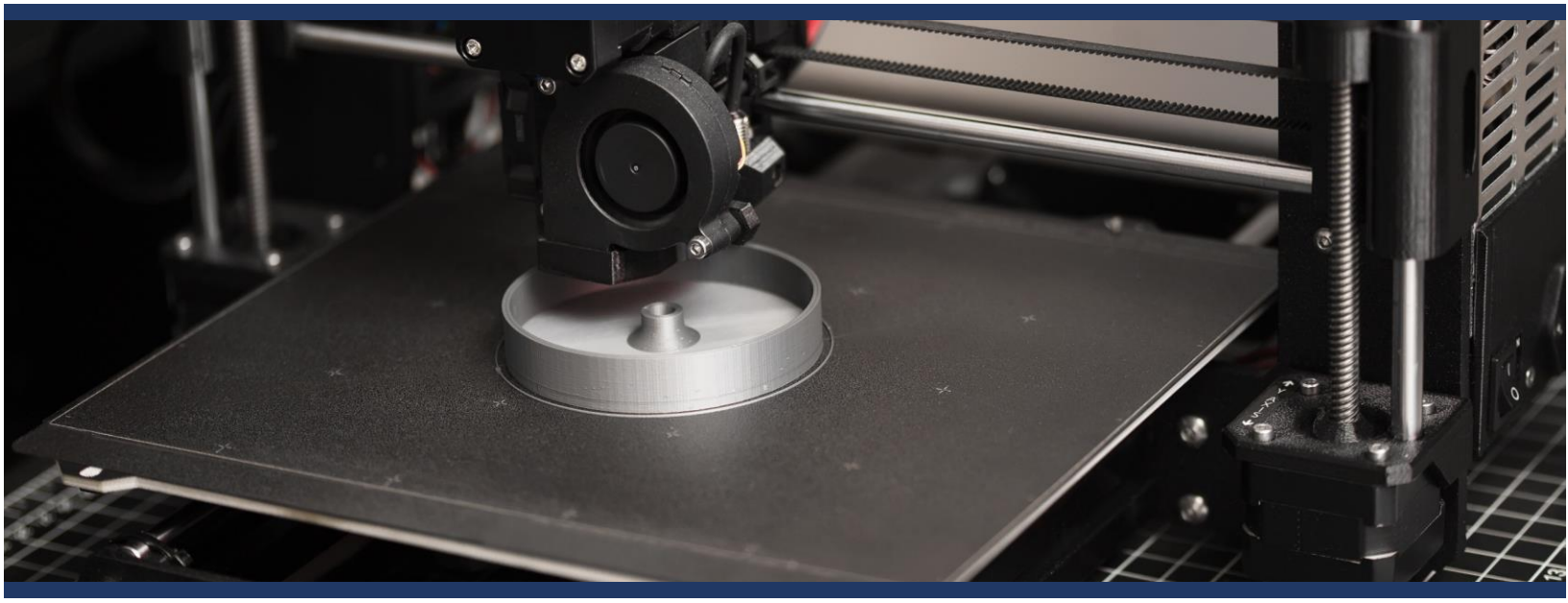
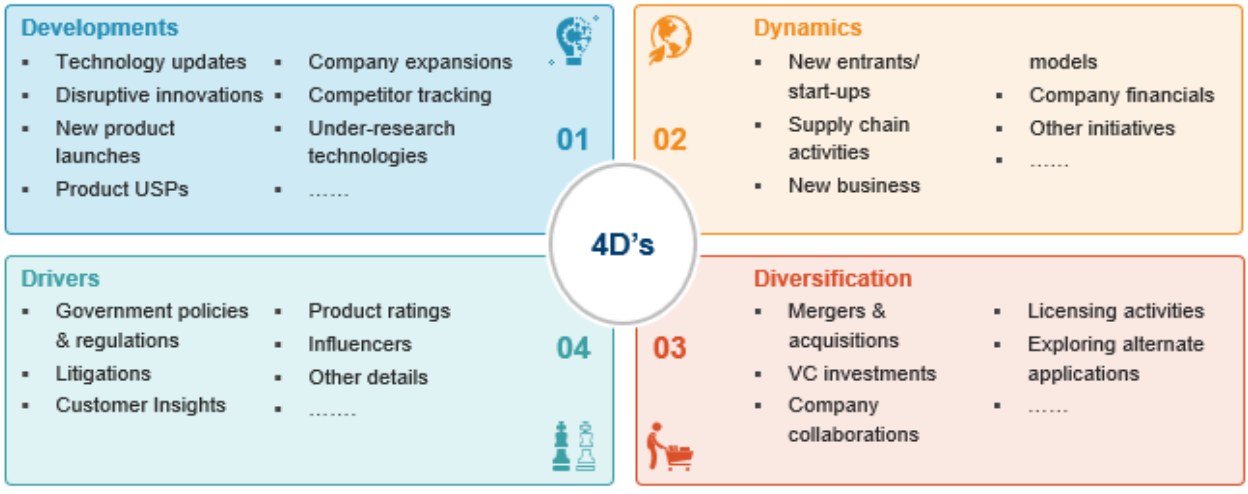
INTELLOTRACKER

3D PRINTED METAL CUTTING TOOLS

April 2023



ARANCA'S QUARTERLY SECTORIAL UPDATE ACROSS FOUR DIMENSION….



Developments

New Product Launch	KENNAMETAL	Kennametal has introduced its next generation 3D printed stator bore tool for the machining of aluminum engine housings for electric vehicles. The complex tool is capable of machining three large diameters in just one operation. *Source: MSCdirect*
Technology/ Innovations		Toyota combines Zortrax 3D printing machine's technology with making points of contact with metal surfaces in a traditional way to produce assembly jigs and tools in a cost effective manner and achieve superior durability. *Source: Zortrax*
Technology/ Innovations	MANTLE	Mantle's TrueShape™ technology combines 3D printing of its tool steel pastes with traditional CNC machining to refine the shape of printed tools and deliver accuracy, surface finish, and tool steel properties unmatched in the metal 3D printing industry. *Source: Company website*
Technology/ Innovations	Precision Cutting Tool	Document discloses a FeCrNiVAl high-entropy alloy for on-the-spot processing cutting tool of nuclear power in which a block or film of the alloy is obtained by 3D prinitng and turned into a tool by laser additive manufacturing method. *Source: Patent*
Technology/ Innovations		Document discloses an agricultural machinery soil-contacting cutter consisting of two materials, cutter is made of alloy steel and blade is a diamond composite material prepared by multi layered additive manufacturing. *Source: Patent*
Technology/ Innovations	COMAC	Document relates to an electric power tech field especially an auxiliary tool for wire cutters which is manufactured by 3D printing technique. *Source: Patent*
Technology/ Innovations		Document discloses a method for preparing a particle-reinforced high-entropy alloy composite material which is further dried and processed in a laser additive manufacturing unit to form a cutting tool. *Source: Patent*
Technology/ Innovations	Precision Cutting Tool	Document discloses a Cobalt-free and carbon-free FeCrNiCuAl high-entropy alloy cutting tool for nuclear power site sampling, in which a block or film of the alloy is obtained by 3D prinitng and turned into a tool by laser additive manufacturing method. *Source: Patent*
Technology/ Innovations		The approach uses a high fabrication freedom of laser powder bed fusion technology to additively manufacture 316L stainless steel on a WC-Co substrate, to obtain complex multi-material cutting tools. *Source: ScienceDirect*

Diversification

Merger & Acquisitions	GEFERTEC BIG	Gefertec now wholly owned by Berlin Industrial Group giving GEFERTEC the necessary freedom of action to further expand and solidify its position in the growing market for 3D metal printing *Source: Metal AM*
Merger & Acquisitions	SANDVIK PREMIER MACHINE TOOLS	Sandvik has acquired PMT to increase its presence in the medical segment offering integrated manufacturing solutions. *Source: Company website*
Company Collaboration	VOITH KENNAMETAL	Voith turned to Kennametal to develop a lightweighting cutting tool using 3D printing which is less than half the weight, reducing the maintenance and decrease machining cycle time because of the faster acceleration of the tool. *Source: Additive Manufacturing*
VC Investment	European Investment Bank	EU bank EIB provides a €500 million loan to the Sandvik Group to support R&D investments in advanced machining solutions as well as cutting-edge solutions for electrification and automation for the mining and infrastructure industries. *Source: Pallet Enterprise*

Drivers

Government Policies	NIST National Institute of Standards and Technology	NIST has established a Consortium to develop measurement solutions and standards to improve measurement confidence, establish measurement traceability, and enable comparability in the measurements to quantify the performance of metal powders. *Source: Federal Register*

SOLUTION PORTFOLIO – TECHNOLOGY RESEARCH & ADVISORY

IP Strategy	Technology Intelligence	Growth & Strategy
How best can we proactively manage and monetise our technical knowhow / intellectual property?	How best can we keep abreast of technology trends, competitor activity and headwinds / tailwinds in our domain?	Which technologies do we invest in? How do we ensure quick wins? Speed to market?
▪ IP Portfolio Analysis	▪ Competitor Benchmarking	▪ R&D Strategy Roadmaps
▪ IP Monetisation	▪ Tech / IP Landscapes	▪ Technology Scouting
▪ IP Valuation	▪ Technology Watch	▪ Open Innovation
▪ Prior Art Searches	▪ Market Analysis / Trends	▪ Product Development

GROWTH ADVISORY

INVESTMENT RESEARCH & ANALYTICS

VALUATION & FINANCIAL ADVISORY

TECHNOLOGY RESEARCH & ADVISORY

PROCUREMENT & SUPPLY CHAIN INTELLIGENCE