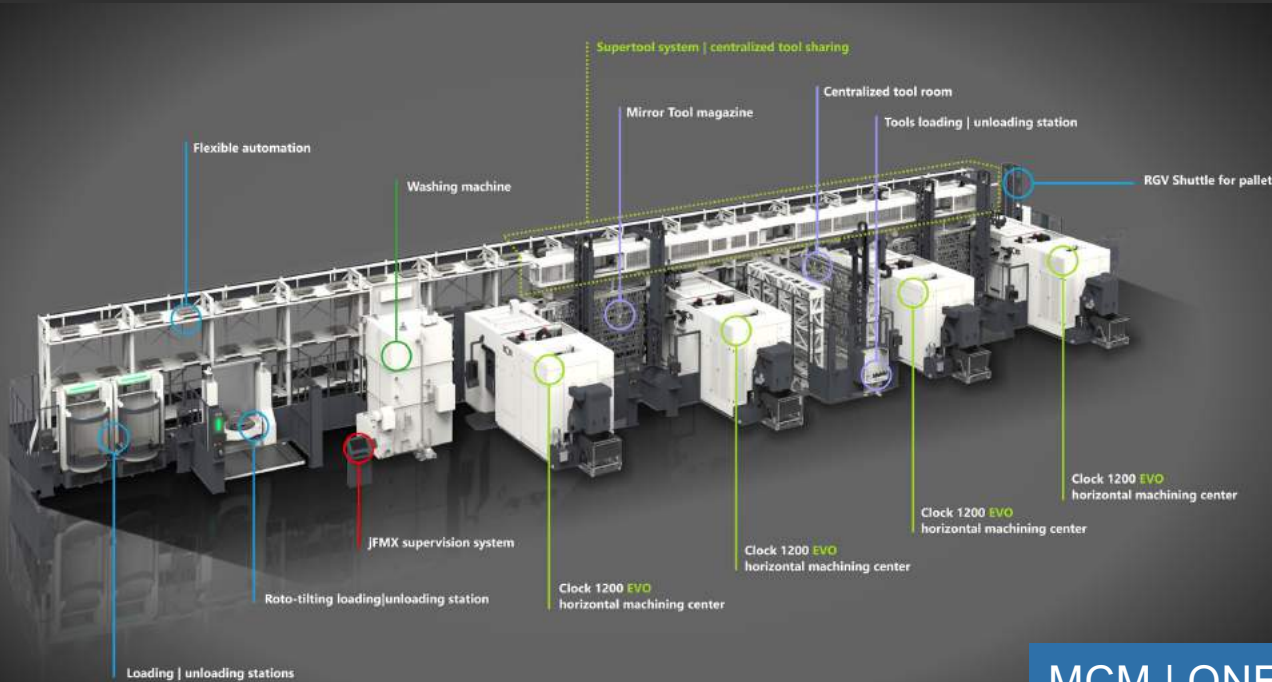


- MONITORING
- MAINTENANCE
- PRODUCTION
- MACHINING
- CTDM
- QUALITY

- I/O DETECTOR DEVIATION MONITORING
- FINGERPRINT TRACKER
- SPINDLE MONITOR
- POWERMETER
- FLUID-MONITOR
- WORKINGSTEP TRACKER
- > OPEN TO IIP* PARTS APPLICATIONS

IC SUPERVISION SOFTWARE

Flexible Manufacturing System recently installed in Illinois.



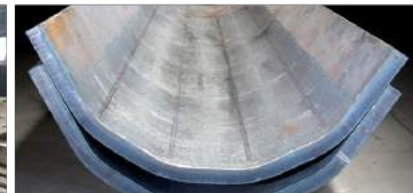
- 4 x CLOCK 1200 EVO
- MCM Mirror ATC
- Centralized Tools Sharing System (> 1.000)
- 2 x loading / unloading stations.
- 1 x roto-tilting loading / unloading station.
- Hi-speed pallet shuttle
- Pallets Storage (> 90)

Highlights :

- \\ Unmanned Production of > 45 articles
- \\ > 48 hrs. of production autonomy
- \\ jFMX integration on the factory ERP
- \\ easy extension option

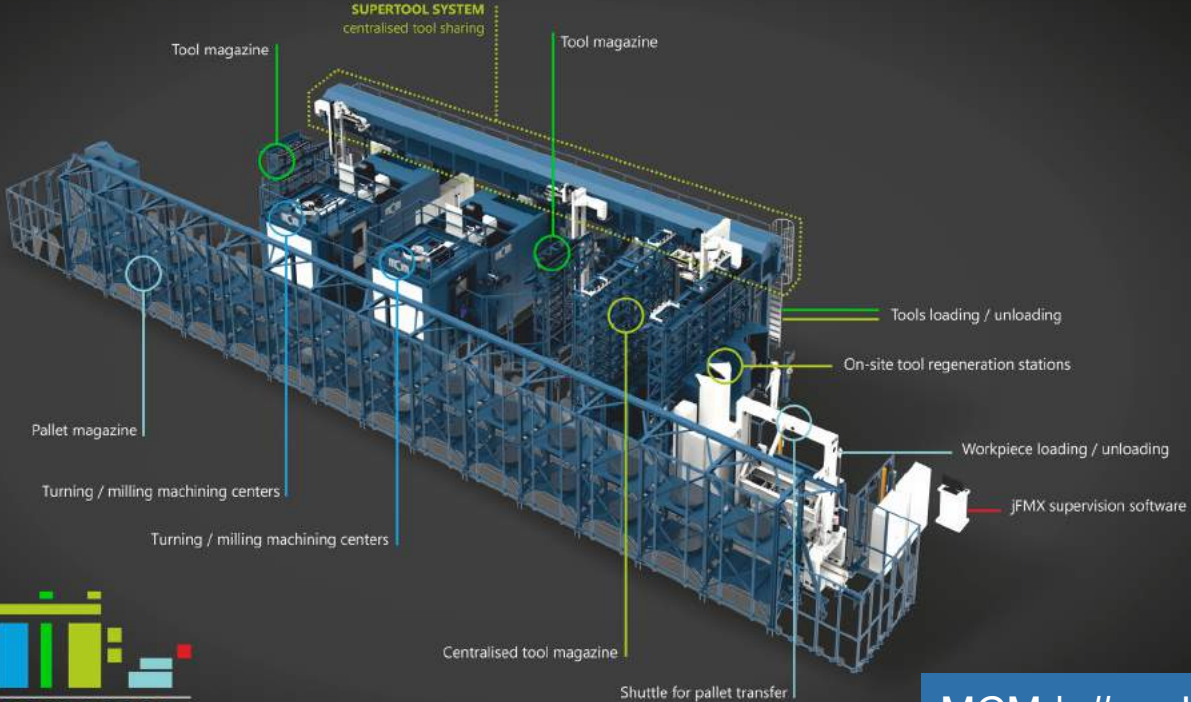
MCM | ONE – SOURCE - SUPPLIER

Press Brakes single or combined
> 1.000 tons | < 6.000 tons > 4 m
- sheet metal handling systems



COLGAR Bending | Press Brakes Machines

Different and complementary technologies integrated into a single production system.



System Integration

- MCM machining centers
- Pallets Handling System
- Centralized Tools Sharing
- Robots Parts Handling
- Deburring systems
- Washing systems
- EDM integration (electrical discharge machining)
- DMM integration (measuring machines)
- Parts Vertical Storage
- Pallets Vertical Storage
- Exclusive management & supervision software suites

MCM | #evolvingtogether #customerfirst



MACHINING CENTERS MANUFACTURING

#evolvingtogether
#customerfirst



www.mcmspa.it

Thank You!



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BUFFOLI TRANSFER S.p.A.

BUFFOLI[®]
NORTH AMERICA Inc.





DIEGO MANCINI and **BILL DAMIAN**
introduce



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WE ARE CELEBRATING 71 YEARS
in high-performance machine tool
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What we do and for which sectors



Automotive, construction, defense, aerospace



Components for gas, appliances, compressors, pumps



Hydraulic and pneumatic components
(heating, ventilation, air conditioning, fire prevention/fighting, anti-pollution, etc.)



Precision bar turned parts
(medical, automotive, air conditioning, etc.)



Bar turned parts for oil, water, gas, electronics: fittings, plumbing valves, connectors, nipples, unions, barbs, covers, rings, screws, caps, inserts, couplings, cartridges, etc.



Hydraulic and lubrication components
(high, middle and low pressure, in carbon steel or stainless steel)



Locks, padlocks and handles



Machined nuts
(forged or bar stock)



How We Do It

solutions designed around the customer

OUR MAIN MODELS OF BAR MACHINES (TRANS-BAR)

Buffoli Transfer, the worldwide leader of Multi-Spindle Bar and Coil Machines for precision turned parts. With up to 24 stations and 3 spindles/station, our Machines produce millions of parts/yr, with up to 30% Unattended production.



TRANS-COIL/TRANS BAR



TRANS-BAR



TRANS-BAR-TURN



TRANS-BAR-COLLET

OUR MAIN MODELS OF CASTINGS/FORGINGS RTM

Our Vertical Axis Transfer Machines have similar characteristics as the Bar/Coil Machines; designed for Complex Shaped Castings, Forgings, and Blanks..



MULTI-WAY TR
TRUNNION TRANSFER MACHINES



MULTI-WAY TG
SUSPENDED TABLE TRANSFER MACHINES



MULTI-WAY 4D
FOUR-DIRECTION TRANSFER MACHINES



MULTI-WAY RJ
ROTATING JAWS TRANSFER MACHINES



TRANS-DOUBLE
DOUBLE PRODUCTION TRANSFER MACHINES



TRANS-N-CENTER FAST



TRANS-N-CENTER ULTRA



TRANS-N-CENTER MAXI



BUFFOLI MEANS INDUSTRY 4.0

Buffoli offers a full Horizontal and Vertical Integration.



HORIZONTAL INTEGRATION

Buffoli machines are fully integrated with advanced automation systems, equipment for washing, inspecting, measuring, assembling, testing, palletizing... and additional peripherals such as RFID readers, tablets, smartphones, surveillance cameras...

VERTICAL INTEGRATION

- Data exchange with ERP or in the cloud
- Real time data collection
- Reports and alerts on mobile devices
- Process monitoring/adaptivity
- Production data analysis
- Condition monitoring and predictive maintenance
- Advanced troubleshooting & visual help
- Energy efficiency management
- Employee productivity enhancement



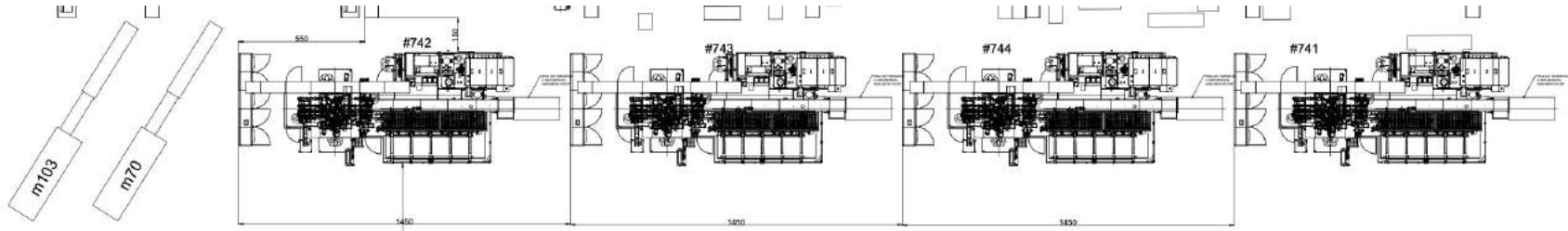
Why BUFFOLI Solution

Highlights of RTM Technology:

- ✓ **Quick Changeover and High Flexibility** → JIT & Kanban
- ✓ **High Output per Sq. Ft.** → Floor Space Saving
- ✓ **WIP and Material Handling Costs Reduction**
- ✓ **Logistic Costs Saving**
- ✓ **Energy Saving**
- ✓ **Automation and Robotics**



Why BUFFOLI Solution



CASE HISTORY

4 Buffoli Bar Machines replaced 15 Screw Machines

- ✓ Quick change over
- ✓ Smaller surface
- ✓ Few Operators





Why BUFFOLI Solution



BUFFOLI TRANSBAR VS. MULTISPINDLE LATHE BENCHMARK

ITEM	BUFFOLI TRANSBAR	MULTISPINDLE LATHE	ITEM	BUFFOLI TRANSBAR	MULTISPINDLE LATHE
MAX BAR DIAMETER	100 MM	40 (60) MM	SIMULTANEOUS 3 SIDES MACHINING	YES	NO
MAX BAR LENGTH	6 M (12 M)	3 M (4 M)	RPM (MAX)	60,000	3,000
BAR DIAMETER CHANGE	FAST & AUTOMATIC	VERY SLOW	REMAINING PIT IN THE CUTTING SURFACE	NO	YES
DUAL FEEDER (BUNDLE AND COIL)	YES	NO	DEBURRING (CROSS HOLES)	YES	NO (VERY SLOW)
COMBY PRODUCTION (BAR AND BLANK)	YES	NO	CURLY CHIPS REMOVAL (SS/AL)	EASY	DIFFICULT
NOT SYMMETRICAL PROFILE BAR MACHINING	YES	VERY DIFFICULT	CHANGING TIME	FAST	SLOW
VIBRATIONS DAMPING SYSTEM	YES	NO	UNMANNED PRODUCTION	YES	NO
BAR CHANGE TIME	7 s	20 s	REMAINING BAR (SCRAP)	PIECE LENGTH	150 MM
BAR PRE-MACHINING (CHAMFER)	NO	YES	GAGING IN PROCESS	YES	NO
			OEE	>95%	75-80%
			SYMMETRICAL PARTS	EASY	VERY LIMITED



THE LANDMARK FOR PRECISION
MACHINING LEADER IN USA
SINCE 1981

MORE THAN 150 MACHINES ARE IN PRODUCTION IN USA LEADING COMPANIES



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In USA the transition is started

We are implementing automatic high volumes machines to replace old mechanical screw machines and conventional VMC/HMC lines

- ✓ **Impressive OEE up to 95%** on brass and **80% on SS**
- ✓ **Very high output** per sq. ft.
- ✓ **Excellent capability** as the full machining process is executed in ONE machine only
- ✓ **The only machine** designed to run with robot and automation in general
- ✓ **High rate of unmanned** machining time (up to 40%)
- ✓ **Reduced number of operators**, avoiding errors and keeping constant efficiency
- ✓ Possibility for in-line **washing, automation, quality control, palletizing**
- ✓ **Power and utilities savings**, adjusting the use on demand

Thank You for your questions!



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**A Perspective of US Manufacturing Innovation:
Purdue Smart Manufacturing Innovation Center (SMIC)**

**Ragu Athinarayanan, PhD
Professor & Director
Purdue University**

USA Manufacturing Innovation Institutes



Manufacturing USA was created in 2014 to secure U.S. global leadership in advanced manufacturing by connecting people, ideas, and technology. Manufacturing USA institutes convene business competitors, academic institutions, and other stakeholders to test applications of new technology, create new products, reduce cost and risk, and enable the manufacturing workforce with the skills of the future.



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SECURING THE FUTURE OF THE U.S. MANUFACTURING INDUSTRY



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www.americamakes.us



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www.arminstitute.org



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lift.technology



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SUSTAINABLE MANUFACTURING
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remadeinstitute.org



A Perspective of US Manufacturing Innovation

DEPARTMENT OF COMMERCE | DEPARTMENT OF ENERGY | DEPARTMENT OF DEFENSE



DOE/CESMII

Smart Manufacturing Innovation Center (SMIC)

A national network of Centers-of-Excellence funded by US Dept of Energy (USDOE), located throughout the U.S. to democratize Smart Manufacturing technologies and capabilities across small, medium, and large industries.



CURRENTLY THERE ARE 7 SMIC'S THROUGHOUT THE COUNTRY



Oregon State University
Food & Bev, Aerospace, SMMs

In addition to the 7 SMIC locations, there are also **10 satellite locations** to help support the SMIC's across the country. This collaboration enables the Smart Manufacturing footprint to extend even further.

ThinkIQ/Atology
Machine Vision-Based Digital Twinning

UCLA



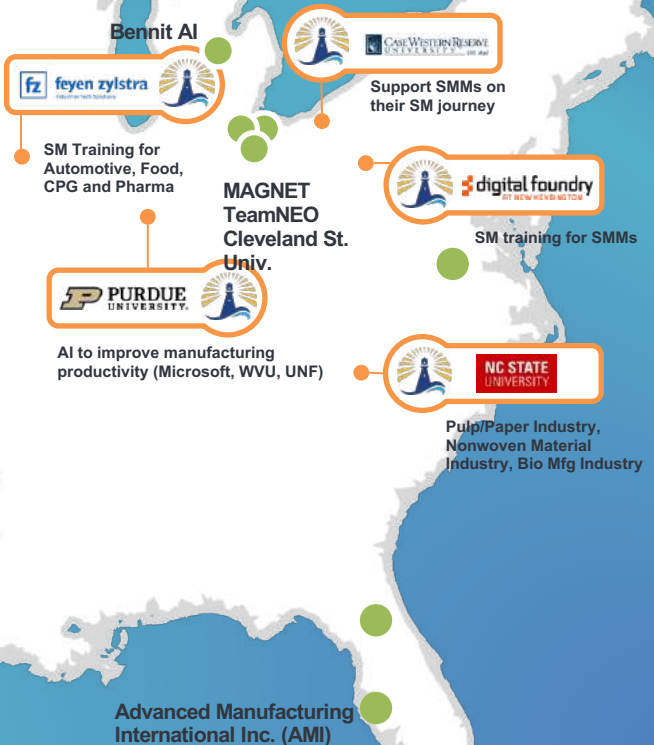
AI/ML for Energy Efficient Manufacturing; Advanced Sensors, Controls, Platforms and Modeling for development and validation of SMIP capabilities

El Camino College
EWD Training Center – Aerospace & Machining Industries



SM Innovation Centers (SMICs)

Red Circle: CESMII Headquarters
Green Circle: SMIC Satellites



Bennit AI

feyen zylstra

SM Training for Automotive, Food, CPG and Pharma

CASE WESTERN RESERVE UNIVERSITY

Support SMMs on their SM journey

MAGNET TeamNEO Cleveland St. Univ.

digital foundry

SM training for SMMs

PURDUE UNIVERSITY

AI to improve manufacturing productivity (Microsoft, WVU, UNF)

NC STATE UNIVERSITY

Pulp/Paper Industry, Nonwoven Material Industry, Bio Mfg Industry

Advanced Manufacturing International Inc. (AMI)

Purdue SMIC: Goals & Objectives

SMART MANUFACTURING INNOVATION CENTER

SMIC Goal : AI to Improve Manufacturing Productivity

Objective: Accelerate & Democratize AI Adoption in Smart Mfg



I. Showcase Smart Manufacturing Methods through the SM Innovation Platform

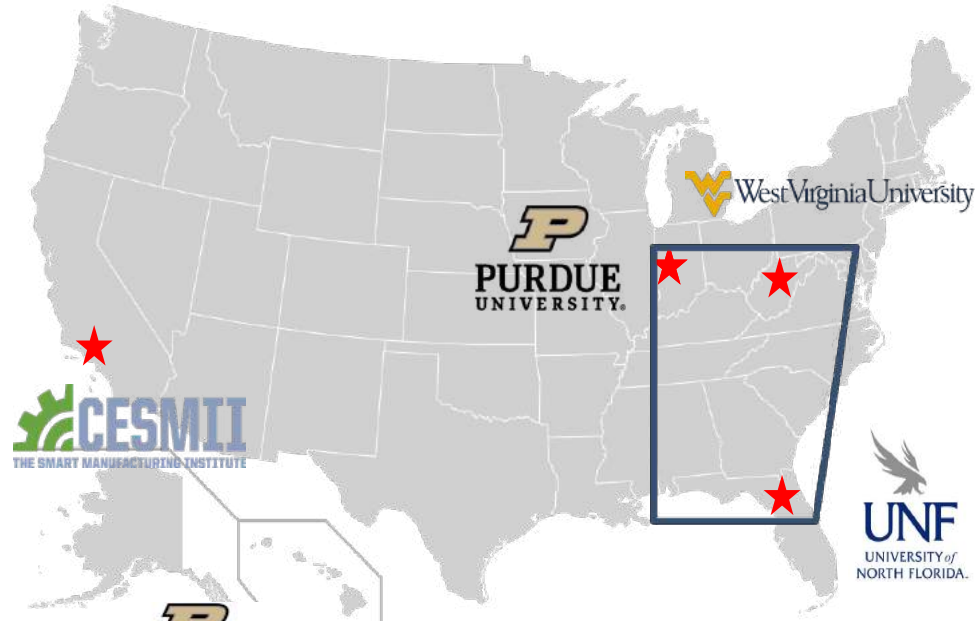
- Use SMIP to lower barrier for adoption of AI solutions across industries
- Provide shop floor-friendly methodologies for non-experts to configure and deploy AI solutions across different manufacturing applications

II. Feature SM Testbeds to Showcase Manufacturing Process Improvements

- 3-Testbeds (Purdue, WVU, & UNF)
- Demonstrate benefits of AI powered solutions to achieve higher levels of efficiency, productivity, quality, performance, and resiliency in supply chain networks



III. Host CESMII Outreach events



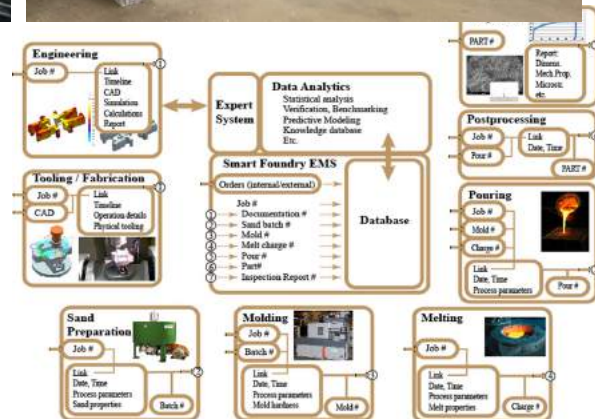
Smart Foundry Testbed

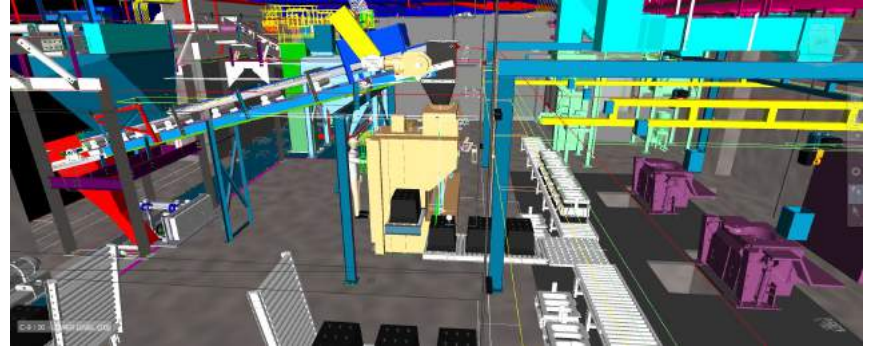
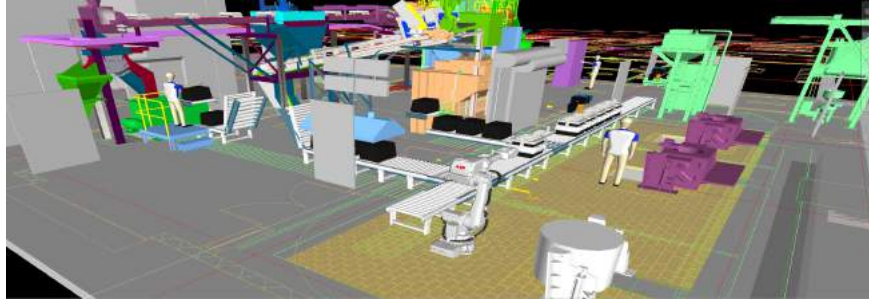
- Industry grade green sand gravity casting multi-alloy foundry using electric resistance, induction, and natural gas furnaces.
- Capabilities for real time monitoring, control, with full operational traceability of all processes from melt to finished casting.
- AI/ML powered Digital Twin (DT) models for capturing insights from data to facilitate intelligent control of the foundry operations to improve performance, quality, and consistency of the castings via predictive outcomes.
- Connectivity to CESMII's SM Innovation Platform (SMIP)



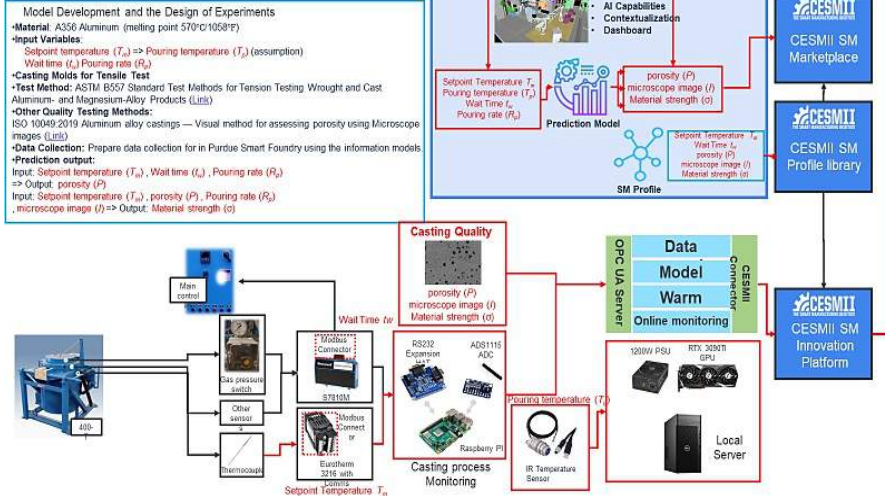
Testbed Configuration

- FDNX-1 Sand Molding Machine
- Model 1F Mix-Muller w/ a Simpson-Hartley Compactability Controller
- VX500 Additive Sand 3D Printing System
- ABB IRB4600 2.05m/60kg Foundry Plus Robot Pouring System with IRC5 Controller
- EC-600 Dynarad® Electric Crucible Aluminum Melting/Holding Furnace.
- 125 kW VIP® Power-Trak® Solid State Induction Power Supply with 500 Lb. Dura-Line® Induction Furnace
- Baker 200-T 600K Btu/hr Natural Gas Fired Crucible Furnace





Casting Quality Prediction



Improving the Gating System to Increase Casting Yield by 4%

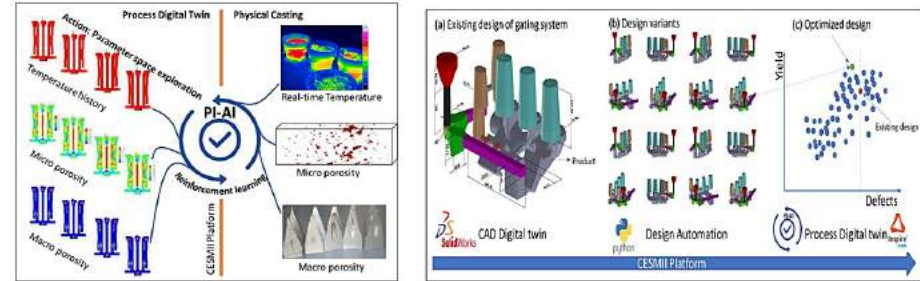


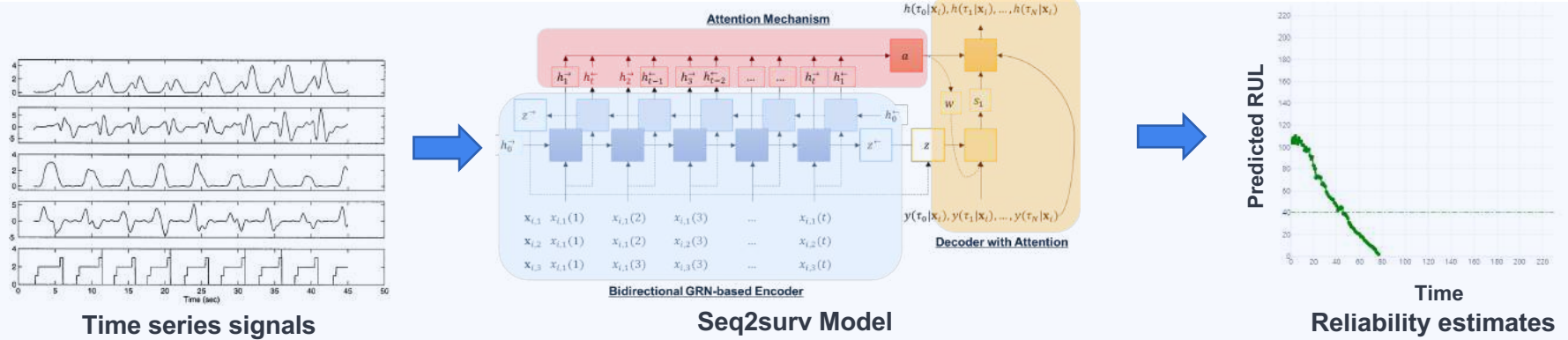
Figure 4: A physics-informed AI (PI-AI) system that integrates the measured data with the physics-based FEA simulations, which is a high-fidelity process digital twin.

Figure 5. (a) Existing gating design from BCI, (gray-colored area is the product, remaining is gating system); (b) Design variants; (c) Evaluation and optimization using process digital twin

A 4% improvement in casting yield could reduce energy consumption in the melting process by 217 MWh, reduce 280 metric tons of casting waste, and reduce GHG emissions by 6,625 metric tons annually across the casting process lifecycle.

Purdue SMIC: Advanced AI/ML Predictive/Prognostic Tools

Seq2surv - A transformer-based deep prognostic model [1]:



Industrial applications:



Tire Reliability



Machine Maintenance



Battery Degradation



Engine test



AC efficiency

Superior model performance [1] - more than **300% error reduction** as compared to the best existing model
Industrial significance – a **highly generalized prognostic tool** for a wide range of industrial projects

Purdue SMIC: Testbed for Smart Additive/Hybrid Manufacturing

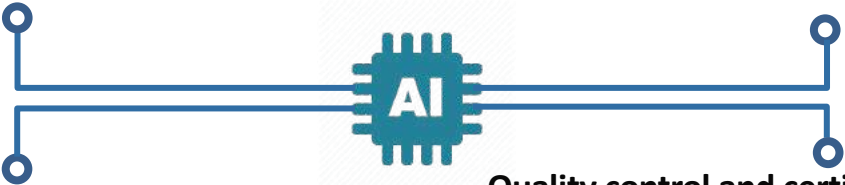


Combining Additive, Subtractive, and Welding

1) High throughput Additive/Hybrid

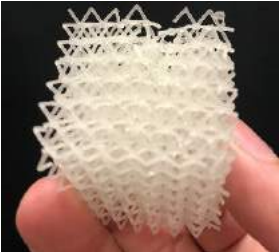
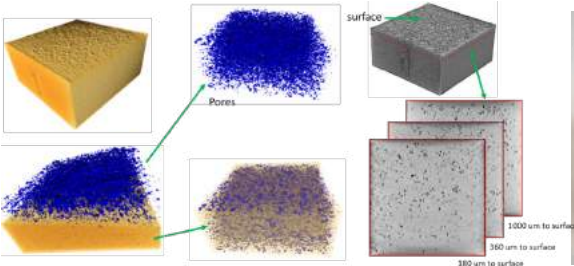
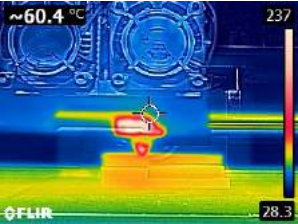
2) Upgrade existing parts

3) Repair parts



Smart process control with In-Situ Monitoring

Quality control and certification



UNF – Satellite SMIC Testbed Capabilities

UNF's Digital Machining Testbed

- Feature **Zero Defect Manufacturing** utilizing smart machining integrated with digital twin and AI capabilities
- **Predict Product Quality** by using data from the sensor signals
- Leverage CESMII's SM Innovation Platform (SMIP) by establishing **connectivity with the manufacturing asset(s)**



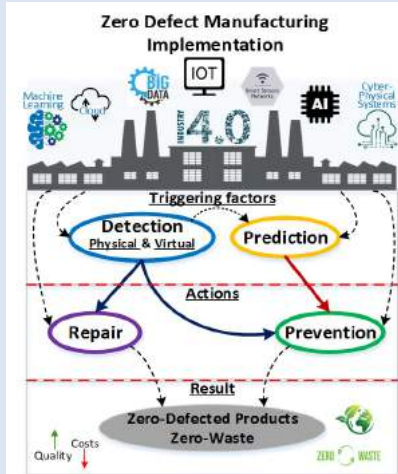
UNF's Digital Machining Facility Key Assets

- The **Haas ST20 Lathe** is a versatile CNC turning machine. The lathe is equipped with three live tool spindles to allow cross cutting and milling to create parts with sophisticated radial geometry
- The **Haas Mini Mill** is a versatile 3 axis CNC milling machine with automatic tool change. The machine is capable of machining large metal parts up to 16" x 12" x 10" and has a 7.5hp spindle motor with 6000rpm maximum

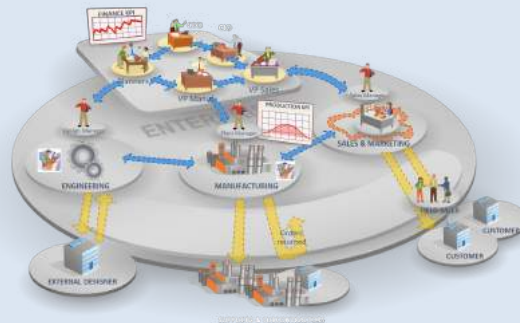
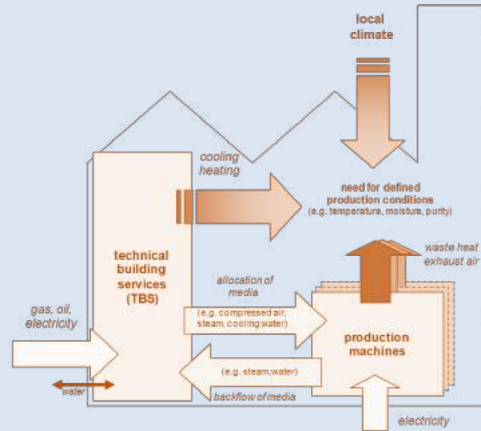


UNF – Satellite SMIC Capabilities

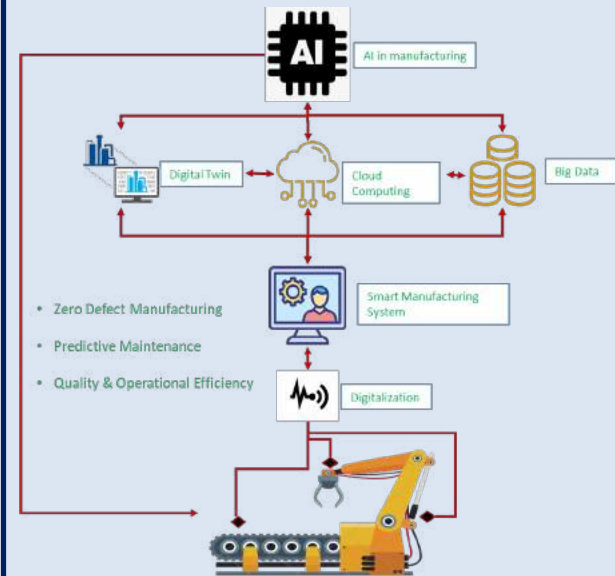
Zero Defect Manufacturing



Energy Efficient Manufacturing



AI in Manufacturing



W. Virginia University – Satellite SMIC

development/validation of AI/ML capabilities to improve resiliency of Digital Supply Networks

Objectives:

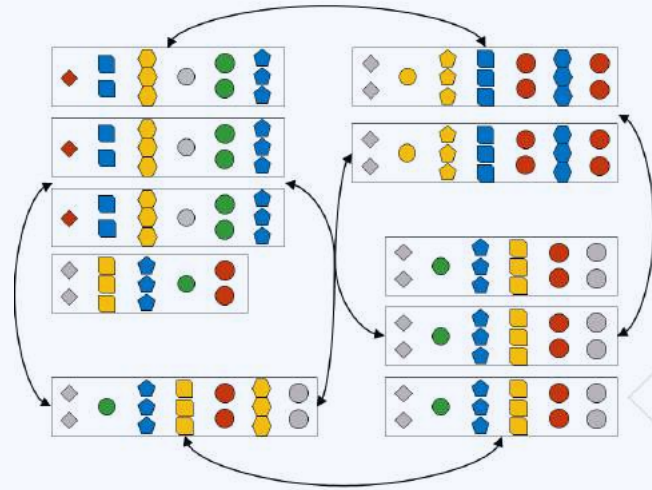


Digital Supply Networks and the Connected Enterprise

Develop agile production network to alleviate the production risks during emergencies

Coordinate material flows, capacity, and manufacturing resources to satisfy both regular demands, e.g., vehicles, and emergency demands?

Connected manufacturing systems



Network Interaction

Optimized flows of machines and components

Achievable Ramp-up Time

Achievable Capacity

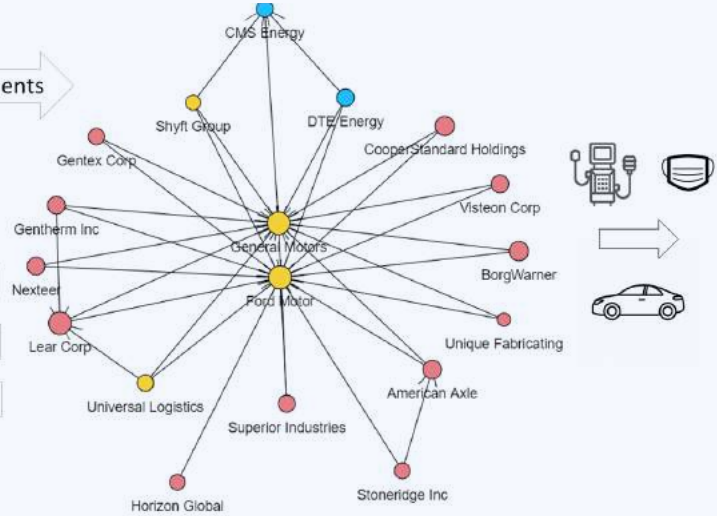
Target Capacity

Target Ramp-up Time

Optimized flows of products and demands

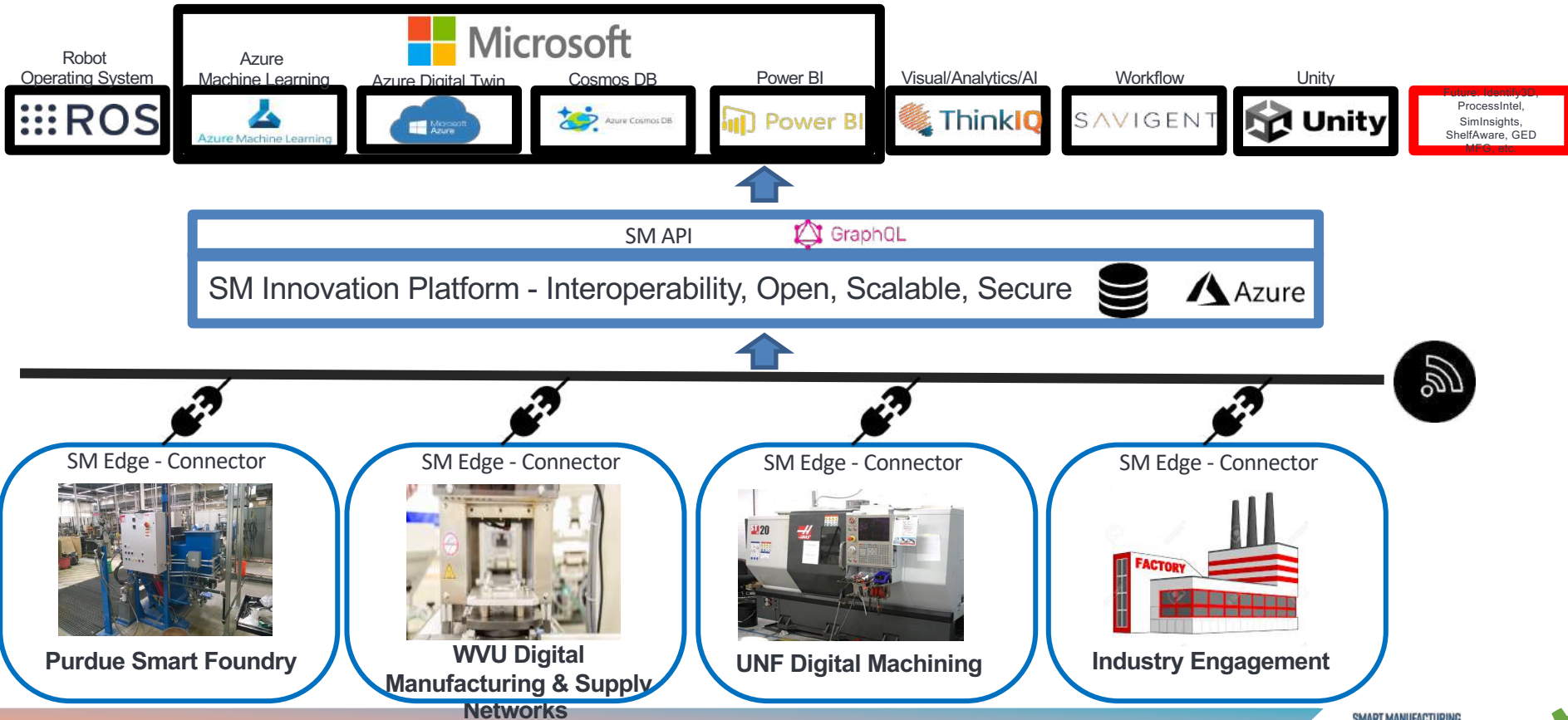
- car part
- car body
- car electric
- ↔ resource flow
- ↔ material flow

Connected supply chain



An agile production network [5] with the flexible capacity to respond to changes in an emergency; Use the network interactions to intelligently coordinate asset management and material flow

Cloud/Edge Manufacturing: Smart Solution Development



OUTREACH & ENGAGEMENT

2-hr SM Teasers - Lunch & Learn Seminar Series on the 9-Pillars of I4.0

- I4.0 & Driving Business Success in Manufacturing
- Introduction to Industrial Internet of Things
- Smart Warehousing Benefits & Digitally Transforming the Supply Chain Industry
- Smart Industry and Applications of AR/VR in Manufacturing
- Smart Foundry Technologies for Improving Quality & Productivity in Metal Casting Foundries
- Predictive & Prescriptive Maintenance in Manufacturing
- Additive & Hybrid Technologies for Small Batch Manufacturing
- COBOTS & Human Robot Collaboration in Manufacturing
- Industrial Cyberthreats and Manufacturing IT/OT Security
- Others



WORKFORCE DEVELOPMENT

How we will democratize and accelerate AI Adoption in Manufacturing

Purdue + Accenture

**Learner Outcomes, Course Recommendations,
and Platform Analysis**

June 08, 2023



WORKFORCE DEVELOPMENT

T&O + INDUSTRY X

Key Personas

● Foundational Accenture Academy Content Available

● Purdue Smart Manufacturing Content Available



Operator

Persona Profile

Existing Manufacturing Frontline Looking to Upskill

Example Current Roles

- Production Operator
- Production Team Leader
- Maintenance Technician
- Quality Control Operator
- Planning Team Member
- Electronics/Equipment Technician
- Field Service Technician

Potential Skills Gaps

- Using tablets/wearables/mobile
- Digital tools (dashboards, HMI machines in their stations)
- Connected Worker Technology
- Working with dashboards
- Data-based decision making
- Communication
- Troubleshooting



Manufacturing Supervisor

Manufacturing Supervisor Looking to Upskill

- Production Supervisor/Engineer
- Quality Supervisor/Engineer
- Manufacturing Engineer
- Smart Factory Engineer
- Design/Product Engineer
- Electrical Engineer
- Controls Engineer
- Industrial Automation Engineer

Operator Skills + the below:

- Smart Manufacturing Tech
- Time management
- Reporting
- Data entry/management
- Problem solving
- Communication/Escalation
- Data Analysis
- Prioritization
- Workforce Management



Non-Manufacturing Supervisor

Non-Manufacturing Mid-Level Supervisor Looking to Pivot into Manufacturing

- Engineering/Supply Chain Supervisor
- Project/Program Manager
- Supply Chain-Automation Lead/Expert
- Quality Engineer
- Continuous Improvement Manager/Supervisor

- Smart Manufacturing 101 / Tech
- Lean Six Sigma
- Data Mining / Metric definition
- Problem Solving
- Team and Time Management
- Leadership
- Communication
- Reporting
- Dashboard Utilization
- Accountability



Technology Expert

Non-Manufacturing IT Team Member Looking to Pivot into Manufacturing

- Cloud Solution Architect
- Full Stack App. Developer
- Data Science Analyst
- IOT and Data Analyst
- Software Engineers
- Systems Designer
- Electromechanical Engineer

- Manufacturing Specific Tech
- AI for physical infrastructure
- Augmented reality
- Network Infrastructure
- Manufacturing Data Flow
- IT vs OT critical systems and network knowledge
- OT software licensing and ownership process
- DevOps/Agile



WORKFORCE DEVELOPMENT

T&O + INDUSTRY X

Potential Course Curriculum

Accenture Content
Purdue Content
Jointly Developed

First Launch
Sept/Oct 2023

Level 1 – Smart Manufacturing Foundations (All Personas)

Smart Manufacturing 101
(5-6, 30-minute modules)
(Accenture + Purdue)

Data Fundamentals
(1 hour module)
(Accenture + Purdue)

Business Skills
(Multiple modules)
(Accenture)

Level 2 – Smart Manufacturing Deeper Dive (All Personas)

Internet of Things
(60-90-minute module)
(Purdue)

Supporting content (Accenture)

Digital Twin
(60-90-minute module)
(Purdue)

Supporting content (Accenture)

Network Infrastructure
(60-90-minute module)
(Purdue)

Supporting content (Accenture)

(Purdue)

Supporting content (Accenture)

Level 3 – Tech Personas

**Smart Manufacturing
Systems Modeling &
Simulation**
(Purdue)

**Mixed Reality Smart
Manufacturing Apps &
Design**
(Purdue)

**Industrial IoT Networks and
Systems**
(Purdue)

**Process and Continuous
Control Applications**
(Purdue)

**Machine Learning
Manufacturing Analytics**
(Purdue)

**Autonomous Human Robot
Systems**
(Purdue)

(Purdue)



OUTREACH & ENGAGEMENT

How we will democratize and accelerate AI Adoption in Manufacturing

1. Leverage Microsoft and their network of MTC Centers to engage with a national manufacturing audience.
2. Outreach efforts include:
 - ✓ Provide engineering support services
 - ✓ Education, skilling & workforce development
 - ✓ Help industries scale AI applications
 - ✓ SM programs at Purdue, WVU, and UNF engaging with industry on related projects
 - ✓ Others



 MICROSOFT TECHNOLOGY CENTER

Thank you.





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Meet the Innovators



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Comau

Who Am I



- Industrial Automation Products and Solutions provider
- Headquarter in Torino, Italy
- Part of Stellantis
- Global presence in 13 Countries
- 3700 employees



Laerte Scarpitta

Comau Americas Region Leader (North America & South America) and
Comau NA Country Manager & President

What I do and For Which Sectors

Our Expertise by Industry

Competences



- Assembly
- Machining
- Process Technologies
- Special purpose machines
- Logistics
- Material Handling
- Digital

Products



- Robots
- AGV
- Intelligent Robotics Solutions
- Welding Guns
- Machining Centres
- Wearable Technologies
- IoT Platform

High Value Services



- Consultancy
- Aftersales
- Academy and Education

Mobility



Automotive

- Body in White
- Powertrain Machining and Assembly
- E-Motors and Transmissions
- Battery Tray



On/Off Highway

e-Mobility



Energy Storage

- Cells
- Modules
- Packs
- Fuel Cells

Fulfilment



- Logistic systems
- Material handling

Renewables



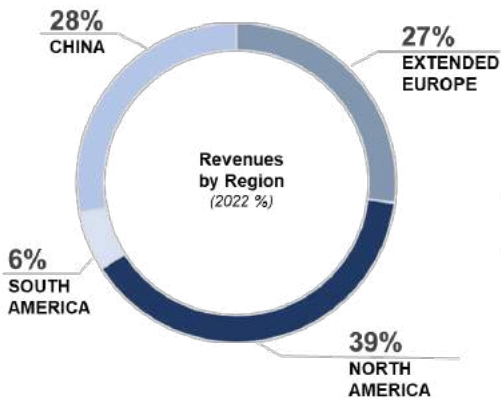
- Solar
- Wind
- Hydrogen

How I Do It

Offering and Footprint



What Have I Done in the US



Our References

AUTOMOTIVE



ELECTRIC VEHICLES



COMMERCIAL VEHICLES



HEAVY INDUSTRY



OTHER INDUSTRIES



ENERGY



What I would like to do in the US

Customer Focus
Global footprint and execution in proximity to clients

Expertise
Conceptualization, design capabilities with access to **Best Cost Countries** capacities

WHY COMAU?

Innovation
Application of Comau Innovation (**Global Innovation Network**) across different industries

Global
More than 50 nationalities and 15 languages spoken

Quality
Quality Assurance guaranteed on a Global basis

- Maintain leadership in the Automotive industry
- Strengthen our presence outside of the Automotive industry

Thank You!



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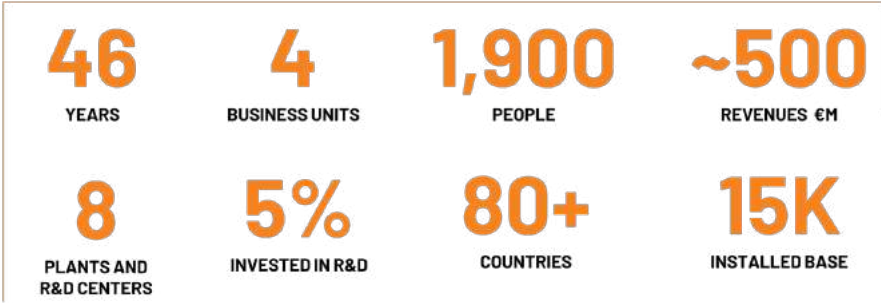
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Prima Industrie S.p.A.

Giovanni Zunino – Prima Power Americas Region CSO Prima Industrie North America inc. CEO



% on revenues
31/12/2022

OUR BUSINESS UNITS



LASER AND SHEET METAL MACHINERY



METAL ADDITIVE MANUFACTURING



EMBEDDED INDUSTRIAL ELECTRONICS



LASER SOURCES AND DIODES



OUR PRODUCT RANGE



LASER MACHINES



SHEET METAL PROCESSING MACHINES & SYSTEMS



ADDITIVE MANUFACTURING



7

MANUFACTURING PLANTS



2D, 3D LASERS - ADDITIVE
WW HQ - Collegrò - TO (ITALY)



PANEL BENDERS - PRESS BRAKES
Colugna V.ta - VR (ITALY)



PUNCHING - COMBI - SYSTEMS
SEINÄJOKI (FINLAND)



LASER - PUNCHING
WUZHOU - SUZHOU (CHINA)



LASERDYNE SYSTEMS
Brooklyn Park - MN (USA)



ELECTRONICS
Moncalieri - TO (ITALY)



LASERS - ELECTRONIC SYSTEMS
Barone C.se - TO (ITALY)



LASERS - CONVERGENT PHOTONICS
Chicopee - MA (USA)

13



POWERING YOUR BUSINESS

BY PUSHING INNOVATION

The main driver that moves us to innovate is **enhancing our customers' profitability through advanced, reliable, and autonomous production systems.**

Whatever the type of application you need and whatever the industry you operate in, our comprehensive portfolio of technologies will meet your needs, with dedicated solutions in the automotive, space economy and many other high-growth sectors, as well as for job shops and contractors.

AEROSPACE

FOOD SERVICE EQUIPMENT

AUTOMOTIVE

HEALTHCARE & MEDICAL

BUILDING & HOUSING EQUIPMENT

HVAC

ELECTRIC CABINETS

MECHANICS & MACHINERY

ELEVATORS & ESCALATORS

STEEL FURNITURE, PANELS & WAREHOUSING

ENERGY

YELLOW GOODS & TRUCKS

Key figures

-82%

ENERGY CONSUMPTION
WITH OUR SERVO-ELECTRIC PUNCHING AND ECO-PUNCH TECHNOLOGY COMPARED TO HYDRAULIC SOLUTIONS

-64%

CO2 EMISSIONS
WITH OUR SERVO-ELECTRIC PANEL BENDERS COMPARED TO HYDRAULIC SOLUTIONS

Prima Industrie joined the **UN Global Compact** in July 2022. With more than 15,000 companies in over 160 countries, it is the largest corporate sustainability initiative.



- URBANIZATION AND SMART CITIES
- GREEN AND CIRCULAR ECONOMY
- E-MOBILITY
- SPACE ECONOMY
- HEALTH AND WELLBEING



- Prima Power North America inc. is headquartered in Arlington Heights, Illinois
- PPNA sells and services the machinery of Prima Power in USA, Canada and Mexico



- Prima Power Laserdyne LLC is a Product Unit within the Prima Power Business Unit based in Brooklyn Park, Minnesota
- PPL is the leading supplier of the world's most flexible laser systems for precision laser welding, drilling, and cutting.



Thank You!



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Since 1951



A PARTNER-SOLUTION FOR CUSTOMER NEEDS



GIANLUCA BATTISTI
SALES DIRECTOR

madeinitaly.gov.it



Design World

PRODUCTION PLANTS

CADONEGHE (PD) ITALY



SANTA MARIA DI SALA (VE) ITALY



BORGORICCO (PD) ITALY

parpas

AREA

60.000 mq 645.835 square
ft

BUILDINGS

13.800 mq 148.542 square
ft



AREA

22.000 mq 236.806 square
ft

BUILDINGS

7.500 mq 80.730 square
ft

BRANCHES AND SALES NETWORK



71

YEARS OF HISTORY



Employees 330



Turnover 90M USD



791 Industrial Court
Bloomfield Hills, MI 48302, USA



5425 Outer Drive
Oldcastle, Ontario N9G 0C4, Canada



Holstenwall 10
D-20355 Hamburg, Germany



WHAT/HOW WE DO

HI-TECH PERFORMANCE 5 AXIS MACHINE TOOLS IN GANTRY, MOVING COLUMN, FIXED PORTAL AND MOVING TABLE, BLISK/BLAD MACHINING CENTERS, MULTI-AXES MACHINING CENTERS.

ACCURACY, RELIABILITY AND REPEATABILITY OF ACCURACY OUR EVERYDAY TARGETS

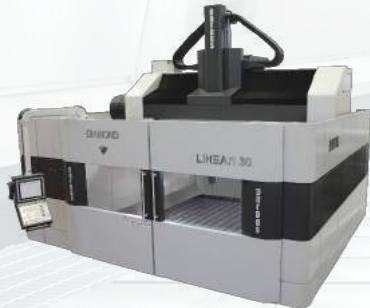
BEST APPLIED TECHNOLOGIES AND QUALITY COMPONENTS

EXTREME ATTENTION TO DETAIL DURING ASSEMBLY AND INSTALLATION

CUSTOMIZED PROJECTS AND SOLUTIONS ACCORDING TO NEEDS OF CUSTOMERS

GREEN ENERGY SAVING SOLUTIONS FOR EVERYDAY MACHINING

EXPERIENCE HIGH SPEEDS ELECTROSPINDLES PRODUCTION SINCE 1999



BUSINESS AREAS GRUPPO PARPAS



AUTOMOTIVE



SPACE



AVIATION



POWER GENERATION

MAIN PROJECTS IN USA

WE ARE A RESOURCE FOR CLIENT



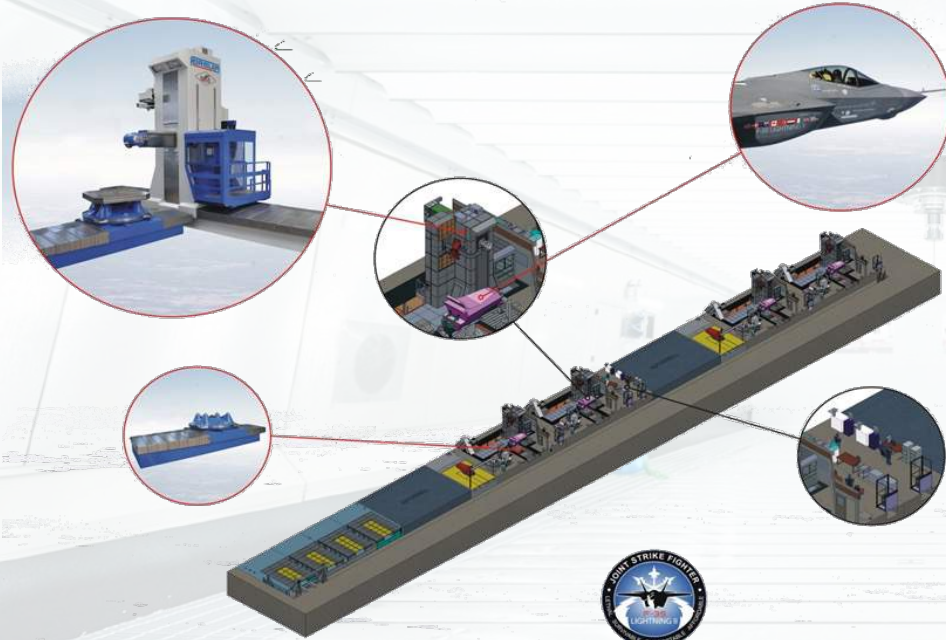


&

LOCKHEED MARTIN



WE ARE PROUD TO HAVE STARTED THIS PARTNERSHIP IN 2014, BECAME A "TRUSTED PARTNER" AND CONTINUE YEAR AFTER YEAR WITH NEW PROJECTS





US DIRECT PRESENCE
SINCE 1992

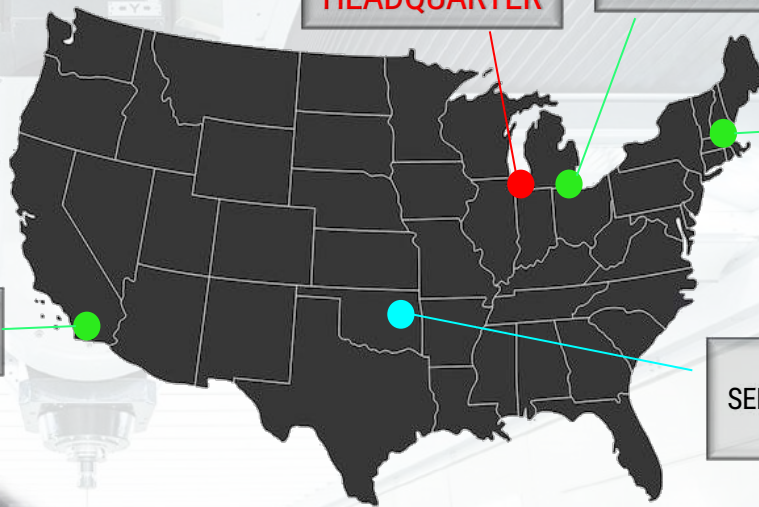
WEST
SERVICE CENTER

HEADQUARTER

CANADA
SERVICE CENTER

EAST
SERVICE CENTER

CENTRAL
SERVICE CENTER
2024



OUR 4.0 SERVICES

INSTANT SUPPORT
TELESERVICE SUPPORT
PROCESSING AND MONITORING
FAST SPARE PARTS



THANK YOU



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TACCHI GIACOMO E FIGLI S.P.A.



Tacchi Giacomo e Figli S.p.A.



Headquarters:

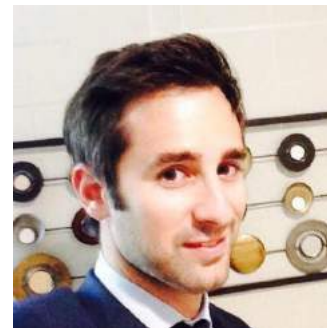
Via Carso, 19/21
Castano Primo (MI), ITALY
Phone: +39-0331-889811
E-Mail: tacchi@tacchi.it

Last year's turnover: 28.000.000 Euro



Presence in the US:

Tacchi USA, Inc.
121 Hawick street
Rockton, Illinois 61072, USA
Phone: +1-815-6248005
E-Mail: tacchi@tacchiusa.com



Name of the speaker:

Giovanni Tacchi

Number of employees: 125



What I do and For Which Sectors

Power generation

Our top references:

GE, Siemens (Charlotte and Houston), Mitsubishi-Hitachi (Savannah), Ethos Energy, etc ...



Horizontal lathes for turbine rotors



Horizontal lathes for generator shafts



Deep hole drilling machines for generator shafts



Defense

Our top references:

Various entities belonging to the US Defense



Lathes



Deep hole drilling machines



Shipyards

Our top references:

Various entities belonging to the US Navy



Lathes for propeller shafts



Deep hole drilling machines for propeller shafts



Metallurgic industry (forging companies, foundries, steel mills)

Our top references:

Scot Forge, Ellwood Group, Union Electric Steel Group, etc ...



Turret lathes



Lathes



Deep hole drilling machines



Roll turning machines



Aerospace - Landing gears and Motor shafts

Our top references:

Collins Aerospace, GE Aviation, Magellan Aerospace, Le
Fiell Manufacturing, Héroux-Devtek (Springfield) , etc ...



Lathes for landing gears

Deep hole drilling machines
for landing gears



Deep hole drilling machines
for motor shafts





Oil & Gas

Our top references:

Schlumberger/Cameron, Halliburton, Baker Hughes, TechnipFMC, SBOT (Broussard), etc ...



Horizontal lathes for “Christmas Trees”



Deep hole drilling machines for drill collars



General machining

Our top references:

B&F, C.G. Bretting, Laidig, American Flowform and Machining, etc ...



Horizontal lathes for different applications



Deep hole drilling machines for different applications



Hydraulic cylinders

Our top references:

Caterpillar, Montanhydraulik, etc ...



Lathes for piston rods



Deep hole drilling machines for hydraulic cylinders



Paper industry

Our top references:

Sandusky, etc ...



Turning, milling and grinding centers for paper rolls



Multiple drilling machines for suction rolls



What I would like to do in the US

Our company is known in the United States as the technological reference for the machines in our range.

For US customers, Tacchi is a guarantee of quality and reliability, both for high precision applications and for applications with high stock removal.

Our goal is to constantly improve our technical solution to be able to meet the production needs of our customers, according to the specific features of each industry and the technological innovations available on the market.

Thank You!



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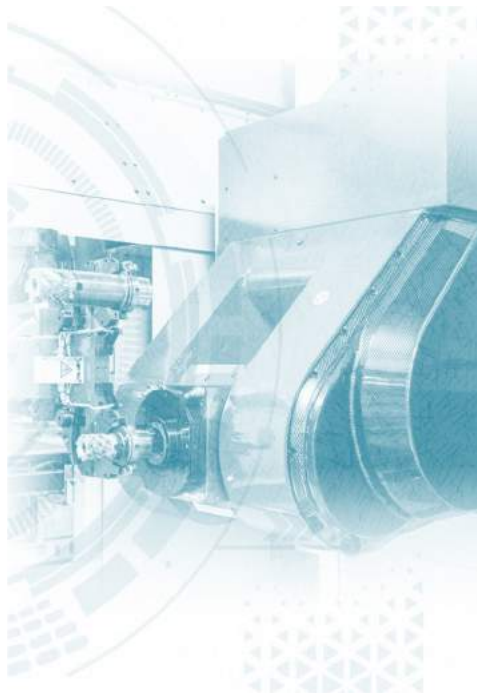
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Mandelli Srl – Leading Company in 5-axis CNC & Automation



Proud to be an



Worldwide Presence:
EMEA, NAFTA, APAC, LATAM
1,120 Employees
€298M Turnover



ITALIAN INNOVATION MAKERS. SINCE 1932

Headquarters
Piacenza, Italy



Steve Pintar
Dir. Sales North America



Which Sectors:

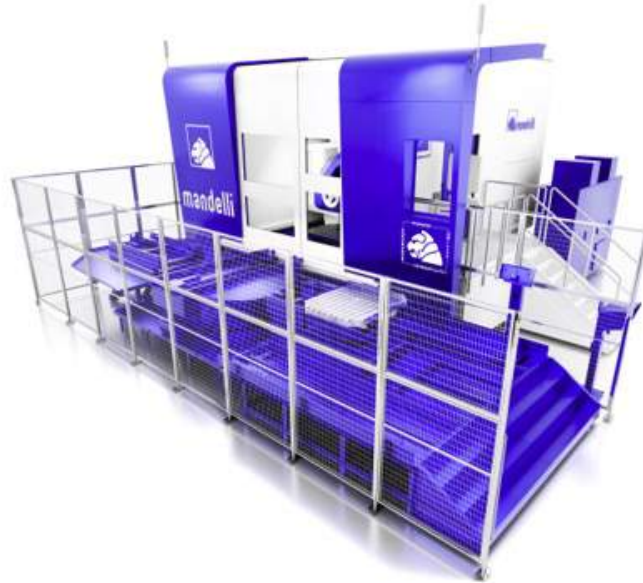
Difficult Machining Applications in:

- Aerospace
- Energy
- Oil & Gas
- Automotive / Marine
- Heavy Equipment



What we do: The Mandelli Range

SPARK Horizontal Machining Centers



SPARK 1200
SPARK 1300
SPARK 1600
SPARK 1600 TURNING
SPARK 2100
SPARK 2100 TURNING
SPARK 2100 Ti
SPARK 2600
SPARK 3500

Rigid – Powerful - High Performance - Multitasking – 5axis

The Mandelli Range

RUMBLE Large Profilers 4000 and 6000



Rigid - Powerful - High Performance - Clean Chip Removal

The Mandelli Range

HS50 / HS60 / HS80 New Smaller HMC



High Performance - Multitasking - Compact – 5axis - Smart



The Mandelli Range

Automation - FMS - Robotics

Flexible Manufacturing Systems and Pallet Handling Systems





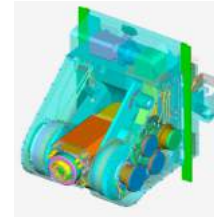
How we do it: Strengths & Innovations

We Work Closely With Our Customers To
Develop New and Innovative Solutions For Complex Applications

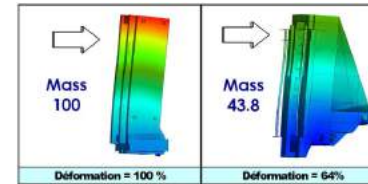


Strengths & Innovations

Advanced Heads and Spindles
Thermally Stabilized
High Axial/Radial Rigidity
Zero Backlash Kinematics



Advanced Architecture and Design
Highly Rigid Column
Superior Tap Testing
Base Design Enables Minimum
Foundation



New Technologies - Power Skiving Gears
Synchronization of Direct Drive
Rotary Table and Motorspindle

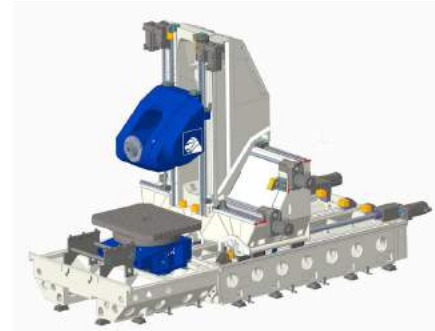


Strengths & Innovations

Ultra High-Pressure Coolant (UHPC)
Superior Chip Removal
350 bar, 20 l/min



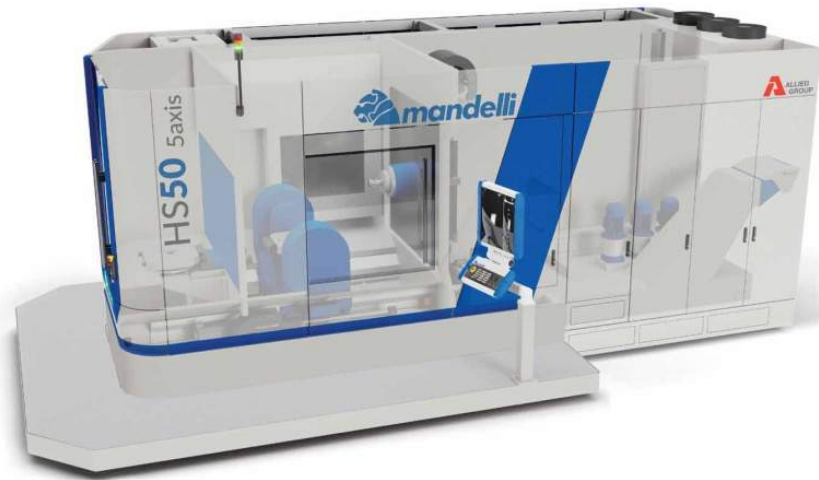
Advanced Titanium Machines
HSK 100 / 125
Heavy Duty Fixed Rotary Table
Increased Size of Ball Screw Motors
Damping Devices
Double Ball Screw XYZ



Strengths & Innovations

New Eco-Friendly Machines
Smaller More Compact
Energy Saving
Smart

Our New HS Series



Strengths & Innovations Our Industry 4.0



iPum@Suite4.0, the Mandelli package with new APPs for the Smart Factory of today which guarantee real time monitoring of the machining center thanks to the five interconnected modules

iPum@Control, the user interface that controls the machining center through a 22" touchscreen divided into 3 sections to offer a global overview of the HMC operating status

iPum@Reality, the APP that guarantees a Smart Experience through the use of the Augmented Reality applied to all processes, from Sales to Troubleshooting

iPum@Scada, The Supervising & Control Software developed by Mandelli to optimize the use of the HMCs equipped with pallet handling system thanks to the data acquired in real time

iPum@Predict, the system that processes the machining data and monitors the machining status to prevent possible non optimal working conditions detected in advance

iPum@Smartcut, the HW and SW system that monitors the machining process through the control of vibrations and stabilizes the cutting process via vibration damping strategies



Recent US Experience

The Boeing Company:

- 10 New SPARK 1300 HMCs in 2 FMS systems and standalone
- Integration with the companies Manufacturing Execution System (MES)
- Integration of a sophisticated robot cell with lights out capability
- Machining of aircraft aluminium and titanium structural parts with significant improvement in efficiency





Goals In The US Market

- Continue to expand the aerospace sector with major OEMs and Tier 1s
- Continue to expand into other market sectors
- Continuous improvement of automated solutions, partnering with Siemens and Fanuc software providers
- Introduce new HS Series machines across US market
- Capitalize on strong Allied Group presence to enhance customer support

Thank You!



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Ministry of Foreign Affairs
and International Cooperation



Design World

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2023

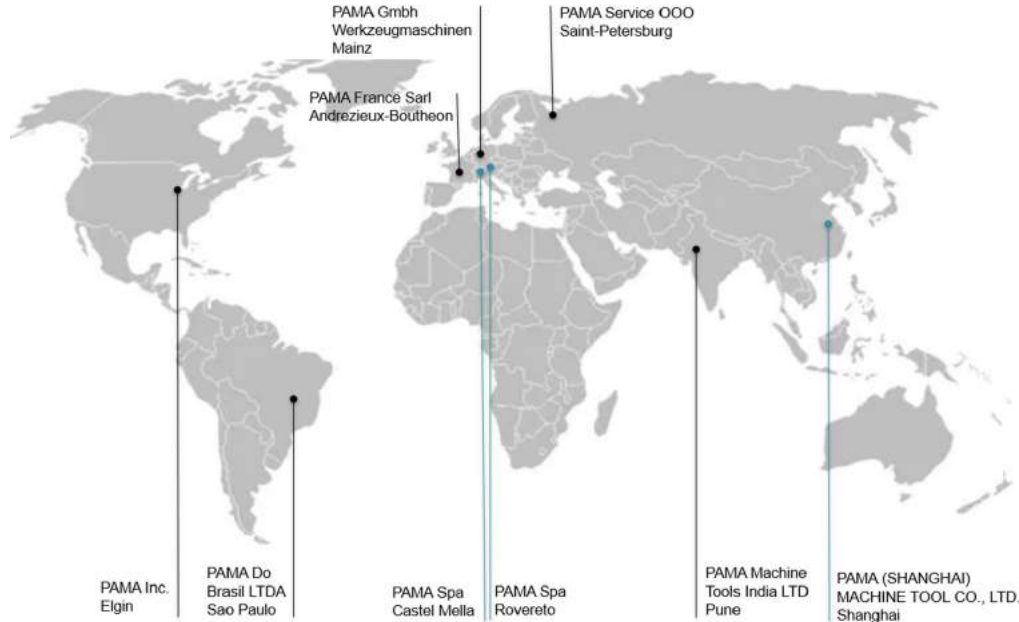
JUNE 14, 2023 • CHICAGO, ILLINOIS

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PAMA is one of the main manufacturers in the world of large boring/milling machines, gantry type vertical machining centers and machining centers that directly distributes and installs in all the main industrial markets through its own sales and technical assistance organization

Pama Inc.
Sergio Scotti
General Manager



Rovereto plant
35,000 m²

of Employees: ~340



Brescia plant
3,300 m²

of Employees: ~40



Lingang plant
10,700 m²

of Employees: ~70

2022 Turnover: over 150M\$

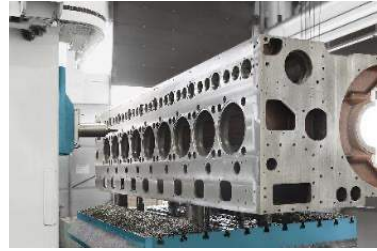
Pama is a supplier to the most important multinational industrial groups working in the sectors of Energy, Construction & Mining, Diesel Engines, Marine & Shipyards, Railway, Aerospace, Industrial Equipment, etc.



NAVAL



ENERGY



DIESEL ENGINES



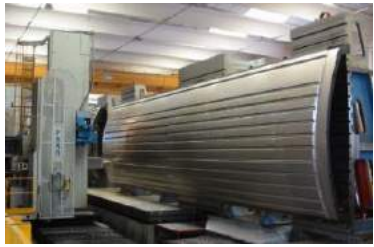
EARTH MOVING



DEFENSE



DIE & MOLD



AEROSPACE



OIL & GAS



SUBCONTRACTING



MACHINERY

Vertical Multifunction
Machining Centers



SPEEDMAT VM - VMT

Floor Type Milling
Machines



SPEEDMILL

Flexible Manufacturing



PR2 - P-HUB

Horizontal Multifunction
Machining Centers



SPEEDMAT HP - HPT

Vertical machining
centers



VERTIRAM GT - TT

Tool magazines & ATC



T-Type Horizontal Boring
Mills



SPEEDMAT

Standard and Custom Attachments



TS - TU - TW - TTL - UT

Attachment Automation

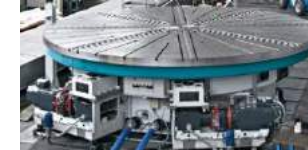


Floor Type Horizontal
Boring Mills



SPEEDRAM / SPEDMILL B

Rotary & Turning Tables



TR - TH - TRV - THV -
TRT - THT

Dividers and Steady Rests



Pama product line covers all needs for medium to large machining requirements



WORKING AREA		
X axis	2,000mm	78"
Y Axis	2,000mm	78"
Z axis	1,300mm	51"
Max swing dia	2,000mm	78"

TABLE		
Table or pallet size	1,250x1,250mm	50"x50"
Table capacity	6,000kg	13,200lbs
Pallet capacity	4,000kg	8,800lbs

WORKING AREA		
X axis	2,600mm	102"
Y Axis	2,000mm	78"
Z axis	2,300mm	90"
Max swing dia	2,600mm	102"

SPINDLE		
Quill Size	130mm	5.3"

TABLE		
Table or pallet size	1,250x1,250mm	50"x50"
Table capacity	6,000kg	13,200lbs
Pallet capacity	4,000kg	8,800lbs

WORKING AREA		
X axis	50,000mm	164'
Y Axis	10,000mm	32'
Z axis	2,000mm	78"
W axis	1,600mm	63"

SPINDLE		
Quill Size	300mm	12"

WORKING AREA		
X axis	50,000mm	164'
Y Axis	11,600mm	38'
Z axis	4,000mm	156"
W axis	3,600mm	141"

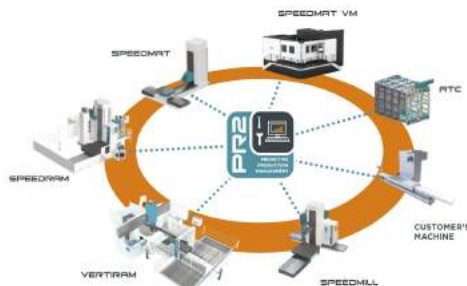
Clearance between columns	10,100mm	78"
Clearance under the ram	6,000mm	236"

WORKING AREA		
V axis	7,000mm	23'

TABLE		
Table capacity	600,000kg	1,320,000lbs

multi-level, applications integrated software developed by PAMA, designed to bring our clients to a higher level of efficiency and profit, thanks to our intuitive user interface, management of the production units in real time with predictive approach in both manned or unmanned conditions.

PR2 SUITE



energy saving: low friction guides, use of direct drive technology, regenerating drives, intelligent use of all auxiliary units



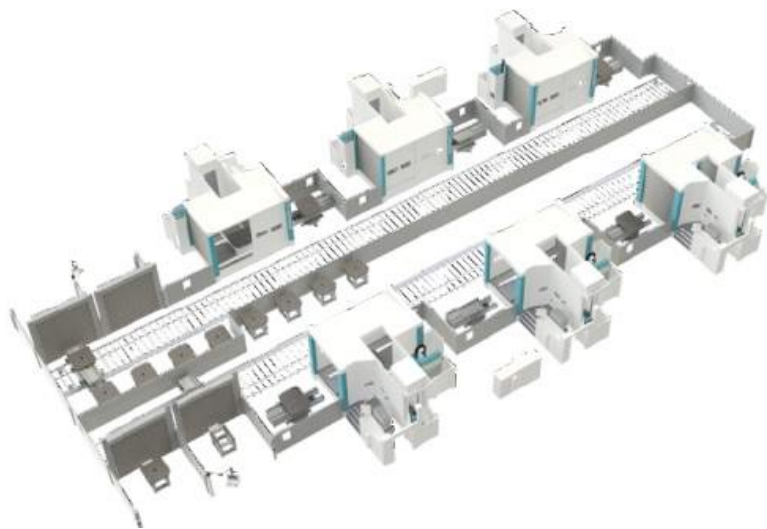
operational efficiency: multitasking configuration, machine reliability, PMP, MSM machine sensor monitoring and predictive maintenance, PR2 SUITE to optimize efficiency

space saving: compact design, wide choice of tool changer and chip conveyors



PAMA competitive strength is based on:

- ▶ **Production company strongly based on the principles of Lean Management**
 - ▷ Apprenticeship program (PAMA Academy)
 - ▷ Continuous training
 - ▷ Highly skilled workforce
- ▶ **High level of internationalization**
 - ▷ Over 75% of production exported
 - ▷ Business and service presence on major markets
- ▶ **Full product portfolio focused on medium and large machines**
 - ▷ Positioned as a “solution provider” (solutions to optimize customer processes)
- ▶ **Always looking forward**
 - ▷ More then 50M€ reinvested in infrastructure and R&D in the last 10 years
 - ▷ Continuous improvement initiatives aimed at maximizing product standardization and Industry 4.0 integration



Our client with the support of the local authorities invested in a new plant shifting production of some components from other manufacturing facilities. The request was to provide as a turn key, a system capable of handling several part families and multiple part numbers in automated mode inclusive of machines, process, fixturing, tooling etc.

Our solution was to provide 2 separate cells with 3 machines each, RGV for automated part delivery and 2 L/U stations to allow both part handling as well as fixture reconfiguration. Each cell run by our PR2 (Predictive Production Management) , The purpose of the software is to optimize the efficiency and the saturation of the system in manned or unmanned conditions. PR2 is a predictive software because it is based on real-time simulation algorithms that, at each change of state of the production system: a) recalculates the new production scenario using the available resources (parts, part programs and tools); and b) anticipates the future needs of resources so they can always be provided on time without disrupting operations.

Main benefits:

- Time reduction for production change,
- Optimization of tool usage: minimizing the number of duplicate tools and maximizing tool magazine space utilization,

- Continuous real time monitoring of remaining unmanned system autonomy
- In case of failure of active routing, automatic activation of the next one

Pama was the single source provider for all elements of the system, engineering, application, tooling, fixturing, software, automation

With the need of machining new p/n, besides adding pallets, the client has decided to upgrade to our PR2 Suite, which will provide additional integration and control at plant level rather than locally at the FMC level.



PAMA S.p.A. was established in 1926 to design and market milling machines. The wide range of machinery manufactured today includes floor, table and multifunction type boring and milling machines, vertical gantry, bridge mill and machining centers.

PAMA designs, manufactures and assembles all of its machines, accessories, ancillary equipment and software, therefore being in the unique position of not only being a single source for equipment, but also providing the flexibility to modify any of the components to best fit our client's manufacturing requirements.

PAMA application engineering group has been providing innovative processes and solutions for decades, working together with our clients and successfully improving throughput and quality of the parts being processed.

PAMA, Inc., created in 2003 to provide more efficient support to a rapidly growing North American market, is continuing to focus on expanding its client base. The corporate mission: to become the industry benchmark for quality products, service and performance.

PAMA's commitment to the North American market, will continue as we strive to always provide leading edge technology, high quality equipment, quick and efficient service to our current and future customers.

Thank You!



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Closing Remarks





Ken Christensen
Provost
Illinois Tech



Kevin Cassal
Dean, Armour College
of Engineering
Illinois Tech

Italian Machine Tool Technology Award Winners



UCIMU-SISTEMI PER PRODURRE



PURDUE
UNIVERSITY®

Drone Raffle

